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EURONEXT MID-POINT MATCH | NON-DISPLAYED TRADING FUNCTIONALITIES – OVERVIEW

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PREFACE

ABOUT THIS DOCUMENT

This document describes the functional and technical requirements related to the implementation of the non-displayed trading functionalities in the Lit Euronext Central Order book.

RELATED DOCUMENTS

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

■ 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

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1.   INTRODUCTION

1.1   OVERVIEW

Euronext is introducing Non-displayed, Mid-point trading functionalities on the Central Order Book in 2024.

Euronext will launch dark mid-point order types, with optionality of dark-to-lit sweep functionalities within its Central Order Book, allowing participants to source liquidity in both Dark and Lit trading pools while minimising market impact and reducing the risk of information leakage for reference prices.

Operating under the Reference Price and LIS Waivers, members will be allowed to send orders without pre-trade transparency for execution at the mid-point of Euronext's Best Bid and Offer (BBO).

These new functionalities aim at providing greater flexibility and enhanced execution quality.

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

The service is available only during the continuous trading sessions. It is fully embedded onto the Optiq System under the same MIC code of the main markets.

As soon as market participants implement the necessary modifications required to use the model, including conformance tests, they will immediately be able to benefit from the existing invisible liquidity.

1.2   KEY FEATURES OF THE MODEL

A Dark order is an instruction to buy or sell a certain amount without being visible to the market. However, a trade execution involving a Dark order will have its details released to the market. Dark orders are interacting in a Dark Order Book (DOB), separated from the Central Order Book (COB).

The key features are the following:

- **Service within Central Order Book:** the functionality will be developed within Euronext's Central Order Book. The service will be available through the current Optiq architecture, without the need for extra connectivity, as it is fully embedded in the current Optiq messages.
- **Mid-point orders:** Orders are pegged to the Mid-point of the Bid / Ask spread visible in the Lit order book. These orders are continuously re-priced as the reference price changes.
  - **Mid-point orders may be sent with a limit price**, which will served as a floor or ceiling price preventing the order from being executed at a mid-point past the specified. This is done using the standard Order Price field.
  - **Mid-point Dark/Lit sweep Option:** When entering a mid-point order, a sweep functionality is available. If the functionality is set at the order entry and the order is not immediately and fully executed, the remaining quantity of the order will switch from the Dark Order Book (DOB) to the Central Order Book (COB). The sweep functionality is limited to Immediate or Cancel (IOC) orders only.

- ▪ *If the order is **Dark** and **Sweeps**:*
    - *and the field Price is populated:*
        – *Then the order will become a Limit order, with limit price equal to the Price field, when moved to the COB The price will be checked against the Order Price Control Collars upon entry into the Dark Order Book (DOB)*
        – *If outside collars, the order will be rejected. Otherwise, order is accepted.*
        – *The price must be submitted to a Tick Size check (as it will be compliant with the Tick Size Table when sweeping in the COB)*
    - *and the field price is **NOT** populated:*
        – *Then the order will be set with Order Type equal to "Market" when moved to the Lit Order Book (COB)*

- – At the Order Entry, additional features preventing interaction with undesired order flow exist. Members can enter a **Minimum Acceptable Quantity** for the Order to be Executed (MAQ) or a **Minimum Execution Size (MES)**.

    - ▪ MAQ (Minimum Acceptable Quantity): control the minimum total Execution of the order – aggregating multiple orders on the counterpart size until to match or goes above the MAQ

    - ▪ MES (Minimum Execution size): control the minimum execution size of any individual potential execution.

- ■ **Execution Priority:** This pool of liquidity is exclusively composed of dark Mid-Point orders. As per definition, all the Mid-Point orders have the same price, which means the Order Price can no longer be used as sorting criteria. As such, the execution across dark mid-point orders is based on a size/time execution priority rule.

  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 Order Quantity of the order.This information will be distributed in the Ack message.

