

### **Part III: Manner of Operations**

#### **Item 14: Counter-Party Selection**

- a. Can orders or trading interest be designated to interact or not interact with certain orders or trading interest in the NMS Stock ATS (e.g., designated to execute against a specific Subscriber's orders or trading interest or prevent a Subscriber's order from executing against itself)?

☒ Yes ☐ No

If yes, explain the counter-party selection procedures, including how counter-parties can be selected, and whether the designations affect the interaction and priority of trading interest in the ATS.

Subscribers can opt out of interacting with a counterparty type or types (as defined in Part III, Item 13). For Close orders: all Subscribers may opt out of interacting with counterparty type 1. ~~For Mid Point Peg orders: Subscribers may only opt out of interacting with counterparty type 1.~~ For non Close non Midpoint Peg ~~orders~~: orders: all Subscribers may opt out of interacting with counterparty type 1. Subscribers may also opt out of trading with any counterparty group above their current counterparty type assignment subject to Dynamic Recategorization of orders described below (for example, Subscribers in counterparty type 3, Direct Low, may opt out of interacting with Subscribers in counterparty type 4 and 5 in addition to counterparty type 1).

~~For Mid Point Peg Orders: Subscribers may opt out of interacting with counterparty type 1. Additionally, subscribers may choose to have their non-close, non-midpoint peg opt out configurations, as described above, apply to their midpoint peg orders. By default, subscribers non-midpoint peg, non-close opt out choices will not apply to midpoint peg orders.~~

Additionally, the ATS offers a self-cross prevention feature that is designed to prevent a Subscriber from matching against its own orders. By default, self-cross prevention will be enabled for external broker-dealer Subscribers based on their respective market participant identification codes ("MPID"). In addition, other Subscribers can enable self-cross prevention on a voluntary basis. For all order types: Subscribers may request to opt out of counterparty interactions and/or enable self-cross prevention on a voluntary basis by contacting their assigned BDO high touch or low touch equities sales trader during onboarding or at any other time. A member of the Client Onboarding team will configure the opt out settings for all subsequent ATS orders, typically effective next day. The BDO will not disclose to Subscribers the names of individual counterparties that may route orders to the ATS. Further information on counterparty types can be found in Part III, Item 13.

Dynamic recategorization: The ATS will apply Dynamic recategorization to all eligible NMS stocks as described in Part III Item 11(a). For non Close, non Midpoint Peg and Non Trajectory cross orders, Cortex ATS applies a dynamic recategorization model for orders from Subscribers assigned to counterparty groups 4 or 5. For the purposes of counterparty opt out as described in

Part III Item 14, orders from Subscribers assigned to Category 4 and 5 will have the category assigned to orders entered by the Subscriber dynamically recategorized to category 3 after the respective order persists in the order book for 5 milliseconds. (For example, Subscriber X is assigned to counterparty group 5. Subscriber X sends an order to the ATS, upon entering the order book the order is assigned to counterparty group 5, any contra side order that is Opting Out of interacting with counterparty group 5 will not execute against the order from Subscriber X. After 5 milliseconds, the order from Subscriber X will be recategorized to group 3, at that point this existing order will be considered a group 3 order until execution, cancellation or amend. In this example, an order that initially was opted out of crossing with another order, may cross against that order after the recategorization is applied.) This recategorization only applies to individual orders and each order from any given Subscribers has the recategorization applied independently of other orders. The 5 millisecond timer begins at the time the order enters the ATS order book. A cancel/replace or amend of an existing order will reset the 5 millisecond timer. A partial execution of an order will not reset the 5 millisecond timer.

### **Part III: Manner of Operations**

#### **Item 7: Order Types and Attributes**

- a. Identify and explain each order type offered by the NMS Stock ATS.

