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**OPTIQ MDG CLIENT SPECIFICATION**

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## PREFACE

### About This Document

The purpose of this document is to describe all the specifications of Optiq® Market Data Gateway.

### Document Audience

This document must be read by Euronext's clients developing a Market Data Feed Handler.

### Scope

The scope of this document is listed below<sup>1</sup> (✓ In scope, ✗ Out of scope):

| Optiq Segment  | Segment Value | In/Out of Scope | SBE Versions* |
|--|---------------|-----------------|---------------|
| Euronext Cash Market                                     |               |                 |               |
| Equities <span>EQ</span>                                 | 1             | ✓               | 116 - 302     |
| Funds <span>FND</span>                                   | 2             | ✓               | 116 - 302     |
| Fixed Income <span>FXI</span>                            | 3             | ✓               | 116 - 302     |
| Warrants and Certificates <span>SP</span>                | 4             | ✓               | 116 - 302     |
| Block <span>BLK</span>                                   | 14            | ✓               | 110 - 302     |
| Irish Bonds and Funds <span>IBF</span>                   | 16            | ✓               | 300 / 302     |
| Euronext Derivatives Market                              |               |                 |               |
| Commodity Derivatives <span>CMO</span>                   | 8             | ✓               | 216 - 302     |
| Index Derivatives <span>IDD</span>                       | 11            | ✓               | 216 - 302     |
| Equity Derivatives <span>EQD</span>                      | 12            | ✓               | 216 - 302     |
| Euronext Indices   |               |                 |               |
| Indices <span>Indices</span>                             | 9             | ✓               | 109 - 302     |
| Euronext Approved Publication Arrangement (APA) Facility |               |                 |               |
| Trade Reporting and Publication <span>TRP</span>         | 10            | ✓               | 5 - 302       |

<sup>1</sup> How to read the "SBE versions" information provided in the table:

- When two version numbers are provided with "-" between them, it means that any version between those two versions can be used to access the Optiq segment (SBE forward/backward compatibility).
- When two version numbers are provided with "/" between them, it means that members must use the last version to access the Optiq segment because the SBE compatibility is broken between them.
- When only one version is provided, it means that this version only can be used to access the Optiq segment.

| Optiq Segment                              | Segment Value | In/Out of Scope | SBE Versions* |
|--|---------------|-----------------|---------------|
| Other Markets                              |               |                 |               |
| Luxembourg Stock Exchange <span>BDL</span> | 5             | ✓               | 116 - 302     |

## Associated Documents

The following list of the associated documents, which either should be read in conjunction with this document or which provide other relevant information for the user:

- Euronext Markets – Optiq OEG Client Specifications – SBE Interface
- Euronext Cash Markets – Optiq Kinematics Specifications
- Euronext Derivatives Markets – Optiq Kinematics Specifications
- Euronext Markets – Optiq & TCS Error List file (.csv)
- Euronext Markets – Optiq MDG Client Specifications
- Euronext Markets – Optiq File Specification
- Euronext Markets – Optiq OEG Connectivity Specifications

Clients are additionally advised to also refer to the Euronext Rules and Regulations documents for more details.

For the latest version of documentation please visit the [IT Documentation page](#).

## Support

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## What's New?

The following lists only all recent modifications made to this version.

For the Document History table see the [Document History in appendix](#).

| Version               | Change Description  |
|-----------------------|---|
| <a href="#">4.2.3</a> | <p><u>The following changes have been made to this version of the document:</u></p> <ul style="list-style-type: none"> <li>■ <u>In Book Retransmission, adding of Long Order Update message (for Fixed Income segment)</u></li> <li>■ <u>In Standing Data (1007), field Anonymous is moved into EMM Pattern section as described in SBE Template</u></li> <li>■ <u>In Market Status Change (1005): Clarification of the message sending rules and of the use of session for Structured Products.</u></li> <li>■ <u>In Full Trade Information (1004), SettlementDate and RepoSettlementDate are optional</u></li> <li>■ <u>In Field Description:</u><br/><u>MarketDataUpdateType: adding back values to reflect SBE Template even if it is not used (added in grey)</u></li> </ul> |

| Version | Change Description  |
|---------|---|
|         | <u>Session: explain the meaning of the different value</u><br><u>MIC: adding of 'XOBD'</u><br>■ <u>Adding of Appendix Trade type Associated with EMM and Appendix MMT Flags Rules</u> |

## CONTENTS

|           |  |                    |
|-----------|--|--------------------|
| <b>1.</b> | <b>EURONEXT OPTIQ MARKET DATA GATEWAY SOLUTION .....</b> | <b><u>87</u></b>   |
| 1.1       | Introduction .....                                       | <u>87</u>          |
| 1.2       | MiFID II .....   | <u>87</u>          |
| 1.3       | Glossary .....   | <u>87</u>          |
| 1.4       | Access to Market Data .....                              | <u>98</u>          |
| 1.5       | Messaging Protocol and Publishing Model.....             | <u>109</u>         |
| <b>2.</b> | <b>MARKET DATA CHANNELS .....</b>                        | <b><u>1110</u></b> |
| 2.1       | Type of Market Data Channels .....                       | <u>1110</u>        |
| 2.1.1     | Market Data Channels .....                               | <u>1110</u>        |
| 2.1.2     | Client Connectivity .....                                | <u>1312</u>        |
| 2.1.3     | Market Data Messages per Channel .....                   | <u>1312</u>        |
| <b>3.</b> | <b>MARKET DATA GATEWAY FEATURES .....</b>                | <b><u>2928</u></b> |
| 3.1       | Start and End of Day .....                               | <u>2928</u>        |
| 3.2       | Book Retransmission .....                                | <u>2928</u>        |
| 3.2.1     | Clear the Book .....                                     | <u>2928</u>        |
| 3.2.2     | Morning Book Retransmission .....                        | <u>3029</u>        |
| 3.2.3     | Intraday Book Retransmission.....                        | <u>3130</u>        |
| 3.3       | Snapshots.....   | <u>3130</u>        |
| 3.4       | Compression .....  | <u>3938</u>        |
| 3.5       | Shaping .....  | <u>3938</u>        |
| 3.6       | Gap Detection and Line Arbitration .....                 | <u>4241</u>        |
| 3.7       | System Failures .....                                    | <u>4241</u>        |
| 3.8       | Trade Retransmission .....                               | <u>4342</u>        |
| 3.9       | Health Status Mechanism .....                            | <u>4342</u>        |
| 3.10      | Production Timetable .....                               | <u>4443</u>        |
| 3.10.1    | Euronext Cash and Derivatives Markets.....               | <u>4443</u>        |
| 3.10.2    | Euronext APA and Euronext Synapse Facilities .....       | <u>4443</u>        |
| 3.11      | Multicast Group Unjoining.....                           | <u>4544</u>        |
| <b>4.</b> | <b>MESSAGING PROTOCOL.....</b>                           | <b><u>4645</u></b> |
| 4.1       | Overview.....  | <u>4645</u>        |
| 4.2       | Market Data Packet Header .....                          | <u>4746</u>        |
| 4.3       | SBE Message Structure .....                              | <u>4746</u>        |
| 4.4       | SBE Backward and Forward Compatibility .....             | <u>4948</u>        |
| <b>5.</b> | <b>MESSAGE OVERVIEW.....</b>                             | <b><u>5150</u></b> |
| 5.1       | Technical Format Fields .....                            | <u>5150</u>        |

|             |  |                    |
|-------------|--|--------------------|
| <b>5.2</b>  | <b>Date and Time Conventions .....</b>   | <b><u>5251</u></b> |
| <b>5.3</b>  | <b>Sequence Numbers.....</b>   | <b><u>5352</u></b> |
| 5.3.1       | The Packet Sequence Number (PSN).....  | <u>5352</u>        |
| 5.3.2       | The Market Data Sequence Number .....  | <u>5352</u>        |
| <b>5.4</b>  | <b>Price, Quantity, Ratio and Amount Formats.....</b>  | <b><u>5352</u></b> |
| <b>5.5</b>  | <b>Trading Day Schedule: Timetable Mechanism.....</b>  | <b><u>5453</u></b> |
| 5.5.1       | Trading Cycle .....  | <u>5453</u>        |
| 5.5.2       | Broadcast Information.....   | <u>5554</u>        |
| <b>5.6</b>  | <b>Instrument Ticks.....</b>   | <b><u>5554</u></b> |
| <b>5.7</b>  | <b>Instrument Identifiers.....</b>   | <b><u>5655</u></b> |
| 5.7.1       | Symbol Index .....   | <u>5655</u>        |
| 5.7.2       | Automated Market Reference (AMR) .....   | <u>5655</u>        |
| 5.7.3       | MiFID Instrument ID .....  | <u>5756</u>        |
| <b>6.</b>   | <b>HOW TO .....</b>  | <b><u>5857</u></b> |
| <b>6.1</b>  | <b>... Process Cancellations .....</b>   | <b><u>5857</u></b> |
| 6.1.1       | Trade Cancellation.....  | <u>5857</u>        |
| 6.1.2       | Quote Cancellation .....   | <u>5857</u>        |
| 6.1.3       | Order Cancellation with Order Update message .....   | <u>5857</u>        |
| 6.1.4       | Limit Cancellation with Market Update message.....   | <u>5857</u>        |
| <b>6.2</b>  | <b>...Process Modifications .....</b>  | <b><u>5857</u></b> |
| 6.2.1       | Trade Modification .....   | <u>5958</u>        |
| 6.2.2       | Quote Modification .....   | <u>5958</u>        |
| <b>6.3</b>  | <b>... Determine the message type .....</b>  | <b><u>5958</u></b> |
| <b>6.4</b>  | <b>... Determine the number of repeating sections in a message.....</b>                                | <b><u>5958</u></b> |
| <b>6.5</b>  | <b>... Determine the length of a packet .....</b>  | <b><u>5958</u></b> |
| <b>6.6</b>  | <b>... Determine the length of a message .....</b>   | <b><u>5958</u></b> |
| <b>6.7</b>  | <b>... Manage a new version of a message if the client has not implemented the new fields .....</b>    | <b><u>5958</u></b> |
| <b>6.8</b>  | <b>... Look for a trade.....</b>   | <b><u>6059</u></b> |
| <b>6.9</b>  | <b>... Look for an order .....</b>   | <b><u>6059</u></b> |
| <b>6.10</b> | <b>... Resynchronize with snapshot after packet loss .....</b>   | <b><u>6059</u></b> |
| <b>6.11</b> | <b>... Manage BBO.....</b>   | <b><u>6059</u></b> |
| <b>6.12</b> | <b>... Derive Implied Prices Volume from the Aggregated BBO .....</b>                                  | <b><u>6059</u></b> |
| <b>6.13</b> | <b>... Build the book.....</b>   | <b><u>6059</u></b> |
| <b>6.14</b> | <b>... Determine a Closing Price.....</b>  | <b><u>6160</u></b> |
| <b>6.15</b> | <b>... Determine the Option Underlying Expiry .....</b>  | <b><u>6160</u></b> |
| <b>6.16</b> | <b>... Determine Round Lot With Quantity Notation .....</b>  | <b><u>6160</u></b> |
| <b>6.17</b> | <b>...Use an Execution Summary Message .....</b>   | <b><u>6261</u></b> |
| <b>6.18</b> | <b>...Determine the Statistics On and Off-Book for an instruments (COB, Wholesales &amp; RFC).....</b> | <b><u>6261</u></b> |
| <b>6.19</b> | <b>...Determine The TVTIC .....</b>  | <b><u>6362</u></b> |

|            |   |                      |
|------------|---|----------------------|
| <b>7.</b>  | <b>MESSAGES.....</b>                          | <b><u>6564</u></b>   |
| <b>7.1</b> | <b>Technical Messages .....</b>               | <b><u>6564</u></b>   |
| 7.1.1      | Start Of Day (1101) .....                     | <u>6564</u>          |
| 7.1.2      | End Of Day (1102).....                        | <u>6564</u>          |
| 7.1.3      | Health Status (1103).....                     | <u>6665</u>          |
| 7.1.4      | Technical Notification (1106) .....           | <u>6665</u>          |
| <b>7.2</b> | <b>Referential Messages.....</b>              | <b><u>6766</u></b>   |
| 7.2.1      | Timetable (1006) .....                        | <u>6766</u>          |
| 7.2.2      | Standing Data (1007) .....                    | <u>6867</u>          |
| 7.2.3      | Contract Standing Data (1013) .....           | <u>7473</u>          |
| 7.2.4      | Outright Standing Data (1014) .....           | <u>7978</u>          |
| 7.2.5      | Strategy Standing Data (1012).....            | <u>8079</u>          |
| 7.2.6      | APA Standing Data (1027) .....                | <u>8180</u>          |
| 7.2.7      | BF Instrument Reference (1201) .....          | <u>8382</u>          |
| <b>7.3</b> | <b>Application Messages .....</b>             | <b><u>8584</u></b>   |
| 7.3.1      | Market Update (1001) .....                    | <u>8584</u>          |
| 7.3.2      | Order Update (1002) .....                     | <u>9796</u>          |
| 7.3.3      | Long Order Update (1015).....                 | <u>9998</u>          |
| 7.3.4      | Price Update (1003).....                      | <u>102101</u>        |
| 7.3.5      | Full Trade Information (1004) .....           | <u>104103</u>        |
| 7.3.6      | APA Quotes (1026) .....                       | <u>109108</u>        |
| 7.3.7      | APA Full Trade Information (1028).....        | <u>110109</u>        |
| 7.3.8      | BF Trade (1202) .....                         | <u>114113</u>        |
| 7.3.9      | BF NAV (1203) .....                           | <u>115114</u>        |
| 7.3.10     | LIS Package Structure (1016) .....            | <u>116115</u>        |
| 7.3.11     | Market Status Change (1005).....              | <u>117116</u>        |
| 7.3.12     | BF Instrument Suspension (1204) .....         | <u>122121</u>        |
| 7.3.13     | Statistics (1009) .....                       | <u>123122</u>        |
| 7.3.14     | Real Time Index (1008).....                   | <u>127126</u>        |
| 7.3.15     | Index Summary (1011) .....                    | <u>131130</u>        |
| <b>7.4</b> | <b>Snapshot messages.....</b>                 | <b><u>132131</u></b> |
| 7.4.1      | Technical messages in Snapshot channels ..... | <u>133132</u>        |
| 7.4.2      | Snapshot Sequence behaviour .....             | <u>134133</u>        |
| 7.4.3      | Start Of Snapshot (2101) .....                | <u>134133</u>        |
| 7.4.4      | End Of Snapshot (2102).....                   | <u>134133</u>        |
| <b>8.</b>  | <b>FIELD DESCRIPTION.....</b>                 | <b><u>136135</u></b> |

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## 1. EURONEXT OPTIQ MARKET DATA GATEWAY SOLUTION

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### 1.1 INTRODUCTION

The Euronext Optiq Market Data Gateway (MDG) provides high-speed, real-time market data for Euronext markets.

The data feed has the following high-level features:

- **Multicast technology**
- **Ultra-low latency**
- **MiFID II compliance**
- **Cash & Derivatives message harmonization**
- **Optimized feed for each type of connectivity**
- **High availability**
- **Reliable network solution**
- **High level of scalability**
- **Access to a wide range of European market data sets**

This document provides detailed information about the features of the feed to support the development of client applications.

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### 1.2 MIFID II

Markets in Financial Instruments Directive 2 (MiFID II) is a European Commission set of new regulations to reduce systemic risk and guarantee more transparency for clients.

Euronext Optiq Market Data Gateway is MiFID II compliant by offering:

- **Market Data channel disaggregation**

Each multicast channel published by MDG is disaggregated as follows: asset class, currency and country. Additionally, there are dedicated channels for pre-trade and post-trade.

- **Higher Transparency**

The Full Trade Information message (1004) delivered by Optiq MDG will carry MMT Trade flags and other fields as required by MiFID II.

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### 1.3 GLOSSARY

#### **Euronext Approved Publication Arrangement (APA):**

It is a MiFID II Regulatory trade publication facility allowing clients to receive required trade reporting data through a Market Data Feed Handler for APA publication.

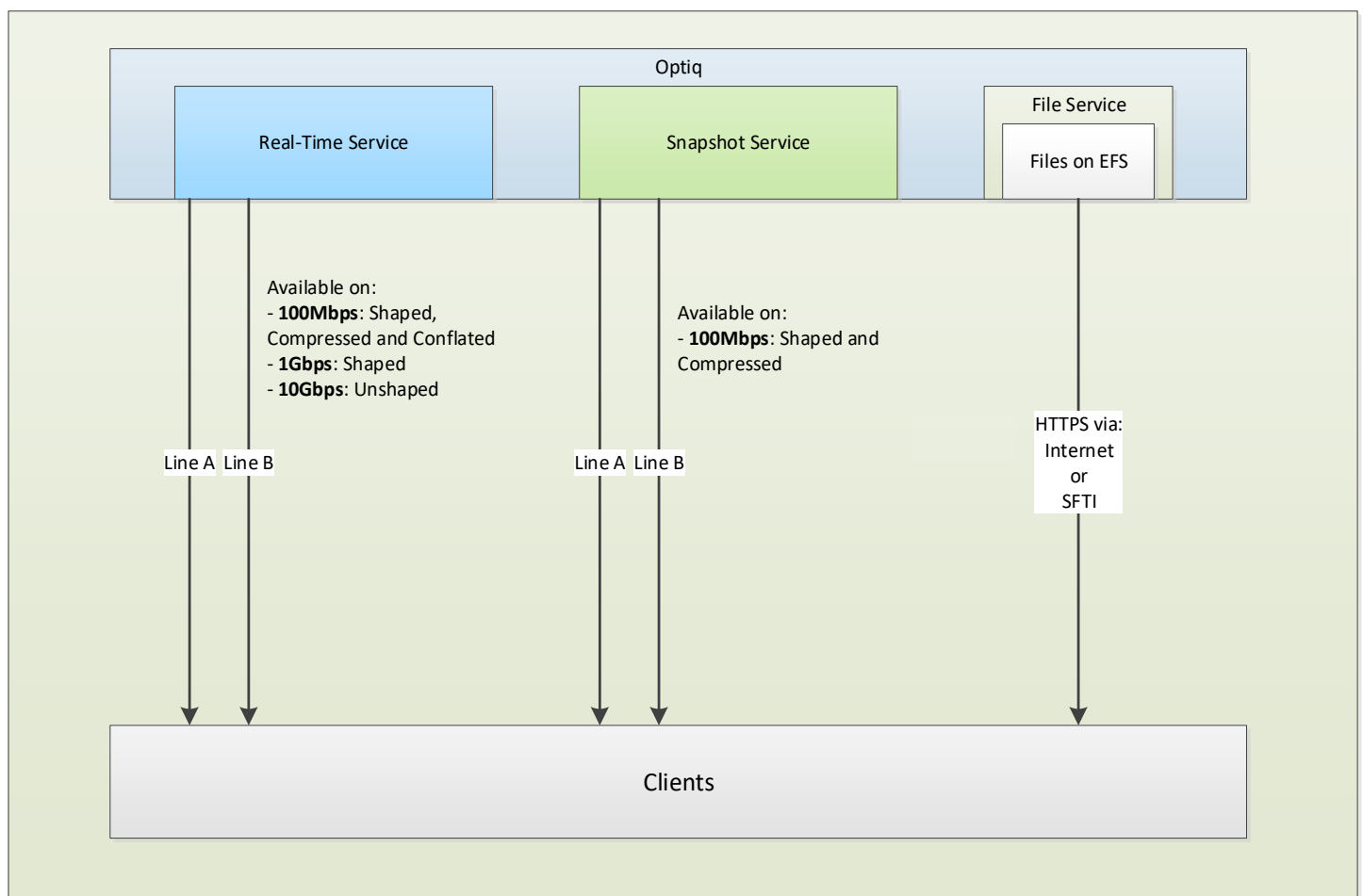


## Euronext Synapse:

It is a Multilateral Trading Facility (MTF) that connects pools of liquidity and market participants within a new anonymous inter-dealer centralised market place. It links banks and their customers together for liquidity, execution and reporting services with the appropriate level of protection for fixed income markets. When using this facility clients are subscribed to Euronext Synapse Market Data.

## 1.4 ACCESS TO MARKET DATA

The following diagram presents the Optiq MDG services:



Clients access Market Data as follows:

- **Real-Time service** Clients connect to multicast UDP/IP channels to receive Market Data messages in real-time
- **Snapshot service** Clients connect to multicast UDP/IP channels to receive unsolicited Snapshots sent periodically on dedicated multicast channels to recover from packet loss or for intraday starts.
- **File service** Clients connect to a file server
  - Every morning to download XML files containing static and daily data (Standing Data, Timetables, Tick Tables, XML SBE template, Pattern IDs and Feed Configurations).
  - Approved Publication Arrangement (APA) MDG trade publication tool is not concerned by the File service.

Market Data are available in the following modes:

- **Unshaped** All messages are sent as fast as possible (service only available on 10 Gbps lines)
- **Shaped** Allow optimized emission of Market Data with low latency, optimized bandwidth use and packet loss prevention (service available on the 100 Mbps and 1 Gbps lines)
- **Compressed** Messages are compressed in order to reduce the use of bandwidth (available on 100 Mbps lines)

*Other methods could be available in the future upon performance analysis study.*

Two recovery mechanisms are available:

- **Line arbitration** Identical packets are sent on two lines (line A and line B). Clients are strongly invited to use this first recovery mechanism in case of message loss
- **Snapshot service** If messages are lost on both lines or if a client connects intra-day

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## 1.5 MESSAGING PROTOCOL AND PUBLISHING MODEL

Real-time and Snapshot Market Data are message-based over the UDP/IP protocol with SBE (Simple Binary Encoding). This binary encoding is optimized for low latency encoding and decoding while keeping bandwidth utilization reasonably small and is used across all asset classes.

The process of subscribing to a multicast group ID is also known as “joining” a multicast group. Upon session termination, the member’s host system should issue an “unjoin” message. This will terminate delivery of data to that local host network. If a client application terminates without issuing an “unjoin” message, the network will eventually issue a “timeout” for the multicast group subscription that will automatically terminate delivery of the multicast packets to the local host network. The “join” and “unjoin” processes are standard functions. No specific instructions are provided here, as they are specific to the user’s operating system and programming language.

Using the push-based publishing model, data will be published as soon as it is available.

## 2. MARKET DATA CHANNELS

### 2.1 TYPE OF MARKET DATA CHANNELS

#### 2.1.1 Market Data Channels

Euronext offers real-time and snapshot Market Data through different channels that clients can subscribe to. Each channel is linked to a unique IP multicast group address and a unique port.

Channels are split according to the following criteria:

- **Asset Class** MiFID II requirement
- **Country of issue** MiFID II requirement
- **Currency** MiFID II requirement
- **Real-time or Snapshot** Real-time and snapshot messages are sent through different channels
- **Types of data:**
  - Full Order Book Market Update pack (FBMU) provides Market by Limit (full price limit depth) and BBO using the Market Update message.
  - Full Order Book Order Update pack (FBOU) provides Market by Order (full order book depth) using the Order Update message and BBO with Market Update.
  - Best Bid and Offer pack (BBBO) will only provide the best limits when they are updated.
  - Reference Data and Full Trade Information pack (REFT) provides all instrument characteristics, scheduled phases, market administration messages and MiFID II compliant trade messages. Index messages are included in this channel only for Luxembourg Stock Exchange (LuxSE).
  - Reference Data and Index Package pack (REFI) provides all instrument characteristics, scheduled phases, market administration messages and Index messages.
  - Reference Data and Trade & NAV Information and Instrument Suspension pack (IBFR) provides Non Traded Bonds and Funds characteristics, Trade, NAV and instrument State Information.
  - APA Trade Reporting and Referential pack (APRT) provides all instrument characteristics, scheduled phases, market administration messages and MiFID II compliant trade messages. It also include trade from Euronext Synapse.
  - APA Systematic Internalized Quotes and Referential pack (APSI) provides all instrument characteristics and quotes.
- **Shaping** Channels are either unshaped, shaped to 1 Gbps or shaped to 100 Mbps.
- **Scalability** For performance reasons, a feed can be split into several channels. It is also possible for an instrument to move from one channel to another, although intraday changes will not occur. Such changes would be communicated to clients with advance notice.

The unshaped channels (10 Gbits) are only available for the Full Order Book Market update channels and for the following Asset Classes:

- Equities France
- Equities Netherlands
- ETF's
- Index Futures France
- Index Futures Netherlands

- Index Options France
- Index Options Netherlands

Note: On-Exchange Off-Book (OEOB) covers multiple types of activity, that are identified in the EMM field. References to OEOB below comprise the following EMMs:

- For the Cash markets: 5 = Cash On Exchange Off book
- For the Derivatives markets: 4 = Derivative Wholesales and 7 = Derivative On Exchange Off book

The mentioned channels are available for COB and On-Exchange Off-Book (OEOB). These are described by Asset Classes and organized in the table below by MiFID II disaggregation of Asset Class + Currency + Country:

| Asset Class   Segment   | Market Mechanism               | Currency | Country Split                                  | MDG Set of Channels ID |
|-------------------------|--------------------------------|----------|--|------------------------|
| Equities                | COB & OEOB                     | All      | Netherlands                                    | 6                      |
|                         |                                |          | France   | 5                      |
|                         |                                |          | Belgium  | 7                      |
|                         |                                |          | Portugal                                       | 8                      |
|                         |                                |          | Ireland  | 9                      |
|                         |                                |          | Norway   | 10                     |
|                         | Best of Book (BoB)             | All      | All  | 11                     |
|                         | Block                          | All      | All  | 33                     |
| Funds                   | COB & OEOB                     | All      | All  | 1                      |
|                         | ETFs Access                    | All      | All  | 32                     |
|                         | Best of Book (BoB)             | All      | All  | 31                     |
| Fixed Income            | COB & OEOB                     | All      | All  | 2                      |
|                         |                                |          | Norway   | 12                     |
| Warrants & Certificates | COB & OEOB                     | All      | All  | 4                      |
| Indices                 | N/A                            | All      | Netherlands, France, Belgium, Portugal, Norway | 13                     |
|                         |                                |          | Ireland  | 15                     |
| iNAVs                   | N/A                            | All      | Netherlands, France, Belgium, Portugal         | 14                     |
| Commodity Derivatives   | COB & OEOB                     | All      | All  | 16                     |
| Equity Derivatives      | COB & OEOB                     | All      | Netherlands                                    | 21                     |
|                         |                                |          | France   | 20                     |
|                         |                                |          | Belgium, Portugal, Norway                      | 22                     |
| Index Derivatives       | Options – COB & OEOB           | All      | Netherlands                                    | 24                     |
|                         |                                |          | France   | 23                     |
|                         | Options & Futures – COB & OEOB |          | Belgium, Portugal, Norway                      | 25                     |
|                         |                                |          | Netherlands                                    | 27                     |

|                                 |                      |     |        |    |
|---------------------------------|----------------------|-----|--------|----|
|                                 | Futures – COB & OEOB |     | France | 26 |
| Irish Bonds and Funds           | N/A                  | All | All    | 35 |
| Trade Reporting and Publication | N/A                  | All | All    | 30 |
| Luxembourg Stock Exchange       | COB & OEOB           | All | All    | 3  |

### Example of Market Data Channels:

- Equities – France – All currency – Unshaped – Real-time – FBMU

## 2.1.2 Client Connectivity

The subscription to a set of channels depends on the type of client connectivity. For example, if a client has a 100 Mbps line, then he cannot subscribe to the unshaped channels which are only offered on 10 Gbps lines nor subscribe to the shaped BBO channels, which are only available on 1 Gbps lines. 1 Gbps clients cannot subscribe to the unshaped data, which is only available on 10 Gbps lines. Conversely, a client with a 10 Gbps line can subscribe to all available channels like the Full Order Book channels (either unshaped (10 Gbps) or shaped (1 Gbps)) as well as to the compressed and shaped channels (100 Mbps).

## 2.1.3 Market Data Messages per Channel

Optiq MDG will provide the Full Order Book (FOB) in two different ways based on instrument type:

- **Market by Order (FBOU - Full Book Order Update)** The Order Update (1002) message will be disseminated for each new order, modification or cancellation.

**Important note:** Full order book updates are only applicable on Optiq segments where the order book and its market data are provided by orders.

- **Market by Limit (FBMU – Full Book Market Update)** Price levels with aggregated volume and associated number of orders are published using the Market Update (1001) message.

**Note:** BBO is provided for both through Market Update (1001) message for each the best limits which is updated.

The following table provides an overview of all Optiq MDG messages. The aim is to provide a better understanding of the message types per channel table.

| Message Name           | Message type | Description   |
|------------------------|--------------|---|
| Start Of Day           | 1101         | First message of the day sent by the Market Data Gateway                                    |
| End Of Day             | 1102         | Last message of the day sent by the Market Data Gateway                                     |
| Health Status          | 1103         | Heartbeat message sent at regular intervals throughout the day                              |
| Technical Notification | 1106         | Informs on the start or end retransmission  |
| Timetable              | 1006         | Scheduled Trading Mode and Phase Types for each instrument                                  |
| Market Status Change   | 1005         | Indicates the change in the state of an instrument (either scheduled or manually processed) |
| Standing Data          | 1007         | Provides characteristics for all instruments on Cash  |
| Contract Standing Data | 1013         | Provides characteristics for all contracts on Derivatives                                   |
| Outright Standing Data | 1014         | Provides characteristics for all instruments on Derivatives                                 |

| Message Name               | Message type | Description   |
|----------------------------|--------------|---|
| Strategy Standing Data     | 1012         | Provides characteristics for all strategies on Derivatives                              |
| BF Instrument Reference    | 1201         | Provides characteristics for all instrument on IBF segment                              |
| Market Update              | 1001         | Provides information generated by market events, including limit updates and trades     |
| Order Update               | 1002         | Indicates new orders, modifications, cancellations or retransmissions                   |
| Long Order Update          | 1015         | Indicates new orders, modifications, cancellations or retransmissions with more details |
| Price Update               | 1003         | Provides all updated reference prices   |
| LIS Package Structure      | 1016         | Provides with the structure of an off book negotiated LIS Package                       |
| Full Trade Information     | 1004         | Contains trade information, including all MiFID II regulatory fields                    |
| BF Trade                   | 1202         | Contains trade information on IBF segment   |
| BF NAV                     | 1203         | Contains Net Asset Value information on IBF segment                                     |
| Real Time Index            | 1008         | Provides all Index-related statistics   |
| BF Instrument Suspension   | 1204         | Provides information on instrument status on IBF segment                                |
| Statistics                 | 1009         | Provides statistics on prices and volumes on an instrument                              |
| Index Summary              | 1011         | Provides index level summaries in closing phases  |
| Start Of Snapshot          | 2101         | Identifies the beginning of a snapshot sequence   |
| End Of Snapshot            | 2102         | Identifies the end of a snapshot sequence   |
| APA Standing Data          | 1027         | Provides minimal instrument characteristics to be identified                            |
| APA Full Trade Information | 1028         | Contains trade information, including all MiFID II regulatory fields                    |
| APA Quotes                 | 1026         | Provides systematic internaliser quotes   |

### 2.1.3.1 Real Time Channels for Equities, Fixed Income and Funds Central Order Book

The following table explains which message types are available for each real-time channel.

|                               | 10 Gbps<br><br>Unshaped<br><br>Only available for<br>Equities France<br>and Netherlands<br>and ETF's | 1 Gbps Shaped                      |                                     | 100 Mbps Shaped, Compressed        |                                     |  |
|-------------------------------|--|------------------------------------|-------------------------------------|------------------------------------|-------------------------------------|--|
|                               | Pre-Trade  |                                    |                                     |                                    |                                     | Post-Trade   |
|                               | Full Order Book<br>Order Update  | Full Order<br>Book Order<br>Update | Full Order<br>Book Market<br>Update | Full Order<br>Book Order<br>Update | Full Order<br>Book Market<br>Update | Reference Data <sup>1</sup><br>and Full Trade<br>Information |
| Start Of Day (1101)           | X  | X                                  | X                                   | X                                  | X                                   | X  |
| End Of Day (1102)             | X  | X                                  | X                                   | X                                  | X                                   | X  |
| Health Status (1103)          | X  | X                                  | X                                   | X                                  | X                                   | X  |
| Technical Notification (1106) | X  | X                                  | X                                   | X                                  | X                                   | X  |
| Timetable (1006)              |  |                                    |                                     |                                    |                                     | X  |
| Market Status Change (1005)   | X  | X                                  | X                                   | X                                  | X                                   |  |
| Standing Data (1007)          |  |                                    |                                     |                                    |                                     | X  |
| Contract Standing Data (1013) |  |                                    |                                     |                                    |                                     |  |

|                                 |                |                |                |                |                |                |
|---------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Outright Standing Data (1014)   |                |                |                |                |                |                |
| Strategy Standing Data (1012)   |                |                |                |                |                |                |
| BF Instrument Reference (1201)  |                |                |                |                |                |                |
| Market Update (1001)            | X <sup>2</sup> | X <sup>2</sup> | X              | X <sup>2</sup> | X              |                |
| Order Update (1002)             | X              | X              |                | X              |                |                |
| Long Order Update (1015)        | X              | X              |                | X              |                |                |
| Price Update (1003)             | X <sup>3</sup> | X <sup>3</sup> | X <sup>3</sup> | X <sup>3</sup> | X <sup>3</sup> | X <sup>4</sup> |
| LIS Package Structure (1016)    |                |                |                |                |                | X              |
| Full Trade Information (1004)   |                |                |                |                |                | X              |
| BF Trade (1202)                 |                |                |                |                |                |                |
| BF NAV (1203)                   |                |                |                |                |                |                |
| Real Time Index (1008)          |                |                |                |                |                |                |
| BF Instrument Suspension (1204) |                |                |                |                |                |                |
| Statistics (1009)               |                |                |                |                |                | X              |
| Index Summary (1011)            |                |                |                |                |                |                |

<sup>1</sup> Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

<sup>2</sup> This message will not provide: New Bid (3)/New Offer (4), Updated Bid (5) /Updated Offer (6), New Bid With Liquidity Provider (58)/New Offer With Liquidity Provider (59), Updated Bid With Liquidity Provider(60)/ Updated Offer With Liquidity Provider (61), New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17) and Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19).

<sup>3</sup> This message will only provide: Indicative Matching Price (14)

<sup>4</sup> This message will not provide: Indicative Matching Price (14)

### 2.1.3.2 Real Time Channels for Equities Best of Book

The following table explains which message types are available for each real-time channel.

|                               | 1 Gbps<br>Shaped       | 100 Mbps Shaped,<br>Compressed and Conflated |
|-------------------------------|------------------------|--|
|                               | Pre-Trade              |  |
|                               | Full Order Book<br>BoB | Full Order Book BoB                          |
| Start Of Day (1101)           | X                      | X  |
| End Of Day (1102)             | X                      | X  |
| Health Status (1103)          | X                      | X  |
| Technical Notification (1006) | X                      | X  |
| Timetable (1006)              |                        |  |
| Market Status Change (1005)   |                        |  |
| Standing Data (1007)          |                        |  |
| Contract Standing Data (1013) |                        |  |
| Outright Standing Data (1014) |                        |  |
| Strategy Standing Data (1012) |                        |  |

|                                 |                |                |
|---------------------------------|----------------|----------------|
| BF Instrument Reference (1201)  |                |                |
| Market Update (1001)            | X <sup>1</sup> | X <sup>1</sup> |
| Order Update (1002)             |                |                |
| Long Order Update (1015)        |                |                |
| Price Update (1003)             |                |                |
| LIS Package Structure (1016)    |                |                |
| Full Trade Information (1004)   |                |                |
| BF Trade (1202)                 |                |                |
| BF NAV (1203)                   |                |                |
| Real Time Index (1008)          |                |                |
| BF Instrument Suspension (1204) |                |                |
| Statistics (1009)               |                |                |
| Index Summary (1011)            |                |                |

<sup>1</sup> This message will provide only: New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17), Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19) or Clear-Book (254).

### 2.1.3.3 Real Time Channels for Equities Derivatives, Indices Derivatives, Commodities, Warrants and Certificates

The following table explains which message types are available for each real-time channel.

|                               | 10 Gbps<br>Unshaped<br>Available for<br>Equities,<br>Indices, and<br>Commodities | 1 Gbps Shaped                             |                       | 100 Mbps Shaped, Compressed and Conflated |                       |  |
|-------------------------------|--|---|-----------------------|---|-----------------------|--|
|                               |  |   |                       |   |                       |  |
|                               |  | Pre-Trade                                 |                       |   |                       | Post-Trade   |
|                               | Full Order Book<br>Market Update   | Full<br>Order<br>Book<br>Market<br>Update | Best Bid and<br>Offer | Full Order<br>Book Market<br>Update       | Best Bid and<br>Offer | Reference Data <sup>1</sup> and<br>Full Trade<br>Information |
| Start Of Day (1101)           | X  | X   | X                     | X   | X                     | X  |
| End Of Day (1102)             | X  | X   | X                     | X   | X                     | X  |
| Health Status (1103)          | X  | X   | X                     | X   | X                     | X  |
| Technical Notification (1106) | X  | X   | X                     | X   | X                     | X  |
| Timetable (1006)              |  |   |                       |   |                       | X  |
| Market Status Change (1005)   | X  | X   | X                     | X   | X                     |  |
| Standing Data (1007)          |  |   |                       |   |                       |  |
| Contract Standing Data (1013) |  |   |                       |   |                       | X  |
| Outright Standing Data (1014) |  |   |                       |   |                       | X  |
| Strategy Standing Data (1012) |  |   |                       |   |                       | X  |



|                                 |   |   |                |   |                |   |
|---------------------------------|---|---|----------------|---|----------------|---|
| BF Instrument Reference (1201)  |   |   |                |   |                |   |
| Market Update (1001)            | X | X | X <sup>2</sup> | X | X <sup>2</sup> |   |
| Order Update (1002)             |   |   |                |   |                |   |
| Long Order Update (1015)        |   |   |                |   |                |   |
| Price Update (1003)             | X | X | X              | X | X              | X |
| LIS Package Structure (1016)    |   |   |                |   |                | X |
| Full Trade Information (1004)   |   |   |                |   |                | X |
| BF Trade (1202)                 |   |   |                |   |                |   |
| BF NAV (1203)                   |   |   |                |   |                |   |
| Real Time Index (1008)          |   |   |                |   |                |   |
| BF Instrument Suspension (1204) |   |   |                |   |                |   |
| Statistics (1009)               |   |   |                |   |                | X |
| Index Summary (1011)            |   |   |                |   |                |   |

<sup>1</sup> Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

<sup>2</sup> This message will not provide: New Bid (3)/New Offer (4), Updated Bid (5) /Updated Offer (6), New Bid With Liquidity Provider (58)/New Offer With Liquidity Provider (59), Updated Bid With Liquidity Provider(60)/ Updated Offer With Liquidity Provider (61), New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17) and Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19).

#### 2.1.3.4 Real Time Channels for Indices

|                                | 100 Mbps Shaped, Compressed<br>Reference Data and Index Package |
|--------------------------------|---|
| Start Of Day (1101)            | X   |
| End Of Day (1102)              | X   |
| Health Status (1103)           | X   |
| Technical Notification (1106)  |   |
| Timetable (1006)               |   |
| Market Status Change (1005)    |   |
| Standing Data (1007)           | X   |
| Contract Standing Data (1013)  |   |
| Outright Standing Data (1014)  |   |
| Strategy Standing Data (1012)  |   |
| BF Instrument Reference (1201) |   |
| Market Update (1001)           |   |
| Order Update (1002)            |   |
| Long Order Update (1015)       |   |
| Price Update (1003)            |   |
| Full Trade Information (1004)  |   |
| BF Trade (1202)                |   |
| BF NAV (1203)                  |   |
| Real Time Index (1008)         | X   |

|                                 |   |
|---------------------------------|---|
| BF Instrument Suspension (1204) |   |
| Statistics (1009)               | X |
| Index Summary (1011)            | X |

### 2.1.3.5 Real Time Channels for Block

|                                 | 100 Mbps Shaped, Compressed<br>Reference Data <sup>1</sup> , Full Trade Information and Market Status Change |
|---------------------------------|--|
| Start Of Day (1101)             | X  |
| End Of Day (1102)               | X  |
| Health Status (1103)            | X  |
| Technical Notification (1106)   | X  |
| Timetable (1006)                | X  |
| Market Status Change (1005)     | X  |
| Standing Data (1007)            | X  |
| Contract Standing Data (1013)   |  |
| Outright Standing Data (1014)   |  |
| Strategy Standing Data (1012)   |  |
| BF Instrument Reference (1201)  |  |
| Market Update (1001)            |  |
| Order Update (1002)             |  |
| Long Order Update (1015)        |  |
| Price Update (1003)             |  |
| Full Trade Information (1004)   | X  |
| BF Trade (1202)                 |  |
| BF NAV (1203)                   |  |
| LIS Package Structure (1016)    |  |
| Real Time Index (1008)          |  |
| BF Instrument Suspension (1204) |  |
| Statistics (1009)               |  |
| Index Summary (1011)            |  |

<sup>1</sup> Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

### 2.1.3.6 Real Time Channels for IBF

|                               | 100 Mbps Shaped, Compressed<br>Reference Data <sup>1</sup> , Trade & NAV Information and Instrument Suspension |
|-------------------------------|--|
| Start Of Day (1101)           | X  |
| End Of Day (1102)             | X  |
| Health Status (1103)          | X  |
| Technical Notification (1106) | X  |
| Timetable (1006)              |  |
| Market Status Change (1005)   |  |

|                                 |   |
|---------------------------------|---|
| Standing Data (1007)            |   |
| Contract Standing Data (1013)   |   |
| Outright Standing Data (1014)   |   |
| Strategy Standing Data (1012)   |   |
| BF Instrument Reference (1202)  | X |
| Market Update (1001)            |   |
| Order Update (1002)             |   |
| Long Order Update (1015)        |   |
| Price Update (1003)             |   |
| Full Trade Information (1004)   |   |
| BF Trade (1202)                 | X |
| BF NAV (1203)                   | X |
| LIS Package Structure (1016)    |   |
| Real Time Index (1008)          |   |
| BF Instrument Suspension (1204) | X |
| Statistics (1009)               |   |
| Index Summary (1011)            |   |

<sup>1</sup> Reference Data represents all Irish bonds, ETFs and funds characteristics.

### 2.1.3.7 Real Time Channels for APA

|                                   | Shaped and Compressed   |   |
|-----------------------------------|-------------------------|---|
|                                   | Pre-Trade               | Post-Trade                                  |
|                                   | StandingData and Quotes | StandingData and APA Full Trade Information |
| Start Of Day (1101)               | X                       | X   |
| End Of Day (1102)                 | X                       | X   |
| Health Status (1103)              | X                       | X   |
| APA Standing Data (1027)          | X                       | X   |
| APA Full Trade Information (1028) |                         | X   |
| APA Quotes (1026)                 | X                       |   |

### 2.1.3.8 Real Time Channels for Cash LuxSE

|                     | 1 Gbps Shaped                |                               | 100 Mbps Shaped, Compressed  |                               |  |
|---------------------|------------------------------|-------------------------------|------------------------------|-------------------------------|--|
|                     | Pre-Trade                    |                               |                              |                               | Post-Trade   |
|                     | Full Order Book Order Update | Full Order Book Market Update | Full Order Book Order Update | Full Order Book Market Update | Reference Data <sup>1</sup> and Full Trade Information |
| Start Of Day (1101) | X                            | X                             | X                            | X                             | X  |

|                               |                |                |                |                |                |
|-------------------------------|----------------|----------------|----------------|----------------|----------------|
| End Of Day (1102)             | X              | X              | X              | X              | X              |
| Health Status (1103)          | X              | X              | X              | X              | X              |
| Technical Notification (1106) | X              | X              | X              | X              | X              |
| Timetable (1006)              |                |                |                |                | X              |
| Market Status Change (1005)   | X              | X              | X              | X              |                |
| Standing Data (1007)          |                |                |                |                | X              |
| Market Update (1001)          | X <sup>2</sup> | X              | X <sup>2</sup> | X              |                |
| Order Update (1002)           | X              |                | X              |                |                |
| Long Order Update (1015)      | X              |                | X              |                |                |
| Price Update (1003)           | X <sup>3</sup> | X <sup>3</sup> | X <sup>3</sup> | X <sup>3</sup> | X <sup>4</sup> |
| Full Trade Information (1004) |                |                |                |                | X              |
| Real Time Index (1008)        |                |                |                |                | X              |
| Statistics (1009)             |                |                |                |                | X              |
| Index Summary (1011)          |                |                |                |                | X              |

<sup>1</sup> Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

<sup>2</sup> This message will not provide: New Bid (3)/New Offer (4), Updated Bid (5) /Updated Offer (6), New Bid With Liquidity Provider (58)/New Offer With Liquidity Provider (59), Updated Bid With Liquidity Provider(60)/ Updated Offer With Liquidity Provider (61), New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17) and Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19).

<sup>3</sup> This message will only provide: Indicative Matching Price (14)

<sup>4</sup> This message will **not** provide: Indicative Matching Price (14)

### 2.1.3.9 Snapshot Channels for Equities, Fixed Income and Funds Central Order Book

|                                | Compressed and Shaped        |                               |  |
|--------------------------------|------------------------------|-------------------------------|--|
|                                | 100 Mbps                     |                               |  |
|                                | Full Order Book Order Update | Full Order Book Market Update | Reference Data <sup>1</sup> and Full Trade Information |
| Start Of Day (1101)            | X                            | X                             | X  |
| End Of Day (1102)              | X                            | X                             | X  |
| Health Status (1103)           | X                            | X                             | X  |
| Start Of Snapshot (2101)       | X                            | X                             | X  |
| End Of Snapshot (2102)         | X                            | X                             | X  |
| Technical Notification (1106)  |                              |                               |  |
| Timetable (1006)               |                              |                               | X  |
| Market Status Change (1005)    | X                            | X                             |  |
| Standing Data (1007)           |                              |                               | X  |
| Contract Standing Data (1013)  |                              |                               |  |
| Outright Standing Data (1014)  |                              |                               |  |
| Strategy Standing Data (1012)  |                              |                               |  |
| BF Instrument Reference (1201) |                              |                               |  |

|                                 |                |   |   |
|---------------------------------|----------------|---|---|
| Market Update (1001)            | X <sup>2</sup> | X |   |
| Order Update (1002)             | X              |   |   |
| Long Order Update (1015)        | X              |   |   |
| Price Update (1003)             | X              | X | X |
| LIS Package Structure (1016)    |                |   | X |
| Full Trade Information (1004)   |                |   | X |
| BF Trade (1202)                 |                |   |   |
| BF NAV (1203)                   |                |   |   |
| Real Time Index (1008)          |                |   |   |
| BF Instrument Suspension (1204) |                |   |   |
| Statistics (1009)               |                |   | X |
| Index Summary (1011)            |                |   |   |

<sup>1</sup> Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

<sup>2</sup> This message will not provide: New Bid (3)/New Offer (4), Updated Bid (5) /Updated Offer (6), New Bid With Liquidity Provider (58)/New Offer With Liquidity Provider (59), Updated Bid With Liquidity Provider(60)/ Updated Offer With Liquidity Provider (61), New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17) and Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19).

### 2.1.3.10 Snapshot Channels for Equities Best of Book

|                                 | 100 Mbps Shaped,<br>Compressed |
|---------------------------------|--------------------------------|
|                                 | Full Order Book BoB            |
| Start Of Day (1101)             | X                              |
| End Of Day (1102)               | X                              |
| Health Status (1103)            | X                              |
| Start Of Snapshot (2101)        | X                              |
| End Of Snapshot (2102)          | X                              |
| Technical Notification (1106)   |                                |
| Timetable (1006)                |                                |
| Market Status Change (1005)     |                                |
| Standing Data (1007)            |                                |
| Contract Standing Data (1013)   |                                |
| Outright Standing Data (1014)   |                                |
| Strategy Standing Data (1012)   |                                |
| BF Instrument Reference (1201)  |                                |
| Market Update (1001)            | X <sup>1</sup>                 |
| Order Update (1002)             |                                |
| Long Order Update (1015)        |                                |
| Price Update (1003)             |                                |
| LIS Package Structure (1016)    |                                |
| Full Trade Information (1004)   |                                |
| BF Trade (1202)                 |                                |
| BF NAV (1203)                   |                                |
| Real Time Index (1008)          |                                |
| BF Instrument Suspension (1204) |                                |
| Statistics (1009)               |                                |
| Index Summary (1011)            |                                |

<sup>1</sup> This message will provide only: New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17), Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19) or Clear-Book (254).

### 2.1.3.11 Snapshot Channels for Equities Derivatives, Indices Derivatives, Commodities

|                                 | Compressed and Shaped         |                    |  |
|---------------------------------|-------------------------------|--------------------|--|
|                                 | 100 Mbps                      |                    |  |
|                                 | Full Order Book Market Update | Best Bid and Offer | Reference Data <sup>1</sup> and Full Trade Information |
| Start Of Day (1101)             | X                             | X                  | X  |
| End Of Day (1102)               | X                             | X                  | X  |
| Health Status (1103)            | X                             | X                  | X  |
| Start Of Snapshot (2101)        | X                             | X                  | X  |
| End Of Snapshot (2102)          | X                             | X                  | X  |
| Technical Notification (1106)   |                               |                    |  |
| Timetable (1006)                |                               |                    | X  |
| Market Status Change (1005)     | X                             | X                  |  |
| Standing Data (1007)            |                               |                    |  |
| Contract Standing Data (1013)   |                               |                    | X  |
| Outright Standing Data (1014)   |                               |                    | X  |
| Strategy Standing Data (1012)   |                               |                    | X  |
| BF Instrument Reference (1201)  |                               |                    |  |
| Market Update (1001)            | X                             | X <sup>2</sup>     |  |
| Order Update (1002)             |                               |                    |  |
| Long Order Update (1015)        |                               |                    |  |
| Price Update (1003)             | X                             | X                  | X  |
| LIS Package Structure (1016)    |                               |                    | X  |
| Full Trade Information (1004)   |                               |                    | X  |
| BF Trade (1202)                 |                               |                    |  |
| BF NAV (1203)                   |                               |                    |  |
| Real Time Index (1008)          |                               |                    |  |
| BF Instrument Suspension (1204) |                               |                    |  |
| Statistics (1009)               |                               |                    | X  |
| Index Summary (1011)            |                               |                    |  |

<sup>1</sup> Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

<sup>2</sup> This message will not provide: New Bid (3)/New Offer (4), Updated Bid (5) /Updated Offer (6), New Bid With Liquidity Provider (58)/New Offer With Liquidity Provider (59), Updated Bid With Liquidity Provider(60)/ Updated Offer With Liquidity Provider (61), New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17) and Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19).

### 2.1.3.12 Snapshot Channels for Warrants and Certificates

|                                 | Compressed and Shaped         |                    |  |
|---------------------------------|-------------------------------|--------------------|--|
|                                 | 100 Mbps                      |                    |  |
|                                 | Full Order Book Market Update | Best Bid and Offer | Reference Data <sup>1</sup> and Full Trade Information |
| Start Of Day (1101)             | X                             | X                  | X  |
| End Of Day (1102)               | X                             | X                  | X  |
| Health Status (1103)            | X                             | X                  | X  |
| Start Of Snapshot (2101)        | X                             | X                  | X  |
| End Of Snapshot (2102)          | X                             | X                  | X  |
| Technical Notification (1106)   |                               |                    |  |
| Timetable (1006)                |                               |                    | X  |
| Market Status Change (1005)     | X                             | X                  |  |
| Standing Data (1007)            |                               |                    | X  |
| Contract Standing Data (1013)   |                               |                    |  |
| Outright Standing Data (1014)   |                               |                    |  |
| Strategy Standing Data (1012)   |                               |                    |  |
| BF Instrument Reference (1201)  |                               |                    |  |
| Market Update (1001)            | X                             | X <sup>2</sup>     |  |
| Order Update (1002)             |                               |                    |  |
| Long Order Update (1015)        |                               |                    |  |
| Price Update (1003)             | X                             | X                  | X  |
| LIS Package Structure (1016)    |                               |                    |  |
| Full Trade Information (1004)   |                               |                    | X  |
| BF Trade (1202)                 |                               |                    |  |
| BF NAV (1203)                   |                               |                    |  |
| Real Time Index (1008)          |                               |                    |  |
| BF Instrument Suspension (1204) |                               |                    |  |
| Statistics (1009)               |                               |                    | X  |
| Index Summary (1011)            |                               |                    |  |

<sup>1</sup> Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

<sup>2</sup> This message will not provide: New Bid (3)/New Offer (4), Updated Bid (5) /Updated Offer (6), New Bid With Liquidity Provider (58)/New Offer With Liquidity Provider (59), Updated Bid With Liquidity Provider(60)/ Updated Offer With Liquidity Provider (61), New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17) and Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19).



### 2.1.3.13 Snapshot Channels for Indices

|                                 | Compressed and Shaped            |
|---------------------------------|----------------------------------|
|                                 | 100 Mbps                         |
|                                 | Reference Data and Index Package |
| Start Of Day (1101)             | X                                |
| End Of Day (1102)               | X                                |
| Health Status (1103)            | X                                |
| Start Of Snapshot (2101)        | X                                |
| End Of Snapshot (2102)          | X                                |
| Technical Notification (1106)   |                                  |
| Timetable (1006)                |                                  |
| Market Status Change (1005)     |                                  |
| Standing Data (1007)            | X                                |
| Contract Standing Data (1013)   |                                  |
| Outright Standing Data (1014)   |                                  |
| Strategy Standing Data (1012)   |                                  |
| BF Instrument Reference (1201)  |                                  |
| Market Update (1001)            |                                  |
| Order Update (1002)             |                                  |
| Long Order Update (1015)        |                                  |
| Price Update (1003)             |                                  |
| Full Trade Information (1004)   |                                  |
| BF Trade (1202)                 |                                  |
| BF NAV (1203=)                  |                                  |
| LIS Package Structure (1016)    |                                  |
| Real Time Index (1008)          | X                                |
| BF Instrument Suspension (1204) |                                  |
| Statistics (1009)               | X                                |
| Index Summary (1011)            | X                                |

### 2.1.3.14 Snapshot Channels for Block

|                     | 100 Mbps Shaped, Compressed   |
|---------------------|---|
|                     |   |
|                     | Reference Data <sup>1</sup> , Full Trade Information and Market Status Change |
| Start Of Day (1101) | X   |
| End Of Day (1102)   | X   |

|                                 |   |
|---------------------------------|---|
| Health Status (1103)            | X |
| Technical Notification (1106)   | X |
| Timetable (1006)                | X |
| Market Status Change (1005)     | X |
| Standing Data (1007)            | X |
| Contract Standing Data (1013)   |   |
| Outright Standing Data (1014)   |   |
| Strategy Standing Data (1012)   |   |
| BF Instrument Reference (1201)  |   |
| Market Update (1001)            |   |
| Order Update (1002)             |   |
| Long Order Update (1015)        |   |
| Price Update (1003)             |   |
| Full Trade Information (1004)   | X |
| BF Trade (1202)                 |   |
| BF NAV (1203)                   |   |
| LIS Package Structure (1016)    |   |
| Real Time Index (1008)          |   |
| BF Instrument Suspension (1204) |   |
| Statistics (1009)               |   |
| Index Summary (1011)            |   |

<sup>1</sup> Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

### 2.1.3.15 Snapshot Channels for IBF

|                                | 100 Mbps Shaped, Compressed<br>Reference Data <sup>1</sup> , Trade & NAV Information and Instrument Suspension |
|--------------------------------|--|
| Start Of Day (1101)            | X  |
| End Of Day (1102)              | X  |
| Health Status (1103)           | X  |
| Technical Notification (1106)  | X  |
| Timetable (1006)               |  |
| Market Status Change (1005)    |  |
| Standing Data (1007)           |  |
| Contract Standing Data (1013)  |  |
| Outright Standing Data (1014)  |  |
| Strategy Standing Data (1012)  |  |
| BF Instrument Reference (1202) | X  |
| Market Update (1001)           |  |
| Order Update (1002)            |  |

|                                 |   |
|---------------------------------|---|
| Long Order Update (1015)        |   |
| Price Update (1003)             |   |
| Full Trade Information (1004)   |   |
| BF Trade (1202)                 | X |
| BF NAV (1203)                   | X |
| LIS Package Structure (1016)    |   |
| Real Time Index (1008)          |   |
| BF Instrument Suspension (1204) | X |
| Statistics (1009)               |   |
| Index Summary (1011)            |   |

<sup>1</sup> Reference Data represents Non Traded Irish bonds, ETFs and funds characteristics.

### 2.1.3.16 Snapshot Channels for APA

|                                   | Compressed and Shaped    |  |
|-----------------------------------|--------------------------|--|
|                                   | Pre-Trade                | Post-Trade                                   |
|                                   | Standing Data and Quotes | Standing Data and APA Full Trade Information |
| Start Of Day (1101)               | X                        | X  |
| End Of Day (1102)                 | X                        | X  |
| Health Status (1103)              | X                        | X  |
| Start Of Snapshot (2101)          | X                        | X  |
| End Of Snapshot (2102)            | X                        | X  |
| APA Standing Data (1027)          | X                        | X  |
| APA Full Trade Information (1028) |                          | X  |
| APA Quotes (1026)                 | X                        |  |

### 2.1.3.17 Snapshot Channels for Cash LuxSE

|                               | Compressed and Shaped        |                               |  |
|-------------------------------|------------------------------|-------------------------------|--|
|                               | 100 Mbps                     |                               |  |
|                               | Full Order Book Order Update | Full Order Book Market Update | Reference Data <sup>1</sup> and Full Trade Information |
| Start Of Day (1101)           | X                            | X                             | X  |
| End Of Day (1102)             | X                            | X                             | X  |
| Health Status (1103)          | X                            | X                             | X  |
| Start Of Snapshot (2101)      | X                            | X                             | X  |
| End Of Snapshot (2102)        | X                            | X                             | X  |
| Technical Notification (1106) |                              |                               |  |
| Timetable (1006)              |                              |                               | X  |
| Market Status Change (1005)   | X                            | X                             |  |

|                               |                |                |                |
|-------------------------------|----------------|----------------|----------------|
| Standing Data (1007)          |                |                | X              |
| Market Update (1001)          | X <sup>2</sup> | X              |                |
| Order Update (1002)           | X              |                |                |
| Long Order Update (1015)      | X              |                |                |
| Price Update (1003)           | X <sup>3</sup> | X <sup>3</sup> | X <sup>4</sup> |
| Full Trade Information (1004) |                |                | X              |
| Real Time Index (1008)        |                |                | X              |
| Statistics (1009)             |                |                | X              |
| Index Summary (1011)          |                |                | X              |

<sup>1</sup> Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

<sup>2</sup> This message will not provide: New Bid (3)/New Offer (4), Updated Bid (5) /Updated Offer (6), New Bid With Liquidity Provider (58)/New Offer With Liquidity Provider (59), Updated Bid With Liquidity Provider(60)/ Updated Offer With Liquidity Provider (61), New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17) and Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19).

<sup>3</sup> This message will only provide: Indicative Matching Price (14)

<sup>4</sup> This message will **not** provide: Indicative Matching Price (14)

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## 3. MARKET DATA GATEWAY FEATURES

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### 3.1 START AND END OF DAY

“Start Of Day” (1101) messages are sent on each channel once the Market Data Gateway starts. These messages will be sent periodically until another MDG message is sent on any channel of an aggregator (please refer to [The Market Data Sequence Number](#) paragraph for aggregator description). After the Start of Day messages, the “Health Status” messages (1103) will be sent periodically.

This mechanism guarantees that “Start Of Day” (1101) messages are the first messages sent by MDG.

At end of day, MDG will stop sending messages (including “Health Status” (1103)) and will periodically send “End Of Day” (1102) messages during a specified period before shutting down.

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### 3.2 BOOK RETRANSMISSION

The Book Retransmission is an automated MDG process used by Optiq MDG to ensure continuity of the Market Data feed. It allows to retransmit at start of day the order books data following the previous trading day but also to resynchronize the Market Data feed in case of high availability event on Optiq platform (software recovery mechanism).

This process consists of resubmitting the depth of the book on real-time channels. This book retransmission occurs:

- Every morning at the start of the day.

Intraday in case of HA recovery event.

---

#### 3.2.1 Clear the Book

Before any market retransmission, Optiq MDG will send a clear book request.

- For the first clear book, at the beginning of the day, customers are expected to clear any stored information for any Market Data Update Type values received the previous day.
- For any intraday clear book request, customers are expected to clear only the Market Data Update Types related to the specific order book, listed below, and keep all other Market Data Update Type values unchanged.

- 1 - Best Bid (Cash and Derivatives)
- 2 - Best Offer (Cash and Derivatives)
- 3 - New Bid (Cash and Derivatives)
- 4 - New Offer (Cash and Derivatives)
- 5 - Updated Bid (Cash and Derivatives)
- 6 - Updated Offer (Cash and Derivatives)
- 14 - High Dynamic Collar (Cash Only)
- 15 - Low Dynamic Collar (Cash Only)
- 16 - New Bid RLP (Retail Liquidity Provider) (Cash Only)
- 17 - New Offer RLP (Retail Liquidity Provider) (Cash Only)
- 18 - Updated Bid RLP (Retail Liquidity Provider) (Cash Only)
- 19 - Updated Offer RLP (Retail Liquidity Provider) (Cash Only)
- 58 - New Bid With Liquidity Provider (Cash Only)
- 59 - New Offer With Liquidity Provider (Cash Only)
- 60 - Updated Bid With Liquidity Provider (Cash Only)
- 61 - Updated Offer With Liquidity Provider (Cash Only)

- 63 - Low Static Collar (Cash Only)
- 64 - High Static Collar (Cash Only)
- 70 - Low LP Collar (Cash Only)
- 71 - High LP Collar (Cash Only)

- For market by orders, clients will receive an Order Update (1002) (and a Long Order Update (1015) for Fixed Income segment) with Market Data Action Type set to “3 - Deletion of all orders for the given instrument”, quantity set to ‘0’ (zero) and all other fields set to null according to the SBE protocol.

### 3.2.2 Morning Book Retransmission

At the initialization of each new trading day the exchange uses the following broadcasting sequence:

1. Date of trading session in Start Of Day (1101)
  - Market Data Sequence Number set to 0
2. Trading patterns in Timetable (1006)
3. Instrument characteristics in Standing Data (1007)
4. Contract reference data in Contract Standing Data (1013)
5. Outright reference data in Outright Standing Data (1014)
6. Strategy reference data in Strategy Standing Data (1012)
7. Book state inaccessible in Market Status Change (1005)
  - Book state: ‘Inaccessible’
  - Trading period: ‘Opening’
  - Rebroadcast Indicator: 0
8. Clear book in Order Update (1002)\*
  - Market Data Action Type: 3 – Deletion of all orders by side
  - Rebroadcast Indicator: 0
9. Clear book in Long Order Update (1015)\*\*
  - Market Data Action Type: 3 – Deletion of all orders by side
  - Rebroadcast Indicator: 0
- ~~9~~10. Clear limits in Market Update (1001)
  - Market Data Update Type: 254 – Clear Book
  - Rebroadcast Indicator: 0
- ~~10~~11. Reference Price and Settlement in Price Update (1003)
  - Market Data Price Type: 12 = Adjusted Closing Price, 9 = Official YDSP
  - Rebroadcast Indicator: 1
- ~~11~~12. Full depth book in Order Update (1002)\*
  - Market Data Action Type: 5 – Retransmission of all orders for the given instrument
  - Rebroadcast Indicator: 1
13. Full depth book in Long Order Update (1015)\*\*
  - Market Data Action Type: 5 – Retransmission of all orders for the given instrument
  - Rebroadcast Indicator: 1
- ~~12~~14. BBO in Market Update (1001)
  - Market Data Update Type: 1 - Best Bid and 2 - Best Offer
  - Rebroadcast Indicator: 1
- ~~13~~15. Full depth in Market Update (1001)
  - Market Data Update Type: 3 – New Bid and 4 - New Offer
  - Rebroadcast Indicator: 1
- ~~14~~16. End of book retransmission in Technical Notification (1106)
  - Technical Notification Type: 1 – Instrument Book Retransmission End
- ~~15~~17. Closed in Market Status Change (1005)

- Book state: 'Closed'
- Rebroadcast Indicator: 1

\*Note: The messages highlighted are only applicable on segments providing the order book by orders.

\*\*Note: The messages highlighted are only applicable on Fixed Income segment.

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### 3.2.3 Intraday Book Retransmission

A Market Update (1001) or Order Update (1002) message is sent for each instrument, respectively filled with Market Data Update Type = "254 - Clear Book" or Market Data Action Type = "3 - Deletion of all orders for the given instrument". Then the full book depth will be resent with "Rebroadcast Indicator" set to "1".

For Market Update messages (1001): limits will be aggregated, and the Market Data Update Type field will be "5 - Updated Bid" or "6 - Updated Offer" (or "Updated Bid/Offer RLP" etc.). At the end of book retransmission a Technical Notification (1106) is sent to indicate the "1 – Instrument Book Retransmission End".

For Order Update messages (1002): each order will be resent with Market Data Action Type = "5 - Retransmission of all orders for the given instrument".

In order to differentiate a book retransmission from real time messages, the Rebroadcast Indicator is set to "1".

Note: For Fixed Income segment, Order Update (1002) messages are followed by Long Order Update (1015) messages.

---

## 3.3 SNAPSHOTS

Snapshot is a service providing an image of the market data at a giving time of the day to allow clients to recover from packet loss or for intraday starts. Customers can 'hop on' (connect) and 'hop off' the Snapshot multicast channels as needed.

Each real time channel has a matching snapshot channel. Real time channels giving the same information through different bandwidth speed share the same snapshot channel. An image contains all instruments broadcasted on this channel.

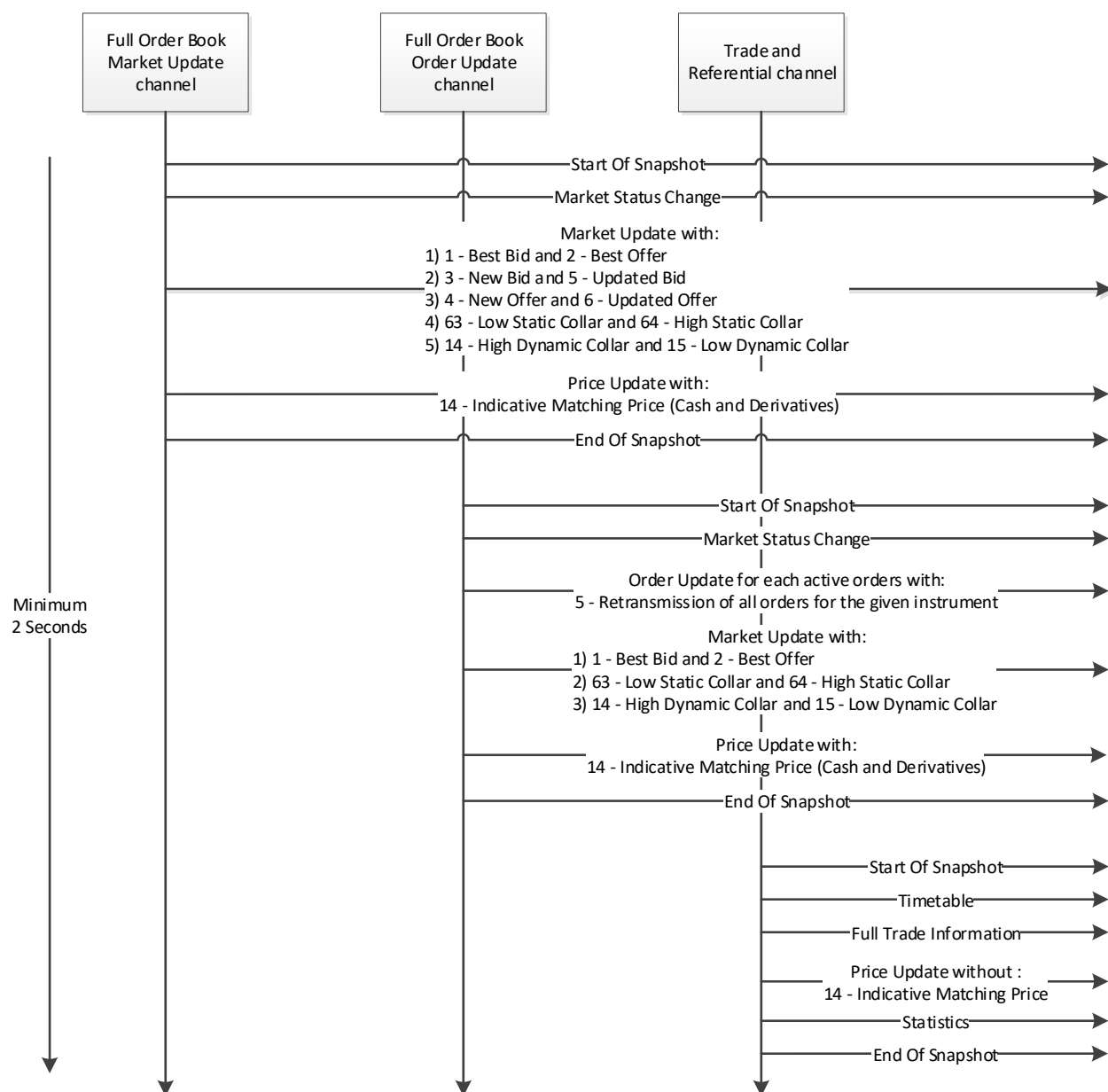
An image sent in the snapshot is linked to real time with the Last Market Data Sequence Number from the real time channel.

