Document title

EURONEXT MID-POINT MATCH | NON-DISPLAYED TRADING FUNCTIONALITIES

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Functional Overview

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PREFACE

ABOUT THIS DOCUMENT

This document describes the functional and technical requirements related to the implementation of Euronext Mid-Point, Non-Displayed trading functionalities on Euronext Markets.

RELATED DOCUMENTS

The following associated documents, which provide additional relevant information to the user, should be read in conjunction with this document:

- General:
  - Euronext Cash and Derivatives Markets - Optiq File Specifications

- Order entry:
  - Euronext Cash Markets - Optiq OEG Client Specifications - SBE Binary Interface
  - Euronext Cash Markets - Optiq OEG Client Specifications - FIX 5.0 Interface
  - Euronext Cash Markets - Optiq Kinematics Specifications
  - Euronext Cash Markets - Optiq Drop Copy Service
  - Euronext Cash Markets - Optiq & TCS Error List
  - Euronext Cash Markets - Optiq OEG SBE Template

- Market data:
  - Euronext Cash Markets - Optiq MDG Client Specifications
  - Euronext Cash Markets - Optiq MDG SBE Template

DOCUMENT HISTORY

REVISION NO.	DATE	CHANGE DESCRIPTION
1.1	11/2023	■ Initial version
1.2	10/2024	■ Introduction of STP functionality for the Dark Book (paragraph 2.3). ■ Other fine tunings to the text.
1.3	9/2025	■ Paragraph 2.1.2 added for the "Post-only" order attribute. As a consequence, paragraph 3.1.1 related to the "Cancel Replace" message has also been updated; ■ Added paragraph 2.4 "Dark Mid-Point Uncrossing" (linked to the execution workflow for "Post-only" orders), and of paragraph 2.5 "Market statistics" for completeness. ■ Wording related to exchange-level price and quantity controls has been moved in paragraph 2.1.4 and updated. ■ Reviewed and simplified examples in paragraph 4.

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1.   INTRODUCTION

1.1   OVERVIEW

Euronext introduced Mid-Point, Non-Displayed trading functionalities within the Euronext proprietary Trading system Optiq® in March 2024. Operating under the MiFIR 'Reference Price' and 'Large-In-Scale' waivers, this functionality offers members the possibility to submit Dark Mid-Point orders, e.g. orders without pre-trade transparency, for execution at the mid-point of Euronext's Best Bid and Offer (BBO) registered in the Euronext Central Order Book.

This new functionality aims at providing greater flexibility and enhanced execution quality.

OPTIQ SEGMENT	SEGMENT VALUE	IN/OUT OF SCOPE
Euronext Cash Market		
Equities `EQU`	1	✔

Mid-Point, Non-Displayed orders types are available only during continuous trading, and are fully embedded onto the Optiq® trading system, under the same MIC code (not a separate MTF) of the main markets.

As soon as market participants implement the necessary modifications required to use this Service, including conformance tests, they are immediately able to submit Mid-Point, Non-Displayed orders.

In the rest of this document, we will refer to the "Dark Mid-Point Order Book" (DOB), or **Dark Order Book**, to indicate the set of Dark Mid-Point orders that can match against themselves, at the mid-point price of the Euronext transparent Central Order Book (COB).

1.2   KEY FEATURES OF THE SERVICE

The key features of the Service are the following:

■ **Embedded onto the Optiq® architecture:** this Service is available through the current Optiq® architecture, without the need for extra connectivity or authorisations.

■ **Dark Mid-Point orders:** orders whose characteristics are not visible, that can be executed at the mid-point of the best bid / ask spread visible in the transparent Central Order Book of the Euronext trading venue representing the primary venue for the instrument:

  – **Dark Mid-Point orders may be sent with a limit price**, which serves as a floor or ceiling price, preventing the order from being executed at a mid-point past the specified limit price. This floor / ceiling price can be specified using the standard order price fields at order entry. A Dark Mid-Point order cannot be executed at a mid-point price that does not meet the specified limit price. When the mid-point price returns to be consistent with the indicated limit price, the mid-point order resumes being executable.

  – **Mid-point Dark/Lit sweep Option:** a "sweep" functionality is available for Dark Mid-Point orders. When the "sweep" option is set by the participant at order entry, the order will be able to move from the Dark Order Book to the Central Order Book, when it is not immediately and fully executed in the DOB. When the order is moved to the COB, it becomes fully visible to the market.

In the rest of the document, we will refer to Dark Mid-Point Sweeps, or simply to a **Sweep Order**, to indicate a Dark Mid-Point order when the sweep option was selected at order entry. Otherwise, we will refer to a **Pure Dark Order**.

In case a floor / ceiling price is specified for a Sweep Order, this price will become its limit price when moved to the Central Order Book. Otherwise, the order will aggress the Central Order Book as a market order.

— **Post-only option**: the "Post-only" option, also known as "Passive-only", permits to submit a Mid-Point order that cannot be executed at order entry, when aggressing the Dark book. When this feature is activated, participants have certainty to "make the market" in the Mid-Point book, and not to remove liquidity. This option is available only for Pure Dark Orders.

- At order entry, members can define a **Minimum Acceptable Quantity** for a Dark Mid-Point order to be executed (MAQ), or a **Minimum Execution Size** (MES):

  - MAQ (Minimum Acceptable Quantity): sets the minimum total size for the execution of the Dark Mid-Point order, that can be reached by aggregating multiple orders on the opposite side of the DOB. If the available cumulative quantity is below the indicate MAQ, the Dark Mid-Point order will remain unexecuted ;

  - MES (Minimum Execution Size): sets the minimum execution size of any individual potential execution for the Dark Mid-Point order.

The MES / MAQ feature of a Dark Mid Point order are "lost" when a Dark Mid-Point Sweep order is moved to the Central Order Book (i.e. the related 'Minimum Quantity' parameter is automatically reset to zero).

- **Execution Priority:** in the DOB, orders are ranked and executed by size-time priority.

Note that the "Order Quantity" used in the above ranking is the one set by the client in his order entry message or in the last modification message, and not the "Leaves Quantity" of the order (remaining quantity). It represents the total initial quantity of the order.

2. FUNCTIONAL DESCRIPTION

2.1   DARK MID-POINT ORDERS

A "Peg Order" is an order that tracks a defined reference price.

