



Document title

## Optiq MDG Production Connectivity

Document type or subject

Technical Specifications - Euronext Cash and Derivatives Markets

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## PREFACE

### DOCUMENT HISTORY

The following table provides a description of all changes to this document.

| VERSION NO. | DATE           | CHANGE DESCRIPTION  |
|-------------|----------------|---|
| 1.0         | September 2016 | Optiq® Market Data Gateway Production and Disaster Recovery (DR) Environment feed configuration details.  |
| 1.1         | March 2017     | Retail Matching Facility renamed into Best of Book.<br>BBBO changed into FBMU for Equities/Funds/Fixed Income and Bourse de Luxembourg.<br>Change of the layout of the feed configuration.<br>Addition of the DR Source IP Addresses for Feed A and B.    |
| 1.2         | March 2017     | Corrected made to Environment field, now correctly showing PROD.  |
| 1.3         | May 2017       | Corrected Euronext Indices channel, Index Options Netherlands Partition 2 and Index Options France Partition 2.   |
| 1.4         | June 2017      | Correction Equity and Index Futures Netherlands 10G partition 2 and Commodity Derivatives Snapshot Partition 1.   |
| 1.5         | November 2017  | New Channels added for APA SI Quotes and APA Trade Publication to Optiq Segment – 10, Trade Reporting and Publication.  |
| 1.6         | June 2018      | Removal of MDG Set Of Channels ID 12 – Trade Reporting And Publication  |
| 1.7         | July 2018      | New Channels added for ETF Access to Optiq Segment – 2, Funds. Removal of MDG Set Of Channels ID 10 – Societe Generale Systematic Internaliser (SI)   |
| 1.8         | July 2018      | New Channels added for Best of Book (RMF) Funds.  |
| 1.9         | July 2018      | MDG Set of Channels 9 and 15 renamed for Euronext Dublin Integration.   |
| 2.0         | November 2018  | New Channels added for Euronext Block   |
| 2.1         | November 2018  | Changes made to Derivatives Feed Configuration for Optiq Step 3. MDG Set of Channels 18, 19 and 28 removed. Introduction of new Optiq Segments for Equity Derivatives, Index Derivatives and Financial Derivatives. MDG Set of Channels 20 to 26 renamed. |
| 2.2         | January 2019   | Changed the amount of Partitions for Equity Derivatives from 2 to 3 and For Index Derivatives from 2 to 1.  |
| 2.3         | October 2019   | Removal of the Derivatives 100M FBMU channel IDs.   |
| 2.4         | January 2020   | Addition of Optiq Segment 16 for the Irish Bonds and Funds  |
| 2.5         | February 2020  | Addition of MDG Set of Channels 10 for Equities Norway and 12 for Fixed Income Nordic ABM   |
| 2.6         | July 2021      | Addition of MDG Set of Channels 34 for Forex  |

| VERSION NO. | DATE           | CHANGE DESCRIPTION  |
|-------------|----------------|---|
| 2.7         | October 2021   | Adding 1 Warrants partition configuration   |
| 3.0         | December 2021  | New target specifications of the new Euronext Data Centre in Aruba Bergamo Italy  |
| 3.1         | April 2022     | Disaster Recovery IP addresses changed  |
| 5.16.0      | June 2022      | <b>** change of version numbering logic**</b><br>Addition of new cash markets EQUities and ETFs/Funds sets-of-channels for Borsa Italiana integration: "18" (Equities Italy), "45" (Italy GEM), "39" (Italy ETF plus), "19" (Italy TAH)                             |
| 5.18.0      | September 2022 | Adjustment of naming for MDG Set of Channels "19", "39" and "45"<br>Decommissioning of FBOU.100M Real Time for MDG Set of Channels "1" and "32"<br>Decommissioning of FBMU.100M Real Time for MDG Set of Channels "4"   |
| 5.23.0      | March 2023     | Addition of new set of channels for Borsa Italiana integration: "40" (Fixed Income Italy – MOT/ExtraMOT), "41" (Warrants and Certificates Italy (Sedex)) "42" (Fixed Income ETLX (Bond-X)), "43" (Warrants and Certificates ETLX (Cert-X)) and "44" (Equities ETLX) |
| 5.23.1      | March 2023     | Correction of Partition IDs for:<br>- MDG Set of Channels ID 40 – FBOU – 1G<br>- MDG Set of Channels ID 41 – FBMU – 1G<br>- MDG Set of Channels ID 43 – FBMU  |
| 5.23.2      | April 2023     | Correction of the following Partition IDs:<br>- MDG Set of Channels ID 41 – FBMU Snapshot channel -> Missing 100M FBMU Snapshot channel<br>- MDG Set of Channels ID 43 – FBMU Snapshot channel -> Deletion of incorrect real-time 1G FBMU channel                   |
| 5.23.3      | May 2023       | - Correction on a typo for several IP addresses: in the last 3 digits of IP addresses it should not start with '0'. Example: '224.0.212.042' is replaced by '224.0.212.42'<br>- Mention to 'SFTI' removed as it is replaced by 'CMC' since the migration            |

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## REFERENCE MATERIAL

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

- [Optiq MDG Messages - Interface Specification - Euronext Cash and Derivatives Markets](#)

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| Portugal    | +351 2 1060 8585 |
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#### FURTHER INFORMATION

- For additional information please visit: [www.euronext.com/optiq](http://www.euronext.com/optiq)

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## 1. INTRODUCTION

This document provides all multicast addresses required to access the Euronext Optiq® Market Data Gateway Production and Disaster Recovery (DR).

The Euronext Optiq® Market Data Gateway Production environment (PROD) is located in Bergamo and the Disaster Recovery (DR) environment is located at St. Denis. The Production Primary (P) and Secondary (S) Source IP Address ranges are provided in this document for the live and standby systems as part of the High Availability mechanism.

Customers are requested to allow the Production Primary, Production Secondary and Disaster Recovery (DR) Source IP Address ranges through their Firewalls.

With the XML Standing Data files for the different Optiq Segments, customers will be able to map which instruments are available in which channel. The Optiq MDG feed configuration can be found at the end of each Standing Data file available and these will be provided on a daily basis in XML format. It is required to use the feed configuration details as part of the standing data files to connect to the feed on a daily basis.

In case a new partition is added to an Optiq Segment, customers are required to adapt to this type of change using the Optiq MDG Standing Data files that include the feed configuration details.

### 1.1 OPTIQ SEGMENTS, PARTITIONS AND MDG SET OF CHANNELS

Below you will find an overview of the available Optiq Segments, the number of partitions per Optiq Segment and the MDG Set Of Channels ID and Name that are part of each Optiq Segment. The Optiq Segments listed in the below table are also available in the real-time Standing Data (1007) messages and Contract Standing Data (1013) messages and also available in Standing Data files.

| Optiq Segment   | Number of Partitions | MDG Set Of Channels ID | MDG Set Of Channels Name          |
|-----------------|----------------------|------------------------|-----------------------------------|
| 1. Equities     | 4                    | 6                      | Equities Netherlands              |
|                 |                      | 5                      | Equities France                   |
|                 |                      | 7                      | Equities Belgium                  |
|                 |                      | 8                      | Equities Portugal                 |
|                 |                      | 9                      | Equities Dublin                   |
|                 |                      | 10                     | Equities Norway                   |
|                 |                      | 11                     | Best of Book (RMF)                |
|                 |                      | 18                     | Equities Italy [MTAA, MIVX, EXGM] |
|                 |                      | 45                     | Italy GEM [BGEM]                  |
| 2. Funds        | 1                    | 1                      | Funds                             |
|                 |                      | 32                     | ETF Access                        |
|                 |                      | 39                     | Italy Funds [ETFP, ATFX]          |
|                 |                      | 31                     | Best of Book (RMF) Funds          |
| 3. Fixed Income | 1                    | 2                      | Fixed Income                      |
|                 |                      | 12                     | Fixed Income Nordic ABM           |
|                 |                      | 40                     | Fixed Income Italy (MOT/ExtraMOT) |
|                 |                      | 42                     | Fixed Income ETLX (Bond-X)        |

| Optiq Segment                       | Number of Partitions | MDG Set Of Channels ID | MDG Set Of Channels Name                |
|-------------------------------------|----------------------|------------------------|---|
| 4. Warrants and Certificates        | 2                    | 4                      | Warrants and Certificates               |
|                                     |                      | 41                     | Warrants and Certificates Italy (SEDEX) |
|                                     |                      | 43                     | Warrants and Certificates ETLX (Cert-X) |
| 5. Bourse de Luxembourg             | 1                    | 3                      | Bourse De Luxembourg                    |
| 9. Indices                          | 1                    | 13                     | Euronext Indices                        |
|                                     |                      | 14                     | Euronext iNAVs                          |
|                                     |                      | 15                     | Euronext Dublin Indices                 |
| 10. Trade Reporting and Publication | 1                    | 29                     | APA SI Quotes                           |
|                                     |                      | 30                     | APA Trade Publication                   |
| 14. Euronext Block                  | 1                    | 33                     | Euronext Block                          |
|                                     |                      | 19                     | Italy TAH [XTAH] <sup>1</sup>           |
| 16. Irish Bonds & Funds             | 1                    | 35                     | Euronext Dublin Bonds and Funds         |
| 8. Commodity Derivatives            | 1                    | 16                     | Commodity Derivatives                   |
| 11. Index Derivatives               | 1                    | 23                     | Index Options France                    |
|                                     |                      | 24                     | Index Options Netherlands               |
|                                     |                      | 25                     | Index Derivatives Other                 |
|                                     |                      | 26                     | Index Futures France                    |
|                                     |                      | 27                     | Index Futures Netherlands               |
| 12. Equity Derivatives              | 3                    | 20                     | Equity Derivatives France               |
|                                     |                      | 21                     | Equity Derivatives Netherlands          |
|                                     |                      | 22                     | Equity Derivatives Other                |
| 13. Financial Derivatives           | 1                    | 17                     | Currency Derivatives                    |
| 15. Forex                           | 1                    | 34                     | Forex                                   |