This broadcasted image of all channels of an aggregator (see section on [Market Data Sequence Number](#)) is a snapshot sequence and cannot be sent more than 1 every 2 seconds. The order of each channel images in a snapshot sequence is fixed for a day but can change from 1 day to another.

They will use the same messages as real time messages with Rebroadcast indicator set to "1".

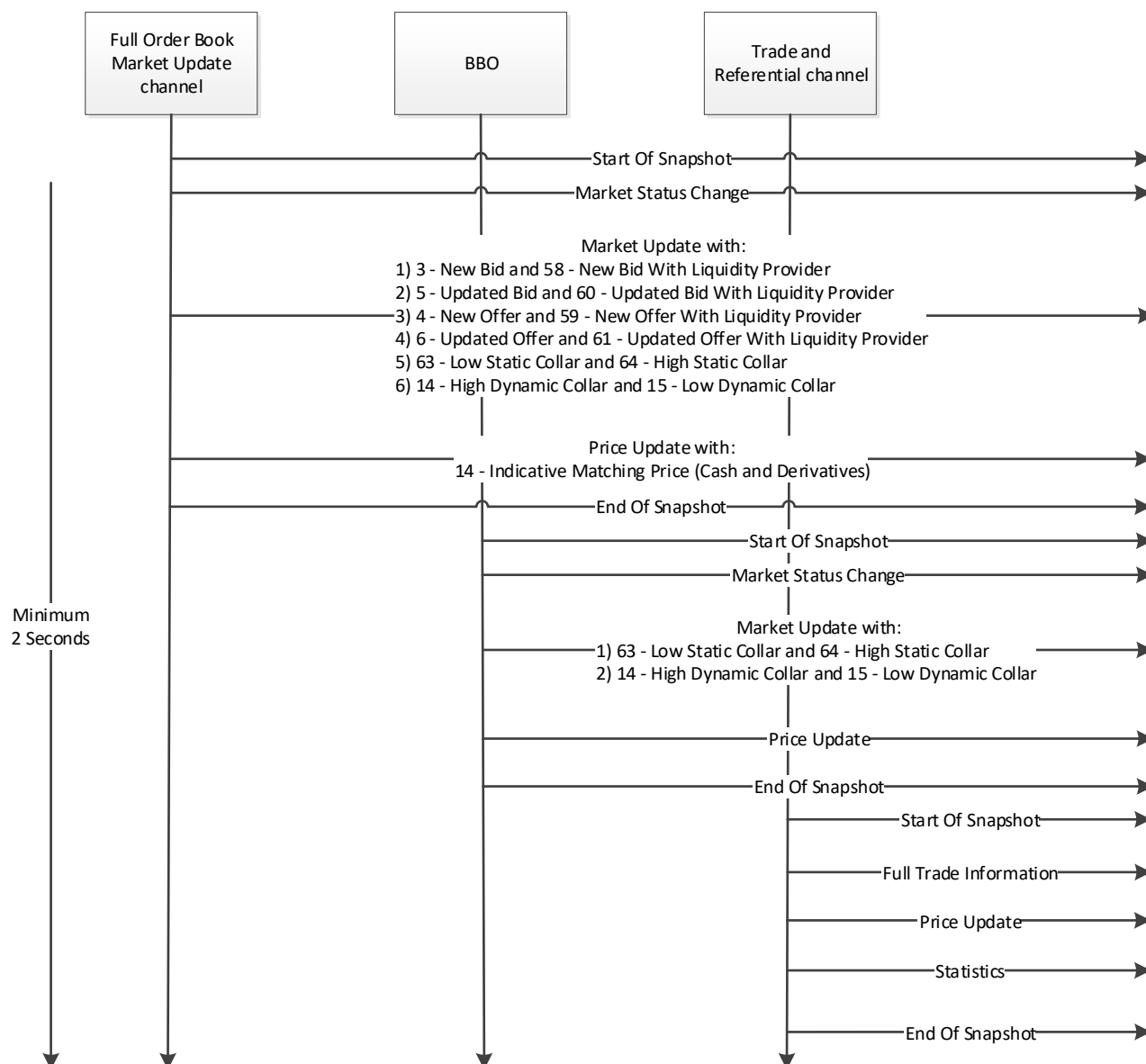
Here are the snapshot sequences for Cash, Derivatives, Indices and Best of Book (BoB)

■ Snapshot sequence for Equities, Fixed Income and Funds:

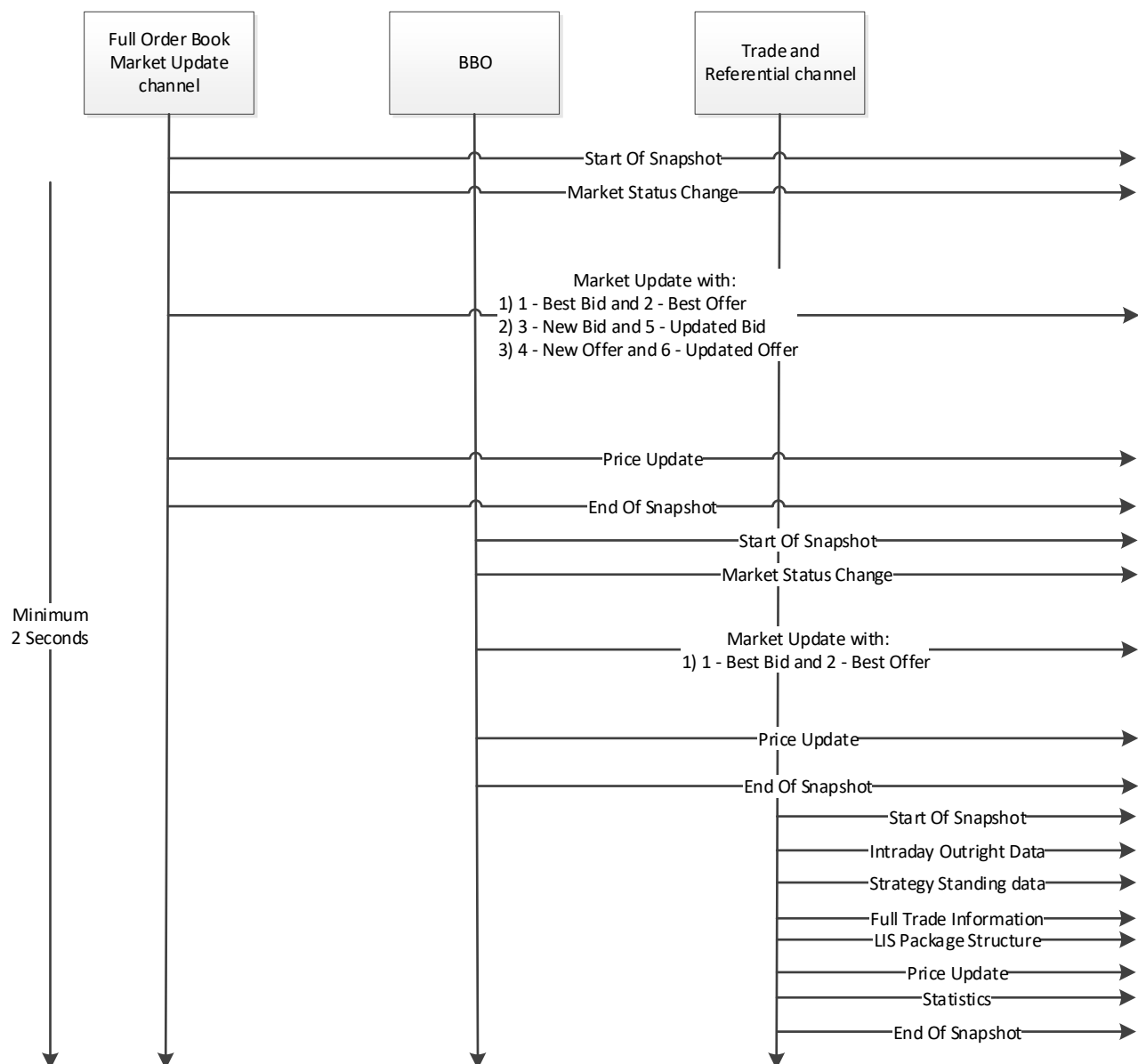




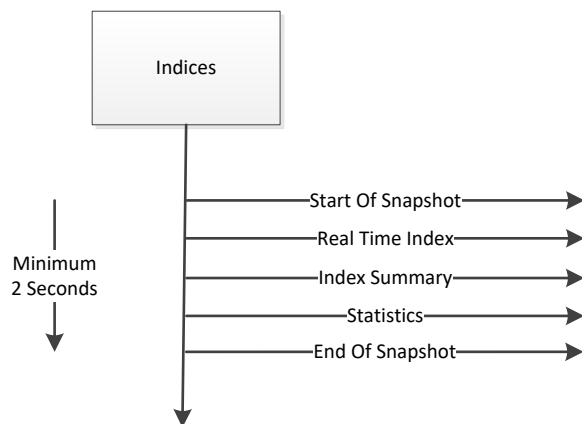
■ Snapshot sequence for Warrants:



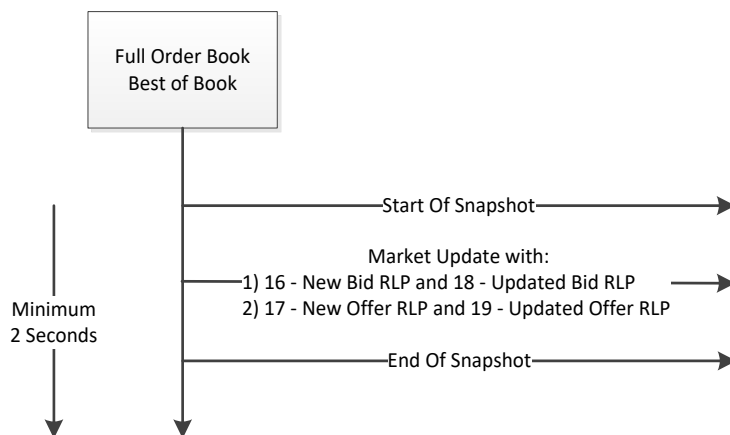
■ Snapshot sequence for Equities Derivatives, Indices Derivatives, and Commodities:



### ■ Snapshot sequence for Indices:



### ■ Snapshot Sequence for Equities Best of Book:



Both “Start Of Snapshot” and “End Of Snapshot” messages contain the last “Market Data Sequence Number” of the last real-time message taken into account by the snapshot (see [Sequence Numbers](#) and [Snapshot Sequence behaviour](#) for explanations on the “Market Data Sequence Number”). This last MDSN has been sent on each channel speed.

In the 2 following situations:

- Late connection to the exchange
- Loss of packets on both lines A and B

Members have to process as follow:

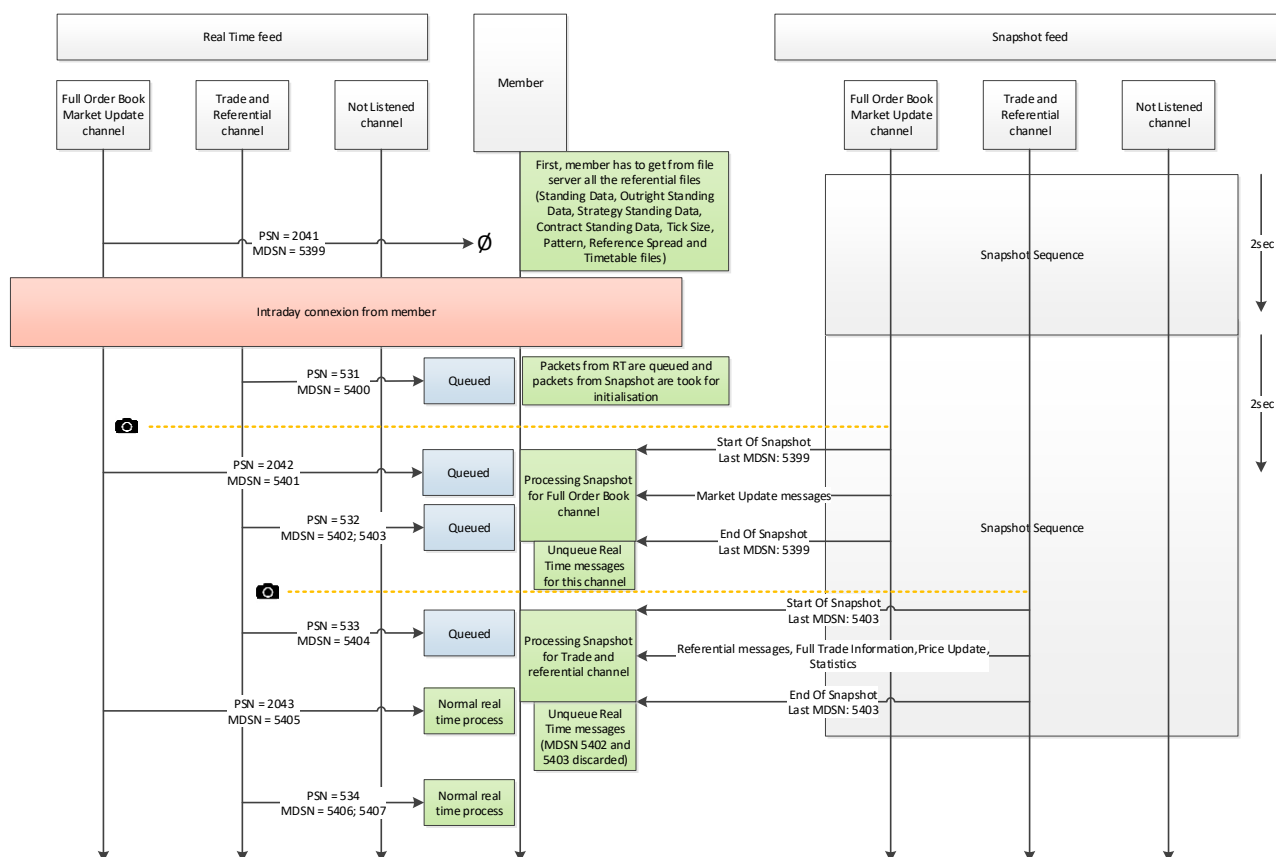
- Clear all the market data sent on this channel.
- Listen to the real time channel and start queuing all messages.
- Identify the lowest MDSN from real time feed.
- Wait for a Start Of Snapshot with a “Last Market Data Sequence Number” that is higher or equal to the MDSN identified just before on real time. Otherwise the Snapshot might not contain all the missing messages.
- Listen to the entire snapshot image until the End Of Snapshot.
- Discard all the real time messages with a MDSN lower or equal than the Last Market Data Sequence Number of the Start or End Of Snapshot message.
- Integrate all the remaining real time messages into the snapshot image.

- Keep listening real time as normal.

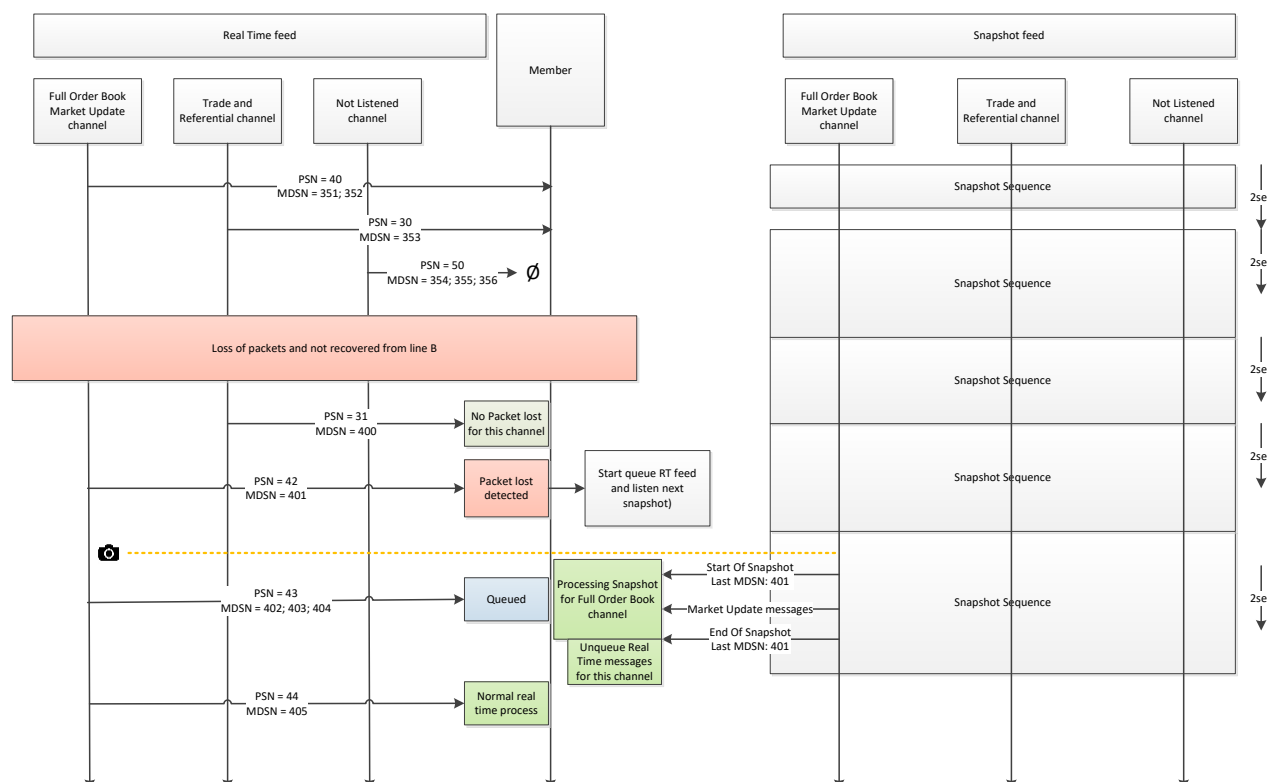
If in the snapshot a packet is missing, then try to get this packet from the second line. If it has not been retrieved with the second line, then use the next snapshot for this channel.

It is important to note that since the Market Data Sequence Number of snapshot channels does not necessarily increment by 1, the sequence number in the start or end snapshot messages might belong to another channel and was in fact not actually lost. In order to correctly identify which packets are indeed lost, please refer to section [Gap Detection and Line Arbitration](#).

#### ■ Example of a late connection to the exchange:



## ■ Example of a packet loss:



## ■ How to use information type

MDG offers another mechanism in the snapshot to resynchronize only for a subset of the information whatever the Symbol Index.

This information is functionally gathered into information type:

- For Market Update, the information types are BBO, Full Depth, Collars and Full Depth Best of Book (Please refer to the table below in this section to have all the Market Data Update Type for each Information Type)
- For the other messages, every message type is in a single information type (ex: all the order update messages are in the information type "Order Update")

For example, if members are only interested into the information type BBO and they have lost a packet in the real-time and they have to use the snapshot to recover, they can detect if the lost packet was containing BBO information.

To do so, members have to look at the Market Data Sequence Number (MDSN) of snapshotted messages. If for one information type, the MDSN in a snapshot message is lower or equals to the MDSN of a message received in real time (for this information type), it means that no messages have been lost for this information type.

The following table provides the exact mapping between Market Data Update Types and Information Types.

| Market Data Update Type               | Information Type |
|---------------------------------------|------------------|
| 1 - Best Bid (Cash and Derivatives)   | BBO              |
| 2 - Best Offer (Cash and Derivatives) |                  |
| 3 - New Bid (Cash and Derivatives)    | Full Depth       |

| Market Data Update Type  | Information Type        |
|--|-------------------------|
| 4 - New Offer (Cash and Derivatives)                           |                         |
| 5 - Updated Bid (Cash and Derivatives)                         |                         |
| 6 - Updated Offer (Cash and Derivatives)                       |                         |
| 58 - New Bid With Liquidity Provider (Cash Only)               |                         |
| 59 - New Offer With Liquidity Provider (Cash Only)             |                         |
| 60 - Updated Bid With Liquidity Provider (Cash Only)           |                         |
| 61 - Updated Offer With Liquidity Provider (Cash Only)         |                         |
| 14 - High Dynamic Collar (Cash Only)                           | Collars                 |
| 15 - Low Dynamic Collar (Cash Only)                            |                         |
| 63 - Low Static Collar (Cash Only)                             |                         |
| 64 - High Static Collar (Cash Only)                            |                         |
| 70 - Low LP Collar (Cash Only)                                 |                         |
| 71 - High LP Collar (Cash Only)                                |                         |
| 91 - AQS Expansion Factor                                      |                         |
| 92 - Collar Expansion Factor                                   |                         |
| 93 - Collar Enabled  |                         |
| 94 - Collar Disabled   |                         |
| 98 - FSP Triggered   |                         |
| 252 - Static Collar Reference Price (Cash and Derivatives)     |                         |
| 253 - Dynamic Collar Reference Price (Cash and Derivatives)    |                         |
| 16 - New Bid RLP (Retail Liquidity Provider) (Cash Only)       | Full Depth Best of Book |
| 17 - New Offer RLP (Retail Liquidity Provider) (Cash Only)     |                         |
| 18 - Updated Bid RLP (Retail Liquidity Provider) (Cash Only)   |                         |
| 19 - Updated Offer RLP (Retail Liquidity Provider) (Cash Only) |                         |

Members that connect late just have to take the full snapshot and synchronize with real-time.

#### Example 1:

If members have the following from the real time:

MDSN for BBO = 98

MDSN for Full Depth = 80

MDSN for Collars = 45

And if in snapshot the Last Market Data Sequence Number is 100 with:

MDSN for BBO = 100 (meaning all the messages where Market Data Update Type with a value that matches BBO Information Type have a MDSN equal to 100)

MDSN for Full Depth = 80

MDSN for Collars = 45

It means that members need to recover all the BBO Information Type but not Full Depth and Collars.

#### Example 2:

If the last MSC message sent had MDSN 80, then all MSC messages in snapshot have MDSN 80

#### Example 3:

If the last Best Bid sent has MDSN 1000 in the real-time channel, then all Market Update message for Best Bid and Best Ask updates (types 1 and 2) will have MDSN 1000 in the snapshot too.

### 3.4 COMPRESSION

Optiq MDG will use LZ4 compression in block mode with no headers. It will be available for real-time market data used on low bandwidth connections (100Mbps) and for all snapshots. Only the body of the Market Data packets will be compressed, excluding the packet header. It should be noted that a compressed market data packet can contain several different messages, which are all compressed into a single packet.

On compressed channels, it is possible to have compressed and uncompressed packets. The compression flag in the packet header defines if the packet is compressed or not.

The maximum extracted packet size cannot be greater than 8192 bytes.

Please see [Appendix A: Disclaimers](#) for LZ4 disclaimers.

### 3.5 SHAPING

#### ■ Optiq MDG Traffic Shaping

Optiq MDG Traffic shaping is used for 1Gbps connections on real-time market data and for 100Mbps connections on real-time and snapshot market data. Traffic shaping by Optiq MDG is used to:

- Optimize the use of available bandwidth on 1 Gbps and 100 Mbps connections
- Prevent packet loss: Optiq MDG will keep track of what is being sent out per millisecond and will use this information to guarantee packets will be sent respecting the available bandwidth
- Guarantee performance available on 1 Gbps and 100 Mbps connections
- Minimize latency

#### ■ Optiq MDG unshaped

Optiq MDG will provide unshaped real-time market data for clients on 10 Gbps connections. Unshaped means that messages are sent out without any restrictions and this is made available for:

- Cash Regulated Markets - Equities - France and the Netherlands
- Cash Regulated Markets - ETF
- Derivatives – Index Futures – France and the Netherlands
- Derivatives - Index Options - France and the Netherlands

The following simplified examples illustrate how a shaped channel behaves when no shaping happens and in case of shaping.

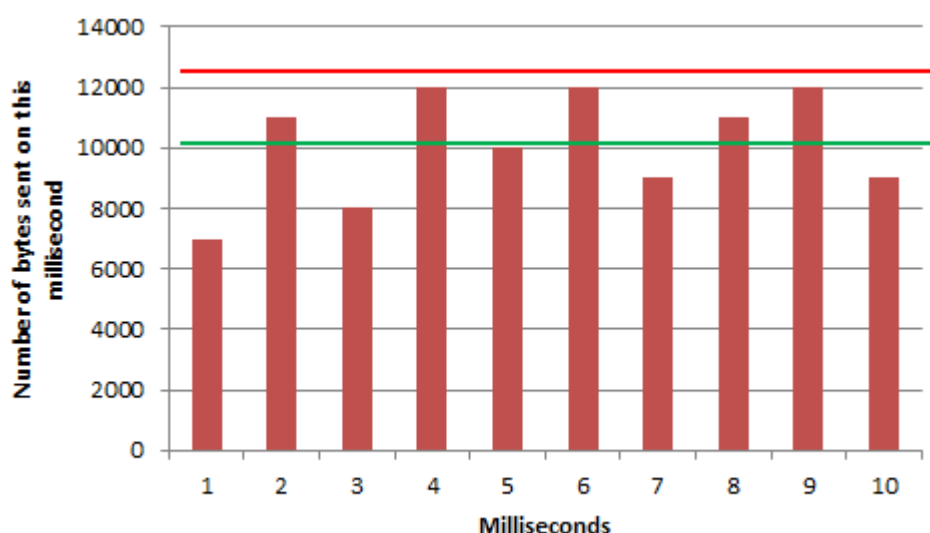
This shows the number of bytes to emit for each millisecond. Hence on a 100Mbps channel, we have a maximum bandwidth capacity per millisecond of 12 500 bytes (100 000 000 bits / 8 (to get bytes) / 1 000 (to get milliseconds)).

With the following set of data (no shaping):

| Millisecond number | Number of bytes to send on this millisecond | Remaining from previous millisecond |
|--------------------|---|-------------------------------------|
| 1                  | 7 000.00                                    | 0                                   |

| Millisecond number | Number of bytes to send on this millisecond | Remaining from previous millisecond |
|--------------------|---|-------------------------------------|
| 2                  | 11 000.00                                   | 0                                   |
| 3                  | 8 000.00                                    | 0                                   |
| 4                  | 12 000.00                                   | 0                                   |
| 5                  | 10 000.00                                   | 0                                   |
| 6                  | 12 000.00                                   | 0                                   |
| 7                  | 9 000.00                                    | 0                                   |
| 8                  | 11 000.00                                   | 0                                   |
| 9                  | 12 000.00                                   | 0                                   |
| 10                 | 9 000.00                                    | 0                                   |

We have this in the feed:



We can see that nothing uses more than the bandwidth acceptance (red line) and the average use of the bandwidth (green line) is lower (10 100 bytes per millisecond).

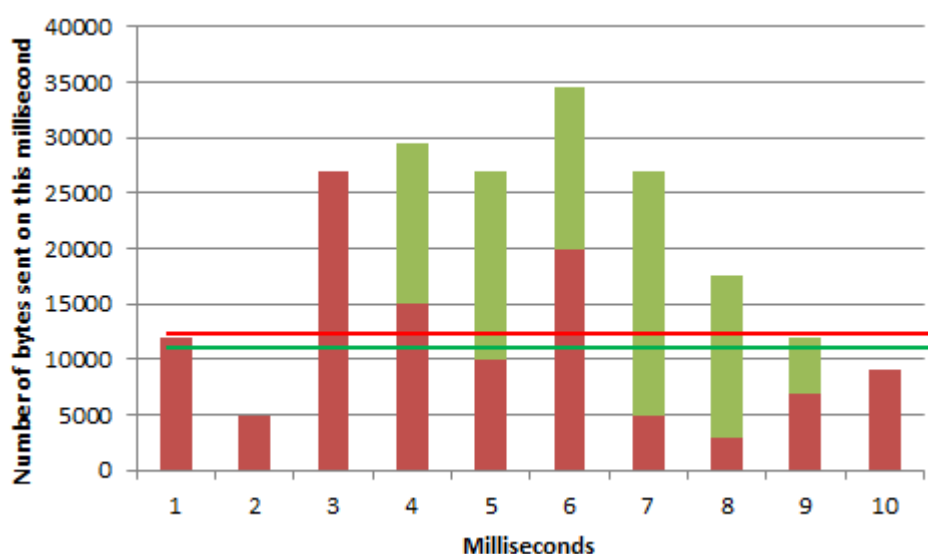
Now if we take the following set of data (shaping):

| Millisecond number | Number of bytes to send on this millisecond | Remaining from previous millisecond |
|--------------------|---|-------------------------------------|
| 1                  | 12 000.00                                   | 0                                   |
| 2                  | 5 000.00                                    | 0                                   |
| 3                  | 27 000.00                                   | 0                                   |
| 4                  | 15 000.00                                   | 14 500.00                           |
| 5                  | 10 000.00                                   | 17 000.00                           |



| Millisecond number | Number of bytes to send on this millisecond | Remaining from previous millisecond |
|--------------------|---|-------------------------------------|
| 6                  | 20 000.00                                   | 14 500.00                           |
| 7                  | 5 000.00                                    | 22 000.00                           |
| 8                  | 3 000.00                                    | 14 500.00                           |
| 9                  | 7 000.00                                    | 5 000.00                            |
| 10                 | 9 000.00                                    | 0                                   |

We will have shaping:



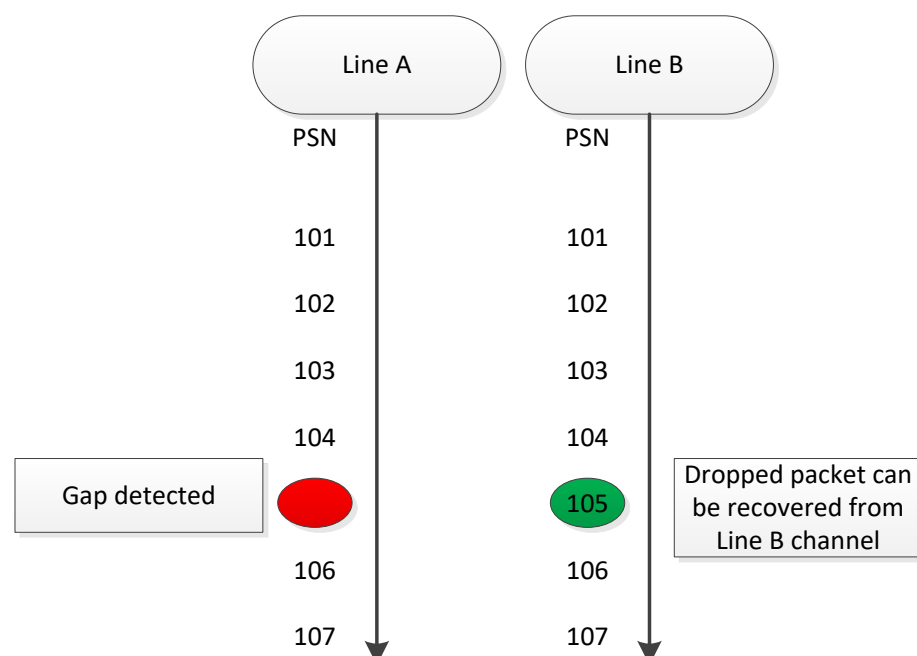
In green the packet that will be sent the next millisecond since it was not possible to send it immediately.

Hence on the feed the emission will be the following for this second:

| Millisecond number | Bandwidth use per millisecond |
|--------------------|-------------------------------|
| 1                  | 12 000.00                     |
| 2                  | 5 000.00                      |
| 3                  | 12 500.00                     |
| 4                  | 12 500.00                     |
| 5                  | 12 500.00                     |
| 6                  | 12 500.00                     |
| 7                  | 12 500.00                     |
| 8                  | 12 500.00                     |
| 9                  | 12 000.00                     |
| 10                 | 9 000.00                      |

### 3.6 GAP DETECTION AND LINE ARBITRATION

The Packet Sequence Number (please see Market Data Packet Header) should be used to detect gaps in the transmission of packets.



Using this method, a lost packet can be recovered from the second line. In case of packet loss on both lines, then the snapshot mechanism should be used.

UDP packets can potentially arrive unordered and potentially sent twice. As such, systems should be able to reorder the packets and detect duplicate packets.

### 3.7 SYSTEM FAILURES

#### ■ High Availability

The High Availability (HA) functionality of Optiq MDG is set up to ensure that there is no loss of service during an outage on the primary publisher, such as a hardware failure. Failover to a secondary publisher can be identified by the change of sequence in the Packet headers (the Packet Sequence Number restarts to “1” and bits between 1 and 3 in the “Packet Flags” field increase by “1”. Keep in mind that these 3 bits can overflow, and it will result with a “0” again). The HA failover is designed to be as transparent as possible, and multicast groups and ports will not change. However, there are specific details that must be considered.

When a market data source restarts and is not able to keep its sequential behaviour, the Market Data Gateway initiates a new start sequence for this source. The Market Data Gateway then sends an order book retransmission sequence, and a list of corrected trades asynchronously inside the real-time channel used for trades. These messages are flagged as a retransmission (rebroadcast Indicator set to “1”).

As the system is asynchronous, some trades might be lost in case of a matching engine failure. Therefore, the trade retransmission should be used to update the status of each trade that is resent, to complete trades not already taken into account, and even in certain cases, to indicate that some trades should be removed.

Please refer to [Book and Trades Retransmission](#) to have all details on how retransmitted books and trades are.

In case of a MDG restart:

- Clients have to use the “Packet Flags” field (bits 1 to 3) to maintain a unique Packet Sequence Number for the trading day.
- On real-time channels the Market Data Sequence Number (MDSN) is reset to 0 and first functional message that MDG receives gets MDSN 0 and higher.
- Messages that will be sent in snapshots, while there is no message to be resent in real time, will have a MDSN set to “0” (so several messages inside a snapshot can share the same MDSN).
- Clients need to take into account that the Last Market Data Sequence Number (LMDSN) in first Start and End Of Snapshot messages are set to ‘0’ and not set to ‘null’ as at start-up of MDG.

#### ■ [Disaster Recovery Site](#)

In order to mitigate any serious outage in the primary data centre, a secondary data centre is online in standby mode.

Clients should ensure that all configurations surrounding the secondary data centre are included, as described in the **Euronext Optiq Market Data Gateway Production** and **External User Acceptance Environment** documents.

#### ■ [Client System Failure](#)

Real-time and snapshot market data will be available on two different multicast groups and will allow clients the possibility to set up more than one receiving system processing the same data. In case of client system failure, the backup client system should continue to process the real-time and snapshot data sent on the second multicast group.

---

## 3.8 TRADE RETRANSMISSION

Trade retransmission will only be used in case of HA event recovery and will be sent on the real-time channels. The retransmission will always start with the “Technical Notification” message (1106) with “Technical Notification Type”: “Trade Retransmission Start” (10) and contains the “Retransmission Start Time” and the “Retransmission End Time” fields. These times define a time window: all trades previously received with an “Event time” included in this time window must be considered invalid. A new “Full Trade Information” message (1004) with the “Rebroadcast Indicator” field set to “1” will be sent. The trade retransmission ends with the “Technical Notification” message (1106) and “Technical Notification Type”: “Trade Retransmission End” (11).

Note: if for a time window that contains trade(s) on real-time feed but no “Full Trade Information” (1004) messages are rebroadcast in between the “Technical Notification” (1106) messages, then members have to remove the trade(s) received in real-time.

---

## 3.9 HEALTH STATUS MECHANISM

The Health Status messages will be broadcasted on all channels repeatedly during the day, from the time the Standing Data messages are broadcasted until the End of Day messages are sent. The Market Data Sequence Number for this message will be the last Market Data Sequence Number of the message sent by the aggregator of this channel (please be advised that this message can have been sent on another channel managed by this aggregator).

For aggregators and detailed description please refer to the section [Market Data Sequence Number](#).

For Snapshot, please refer to: [Technical messages in Snapshot channels](#).

### 3.10 PRODUCTION TIMETABLE

The **Timetable** is an overview of the events during a trading day that impact market data activity. Clients should also refer to the “Timetable” message (1006) specifications for full details.

#### 3.10.1 Euronext Cash and Derivatives Markets

| Event   | Time (CET) for Cash           | Time (CET) for Derivatives    | Comment   |
|---|-------------------------------|-------------------------------|---|
| File Download (except for Indices)                            | 2:00 am CET                   |                               | Clients will connect via HTTPS to download: XML SBE templates, Standing Data files, Timetable files, Tick tables, Reference Spread, Feed configuration files and Pattern ID files   |
| Application start-up  | 2:00 am CET                   |                               | Sending Start Of Day (1101) messages and frequently repeated (with Rebroadcast Indicator set to “1”) until the beginning of the Standing Data emission in the morning.  |
| Standing Data and Timetables in the feed (except for Indices) | 3:00 am CET                   |                               | The Exchange will send Standing Data (1007) messages for each instrument and on all markets except ISE IBF, BF Instrument Reference (1201) messages for ISE IBF only, followed by the Timetable (1006) message for Cash markets only. |
| Book Retransmission   | 4:00 am CET                   |                               | Retransmission of books and associated messages from previous day.<br>This will contain Market Update (1001) or Order Update (1002) messages and for some instruments the Price Update (1003) messages.                               |
| Indices files and messages sent                               | 6:00 am CET                   |                               | Clients will have access to Indices standing data on EFS and received them in the feed.   |
| Broadcast Indices   | 7:00 am CET                   |                               | Start of Indices emission in the feed.  |
| Market Status Change  | All along the trading session | All along the trading session | Follow the trading timetable as scheduled in the Timetable message (1006).<br>Refer to <a href="#">Trading Day Schedule: Timetable Mechanism</a> section for full details.  |
| Closing and Daily Settlement                                  | NA                            | Between 5:30 and 9:58 pm CET  |   |
| Optiq MDG system close  | 11:00 pm CET                  |                               | The market closes on the End Of Day message (1102) emission. It will be sent for 15 minutes with snapshot messages. No other messages will follow for a given trading Day.  |

#### 3.10.2 Euronext APA and Euronext Synapse Facilities

| Event                  | Time (CET) for APA | Time (CET) for Euronext Synapse | Comment  |
|------------------------|--------------------|---------------------------------|--|
| Application start-up   | 2:00 am CET        |                                 | Sending Start Of Day message (1101) and frequently repeated (with Rebroadcast Indicator set to "1") until the first functional message is sent out.                        |
| Trading hours start-up | Not Applicable     | 9:00 am CET                     | Time when Euronext Synapse functional messages can be received.  |
| Trading hours closing  | Not Applicable     | 5:30 pm CET                     | Time when Euronext Synapse functional messages are not possible anymore.   |
| Optiq MDG system close | 11:00 pm CET       |                                 | The market closes on the End Of Day message (1102) emission. It will be sent for 15 minutes with snapshot messages. No other messages will follow for a given trading Day. |

### 3.11 MULTICAST GROUP UNJOINING

The process of subscribing to a multicast group ID is also known as "joining" a multicast group. Upon session termination, the client's host system should issue an "unjoin" message. This will terminate delivery of data to that host's local network.

If a client application terminates without issuing an "unjoin" message, the network will eventually issue a "timeout" for the multicast group subscription that will automatically terminate delivery of the multicast packets to the host's local network.

The "join" and "unjoin" processes are standard functions. No specific instructions are provided here, as they are specific to the user's operating system and programming language.

## 4. MESSAGING PROTOCOL

### 4.1 OVERVIEW

MDG messages will be sent within a Market Data Packet that will be broadcast using multicast UDP/IP standards. A Market Data Packet will be composed of N complete messages. A single message will never spread across multiple packets.

The maximum length of a packet is 1400 bytes and does not include UDP/IP protocol fields.

Each message is enriched with a “Frame” field followed by a SBE header. The “Frame” field contains the length of the message including the length of the “Frame” and “SBE header” fields. The following diagram shows the structure of a packet:

| IP           |               |                                    |                 |               |         |                                |                         |                         |     |                         |                        |
|--------------|---------------|------------------------------------|-----------------|---------------|---------|--------------------------------|-------------------------|-------------------------|-----|-------------------------|------------------------|
| Header<br>IP | UDP           |                                    |                 |               |         |                                |                         |                         |     |                         |                        |
|              | Header<br>UDP | Packet                             |                 |               |         |                                |                         |                         |     |                         |                        |
|              |               | Market<br>Data<br>Packet<br>Header | 1st SBE Message |               |         |                                |                         |                         |     |                         | Next SBE<br>Message(s) |
|              |               |                                    | Frame           | SBE<br>Header | Block   | Repeating Section 1            |                         |                         |     | ...                     |                        |
|              |               |                                    |                 |               |         | Repeating<br>Section<br>Header | Rep.<br>Sec.<br>1.a     | Rep.<br>Sec.<br>1.b     | ... | Rep.<br>Sec.<br>1.n     | ...                    |
| n bytes      | 8 bytes       | 16 bytes                           | 2 bytes         | 8 bytes       | n bytes | 2 bytes                        | x <sub>1</sub><br>bytes | x <sub>1</sub><br>bytes | ... | x <sub>1</sub><br>bytes | ...                    |

Client applications should check that the length of the Market Data Packet (indicated in the UDP datagram) matches *16 bytes (Packet Header size) +  $\sum$  message size (indicated in the Frame field)*. If the length of the packet doesn't match the identified length, then the packet should be considered corrupted.

A message can contain n repeating sections for a trading event, but clients should not base algorithms on repeating sections since these repeating sections can also be in n messages.

## 4.2 MARKET DATA PACKET HEADER

The packet header is described below:

| Field                  | Description   | Format                    | Length | Values        | Presence  |
|------------------------|---|---------------------------|--------|---------------|-----------|
| Packet Time            | Time when the packet is pushed to the clients (Time in number of nanoseconds since 01/01/1970 UTC).   | Epoch Time in Nanoseconds | 8      | $0..2^{64}-2$ | Mandatory |
| Packet Sequence Number | Each channel has its own PSN sequence. Starting from 1 at every MDG start and increasing by step of 1. In case of overflow (over 4.2 billions) Packet Flags will increase for bits 4-6. With this mechanism the PSN has 35 bits available.  | Numerical ID              | 4      | $0..2^{32}-2$ | Mandatory |
| Packet Flags           | <ul style="list-style-type: none"> <li>Used to flag information (Little-Endian): Bit 0: Compression <ul style="list-style-type: none"> <li>0 = body of the packet is not compressed (the body is the packet without the packet header)</li> <li>1 = body of the packet is compressed</li> </ul> </li> <li>Bit 1 to 3: will be set to 0 every morning and incremented for each restart of MDG in the same day (wrapping to 0 if the field overflows)</li> <li>Bit 4 to 6: used if the Packet Sequence Number (PSN) goes over <math>(2^{32})-1</math>. They are PSN high weight bits</li> <li>Bit 7: is set to 1 when in the packet there is a Start Of Snapshot (2101) message, 0 otherwise</li> <li>Bit 8: is set to 1 when in the packet there is an End Of Snapshot (2102) message, 0 otherwise</li> <li>Bit 9: is set to 1 when in the packet there is a Health Status (1103) message, Start Of Day (1101) message or End Of Day (1102) message, 0 otherwise Bit 10 to 15: for future use</li> </ul> | Numerical                 | 2      | $0..2^{16}-2$ | Mandatory |
| Channel ID             | Identifies the channel.   | Numerical                 | 2      | $0..2^{16}-2$ | Mandatory |

Client applications should check that the length of the Market Data Packet Body matches the sum of message sizes (indicated in the Frame field). If not, then the packet has to be considered corrupted.

The Market Data Packet Body size is also the:

- UDP datagram payload size minus 16 bytes for Packet Header size
- Uncompressed body size if the packet was compressed

Note: The Packet Header will not be compressed in compressed messages.

## 4.3 SBE MESSAGE STRUCTURE

A Market Data message is composed of the following parts:

| SBE Message Structure |            |         |                          |                      |                      |     |                      |     |
|-----------------------|------------|---------|--------------------------|----------------------|----------------------|-----|----------------------|-----|
| Frame                 | SBE Header | Block   | Repeating Section 1      |                      |                      |     |                      | ... |
|                       |            |         | Repeating Section Header | Rep. Sec. 1.a        | Rep. Sec. 1.b        | ... | Rep. Sec. 1.n        | ... |
| 2 bytes               | 8 bytes    | n bytes | 2 bytes                  | x <sub>1</sub> bytes | x <sub>1</sub> bytes | ... | x <sub>1</sub> bytes | ... |

The maximum length of a message is 1384 bytes (maximum packet length (1400 bytes) minus the packet header length (16 bytes)).

The SBE Header is defined as follows:

| Field          | Short Description  | Format       | Len | Values                | Presence  |
|----------------|--|--------------|-----|-----------------------|-----------|
| Block Length   | Length of the block. The Block is the message without the repeating sections.                                  | Numerical    | 2   | 0..2 <sup>16</sup> -2 | Mandatory |
| Template ID    | Identifier of the message template. This is the message type of the Market Data messages.                      | Numerical ID | 2   | 0..2 <sup>16</sup> -2 | Mandatory |
| Schema ID      | Identifier of the message schema that contains the template. Used to differentiate Exchange Specifications.    | Numerical ID | 2   | 0..2 <sup>16</sup> -2 | Mandatory |
| Schema Version | Version of the message schema in which the message is defined. Used to add messages and/or modify some others. | Numerical ID | 2   | 0..2 <sup>16</sup> -2 | Mandatory |

The Repeating Section Header is defined as follows:

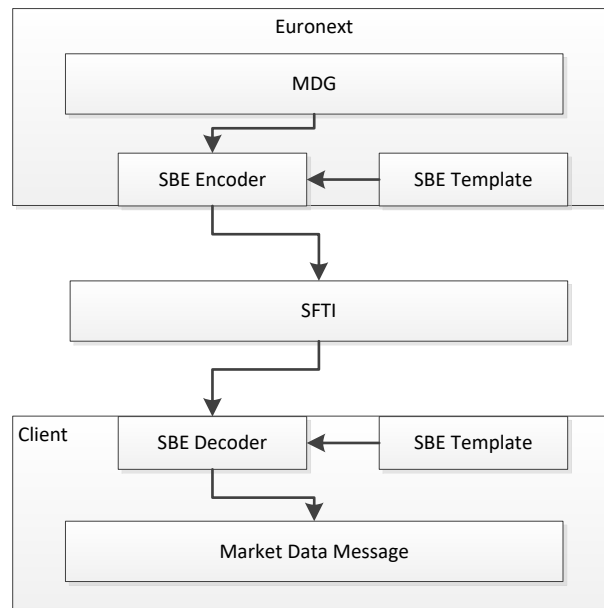
| Field                    | Description   | Length   | Values                 |
|--------------------------|---|--|------------------------|
| Repeating section header | Defines how many times the repeating section is repeated and the length in bytes of a repeating section. It is set to "0" if there is no repeating section. | 2 bytes<br>(the first byte for the length and the second byte for the count) | From 0 to 254 for both |

A Schema ID is composed of Template IDs (or message types) and each Template ID has its own Schema version (message version).

**Please note that the SBE Header and Repeated Section Header must be present on the wire for each message (SBE Repeated Section Header only for messages that have a repeated section), but for readability purpose it is not represented in the message structures in this document.**

The Exchange provides SBE Template XML files that contain all message types supported by MDG. Client systems can decode SBE messages from MDG using the schema and template files as below:





#### 4.4 SBE BACKWARD AND FORWARD COMPATIBILITY

The aim of backward and forward SBE compatibility is to allow members to choose to update to the latest SBE version or remain in previous versions.

To do so, the main element is the SBE version provided in SBE Template file. This SBE version is in the attribute: “version”. In addition, each change on message, field or possible value (for enumerated or bitmap) in the SBE Template file, are flagged with attributes:

- SinceVersion for additions
- deprecated for removals

Each of the above attributes will be set with the value of the SBE version when the change occurred. As such their value cannot be greater than the SBE version.

It is crucial for members to check for each new SBE Template if the compatibility is insured and until which version in order to update if necessary.

These compatibilities are not ensured for the following situations:

- New field added wherever, except if added at the end of the block or a repeated section
- Existing field length changed
- Field, message or possible value name changed
- For enumerated field, if the value is changed (example: in field “EMM”, value Not Applicable changes from 254 to 99)

The following describes the mechanism for each compatibility:

##### ■ New field compatibility

Consider SBE version is set to 5.

If in a message a field has been added at the end of the block and before the repeated section with “sinceVersion = 5” then members that are not interested by this new field can ignore it.

To ignore it, members are using the SBE Version 4 (or lower) that has not this new field. Therefore, the block length in the SBE header does not include the field added in version 5. Then SBE Decoder when processing the new message will process all fields inside the block length in SBE version 4 and ignore the new fields in version 5 to continue processing the message with the repeated section header.

Same logic is used for field added at the end of the repeated section. The length of the repeated section is in the Repeated Section Header and it is not the same size between version 4 and 5.

#### ■ New possible value compatibility

If a new possible value is added in SBE version 5, it will be flagged with “sinceVersion = 5”. Members that are not interested by this new possible value will potentially receive this new value but will have to define a specific behaviour. They can for example ignore it.

#### ■ New message compatibility

In case a new message is created and until the member wants to use it by updating the SBE version, this message will be ignored.

#### ■ Removals

The field or message or possible value will still be sent with a consistent value in order to ensure the compatibility and will be flagged with the attribute “deprecated”.

**NOTE: In case Euronext breaks the SBE compatibility, client will be made aware in timely manner.**

**For the more in depth detailed explanation of Euronext implementation of the SBE protocol, clients are invited to refer to the dedicated Optiq Notice : [SBE Template Introduction and Compatibility Rules](#)**

## 5. MESSAGE OVERVIEW

### 5.1 TECHNICAL FORMAT FIELDS

The field formats contained in the messages will adhere to these rules:

- Binary data is in Intel byte order (Little-Endian).
- All integers are unsigned numeric or signed binary using two's complement method.
- All message fields are sent for every message. Only the field values will be broadcast (field names in this document are only for reference purpose).
- All field sizes are fixed and constant.
- Segmentation of messages across packets is not supported, so a message will never straddle a packet boundary.
- Even if it is not always mandatory to be able to process last message version (Schema Version), it is mandatory to check each update for important or regulatory updates.

#### NULL VALUES

- SBE allows optional fields with a null value. The applicable NULL value is defined in the SBE Template file. In message and field specifications, only the not null values are indicated in the "Values" column.
- All text fields (Text and Alphanumeric Id that have more than 1 character) have a specific null value that is not defined in the SBE Template. This null value is binary 0 (/0) for each character.
- All "Alphanumeric ID" and "Text" fields are alphanumeric based on UTF-8, left aligned and null padded (\0).

| Format fields   | Description   | Null value                                     |
|-----------------|---|--|
| Alphanumeric ID | String type identifying an element, left aligned and completed with null padding (\0).  | Each character is a UTF-8 null code point (\0) |
| Amount          | Signed or unsigned numerical field representing the price multiplied by the quantity.<br>See the description in <a href="#">Price, Quantity, Ratio And Amount Formats</a> .   | Null value defined in SBE Template             |
| Bitmap          | Array of bits, each bit specifying whether an optional value is present (set to "1") or not (set to "0") (in Little-Endian).<br>E.g. For the Trade Qualifier bitmap field if its bit in position zero (0) is set to one (1) then it defines the trade as an Uncrossing Trade. At the same time bit in position one (1) can also be set to one (1) which will in this case indicates that this is also a First Traded Price. | No null value                                  |
| Boolean         | This field acts as an enumerated field with the possible values 0 (false), 1 (true) or null value.  | Null value defined in SBE Template             |
| Date            | Date of an event (in number of days since 01/01/1970 UTC - 01/01/1970 is the day "0").  | Null value defined in SBE Template             |
| Decimal Places  | Number of decimals associated to a numerical field.<br>See the description in <a href="#">Price, Quantity, Ratio And Amount Formats</a> .   | Null value defined in SBE Template             |

| Format fields             | Description  | Null value  |
|---------------------------|--|---|
| Enumerated                | Information having a delimited set of possible values.   | Null value defined in SBE Template<br>Note: The null value here depends on the technical type which can be unsigned integer or character. |
| Epoch Time in Nanoseconds | UTC Timestamp indicating the number of nanoseconds since epoch (January the 1 <sup>st</sup> 1970).   | Null value defined in SBE Template  |
| Integer Time in hhmmss    | UTC Timestamp using an integer to define the time as hhmmss.   | Null value defined in SBE Template  |
| Intraday Time in Seconds  | UTC Timestamp indicating the number of seconds since the beginning of the day.   | Null value defined in SBE Template  |
| Numerical                 | Generic numerical field on unsigned integer.   | Null value defined in SBE Template  |
| Numerical ID              | Numerical field identifying an element.  | Null value defined in SBE Template  |
| Price                     | Signed numerical field representing a price.<br>See the description in <a href="#">Price, Quantity, Ratio And Amount Formats</a> .   | Null value defined in SBE Template  |
| Quantity                  | Unsigned numerical field representing a quantity of elements (for example a number of shares).<br>See the description in <a href="#">Price, Quantity, Ratio And Amount Formats</a> . | Null value defined in SBE Template  |
| Sequence                  | See the description in §5.3 - Sequence Numbers.  | Null value defined in SBE Template  |
| Signed Numerical          | Generic numerical field on signed integer.   | Null value defined in SBE Template  |
| Text                      | Text in UTF-8, left aligned and completed with null padding (\0).  | Each character is a UTF-8 null code point (\0)  |

## 5.2 DATE AND TIME CONVENTIONS

Times and Timestamps are expressed in UTC (Universal Time, Coordinated) and are synchronised using Precision Time Protocol (PTP). They are defined in number of nanoseconds since 01/01/1970 UTC based on Unix Epoch or number of seconds since the beginning of the day.

Phase Time and Scheduled Event Time for Cash markets are expressed in an unsigned integer 32 to define a time in hhmmss UTC. Thus, this time is in the range from 0 to 235 959. Each time 60 (seconds) is reached, it increments the hundreds by 1 and seconds are reset to 0. The same applies every 60 minutes (or for each increment of a second when we have 59 minutes and 59 seconds), system increments the 10 thousands by 1 and reset all the inferior figures to 0.

Example: if we have 25959 (2h 59m 59s), the next second will be 30000 (3h 0m 0s).

Dates are defined in number of days since 01/01/1970 UTC (01/01/1970 is the day "0").

Dates and Times formatted for ESMA reporting (MiFID II) are defined with a 27 bytes character string following ISO 8601:

YYYY-MM-DDThh:mm:ss.dxxxxxZ.

Where:

- “YYYY” is the year.
- “MM” is the month.
- “DD” is the day.
- “T” is a constant letter used as a separator between “YYYY-MM-DD” and “hh:mm:ss.ddddddZ”.
- “hh” is the hour.
- “mm” is the minute.
- “ss.dddddd” is the second and its fraction of a second.
- “Z” is a constant letter standing for UTC time.

---

## 5.3 SEQUENCE NUMBERS

The feed contains two sequence numbers:

---

### 5.3.1 The Packet Sequence Number (PSN)

The Packet Sequence Number (PSN) is part of the packet header and should be used for UDP gap detection and packet ordering. Each channel has its own PSN sequence.

---

### 5.3.2 The Market Data Sequence Number

Aggregators are MDG internal components that are dealing with a set of channels. The Market Data Sequence Numbers are managed at the aggregator level. Each one of them has its own sequence, starting from 0 and incrementing by step of 1 along the day. Since clients may listen to only a subset of the channels managed by one aggregator, they will not see all the Market Data Sequence Numbers in the messages they get from the channels they listen to. Therefore, on one channel the Market Data Sequence Numbers will increment all along the day but not necessarily by step of 1.

The behaviour of the Market Data Sequence Numbers for the following messages is different. Please refer to their message definition for further explanations:

- “Start Of Day” (1101)
- “End Of Day” (1102)
- “Health Status” (1103)

Reminder: For gap detection: please use the Packet Sequence Number (PSN).

---

## 5.4 PRICE, QUANTITY, RATIO AND AMOUNT FORMATS

All prices must be processed with two values: the price value in an integer and its scale code. Each instrument must be linked to the associated [Price / Index Level Decimals](#) from the Standing Data message or file.

Prices must be calculated according to the following formula:

$$\text{Price} = \frac{\text{Integer}}{10^{\text{Price/Index Level Decimals}}}$$

For example, a price of 27.56 can be represented by an Integer of 275600 and a Price / Index Level Decimals of 4.

Only 2 prices are not using the generic field above: “Issue Price” and “Strike Price”. Since these fields have decimals computed instrument per instrument, they have a dedicated decimal location field that are respectively: “[Issue Price Decimals](#)” and “[Strike Price Decimals](#)”.

Note 1: The same mechanism is used for:

- All quantities that are calculated with Quantity Decimals<sup>2</sup>
- All ratios and percentages with Ratio / Multiplier Decimals
- All amounts with Amount Decimals

Note 2: Prices, quantities and amounts for MiFID 2 do not follow this [Price / Index Level Decimals](#) behaviour. The complete format is described in the Field Description.

---

## 5.5 TRADING DAY SCHEDULE: TIMETABLE MECHANISM

A trading day (or business day) is a day when the Exchange is open and allows buying and selling financial instruments. A trading day cannot span several calendar days. Typical trading days are Monday through Friday. Non-trading days are the weekends and some holidays.

---

### 5.5.1 Trading Cycle

During the trading day, financial instruments are traded following a **trading cycle**, which is the sequencing of market transitions (up to 30) and market events scheduled at precise times within a defined duration.

#### ■ Market transition

A market transition is the triggering of a new Market Phase. Market phases that can be scheduled in a trading cycle are the following:

- ‘Inaccessible’: no access to the market, typically at the beginning of a trading day and between two trading days; Equivalent to a ‘down’ status of the trading chain;
- ‘Closed’: the market is fully available for Market Operations, who can perform consistency checks and other operations; Market participants can modify and cancel their orders (no order creation) on Derivative markets and cancel only on Cash markets;
- ‘Call’: the market is available to market participants and orders are collected without matching; some information is broadcast, such as the best bid/offer prices (BBO), the Indicative Matching Price (IMP);
- ‘Uncrossing’: the matching engine applies an uncrossing algorithm where crossed orders (i.e. bid orders with prices higher than offer orders) are matched;
- ‘Continuous’: entering orders are matched as soon as a counterpart can be found.

#### ■ Market Events

Market Events provide specific information to market participants, such as the expiry time of an instrument.

There are two types of market events:

- Market events explicitly configured within the trading cycle pattern;
- Market events triggered by Market Operations or the trading engine itself (out of scope).

#### ■ Link between a product and its Trading Cycle

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<sup>2</sup> Please see exceptions for fields like Leg Ratio

Each product (respectively a cash instrument or a derivative contract) is linked to a Trading Cycle indicating the sequence of market transitions and market events. The Trading Cycles are identified by a field provided in referential data: Pattern Identifier. It is available either in on the feed through respectively Standing Data (1007) and Contract Standing Data (1013) message, or on EFS through Standing Data files. The timetables themselves are provided in a dedicated EFS file - Timetable File (1006).

---

### 5.5.2 Broadcast Information

#### ■ Start of trading day

At the beginning of the Trading Day and before traders start sending any orders, the Matching Engine generates and broadcasts:

- A “Timetable” message for each trading cycle pattern indicating for each pattern ID the sequence of market phase transitions and market events to be triggered for the coming trading day;
- A “Market Status Change” message for each Contract/Instrument which was in a Suspended status or whose order entry rejection flag is set to “0” (Order entry, modification and cancellation forbidden) to indicate to Market Participants that the Instrument cannot be traded.

#### ■ Throughout the trading day

Throughout the trading day, the Matching Engine generates:

- A “Timetable” message each time Market Operations modify the trading cycle of a contract;
- A “Market Status Change” message at the time of the transition for a derivatives contract from one market phase into another one;
- A “Market Status Change” message at the time of the transition for a derivatives instrument from one status into another one (in case the Derivatives instrument does not follow anymore the contract phase)
- A “Market Status Change” message at the time of the transition for a cash instrument from one status into another one.
- A “Market Status Change” message whenever market events are scheduled, triggered or cancelled.

---

## 5.6 INSTRUMENT TICKS

#### ■ Link between a product and its Tick Table: :

Each product (respectively a cash instrument or a derivative contract) is linked to a Tick table indicating for each price range the ticket applied in Optiq. The tick tables are identified by a field provided in referential data: Tick Size Identifier. It is available either in the feed through respectively Standing Data (1007) and Contract Standing Data (1013) messages, or on EFS through Standing Data files. The tables themselves are provided in dedicated EFS files (respectively **Cash Tick Size Referential** File and **Derivatives Tick Size Referential** File).

- Note: Settlement Tick Sizes and Exchange Delivery Settlement Prices Tick Sizes are still provided independently from the tick size in derivatives referential data, as indication of the parameters used for the computations of the settlements.

## 5.7 INSTRUMENT IDENTIFIERS

An instrument is identified by its **Symbol Index**, **ISIN** and/or the **AMR** (for the Derivatives) for all Optiq messages while it is identified by its **MiFID Instrument Id** for **Approved Publication Arrangement (APA)** MDG messages (MiFID II Regulatory publication Tool )

### 5.7.1 Symbol Index

The Symbol Index is assigned by the exchange and will not change over the lifetime of the instrument, nor used again after instrument expiration.

Any Corporate Action leading to a change of ISIN will lead to change of Symbol Index. These Corporate Actions are generally part of the mandatory reorganisation events; the most frequent ones being stock split, reverse stock split, change of name / denomination. However the ISIN change is not systematic and will be in any case communicated upfront through the Euronext Corporate Action notices.

The standard security identifier (for example ISIN), mnemonic, tick size, instrument name and other instrument characteristics are carried only in the Standing Data message (1007), Outright Standing Data (1014), Strategy Standing Data (1012), Contract Standing Data (1013) messages and in the Standing Data files on servers. As such, the client applications must link the Symbol Index which is sent in all messages, with other instrument characteristics present in the Standing Data messages or files.

### 5.7.2 Automated Market Reference (AMR)

The AMR Code remains in the referential data for the Derivatives to allow clients to map it to the Symbol Index used in trading in Optiq. The AMR Code is built from the following template and only applicable for Derivatives:

| Instrument Attribute  | Description  | Examples                          |
|-----------------------|--|-----------------------------------|
| Exchange Code         | Code used to identify the Market Place upon which the product is listed  | P: Paris Equity<br>J: Paris Index |
| Generic Contract Type | Code to identify the type of contract  | F: Futures<br>O: Options          |
| Contract Code         | Code assigned to identify the contract (4-char Code)   | FCE: CAC40 Index<br>TO1: Total SA |
| Expiry                | Expiry date indicating the expiry<br>Format for all contracts: Year & Month (YYMMDD)<br>- "YY" is the last number of the year<br>- "MM" is the month code (as defined in the table below)<br>- "DD" is the exact business day of the month |                                   |
| Exercise Price        | Exercise (Strike) price assigned to the option (Option only)   |                                   |
| Instrument Type       | Code to identify type of Derivative Instrument   | F: Futures<br>C: Call<br>P: Put   |

The following table provides the Month codes:

#### EXAMPLES:

POTO1 25041804300C Total Call Option – April 2025 – Expiry day on the 18<sup>th</sup> - Strike 43€  
JFCE 25051600000F CAC 40 Index Future – May 2025 – Expiry Day on the 16<sup>th</sup>

## AMR & MAX STRIKE PRICE LIMIT



Exercise price field in the AMR is 5 characters long. In order to represent strikes with decimals, and that require more than 5 characters to be represented, Euronext uses a rule for encoding the strikes, which takes [Strike Price Decimals Ratio](#) into calculation as described below.

For contract of type option:

- Compute price = Exercise price /  $10^{\text{Strike Price Decimals Ratio}}$
- If the exercise price is strictly less than 10000:
  - the 5 characters are the price left padded with '0'
- If the exercise price is greater or equal than 10000:
  - the first character is a character representing a multiple of 10000 (10->A, 11->B, ..., 35->Z)
  - the last 4 characters, are the price modulo 10000 left padded with '0'

---

### 5.7.3 MiFID Instrument ID

Field "MiFID Instrument Id" is used as unique instrument identifier for APA messages.

It has to be used with field "MiFID Instrument Id Type" which indicates if the identifier provided in "MiFID Instrument Id" is an 'ISIN' or another identifier (value 'OTHR').

The referential has to be used by clients to match the ISIN or OTHR instrument identifier with instrument characteristics to uniquely identify this instrument.

---

## 6. HOW TO ...

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### 6.1 ... PROCESS CANCELLATIONS

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#### 6.1.1 Trade Cancellation

The trade will be cancelled with all the details of the trade in:

- Market Update (1001) message with Market Data Update Type “50 – Trade Cancellation”. It will not be possible from this message to make the link with the original trade.
- Full Trade Information (1004) with Trade Type “24 – Trade Cancellation” and MMT Modification Indicator “CANC – Trade Cancellation”. All other fields will be set with original trade details including the MiFID Execution ID field which allows client to easily identify the trade cancelled for this Symbol Index.

**Note:** In case of MDG for APA, the MiFID Execution ID becomes irrelevant. Identification of a trade cancelled is done by using the MiFID Transaction ID field.

---

#### 6.1.2 Quote Cancellation

The behaviour is the same as Trade Cancellation except for APA.

In case of MDG for APA, the Cancelled quotes are sent in APA Quotes (1026) per instrument with field Quote Update Type values:

- “5 – Cancel Bid” for the quote bid side of the concerned Legal Entity Identifier (LEI).
- “6 – Cancel Offer” for the quote ask side of the concerned Legal Entity Identifier (LEI).

---

#### 6.1.3 Order Cancellation with Order Update message

For an order deletion an Order Update (1002) message is sent with a Market Data Action type set to “2 - Deletion of order identified by Previous Priority” with the Previous Priority set to identify the order to remove from the book. Price and Order Priority will be set to the null value and quantity set to ‘0’. Order side and order type will be populated according to the deleted order.

---

#### 6.1.4 Limit Cancellation with Market Update message

In the Market Update message, if there is no more volume for a given price, the limit will be updated with an “Updated Bid” or “Updated Ask” with the quantity set to ‘0’.

If the BBO has no more volume, then it will be updated with a “Best Bid” or “Best Offer” with quantity set to ‘0’. If the book side is empty, the BBO will be sent with Price set to null according to the SBE protocol and quantity ‘0’. It will be followed by a limit update with the price of the limit to update and quantity set to ‘0’.

---

### 6.2 ...PROCESS MODIFICATIONS

This process is provided only in case of Euronext APA and Euronext Synapse facilities.

---

### 6.2.1 Trade Modification

The trade will be cancelled with all the details of the trade in APA Full Trade Information (1028) with:

- same MiFID Transaction ID as the first one
- Trade Type “24 – Trade Cancellation”
- Efficient MMT Modification Indicator “CANC – Trade Cancellation”.

And a new trade is sent with

- Efficient MMT Modification Indicator set to “AMND – Trade Amendment”
- Trade modifications
- Same MiFID Transaction ID as the new and cancelled trade.

---

### 6.2.2 Quote Modification

Each quote modification is outbound using same update types. Therefore clients have just to replace previous quote per LEI, instrument and side with the new one.

---

## 6.3 ... DETERMINE THE MESSAGE TYPE

Each message has a type that uniquely defines its structure and its content, and is represented by a numeric identifier.

First example, the message “Market Update” has the type “1001”. In the SBE message header the “Template ID” field contains this type (see [SBE Message Structure](#)).