Euronext Dark Mid-Point orders are peg orders that track in real-time the mid-point of the Best Bid and Offer prices defined in the Euronext transparent Central Order Book, representing the primary market for the instrument. Euronext Dark Mid-Point orders can only be executed at the mid-point of the best bid / ask spread in the Central Order Book, that is continuously updated as the market is moving.

From a regulatory perspective, Dark Mid-Point orders benefit from the MiFIR "Reference Price" waiver (MiFIR Art.4(1)(a)) or (where applicable) from the "Large-in-Scale" waiver (MiFIR Art.4(1)(c)).

For this reason, for instruments with a Volume Cap restriction in place, Pure Dark orders with size below the MiFIR pre-trade Large-In-Scale threshold are automatically rejected. Sweep Orders (see paragraph 2.1.1) are instead accepted, but without the possibility to be executed in the Dark Book. In this scenario, the order is immediately directed to the Central Order Book, where its order details are disseminated to the public via Euronext market data.

2.1.1   Sweep Orders

Members can request their Dark Mid-Point orders to interact with the pool of liquidity that is available in the Euronext Central Order Book for the instrument, when the order is not immediately and fully executed at order entry in the Dark Book. Upon move the Central Order Book, the order details will be immediately disseminated via Euronext market data (the order will become visible in the Euronext Central Order Book).

In case a floor / ceiling price is specified for a Sweep Order, and the order is swept to the Central Order Book:

- the order will become a Limit Order in the Central Order Book;
- with limit price equal to the specified floor / ceiling price

In case no floor / ceiling price is specified and the order is moved to the Central Order Book, the order will aggress the Central Order Book as a market order.

2.1.2   Post-only Orders

Using the "Post-only" order attribute, members can request their Pure Dark Mid-Point orders to always "make market" in the Mid-Point book, with certainty that the order will not remove liquidity at order entry. A Dark Pure 'Post-only' order will never be immediately executed (partially or in full) at order entry, and will become resting in the Mid-Point book for its entire quantity, waiting to be aggressed by a new, incoming compatible Mid-Point order, or to be executed during an "uncrossing" of the Mid-Point book (see paragraph 2.42.4).

Due to its nature, a "Post-only" order will be rejected in case it is submitted:

- as a Dark Sweep order, and;
- with Time In Force (TIF) parameter equal to 'IOC' or 'FOK' (see paragraph 2.1.42.1.4).

2.1.3   Order entry

Dark Mid-Point orders can be entered during continuous trading (with the exclusion of the "Trade-At-Last" phase), for eligible instruments and where Euronext is defined as the primary market for the instrument. Members that have developed technical support for this functionality can start using it without the need for a specific registration process.

In order to enter an order as a Dark Mid-point order, the Member needs to identify it as such in the SBE "**NewOrder**" (01) / FIX "**New Order Single**" (D) message using the following settings:

- In the SBE protocol, the "Order Type" field must be set to "8" (**Mid-Point Peg**);

- in the FIX protocol, "OrdType" (tag 40) must be set to "P" (**Peg**), and "Peg Price Type" must be equal to "2" (**Mid Point**).

The characteristics of a Dark Mid-Point order are defined via SBE field "Dark Execution Instruction", and the equivalent FIX "DarkExecutionInstruction" field (tag 20052):

- For an Order to be **Dark**:

    – Bit / Position #0 **must** be set to '1'. Represents the "Dark Indicator" (whether an order is dark, or not). Otherwise, the Mid-Point Peg order will be rejected;

- To define whether a Dark Order is **Sweep** or **Not Sweep**:

    – Bit / Position #3 can be set to '0' (not sweep, i.e. a Pure Dark order) or '1' (a Sweep Order). Represents the "Sweep Order Indicator".

- To define whether a Dark Order has a **Minimum Quantity**:

    – Bit / Position #4 can be set to '0' (Minimum Acceptable Quantity, MAQ) or '1' (Minimum Execution Size, MES). Represents the "Minimum Quantity Type". To be used in combination with SBE field "Minimum Order Quantity" / FIX "MinQty" (tag 110). Please refer to paragraph 2.2 for more information.

- For a Dark Mid-Point Order to benefit of **Self-Trade Prevention** in the DOB:

    – Bit / Position #5 can be set to '0' (no STP) or '1' (STP activated). Represents the "STP Dark Indicator". Please refer to paragraph 2.3 for more information.

- For a Dark (not sweep) Mid-Point Order to be a **Post-only** order:

    – Bit / Position #6 can be set to '0' (normal order, not a Post-only order) or '1' (Post-only order).

When a Dark Mid-Point order is matched, the execution message SBE "**Fill" (04)** / FIX "**ExecutionReport" (8)** will have value "35" ("Dark Trade") in SBE field "Trade Type" / FIX "TradeType" (tag 21010).

2.1.4   Order Types and Time In Force

As specified in paragraph 2.1.3, any Dark Mid-Point order (Pure Dark and Sweep orders) must be submitted with order type equal to "Mid-Point Peg":

- In the SBE protocol, the "Order Type" field must be set to "8" (**Mid-Point Peg**);

- in the FIX protocol, "OrdType" (tag 40) must be set to "P" (**Peg**), and "Peg Price Type" must be equal to "2" (**Mid Point**).

For Sweep orders, when moved to the Central Order Book, the order type can become:

- **Limit:** not authorized upon submission into the DOB - automatically assigned by the system upon move from DOB to COB, when an order price is provided;
- **Market:** not authorized upon submission into the DOB - automatically assigned by the system upon move from DOB to COB, when an order price is not provided.

The following **Time In Force** (TIF) parameters are authorized for Dark Mid-Point orders:

- for Pure Dark orders:
  - Day;
  - IOC (Immediate Or Cancel) – not available for Post-only orders;
  - FOK (Fill Or Kill) – not available for Post-only orders;
- for Sweep orders:
  - Day;
  - IOC (Immediate Or Cancel);
  - GTD (Good until Day) – only valid once the order sweeps to the COB;
  - GTC (Good until Cancel) – only valid once the order sweeps to the COB.

Dark Mid-Point orders can be submitted with the following account types.