## 1.2 CHANNEL TYPES AND CHANNEL IDS

The Channel Types and Channel ID's that are available to each customer depend on the available bandwidth on customer connections to the CMC Network and the services that were selected in the connectivity order form. Depending on the Asset Class, the following Optiq MDG channel types are made available to customers:

1. Pre-trade
  - a. BBBO – Best Bid and Offer

<sup>1</sup> While TAH -trading after hours- concerns equities instruments, it is hosted for technical reasons in the BLK (Blocks) Optiq segment



- b. FBMU – Full Book by Price (using Market Update message) (includes Best Bid and Best Offer)
  - c. FBOU – Full Book by Order (using Order Update message) (includes Best Bid and Best Offer)
- 2. Post Trade – REFT – Reference Data and Full Trade Information
- 3. Indices – REFI – Index Reference Data and Index messages
- 4. Irish Bonds & Funds – IBFR - Irish Bonds & Funds Reference Data
- 5. APA Publication
  - a. APSI – (Pre-trade) APA Quotes and standing data
  - b. APTR – (Post-trade) APA trades
- 6. Euronext Blocks – EBLK – Blocks market segment data

Please read chapter **2.1 TYPE OF MARKET DATA CHANNELS** of the Euronext Cash and Derivatives Markets. – Optiq MDG Messages - Interface Specification for more details.

### 1.3 ADDITION OF A NEW PARTITION

The Channel ID contains 5 numbers and is provided as a field in the Optiq MDG packet header.

1. The first number on the left is used to identify if the channel is a real-time channel (1) or snapshot (2)
2. The second number is n= partition number -1, with n=0 for the first partition, n=1 for the second partition, etc.
3. The last three number xxx represent the last numbers on the right used for the Multicast Group IP.

Each partition as part of an Optiq Segment has a Feed A and a Feed B and uses a unique Source IP address from the ranges as specified below:

| Feed A/B                        | Feed A           | Feed B           |
|---------------------------------|------------------|------------------|
| Rendez-vous Point on Colocation | 212.107.67.240   | 212.107.67.241   |
| Rendez-vous Point on CMC        | 212.107.67.248   | 212.107.67.249   |
| Primary IP Address              | 212.107.93.0/24  | 212.107.94.0/24  |
| Secondary IP Address            | Same as above    | Same as above    |
| Disaster Recovery IP Address    | 212.197.240.0/24 | 212.197.241.0/24 |

Customers are required to allow the whole range as specified above through their Firewalls to allow for the addition of a new partition within an Optiq Segment. In case of a new partition

1. A new Source IP will be used for the new partition
2. The Multicast Group IP Addresses for Feed A and B remain unchanged for the new partition
3. A new Channel ID is defined as 1(n)xxx, which is equal to the ports used for the new partition.

The Multicast Group IP addresses for Real-time and Snapshot, for Feed and B are:

| Environment | Channel ID | Real-Time/Snapshot | Multicast Group Feed A | Multicast Group Feed B |
|-------------|------------|--------------------|------------------------|------------------------|
| Production  | 1(n)xxx    | Real-Time          | 224.0.208.0/24         | 224.0.209.0/24         |
|             | 2(n)xxx    | Snapshot           | 224.0.210.0/24         | 224.0.211.0/24         |

## 2. OPTIQ SEGMENT – 1. EQUITIES REAL-TIME AND SNAPSHOT CONFIGURATION

### 2.1 MDG SET OF CHANNELS ID 6 – EQUITIES NETHERLANDS

|                    |          |                      |                      |
|--------------------|----------|----------------------|----------------------|
| Environment        | PROD     | MDGSetOfChannels ID  | 6                    |
| Optiq Segment name | Equities | MDGSetOfChannelsName | Equities Netherlands |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.120 | 10120            | 11120       | 12120       | 13120       |
| Multicast Group IP Feed B | 224.0.209.120 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.120 | 20120            | 21120       | 22120       | 23120       |
| Multicast Group IP Feed B | 224.0.211.120 |                  |             |             |             |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.121 | 10121            | 11121       | 12121       | 13121       |
| Multicast Group IP Feed B | 224.0.209.121 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.122 | 10122            | 11122       | 12122       | 13122       |
| Multicast Group IP Feed B | 224.0.209.122 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.121 | 20121            | 21121       | 22121       | 23121       |
| Multicast Group IP Feed B | 224.0.211.121 |                  |             |             |             |

| Channel Type              | FBOU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.123 | 10123            | 11123       | 12123       | 13123       |
| Multicast Group IP Feed B | 224.0.209.123 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.124 | 10124            | 11124       | 12124       | 13124       |
| Multicast Group IP Feed B | 224.0.209.124 |                  |             |             |             |
| Channel Speed             | 10G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.125 | 10125            | 11125       | 12125       | 13125       |
| Multicast Group IP Feed B | 224.0.209.125 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.123 | 20123            | 21123       | 22123       | 23123       |
| Multicast Group IP Feed B | 224.0.211.123 |                  |             |             |             |

2.2 MDG SET OF CHANNELS ID 5 – EQUITIES FRANCE

|                    |          |                      |                 |
|--------------------|----------|----------------------|-----------------|
| Environment        | PROD     | MDGSetOfChannels ID  | 5               |
| Optiq Segment name | Equities | MDGSetOfChannelsName | Equities France |

|                           |               |                  |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| Channel Type              | REFT          | Channel ID /Port |             |             |             |
| Real-time                 |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.110 | 10110            | 11110       | 12110       | 13110       |
| Multicast Group IP Feed B | 224.0.209.110 |                  |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| Snapshot                  |               |             |             |             |             |
| Channel Speed             | 100M          | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.110 | 20110       | 21110       | 22110       | 23110       |
| Multicast Group IP Feed B | 224.0.211.110 |             |             |             |             |

|                           |               |                  |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
| Real-time                 |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.111 | 10111            | 11111       | 12111       | 13111       |
| Multicast Group IP Feed B | 224.0.209.111 |                  |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| Channel Speed             | 1G            | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.112 | 10112       | 11112       | 12112       | 13112       |
| Multicast Group IP Feed B | 224.0.209.112 |             |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| Snapshot                  |               |             |             |             |             |
| Channel Speed             | 100M          | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.111 | 20111       | 21111       | 22111       | 23111       |
| Multicast Group IP Feed B | 224.0.211.111 |             |             |             |             |

|                           |               |                  |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| Channel Type              | FBOU          | Channel ID /Port |             |             |             |
| Real-time                 |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.113 | 10113            | 11113       | 12113       | 13113       |
| Multicast Group IP Feed B | 224.0.209.113 |                  |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| Channel Speed             | 1G            | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.114 | 10114       | 11114       | 12114       | 13114       |
| Multicast Group IP Feed B | 224.0.209.114 |             |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| Channel Speed             | 10G           | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.115 | 10115       | 11115       | 12115       | 13115       |
| Multicast Group IP Feed B | 224.0.209.115 |             |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| Snapshot                  |               |             |             |             |             |
| Channel Speed             | 100M          | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.113 | 20113       | 21113       | 22113       | 23113       |
| Multicast Group IP Feed B | 224.0.211.113 |             |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| Channel Speed             | 100M          | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.113 | 20113       | 21113       | 22113       | 23113       |
| Multicast Group IP Feed B | 224.0.211.113 |             |             |             |             |

**2.3 MDG SET OF CHANNELS ID 7 – EQUITIES BELGIUM (INCLUDING PUBLIC AUCTION MARKET)**

|                    |          |                      |  |
|--------------------|----------|----------------------|--|
| Environment        | PROD     | MDGSetOfChannels ID  | 7  |
| Optiq Segment name | Equities | MDGSetOfChannelsName | Equities Belgium (Including Public Auction Market) |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.100 | 10100            | 11100       | 12100       | 13100       |
| Multicast Group IP Feed B | 224.0.209.100 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.100 | 20100            | 21100       | 22100       | 23100       |
| Multicast Group IP Feed B | 224.0.211.100 |                  |             |             |             |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.101 | 10101            | 11101       | 12101       | 13101       |
| Multicast Group IP Feed B | 224.0.209.101 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.102 | 10102            | 11102       | 12102       | 13102       |
| Multicast Group IP Feed B | 224.0.209.102 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.101 | 20101            | 21101       | 22101       | 23101       |
| Multicast Group IP Feed B | 224.0.211.101 |                  |             |             |             |

| Channel Type              | FBOU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.103 | 10103            | 11103       | 12103       | 13103       |
| Multicast Group IP Feed B | 224.0.209.103 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.104 | 10104            | 11104       | 12104       | 13104       |
| Multicast Group IP Feed B | 224.0.209.104 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.103 | 20103            | 21103       | 22103       | 23103       |
| Multicast Group IP Feed B | 224.0.211.103 |                  |             |             |             |