Second example, the message “APA Full Trade Information” has the type “1028”. In the SBE message header the “Template ID” field contains this type (see [SBE Message Structure](#)).

---

## 6.4 ... DETERMINE THE NUMBER OF REPEATING SECTIONS IN A MESSAGE

The number of repeating sections is defined in the second byte of the “Repeating Section Header” (see [SBE Message Structure](#)).

---

## 6.5 ... DETERMINE THE LENGTH OF A PACKET

The length of the packet is set in the UDP header. It includes the UDP header length.

---

## 6.6 ... DETERMINE THE LENGTH OF A MESSAGE

The length of a message (including the length of the “Frame” and “SBE header” fields) is in the field “Frame” (see [4.1 - Overview](#)).

---

## 6.7 ... MANAGE A NEW VERSION OF A MESSAGE IF THE CLIENT HAS NOT IMPLEMENTED THE NEW FIELDS

Please refer to the explanations in the paragraph [SBE Backward and Forward Compatibility](#).

---

## 6.8 ... LOOK FOR A TRADE

This is possible by checking in Full Trade Information message (1004) the MiFID Execution ID field. It is the association of Symbol Index, EMM and Execution ID completed with null on the right to complete until the 52 bytes of the field are filled.

Note: In case of MDG for APA: it is possible by checking in APA Full Trade Information message (1028) the MiFID Transaction ID field. It is the association of ISIN code or OTHER number, Venue, Transaction Identifier and Trading Date completed with null on the right to complete until the 52 bytes of the field are filled.

---

## 6.9 ... LOOK FOR AN ORDER

For a given Symbol Index and EMM, the order can be found using its Order Priority that uniquely identifies an order. This value is given in the “Ack” message sent by Order Entry Gateway (OEG).

Since updated orders might have a loss of priority, members have to use Previous Priority field to find the order in the book. Previous Priority, when set, has to be matched with Order Priority in the existing orders.

---

## 6.10 ... RESYNCHRONIZE WITH SNAPSHOT AFTER PACKET LOSS

Please refer to the explanations on the Snapshot: [Snapshots](#).

---

## 6.11 ... MANAGE BBO

Best Bid and Offer (BBO) updates are sent with a price and a quantity to indicate the best limit on bid or offer side. When the Best Bid or Best Offer changes, a new Best Bid or Best Offer update is sent out and replaces the previous sent Best Bid or Best Offer. If a side of the book becomes empty, then a Best Bid or Best Offer is sent with quantity set to 0 and price set to null to clear the Best Bid or Best offer.

---

## 6.12 ... DERIVE IMPLIED PRICES VOLUME FROM THE AGGREGATED BBO

Implied price volumes are included in the Market data messages communicated for the associated price level. As implied are not considered as orders the associated Implied prices are displayed on the market only if they contribute to the Best Limit.

When an implied price contributes to a limit, the volume available on the market at that price increases without incrementing the number of orders. This logic allows client to distinguish volumes of implied prices vs. those of explicit orders. As such it is possible to have a Best Limit displayed with price and volume but with a number of orders equal to zero (when relying exclusively on implied prices).

Implied prices and volume are only provided at BBO in the messages with Market Update Type (1) and (2). The limit Market Update Type only include explicit volume.

---

## 6.13 ... BUILD THE BOOK

Optiq Market Data provides market by limits (with Market Update messages (1001)) or by orders (with Order Update messages (1002)) depending on the instrument type.

- For markets built using aggregated limits (Market Update (1001)), clients have to order the limits by prices (only one price by line):
  - On a new bid or ask, clients must add the new limit
  - On an updated bid or ask, clients must update the current limit with the new limit. This update can be on the limit: type, quantity or number of orders.
  - On a limit deletion, clients will receive an update with quantity set to '0' and the price matching the limit to delete.
- For markets built using Order Updates (1002), clients have to arrange each order by its Order Priority (The order with the lowest value of Order Priority has the highest priority):
  - On a New Order, clients must add the new order identified by its Order Priority
  - On an order modification with loss of priority, clients must remove the order identified by the Previous Priority and add a new order identified by its Order Priority.
  - On an order modification without loss of priority, clients must update the order identified by its Order Priority.
  - On an order cancelation, clients must remove the order identified by its Previous Priority.

Clients should not process both the BBO and limits to construct the book. If Best Bid and Offer updates are sent as a part of the same message, then they should be processed as one update to the BBO and not individually. Otherwise, the order book might appear crossed.

---

#### 6.14 ... DETERMINE A CLOSING PRICE

The Closing Price is determined using the last trade price once the Phase Id becomes "Closed".

If no trade took place during the day, the Last Adjusted Closing Price should be used as the closing price. The Last Adjusted Closing Price is sent every morning in the reference data. It is the previous day's last trade price, adjusted for corporate events (if applicable).

---

#### 6.15 ... DETERMINE THE OPTION UNDERLYING EXPIRY

If the Underlying Type is an Index or a Commodity (F or C), the field Underlying ISIN Code is populated at contract level. Additionally, underlying Expiry at Contract Level is set to null. The actual alternate underlying is populated at outright level:

- Index future expiry the underlying is an index
- Commodity future expiry the underlying is a commodity

AMR and SymbolIndex of the future expiry is provided at the outright level. This will allow customers to look-up the AMR to find the underlying future expiry.

---

#### 6.16 ... DETERMINE ROUND LOT WITH QUANTITY NOTATION

In order to determine the Round Lot, clients have to consider field Quantity Notation as follow:

- If Quantity Notation is equal to 'UNT' then Round Lot equals Lot Size.
- If Quantity Notation is equal to 'FMT' then Round Lot equals Par value
- If Quantity Notation is equal to '-' then Round Lot equals 1.

It is important for Par Value to apply the decimal field associated.

---

## 6.17 ...USE AN EXECUTION SUMMARY MESSAGE

Execution Summary is a mechanism made available for Cash (Warrants and Block excluded) and Derivatives segments to provide a quick and efficient way for clients to make decisions on remaining state of the order book after an aggressive order execution.

Execution Summary is published in MDG using the Market Update (1001) messages, indicating the Total executed quantity (no matter how many price levels the aggressive order has executed against), and the Last (or deepest into the book) price that the aggressive order has executed against.

The sequencing of this broadcasting is the following:

- Execution summary:
  - Last price hit by the aggressive order
  - Total executed quantity
- Trades
- BBO
- Full depth of the book

Execution Summary is indicated using two Market Data Update Type values:

- '90' – Bid Execution Summary
- '97' – Offer Execution Summary

As the Execution Summary is always sent first following execution of a Trade upon reception of this message clients can anticipate the upcoming limit update on the resting side of the execution.

Technically, Execution Summary is sent as soon as possible, i.e. the market data packet is sent immediately once the event received.

---

## 6.18 ...DETERMINE THE STATISTICS ON AND OFF-BOOK FOR AN INSTRUMENTS (COB, WHOLESALERS & RFC)

Optiq Provides daily aggregated volume to the market through the dedicated Statistics (1009) messages. This section aims to describe how to reconcile the provided statistics with the trade published on Market Data through the Full Trade Information (1004) or Market update (1001) message.

- On Exchange On Book Update Type

This Statistic is the aggregated volume executed on-book. It is computed on a per instrument symbol index basis and is equal to the sum of all trades disseminated on the Central Order Book during the day through both Full Trade Information (1004) and Market Update (1001) messages.
- On Exchange Off Book Update Type

This statistic is the aggregated volume executed off-book. It is computed on a per Instrument level and is equal to the sum of all trades executed through either the Wholesale or the RFC facility during the day.

Trades in case of Wholesales (Against Actual, Exchange for Swap or Large in Scale transaction) are published via Full Trade Information (1004) message only – not via Market Update (1001).

It is equal to the sum of:

- The RFC trades (dedicated trade type) disseminated following an RFC through both Full Trade Information (1004) or Market Update (1001) messages
- The LIS, AA and EFS Trade volume disseminated through 1004 messages
- The residual volume of a LIS Package Trade wholesale transaction to which this instrument contributes, disseminated through Full Trade Information (1004) only – sent at contract level and indicating the Instrument Symbol Index in the dedicated repeating group.

This residual volume is computed as follows: volume of the wholesale transaction multiplied by leg weight as identified by the strategy definition in the related LIS Package Trade (1016) message

$$\text{Residual Volume } (i) = \text{TransactionVolume} \times \text{Leg Ratio } (i), i \text{ representing the symbol index}$$

**Example:** in case of a LIS on a Butterfly on the CAC40 Option contract, with 3 options A, B and C, where  $B = A - 2B + C$  (\*), with a volume of 125 lots:

- SymbolIndex of Full Trade Information Contract
- Strategy Code of the Butterfly
- Volume executed: 125
- SymbolIndex of A, B and C instruments

The residual volume on each instrument is then equal respectively for A, B and C to 125, 250 and 125 resulting from strategy volume X leg ration, where each leg ration is defined by (\*).

The weights of each component are provided to the market via the dedicated LIS Package Structure (1016) message.

As a consequence, the Statistics (1009) message are published immediately after the CAC40 Option (1004) message disseminated for the LIS transaction, increasing accordingly the aggregated volumes.

#### ■ On and Off-book On Exchange Update Type

This statistic is the aggregation of the two previous ones.

## 6.19 ...DETERMINE THE TVTIC

The Trading Venue Transaction Identification Code (TVTIC) is the unique identifier of a trade in the MiFID II framework. Each individual trade has a corresponding TVTIC.

### For Cash Markets

The TVTIC is the concatenation of:

- The Symbol Index (10 characters, left-padded with zeroes);
- The EMM (3 characters, left-padded with zeroes);
- The Execution ID (10 characters, left-padded with zeroes).

The different ways to get a trade TVTIC are:

- Using the public Market Data feed, getting the **Full Trade Information** (1004) message that contains the *MiFID Execution ID* field which contains the TVTIC;
- Using the private Order Entry feed, getting the SBE **Fill** (04) / FIX **Execution Report** (8) message, to rebuild the TVTIC as described above (SymbolIndex or SecurityID + EMM + ExecutionID);
- Using the EOD Day Trade file (**FTRRM**), field TVTIC (as of implementation of new TVTIC format for Cash Markets in Production).

## For Derivatives Markets

- For trades on individual instruments (Derivatives outright instruments):

The TVTIC is the concatenation of:

- The Execution ID
- The instrument ISIN

The different ways to get a trade TVTIC are:

- Using the Market Data flow, getting the **Full Trade Information** (1004) message that contains the *MiFID Execution ID* field which contains the TVTIC.
- Using the private Order Entry flow, getting the SBE **Fill** (04) / FIX **Execution Report** (8) message, to rebuild the TVTIC as described above (ExecutionID + ISIN).

- For transactions on complex instruments (Derivatives Strategies Trades on Central Order Book (COB) or Large in Scale (LiS) Packages Trades on Derivatives Wholesales):

The TVTIC is built as follows:

- For COB Strategy Trades: TVTIC = Execution ID + Strategy Symbol Index
- For LiS Package Trades: TVTIC = LiS Transaction ID + Contract Symbol Index

For COB Strategy Trades: each strategy trade is always published alongside the corresponding trades at leg level. MiFID II reporting being at leg level, clients should build the TVTIC of each trade at the leg level.

For LiS Package Trades: the transaction consists of a single consistent pre-negotiated package, and the individual components of the trade are not published individually in Market data. To build each individual trade component, clients must use the LiS Transaction ID of the Package (provided on both Market Data and Order entry feeds) to group all private **Fill** (04) / **Execution Report** messages received for the LiS Package Transaction.

The different ways to get a trade TVTIC are:

- ◆ Using the Market Data feed, getting the **Full Trade Information** (1004) message that contains the *MiFID Execution ID* field which contains the TVTIC.
- ◆ Using the private Order Entry feed, getting the SBE **Fill** (04) / FIX **Execution Report** (8) message, to rebuild the TVTIC as described above (ExecutionID + strategy symbol index or contract symbol index).



## 7. MESSAGES

### 7.1 TECHNICAL MESSAGES

The message specification format is as follow:

| Field                    | Description   | Length   |
|--------------------------|---|--|
| Block                    | The block is all the non-repeated fields.   | Variable (in bytes)                                      |
| Repeating section header | This is how many times the repeating section is repeated and the length of a repeating section. It will not be displayed in any below message. It is set to 0 if there is no repeating section. | 2 bytes<br>(1byte for the length<br>1byte for the count) |
| Repeating section        | All the fields that are repeated. All these fields are in bold and green table borders  | Variable (in bytes)                                      |

All field lengths are in bytes.

Field definition might not be exhaustive, please go to the [Field Description](#) section. Further details will be provided.

#### 7.1.1 Start Of Day (1101)

These messages will be sent periodically until another MDG message is sent on any channel of an aggregator. After the Start of Day messages, the “Health Status” messages (1103) will be sent periodically.

This mechanism guarantees that “Start Of Day” (1101) messages are the really first messages sent by MDG.

**Message Sending Rules:** “Start Of Day” (1101) messages are sent every 2 seconds on each channel once the Market Data Gateway starts.

**Note:** Start Of Day Market Data Sequence Number will always be set to "0".

| Field                       | Short Description  | Format   | Len | Values                | Presence  |
|-----------------------------|--|----------|-----|-----------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence. | Sequence | 8   | 0..2 <sup>64</sup> -2 | Mandatory |
| Session Trading Day         | Date of the current trading session (in number of days since the 1st of January 1970).           | Date     | 2   | 0..2 <sup>16</sup> -2 | Mandatory |

#### 7.1.2 End Of Day (1102)

“End Of Day” (1102) messages are sent at end of day to inform that MDG will shut down 15 minutes after the first “End Of Day” (1102) message is sent. During these 15 minutes, MDG will stop sending messages (including “Health Status” (1103)).

**Message Sending Rules:** At the end of day, based on the production timetable, MDG will send “End Of Day” (1102) messages every 2 seconds during 15 minutes.

**Note:** The Market Data Sequence Number of all the “End Of Day” (1102) messages is the Market Data Sequence Number of the last message sent by the aggregator for this set of channels (be aware that this last message can have been sent on another channel managed by this aggregator).

| Field                       | Short Description  | Format   | Len | Values    | Presence  |
|-----------------------------|--|----------|-----|-----------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence. | Sequence | 8   | 0..2^64-2 | Mandatory |
| Session Trading Day         | Date of the current trading session (in number of days since the 1st of January 1970).           | Date     | 2   | 0..2^16-2 | Mandatory |

### 7.1.3 Health Status (1103)

The Health Status messages are broadcasted on all channels repeatedly all along the day as soon as the Standing Data messages are broadcasted and until End of Day messages are broadcasted. The Market Data Sequence Number for this message will be the last Market Data Sequence Number of the message sent by the aggregator of this channel (be aware that this message can be sent on another channel managed by this aggregator).

The Event time indicates the time of the generation of the Health Status message. This message is alone in the packet.

**Message Sending Rules:** Health Status are sent every 2 seconds even if there are market data messages sent on a channel.

| Field                       | Short Description  | Format                    | Len | Values    | Presence  |
|-----------------------------|--|---------------------------|-----|-----------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence. | Sequence                  | 8   | 0..2^64-2 | Mandatory |
| Event Time                  | Time when an event has been processed  | Epoch Time in Nanoseconds | 8   | 0..2^64-2 | Mandatory |

### 7.1.4 Technical Notification (1106)

Technical Notification message is used to notify the beginning of Start and End Retransmissions.

#### Message Sending Rules:

- At the end of each book retransmission on a single instrument (they start with a clear book request in Order Update or Market Update message). Field "Symbol Index" will have the value of the instrument book sent. "Retransmission Start Time" will be set to null.
- At the beginning and at the end of a trade retransmission, providing the time window to clear previous trades and to be replaced by the resubmitted trades. Field "Symbol Index" will be set to null.

| Field                       | Short Description  | Format   | Len | Values    | Presence |
|-----------------------------|--|----------|-----|-----------|----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence. | Sequence | 8   | 0..2^64-2 | Optional |

| Field                       | Short Description  | Format                    | Len | Values   | Presence  |
|-----------------------------|--|---------------------------|-----|--|-----------|
| Technical Notification Type | Indicates the technical notification sent.   | Enumerated                | 1   | 1 Instrument Book Retransmission End<br>10 Trade Retransmission Start<br>11 Trade Retransmission End | Mandatory |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'.   | Numerical ID              | 1   | 0..2^8-2   | Mandatory |
| Retransmission Start Time   | Indicates when the retransmission starts. For trade retransmission, all the trades previously received by the clients that have an "Event time" strictly lower than this field are valid (Time in number of nanoseconds since 01/01/1970 UTC). | Epoch Time in Nanoseconds | 8   | 0..2^64-2  | Optional  |
| Retransmission End Time     | Indicates when the retransmission ends. For trade retransmission, all the trades previously received by the clients that have an "Event time" strictly higher than this field are valid (Time in number of nanoseconds since 01/01/1970 UTC).  | Epoch Time in Nanoseconds | 8   | 0..2^64-2  | Optional  |
| Symbol Index                | Exchange identification code of the instrument/contract.   | Numerical ID              | 4   | 0..2^32-2  | Optional  |

## 7.2 REFERENTIAL MESSAGES

### 7.2.1 Timetable (1006)

The timetable message indicates the instrument trading patterns (state change sequence) for the current trading day. Link between respectively Cash instruments and Derivatives contracts is explained in the dedicated section.

#### Message Sending Rules:

- Automatically for each Trading Pattern, after the Session Start and Referential messages
- On an exceptional basis, it may be sent during the trading day in case scheduled hours have changed due to manual intervention by Market Operations or if there are multiple openings during the day. If it indicates a Pattern ID, then the change applies on all instruments linked to this Pattern ID, otherwise it only applies on the Symbol Index and EMM.

| Field                       | Short Description  | Format   | Len | Values    | Presence  |
|-----------------------------|--|----------|-----|-----------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence. | Sequence | 8   | 0..2^64-2 | Mandatory |

| Field                  | Short Description  | Format                 | Len | Values  | Presence  |
|------------------------|--|------------------------|-----|---|-----------|
| Rebroadcast Indicator  | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'.   | Numerical ID           | 1   | 0..2^8-2  | Mandatory |
| EMM                    | Defines the Exchange Market Mechanism applied on each platform.  | Enumerated             | 1   | (See field description)   | Optional  |
| Pattern ID             | Numerical Pattern identifier available as a characteristic of an instrument in Standing Data file and message, and used in the MDG timetable message. Cash Markets only. | Numerical ID           | 2   | 0..2^16-2   | Optional  |
| Symbol Index           | Exchange identification code of the instrument/contract.   | Numerical ID           | 4   | 0..2^32-2   | Optional  |
| Timetables length      | Repeating section header   | Numerical              | 1   | 0.. 2^16-2  | Mandatory |
| Timetables occurrences | Repeating section header   | Numerical              | 1   | 1..254  | Mandatory |
| Phase Time             | Time of Phase start  | Integer Time in hhmmss | 8   | 0..2^64-2   | Mandatory |
| Phase Id               | Indicates the phase of the instrument.   | Enumerated             | 1   | (See field description)   | Mandatory |
| Phase Qualifier        | Indicates the Phase Qualifier (no multiple phase possible at the same time even if this field is a bitmap).  | Bitmap                 | 2   | (See field description)   | Mandatory |
| Trading Period         | Provides the current trading period.   | Enumerated             | 1   | 1 Opening (Cash and Derivatives)<br>2 Standard (Cash and Derivatives)<br>3 Closing (Cash and Derivatives)                                   | Mandatory |
| Order Entry Qualifier  | Field indicating the state of the Order Entry for the current market state.  | Enumerated             | 1   | 0 Order Entry/Cancel/Modify Disabled<br>1 Order Entry/Cancel/Modify Enabled<br>2 Cancel and Modify Only (Derivatives Only)<br>3 Cancel Only | Optional  |
| Session                | Current market session.  | Enumerated             | 1   | (See field description)   | Mandatory |
| Scheduled Event        | Type of Scheduled Event.   | Enumerated             | 1   | (See field description)   | Optional  |

## 7.2.2 Standing Data (1007)

The Standing Data message provides instrument characteristics for Cash and Index products, valid for the current trading day.

### Message Sending Rules:

- Every morning following the Session Start messages.

### Multi-Listing – Market of Reference – Single Order Book

An instrument can be listed on more than one of the market places operated by the Exchange. Multi-Listed instruments can be identified in the feed by using the field MIC List in the Standing Data (1007) message.

If an instrument is multi-listed, then a Market of Reference (MoR) is designated and Euronext's European Single Order Book will consolidate liquidity in such instruments by ensuring that all order flow in that instrument is concentrated on a single order book in the designated MoR. Companies can decide to be multi-listed on more than one Euronext market to benefit from increased visibility and exposure.

For example, ING Groep (NL0011821202) (headquartered in the Netherlands) is listed on two Euronext markets, Euronext Amsterdam (being its Market of Reference) and Euronext Brussels. Even though order flow in ING Groep is concentrated on the single order book in the designated Market of Reference (being Euronext Amsterdam), ING Groep is still considered as a listed company in the Netherlands and Belgium.

The MIC List will show an instrument being listed on more than one of Euronext's markets and it always begins with the MIC of the MoR.

The Euronext website should be used as the reference for correct display of multi-listed instruments; the display of a multi-listed instrument should include the relevant markets on which the instrument is listed and show the real-time quotes of the relevant instrument (based on the single order book in the designated Market of Reference).

### Notes:

- Standing Data messages are also available in XML file.
- The repeating section links the “Exchange Market Mechanism” (EMM) with its “Pattern ID”.

| Field                       | Short Description   | Format          | Len | Values                  | Presence  |
|-----------------------------|---|-----------------|-----|-------------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.  | Sequence        | 8   | 0..2^64-2               | Mandatory |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'.            | Numerical ID    | 1   | 0..2^8-2                | Mandatory |
| Symbol Index                | Exchange identification code of the instrument/contract.  | Numerical ID    | 4   | 0..2^32-2               | Mandatory |
| Optiq Segment               | An Optiq segment is a universe of instruments sharing common trading properties.  | Enumerated      | 1   | (See field description) | Mandatory |
| Partition ID                | Identifies uniquely an Optiq partition across all the Exchange partitions.  | Numerical ID    | 2   | 0..2^16-2               | Mandatory |
| Full Instrument Name        | Full Instrument Name.   | Text            | 102 | (See field description) | Optional  |
| Instrument Name             | Instrument Name   | Text            | 18  | (See field description) | Mandatory |
| Instrument Trading Code     | Cash: Trading code is a 12-character string, the only instrument identifier that is unique in the feed in addition to the symbol index. | Alphanumeric ID | 15  | (See field description) | Optional  |

| Field                        | Short Description  | Format          | Len | Values                  | Presence  |
|------------------------------|--|-----------------|-----|-------------------------|-----------|
| Instrument Group Code        | Instrument Group / Class Identifier.   | Alphanumeric ID | 2   | (See field description) | Mandatory |
| ISIN Code                    | Instrument ISIN following ISO 6166.  | Alphanumeric ID | 12  | (See field description) | Mandatory |
| Price / Index Level Decimals | Indicates the number of decimals for each Price / Index Level related to this Symbol Index   | Decimal Places  | 1   | 0..2^8-2                | Mandatory |
| Quantity Decimals            | Indicates the number of decimals for each Quantity related to this Symbol Index  | Decimal Places  | 1   | 0..2^8-2                | Optional  |
| Amount Decimals              | Indicates the number of decimals for each Amount related to this Symbol Index  | Decimal Places  | 1   | 0..2^8-2                | Optional  |
| Ratio / Multiplier Decimals  | Indicates the number of decimals for each Ratio / Multiplier related to this Symbol Index  | Decimal Places  | 1   | 0..2^8-2                | Mandatory |
| CFI                          | Classification code of a financial instrument defined by the ISO-10962:2015 standard.  | Text            | 6   |                         | Mandatory |
| Instrument Event Date        | Date of the last instrument characteristic modification(s) except for some exceptions.   | Date            | 2   | 0..2^16-2               | Mandatory |
| Strike Price                 | The strike price of an option/warrant is the specified price at which the underlying can be bought (in the case of a call/right to buy) or sold (in case of a put/right to sell) by the holder (buyer) of the option/warrant contract, at the moment he exercises his right against a writer (seller) of the option/warrant. | Price           | 8   | (See field description) | Optional  |
| Dark Eligibility             | Indicates the Eligibility to dark. 0 is not eligible, 1 is eligible.   | Boolean         | 1   | 0..2^8-2                | Optional  |
| Dark LIS Threshold           | Defines the minimum amount of an order to benefit from the LIS (Large In Scale) pre-transparency waiver (to be calculated with the Amount Decimals).   | Amount          | 8   | 0..2^64-2               | Optional  |
| Dark Minimum Quantity        | Defines the minimum quantity required for an order to be filled in the Dark liquidity. 0 indicates that no minimum amount is required.   | Quantity        | 4   | 0..2^32-2               | Optional  |
| Date Of Last Trade           | Date of the Last Price for the Instrument  | Date            | 2   | 0..2^16-2               | Optional  |
| Depository List              | Identifies the possible main depository organizations (maximum four) for shares or fixed income.   | Text            | 20  | (See field description) | Optional  |
| Main Depository              | Identifies the default (or main) depository organization of the instrument (between the possible 4 depositories registered) used by priority for the settlement (for example: multi-listed instruments which have several depositories).   | Alphanumeric ID | 5   | (See field description) | Optional  |

| Field                        | Short Description   | Format                   | Len | Values  | Presence        |
|------------------------------|---|--------------------------|-----|---|-----------------|
| First Settlement Date        | Represents the first possible settlement date for a given instrument.   | Date                     | 2   | 0..2^16-2   | Optional        |
| Guarantee Indicator          | Indicates if the trade is guaranteed or not (for clearing purpose)  | Enumerated               | 1   | 0 This instrument is not guaranteed<br>1 This instrument is guaranteed<br>2 This instrument is not clearable<br>8 This instrument is part of Cleared Borrowing and Lending Service (CBLM) and is guaranteed | Optional        |
| ICB                          | <i>Not relevant</i>   | <i>Alphanumerical ID</i> | 16  | <i>(See field description)</i>  | <i>Optional</i> |
| Issuing Country              | Issuing country.  | Alphanumerical ID        | 3   | (See field description)   | Optional        |
| Last Adjusted Closing Price  | Last traded price of the previous trading day after application of the adjustment coefficient (to be calculated with the Price/Index Level Decimals).                                   | Price                    | 8   | (See field description)   | Optional        |
| Lot Size                     | For Cash and Derivatives, it defines a multiple of the tradable quantity.   | Quantity                 | 8   | 0..2^64-2   | Optional        |
| Maturity Date                | Maturity Date of the instrument (text formatted as YYYYMMDD).   | Text                     | 8   | (See field description)   | Optional        |
| Maximum Decimals In Quantity | Maximum Decimals In Quantity was introduced for Euronext Fund Services Paris and indicates the maximum of relevant decimal number for trading.  | Numerical                | 1   | 0..2^8-2  | Optional        |
| MIC                          | Identifies the market to which an instrument belongs by its MIC (Market Identification Code), segment MIC according to ISO 10383.   | Alphanumerical ID        | 4   | (See field description)   | Mandatory       |
| MIC List                     | Identifies the Euronext markets on which an instrument is listed by its MIC (Market Identification Code).   | Alphanumerical ID        | 20  | (See field description)   | Optional        |
| Country Of Exchange          | Country of exchange is the Country associated to the MIC following ISO 3166 Alpha-3.  | Alphanumerical ID        | 3   | (See field description)   | Optional        |
| Mnemonic                     | Mnemonic code of the instrument. This field is not populated for every instrument.  | Alphanumerical ID        | 5   | (See field description)   | Optional        |
| Underlying MIC               | Identifies the market to which an instrument' underlying belongs by its MIC (Market Identification Code), according to ISO 10383. Refer to MIC field to have all the authorized values. | Alphanumerical ID        | 4   | (See field description)   | Optional        |
| Underlying ISIN Code         | Underlying ISIN.  | Alphanumerical ID        | 12  | (See field description)   | Optional        |
| Trading Currency             | Code of the currency (ISO 4217-3A).   | Alphanumerical ID        | 3   | (See field description)   | Optional        |

| Field                         | Short Description   | Format            | Len | Values   | Presence |
|-------------------------------|---|-------------------|-----|--|----------|
| Currency Coefficient          | When an actual price is displayed in a different 'price expression' than the official instrument trading currency, the Currency Coefficient represents the ratio 'price expression' divided by 'official currency' (To be calculated with Ratio / Multiplier Decimals).   | Numerical ID      | 4   | 0..2^32-2  | Optional |
| Trading Currency Indicator    | Indicates whether the 'price expression' is in the Currency or in a ratio of this Currency. Use Currency Coefficient field to identify the ratio to apply.  | Enumerated        | 1   | 0 Change rate not applied to the traded price<br>1 Change rate applied to the traded price | Optional |
| Strike Currency Indicator     | Indicates whether the 'price expression' is in the Currency or in a ratio of this Currency. Use Currency Coefficient field to identify the ratio to apply.  | Enumerated        | 1   | 0 Change rate not applied to the strike price<br>1 Change rate applied to the strike price | Optional |
| Number Instrument Circulating | For stocks: this is the total number of shares issued by the company.<br>For Fix Income: this is the number of Fix Income still to be repaid.   | Quantity          | 8   | 0..2^64-2  | Optional |
| Par Value                     | Par Value (also called Nominal value) for Instrument. For Fixed Income it represents the par amount to be repaid at maturity (not including interest revenue) (to be calculated with the Amount Decimals).  | Amount            | 8   | 0..2^64-2  | Optional |
| Quantity Notation             | Indication of the type of measurement (e.g. number of units, nominal, monetary value, etc.) in which the transaction is expressed.  | Text              | 3   | (See field description)  | Optional |
| Instrument Unit Expression    | Unit in which the instrument is quoted.   | Enumerated        | 1   | (See field description)  | Optional |
| Settlement Delay              | Gives the number of trading days that represents the period between the trade date and the settlement date (delivery and payment) for an instrument to be cleared and settled.  | Alphanumerical ID | 2   | (See field description)  | Optional |
| Strike Currency               | Code of the strike currency (ISO 4217-3A).  | Alphanumerical ID | 3   | (See field description)  | Optional |
| Tax Code                      | Tax deduction code to which the instrument belongs.   | Enumerated        | 1   | 0 Not eligible to PEA<br>3 Eligible to PEA<br>9 Not Applicable                             | Optional |
| Type Of Corporate Event       | Indicates the last type of corporate event that has occurred on an instrument, such as detachment of rights, or of coupons. The data item is automatically calculated by the adjustment application but in case of problem or error, the data item value could be modified manually, particularly for purging the order book in case of absence of corporate event. | Alphanumerical ID | 2   | (See field description)  | Optional |



| Field                          | Short Description   | Format                 | Len          | Values                         | Presence            |
|--------------------------------|---|------------------------|--------------|--------------------------------|---------------------|
| Type Of Market Admission       | Indicates the type of market to which an instrument has been listed.  | Enumerated             | 1            | (See field description)        | Optional            |
| Repo Indicator                 | Indicates whether the instrument listed underlies any loan contracts, meaning it has been admitted to the Deferred Settlement system and/or to the lending market.                        | Enumerated             | 1            | (See field description)        | Optional            |
| Issue Price                    | Issuing price of the instrument   | Price                  | 8            | (See field description)        | Optional            |
| Nominal Currency               | Code of the nominal currency (ISO 4217-3A).   | Alphanumeric ID        | 3            | (See field description)        | Optional            |
| Issue Price Decimals           | Indicates the number of decimals for Issue Price related to this Symbol Index   | Decimal Places         | 1            | 0..2^8-2                       | Optional            |
| Strike Price Decimals          | Indicates the number of decimals for Strike Price related to this Symbol Index  | Decimal Places         | 1            | 0..2^8-2                       | Optional            |
| Liquid Instrument Indicator    | Indicates whether the instrument is liquid or not, as defined per MiFID II. (0 = Illiquid; 1 = Liquid)  | Boolean                | 1            | 0..2^8-2                       | Optional            |
| Market Of Reference MIC        | Indicates the instrument Exchange of Reference by its MIC (Market Identification Code according to ISO 10383) (For Future Use).   | Alphanumeric ID        | 4            | (See field description)        | Optional            |
| ICB Code                       | <i>Not relevant</i>   | <i>Alphanumeric ID</i> | <i>8</i>     | <i>(See field description)</i> | <i>Optional</i>     |
| Threshold LIS Post Trade 60mn  | Defines the amount of an order to benefit from the LIS Trade Deferred publication to 60 min (to be calculated with the Amount Decimals).  | Amount                 | 8            | 0..2^64-2                      | Optional            |
| Threshold LIS Post Trade 120mn | Defines the amount of an order to benefit from the LIS Trade Deferred publication to 120 min (to be calculated with the Amount Decimals).   | Amount                 | 8            | 0..2^64-2                      | Optional            |
| Threshold LIS Post Trade EOD   | Defines the amount of an order to benefit from the LIS Trade Deferred publication to EOD (to be calculated with the Amount Decimals).   | Amount                 | 8            | 0..2^64-2                      | Optional            |
| <del>Anonymous</del>           | <del>Indicates if the Market Data notifications on the instrument are anonymous or not. (0: Non Anonymous — Member Firm ID published; 1: Anonymous — Member Firm ID not published).</del> | <del>Boolean</del>     | <del>1</del> | <del>0..2^8-2</del>            | <del>Optional</del> |
| EMMPatternRep length           | Repeating group Header  | Numerical              | 1            | 0.. 2^16-2                     | Mandatory           |
| EMMPatternRep occurrences      | Repeating group Header  | Numerical              | 1            | 1..254                         | Mandatory           |
| EMM                            | Defines the Exchange Market Mechanism applied on each platform.   | Enumerated             | 1            | (See field description)        | Mandatory           |

| Field                      | Short Description   | Format         | Len      | Values                  | Presence        |
|----------------------------|---|----------------|----------|-------------------------|-----------------|
| Pattern ID                 | Numerical Pattern identifier available as a characteristic of an instrument in Standing Data file and message, and used in the MDG timetable message. Cash Markets only.              | Numerical ID   | 2        | 0..2^16-2               | Optional        |
| Tick Size Index ID         | ID of the tick size table available in the Tick Table file.   | Numerical ID   | 2        | 0..2^16-2               | Optional        |
| Market Model               | Market Model identifier.  | Enumerated     | 1        | (See field description) | Optional        |
| Lot Size                   | For Cash and Derivatives, it defines a multiple of the tradable quantity.   | Quantity       | 8        | 0..2^64-2               | Optional        |
| Instrument Unit Expression | Unit in which the instrument is quoted.   | Enumerated     | 1        | (See field description) | Optional        |
| <u>Anonymous</u>           | <u>Indicates if the Market Data notifications on the instrument are anonymous or not. (0: Non Anonymous – Member Firm ID published; 1: Anonymous – Member Firm ID not published).</u> | <u>Boolean</u> | <u>1</u> | <u>0..2^8-2</u>         | <u>Optional</u> |

### 7.2.3 Contract Standing Data (1013)

The Contract Standing Data message provides the characteristics of Derivatives contracts and the underlyings. Contract Standing Data will be sent first, followed by the Outright Standing Data and Strategy Standing Data.

**For Contract characteristics:** Symbol Index will be included in the range defined in the Symbol Index chapter

**For Underlying characteristics:** Symbol Index will be populated with the Symbol Index from the underlying cash instrument (applicable for underlying instruments listed on Euronext).

**Message Sending Rules:** The Contract Standing Data message is sent every morning following the Session Start messages

**Note:** Parameters related to Contract Standing Data will only be available in XML file.

| Field                       | Short Description  | Format       | Len | Values                  | Presence  |
|-----------------------------|--|--------------|-----|-------------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.                             | Sequence     | 8   | 0..2^64-2               | Mandatory |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID | 1   | 0..2^8-2                | Mandatory |
| Symbol Index                | Exchange identification code of the instrument/contract.   | Numerical ID | 4   | 0..2^32-2               | Mandatory |
| Optiq Segment               | An Optiq segment is a universe of instruments sharing common trading properties.   | Enumerated   | 1   | (See field description) | Mandatory |
| Partition ID                | Identifies uniquely an Optiq partition across all the Exchange partitions.   | Numerical ID | 2   | 0..2^16-2               | Mandatory |

| Field                        | Short Description  | Format            | Len | Values   | Presence  |
|------------------------------|--|-------------------|-----|--|-----------|
| Contract Event Date          | Date of the last contract characteristics modification(s) except for some exceptions.  | Date              | 2   | 0..2^16-2  | Optional  |
| Exchange Code                | Indicates the Market Place.  | Enumerated        | 1   | (See field description)  | Mandatory |
| Exercise Style               | Type of exercise of a derivatives instrument   | Enumerated        | 1   | 0 European<br>1 American<br>2 Asian<br>3 Bermudan<br>4 Other     | Optional  |
| Contract Name                | Contract Name  | Text              | 60  |  | Mandatory |
| Contract Type                | Generic Contract Type.   | Enumerated        | 1   | F Future<br>O Option<br>U Underlying                             | Optional  |
| Underlying Type              | Defines the instrument type of the underlying.   | Enumerated        | 1   | C Commodity<br>F Future<br>I Index<br>S Stock<br>X Exchange Rate | Mandatory |
| Price / Index Level Decimals | Indicates the number of decimals for each Price / Index Level related to this Symbol Index   | Decimal Places    | 1   | 0..2^8-2   | Optional  |
| Quantity Decimals            | Indicates the number of decimals for each Quantity related to this Symbol Index  | Decimal Places    | 1   | 0..2^8-2   | Optional  |
| Amount Decimals              | Indicates the number of decimals for each Amount related to this Symbol Index  | Decimal Places    | 1   | 0..2^8-2   | Optional  |
| Ratio / Multiplier Decimals  | Indicates the number of decimals for each Ratio / Multiplier related to this Symbol Index  | Decimal Places    | 1   | 0..2^8-2   | Optional  |
| Main Depository              | Identifies the default (or main) depository organization of the instrument (between the possible 4 depositories registered) used by priority for the settlement (for example: multi-listed instruments which have several depositories). | Alphanumerical ID | 5   | (See field description)  | Optional  |
| MIC                          | Identifies the market to which an instrument belongs by its MIC (Market Identification Code), segment MIC according to ISO 10383.  | Alphanumerical ID | 4   | (See field description)  | Mandatory |
| Country Of Exchange          | Country of exchange is the Country associated to the MIC following ISO 3166 Alpha-3.   | Alphanumerical ID | 3   | (See field description)  | Mandatory |
| Product Code                 | Physical alphanumerical product code.  | Alphanumerical ID | 4   | (See field description)  | Mandatory |
| Underlying MIC               | Identifies the market to which an instrument' underlying belongs by its MIC (Market Identification Code), according to ISO 10383. Refer to MIC field to have all the authorized values.  | Alphanumerical ID | 4   | (See field description)  | Optional  |
| Underlying ISIN Code         | Underlying ISIN.   | Alphanumerical ID | 12  | (See field description)  | Optional  |

| Field                       | Short Description  | Format          | Len | Values  | Presence  |
|-----------------------------|--|-----------------|-----|---|-----------|
| Underlying Expiry           | Expiry Date of the underlying (in number of days since the 1st of January 1970).   | Date            | 4   | 0..2^32-2   | Optional  |
| Order Type Rules            | Order types supported by the matching engine.  | Bitmap          | 2   | (See field description)   | Mandatory |
| Settlement Method           | Settlement method  | Alphanumeric ID | 1   | (See field description)   | Optional  |
| Trading Currency            | Code of the currency (ISO 4217-3A).  | Alphanumeric ID | 3   | (See field description)   | Mandatory |
| Strike Price Decimals Ratio | Value used, only for the AMR code, to determine the number of decimals present in the Option contract strike price, as the strike price is disseminated in format of an integer. | Numerical       | 1   | 0..2^8-2  | Optional  |
| MM Protections              | Indicates allowed MM Protection type on the contract. (0: Disabled; 1: Enabled)  | Bitmap          | 1   | 0 Delta<br>1 Volume   | Mandatory |
| Contract Trading Type       | Contract Trading Type.   | Enumerated      | 1   | 1 Traded as an outright<br>2 Not traded, but listed in contract data. Traders may subscribe to it<br>3 Traded as a simple inter-commodity spread<br>4 Traded as an inter-commodity spread | Mandatory |
| Instrument Unit Expression  | Unit in which the instrument is quoted.  | Enumerated      | 1   | (See field description)   | Optional  |
| Underlying Subtype          | Defined the underlying sub-type associated to the underlying type.   | Enumerated      | 1   | (See field description)   | Optional  |
| Mother Stock ISIN           | ISIN Code of the index underlying of the TRF contract.   | Text            | 12  | (See field description)   | Optional  |
| Settlement Tick Size        | Default Tick Size value applicable for all Settlement Prices. It's calculated using the PriceDecimals.   | Price           | 8   | 0..2^64-2   | Optional  |
| EDSP Tick Size              | Specific Tick Size value applicable for EDSP. It's calculated using the PriceDecimals.   | Price           | 8   | 0..2^64-2   | Optional  |
| Underlying Symbol Index     | Identifies the Symbol Index of the underlying of the instrument.   | Numerical ID    | 4   | 0..2^32-2   | Optional  |
| Trading Policy              | Trading Policy enabling to allocate a given incoming volume to orders.   | Enumerated      | 1   | 1 Price Explicit Time<br>2 Price Pro Rata   | Optional  |
| Reference Spread Table ID   | ID of the Reference Spread Table.  | Numerical ID    | 2   | 0..2^16-2   | Optional  |
| Derivatives Market Model    | Type of synthetic quote applied to the contract  | Enumerated      | 1   | 0 No Synthetic Quote<br>1 Spontaneous Implied Matching<br>2 Event Driven Implied Matching   | Optional  |

| Field  | Short Description   | Format       | Len | Values   | Presence  |
|--|---|--------------|-----|--|-----------|
| Trading Unit                                   | Amount of underlying instrument per unit of a derivative contract (to be calculated with the Quantity Decimals). Due to corporate actions, the value may be different between value provided within this field in Contract Standing Data and Outright Standing Data. Value in Outright Standing Data reflects the adjustment due to the corporate action and should be used for that Outright instrument. | Quantity     | 8   | 0..2^64-2  | Optional  |
| Reference Price Origin in Call                 | For Derivatives, it is the rules to obtain the DCRP. Derivatives authorized values are: 4,5,6,7.  | Enumerated   | 1   | (See field description)                                  | Optional  |
| Reference Price Origin In Continuous           | For Derivatives, it is the rules to obtain the DCRP. Derivatives authorized values are: 4,5,6,7.  | Enumerated   | 1   | (See field description)                                  | Optional  |
| Reference Price Origin In Trading Interruption | For Derivatives, it is the rules to obtain the DCRP. Derivatives authorized values are: 4,5,6,7.  | Enumerated   | 1   | (See field description)                                  | Optional  |
| Collar Expansion Factor                        | Numerical coefficient applied in collar calculation.  | Numerical ID | 1   | 0..2^8-2   | Optional  |
| MIFID II Liquid Flag                           | Defines if a contract is to be considered as liquid under MIFID II Regulation.  | Boolean      | 1   | From 0 to 2^8-2  | Mandatory |
| Pricing Algorithm                              | This field provides the defined pricing algorithm value for a given contract. It is used to identify Total Return Future (TRF) contracts and Market On Close (MOC) contracts. For other contract types the value is set to Standard.  | Enumerated   | 1   | 0 Standard<br>1 Total Return Future<br>2 Market On Close | Mandatory |
| ContractEMMProperties length                   | Repeating section Header  | Numerical    | 1   | 0.. 2^16-2   | Mandatory |
| ContractEMMProperties occurrences              | Repeating section Header  | Numerical    | 1   | 0..10  | Mandatory |
| EMM  | Defines the Exchange Market Mechanism applied on each platform.   | Enumerated   | 1   | (See field description)                                  | Optional  |
| Tick Size Index ID                             | ID of the tick size table available in the Tick Table file.   | Numerical ID | 2   | 0..2^16-2  | Optional  |
| Pattern ID                                     | Numerical Pattern identifier available as a characteristic of an instrument in Standing Data file and message, and used in the MDG timetable message. Cash Markets only.  | Numerical ID | 2   | 0..2^16-2  | Optional  |
| Lot Size                                       | For Cash and Derivatives, it defines a multiple of the tradable quantity.   | Quantity     | 8   | 0..2^64-2  | Optional  |
| Strategy Authorized                            | Provides strategy types authorized for contract.  | Bitmap       | 8   | (See field description)                                  | Optional  |

| Field                | Short Description   | Format     | Len | Values  | Presence |
|----------------------|---|------------|-----|---|----------|
| Dynamic Collar Logic | For Derivatives, Dynamic Collar Logic is a field used to identify the method of handling orders in case of Trade Price Validation (TPV) being triggered. For Cash, Dynamic Collar Logic is used internally. | Enumerated | 1   | 0 Not Active<br>2 No Halt with Reject<br>( <i>not in use</i> )<br>3 Halt with Acceptation | Optional |
| Collar Max Unhalt Nb | Maximum number of automatic unhalt if collar logic enables unhalting.   | Quantity   | 1   | 0..2^8-2  | Optional |
| Collar Unhalt Delay  | Delay (in seconds) of automatic unhalt if collar logic enables unhalting.   | Time       | 4   | 0..2^32-2   | Optional |

## 7.2.4 Outright Standing Data (1014)

The Outright Standing Data message provides characteristics of Derivatives instruments, valid for the current trading day.

### Message Sending Rules:

- Every morning following the Session Start messages. Contract Standing Data will be sent first, followed by the Outright Standing Data and Strategy Standing Data.
- During the day, following intraday creation of instruments.

| Field                               | Short Description  | Format          | Len      | Values                  | Presence         |
|-------------------------------------|--|-----------------|----------|-------------------------|------------------|
| Market Data Sequence Number         | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.   | Sequence        | 8        | 0..2 <sup>64</sup> -2   | Mandatory        |
| Rebroadcast Indicator               | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'.   | Numerical ID    | 1        | 0..2 <sup>8</sup> -2    | Mandatory        |
| Symbol Index                        | Exchange identification code of the instrument/contract.   | Numerical ID    | 4        | 0..2 <sup>32</sup> -2   | Mandatory        |
| Contract Symbol Index               | Identifies the contract of this instrument by its Symbol Index.  | Numerical ID    | 4        | 0..2 <sup>32</sup> -2   | Mandatory        |
| Instrument Event Date               | Date of the last instrument characteristic modification(s) except for some exceptions.   | Date            | 2        | 0..2 <sup>16</sup> -2   | Mandatory        |
| ISIN Code                           | Instrument ISIN following ISO 6166.  | Alphanumeric ID | 12       | (See field description) | Mandatory        |
| CFI                                 | Classification code of a financial instrument defined by the ISO-10962:2015 standard.  | Text            | 6        | (See field description) | Optional         |
| Maturity Date                       | Maturity Date of the instrument (text formatted as YYYYMMDD).  | Text            | 8        | (See field description) | Mandatory        |
| Lot Size                            | <i>Deprecated</i>  | <i>Quantity</i> | <i>8</i> | <i>Deprecated</i>       | <i>Mandatory</i> |
| Strike Price                        | The strike price of an option/warrant is the specified price at which the underlying can be bought (in the case of a call/right to buy) or sold (in case of a put/right to sell) by the holder (buyer) of the option/warrant contract, at the moment he exercises his right against a writer (seller) of the option/warrant. | Price           | 8        | (See field description) | Optional         |
| Last Trading Date                   | Last available trading date for the instrument   | Date            | 2        | 0..2 <sup>16</sup> -2   | Optional         |
| Days To Expiry                      | Number of Calendar days until the Last Trading Day of the Expiry.  | Numerical       | 2        | 0..2 <sup>16</sup> -2   | Optional         |
| Derivatives Instrument Trading Code | Derivatives Instrument Trading Code (formerly AMR) is composed of Exchange Code, Contract Type, Product Code, Expiry. For Options, Strike and Option Type (Put or Call) is added.  | Alphanumeric ID | 18       | (See field description) | Optional         |

| Field  | Short Description   | Format            | Len | Values   | Presence  |
|--|---|-------------------|-----|--|-----------|
| Derivatives Instrument Type                    | Indicates the type of derivative instrument   | Enumerated        | 1   | 0 Call Option<br>1 Put Option<br>2 Strategy<br>3 Individual Future<br>4 Underlying | Optional  |
| Expiry Cycle Type                              | Defines the expiry cycle type   | Enumerated        | 1   | 1 Daily<br>2 Weekly<br>3 Monthly   | Optional  |
| Underlying Derivatives Instrument Trading Code | Is the underlying of the Derivatives Instrument Trading Code.   | Alphanumerical ID | 18  | (See field description)  | Optional  |
| Underlying Symbol Index                        | Identifies the Symbol Index of the underlying of the instrument.  | Numerical ID      | 4   | 0..2 <sup>32</sup> -2  | Optional  |
| Trading Unit                                   | Amount of underlying instrument per unit of a derivative contract (to be calculated with the Quantity Decimals). Due to corporate actions, the value may be different between value provided within this field in Contract Standing Data and Outright Standing Data. Value in Outright Standing Data reflects the adjustment due to the corporate action and should be used for that Outright instrument. | Quantity          | 8   | 0..2 <sup>64</sup> -2  | Optional  |
| OutrightRep length                             | Repeating Group Header  | Numerical         | 1   | 0..2 <sup>16</sup> -2  | Mandatory |
| OutrightRep occurrences                        | Repeating Group Header  | Numerical         | 1   | 1..254   | Mandatory |
| EMM  | Defines the Exchange Market Mechanism applied on each platform.   | Enumerated        | 1   | (See field description)  | Mandatory |

## 7.2.5 Strategy Standing Data (1012)

The Strategy Standing Data message provides the main characteristics of active strategies.

The repeating section provides the details of each leg.

### Message Sending Rules:

- Every morning following the Session Start Messages. Contract Standing Data will be sent first, followed by the Outright Standing Data and Strategy Standing Data. Note that at Start of Day, the messages are sent only for the active strategies, i.e. those having open orders.
- Intraday for the intraday creations / activation of strategies.

**Note:** Standing Data messages are also available in XML file.

| Field                       | Short Description  | Format   | Len | Values                | Presence  |
|-----------------------------|--|----------|-----|-----------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence. | Sequence | 8   | 0..2 <sup>64</sup> -2 | Mandatory |



| Field                                 | Short Description   | Format          | Len | Values                  | Presence  |
|---------------------------------------|---|-----------------|-----|-------------------------|-----------|
| Rebroadcast Indicator                 | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'.  | Numerical ID    | 1   | 0..2^8-2                | Mandatory |
| EMM                                   | Defines the Exchange Market Mechanism applied on each platform.   | Enumerated      | 1   | (See field description) | Mandatory |
| Symbol Index                          | Exchange identification code of the instrument/contract.  | Numerical ID    | 4   | 0..2^32-2               | Mandatory |
| Derivatives Instrument Trading Code   | Derivatives Instrument Trading Code (formerly AMR) is composed of Exchange Code, Contract Type, Product Code, Expiry. For Options, Strike and Option Type (Put or Call) is added. | Alphanumeric ID | 18  | (See field description) | Mandatory |
| Exchange Code                         | Indicates the Market Place.   | Enumerated      | 1   | (See field description) | Mandatory |
| Maturity Date                         | Maturity Date of the instrument (text formatted as YYYYMMDD).   | Text            | 8   |                         | Mandatory |
| Strategy Code                         | Exchange-recognized strategy code   | Alphanumeric ID | 1   | (See field description) | Mandatory |
| Contract Symbol Index                 | Identifies the contract of this instrument by its Symbol Index.   | Numerical ID    | 4   | 0..2^32-2               | Mandatory |
| CFI                                   | Classification code of a financial instrument defined by the ISO-10962:2015 standard.   | Text            | 6   | (See field description) | Optional  |
| StrategyStandingData rep1 length      | Repeating Group Header  | Numerical       | 1   | 0..2^16-2               | Mandatory |
| StrategyStandingData rep1 occurrences | Repeating Group Header  | Numerical       | 1   | 1..254                  | Mandatory |
| Leg Symbol Index                      | MDG proprietary identification code of the instrument leg for the strategy.   | Numerical ID    | 4   | 0..2^32-2               | Mandatory |
| Leg Price                             | Price of corresponding strategy leg (to be calculated with the Price/Index Level Decimals).   | Price           | 8   | (See field description) | Optional  |
| Leg Ratio                             | Ratio of lots for the leg. For contingent trades, the delta.  | Quantity        | 4   | 0..2^32-2               | Mandatory |
| Leg Buy or Sell                       | Leg Side.   | Enumerated      | 1   | B Buy<br>S Sell         | Mandatory |

### 7.2.6 APA Standing Data (1027)

The APA Standing Data (1027) message provides minimum instrument identification information.

#### Message Sending Rules:

This message is sent on each channel only once a day per instrument . It is just sent before the first quote or first trade broadcast for that instrument.

| Field                       | Short Description  | Format          | Len | Values   | Presence  |
|-----------------------------|--|-----------------|-----|--|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.   | Sequence        | 8   | From 0 to 2 <sup>64</sup> -2                   | Optional  |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'.   | Numerical ID    | 1   | From 0 to 2 <sup>8</sup> -2                    | Mandatory |
| MiFID Instrument ID Type    | Code type used to identify the financial instrument.   | Text            | 4   | (See field description)                        | Mandatory |
| MiFID Instrument ID         | Code used to identify the financial instrument. This code has to be processed with the MiFID Instrument ID Type.   | Alphanumeric ID | 12  | (See field description)                        | Mandatory |
| Full Instrument Name        | Full Instrument Name.  | Text            | 102 | (See field description)                        | Optional  |
| CFI                         | Classification code of a financial instrument defined by the ISO-10962:2015 standard.  | Text            | 6   | (See field description)                        | Optional  |
| Notional Currency           | Currency in which the notional is denominated following ISO 4217 standard.   | Alphanumeric ID | 3   | (See field description)                        | Optional  |
| Notional Currency 2         | Currency in which the notional is denominated following ISO 4217 standard.   | Alphanumeric ID | 3   | (See field description)                        | Optional  |
| Price Multiplier            | Number of units of the financial instrument that are contained in a trading lot. Price multiplier coefficient for instrument unit price.   | Numerical       | 4   | From 0 to 2 <sup>32</sup> -2                   | Optional  |
| Price Multiplier Decimals   | Number of decimals for the field Price Multiplier.   | Numerical       | 1   | From 0 to 2 <sup>8</sup> -2                    | Optional  |
| Underlying ISIN Code        | Underlying ISIN.   | Alphanumeric ID | 12  | (See field description)                        | Optional  |
| Underlying Index Name       | Underlying Index Name  | Text            | 25  | (See field description)                        | Optional  |
| Underlying Index Term       | Term of the Underlying Index.  | Text            | 8   | (See field description)                        | Optional  |
| Option Type                 | Type of the option.  | Enumerated      | 1   | 1 Call<br>2 Put                                | Optional  |
| Strike Price                | The strike price of an option/warrant is the specified price at which the underlying can be bought (in the case of a call/right to buy) or sold (in case of a put/right to sell) by the holder (buyer) of the option/warrant contract, at the moment he exercises his right against a writer (seller) of the option/warrant. | Price           | 8   | From -2 <sup>63</sup> +1 to 2 <sup>63</sup> -1 | Optional  |
| Strike Price Decimals       | Indicates the number of decimals for Strike Price related to this ISIN code  | Decimal Places  | 1   | From 0 to 2 <sup>8</sup> -2                    | Optional  |
| Exercise Style              | Type of exercise of a derivatives instrument   | Enumerated      | 1   | (See field description)                        | Optional  |
| Maturity Date               | Maturity Date of the instrument (text formatted as YYYYMMDD).  | Text            | 8   | (See field description)                        | Optional  |

| Field             | Short Description  | Format          | Len | Values                  | Presence |
|-------------------|--|-----------------|-----|-------------------------|----------|
| Expiry Date       | For contracts with one expiry per month the day component may be "00" (text formatted as YYYYMMDD). For AtomX instruments this field contains the exact expiry date. For repo it represents the inclusive date until which a lending/borrowing contract can be traded. | Text            | 8   | (See field description) | Optional |
| Settlement Method | Settlement method  | Alphanumeric ID | 1   | (See field description) | Optional |

## 7.2.7 BF Instrument Reference (1201)

The BF Instrument Reference (1201) message is sent as part of standing data dedicated to the IBF Optiq segment.

### Message Sending Rules:

- Every morning following the Session Start messages.

| Field                       | Short Description  | Format          | Len | Values   | Presence  |
|-----------------------------|--|-----------------|-----|--|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.                             | Sequence        | 8   | From 0 to 2 <sup>64</sup> -2                   | Optional  |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID    | 1   | From 0 to 2 <sup>8</sup> -2                    | Mandatory |
| Symbol Index                | Exchange identification code of the instrument/contract.   | Numerical ID    | 4   | From 0 to 2 <sup>32</sup> -2                   | Mandatory |
| Optiq Segment               | An Optiq segment is a universe of instruments sharing common trading properties.   | Enumerated      | 1   | (See field description)                        | Mandatory |
| ISIN Code                   | Instrument ISIN following ISO 6166.  | Alphanumeric ID | 12  | (See field description)                        | Optional  |
| SEDOL Code                  | Alphanumerical identifier of an instrument on the ISE Bonds and Funds segment.   | Alphanumeric ID | 7   | (See field description)                        | Optional  |
| Long Issuer Name            | Indicates the name of the Legal Issuing Entity, long format.   | Text            | 250 | (See field description)                        | Optional  |
| Long Instrument Name        | Full Instrument Name, long format.   | Text            | 250 | (See field description)                        | Optional  |
| Currency                    | Code of the currency (ISO 4217-3A).  | Alphanumeric ID | 3   | (See field description)                        | Optional  |
| Date of Initial Listing     | Date the instrument was initially listed.  | Date            | 2   | From 0 to 2 <sup>16</sup> -2                   | Optional  |
| Share / Amount in Issue     | Total amount issued for the whole fixed income instrument.   | Price           | 8   | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1 | Optional  |
| Opened/Closed Fund          | Indicates whether the fund is open or closed.  | Enumerated      | 1   | O Open<br>C Closed                             | Optional  |
| Last NAV Price              | Last NAV Price   | Price           | 8   | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1 | Optional  |
| Gross of CDSC Indicator     | Indicates if Contingent Deferred Sales Charges fee is gross or not.  | Enumerated      | 1   | N No<br>Y Yes                                  | Optional  |

| Field                                   | Short Description   | Format               | Len | Values                  | Presence  |
|---|---|----------------------|-----|-------------------------|-----------|
| Coupon                                  | Price of coupon.  | Price                | 8   | From -2^63-1 to 2^63-1  | Optional  |
| Maturity Date                           | Maturity Date of the instrument (text formatted as YYYYMMDD).   | Text                 | 8   | (See field description) | Optional  |
| Closing Price                           | Previous day's closing price (to be calculated with the <a href="#">Price / Index Level Decimals</a> ).                           | Price                | 8   | From -2^63-1 to 2^63-1  | Optional  |
| MIC                                     | Identifies the market to which an instrument belongs by its MIC (Market Identification Code), segment MIC according to ISO 10383. | Alphanumeric<br>I ID | 4   | (See field description) | Optional  |
| Gross Dividend Payable per Unit         | Gross dividend payable, expressed in dividend currency.   | Price                | 8   | From -2^63-1 to 2^63-1  | Optional  |
| Dividend Currency                       | Currency of dividend.   | Text                 | 3   | (See field description) | Optional  |
| Dividend Record Date                    | Date of dividend record.  | Date                 | 2   | From 0 to 2^16-2        | Optional  |
| Dividend Rate                           | Dividend rate.  | Ratio                | 8   | From 0 to 2^64-2        | Optional  |
| Ex-Dividend Date                        | Date of ex-dividend.  | Date                 | 2   | From 0 to 2^16-2        | Optional  |
| Dividend Payment Date                   | Dividend payment date.  | Date                 | 2   | From 0 to 2^16-2        | Optional  |
| Tax Description Attaching to a Dividend | Gives precisions about tax attaching to a dividend.   | Enumerated           | 1   | D Deduced at Source     | Optional  |
| Next Meeting                            | Date of next general meeting, or any free-formatted information related to next meeting.  | Text                 | 8   | (See field description) | Optional  |
| Gross Dividend in Euros                 | Gross dividend payable, expressed in euros.   | Price                | 8   | From -2^63-1 to 2^63-1  | Optional  |
| Issue Date                              | Date at which the instrument has been offered to the market, expressed as number of days since Epoch.                             | Date                 | 2   | From 0 to 2^16-2        | Optional  |
| Issuing Country                         | Issuing country.  | Alphanumeric<br>I ID | 3   | (See field description) | Optional  |
| CFI                                     | Classification code of a financial instrument defined by the ISO-10962:2015 standard.   | Text                 | 6   | (See field description) | Optional  |
| Payment Frequency                       | Frequency of dividend payment.  | Enumerated           | 1   | (See field description) | Optional  |
| Minimum Amount                          | Minimum amount a bond can be bought.  | Price                | 8   | From -2^63-1 to 2^63-1  | Optional  |
| Instrument Category                     | Indicates to which category the instrument belongs.   | Enumerated           | 1   | (See field description) | Mandatory |
| Security Condition                      | Security status.  | Enumerated           | 2   | (See field description) | Optional  |
| MiFID Price Notation                    | Indication as to whether the price is expressed in monetary value, in percentage or in yield.                                     | Text                 | 4   | (See field description) | Optional  |
| Price / Index Level Decimals            | Indicates the number of decimals for each Price / Index Level related to this Symbol Index  | Decimal Places       | 1   | From 0 to 2^8-2         | Optional  |
| Quantity Decimals                       | Indicates the number of decimals for each Quantity related to this Symbol Index   | Decimal Places       | 1   | From 0 to 2^8-2         | Optional  |
| Amount Decimals                         | Indicates the number of decimals for each Amount related to this Symbol Index   | Decimal Places       | 1   | From 0 to 2^8-2         | Optional  |

| Field                       | Short Description   | Format         | Len | Values           | Presence  |
|-----------------------------|---|----------------|-----|------------------|-----------|
| Ratio / Multiplier Decimals | Indicates the number of decimals for each Ratio / Multiplier related to this Symbol Index | Decimal Places | 1   | From 0 to 2^8-2  | Optional  |
| Block Length #1             | Defines the length in bytes of the repeating section #1                                   | Numerical      | 1   | 2                | Mandatory |
| Num in Group #1             | Defines how many times the repeating section #1 is repeated.                              | Numerical      | 1   | From 0 to 4      | Mandatory |
| Interest Payment Date       | Next interest payment date, expressed as number of days since Epoch.                      | Date           | 2   | From 0 to 2^16-2 | Optional  |

## 7.3 APPLICATION MESSAGES

### 7.3.1 Market Update (1001)

The Market Update Message provides valuable data to the market in order to build the limits for the order book depth (COB and BoB), publish trade prices and collars:

- Best limits (BBO)
- Full depth limits
- Clear Book
- Short trade
- Requests
- Collars
- Request For Cross (RFC)
- Best of Book (BoB) full depth limits
- Execution Summary

#### Message Sending Rules:

- For Cash and Derivatives:
  - For the book retransmission every morning or in case of HA.
  - For new or updated price and/or volume in the book (including BBO).
  - For a Request for Quote (RFQ).
  - As a short trade message indicating its trade type, traded price and traded quantity.
  - As an execution summary indicating the total traded quantity and the deepest price reached by the aggressive order.
- For Cash:
  - For new or updated BoB depth of book price and/or volume.
  - For new or updated With Liquidity Provider depth of book price and/or volume for warrants.
  - For new Collars when the update is caused by a new trade which impact collar.
- For Derivatives:
  - For a Request for Cross activation on an instrument.
  - For a Request for Cross queued on an instrument, due to the fact that another RFC is already active.