Account type	Dark Non-Sweep Orders	Dark Sweep Orders
1: Client	Yes	Yes
2: House	Yes	Yes
4: RO	No	No
5: Assigned Broker	No	No
6: Liquidity Provider	No	No
7: Related Party	No	No
8: Structured Product Market Maker	No	No

A Dark Mid-Point order will be rejected upon order entry in case one of the prohibited account types is indicated.

Finally, order entry for Mid-Point orders is subject to the usual price and quantity exchange-level controls at order entry. Order entry is rejected in case any of these exchange-level controls is breached:

- the order price, if specified, must be within the price control collars and compatible with the tick table that are set for the instrument;
- the order quantity / value must not exceed the maximum thresholds defined for the instrument.

2.1.5   Features not available for Dark Mid-point orders

Internal Matching System (IMS)

The Euronext IMS functionality, that is configured at participant level, is not applied in the Dark Book.

2.2   QUANTITY RESTRICTION FOR DARK MID-POINT ORDERS

Execution quantity restrictions are available for Dark Mid-Point orders, in the form of MAQ and MES parameters. In both cases, the required minimum execution size must be indicated at order entry in the SBE field 'Minimum Quantity' / FIX "MinQty" (tag 110):

■ MAQ (Minimum Acceptable Quantity): the indicated "Minimum Quantity" threshold can be met by aggregating multiple orders on the opposite side of the Dark Book. The algorithm will go through the order book to find a cumulated quantity superior or equal to the specified Minimum Quantity.

■ MES (Minimum Execution Size): the indicated "Minimum Quantity" threshold can be met by individual orders with remaining quantity equal or larger than the specified minimum quantity. Multiple orders are not aggregated to meet the threshold. The algorithm will go through the order book to find orders with remaining quantity superior or equal to the aggressing Minimum Quantity.

As indicated in paragraph 2.1.3, in order to define whether MES or MAQ is in place for a Dark Mid-Point order, members need to: (i) provide a valid value in SBE field "Minimum Quantity" / FIX "MInQty" (tag 110), and (ii) set Bit / Position 4 ("Minimum Quantity Type") in the "Dark Execution Instruction" (SBE) / "DarkExecutionInstruction" (FIX tag 20052) equal to "**0**" for MAQ, or "**1**" for MES. An order cannot have both MAQ and MES.

Please note that any quantity restriction parameter specified for the Mid-Point book is "lost" when a Sweep order is moved into the Central Order Book (i.e. Minimum Quantity is automatically reset to zero).

2.3   SELF-TRADE PREVENTION IN THE DOB

The Euronext Self-Trade Prevention functionality[1] can be requested for any Dark Mid-Point order in the DOB, using a new, dedicated order parameter described hereinafter. In case the STP is activated for a Dark Mid-Point order and a potential self-match in the DOB is identified, the matching order having the older timestamp will always be deleted.

In order to make a Dark Mid-Pont order eligible to Self-Trade Prevention in the DOB, as indicated in paragraph 2.1.2:
- in the "New order" (01) SBE message, Bit #5 of field "Dark Execution Instruction" (the 'STP Dark Indicator') must be set to "**1**" ('0': STP Dark mechanism disabled; '1': STP Dark mechanism enabled);
- in the "NewOrderSingle" (D) FIX message: Position #5 of field "DarkExecutionInstruction" (tag 20052) must be set to "**1**" ('0': STP Dark mechanism disabled; '1': STP Dark mechanism enabled).

In addition, in order for the STP mechanism to be triggered in the DOB, the two matching orders[2] must have:
- the same Firm ID;
- one of the following 'Account Type' combinations:
  - 'House' vs 'House'[3];
- the same 'STP ID', or field 'STP ID' equal to 'null'.

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[1] For full details on the Optiq® STP functionality, please refer to the document titled "Euronext Markets - Optiq® Self-Trade Prevention (STP) - Functional Overview".

[2] These replicate the conditions that must be satisfied for an STP event in the Central Order Book, with the exception of the equality of the 'STP Rule' ('cancel resting', 'cancel incoming' or 'cancel both'), since this feature is not available in the Dark book.

[3] In addition, for Sponsored Clients only, the STP mechanism is available for agency flows (Account Type = 'Client').

Members are reminded that:

- for Sweep Orders, STP configurations that will apply on sweep to the COB can still be separately configured, using the existing STP fields in the order entry messages. For the COB, the Euronext STP functionality offers the possibility to opt for 'cancel resting', 'cancel incoming' and 'cancel both' options. These features are not available in case of a potential self-match in the DOB, where the matching order with the older timestamp is always deleted;

- in case the price of a Dark Mid-Point order is modified in the DOB, the order keeps its time priority and its timestamp is not modified. For this reason, it is possible that the modified order will be killed upon modification, in case an STP event is immediately triggered against another resting Dark Mid-Point order with a more recent timestamp.

2.4   DARK MID-POINT "UNCROSSING"

Users of the Euronext Dark Mid-Point functionality must be aware that the Mid-Point Book is periodically checked for potential executions that do not derive from an incoming new order, or from a Mid-Point order modification. This process allows in particular to generate trades in the case of the existence of a crossed dark book deriving (for example) from :

- the unavailability of a mid-point price at the moment of a previous, potential match, or;

- the presence of "Post-only" orders in the Mid-point book which were not able to trade earlier, for instance because they came into the dark book but could not aggress any resting contra-orders due to their passive-only feature.

2.5   MARKET STATISTICS

Transactions in the Mid-Point book contribute to the calculation of the following statistics:

- Price statistics (last, high, low and their variations);
- Trade Count;
- On book Continuous Cumulative Quantity;
- On and Off Book Cumulative Quantity.

Please note that as a consequence of the LTP update, Mid-Point transactions may also lead to the triggering of Stop Orders.

Transactions in the Mid-Point book are included in the calculation of the Closing Price, where the related calculation methodology includes trades executed in the continuous trading.

3.   MESSAGE DESCRIPTION SUMMARY

A number of messages have been enhanced, as detailed below, in order to support Dark Mid-Point orders.

Message SBE	Message FIX
New Order (01)	NewOrderSingle (D)
Ack (03)	ExecutionReport (8)
Cancel Replace (06)	OrderCancelReplaceRequest (G)
Cancel Request (12)	OrderCancelRequest (F)
Open Order Request (15)	OrderMassStatusRequest (AF)
Ownership Request (18)	OwnershipRequest (U18)
Mass Cancel (13)	OrderMassCancelRequest (q)

3.1   ORDER ENTRY MESSAGES

3.1.1   SBE

■ **"New Order" (01)** message:

Field "Order Type" must be set equal to "8" (**Mid-Point Peg**).