2. FUNCTIONAL DESCRIPTION – CONTINUOUS PHASE

This document provides the functional description of this service. It covers the functionalities implemented within the Optiq Trading Solution to manage Mid-point Orders and dark/lit sweep orders.

2.1 DARK ORDERS

Mid-point order is an order that can be executed only at the mid-point of the central order book, from now on, we will refer to as mid-point order in this document.

As no pre-trade information is disseminated for mid-point orders, the Dark Order Book is operates under the MiFIRReference price and LIS waivers

- **Reference Price Waivers (RPW)** refers to a pre-trade transparency waiver set by the European regulation MiFID II. It is granted when a trading methodology is based on a price that is determined in accordance with a reference price generated by another system, where that reference price is widely published and is regarded generally by market participants as a reliable reference price.
- **Large In Scale (LIS)** refers to a pre-trade transparency waiver set by the European regulation MiFID II. It permits large order to benefit from an exemption of pre-trade transparency.

2.1.1 Mid-point order entry

This service will be implemented and available for all stocks in continuous trading mode, traded on Euronext regulated markets or Euronext MTFs, where the trading venue of the instrument is the primary market or market of reference.

All members that have developed the feature will be able to use it without having to go through a specific registration process.

In order to enter an order as a Mid-point order, the Member needs to identify it as such in the **NewOrder** (01) / (FIX **New Order Single** (D)) message with the following settings:
- The "Dark Execution Instruction" (DarkExecutionInstruction) in SBE/FIX protocols:
  - For an Order to be **Dark**:
    - The field **must be set** to '1' in the bit 0 – Represents the "Dark Instruction" (whether an order is dark or not)
  - For a Dark Order to be **Sweep** or Not **Sweep**:
    - Can be set to '0' or '1' in the bit 3 – Represents the "Sweep Order Instruction" (whether an order can be moved from the Dark Book to the LIT Book, i.e. if an order is Sweep or Not)
  - For a Dark Order to have a **Minimum Quantity**:
    - Can be set to '0' or '1' in the bit 4 – Represents the "Minimum Quantity Type" (whether an order has to have certain quantities filled)

When matched, the execution message, **Fill** (04) / (FIX **ExecutionReport** (8)) will contain in the *Trade Type* field / Trade Type tag 21010, the value "**33**" for "Dark Trade".

2.1.2 Order Types and Time In Force

The following Order Types are authorized:

- for **Dark Non-Sweep Orders (Pure Dark orders without Lit interaction)**:
  - Mid-Point Peg
- for **Dark Sweep orders (potential interaction with Euronext Central Order Book – COB)**:
  - Upon Entry into Dark Order Book:
    - Mid-Point Peg
  - Upon move into Central Order Book:
    - **Limit** – not authorized upon submission into DOB, but later determined upon move from DOB to COB (if "Order Price" is provided)
    - **Market** – not authorized upon submission, but later determined upon move from DOB to COB (if "Order Price" is not provided)

The following **Time In Force** (TIF) are authorized:

- for Dark Non-Sweep orders:
  - Day
  - IOC (Immediate Or Cancel)
  - FOK (Fill Or Kill)
- for Dark Sweep orders:
  - Day
  - IOC (Immediate Or Cancel)
  - GTD (Good until Day)
  - GTC (Good until Cancel)

Dark orders cannot be specified with an Account Type = '4' – RO / '5' – Assigned Broker/ '6' – Liquidity Provider / '8' – Structured Product Market Maker and will be rejected upon order entry if the mentioned account types are used..

2.1.3 Features not available for Mid-point orders

Some current features available for regular lit orders are not permitted for Mid-point orders.

Self-Trade Prevention (STP)

The STP feature is not applicable to Mid-point orders.

If for these orders the STP is requested, the order will not be rejected but the STP will not apply. STP applies only when both orders are lit.

Internal Matching System (IMS)

Note that, during the continuous phase, trades generated from two orders belonging to the same IMS group would be flagged as per normal. However, the IMS Priority will not be applied between Mid-point orders.