## Market Data Update Types

The following table defines for each Market Data Update Type to which instruments it applies.

| Market Data Update Type                      |  | Warrants & Certificates |                      | Equity Derivatives |                      | Index Derivatives  |                      | Commodity Derivatives |                      |
|--|--|-------------------------|----------------------|--------------------|----------------------|--------------------|----------------------|-----------------------|----------------------|
|  |  | Full Order Book (OU)    | Full Order Book (MU) | Best Bid and Offer | Full Order Book (MU) | Best Bid and Offer | Full Order Book (MU) | Best Bid and Offer    | Full Order Book (MU) |
| BBO  | 1 - Best Bid (Cash and Derivatives)                    | X                       | X                    | X                  | X                    | X                  | X                    | X                     | X                    |
|  | 2 - Best Offer (Cash and Derivatives)                  |                         |                      |                    |                      |                    |                      |                       |                      |
| Full Depth                                   | 3 - New Bid (Cash and Derivatives)                     |                         | X                    |                    | X                    |                    | X                    |                       | X                    |
|  | 4 - New Offer (Cash and Derivatives)                   |                         |                      |                    |                      |                    |                      |                       |                      |
|  | 5 - Updated Bid (Cash and Derivatives)                 |                         |                      |                    |                      |                    |                      |                       |                      |
|  | 6 - Updated Offer (Cash and Derivatives)               |                         |                      |                    |                      |                    |                      |                       |                      |
|  | 58 - New Bid With Liquidity Provider (Cash Only)       |                         | X                    |                    |                      |                    |                      |                       |                      |
|  | 59 - New Offer With Liquidity Provider (Cash Only)     |                         |                      |                    |                      |                    |                      |                       |                      |
|  | 60 - Updated Bid With Liquidity Provider (Cash Only)   |                         |                      |                    |                      |                    |                      |                       |                      |
|  | 61 - Updated Offer With Liquidity Provider (Cash Only) |                         |                      |                    |                      |                    |                      |                       |                      |
| Wholesales RFC Full Depth (Derivatives Only) | 74 - New Bid on Wholesale RFC                          |                         |                      | X                  | X                    | X                  | X                    | X                     | X                    |
|  | 75 - New Offer on Wholesale RFC                        |                         |                      |                    |                      |                    |                      |                       |                      |
|  | 76 - Updated Bid on Wholesale RFC                      |                         |                      |                    |                      |                    |                      |                       |                      |
|  | 77 - Updated Offer on Wholesale RFC                    |                         |                      |                    |                      |                    |                      |                       |                      |
|  | 78 - Clear Wholesale RFC                               |                         |                      |                    |                      |                    |                      |                       |                      |
| Clear Book                                   | 254 - Clear Book (Cash and Derivatives)                | X                       | X                    | X                  | X                    | X                  | X                    | X                     | X                    |
| Trades Types                                 | 7 - Total Traded Volume <sup>3</sup>                   |                         |                      |                    |                      |                    |                      |                       |                      |
|  | 24 - Conventional Trade (Cash and Derivatives)         | X                       | X                    | X                  | X                    | X                  | X                    | X                     | X                    |

|                         |   | Warrants & Certificates |                      | Equity Derivatives |                      | Index Derivatives  |                      | Commodity Derivatives |                      |
|-------------------------|---|-------------------------|----------------------|--------------------|----------------------|--------------------|----------------------|-----------------------|----------------------|
| Market Data Update Type |   | Full Order Book (OU)    | Full Order Book (MU) | Best Bid and Offer | Full Order Book (MU) | Best Bid and Offer | Full Order Book (MU) | Best Bid and Offer    | Full Order Book (MU) |
|                         | 50 - Trade Cancellation (Cash and Derivatives)                          |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 35 - Dark Trade (Cash Only)   |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 46 - BoB Trade (Cash Only)  |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 51 - Out of Market Trade (Cash Only)                                    | X                       | X                    |                    |                      |                    |                      |                       |                      |
|                         | 54 - Euronext Fund Service Trade (Cash Only)                            |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 55 - Secondary Listing Trade (Cash Only)                                |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 52 - Delta Neutral Trade - Underlying Cash Leg (Cash Only)              | X                       | X                    |                    |                      |                    |                      |                       |                      |
|                         | 65 - Market VWAP Operation Trade (Cash Only)                            |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 34 - Exchange for Swap Trade (Derivatives Only)                         | X                       | X                    |                    |                      |                    |                      |                       |                      |
|                         | 37 - Strategy Leg Conventional Trade (Derivatives Only)                 |                         |                      | X                  | X                    | X                  | X                    | X                     | X                    |
|                         | 53 - Delta Neutral Trade - Underlying Future Leg (Derivatives Only)     |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 29 - Large in Scale (LiS) Package Trade (Derivatives Only) <sup>2</sup> |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 56 - Request for Cross Trade (Derivatives Only)                         |                         |                      | X                  | X                    | X                  | X                    | X                     | X                    |
|                         | 57 - Request for Cross Strategy Leg Trade (Derivatives Only)            |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 72 - ETF-MTF NAV Trade (price in basis points)                          |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 73 - ETF-MTF NAV Dark Trade (price in basis points)                     |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 79 - Guaranteed Cross – Negotiated deal NLIQ (Liquid)                   | X                       | X                    |                    |                      |                    |                      |                       |                      |
|                         | 80 - Guaranteed Cross – Negotiated deal OILQ (illiquid)                 |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 81 - Large in Scale (LIS) Trade (Cash)                                  |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 100 – Conventional Trade – Provisional Price                            |                         |                      | X                  | X                    | X                  | X                    | X                     | X                    |

| Market Data Update Type |  | Warrants & Certificates |                      | Equity Derivatives |                      | Index Derivatives  |                      | Commodity Derivatives |                      |
|-------------------------|--|-------------------------|----------------------|--------------------|----------------------|--------------------|----------------------|-----------------------|----------------------|
|                         |  | Full Order Book (OU)    | Full Order Book (MU) | Best Bid and Offer | Full Order Book (MU) | Best Bid and Offer | Full Order Book (MU) | Best Bid and Offer    | Full Order Book (MU) |
| Execution Summary       | 90 – Bid Execution Summary                             |                         |                      | X                  | X                    | X                  | X                    | X                     | X                    |
|                         | 97 – Offer Execution Summary                           |                         |                      | X                  | X                    | X                  | X                    | X                     | X                    |
| Requests                | 86 – New Bid RFQ Answer                                |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 87 – New Offer RFQ Answer                              |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 88 – Updated Bid RFQ Answer                            |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 89 – Updated Offer RFQ Answer                          |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 10 - Request for Quote (Cash and Derivatives)          |                         |                      | X                  | X                    | X                  | X                    | X                     | X                    |
|                         | 11 - Request for Quote Bid (Cash and Derivatives)      |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 13 - Request for Quote Offer (Cash and Derivatives)    |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 12 - Request for Size (Cash and Derivatives)           | X                       | X                    |                    |                      |                    |                      |                       |                      |
|                         | 66 - Request for Size Bid (Cash and Derivatives)       |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 67 - Request for Size Offer (Cash and Derivatives)     |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 25 - Request for Cross (RFC) Queued (Derivatives Only) |                         |                      | X                  | X                    | X                  | X                    | X                     | X                    |
|                         | 26 - Request for Cross (RFC) (Derivatives Only)        |                         |                      |                    |                      |                    |                      |                       |                      |
| Collars                 | 14 - High Dynamic Collar (Cash Only)                   |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 15 - Low Dynamic Collar (Cash Only)                    |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 63 - Low Static Collar (Cash Only)                     |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 64 - High Static Collar (Cash Only)                    |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 70 - Low LP Collar (Cash Only)                         | X                       | X                    |                    |                      |                    |                      |                       |                      |
|                         | 71 - High LP Collar (Cash Only)                        |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 91 - AQS Expansion Factor                              |                         |                      | X                  | X                    | X                  | X                    | X                     | X                    |
|                         | 92 - Collar Expansion Factor                           |                         |                      |                    |                      |                    |                      |                       |                      |



| Market Data Update Type |  | Warrants & Certificates |                      | Equity Derivatives |                      | Index Derivatives  |                      | Commodity Derivatives |                      |
|-------------------------|--|-------------------------|----------------------|--------------------|----------------------|--------------------|----------------------|-----------------------|----------------------|
|                         |  | Full Order Book (OU)    | Full Order Book (MU) | Best Bid and Offer | Full Order Book (MU) | Best Bid and Offer | Full Order Book (MU) | Best Bid and Offer    | Full Order Book (MU) |
|                         | 93 - Collar Enabled  |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 94 - Collar Disabled   |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 96 – FSP Reference Price                                       |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 98 – FSP Triggered   |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 252 - Static Collar Reference Price (Cash and Derivatives)     |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 253 - Dynamic Collar Reference Price (Cash and Derivatives)    |                         |                      |                    |                      |                    |                      |                       |                      |
| BoB                     | 16 - New Bid RLP (Retail Liquidity Provider) (Cash Only)       |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 17 - New Offer RLP (Retail Liquidity Provider) (Cash Only)     |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 18 - Updated Bid RLP (Retail Liquidity Provider) (Cash Only)   |                         |                      |                    |                      |                    |                      |                       |                      |
|                         | 19 - Updated Offer RLP (Retail Liquidity Provider) (Cash Only) |                         |                      |                    |                      |                    |                      |                       |                      |

<sup>2</sup> - The value 29 (Large in Scale (LiS) Package Trade (Derivatives Only)) is deprecated.

<sup>3</sup> - The value 7 (Total Traded Volume) is deprecated.

| Market Data Update Type |                                       | Fixed Income    |                      | ETFs               |                 |                     | Equities             |                 |                     |
|-------------------------|---------------------------------------|-----------------|----------------------|--------------------|-----------------|---------------------|----------------------|-----------------|---------------------|
|                         |                                       | Full Order Book | Full Order Book (MU) | Best Bid and Offer | Full Order Book | BoB Full Order Book | Full Order Book (MU) | Full Order Book | BoB Full Order Book |
| BBO                     | 1 - Best Bid (Cash and Derivatives)   | X               | X                    | X                  | X               |                     | X                    | X               |                     |
|                         | 2 - Best Offer (Cash and Derivatives) |                 |                      |                    |                 |                     |                      |                 |                     |

|                           |  | Fixed Income    |                      | ETFs               |                 |                     | Equities             |                 |                     |
|---------------------------|--|-----------------|----------------------|--------------------|-----------------|---------------------|----------------------|-----------------|---------------------|
| Market Data Update Type   |  | Full Order Book | Full Order Book (MU) | Best Bid and Offer | Full Order Book | BoB Full Order Book | Full Order Book (MU) | Full Order Book | BoB Full Order Book |
| Full Depth                | 3 - New Bid (Cash and Derivatives)                     |                 | X                    |                    | X               |                     | X                    |                 |                     |
|                           | 4 - New Offer (Cash and Derivatives)                   |                 |                      |                    |                 |                     |                      |                 |                     |
|                           | 5 - Updated Bid (Cash and Derivatives)                 |                 |                      |                    |                 |                     |                      |                 |                     |
|                           | 6 - Updated Offer (Cash and Derivatives)               |                 |                      |                    |                 |                     |                      |                 |                     |
|                           | 58 - New Bid With Liquidity Provider (Cash Only)       |                 |                      |                    |                 |                     |                      |                 |                     |
|                           | 59 - New Offer With Liquidity Provider (Cash Only)     |                 |                      |                    |                 |                     |                      |                 |                     |
|                           | 60 - Updated Bid With Liquidity Provider (Cash Only)   |                 |                      |                    |                 |                     |                      |                 |                     |
|                           | 61 - Updated Offer With Liquidity Provider (Cash Only) |                 |                      |                    |                 |                     |                      |                 |                     |
| Wholesales RFC Full Depth | 74 - New Bid on Wholesale RFC                          |                 |                      |                    |                 |                     |                      |                 |                     |
|                           | 75 - New Offer on Wholesale RFC                        |                 |                      |                    |                 |                     |                      |                 |                     |
|                           | 76 - Updated Bid on Wholesale RFC                      |                 |                      |                    |                 |                     |                      |                 |                     |
|                           | 77 - Updated Offer on Wholesale RFC                    |                 |                      |                    |                 |                     |                      |                 |                     |
|                           | 78 - Clear Wholesale RFC                               |                 |                      |                    |                 |                     |                      |                 |                     |
| Clear Book                | 254 - Clear Book (Cash and Derivatives)                | X               | X                    | X                  | X               | X                   | X                    | X               | X                   |
| Trades Types              | 7 - Total Traded Volume                                |                 |                      |                    |                 |                     |                      |                 |                     |
|                           | 24 - Conventional Trade (Cash and Derivatives)         | X               | X                    | X                  | X               |                     | X                    | X               |                     |
|                           | 50 - Trade Cancellation (Cash and Derivatives)         |                 |                      |                    |                 |                     |                      |                 |                     |
|                           | 35 - Dark Trade (Cash Only)                            |                 |                      |                    |                 |                     | X                    | X               |                     |

| Market Data Update Type |   | Fixed Income    |                      | ETFs               |                 |                     | Equities             |                 |                     |
|-------------------------|---|-----------------|----------------------|--------------------|-----------------|---------------------|----------------------|-----------------|---------------------|
|                         |   | Full Order Book | Full Order Book (MU) | Best Bid and Offer | Full Order Book | BoB Full Order Book | Full Order Book (MU) | Full Order Book | BoB Full Order Book |
|                         | 46 - BoB Trade (Cash Only)  |                 |                      |                    |                 |                     | X                    | X               |                     |
|                         | 51 - Out of Market Trade (Cash Only)                                | X               | X                    | X                  | X               |                     | X                    | X               |                     |
|                         | 54 - Euronext Fund Service Trade (Cash Only)                        | X               | X                    | X                  | X               |                     |                      |                 |                     |
|                         | 55 - Secondary Listing Trade (Cash Only)                            |                 |                      |                    |                 |                     | X                    | X               |                     |
|                         | 52 - Delta Neutral Trade - Underlying Cash Leg (Cash Only)          |                 |                      | X                  | X               |                     | X                    | X               |                     |
|                         | 65 - Market VWAP Operation Trade (Cash Only)                        | X <sup>1</sup>  | X <sup>1</sup>       | X <sup>1</sup>     | X <sup>1</sup>  |                     | X                    | X               |                     |
|                         | 34 - Exchange for Swap Trade (Derivatives Only)                     |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 37 - Strategy Leg Conventional Trade (Derivatives Only)             |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 53 - Delta Neutral Trade - Underlying Future Leg (Derivatives Only) |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 29 - Large in Scale (LIS) Package Trade (Derivatives Only)          |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 56 - Request for Cross Trade (Derivatives Only)                     |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 57 - Request for Cross Strategy Leg Trade (Derivatives Only)        |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 72 - ETF-MTF NAV Trade (price in basis points)                      |                 |                      | X                  | X               |                     |                      |                 |                     |
|                         | 73 - ETF-MTF NAV Dark Trade (price in basis points)                 |                 |                      |                    |                 |                     |                      |                 |                     |

| Market Data Update Type |   | Fixed Income    |                      | ETFs               |                 |                     | Equities             |                 |                     |
|-------------------------|---|-----------------|----------------------|--------------------|-----------------|---------------------|----------------------|-----------------|---------------------|
|                         |   | Full Order Book | Full Order Book (MU) | Best Bid and Offer | Full Order Book | BoB Full Order Book | Full Order Book (MU) | Full Order Book | BoB Full Order Book |
|                         | 79 - Guaranteed Cross – Negotiated deal NLIQ (Liquid)   |                 |                      | X                  | X               |                     | X                    | X               |                     |
|                         | 80 - Guaranteed Cross – Negotiated deal OILQ (illiquid) |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 81 - Large in Scale (LIS) Trade (Cash)                  |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 100 – Conventional Trade – Provisional Price            |                 |                      |                    |                 |                     |                      |                 |                     |
| Execution Summary       | 90 – Bid Execution Summary                              | X               | X                    | X                  | X               |                     | X                    | X               |                     |
|                         | 97 – Offer Execution Summary                            | X               | X                    | X                  | X               |                     | X                    | X               |                     |
| Requests                | 86 – New Bid RFQ Answer                                 |                 |                      | X                  | X               |                     |                      |                 |                     |
|                         | 87 – New Offer RFQ Answer                               |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 88 – Updated Bid RFQ Answer                             |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 89 – Updated Offer RFQ Answer                           |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 10 - Request for Quote (Cash and Derivatives)           |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 11 - Request for Quote Bid (Cash and Derivatives)       |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 13 - Request for Quote Offer (Cash and Derivatives)     |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 12 - Request for Size (Cash and Derivatives)            |                 |                      |                    |                 |                     | X                    | X               |                     |
|                         | 66 - Request for Size Bid (Cash and Derivatives)        |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 67 - Request for Size Offer (Cash and Derivatives)      |                 |                      |                    |                 |                     |                      |                 |                     |

| Market Data Update Type |  | Fixed Income    |                      | ETFs               |                 |                     | Equities             |                 |                     |
|-------------------------|--|-----------------|----------------------|--------------------|-----------------|---------------------|----------------------|-----------------|---------------------|
|                         |  | Full Order Book | Full Order Book (MU) | Best Bid and Offer | Full Order Book | BoB Full Order Book | Full Order Book (MU) | Full Order Book | BoB Full Order Book |
|                         | 25 - Request for Cross (RFC) Queued (Derivatives Only)       |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 26 - Request for Cross (RFC) (Derivatives Only)              |                 |                      |                    |                 |                     |                      |                 |                     |
| Collars                 | 14 - High Dynamic Collar (Cash Only)                         | X               | X                    | X                  | X               |                     | X                    | X               |                     |
|                         | 15 - Low Dynamic Collar (Cash Only)                          |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 63 - Low Static Collar (Cash Only)                           |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 64 - High Static Collar (Cash Only)                          |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 70 - Low LP Collar (Cash Only)                               |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 71 - High LP Collar (Cash Only)                              |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 91 - AQS Expansion Factor                                    |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 92 - Collar Expansion Factor                                 |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 93 - Collar Enabled  |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 94 - Collar Disabled   |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 252 - Static Collar Reference Price (Cash and Derivatives)   |                 |                      |                    |                 |                     | X                    | X               | X                   |
|                         | 253 - Dynamic Collar Reference Price (Cash and Derivatives)  |                 |                      |                    |                 |                     |                      |                 |                     |
| BoB                     | 16 - New Bid RLP (Retail Liquidity Provider) (Cash Only)     |                 |                      |                    |                 | X                   |                      |                 | X                   |
|                         | 17 - New Offer RLP (Retail Liquidity Provider) (Cash Only)   |                 |                      |                    |                 |                     |                      |                 |                     |
|                         | 18 - Updated Bid RLP (Retail Liquidity Provider) (Cash Only) |                 |                      |                    |                 |                     |                      |                 |                     |

|                         |  | Fixed Income    |                      | ETFs               |                 |                     | Equities             |                 |                     |
|-------------------------|--|-----------------|----------------------|--------------------|-----------------|---------------------|----------------------|-----------------|---------------------|
| Market Data Update Type |  | Full Order Book | Full Order Book (MU) | Best Bid and Offer | Full Order Book | BoB Full Order Book | Full Order Book (MU) | Full Order Book | BoB Full Order Book |
|                         | 19 - Updated Offer RLP (Retail Liquidity Provider) (Cash Only) |                 |                      |                    |                 |                     |                      |                 |                     |

<sup>1</sup> - only for negotiated trades on Euronext Exchange

## Limits (BBO and Full Depth):

The "Market Data Update Type" field indicates the type of price/volume update as follows:

- The Best Bid/Offer are the best explicit buy or sell limit price and aggregated volume (explicit and implied) at the best limit price. When best orders are Market Orders or Market To Limit orders, the Best Bid/Offer is sent out with a price set to null and a quantity equal to the aggregated volume of Market Order (MO) and Market To Limit (MTL).
- A Market Order is sent in Market Data with a price set to null value and the quantity is the one from the client order.
- When there is no more Limit on a book side, last BBO is sent with quantity set to '0' and Price set to null value.
- The Bid/Offer updates are the explicit buy or sell price and aggregated explicit volume at any price level. When the Bid/Offer is the best price, both the Bid/Offer and the Best Bid/Offer will be sent. Implied volume is not taken into account in the Bid/Offer updates.
- On Warrants, all updates with a "Liquidity Provider" flag, with a limit will contain at least one liquidity provider order. "Liquidity Provider" limits contain one or several liquidity provider orders along with zero to several non-liquidity provider orders.

## Requests:

- On ETF/MTF, Request For Quotes (RFQ) have the following behaviour:
  - A RFQ request will be sent to liquidity providers in private messages. Market participants will not be informed of this RFQ.
  - If the RFQ results in a trade, and only in this case, all answers to the RFQ are sent in market data using Market Data Update Type: "83 = New Bid RFQ Answer" and/or "84 = New Offer RFQ Answer". The New Bid RFQ Answer and New Offer RFQ answer are aggregated price limits and show the total amount of orders at a price limit. The price limits are cleared using Updated Bid RFQ Answer and Updated Offer RFQ answer with quantity equal to 0.
- A Request for Size (RFS) notifies market participants that a member has an interest at the specified instrument price, but no quantity is indicated.

## Collars:

The broadcast information regarding collars varies according to the segment to which the collar is applicable.

Collars are sent as described below.

- For dynamic collars:
  - On each book retransmission (including morning and HA book retransmission)
  - On each dynamic collar price changes
  - On action from Market Operation
- For static collars:
  - On each book retransmission (including morning and HA book retransmission)
  - On Market Operation request
  - For some instruments, on the first trade of the day
- For LP collars:
  - Only for instrument on LP Quote Driven market model and during One Side Only period to indicate opposite side virtual collar.

For more details on interaction of Optiq in cases of collar expansion associated to the Trading patterns, Spreads, triggering of FSP events, please review the Derivatives Kinematics document.

## Request For Cross:

For interaction of order entry and market data messages for Request For Cross clients should review the Derivatives Kinematics document.

### Clear Book:

- A Clear Book requests client to clear the entire book for a given Symbol Index. Quantity will be '0' and Price set to null value.

### Short trades:

Trades will also be notified using the Market Update message. This comprises a short summary of the trade information since more detailed trade information is provided on Full Trade Information (1004) message. For the specific case of Wholesales, no short trade information will be disseminated through Market Update message.

Customers that are only using short trade messages can retrieve MMT levels 1 (MMT Market Mechanism), 2 (MMT Trading Mode) and 3 (MMT Transaction Category). Rules to get this information with Market Update messages are available in appendix of this document. Please refer to both appendix sections:

- [MMT Flags Rules](#)
- [Link Between EMM and Trade Types](#)

### Execution Summary:

Execution summary message provides information of the order book state after the processing of an aggressive order against orders in the order book. Execution summary messages are published with following characteristics:

- Number Of Orders is always set to null value
- Dark and hidden iceberg orders quantities are included in the execution summary
- RLP orders in case of an aggressive RLO order are included in the execution summary
- Trades with deferred publication will not generate execution summary messages
- Stop order is considered as new aggressive order and thus will generate a dedicated execution summary for the transaction
- For cash segments, execution summary messages are only published during continuous phase

For Derivatives, in case of Implied Trading, the Execution Summary is sent for the Strategy book, as well as the Outright books that participate in the execution taking into account outright orders and implied orders that have already been published.

### Peg Orders (for future use):

Peg orders will be communicated on its creation and for each update with:

- aggregated volume at this limit
- Number Of Orders with the number of peg orders

On a BBO update peg order updates will be disseminated with the BBO message in different repeated sections.

If a peg order has the same limit as other orders quantity and Number Of Reference fields will always provide aggregated limit that is containing both peg and non-peg orders.

| Field                       | Short Description  | Format   | Len | Values                       | Presence  |
|-----------------------------|--|----------|-----|------------------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence. | Sequence | 8   | From 0 to 2 <sup>64</sup> -2 | Mandatory |



| Field                   | Short Description  | Format                    | Len | Values   | Presence  |
|-------------------------|--|---------------------------|-----|--|-----------|
| Rebroadcast Indicator   | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID              | 1   | From 0 to 2 <sup>8</sup> -2                    | Mandatory |
| EMM                     | Defines the Exchange Market Mechanism applied on each platform.  | Enumerated                | 1   | (See field description)                        | Mandatory |
| Event Time              | Time when an event has been processed  | Epoch Time in Nanoseconds | 8   | From 0 to 2 <sup>64</sup> -2                   | Mandatory |
| Updates length          |  | Numerical                 | 1   | 0..2 <sup>16</sup> -2                          | Mandatory |
| Updates occurrences     |  | Numerical                 | 1   | 1..254   | Mandatory |
| Market Data Update Type | Type of market data update.  | Enumerated                | 1   | (See field description)                        | Mandatory |
| Symbol Index            | Exchange identification code of the instrument/contract.   | Numerical ID              | 4   | From 0 to 2 <sup>32</sup> -2                   | Mandatory |
| Number Of Orders        | Number of orders at the current price limit.   | Numerical                 | 2   | From 0 to 2 <sup>16</sup> -2                   | Optional  |
| Price                   | Price per unit of quantity (to be calculated with the Price/Index Level Decimals).   | Price                     | 8   | From -2 <sup>63</sup> +1 to 2 <sup>63</sup> -1 | Optional  |
| Quantity                | Number of traded or ordered units (to be calculated with Quantity Decimals).   | Quantity                  | 8   | From 0 to 2 <sup>64</sup> -2                   | Optional  |

### 7.3.2 Order Update (1002)

On all markets, the Order Update Message provides the market with the information needed to build the order book. Multiple changes can be disseminated within a single Order Update (1002) message.

This message takes into account all order types, with the exception of Stop Loss and Stop Limit orders. Stop orders are not broadcasted to market participants until they are triggered.

#### Message Sending Rules:

- In the morning, before market opening, when the trading engine is initialized, to retransmit orders remaining in the book from previous days (taking into account expired orders and order book purges). This is known as the 'order book retransmission' or 'market sheet retransmission'.
- During the day, on each new order, modify order or deletion order from a member firm.
- During the day, in case of order book retransmission. This is a failsafe in case of order book resynchronization.

#### Market Data Action Types

The Market Data Action Types apply for all cash instrument on central order book. Therefore, no Order Update messages are sent on derivatives.

#### Order Modifications

For modification of orders, the field Market Data Action Type will flag if there is a loss of priority or not. The order will lose its priority for:

- a price change

- an amendment with an increase of its displayed quantity

### Peg Orders (for future use)

Peg orders will be communicated on its creation with its characteristics:

- Type of peg order
- Peg Offset
- Quantity

On a BBO update no peg order update will be disseminated. Members will have then to update the peg orders for each BBO without changing the previous priority of the original order. Indeed, this will identify the order in case of a partial fill or update.

If a peg is partially filled or updated, then it loses its priority and the message will contain the new quantity.

### To be noted:

- Symbol Index, EMM and Order Priority identify the rank of the order in the order book.
- Order Priority identifies the priority of the order in the order book (the order book is identified with Symbol Index and EMM).
- In case of a Deletion (Market Data Action Type '2' or '3'), the quantity will be set to '0' and the price set to default value.
- Orders for cash must be arranged according to:
  - Order type: Priority should be given first to Market order and Market to limit followed by Limits and Peg orders
  - Order price
  - Order priority
- For Market Orders the price will be set to null value and the quantity is the one from the client order.

Client applications should do the following in order to build the market sheet:

- Determine the Market Data Action Type (add, modify, delete)
- Determine the priority of an order based on Order Type, Order Price, and the Order Priority. The priority of orders of the same type and price depends on their order priority. The order with the lowest value of Order Priority has the highest priority. Bid orders with higher prices have higher priority; ask orders with lower price have higher priority.
- Determine the price and size of an order.

| Field                       | Short Description  | Format                    | Len | Values                       | Presence  |
|-----------------------------|--|---------------------------|-----|------------------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.                             | Sequence                  | 8   | From 0 to 2 <sup>64</sup> -2 | Mandatory |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID              | 1   | From 0 to 2 <sup>8</sup> -2  | Mandatory |
| EMM                         | Defines the Exchange Market Mechanism applied on each platform.  | Enumerated                | 1   | (See field description)      | Mandatory |
| Event Time                  | Time when an event has been processed  | Epoch Time in Nanoseconds | 8   | From 0 to 2 <sup>64</sup> -2 | Mandatory |
| Orders length               | Repeating Section Header   | Numerical                 | 1   | 0...2 <sup>16</sup> -2       | Mandatory |
| Orders occurrences          | Repeating Section Header   | Numerical                 | 1   | 1..254                       | Mandatory |
| Symbol Index                | Exchange identification code of the instrument/contract.   | Numerical ID              | 4   | From 0 to 2 <sup>32</sup> -2 | Mandatory |

| Field                   | Short Description  | Format       | Len | Values   | Presence  |
|-------------------------|--|--------------|-----|--|-----------|
| Market Data Action Type | Identifies if the order is a New Order, a Deletion, a Modification or a Retransmission.  | Enumerated   | 1   | (See field description)                        | Mandatory |
| Order Priority          | Rank giving the priority of the order. The order with the lowest value of Order Priority has the highest priority.   | Numerical ID | 8   | From 0 to 2 <sup>64</sup> -2                   | Optional  |
| Previous Priority       | Previous Priority is populated only when there is a "Modification of existing order With Loss Of Priority" or order deletions. Then clients have to remove from their market sheet the order identified with the field "Previous Priority" and add a new order with the field "Order Priority" newly provided. | Numerical ID | 8   | From 0 to 2 <sup>64</sup> -2                   | Optional  |
| Order Type              | Type of Order.   | Enumerated   | 1   | (See field description)                        | Optional  |
| Order Price             | Instrument price per quantity unit (To be calculated with Price/Index Level Decimals).   | Price        | 8   | From -2 <sup>63</sup> +1 to 2 <sup>63</sup> -1 | Optional  |
| Order Side              | Indicates the side of the order.   | Enumerated   | 1   | 1 Buy<br>2 Sell<br>3 Cross                     | Optional  |
| Order Quantity          | Total order quantity, per quantity unit.(To be calculated with Quantity Decimals).   | Quantity     | 8   | From 0 to 2 <sup>64</sup> -2                   | Optional  |
| Peg Offset              | (Future Use) Tick offset for a pegged order.   | Numerical ID | 1   | From -127 to 127                               | Optional  |

### 7.3.3 Long Order Update (1015)

On Fixed Income markets for non-anonymous instruments, the Long Order Update Message provides the market with the information needed to build the order book. It completes (and does not replace) the Order Update (1002) message with the issuing firm information.

Multiple changes can be disseminated within a single Long Order Update (1015) message.

This message takes into account all order types, with the exception of Stop Loss and Stop Limit orders. Stop orders are not broadcasted to market participants until they are triggered.

#### Message Sending Rules:

- In the morning, before market opening, when the trading engine is initialized, to retransmit orders remaining in the book from previous days (taking into account expired orders and order book purges). This is known as the 'order book retransmission' or 'market sheet retransmission'.
- During the day, on each new order, modify order or deletion order from a member firm.
- During the day, in case of order book retransmission. This is a failsafe in case of order book resynchronization.

#### Market Data Action Types

The Market Data Action Types apply for all cash instrument on central order book.

## Order Modifications

For modification of orders, the field Market Data Action Type will flag if there is a loss of priority or not. The order will lose its priority for:

- a price change
- an amendment with an increase of its displayed quantity

### To be noted:

- Symbol Index, EMM and Order Priority identify the rank of the order in the order book.
- Order Priority identifies the priority of the order in the order book (the order book is identified with Symbol Index and EMM).
- In case of a Deletion (Market Data Action Type '2' or '3'), the quantity will be set to '0' and the price set to default value.
- Orders for cash must be arranged according to:
  - Order type: Priority should be given first to Market order and Market to limit followed by Limits and Peg orders
  - Order price
  - Order priority
- For Market Orders the price will be set to null value and the quantity is the one from the client order.

Client applications should do the following in order to build the market sheet:

- Determine the Market Data Action Type (add, modify, delete)
- Determine the priority of an order based on Order Type, Order Price, and the Order Priority. The priority of orders of the same type and price depends on their order priority. The order with the lowest value of Order Priority has the highest priority. Bid orders with higher prices have higher priority; ask orders with lower price have higher priority.
- Determine the price and size of an order.

| Field                       | Short Description  | Format                    | Len | Values                       | Presence  | Page                             |
|-----------------------------|--|---------------------------|-----|------------------------------|-----------|----------------------------------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.                             | Sequence                  | 8   | From 0 to 2 <sup>64</sup> -2 | Mandatory | <del>1701</del><br><del>69</del> |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID              | 1   | From 0 to 2 <sup>8</sup> -2  | Mandatory | <del>2012</del><br><del>00</del> |
| EMM                         | Defines the Exchange Market Mechanism applied on each platform.  | Enumerated                | 1   | (See field description)      | Mandatory | <del>1524</del><br><del>51</del> |
| Event Time                  | Time when an event has been processed (Time in number of nanoseconds since 01/01/1970 UTC).                                  | Epoch Time in Nanoseconds | 8   | From 0 to 2 <sup>64</sup> -2 | Mandatory | <del>1534</del><br><del>52</del> |
| Symbol Index                | Exchange identification code of the instrument.  | Numerical ID              | 4   | From 0 to 2 <sup>32</sup> -2 | Mandatory | <del>2142</del><br><del>42</del> |

| Field                   | Short Description  | Format          | Len | Values                         | Presence     | Page                             |
|-------------------------|--|-----------------|-----|--------------------------------|--------------|----------------------------------|
| Market Data Action Type | Identifies if the order is a New Order, a Deletion, a Modification or a Retransmission.  | Enumerated      | 1   | (See field description)        | Mandatory    | <del>1691</del><br><del>68</del> |
| Order Priority          | Rank giving the priority of the order. The order with the lowest value of Order Priority has the highest priority.   | Numerical ID    | 8   | From 0 to 2^64-2               | Optional     | <del>1911</del><br><del>89</del> |
| Previous Priority       | Previous Priority is populated only when there is a "Modification of existing order With Loss Of Priority" or order deletions. Then clients have to remove from their market sheet the order identified with the field "Previous Priority" and add a new order with the field "Order Priority" newly provided. | Numerical ID    | 8   | From 0 to 2^64-2               | Optional     | <del>1971</del><br><del>96</del> |
| Order Type              | Type of Order.   | Enumerated      | 1   | (See field description)        | Optional     | <del>1921</del><br><del>90</del> |
| Order Price             | Instrument price per quantity unit (To be calculated with Price/Index Level Decimals).   | Price           | 8   | From -2^63+1 to 2^63-1         | Optional     | <del>1901</del><br><del>89</del> |
| Order Side              | Indicates the side of the order.   | Enumerated      | 1   | 1 Buy<br>2 Sell<br>3 Cross [i] | Optional     | <del>1911</del><br><del>90</del> |
| Order Quantity          | Total order quantity, per quantity unit.(To be calculated with Quantity Decimals)  | Quantity        | 8   | From 0 to 2^64-2               | Optional     | <del>1911</del><br><del>90</del> |
| Peg Offset              | [N/A] (Future Use) Tick offset for a pegged order.   | Numerical ID    | 1   | From -127 to 127               | Optional     | <del>1951</del><br><del>93</del> |
| Firm ID                 | Identifier of the member firm that has entered the Order.  | Alphanumeric ID | 8   | (See field description)        | Conditional  | <del>1551</del><br><del>54</del> |
| Account Type            | [N/A] Indicates the account type for which the order is entered.   | Enumerated      | 1   |                                | Not provided |                                  |

### 7.3.4 Price Update (1003)

The Price Update message provides reference prices.

**Message Sending Rules:** Price Update message are sent each time a reference price is updated.

**Market Data Price Types:** Reference prices are available for the following instruments:

|   | Warrants & Certificates | Fixed Income | ETFs | Cash Equities | Equity Derivatives, Index Derivatives, & Commodities |
|---|-------------------------|--------------|------|---------------|--|
| 2 – Official Daily (Derivatives Only)   |                         |              |      |               | X  |
| 4 – Official Market Close (Derivatives Only)  |                         |              |      |               | X  |
| 6 – Official Expiry (Derivatives Only)  |                         |              |      |               | X  |
| 7 – Provisional Intraday (Derivatives Only)   |                         |              |      |               | X  |
| 8 – Official Intraday (Derivatives Only)  |                         |              |      |               | X  |
| 9 – Official YDSP (Derivatives Only)  | X                       |              |      |               | X  |
| 10 – Net Asset Value (+/-) for the instruments eligible to the NAV Trading Facility (Cash Only) |                         |              | X    |               |  |
| 12 – Adjusted Closing Price (Cash Only)   | X                       | X            | X    | X             |  |
| 13 – Subscription Price (Cash Only)   | X                       |              | X    |               |  |
| 14 – Indicative Matching Price (Cash and Derivatives)   | X                       | X            | X    | X             | X  |
| 19 – Min Price Out of Session Trades (Cash Only)  | X*                      | X*           | X*   | X*            |  |
| 20 – Max Price Out of Session Trades (Cash Only)  | X*                      | X*           | X*   | X*            |  |
| 21 – Min Price Out of Session Block Trades (Cash Only)  | X*                      | X*           | X*   | X*            |  |
| 22 – Max Price Out of Session Block Trades  | X*                      | X*           | X*   | X*            |  |
| 23 – Valuation Price (Cash Only)  | X                       | X            | X    | X             |  |
| 24 – Fund Subscription (Cash Only)  |                         |              | X    |               |  |
| 25 – Fund Redemption (Cash Only)  |                         |              | X    |               |  |
| 26 – Uncrossing Price (Cash and Derivatives)  | X                       | X            | X    | X             | X  |
| 27 – Last Traded Price (Cash and Derivatives)   | X                       | X            | X    | X             | X  |
| 28 – Alternative Indicative Price (AIP) (Cash Only)   | X                       | X            | X    | X             |  |
| 30 – Net Asset Value  |                         |              | X*   |               |  |
| 31 – External Reference Price   |                         |              |      | X             |  |

\* Only for TCS

For derivatives markets, all settlement prices and Indicative Uncrossing Prices for each uncrossing are provided in the Price Update message (1003). It is sent for both past settlements (in the morning) and intraday settlements (during the trading day).

## Indicative Matching Price:

A Price Update message with Market Data Price Type: 14 (Indicative Matching Price) indicates the instrument theoretical opening conditions which consist of:

- The Indicative Matching Price (IMP): price at which the instrument would trade if it opened at the moment the price is calculated
- The Indicative Matching Volume (IMV): quantity that would trade at the IMP if the instrument opened at the moment the price is calculated
- The indicative imbalance volume: remaining unmatched quantity at the IMP
- The indicative imbalance volume side: side of the indicative imbalance volume
- Depending on the market, the Indicative Matching Price is sent on a fixed basis or in real time. The real-time messages are sent if at least one of the instrument's theoretical opening conditions changes (indicative matching price, indicative matching volume, imbalance volume or imbalance volume side).
- If the Indicative Matching Price remains undetermined, but the reason for this undetermined state changes, then an Indicative Matching Price is sent with null values (in field Price).

Quantity field will be set to null for the following Market Data Price Type:

- 13 - Subscription Price
- 23 - Valuation Price
- 27 - Last Traded Price
- 28 - Alternative Indicative Price (AIP)

For Cash markets, all reference prices are published through a Price Update message, for both Central Order Book and Out of Session contexts:

- Closing Price
- Uncrossing Price
- Valuation Price
- Min/Max Out of Session Trade Price
- Net Asset value for eligible instruments

Fund features (subscription and redemption) are also communicated through a Price Update Message.

| Field                       | Short Description  | Format                    | Len | Values                  | Presence  |
|-----------------------------|--|---------------------------|-----|-------------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.                             | Sequence                  | 8   | 0..2 <sup>64</sup> -2   | Mandatory |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID              | 1   | 0..2 <sup>8</sup> -2    | Mandatory |
| EMM                         | Defines the Exchange Market Mechanism applied on each platform.  | Enumerated                | 1   | (See field description) | Mandatory |
| Event Time                  | Time when an event has been processed  | Epoch Time in Nanoseconds | 8   | 0..2 <sup>64</sup> -2   | Mandatory |
| Prices length               | Repeating Section Header   | Numerical                 | 1   | 0..2 <sup>16</sup> -2   | Mandatory |
| Prices occurrences          | Repeating Section Header   | Numerical                 | 1   | 1..254                  | Mandatory |
| Market Data Price Type      | Type of price update (note: 1 to 9 are settlement price type).   | Enumerated                | 1   | (See field description) | Mandatory |
| Symbol Index                | Exchange identification code of the instrument/contract.   | Numerical ID              | 4   | 0..2 <sup>32</sup> -2   | Mandatory |

| Field                   | Short Description  | Format     | Len | Values                            | Presence |
|-------------------------|--|------------|-----|-----------------------------------|----------|
| Price                   | Price per unit of quantity (to be calculated with the Price/Index Level Decimals).   | Price      | 8   | See field description)            | Optional |
| Quantity                | Number of traded or ordered units (to be calculated with Quantity Decimals).   | Quantity   | 8   | 0..2^64-2                         | Optional |
| Imbalance Quantity      | Imbalance volume quantity if Uncrossing occurs at this moment. This volume includes hidden quantity (to be calculated with Quantity Decimals). | Quantity   | 8   | 0..2^64-2                         | Optional |
| Imbalance Quantity Side | Side of the imbalance volume if the Uncrossing occurs at this moment.  | Enumerated | 1   | 0 No imbalance<br>1 Buy<br>2 Sell | Optional |

### 7.3.5 Full Trade Information (1004)

The Full Trade Information Message feeds the Market with a MiFID II compliant trade summary (A short trade message is provided in the Market Update message (1001) for all markets, except for the specific case of Derivatives Wholesale trades – further described below). The Full Trade Information message is also used for trade publications and trade summary reports.

In case of wholesale LIS Package Trade transaction, it is disseminated via Full Trade information – MiFID II Compliant, sent after a LIS Package Structure (1016), and

- In the core part of the message, the SymbolIndex of the contract
- In the core of the message, the executed volume of the transaction at package level
- In the core of the message, in the MiFID Execution ID field, the TVTIC associated to the overall transaction (please refer to section 6.19 [How to Determine the TVTIC](#) p.6362)
- In the core of the message, MMT Transaction Category is set to 'TPAC: Package Trade' in case of a wholesale strategy

#### For the Cash Markets

MiFID Transaction Identification Code is composed of the Symbol Index (on 10 characters), the EMM (on 3 characters) and the Execution ID (on 10 characters). It is a unique Execution ID by instrument per day on the different available EMM.

Example: Trade done with Execution Id: 42 on the Symbol Index: 1384659 on EMM: 1 (COB) will have this MiFID Execution ID: 00013846590010000000042.

Cash markets will be aligned to the format provided for the Derivatives in a future delivery of Optiq.

#### For the Derivatives Markets

Until completion of this change on the Cash markets, MiFID Execution ID is populated in Optiq in line with TVTIC rules defined below, only on the Derivatives segments: Index Derivatives, Equity Derivatives and Commodities. Cash segments will be aligned to this format in the future.

The TVTIC is built as follows:

- In case of a COB or RFC trade on a single Instrument (independent of the mechanism that allowed execution):



Execution ID (10 char) from OEG concatenated with the instruments identifier (ISIN code [12 char] or Symbol Index [10 char]). Example: Execution ID provided in Order Entry: 257; Instrument ISIN = ABCDEF123456; TVTIC will be 257ABCDEF123456)

- In case of a wholesale transaction:

LIS Transaction ID (10 char) from OEG concatenated with instruments identifier (ISIN code [12 char] or Symbol Index [10 char]).

Example: LIS Transaction ID provided in Order Entry: 9012345678; Instrument SymbolIndex = 0000000008; TVTIC will be 90123456780000000008).

Symbol Index is used for instruments that do not have an ISIN code assigned (e.g. Strategies).

Client should note that the ISIN of the contract is used in case of wholesale and that Wholesales LIS on Strategies are allowed only on exchange recognized strategies.

### Message Sending Rules:

- For each trade notification.
- For each trade retransmission.

If the Transaction Type is "Summary Report", then it will be a deferred publication of aggregated trades. Therefore, only the MiFID Notional Amount will be filled, and the high and low prices will be in the Statistics message (1009).

~~On Derivatives, field Price will be set to null, due to market convention, for:~~

- ~~— Against Actual trades (Trade Type 6)~~
- ~~— Exchange for Swap Trade (Trade Type 9)~~

MiFID 2 flags are populated using the Market Model Typology (MMT) in version 3.01. For more information please visit: <http://www.fixtradingcommunity.org/pg/group-types/mmt>

| Field                       | Short Description  | Format                    | Len | Values                  | Presence  |
|-----------------------------|--|---------------------------|-----|-------------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.                             | Sequence                  | 8   | 0..2^64-2               | Mandatory |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID              | 1   | 0..2^8-2                | Mandatory |
| EMM                         | Defines the Exchange Market Mechanism applied on each platform.  | Enumerated                | 1   | (See field description) | Mandatory |
| Event Time                  | Time when an event has been processed  | Epoch Time in Nanoseconds | 8   | 0..2^64-2               | Mandatory |
| Symbol Index                | Exchange identification code of the instrument/contract.   | Numerical ID              | 4   | 0..2^32-2               | Optional  |
| Trading Date Time           | Date and time when the transaction was executed.   | Text                      | 27  | (See field description) | Mandatory |
| Publication Date Time       | Date and time when the transaction was published by a trading venue or Approved Publication Arrangement (APA).               | Text                      | 27  | (See field description) | Optional  |
| Trade Type                  | Type of trade.   | Enumerated                | 1   | (See field description) | Mandatory |

| Field                                  | Short Description   | Format            | Len | Values                  | Presence  |
|--|---|-------------------|-----|-------------------------|-----------|
| MiFID Instrument ID Type               | Code type used to identify the financial instrument.  | Text              | 4   | (See field description) | Optional  |
| MiFID Instrument ID                    | Code used to identify the financial instrument. This code has to be processed with the MiFID Instrument ID Type.  | Alphanumerical ID | 12  | (See field description) | Optional  |
| MiFID Execution ID                     | <p>MiFID Transaction Identification Code is a unique ID of the Execution per instrument, day and EMM.</p> <p>The value in the field is a concatenation of the Execution ID (10 char) and an identifier of the instruments [ISIN code (12 char) or Symbol Index (10 char)]. In most cases the identifier of the instrument is the 12 character ISIN code.</p> <p>For derivatives, in cases when the trade occurs on an instrument for which the ISIN code is not populated (e.g. Strategies) the Symbol Index of the instrument is used instead.</p> | Alphanumerical ID | 52  | (See field description) | Mandatory |
| MiFID Price                            | Traded price of the transaction excluding, where applicable, commission and accrued interest.   | Text              | 20  | (See field description) | Optional  |
| MiFID Quantity                         | Number of units of the financial instrument. The nominal or monetary value of the financial instrument.   | Text              | 20  | (See field description) | Mandatory |
| MiFID Price Notation                   | Indication as to whether the price is expressed in monetary value, in percentage or in yield.   | Text              | 4   | (See field description) | Optional  |
| MiFID Currency                         | Currency in which the price is expressed (applicable if the price is expressed as monetary value) following ISO 4217 standard.  | Alphanumerical ID | 3   | (See field description) | Optional  |
| MiFID Qty in Measurement Unit Notation | Indication of measurement units in which the quantity in measurement unit is expressed.   | Text              | 25  | (See field description) | Optional  |
| MiFID Quantity Measurement Unit        | The equivalent amount of commodity or emission allowance traded expressed in measurement unit   | Text              | 20  | (See field description) | Optional  |
| MiFID Notional Amount                  | Nominal amount or notional amount.  | Text              | 20  | (See field description) | Optional  |
| Notional Currency                      | Currency in which the notional is denominated following ISO 4217 standard.  | Alphanumerical ID | 3   | (See field description) | Optional  |
| MiFID Clearing Flag                    | Code to identify whether the transaction will be cleared.   | Text              | 5   | (See field description) | Optional  |
| MMT Market Mechanism                   | Defines the fundamental functional market mechanism that has facilitated the trade following MMT level 1.   | Enumerated        | 1   | (See field description) | Optional  |

| Field                            | Short Description   | Format     | Len | Values   | Presence  |
|----------------------------------|---|------------|-----|--|-----------|
| MMT Trading Mode                 | Differentiates transactions by defining the trading mode under which the trade was executed following MMT level 2.  | Enumerated | 1   | (See field description)  | Optional  |
| MMT Transaction Category         | Defines the transaction category following MMT level 3.1.   | Text       | 4   | (See field description)  | Optional  |
| MMT Negotiation Indicator        | Defines the negotiation indicator or pre-trade transparency waiver following MMT level 3.2.   | Text       | 4   | (See field description)  | Optional  |
| MMT Agency Cross Trade Indicator | Defines the agency cross trade indicator following MMT level 3.3.   | Text       | 4   | (See field description)  | Optional  |
| MMT Modification Indicator       | Defines the modification indicator following MMT level 3.4.   | Text       | 4   | (See field description)  | Optional  |
| MMT Benchmark Indicator          | Defines the benchmark indicator or the reference price indicator following MMT level 3.5.   | Text       | 4   | (See field description)  | Optional  |
| MMT Special Dividend Indicator   | Defines the special dividend indicator following MMT level 3.6.   | Text       | 4   | (See field description)  | Optional  |
| MMT Off Book Automated Indicator | Defines the off book automated indicator following MMT level 3.7.   | Enumerated | 1   | M Off Book Non-Automated<br>Q Off Book Automated<br>- (Hyphen) Unspecified or does not apply   | Optional  |
| MMT Contribution to Price        | Defines the contribution to price or the price discovery process following MMT level 3.8.   | Text       | 4   | (See field description)  | Optional  |
| MMT Algorithmic Indicator        | Defines the algorithmic indicator following MMT level 3.9.  | Text       | 4   | (See field description)  | Optional  |
| MMT Publication Mode             | Defines the publication mode or post-trade deferral reason following MMT level 4.1.   | Text       | 4   | (See field description)  | Optional  |
| MMT Post Trade Deferral          | Defines the post trade deferral or enrichment type following MMT level 4.2.   | Text       | 4   | (See field description)  | Optional  |
| MMT Duplicative Indicator        | Defines the duplicative indicator following MMT level 5.  | Text       | 4   | (See field description)  | Optional  |
| Trade Qualifier                  | Trade Qualifier. Values specified, in the list of possible values, indicate the bit positions that should be used to set zero (0) or one (1) values. A single field contains multiple values provided in different positions. | Bitmap     | 1   | (See field description)  | Mandatory |
| Transaction Type                 | Transaction type or publication type.   | Enumerated | 1   | (See field description)  | Optional  |
| Effective Date Indicator         | Indicates if the trade is introduced on the trading session day or earlier.   | Enumerated | 1   | 0 If the seller declaration is received on the current trading session day<br>1 If seller declaration is received before the current trading session day | Optional  |

| Field                         | Short Description   | Format                    | Len | Values   | Presence  |
|-------------------------------|---|---------------------------|-----|--|-----------|
| Block Trade Code              | Indicates if trade relates to a block or a negotiated deal following MiFID rules.   | Enumerated                | 1   | B Block Trade<br>N Regular trade or Negotiated deal<br>- (Hyphen) Undefined                            | Optional  |
| Trade Reference               | Reference of the trade reported to the Exchange.  | Alphanumeric ID           | 30  | (See field description)  | Optional  |
| Original Report Timestamp     | Timestamp of trade reporting to the Exchange  | Epoch Time in Nanoseconds | 8   | 0..2 <sup>64</sup> -2  | Optional  |
| Transparency Indicator        | Used to define the transparency of the trade.   | Enumerated                | 1   | 0 Lit/Regular Trade<br>1 Dark Trade and Immediate Publication<br>2 Dark Trade and Deferred Publication | Optional  |
| Currency Coefficient          | When an actual price is displayed in a different 'price expression' than the official instrument trading currency, the Currency Coefficient represents the ratio 'price expression' divided by 'official currency' (To be calculated with Ratio / Multiplier Decimals).   | Numerical ID              | 4   | 0..2 <sup>32</sup> -2  | Optional  |
| Price Multiplier              | Number of units of the financial instrument that are contained in a trading lot. Price multiplier coefficient for instrument unit price.  | Numerical                 | 4   | 0..2 <sup>32</sup> -2  | Optional  |
| Price Multiplier Decimals     | Number of decimals for the field Price Multiplier.  | Numerical                 | 1   | 0..2 <sup>8</sup> -2   | Optional  |
| Venue                         | Identification of the venue where the transaction was executed using the ISO 10383 segment MIC for transactions executed on a trading venue.  | Alphanumeric ID           | 11  | (See field description)  | Mandatory |
| Start Time Vwap               | Start time for the Volume Weight Average price computation period   | Intraday Time in Seconds  | 4   | 0..2 <sup>32</sup> -2  | Optional  |
| End Time Vwap                 | End time for the Volume Weight Average price computation period   | Intraday Time in Seconds  | 4   | 0..2 <sup>32</sup> -2  | Optional  |
| MiFID Emission Allowance Type | This field is only applicable for emission allowances.  | Text                      | 4   | (See field description)  | Optional  |
| Market Of Reference MIC       | Indicates the instrument Exchange of Reference by its MIC (Market Identification Code according to ISO 10383) (For Future Use).   | Alphanumeric ID           | 4   | (See field description)  | Optional  |
| Evaluated Price               | This field is used for Total Return Future and Market On Close Future trading. The Price is calculated by ME in index point notation. It can contain the provisional price calculated in intra-day or the final price calculated at the end of the day. The Trade Type value will enable user to know if the field contains provisional price or final price. | Price                     | 8   | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1   | Optional  |

| Field                              | Short Description  | Format                     | Len | Values  | Presence  |
|------------------------------------|--|----------------------------|-----|---|-----------|
| Message Price Notation             | This field provides the type of price notation used per message. For TRF and MOC products the value "Price" is used for TAM trading mode, the values "Spread in basis points" and "Spread" are used for TAIC trading mode. | Enumerated                 | 1   | 1 Price<br>2 Spread in basis points<br>3 Spread | Optional  |
| SettlementDate                     | Date when a trade is final, and the buyer must make payment to the seller while the seller delivers the assets to the buyer.   | Number of days since Epoch | 2   | 0..2^16-2                                       | Mandatory |
| RepoSettlementDate                 | Date when the Repo-Seller gets the assets back from the Repo-Buyer. Used in case of a Repo (Repurchase Agreement) trade.   | Number of days since Epoch | 2   | 0..2^16-2                                       | Mandatory |
| Block Length for repeating section | Defines the length in bytes if the repeating section   | Header                     | 1   | 0   | Mandatory |
| Num in Group for repeating section | Defines how many times the repeating section is repeated   | Hader                      | 1   | 0   | Mandatory |

### 7.3.6 APA Quotes (1026)

APA Quotes message provides, for each instrument per Legal Entity Identifier (LEI), a best bid and best offer SI quote.

#### Message Sending Rules:

Each time the LEI is submitting:

- New quote
- Updated an existing quote
- Cancelled an existing quote

#### Quotes Management:

Only Best Bid and Best Offer are sent for each instrument and for each LEI. Therefore, if 2 LEI are quoting the same instrument it has to be managed separately. For example it is possible the best bid of a LEI crosses the best offer of another LEI of the same instrument.

Both new and update quotes are sent using the Best Bid (1) or Best Offer (2) update in field "Quote Update Type". After the first quote per LEI, instrument and side, all the following for this key will replace previous quote (price and quantity).

When a LEI is stopping contribution or cancelling its current quote a Cancel Bid (5) or Cancel Offer (6) update type is outbound.

#### Note:

- No check is done to verify if quotes from the same LEI for a given instrument are crossed.
- Clients, for each new day, have to clear all quotes from previous day. Clearing quote can be done on End Of Day or Start Of Day message.

| Field                       | Short Description   | Format                    | Len | Values                       | Presence  |
|-----------------------------|---|---------------------------|-----|------------------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.                                  | Sequence                  | 8   | From 0 to 2 <sup>64</sup> -2 | Optional  |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'.      | Numerical ID              | 1   | From 0 to 2 <sup>8</sup> -2  | Mandatory |
| MiFID Instrument ID Type    | Code type used to identify the financial instrument.  | Text                      | 4   | (See field description)      | Mandatory |
| MiFID Instrument ID         | Code used to identify the financial instrument. This code has to be processed with the MiFID Instrument ID Type.                  | Alphanumeric ID           | 12  | (See field description)      | Mandatory |
| MIC                         | Identifies the market to which an instrument belongs by its MIC (Market Identification Code), segment MIC according to ISO 10383. | Alphanumeric ID           | 4   | (See field description)      | Mandatory |
| Currency                    | Code of the currency (ISO 4217-3A).   | Alphanumeric ID           | 3   | (See field description)      | Mandatory |
| LEI Code                    | LEI (Legal Entity Identifier) Code  | Alphanumeric ID           | 20  | (See field description)      | Mandatory |
| Event Time                  | (Time in number of nanoseconds since 01/01/1970 UTC).   | Epoch Time in Nanoseconds | 8   | From 0 to 2 <sup>64</sup> -2 | Mandatory |
| Quote Update Type           | Type of Quote update.   | Enumerated                | 1   | (See field description)      | Mandatory |
| MiFID Price                 | Traded price of the transaction excluding, where applicable, commission and accrued interest.                                     | Text                      | 20  | (See field description)      | Mandatory |
| MiFID Quantity              | Number of units of the financial instrument. The nominal or monetary value of the financial instrument.                           | Text                      | 20  | (See field description)      | Mandatory |

### 7.3.7 APA Full Trade Information (1028)

APA Full Trade Information message is the trade publication as reported by clients and for Euronext Synapse.

MiFID 2 flags are populated using the Market Model Typology (MMT) in version 3.04. For more information please visit:

<http://www.fixtradingcommunity.org/pg/group-types/mmt>.

#### Message Sending Rules:

- APA Full Trade Information is sent each time a client is sending a trade for publication to APA services, modifies it or cancels it;
- And for Euronext Synapse trades, modifications and cancellations.

### Transaction Publication management:

Each time a new transaction is published, it has a dedicated “MiFID Transaction ID”, which actually contains the Trading Venue Transaction Identification Code (TVTIC) (please refer to section 6.19 [How to Determine the TVTIC](#) p.6362).

On cancellation, this “MiFID Transaction ID” is the same and is used to match the cancelled trade.

On amendment, a first APA Full Trade Information is sent to cancel the amended trade. As the casual cancellation, “MiFID Transaction ID” is used to match the trade cancelled. Then, the amended trade is published with same “MiFID Transaction ID”.

| Field                       | Short Description  | Format                    | Len | Values                       | Presence  |
|-----------------------------|--|---------------------------|-----|------------------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.                             | Sequence                  | 8   | From 0 to 2 <sup>64</sup> -2 | Mandatory |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID              | 1   | From 0 to 2 <sup>8</sup> -2  | Mandatory |
| EMM                         | Defines the Exchange Market Mechanism applied on each platform.  | Enumerated                | 1   | (See field description)      | Mandatory |
| Event Time                  | (Time in number of nanoseconds since 01/01/1970 UTC).  | Epoch Time in Nanoseconds | 8   | From 0 to 2 <sup>64</sup> -2 | Mandatory |
| Trading Date Time           | Date and time when the transaction was executed.   | Text                      | 27  | (See field description)      | Mandatory |
| Publication Date Time       | Date and time when the transaction was published by a trading venue or Approved Publication Arrangement (APA).               | Text                      | 27  | (See field description)      | Optional  |
| Trade Type                  | Type of trade.   | Enumerated                | 1   | (See field description)      | Mandatory |
| MiFID Instrument ID Type    | Code type used to identify the financial instrument.   | Text                      | 4   | (See field description)      | Optional  |
| MiFID Instrument ID         | Code used to identify the financial instrument. This code has to be processed with the MiFID Instrument ID Type.             | Alphanumeric ID           | 12  | (See field description)      | Optional  |
| MiFID Transaction ID        | MiFID Transaction Identification Code is a unique reported trade identifier.   | Alphanumeric ID           | 52  | (See field description)      | Mandatory |
| MiFID Price                 | Traded price of the transaction excluding, where applicable, commission and accrued interest.                                | Text                      | 20  | (See field description)      | Optional  |
| MiFID Quantity              | Number of units of the financial instrument. The nominal or monetary value of the financial instrument.                      | Text                      | 20  | (See field description)      | Mandatory |
| MiFID Price Notation        | Indication as to whether the price is expressed in monetary value, in percentage or in yield.                                | Text                      | 4   | (See field description)      | Optional  |

| Field                                      | Short Description  | Format            | Len | Values  | Presence |
|--|--|-------------------|-----|---|----------|
| MiFID Currency                             | Currency in which the price is expressed (applicable if the price is expressed as monetary value) following ISO 4217 standard. | Alphanumerical ID | 3   | (See field description)   | Optional |
| MiFID Qty in Measurement Unit Notation     | Indication of measurement units in which the quantity in measurement unit is expressed.  | Text              | 25  | (See field description)   | Optional |
| MiFID Quantity Measurement Unit            | The equivalent amount of commodity or emission allowance traded expressed in measurement unit                                  | Text              | 20  | (See field description)   | Optional |
| MiFID Notional Amount                      | Nominal amount or notional amount.   | Text              | 20  | (See field description)   | Optional |
| Notional Currency                          | Currency in which the notional is denominated following ISO 4217 standard.   | Alphanumerical ID | 3   | (See field description)   | Optional |
| MiFID Clearing Flag                        | Code to identify whether the transaction will be cleared.  | Text              | 5   | (See field description)   | Optional |
| Efficient MMT Market Mechanism             | Defines the fundamental functional market mechanism that has facilitated the trade following MMT level 1.                      | Enumerated        | 1   | (See field description)   | Optional |
| Efficient MMT Trading Mode                 | Differentiates transactions by defining the trading mode under which the trade was executed following MMT level 2.             | Enumerated        | 1   | (See field description)   | Optional |
| Efficient MMT Transaction Category         | Defines the transaction category following MMT level 3.1.  | Enumerated        | 1   | (See field description)   | Optional |
| Efficient MMT Negotiation Indicator        | Defines the negotiation indicator or pre-trade transparency waiver following MMT level 3.2.                                    | Enumerated        | 1   | (See field description)   | Optional |
| Efficient MMT Agency Cross Trade Indicator | Defines the agency cross trade indicator following MMT level 3.3.  | Enumerated        | 1   | X 'ACTX' – Agency Cross Trade<br>- '-' – No Agency Cross Trade  | Optional |
| Efficient MMT Modification Indicator       | Defines the modification indicator following MMT level 3.4.  | Enumerated        | 1   | A 'AMND': Trade Amendment<br>C 'CANC': Trade Cancellation<br>- '-' – New Trade                                | Optional |
| Efficient MMT Benchmark Indicator          | Defines the benchmark indicator or the reference price indicator following MMT level 3.5.                                      | Enumerated        | 1   | B 'BENC': Benchmark Trade<br>S 'RFPT': Reference Price Trade<br>- '-' – No Benchmark or Reference Price Trade | Optional |
| Efficient MMT Special Dividend Indicator   | Defines the special dividend indicator following MMT level 3.6.  | Enumerated        | 1   | E 'SDIV': Special Dividend Trade<br>- '-' – No Special Dividend Trade   | Optional |



| Field                                      | Short Description  | Format                    | Len | Values   | Presence  |
|--|--|---------------------------|-----|--|-----------|
| Efficient MMT Off Book Automated Indicator | Defines the off book automated indicator following MMT level 3.7.  | Enumerated                | 1   | M Off Book Non-Automated<br>Q Off Book Automated<br>- (Hyphen)<br>Unspecified or does not apply  | Optional  |
| Efficient MMT Contribution to Price        | Defines the contribution to price or the price discovery process following MMT level 3.8.  | Enumerated                | 1   | J 'TNCP': Trade not Contributing to the Price Discovery Process<br>N 'PNDG' – Price is Currently Not Available but Pending<br>P 'P' – Plain-Vanilla Trade<br>T 'NPFT': Non-Price Forming Trade (formerly known as the Technical Trade) | Optional  |
| Efficient MMT Algorithmic Indicator        | Defines the algorithmic indicator following MMT level 3.9.   | Enumerated                | 1   | H 'ALGO': Algorithmic Trade<br>- '-': No Algorithmic Trade   | Optional  |
| Efficient MMT Publication Mode             | Defines the publication mode or post-trade deferral reason following MMT level 4.1.  | Enumerated                | 1   | (See field description)  | Optional  |
| Efficient MMT Post Trade Deferral          | Defines the post trade deferral or enrichment type following MMT level 4.2.  | Enumerated                | 1   | (See field description)  | Optional  |
| Efficient MMT Duplicative Indicator        | Defines the duplicative indicator following MMT level 5.   | Enumerated                | 1   | 1 'DUPL' – Duplicative Trade Report (reported to more than one APA)<br>- '-': Unique Trade Report  | Optional  |
| Trade Reference                            | Reference of the trade reported to the Exchange.   | Alphanumerical ID         | 30  | (See field description)  | Optional  |
| Original Report Timestamp                  | Timestamp of trade reporting to the Exchange (Time in number of nanoseconds since 01/01/1970 UTC).   | Epoch Time in Nanoseconds | 8   | From 0 to 2 <sup>64</sup> -2   | Optional  |
| Price Multiplier                           | Number of units of the financial instrument that are contained in a trading lot. Price multiplier coefficient for instrument unit price.     | Numerical                 | 4   | From 0 to 2 <sup>32</sup> -2   | Optional  |
| Price Multiplier Decimals                  | Number of decimals for the field Price Multiplier.   | Numerical                 | 1   | From 0 to 2 <sup>8</sup> -2  | Optional  |
| Venue                                      | Identification of the venue where the transaction was executed using the ISO 10383 segment MIC for transactions executed on a trading venue. | Alphanumerical ID         | 11  | (See field description)  | Mandatory |
| MiFID Emission Allowance Type              | This field is only applicable for emission allowances.   | Text                      | 4   | (See field description)  | Optional  |

| Field                | Short Description   | Format          | Len | Values                  | Presence |
|----------------------|---|-----------------|-----|-------------------------|----------|
| Long Trade Reference | Reference of the trade reported to the Exchange. Unlike the field <b>Trade Reference</b> (length = 30 char.), the <b>Long Trade Reference</b> is MiFID II compliant (length = 52 char. as requested by the ESMA). This field is used only for the Saturn APA Service. | Alphanumeric ID | 52  | (See field description) | Optional |

### 7.3.8 BF Trade (1202)

The BF Trade (1202) message provides trade information for the ISE IBF Optiq segment.

The MMT Modification Indicator indicates whether it is a new trade, a trade amendment or a trade cancellation.

This message is sent:

- Every morning following the Session Start messages, to provide information on the last trade that occurred for this instrument.
- During the trading session, when there is a new trade for this instrument.
- During the trading session, in case of trade amendment or cancellation.

| Field                       | Short Description  | Format                    | Len | Values   | Presence  |
|-----------------------------|--|---------------------------|-----|--|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.                             | Sequence                  | 8   | From 0 to 2 <sup>64</sup> -2                   | Optional  |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID              | 1   | From 0 to 2 <sup>8</sup> -2                    | Mandatory |
| Symbol Index                | Exchange identification code of the instrument/contract.   | Numerical ID              | 4   | From 0 to 2 <sup>32</sup> -2                   | Mandatory |
| MiFID Transaction ID        | MiFID Transaction Identification Code is a unique reported trade identifier.   | Alphanumeric ID           | 52  | (See field description)                        | Mandatory |
| Event Time                  | Time when an event has been processed  | Epoch Time in Nanoseconds | 8   | From 0 to 2 <sup>64</sup> -2                   | Mandatory |
| Bid/Offer Date Time         | Bid/Offer date time , expressed as number of nanoseconds since Epoch.  | Epoch Time in Nanoseconds | 8   | From 0 to 2 <sup>64</sup> -2                   | Optional  |
| MMT Modification Indicator  | Defines the modification indicator following MMT level 3.4.  | Text                      | 4   | (See field description)                        | Mandatory |
| Price                       | Price per unit of quantity (to be calculated with the Price/Index Level Decimals).   | Price                     | 8   | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1 | Optional  |
| Bid Price                   | Quote bid price, (To be calculated with Price/Index Level Decimals).   | Price                     | 8   | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1 | Optional  |
| Offer Price                 | Quote offer price, (To be calculated with Price/Index Level Decimals).   | Price                     | 8   | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1 | Optional  |

| Field                            | Short Description  | Format            | Len | Values   | Presence  |
|----------------------------------|--|-------------------|-----|--|-----------|
| Quantity                         | Number of traded or ordered units (to be calculated with Quantity Decimals).   | Quantity          | 8   | From 0 to 2 <sup>64</sup> -2                   | Mandatory |
| MMT Agency Cross Trade Indicator | Defines the agency cross trade indicator following MMT level 3.3.  | Text              | 4   | (See field description)                        | Optional  |
| MMT Benchmark Indicator          | Defines the benchmark indicator or the reference price indicator following MMT level 3.5.  | Text              | 4   | (See field description)                        | Optional  |
| MMT Special Dividend Indicator   | Defines the special dividend indicator following MMT level 3.6.  | Text              | 4   | (See field description)                        | Optional  |
| MMT Trading Mode                 | Differentiates transactions by defining the trading mode under which the trade was executed following MMT level 2.                 | Enumerated        | 1   | (See field description)                        | Optional  |
| MiFID Price Notation             | Indication as to whether the price is expressed in monetary value, in percentage or in yield.                                      | Text              | 4   | (See field description)                        | Optional  |
| Quantity Notation                | Indication of the type of measurement (e.g. number of units, nominal, monetary value, etc.) in which the transaction is expressed. | Text              | 3   | (See field description)                        | Optional  |
| Notional Amount Traded           | Whole amount of the trade.   | Amount            | 8   | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1 | Optional  |
| Trading Currency                 | Code of the currency (ISO 4217-3A).  | Alphanumerical ID | 3   | (See field description)                        | Optional  |

### 7.3.9 BF NAV (1203)

The BF NAV (1203) message provides Net Asset Value information for the ISE IBF Optiq segment.

The MMT Modification Indicator indicates whether it is a new NAV, a NAV amendment or a NAV cancellation.

This message is sent:

- Every morning following the Session Start messages, to provide information on the last NAV for this instrument.
- During the trading session, when there is a new NAV for this instrument.
- During the trading session, in case of NAV amendment or cancellation.

| Field                       | Short Description  | Format       | Len | Values                       | Presence  |
|-----------------------------|--|--------------|-----|------------------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.                             | Sequence     | 8   | From 0 to 2 <sup>64</sup> -2 | Optional  |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID | 1   | From 0 to 2 <sup>8</sup> -2  | Mandatory |
| Symbol Index                | Exchange identification code of the instrument/contract.   | Numerical ID | 4   | From 0 to 2 <sup>32</sup> -2 | Mandatory |

| Field                      | Short Description  | Format                    | Len | Values   | Presence  |
|----------------------------|--|---------------------------|-----|--|-----------|
| Bid/Offer Date Time        | Bid/Offer date time , expressed as number of nanoseconds since Epoch.        | Epoch Time in Nanoseconds | 8   | From 0 to 2 <sup>64</sup> -2                   | Optional  |
| MiFID Transaction ID       | MiFID Transaction Identification Code is a unique reported trade identifier. | Alphanumerical ID         | 52  | (See field description)                        | Mandatory |
| MMT Modification Indicator | Defines the modification indicator following MMT level 3.4.                  | Text                      | 4   | (See field description)                        | Mandatory |
| NAV Price                  | NAV Price  | Price                     | 8   | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1 | Optional  |
| Event Time                 | Time when an event has been processed  | Epoch Time in Nanoseconds | 8   | From 0 to 2 <sup>64</sup> -2                   | Optional  |
| NAV Bid Price              | Net Asset Value bid price.   | Price                     | 8   | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1 | Optional  |
| NAV Offer Price            | Net Asset Value offer price.   | Price                     | 8   | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1 | Optional  |

### 7.3.10 LIS Package Structure (1016)

The LIS Package structure (1016) message is sent to the market to provide the structure of the package negotiated through the Optiq Wholesale facility. It allows to:

- Determine the components of the package,
- Determine which type of the Exchange Known Strategies was created to negotiate the LIS Strategy transaction (formerly package),
- Map the coming Transaction published via Full Trade Information (1004) message with its structure at component level,
- Automatically compute the statistics.

Each LIS Package Structure is sent with the MIFID Execution ID of the transaction it relates to – allowing to associate both 1004 and 1016 messages.