Field "Dark Execution Instruction":

- For an Order to be **Dark**:
  - Bit #0 **must** be set to '1', otherwise a Mid-Point Peg order is rejected;

- For a Dark Order to be **Sweep** or Not **Sweep**:
  - Bit #3 can be set to '0' (the order cannot move from the Dark Book to the Lit Book), or '1' (a "Sweep" order);

- For a Dark Order to have a **Minimum Quantity**:
  - If the "Minimum Order Quantity" is populated, Bit #4 can be used to define MAQ or MES:
    - If set to '0', a Minimum Acceptable Quantity (MAQ) will apply;
    - If set to '1', a Minimum Executable Size (MES) will apply.

- For a Dark Order to benefit from **Self-Trade Prevention** functionality in the Dark book:
  - Bit #5 can be set to '0' (no STP) or '1' (STP enabled);

- For a Dark (not Sweep) Order to be a **Post-only order**:
  - Bit #6 can be set to '0' (normal order, not a Post-only order) or '1' (Post-only order).

Upon successful submission by the member, Dark Mid-Point orders are acknowledged through an acknowledgement message:

■ **Ack (03)** message

Ack Type = '0' (New Order Ack)

The "Order Priority" field indicates the rank of the Dark order, on its arrival, in the DOB.

When a Sweep Order is swept into the Lit order book, a new Ack (03) message is issued with a new value that indicates its priority vs. the rest of the Central Order Book.

■ **"Fill" (03)** message

Trades executed in the DOB are identified with the specific "Trade Type" value "33" (Dark Trade).

■ **"Cancel Replace" (06)** message

Acceptance of the message will be acknowledged with Ack Type set to '1' (Replace Ack).

Please note that it is not possible to update the "Dark Execution Instruction" for either a Pure Dark or a Sweep Order. So, the values reported in the "Dark Execution Instruction" field must correspond to the status of the order:

- for a Pure Dark order, this field must have bit #0 = '1' (dark order), and bit #3 = '0' (no sweep). Bit #4, #5 and #6 must correspond to the values specified at order entry. Otherwise the Cancel Replace message will be rejected. Also, the 'Order Type' field must be set to '8' (mid-point peg);

- for a Sweep order - since the order that has been already moved into the lit book when the "Cancel Replace" message is received - it must have bit #0 (Dark Indicator) = '0', bit #3 (Sweep indicator) = '0', bit #4 (Minimum Quantity Type) = '0', bit #5 (Dark STP Indicator) = '0' and bit #6 (Post-only indicator) = '0'. Otherwise, the Cancel Replace message will be rejected.

3.1.2 FIX

■ **"NewOrderSingle" (D)** message

Field "OrdType" (tag 40) must be set equal to 'P' (**Peg**).

Field "PegPriceType" (tag 1094) must be set equal to '2' (**Mid Price**).

Field 'DarkExecutionInstruction' (tag 20052):

- For an Order to be **Dark**:
  - Position #0 **must** be set to '1' in, otherwise a Mid-Price Peg order is rejected;
- For a Dark Order to be **Sweep** or Not **Sweep**:
  - Position #3 can be set to '0' (the order cannot move from the Dark Book to the Lit Book), or '1' (a Sweep order);
- For a Dark Order to have a **Minimum Quantity**:
  - If the "Min Qty" (tag 110) is populated, Position #4 can be used to activate the MAQ or MES feature:
    - If set to '0', the order will have a Minimum Acceptable Quantity (MAQ);
    - If set to '1', the order will have a Minimum Executable Size (MES);
- For a Dark Order to benefit of **Self-Trade Prevention** in the Dark book:
  - Position 5 can be set to '0' (no STP) or '1' (STP enabled);
- For a Dark (not Sweep) Order to be a **Post-only order**:
  - Position #6 can be set to '0' (normal order, not a Post-only order) or '1' (Post-only order).

Upon successful submission by the member, Dark Mid-point orders are acknowledged through an acknowledgement message:

■ **"Execution Report" (8)** message for Ack

With "OrdStatus" (tag 39) = '0' (New)

With "ExecType" (tag 150) = '0' (New)

The "OrderPriority" (tag 21004) indicates the rank of the Dark Mid-Point order, on its arrival, in the DOB.

When a Sweep Order is swept into the Lit order book, a new Execution Report (8) is issued, indicates the priority of the order vs. the rest of the Central Order Book.

■ **"Execution Report" (8)**

Trades executed in the DOB are identified with the specific "TradeType" (tag 21010) value "33" (Dark Trade).

■ **"OrderCancelReplaceRequest" (G)** message

"DarkExecutionInstruction" (tag 20052) with Dark Indicator = '1' is mandatory.
"DarkExecutionInstruction" (tag 20052) with sweep order indicator = '1' and Minimum Quantity Type = '1' are optional.
"Price" is mandatory if OrdType = '2', otherwise optional.

In case fields other than "Price", "OrderQty" and "PegOffsetValue" do not match with the ones of the targeted order, the message will be rejected with error code 2101 "Unknown Order".

Please note that it is not possible to update the "DarkExecutionInstruction" for either a Pure or a Sweep Order. So, the values reported in the "DarkExecutionInstruction" must correspond to the status of the order:

- for a Pure Dark order, it must have position #1 set to '1' (dark order) and position #4 set to '0' (no sweep). Also, field "OrdType" (tag 40) must be set to '8' (mid-point peg) and "PegPriceType" (tag 1094) must be equal to '2' (Mid Price);
- for a Sweep Order, as the order has already moved into the Central Order Book when the "OrderCancelReplaceRequest" message is received, it must have position #1 set to '0' and position #4 set to '0'.

3.2   MARKET DATA MESSAGES

3.2.1   Referential messages

■ **"Standing Data" (1007)** message:

The information below is indicated for the instrument:

Field "Dark Eligibility": Indicates eligibility for dark. 0 is not eligible, 1 is eligible.

Field "Dark LiS Threshold": Indicates the minimum amount required for an order to benefit from the MiFIR "Large-In-Scale" pre-trade transparency waiver.