2.4 MDG SET OF CHANNELS ID 8 – EQUITIES PORTUGAL

|                    |          |                      |                   |
|--------------------|----------|----------------------|-------------------|
| Environment        | PROD     | MDGSetOfChannels ID  | 8                 |
| Optiq Segment name | Equities | MDGSetOfChannelsName | Equities Portugal |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| Real-time                 |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.105 | 10105            | 11105       | 12105       | 13105       |
| Multicast Group IP Feed B | 224.0.209.105 |                  |             |             |             |
| Snapshot                  |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.105 | 20105            | 21105       | 22105       | 23105       |
| Multicast Group IP Feed B | 224.0.211.105 |                  |             |             |             |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| Real-time                 |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.106 | 10106            | 11106       | 12106       | 13106       |
| Multicast Group IP Feed B | 224.0.209.106 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.107 | 10107            | 11107       | 12107       | 13107       |
| Multicast Group IP Feed B | 224.0.209.107 |                  |             |             |             |
| Snapshot                  |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.106 | 20106            | 21106       | 22106       | 23106       |
| Multicast Group IP Feed B | 224.0.211.106 |                  |             |             |             |

| Channel Type              | FBOU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| Real-time                 |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.108 | 10108            | 11108       | 12108       | 13108       |
| Multicast Group IP Feed B | 224.0.209.108 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.109 | 10109            | 11109       | 12109       | 13109       |
| Multicast Group IP Feed B | 224.0.209.109 |                  |             |             |             |
| Channel Speed             | 10G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Snapshot                  |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.108 | 20108            | 21108       | 22108       | 23108       |
| Multicast Group IP Feed B | 224.0.211.108 |                  |             |             |             |

2.5 MDG SET OF CHANNELS ID 9 – EQUITIES IRELAND

|                    |          |                      |                  |
|--------------------|----------|----------------------|------------------|
| Environment        | PROD     | MDGSetOfChannels ID  | 9                |
| Optiq Segment name | Equities | MDGSetOfChannelsName | Equities Ireland |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| Real-time                 |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.165 | 10165            | 11165       | 12165       | 13165       |
| Multicast Group IP Feed B | 224.0.209.165 |                  |             |             |             |

| Snapshot                  |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| Channel Speed             | 100M          | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.165 | 20165       | 21165       | 22165       | 23165       |
| Multicast Group IP Feed B | 224.0.211.165 |             |             |             |             |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| Real-time                 |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.166 | 10166            | 11166       | 12166       | 13166       |
| Multicast Group IP Feed B | 224.0.209.166 |                  |             |             |             |

| Channel Speed             | 1G            | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| Multicast Group IP Feed A | 224.0.208.167 | 10167       | 11167       | 12167       | 13167       |
| Multicast Group IP Feed B | 224.0.209.167 |             |             |             |             |

| Snapshot                  |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| Channel Speed             | 100M          | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.166 | 20166       | 21166       | 22166       | 23166       |
| Multicast Group IP Feed B | 224.0.211.166 |             |             |             |             |

| Channel Type              | FBOU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| Real-time                 |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.168 | 10168            | 11168       | 12168       | 13168       |
| Multicast Group IP Feed B | 224.0.209.168 |                  |             |             |             |

| Channel Speed             | 1G            | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| Multicast Group IP Feed A | 224.0.208.169 | 10169       | 11169       | 12169       | 13169       |
| Multicast Group IP Feed B | 224.0.209.169 |             |             |             |             |

| Channel Speed | 10G | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
|---------------|-----|-------------|-------------|-------------|-------------|
|               |     |             |             |             |             |

| Snapshot                  |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| Channel Speed             | 100M          | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.168 | 20168       | 21168       | 22168       | 23168       |
| Multicast Group IP Feed B | 224.0.211.168 |             |             |             |             |

2.6 MDG SET OF CHANNELS ID 10 – EQUITIES NORWAY

|                    |          |                      |                 |
|--------------------|----------|----------------------|-----------------|
| Environment        | PROD     | MDGSetOfChannels ID  | 10              |
| Optiq Segment name | Equities | MDGSetOfChannelsName | Equities Norway |

| Channel Type              | REFT         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| Real-time                 |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.85 | 10085            | 11085       | 12085       | 13085       |
| Multicast Group IP Feed B | 224.0.209.85 |                  |             |             |             |

|                           |              |             |             |             |             |
|---------------------------|--------------|-------------|-------------|-------------|-------------|
| Snapshot                  |              |             |             |             |             |
| Channel Speed             | 100M         | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.85 | 20085       | 21085       | 22085       | 23085       |
| Multicast Group IP Feed B | 224.0.211.85 |             |             |             |             |

| Channel Type              | FBMU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| Real-time                 |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.86 | 10086            | 11086       | 12086       | 13086       |
| Multicast Group IP Feed B | 224.0.209.86 |                  |             |             |             |

|                           |              |             |             |             |             |
|---------------------------|--------------|-------------|-------------|-------------|-------------|
| Channel Speed             | 1G           | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.87 | 10087       | 11087       | 12087       | 13087       |
| Multicast Group IP Feed B | 224.0.209.87 |             |             |             |             |

|                           |              |             |             |             |             |
|---------------------------|--------------|-------------|-------------|-------------|-------------|
| Snapshot                  |              |             |             |             |             |
| Channel Speed             | 100M         | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.86 | 20086       | 21086       | 22086       | 23086       |
| Multicast Group IP Feed B | 224.0.211.86 |             |             |             |             |

| Channel Type              | FBOU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| Real-time                 |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.88 | 10088            | 11088       | 12088       | 13088       |
| Multicast Group IP Feed B | 224.0.209.88 |                  |             |             |             |

|                           |              |             |             |             |             |
|---------------------------|--------------|-------------|-------------|-------------|-------------|
| Channel Speed             | 1G           | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.89 | 10089       | 11089       | 12089       | 13089       |
| Multicast Group IP Feed B | 224.0.209.89 |             |             |             |             |

|               |     |             |             |             |             |
|---------------|-----|-------------|-------------|-------------|-------------|
| Channel Speed | 10G | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
|---------------|-----|-------------|-------------|-------------|-------------|

|                           |              |             |             |             |             |
|---------------------------|--------------|-------------|-------------|-------------|-------------|
| Snapshot                  |              |             |             |             |             |
| Channel Speed             | 100M         | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.88 | 20088       | 21088       | 22088       | 23088       |
| Multicast Group IP Feed B | 224.0.211.88 |             |             |             |             |



2.7 MDG SET OF CHANNELS ID 11 – BEST OF BOOK (RMF)

|                           |               |                         |                    |                    |                    |  |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|--|
| Environment               | PROD          | MDGSetOfChannels ID     | 11                 |                    |                    |  |
| Optiq Segment name        | Equities      | MDGSetOfChannelsName    | Best of Book (RMF) |                    |                    |  |
| <b>Channel Type</b>       | <b>FBMU</b>   | <b>Channel ID /Port</b> |                    |                    |                    |  |
| <b>Real-time</b>          |               |                         |                    |                    |                    |  |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |  |
| Multicast Group IP Feed A | 224.0.208.138 | 10138                   | 11138              | 12138              | 13138              |  |
| Multicast Group IP Feed B | 224.0.209.138 |                         |                    |                    |                    |  |
| <b>Channel Speed</b>      | <b>1G</b>     | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |  |
| Multicast Group IP Feed A | 224.0.208.139 | 10139                   | 11139              | 12139              | 13139              |  |
| Multicast Group IP Feed B | 224.0.209.139 |                         |                    |                    |                    |  |
| <b>Snapshot</b>           |               |                         |                    |                    |                    |  |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |  |
| Multicast Group IP Feed A | 224.0.210.138 | 20138                   | 21138              | 22138              | 23138              |  |
| Multicast Group IP Feed B | 224.0.211.138 |                         |                    |                    |                    |  |