2.1.4   Sweep Orders

Members can request their orders to interact with the Lit pools of liquidity (Euronext Central Order Book).

To do so, in the **NewOrder** (01) / (FIX NewOrderSingle [D]) message and in the current *Dark Execution Instruction /* DarkExecutionInstruction (tag 20052) field, the *Sweep Order Instruction* must be set to **1** (Yes) - It can be set to '0' or '1' in the bit 3, which represents the "Sweep Order Instruction".

2.1.5   Order Ranking and Interaction

The introduction of Mid-point orders, along with new order types, does not impact the regular lit orders ranking by Price/Priority. But, as some orders can try to match with both Mid-point and Standard orders, the regular FIFO ranking has been amended to take the Dark sweep orders into account.

As such, orders are now ranked with the following criteria, from the most important to the least important:

1. **Price**
2. **Transparency**: lit orders have a higher ranking than Mid-point orders
3. **Timestamps**.

2.2   QUANTITY RESTRICTION FOR MID-POINT ORDERS

Execution quantity restrictions are available for mid-point order, in the form of MAQ and MES parameters. In both cases, the required minimum execution size to be indicated at order entry in the field 'Minimum Quantity':

- MAQ (Minimum Acceptable Quantity): The Minimum Quantity threshold can be met by aggregating multiple orders on the opposite of the book. The algorithm will go through the order book to find a cumulated quantity superior or equal to the Minimum Quantity.
- MES (Minimum Execution Size): The Minimum Quantity threshold can only be met by orders with size equal or larger than the minimum. Multiple orders cannot be aggregated to meet the threshold. The algorithm will go through the order book to find orders with Minimum Quantity higheror equal to the aggressing MES Minimum Quantity.

To define MAQ and MES, members need to fill in the *Dark Execution Instruction /* DarkExecutionInstruction (tag 20052) field the *Minimum Quantity* Instruction set to **0** (MAQ) or **1** (MES).

An order cannot have both the MAQ and the MES.

3. MESSAGE DESCRIPTION SUMMARY

A number of messages have been enhanced, as detailed below, in order to support this service related to 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

The "Dark Execution Instruction" field:

– For an Order to be **Dark**:
  - The field **must be set** to '1' in the bit 0 – Represents the "Dark Instruction" (whether an order is dark or not)

– For a Dark Order to be **Sweep** or Not **Sweep**:
  - Can be set to '0' or '1' in the bit 3 – Represents the "Sweep Order Instruction" (whether an order can be moved from the Dark Book to the LIT Book, i.e. if an order is Sweep or Not)

– For a Dark Order to have a **Minimum Quantity** (Minimum Quantity Type" bit (4))
  - If the "Minimum Order Quantity" is populated, bit 4 can be used to use the MAQ or MES features:

    • If populated with '0', the Minimum Acceptable Quantity (MAQ) will apply
    • If populated with '1', the Minimum Executable Size (MES) will apply"

Upon successful submission by the member, 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 Dark 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 lit order book.

Trades executed in the DOB are identified with a specific Trade Type:

■ **Fill (03)** message

Trade Type = "Dark Trade (33)"

■ **Cancel Replace (06)** message

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

The Order Priority might be updated, depending on the type of modification.

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

- for a Dark order, it must have bit 0 set to '1' and bit 3 set to '1'. Also, the 'Order type' field must be set to '8' (mid-point peg);
- for a Dark Sweep order (as the order that has moved into the lit book), it must have bit 0 set to '0' and bit 3 set to '0'.