#### Message Sending Rules:

- For each LIS Package trade notification (trade types 4 and 43)
- For each LIS Package trade retransmission.

| Field                       | Short Description  | Format                    | Len | Values                       | Presence  |
|-----------------------------|--|---------------------------|-----|------------------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.                             | Sequence                  | 8   | From 0 to 2 <sup>64</sup> -2 | Mandatory |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID              | 1   | From 0 to 2 <sup>8</sup> -2  | Mandatory |
| EMM                         | Defines the Exchange Market Mechanism applied on each platform.  | Enumerated                | 1   | (See field description)      | Mandatory |
| Event Time                  | Time when an event has been processed  | Epoch Time in Nanoseconds | 8   | From 0 to 2 <sup>64</sup> -2 | Mandatory |

| Field                     | Short Description  | Format          | Len | Values                  | Presence  |
|---------------------------|--|-----------------|-----|-------------------------|-----------|
| Contract Symbol Index     | Identifies the contract of this instrument by its Symbol Index.  | Numerical ID    | 4   | 0..2^32-2               | Mandatory |
| MiFID Execution ID        | MiFID Transaction Identification Code is a unique ID of the Execution per instrument, day and EMM.<br>The value in the field is a concatenation of the Execution ID (10 char) and an identifier of the instruments [ISIN code (12 char) or Symbol Index (10 char)]. In most cases the identifier of the instrument is the 12 character ISIN code.<br>For derivatives, in cases when the trade occurs on an instrument for which the ISIN code is not populated (e.g. Strategies) the Symbol Index of the instrument is used instead. | Alphanumeric ID | 52  | (See field description) | Mandatory |
| Strategy Code             | Exchange-recognized strategy code  | Alphanumeric ID | 1   | (See field description) | Mandatory |
| Package Components length |  | Numerical       | 1   | 0..2^16-2               | Mandatory |
| Package Components        |  | Numerical       | 1   | 1..32                   | Mandatory |
| Leg Symbol Index          | MDG proprietary identification code of the instrument leg for the strategy.  | Numerical ID    | 4   | 0..2^32-2               | Mandatory |
| Leg Ratio                 | Ratio of lots for the leg. For contingent trades, the delta.   | Quantity        | 4   | 0..2^32-2               | Mandatory |

### 7.3.11 Market Status Change (1005)

The Market Status Change message provides market participants with all market events and/or market phase transitions occurring to the market with all required scheduling data at the instrument level for cash markets, and both contract and instrument levels on derivatives markets. ~~The latter for derivatives (updates received at instrument level) will only occur when the instrument state breaks from the trading schedule of its contract under exceptional circumstances e.g. an instrument will be “Reserved” if its price falls outside Dynamic Collars.~~

~~Note: Status of Reserved or Suspended may also be communicated with Instrument State of “due to Dynamic collars” for the Wholesales and RFC EMMs, when they follow the trading interruption states of COB.~~

~~This message is used to send status changes, event changes or a combination from the previous (following the predefined pattern)~~

The Market Status Change message informs the market of the following changes on the instrument or contract:

- Book State
- Instrument State
- Status Reason
- Phase Qualifier
- Trading Period
- Trading Side

- Order Entry Qualifier
- Session
- Price Limits
- ~~Plan a~~ Scheduled Event

### Message Sending Rules:

The Market Status Change message is used to send:

- Scheduled status changes, event changes or a combination from the previous according to the predefined pattern of Trading Groups/Contracts (i.e. uncrossing of a contract, transition from one session to the next one, ...)
- Unscheduled status changes (i.e. reservation of an instrument, suspension of an instrument, ...)
- ~~Each Time one of the above information changes. It can be:~~
  - ~~— A change on the predefined pattern (Uncrossing of a given contract)~~
  - ~~— An unscheduled status change (Reservation of an instrument)~~
  - ~~— A scheduled event (Cut-off notification and move to the next session)~~

This message is sent on cash at the instrument level and on derivatives at the contract level. However, on derivatives, when an instrument does not follow any more the contract status or follows again the contract status (for example after a reservation), a specific Market Status Change message is sent for the instrument. This happens in the following cases:

- Instrument intra-day creation
- Instrument suspension by Market Operations
- Instrument expiration
- Instrument reservation due to dynamic collar breach
- Instrument reopening following a reservation

A derivative instrument which behaves “normally” (i.e. follows its contract status), is considered to be in a “Scheduled” status.

For Structured Products segment, one Market Status Change message is sent per instrument at each session change (transition from session 1 to session 3 and from session 3 to session 4).

### Status changes following the predefined pattern

A Market Status Change (1005) message is sent to notify each phase change or event triggering as defined in the Timetable (1006) message.

On an exceptional basis, scheduled hours of a timetable can be modified by Market Operations. In that case a new Timetable message is sent, and subsequent Market Status Change messages will follow this new pattern.

Following is an example of content that are sent in Market Status Change message through the day.

■ For Cash:

|                                | Start Of the Trading Day (not in pattern)   | First Closed Phase defined in the timetable | First Call phase defined in the timetable   | First Uncrossing phase defined in the Timetable   | Continuous Phase  | Last Call Phase defined in the timetable  | Last Uncrossing Phase defined in the timetable  | TAL   | Last Closed Phase defined in the timetable | End Of the Trading Day                     |
|--------------------------------|---|---|---|---|---|---|---|---|--|--|
| <b>Market Data Change Type</b> | Status Change(s) (0)  |   |   |   |   |   |   |   |  |  |
| <b>Event Time</b>              | Time when the change is effective   |   |   |   |   |   |   |   |  |  |
| <b>Book State</b>              | Inaccessible (1)  | Closed (2)                                  | Call (3)  | Uncrossing (4)  | Continuous (5)  | Call (3)  | Uncrossing (4)  | Continuous (5)  | Closed (2)                                 | Inaccessible (1)                           |
| <b>Status</b>                  | Scheduled (0)   |   |   |   |   |   |   |   |  |  |
| <b>Phase Qualifier</b>         | No Qualifier (00000001)   | No Qualifier (00000001)                     | No Qualifier (00000001)   | No Qualifier (00000001) Or Random Uncrossing (00001000)   | No Qualifier (00000001)   | No Qualifier (00000001)   | No Qualifier (00000001) Or Random Uncrossing (00001000)                                     | Trading At Last (00000100)  | No Qualifier (00000001)                    | No Qualifier (00000001)                    |
| <b>Trading Period</b>          | Opening (1)   | Opening (1)                                 | - Opening (1) if there is another Call in the timetable<br>- Closing (3) if there is no other Call in the timetable | - Opening (1) if there is another Call in the timetable<br>- Closing (3) if there is no other Call in the timetable | Standard (2)  | Closing (3)   | Closing (3)   | Standard (2) or Closing (3)   | Closing (3)                                | Closing (3)                                |
| <b>Trading Side</b>            | Null  | Null  | - Both (4) for Cash RM<br>- Bid Only (1), Offer Only (2), PAKO (3) or Both (4) for Warrants                         | - Both (4) for Cash RM<br>- Bid Only (1), Offer Only (2), PAKO (3) or Both (4) for Warrants                         | - Both (4) for Cash RM<br>- Bid Only (1), Offer Only (2), PAKO (3) or Both (4) for Warrants | - Both (4) for Cash RM<br>- Bid Only (1), Offer Only (2), PAKO (3) or Both (4) for Warrants | - Both (4) for Cash RM<br>- Bid Only (1), Offer Only (2), PAKO (3) or Both (4) for Warrants | - Both (4) for Cash RM<br>- Bid Only (1), Offer Only (2), PAKO (3) or Both (4) for Warrants | Null                                       | Null                                       |
| <b>Order Entry Qualifier</b>   | Order Entry/Cancel/Modify Disabled (0)  | Any   | Any   | Any   | Any   | Any   | Any   | Any   | Any but Order Entry / Cancel / Modify      | Order Entry / Cancel / Modify Disabled (0) |
| <b>Session</b>                 | Always set to 1 for all segments except Structured Products segment - 1, 2 or 3 for Structured Products segment |   |   |   |   |   |   |   |  |  |
| <b>Scheduled Event</b>         | Null  |   |   |   |   |   |   |   |  |  |
| <b>Scheduled Event Time</b>    | Null  |   |   |   |   |   |   |   |  |  |

■ For Derivatives:

Scheduled Event Notifications are sent on derivatives (i.e. Expiry notification to indicate the expiry time within a contract).

|                                | Start Of the Trading Day (not in pattern) | First Closed Phase defined in the timetable       | First Call phase defined in the timetable   | First Uncrossing phase defined in the timetable   | Continuous Phase   | Expiry Event                                  | Last Closed Phase defined in the timetable            | End Of the Trading Day            |
|--------------------------------|---|---|---|---|--|---|---|-----------------------------------|
| <b>Market Data Change Type</b> | Status Change(s) (0)                      | Status Change(s) (0)                              | Status Change(s) (0)  | Status Change(s) (0)  | Status Change(s) (0)   | Scheduled Event Notification (1)              | Status Change(s) and Scheduled Event Notification (2) | Inaccessible (1)                  |
| <b>Event Time</b>              | Time when the change is effective         | Time when the change is effective                 | Time when the change is effective   | Time when the change is effective   | Time when the change is effective  | Time when the event notification is generated | Time when the change is effective                     | Time when the change is effective |
| <b>Book State</b>              | Inaccessible (1)                          | Closed (2)  | Call (3)  | Uncrossing (4)  | Continuous (5)   | Continuous (5)                                | Closed (2)  | Inaccessible (1)                  |
| <b>Status Reason</b>           | Waiting for Tradable State (16)           | Scheduled (0)                                     | Scheduled (0)   | Scheduled (0)   | Scheduled (0)  | Scheduled (0)                                 | Scheduled (0)   | Scheduled (0)                     |
| <b>Phase Qualifier</b>         | No Qualifier (00000001)                   |   |   |   |  |   |   |                                   |
| <b>Trading Period</b>          | Opening (1)                               | Opening (1)                                       | - Opening (1) if there is another Call in the timetable<br>- Closing (3) if there is no other Call in the timetable | - Opening (1) if there is another Call in the timetable<br>- Closing (3) if there is no other Call in the timetable | Standard (2)   | Standard (2)                                  | Closing (3)   | Closing (3)                       |
| <b>Trading Side</b>            | Null                                      |   |   |   |  |   |   |                                   |
| <b>Order Entry Qualifier</b>   | Order Entry/Cancel/Modify Disabled (0)    | Any (Default value is Cancel and Modify Only (2)) | Any   | Any   | Any  | Any   | Any   | Any                               |
| <b>Session</b>                 | <del>0</del> Null                         | <del>2</del> Null                                 | <del>2</del> Null   | <del>2</del> Null   | Null <del>2</del> (before the cut-off time) or <del>3</del> (after the cut-off time) | Null <del>2</del> or <del>3</del>             | Null <del>2</del> or <del>3</del>                     | Null <del>2</del> or <del>3</del> |
| <b>Scheduled Event</b>         | Null                                      | Null  | Null  | Null  | Null   | Expiry (5)                                    | Null  | Null                              |
| <b>Scheduled Event Time</b>    | Null                                      | Null  | Null  | Null  | Null   | Set to the effective Expiry time              | Null  | Null                              |



Each time a Market Status Change message is sent, the full information on the status is provided. The information that changes can be identified using the "Market Data Change Type" field.

| Field                       | Short Description   | Format                    | Len | Values  | Presence  |
|-----------------------------|---|---------------------------|-----|---|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.  | Sequence                  | 8   | 0..2 <sup>64</sup> -2   | Mandatory |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'.                          | Numerical ID              | 1   | 0..2 <sup>8</sup> -2  | Mandatory |
| EMM                         | Defines the Exchange Market Mechanism applied on each platform.   | Enumerated                | 1   | (See field description)   | Mandatory |
| MarketStates length         | Repeating Section Header  | Numerical                 | 1   | 0..2 <sup>16</sup> -2   | Mandatory |
| MarketStates occurrences    | Repeating Section Header  | Numerical                 | 1   | 1..254  | Mandatory |
| Market Data Change Type     | Type of scheduled change.   | Enumerated                | 1   | 0 Status Change(s)<br>1 Scheduled Event Notification<br>2 Status Change(s) and Scheduled Event Notification | Mandatory |
| Symbol Index                | Exchange identification code of the instrument/contract.  | Numerical ID              | 4   | 0..2 <sup>32</sup> -2   | Mandatory |
| Event Time                  | Time when an event has been processed   | Epoch Time in Nanoseconds | 8   | 0..2 <sup>64</sup> -2   | Mandatory |
| Book State                  | Indicates the state of the book resulting of the current timetable phase, current contract/instrument state and current contract/trading group state. | Enumerated                | 1   | (See field description)   | Optional  |
| Status Reason               | Provides the reason for Book State changes.   | Enumerated                | 1   | (See field description)   | Optional  |
| Phase Qualifier             | Indicates the Phase Qualifier (no multiple phase possible at the same time even if this field is a bitmap).   | Bitmap                    | 2   | (See field description)   | Mandatory |
| Trading Period              | Provides the current trading period.  | Enumerated                | 1   | 1 Opening (Cash and Derivatives)<br>2 Standard (Cash and Derivatives)<br>3 Closing (Cash and Derivatives)   | Optional  |
| Trading Side                | Indicates the Trading Side.   | Enumerated                | 1   | 1 Bid Only (Cash Only)<br>2 Offer Only (Cash Only)<br>3 PAKO (Cash Only)<br>4 Both Sides (Cash Only)        | Optional  |

| Field   | Short Description  | Format                    | Len | Values   | Presence  |
|---|--|---------------------------|-----|--|-----------|
| <a href="#">Price Limits<sup>1</sup></a>            | Indicates the Price Limits mode  | Enumerated                | 1   | 1 Price Limits Enabled - Normal (Derivatives Only)<br>2 Price Limits Enabled - Wide (Derivatives Only)<br>3 Price Limits Enabled – Widest (Derivatives Only)<br>4 Price Limits Disabled (Derivatives Only) | Optional  |
| <a href="#">Quote Spread<sup>1</sup> Multiplier</a> | Indicates the Quote Spread Multiplier  | Enumerated                | 1   | 1 Quote Spread Multiplier 1 (Derivatives Only)<br>2 Quote Spread Multiplier 2 (Derivatives Only)<br>3 Quote Spread Multiplier 3 (Derivatives Only)   | Optional  |
| <a href="#">Order Entry Qualifier</a>               | Field indicating the state of the Order Entry for the current market state.                  | Enumerated                | 1   | 0 Order Entry/Cancel/Modify Disabled<br>1 Order Entry/Cancel/Modify Enabled<br>2 Cancel and Modify Only (Derivatives Only)<br>3 Cancel Only  | Optional  |
| <a href="#">Session</a>                             | Current market session.  | Enumerated                | 1   | (See field description)  | Mandatory |
| <a href="#">Scheduled Event</a>                     | Type of Scheduled Event.   | Enumerated                | 1   | (See field description)  | Optional  |
| <a href="#">Scheduled Event Time</a>                | Scheduled Time for the event to happen (time in number of nanoseconds since 01/01/1970 UTC). | Epoch Time in Nanoseconds | 8   | 0..2 <sup>64</sup> -2  | Optional  |
| <a href="#">Instrument State</a>                    | Indicates the state of the instrument.   | Enumerated                | 1   | (See field description)  | Optional  |

<sup>1</sup> - Both fields “Price Limits” and “Quote Spread Multiplier” are deprecated.

### 7.3.12 BF Instrument Suspension (1204)

The BF Instrument Suspension provides instrument status updates for the IBF Optiq segment.

The Security Condition provides the latest instrument status.

This message is sent during the trading session whenever the instrument status changes as compared to the initial instrument condition provided by the BF Instrument Reference (1201) message or to a previous BF Instrument Suspension (1204) message.

| Field                                       | Short Description  | Format   | Len | Values                       | Presence |
|---|--|----------|-----|------------------------------|----------|
| <a href="#">Market Data Sequence Number</a> | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence. | Sequence | 8   | From 0 to 2 <sup>64</sup> -2 | Optional |

| Field                 | Short Description  | Format                    | Len | Values                  | Presence  |
|-----------------------|--|---------------------------|-----|-------------------------|-----------|
| Rebroadcast Indicator | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID              | 1   | From 0 to 2^8-2         | Mandatory |
| Symbol Index          | Exchange identification code of the instrument/contract.   | Numerical ID              | 4   | From 0 to 2^32-2        | Mandatory |
| Event Time            | Time when an event has been processed  | Epoch Time in Nanoseconds | 8   | From 0 to 2^64-2        | Mandatory |
| Security Condition    | Security status.   | Enumerated                | 2   | (See field description) | Optional  |

### 7.3.13 Statistics (1009)

This message provides statistics on prices and volumes on an instrument which comprises the following:

- High and Low
- Percent Variation Previous Close
- Percentage Variation Previous NAV
- Last Traded Price
- Variation Last Price
- Open Price
- Trade Count
- Cumulative quantities

#### Stats Update Type:

The following table lists the statistics available per instrument:

|  | On-exchange on-book <sup>3</sup> |           |              |           |      |           |                        |               |           |         |   | On-exchange off-book | Off-exchange off-book |
|--|----------------------------------|-----------|--------------|-----------|------|-----------|------------------------|---------------|-----------|---------|---|----------------------|-----------------------|
| Statistics                                     | Warrants & Certificates          |           | Fixed Income |           | ETFs |           | French and Dutch funds | Cash Equities |           | Indices | Equity, Index, Financial, & Commodity Derivatives |                      |                       |
|  | Val                              | All other | Val.         | All other | Val. | All other |                        | Val.          | All other |         |   |                      |                       |
| 1 – Percent Variation Previous NAV (Cash Only) |                                  |           |              |           | X    | X         |                        |               |           |         |   |                      |                       |
| 5 – Daily High (Cash and Derivatives)          | X                                | X         | X            | X         | X    | X         |                        | X             | X         | X       | X   |                      |                       |
| 6 – Daily Low (Cash and Derivatives)           | X                                | X         | X            | X         | X    | X         |                        | X             | X         | X       | X   |                      |                       |
| 7 – Yearly High (Derivatives)                  |                                  |           |              |           |      |           |                        |               |           |         | X   |                      |                       |

<sup>3</sup> On-Exchange Off-Book (OEOB) covers multiple types of activity, that are identified in the EMM field. References to OEOB below comprise the following EMMs: For the Cash markets: 5 = Cash On Exchange Off book; For the Derivatives markets: 4 = Derivative Wholesales and 7 = Derivative On Exchange Off book

|   | On-exchange on-book <sup>3</sup> |           |              |           |      |           |                        |               |           |         |   | On-exchange off-book | Off-exchange off-book |
|---|----------------------------------|-----------|--------------|-----------|------|-----------|------------------------|---------------|-----------|---------|---|----------------------|-----------------------|
| Statistics  | Warrants & Certificates          |           | Fixed Income |           | ETFs |           | French and Dutch funds | Cash Equities |           | Indices | Equity, Index, Financial, & Commodity Derivatives |                      |                       |
|   | Val                              | All other | Val.         | All other | Val. | All other |                        | Val.          | All other |         |   |                      |                       |
| 8 – Yearly Low (Derivatives Only)                               |                                  |           |              |           |      |           |                        |               |           |         | X   |                      |                       |
| 9 – Lifetime Low (Derivatives Only)                             |                                  |           |              |           |      |           |                        |               |           |         | X   |                      |                       |
| 10– LifetimeLow (Derivatives Only)                              |                                  |           |              |           |      |           |                        |               |           |         | X   |                      |                       |
| 14 – Variation Last Price (Cash Only)                           | X                                | X         | X            | X         | X    | X         |                        | X             | X         |         |   |                      |                       |
| 15 – Open Price (Cash and Derivatives)                          | X                                | X         | X            | X         | X    | X         |                        | X             | X         | X       | X   |                      |                       |
| 16 – Trade Count (Cash and Derivatives)                         |                                  | X         |              | X         |      | X         |                        |               | X         |         | X   |                      |                       |
| 17 – Last Traded Price (Cash and Derivatives)                   | X                                | X         | X            | X         | X    | X         | X                      | X             | X         |         | X   |                      |                       |
| 18 – Percent Variation Previous Close (Cash and Derivatives)    | X                                | X         | X            | X         | X    | X         |                        | X             | X         | X       | X   |                      |                       |
| 19 – Off Book Cumulative Quantity (Cash Only)                   |                                  |           |              |           |      |           |                        |               |           |         |   | X                    |                       |
| 21 – On Book Auction Cumulative Quantity (Cash Only)            |                                  | X         |              | X         |      | X         |                        |               | X         |         |   |                      |                       |
| 22 – On Book Continuous Cumulative Quantity (Cash Only)         |                                  | X         |              | X         |      | X         |                        |               | X         |         |   |                      |                       |
| 23 – On and Off Book Cumulative Quantity (Cash and Derivatives) |                                  | X         |              | X         |      | X         |                        |               | X         |         | X   | X                    |                       |

## Message Sending Rules:

The Statistics message is sent each time a statistic value is modified.

### High and Low

- Daily High: Highest traded price for the current trading day (to be calculated with the [Price / Index Level Decimals](#)).
- Daily Low: Lowest traded price for the current trading day (to be calculated with the [Price / Index Level Decimals](#)).
- Lifetime High: Highest traded price for the instrument lifetime for booked trades only (to be calculated with the [Price / Index Level Decimals](#)).
- Lifetime Low: Lowest traded price for the instrument lifetime for booked trades only (to be calculated with the [Price / Index Level Decimals](#)).

**Note:** Leg prices that are calculated by the leg price algorithm following a strategy trade are not taken into account in the High/low values provided.

### Cumulative quantities

MDG will deliver 4 (four) cumulative quantity fields that will allow clients to compute all possible statistics based on this. These fields are:

- Off Book Cumulative Quantity: Cumulated volume traded outside the central order book and on regulated market since the start of the current trading session (to be calculated with the Quantity Decimals).
- On Book Auction Cumulative Quantity: Cumulated volume of regulated market trades done in Auction phase since the start of the current trading session (to be calculated with the Quantity Decimals).
- On Book Continuous Cumulative Quantity: Cumulated volume of regulated market trades done in Continuous phase since the start of the current trading session (to be calculated with the Quantity Decimals).
- On and Off Book Cumulative Quantity: Cumulated volume of trades on regulated market (in or outside the central order book) since the start of the current trading session (to be calculated with the Quantity Decimals). This is the sum of Off Book Cumulative Quantity, On Book Auction Cumulative Quantity and On Book Continuous Cumulative Quantity.

Statistics will not be provided for off-exchanges off-book trades. The “Off Book Cumulative Quantity” will only be provided for the on-exchange off-books trades.

Note: Check section 6.17 for more information regarding Statistics On and Off Book for Wholesales

### Other Statistics

- Percentage Variation Previous NAV: Percentage of variation for last Net Asset value. Only provided for NAV book.
- Percentage Variation Previous Close: Percentage of variation for price (or index) versus Last Adjusted Closing Price (LACP).
- Variation Last Price: Percentage variation of price with last reference price.
- Last Traded Price: The Last Traded Price indicates the price of last fill on an instrument.
- Open Price: Opening Price of the instrument.
- Trade Count: The number of trades done intra-day on the instrument.
  - For cash it is only for on-book trades.
  - For derivatives it is for both on-book and off-book on exchange.

## Decimals for Statistics

For Statistics, the decimal field to apply on the “Stats Update Value” field will depend on the “Stats Update Type” field as follow:

- For prices and index levels, use the “Price/Index Decimals” field for:
  - High and Low (Stats Update Types: 5 to 10)
  - Open Price (Stats Update Type: 15)
  - Last Traded Price (Stats Update Type: 17)
- For quantities, use the “Quantity Decimals” field for:
  - Cumulative Quantities (Stats Update Types: 19 to 23)
- For Ratio, use the « Ratio / Multiplier Decimals” field for:
  - Percentage Variation Previous NAV (Stats Update Type: 1)
  - Variation Last Price (Stats Update Type: 14)
  - Percentage Variation Previous Close (Stats Update Type: 18)

## Trade cancellation in statistics

In case of a trade cancellation the statistics message will broadcast all the statistics updates. If the cancellation cancelled the only trade and there is no Valuation Price, then the statistics will be set to null except for the Trade Count and the cumulative quantities.

## Statistics after HA (applied both to cash and derivatives)

The first statistics messages after a MDG HA will carry the most accurate and up to date statistics since some trades may not have been persisted (Clients can detect the a MDG restart with the “Packet Flags” when counter on bits between position 1 and 3 changes).

| Field                       | Short Description  | Format           | Len | Values                  | Presence  |
|-----------------------------|--|------------------|-----|-------------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.                             | Sequence         | 8   | 0..2 <sup>64</sup> -2   | Mandatory |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. | Numerical ID     | 1   | 0..2 <sup>8</sup> -2    | Mandatory |
| Symbol Index                | Exchange identification code of the instrument/contract.   | Numerical ID     | 4   | 0..2 <sup>32</sup> -2   | Mandatory |
| NewStats length             | Repeating Section Header   | Numerical        | 1   | 0..2 <sup>16</sup> -2   | Mandatory |
| NewStats occurrences        | Repeating Section Header   | Numerical        | 1   | 1..254                  | Mandatory |
| Stats Update Type           | Indicates the type of published statistics update.   | Enumerated       | 1   | (See field description) | Mandatory |
| Stats Update Value          | Indicates the value of the published statistics update.  | Signed Numerical | 8   | (See field description) | Optional  |

### 7.3.14 Real Time Index (1008)

A Real-Time Index message handles the real-time characteristics of an index: the level of the index, type of index level (opening index level, real-time, indicative level) and various indicators for the instruments that make up the index. This message is sent for:

- Stock Indices
- Strategy Indices
- Volatility Indices
- Indicative Net Asset Value (iNAV) of an ETF

#### Message Sending Rules:

Sending of these messages for a given index is conditioned by a flag configured at the index level. These conditions and the nature of these messages that are sent for each index are dependent on two factors:

- The publication mode of the index; there are three publication modes:
  - Continuous: Calculated index levels are published periodically, at a frequency that can be configured for each index. Currently an index that is published continuously can either be published every 15 seconds or every 30 seconds.
  - Discontinuous: A single Closing level (level 5) before the provisional closing phase, occurring at a time (a 'fixed time') that can be configured for each index
  - At closing only: No broadcast before the provisional closing phase
- The current calculation phase of the index

The following sections provide an overview of the different conditions at which an index level can be sent.

#### CAC 40 Index

##### At System Start-up

The Closing level of the index of the previous trading day (level 5) is sent at the start of each trading day in the referential.

##### During the Trading Session

###### Opening Kinematics

At the reception of the first trade price of any instrument that is part of the composition of the CAC 40, the index moves into the Session phase. If at this point 65% or more of the market cap of the index has traded, the Official Opening level (level 1) is calculated and published. The Official Opening level is based on the last trade prices or the last-adjusted closing price if a last traded price is not available. Subsequently, real-time Session levels (level 2) are calculated and published every 15 seconds.

If, at the opening of the index, less than 65% of the market cap of the index has traded, an Automatic Indicative level (level 3) is published every 15 seconds following the opening of the market until at least 65% of the market cap of the index has traded. Once this threshold of 65% has been reached (and the index is not in the 'Indicative' phase), the Official Opening level (level 1) is calculated and published. Subsequently, real-time Session levels (level 2) are calculated and published every 15 seconds.

For most other French indices, there are two thresholds that need to be reached for the index to send an official opening level:

At the opening of the market, at least 65% of the market cap needs to have traded. If at the opening of the market this threshold of 65% has not been reached, an Automatic indicative level (level 3) is sent every 15 seconds.

The Automatic indicative level continues to be sent every 15 seconds until a second threshold has been reached. For most French indices this second threshold is configured at 95% of the market cap. Once this second threshold has been reached, the Official Opening level (level 1) is calculated and published. Subsequently, real-time Session levels (level 2) are calculated and published every 15 seconds.

If the index remains in an Automatic Indicative state the entire day, the last Automatic Indicative index level (level 3) is considered to be the official close. (There is no official opening level in this case.)

As soon as 100% of the market cap of the non-regulated-halted constituents of the index has traded (and the index is not in 'indicative' state), the Reference level (level 4) is calculated and broadcasted. This level is calculated using only the opening (first trade) prices of its constituents.

#### Following the Opening

Once the Official Opening level (level 1) has been published, the real-time Session levels (level 2) are calculated and published every 15 seconds.

In the case of an 'Indicative' Phase:

The compiler can decide, following the opening of the index, to change the status of the index. This decision can be made if it is believed that circumstances prevent the proper calculation of the index. In this case, instead of the real-time Session level (level 2), an indicative level (level 0) is sent every 15 seconds. This level 0 is calculated by using the last-traded price or the last-adjusted closing price if a last traded price is not available.

The index levels that are calculated during the 'Indicative' status of an index are not taken into account to update the highest and the lowest levels of the index.

Once the compiler is sure that the index level is representative again, the real-time index levels (level 2) are calculated and published again every 15 seconds.

#### Options Liquidation Index (Level 7) for CAC 40

##### Definition / Purpose

- The liquidation index is used as a basis for the automatic exercise of options that are within the price range on their expiration date, as well as for the calculation of resulting payments.
- It is the average of the index level calculated every 15 seconds between 15:40 (CET) and 16:00 (CET). The result of the calculation is published every 15 seconds during the same time interval.
- This average is sent at each expiry date.

#### At the End of the Trading Day

When all Index instruments are closed, the index moves into the Temporary Closing phase. On a normal trading day, this occurs around 18:00:00 (CET). During this phase, the first Closing level (level 5), the first confirmation of the Reference level (level 6) and the first Index Summary message (message 1011) are published. During the Temporary Closing phase, Euronext can make any necessary adjustments to the index if deemed necessary. The Temporary Closing phase currently lasts 5 minutes.

At the end of the Closing delay, the index moves into the Final Closing phase. The second Closing level, the second confirmation of the Reference level (level 6) and the second Index summary message (message 1011) are published. Any adjustments that are made during the Temporary Closing Phase are taken into account in the second Closing level and the Index Summary message.



The first and second Closing levels (level 5) are calculated based on the last trades of the instruments that take part in the index. This level represents the official Closing Reference Level of the CAC 40.

The confirmation of the Reference level (level 6) is calculated using only the opening (first trade) prices of its constituents not taking into account any cancellation of opening trades.

## **AEX Index, BEL 20 Index and PSI 20 Index**

### **At System Start-up**

The Closing level of the index of the previous trading day (level 5) is sent at the start of each trading day in the referential.

### **During the Trading Session**

#### **Opening Kinematics**

At the reception of the first trade price of any instrument that is part of the composition of the index, the index moves into the Session phase. If at this point 100% or more of the market cap of the index has traded, the Official Opening level (level 1) is calculated and published. The Official Opening level is based on the last trade prices, including previous day, adjusted closing prices. Subsequently, real-time Session levels (level 2) are calculated and published every 15 seconds.

If by 9:05 the threshold of 100% is still not met, the threshold is dropped to 80% (second threshold). As soon as 80% of the market cap is available any time after 09:05, the Official Opening level (level 1) is calculated and published followed by real-time Session levels (level 2).

From the opening of the index up until the first or second threshold is met, an Automatic Indicative level (level 3) is published every 15 seconds.

If the index remains in an Automatic Indicative state the entire day, the last Automatic Indicative index level (level 3) is considered to be the official close. (There is no official opening level in this case.)

#### **Following the Opening**

Once the Official Opening level (level 1) has been published, the real-time Session levels (level 2) are calculated and published every 15 seconds.

In the case of an 'Indicative' Phase:

The compiler can decide, following the opening of the index, to change the status of the index. This decision can be made if it is believed that circumstances prevent the proper calculation of the index. In this case, instead of the real-time Session level (level 2), an indicative level (level 0) is sent every 15 seconds. This level 0 is calculated by using the last-traded price or the last-adjusted closing price if a last-traded price is not available.

The index levels that are calculated during the 'Indicative' status of an index are not taken into account to update the highest and the lowest levels of the index.

Once the compiler is sure that the index level is representative again, the real-time index levels (level 2) are calculated and published again every 15 seconds.

#### **Options Liquidation Index (Level 7) for AEX Index**

##### **Definition / Purpose**

- The liquidation index is used as a basis for the automatic exercise of options that are within the price range on their expiration date, as well as for the calculation of resulting payments.
- It is the average of the index level calculated every 15 seconds between 15:30 (CET) and 16:00 (CET). The result of the calculation is published every minute during the same time interval.

### **At the End of the Trading Day**

When all Index instruments are closed, the index moves into the Temporary Closing phase. On a normal trading day this occurs around 18:00:00 (CET). During this phase, the first Closing level (level 5) and the first Index Summary message (message 1011) are published. During the Temporary Closing phase, Euronext can make any necessary adjustments to the index if deemed necessary. The temporary Closing phase currently lasts 5 minutes.

At the end of the Closing delay, the index moves into the Final Closing phase. The second Closing level (level 5) and the second Index Summary message (message 1011) are published. Any adjustments that are made during the Temporary Closing Phase are taken into account in the second closing level and the Index Summary message.

The first and second Closing levels (level 5) are calculated based on the last trades of the instruments that take part of the composition of the index. This level represents the official Closing Reference Level of the index.

| Field                                 | Short Description   | Format                    | Len | Values                  | Presence  |
|---------------------------------------|---|---------------------------|-----|-------------------------|-----------|
| Market Data Sequence Number           | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.  | Sequence                  | 8   | 0..2 <sup>64</sup> -2   | Mandatory |
| Rebroadcast Indicator                 | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'.  | Numerical ID              | 1   | 0..2 <sup>8</sup> -2    | Mandatory |
| EMM                                   | Defines the Exchange Market Mechanism applied on each platform.   | Enumerated                | 1   | (See field description) | Mandatory |
| Event Time                            | Time when an event has been processed   | Epoch Time in Nanoseconds | 8   | 0..2 <sup>64</sup> -2   | Mandatory |
| Symbol Index                          | Exchange identification code of the instrument/contract.  | Numerical ID              | 4   | 0..2 <sup>32</sup> -2   | Mandatory |
| Index Level                           | The value of the last level for the index that is the subject of this message (to be calculated with the Price/Index Level Decimals).                                 | Price                     | 8   | (See field description) | Mandatory |
| Percentage of Capitalization          | Percentage of capitalization for the active instruments in the index (to be calculated with the Ratio / Multiplier Decimals).   | Numerical                 | 8   | 0..2 <sup>64</sup> -2   | Optional  |
| Percentage Var from Prev Close        | Percentage of variation for last price (or index) versus previous closing price (or closing reference price) (to be calculated with the Ratio / Multiplier Decimals). | Signed Numerical          | 8   | (See field description) | Mandatory |
| Number Of Traded Instruments in Index | Number of traded instruments in the index.  | Quantity                  | 2   | 0..2 <sup>16</sup> -2   | Optional  |
| Index Level Type                      | Type of Index Level.  | Enumerated                | 1   | (See field description) | Mandatory |

| Field            | Short Description  | Format     | Len | Values                  | Presence  |
|------------------|--|------------|-----|-------------------------|-----------|
| Index Price Code | Type of Price as positioned in Session High/Low or to indicate the trend or at the contrary the reference value from which the price may change. | Enumerated | 1   | (See field description) | Mandatory |

### 7.3.15 Index Summary (1011)

The Index Summary message is sent twice at the end of the day in order to disseminate the final statistics related to an index, which aggregates daily data.

**Message Sending Rules:** Every trading day, for each index type 'stock index', two types of index summary messages are sent (this rules out iNAVs):

- The first summary is sent when the index enters the provisional closing phase.
- The second summary is sent when the index enters the final closing phase.

| Field                       | Short Description  | Format                    | Len | Values                  | Presence  |
|-----------------------------|--|---------------------------|-----|-------------------------|-----------|
| Market Data Sequence Number | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.   | Sequence                  | 8   | 0..2^64-2               | Mandatory |
| Rebroadcast Indicator       | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'.   | Numerical ID              | 1   | 0..2^8-2                | Mandatory |
| EMM                         | Defines the Exchange Market Mechanism applied on each platform.  | Enumerated                | 1   | (See field description) | Mandatory |
| Event Time                  | Time when an event has been processed  | Epoch Time in Nanoseconds | 8   | 0..2^64-2               | Mandatory |
| Symbol Index                | Exchange identification code of the instrument/contract.   | Numerical ID              | 4   | 0..2^32-2               | Mandatory |
| Opening Level               | Official Opening Index Level. This level corresponds to the Index Level Type 1 of the Real Time Index (1008) of the corresponding index (to be calculated with the Price/Index Level Decimals).      | Price                     | 8   | (See field description) | Mandatory |
| Opening Time                | Time of Official Opening level (Time in number of nanoseconds since 01/01/1970 UTC).   | Epoch Time in Nanoseconds | 8   | 0..2^64-2               | Mandatory |
| Confirmed Reference Level   | Confirmed Reference level. This level corresponds to the index Level Type 6 of the message Real Time Index (1008) of the corresponding index (to be calculated with the Price/Index Level Decimals). | Price                     | 8   | (See field description) | Optional  |
| Confirmed Reference Time    | Time of (Confirmed) Reference level (Time in number of nanoseconds since 01/01/1970 UTC).  | Epoch Time in Nanoseconds | 8   | 0..2^64-2               | Optional  |

| Field                          | Short Description  | Format                    | Len | Values                  | Presence  |
|--------------------------------|--|---------------------------|-----|-------------------------|-----------|
| Closing Reference Level        | Reference closing index level. This level corresponds to the Index Level Type 5 of the message Real Time Index (1008) of the corresponding index (to be calculated with the Price/Index Level Decimals). | Price                     | 8   | (See field description) | Mandatory |
| Closing Reference Time         | Time of provisional closing reference index level (Time in number of nanoseconds since 01/01/1970 UTC).  | Epoch Time in Nanoseconds | 8   | 0..2^64-2               | Mandatory |
| Percentage Var from Prev Close | Percentage of variation for last price (or index) versus previous closing price (or closing reference price) (to be calculated with the Ratio / Multiplier Decimals).                                    | Signed Numerical          | 8   | (See field description) | Mandatory |
| High Level                     | Highest index level (to be calculated with the Price/Index Level Decimals).  | Price                     | 8   | (See field description) | Mandatory |
| High Time                      | Time of provisional highest index level (Time in number of nanoseconds since 01/01/1970 UTC).  | Epoch Time in Nanoseconds | 8   | 0..2^64-2               | Mandatory |
| Low Level                      | Lowest index level (to be calculated with the Price/Index Level Decimals).   | Price                     | 8   | (See field description) | Mandatory |
| Low Time                       | Time of provisional lowest index level (Time in number of nanoseconds since 01/01/1970 UTC).   | Epoch Time in Nanoseconds | 8   | 0..2^64-2               | Mandatory |
| Liquidation Level              | Index Level of reference at expiration settlement (to be calculated with the Price/Index Level Decimals).  | Price                     | 8   | (See field description) | Optional  |
| Liquidation Time               | Time of provisional expiration settlement index level (Time in number of nanoseconds since 01/01/1970 UTC).  | Epoch Time in Nanoseconds | 8   | 0..2^64-2               | Optional  |

## 7.4 SNAPSHOT MESSAGES

The Snapshot mechanism uses the same messages as the real-time feed.

When used for the snapshot, the messages have the field “Rebroadcast Indicator” set to “1”.

| Message  | Purpose  | Sending rules  |
|--|--|--|
| Start Of Snapshot (2101)                                       | Defines the start of a snapshot sequence on all channels | This is the first message of a snapshot sequence. It contains the last Market Data Sequence Number from real-time that is contained in this snapshot sequence. |
| End Of Snapshot (2102)   | Defines the end of a snapshot sequence on all channels   | This is the last message of a snapshot sequence. It contains the last Market Data Sequence Number from real-time that is contained in this snapshot sequence.  |
| Outright Standing Data (1014)<br>Strategy Standing Data (1012) | Provides all the characteristics of instruments          | Only intraday instrument creation will be snapshotted. For all other standing data please refer to the file servers.   |

| Message  | Purpose  | Sending rules  |
|--|--|--|
| Start Of Snapshot (2101)   | Defines the start of a snapshot sequence on all channels     | This is the first message of a snapshot sequence. It contains the last Market Data Sequence Number from real-time that is contained in this snapshot sequence. |
| End Of Snapshot (2102)   | Defines the end of a snapshot sequence on all channels       | This is the last message of a snapshot sequence. It contains the last Market Data Sequence Number from real-time that is contained in this snapshot sequence.  |
| Timetable (1006)   | Provides all the scheduled events for the instruments        | Only intraday modifications will be snapshotted. Otherwise, use the file servers to retrieve data.   |
| Market Status Change (1005)  | Notifies of a market status change along with its reason     | Only the last applicable Market Status Change per Symbol Index and EMM will be sent.   |
| Market Update (1001) for BBO (with Market Data Update Type set to "1" or "2" only) | Provides the Best Bid and the Best Offer for each instrument | Only the last Best Bid and the last Best Offer will be resent.   |
| Market Update (1001)   | Allows clients to rebuild the book with full depth           | Only for market by limits.   |
| Order Update (1002)  |  | Only for market by orders.   |
| Price Update (1003)  | Provides all last updated reference prices                   | Only last Price Update, for each Market Data Price Type, will be sent.   |
| Full Trade Information (1004)  | Provides Trade reporting for last trades                     | Only last 50 intraday trades and if they are not older than 15 minutes, for the whole instrument set on a given channel will be resent.                        |
| APA Full Trade Information (1028)  | Provides Trade reporting for last trades                     | Only last 100 intraday trades and if they are not older than 15 minutes, for the whole instrument set on a given channel will be resent.                       |
| APA Quotes (1026)  | Provides full statistics per instruments                     | The last quotes on each side for all instruments and for each LEI.   |
| APA Standing Data (1027)   | Provides end of day index summary                            | Only last 100 intraday referential and if they are not older than 15 minutes, for the whole instrument set on a given channel will be resent.                  |
| Statistics (1009)  | Provides full statistics per instruments                     | Only last statistics will be sent.<br>Clients might receive, in snapshot, statistics for an instrument in more than one packet.                                |
| Index Summary (1011)   | Provides end of day index summary                            | Only the last message will be resent.  |
| Real Time Index (1008)   | Provides real-time index data                                | Only the last message will be resent.  |

Any message that is not in the above table will not be disseminated using the Snapshot mechanism.

#### 7.4.1 Technical messages in Snapshot channels

Start of Day, Health Status and End of Day are also sent on the snapshot channels. They are not part of the Snapshot Sequence and should be processed separately by the clients. Customers need to take into account that they can also be sent between a Start of Snapshot and an End of snapshot messages.

In the Health Status, still on the snapshot channels, the Market Data Sequence Number is the MDSN of the last message sent by the aggregator of this channel. Please note that this Market Data Sequence Number may be different from the Last Market Data Sequence Number in the Start / End of Snapshot messages that matches the last real time message taken into account to build the snapshot.

### 7.4.2 Snapshot Sequence behaviour

The snapshot sequences start as soon as MDG is ready to broadcast messages (and not after the first real-time message is sent on the real-time channels) and stops only when MDG stops. So, Start of Day, Health Status and End of Day messages will be sent along with the snapshots at the beginning of the day, during the day and at the end of the day respectively. At the beginning of the day the snapshots will contain only Start of Snapshot and End of Snapshot messages with no snapshot messages in between and the Market Data Sequence Number in Start of Snapshot and End of Snapshot will be set to null.

The minimum period between two snapshot sequences for a given channel is set to 2 seconds all along the day.

The snapshot sequence provides messages for all instruments of the channel at the same time, as opposed to instrument by instrument.

### 7.4.3 Start Of Snapshot (2101)

Provides the Market Data Sequence Number of the last real-time message processed for this snapshot.

Last Market Data Sequence Number is set to null at the beginning of the day until another message than Start Of Day (1101) is broadcasted.

#### Message Sending Rules:

Start Of Snapshot message is always the first message of a snapshot sequence, and indicates the beginning of a snapshot sequence.

| Field                            | Short Description   | Format                    | Len | Values                | Presence  |
|----------------------------------|---|---------------------------|-----|-----------------------|-----------|
| Last Market Data Sequence Number | Indicates the Market Data Message Sequence Number of the last real-time message processed for this snapshot.  | Sequence                  | 8   | 0..2 <sup>64</sup> -2 | Optional  |
| Snapshot Time                    | Indicates the time when snapshot generation has respectively started/ended in the Start Of Snapshot/End Of Snapshot message (Time in number of nanoseconds since 01/01/1970 UTC). | Epoch Time in Nanoseconds | 8   | 0..2 <sup>64</sup> -2 | Mandatory |

### 7.4.4 End Of Snapshot (2102)

The End Of Snapshot message indicates the end of a snapshot sequence.

It provides the Market Data Sequence Number of the last real time message processed for this snapshot. It also indicates that processing queued messages from the real-time feed with a higher Market Data Sequence member is now possible.

#### Message Sending Rules:

End Of Snapshot message is always the last message of a snapshot sequence.

| Field                            | Short Description   | Format                    | Len | Values    | Presence  |
|----------------------------------|---|---------------------------|-----|-----------|-----------|
| Last Market Data Sequence Number | Indicates the Market Data Message Sequence Number of the last real-time message processed for this snapshot.  | Sequence                  | 8   | 0..2^64-2 | Optional  |
| Snapshot Time                    | Indicates the time when snapshot generation has respectively started/ended in the Start Of Snapshot/End Of Snapshot message (Time in number of nanoseconds since 01/01/1970 UTC). | Epoch Time in Nanoseconds | 8   | 0..2^64-2 | Mandatory |

## 8. FIELD DESCRIPTION

### A

#### Amount Decimals

| Field Name      | Amount Decimals   |
|-----------------|---|
| Description     | Indicates the number of decimals for each Amount related to this Symbol Index   |
| Format          | Decimal Places (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0..2 <sup>8</sup> -2<br>Null value: 2 <sup>8</sup> -1   |
| Used In         | <a href="#">Standing Data (1007)</a><br><a href="#">Contract Standing Data (1013)</a><br><a href="#">BF Instrument Reference (1201)</a> |
| User For        | Cash and Derivatives  |

#### Anonymous

| Field Name      | Anonymous   |
|-----------------|---|
| Description     | Indicates if the Market Data notifications on the instrument are anonymous or not. (0: Non Anonymous – Member Firm ID published ; 1: Anonymous – Member Firm ID not published). |
| Format          | Boolean   |
| Length          | 1   |
| Possible Values | 0 Non Anonymous<br>1 Anonymous  |
| Used In         | <a href="#">Standing Data (1007)</a>  |

### B

#### Bid/Offer Date Time

| Field Name      | Bid/Offer Date Time   |
|-----------------|---|
| Description     | Date/time of bid/offer, expressed as number of nanoseconds since Epoch.     |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64 |
| Length          | 8   |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1                     |
| Used In         | <a href="#">BF Trade (1202)</a><br><a href="#">BF NAV (1203)</a>            |
| User For        | Cash and Derivatives  |

#### Bid Px

| Field Name  | Bid Price  |
|-------------|--|
| Description | Quote bid price, (To be calculated with Price/Index Level Decimals). |



| Field Name      | Bid Price   |
|-----------------|---|
| Format          | Quote bid price (to be calculated with Price/Index Level Decimals). |
| Length          | 8   |
| Possible Values | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1                      |
| Used In         | <a href="#">BF Trade (1202)</a>                                     |
| User For        | Cash and Derivatives  |

## Block Length

| Field Name      | Block Length   |
|-----------------|--|
| Description     | Length of the block. The Block is the message without the repeating sections.<br>This is especially useful for new message versions in the case Exchange adds fields at the end of the block. Clients will remain able to process the block fields and know where the repeating sections starts. |
| Format          | Numerical (unsigned integer 16)  |
| Length          | 2  |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1  |
| Used In         | <a href="#">SBE Header</a>   |
| User For        | Cash and Derivatives   |

## Block Trade Code

| Field Name      | Block Trade Code  |
|-----------------|---|
| Description     | Indicates if trade relates to a block or a negotiated deal following MiFID rules. |
| Format          | Enumerated (character)  |
| Length          | 1   |
| Possible Values | B Block Trade<br>N Regular trade or Negotiated deal<br>- (Hyphen) Undefined       |
| Used In         | <a href="#">Full Trade Information (1004)</a>                                     |
| User For        | Cash  |

## Book State

| Field Name      | Book State   |
|-----------------|--|
| Description     | Indicates the state of the book resulting of the current timetable phase, current contract/instrument state and current contract/trading group state.  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Inaccessible<br>2 Closed<br>3 Call<br>4 Uncrossing<br>5 Continuous<br>6 Halted<br>7 Continuous Uncrossing (Warrants and Certificates Only)<br>8 Suspended<br>9 Reserved<br>Null value: 2 <sup>8</sup> -1 |

| Field Name | Book State                                  |
|------------|---|
| Used In    | <a href="#">Market Status Change (1005)</a> |
| User For   | Cash and Derivatives                        |

## C

### CFI

| Field Name  | CFI  |
|-------------|--|
| Description | Classification code of a financial instrument defined by the ISO-10962:2015 standard.  |
| Format      | Text (character)   |
| Length      | 6  |
| Used In     | <a href="#">Standing Data (1007)</a><br><a href="#">Outright Standing Data (1014)</a><br><a href="#">Strategy Standing Data (1012)</a><br><a href="#">BF Instrument Reference (1201)</a><br><a href="#">APA Standing Data (1027)</a> |
| User For    | Cash and Derivatives   |

### Channel ID

| Field Name      | Channel ID   |
|-----------------|--|
| Description     | <p>Identifies the channel.</p> <p>First figure defines if it is Real-Time feed (1 Production, 3 v-EUA or 5 p-EUA) or Snapshot feed (2 Production, 4 v-EUA or 6 p-EUA).</p> <p>Second figure identifies the MDG partition (partition 1 will start with 0 as second figure).</p> <p>Last 3 figures are channel identifier and it is unique and the same across the different platforms we have (v-EUA/p-EUA/Production).</p> |
| Format          | Numerical (unsigned integer 16)  |
| Length          | 2  |
| Possible Values | $0..2^{16}-2$<br>Null value: $2^{16}-1$  |
| Used In         | <a href="#">Market Data Packet Header</a>  |
| User For        | Cash and Derivatives   |

### Closing Price

| Field Name      | Closing Price   |
|-----------------|---|
| Description     | Previous day's closing price (to be calculated with the <a href="#">Price / Index Level Decimals</a> ). |
| Format          | Price (signed integer 64)   |
| Length          | 8   |
| Possible Values | From $-2^{63}-1$ to $2^{63}-1$  |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>  |
| User For        | Derivatives   |

## Closing Reference Level

| Field Name      | Closing Reference Level   |
|-----------------|---|
| Description     | Reference closing index level. This level corresponds to the Index Level Type 5 of the message Real Time Index (1008) of the corresponding index (to be calculated with the <a href="#">Price/Index Level Decimals</a> ). |
| Format          | Price (signed integer 64)   |
| Length          | 8   |
| Possible Values | -2 <sup>63</sup> +1..2 <sup>63</sup> -1<br>Null value: -2 <sup>63</sup>   |
| Used In         | <a href="#">Index Summary (1011)</a>  |
| User For        | Cash  |

## Closing Reference Time

| Field Name      | Closing Reference Time  |
|-----------------|---|
| Description     | Time of provisional closing reference index level (Time in number of nanoseconds since 01/01/1970 UTC). |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64                             |
| Length          | 8   |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1   |
| Used In         | <a href="#">Index Summary (1011)</a>  |
| User For        | Cash  |

## Collar Expansion Factor

| Field Name      | Collar Expansion Factor                               |
|-----------------|---|
| Description     | Numerical coefficient applied in collar calculation.  |
| Format          | Numerical ID (unsigned integer 8)                     |
| Length          | 1   |
| Possible Values | 0..2 <sup>8</sup> -2<br>Null value: 2 <sup>8</sup> -1 |
| Used In         | <a href="#">Contract Standing Data (1013)</a>         |

## Collar Max Unhalt Nb

| Field Name      | Collar Max Unhalt Nb   |
|-----------------|--|
| Description     | Maximum number of automatic attempts to unhalt system performs if Dynamic Collar Logic enables unhalting. Used for Trade Price Validation (TPV). |
| Format          | Quantity (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 0..2 <sup>8</sup> -2<br>Null value: 2 <sup>8</sup> -1  |
| Used In         | <a href="#">Contract Standing Data (1013)</a>  |

## Collar Unhalt Delay

| Field Name      | Collar Unhalt Delay  |
|-----------------|--|
| Description     | Delay (in seconds) of automatic unhalt if Dynamic Collar Logic enables unhalting. Used for Trade Price Validation (TPV). |
| Format          | Time (unsigned integer 32)<br>SBE: unsigned integer 32   |
| Length          | 4  |
| Possible Values | 0..2 <sup>32</sup> -2<br>Null value: 2 <sup>32</sup> -1  |
| Used In         | <a href="#">Contract Standing Data (1013)</a>  |

## Confirmed Reference Level

| Field Name      | Confirmed Reference Level  |
|-----------------|--|
| Description     | Confirmed Reference level. This level corresponds to the index Level Type 6 of the message Real Time Index (1008) of the corresponding index (to be calculated with the Price/Index Level Decimals). |
| Format          | Price (signed integer 64)  |
| Length          | 8  |
| Possible Values | -2 <sup>63</sup> +1..2 <sup>63</sup> -1<br>Null value: -2 <sup>63</sup>  |
| Used In         | <a href="#">Index Summary (1011)</a>   |
| User For        | Cash   |

## Confirmed Reference Time

| Field Name      | Confirmed Reference Time  |
|-----------------|---|
| Description     | Time of (Confirmed) Reference level (Time in number of nanoseconds since 01/01/1970 UTC). |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64               |
| Length          | 8   |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1                                   |
| Used In         | <a href="#">Index Summary (1011)</a>  |
| User For        | Cash  |

## Contract Event Date

| Field Name      | Contract Event Date   |
|-----------------|---|
| Description     | SBE additional information:<br>(in number of days since the 1st of January 1970). |
| Format          | Date (unsigned integer 16)<br>SBE: unsigned integer 16                            |
| Length          | 2   |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1                           |
| Used In         | <a href="#">Contract Standing Data (1013)</a>                                     |
| User For        | Derivatives   |

## Contract Name

| Field Name  | Contract Name                                 |
|-------------|---|
| Description | Contract Name                                 |
| Format      | Text (character)                              |
| Length      | 60  |
| Used In     | <a href="#">Contract Standing Data (1013)</a> |
| User For    | Derivatives                                   |

## Contract Symbol Index

| Field Name      | Contract Symbol Index  |
|-----------------|--|
| Description     | Identifies the contract of this instrument by its Symbol Index.  |
| Format          | Numerical ID (unsigned integer 32)   |
| Length          | 4  |
| Possible Values | 0..2 <sup>32</sup> -2<br>Null value: 2 <sup>32</sup> -1  |
| Used In         | <a href="#">Outright Standing Data (1014)</a><br><a href="#">Strategy Standing Data (1012)</a><br><a href="#">LIS Package Trade (1016)</a> |
| User For        | Derivatives  |

## Contract Trading Type

| Field Name      | Contract Trading Type  |
|-----------------|--|
| Description     | Contract Trading Type.   |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Traded as an outright<br>2 Not traded, but listed in contract data. Traders may subscribe to it<br>3 <i>Traded as a simple inter-commodity spread</i><br>4 <i>Traded as an inter-commodity spread</i><br>Null value: 2 <sup>8</sup> -1 |
| Used In         | <a href="#">Contract Standing Data (1013)</a>  |
| User For        | Derivatives  |

## Contract Type

| Field Name      | Contract Type                                 |
|-----------------|---|
| Description     | Generic Contract Type.                        |
| Format          | Enumerated (character)                        |
| Length          | 1   |
| Possible Values | F Future<br>O Option<br>U Underlying          |
| Used In         | <a href="#">Contract Standing Data (1013)</a> |

| Field Name | Contract Type |
|------------|---------------|
| User For   | Derivatives   |

## Country Of Exchange

| Field Name  | Country Of Exchange   |
|-------------|---|
| Description | Country of exchange is the Country associated to the MIC following ISO 3166 Alpha-3.  |
| Format      | Alphanumeric ID (character)   |
| Length      | 3   |
| Used In     | <a href="#">Standing Data (1007)</a><br><a href="#">Contract Standing Data (1013)</a> |
| User For    | Cash and Derivatives  |

## Coupon

| Field Name      | Coupon   |
|-----------------|--|
| Description     | Price of coupon.<br>To be interpreted in conjunction with Price/Index Level Decimals.<br>Applicable to Bonds only. |
| Format          | Price (signed integer 64)  |
| Length          | 8  |
| Possible Values | From $-2^{63}-1$ to $2^{63}-1$   |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>   |
| User For        | Cash   |

## Currency

| Field Name      | Currency  |
|-----------------|---|
| Description     | Code of the currency (ISO 4217-3A).   |
| Format          | Alphanumeric  |
| Length          | 3   |
| Possible Values | (See field description)   |
| Used In         | <a href="#">BF Instrument Reference (1201)</a><br><a href="#">APA Quotes (1026)</a> |
| User For        | Cash and Derivatives  |

## Currency Coefficient

| Field Name  | Currency Coefficient  |
|-------------|---|
| Description | When an actual price is displayed in a different 'price expression' than the official instrument trading currency, the Currency Coefficient represents the ratio 'price expression' divided by 'official currency' (To be calculated with Ratio / Multiplier Decimals).<br><br>For example a UK-listed instrument with its trading currency GBP having a price expressed in Pence, the Currency Coefficient will be 0.01 expressed with Currency Coefficient set to 1 and Ratio / Multiplier Decimals set to 2.<br><br>The Currency Coefficient may be used for the Instrument Trading Price (the Referential field Trading Currency Indicator is then set to 1), and/or for the Derivatives and Warrants Instrument Strike Price (the Referential field Strike Currency Indicator is then set to 1). |
| Format      | Numerical ID (unsigned integer 32)  |
| Length      | 4   |

| Field Name      | Currency Coefficient  |
|-----------------|---|
| Possible Values | 0..2 <sup>32</sup> -2<br>Null value: 2 <sup>32</sup> -1                               |
| Used In         | <a href="#">Standing Data (1007)</a><br><a href="#">Full Trade Information (1004)</a> |
| User For        | Cash  |

## D

### Date of Initial Listing

| Field Name      | Date of Initial Listing   |
|-----------------|---|
| Description     | Date the instrument was initially listed.<br>Expressed as number of days since Epoch. |
| Format          | Date (unsigned integer 16)  |
| Length          | 2   |
| Possible Values | From 0 to 2 <sup>16</sup> -2  |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>  |
| User For        | Cash  |

### Dark Eligibility

| Field Name      | Dark Eligibility   |
|-----------------|--|
| Description     | Indicates the Eligibility to dark. 0 is not eligible, 1 is eligible. |
| Format          | Boolean (unsigned integer 8)   |
| Length          | 1  |
| Possible Values | 0..2 <sup>8</sup> -2<br>Null value: 2 <sup>8</sup> -1                |
| Used In         | <a href="#">Standing Data (1007)</a>                                 |
| User For        | Cash   |

### Dark LIS Threshold

| Field Name      | Dark LIS Threshold   |
|-----------------|--|
| Description     | Defines the minimum amount of an order to benefit from the LIS (Large In Scale) pre-transparency waiver (to be calculated with the Amount Decimals). |
| Format          | Amount (unsigned integer 64)   |
| Length          | 8  |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1  |
| Used In         | <a href="#">Standing Data (1007)</a>   |
| User For        | Cash   |

## Dark Minimum Quantity

| Field Name      | Dark Minimum Quantity  |
|-----------------|--|
| Description     | Defines the minimum quantity required for an order to be filled in the Dark liquidity. 0 indicates that no minimum amount is required. |
| Format          | Quantity (unsigned integer 32)   |
| Length          | 4  |
| Possible Values | 0..2 <sup>32</sup> -2<br>Null value: 2 <sup>32</sup> -1  |
| Used In         | <a href="#">Standing Data (1007)</a>   |
| User For        | Cash   |

## Date Of Last Trade

| Field Name      | Date Of Last Trade  |
|-----------------|---|
| Description     | SBE additional information:<br>(in number of days since the 1st of January 1970). |
| Format          | Date (unsigned integer 16)<br>SBE: unsigned integer 16                            |
| Length          | 2   |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1                           |
| Used In         | <a href="#">Standing Data (1007)</a>  |
| User For        | Cash  |

## Days To Expiry

| Field Name      | Days To Expiry  |
|-----------------|---|
| Description     | Number of Calendar days until the Last Trading Day of the Expiry. |
| Format          | Numerical (unsigned integer 16)                                   |
| Length          | 2   |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1           |
| Used In         | <a href="#">Outright Standing Data (1014)</a>                     |

## Depository List

| Field Name  | Depository List  |
|-------------|--|
| Description | Identifies the possible main depository organizations (maximum four) for shares or fixed income.<br>Use the clearing house to determine the relevant system for settling trades.<br>Valid values are:<br><ul style="list-style-type: none"> <li>- '00001' – Euroclear France</li> <li>- '00002' – Euroclear Belgium</li> <li>- '00003' – Euroclear Nederland</li> <li>- '00004' – X/N NBB</li> <li>- '00005' – VIF (non-fungible Belgian instruments)</li> <li>- '00006' – Euroclear Bank</li> <li>- '00007' – Euroclear NIEC</li> <li>- '00008' – Physical</li> </ul> |



| Field Name | Depository List  |
|------------|--|
|            | <ul style="list-style-type: none"> <li>- '00009' – Euronext Paris non Euroclear France</li> <li>- '00010' – Interbolsa</li> <li>- '00012' – Monte Titoli</li> <li>- '00015' – SIS SegalInterSettle AG</li> <li>- '00016' – Oesterreichische Kontrollbank AG</li> <li>- '00017' – Vaerdipapircentralen (VP)</li> <li>- '00018' – Clearstream Banking A.G.</li> <li>- '00019' – Clearstream Banking S.A.</li> <li>- '00021' – Keler</li> <li>- '00023' – Finnish Central Securities Depository Ltd</li> <li>- '00028' – Iberclear</li> <li>- '00030' – Euroclear UK – Ireland Limited</li> <li>- '00050' – Verdipapirsentralen, VPS</li> <li>- '00051' – Stredisko Cennych Papiru</li> <li>- '00052' – Swedish Central Securities Depository Ltd</li> <li>- '00053' – Warsaw Stock Exchange/Equities/Main Market</li> <li>- '00000' – No depository organization</li> <li>- 'Nulls' – Not significant</li> </ul> |
| Format     | Text (character)   |
| Length     | 20   |
| Used In    | <a href="#">Standing Data (1007)</a>   |
| User For   | Cash   |

## Derivatives Instrument Trading Code

| Field Name  | Derivatives Instrument Trading Code   |
|-------------|---|
| Description | Derivatives Instrument Trading Code (formerly AMR) is composed of Exchange Code, Contract Type, Product Code, Expiry. For Options, Strike and Option Type (Put or Call) is added. |
| Format      | Alphanumerical ID (character)   |
| Length      | 18  |
| Used In     | <a href="#">Outright Standing Data (1014)</a><br><a href="#">Strategy Standing Data (1012)</a>  |
| User For    | Cash and Derivatives  |

## Derivatives Instrument Type

| Field Name      | Derivatives Instrument Type  |
|-----------------|--|
| Description     | Indicates the type of derivative instrument  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | <ul style="list-style-type: none"> <li>0 Call Option</li> <li>1 Put Option</li> <li>2 Strategy</li> <li>3 Individual Future</li> <li>4 Underlying</li> </ul> Null value: 2^8-1 |
| Conditions      | Value 4 is not used for Euronext markets   |
| Used In         | <a href="#">Outright Standing Data (1014)</a>  |
| User For        | Derivatives  |

## Derivatives Market Model

| Field Name      | Derivatives Market Model   |
|-----------------|--|
| Description     | Type of synthetic quote applied to the contract  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 0 No Synthetic Quote<br>1 Spontaneous Implied Matching<br>2 Event Driven Implied Matching<br>Null value: 2^8-1 |
| Used In         | <a href="#">Contract Standing Data (1013)</a>  |
| User For        | Derivatives  |

## Dividend Currency

| Field Name      | Dividend Currency                              |
|-----------------|--|
| Description     | Currency of dividend.                          |
| Format          | Text (character)                               |
| Length          | 3  |
| Possible Values | (See field description)                        |
| Used In         | <a href="#">BF Instrument Reference (1201)</a> |
| User For        | Cash   |

## Dividend Payment Date

| Field Name      | Dividend Payment Date  |
|-----------------|--|
| Description     | Dividend payment date.<br>Expressed as number of days since Epoch. |
| Format          | Date (unsigned integer 16)   |
| Length          | 2  |
| Possible Values | From 0 to 2^16-2   |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>                     |
| User For        | Cash   |

## Dividend Rate

| Field Name      | Dividend Rate   |
|-----------------|---|
| Description     | Dividend rate.<br>To be interpreted with Ratio/Multiplier Decimals. |
| Format          | Ratio (unsigned integer 64)   |
| Length          | 8   |
| Possible Values | From 0 to 2^64-2  |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>                      |
| User For        | Cash  |

## Dividend Record Date

| Field Name      | Dividend Record Date   |
|-----------------|--|
| Description     | Date of dividend record.<br>Expressed as number of days since Epoch. |
| Format          | Date (unsigned integer 16)   |
| Length          | 2  |
| Possible Values | From 0 to $2^{16}-2$   |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>                       |
| User For        | Cash   |

## Dynamic Collar Logic

| Field Name      | Dynamic Collar Logic  |
|-----------------|---|
| Description     | For Derivatives, Dynamic Collar Logic is a field used to identify the method of handling orders in case of Trade Price Validation (TPV) being triggered. For Cash, Dynamic Collar Logic is used internally. |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0 Not Active<br>2 No Halt with Reject ( <i>not in use</i> )<br>3 Halt with Acceptation<br>Null value: $2^8-1$   |
| Used In         | <a href="#">Contract Standing Data (1013)</a>   |

## E

## EDSP Tick Size

| Field Name      | EDSP Tick Size   |
|-----------------|--|
| Description     | Specific Tick Size value applicable for EDSP. It's calculated using the PriceDecimals. |
| Format          | Price (unsigned integer 64)  |
| Length          | 8  |
| Possible Values | $0..2^{64}-2$<br>Null value: $2^{64}-1$  |
| Used In         | <a href="#">Contract Standing Data (1013)</a>  |
| User For        | Derivatives  |

## Effective Date Indicator

| Field Name      | Effective Date Indicator  |
|-----------------|---|
| Description     | Indicates if the trade is introduced on the trading session day or earlier.   |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0 If the seller declaration is received on the current trading session day<br>1 If seller declaration is received before the current trading session day<br>Null value: $2^8-1$ |
| Used In         | <a href="#">Full Trade Information (1004)</a>   |

| Field Name | Effective Date Indicator |
|------------|--------------------------|
| User For   | Cash and Derivatives     |

## Efficient MMT Agency Cross Trade Indicator

| Field Name      | Efficient MMT Agency Cross Trade Indicator   |
|-----------------|--|
| Description     | Defines the agency cross trade indicator following MMT level 3.3.                  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | X 'ACTX' – Agency Cross Trade<br>No Agency Cross Trade '-' – No Agency Cross Trade |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>                                  |
| User For        | Cash and Derivatives   |

## Efficient MMT Algorithmic Indicator

| Field Name      | Efficient MMT Algorithmic Indicator   |
|-----------------|---|
| Description     | Defines the algorithmic indicator following MMT level 3.9.                      |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | H 'ALGO' – Algorithmic Trade<br>No Algorithmic Trade '-' – No Algorithmic Trade |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>                               |
| User For        | Cash and Derivatives  |

## Efficient MMT Benchmark Indicator

| Field Name      | Efficient MMT Benchmark Indicator   |
|-----------------|---|
| Description     | Defines the benchmark indicator or the reference price indicator following MMT level 3.5.   |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | B 'BENC' – Benchmark Trade<br>S 'RFPT' – Reference Price Trade<br>No Benchmark or Reference Price Trade '-' – No Benchmark or Reference Price Trade |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>   |
| User For        | Cash and Derivatives  |

## Efficient MMT Contribution to Price

| Field Name      | Efficient MMT Contribution to Price  |
|-----------------|--|
| Description     | Defines the contribution to price or the price discovery process following MMT level 3.8.  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | J 'TNCP' – Trade not Contributing to the Price Discovery Process<br>N 'PNDG' – Price is Currently Not Available but Pending<br>P 'P' – Plain-Vanilla Trade<br>T 'NPFT' – Non-Price Forming Trade (formerly known as the Technical Trade) |

| Field Name | Efficient MMT Contribution to Price               |
|------------|---|
| Used In    | <a href="#">APA Full Trade Information (1028)</a> |
| User For   | Cash and Derivatives                              |