For Non Close orders: The ATS supports three order types, each of which is available across all forms of connectivity. Each order type may have a Time-in-Force of Day or Immediate or Cancel (IOC). If an order is not marketable upon entry, it will either cancel immediately (if designated IOC), or rest on the book as a Day order until either executed, cancelled by the Subscriber or expired by the ATS at the end of the trading day. Supported Order Types: 1. Priced limit orders 2. Pegged orders: Limit price is derived dynamically from the current NBBO. Subscribers may include an optional absolute limit price above/below which a pegged buy/sell order will not execute. Pegged order types include: a. Midpoint peg orders: Pegged to the midpoint of then-current NBBO (Note, Midpoint Peg orders have separate matching logic as described in Part III, Item 11(c)) b. Market peg orders: Pegged to the opposite side of the market (buy/sell at then-current national best offer/bid) c. Primary peg orders: Pegged to the near side of the market (buy/sell at then-current national best bid/offer) Pegged orders do not receive a new time stamp if the order price is dynamically adjusted due to a change in NBBO. 3. Market orders: Buy/sell at then-current national best offer/bid, or better. Pursuant to SEC Regulation NMS, for orders priced equal to or greater than \$1.00, the ATS will neither accept orders priced in sub-pennies, nor will it accept orders that would explicitly lead to a sub-penny price (e.g., peg to inside bid plus 0.5 cents). However, the ATS will accept orders with a price target that potentially could lead to a sub-penny execution price (e.g., a midpoint peg order in a stock that has a one cent spread). The ATS supports the following order parameters: 1. MinQTY: Represents the minimum contra-side order quantity. All Subscribers may include MinQTY on an order-by-order basis. The ATS does not aggregate orders to meet MinQTY. By default, where leaves quantity is less than MinQTY, MinQTY is reduced to leaves quantity. During or after onboarding, a Subscriber may contact their sales representative to configure their MinQTY orders to cancel

the leaves quantity in this scenario. 2. Time-In-Force: a. Immediate or Cancel (IOC) - The order will match with eligible resting contra-side orders and cancel back the balance. b. Day - The order will remain in the book until it is canceled, completely filled, or until the market closes at 4:00 PM. The ATS does not route orders or transmit indications of interest to any destination. Orders will only be accepted (and executed subject to matching conditions), cancelled by the order originator, or expired by the ATS at the end of the trading day. The ATS does not support post-only orders or orders with discretionary price ranges. The ATS will not combine orders or replace orders on an unsolicited basis. The BDO may remove ("bust") certain executions. For example, when the primary exchange makes a determination of clearly erroneous executions or, upon subscriber request and under certain limited circumstances such as when the Subscriber is on both sides of a cross and inadvertently crossed itself in the ATS. See the Error Handling section of Part III, Item 11(c). The ATS establishes order rank and execution priority strictly on a price-time basis. Order types and parameters will influence the price, priority, conditions, time stamp, and other attributes related to an order's potential for execution only inasmuch as the order types and parameters determine the theoretical matching price of an order (where the potential execution price of a buy order is greater than or equal to the lowest potential execution price of a sell order, limited by the NBBO and LULD bands), as described in Part III, Item 11(c). Other procedures governing trading; Short Sales: Stocks subject to the Reg SHO Rule 201 short sale restriction will trade in the ATS only at a price greater than the current national best bid, unless an exception applies. Short sale orders, except those exempted under Reg SHO Rule 203, must be accompanied by a Locate Broker ID.

For Close Orders: The ATS supports a Close order type ("Close order(s)"). The ATS supports Buy, Long Sales and Short Sale Close order types. Close orders will be matched after market closing at the closing price of the respective stock's primary market center closing price. Only Market Close orders are supported. Close orders with peg instructions are not supported and will be rejected. For Short Sale Close orders, in the event a Short Sale order is received in a stock subject to Reg SHO Rule 201(b) at the time of order entry, the Short Sale order will be rejected, Long Sale and Buy orders will not be affected. In the event a stock becomes subject to Reg SHO Rule 201(b) after order entry but before the match event time as described in Part III Item 11(c), Short Sale order(s) will be rejected to the sender(s) at the time of the match event, Long Sale and Buy orders will not be affected. In the event a stock becomes subject to Reg SHO Rule 201(b) after the match event time as described in Part III Item 11(c), but before the official market center close, **and there is an eligible Sell Short order that is a Close order,** the ATS will not conduct a close match in that stock and will reject all open orders, Buy, Long Sale, and Short Sale back to the sender(s). Close orders with a Min Qty instruction are not supported and will be rejected. Only a Day time in force is supported. Close orders will be matched in time/size priority. Close order modifications and cancellations are supported until match event time as described in Part III item 11(c). For the purposes of time priority calculation, an order modification to a larger order quantity will reset order time to time of modification; an order modification to a smaller order quantity will maintain the original order time. Additionally, system outages may result in order cancellation. Close orders are available across all forms of connectivity to all ATS participants. The ATS does not route any orders, Close order or non Close order, to other trading centers.