3.1.2 FIX

■ **NewOrderSingle (D)** message

The DarkExecutionInstruction (20052):

 – For an Order to be **Dark**:
  - The field **must be set** to '1' in position 1 – Represents the "Dark Instruction" (whether an order is dark or not)
 – For a Dark Order to be **Sweep** or Not **Sweep**:
  - Can be set to '0' or '1' in position 4 – Represents the "Sweep Order Instruction" (whether an order can be moved from the Dark Book to the LIT Book, i.e. if an order is Sweep or Not)
 – For a Dark Order to have a **Minimum Quantity**:
  - Can be set to '0' or '1' in position 5– Represents the "Minimum Quantity Type" (whether an order has to have certain quantities filled)

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

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

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

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

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

When a Dark Sweep order is swept into the Lit order book, a new Execution Report (8) message is issued with a new value that indicates its priority vs. the rest of the lit order book.

Trades executed in the DOB are identified with a specific TradeType:

■   **Execution Report (8)** message for Fill

TradeType (21010) = "Dark Trade (33)"

■   **OrderCancelReplaceRequest (G)** message

Dark Execution Instruction with Dark Indicator = 1 is mandatory
Dark Execution Instruction with sweep order indicator = 1 and Minimum Quantity Type=1 are optional
Price mandatory if OrdType = 2, otherwise optional

In case other fields than Price, OrderQty and PegOffsetValue do not match with the ones of the targeted order it will lead to the rejection of the request with the error code 2101 "Unknown Order".

Please note that it is not possible to update the DarkExecutionInstruction (20052) for either a Dark (not sweep) or a Dark Sweep Order. So, the values reported in the DarkExecutionInstruction (20052) must correspond to the status of the order:

- for a Dark order, it must have position 1 set to '1' and position 4 set to '1'. Also, OrdType (40) must be set to '8' (mid-point peg);
- for a Dark Sweep order (as the order that has moved into the lit book), it must have position1 set to '0' and position 4 set to '0'.

The Order Priority might be updated, depending on the type of modification.

3.2   MARKET DATA MESSAGES

3.2.1   Referential messages

■   **Standing Data (1007)** is updated to display the information below:

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

Dark LiS Threshold: Defines the minimum amount required for an order to benefit from the LiS (Large-In-Scale) pre-trade transparency waiver (to be calculated with the Amount Decimals).

3.2.2   Trade message

Upon reception of Mid-point orders by the Matching Engine, no message is broadcast to market participants.

Dark trades are published in the Market Data Gateway with the associated message broadcasting:

■   FullTradeInformation message (1004)
Trade Type = Dark Trade (35)

MMT Market Mechanism = Dark Order Book (3)

MMT Transaction Category = Dark Trade ('D')

Transaction Type = Dark Trade (2)

■ MarketUpdate message (1001)

Market Data Update Type = Dark Trade (35)

4. EXAMPLES

Example 1 – Dark Orders interact in DOB (Continuous Phase)

In this example, all Dark Orders interact:

1. Order 4 is entered into the Dark Order Book on Buy Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

Dark Pool - Dark Order Book in Continuous Phase												
Bid							**Ask**					
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	4	Mid-Point Peg	Dark Not Sweep MAQ	110	0	*MidBBO*						

2. Order 5, 6, 7 and 8 are entered into the Dark Order Book on Sell Side:
   a. Order 5 must be immediately matched with Order 4 (otherwise, if it hadn't been able to match, it would have been moved to the Central Order Book)

Dark Pool - Dark Order Book in Continuous Phase												
Bid							**Ask**					
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	4	Mid-Point Peg	Dark Not Sweep MAQ	110	0	*MidBBO*	*-*	*0*	*5*	*Mid-Point Peg*	*Dark Sweep MAQ*	*5*	*AAA*
							-	0	45	Mid-Point Peg	Dark Not Sweep MAQ	6	CCC
							-	0	30	Mid-Point Peg	Dark Not Sweep MAQ	7	DDD
							-	0	20	Mid-Point Peg	Dark Not Sweep MAQ	8	EEE

3. Orders Matching:
   a. Order #4 with Order #5 at MidBBO for a quantity of 5
   b. Order #4 with Order #6 at MidBBO for a quantity of 45
   c. Order #4 with Order #7 at MidBBO for a quantity of 30
   d. Order #4 with Order #8 at MidBBO for a quantity of 20