## Efficient MMT Duplicative Indicator

| Field Name      | Efficient MMT Duplicative Indicator   |
|-----------------|---|
| Description     | Defines the duplicative indicator following MMT level 5.  |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 1 DUPL' – Duplicative Trade Report (reported to more than one APA)<br>Unique Trade Report '-' Unique Trade Report |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>   |
| User For        | Cash and Derivatives  |

## Efficient MMT Market Mechanism

| Field Name      | Efficient MMT Market Mechanism  |
|-----------------|---|
| Description     | Defines the fundamental functional market mechanism that has facilitated the trade following MMT level 1.   |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 1 Central Limit Order Book<br>2 Quote Driven Market<br>3 Dark Order Book<br>4 Off Book (including Voice or Messaging Trading)<br>5 Periodic Auction (Uncrossing)<br>6 Request for Quotes<br>7 Any Other, Including Hybrid |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>   |
| User For        | Cash and Derivatives  |

## Efficient MMT Modification Indicator

| Field Name      | Efficient MMT Modification Indicator   |
|-----------------|--|
| Description     | Defines the modification indicator following MMT level 3.4.                          |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | A 'AMND': Trade Amendment<br>C 'CANC': Trade Cancellation<br>New Trade '-' New Trade |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>                                    |
| User For        | Cash and Derivatives   |

## Efficient MMT Negotiation Indicator

| Field Name  | Efficient MMT Negotiation Indicator   |
|-------------|---|
| Description | Defines the negotiation indicator or pre-trade transparency waiver following MMT level 3.2. |
| Format      | Enumerated (unsigned integer 8)   |

| Field Name      | Efficient MMT Negotiation Indicator  |
|-----------------|--|
| Length          | 1  |
| Possible Values | 1 'NLIQ' – Negotiated Trade in Liquid Financial Instruments<br>2 'OILQ' – Negotiated Trade in Illiquid Financial Instruments<br>3 'PRIC' – Negotiated Trade Subject to Conditions Other Than The Current Market Price<br>4 'ILQD' – Pre-Trade Transparency Waiver for Illiquid Instrument on an SI<br>5 'SIZE' – Pre-Trade Transparency Waiver for Above Standard Market Size on an SI<br>6 'ILQD SIZE' – Pre-Trade Transparency Waivers of ILQD and SIZE<br>N 'N' – Negotiated Trade<br>No Negotiated Trade '-' – No Negotiated Trade |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>  |
| User For        | Cash and Derivatives   |

## Efficient MMT Off Book Automated Indicator

| Field Name      | Efficient MMT Off Book Automated Indicator   |
|-----------------|--|
| Description     | Defines the off book automated indicator following MMT level 3.7.  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | M Off Book Non-Automated<br>Q Off Book Automated<br>Unspecified or does not apply (Hyphen) Unspecified or does not apply |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>  |
| User For        | Cash and Derivatives   |

## Efficient MMT Post Trade Deferral

| Field Name      | Efficient MMT Post Trade Deferral  |
|-----------------|--|
| Description     | Defines the post trade deferral or enrichment type following MMT level 4.2.  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 'LMTF' – Limited Details Trade<br>2 'DATF' – Daily Aggregated Trade<br>3 'VOLO' – Volume Omission Trade<br>4 'FWAF' – Four Weeks Aggregation Trade<br>5 'IDAF' – Indefinite Aggregation Trade<br>6 'VOLW' – Volume Omission Trade, Eligible for Subsequent Enrichment in Aggregated Form<br>7 'FULF' – Full Details of Earlier 'Limited Details Trade (LMTF)<br>8 'FULA' – Full Details of Earlier 'Daily Aggregated Trade (DATF)<br>9 'FULV' – Full Details of Earlier 'Volume Omission Trade (VOLO)<br>V 'FUL' – Full Details of Earlier 'Four Weeks Aggregation Trade (FWAF)<br>W 'COAF' – Full Details in Aggregated Form of Earlier 'Volume Omission Trade, Eligible for Subsequent Enrichment in Aggregated Form (VOLW)<br>Not Applicable '-' – Not Applicable / No Relevant Deferral or Enrichment Type |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>  |
| User For        | Cash and Derivatives   |

## Efficient MMT Publication Mode

| Field Name      | Efficient MMT Publication Mode  |
|-----------------|---|
| Description     | Defines the publication mode or post-trade deferral reason following MMT level 4.1.   |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 1 '1' – Non-Immediate Publication<br>2 'LRGS' – Non-Immediate Publication: Deferral for 'Large in Scale'<br>3 'ILQD' – Non-Immediate Publication: Deferral for 'Illiquid Instrument'<br>4 'SIZE' – Non-Immediate Publication: Deferral for 'Size Specific'<br>5 'ILQD SIZE' – Non-Immediate Publication: Deferrals of ILQD and SIZE<br>6 'ILQD LRGS' – Non-Immediate Publication: Deferrals of ILQD and LRGS<br>Immediate Publication '-' – Immediate Publication |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>   |
| User For        | Cash and Derivatives  |

## Efficient MMT Special Dividend Indicator

| Field Name      | Efficient MMT Special Dividend Indicator  |
|-----------------|---|
| Description     | Defines the special dividend indicator following MMT level 3.6.                               |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | E 'SDIV': Special Dividend Trade<br>No Special Dividend Trade '-' – No Special Dividend Trade |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>   |
| User For        | Cash and Derivatives  |

## Efficient MMT Trading Mode

| Field Name      | Efficient MMT Trading Mode  |
|-----------------|---|
| Description     | Differentiates transactions by defining the trading mode under which the trade was executed following MMT level 2.  |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 1 Undefined Auction (= Uncrossing)<br>2 Continuous Trading<br>3 At Market Close Trading<br>4 Out of Main Session Trading<br>5 Trade Reporting (On Exchange)<br>6 Trade Reporting (Off Exchange)<br>7 Trade Reporting (Systematic Internaliser)<br>I Scheduled Intraday Auction (= Uncrossing)<br>K Scheduled Closing Auction (= Uncrossing)<br>O Scheduled Opening Auction (= Uncrossing)<br>U Unscheduled Auction (= Uncrossing) |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>   |
| User For        | Cash and Derivatives  |

## Efficient MMT Transaction Category

| Field Name      | Efficient MMT Transaction Category  |
|-----------------|---|
| Description     | Defines the transaction category following MMT level 3.1.   |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | D = 'D' – Dark Trade<br>R 'RPRI' – Trade that has Received Price Improvement<br>Y 'XFPH' – Exchange for Physicals Trade<br>Z 'TPAC' – Package Trade (excluding Exchange for Physicals)<br>Not apply '-' – None apply (a standard trade for the Market Mechanism and Trading Mode) |
| Used In         | <a href="#">APA Full Trade Information (1028)</a>   |
| User For        | Cash and Derivatives  |

## EMM

| Field Name      | EMM   |
|-----------------|---|
| Description     | <p>Defines the Exchange Market Mechanism applied on each platform.</p> <p>In the Reject (07) message:</p> <ul style="list-style-type: none"> <li>■ Populated only if provided as a valid value in the corresponding Inbound request AND the corresponding Inbound request was technically correctly formatted; otherwise it is provided at the Null value.</li> <li>■ Not populated for rejection of strategy creation on derivative markets.</li> </ul> <p>In the Mass Cancel (13) message, it is mandatory when Symbol Index is provided and optional when Instrument Group Code is provided.</p> |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 1 Cash and Derivative Central Order Book (COB)<br>2 NAV Trading Facility<br>4 Derivative Wholesales<br>5 Cash On Exchange Off book<br>6 Euronext off-exchange trade reports<br>7 Derivative On Exchange Off book<br>8 ETF MTF - NAV Central Order Book<br>9 Listed-not traded<br>15 Delta Neutral Contingency leg<br>99 Not Applicable (For indices and iNAV)<br>Null value: 2^8-1  |
| Conditions      | In TCS messages only possible values are '2' = NAV Trading Facility and '5' = Cash On Exchange Off book. Field not populated in Reject (07) messages for rejection of strategy creation on derivatives markets.   |
| Used In         | <a href="#">Standing Data (1007)</a><br><a href="#">Contract Standing Data (1013)</a><br><a href="#">Outright Standing Data (1014)</a><br><a href="#">Strategy Standing Data (1012)</a><br><a href="#">Timetable (1006)</a><br><a href="#">Market Update (1001)</a><br><a href="#">Order Update (1002)</a><br><a href="#">Long Order Update (1015)</a><br><a href="#">Price Update (1003)</a><br><a href="#">Full Trade Information (1004)</a><br><a href="#">Market Status Change (1005)</a><br><a href="#">Real Time Index (1008)</a><br><a href="#">Index Summary (1011)</a>                     |



| Field Name | EMM   |
|------------|---|
|            | <a href="#">LIS Package Trade (1016)</a><br><a href="#">APA Full Trade Information (1028)</a> |
| User For   | Cash and Derivatives  |

## End Time Vwap

| Field Name      | End Time Vwap   |
|-----------------|---|
| Description     | End time for the Volume Weight Average price computation period                                 |
| Format          | Intraday Time in Seconds (unsigned integer 32)  |
| Length          | 4   |
| Possible Values | 0..2 <sup>32</sup> -2<br>Null value: 2 <sup>32</sup> -1<br>Default value: 2 <sup>32</sup> -1    |
| Conditions      | For Declaration Entry (40) message, it is mandatory for declarations when Operation Type = '5'. |
| Used In         | <a href="#">Full Trade Information (1004)</a>   |
| User For        | Cash  |

## Evaluated Price

| Field Name      | Evaluated Price   |
|-----------------|---|
| Description     | This field is used for Total Return Future and Market On Close Future trading. The Price is calculated by ME in index point notation. It can contain the provisional price calculated in intra-day or the final price calculated at the end of the day. The Trade Type value will enable user to know if the field contains provisional price or final price. |
| Format          | Price (signed integer 64)   |
| Length          | 8   |
| Possible Values | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1  |
| Conditions      | Used only for Total Return Future and Market On Close Future trading  |
| Used In         | <a href="#">Full Trade Information (1004)</a>   |
| User For        | Derivatives   |

## Event Time

| Field Name      | Event Time   |
|-----------------|--|
| Description     | SBE additional information:<br>(Time in number of nanoseconds since 01/01/1970 UTC).   |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64  |
| Length          | 8  |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1  |
| Used In         | <a href="#">Health Status (1103)</a><br><a href="#">Market Update (1001)</a><br><a href="#">Order Update (1002)</a><br><a href="#">Long Order Update (1015)</a><br><a href="#">Price Update (1003)</a><br><a href="#">Full Trade Information (1004)</a><br><a href="#">Market Status Change (1005)</a><br><a href="#">Real Time Index (1008)</a> |

| Field Name | Event Time  |
|------------|---|
|            | <a href="#">Index Summary (1011)</a><br><a href="#">LIS Package Trade (1016)</a><br><a href="#">BF Instrument Suspension (1204)</a><br><a href="#">BF NAV (1203)</a><br><a href="#">BF Trade (1202)</a><br><a href="#">APA Quotes (1026)</a><br><a href="#">APA Full Trade Information (1028)</a> |
| User For   | Cash and Derivatives  |

## Ex-Dividend Date

| Field Name      | Ex-Dividend Date   |
|-----------------|--|
| Description     | Date of ex-dividend.<br>Expressed as number of days since Epoch. |
| Format          | Date (unsigned integer 16)                                       |
| Length          | 2  |
| Possible Values | From 0 to 2 <sup>16</sup> -2                                     |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>                   |
| User For        | Cash   |

## Exchange Code

| Field Name      | Exchange Code   |
|-----------------|---|
| Description     | Indicates the Market Place.   |
| Format          | Enumerated (character)  |
| Length          | 1   |
| Possible Values | A Amsterdam Equity Derivatives<br>B Brussels Equity Derivatives<br>C Paris Equity Underlyings<br>D Brussels Cash Underlyings<br>F Brussels Index Derivatives<br>G Amsterdam Cash Underlyings<br>H Lisbon Cash Underlyings<br>J Paris Index Derivatives<br>K Amsterdam Index Derivatives<br>L Oslo Cash Underlying<br>M Lisbon Index Derivatives<br>N Oslo Index Derivatives<br>O Oslo Equity Derivatives<br>P Paris Equity Derivatives<br>R Amsterdam Commodities Derivatives<br>S Lisbon Equity Derivatives<br>Y Paris Commodities Derivatives<br>Z Amsterdam Currency Derivatives |
| Used In         | <a href="#">Contract Standing Data (1013)</a><br><a href="#">Strategy Standing Data (1012)</a>  |
| User For        | Derivatives   |

## Exercise Style

| Field Name      | Exercise Style  |
|-----------------|---|
| Description     | Type of exercise of a derivatives instrument  |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0 European<br>1 American<br>2 Asian<br>3 Bermudan<br>4 Other<br>Null value: 2^8-1         |
| Used In         | <a href="#">Contract Standing Data (1013)</a><br><a href="#">APA Standing Data (1027)</a> |
| User For        | Derivatives   |

## Expiry Cycle Type

| Field Name      | Expiry Cycle Type                                     |
|-----------------|---|
| Description     | Defines the expiry cycle type                         |
| Format          | Enumerated (unsigned integer 8)                       |
| Length          | 1   |
| Possible Values | 1 Daily<br>2 Weekly<br>3 Monthly<br>Null value: 2^8-1 |
| Used In         | <a href="#">Outright Standing Data (1014)</a>         |
| User For        | Derivatives   |

## Expiry Date

| Field Name  | Expiry Date  |
|-------------|--|
| Description | For contracts with one expiry per month the day component may be "00" (text formatted as YYYYMMDD). For AtomX instruments this field contains the exact expiry date. For repo it represents the inclusive date until which a lending/borrowing contract can be traded. |
| Format      | Text (Character)   |
| Length      | 8  |
| Used In     | <a href="#">APA Standing Data (1027)</a>   |
| User For    | Cash and Derivatives   |

## F

## Firm ID

| Field Name  | Firm ID   |
|-------------|---|
| Description | Identifier of the member firm that has entered the Order. |
| Used For    | Cash  |
| Format      | Alphanumeric ID   |

|                 |  |
|-----------------|--|
| Length          | 8  |
| Possible Values | (See field description)                  |
| Conditions      | Provided only for non-anonymous market.  |
| Used In         | <a href="#">Long Order Update (1015)</a> |

## First Settlement Date

| Field Name      | First Settlement Date   |
|-----------------|---|
| Description     | SBE additional information:<br>(in number of days since the 1st of January 1970). |
| Format          | Date (unsigned integer 16)<br>SBE: unsigned integer 16                            |
| Length          | 2   |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1                           |
| Used In         | <a href="#">Standing Data (1007)</a>  |
| User For        | Cash  |

## Frame

| Field Name      | Frame   |
|-----------------|---|
| Description     | Is the total length of the message including the Frame, SBE header and message content. |
| Format          | Numerical ID (unsigned integer 16)  |
| Length          | 2   |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1                                 |
| Used In         | <a href="#">Frame</a>   |
| User For        | Cash and Derivatives  |

## Full Instrument Name

| Field Name  | Full Instrument Name   |
|-------------|--|
| Description | Full Instrument Name.  |
| Format      | Text (character)   |
| Length      | 102  |
| Used In     | <a href="#">Standing Data (1007)</a><br><a href="#">APA Standing Data (1027)</a> |
| User For    | Cash   |



## Gross Dividend in Euros

| Field Name  | Gross Dividend in Euros  |
|-------------|--|
| Description | Gross dividend payable, expressed in euros.<br>To be interpreted in conjunction with Price/Index Level Decimals. |

| Field Name      | Gross Dividend in Euros                        |
|-----------------|--|
| Format          | Price (signed integer 64)                      |
| Length          | 8  |
| Possible Values | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1 |
| Used In         | <a href="#">BF Instrument Reference (1201)</a> |
| User For        | Cash   |

## Gross Dividend Payable per Unit

| Field Name      | Gross Dividend Payable per Unit  |
|-----------------|--|
| Description     | Gross dividend payable, expressed in dividend currency.<br>To be interpreted in conjunction with Price/Index Level Decimals. |
| Format          | Price (signed integer 64)  |
| Length          | 8  |
| Possible Values | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1   |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>   |
| User For        | Cash   |

## Gross of CDSC Indicator

| Field Name      | Gross of CDSC Indicator   |
|-----------------|---|
| Description     | Indicates if Contingent Deferred Sales Charges fee is gross or not. |
| Format          | Enumerated (character)  |
| Length          | 1   |
| Possible Values | N No<br>Y Yes   |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>                      |
| User For        | Cash  |

## Guarantee Indicator

| Field Name      | Guarantee Indicator  |
|-----------------|--|
| Description     | Indicates if the trade is guaranteed or not (for clearing purpose)   |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 0 This instrument is not guaranteed<br>1 This instrument is guaranteed<br>2 This instrument is not clearable<br>8 This instrument is part of Cleared Borrowing and Lending Service (CBLM) and is guaranteed<br>Null value: 2 <sup>8</sup> -1 |
| Used In         | <a href="#">Standing Data (1007)</a>   |
| User For        | Cash   |

# H

## High Level

| Field Name      | High Level  |
|-----------------|---|
| Description     | Highest index level (to be calculated with the Price/Index Level Decimals). |
| Format          | Price (signed integer 64)   |
| Length          | 8   |
| Possible Values | -2 <sup>63</sup> +1..2 <sup>63</sup> -1<br>Null value: -2 <sup>63</sup>     |
| Used In         | <a href="#">Index Summary (1011)</a>  |
| User For        | Cash  |

## High Time

| Field Name      | High Time   |
|-----------------|---|
| Description     | Time of provisional highest index level (Time in number of nanoseconds since 01/01/1970 UTC). |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64                   |
| Length          | 8   |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1                                       |
| Used In         | <a href="#">Index Summary (1011)</a>  |
| User For        | Cash  |

# I

## ICB

| Field Name  | ICB  |
|-------------|--|
| Description | <i>Identifies for a listed instrument, the economic subsector of the issuing company in the ICB (Industry Classification Benchmark) classification.</i><br>This field is not relevant and is currently filled with '0000000000000000'. |
| Format      | Alphanumeric ID (character)  |
| Length      | 16   |
| Used In     | <a href="#">Standing Data (1007)</a>   |
| User For    | Cash   |

## ICB Code

| Field Name  | ICB Code   |
|-------------|--|
| Description | <i>Identifies for a listed instrument, the economic subsector of the issuing company in the ICB (Industry Classification Benchmark) classification.</i><br>This field is not relevant and is currently filled with '00000000'. |
| Format      | Alphanumeric ID (character)  |
| Length      | 8  |
| Used In     | <a href="#">Standing Data (1007)</a>   |

| Field Name | ICB Code |
|------------|----------|
| User For   | Cash     |

## Imbalance Quantity

| Field Name      | Imbalance Quantity   |
|-----------------|--|
| Description     | Imbalance volume quantity if Uncrossing occurs at this moment. This volume includes hidden quantity (to be calculated with Quantity Decimals). |
| Format          | Quantity (unsigned integer 64)   |
| Length          | 8  |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1  |
| Used In         | <a href="#">Price Update (1003)</a>  |
| User For        | Cash   |

## Imbalance Quantity Side

| Field Name      | Imbalance Quantity Side   |
|-----------------|---|
| Description     | Side of the imbalance volume if the Uncrossing occurs at this moment. |
| Format          | Enumerated (unsigned integer 8)                                       |
| Length          | 1   |
| Possible Values | 0 No imbalance<br>1 Buy<br>2 Sell<br>Null value: 2 <sup>8</sup> -1    |
| Used In         | <a href="#">Price Update (1003)</a>                                   |
| User For        | Cash  |

## Index Level

| Field Name      | Index Level   |
|-----------------|---|
| Description     | The value of the last level for the index that is the subject of this message (to be calculated with the Price/Index Level Decimals). |
| Format          | Price (signed integer 64)   |
| Length          | 8   |
| Possible Values | -2 <sup>63</sup> +1..2 <sup>63</sup> -1<br>Null value: -2 <sup>63</sup>   |
| Used In         | <a href="#">Real Time Index (1008)</a>  |
| User For        | Cash  |

## Index Level Type

| Field Name      | Index Level Type                               |
|-----------------|--|
| Description     | Type of Index Level.                           |
| Format          | Enumerated (unsigned integer 8)                |
| Length          | 1  |
| Possible Values | 0 Indicative Index<br>1 Official Opening Index |

| Field Name | Index Level Type   |
|------------|--|
|            | 2 Real-Time Index<br>3 Automatic Indicative Index<br>4 (Preliminary) Reference Index<br>5 Closing Reference Index<br>6 (Confirmed) Reference Index<br>7 Options Liquidation Index<br>Null value: 2^8-1 |
| Used In    | <a href="#">Real Time Index (1008)</a>   |
| User For   | Cash   |

## Index Price Code

| Field Name      | Index Price Code  |
|-----------------|---|
| Description     | Type of Price as positioned in Session High/Low or to indicate the trend or at the contrary the reference value from which the price may change.  |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0 Only Index<br>1 Index and Session High<br>2 Index and Session Low<br>3 Index and Session High and Low (typically first price)<br>4 Only Session High<br>5 Only Session Low<br>6 Previous Day Close<br>Null value: 2^8-1 |
| Used In         | <a href="#">Real Time Index (1008)</a>  |
| User For        | Cash  |

## Instrument Category

| Field Name      | Instrument Category  |
|-----------------|--|
| Description     | Indicates to which category the instrument belongs.  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Equities<br>2 Fixed Income<br>3 Warrants And Certificates<br>6 Trackers<br>7 Futures<br>10 Options<br>11 Indices<br>12 Euronext Funds Services<br>14 iNAV (Indicative Net Asset Value)<br>15 Fund<br>254 Miscellaneous |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>   |
| User For        | Cash and Derivatives   |



## Instrument Event Date

| Field Name      | Instrument Event Date   |
|-----------------|---|
| Description     | SBE additional information:<br>(in number of days since the 1st of January 1970).     |
| Format          | Date (unsigned integer 16)<br>SBE: unsigned integer 16                                |
| Length          | 2   |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1                               |
| Used In         | <a href="#">Outright Standing Data (1014)</a><br><a href="#">Standing Data (1007)</a> |
| User For        | Cash and Derivatives  |

## Instrument Group Code

| Field Name  | Instrument Group Code                |
|-------------|--------------------------------------|
| Description | Instrument Group / Class Identifier. |
| Format      | Alphanumerical ID (character)        |
| Length      | 2                                    |
| Used In     | <a href="#">Standing Data (1007)</a> |
| User For    | Cash                                 |

## Instrument Name

| Field Name  | Instrument Name                      |
|-------------|--------------------------------------|
| Description | Instrument Name                      |
| Format      | Text (character)                     |
| Length      | 18                                   |
| Used In     | <a href="#">Standing Data (1007)</a> |
| User For    | Cash                                 |

## Instrument State

| Field Name      | Instrument State   |
|-----------------|--|
| Description     | Indicates the state of the instrument.   |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | <ul style="list-style-type: none"> <li>1 Scheduled</li> <li>2 Suspended due to underlying</li> <li>3 Suspended KOB1</li> <li>4 Suspended KOB2</li> <li>5 Suspended New Listing</li> <li>6 Suspended By MO</li> <li>7 Suspended Technical</li> <li>8 Reserved Dynamic Collars</li> <li>9 Reserved Static Collars</li> <li>10 Reserved Waiting For LP</li> <li>11 Reserved LP Limit</li> </ul> |

| Field Name | Instrument State   |
|------------|--|
|            | 13 Suspended Waiting for BBO<br>14 Suspended Waiting for Tradable State<br>15 Random Uncrossing Period<br>16 Instrument Expired<br>17 Uncrossing<br>18 Reserved due to Leg<br>19 Suspended due to Leg<br>Null value: 2^8-1 |
| Used In    | <a href="#">Market Status Change (1005)</a>  |
| User For   | Cash and Derivatives   |

## Instrument Trading Code

| Field Name  | Instrument Trading Code   |
|-------------|---|
| Description | Cash: Trading code is a 12-character string, the only instrument identifier that is unique in the feed in addition to the symbol index. |
| Format      | Alphanumerical ID (character)   |
| Length      | 15  |
| Used In     | <a href="#">Standing Data (1007)</a>  |
| User For    | Cash and Derivatives  |

## Instrument Unit Expression

| Field Name      | Instrument Unit Expression   |
|-----------------|--|
| Description     | Unit in which the instrument is quoted.  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Units<br>2 Percentage of Nominal Excluding Accrued Interest (Clean)<br>3 Basis Points<br>5 Percentage of Nominal Including Accrued Interest (Dirty)<br>7 Yield<br>8 Kilograms<br>9 Ounces<br>Null value: 2^8-1 |
| Used In         | <a href="#">Contract Standing Data (1013)</a><br><a href="#">Standing Data (1007)</a>  |
| User For        | Cash and Derivatives   |

## Interest Payment Date

| Field Name      | Interest Payment Date   |
|-----------------|---|
| Description     | Next interest payment date, expressed as number of days since Epoch.<br>Provided for bonds only.<br>The BF Instrument Reference (1201) message can provide up to the 4 next interest payment dates. |
| Format          | Date (unsigned integer 16)  |
| Length          | 2   |
| Possible Values | From 0 to 2^16-2  |

| Field Name | Interest Payment Date                          |
|------------|--|
| Used In    | <a href="#">BF Instrument Reference (1201)</a> |
| User For   | Cash   |

## ISIN Code

| Field Name  | ISIN Code  |
|-------------|--|
| Description | Instrument ISIN following ISO 6166.<br>Identifier of a product. Combined with MIC and Currency, identifies an instrument traded on a given market using a given currency.  |
| Format      | Alphanumerical ID (character)  |
| Length      | 12   |
| Conditions  | For MiFID Declaration Trade Entry (40) message, the Symbol Index or MIC - ISIN - Currency must be specified. If both Symbol Index and MIC - ISIN - Currency are populated, MIC - ISIN - Currency will be ignored and only the Symbol Index will be taken into consideration. |
| Used In     | <a href="#">Outright Standing Data (1014)</a><br><a href="#">Standing Data (1007)</a><br><a href="#">BF Instrument Reference (1201)</a>  |
| User For    | Cash and Derivatives   |

## Issue Date

| Field Name      | Issue Date  |
|-----------------|---|
| Description     | Date at which the instrument has been offered to the market, expressed as number of days since Epoch. |
| Format          | Date (unsigned integer 16)  |
| Length          | 2   |
| Possible Values | From 0 to $2^{16}-2$  |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>  |
| User For        | Cash  |

## Issue Price

| Field Name      | Issue Price                                    |
|-----------------|--|
| Description     | Issuing price of the instrument                |
| Format          | Price (signed integer 64)                      |
| Length          | 8  |
| Possible Values | $-2^{63}+1..2^{63}-1$<br>Null value: $-2^{63}$ |
| Used In         | <a href="#">Standing Data (1007)</a>           |
| User For        | Cash   |

## Issue Price Decimals

| Field Name      | Issue Price Decimals  |
|-----------------|---|
| Description     | Indicates the number of decimals for Issue Price related to this Symbol Index |
| Format          | Decimal Places (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | $0..2^8-2$  |

| Field Name | Issue Price Decimals                 |
|------------|--------------------------------------|
|            | Null value: 2^8-1                    |
| Used In    | <a href="#">Standing Data (1007)</a> |
| User For   | Cash                                 |

## Issuing Country

| Field Name  | Issuing Country   |
|-------------|---|
| Description | Issuing country.<br>Provides the ISO 3166 (Alpha 3) code for the country of headquarter company that issued the instrument. |
| Format      | Alphanumeric ID (character)   |
| Length      | 3   |
| Used In     | <a href="#">Standing Data (1007)</a><br><a href="#">BF Instrument Reference (1201)</a>                                      |
| User For    | Cash  |

## L

## Last Adjusted Closing Price

| Field Name      | Last Adjusted Closing Price   |
|-----------------|---|
| Description     | Last traded price of the previous trading day after application of the adjustment coefficient (to be calculated with the Price/Index Level Decimals).<br>Not provided for European instruments. |
| Format          | Price (signed integer 64)   |
| Length          | 8   |
| Possible Values | -2^63+1..2^63-1<br>Null value: -2^63  |
| Used In         | <a href="#">Standing Data (1007)</a>  |
| User For        | Cash  |

## Last Market Data Sequence Number

| Field Name      | Last Market Data Sequence Number   |
|-----------------|--|
| Description     | Indicates the Market Data Message Sequence Number of the last real-time message processed for this snapshot. |
| Format          | Sequence (unsigned integer 64)   |
| Length          | 8  |
| Possible Values | 0..2^64-2<br>Null value: 2^64-1  |
| Used In         | <a href="#">End Of Snapshot (2102)</a><br><a href="#">Start Of Snapshot (2101)</a>                           |
| User For        | Cash and Derivatives   |

## Last NAV Price

| Field Name  | Last NAV Price |
|-------------|----------------|
| Description | Last NAV Price |

| Field Name      | Last NAV Price                                 |
|-----------------|--|
| Format          | Price (signed integer 64)                      |
| Length          | 8  |
| Possible Values | From $-2^{63}-1$ to $2^{63}-1$                 |
| Used In         | <a href="#">BF Instrument Reference (1201)</a> |
| User For        | Cash   |

## Last Trading Date

| Field Name      | Last Trading Date   |
|-----------------|---|
| Description     | SBE additional information:<br>(in number of days since the 1st of January 1970). |
| Format          | Date (unsigned integer 16)<br>SBE: unsigned integer 16                            |
| Length          | 2   |
| Possible Values | $0..2^{16}-2$<br>Null value: $2^{16}-1$   |
| Used In         | <a href="#">Outright Standing Data (1014)</a>                                     |
| User For        | Cash and Derivatives  |

## Leg Buy or Sell

| Field Name      | Leg Buy or Sell                               |
|-----------------|---|
| Description     | Leg Side.                                     |
| Format          | Enumerated (character)                        |
| Length          | 1   |
| Possible Values | B Buy<br>S Sell                               |
| Used In         | <a href="#">Strategy Standing Data (1012)</a> |
| User For        | Derivatives                                   |

## Leg Price

| Field Name      | Leg Price   |
|-----------------|---|
| Description     | Price of corresponding strategy leg (to be calculated with the Price/Index Level Decimals). |
| Format          | Price (signed integer 64)   |
| Length          | 8   |
| Possible Values | $-2^{63}+1..2^{63}-1$<br>Null value: $-2^{63}$  |
| Used In         | <a href="#">Strategy Standing Data (1012)</a>   |
| User For        | Derivatives   |

## Leg Ratio

| Field Name  | Leg Ratio  |
|-------------|--|
| Description | Ratio of lots for the leg. For contingent trades, the delta. |

| Field Name      | Leg Ratio   |
|-----------------|---|
|                 | <ul style="list-style-type: none"> <li>■ For Contracts (Future or Option), it is the leg ratio, with the maximum value being 99999. If the value submitted by a customer is higher, it will be changed by the system to the maximum value (99999).</li> <li>■ For Underlyings (Cash or Future), the delta is used with special rules: For the Underlying leg of volatility strategies, this should be the delta represented directly as an integer value of the percentage, without division or decimals (e.g.: a delta of 65% should be represented by 65), with the maximum value being 9999 (9999%). If the value submitted by a customer is higher, it will be changed by the system to the maximum value (9999). For Conversion Reversal Strategies (Type = 'R'), the delta is always set to 100.</li> </ul> |
| Format          | Quantity (unsigned integer 32)  |
| Length          | 4   |
| Possible Values | 0..2 <sup>32</sup> -2<br>Null value: 2 <sup>32</sup> -1   |
| Used In         | <a href="#">Strategy Standing Data (1012)</a><br><a href="#">LIS Package Trade (1016)</a>   |
| User For        | Derivatives   |

## Leg Symbol Index

| Field Name      | Leg Symbol Index  |
|-----------------|---|
| Description     | MDG proprietary identification code of the instrument leg for the strategy.<br>This identifier is unique per triplet: MIC, ISIN and currency. Once the instrument is expired its number can be used for a new instrument. |
| Format          | Numerical ID (unsigned integer 32)  |
| Length          | 4   |
| Possible Values | 0..2 <sup>32</sup> -2<br>Null value: 2 <sup>32</sup> -1   |
| Used In         | <a href="#">Strategy Standing Data (1012)</a><br><a href="#">LIS Package Trade (1016)</a>   |
| User For        | Derivatives   |

## LEI Code

| Field Name  | LEI Code                           |
|-------------|------------------------------------|
| Description | LEI (Legal Entity Identifier) Code |
| Format      | Alphanumerical ID                  |
| Length      | 20                                 |
| Used In     | <a href="#">APA Quotes (1026)</a>  |
| User For    | Cash and Derivatives               |

## Liquid Instrument Indicator

| Field Name      | Liquid Instrument Indicator   |
|-----------------|---|
| Description     | Indicates whether the instrument is liquid or not, as defined per MiFID II. (0 = Illiquid ; 1 = Liquid) |
| Format          | Boolean (unsigned integer 8)  |
| Length          | 1   |
| Possible Values | 0..2 <sup>8</sup> -2<br>Null value: 2 <sup>8</sup> -1   |
| Used In         | <a href="#">Standing Data (1007)</a>  |

## Liquidation Level

| Field Name      | Liquidation Level   |
|-----------------|---|
| Description     | Index Level of reference at expiration settlement (to be calculated with the Price/Index Level Decimals). |
| Format          | Price (signed integer 64)   |
| Length          | 8   |
| Possible Values | $-2^{63}+1..2^{63}-1$<br>Null value: $-2^{63}$  |
| Used In         | <a href="#">Index Summary (1011)</a>  |
| User For        | Cash  |

## Liquidation Time

| Field Name      | Liquidation Time  |
|-----------------|---|
| Description     | Time of provisional expiration settlement index level (Time in number of nanoseconds since 01/01/1970 UTC). |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64                                 |
| Length          | 8   |
| Possible Values | $0..2^{64}-2$<br>Null value: $2^{64}-1$   |
| Used In         | <a href="#">Index Summary (1011)</a>  |
| User For        | Cash  |

## Long Instrument Name

| Field Name      | Long Instrument Name   |
|-----------------|--|
| Description     | Full Instrument Name, long format.<br>Can be the concatenation of two fields: instrument name and its associated series. |
| Format          | Text (character)   |
| Length          | 250  |
| Possible Values | (See field description)  |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>   |
| User For        | Cash   |

## Long Issuer Name

| Field Name      | Long Issuer Name  |
|-----------------|---|
| Description     | Indicates the name of the Legal Issuing Entity, long format.<br>Can be the concatenation of two fields: Issuer Name and Co-issuer Name. |
| Format          | Text (character)  |
| Length          | 250   |
| Possible Values | (See field description)   |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>  |
| User For        | Cash  |

## Long Trade Reference

| Field Name  | Long Trade Reference  |
|-------------|---|
| Description | Reference of the trade reported to the Exchange. Unlike the field <b>Trade Reference</b> (length = 30 char.), the <b>Long Trade Reference</b> is MiFID II compliant (length = 52 char. as requested by the ESMA). This field is used only for the Saturn APA Service. |
| Format      | Alphanumeric ID (character)   |
| Length      | 52  |
| Used In     | <a href="#">APA Full Trade Information (1028)</a>   |
| User For    | Cash and Derivatives  |

## Lot Size

| Field Name      | Lot Size   |
|-----------------|--|
| Description     | For Cash and Derivatives, it defines a multiple of the tradable quantity.  |
| Format          | Quantity (unsigned integer 64)   |
| Length          | 8  |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1  |
| Used In         | <a href="#">Standing Data (1007)</a><br><a href="#">Outright Standing Data (1014)</a><br><a href="#">Contract Standing Data (1013)</a> |
| User For        | Cash and Derivatives   |

## Low Level

| Field Name      | Low Level  |
|-----------------|--|
| Description     | Lowest index level (to be calculated with the Price/Index Level Decimals). |
| Format          | Price (signed integer 64)  |
| Length          | 8  |
| Possible Values | -2 <sup>63</sup> +1..2 <sup>63</sup> -1<br>Null value: -2 <sup>63</sup>    |
| Used In         | <a href="#">Index Summary (1011)</a>                                       |
| User For        | Cash   |

## Low Time

| Field Name      | Low Time   |
|-----------------|--|
| Description     | Time of provisional lowest index level (Time in number of nanoseconds since 01/01/1970 UTC). |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64                  |
| Length          | 8  |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1                                      |
| Used In         | <a href="#">Index Summary (1011)</a>   |
| User For        | Cash   |





## Main Depository

| Field Name  | Main Depository  |
|-------------|--|
| Description | <p>Identifies the default (or main) depository organization of the instrument (between the possible 4 depositories registered) used by priority for the settlement (for example: multi-listed instruments which have several depositories).</p> <p>For Cash Markets this data has to be treated in consideration of the data Depository List used by the clearing house to determine the relevant system for settling trades. Valid values are the same as for “Depository List”.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> <li>- '00001' – Euroclear France</li> <li>- '00002' – Euroclear Belgium</li> <li>- '00003' – Euroclear Nederland</li> <li>- '00004' – X/N National Bank of Belgium</li> <li>- '00005' – VIF (non-fungible Belgian instruments)</li> <li>- '00006' – Euroclear Bank</li> <li>- '00008' – Physical</li> <li>- '00010' – Interbolsa</li> <li>- '00000' – No depository organization</li> <li>- 'Nulls' – Not significant</li> </ul> |
| Format      | Alphanumeric ID (character)  |
| Length      | 5  |
| Used In     | <a href="#">Standing Data (1007)</a><br><a href="#">Contract Standing Data (1013)</a>  |
| User For    | Cash and Derivatives   |

## Market Data Action Type

| Field Name      | Market Data Action Type  |
|-----------------|--|
| Description     | Identifies if the order is a New Order, a Deletion, a Modification or a Retransmission.  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | <ol style="list-style-type: none"> <li>1 New Order</li> <li>2 Deletion of order identified by Previous Priority</li> <li>3 Deletion of all orders for the given instrument (depending on the side. If side is not provided, it means both)</li> <li>4 Modification of existing order Without Loss Of Priority</li> <li>5 Retransmission of all orders for the given instrument</li> <li>6 Modification of existing order With Loss Of Priority</li> <li>7 RFQ Answer creation</li> <li>8 RFQ Answer deletion</li> </ol> <p>Null value: 2^8-1</p> |
| Used In         | <a href="#">Order Update (1002)</a><br><a href="#">Long Order Update (1015)</a>  |
| User For        | Cash   |

## Market Data Change Type

| Field Name  | Market Data Change Type         |
|-------------|---------------------------------|
| Description | Type of scheduled change.       |
| Format      | Enumerated (unsigned integer 8) |

| Field Name      | Market Data Change Type  |
|-----------------|--|
| Length          | 1  |
| Possible Values | 0 Status Change(s)<br>1 Scheduled Event Notification<br>2 Status Change(s) and Scheduled Event Notification<br>Null value: 2^8-1 |
| Used In         | <a href="#">Market Status Change (1005)</a>  |
| User For        | Cash and Derivatives   |

## Market Data Price Type

| Field Name      | Market Data Price Type   |
|-----------------|--|
| Description     | Type of price update (note: 1 to 9 are settlement price type).   |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 2 Official Daily (Derivatives Only)<br>4 Official Market Close (Derivatives Only)<br>6 Official Expiry (Derivatives Only)<br>7 Provisional Intraday (Derivatives Only)<br>8 Official Intraday (Derivatives Only)<br>9 Official YDSP (Derivatives Only)<br>10 Net Asset Value (+/-) for the instruments eligible to the NAV Trading Facility (Cash Only)<br>12 Adjusted Closing Price (Cash Only)<br>13 Subscription Price (Cash Only)<br>14 Indicative Matching Price (Cash and Derivatives)<br>19 Min Price Out of Session Trades (Cash Only)<br>20 Max Price Out of Session Trades (Cash Only)<br>21 Min Price Out of Session Block Trades (Cash Only)<br>22 Max Price Out of Session Block Trades (Cash Only)<br>23 Valuation Price (Cash Only)<br>24 Fund Subscription (Cash Only)<br>25 Fund Redemption (Cash Only)<br>26 Uncrossing Price (Cash and Derivatives)<br>27 Last Traded Price (Cash and Derivatives)<br>28 Alternative Indicative Price (AIP) (Cash Only)<br>30 Net Asset Value (NAV) (Cash Only)<br>31 External Reference Price (Cash Only)<br>Null value: 2^8-1 |
| Used In         | <a href="#">Price Update (1003)</a>  |
| User For        | Cash and Derivatives   |

## Market Data Sequence Number

| Field Name      | Market Data Sequence Number   |
|-----------------|---|
| Description     | Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.<br>This sequence will always increment but not by 1 during the day, except for "Health Status" messages that will contain the Market Data Sequence Number of the last message (that is not a "Health Status" message) sent on the channel. |
| Format          | Sequence (unsigned integer 64)  |
| Length          | 8   |
| Possible Values | From 0 to 2^64-2<br>Null value: 2^64-1  |

| Field Name | Market Data Sequence Number  |
|------------|--|
| Used In    | <a href="#">Start Of Day (1101)</a><br><a href="#">End Of Day (1102)</a><br><a href="#">Health Status (1103)</a><br><a href="#">Technical Notification (1106)</a><br><a href="#">Standing Data (1007)</a><br><a href="#">Contract Standing Data (1013)</a><br><a href="#">Outright Standing Data (1014)</a><br><a href="#">Strategy Standing Data (1012)</a><br><a href="#">Timetable (1006)</a><br><a href="#">Market Update (1001)</a><br><a href="#">Order Update (1002)</a><br><a href="#">Long Order Update (1015)</a><br><a href="#">Price Update (1003)</a><br><a href="#">Full Trade Information (1004)</a><br><a href="#">Market Status Change (1005)</a><br><a href="#">Statistics (1009)</a><br><a href="#">Real Time Index (1008)</a><br><a href="#">Index Summary (1011)</a><br><a href="#">LIS Package Trade (1016)</a><br><a href="#">BF Instrument Reference( 1201)</a><br><a href="#">BF Instrument Suspension (1204)</a><br><a href="#">BF NAV (1203)</a><br><a href="#">BF Trade (1202)</a><br><a href="#">APA Standing Data (1027)</a><br><a href="#">APA Quotes (1026)</a><br><a href="#">APA Full Trade Information (1028)</a> |
| User For   | Cash and Derivatives   |

## Market Data Update Type

| Field Name      | Market Data Update Type  |
|-----------------|--|
| Description     | Type of market data update.  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Best Bid (Cash and Derivatives)<br>2 Best Offer (Cash and Derivatives)<br>3 New Bid (Cash and Derivatives)<br>4 New Offer (Cash and Derivatives)<br>5 Updated Bid (Cash and Derivatives)<br>6 Updated Offer (Cash and Derivatives)<br>7 <i>Total Traded Volume (Derivatives Only) -- Deprecated</i><br>8 <i>Implied Bid (Derivatives Only)</i><br>9 <i>Implied Offer (Derivatives Only)</i><br>10 Request for Quote (Cash and Derivatives)<br>11 Request for Quote Bid (Cash Only)<br>12 Request for Size (Cash Only)<br>13 Request for Quote Offer (Cash)<br>14 High Dynamic Collar (Cash Only)<br>15 Low Dynamic Collar (Cash Only)<br>16 New Bid RLP (Retail Liquidity Provider) (Cash Only)<br>17 New Offer RLP (Retail Liquidity Provider) (Cash Only)<br>18 Updated Bid RLP Retail Liquidity Provider) (Cash Only) |

| Field Name | Market Data Update Type   |
|------------|---|
|            | 19 Updated Offer RLP (Retail Liquidity Provider) (Cash Only)                            |
|            | 24 Conventional Trade (Cash and Derivatives)  |
|            | 25 Request for Cross (RFC) Queued (Derivatives Only)                                    |
|            | 26 Request for Cross (RFC) (Derivatives Only)   |
|            | 27 Large in Scale (LiS) Trade (Derivatives Only)  |
|            | <u>28 Basis Trade (Derivatives Only)</u>  |
|            | 29 Large in Scale (LiS) Package Trade (Derivatives Only) <del>–</del> <i>Deprecated</i> |
|            | <u>30 Guaranteed Cross Trade (Cash and Derivatives)</u>                                 |
|            | <u>31 Against Actual Trade (Derivatives Only)</u>                                       |
|            | <u>32 Asset Allocation Trade (Derivatives Only)</u>                                     |
|            | 34 Exchange for Swap Trade (Derivatives Only)   |
|            | 35 Dark Trade (Cash Only)   |
|            | <u>36 Exchange for Physical Trade – Cash Leg (Cash Only) – Deprecated</u>               |
|            | 37 Strategy Leg Conventional Trade (Derivatives Only)                                   |
|            | <u>38 Strategy Leg Large in Scale (LiS) Trade (Derivatives Only) – Deprecated</u>       |
|            | <u>39 Strategy Leg Basis Trade (Derivatives Only) – Deprecated</u>                      |
|            | <u>40 Strategy Leg Guaranteed Cross Trade (Derivatives Only) – Deprecated</u>           |
|            | <u>41 Strategy Leg Against Actual Trade (Derivatives Only) – Deprecated</u>             |
|            | <u>42 Strategy Leg Asset Allocation Trade (Derivatives Only) – Deprecated</u>           |
|            | <u>44 Strategy Leg Exchange For Swap Trade (Derivatives Only) – Deprecated</u>          |
|            | <u>45 Strategy Leg Exchange For Physical Trade (Derivatives Only) – Deprecated</u>      |
|            | 46 BoB Trade (Cash Only)  |
|            | <u>48 AtomX Trade (Derivatives Only) – Deprecated</u>                                   |
|            | 50 Trade Cancellation (Cash and Derivatives)  |
|            | 51 Out of Market Trade (Cash Only)  |
|            | 52 Delta Neutral Trade - Underlying Cash Leg (Cash Only)                                |
|            | 53 Delta Neutral Trade - Underlying Future Leg (Derivatives Only)                       |
|            | 54 Euronext Fund Service Trade (Cash Only)  |
|            | 55 Secondary Listing Trade (Cash Only)  |
|            | 56 Request for Cross Trade (Derivatives Only)   |
|            | 57 Request for Cross Strategy Leg Trade (Derivatives Only)                              |
|            | 58 New Bid With Liquidity Provider (Cash Only)  |
|            | 59 New Offer With Liquidity Provider (Cash Only)  |
|            | 60 Updated Bid With Liquidity Provider (Cash Only)                                      |
|            | 61 Updated Offer With Liquidity Provider (Cash Only)                                    |
|            | 63 Low Static Collar (Cash Only)  |
|            | 64 High Static Collar (Cash Only)   |
|            | 65 Market VWAP Operation Trade  |
|            | 66 Request for Size Bid (Cash Only)   |
|            | 67 Request for Size Offer (Cash Only)   |
|            | 70 Low LP Collar (Cash Only)  |
|            | 71 High LP Collar (Cash Only)   |
|            | <u>72 ETF-MTF NAV Trade (price in basis points) (Cash Only)</u>                         |
|            | <u>73 ETF-MTF NAV Dark Trade (price in basis points) (Cash Only)</u>                    |
|            | <u>74 New Bid on Wholesale RFC (Derivatives Only)</u>                                   |
|            | <u>75 New Offer on Wholesale RFC (Derivatives Only)</u>                                 |
|            | <u>76 Updated Bid on Wholesale RFC (Derivatives Only)</u>                               |
|            | <u>77 Updated Offer on Wholesale RFC (Derivatives Only)</u>                             |
|            | <u>78 Clear Wholesale RFC (Derivatives Only)</u>  |

| Field Name | Market Data Update Type   |
|------------|---|
|            | 79 Guaranteed Cross – Negotiated deal NLIQ (Liquid)<br>80 Guaranteed Cross – Negotiated deal OILQ (illiquid)<br>81 Large in Scale (LIS) Trade (Cash)<br>82 Large in Scale (LIS) Trade in basis points (Derivatives Only)<br>83 <u>Large in Scale (LIS) Package Trade in basis points (Derivatives Only) – Deprecated</u><br>84 <u>Strategy Leg Large in Scale (LIS) Trade in basis points (Derivatives Only) – Deprecated</u><br><br>86 New Bid RFQ Answer<br>87 New Offer RFQ Answer<br>88 Updated Bid RFQ Answer<br>89 Updated Offer RFQ Answer<br>90 Bid Execution Summary<br>91 AQS Expansion Factor (Provided in Price field)<br>92 Collars Expansion Factor (Provided in Price field)<br>93 Collars Enabled<br>94 Collars Disabled<br>95 DCRP Inter-Month Spread<br>96 FSP Reference Price<br>97 Offer Execution Summary<br>98 FSP Triggered<br>99 MidPoint BBO<br>100 Conventional Trade - Provisional price<br>254 Clear Book (Cash and Derivatives)<br>Null value: 2^8-1 |
| Used In    | <a href="#">Market Update (1001)</a>  |
| User For   | Cash and Derivatives  |

## Market Model

| Field Name      | Market Model  |
|-----------------|---|
| Description     | Market Model identifier.  |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 1 Order Driven<br>2 Quote Driven<br>3 IPO<br>4 Primary Market<br>5 RFQ<br>6 Conditional Uncrossing<br>Null value: 2^8-1 |
| Used In         | <a href="#">Standing Data (1007)</a>  |
| User For        | Cash  |

## Market Of Reference MIC

| Field Name  | Market Of Reference MIC   |
|-------------|---|
| Description | Indicates the instrument Exchange of Reference by its MIC (Market Identification Code according to ISO 10383) (For Future Use). |
| Format      | Alphanumerical ID (character)   |
| Length      | 4   |

| Field Name | Market Of Reference MIC   |
|------------|---|
| Conditions | For Declaration Entry (40) message, it is mandatory when Operation Type = '4' or '6'. |
| Used In    | <a href="#">Full Trade Information (1004)</a><br><a href="#">Standing Data (1007)</a> |
| User For   | Cash  |

## Maturity Date

| Field Name  | Maturity Date  |
|-------------|--|
| Description | Maturity Date of the instrument (text formatted as YYYYMMDD).<br>For contracts with one expiry per month the day component may be "00" (text formatted as YYYYMMDD).<br>For repo (repurchase agreement) it represents the inclusive date until which a lending/borrowing contract can be traded. |
| Format      | Text (character)   |
| Length      | 8  |
| Used In     | <a href="#">Outright Standing Data (1014)</a><br><a href="#">Standing Data (1007)</a><br><a href="#">Strategy Standing Data (1012)</a><br><a href="#">BF Instrument Reference (1201)</a><br><a href="#">APA Standing Data (1027)</a>   |
| User For    | Cash and Derivatives   |

## Maximum Decimals In Quantity

| Field Name      | Maximum Decimals In Quantity   |
|-----------------|--|
| Description     | Maximum Decimals In Quantity was introduced for Euronext Fund Services Paris and indicates the maximum of relevant decimal number for trading. |
| Format          | Numerical (unsigned integer 8)   |
| Length          | 1  |
| Possible Values | 0..2^8-2<br>Null value: 2^8-1  |
| Used In         | <a href="#">Standing Data (1007)</a>   |
| User For        | Cash   |

## Message Price Notation

| Field Name      | Message Price Notation   |
|-----------------|--|
| Description     | This field provides the type of price notation used per message. For TRF and MOC products the value "Price" is used for TAM trading mode, the values "Spread in basis points" and "Spread" are used for TAIC trading mode. |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Price<br>2 Spread in basis points<br>3 Spread  |
| Conditions      | Currently this functionality is used only for TRF and MOC products. Note that for the TRF products the value "Spread" means "Spread in index point"  |
| Used In         | <a href="#">Full Trade Information (1004)</a>  |
| User For        | Derivatives  |

## MIC

| Field Name  | MIC  |
|-------------|--|
| Description | <p>Identifies the market to which an instrument belongs by its MIC (Market Identification Code), segment MIC according to ISO 10383.</p> <p>Euronext owns the following MICs:</p> <ul style="list-style-type: none"> <li>- 'ALXA' – ALTERNEXT AMSTERDAM</li> <li>- 'ALXB' – EURONEXT GROWTH BRUSSELS</li> <li>- 'ALXL' - EURONEXT GROWTH LISBON</li> <li>- 'ALXP' – EURONEXT GROWTH PARIS</li> <li>- 'EMTF' – EURO MTF</li> <li>- 'ENXB' – EURONEXT - EASY NEXT</li> <li>- 'ENXL' – EURONEXT ACCESS LISBON</li> <li>- 'MERK' – MERKUR MARKET</li> <li>- 'MFOX' - EURONEXT - MERCADO DE FUTUROS E OPÇÕES</li> <li>- 'MLXB' - EURONEXT ACCESS BRUSSELS</li> <li>- 'TNLA' – EURONEXT - TRADED BUT NOT LISTED AMSTERDAM</li> <li>- 'TNLB' – EURONEXT – TRADING FACILITY BRUSSELS</li> <li>- 'VPXB' - EURONEXT - VENTES PUBLIQUES BRUSSELS</li> <li>- 'WQXL' – EURONEXT - MARKET WITHOUT QUOTATIONS LISBON</li> <li>- 'XAMS' – EURONEXT - EURONEXT AMSTERDAM</li> <li>- 'XBRD' - EURONEXT - EURONEXT BRUSSELS - DERIVATIVES</li> <li>- 'XBRU' – EURONEXT - EURONEXT BRUSSELS</li> <li>- 'XESM' – DUBLIN EQUITIES EURONEXT GROWTH</li> <li>- 'XEUC' - EURONEXT COM, COMMODITIES FUTURES AND OPTIONS</li> <li>- 'XEUE' - EURONEXT EQF, EQUITIES AND INDICES DERIVATIVES</li> <li>- 'XEUI' - EURONEXT IRF, INTEREST RATE FUTURE AND OPTIONS</li> <li>- 'XEYE' – GLOBAL EXCHANGE MARKET</li> <li>- 'XLDN' – EURONEXT - EURONEXT LONDON</li> <li>- 'XLIS' – EURONEXT - EURONEXT LISBON</li> <li>- 'XLUX' – LUXEMBOURG STOCK EXCHANGE</li> <li>- 'XMAT' - EURONEXT PARIS MATIF</li> <li>- 'XMLI' – EURONEXT ACCESS PARIS</li> <li>- 'XMON' - EURONEXT PARIS MONEP</li> <li>- 'XMSM' – EURONEXT DUBLIN</li> <li>- 'XOAS' – OSLO AXESS</li> <li>- 'XOAM' – NORDIC ALTERNATIVE BOND MARKET</li> <li>- <u>'XOBD' – OSLO BORS ASA – DERIVATIVES MARKET</u></li> <li>- 'XOSL' – OSLO BORS ASA</li> <li>- 'XOTH' - Others - This MIC is not registered. It is use for testing purpose in both p-EUA and Production.</li> <li>- 'XPAR' – EURONEXT - EURONEXT PARIS</li> <li>- 'XSPM' - EURONEXT STRUCTURED PRODUCTS MTF</li> </ul> <p><b>Specific MIC for APA use only</b></p> <ul style="list-style-type: none"> <li>- 'XOFF' – OTC- TRANSACTIONS – LISTED INSTRUMENTS</li> <li>- 'XXXX' – OTC TRANSACTION – UNLISTED INSTRUMENTS</li> <li>- 'AFSI' – AFS - OTF - INTEREST RATE DERIVATIVES</li> <li>- 'AFSO' – AFS - OTF - BONDS</li> <li>- 'AFSL' – AFS - OTF - STRUCTURED PRODUCTS</li> <li>- 'AFSX' – AFS - OTF - FX FORWARDS</li> <li>- 'SINT' – Systematic INTERNALISER (This is a tag not in the ISO).</li> </ul> |
| Format      | Alphanumeric ID (character)  |
| Length      | 4  |
| Conditions  | For MiFID Declaration Trade Entry (40) message, the Symbol Index or MIC - ISIN - Currency must be specified. If both Symbol Index and MIC - ISIN - Currency are populated, MIC - ISIN - Currency will be ignored and only the Symbol Index will be taken into consideration.   |
| Used In     | <a href="#">Contract Standing Data (1013)</a>  |

| Field Name | MIC   |
|------------|---|
|            | <a href="#">Standing Data (1007)</a><br><a href="#">BF Instrument Reference (1201)</a><br><a href="#">APA Quotes (1026)</a> |
| User For   | Cash and Derivatives  |

## MIC List

| Field Name  | MIC List  |
|-------------|---|
| Description | <p>Identifies the Euronext markets on which an instrument is listed by its MIC (Market Identification Code). For an instrument listed on a single Euronext market, the listing MIC code is the same than "Market Identification Code (MIC) of the listed instrument" For an instrument listed on several Euronext Markets:</p> <ul style="list-style-type: none"> <li>- The first MIC is the same than the "Market Identification Code (MIC) of the listed instrument"</li> <li>- The others MIC indicate the other listing places</li> </ul> |
| Format      | Alphanumerical ID (character)   |
| Length      | 20  |
| Used In     | <a href="#">Standing Data (1007)</a>  |

## MIFID II Liquid Flag

| Field Name      | MIFID II Liquid Flag   |
|-----------------|--|
| Description     | Defines if a contract is to be considered as liquid under MIFID II Regulation. |
| Format          | Boolean (unsigned integer 8)   |
| Length          | 1  |
| Possible Values | From 0 to 2^8-2  |
| Used In         | <a href="#">Contract Standing Data (1013)</a>                                  |
| User For        | Derivatives  |

## MiFID Clearing Flag

| Field Name  | MiFID Clearing Flag  |
|-------------|--|
| Description | <p>Code to identify whether the transaction will be cleared.</p> <ul style="list-style-type: none"> <li>- 'true': Transaction to be cleared.</li> <li>- 'false': Transaction not to be cleared.</li> </ul> |
| Format      | Text (character)   |
| Length      | 5  |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Full Trade Information (1028)</a>   |
| User For    | Derivatives  |

## MiFID Currency

| Field Name  | MiFID Currency   |
|-------------|--|
| Description | Currency in which the price is expressed (applicable if the price is expressed as monetary value) following ISO 4217 standard. |
| Format      | Alphanumerical ID (character)  |
| Length      | 3  |
| Used In     | <a href="#">Full Trade Information (1004)</a>  |



| Field Name | MiFID Currency                                    |
|------------|---|
|            | <a href="#">APA Full Trade Information (1028)</a> |
| User For   | Cash and Derivatives                              |

## MiFID Emission Allowance Type

| Field Name  | MiFID Emission Allowance Type  |
|-------------|--|
| Description | <p>This field is only applicable for emission allowances.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>- 'EUAE' – European Union Allowances (EUA)</li> <li>- 'CERE' – Certified Emission Reductions (CER)</li> <li>- 'ERUE' – Emission Reduction Units (ERU)</li> <li>- 'EUAA' – European Union Aviation Allowances (EUAA)</li> <li>- 'OTHR' – Other (for derivatives only)</li> </ul> |
| Format      | Text (character)   |
| Length      | 4  |
| Conditions  | For MiFID Declaration Trade Entry (40) message, it is only applicable for APA (i.e. when ARM APA Indicator = '2' or '3'). For emission allowances and emission allowance derivatives only.   |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Full Trade Information (1028)</a>   |
| User For    | Derivatives  |

## MiFID Execution ID

| Field Name  | MiFID Execution ID  |
|-------------|---|
| Description | <p>MiFID Execution ID is a unique ID of the Execution per instrument, day and EMM.</p> <p>For the Cash markets - it is MiFID Transaction Identification Code is composed of the Symbol Index (on 10 characters), the EMM (on 3 characters) and the Execution ID (on 10 characters). It is a unique Execution ID by instrument per day on the different available EMM.</p> <p>For the Derivatives Markets - this field represents the MiFID Transaction Identification Code (TVTIC) used by the Exchange. The value in the field is a concatenation of the Execution ID (10 char) and an identifier of the instruments (ISIN code or Symbol Index). In most cases the identifier of the instrument is the ISIN code (12 character).</p> <p>For derivatives, in cases when the trade occurs on an instrument for which the ISIN code is not populated (e.g. Strategies) the Symbol Index (10 character) of the instrument is used instead. When populated with Symbol Index, the value always contains 10 characters, and is not padded further with zeroes to reach 12 characters.</p> |
| Format      | Alphanumeric ID (character)   |
| Length      | 52  |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">LIS Package Trade (1016)</a>   |
| Conditions  | Cash and Derivatives markets will align on the format to be used by Derivatives markets in the future.  |
| User For    | Cash and Derivatives  |

## MiFID Instrument ID

| Field Name  | MiFID Instrument ID  |
|-------------|--|
| Description | Code used to identify the financial instrument. This code has to be processed with the MiFID Instrument ID Type. |
| Format      | Alphanumeric ID (character)  |
| Length      | 12   |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Standing Data (1027)</a>                        |

| Field Name | MiFID Instrument ID  |
|------------|--|
|            | <a href="#">APA Quotes (1026)</a><br><a href="#">APA Full Trade Information (1028)</a> |
| User For   | Cash and Derivatives   |

## MiFID Instrument ID Type

| Field Name  | MiFID Instrument ID Type   |
|-------------|--|
| Description | <p>Code type used to identify the financial instrument.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>- 'ISIN' = ISIN code, where ISIN is available.</li> <li>- 'OTHR' = other identifier.</li> </ul> |
| Format      | Text (character)   |
| Length      | 4  |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Standing Data (1027)</a><br><a href="#">APA Quotes (1026)</a><br><a href="#">APA Full Trade Information (1028)</a>  |
| User For    | Cash and Derivatives   |

## MiFID Notional Amount

| Field Name  | MiFID Notional Amount  |
|-------------|--|
| Description | <p>Nominal amount or notional amount.</p> <p>For spread bets, the notional amount shall be the monetary value wagered per point movement in the underlying financial instrument.</p> <p>For credit default swaps, it shall be the notional amount for which the protection is acquired or disposed of.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>- Maximum of 18 digits with a maximum of 5 decimals.</li> </ul> <p>Note: Decimal separator is '.' (full stop).</p> |
| Format      | Text (character)   |
| Length      | 20   |
| Conditions  | For MiFID Declaration Trade Entry (40) message, it is mandatory for APA (i.e. when ARM APA Indicator = '2' or '3'). For all financial instruments except in the cases described under Article 11(1) letters (a) and (b) of ESMA Regulation RTS 2.  |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Full Trade Information (1028)</a>   |
| User For    | Cash and Derivatives   |

## MiFID Price

| Field Name  | MiFID Price  |
|-------------|--|
| Description | <p>Traded price of the transaction excluding, where applicable, commission and accrued interest.</p> <p>Where price is reported in monetary terms, it shall be provided in the major currency unit.</p> <p>Where price is currently not available but pending, the value should be 'PNDG'.</p> <p>Where price is not applicable the field shall not be populated.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>- For price expressed as monetary value: maximum of 18 digits with a maximum of 13 decimals.</li> <li>- For price expressed as percentage or yield: maximum of 11 digits with a maximum of 10 decimals.</li> <li>- For not available price (only for derivatives): 'PNDG'.</li> </ul> <p>Note 1: Decimal separator is '.' (full stop).</p> <p>Note 2: Negative numbers are prefixed with '-' (minus).</p> |

| Field Name | MiFID Price   |
|------------|---|
|            | Note 3: Where applicable, values shall be rounded and not truncated.  |
| Format     | Text (character)  |
| Length     | 20  |
| Used In    | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Quotes (1026)</a><br><a href="#">APA Full Trade Information (1028)</a> |
| User For   | Cash and Derivatives  |

## MiFID Price Notation

| Field Name  | MiFID Price Notation  |
|-------------|---|
| Description | Indication as to whether the price is expressed in monetary value, in percentage or in yield.<br>Possible values:<br>'MONE' – Monetary value<br>'PERC' – Percentage<br>'YIEL' – Yield<br>'BAPO' – Basis points. |
| Format      | Text (character)  |
| Length      | 4   |
| Conditions  | For MiFID Declaration Trade Entry (40) message, it is mandatory for APA (i.e. when ARM APA Indicator = '2' or '3').   |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">BF Instrument Reference (1201)</a><br><a href="#">BF Trade (1202)</a><br><a href="#">APA Full Trade Information (1028)</a>                         |
| User For    | Cash and Derivatives  |

## MiFID Qty in Measurement Unit Notation

| Field Name  | MiFID Qty in Measurement Unit Notation  |
|-------------|---|
| Description | Indication of measurement units in which the quantity in measurement unit is expressed.<br>Possible values:<br>'TOCD' – tons of carbon dioxide equivalent<br>Or<br>{ALPHANUM-25} otherwise.   |
| Format      | Text (character)  |
| Length      | 25  |
| Conditions  | For MiFID Declaration Trade Entry (40) message, it is only applicable for APA (i.e. when ARM APA Indicator = '2' or '3'). For commodity derivatives, emission allowance derivatives and emission allowances except in the cases described under Article 11(1) letters (a) and (b) of ESMA Regulation RTS 2. |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Full Trade Information (1028)</a>  |
| User For    | Cash and Derivatives  |

## MiFID Quantity

| Field Name  | MiFID Quantity  |
|-------------|---|
| Description | Number of units of the financial instrument. The nominal or monetary value of the financial instrument.<br>Possible values:<br>- For quantity expressed as number of units: maximum of 18 digits with a maximum of 17 decimals. |

| Field Name | MiFID Quantity   |
|------------|--|
|            | - For quantity expressed as monetary or nominal value: maximum of 18 digits with a maximum of 5 decimals.<br>Note 1: Decimal separator is '.' (full stop). |
| Format     | Text (character)   |
| Length     | 20   |
| Used In    | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Quotes (1026)</a><br><a href="#">APA Full Trade Information (1028)</a>                    |
| User For   | Cash and Derivatives   |

## MiFID Quantity Measurement Unit

| Field Name  | MiFID Quantity Measurement Unit   |
|-------------|---|
| Description | The equivalent amount of commodity or emission allowance traded expressed in measurement unit<br>Possible values:<br>- For quantity expressed as number of units: maximum of 18 digits with a maximum of 17 decimals.<br>Note: Decimal separator is '.' (full stop).  |
| Format      | Text (character)  |
| Length      | 20  |
| Conditions  | For MiFID Declaration Trade Entry (40) message, it is only applicable for APA (i.e. when ARM APA Indicator = '2' or '3'). For commodity derivatives, emission allowance derivatives and emission allowances except in the cases described under Article 11(1) letters (a) and (b) of ESMA Regulation RTS 2. |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Full Trade Information (1028)</a>  |
| User For    | Cash and Derivatives  |

## MiFID Transaction ID

| Field Name      | MiFID Transaction ID  |
|-----------------|---|
| Description     | MiFID Transaction Identification Code is a unique reported trade identifier.<br>It is composed of:<br>- Euronext APA MIC (4 char): "XAPA";<br>- Euronext venue (Y) or not (N)(1 char) = "N";<br>- Transaction Identifier (30 char) = "000408227570310605339900000653";<br>- Trading Date (8 Char AAAAMMJJ) = "20180220".<br>The above example will give us this MiFID Transaction Id (padded with '\0'):<br>"XAPAN00040822757031060533990000065320180220" |
| Format          | Alphanumeric ID (character)   |
| Length          | 52  |
| Possible Values | (See field description)   |
| Used In         | <a href="#">BF NAV (1203)</a><br><a href="#">BF Trade (1202)</a><br><a href="#">APA Full Trade Information (1028)</a>   |
| User For        | Cash and Derivatives  |

## Minimum Amount

| Field Name  | Minimum Amount  |
|-------------|---|
| Description | Minimum amount a bond can be bought.<br>To be interpreted in conjunction with Price/Index Level Decimals. |

| Field Name      | Minimum Amount                                 |
|-----------------|--|
| Format          | Price (signed integer 64)                      |
| Length          | 8  |
| Possible Values | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1 |
| Used In         | <a href="#">BF Instrument Reference 1201</a>   |
| User For        | Cash   |

## MM Protections

| Field Name      | MM Protections  |
|-----------------|---|
| Description     | Indicates allowed MM Protection type on the contract.(0: Disabled ; 1: Enabled) |
| Format          | Bitmap (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0 Delta<br>1 Volume<br>Null value: 2 <sup>8</sup> -1<br>Default value: 0        |
| Used In         | <a href="#">Contract Standing Data (1013)</a>                                   |
| User For        | Derivatives   |