2.8 MDG SET OF CHANNELS ID 18 – EQUITIES ITALY

|                           |              |                         |                    |                    |                    |  |
|---------------------------|--------------|-------------------------|--------------------|--------------------|--------------------|--|
| Environment               | PROD         | MDGSetOfChannels ID     | 18                 |                    |                    |  |
| Optiq Segment name        | Equities     | MDGSetOfChannelsName    | Equities Italy     |                    |                    |  |
| <b>Channel Type</b>       | <b>REFT</b>  | <b>Channel ID /Port</b> |                    |                    |                    |  |
| <b>Real-time</b>          |              |                         |                    |                    |                    |  |
| <b>Channel Speed</b>      | <b>100M</b>  | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |  |
| Multicast Group IP Feed A | 224.0.208.75 | 10075                   | 11075              | 12075              | 13075              |  |
| Multicast Group IP Feed B | 224.0.209.75 |                         |                    |                    |                    |  |
| <b>Snapshot</b>           |              |                         |                    |                    |                    |  |
| <b>Channel Speed</b>      | <b>100M</b>  | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |  |
| Multicast Group IP Feed A | 224.0.210.75 | 20075                   | 21075              | 22075              | 23075              |  |
| Multicast Group IP Feed B | 224.0.211.75 |                         |                    |                    |                    |  |
| <b>Channel Type</b>       | <b>FBMU</b>  | <b>Channel ID /Port</b> |                    |                    |                    |  |
| <b>Real-time</b>          |              |                         |                    |                    |                    |  |
| <b>Channel Speed</b>      | <b>100M</b>  | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |  |
| Multicast Group IP Feed A | 224.0.208.76 | 10076                   | 11076              | 12076              | 13076              |  |
| Multicast Group IP Feed B | 224.0.209.76 |                         |                    |                    |                    |  |
| <b>Channel Speed</b>      | <b>1G</b>    | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |  |
| Multicast Group IP Feed A | 224.0.208.77 | 10077                   | 11077              | 12077              | 13077              |  |
| Multicast Group IP Feed B | 224.0.209.77 |                         |                    |                    |                    |  |
| <b>Snapshot</b>           |              |                         |                    |                    |                    |  |
| <b>Channel Speed</b>      | <b>100M</b>  | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |  |

|                           |              |       |       |       |       |
|---------------------------|--------------|-------|-------|-------|-------|
| Multicast Group IP Feed A | 224.0.210.76 | 20076 | 21076 | 22076 | 23076 |
| Multicast Group IP Feed B | 224.0.211.76 |       |       |       |       |

| Channel Type              | BBBO          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.126 | 10126            | 11126       | 12126       | 13126       |
| Multicast Group IP Feed B | 224.0.209.126 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.127 | 10127            | 11127       | 12127       | 13127       |
| Multicast Group IP Feed B | 224.0.209.127 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.126 | 20126            | 21126       | 22126       | 23126       |
| Multicast Group IP Feed B | 224.0.211.126 |                  |             |             |             |

| Channel Type              | FBOU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.78 | 10078            | 11078       | 12078       | 13078       |
| Multicast Group IP Feed B | 224.0.209.78 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.79 | 10079            | 11079       | 12079       | 13079       |
| Multicast Group IP Feed B | 224.0.209.79 |                  |             |             |             |
| Channel Speed             | 10G          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.80 | 10080            | 11080       | 12080       | 13080       |
| Multicast Group IP Feed B | 224.0.209.80 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.78 | 20078            | 21078       | 22078       | 23078       |
| Multicast Group IP Feed B | 224.0.211.78 |                  |             |             |             |

2.1 MDG SET OF CHANNELS ID 44 – EQUITIES ETLX

|                    |          |                      |               |
|--------------------|----------|----------------------|---------------|
| Environment        | PROD     | MDGSetOfChannels ID  | 44            |
| Optiq Segment name | Equities | MDGSetOfChannelsName | Equities ETLX |

| Channel Type              | REFT         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.30 | 10030            | 11030       | 12030       | 13030       |
| Multicast Group IP Feed B | 224.0.209.30 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.30 | 20030            | 21030       | 22030       | 23030       |
| Multicast Group IP Feed B | 224.0.211.30 |                  |             |             |             |

| Channel Type              | FBMU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.33 | 10033            | 11033       | 12033       | 13033       |
| Multicast Group IP Feed B | 224.0.209.33 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.34 | 10034            | 11034       | 12034       | 13034       |
| Multicast Group IP Feed B | 224.0.209.34 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.33 | 20033            | 21033       | 22033       | 23033       |
| Multicast Group IP Feed B | 224.0.211.33 |                  |             |             |             |

| Channel Type              | BBBO         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.31 | 10031            | 11031       | 12031       | 13031       |
| Multicast Group IP Feed B | 224.0.209.31 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.32 | 10032            | 11032       | 12032       | 13032       |
| Multicast Group IP Feed B | 224.0.209.32 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.31 | 20031            | 21031       | 22031       | 23031       |
| Multicast Group IP Feed B | 224.0.211.31 |                  |             |             |             |

| Channel Type              | FBOU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.35 |                  |             |             |             |

|                           |              |                    |                    |                    |                    |
|---------------------------|--------------|--------------------|--------------------|--------------------|--------------------|
| Multicast Group IP Feed B | 224.0.209.35 | 10035              | 11035              | 12035              | 13035              |
| <b>Channel Speed</b>      | <b>1G</b>    | <b>Partition 1</b> | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.36 | 10036              | 11036              | 12036              | 13036              |
| Multicast Group IP Feed B | 224.0.209.36 |                    |                    |                    |                    |
| <b>Snapshot</b>           |              |                    |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>  | <b>Partition 1</b> | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.35 | 20035              | 21035              | 22035              | 23035              |
| Multicast Group IP Feed B | 224.0.211.35 |                    |                    |                    |                    |

2.2 MDG SET OF CHANNELS ID 45 – GLOBAL EQUITY MARKET

|                    |          |                      |                      |
|--------------------|----------|----------------------|----------------------|
| Environment        | PROD     | MDGSetOfChannels ID  | 45                   |
| Optiq Segment name | Equities | MDGSetOfChannelsName | Global Equity Market |

| Channel Type              | REFT         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.81 | 10081            | 11081       | 12081       | 13081       |
| Multicast Group IP Feed B | 224.0.209.81 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.81 | 20081            | 21081       | 22081       | 23081       |
| Multicast Group IP Feed B | 224.0.211.81 |                  |             |             |             |

| Channel Type              | FBMU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.83 | 10083            | 11083       | 12083       | 13083       |
| Multicast Group IP Feed B | 224.0.209.83 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.97 | 10097            | 11097       | 12097       | 13097       |
| Multicast Group IP Feed B | 224.0.209.97 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.83 | 20083            | 21083       | 22083       | 23083       |
| Multicast Group IP Feed B | 224.0.211.83 |                  |             |             |             |

| Channel Type              | BBBO         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.82 | 10082            | 11082       | 12082       | 13082       |
| Multicast Group IP Feed B | 224.0.209.82 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.96 | 10096            | 11096       | 12096       | 13096       |
| Multicast Group IP Feed B | 224.0.209.96 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.82 | 20082            | 21082       | 22082       | 23082       |
| Multicast Group IP Feed B | 224.0.211.82 |                  |             |             |             |

| Channel Type              | FBOU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.84 |                  |             |             |             |

|                                  |                     |                    |                    |                    |                    |
|----------------------------------|---------------------|--------------------|--------------------|--------------------|--------------------|
| <b>Multicast Group IP Feed B</b> | <b>224.0.209.84</b> | <b>10084</b>       | <b>11084</b>       | <b>12084</b>       | <b>13084</b>       |
| <b>Channel Speed</b>             | <b>1G</b>           | <b>Partition 1</b> | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| <b>Multicast Group IP Feed A</b> | <b>224.0.208.98</b> | <b>10098</b>       | <b>11098</b>       | <b>12098</b>       | <b>13098</b>       |
| <b>Multicast Group IP Feed B</b> | <b>224.0.209.98</b> |                    |                    |                    |                    |
| <b>Snapshot</b>                  |                     |                    |                    |                    |                    |
| <b>Channel Speed</b>             | <b>100M</b>         | <b>Partition 1</b> | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| <b>Multicast Group IP Feed A</b> | <b>224.0.210.84</b> | <b>20084</b>       | <b>21084</b>       | <b>22084</b>       | <b>23084</b>       |
| <b>Multicast Group IP Feed B</b> | <b>224.0.211.84</b> |                    |                    |                    |                    |

### 3. OPTIQ SEGMENT – 2. FUNDS REAL-TIME AND SNAPSHOT CONFIGURATION

#### 3.1 MDG SET OF CHANNELS ID 1 – FUNDS (Default)

|                    |       |                      |       |
|--------------------|-------|----------------------|-------|
| Environment        | PROD  | MDGSetOfChannels ID  | 1     |
| Optiq Segment name | Funds | MDGSetOfChannelsName | Funds |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.130 | 10130            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.130 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.130 | 20130            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.130 |                  |             |             |             |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.131 | 10131            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.131 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.132 | 10132            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.132 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.131 | 20131            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.131 |                  |             |             |             |

| Channel Type              | FBOU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.134 | 10134            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.134 |                  |             |             |             |
| Channel Speed             | 10G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.135 | 10135            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.135 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.133 | 20133            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.133 |                  |             |             |             |

3.2 MDG SET OF CHANNELS ID 32 – ETF ACCESS

|                    |       |                      |            |
|--------------------|-------|----------------------|------------|
| Environment        | PROD  | MDGSetOfChannels ID  | 32         |
| Optiq Segment name | Funds | MDGSetOfChannelsName | ETF Access |

| Channel Type              | REFT         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.90 | 10090            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.90 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.90 | 20090            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.90 |                  |             |             |             |

| Channel Type              | FBMU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.91 | 10091            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.91 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.92 | 10092            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.92 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.91 | 20091            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.91 |                  |             |             |             |

| Channel Type              | FBOU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.94 | 10094            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.94 |                  |             |             |             |
| Channel Speed             | 10G          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.95 | 10095            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.95 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.93 | 20093            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.93 |                  |             |             |             |