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

Dark Pool - Dark Order Book in Continuous Phase												
Bid							**Ask**					
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	4	Mid-Point Peg	Dark Not Sweep MAQ	10	0	-						

Example 2 – Dark Orders interact in DOB with Minimum Quantity (Continuous Phase)

In this example, all Dark Orders interact:

1. Order 4 is entered into the Dark Order Book on BuySide (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

Dark Pool - Dark Order Book in Continuous Phase												
Bid							Ask					
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	4	Mid-Point Peg	Dark Not Sweep MAQ	110	50	*MidBBO*							

2. Order 5, 6, 7 and 8 are entered into the Dark Order Book on Sell Side, while Order 4 is entered on the Buy side (with Minimum quantity of 50):

    a. Order 5 fails to match with Order 4 and is moved to Central Order Book (see point 4.c below). Depending on whether the Order Price field was populated or not, the Order is made available in the COB with Order Type set to Limit or Market

Dark Pool - Dark Order Book in Continuous Phase												
Bid							Ask					
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	4	Mid-Point Peg	Dark Not Sweep MAQ	110	50	*MidBBO*	*-*	*0*	*5*	*Mid-Point Peg*	*Dark Sweep MAQ*	*5*	*AAA*
							-	0	45	Mid-Point Peg	Dark Not Sweep MAQ	6	CCC
							-	0	55	Mid-Point Peg	Dark Not Sweep MAQ	7	DDD
							-	0	20	Mid-Point Peg	Dark Not Sweep MAQ	8	EEE

3. Orders Matching:

    a. Order #4 with Order #7 at MidBBO for a quantity of 55

4. Orders Moving:

    a. Order #5 doesn't match in DOB (Dark Order Book) and it's moved to the COB (Central Order Book)

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

Dark Pool - Dark Order Book in Continuous Phase												
Bid							Ask					
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	4	Mid-Point Peg	Dark Not Sweep MAQ	55	50	*MidBBO*	-	0	45	Mid-Point Peg	Dark Not Sweep MAQ	6	CCC
							-	0	20	Mid-Point Peg	Dark Not Sweep MAQ	8	EEE

c. The Central Order Book after the processing of the moving Orders is as follows:

Lit Pool - Central Order Book in Continuous Phase													
Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
							Market	0	5	Market	Lit Not Sweep	5	AAA

Example 3 – Dark Orders interact and partially match (Continuous Phase)

In this example, all Dark Orders interact:

5. Order 4 is entered into the Dark Order Book on Sell Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

Dark Pool - Dark Order Book in Continuous Phase													
Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	4	Mid-Point Peg	Dark Not Sweep MES	10	0	*MidBBO*							

6. Order 5 and 6 are entered into the Dark Order Book on Sell Side

   a. Order 5 must be immediately matched with Order 4 (otherwise, if it hadn't been able to match, it would have been moved immediately to the Central Order Book). The Order, with its remaining quantity, is then moved to the Central Order Book (COB).

      i. Depending on whether the Order Price field was populated or not, the Order is made available in the COB with Order Type set to Limit or Market

   b. Order 6 fails to match with anything in the Dark Order Book and is moved to the Central Order Book.

      i. Depending on whether the Order Price field was populated or not, the Order is made available in the COB with Order Type set to Limit or Market

Dark Pool - Dark Order Book in Continuous Phase													
Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	4	Mid-Point Peg	Dark Not Sweep MES	10	0	*MidBBO*	*10*	*0*	*15*	*Mid-Point Peg*	*Dark Sweep*	*5*	*AAA*
							-	*0*	*15*	*Mid-Point Peg*	*Dark Sweep*	*6*	*CCC*

7. Orders Matching:

    a. Order #5 with Order #4 at MidBBO for a quantity of 10

8. Orders Moving:

    a. Order #6 doesn't match in Dark Order Book (DOB) and it's moved to the Central Order Book (COB)