3.2.2   Order book updates

Upon reception of Dark Mid-point orders in the DOB, no message is broadcasted to market participants.

3.2.3   Trade execution

Trades executed in the DOB are published in the Market Data Gateway with the associated message broadcasting:

- **"FullTradeInformation" (1004)** message
  - "Trade Type" = '33' (Dark Trade)
  - "MMT Market Mechanism" = '3' (Dark Order Book)
  - "MMT Transaction Category" = 'D' (Dark Trade)
  - "Transaction Type" = '2' (Dark Trade)

- **"MarketUpdate" (1001)** message
  - "Market Data Update Type" = '35' (Dark Trade)

4. EXAMPLES

The following examples describe the key matching scenarios in the Mid-Point book:

- Examples 1 and 2: basic scenarios of interaction between Mid-Point 'Pure' and 'Sweep' orders (without any quantity restrictions);
- Examples 3, 4 and 5: interaction with a Mid-Point order with a MAQ restriction;
- Examples 6, 7 and 8: interaction with a Mid-Point order with a MES restriction;
- Example 9: Mid-Point "Post-Only" order.

Example 1 – Resting Mid-Point order with no MAQ/MES, aggressed by incoming Sweep and Pure Dark orders without MES/MAQ

- The Mid-Point Order #1 is resting in the Dark Order Book on the Buy Side, without a limit price for execution (i.e. for execution to the current Mid-Point when the order is matched).

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	1	MidPoint Peg	Dark Not Sweep, no MAQ/MES	50	0	-							

- Scenario 1a (incoming sweep order, no price): the Sweep Mid-Point order #2 is entered into the Dark Order Book on the Sell Side. The current Mid-Point is 100:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	1	MidPoint Peg	Dark Not Sweep, no MAQ	50	0	-	-	0	100	*MidPoint Peg*	*Dark Sweep, no MAQ/MES*	*2*	*AAA*

- Order #2 is partially matched at order entry with Order #1 (that is fully executed), for a quantity of 50 @100:
  - the remaining quantity of Order #2 (50) is moved into the Central Limit Order Book as a market order.

- After the processing of the incoming order, the Dark Order Book is empty.

- Scenario 1b (incoming sweep order, with a limit price. Case 'a': limit price compatible with current Mid-Point): the Sweep Mid-Point order #2 is entered into the Dark Order Book on the Sell Side, with a limit price of 99. The current Mid-Point is 100:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	1	MidPoint Peg	Dark Not Sweep, no MAQ	50	0	-	*99*	*0*	*100*	*MidPoint Peg*	*Dark Sweep, no MAQ/MES*	*2*	*AAA*

- Given that the limit price of the sell Order #2 (99) is compatible with the current Mid-Point (100), Order #2 is partially matched at order entry with Order #1 (that is fully executed), for a quantity of 50 @100:
  - the remaining quantity of Order #2 (50) is moved into the Central Limit Order Book as a limit order, with a limit price of 99.
- After the processing of the incoming order, the Dark Order Book is empty.

- Scenario 1c (incoming sweep order, with a limit price. Case 'b': limit price not compatible with current Mid-Point): the Sweep Mid-Point order #2 is entered into the Dark Order Book on the Sell Side, with a limit price of 100.1. The current Mid-Point is 100:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	1	MidPoint Peg	Dark Not Sweep, no MAQ	50	0	-	*100.1*	*0*	*100*	*MidPoint Peg*	*Dark Sweep, no MAQ/MES*	*2*	*AAA*

- Given that the limit price of the sell Order #2 (100.1) is not compatible with the current Mid-Point (100), Order #2 cannot be matched in the Mid-Point book. So, Order #2 is moved for its full quantity into the Central Limit Order Book as a limit order, with a limit price of 100.1[4].
- The Dark Order Book after the processing of the incoming order is the following:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	1	MidPoint Peg	Dark Not Sweep, no MAQ	50	0	-							

_____

[4] The same scenario would apply in case of an empty Dark Order Book on the Buy side (no match possible for the incoming Dark Sweep order).

- Scenario 1d (incoming 'pure' dark order, without a limit price): the non-Sweep Mid-Point order #2 is entered into the Dark Order Book on the Sell Side. The current Mid-Point is 100:

Bid							Ask						
Firm ID	**Order ID**	**OrderType**	**DarkExecInst**	**Qty**	**Min Qty**	**Price**	**Price**	**Min Qty**	**Qty**	**OrderType**	**DarkExecInst**	**Order ID**	**Firm ID**
BBB	1	MidPoint Peg	Dark Not Sweep, no MAQ	50	0	-	-	0	100	*MidPoint Peg*	*Dark Not Sweep, no MAQ/MES*	*2*	*AAA*

- Order #2 is partially matched at order entry with Order #1 (that is fully executed), for a quantity of 50 @100.

- The Dark Order Book after the processing of the incoming order is the following.

Bid							Ask						
Firm ID	**Order ID**	**OrderType**	**DarkExecInst**	**Qty**	**Min Qty**	**Price**	**Price**	**Min Qty**	**Qty**	**OrderType**	**DarkExecInst**	**Order ID**	**Firm ID**
							-	0	50	MidPoint Peg	Dark Not Sweep, no MAQ/MES	2	AAA

- Scenario 1e (incoming pure dark order, with a limit price. Case 'a': limit price compatible with the current Mid-Point): the non-Sweep Mid-Point order #2 is entered into the Dark Order Book on the Sell Side with a limit price of 99. The current Mid-Point is 100:

Bid							Ask						
Firm ID	**Order ID**	**OrderType**	**DarkExecInst**	**Qty**	**Min Qty**	**Price**	**Price**	**Min Qty**	**Qty**	**OrderType**	**DarkExecInst**	**Order ID**	**Firm ID**
BBB	1	MidPoint Peg	Dark Not Sweep, no MAQ	50	0	-	*99*	*0*	*100*	*MidPoint Peg*	*Dark Not Sweep, no MAQ/MES*	*2*	*AAA*

- Since the limit price of the sell Order #2 (99) is compatible with the current Mid-Point (100), Order #2 is partially matched at order entry with Order #1 (that is fully executed), for a quantity of 50 @100.