## 3.3 MDG SET OF CHANNELS ID 39 – FUNDS ETF ITALY

|                    |       |                      |                 |
|--------------------|-------|----------------------|-----------------|
| Environment        | PROD  | MDGSetOfChannels ID  | 39              |
| Optiq Segment name | Funds | MDGSetOfChannelsName | Funds ETF Italy |

| Channel Type              | REFT         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| Real-time                 |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.50 | 10050            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.50 |                  |             |             |             |
| Snapshot                  |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.50 | 20050            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.50 |                  |             |             |             |

| Channel Type              | BBBO         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| Real-time                 |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.51 | 10051            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.51 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.52 | 10052            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.52 |                  |             |             |             |
| Snapshot                  |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.51 | 20051            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.51 |                  |             |             |             |

| Channel Type              | FBMU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| Real-time                 |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.53 | 10053            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.53 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.54 | 10054            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.54 |                  |             |             |             |
| Snapshot                  |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.53 | 20053            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.53 |                  |             |             |             |

| Channel Type              | FBOU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| Real-time                 |              |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.56 | 10056            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.56 |                  |             |             |             |
| Channel Speed             | 10G          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.57 | 10057            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.57 |                  |             |             |             |

| Snapshot                  |              |             |             |             |             |
|---------------------------|--------------|-------------|-------------|-------------|-------------|
| Channel Speed             | 100M         | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.55 | 20055       |             |             |             |
| Multicast Group IP Feed B | 224.0.211.55 |             |             |             |             |

**3.4 MDG SET OF CHANNELS ID 31 – BEST OF BOOK (RMF) FUNDS**

|                    |       |                      |                          |
|--------------------|-------|----------------------|--------------------------|
| Environment        | PROD  | MDGSetOfChannels ID  | 31                       |
| Optiq Segment name | Funds | MDGSetOfChannelsName | Best of Book (RMF) Funds |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.136 | 10136            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.136 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      |             |             |             |
| Multicast Group IP Feed A | 224.0.208.137 | 10137            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.137 |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      |             |             |             |
| Multicast Group IP Feed A | 224.0.210.136 | 20136            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.136 |                  |             |             |             |

## 4. OPTIQ SEGMENT – 3. FIXED INCOME REAL-TIME AND SNAPSHOT CONFIGURATION

### 4.1 MDG SET OF CHANNELS ID 2 – FIXED INCOME Default

|                    |              |                      |              |
|--------------------|--------------|----------------------|--------------|
| Environment        | PROD         | MDGSetOfChannels ID  | 2            |
| Optiq Segment name | Fixed Income | MDGSetOfChannelsName | Fixed Income |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.150 | 10150            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.150 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.150 | 20150            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.150 |                  |             |             |             |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.151 | 10151            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.151 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.152 | 10152            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.152 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.151 | 20151            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.151 |                  |             |             |             |

| Channel Type              | FBOU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.153 | 10153            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.153 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.154 | 10154            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.154 |                  |             |             |             |
| Channel Speed             | 10G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.153 | 20153            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.153 |                  |             |             |             |

## 4.2 MDG SET OF CHANNELS ID 12 – FIXED INCOME NORDIC ABM

|                    |              |                      |                         |
|--------------------|--------------|----------------------|-------------------------|
| Environment        | PROD         | MDGSetOfChannels ID  | 12                      |
| Optiq Segment name | Fixed Income | MDGSetOfChannelsName | Fixed Income Nordic ABM |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.149 | 10149            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.149 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.149 | 20149            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.149 |                  |             |             |             |

## 4.3 MDG SET OF CHANNELS ID 40 – FIXED INCOME ITALY (MOT/ExtraMOT)

|                    |              |                      |                                   |
|--------------------|--------------|----------------------|-----------------------------------|
| Environment        | PROD         | MDGSetOfChannels ID  | 40                                |
| Optiq Segment name | Fixed Income | MDGSetOfChannelsName | FIXED INCOME Italy (MOT/extraMOT) |

| Channel Type              | REFT         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.40 | 10040            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.40 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.40 | 20040            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.40 |                  |             |             |             |

| Channel Type              | BBBO         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.41 | 10041            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.41 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.42 | 10042            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.42 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.41 | 20041            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.41 |                  |             |             |             |

| Channel Type              | FBMU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.43 | 10043            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.43 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.44 | 10044            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.44 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.43 | 20043            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.43 |                  |             |             |             |

| Channel Type              | FBOU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.45 | 10045            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.45 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.46 | 10046            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.46 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.45 | 20045            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.45 |                  |             |             |             |

**4.4 MDG SET OF CHANNELS ID 42 – FIXED INCOME ETLX (Bond-X)**

|                    |              |                      |                            |
|--------------------|--------------|----------------------|----------------------------|
| Environment        | PROD         | MDGSetOfChannels ID  | 42                         |
| Optiq Segment name | Fixed Income | MDGSetOfChannelsName | Fixed Income ETLX (Bond-X) |

| Channel Type              | REFT         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.60 | 10060            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.60 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.60 | 20060            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.60 |                  |             |             |             |

| Channel Type              | BBBO         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.58 | 10058            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.58 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |

| Multicast Group IP Feed A | 224.0.208.59 | 10059       |             |             |             |
|---------------------------|--------------|-------------|-------------|-------------|-------------|
| Multicast Group IP Feed B | 224.0.209.59 |             |             |             |             |
| Snapshot                  |              |             |             |             |             |
| Channel Speed             | 100M         | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.58 | 20058       |             |             |             |
| Multicast Group IP Feed B | 224.0.211.58 |             |             |             |             |

| Channel Type              | FBMU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| Real-time                 |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.61 | 10061            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.61 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.62 | 10062            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.62 |                  |             |             |             |
| Snapshot                  |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.61 | 20061            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.61 |                  |             |             |             |

| Channel Type              | FBOU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| Real-time                 |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.63 | 10063            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.63 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.64 | 10064            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.64 |                  |             |             |             |
| Snapshot                  |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.63 | 20063            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.63 |                  |             |             |             |

## 5. OPTIQ SEGMENT – 4. WARRANTS & CERTIFICATES REAL-TIME AND SNAPSHOT CONFIGURATION

### 5.1 MDG SET OF CHANNELS ID 4 – WARRANTS & CERTIFICATES

|                    |                         |                      |                         |
|--------------------|-------------------------|----------------------|-------------------------|
| Environment        | PROD                    | MDGSetOfChannels ID  | 4                       |
| Optiq Segment name | Warrants & Certificates | MDGSetOfChannelsName | Warrants & Certificates |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.155 | 10155            | 11155       |             |             |
| Multicast Group IP Feed B | 224.0.209.155 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.155 | 20155            | 21155       |             |             |
| Multicast Group IP Feed B | 224.0.211.155 |                  |             |             |             |

| Channel Type              | BBBO          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.156 | 10156            | 11156       |             |             |
| Multicast Group IP Feed B | 224.0.209.156 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.157 | 10157            | 11157       |             |             |
| Multicast Group IP Feed B | 224.0.209.157 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.156 | 20156            | 21156       |             |             |
| Multicast Group IP Feed B | 224.0.211.156 |                  |             |             |             |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.159 | 10159            | 11159       |             |             |
| Multicast Group IP Feed B | 224.0.209.159 |                  |             |             |             |
| Channel Speed             | 10G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.158 | 20158            | 21158       |             |             |
| Multicast Group IP Feed B | 224.0.211.158 |                  |             |             |             |

### 5.2 MDG SET OF CHANNELS ID 41 – WARRANTS & CERTIFICATES Italy (SEDEX)

|                    |                         |                      |                                       |
|--------------------|-------------------------|----------------------|---------------------------------------|
| Environment        | PROD                    | MDGSetOfChannels ID  | 41                                    |
| Optiq Segment name | Warrants & Certificates | MDGSetOfChannelsName | Warrants & Certificates Italy (SEDEX) |

| Channel Type              | REFT         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.65 | 10065            | 11065       |             |             |
| Multicast Group IP Feed B | 224.0.209.65 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.65 | 20065            | 21065       |             |             |
| Multicast Group IP Feed B | 224.0.211.65 |                  |             |             |             |

  

| Channel Type              | BBBO         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.66 | 10066            | 11066       |             |             |
| Multicast Group IP Feed B | 224.0.209.66 |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.67 | 10067            | 11067       |             |             |
| Multicast Group IP Feed B | 224.0.209.67 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.66 | 20066            | 21066       |             |             |
| Multicast Group IP Feed B | 224.0.211.66 |                  |             |             |             |

  

| Channel Type              | FBMU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.69 | 10069            | 11069       |             |             |
| Multicast Group IP Feed B | 224.0.209.69 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.68 | 20068            | 21068       |             |             |
| Multicast Group IP Feed B | 224.0.211.68 |                  |             |             |             |