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

Dark Pool - Dark Order Book in Continuous Phase													
Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
						-							

    c. The Central Order Book after the processing of the moving Orders is as follows:

Lit Pool - Central Order Book in Continuous Phase													
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	Limit	Lit Not Sweep	5	AAA
								0	15	Market	Lit Not Sweep	6	CCC

Example 4 - Dark Orders submitted but not executed (Continuous TAL/Uncrossing/Call Phases)

In this example, Dark Orders do not interact:

1. Order 4 is entered into the Dark Order Book on Sell Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

Dark Pool - Dark Order Book in Continuous TAL/Uncrossing/Auction Phase													
Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
							-	0	5	Mid-Point Peg	Dark Not Sweep MES	4	AAA

2. Member attempts to submit Order 5 on the Buy side:

    a. This attempt must be rejected – Dark Sweep Orders are not allowed to be submitted during the Phases indicated:

Dark Pool - Dark Order Book in Continuous TAL/Uncrossing/Auction Phase													
Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Mid-Point Peg	Dark Not Sweep MAQ	110	0	*MidBBO*	*–*	*0*	*5*	*Mid-Point Peg*	*Dark Sweep MES*	*4*	*AAA*

3. No Orders Match due to the current Market Phase. The Dark Order Book remains as is until the next Continuous Trading phase:

Dark Pool - Dark Order Book in Continuous TAL/Uncrossing/Auction Phase													
Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Mid-Point Peg	Dark Not Sweep MAQ	110	0	*MidBBO*							

Example 5 – Only Dark Sweep Orders submitted (Continuous Phase)

In this scenario, only Dark Sweep Orders have been submitted:

1. Order 4 is entered into the Dark Order Book on Sell Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

    a. The order fails to match in the Dark Order Book

Dark Pool - Dark Order Book in Continuous Phase													
Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
							10	*0*	*100*	*Mid-Point Peg*	*Dark Sweep MAQ*	*4*	*AAA*

    b. The order is moved to the Central Order Book and the Minimum Quantity is not applicable.

Lit Pool - Central Order Book in Continuous Phase													
Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
							10	0	100	Limit	Lit Not Sweep	4	AAA

2. Order 5 is entered into the Dark Order Book on Buy Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

    a. The order fails to match in the Dark Order Book

Dark Pool - Dark Order Book in Continuous Phase	
Bid	Ask

Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	*5*	*Mid-Point Peg*	*Dark Sweep MAQ*	*110*	*0*	*10*							

b. The order is moved to the Central Order Book

Lit Pool - Central Order Book in Continuous Phase													
Bid							**Ask**						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Limit	Lit not Sweep	110	0	10	10	0	100	Limit	Lit not Sweep	4	AAA

3. Orders Matching:

a. Order #5 with Order #4 at price 10 for a quantity of 100

Lit Pool - Central Order Book in Continuous Phase													
Bid							**Ask**						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Limit	Lit Not Sweep	10	0	10							

Example 6 – Only Dark Not Sweep Orders submitted (Continuous Phase)

In this scenario, only Dark Not Sweep Orders have been submitted:

1. Order 4 is entered into the Dark Order Book on Sell Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

Dark Pool - Dark Order Book in Continuous Phase													
Bid							**Ask**						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
							-	0	5	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA

2. Order 5 is entered into the Dark Order Book on Buy Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

Dark Pool - Dark Order Book in Continuous Phase	
Bid	**Ask**

Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Mid-Point Peg	Dark Not Sweep	110	0	*MidBBO*	-	0	5	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA

3. Orders matching
   a. Order #5 with Order #4 at Mid-Point of BBO for a quantity of 5
4. The Dark Order Book after the processing of the incoming Orders is as follows:

Dark Pool - Dark Order Book in Continuous Phase													
Bid							**Ask**						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Mid-Point Peg	Dark Not Sweep	105	0	*MidBBO*		0					