## MMT Agency Cross Trade Indicator

| Field Name  | MMT Agency Cross Trade Indicator  |
|-------------|---|
| Description | Defines the agency cross trade indicator following MMT level 3.3.<br>Possible values:<br>- 'ACTX': Agency Cross Trade<br>- '-': No Agency Cross Trade |
| Format      | Text (character)  |
| Length      | 4   |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">BF Trade (1202)</a>  |
| User For    | Cash and Derivatives  |

## MMT Algorithmic Indicator

| Field Name  | MMT Algorithmic Indicator  |
|-------------|--|
| Description | Defines the algorithmic indicator following MMT level 3.9.<br>Possible values:<br>- 'ALGO': Algorithmic Trade<br>- '-': No Algorithmic Trade |
| Format      | Text (character)   |
| Length      | 4  |
| Used In     | <a href="#">Full Trade Information (1004)</a>  |
| User For    | Cash   |

## MMT Benchmark Indicator

| Field Name  | MMT Benchmark Indicator   |
|-------------|---|
| Description | Defines the benchmark indicator or the reference price indicator following MMT level 3.5.<br>Possible values:<br>- 'BENC': Benchmark Trade<br>- 'RFPT': Reference Price Trade<br>- '-': No Benchmark or Reference Price Trade |
| Format      | Text (character)  |
| Length      | 4   |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">BF Trade (1202)</a>  |
| User For    | Cash and Derivatives  |

## MMT Contribution to Price

| Field Name  | MMT Contribution to Price   |
|-------------|---|
| Description | Defines the contribution to price or the price discovery process following MMT level 3.8.<br>Possible values:<br>- 'P': Plain-Vanilla Trade<br>- 'NPFT': Non-Price Forming Trade (formerly known as the Technical Trade)<br>- 'TNCP': Trade not Contributing to the Price Discovery Process |
| Format      | Text (character)  |
| Length      | 4   |
| Used In     | <a href="#">Full Trade Information (1004)</a>   |
| User For    | Cash and Derivatives  |

## MMT Duplicative Indicator

| Field Name  | MMT Duplicative Indicator  |
|-------------|--|
| Description | Defines the duplicative indicator following MMT level 5.<br>Possible values:<br>- 'DUPL': Duplicative Trade Report (reported to more than one APA)<br>- '-': Unique Trade Report |
| Format      | Text (character)   |
| Length      | 4  |
| Used In     | <a href="#">Full Trade Information (1004)</a>  |
| User For    | Cash   |

## MMT Market Mechanism

| Field Name      | MMT Market Mechanism  |
|-----------------|---|
| Description     | Defines the fundamental functional market mechanism that has facilitated the trade following MMT level 1.                     |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 1 Central Limit Order Book<br>2 Quote Driven Market<br>3 Dark Order Book<br>4 Off Book (including Voice or Messaging Trading) |

| Field Name | MMT Market Mechanism   |
|------------|--|
|            | 5 Periodic Auction (= Uncrossing)<br>6 Request for Quotes<br>Null value: 2^8-1 |
| Used In    | <a href="#">Full Trade Information (1004)</a>                                  |
| User For   | Cash and Derivatives   |

## MMT Modification Indicator

| Field Name  | MMT Modification Indicator   |
|-------------|--|
| Description | Defines the modification indicator following MMT level 3.4.<br>Possible values:<br>- 'CANC': Trade Cancellation<br>- 'AMND': Trade Amendment<br>- '-': New Trade |
| Format      | Text (character)   |
| Length      | 4  |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">BF Trade (1202)</a>   |
| User For    | Cash and Derivatives   |

## MMT Negotiation Indicator

| Field Name  | MMT Negotiation Indicator   |
|-------------|---|
| Description | Defines the negotiation indicator or pre-trade transparency waiver following MMT level 3.2.<br>Possible values:<br>- 'N': Negotiated Trade<br>- 'NLIQ': Negotiated Trade in Liquid Financial Instruments<br>- 'OILQ': Negotiated Trade in Illiquid Financial Instruments<br>- 'PRIC': Negotiated Trade Subject to Conditions Other Than The Current Market Price<br>- 'ILQD': Pre-Trade Transparency Waiver for illiquid instrument on an Side<br>- 'SIZE': Pre-Trade Transparency Waiver for above standard market size on an SI<br>- '-': No Negotiated Trade |
| Format      | Text (character)  |
| Length      | 4   |
| Used In     | <a href="#">Full Trade Information (1004)</a>   |
| User For    | Cash  |

## MMT Off Book Automated Indicator

| Field Name      | MMT Off Book Automated Indicator   |
|-----------------|--|
| Description     | Defines the off book automated indicator following MMT level 3.7.                            |
| Format          | Enumerated (character)   |
| Length          | 1  |
| Possible Values | M Off Book Non-Automated<br>Q Off Book Automated<br>- (Hyphen) Unspecified or does not apply |
| Used In         | <a href="#">Full Trade Information (1004)</a>  |
| User For        | Cash and Derivatives   |

## MMT Post Trade Deferral

| Field Name  | MMT Post Trade Deferral   |
|-------------|---|
| Description | <p>Defines the post trade deferral or enrichment type following MMT level 4.2.</p> <p>Possible values for the original trade:</p> <ul style="list-style-type: none"> <li>- 'LMTF': Limited Details Trade</li> <li>- 'DATF': Daily Aggregated Trade</li> <li>- 'VOLO': Volume Omission Trade</li> <li>- 'FWAF': Four Weeks Aggregation Trade</li> <li>- 'IDAF': Indefinite Aggregation Trade</li> <li>- 'VOLW': Volume Omission Trade, Eligible for Subsequent Enrichment in Aggregated Form</li> </ul> <p>Possible values for the subsequent enrichment trade:</p> <ul style="list-style-type: none"> <li>- 'FULF': Full Details of Earlier "Limited Details Trade (LMTF)"</li> <li>- 'FULA': Full Details of Earlier "Daily Aggregated Trade (DATF)"</li> <li>- 'FULV': Full Details of Earlier "Volume Omission Trade (VOLO)"</li> <li>- 'FUL': Full Details of Earlier "Four Weeks Aggregation Trade (FWAF)"</li> <li>- 'COAF': Full Details in Aggregated Form of Earlier "Volume Omission Trade, Eligible for Subsequent Enrichment in Aggregated Form (VOLW)"</li> </ul> <p>Possible values if neither apply:</p> <ul style="list-style-type: none"> <li>- '-': Not Applicable / No Relevant Deferral or Enrichment Type</li> </ul> |
| Format      | Text (character)  |
| Length      | 4   |
| Used In     | <a href="#">Full Trade Information (1004)</a>   |
| User For    | Cash and Derivatives  |

## MMT Publication Mode

| Field Name  | MMT Publication Mode  |
|-------------|---|
| Description | <p>Defines the publication mode or post-trade deferral reason following MMT level 4.1.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>- '-': Immediate Publication</li> <li>- '1': Non-Immediate Publication</li> <li>- 'LRGS': Non-Immediate Publication: Deferral for "Large in Scale"</li> <li>- 'ILQD': Non-Immediate Publication: Deferral for "Illiquid Instrument"</li> <li>- 'SIZE': Non-Immediate Publication: Deferral for "Size Specific"</li> </ul> |
| Format      | Text (character)  |
| Length      | 4   |
| Used In     | <a href="#">Full Trade Information (1004)</a>   |
| User For    | Cash and Derivatives  |

## MMT Special Dividend Indicator

| Field Name  | MMT Special Dividend Indicator  |
|-------------|---|
| Description | <p>Defines the special dividend indicator following MMT level 3.6.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>- 'SDIV': Special Dividend Trade</li> <li>- '-': No Special Dividend Trade</li> </ul> |
| Format      | Text (character)  |
| Length      | 4   |



| Field Name | MMT Special Dividend Indicator   |
|------------|--|
| Used In    | <a href="#">Full Trade Information (1004)</a><br><a href="#">BF Trade (1202)</a> |
| User For   | Cash   |

## MMT Trading Mode

| Field Name      | MMT Trading Mode  |
|-----------------|---|
| Description     | Differentiates transactions by defining the trading mode under which the trade was executed following MMT level 2.  |
| Format          | Enumerated (character)  |
| Length          | 1   |
| Possible Values | 1 Undefined Auction (= Uncrossing)<br>2 Continuous Trading<br>3 At Market Close Trading<br>4 Out of Main Session Trading<br>5 Trade Reporting (On Exchange)<br>6 Trade Reporting (Off Exchange)<br>7 Trade Reporting (Systematic Internaliser)<br>I Scheduled Intraday Auction (= Uncrossing)<br>K Scheduled Closing Auction (= Uncrossing)<br>O Scheduled Opening Auction (= Uncrossing)<br>U Unscheduled Auction (= Uncrossing) |
| Used In         | <a href="#">Full Trade Information (1004)</a><br><a href="#">BF Trade (1202)</a>  |
| User For        | Cash and Derivatives  |

## MMT Transaction Category

| Field Name  | MMT Transaction Category  |
|-------------|---|
| Description | Defines the transaction category following MMT level 3.1.<br>Possible values:<br>- 'D': Dark Trade<br>- 'RPRI': Trade that has Received Price Improvement<br>- 'TPAC': Package Trade (excluding Exchange for Physicals)<br>- 'XFPH': Exchange for Physicals Trade<br>- '-': None apply (a standard trade for the Market Mechanism and Trading Mode) |
| Format      | Text (character)  |
| Length      | 4   |
| Used In     | <a href="#">Full Trade Information (1004)</a>   |
| User For    | Cash and Derivatives  |

## Mnemonic

| Field Name  | Mnemonic   |
|-------------|--|
| Description | Mnemonic code of the instrument. This field is not populated for every instrument. |
| Format      | Alphanumerical ID (character)  |
| Length      | 5  |
| Used In     | <a href="#">Standing Data (1007)</a>   |
| User For    | Cash   |

## Mother Stock ISIN

| Field Name  | Mother Stock ISIN   |
|-------------|---|
| Description | ISIN Code of the index underlying of the TRF contract, or the underlying stock of a Single Stock Dividend Future Contract |
| Format      | Text (character)  |
| Length      | 12  |
| Used In     | <a href="#">Contract Standing Data (1013)</a>   |
| User For    | Derivatives   |

## N

## NAV Bid Price

| Field Name      | NAV Bid Price                  |
|-----------------|--------------------------------|
| Description     | Net Asset Value bid price.     |
| Format          | Price (signed integer 64)      |
| Length          | 8                              |
| Possible Values | From $-2^{63}-1$ to $2^{63}-1$ |
| Used In         | <a href="#">BF NAV (1203)</a>  |
| User For        | Cash                           |

## NAV Offer Price

| Field Name      | NAV Offer Price                |
|-----------------|--------------------------------|
| Description     | Net Asset Value offer price.   |
| Format          | Price (signed integer 64)      |
| Length          | 8                              |
| Possible Values | From $-2^{63}-1$ to $2^{63}-1$ |
| Used In         | <a href="#">BF NAV (1203)</a>  |
| User For        | Cash                           |

## NAV Price

| Field Name      | NAV Price                      |
|-----------------|--------------------------------|
| Description     | NAV Price                      |
| Format          | Price (signed integer 64)      |
| Length          | 8                              |
| Possible Values | From $-2^{63}-1$ to $2^{63}-1$ |
| Used In         | <a href="#">BF NAV (1203)</a>  |
| User For        | Cash                           |

## Next Meeting

| Field Name      | Next Meeting   |
|-----------------|--|
| Description     | Date of next general meeting, or any free-formatted information related to next meeting. |
| Format          | Text (character)   |
| Length          | 8  |
| Possible Values | (See field description)  |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>   |
| User For        | Cash   |

## Nominal Currency

| Field Name  | Nominal Currency                            |
|-------------|---|
| Description | Code of the nominal currency (ISO 4217-3A). |
| Format      | Alphanumeric ID (character)                 |
| Length      | 3   |
| Used In     | <a href="#">Standing Data (1007)</a>        |
| User For    | Cash  |

## Notional Amount Traded

| Field Name      | Notional Amount Traded          |
|-----------------|---------------------------------|
| Description     | Whole amount of the trade.      |
| Format          | Amount (signed integer 64)      |
| Length          | 8                               |
| Possible Values | From $-2^{63}-1$ to $2^{63}-1$  |
| Used In         | <a href="#">BF Trade (1202)</a> |
| User For        | Cash                            |

## Notional Currency

| Field Name  | Notional Currency   |
|-------------|---|
| Description | Currency in which the notional is denominated following ISO 4217 standard.  |
| Format      | Alphanumeric ID (character)   |
| Length      | 3   |
| Conditions  | For MiFID Declaration Trade Entry (40) message, it is mandatory for APA (i.e. when ARM APA Indicator = '2' or '3'). For all financial instruments except in the cases described under Article 11(1) letters (a) and (b) of ESMA Regulation RTS 2. |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Standing Data (1027)</a>   |
| User For    | Cash  |

## Number Instrument Circulating

| Field Name  | Number Instrument Circulating  |
|-------------|--|
| Description | For stocks: this is the total number of shares issued by the company. For Fix Income: this is the number of Fix Income still to be repaid. |

| Field Name      | Number Instrument Circulating                           |
|-----------------|---|
| Format          | Quantity (unsigned integer 64)                          |
| Length          | 8   |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1 |
| Used In         | <a href="#">Standing Data (1007)</a>                    |
| User For        | Cash  |

## Number Of Orders

| Field Name      | Number Of Orders  |
|-----------------|---|
| Description     | Number of orders at the current price limit.            |
| Format          | Numerical (unsigned integer 16)                         |
| Length          | 2   |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1 |
| Used In         | <a href="#">Market Update (1001)</a>                    |
| User For        | Cash and Derivatives                                    |

## Number Of Traded Instruments in Index

| Field Name      | Number Of Traded Instruments in Index                   |
|-----------------|---|
| Description     | Number of traded instruments in the index.              |
| Format          | Quantity (unsigned integer 16)                          |
| Length          | 2   |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1 |
| Used In         | <a href="#">Real Time Index (1008)</a>                  |
| User For        | Cash  |

## O

### Offer Px

| Field Name      | Offer Price  |
|-----------------|--|
| Description     | Quote offer price, (To be calculated with Price/Index Level Decimals). |
| Format          | Quote offer price (to be calculated with Price/Index Level Decimals).  |
| Length          | 8  |
| Possible Values | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1                         |
| Used In         | <a href="#">BF Trade (1202)</a>  |
| User For        | Cash and Derivatives   |

## Opened/Closed Fund

| Field Name  | Opened/Closed Fund                            |
|-------------|---|
| Description | Indicates whether the fund is open or closed. |

| Field Name      | Opened/Closed Fund                             |
|-----------------|--|
| Format          | Enumerated (character)                         |
| Length          | 1  |
| Possible Values | O Open<br>C Closed                             |
| Used In         | <a href="#">BF Instrument Reference (1201)</a> |
| User For        | Cash   |

## Opening Level

| Field Name      | Opening Level   |
|-----------------|---|
| Description     | Official Opening Index Level. This level corresponds to the Index Level Type 1 of the Real Time Index (1008) of the corresponding index (to be calculated with the Price/Index Level Decimals). |
| Format          | Price (signed integer 64)   |
| Length          | 8   |
| Possible Values | $-2^{63}+1..2^{63}-1$<br>Null value: $-2^{63}$  |
| Used In         | <a href="#">Index Summary (1011)</a>  |
| User For        | Cash  |

## Opening Time

| Field Name      | Opening Time   |
|-----------------|--|
| Description     | Time of Official Opening level (Time in number of nanoseconds since 01/01/1970 UTC). |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64          |
| Length          | 8  |
| Possible Values | $0..2^{64}-2$<br>Null value: $2^{64}-1$  |
| Used In         | <a href="#">Index Summary (1011)</a>   |
| User For        | Cash   |

## Optiq Segment

| Field Name      | Optiq Segment  |
|-----------------|--|
| Description     | An Optiq segment is a universe of instruments sharing common trading properties.<br>Instruments have the flexibility to be moved from one partition to another within an Optiq segment.                                      |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Equities<br>2 Funds<br>3 Fixed Income<br>4 Warrants and Certificates<br>5 Bourse de Luxembourg<br>6 Financial Options<br>7 Financial Futures<br>8 Commodity Derivatives<br>9 Indices<br>10 Trade Reporting and Publication |

| Field Name | Optiq Segment   |
|------------|---|
|            | 14 Block<br>11 Index Derivatives<br>12 Equity Derivatives<br>15 Forex<br>16 ISE Bonds and Funds Feed<br>Null value: 2^8-1               |
| Used In    | <a href="#">Contract Standing Data (1013)</a><br><a href="#">Standing Data (1007)</a><br><a href="#">BF Instrument Reference (1201)</a> |
| User For   | Cash and Derivatives  |

## Option Type

| Field Name      | Option Type                              |
|-----------------|--|
| Description     | Type of Option                           |
| Format          | Enumerated (unsigned integer 8)          |
| Length          | 1  |
| Possible Values | 1 Call<br>2 Put                          |
| Used In         | <a href="#">APA Standing Data (1027)</a> |
| User For        | Derivatives                              |

## Order Entry Qualifier

| Field Name      | Order Entry Qualifier  |
|-----------------|--|
| Description     | Field indicating the state of the Order Entry for the current market state.  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 0 Order Entry/Cancel/Modify Disabled<br>1 Order Entry/Cancel/Modify Enabled<br>2 Cancel and Modify Only (Derivatives Only)<br>3 Cancel Only<br>Null value: 2^8-1 |
| Used In         | <a href="#">Timetable (1006)</a><br><a href="#">Market Status Change (1005)</a>  |
| User For        | Cash and Derivatives   |

## Order Price

| Field Name  | Order Price   |
|-------------|---|
| Description | Instrument price per quantity unit (To be calculated with Price/Index Level Decimals).<br>For the Market Data feed:<br>-Set to Null Value for priceless orders.<br>For the Order Entry<br>-It is mandatory for priced orders (Limit, Stop-limit) and must be set to Null Value where the price is irrelevant (Market, Stop-market, Peg, MTL). |
| Format      | Price (signed integer 64)   |
| Length      | 8   |

| Field Name      | Order Price  |
|-----------------|--|
| Possible Values | -2 <sup>63</sup> +1..2 <sup>63</sup> -1<br>Null value: -2 <sup>63</sup>                                  |
| Conditions      | Negative values authorized on ETF Access when the order is sent on the NAV trading Order Book (EMM = 8). |
| Used In         | <a href="#">Order Update (1002)</a><br><a href="#">Long Order Update (1015)</a>                          |
| User For        | Cash and Derivatives   |

## Order Priority

| Field Name      | Order Priority   |
|-----------------|--|
| Description     | Rank giving the priority of the order. The order with the lowest value of Order Priority has the highest priority. Order Priority is unique per Symbol Index and EMM, therefore, it is also used as the unique order identifier in the market data feed.<br>Order Priority should then allow clients to reconcile their orders between private order entry and market data feed. Used in conjunction with Previous Priority, for market data only. |
| Format          | Numerical ID (unsigned integer 64)   |
| Length          | 8  |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1  |
| Used In         | <a href="#">Order Update (1002)</a><br><a href="#">Long Order Update (1015)</a>  |
| User For        | Cash   |

## Order Quantity

| Field Name      | Order Quantity   |
|-----------------|--|
| Description     | Total order quantity, per quantity unit.(To be calculated with Quantity Decimals). |
| Format          | Quantity (unsigned integer 64)   |
| Length          | 8  |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1                            |
| Used In         | <a href="#">Order Update (1002)</a><br><a href="#">Long Order Update (1015)</a>    |
| User For        | Cash and Derivatives   |

## Order Side

| Field Name      | Order Side   |
|-----------------|--|
| Description     | Indicates the side of the order.<br>Please note that the value Cross is used only for the Order Entry, it will never be populated in the Market Data feed. |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Buy<br>2 Sell<br>3 Cross<br>Null value: 2 <sup>8</sup> -1  |
| Conditions      | The value Cross is only used in the NewOrder (01) message.   |

| Field Name | Order Side  |
|------------|---|
|            | For Cancel Replace (06) and Cancel Request (10) messages if the Order Side different than the Order Side of the targeted order, the request will be rejected with the reason "Unknown Order". For RFQ Notification (35) message Order Side may not be provided if the RFQ issuer did not specified the side in its request. |
| Used In    | <a href="#">Order Update (1002)</a><br><a href="#">Long Order Update (1015)</a>   |
| User For   | Cash<br>OEG: Cash and Derivatives   |

## Order Type

| Field Name      | Order Type   |
|-----------------|--|
| Description     | Type of Order.<br>Please note that the values Stop-market/Stop-market-on-Quote, Stop limit/Stop-limit-on-quote, Average Price, Iceberg and Mid-Point Peg are used only for the Order Entry, they will never be populated in the Market Data feed.                  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Market<br>2 Limit<br>3 Stop-market or Stop-market-on-quote<br>4 Stop-limit or Stop-limit-on-quote<br>5 Primary Peg<br>6 Market to limit<br>7 Market Peg<br>8 Mid-Point Peg<br>9 Average Price<br>10 Iceberg<br>11 Market On close (MOC)<br>Null value: 2^8-1     |
| Conditions      | Value '9' is used only for RFQ validation on ETF Access platform.<br>For Cancel Replace (06) and Cancel Request (10) messages if the Order Type different than the Order Type of the targeted order, the request will be rejected with the reason "Unknown Order". |
| Used In         | <a href="#">Order Update (1002)</a><br><a href="#">Long Order Update (1015)</a>  |
| User For        | Cash<br>OEG: Cash and Derivatives  |

## Order Type Rules

| Field Name      | Order Type Rules  |
|-----------------|---|
| Description     | Order types supported by the matching engine.<br>- bit in position 0 – Market: Market orders are available for this instrument (0: No ; 1: Yes)<br>- bit in position 1 – Limit: Limit orders are available for this instrument (0: No ; 1: Yes)<br>- bit in position 2 - Stop / Stop Loss: Stop and stop loss orders are available for this instrument (0: No ; 1: Yes) - Only for OEG<br>- bit in position 3 - Stop Limit: Stop limit orders are available for this instrument (0: No ; 1: Yes) - Only for OEG<br>- bit in position 4 - Market on Open (MOO): Market on open orders are available for this instrument (0: No ; 1: Yes)<br>- bit in position 5 - Trade at Settlement: Trade at settlement are available for this instrument (0: No ; 1: Yes)--> |
| Format          | Bitmap (unsigned integer 16)  |
| Length          | 2   |
| Possible Values | 0 Market  |



| Field Name | Order Type Rules   |
|------------|--|
|            | 1 Limit<br>2 Stop / Stop Loss<br>3 Stop Limit<br>4 Market on Open (MOO)<br>5 Trade at Settlement<br>Null value: 2 <sup>16</sup> -1 |
| Used In    | <a href="#">Contract Standing Data (1013)</a>  |
| User For   | Derivatives  |

## Original Report Timestamp

| Field Name      | Original Report Timestamp  |
|-----------------|--|
| Description     | SBE additional information:<br>(Time in number of nanoseconds since 01/01/1970 UTC).               |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64                        |
| Length          | 8  |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1  |
| Used In         | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Full Trade Information (1028)</a> |
| User For        | Cash and Derivatives   |

## P

## Packet Flags

| Field Name      | Packet Flags   |
|-----------------|--|
| Description     | Used to flag information (Little-Endian): <ul style="list-style-type: none"> <li>- Bit 0: Compression               <ul style="list-style-type: none"> <li>- 0 = body of the packet not compressed (the body is the packet without the packet header)</li> <li>- 1 = body of the packet compressed</li> </ul> </li> <li>- Bit 1 to 3: will be set to 0 every morning and incremented for each restart of MDG in the same day (wrapping to 0 if the field overflows)</li> <li>- Bit 4 to 6: used if the Packet Sequence Number (PSN) goes over (2<sup>32</sup>)-1. They are PSN high weight bits.</li> <li>- Bit 7: is set to 1 when in the packet there is a Start Of Snapshot (2101) message, 0 otherwise.</li> <li>- Bit 8: is set to 1 when in the packet there is an End Of Snapshot (2102) message, 0 otherwise.</li> <li>- Bit 9: is set to 1 when in the packet there is a Health Status (1103) message, Start Of Day (1101) message or End Of Day (1102) message, 0 otherwise.</li> <li>- Bit 10 to 15: for future use.</li> </ul> |
| Format          | Numerical (unsigned integer 16)  |
| Length          | 2  |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1  |
| Used In         | <a href="#">Market Data Packet Header</a>  |
| User For        | Cash and Derivatives   |

## Packet Sequence Number

| Field Name      | Packet Sequence Number   |
|-----------------|--|
| Description     | Each channel has its own PSN sequence. Starting from 1 at every MDG start and increasing by step of 1. In case of overflow (over 4.2 billions) Packet Flags will increase for bits 4-6. With this mechanism the PSN has 35 bits available. |
| Format          | Numerical ID (unsigned integer 32)   |
| Length          | 4  |
| Possible Values | 0..2 <sup>32</sup> -2<br>Null value: 2 <sup>32</sup> -1  |
| Used In         | <a href="#">Market Data Packet Header</a>  |
| User For        | Cash and Derivatives   |

## Packet Time

| Field Name      | Packet Time   |
|-----------------|---|
| Description     | Time when the packet is pushed to the clients (Time in number of nanoseconds since 01/01/1970 UTC). |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64                         |
| Length          | 8   |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1   |
| Used In         | <a href="#">Market Data Packet Header</a>   |
| User For        | Cash and Derivatives  |

## Par Value

| Field Name      | Par Value  |
|-----------------|--|
| Description     | Par Value (also called Nominal value) for Instrument. For Fixed Income it represents the par amount to be repaid at maturity (not including interest revenue) (to be calculated with the Amount Decimals). |
| Format          | Amount (unsigned integer 64)   |
| Length          | 8  |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1  |
| Used In         | <a href="#">Standing Data (1007)</a>   |
| User For        | Cash   |

## Partition ID

| Field Name      | Partition ID  |
|-----------------|---|
| Description     | Identifies uniquely an Optiq partition across all the Exchange partitions.            |
| Format          | Numerical ID (unsigned integer 16)  |
| Length          | 2   |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1                               |
| Used In         | <a href="#">Contract Standing Data (1013)</a><br><a href="#">Standing Data (1007)</a> |
| User For        | Cash and Derivatives  |

## Pattern ID

| Field Name      | Pattern ID   |
|-----------------|--|
| Description     | Numerical Pattern identifier available as a characteristic of an instrument in Standing Data file and message, and used in the MDG timetable message. Cash Markets only. |
| Format          | Numerical ID (unsigned integer 16)   |
| Length          | 2  |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1  |
| Used In         | <a href="#">Contract Standing Data (1013)</a><br><a href="#">Standing Data (1007)</a><br><a href="#">Timetable (1006)</a>  |
| User For        | Cash   |

## Payment Frequency

| Field Name      | Payment Frequency   |
|-----------------|---|
| Description     | Frequency of dividend payment.  |
| Format          | Enumerated (character)  |
| Length          | 1   |
| Possible Values | 1 Annual<br>2 Semi-Annual<br>3 Quarterly<br>4 Monthly<br>5 Bi-Monthly<br>6 Daily<br>7 Migration-NA<br>8 Other |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>  |
| User For        | Cash  |

## Peg Offset

| Field Name      | Peg Offset  |
|-----------------|---|
| Description     | (Future Use) Tick offset for a pegged order.<br>Used to indicate the signed tick added to the peg reference for a pegged order. |
| Format          | Numerical ID (signed integer 8)   |
| Length          | 1   |
| Possible Values | From -127 to 127<br>Null value: -128<br>Default value: -128   |
| Used In         | <a href="#">Order Update (1002)</a><br><a href="#">Long Order Update (1015)</a>   |
| User For        | Cash  |

## Percentage of Capitalization

| Field Name      | Percentage of Capitalization  |
|-----------------|---|
| Description     | Percentage of capitalization for the active instruments in the index (to be calculated with the Ratio / Multiplier Decimals). |
| Format          | Numerical (unsigned integer 64)   |
| Length          | 8   |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1   |
| Used In         | <a href="#">Real Time Index (1008)</a>  |
| User For        | Cash  |

## Percentage Var from Prev Close

| Field Name      | Percentage Var from Prev Close  |
|-----------------|---|
| Description     | Percentage of variation for last price (or index) versus previous closing price (or closing reference price) (to be calculated with the Ratio / Multiplier Decimals). |
| Format          | Signed Numerical (signed integer 64)  |
| Length          | 8   |
| Possible Values | -2 <sup>63</sup> +1..2 <sup>63</sup> -1<br>Null value: -2 <sup>63</sup>   |
| Used In         | <a href="#">Index Summary (1011)</a><br><a href="#">Real Time Index (1008)</a>  |
| User For        | Cash and Derivatives  |

## Phase Id

| Field Name      | Phase Id  |
|-----------------|---|
| Description     | Indicates the phase of the instrument.  |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 1 Inaccessible<br>2 Closed<br>3 Call<br>4 Uncrossing<br>5 Continuous<br>7 Continuous Uncrossing (Warrants and Certificates Only)<br>Null value: 2 <sup>8</sup> -1 |
| Used In         | <a href="#">Timetable (1006)</a>  |
| User For        | Cash and Derivatives  |

## Phase Qualifier

| Field Name  | Phase Qualifier   |
|-------------|---|
| Description | Indicates the Phase Qualifier (no multiple phase possible at the same time even if this field is a bitmap).<br>- bit in position 0 – No Qualifier: indicates that no phase qualifier are applicable (0: No ; 1: Yes) - Deprecated<br>- bit in position 1 – Call BBO Only (Cash Only): indicates a call on BBO only phase (0: No ; 1: Yes)<br>- bit in position 2 – Trading At Last (Cash Only): indicates a trading at last phase (TaL) phase (0: No ; 1: Yes)<br>- bit in position 3 – Random Uncrossing (Cash Only): indicates a random uncrossing phase (0: No ; 1: Yes) |

| Field Name      | Phase Qualifier   |
|-----------------|---|
| Format          | Bitmap (unsigned integer 16)  |
| Length          | 2   |
| Possible Values | 0 No Qualifier<br>1 Call BBO Only (Cash Only)<br>2 Trading At Last (Cash Only)<br>3 Random Uncrossing (Cash Only)<br>Null value: 2^16-1 |
| Used In         | <a href="#">Timetable (1006)</a><br><a href="#">Market Status Change (1005)</a>   |
| User For        | Cash and Derivatives  |

## Phase Time

| Field Name      | Phase Time                                   |
|-----------------|--|
| Description     | Time of Phase start                          |
| Format          | Integer Time in hhmmss (unsigned integer 64) |
| Length          | 8  |
| Possible Values | 0..2^64-2<br>Null value: 2^64-1              |
| Used In         | <a href="#">Timetable (1006)</a>             |
| User For        | Cash and Derivatives                         |

## Previous Priority

| Field Name      | Previous Priority  |
|-----------------|--|
| Description     | Previous Priority is populated only when there is a "Modification of existing order With Loss Of Priority" or order deletions. Then clients have to remove from their market sheet the order identified with the field "Previous Priority" and add a new order with the field "Order Priority" newly provided.<br>Used in conjunction with Order Priority. |
| Format          | Numerical ID (unsigned integer 64)   |
| Length          | 8  |
| Possible Values | 0..2^64-2<br>Null value: 2^64-1  |
| Used In         | <a href="#">Order Update (1002)</a>  |
| User For        | Cash   |

## Price

| Field Name      | Price  |
|-----------------|--|
| Description     | Price per unit of quantity (to be calculated with the Price/Index Level Decimals).                             |
| Format          | Price (signed integer 64)  |
| Length          | 8  |
| Possible Values | -2^63+1..2^63-1<br>Null value: -2^63   |
| Used In         | <a href="#">Market Update (1001)</a><br><a href="#">Price Update (1003)</a><br><a href="#">BF Trade (1201)</a> |
| User For        | Cash and Derivatives   |

## Price / Index Level Decimals

| Field Name      | Price / Index Level Decimals  |
|-----------------|---|
| Description     | Indicates the number of decimals for each Price / Index Level related to this Symbol Index  |
| Format          | Decimal Places (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0..2 <sup>8</sup> -2<br>Null value: 2 <sup>8</sup> -1   |
| Used In         | <a href="#">Contract Standing Data (1013)</a><br><a href="#">Standing Data (1007)</a><br><a href="#">BF Instrument Reference (1201)</a> |
| User For        | Cash and Derivatives  |

## Price Multiplier

| Field Name      | Price Multiplier   |
|-----------------|--|
| Description     | Number of units of the financial instrument that are contained in a trading lot. Price multiplier coefficient for instrument unit price.       |
| Format          | Numerical (unsigned integer 32)  |
| Length          | 4  |
| Possible Values | 0..2 <sup>32</sup> -2<br>Null value: 2 <sup>32</sup> -1  |
| Used In         | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Standing Data (1027)</a><br><a href="#">APA Full Trade Information (1028)</a> |
| User For        | Cash   |

## Price Multiplier Decimals

| Field Name      | Price Multiplier Decimals  |
|-----------------|--|
| Description     | Number of decimals for the field Price Multiplier.   |
| Format          | Numerical (unsigned integer 8)   |
| Length          | 1  |
| Possible Values | 0..2 <sup>8</sup> -2<br>Null value: 2 <sup>8</sup> -1  |
| Conditions      | For Declaration Entry (40) message, it is mandatory when Price Multiplier is provided.   |
| Used In         | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Standing Data (1027)</a><br><a href="#">APA Full Trade Information (1028)</a> |
| User For        | Cash   |

## Pricing Algorithm

| Field Name  | Pricing Algorithm  |
|-------------|--|
| Description | This field provides the defined pricing algorithm value for a given contract. It is used to identify Total Return Future (TRF) contracts and Market On Close (MOC) contracts. For other contract types the value is set to Standard. |
| Format      | Enumerated (unsigned integer 8)  |

| Field Name      | Pricing Algorithm  |
|-----------------|--|
| Length          | 1  |
| Possible Values | 0 Standard<br>1 Total Return Future<br>2 Market On Close |
| Used In         | <a href="#">Contract Standing Data (1013)</a>            |
| User For        | Derivatives  |

## Price Limits

| Field Name      | Price Limits <sup>1</sup>  |
|-----------------|--|
| Description     | Indicates the Price Limits mode  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Price Limits Enabled - Normal (Derivatives Only)<br>2 Price Limits Enabled - Wide (Derivatives Only)<br>3 Price Limits Enabled - Widest (Derivatives Only)<br>4 Price Limits Disabled (Derivatives Only) |
| Used In         | <a href="#">Market Status Change (1005)</a>  |
| User For        | Derivatives  |

<sup>1</sup> - Field "Price Limits" is deprecated.

## Product Code

| Field Name  | Product Code                                  |
|-------------|---|
| Description | Physical alphanumerical product code.         |
| Format      | Alphanumerical ID (character)                 |
| Length      | 4   |
| Used In     | <a href="#">Contract Standing Data (1013)</a> |
| User For    | Derivatives                                   |

## Publication Date Time

| Field Name  | Publication Date Time  |
|-------------|--|
| Description | Date and time when the transaction was published by a trading venue or Approved Publication Arrangement (APA).<br>Date and time in the following format: YYYY-MM-DDThh:mm:ss.dddZ.<br>Where:<br>- 'YYYY' is the year.<br>- 'MM' is the month.<br>- 'DD' is the day.<br>- 'T' constant 'T' letter used as separator between YYYY-MM-DD and hh:mm:ss.dddZ.<br>- 'hh' is the hour.<br>- 'mm' is the minute.<br>- 'ss.dddZ' is the second and its fraction of a second.<br>- 'Z' constant 'Z' letter that stands for UTC time. |
| Format      | Text (character)   |
| Length      | 27   |
| Used In     | <a href="#">Full Trade Information (1004)</a>  |

| Field Name | Publication Date Time                             |
|------------|---|
|            | <a href="#">APA Full Trade Information (1028)</a> |
| User For   | Cash and Derivatives                              |

## Q

### Quantity

| Field Name      | Quantity   |
|-----------------|--|
| Description     | Number of traded or ordered units (to be calculated with Quantity Decimals).   |
| Format          | Quantity (unsigned integer 64)   |
| Length          | 8  |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1  |
| Conditions      | For Declaration Entry (40) message, it must always be provided when Operation Type = '1', '4', '5' or '7'. For a trade/declaration on Dutch Funds if expressed as an amount (Operation Type = '6'), this field should not be provided. |
| Used In         | <a href="#">Market Update (1001)</a><br><a href="#">Price Update (1003)</a><br><a href="#">BF Trade (1202)</a>   |
| User For        | Cash and Derivatives   |

### Quantity Decimals

| Field Name      | Quantity Decimals   |
|-----------------|---|
| Description     | Indicates the number of decimals for each Quantity related to this Symbol Index   |
| Format          | Decimal Places (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0..2 <sup>8</sup> -2<br>Null value: 2 <sup>8</sup> -1   |
| Used In         | <a href="#">Contract Standing Data (1013)</a><br><a href="#">Standing Data (1007)</a><br><a href="#">BF Instrument Reference (1201)</a> |
| User For        | Cash and Derivatives  |

### Quantity Notation

| Field Name  | Quantity Notation   |
|-------------|---|
| Description | Indication of the type of measurement (e.g. number of units, nominal, monetary value, etc.) in which the transaction is expressed.<br>Possible values:<br>"UNT" - Units<br>"FMT" - Facial Amount<br>"- " - Not Applicable |
| Format      | Text (character)  |
| Length      | 3   |
| Used In     | <a href="#">Standing Data (1007)</a><br><a href="#">BF Trade (1202)</a>   |
| User For    | Cash  |



## Quote Spread Multiplier

| Field Name      | Quote Spread Multiplier <sup>1</sup>   |
|-----------------|--|
| Description     | Indicates the Quote Spread Multiplier  |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Quote Spread Multiplier 1 (Derivatives Only)<br>2 Quote Spread Multiplier 2 (Derivatives Only)<br>3 Quote Spread Multiplier 3 (Derivatives Only) |
| Used In         | <a href="#">Market Status Change (1005)</a>  |
| User For        | Derivatives  |

<sup>1</sup> - Field "Quote Spread Multiplier" is deprecated.

## Quote Update Type

| Field Name      | Quote Update Type  |
|-----------------|--|
| Description     | Type of quote update   |
| Format          | Enumerated   |
| Length          | 1  |
| Possible Values | 1 Best Bid (Cash and Derivatives)<br>2 Best Offer (Cash and Derivatives)<br>5 Cancel Bid (Cash and Derivatives)<br>6 Cancel Offer (Cash and Derivatives) |
| Used In         | <a href="#">APA Quotes (1026)</a>  |
| User For        | Cash and Derivatives   |

## R

## Ratio / Multiplier Decimals

| Field Name      | Ratio / Multiplier Decimals   |
|-----------------|---|
| Description     | Indicates the number of decimals for each Ratio / Multiplier related to this Symbol Index   |
| Format          | Decimal Places (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0..2^8-2<br>Null value: 2^8-1   |
| Used In         | <a href="#">Contract Standing Data (1013)</a><br><a href="#">Standing Data (1007)</a><br><a href="#">BF Instrument Reference (1201)</a> |
| User For        | Cash and Derivatives  |

## Rebroadcast Indicator

| Field Name  | Rebroadcast Indicator  |
|-------------|--|
| Description | Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will always be set to '1'. |
| Format      | Numerical ID (unsigned integer 8)  |

| Field Name      | Rebroadcast Indicator  |
|-----------------|--|
| Length          | 1  |
| Possible Values | 0..2^8-2<br>Null value: 2^8-1  |
| Used In         | <a href="#">Technical Notification (1106)</a><br><a href="#">Timetable (1006)</a><br><a href="#">Standing Data (1007)</a><br><a href="#">Contract Standing Data (1013)</a><br><a href="#">Outright Standing Data (1014)</a><br><a href="#">Strategy Standing Data (1012)</a><br><a href="#">Market Update (1001)</a><br><a href="#">Order Update (1002)</a><br><a href="#">Long Order Update (1015)</a><br><a href="#">Price Update (1003)</a><br><a href="#">Full Trade Information (1004)</a><br><a href="#">Market Status Change (1005)</a><br><a href="#">Statistics (1009)</a><br><a href="#">Real Time Index (1008)</a><br><a href="#">Index Summary (1011)</a><br><a href="#">LIS Package Trade (1016)</a><br><a href="#">BF Instrument Reference (1201)</a><br><a href="#">BF Instrument Suspension (1204)</a><br><a href="#">BF NAV (1203)</a><br><a href="#">BF Trade (1202)</a><br><a href="#">APA Standing Data (1027)</a><br><a href="#">APA Quotes (1026)</a><br><a href="#">APA Full Trade Information (1028)</a> |
| User For        | Cash and Derivatives   |

## Reference Price Origin

| Field Name      | Reference Price Origin  |
|-----------------|---|
| Description     | For Derivatives, it is the rules to obtain the DCRP. Derivatives authorized values are : 4,5,6,7.   |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 1 Internal<br>2 External<br>3 External BBO<br>4 Opening Call Price<br>5 Mid-BBO or Fair Value<br>6 Fair Value<br>7 Future Market Price<br>Null value: 2^8-1 |
| Used In         | <a href="#">Contract Standing Data (1013)</a>   |

## Reference Spread Table ID

| Field Name  | Reference Spread Table ID          |
|-------------|------------------------------------|
| Description | ID of the Reference Spread Table.  |
| Format      | Numerical ID (unsigned integer 16) |
| Length      | 2                                  |

| Field Name      | Reference Spread Table ID                               |
|-----------------|---|
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1 |
| Used In         | <a href="#">Contract Standing Data (1013)</a>           |
| User For        | Derivatives   |

## Repo Indicator

| Field Name      | Repo Indicator  |
|-----------------|---|
| Description     | Indicates whether the instrument listed underlies any loan contracts, meaning it has been admitted to the Deferred Settlement system and/or to the lending market.  |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0 Instrument neither eligible for the SRD, nor eligible for the Loan and Lending Market<br>1 Instrument eligible for the SRD and for the Loan and Lending Market<br>2 Instrument eligible for the SRD long only<br>3 Instrument eligible for the Loan and Lending Market and for the SRD long only<br>4 Easy-to-borrow Instrument eligible for the SRD and the for Loan and Lending Market<br>5 Instrument eligible for the Loan and Lending Market<br>8 Non significant<br>Null value: 2 <sup>8</sup> -1 |
| Used In         | <a href="#">Standing Data (1007)</a>  |
| User For        | Cash  |

## Repo Settlement Date

| Field Name      | Repo Settlement Date  |
|-----------------|---|
| Description     | Date when the Repo-Seller gets the assets back from the Repo-Buyer. Used in case of a Repo (Repurchase Agreement) trade.<br>(number of days since the 1st of January 1970). |
| Format          | Date (unsigned integer 16)  |
| Length          | 2   |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1   |
| Used In         | <a href="#">Full Trade Information (1004)</a>   |

## Retransmission End Time

| Field Name      | Retransmission End Time   |
|-----------------|---|
| Description     | Indicates when the retransmission ends. For trade retransmission, all the trades previously received by the clients that have an "Event time" strictly higher than this field are valid (Time in number of nanoseconds since 01/01/1970 UTC). |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64   |
| Length          | 8   |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1   |
| Used In         | <a href="#">Technical Notification (1106)</a>   |
| User For        | Cash and Derivatives  |

## Retransmission Start Time

| Field Name      | Retransmission Start Time  |
|-----------------|--|
| Description     | Indicates when the retransmission starts. For trade retransmission, all the trades previously received by the clients that have an "Event time" strictly lower than this field are valid (Time in number of nanoseconds since 01/01/1970 UTC). |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64  |
| Length          | 8  |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1  |
| Used In         | <a href="#">Technical Notification (1106)</a>  |
| User For        | Cash and Derivatives   |

## S

## Scheduled Event

| Field Name      | Scheduled Event   |
|-----------------|---|
| Description     | Type of Scheduled Event.<br>Notifies an event that will occur at the Scheduled Event Time.  |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0 Cancel Previously Scheduled Event(Cash and Derivatives)<br>1 Reopening (Cash Only)<br>3 Resumption of trading (Cash Only)<br>4 Closed (Derivatives Only)<br>5 Expiry (Derivatives Only)<br>6 Wholesale Large in Scale (LiS) trades open extension (Derivatives Only)<br>7 Wholesale Basis trades open extension (Derivatives Only)<br>8 Wholesale Against Actuals trades open extension (Derivatives Only)<br>9 Wholesale Large in Scale (LiS) Package trades open extension (Derivatives Only)<br>10 Wholesale Exchange For Swaps trades open extension (Derivatives Only)<br>11 Wholesale Trades Open Extension (Derivatives Only)<br>12 Suspension (Cash Only)<br>13 Collars Normal<br>14 Collars Wide<br>15 Pre-Expiry<br>Null value: 2 <sup>8</sup> -1 |
| Used In         | <a href="#">Timetable (1006)</a><br><a href="#">Market Status Change (1005)</a>   |
| User For        | Cash and Derivatives  |

## Scheduled Event Time

| Field Name  | Scheduled Event Time   |
|-------------|--|
| Description | Scheduled Time for the event to happen (time in number of nanoseconds since 01/01/1970 UTC). |
| Format      | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64                  |

| Field Name      | Scheduled Event Time                                    |
|-----------------|---|
| Length          | 8   |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1 |
| Used In         | <a href="#">Market Status Change (1005)</a>             |
| User For        | Cash and Derivatives                                    |

## Schema ID

| Field Name      | Schema ID   |
|-----------------|---|
| Description     | Identifier of the message schema that contains the template. Used to differentiate Exchange Specifications. |
| Format          | Numerical ID (unsigned integer 16)  |
| Length          | 2   |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1   |
| Used In         | <a href="#">SBE Header</a>  |
| User For        | Cash and Derivatives  |

## Schema Version

| Field Name      | Schema Version   |
|-----------------|--|
| Description     | Version of the message schema in which the message is defined. Used to add messages and/or modify some others. |
| Format          | Numerical ID (unsigned integer 16)   |
| Length          | 2  |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1  |
| Used In         | <a href="#">SBE Header</a>   |
| User For        | Cash and Derivatives   |

## Security Condition

| Field Name      | Security Condition   |
|-----------------|--|
| Description     | Security status.   |
| Format          | Enumerated (character)   |
| Length          | 2  |
| Possible Values | O Normal<br>D Ex-Dividend<br>C Ex-Cap<br>R Ex-Rights<br>E Ex-Entitlement<br>S Dealings temporarily suspended<br>N Not Listed |
| Used In         | <a href="#">BF Instrument Reference (1201)</a><br><a href="#">BF Instrument Suspension (1204)</a>                            |
| User For        | Cash   |

## SEDOL Code

| Field Name      | SEDOL Code   |
|-----------------|--|
| Description     | Alphanumerical identifier of an instrument on the ISE Bonds and Funds segment.<br>Legacy instrument identifier provided by compatibility. Symbol Index should be used instead. |
| Format          | Alphanumerical ID (character)  |
| Length          | 7  |
| Possible Values | (See field description)  |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>   |
| User For        | Cash   |

## Session

| Field Name      | Session   |
|-----------------|---|
| Description     | Current market session.<br><u>Sessions represent the following:</u><br>- Session 1      Normal Trading Hours (Cash)<br>- Session 2      Normal Trading Hours (Derivatives for future use)<br>- Session 3      Extended Trading Hours (for Index Derivatives segment, correspond to the extension 17.30 CET - 22.00 CET for future use – for Structured Products segment, correspond to the first extension 18.30 CET - 20.00 CET)<br>- Session 4      Second Extended Trading Hours (for Structured Products segment, corresponds to the second extension 20.00 CET to 22.00 CET).<br><u>Other sessions are not used.</u> |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0 Session 0<br>1 Session 1<br>2 Session 2<br>3 Session 3<br>4 Session 4<br>5 Session 5<br>6 Session 6<br>7 Session 7<br>8 Session 8<br>9 Session 9<br>Null value: 2^8-1   |
| Used In         | <a href="#">Timetable (1006)</a><br><a href="#">Market Status Change (1005)</a>   |
| User For        | Cash and Derivatives  |

## Session Trading Day

| Field Name      | Session Trading Day  |
|-----------------|--|
| Description     | Date of the current trading session (in number of days since the 1st of January 1970). |
| Format          | Date (unsigned integer 16)<br>SBE: unsigned integer 16                                 |
| Length          | 2  |
| Possible Values | 0..2^16-2<br>Null value: 2^16-1  |
| Used In         | <a href="#">Start Of Day (1101)</a>  |

| Field Name | Session Trading Day               |
|------------|-----------------------------------|
|            | <a href="#">End Of Day (1102)</a> |
| User For   | Cash and Derivatives              |

## Settlement Date

| Field Name      | Settlement Date   |
|-----------------|---|
| Description     | Date when a trade is final, and the buyer must make payment to the seller while the seller delivers the assets to the buyer.<br>(number of days since the 1st of January 1970). |
| Format          | Date (unsigned integer 16)  |
| Length          | 2   |
| Possible Values | 0..2 <sup>16</sup> -2<br>Null value: 2 <sup>16</sup> -1   |
| Used In         | <a href="#">Full Trade Information (1004)</a>   |

## Settlement Delay

| Field Name  | Settlement Delay   |
|-------------|--|
| Description | Gives the number of trading days that represents the period between the trade date and the settlement date (delivery and payment) for an instrument to be cleared and settled.<br>This is generally a standard period for Euronext Cash markets.<br>Permitted Values<br>- From 0 to 30 (Standard values)<br>- X: This value is assigned for a lot of products and internal management rules shared by Euronext and LCH-Clearnet (D+2).<br>- Z: This value is assigned for Lending/Borrowing instruments. This value is especially interpreted to manage the associated management rules (D+3). |
| Format      | Alphanumeric ID (character)  |
| Length      | 2  |
| Used In     | <a href="#">Standing Data (1007)</a>   |
| User For    | Cash   |

## Settlement Method

| Field Name  | Settlement Method  |
|-------------|--|
| Description | Settlement method<br>"C" Cash Settlement<br>"P" Physical Settlement<br>"O" Optional<br>Blank/null for exchanges "C", "G", "D", "H" containing Underlying instruments |
| Format      | Alphanumeric ID (character)  |
| Length      | 1  |
| Used In     | <a href="#">Contract Standing Data (1013)</a><br><a href="#">APA Standing Data (1027)</a>  |
| User For    | Derivatives  |

## Settlement Tick Size

| Field Name      | Settlement Tick Size   |
|-----------------|--|
| Description     | Default Tick Size value applicable for all Settlement Prices. It's calculated using the PriceDecimals. |
| Format          | Price (unsigned integer 64)  |
| Length          | 8  |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1  |
| Used In         | <a href="#">Contract Standing Data (1013)</a>  |
| User For        | Derivatives  |

## Share / Amount in Issue

| Field Name      | Share / Amount in Issue   |
|-----------------|---|
| Description     | Total amount issued for the whole fixed income instrument.<br>To be interpreted in conjunction with Price/Index Level Decimals. |
| Format          | Price (signed integer 64)   |
| Length          | 8   |
| Possible Values | From -2 <sup>63</sup> -1 to 2 <sup>63</sup> -1  |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>  |
| User For        | Cash  |

## Snapshot Time

| Field Name      | Snapshot Time   |
|-----------------|---|
| Description     | Indicates the time when snapshot generation has respectively started/ended in the Start Of Snapshot/End Of Snapshot message (Time in number of nanoseconds since 01/01/1970 UTC). |
| Format          | Epoch Time in Nanoseconds (unsigned integer 64)<br>SBE: unsigned integer 64   |
| Length          | 8   |
| Possible Values | 0..2 <sup>64</sup> -2<br>Null value: 2 <sup>64</sup> -1   |
| Used In         | <a href="#">End Of Snapshot (2102)</a><br><a href="#">Start Of Snapshot (2101)</a>  |
| User For        | Cash and Derivatives  |

## Start Time Vwap

| Field Name      | Start Time Vwap   |
|-----------------|---|
| Description     | Start time for the Volume Weight Average price computation period                               |
| Format          | Intraday Time in Seconds (unsigned integer 32)  |
| Length          | 4   |
| Possible Values | 0..2 <sup>32</sup> -2<br>Null value: 2 <sup>32</sup> -1<br>Default value: 2 <sup>32</sup> -1    |
| Conditions      | For Declaration Entry (40) message, it is mandatory for declarations when Operation Type = '5'. |
| Used In         | <a href="#">Full Trade Information (1004)</a>   |
| User For        | Cash  |



## Stats Update Type

| Field Name      | Stats Update Type  |
|-----------------|--|
| Description     | Indicates the type of published statistics update.   |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 5 Daily High (Cash and Derivatives)<br>6 Daily Low (Cash and Derivatives)<br>7 Yearly High (Cash and Derivatives)<br>8 Yearly Low (Cash and Derivatives)<br>9 Lifetime High (Cash and Derivatives)<br>10 Lifetime Low (Cash and Derivatives)<br>14 Variation Last Price (Cash Only)<br>15 Open Price (Cash and Derivatives)<br>16 Trade Count (Cash and Derivatives)<br>17 Last Traded Price (Cash and Derivatives)<br>18 Percent Variation Previous Close (Cash and Derivatives)<br>19 Off Book Cumulative Quantity (Cash)<br>21 On Book Auction Cumulative Quantity (Cash)<br>22 On Book Continuous Cumulative Quantity (Cash)<br>23 On and Off Book Cumulative Quantity (Cash and Derivatives)<br>Null value: 2 <sup>8</sup> -1 |
| Used In         | <a href="#">Statistics (1009)</a>  |
| User For        | Cash and Derivatives   |

## Stats Update Value

| Field Name      | Stats Update Value   |
|-----------------|--|
| Description     | Indicates the value of the published statistics update.<br>This field has to be calculated with a scale code field depending on the "Stats Update Type" as follow:<br>- <a href="#">Price / Index Level Decimals</a> for "Stats Update Type": "5 - Daily High", "6 - Daily Low", "7 - Yearly High", "8 - Yearly Low", "9 - Lifetime High", "10 - Lifetime Low", "15 - Open Price" and "17 - Last Trade Price"<br>- Quantity Decimals for "Stats Update Type": "19 - Off Book Cumulative Quantity", "21 - On Book Auction Cumulative Quantity", "22 - On book Continuous Cumulative Quantity" and "23 - On and Off Book Cumulative Quantity"<br>- Ratio / Multiplier Decimals for "Stats Update Type": "14 - Variation Last Price" and "18 - Percent Variation Previous Close"<br>"16 - Trade Count" has no scale code. |
| Format          | Signed Numerical (signed integer 64)   |
| Length          | 8  |
| Possible Values | -2 <sup>63</sup> +1..2 <sup>63</sup> -1<br>Null value: -2 <sup>63</sup>  |
| Used In         | <a href="#">Statistics (1009)</a>  |
| User For        | Cash and Derivatives   |

## Status Reason

| Field Name  | Status Reason                               |
|-------------|---|
| Description | Provides the reason for Book State changes. |
| Format      | Enumerated (unsigned integer 8)             |

| Field Name      | Status Reason   |
|-----------------|---|
| Length          | 1   |
| Possible Values | 0 Scheduled<br>4 Collars Breach<br>7 Automatic Reopening<br>8 No Liquidity Provider (Cash Only)<br>11 Knock-In by Issuer (Cash Only)<br>12 Knock-Out by Exchange (Cash Only)<br>13 Knock-Out by Issuer (Cash Only)<br>15 Action by Market Operations (Cash and Derivatives)<br>16 Waiting for Tradable State (Derivatives Only)<br>20 New Listing (Cash Only)<br>21 Due to Underlying (Cash and Derivatives)<br>22 Outside of LP quotes (Cash Only)<br>23 Technical (BdL Only)<br>24 Due to leg (Derivatives Only)<br>Null value: 2^8-1 |
| Used In         | <a href="#">Market Status Change (1005)</a>   |
| User For        | Cash and Derivatives  |

## Strategy Authorized

| Field Name      | Strategy Authorized  |
|-----------------|--|
| Description     | Provides strategy types authorized for contract.<br>Bit 2, Bit 23, Bit 42 are not used and will always be set to 0.  |
| Format          | Bitmap (unsigned integer 64)   |
| Length          | 8  |
| Possible Values | 0 Jelly Roll<br>1 Butterfly<br>2 <i>Call or Put Cabinet - Deprecated</i><br>3 Spread<br>4 Calendar Spread<br>5 Diagonal Calendar Spread<br>6 Guts<br>7 Two by One Ratio Spread<br>8 Iron Butterfly<br>9 Combo<br>10 Strangle<br>11 Ladder<br>12 Strip<br>13 Straddle Calendar Spread<br>14 Pack<br>15 Diagonal Straddle Calendar Spread<br>16 Simple Inter Commodity Spread<br>17 Conversion / Reversal<br>18 Straddle<br>19 Volatility Trade<br>20 Condor<br>21 Box<br>22 Bundle<br>23 <i>Reduced Tick Spread - Deprecated</i><br>24 Ladder versus Underlying<br>25 Butterfly versus Underlying |

| Field Name | Strategy Authorized  |
|------------|--|
|            | 26 Call Spread versus Put versus Underlying<br>27 Call or Put Spread versus Underlying<br>28 Call or Put Calendar Spread versus Underlying<br>29 Call/Put Diagonal Calendar Spread versus Underlying<br>30 Guts versus Underlying<br>31 Two by One Call or Put Ratio Spread versus Underlying<br>32 Iron Butterfly versus Underlying<br>33 Combo versus Underlying<br>34 Strangle versus Underlying<br>35 Exchange for Physical<br>36 Straddle Calendar Spread versus Underlying<br>37 Put Spread versus Call versus Underlying<br>38 Diagonal Straddle Calendar Spread versus Underlying<br>39 Synthetic<br>40 Straddle versus Underlying<br>41 Condor versus Underlying<br>42 <i>Buy Write - Deprecated</i><br>43 Iron Condor versus Underlying<br>44 Iron Condor<br>45 Call Spread versus Sell a Put<br>46 Put Spread versus Sell a Call<br>47 Put Straddle versus Sell a Call or a Put<br>Null value: 2^64-1 |
| Used In    | <a href="#">Contract Standing Data (1013)</a>  |

## Strategy Code

| Field Name      | Strategy Code   |
|-----------------|---|
| Description     | Exchange-recognized strategy code   |
| Format          | Alphanumerical ID (character)   |
| Length          | 1   |
| Possible Values | A Jelly Roll<br>B Butterfly<br><i>C Call or Put Cabinet - Deprecated</i><br>D Spread<br>E Calendar Spread<br>F Diagonal Calendar Spread<br>G Guts<br>H Two by One Ratio Spread<br>I Iron Butterfly<br>J Combo<br>K Strangle<br>L Ladder<br>M Strip<br>N Straddle Calendar Spread<br>O Pack<br>P Diagonal Straddle Calendar Spread<br>Q Simple Inter Commodity Spread<br>R Conversion / Reversal<br>S Straddle<br>V Volatility Trade<br>W Condor |

| Field Name | Strategy Code   |
|------------|---|
|            | X Box<br>Y Bundle<br>Z <i>Reduced Tick Spread - Deprecated</i><br>a Ladder versus Underlying<br>b Butterfly versus Underlying<br>c Call Spread versus Put versus Underlying<br>d Call or Put Spread versus Underlying<br>e Call or Put Calendar Spread versus Underlying<br>f Call/Put Diagonal Calendar Spread versus Underlying<br>g Guts versus Underlying<br>h Two by One Call or Put Ratio Spread versus Underlying<br>i Iron Butterfly versus Underlying<br>j Combo versus Underlying<br>k Strangle versus Underlying<br>m Exchange for Physical<br>n Straddle Calendar Spread versus Underlying<br>p Put Spread versus Call versus Underlying<br>q Diagonal Straddle Calendar Spread versus Underlying<br>r Synthetic<br>s Straddle versus Underlying<br>t Condor versus Underlying<br>u <i>Buy Write - Deprecated</i><br>v Iron Condor versus Underlying<br>w Iron Condor<br>x Call Spread versus Sell a Put<br>y Put Spread versus Sell a Call<br>z Put Straddle versus Sell a Call or a Put |
| Used In    | <a href="#">Strategy Standing Data (1012)</a><br><a href="#">LIS Package Trade (1016)</a>   |
| User For   | Derivatives   |

## Strike Currency

| Field Name  | Strike Currency                            |
|-------------|--|
| Description | Code of the strike currency (ISO 4217-3A). |
| Format      | Alphanumerical ID (character)              |
| Length      | 3  |
| Used In     | <a href="#">Standing Data (1007)</a>       |
| User For    | Cash                                       |

## Strike Currency Indicator

| Field Name      | Strike Currency Indicator  |
|-----------------|--|
| Description     | Indicates whether the 'price expression' is in the Currency or in a ratio of this Currency. Use Currency Coefficient field to identify the ratio to apply.<br>This is the case for strike instruments in pennies. The currency will be 'GBP', Strike Currency Indicator sets to '1' and Currency Coefficient set to '0.001'. |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 0 Change rate not applied to the strike price<br>1 Change rate applied to the strike price   |

| Field Name | Strike Currency Indicator            |
|------------|--------------------------------------|
|            | Null value: 2^8-1                    |
| Used In    | <a href="#">Standing Data (1007)</a> |
| User For   | Cash                                 |

## Strike Price

| Field Name      | Strike Price   |
|-----------------|--|
| Description     | <p>The strike price of an option/warrant is the specified price at which the underlying can be bought (in the case of a call/right to buy) or sold (in case of a put/right to sell) by the holder (buyer) of the option/warrant contract, at the moment he exercises his right against a writer (seller) of the option/warrant.</p> <p>Only provided for warrants or other derivatives instruments. To be calculated with <a href="#">Strike Price Decimals</a> for Cash instruments and Price/Index Level Decimals for Derivatives instruments.</p> |
| Format          | Price (signed integer 64)  |
| Length          | 8  |
| Possible Values | <p>-2^63+1..2^63-1</p> <p>Null value: -2^63</p>  |
| Used In         | <a href="#">Outright Standing Data (1014)</a><br><a href="#">Standing Data (1007)</a><br><a href="#">APA Standing Data (1027)</a>  |
| User For        | Cash and Derivatives   |

## Strike Price Decimals

| Field Name      | Strike Price Decimals  |
|-----------------|--|
| Description     | Indicates the number of decimals for Strike Price related to this Symbol Index   |
| Format          | Decimal Places (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | <p>0..2^8-2</p> <p>Null value: 2^8-1</p>   |
| Used In         | <a href="#">Standing Data (1007)</a><br><a href="#">APA Standing Data (1027)</a> |
| User For        | Cash   |

## Strike Price Decimals Ratio

| Field Name      | Strike Price Decimals Ratio   |
|-----------------|---|
| Description     | <p>Value used , only for the AMR code, to determine the number of decimals present in the Option contract strike price, as the strike price is disseminated in format of an integer.</p> <p>For example, for AMR code POTO1250404300C, you need to use the AMR Strike Price Decimals Ratio for the Exercise (Strike) Price part of the AMR code as defined in Chapter 4.6.2. In this case it's 04300 and if the AMR Strike Price Decimals Ratio=2, it will result in Strike Price 43.</p> |
| Format          | Numerical (unsigned integer 8)  |
| Length          | 1   |
| Possible Values | <p>0..2^8-2</p> <p>Null value: 2^8-1</p>  |
| Used In         | <a href="#">Contract Standing Data (1013)</a>   |
| User For        | Derivatives   |

## Symbol Index

| Field Name      | Symbol Index   |
|-----------------|--|
| Description     | Exchange identification code of the instrument/contract.<br>This identifier is unique per triplet: MIC, ISIN and currency. The correspondence of the Symbol Index and with the instrument characteristics is provided in the standing data messages and associated files. Symbol Index is valid for the life of the instrument.  |
| Format          | Numerical ID (unsigned integer 32)   |
| Length          | 4  |
| Possible Values | 0..2 <sup>32</sup> -2<br>Null value: 2 <sup>32</sup> -1  |
| Conditions      | For inbound messages, the Symbol Index must be specified. For second listing place trade, the Symbol Index and the MIC of secondary listing must be specified.<br><br>If provided in the User Notification (39) message, it specifies the scope of the action specified in User Status. In the Reject (07) message, it is populated only if provided as a valid value in the corresponding Inbound request AND the corresponding Inbound request was technically correctly formatted; otherwise it is provided at the Null value. Field not populated in Reject (07) messages for rejection of strategy creation on derivatives markets.<br><br>For all messages, with exception of MM sign-in and MM protection, this field represent the Symbol Index of the Instrument. For the MM sign-in and MM protection this field represents the Symbol Index of the Contract. For wholesale order this represents numerical leg instrument identifier (Security ID). |
| Used In         | <a href="#">Standing Data (1007)</a><br><a href="#">Contract Standing Data (1013)</a><br><a href="#">Outright Standing Data (1014)</a><br><a href="#">Strategy Standing Data (1012)</a><br><a href="#">Timetable (1006)</a><br><a href="#">Market Update (1001)</a><br><a href="#">Order Update (1002)</a><br><a href="#">Long Order Update (1015)</a><br><a href="#">Price Update (1003)</a><br><a href="#">Full Trade Information (1004)</a><br><a href="#">Market Status Change (1005)</a><br><a href="#">Real Time Index (1008)</a><br><a href="#">Index Summary (1011)</a><br><a href="#">Statistics (1009)</a><br><a href="#">Technical Notification (1106)</a><br><a href="#">BF Instrument Reference (1201)</a><br><a href="#">BF Instrument Suspension (1204)</a><br><a href="#">BF NAV (1203)</a><br><a href="#">BF Trade (1202)</a>   |
| User For        | Cash and Derivatives   |

## T

## Tax Code

| Field Name      | Tax Code   |
|-----------------|--|
| Description     | Tax deduction code to which the instrument belongs.            |
| Format          | Enumerated (unsigned integer 8)                                |
| Length          | 1  |
| Possible Values | 0 Not eligible to PEA<br>3 Eligible to PEA<br>9 Not Applicable |

| Field Name | Tax Code                             |
|------------|--------------------------------------|
|            | Null value: 2^8-1                    |
| Used In    | <a href="#">Standing Data (1007)</a> |
| User For   | Cash                                 |

## Tax Description Attaching to a Dividend

| Field Name      | Tax Description Attaching to a Dividend             |
|-----------------|---|
| Description     | Gives precisions about tax attaching to a dividend. |
| Format          | Enumerated (character)                              |
| Length          | 1   |
| Possible Values | D Deduced at Source                                 |
| Used In         | <a href="#">BF Instrument Reference (1201)</a>      |
| User For        | Cash  |

## Technical Notification Type

| Field Name      | Technical Notification Type   |
|-----------------|---|
| Description     | Indicates the technical notification sent.  |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 1 Instrument Book Retransmission End<br>10 Trade Retransmission Start<br>11 Trade Retransmission End<br>Null value: 2^8-1 |
| Used In         | <a href="#">Technical Notification (1106)</a>   |
| User For        | Cash and Derivatives  |

## Template ID

| Field Name      | Template ID   |
|-----------------|---|
| Description     | Identifier of the message template. This is the message type of the Market Data messages. |
| Format          | Numerical ID (unsigned integer 16)  |
| Length          | 2   |
| Possible Values | 0..2^16-2<br>Null value: 2^16-1   |
| Used In         | <a href="#">SBE Header</a>  |
| User For        | Cash and Derivatives  |

## Threshold LIS Post Trade 120mn

| Field Name      | Threshold LIS Post Trade 120mn  |
|-----------------|---|
| Description     | Defines the amount of an order to benefit from the LIS Trade Deferred publication to 120 min (to be calculated with the Amount Decimals). |
| Format          | Amount (unsigned integer 64)  |
| Length          | 8   |
| Possible Values | 0..2^64-2   |

| Field Name | Threshold LIS Post Trade 120mn       |
|------------|--------------------------------------|
|            | Null value: 2^64-1                   |
| Used In    | <a href="#">Standing Data (1007)</a> |
| User For   | Cash                                 |

## Threshold LIS Post Trade 60mn

| Field Name      | Threshold LIS Post Trade 60mn  |
|-----------------|--|
| Description     | Defines the amount of an order to benefit from the LIS Trade Deferred publication to 60 min (to be calculated with the Amount Decimals). |
| Format          | Amount (unsigned integer 64)   |
| Length          | 8  |
| Possible Values | 0..2^64-2<br>Null value: 2^64-1  |
| Used In         | <a href="#">Standing Data (1007)</a>   |
| User For        | Cash   |