- The Dark Order Book after the processing of the incoming order is the following:

Bid							Ask						
Firm ID	**Order ID**	**OrderType**	**DarkExecInst**	**Qty**	**Min Qty**	**Price**	**Price**	**Min Qty**	**Qty**	**OrderType**	**DarkExecInst**	**Order ID**	**Firm ID**
							99	0	50	MidPoint Peg	Dark Not Sweep, no MAQ/MES	2	AAA

- Scenario 1f (incoming pure dark order, with a limit price. Case 'b': limit price not compatible with the current Mid-Point): the non-Sweep Mid-Point order #2 is entered into the Dark Order Book on the Sell Side with a limit price of 101. The current Mid-Point is 100:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	1	MidPoint Peg	Dark Not Sweep, no MAQ	50	0	-	*101*	*0*	*100*	*MidPoint Peg*	*Dark Not Sweep, no MAQ/MES*	*2*	*AAA*

- Since the limit price of the sell Order #2 (101) is not compatible with the current Mid-Point (100), no match is possible and Order #2 remains in the Dark Order book.

- The Dark Order Book after the processing of the incoming order is the following:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	1	MidPoint Peg	Dark Not Sweep, no MAQ	50	0	-	101	0	100	MidPoint Peg	Dark Not Sweep, no MAQ/MES	2	AAA

Example 2 – Resting Mid-Point Order with a limit price not compatible with the current Mid-Point

- The Mid-Point Order #1 is resting in the Dark Order Book on the Sell Side, with a limit price of 10.

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
							10	0	5	MidPoint Peg	Dark Not Sweep, no MAQ/MES	1	AAA

- The Mid-Point non-Sweep Order #2 is entered into the Dark Order Book on the Buy Side, without a limit price for execution.

- <u>Scenario 2a</u>: the current Mid-Point is equal to 9.9:

Bid							Ask					
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	*2*	*MidPoint Peg*	*Dark Not Sweep, no MAQ/MES*	*110*	*0*	*-*	10	0	5	MidPoint Peg	Dark Not Sweep, no MAQ/MES	1	AAA

- The two orders cannot match, because the limit price of the resting Order #1 (a sell order with a limit of 10) is not consistent with the current Mid-Point of 9.9. So, the incoming order #2 remains in the Mid-Point book.

- <u>Scenario 2b</u>: the current Mid-Point is equal to 10.1:

Bid							Ask					
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	*2*	*MidPoint Peg*	*Dark Not Sweep, no MAQ/MES*	*110*	*0*	*-*	10	0	5	MidPoint Peg	Dark Not Sweep, no MAQ/MES	1	AAA

- The two orders are matched for a quantity of 5, generating a trade for a quantity of 5 @10.1.

- The Dark Order Book after the processing of the incoming Order #2 is the following:

Bid							Ask					
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	2	MidPoint Peg	Dark Not Sweep, no MAQ/MES	105	0	-							

Example 3 – Minimum Acceptable Quantity: Incoming order with MAQ, resting orders without MAQ

- The Mid-Point Orders #1 and #2 are in the Dark Order Book on the Buy Side, without a limit price for execution and with no quantity restriction.

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
AAA	1	MidPoint Peg	Dark Not Sweep, no MES/MAQ	15	0	-							
BBB	2	MidPoint Peg	Dark Not Sweep, no MES/MAQ	10	0	-							

- The Mid-Point orders #3 and #4 sequentially entered into the Dark Order Book on the Sell Side. The current Mid-Point is 100. The incoming orders are processed as follows:

  - the Mid-Point Sweep Order #3, with a MAQ of 50, is entered. It fails to match due to its MAQ restriction (50 > total executable quantity available on the Bid side, 25). Being a Sweep Order, it is immediately moved to the Central Order Book for its total quantity (in this case, as a market order). Its minimum quantity restriction is ignored when the order is processed for execution in the COB.

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
AAA	1	MidPoint Peg	Dark Not Sweep, no MES/MAQ	15	0	-	-	50	100	*MidPoint Peg*	*Dark Sweep, with MAQ*	*3*	*CCC*
BBB	2	MidPoint Peg	Dark Not Sweep, no MES/MAQ	10	0	-							

  - the Mid-Point Non Sweep Order #4, with a MAQ of 25, is entered:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
AAA	1	MidPoint Peg	Dark Not Sweep, no MES/MAQ	15	0	-	-	25	100	*MidPoint Peg*	*Dark Not Sweep, with MAQ*	*4*	*DDD*
BBB	2	MidPoint Peg	Dark Not Sweep, no MES/MAQ	10	0	-							

- Given that the MAQ of Order #4 is fulfilled (25 = total executable quantity available on the Bid side), order #3 matches with Orders #1 and #2:

  a. Order #4 matched with Order #1, that is fully executed (quantity of 15 @100);
  b. Order #4 matched with Order #2, that is fully executed (quantity of 10 @100).

- After processing of Order #4, the Dark Order Book is as follows:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
							-	25	75	*MidPoint Peg*	*Dark Not Sweep, with MAQ*	*4*	*DDD*

Example 4 – Minimum Acceptable Quantity: Resting order with MAQ, incoming orders without MAQ

- The Mid-Point Order #1 is in the Dark Order Book on the Buy Side, with a MAQ of 50 and without a limit price for execution.

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	1	MidPoint Peg	Dark Not Sweep, with MAQ	110	50	-							

- The Mid-Point orders #2, #3 and #4 are sequentially entered into the Dark Order Book on the Sell Side. The current Mid-Point is 100. The incoming orders are processed as follows:

  - the Mid-Point Sweep Order #2, with a quantity of 5, is entered. It fails to match with Order #1, due to the MAQ restriction of Order #1. Being a Sweep Order, it is immediately moved to the Central Order Book (in this case, as a market order).