Example 7 – Only Dark Not Sweep Orders submitted with Minimum Quantity (Continuous Phase)

In this scenario, only Dark Not Sweep Orders have been submitted:

1. Order 4 is entered into the Dark Order Book on Sell Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)
   a. With Minimum Quantity of 20

Dark Pool - Dark Order Book in Continuous Phase													
Bid							**Ask**						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	MinQty	Price	Price	Qty	MinQty	OrderType	DarkExecInst	Order ID	Firm ID
							-	100	20	Mid-Point Peg	Dark Not Sweep with MAQ	4	AAA

2. Order 5 and Order 6 are entered into the Dark Order Book on Buy Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)
   a. Order 5 with Minimum Quantity of 10
   b. Order 6 with Minimum Quantity of 5
3. Orders matching
   a. None of the orders match because Order 4 has minimum quantity of 20 and can't match with Order 5 and Order 6

Dark Pool - Dark Order Book in Continuous Phase													
Bid							**Ask**						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	MinQty	Price	Price	Qty	MinQty	OrderType	DarkExecInst	Order ID	Firm ID

Firm ID	Order ID	OrderType	DarkExecInst	Qty	MinQty	Price	Price	Qty	MinQty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Mid-Point Peg	Dark Not Sweep MAQ	20	10	*MidBBO*	-	100	20	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA
CCC	6	Mid-Point Peg	Dark Not Sweep MAQ	10	5	*MidBBO*							

4. Order 7 is entered into the Dark Order Book on Sell Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

						Dark Pool - Dark Order Book in Continuous Phase							
			Bid						Ask				
Firm ID	Order ID	OrderType	DarkExecInst	Qty	MinQty	Price	Price	Qty	MinQty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Mid-Point Peg	Dark Not Sweep MAQ	20	10	*MidBBO*	-	100	20	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA
CCC	6	Mid-Point Peg	Dark Not Sweep MAQ	10	5	*MidBBO*	-	100	5	Mid-Point Peg	Dark Not Sweep MAQ	7	DDD

5. Orders matching
   a. Order #6 with Order #7 at Mid-Point of BBO for a quantity of 5

6. The Central Order Book after the processing of the incoming Orders is as follows:

						Dark Pool - Dark Order Book in Continuous Phase							
			Bid						Ask				
Firm ID	Order ID	OrderType	DarkExecInst	Qty	MinQty	Price	Price	Qty	MinQty	OrderType	DarkExecInst	Order ID	Firm ID
CCC	5	Mid-Point Peg	Dark Not Sweep with MAQ	20	10	*MidBBO*	-	100	20	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA

Example 8 – Only Dark Sweep Orders submitted with Minimum Quantity (Continuous Phase)

In this scenario, only Dark Sweep Orders have been submitted:

1. Order 4 is entered into the Dark Order Book on Sell Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)
   a. With Minimum Quantity 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	10	20	*Mid-Point Peg*	*Dark Sweep MAQ*	4	AAA

2. Order 4 fails to match and is moved to the Central Order Book

Lit Pool - Central Order Book in Continuous Phase														
Bid							**Ask**							
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID	
							10	0	20	Limit	Lit Not Sweep	4	AAA	

3. Order 5 is entered into the Dark Order Book on Buy Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

   a. Order 5 with Minimum Quantity of 10

Dark Pool - Dark Order Book in Continuous Phase														
Bid							**Ask**							
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID	
BBB	5	Mid-Point Peg	Dark Sweep MAQ	110	10	MidBBO								

4. Order 5 fails to match and is moved to the Central Order Book

Lit Pool - Central Order Book in Continuous Phase														
Bid							**Ask**							
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID	
BBB	5	Market	Lit Not Sweep	110	0	.	10	0	20	Limit	Lit Not Sweep	4	AAA	