5.3 MDG SET OF CHANNELS ID 43 – WARRANTS & CERTIFICATES ETLX (Cert-X)

|                    |                         |                      |                                       |
|--------------------|-------------------------|----------------------|---------------------------------------|
| Environment        | PROD                    | MDGSetOfChannels ID  | 43                                    |
| Optiq Segment name | Warrants & Certificates | MDGSetOfChannelsName | Warrants & Certificates ETLX (Cert-X) |

| Channel Type              | REFT         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.20 | 10020            | 11020       |             |             |
| Multicast Group IP Feed B | 224.0.209.20 |                  |             |             |             |

|                           |              |             |             |             |             |
|---------------------------|--------------|-------------|-------------|-------------|-------------|
| <b>Snapshot</b>           |              |             |             |             |             |
| Channel Speed             | 100M         | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.20 | 20020       | 21020       |             |             |
| Multicast Group IP Feed B | 224.0.211.20 |             |             |             |             |

| Channel Type              | BBBO         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.21 | 10021            | 11021       |             |             |
| Multicast Group IP Feed B | 224.0.209.21 |                  |             |             |             |

|                           |              |             |             |             |             |
|---------------------------|--------------|-------------|-------------|-------------|-------------|
| Channel Speed             | 1G           | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.22 | 10022       | 11022       |             |             |
| Multicast Group IP Feed B | 224.0.209.22 |             |             |             |             |

|                           |              |             |             |             |             |
|---------------------------|--------------|-------------|-------------|-------------|-------------|
| <b>Snapshot</b>           |              |             |             |             |             |
| Channel Speed             | 100M         | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.21 | 20021       | 21021       |             |             |
| Multicast Group IP Feed B | 224.0.211.21 |             |             |             |             |

| Channel Type              | FBMU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 1G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.24 | 10024            | 11024       |             |             |
| Multicast Group IP Feed B | 224.0.209.24 |                  |             |             |             |

|                           |              |             |             |             |             |
|---------------------------|--------------|-------------|-------------|-------------|-------------|
| <b>Snapshot</b>           |              |             |             |             |             |
| Channel Speed             | 100M         | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.23 | 20023       | 21023       |             |             |
| Multicast Group IP Feed B | 224.0.211.23 |             |             |             |             |

## 6. OPTIQ SEGMENT – 5. BOURSE DE LUXEMBOURG REAL-TIME AND SNAPSHOT CONFIGURATION

### 6.1 MDG SET OF CHANNELS ID 3 – BOURSE DE LUXEMBOURG

Please note that the Bourse de Luxembourg Index messages are included in the Referential Data and Full Trade Information (REFT) real-time and snapshot channels.

|                    |                      |                      |                      |
|--------------------|----------------------|----------------------|----------------------|
| Environment        | PROD                 | MDGSetOfChannels ID  | 3                    |
| Optiq Segment name | Bourse de Luxembourg | MDGSetOfChannelsName | Bourse de Luxembourg |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.170 | 10170            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.170 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.170 | 20170            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.170 |                  |             |             |             |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.171 | 10171            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.171 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.172 | 10172            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.172 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.171 | 20171            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.171 |                  |             |             |             |

| Channel Type              | FBOU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.173 | 10173            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.173 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.174 | 10174            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.174 |                  |             |             |             |
| Channel Speed             | 10G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.173 | 20173            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.173 |                  |             |             |             |

## 7. OPTIQ SEGMENT – 9. INDICES REAL-TIME AND SNAPSHOT CONFIGURATION

### 7.1 MDG SET OF CHANNELS ID 13 – EURONEXT INDICES

|                    |         |                      |                  |
|--------------------|---------|----------------------|------------------|
| Environment        | PROD    | MDGSetOfChannels ID  | 13               |
| Optiq Segment name | Indices | MDGSetOfChannelsName | Euronext Indices |

| Channel Type              | REFI          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.250 | 10250            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.250 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.250 | 20250            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.250 |                  |             |             |             |

### 7.2 MDG SET OF CHANNELS ID 14 – EURONEXT INAV'S

|                    |         |                      |                 |
|--------------------|---------|----------------------|-----------------|
| Environment        | PROD    | MDGSetOfChannels ID  | 14              |
| Optiq Segment name | Indices | MDGSetOfChannelsName | Euronext iNAV's |

| Channel Type              | REFI          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.251 | 10251            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.251 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.251 | 20251            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.251 |                  |             |             |             |

**7.3 MDG SET OF CHANNELS ID 15 – EURONEXT DUBLIN INDICES**

|                    |         |                      |                         |
|--------------------|---------|----------------------|-------------------------|
| Environment        | PROD    | MDGSetOfChannels ID  | 15                      |
| Optiq Segment name | Indices | MDGSetOfChannelsName | Euronext Dublin Indices |

| Channel Type              | REFI          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.252 | 10252            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.252 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.252 | 20252            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.252 |                  |             |             |             |

## 8. OPTIQ SEGMENT – 10. TRADE REPORTING AND PUBLICATION REAL-TIME AND SNAPSHOT CONFIGURATION

### 8.1 MDG SET OF CHANNELS ID 29 – APA SI QUOTES

|                           |                                 |                      |               |             |             |  |
|---------------------------|---------------------------------|----------------------|---------------|-------------|-------------|--|
| Environment               | PROD                            | MDGSetOfChannels ID  | 29            |             |             |  |
| Optiq Segment name        | Trade Reporting and Publication | MDGSetOfChannelsName | APA SI Quotes |             |             |  |
| Channel Type              | APSI                            | Channel ID /Port     |               |             |             |  |
| Real-time                 |                                 |                      |               |             |             |  |
| Channel Speed             | 100M                            | Partition 1          | Partition 2   | Partition 3 | Partition 4 |  |
| Multicast Group IP Feed A | 224.0.208.145                   | 11145                |               |             |             |  |
| Multicast Group IP Feed B | 224.0.209.145                   |                      |               |             |             |  |
| Snapshot                  |                                 |                      |               |             |             |  |
| Channel Speed             | 100M                            | Partition 1          | Partition 2   | Partition 3 | Partition 4 |  |
| Multicast Group IP Feed A | 224.0.210.145                   | 21145                |               |             |             |  |
| Multicast Group IP Feed B | 224.0.211.145                   |                      |               |             |             |  |

### 8.2 MDG SET OF CHANNELS ID 30 – APA TRADE PUBLICATION

|                           |                                 |                      |                       |             |             |  |
|---------------------------|---------------------------------|----------------------|-----------------------|-------------|-------------|--|
| Environment               | PROD                            | MDGSetOfChannels ID  | 30                    |             |             |  |
| Optiq Segment name        | Trade Reporting and Publication | MDGSetOfChannelsName | APA Trade Publication |             |             |  |
| Channel Type              | APTR                            | Channel ID /Port     |                       |             |             |  |
| Real-time                 |                                 |                      |                       |             |             |  |
| Channel Speed             | 100M                            | Partition 1          | Partition 2           | Partition 3 | Partition 4 |  |
| Multicast Group IP Feed A | 224.0.208.146                   | 11146                |                       |             |             |  |
| Multicast Group IP Feed B | 224.0.209.146                   |                      |                       |             |             |  |
| Snapshot                  |                                 |                      |                       |             |             |  |
| Channel Speed             | 100M                            | Partition 1          | Partition 2           | Partition 3 | Partition 4 |  |
| Multicast Group IP Feed A | 224.0.210.146                   | 21146                |                       |             |             |  |
| Multicast Group IP Feed B | 224.0.211.146                   |                      |                       |             |             |  |

## 9. OPTIQ SEGMENT – 14. EURONEXT BLOCK

### 9.1 MDG SET OF CHANNELS ID 33 – EURONEXT BLOCK

|                    |                |                      |                |
|--------------------|----------------|----------------------|----------------|
| Environment        | PROD           | MDGSetOfChannels ID  | 33             |
| Optiq Segment name | Euronext Block | MDGSetOfChannelsName | Euronext Block |

| Channel Type              | EBLK         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.99 | 10099            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.99 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.99 | 20099            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.99 |                  |             |             |             |

### 9.2 MDG SET OF CHANNELS ID 19 – TRADING AFTER HOURS ITALY

|                    |       |                      |                           |
|--------------------|-------|----------------------|---------------------------|
| Environment        | PROD  | MDGSetOfChannels ID  | 19                        |
| Optiq Segment name | Block | MDGSetOfChannelsName | Trading After Hours Italy |

| Channel Type              | REFT         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.70 | 10070            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.70 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| Channel Speed             | 100M         | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.70 | 20070            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.70 |                  |             |             |             |

| Channel Type              | BBBO          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.128 | 10128            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.128 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.129 | 10129            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.129 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.128 | 20128            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.128 |                  |             |             |             |

| Channel Type              | FBMU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| <b>Channel Speed</b>      | <b>100M</b>  | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.71 | 10071            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.71 |                  |             |             |             |
| <b>Channel Speed</b>      | <b>1G</b>    | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.72 | 10072            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.72 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| <b>Channel Speed</b>      | <b>100M</b>  | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.71 | 20071            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.71 |                  |             |             |             |

| Channel Type              | FBOU         | Channel ID /Port |             |             |             |
|---------------------------|--------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |              |                  |             |             |             |
| <b>Channel Speed</b>      | <b>100M</b>  | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.73 | 10073            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.73 |                  |             |             |             |
| <b>Channel Speed</b>      | <b>1G</b>    | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.74 | 10074            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.74 |                  |             |             |             |
| <b>Snapshot</b>           |              |                  |             |             |             |
| <b>Channel Speed</b>      | <b>100M</b>  | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.73 | 20073            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.73 |                  |             |             |             |

## 10. OPTIQ SEGMENT – 16. IRISH BONDS & FUNDS

### 10.1 MDG SET OF CHANNELS ID 35 – EURONEXT DUBLIN BONDS AND FUNDS

|                    |                     |                      |                                 |
|--------------------|---------------------|----------------------|---------------------------------|
| Environment        | PROD                | MDGSetOfChannels ID  | 35                              |
| Optiq Segment name | Irish Bonds & Funds | MDGSetOfChannelsName | Euronext Dublin Bonds and Funds |

| Channel Type              | IBFR          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.226 | 10226            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.226 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.226 | 20226            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.226 |                  |             |             |             |