## Threshold LIS Post Trade EOD

| Field Name      | Threshold LIS Post Trade EOD  |
|-----------------|---|
| Description     | Defines the amount of an order to benefit from the LIS Trade Deferred publication to EOD (to be calculated with the Amount Decimals). |
| Format          | Amount (unsigned integer 64)  |
| Length          | 8   |
| Possible Values | 0..2^64-2<br>Null value: 2^64-1   |
| Used In         | <a href="#">Standing Data (1007)</a>  |
| User For        | Cash  |

## Tick Size Index ID

| Field Name      | Tick Size Index ID  |
|-----------------|---|
| Description     | ID of the tick size table available in the Tick Table file.                           |
| Format          | Numerical ID (unsigned integer 16)  |
| Length          | 2   |
| Possible Values | 0..2^16-2<br>Null value: 2^16-1   |
| Used In         | <a href="#">Standing Data (1007)</a><br><a href="#">Contract Standing Data (1013)</a> |
| User For        | Cash and Derivatives  |

## Trade Qualifier

| Field Name  | Trade Qualifier  |
|-------------|--|
| Description | Trade Qualifier. Values specified, in the list of possible values, indicate the bit positions that should be used to set zero (0) or one (1) values. A single field contains multiple values provided in different positions.<br><div> <ul style="list-style-type: none"> <li>bit in position 0 - Uncrossing Trade: indicates whether the trade occurred during an Uncrossing, or not. (0: No; 1: Yes)</li> </ul> </div> |



| Field Name      | Trade Qualifier   |
|-----------------|---|
|                 | <ul style="list-style-type: none"> <li>bit in position 1 - First Trade Price: indicates whether the price of the trade is the first trade price of the day, or not. (0: No; 1: Yes) Please note that there can be multiple Trades with the "First Trade Price" flag set to Yes.</li> <li>bit in position 2 - Passive Order: indicates whether the corresponding order was passive, or not. (0: No; 1: Yes)</li> <li>bit in position 3 - Aggressive Order: indicates whether the corresponding order was aggressive, or not. (0: No; 1: Yes)</li> <li>bit in position 4 - Trade Creation by Market Operations: indicates whether the trade results from a creation by Market Operations, or not. (0: No; 1: Yes) - For future use</li> <li>bit in position 5 - NAV Trade expressed in bps: indicates whether the trade results from a NAV trade expressed in basis point on the ETF Access platform. (0: No; 1: Yes)</li> <li>bit in position 6 - NAV Trade expressed in price currency: indicates whether the trade is a NAV trade expressed in price currency. This trade is always an update from a previous NAV trade expressed in basis point on the ETF Access platform. (0: No; 1: Yes)</li> <li>bit in position 7 - Deferred Publication: indicates whether the trade publication is deferred or immediate. (0: Immediate Publication; 1: Deferred Publication)</li> </ul> <p>If all bits are set to 0, then it means that no Trade Qualifier applies.</p> <p>For the Market Data feed:</p> <p>The values Passive Order and Aggressive Order always qualify the Buy order.</p> |
| Format          | Bitmap (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0 Uncrossing Trade<br>1 First Trade Price<br>2 Passive Order<br>3 Aggressive Order<br>4 Trade Creation by Market Operations<br>5 NAV Trade expressed in bps<br>6 NAV Trade expressed in price currency<br>7 Deferred Publication<br>Null value: 2 <sup>8</sup> -1   |
| Conditions      | Values 5 and 6 will be used only for the NAV trading on the ETF Access platform.  |
| Used In         | <a href="#">Full Trade Information (1004)</a>   |
| User For        | Cash and Derivatives  |

## Trade Reference

| Field Name  | Trade Reference  |
|-------------|--|
| Description | Reference of the trade reported to the Exchange.   |
| Format      | Alphanumerical ID (character)  |
| Length      | 30   |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Full Trade Information (1028)</a> |
| User For    | Cash and Derivatives   |

## Trade Type

| Field Name      | Trade Type   |
|-----------------|--|
| Description     | Type of trade.   |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Conventional Trade (Cash and Derivatives)<br>2 Large in Scale (LIS) Trade (Derivatives Only) |

|            |   |
|------------|---|
|            | <p>4 Large in Scale (LiS) Package Trade <del>(Derivatives Only)</del></p> <p>5 Guaranteed Cross Trade (Cash and Derivatives)</p> <p>6 Against Actual Trade (Derivatives Only)</p> <p>9 Exchange for Swap Trade (Derivatives Only)</p> <p>11 Strategy Leg Conventional Trade (Derivatives Only)</p> <p>20 BoB Trade (Cash Only)</p> <p>24 Trade Cancellation (Cash and Derivatives)</p> <p>25 Out of Market Trade (Cash Only)</p> <p>26 Delta Neutral Trade - Underlying Cash Leg (Cash Only)</p> <p>27 Market VWAP Operation Trade (Cash Only)</p> <p>28 Euronext Fund Service Trade (Cash Only)</p> <p>29 Secondary Listing Trade (Cash Only)</p> <p>30 Request for Cross Trade (Derivatives Only)</p> <p>31 Request for cross strategy Leg Trade (Derivatives Only)</p> <p>32 Trade Publication (Cash and Derivatives)</p> <p>33 Dark Trade (Cash Only)</p> <p>34 Delta Neutral Trade - Underlying Future Leg (Derivatives Only)</p> <p>36 Total Traded Volume (For future use)</p> <p>39 Guaranteed Cross – Negotiated deal NLIQ (Liquid)</p> <p>40 Guaranteed Cross – Negotiated deal OILQ (illiquid)</p> <p>41 Large in Scale (LiS) Trade (Cash)</p> <p>42 Large in Scale (LiS) Trade in basis points (Derivatives Only)</p> <p>43 Large in Scale (LiS) Package Trade in basis points (Derivatives Only)</p> <p>46 Non-Standard Settlement</p> <p>47 Repurchase Agreement – Repo (OBOE only)</p> <p>48 Exchange Granted Trade (OBOE only)</p> <p>49 Other (OBOE only)</p> <p>50 Odd Lot</p> <p>100 Conventional Trade - Provisional price</p> <p>101 Large in Scale (LiS) Trade - Provisional price</p> <p>102 Large in Scale (LiS) Package Trade - Provisional price</p> <p>Null value: 2^8-1</p> |
| Conditions | In OEG, for the Fill (04) message, only the following values are used: '1', '5', '20', '33', '39', '40' and '41'; for consistency purposes other values are also listed here, however they are only used in market data   |
| Used In    | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Full Trade Information (1028)</a>  |
| User For   | Cash and Derivatives  |

## Trading Currency

| Field Name  | Trading Currency   |
|-------------|--|
| Description | Code of the currency (ISO 4217-3A).  |
| Format      | Alphanumerical ID (character)  |
| Length      | 3  |
| Used In     | <a href="#">Standing Data (1007)</a><br><a href="#">Contract Standing Data (1013)</a><br><a href="#">BF Trade (1202)</a> |
| User For    | Cash and Derivatives   |

## Trading Currency Indicator

| Field Name      | Trading Currency Indicator  |
|-----------------|---|
| Description     | Indicates whether the 'price expression' is in the Currency or in a ratio of this Currency. Use Currency Coefficient field to identify the ratio to apply.<br><br>This is the case for instruments traded in pennies. The currency will be 'GBP', Trading Currency Indicator sets to '1' and Currency Coefficient set to '0.001'. |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0 Change rate not applied to the traded price<br>1 Change rate applied to the traded price<br><br>Null value: 2^8-1   |
| Used In         | <a href="#">Standing Data (1007)</a>  |
| User For        | Cash  |

## Trading Date Time

| Field Name  | Trading Date Time  |
|-------------|--|
| Description | Date and time when the transaction was executed.<br>Date and time in the following format: YYYY-MM-DDThh:mm:ss.dddZ.<br>Where:<br>- 'YYYY' is the year.<br>- 'MM' is the month.<br>- 'DD' is the day.<br>- 'T' constant 'T' letter used as separator between YYYY-MM-DD and hh:mm:ss.dddZ.<br>- 'hh' is the hour.<br>- 'mm' is the minute.<br>- 'ss.dddZ' is the second and its fraction of a second.<br>- 'Z' constant 'Z' letter that stands for UTC time. |
| Format      | Text (character)   |
| Length      | 27   |
| Conditions  | It indicates the original execution date for a reporting/publication entered.  |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Full Trade Information (1028)</a>   |
| User For    | Cash and Derivatives   |

## Trading Period

| Field Name      | Trading Period   |
|-----------------|--|
| Description     | Provides the current trading period.   |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Opening (Cash and Derivatives)<br>2 Standard (Cash and Derivatives)<br>3 Closing (Cash and Derivatives)<br><br>Null value: 2^8-1 |
| Used In         | <a href="#">Timetable (1006)</a><br><a href="#">Market Status Change (1005)</a>  |
| User For        | Cash and Derivatives   |

## Trading Policy

| Field Name      | Trading Policy   |
|-----------------|--|
| Description     | Trading Policy enabling to allocate a given incoming volume to orders. |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | 1 Price Explicit Time<br>2 Price Pro Rata<br>Null value: 2^8-1         |
| Used In         | <a href="#">Contract Standing Data (1013)</a>                          |
| User For        | Derivatives  |

## Trading Side

| Field Name      | Trading Side  |
|-----------------|---|
| Description     | Indicates the Trading Side.   |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 1 Bid Only (Cash Only)<br>2 Offer Only (Cash Only)<br>3 PAKO (Cash Only)<br>4 Both Sides (Cash Only)<br>Null value: 2^8-1 |
| Used In         | <a href="#">Market Status Change (1005)</a>   |
| User For        | Cash  |

## Trading Unit

| Field Name      | Trading Unit  |
|-----------------|---|
| Description     | Amount of underlying instrument per unit of a derivative contract (to be calculated with the Quantity Decimals). Due to corporate actions, the value may be different between value provided within this field in Contract Standing Data and Outright Standing Data. Value in Outright Standing Data reflects the adjustment due to the corporate action and should be used for that Outright instrument. |
| Format          | Quantity (unsigned integer 64)  |
| Length          | 8   |
| Possible Values | 0..2^64-2<br>Null value: 2^64-1   |
| Used In         | <a href="#">Contract Standing Data (1013)</a><br><a href="#">Outright Standing Data (1014)</a>  |
| User For        | Derivatives   |

## Transaction Type

| Field Name      | Transaction Type                      |
|-----------------|---------------------------------------|
| Description     | Transaction type or publication type. |
| Format          | Enumerated (unsigned integer 8)       |
| Length          | 1                                     |
| Possible Values | 1 Plain Vanilla Trade<br>2 Dark Trade |

| Field Name | Transaction Type   |
|------------|--|
|            | 3 Benchmark Trade<br>4 Technical Trade<br>5 Give-up/Give-in Trade<br>6 Ex/Cum dividend Trade<br>7 Trade With Condition<br>15 Summary Report<br>Null value: 2^8-1 |
| Used In    | <a href="#">Full Trade Information (1004)</a>  |
| User For   | Cash   |

## Transparency Indicator

| Field Name      | Transparency Indicator  |
|-----------------|---|
| Description     | Used to define the transparency of the trade.   |
| Format          | Enumerated (unsigned integer 8)   |
| Length          | 1   |
| Possible Values | 0 Lit/Regular Trade<br>1 Dark Trade and Immediate Publication<br>2 Dark Trade and Deferred Publication<br>Null value: 2^8-1 |
| Used In         | <a href="#">Full Trade Information (1004)</a>   |
| User For        | Cash  |

## Type Of Corporate Event

| Field Name  | Type Of Corporate Event  |
|-------------|--|
| Description | <p>Indicates the last type of corporate event that has occurred on an instrument, such as detachment of rights, or of coupons. The data item is automatically calculated by the adjustment application but in case of problem or error, the data item value could be modified manually, particularly for purging the order book in case of absence of corporate event. This data has to be treated in consideration of the date of the event included into the header of the message.</p> <p>Valid values are:</p> <p>"00" – No specific event<br/> "01" – Dividend payment in cash or in stocks<br/> "02" – Interest payment (Fix Income for which the price is not expressed in% of the nominal, only)<br/> "04" – Split<br/> "05" – Bonus (i.e. attribution)<br/> "06" – Subscription<br/> "07" – Share allocation<br/> "08" – Share swap<br/> "09" – Reverse split<br/> "10" – Merger<br/> "11" – Final Fix Income redemption<br/> "12" – Capital amortization<br/> "13" – Draw announcement (Belgian Fix Income only)<br/> "14" – Block trade of controlling interest<br/> "15" – Optional corporate events(dividend option)<br/> "16" – Complex corporate event<br/> "17" – Purge of the order book (purge is initiated manually in the absence of a corporate event, for example, following the modification of the variable tick of the listed instrument)<br/> "22" - Luxembourg Stock Exchange corporate event</p> |
| Format      | Alphanumerical ID (character)  |

| Field Name | Type Of Corporate Event              |
|------------|--------------------------------------|
| Length     | 2                                    |
| Used In    | <a href="#">Standing Data (1007)</a> |
| User For   | Cash                                 |

## Type Of Market Admission

| Field Name      | Type Of Market Admission  |
|-----------------|---|
| Description     | Indicates the type of market to which an instrument has been listed.  |
| Format          | Enumerated (character)  |
| Length          | 1   |
| Possible Values | A Instruments traded on the primary market<br>B Instruments traded on the secondary market<br>C Instruments traded on the New Market<br>D Non-regulated market / instruments traded on the free market ('Marche Libre')<br>E Non-regulated market / Alternext<br>F Non listed<br>G Regulated Market / Non equities<br>H Regulated Market / Equities / Segment A<br>I Regulated Market / Equities / Segment B<br>J Regulated Market / Equities / Segment C<br>K Regulated Market / All securities / Special Segment<br>L Regulated Market / Equities / Other instruments<br>S OPCVM, SICOMI non listed (French Investment Funds)<br>6 Off Market<br>7 Gold, Currencies, and Indices<br>9 Foreign |
| Used In         | <a href="#">Standing Data (1007)</a>  |
| User For        | Cash  |

## U

## Underlying Derivatives Instrument Trading Code

| Field Name  | Underlying Derivatives Instrument Trading Code                |
|-------------|---|
| Description | Is the underlying of the Derivatives Instrument Trading Code. |
| Format      | Alphanumerical ID (character)                                 |
| Length      | 18  |
| Used In     | <a href="#">Outright Standing Data (1014)</a>                 |
| User For    | Derivatives   |

## Underlying Expiry

| Field Name  | Underlying Expiry  |
|-------------|--|
| Description | Expiry Date of the underlying (in number of days since the 1st of January 1970). |
| Format      | Date (unsigned integer 32)<br>SBE: unsigned integer 32                           |
| Length      | 4  |

| Field Name      | Underlying Expiry                             |
|-----------------|---|
| Possible Values | 0..2^32-2<br>Null value: 2^32-1               |
| Used In         | <a href="#">Contract Standing Data (1013)</a> |
| User For        | Derivatives                                   |

## Underlying ISIN Code

| Field Name  | Underlying ISIN Code  |
|-------------|---|
| Description | Underlying ISIN.<br>For Repo: Underlying instrument (instrument used in the loan quotation system) for loan contracts on centralized lending market.<br>For Warrant: Gives the trading code of the underlying listed instrument of a warrant. |
| Format      | Alphanumeric ID (character)   |
| Length      | 12  |
| Used In     | <a href="#">Contract Standing Data (1013)</a><br><a href="#">Standing Data (1007)</a><br><a href="#">APA Standing Data (1027)</a>   |
| User For    | Cash and Derivatives  |

## Underlying Index Name

| Field Name  | Underlying Index Name                    |
|-------------|--|
| Description | Underlying Index Name                    |
| Format      | Text (character)                         |
| Length      | 25                                       |
| Used In     | <a href="#">APA Standing Data (1027)</a> |
| User For    | Cash and Derivatives                     |

## Underlying Index Term

| Field Name  | Underlying Index Term  |
|-------------|--|
| Description | Term of the Underlying Index   |
| Format      | Text (character)<br>{INTEGER-3}+'DAYS' – days<br>{INTEGER-3}+'WEEK' – weeks<br>{INTEGER-3}+'MNTH' – months<br>{INTEGER-3}+'YEAR' – years |
| Length      | 8  |
| Used In     | <a href="#">APA Standing Data (1027)</a>   |
| User For    | Cash Derivatives   |

## Underlying MIC

| Field Name  | Underlying MIC  |
|-------------|---|
| Description | Identifies the market to which an instrument' underlying belongs by its MIC (Market Identification Code), according to ISO 10383. Refer to MIC field to have all the authorized values. |
| Format      | Alphanumeric ID (character)   |

| Field Name | Underlying MIC  |
|------------|---|
| Length     | 4   |
| Used In    | <a href="#">Contract Standing Data (1013)</a><br><a href="#">Standing Data (1007)</a> |

## Underlying Subtype

| Field Name      | Underlying Subtype   |
|-----------------|--|
| Description     | <p>Defined the underlying sub-type associated to the underlying type.</p> <p>Underlying Type "Stock" accepts following Underlying Subtypes:<br/>Basket, Dividend, ETF and Share</p> <p>Underlying Type "Index" accepts:<br/>Dividend Index, Equity Index, TRF Index and Volatility Index</p> <p>Underlying Type "Future" accepts:<br/>Future on Commodities</p> <p>Underlying Type "Exchange rate" accepts:<br/>FX Cross Rates (FXCR), FX Emerging Markets (FXEM) and FX Majors (FXMJ)</p> <p>Underlying Type "Commodity" accepts:<br/>Agricultural (AGRI), Environmental (ENVR), Freight (FRGT), Fertilizer (FRTL), Industrial products (INDP), Inflation (INFL), Multi Commodity Exotic (MCEX), Metals (METL), Energy (NRGY), Official economic statistics (OEST), Other C10 (OTHC), Other (OTHR), Paper (PAPR) and Polypropylene (POLY)</p> |
| Format          | Enumerated (unsigned integer 8)  |
| Length          | 1  |
| Possible Values | <p>0 Basket</p> <p>1 Dividend</p> <p>2 ETF</p> <p>3 Share</p> <p>4 Dividend Index</p> <p>5 Equity Index</p> <p>6 TRF Index</p> <p>7 Volatility Index</p> <p>8 Future On Commodities</p> <p>9 FXCR - FX Cross Rates</p> <p>10 FXEM - FX Emerging Markets</p> <p>11 FXMJ - FX Majors</p> <p>12 AGRI - Agricultural</p> <p>13 ENVR - Environmental</p> <p>14 FRGT - Freight</p> <p>15 FRTL - Fertilizer</p> <p>16 INDP - Industrial products</p> <p>17 INFL - Inflation</p> <p>18 MCEX - Multi Commodity Exotic</p> <p>19 METL - Metals</p> <p>20 NRGY - Energy</p> <p>21 OEST - Official economic statistics</p> <p>22 OTHC - Other C10</p> <p>23 OTHR - Other</p> <p>24 PAPR - Paper</p> <p>25 POLY - Polypropylene</p> <p>Null value: 2^8-1</p>  |
| Used In         | <a href="#">Contract Standing Data (1013)</a>  |
| User For        | Derivatives  |



## Underlying Symbol Index

| Field Name      | Underlying Symbol Index  |
|-----------------|--|
| Description     | Identifies the Symbol Index of the underlying of the instrument.                               |
| Format          | Numerical ID (unsigned integer 32)   |
| Length          | 4  |
| Possible Values | 0..2 <sup>32</sup> -2<br>Null value: 2 <sup>32</sup> -1  |
| Used In         | <a href="#">Contract Standing Data (1013)</a><br><a href="#">Outright Standing Data (1014)</a> |
| User For        | Derivatives  |

## Underlying Type

| Field Name      | Underlying Type  |
|-----------------|--|
| Description     | Defines the instrument type of the underlying.                   |
| Format          | Enumerated (character)   |
| Length          | 1  |
| Possible Values | C Commodity<br>F Future<br>I Index<br>S Stock<br>X Exchange Rate |
| Used In         | <a href="#">Contract Standing Data (1013)</a>                    |
| User For        | Derivatives  |



## Venue

| Field Name  | Venue   |
|-------------|---|
| Description | <p>Identification of the venue where the transaction was executed using the ISO 10383 segment MIC for transactions executed on a trading venue.</p> <p>Otherwise the BIC is sent following ISO 9362.</p> <p>For Approved Publication Arrangement (APA), possible values are:</p> <ul style="list-style-type: none"> <li>- 'XOFF' – OTC- TRANSACTIONS – LISTED INSTRUMENTS</li> <li>- 'XXXX' – OTC TRANSACTION – UNLISTED INSTRUMENTS</li> <li>- 'AFSI' – AFS - OTF - INTEREST RATE DERIVATIVES</li> <li>- 'AFSO' – AFS - OTF - BONDS</li> <li>- 'AFSL' – AFS - OTF - STRUCTURED PRODUCTS</li> <li>- 'AFSX' – AFS - OTF - FX FORWARDS</li> <li>- 'SINT' – Systematic INTernaliser (This is a tag not in the ISO).</li> </ul> |
| Format      | Alphanumerical ID (character)   |
| Length      | 11  |
| Used In     | <a href="#">Full Trade Information (1004)</a><br><a href="#">APA Full Trade Information (1028)</a>  |

**APPENDIX A: TRADE TYPE ASSOCIATED WITH EMM**

|  | 1 = Cash and Derivative Central Order Book (COB) | 2 = NAV Trading Facility | 4 = Derivative Wholesales | 5 = Cash On Exchange Off book | 6 = Euronext off-exchange trade reports | 7 = Derivative On Exchange Off book | 8 = ETF MTF - NAV Central Order Book | 99 = Not Applicable (For indices and iNAV) |
|--|--|--------------------------|---------------------------|-------------------------------|---|-------------------------------------|--------------------------------------|--|
|  | On-Exchange On-Book                              | On-Exchange Off-Book     | On-Exchange Off-Book      | On-Exchange Off-Book          | NA                                      | On-Exchange Off-Book                | On-Exchange On-Book                  | NA   |
| Conventional Trade (Cash and Derivatives)                      | ✓  | -                        | -                         | ✓                             | -                                       | -                                   | -                                    | -  |
| Large in Scale (LIS) Trade (Derivatives Only)                  | -  | -                        | ✓                         | -                             | -                                       | -                                   | -                                    | -  |
| Basis Trade (Derivatives Only)                                 | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Large in Scale (LIS) Package Trade                             | -  | -                        | ✓                         | ✓                             | -                                       | -                                   | -                                    | -  |
| Guaranteed Cross Trade (Cash and Derivatives)                  | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Against Actual Trade (Derivatives Only)                        | -  | -                        | ✓                         | -                             | -                                       | -                                   | -                                    | -  |
| Asset Allocation Trade (Derivatives Only)                      | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Exchange for Swap Trade (Derivatives Only)                     | -  | -                        | ✓                         | -                             | -                                       | -                                   | -                                    | -  |
| Exchange for Physical Trade - Cash Leg (Cash Only)             | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Strategy Leg Conventional Trade (Derivatives Only)             | ✓  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Strategy Leg Large in Scale (LIS) Trade (Derivatives Only)     | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Strategy Leg Basis Trade (Derivatives Only)                    | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Strategy Leg Guaranteed Cross Trade (Derivatives Only)         | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Strategy Leg Against Actual Trade (Derivatives Only)           | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Strategy Leg Asset Allocation Trade (Derivatives Only)         | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Strategy Leg Exchange For Swap Trade (Derivatives Only)        | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Strategy Leg Exchange For Physical Trade (Derivatives Only)    | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| BoB Trade (Cash Only)  | ✓  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| AtomX Trade (Derivatives Only)                                 | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Trade Cancellation (Cash and Derivatives)                      | ✓  | ✓                        | ✓                         | ✓                             | -                                       | ✓                                   | ✓                                    | -  |
| Out of Market Trade (Cash Only)                                | -  | -                        | -                         | ✓                             | -                                       | -                                   | -                                    | -  |
| Delta Neutral Trade - Underlying Cash Leg (Cash Only)          | -  | -                        | ✓                         | ✓                             | -                                       | ✓                                   | -                                    | -  |
| Market VWAP Operation Trade (Cash Only)                        | -  | -                        | -                         | ✓                             | -                                       | -                                   | -                                    | -  |
| Euronext Fund Service Trade (Cash Only)                        | -  | ✓                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Secondary Listing Trade (Cash Only)                            | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Request for Cross Trade (Derivatives Only)                     | -  | -                        | -                         | -                             | -                                       | ✓                                   | -                                    | -  |
| Request for cross strategy Leg Trade (Derivatives Only)        | -  | -                        | -                         | -                             | -                                       | ✓                                   | -                                    | -  |
| Trade Publication (Cash Only)                                  | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Dark Trade (Cash Only)   | ✓  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Delta Neutral Trade - Underlying Future Leg (Derivatives Only) | -  | -                        | ✓                         | -                             | -                                       | ✓                                   | -                                    | -  |
| ETF-MTF NAV Trade (price in basis points) (Cash Only)          | -  | -                        | -                         | -                             | -                                       | -                                   | ✓                                    | -  |
| ETF-MTF NAV Dark Trade (price in basis points) (Cash Only)     | -  | -                        | -                         | -                             | -                                       | -                                   | ✓                                    | -  |
| Guaranteed Cross - Negotiated deal LIQ (Liquid)                | ✓  | -                        | -                         | -                             | -                                       | -                                   | ✓                                    | -  |
| Guaranteed Cross - Negotiated deal OILQ (illiquid)             | ✓  | -                        | -                         | -                             | -                                       | -                                   | ✓                                    | -  |
| Large in Scale (LIS) Trade (Cash Only)                         | -  | -                        | -                         | -                             | -                                       | -                                   | -                                    | -  |
| Non-Standard Settlement  | -  | -                        | -                         | ✓                             | -                                       | -                                   | -                                    | -  |
| Repurchase Agreement – Repo                                    | -  | -                        | -                         | ✓                             | -                                       | -                                   | -                                    | -  |
| Exchange Granted Trade   | -  | -                        | -                         | ✓                             | -                                       | -                                   | -                                    | -  |

# Messages Specification

# Trade type Associated with EMM

|   |  |  |          |          |   |  |   |   |
|---|--|--|----------|----------|---|--|---|---|
| Other   |  |  |          | <u>✓</u> |   |  |   |   |
| Odd Lot   |  |  |          | <u>✓</u> |   |  |   |   |
| Large in Scale (LIS) Trade Provisional Price (Derivatives Only)         |  |  | <u>✓</u> |          | - |  | - | - |
| Large in Scale (LIS) Package Trade Provisional Price (Derivatives Only) |  |  | <u>✓</u> |          | - |  | - | - |

**APPENDIX B: MMT FLAGS RULES****LEVEL 1: MMT MARKET MECHANISM**

| Field                | Value   | Equities | Funds | Fixed Income | Warrants and Certificates | Commodity Derivatives | Trade Reporting and | Index Derivatives | Equity Derivatives | Financial Derivatives | Presence | Rules   |
|----------------------|---|----------|-------|--------------|---------------------------|-----------------------|---------------------|-------------------|--------------------|-----------------------|----------|---|
| MMT Market Mechanism | Central Limit Order Book                        | ✓        | ✓     | ✓            | ✓                         | ✓                     | ✗                   | ✓                 | ✓                  | ✓                     |          | Field EMM equals to 1 – Cash and Derivative Central Order Book (COB)<br>OR<br>Field EMM equals to 8 – ETF MTF - NAV Central Order Book  |
|                      | Quote Driven Market                             | ✗        | ✗     | ✗            | ✗                         | ✗                     | ✗                   | ✗                 | ✗                  | ✗                     |          | Not applicable  |
|                      | Dark Order Book                                 | ✓        | ✓     | ✗            | ✗                         | ✗                     | ✗                   | ✗                 | ✗                  | ✗                     |          | Field Trade Type equals to 33 – Dark Trade  |
|                      | Off Book (including Voice or Messaging Trading) | ✓        | ✗     | ✓            | ✓                         | ✓                     | ✓                   | ✓                 | ✓                  | ✓                     | Opt      | Field EMM equals to 2 – NAV Trading Facility<br>OR<br>Field EMM equals to 4 – Derivative Wholesales except for Request for Cross Trades<br>OR<br>Field EMM equals to 5 – Cash On Exchange Off book<br>OR<br>Field EMM equals to 6 – Euronext off-exchange trade reports |
|                      | Periodic Auction                                | ✗        | ✗     | ✗            | ✗                         | ✓                     | ✓                   | ✓                 | ✓                  | ✓                     |          | Field EMM equals to 7 – Derivative On Exchange Off book   |
|                      | Request for Quotes                              | ✗        | ✗     | ✗            | ✗                         | ✗                     | ✗                   | ✗                 | ✗                  | ✗                     |          | Not applicable  |

**LEVEL 2: MMT TRADING MODE**

| Field            | Value                                 | Equities | Funds | Fixed Income | Warrants and Certificates | Commodity Derivatives | Trade Reporting and | Index Derivatives | Equity Derivatives | Financial Derivatives | Presence | Rules  |
|------------------|---------------------------------------|----------|-------|--------------|---------------------------|-----------------------|---------------------|-------------------|--------------------|-----------------------|----------|--|
| MMT Trading Mode | <u>Scheduled Opening Auction</u>      | ✓        | ✓     | ✓            | ✓                         | ✓                     | ✗                   | ✓                 | ✓                  | ✓                     |          | <b>In Market Status Change message</b><br>Field Book State equals to 4 = Uncrossing<br>AND<br>Field Trading Period equals to 1 = Opening<br>AND<br>Field Status Reason equals to 0 = Scheduled<br>AND<br>Field EMM <> 7 (Derivative On Exchange Off book) or <> 4 (Derivative Wholesales)  |
|                  | <u>Scheduled Closing Auction</u>      | ✓        | ✓     | ✓            | ✓                         | ✓                     | ✗                   | ✓                 | ✓                  | ✓                     |          | <b>In Market Status Change message</b><br>Field Book State equals to 4 = Uncrossing<br>AND<br>Field Trading Period equals to 3 = Closing<br>AND<br>Field Status Reason equals to 0 = Scheduled<br>AND<br>Field EMM <> 7 (Derivative On Exchange Off book) or <> 4 (Derivative Wholesales)  |
|                  | <u>Scheduled Intraday Auction</u>     | ✓        | ✓     | ✓            | ✓                         | ✓                     | ✗                   | ✓                 | ✓                  | ✓                     |          | <b>In Market Status Change message</b><br>Field Book State equals to 4 = Uncrossing<br>AND<br>Field Trading Period equals to 2 = Standard<br>AND<br>Field Status Reason equals to 0 = Scheduled<br>AND<br>Field EMM <> 7 (Derivative On Exchange Off book) or <> 4 (Derivative Wholesales) |
|                  | <u>Unscheduled Auction</u>            | ✗        | ✗     | ✗            | ✗                         | ✗                     | ✗                   | ✗                 | ✗                  | ✗                     |          | Not Applicable   |
|                  | <u>Continuous Trading</u>             | ✓        | ✓     | ✓            | ✓                         | ✓                     | ✗                   | ✓                 | ✓                  | ✓                     |          | <b>In Market Status Change message</b><br>Field Book State equals to 5 = Continuous<br>AND<br>Field EMM <> 7 (Derivative On Exchange Off book) or <> 4 (Derivative Wholesales)   |
|                  | <u>At Market Close Trading</u>        | ✓        | ✓     | ✓            | ✓                         | ✗                     | ✗                   | ✗                 | ✗                  | ✗                     |          | <b>In Market Status Change message</b><br>Field Phase Qualifier equals to 2 = Trading At Last  |
|                  | <u>Out of Main Session Trading</u>    | ✗        | ✗     | ✗            | ✗                         | ✗                     | ✗                   | ✗                 | ✗                  | ✗                     |          | Not Applicable   |
|                  | <u>Trade Reporting (On Exchange)</u>  | ✓        | ✓     | ✓            | ✓                         | ✓                     | ✗                   | ✓                 | ✓                  | ✓                     |          | Field EMM equals to 5 - Cash On Exchange Off book<br>OR<br>Field EMM equals to 4 – Derivative Wholesales   |
|                  | <u>Trade Reporting (Off Exchange)</u> | ✗        | ✗     | ✗            | ✗                         | ✗                     | ✓                   | ✗                 | ✗                  | ✗                     |          | Field EMM equals to 6 – Euronext off-exchange trade reports  |

Messages Specification

|  |  |          |          |          |          |          |          |          |          |          |  |  |
|--|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|
|  | <u>Trade Reporting (Systematic Internaliser)</u> | <u>x</u> | <u>x</u> | <u>x</u> | <u>x</u> | <u>x</u> | <u>x</u> | <u>x</u> | <u>x</u> | <u>x</u> |  | <u>Not Applicable</u>  |
|  | <u>Undefined Auction</u>                         | <u>x</u> | <u>x</u> | <u>x</u> | <u>x</u> | <u>✓</u> | <u>x</u> | <u>✓</u> | <u>✓</u> | <u>✓</u> |  | <u>Field EMM equals to 7 – Derivative On Exchange Off book</u> |

MMT Flags Rules

**LEVEL 3: MMT TRANSACTION CATEGORY**

| <u>Field</u>                  | <u>Value</u>   | <u>Equities</u> | <u>Funds</u> | <u>Fixed Income</u> | <u>Warrants and Certificates</u> | <u>Commodity Derivatives</u> | <u>Trade Reporting and Publication</u> | <u>Index Derivatives</u> | <u>Equity Derivatives</u> | <u>Financial Derivatives</u> | <u>Presence</u> | <u>Rules</u>   |
|-------------------------------|--|-----------------|--------------|---------------------|----------------------------------|------------------------------|--|--------------------------|---------------------------|------------------------------|-----------------|--|
| <u>MMTTransactionCategory</u> | <u>Dark Trade</u>  | <u>✓</u>        | <u>✓</u>     | <u>x</u>            | <u>x</u>                         | <u>x</u>                     | <u>x</u>                               | <u>x</u>                 | <u>x</u>                  | <u>x</u>                     |                 | <u>Field Trade Type equals to 33 – Dark Trade</u>  |
|                               | <u>Trade that has Received Price Improvement</u>                               | <u>x</u>        | <u>x</u>     | <u>x</u>            | <u>x</u>                         | <u>x</u>                     | <u>✓</u>                               | <u>x</u>                 | <u>x</u>                  | <u>x</u>                     |                 | <u>Price has to be between Best bid and Best offer</u>   |
|                               | <u>Package Trade (excluding Exchange for Physicals)</u>                        | <u>x</u>        | <u>x</u>     | <u>x</u>            | <u>x</u>                         | <u>✓</u>                     | <u>✓</u>                               | <u>✓</u>                 | <u>✓</u>                  | <u>✓</u>                     | <u>Opt</u>      | <u>Field Trade Type equals to 26 – Delta Neutral Trade - Underlying Cash Leg</u><br><u>OR</u><br><u>Field Trade Type equals to 11 – Strategy Leg Conventional Trade (Derivatives Only)</u><br><u>OR</u><br><u>Field Trade Type equals to 12 = Strategy Leg Large in Scale (LiS) Trade (Derivatives Only)</u> |
|                               | <u>Exchange for Physical Trade</u>   | <u>x</u>        | <u>x</u>     | <u>x</u>            | <u>x</u>                         | <u>x</u>                     | <u>x</u>                               | <u>x</u>                 | <u>x</u>                  | <u>x</u>                     |                 | <u>Not Applicable</u>  |
|                               | <u>None apply (a standard trade for the Market Mechanism and Trading Mode)</u> | <u>✓</u>        | <u>✓</u>     | <u>✓</u>            | <u>✓</u>                         | <u>✓</u>                     | <u>✓</u>                               | <u>✓</u>                 | <u>✓</u>                  | <u>✓</u>                     |                 | <u>All other cases</u>   |

## APPENDIX A: APPENDIX C: REVISION HISTORY

### Change Summary

| Version No. | Change Description   |
|-------------|--|
| 2.0.0       | <b>First version for phase 2</b>   |
| 2.1.0       | <p><b>Specification changes:</b></p> <ul style="list-style-type: none"> <li>- All references to Bourse de Luxembourg (BdL) removed</li> <li>- Section 3.2.1 Clear The Book: Société Générale SI update types removed from the list of resent limits.</li> <li>- Section 3.8 System Failure: precisions added on Market Data Sequence Number in case of MDG restart.</li> <li>- Section 6.10 ... Manage BBO and Implied Prices: Section split, and details provided on how to manage BBO and Implied prices. (This is for derivatives and only indicative)</li> <li>- Appendix C - MMT Flag Rules: for MMT Market Mechanism, the value Periodic Auction can also be triggered with Market Data Update Type: 57 = Request for Cross Strategy Leg Trade (Derivatives Only)</li> <li>- Section How To ... Determine Round Lot with Quantity Notation: Section added to provide details on this mechanism</li> </ul> <p><b>Message changes:</b></p> <ul style="list-style-type: none"> <li>- In Market Update (1001): Details on Wholesales Request For Cross (RFC) added including cross in Best Bid and Offer columns in Market Data Update Types table. (This is for derivatives and only indicative)</li> <li>- Full Trade Information (1004): Fields "Market Of Reference MIC" and "MiFID Emission Allowance Type" have been deprecated</li> </ul> <p><b>Field changes:</b></p> <ul style="list-style-type: none"> <li>- All optional bitmap fields have been set to mandatory (since no null value possible for bitmap), fields are: "Available Wholesale Trade Type", "Trade Qualifier", "Phase Qualifier" and "Order Type Rules"</li> <li>- 3 New possible values in "Market Data Update Type" and "Trade Type": "Guaranteed Cross – Negotiated deal NLIQ (Liquid)", "Guaranteed Cross – Negotiated deal OILQ (illiquid)" and "Large in Scale (LIS) Trade (Cash)"</li> <li>- Lot Size: field description improved.</li> <li>- Tick Value: description improved to specify it has to be used with field "Tick Value Decimals"</li> </ul> <p><b>Specification changes:</b></p> <ul style="list-style-type: none"> <li>- Appendix B: Trade type Associated with EMM: Trade types added in version 2.1.0 added in this section</li> </ul> <p><b>Field changes:</b></p> <ul style="list-style-type: none"> <li>- Scheduled Event Time: description updated to precise time format specificities on cash</li> <li>- Phase Qualifier: bit in 1<sup>st</sup> position is deprecated since the target behavior for "no qualifier" is having all bits set to 0. Until the bit is fully removed both behavior (all bits set to 0 and 1<sup>st</sup> bit ("No qualifier") set to 1) are accepted</li> </ul> |
| 2.1.2       | <ul style="list-style-type: none"> <li>- <b>Scheduled Event Time</b> field description updated</li> <li>- New <b>ICBCode</b> field added to the section <b>7.2.1 Standing Data (1007)</b></li> </ul>   |
| 2.1.3       | <p><b>APPENDIX C : MMT Flag Rules :</b></p> <ul style="list-style-type: none"> <li>- <b>MMT Trading Mode</b> rules updated for <b>Trade Reporting (On Exchange)</b></li> </ul>   |
| 2.1.4       | <p>Section <b>5.6.2 Automated Market Reference (AMR):</b></p> <ul style="list-style-type: none"> <li>- New paragraph about <b>AMR &amp; MAX STRIKE PRICE LIMIT</b> added</li> </ul> <p>Section <b>8. Field Description:</b></p> <ul style="list-style-type: none"> <li>- <b>Strike Price</b> field description updated : the field is to be calculated with <b>Price/Index Level Decimals</b></li> </ul>   |
| 2.1.5       | <p>General :</p> <ul style="list-style-type: none"> <li>• <b>SBE Template Version</b> added to the front page and to the Document History</li> </ul> <p>Section <b>8. Field Description:</b></p> <ul style="list-style-type: none"> <li>• 3 values added to the <b>Market Data Update Type</b> field: <ul style="list-style-type: none"> <li>- 82 = Large in Scale (LiS) Trade in basis points (Derivatives Only)</li> <li>- 83 = Large in Scale (LiS) Package Trade in basis points (Derivatives Only)</li> <li>- 84 = Strategy Leg Large in Scale (LiS) Trade in basis points (Derivatives Only)</li> </ul> </li> <li>• 2 values removed from the <b>Market Data Update Type</b> field:</li> </ul>   |

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|             | <ul style="list-style-type: none"> <li>- 252 = Static Collar Reference Price (Cash and Derivatives)</li> <li>- 253 = Dynamic Collar Reference Price (Cash and Derivatives)</li> <li>• <b>Order Type Rules</b> field: the values <b>bit in position 2 - Stop / Stop Loss</b> and <b>bit in position 3 - Stop Limit</b> are only for OEG</li> <li>• <b>Phase Qualifier</b> field: value <b>0 – No Qualifier</b> is now deprecated</li> <li>• <b>Scheduled Event</b> field: value <b>12 – Suspension</b> is not used in MDG</li> <li>• <b>Strike Price</b> field: the decimals field to be used for Cash instruments is <b>Strike Price Decimals</b> instead of Price/Index Level Decimals</li> <li>• 3 values added to the <b>Trade Type</b> field: <ul style="list-style-type: none"> <li>- 42 = Large in Scale (LiS) Trade in basis points (Derivatives Only)</li> <li>- 43 = Large in Scale (LiS) Package Trade in basis points (Derivatives Only)</li> <li>- 44 = Strategy Leg Large in Scale (LiS) Trade in basis points (Derivatives Only)</li> </ul> </li> </ul>   |
| 2.3.0       | <ul style="list-style-type: none"> <li>■ <a href="#">Market Data Update Type</a> : new values for RFQ (86..89).</li> <li>■ <a href="#">Market Data Action Type</a> : new values for RFQ (7, 8).</li> <li>■ <a href="#">Trade Qualifier</a>: new value 7 (Deferred Publication), marked values 5 &amp; 6 for future use)</li> <li>■ <a href="#">Standing Data (1007)</a> new fields <a href="#">ThresholdLISPostTrade60mn</a>, <a href="#">ThresholdLISPostTrade120mn</a> and <a href="#">ThresholdLISPostTradeEOD</a> related to Dark facilities.</li> <li>■ <a href="#">Full Trade Information (1004)</a>: added a repeating section header at the end of the message, not used.</li> <li>■ The description of the following application messages were amended due to ETF-MTF support: <ul style="list-style-type: none"> <li>• <a href="#">Market Update (1001)</a></li> <li>• <a href="#">Statistics (1009)</a></li> </ul> </li> <li>■ <a href="#">EMM</a>: added '9' Listed not Traded.</li> <li>■ Renamed any reference to 'Luxembourg Stock Exchange' into 'Bourse de Luxembourg' (fields <a href="#">MIC</a>, <a href="#">Optiq® Segment</a> and <a href="#">Status Reason</a>).</li> <li>■ <a href="#">MICList</a> is now Cash only, whilst <a href="#">Liquid Instrument Indicator</a> is now Cash and Derivatives.</li> <li>■ <a href="#">Pricing Algorithm</a>: added value 'MOC' – Market On Close.</li> <li>■ Modified the description of fields <a href="#">Trade Qualifier</a>, <a href="#">Trade Type</a> and <a href="#">Order Type Rules</a>.</li> <li>■ Fixed description of <a href="#">Leg Price</a>.</li> <li>■ Fixed Typos.</li> <li>■ New template version: 107.</li> </ul>   |
| 2.4.0       | <ul style="list-style-type: none"> <li>■ <a href="#">OptiqSegment</a>: new value 14 (Block)</li> <li>■ <a href="#">MIC</a>: new value ('XSMP' - Euronext Block)</li> <li>■ <a href="#">MarketModel</a>: new value 6 (Conditional Uncrossing)</li> <li>■ Added section 2.3.3.5 <a href="#">Real Time Channels for Block</a></li> <li>■ Added section 2.3.3.10 <a href="#">Snapshot Channels for Block</a></li> <li>■ New template version: 110</li> </ul>  |
| 3.0.0       | <p>Major update for the migration of the Derivatives Markets to Optiq. The following sections have been updated:</p> <ul style="list-style-type: none"> <li>■ Section 2.1.1 <b>Market Data Channels</b>   Section 2.1.3 <b>Market Data Messages per Channel</b>   Section 2.1.3.1 <b>Real Time Channels for Equities, Fixed Income and Funds Central Order Book</b>   Section 2.1.3.2 <b>Real Time Channels for Equities Best of Book</b>   Section 2.1.3.3 <b>Real Time Channels for Equities Derivatives, Indices Derivatives, Financial Derivatives, Commodities, Warrants and Certificates</b>   Section 2.1.3.9 <b>Snapshot Channels for Equities, Fixed Income and Funds Central Order Book</b>   Section 2.1.3.10 <b>Snapshot Channels for Equities Best of Book</b>   Section 2.1.3.11 <b>Snapshot for Equities Derivatives, Indices Derivatives, Financial Derivatives, Commodities, Warrants and Certificates</b>   Section 3.2 <b>Book Retransmission</b>   Section 3.2.1 <b>Clear the Book</b>   Section 3.2.2 <b>Morning Book Retransmission</b>   Section 3.2.3 <b>Intraday Book Retransmission</b>   Section 3.3 <b>Snapshots</b>   Section 3.5 <b>Shaping</b>   Section 3.8 <b>Trade Retransmission</b>   Section 3.11 <b>Production Timetable</b>   Section 5.1 <b>Technical Format Fields</b>   Section 5.2 <b>Date and Time Conventions</b>   Section 5.6 <b>Instrument Ticks</b>   Section 5.7.1 <b>Symbol Index</b>   Section 7.2.2 <b>Standing Data (1007)</b>   Section 7.2.3 <b>Contract Standing Data (1013)</b>   Section 7.2.4 <b>Outright Standing Data (1014)</b>   Section 7.2.5 <b>Strategy Standing Data (1012)</b>   Section 7.2.1 <b>Timetable (1006)</b>   Section 7.3.1 <b>Market Update (1001)</b>   Section 7.3.4 <b>Price Update (1003)</b>   Section 7.3.5 <b>Full Trade Information (1004)</b>   Section 7.3.11 <b>Market Status Change (1005)</b>   Section 7.3.13 <b>Statistics (1009)</b>   Section 7.3.14 <b>Real Time Index (1008)</b>   Section 8 <b>Field Description</b></li> </ul> <p>The following sections have been added:</p> <ul style="list-style-type: none"> <li>■ Section 3.11 <b>Multicast Group Unjoining</b></li> <li>■ Section 5.5 <b>Trading Day Schedule: Timetable Mechanism</b></li> </ul> |



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|             | <ul style="list-style-type: none"> <li>■ Section 6.12 <b>Derive Implied Prices Volume from the Aggregated BBO</b></li> <li>■ Section 6.15 <b>Determine the option underlying expiry</b></li> <li>■ Section 6.16 <b>Use an Execution Summary Message</b></li> <li>■ Section 6.18 <b>Determine the Statistics On and Off-Book for an Instruments (COB, Wholesales &amp; RFC)</b></li> </ul>   |
| 3.1.0       | <p>Changes made in this version of the document, release with SBE template 204, are:</p> <ul style="list-style-type: none"> <li>■ Split section 2.1.3.11 “Snapshot Channels for Equities Derivatives, Indices Derivatives, Financial Derivatives, Commodities, Warrants and Certificates” into 2, to separate Warrants and Certificates</li> <li>■ In section 5.7.1 “Symbol Index” removed details of Symbol Index ranges</li> <li>■ Added section 6.19 “...DETERMINE THE TVTIC”</li> <li>■ In section 7.3.1 “Market Update (1001)” updated market data update type table with new values</li> <li>■ In section 7.3.5 “Full Trade Information (1004)” updated description message</li> <li>■ Formatting / spelling / grammar updates of descriptions throughout the document</li> <li>■ The following changes were made in the existing messages as part of <u>SBE 203</u>: <ul style="list-style-type: none"> <li>a) <b>Full Trade Information (1004)</b>: In the block removed field <i>Strategy Code</i>; In the block added fields <i>Evaluated Price</i> and <i>Message Price Notation</i></li> <li>b) <b>Contract Standing Data (1013)</b>: In the block added fields <i>MIFID II Liquid Flag</i> (already in SBE Template), <i>Pricing Algorithm</i></li> <li>c) <b>Outright Standing Data (1014)</b>: In the block deprecated field <i>Lot Size</i></li> </ul> </li> <li>■ The following changes were made in the existing messages as part of <u>SBE 204</u>: <ul style="list-style-type: none"> <li>a) <b>Outright Standing Data (1014)</b>: In the block added field <i>Trading Unit</i></li> </ul> </li> <li>■ Field Descriptions updated with SBE templates 201 through 203: <ul style="list-style-type: none"> <li>a) Added new fields as part of <u>SBE 203</u>: <i>Evaluated Price</i>; <i>Message Price Notation</i>; <i>MIFID II Liquid Flag</i>; <i>Pricing Algorithm</i>;</li> <li>b) Enriched values for fields as follows: <ul style="list-style-type: none"> <li>As part of <u>SBE 117</u>: <i>Market Data Update Type</i> – added values 99 = MidPoint BBO; <i>Optiq Segment</i> – added value 15 = Forex;</li> <li>As part of <u>SBE 201</u>: <i>Contract Type</i> – added value U = Underlying, <i>Derivatives Instrument Type</i> – added value 4 = Underlying (Not used for Euronext Markets); <i>Instrument State</i> – added values 18 = Reserved due to Leg &amp; 19 = Suspended due to Leg;</li> <li>As part of <u>SBE 203</u>: <i>EMM</i> – added value 15 = Delta Neutral Contingency leg; <i>Market Data Update Type</i> – added values 100 = Conventional Trade - Provisional price; <i>Trade Type</i> – added values 100 = Conventional Trade - Provisional price, 101 = Large in Scale (LiS) Trade - Provisional price, 102 = Large in Scale (LiS) Package Trade - Provisional price;</li> <li>c) Deprecated or Removed values as follows: <ul style="list-style-type: none"> <li>As part of <u>SBE 202</u>: for field <i>Trade Type</i>: removed wrongly introduced in SBE 201 value Trade Reversal</li> <li>As part of <u>SBE 203</u>: for field <i>Strategy Code</i>: C = Call or Put Cabinet; Z = Reduced Tick Spread; u = Buy Write;</li> </ul> </li> <li>d) Enriched conditions and descriptions of fields <i>Collar Max Unhalt Nb</i>; <i>Collar Unhalt Delay</i>; <i>Dynamic Collar Logic</i>; <i>MIFID Execution ID</i>; <i>Leg Ratio</i>; <i>Trading Unit</i></li> </ul> </li> <li>■ Throughout the document – added clarification of existing concepts, fixed formatting, spelling and grammar; added clarification on what is covered by the On-exchange Off-book (OEOB) market mechanism</li> </ul> </li></ul> |
| 3.2.0       | <ol style="list-style-type: none"> <li>1) Add new Exchange code values to be used for Oslo Market Place: <ul style="list-style-type: none"> <li>■ <a href="#">L : Oslo Cash Underlying</a></li> <li>■ <a href="#">N: Oslo Index Derivatives</a></li> <li>■ <a href="#">O: Oslo Equity Derivatives</a></li> </ul> </li> <li>2) SBE template 217 version added to the front page and to the document history.</li> <li>3) Update the Packet Sequence Number (PSN) description</li> </ol>  |
| 4.0.0       | <ol style="list-style-type: none"> <li>1) SBE template version added to the front page and to the document history</li> <li>2) Add ISE Bunds &amp; Funds support with 4 new messages: <ul style="list-style-type: none"> <li>■ <a href="#">BF Instrument Reference (1201)</a></li> <li>■ <a href="#">BF Trade (1202)</a></li> <li>■ <a href="#">BF NAV (1203)</a></li> <li>■ <a href="#">BF Instrument Suspension (1204)</a></li> </ul> </li> <li>3) Add the Optiq segment ISE B&amp;F</li> <li>4) Add new section for IBF channels : <a href="#">2.1.3.6 Real Time Channels for IBF</a></li> <li>5) Add two new MDG Set of Channels ID to be used for Oslo Market: <ul style="list-style-type: none"> <li>■ For Equities Asset Class and Country Norway, the MDG set of Channels ID is: 10</li> <li>■ For Fixed Income Asset Class and Country Norway, the MDG set of Channels ID is: 12</li> </ul> </li> </ol>  |

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|             | <ul style="list-style-type: none"> <li>■ Add <b>Norway</b> as Country Split for following asset classes: Indices, Equity-Derivatives and Index-Derivatives. In this case, existing MDG set of Channels ID will be used for Norway.</li> </ul> <p>6) <b>Specification Improvements :</b></p> <ul style="list-style-type: none"> <li>■ MDG packet Sequence Number (PSN) description has been updated to indicate that the first PSN is 1 instead of 0.</li> <li>■ Update the length of repeating groups to 1 instead of 2 for following messages (1001/ 1002/ 1003/ 1005/ 1006/ 1007/ 1009/ 1012/ 1013/ 1014/ 1016).</li> <li>■ Following Request For Cross Market Data Update Types; 25, 26, 56 and 57 are valid for any Derivatives segment and not only Commodities segment. Footnote is removed in the table of Market Data Update Type per segment section 7.3.1</li> <li>■ Set the values 29 ( Large in Scale (LiS) Package Trade (Derivatives Only) and 7 (Total Traded Volume) as deprecated in both Market Data Update type table in section 7.3.1 and Market Data Update Type field definition.</li> <li>■ Update description in section 7.3.1 to explain that implied volume is not taken into account in the Bid/Offer updates.</li> <li>■ Reference is added for Price / Index Level Decimals field in all the document.</li> <li>■ Add fields Price Limits and Quote Spread Multiplier as deprecated in message 1005 and fields description.</li> <li>■ Remove Lot Size in description of section 6.15 (Determine Round Lot With Quantity Notation).</li> <li>■ Update the definition of <i>Full Order Book Market Update channel</i> and <i>Full Order Book Order Update channel</i> in section 2.1.</li> </ul>   |
| 4.0.1       | <p><b><u>General Improvement:</u></b></p> <ul style="list-style-type: none"> <li>■ Section “Document Target” renamed to “Document Audience”.</li> <li>■ “Financial Derivatives” is set to out of scope in Scope section ( Page 2).</li> <li>■ In “Associated Documents” section, Euronext Cash and Derivatives - File Specifications and Euronext Optiq Market Data Gateway Production Environment document’s versions updated.</li> <li>■ Support contact is updated.</li> <li>■ In “Further Information” section the Euronext Portal link is updated.</li> <li>■ The “SBE templates and specifications per Optiq segment” table is updated by adding <b>Irish Bonds and Funds</b> segment.</li> <li>■ Name of the column “Latest” is updated to “Latest Supported” in table “SBE templates and specifications per Optiq segment”.</li> <li>■ Update “Types of data” in section “Market Data Channels” by renaming channel to pack and adding new pack for <b>Irish Bonds and Funds</b> named “<b>IBFR</b>” description.</li> <li>■ For Scalability (page 11) add 10Gbits for Unshaped channels to highlight that the unshaped is only available under 10Gbits.</li> <li>■ Add Segment in column named “Asset Class” because what is described can be either an asset class or segment.</li> <li>■ Update the name of segment to “<b>Irish Bonds and Funds</b>” in table in page 12.</li> <li>■ Remove <i>Book Retransmission</i> section 3.2.1 and update the <i>Book Retransmission</i> section 3.2, to have definition in one place in the document.</li> <li>■ Update the description of Instrument Identifiers section 5.7</li> <li>■ Update the <b>Long Issuer Name</b> and <b>Long Instrument Name</b> fields length to 250 in BF Instrument Reference message 1201.</li> <li>■ Update Nav Price field as Mandatory in message BF NAV 1203.</li> </ul> <p><b><u>Luxembourg Stock Exchange MDG Specification document merge :</u></b></p> <ul style="list-style-type: none"> <li>■ “Luxembourg Stock Exchange” Optiq segment is added in templates and versions table available in section “Further Information”.</li> <li>■ Add in “Types of data” in pack REFT , index messages are included in the pack only for LuxSE.</li> <li>■ Add <b>Luxembourg Stock Exchange</b> Asset Class in table page 12.</li> <li>■ Add new sections: 2.1.3.8 Real Time Channels for Cash LuxSE and 2.1.3.17 Snapshot Channels for Cash LuxSE.</li> <li>■ Add new section for Euronext Cash LuxSE 3.10.2 under Production Timetable.</li> </ul> <p><b><u>Euronext APA (Approved Publication Arrangement) and Euronext Synapse Specification document merge:</u></b></p> <ul style="list-style-type: none"> <li>■ “Trade Reporting and Publication” added as in scope in “Scope” section</li> <li>■ “Trade Reporting and Publication” Optiq segment is added in table templates and versions table available in section “Further Information” .</li> <li>■ Add APA Pack “APRT” as Type of data under “Market Data Channels” section.</li> <li>■ Add segment <b>Trade Reporting and Publication</b> segment in table in page 12.</li> <li>■ Add APA messages in section Market Data Messages per Channel (APA Standing Data / APA Full Trade Information / APA Quotes).</li> <li>■ Add new sections: 2.1.3.7 Real Time Channels for APA and 2.1.3.16 Snapshot Channels for APA.</li> <li>■ Add new section 3.10.3 Euronext APA and Synapse</li> <li>■ Add new section “MiFID Instrument ID” which is used as Instrument identifier for APA.</li> <li>■ Update the section 6.1.1 Trade Cancellation to highlight the case of APA as a note.</li> <li>■ Add Quote Cancellation section.</li> <li>■ Add another example for APA under section 6.3 Determine The Message Type.</li> <li>■ Add note for APA under section 6.8 Look For Trade.</li> <li>■ Add new sections for APA messages : 7.2.6 , 7.3.5 and 7.3.6.</li> </ul> |

| Version No. | Change Description   |
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|             | <ul style="list-style-type: none"> <li>■ Add APA messages in section 7.4 Snapshot Messages.</li> <li>■ Add following fields definition as they are used in APA messages: (Efficient MMT Agency Cross Trade Indicator, Efficient MMT Algorithmic Indicator, Efficient MMT Benchmark Indicator, Efficient MMT Contribution to Price, Efficient MMT Duplicative Indicator, Efficient MMT Market Mechanism, Efficient MMT Modification Indicator, Efficient MMT Negotiation Indicator, Efficient MMT Off Book Automated Indicator, Efficient MMT Post Trade Deferral, Efficient MMT Publication Mode, Efficient MMT Special Dividend Indicator, Efficient MMT Trading Mode, Efficient MMT Transaction Category, Option Type, Quote Update Type and Underlying Index Name).</li> </ul>  |
| 4.0.2       | <p><b>Document Improvements</b></p> <ul style="list-style-type: none"> <li>■ Remove Further Information section and replace it by the content of section “Scope” and section “Associated Documents”.</li> <li>■ Add new table of Optiq segment /SBE template versions in “Scope” section.</li> <li>■ Update the presentation of “Associated Document” section</li> <li>■ In Production Timetable section 3.10 remove section Euronext Luxembourg because it has the same timetable definition as provided in section Cash and Derivatives Markets.</li> <li>■ In statistics (1009) section 7.3.13 add clarification about the high and low statistics calculation for strategy trades.</li> <li>■ In Market Data Update Type field following values are removed because they are not used: <ul style="list-style-type: none"> <li>74 New Bid on Wholesale RFC (Derivatives Only)</li> <li>75 New Offer on Wholesale RFC (Derivatives Only)</li> <li>76 Updated_Bid_on_Wholesale_RFC</li> <li>77 Updated_Offer_on_Wholesale_RFC</li> <li>78 Clear Wholesale RFC (Derivatives Only)</li> </ul> </li> </ul> <p><b>OSLO Migration updates</b></p> <ul style="list-style-type: none"> <li>■ Section 6.2 name is updated and an explanation added to say that this section is defined only for APA and Synapse facilities.</li> <li>■ Add Oslo Market MICs in MIC field possible values: <ul style="list-style-type: none"> <li>- 'XOSL' – OSLO BORS ASA</li> <li>- 'MERK' – MERKUR MARKET</li> <li>- 'XOAS' – OSLO AXESS</li> <li>- 'XOAM' – NORDIC ALTERNATIVE BOND MARKET</li> </ul> </li> </ul> <p><b>Euronext APA and Synapse Merge Updates</b></p> <ul style="list-style-type: none"> <li>■ Section 6.2 name is updated and an explanation added to say that this section is defined only for APA and Synapse facilities.</li> <li>■ Add Glossary in section 1.3 to give definition of Euronext APA and Euronext Synapse.</li> <li>■ Quote Update Type field values updated</li> <li>■ Add APA specific MICs in <b>MIC</b> and <b>Venue</b> fields possible values: <ul style="list-style-type: none"> <li>- 'XOFF' – OTC- TRANSACTIONS – LISTED INSTRUMENTS</li> <li>- 'XXXX' – OTC TRANSACTION – UNLISTED INSTRUMENTS</li> <li>- 'AFSI' – AFS - OTF - INTEREST RATE DERIVATIVES</li> <li>- 'AFSO' – AFS - OTF - BONDS</li> <li>- 'AFSL' – AFS - OTF - STRUCTURED PRODUCTS</li> <li>- 'AFSX' – AFS - OTF - FX FORWARDS</li> <li>- 'SINT' – Systematic INTERNALISER (This is a tag not in the ISO).</li> </ul> </li> </ul> |
| 4.1.0       | <p>The following changes have been made to this version of the document:</p> <ul style="list-style-type: none"> <li>■ In <a href="#">Messages</a>: <ul style="list-style-type: none"> <li>- <a href="#">BF Instrument Reference (1201)</a>: Minimum Amount and Interest Payment Date changed from Mandatory to Optional;</li> <li>- <a href="#">BF Trade (1202)</a>: Bid/Offer Date Time changed from Mandatory to Optional;</li> <li>- <a href="#">BF NAV (1203)</a>: NAV Price changed from Mandatory to Optional.</li> </ul> </li> </ul>  |
| 4.2.0       | <p>Integration of Oslo Fixed Incomes:</p> <ul style="list-style-type: none"> <li>■ New values for Trade Type: <ul style="list-style-type: none"> <li>46 Non-Standard Settlement</li> <li>47 Repurchase Agreement – Repo (OBOE only)</li> <li>48 Exchange Granted Trade (OBOE only)</li> <li>49 Other (OBOE only)</li> <li>50 Odd Lot</li> </ul> </li> <li>■ New value for Instrument Expression Unit: <ul style="list-style-type: none"> <li>7 Yield</li> </ul> </li> <li>■ New fields Settlement Date and Repo Settlement Date in <a href="#">FullTradeInfo (1004)</a> message.</li> </ul>  |

| Version No.           | Change Description  |
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|                       | <ul style="list-style-type: none"> <li>■ New field Non Anonymous in <a href="#">Standing Data (1007)</a></li> <li>■ New <a href="#">Long Order Update (1015)</a> message for FXI non-anonymous information.</li> <li>■ Revisited note on TVTIC determination in section 6.19 How to ...Determine The TVTIC.<br/>Added links to this section from the Full Trade Information (1004) and APA Full Trade information (1028) message descriptions.</li> <li>■ Replaced section numbers in history with references fields.</li> </ul>  |
| 4.2.1                 | <p>The following section has been updated:</p> <ul style="list-style-type: none"> <li>■ In <a href="#">Standing Data (1007)</a>: Renamed “Non Anonymous” field into “Anonymous” to stick with SBE 302 templates</li> <li>■ In <a href="#">Field Description</a>: Updated description for Field “Anonymous”</li> </ul>   |
| 4.2.2                 | <p>Following sections have been updated:</p> <ul style="list-style-type: none"> <li>■ In <a href="#">...Use an Execution Summary Message</a>: Execution Summary message is enlarged to cash segments (Warrants &amp; Block excluded)</li> <li>■ In <a href="#">Market Update (1001)</a>: Execution Summary is now sent for FXI, ETF and EQU ; Add a section for details on execution summary message</li> <li>■ In <a href="#">Depository List</a>: Enriched values for field <i>Depository List</i></li> <li>■ Hotfix: In <a href="#">Market Update (1001)</a>, Market Data Update Type 37 and 53 are used by Derivatives segments (Delta-Neutral)</li> </ul>  |
| <a href="#">4.2.3</a> | <p><u>The following changes have been made to this version of the document:</u></p> <ul style="list-style-type: none"> <li>■ <u>In Book Retransmission, adding of Long Order Update message (for Fixed Income segment)</u></li> <li>■ <u>In Standing Data (1007), field Anonymous is moved into EMM Pattern section as described in SBE Template</u></li> <li>■ <u>In Market Status Change (1005): Clarification of the message sending rules and of the use of session for Structured Products.</u></li> <li>■ <u>In Full Trade Information (1004), SettlementDate and RepoSettlementDate are optional</u></li> <li>■ <u>In Field Description:</u><br/> <u>MarketDataUpdateType: adding back values to reflect SBE Template even if it is not used (added in grey)</u><br/> <u>Session: explain the meaning of the different value</u><br/> <u>MIC: adding of 'XOBD'</u></li> <li>■ <u>Adding of Appendix Trade type Associated with EMM and Appendix MMT Flags Rules</u></li> </ul> |

## Document History

| Revision No. | Date           | SBE Template Version                          | Author             | Change Description   |
|--------------|----------------|---|--------------------|--|
| 2.0.0        | 16 Oct 2017    | 100   | IT Solutions       | First version for Phase 2 - migration of Cash markets to Optiq Specification changes |
| 2.1.0        | 16 Feb 2018    | 102   | IT Solutions       | Update for Phase 2 – migration of Cash markets to Optiq                              |
| 2.1.2        | 13 July 2018   | 105   | IT Solutions       | Minor update for ICB   |
| 2.1.3        | 30 August 2018 | 105   | IT Solutions       | Minor update for MMT   |
| 2.1.4        | 13 Sep 2018    | 105   | IT Solutions       | Update for multiple fields and values  |
| 2.1.5        | 8 Oct 2018     | 105   | IT Solutions       | Minor update for multiple fields and values  |
| 2.3.0        | 20 Nov. 2018   | 107   | IT Solutions       | Update for new of version 107  |
| 2.4.0        | 20 Nov 2018    | 110   | IT Solutions       | Update for Euronext Block  |
| 3.0.0        | 30 Apr 2019    | 200   | IT Solutions       | Major update for the migration of the Derivatives Markets to Optiq                   |
| 3.1.0        | 6 Sep 2019     | 204 (including updates from 201, 202 and 203) | IT Solutions - WMA | Second update for the Derivatives markets migrating to full Optiq                    |

| Revision No.          | Date                        | SBE Template Version | Author                                   | Change Description   |
|-----------------------|-----------------------------|----------------------|--|--|
| 3.2.1                 | 14 Feb 2020                 | 217                  | IT Solutions – IZE                       | Add new exchange codes to be used for Oslo Market Place.   |
| 4.0.0                 | 26 Feb 2020                 | 300                  | IT Solutions – FBO                       | ISE Bunds & Funds support with 4 new messages.   |
|                       |                             |                      | IT Solutions – IZE                       | Add Oslo Channels, IBF Optiq segment and specification improvements..  |
| 4.0.1                 | 11 Mar 2020                 | 300                  | IT Solutions – IZE                       | Add general improvement , Merge of APA MDG specification and Merge of Luxembourg Stock Exchange MDG specification documents.   |
| 4.0.2                 | 30 Mar 2020                 | 300                  | IT Solutions – IZE                       | Add general improvement to the document and add new MICs for Oslo Market and APA facility.   |
| 4.1.0                 | 7 May 2020                  | 301                  | IT Solutions - WMA                       | Update presence rule for fields in IBF messages  |
| 4.2.0                 | 4 Jun2020                   | 302                  | IT Solutions - FBO                       | Integration of Oslo Fixed Incomes.<br>Revisited note on TVTIC determination in section 6.19 How to ...Determine The TVTIC.<br>Added links to this section from the Full Trade Information (1004) and APA Full Trade information (1028) message descriptions. |
| 4.2.1                 | 30 Jun 2020                 | 302                  | IT Solutions - WMA                       | Hotfix on Anonymous field.   |
| 4.2.2                 | 28 Jul 2020                 | 302                  | IT Market Services - WMA                 | Execution summary feature for Cash segments (Warrants & Block excluded) and values in Depositary List field updated.   |
| <a href="#">4.2.3</a> | <a href="#">20 Sep 2020</a> | <a href="#">302</a>  | <a href="#">IT Market Services – WMA</a> | <a href="#">Adding of Appendices for Trade Type and MMT flags.</a>   |