5. Orders matching

   a. Order #5 with Order #4 at Price 10 for a quantity of 20

6. The Central Order Book after the processing of the incoming Orders is as follows:

Lit Pool - Central Order Book in Continuous Phase														
Bid							**Ask**							
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID	
BBB	5	Market	Lit Not Sweep	90	0	-								

Example 9 – Only Dark Not Sweep Orders submitted (Continuous TAL/Uncrossing/Call mode)

In this scenario, only Dark Not Sweep Orders have been submitted:

1. Order 4 is entered into the Dark Order Book on Sell Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

Dark Pool - Dark Order Book in Continuous TAL/Uncrossing/Auction Phase													
Bid							**Ask**						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
							-	-	5	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA

2. Order 5 is entered into the Dark Order Book on Buy Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

Dark Pool - Dark Order Book in Continuous TAL/Uncrossing/Auction Phase													
Bid	**Ask**												
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Mid-Point Peg	Dark Not Sweep MAQ	110	-	MidBBO	-	-	5	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA

3. Dark Orders are not allowed to trade during the Phases indicated – the Dark Order Book remains as shown below:

Dark Pool - Dark Order Book in Continuous TAL/Uncrossing/Auction Phase													
Bid	**Ask**												
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Mid-Point Peg	Dark Not Sweep MAQ	110		*MidBBO*	-		5	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA

Example 10 – Only Dark Sweep Orders submitted (Continuous TAL/Uncrossing/Call mode)

Dark Sweep Orders are forbidden from being submitted during these market phases. As such, they ought to be immediately rejected and won't even enter the book.

Example 11 – Dark Not Sweep Orders submitted with Mid-Point not compatible with limit price (Continuous phase)

In this scenario, only Dark Not Sweep Orders have been submitted:

4. Order 4 is entered into the Dark Order Book on Sell Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)
   a. With Order (Limit) Price of 10

Dark Pool - Dark Order Book in Continuous Phase													
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	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA

5. Order 5 is entered into the Dark Order Book on Buy Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

Dark Pool - Dark Order Book in Continuous Phase													
Bid							**Ask**						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Mid-Point Peg	Dark Not Sweep MAQ	110	0	*MidBBO*	10	0	5	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA

6. Orders matching
   a. Mid-Point BBO equal to '8'
      i. Order #5 with Order #4 at Mid-Point Price for a quantity of 5
      ii. Trade fails because Order ID has Order (Limit) Price of 10

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

Dark Pool - Dark Order Book in Continuous Phase													
Bid							**Ask**						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Mid-Point Peg	Dark Not Sweep MAQ	110	0	*MidBBO*	10	0	5	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA

Example 12 – Dark Not Sweep Orders submitted with Mid-Point compatible with limit price (Continuous phase)

In this scenario, only Dark Not Sweep Orders have been submitted:

8. Order 4 is entered into the Dark Order Book on Sell Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)
   a. With Order (Limit) Price of 10

Dark Pool - Dark Order Book in Continuous Phase													
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	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA

9. Order 5 is entered into the Dark Order Book on Buy Side (OrderType: "Mid-Point Peg" – priced with the mid-point BBO of the Central Order Book)

Dark Pool - Dark Order Book in Continuous Phase													
Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Mid-Point Peg	Dark Not Sweep MAQ	110	0	*MidBBO*	10	0	5	Mid-Point Peg	Dark Not Sweep MAQ	4	AAA

10. Orders matching
    a. Mid-Point BBO equal to '15'
        i. Order #5 with Order #4 at Mid-Point Price for a quantity of 5
11. The Dark Order Book after the processing of the incoming Orders is as follows:

Dark Pool - Dark Order Book in Continuous Phase													
Bid							Ask						
Firm ID	Order ID	OrderType	DarkExecInst	Qty	Min Qty	Price	Price	Min Qty	Qty	OrderType	DarkExecInst	Order ID	Firm ID
BBB	5	Mid-Point Peg	Dark Not Sweep MAQ	105	0	*MidBBO*							