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	1	MidPoint Peg	Dark Not Sweep, with MAQ	110	50	-	-	*0*	*5*	*MidPoint Peg*	*Dark Sweep, no MAQ*	*2*	*AAA*

– The Mid-Point non-Sweep Order #3, with a quantity of 45, is entered. It cannot match with Order #1, due to the MAQ restriction of Order #1. Being a 'pure' Mid-Point order (no sweep), it remains unexecuted in the Dark Order Book. The status of the Mid-Point book becomes the following:

Bid							Ask					
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	1	MidPoint Peg	Dark Not Sweep, with MAQ	110	50	-	-	*0*	*45*	*MidPoint Peg*	*Dark Not Sweep, no MAQ*	*3*	*CCC*

– The Mid-Point non-Sweep Order #4 is entered. Now, the MAQ condition of the resting order #1 is satisfied with he total quantity available in the sell side (total quantity of 55 > MAQ of 50):

Bid							Ask					
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	1	MidPoint Peg	Dark Not Sweep, with MAQ	110	50	-	-	0	45	MidPoint Peg	Dark Not Sweep, no MAQ	3	CCC
							-	*0*	*55*	*MidPoint Peg*	*Dark Not Sweep, no MAQ*	*4*	*DDD*

– Given that the MAQ condition of the resting order is satisfied, the following matches are triggered:

– the incoming order #4 is matched first against the resting Order #1, for a quantity of 55 @100;

– second, the resting order #1 is re-assessed against the opposite side of the book. In this step, its MAQ is ignored since it was already fulfilled during the processing of the incoming order. So, Order #1 trades against order #3, for a quantity of 45 @100.

• After full processing of the incoming Order #4, the Dark Order Book is as follows. Please note that the MAQ of Order #1 is remaining in place but it is adjusted to a quantity of 10 to reflect the remaining quantity of order #1. , and It will be re-assessed during the next matching event.

Bid							Ask					
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	1	MidPoint Peg	Dark Not Sweep, with MAQ	10	10	-							

Example 5 – Minimum Acceptable Quantity: Resting and Incoming orders with MAQ

- The Mid-Point Order #1 is in the Dark Order Book on Sell Side with a quantity of 200, a MAQ of 100 and without a limit price for execution.

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
							-	100	200	MidPoint Peg	Dark Not Sweep, with MAQ	1	AAA

- The Mid-Point orders #2 and #3 (non-Sweep) are sequentially entered into the Dark Order Book on the Buy Side, without a limit price for execution and with quantity/MAQ of 20/10 and 10/5, respectively. The current Mid-Point is 100.

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	*2*	*MidPoint Peg*	*Dark Not Sweep, with MAQ*	*20*	*10*	*-*	*-*	100	200	MidPoint Peg	Dark Not Sweep, with MAQ	1	AAA
CCC	*3*	*MidPoint Peg*	*Dark Not Sweep, with MAQ*	*10*	*5*	*-*							

- Order #1 has a MAQ of 100, so it can't match with Order #2 and Order #3, due to their total quantity of 30. So, the two orders remain unexecuted in the Dark Order Book.

- The Mid-Point Order #4 is entered into the Dark Order Book on the Sell Side (without a limit price for execution, and with a MAQ of 20).

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	2	MidPoint Peg	Dark Not Sweep, with MAQ	20	10	-	-	100	200	MidPoint Peg	Dark Not Sweep, with MAQ	1	AAA
CCC	3	MidPoint Peg	Dark Not Sweep, with MAQ	10	5	-	*-*	*20*	*100*	*MidPoint Peg*	*Dark Not Sweep, with MAQ*	*4*	*DDD*

- The incoming Order #4 is processed for matching against the buy side of the book (the MAQ restrictions for orders #2, #3 and #4 are all satisfied):
  - Order #4 can match with Order #2 → Order #4 is partially matched with Order #2 (fully executed), for a quantity of 20 @100.
  - Order #4 can match with Order #3 → Order #4 is partially matched with Order #3 (fully matched), for a quantity of 10 @100.

- The Dark Order Book after the processing of the incoming Orders is as follows:

Bid							Ask						
Firm ID	**Order ID**	**OrderType**	**DarkExecInst**	**Qty**	**Min Qty**	**Price**	**Price**	**Min Qty**	**Qty**	**OrderType**	**DarkExecInst**	**Order ID**	**Firm ID**
							-	100	200	MidPoint Peg	Dark Not Sweep, with MAQ	1	AAA
							-	20	70	MidPoint Peg	Dark Not Sweep, with MAQ	4	DDD

<u>Example 6 – Minimum Execution Size: incoming order with MES</u>

- The Mid-Point book is in the following status. The resting orders do not have quantity restrictions and are for execution at the Mid-Point when matched:

Bid							Ask						
Firm ID	**Order ID**	**OrderType**	**DarkExecInst**	**Qty**	**Min Qty**	**Price**	**Price**	**Min Qty**	**Qty**	**OrderType**	**DarkExecInst**	**Order ID**	**Firm ID**
							-	0	20	MidPoint Peg	Dark not Sweep, no MAQ/MES	1	AAA
							-	0	10	MidPoint Peg	Dark not Sweep, no MAQ/MES	2	BBB

- The Mid-Point non-Sweep Order #3 is entered in the Mid-Point book with a quantity of 100, a MES of 20 and for execution at the Mid-Point when matched:

Bid							Ask						
Firm ID	**Order ID**	**OrderType**	**DarkExecInst**	**Qty**	**Min Qty**	**Price**	**Price**	**Min Qty**	**Qty**	**OrderType**	**DarkExecInst**	**Order ID**	**Firm ID**
CCC	*3*	*MidPoint Peg*	*Dark not Sweep, with MES*	*100*	*20*	*-*	-	0	20	MidPoint Peg	Dark not Sweep, no MAQ/MES	1	AAA
							-	0	10	MidPoint Peg	Dark not Sweep, no MAQ/MES	2	BBB

- The Mid-Point non-Sweep Order #3 is executed as follows. The current Mid-Point is 100:

    – given that the quantity of Order #1 (20) is compatible with the MES of Order #3, Order #3 is partially matched with Order #1 (fully executed) for a quantity of 20 @100;
    – Order #3 cannot be matched with Order #2, since its total quantity (10) is below the MES of Order #3 (20).