## 11. OPTIQ SEGMENT – 8. COMMODITY DERIVATIVES REAL-TIME AND SNAPSHOT CONFIGURATION

### 11.1 MDG SET OF CHANNELS ID 16 – COMMODITY DERIVATIVES

|                    |                       |                      |                       |
|--------------------|-----------------------|----------------------|-----------------------|
| Environment        | PROD                  | MDGSetOfChannels ID  | 16                    |
| Optiq Segment name | Commodity Derivatives | MDGSetOfChannelsName | Commodity Derivatives |

|                           |               |                         |                    |                    |                    |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|
| <b>Channel Type</b>       | <b>REFT</b>   | <b>Channel ID /Port</b> |                    |                    |                    |
| <b>Real-time</b>          |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.245 | 10245                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.245 |                         |                    |                    |                    |
| <b>Snapshot</b>           |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.245 | 20245                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.211.245 |                         |                    |                    |                    |

|                           |               |                         |                    |                    |                    |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|
| <b>Channel Type</b>       | <b>BBBO</b>   | <b>Channel ID /Port</b> |                    |                    |                    |
| <b>Real-time</b>          |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.246 | 10246                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.246 |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>1G</b>     | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.247 | 10247                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.247 |                         |                    |                    |                    |
| <b>Snapshot</b>           |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.246 | 20246                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.211.246 |                         |                    |                    |                    |

|                           |               |                         |                    |                    |                    |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|
| <b>Channel Type</b>       | <b>FBMU</b>   | <b>Channel ID /Port</b> |                    |                    |                    |
| <b>Real-time</b>          |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.248 |                         |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.248 |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>1G</b>     | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.249 | 10249                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.249 |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>10G</b>    | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| <b>Snapshot</b>           |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.248 | 20248                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.211.248 |                         |                    |                    |                    |

## 12. OPTIQ SEGMENT – 11. INDEX DERIVATIVES REAL-TIME AND SNAPSHOT CONFIGURATION

### 12.1 MDG SET OF CHANNELS ID 23 – INDEX OPTIONS FRANCE

|                    |                   |                      |                      |
|--------------------|-------------------|----------------------|----------------------|
| Environment        | PROD              | MDGSetOfChannels ID  | 23                   |
| Optiq Segment name | Index Derivatives | MDGSetOfChannelsName | Index Options France |

|                           |               |                         |             |             |             |
|---------------------------|---------------|-------------------------|-------------|-------------|-------------|
| <b>Channel Type</b>       | <b>REFT</b>   | <b>Channel ID /Port</b> |             |             |             |
| <b>Real-time</b>          |               |                         |             |             |             |
| <b>Channel Speed</b>      | <b>100M</b>   | Partition 1             | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.220 | 10220                   |             |             |             |
| Multicast Group IP Feed B | 224.0.209.220 |                         |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| <b>Snapshot</b>           |               |             |             |             |             |
| <b>Channel Speed</b>      | <b>100M</b>   | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.220 | 20220       |             |             |             |
| Multicast Group IP Feed B | 224.0.211.220 |             |             |             |             |

|                           |               |                         |             |             |             |
|---------------------------|---------------|-------------------------|-------------|-------------|-------------|
| <b>Channel Type</b>       | <b>BBBO</b>   | <b>Channel ID /Port</b> |             |             |             |
| <b>Real-time</b>          |               |                         |             |             |             |
| <b>Channel Speed</b>      | <b>100M</b>   | Partition 1             | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.221 | 10221                   |             |             |             |
| Multicast Group IP Feed B | 224.0.209.221 |                         |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| <b>Channel Speed</b>      | <b>1G</b>     | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.222 | 10222       |             |             |             |
| Multicast Group IP Feed B | 224.0.209.222 |             |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| <b>Snapshot</b>           |               |             |             |             |             |
| <b>Channel Speed</b>      | <b>100M</b>   | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.221 | 20221       |             |             |             |
| Multicast Group IP Feed B | 224.0.211.221 |             |             |             |             |

|                           |               |                         |             |             |             |
|---------------------------|---------------|-------------------------|-------------|-------------|-------------|
| <b>Channel Type</b>       | <b>FBMU</b>   | <b>Channel ID /Port</b> |             |             |             |
| <b>Real-time</b>          |               |                         |             |             |             |
| <b>Channel Speed</b>      | <b>100M</b>   | Partition 1             | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.223 |                         |             |             |             |
| Multicast Group IP Feed B | 224.0.209.223 |                         |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| <b>Channel Speed</b>      | <b>1G</b>     | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.224 | 10224       |             |             |             |
| Multicast Group IP Feed B | 224.0.209.224 |             |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| <b>Channel Speed</b>      | <b>10G</b>    | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.225 | 10225       |             |             |             |
| Multicast Group IP Feed B | 224.0.209.225 |             |             |             |             |

|                           |               |             |             |             |             |
|---------------------------|---------------|-------------|-------------|-------------|-------------|
| <b>Snapshot</b>           |               |             |             |             |             |
| <b>Channel Speed</b>      | <b>100M</b>   | Partition 1 | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.223 | 20223       |             |             |             |
| Multicast Group IP Feed B | 224.0.211.223 |             |             |             |             |

**12.2 MDG SET OF CHANNELS ID 24 – INDEX OPTIONS NETHERLANDS**

|                    |                   |                      |                           |
|--------------------|-------------------|----------------------|---------------------------|
| Environment        | PROD              | MDGSetOfChannels ID  | 24                        |
| Optiq Segment name | Index Derivatives | MDGSetOfChannelsName | Index Options Netherlands |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.230 | 10230            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.230 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.230 | 20230            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.230 |                  |             |             |             |

| Channel Type              | BBBO          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.231 | 10231            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.231 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.232 | 10232            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.232 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.231 | 20231            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.231 |                  |             |             |             |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.233 |                  |             |             |             |
| Multicast Group IP Feed B | 224.0.209.233 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.234 | 10234            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.234 |                  |             |             |             |
| Channel Speed             | 10G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.235 | 10235            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.235 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.233 | 20233            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.233 |                  |             |             |             |

**12.3 MDG SET OF CHANNELS ID 25 – INDEX DERIVATIVES OTHER (BELGIUM AND PORTUGAL)**

|                    |                   |                      |                         |
|--------------------|-------------------|----------------------|-------------------------|
| Environment        | PROD              | MDGSetOfChannels ID  | 25                      |
| Optiq Segment name | Index Derivatives | MDGSetOfChannelsName | Index Derivatives Other |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.240 | 10240            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.240 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.240 | 20240            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.240 |                  |             |             |             |

| Channel Type              | BBBO          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.241 | 10241            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.241 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.242 | 10242            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.242 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.241 | 20241            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.241 |                  |             |             |             |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.243 |                  |             |             |             |
| Multicast Group IP Feed B | 224.0.209.243 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.244 | 10244            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.244 |                  |             |             |             |
| Channel Speed             | 10G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.243 | 20243            |             |             |             |
| Multicast Group IP Feed B | 224.0.211.243 |                  |             |             |             |

12.4 MDG SET OF CHANNELS ID 26 – INDEX FUTURES FRANCE

|                    |                   |                      |                      |
|--------------------|-------------------|----------------------|----------------------|
| Environment        | PROD              | MDGSetOfChannels ID  | 26                   |
| Optiq Segment name | Index Derivatives | MDGSetOfChannelsName | Index Futures France |

|                           |               |                         |                    |                    |                    |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|
| <b>Channel Type</b>       | <b>REFT</b>   | <b>Channel ID /Port</b> |                    |                    |                    |
| <b>Real-time</b>          |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.190 | 10190                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.190 |                         |                    |                    |                    |

|                           |               |                    |                    |                    |                    |
|---------------------------|---------------|--------------------|--------------------|--------------------|--------------------|
| <b>Snapshot</b>           |               |                    |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b> | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.190 | 20190              |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.211.190 |                    |                    |                    |                    |

|                           |               |                         |                    |                    |                    |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|
| <b>Channel Type</b>       | <b>BBBO</b>   | <b>Channel ID /Port</b> |                    |                    |                    |
| <b>Real-time</b>          |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.191 | 10191                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.191 |                         |                    |                    |                    |

|                           |               |                    |                    |                    |                    |
|---------------------------|---------------|--------------------|--------------------|--------------------|--------------------|
| <b>Channel Speed</b>      | <b>1G</b>     | <b>Partition 1</b> | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.192 | 10192              |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.192 |                    |                    |                    |                    |

|                           |               |                    |                    |                    |                    |
|---------------------------|---------------|--------------------|--------------------|--------------------|--------------------|
| <b>Snapshot</b>           |               |                    |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b> | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.191 | 20191              |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.211.191 |                    |                    |                    |                    |

|                           |               |                         |                    |                    |                    |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|
| <b>Channel Type</b>       | <b>FBMU</b>   | <b>Channel ID /Port</b> |                    |                    |                    |
| <b>Real-time</b>          |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.193 |                         |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.193 |                         |                    |                    |                    |

|                           |               |                    |                    |                    |                    |
|---------------------------|---------------|--------------------|--------------------|--------------------|--------------------|
| <b>Channel Speed</b>      | <b>1G</b>     | <b>Partition 1</b> | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.194 | 10194              |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.194 |                    |                    |                    |                    |

|                           |               |                    |                    |                    |                    |
|---------------------------|---------------|--------------------|--------------------|--------------------|--------------------|
| <b>Channel Speed</b>      | <b>10G</b>    | <b>Partition 1</b> | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.195 | 10195              |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.195 |                    |                    |                    |                    |

|                           |               |                    |                    |                    |                    |
|---------------------------|---------------|--------------------|--------------------|--------------------|--------------------|
| <b>Snapshot</b>           |               |                    |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b> | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.193 | 20193              |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.211.193 |                    |                    |                    |                    |

12.5 MDG SET OF CHANNELS ID 27 –INDEX FUTURES NETHERLANDS

|                    |                   |                      |                           |
|--------------------|-------------------|----------------------|---------------------------|
| Environment        | PROD              | MDGSetOfChannels ID  | 27                        |
| Optiq Segment name | Index Derivatives | MDGSetOfChannelsName | Index Futures Netherlands |

|                           |               |                         |                    |                    |                    |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|
| <b>Channel Type</b>       | <b>REFT</b>   | <b>Channel ID /Port</b> |                    |                    |                    |
| <b>Real-time</b>          |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.200 | 10200                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.200 |                         |                    |                    |                    |
| <b>Snapshot</b>           |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.200 | 20200                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.211.200 |                         |                    |                    |                    |

|                           |               |                         |                    |                    |                    |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|
| <b>Channel Type</b>       | <b>BBBO</b>   | <b>Channel ID /Port</b> |                    |                    |                    |
| <b>Real-time</b>          |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.201 | 10201                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.201 |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>1G</b>     | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.202 | 10202                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.202 |                         |                    |                    |                    |
| <b>Snapshot</b>           |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.201 | 20201                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.211.201 |                         |                    |                    |                    |

|                           |               |                         |                    |                    |                    |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|
| <b>Channel Type</b>       | <b>FBMU</b>   | <b>Channel ID /Port</b> |                    |                    |                    |
| <b>Real-time</b>          |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.203 |                         |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.203 |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>1G</b>     | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.204 | 10204                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.204 |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>10G</b>    | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.205 | 10205                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.205 |                         |                    |                    |                    |
| <b>Snapshot</b>           |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.203 | 20203                   |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.211.203 |                         |                    |                    |                    |

### 13. OPTIQ SEGMENT – 12. EQUITY DERIVATIVES REAL-TIME AND SNAPSHOT CONFIGURATION

#### 13.1 MDG SET OF CHANNELS ID 20 – EQUITY DERIVATIVES FRANCE

|                    |                    |                      |                           |
|--------------------|--------------------|----------------------|---------------------------|
| Environment        | PROD               | MDGSetOfChannels ID  | 20                        |
| Optiq Segment name | Equity Derivatives | MDGSetOfChannelsName | Equity Derivatives France |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.175 | 10175            | 11175       | 12175       |             |
| Multicast Group IP Feed B | 224.0.209.175 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.175 | 20175            | 21175       | 22175       |             |
| Multicast Group IP Feed B | 224.0.211.175 |                  |             |             |             |

| Channel Type              | BBBO          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.176 | 10176            | 11176       | 12176       |             |
| Multicast Group IP Feed B | 224.0.209.176 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.177 | 10177            | 11177       | 12177       |             |
| Multicast Group IP Feed B | 224.0.209.177 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.176 | 20176            | 21176       | 22176       |             |
| Multicast Group IP Feed B | 224.0.211.176 |                  |             |             |             |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.178 |                  |             |             |             |
| Multicast Group IP Feed B | 224.0.209.178 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.179 | 10179            | 11179       | 12179       |             |
| Multicast Group IP Feed B | 224.0.209.179 |                  |             |             |             |
| Channel Speed             | 10G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.178 | 20178            | 21178       | 22178       |             |
| Multicast Group IP Feed B | 224.0.211.178 |                  |             |             |             |

**13.2 MDG SET OF CHANNELS ID 21 – EQUITY DERIVATIVES NETHERLANDS**

|                    |                    |                      |                                |
|--------------------|--------------------|----------------------|--------------------------------|
| Environment        | PROD               | MDGSetOfChannels ID  | 21                             |
| Optiq Segment name | Equity Derivatives | MDGSetOfChannelsName | Equity Derivatives Netherlands |

| Channel Type              | REFT          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.180 | 10180            | 11180       | 12180       |             |
| Multicast Group IP Feed B | 224.0.209.180 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.180 | 20180            | 21180       | 22180       |             |
| Multicast Group IP Feed B | 224.0.211.180 |                  |             |             |             |

| Channel Type              | BBBO          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.181 | 10181            | 11181       | 12181       |             |
| Multicast Group IP Feed B | 224.0.209.181 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.182 | 10182            | 11182       | 12182       |             |
| Multicast Group IP Feed B | 224.0.209.182 |                  |             |             |             |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.181 | 20181            | 21181       | 22181       |             |
| Multicast Group IP Feed B | 224.0.211.181 |                  |             |             |             |

| Channel Type              | FBMU          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| <b>Real-time</b>          |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.183 |                  |             |             |             |
| Multicast Group IP Feed B | 224.0.209.183 |                  |             |             |             |
| Channel Speed             | 1G            | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.184 | 10184            | 11184       | 12184       |             |
| Multicast Group IP Feed B | 224.0.209.184 |                  |             |             |             |
| Channel Speed             | 10G           | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| <b>Snapshot</b>           |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.210.183 | 20183            | 21183       | 22183       |             |
| Multicast Group IP Feed B | 224.0.211.183 |                  |             |             |             |



**13.3 MDG SET OF CHANNELS ID 22 – EQUITY DERIVATIVES OTHER (BELGIUM AND PORTUGAL)**

|                    |                    |                      |                          |
|--------------------|--------------------|----------------------|--------------------------|
| Environment        | PROD               | MDGSetOfChannels ID  | 22                       |
| Optiq Segment name | Equity Derivatives | MDGSetOfChannelsName | Equity Derivatives Other |

|                           |               |                         |                    |                    |                    |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|
| <b>Channel Type</b>       | <b>REFT</b>   | <b>Channel ID /Port</b> |                    |                    |                    |
| <b>Real-time</b>          |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.185 | 10185                   | 11185              | 12185              |                    |
| Multicast Group IP Feed B | 224.0.209.185 |                         |                    |                    |                    |
| <b>Snapshot</b>           |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.185 | 20185                   | 21185              | 22185              |                    |
| Multicast Group IP Feed B | 224.0.211.185 |                         |                    |                    |                    |

|                           |               |                         |                    |                    |                    |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|
| <b>Channel Type</b>       | <b>BBBO</b>   | <b>Channel ID /Port</b> |                    |                    |                    |
| <b>Real-time</b>          |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.186 | 10186                   | 11186              | 12186              |                    |
| Multicast Group IP Feed B | 224.0.209.186 |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>1G</b>     | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.187 | 10187                   | 11187              | 12187              |                    |
| Multicast Group IP Feed B | 224.0.209.187 |                         |                    |                    |                    |
| <b>Snapshot</b>           |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.186 | 20186                   | 21186              | 22186              |                    |
| Multicast Group IP Feed B | 224.0.211.186 |                         |                    |                    |                    |

|                           |               |                         |                    |                    |                    |
|---------------------------|---------------|-------------------------|--------------------|--------------------|--------------------|
| <b>Channel Type</b>       | <b>FBMU</b>   | <b>Channel ID /Port</b> |                    |                    |                    |
| <b>Real-time</b>          |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.188 |                         |                    |                    |                    |
| Multicast Group IP Feed B | 224.0.209.188 |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>1G</b>     | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.208.189 | 10189                   | 11189              | 12189              |                    |
| Multicast Group IP Feed B | 224.0.209.189 |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>10G</b>    | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| <b>Snapshot</b>           |               |                         |                    |                    |                    |
| <b>Channel Speed</b>      | <b>100M</b>   | <b>Partition 1</b>      | <b>Partition 2</b> | <b>Partition 3</b> | <b>Partition 4</b> |
| Multicast Group IP Feed A | 224.0.210.188 | 20188                   | 21188              | 22188              |                    |
| Multicast Group IP Feed B | 224.0.211.188 |                         |                    |                    |                    |

## 14. OPTIQ SEGMENT – 15. Forex

### 14.1 MDG SET OF CHANNELS ID 34 – Forex

|                    |       |                      |       |
|--------------------|-------|----------------------|-------|
| Environment        | PROD  | MDGSetOfChannels ID  | 34    |
| Optiq Segment name | Forex | MDGSetOfChannelsName | Forex |

| Channel Type              | BBBO          | Channel ID /Port |             |             |             |
|---------------------------|---------------|------------------|-------------|-------------|-------------|
| Real-time                 |               |                  |             |             |             |
| Channel Speed             | 100M          | Partition 1      | Partition 2 | Partition 3 | Partition 4 |
| Multicast Group IP Feed A | 224.0.208.161 | 10161            |             |             |             |
| Multicast Group IP Feed B | 224.0.209.161 |                  |             |             |             |