- At the end of the processing of Order #3, the Mid-Point book is the following:

Bid						Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
CCC	3	MidPoint Peg	Dark not Sweep, with MES	80	20	-	-	0	10	MidPoint Peg	Dark not Sweep, no MAQ/MES	2	BBB

Example 7 – Minimum Execution Size: resting order with MES

- The Mid-Point book is in the following status. It contains one order without quantity restriction, one with MES and one with MAQ. All resting orders are for execution at the Mid-Point when matched:

Bid						Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
							-	0	125	MidPoint Peg	Dark not Sweep, no MAQ/MES	1	AAA
							-	25	75	MidPoint Peg	Dark not Sweep, with MAQ	2	BBB
							-	25	50	MidPoint Peg	Dark not Sweep, with MES	3	CCC

- The Mid-Point non-Sweep Order #4 is entered in the Mid-Point book without any quantity restriction, with a quantity of 210 and for execution at the Mid-Point when matched:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
DDD	*4*	*MidPoint Peg*	*Dark not Sweep, no MAQ/MES*	*210*	*-*	*-*	-	0	125	MidPoint Peg	Dark not Sweep, no MAQ/MES	1	AAA
							-	25	75	MidPoint Peg	Dark not Sweep, with MAQ	2	BBB
							-	25	50	MidPoint Peg	Dark not Sweep, with MES	3	CCC

- The Mid-Point non-Sweep Order #4 is executed as follows. The current Mid-Point is 100:
  - Order #4 is partially matched with Order #1, that has no quantity restrictions. Order #1 is fully executed for a quantity of 125 @100;
  - Order #4 is then partially matched with Order #2 (fully executed), since its remaining quantity (85) is above Order #2 MAQ (25). A trade is generated for a quantity of 75 @100;
  - the remaining quantity of Order #4 (10) cannot be matched against Order #3, due to its MES of 25.

- At the end of the processing of Order #4, the Mid-Point book is the following:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
DDD	4	MidPoint Peg	Dark not Sweep, no MAQ/MES	10	-	-	-	25	50	MidPoint Peg	Dark not Sweep, with MES	3	CCC

Example 8 – Minimum Execution Size: resting and incoming orders with MES

- The Mid-Point book is in the following status:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
							-	50	150	MidPoint Peg	Dark not Sweep, with MES	1	AAA
							-	0	50	MidPoint Peg	Dark not Sweep, no MAQ/MES	2	BBB

- The Mid-Point non-Sweep Order #3 is entered in the Mid-Point book with a MES of 100, a quantity of 200 and for execution at the Mid-Point when matched:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
CCC	*3*	*MidPoint Peg*	*Dark not Sweep, with MES*	*200*	*100*	*-*	-	50	150	MidPoint Peg	Dark not Sweep, with MES	1	AAA
							-	0	50	MidPoint Peg	Dark not Sweep, no MAQ/MES	2	BBB

- The Mid-Point non-Sweep Order #3 is executed as follows. The current Mid-Point is 100:
  - Order #3 will be partially executed for a quantity of 150 @100 with Order #1 (fully executed), since:
    - the quantity of Order #3 (200) is above the MES of Order #1 (50);
    - the quantity of Order #1 (150) is above the MES of Order #3 (100);
  - a trade of 150 @100 is generated, and the remaining quantity of Order #3 (50) remains in the Mid-Point book. Its MES is consequently reduced to 50 (equal to the residual quantity of the order).

- The Mid-Point book is the following:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
CCC	3	MidPoint Peg	Dark not Sweep, with MES	50	50	-	-	0	50	MidPoint Peg	Dark not Sweep, no MAQ/MES	2	AAA

- Following the review of the MES of order #3, a new trade for a quantity of 50 @100 is generated between Orders #2 and #3.

- After this execution, the Mid-Point book will be empty.

Example 9 – Dark Mid-Point Order with Post-only option

- The Mid-Point book is in the following status:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
AAA	1	MidPoint Peg	Dark Not Sweep, no MAQ/MES	150	0	10							
BBB	2	MidPoint Peg	Dark Not Sweep, no MAQ/MES	100	0	10							

- A new Mid-Point sell Order #3, with Post-only option, is entered in the book without a limit price for execution. The current Mid-Point price is equal to 10:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
AAA	1	MidPoint Peg	Dark Not Sweep, no MAQ/MES	150	0	10	-	0	100	MidPoint Peg	Dark Not Sweep, no MAQ/MES, Post only	3	CCC
BBB	2	MidPoint Peg	Dark Not Sweep, no MAQ/MES	100	0	10							

- Even though the current Mid-Point would be compatible for execution between Order #1 and #3, no matching can happen when Order #3 is aggressing the book since it is a Post-Only order. As a consequence, the status of the Dark Order Book will become the following:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
AAA	1	MidPoint Peg	Dark Not Sweep, no MAQ/MES	150	0	10	-	0	100	MidPoint Peg	Dark Not Sweep, no MAQ/MES, Passive only	3	CCC
BBB	2	MidPoint Peg	Dark Not Sweep, no MAQ/MES	100	0	10							

- <u>Scenario 1</u>: Before any regular "uncrossing" is run in the system, a new Mid-Point buy order is entered in the book, with a limit price of 10. The current mid point is still equal to 10:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
AAA	1	MidPoint Peg	Dark Not Sweep, no MAQ/MES	150	0	10	-	0	100	MidPoint Peg	Dark Not Sweep, no MAQ/MES, Passive only	3	CCC
BBB	2	MidPoint Peg	Dark Not Sweep, no MAQ/MES	100	0	10							
DDD	*4*	*MidPoint Peg*	*Dark Not Sweep, no MAQ/MES*	*100*	*0*	*10*							

- Order #4 will trade immediately against the Post-only order #3, for a quantity of 100 @10.

- The status of the Dark Order Book will be the following:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
AAA	1	MidPoint Peg	Dark Not Sweep, no MAQ/MES	150	0	10							
BBB	2	MidPoint Peg	Dark Not Sweep, no MAQ/MES	100	0	10							

- <u>Scenario 2</u>: no change is happening in the Dark Order Book till a regular "uncrossing" is run in the system. The Dark Order Book is in the following status:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
AAA	1	MidPoint Peg	Dark Not Sweep, no MAQ/MES	150	0	10	-	0	100	MidPoint Peg	Dark Not Sweep, no MAQ/MES, Passive only	3	CCC
BBB	2	MidPoint Peg	Dark Not Sweep, no MAQ/MES	100	0	10							

- Order #1 (due to its higher size) will trade immediately against the Post-only order #3, for a quantity of 100 @10.

- The status of the Dark Order Book will be the following:

Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
AAA	1	MidPoint Peg	Dark Not Sweep, no MAQ/MES	50	0	10							
BBB	2	MidPoint Peg	Dark Not Sweep, no MAQ/MES	50	0	10							