For Trajectory Cross orders: The ATS supports a Trajectory Cross order type. Trajectory Cross will only be available to indirect subscribers via BDOs internal Algos and Smart Order Routers. Trajectory Cross supports Buy, Long Sales, and Short Sale orders only. Trajectory cross will support the Day Time in force only. Trajectory Cross will support Limit orders only. Trajectory Cross will not support a Min Qty parameter. Trajectory Cross will cross orders at the 5 minute Interval Volume Weighted Average Price ("VWAP"). Trajectory Cross will match orders in time/price priority.

The calculation of the execution VWAP price will begin when a contra side order arrives to match vs a resting order in the same symbol in any given Trajectory Cross interaction. After 5 minutes has elapsed, both orders will receive an execution at the size of the smaller order at the interval VWAP price. In the event that either side cancels before 1 minute has elapsed, the interaction is cancelled. In the event either side cancels after 1 minute, but before 5 minutes, both sides will receive a pro-rated execution. VWAP execution will only occur, in any scenario, as long as there are 5 regular prints on the tape during the interval in question. If that 5 print criteria is not met, the execution will be at the midpoint of the NBBO at the time of execution. After execution of a Trajectory Cross any order that was not fully executed will have any residual quantity cancelled. Attempted amends of orders that are in the process of matching will be rejected and not allowed. Only orders that are not in the process of being matched will be able to be amended.

Trajectory Cross orders follow the suspension of trading rules as described in Part III Item 20. In the event of a suspension of trading at the time of the trade reporting of a Trajectory Cross order, the trade report will occur when trading has resumed and all qualifying conditions have been met. Trajectory Cross orders will trade report as described in Part III Item 21.

### **Part III: Manner of Operations**

#### **Item 11: Trading Services, Facilities and Rules**

c.Explain the established, non-discretionary rules and procedures of the NMS Stock ATS, including order interaction rules for the priority, pricing methodologies, allocation, matching, and execution of orders and trading interest, and other procedures governing trading, such as price improvement functionality, price protection mechanisms, short sales, locked-crossed markets, the handling of execution errors, and the time-stamping of orders and executions.

The ATS supports Close, Non Close and Trajectory Cross orders for all symbols supported by the ATS as described in Part III Item 11(a) and in each case subject to the Stopped Symbols Lists and other conditions described in Part III Item 11(a)

For Non Close orders: The ATS establishes priority on the Order Book first by price and then by time. Multiple orders executable at the same price will be ranked on the Order Book on a first-in-time basis. Subscribers and the BDO do not otherwise gain matching preference. The ATS

includes only one pool of liquidity in which orders are matched in strict price/time priority; for example, it is not possible to rank in order of counterparty type. Orders accepted by the ATS include Agency, Principal, and Riskless Principal capacities. Riskless Principal orders are the result of the BDO's facilitation of client orders, where the riskless leg of the order is executed in the marketplace at the same price as the price given to the client by the BDO. The ATS does not consider order capacity in its determination of order priority. For the purposes of determining Order Book priority, in compliance with Regulation NMS Rule 612, the ATS calculates an order's theoretical execution price by rounding the order to the nearest permissible increment, within the NBBO. For orders priced greater than or equal to \$1.00 having a price with more than two decimal places, the ATS will round the price in the Order Book as follows: Buys will round down to two decimal places; sells will round up to two decimal places. For orders in NMS Stocks priced less than \$1.00, the theoretical execution price is limited to four decimal places, and the ATS will round the price in the Order Book as follows: Buys will round down to four decimal places; sells will round up to four decimal places. Queue position cannot be improved through sub-tick-increment limit prices or setting the limit price of an order through the far touch. With respect to time prioritization on the Order Book, any Subscriber or BDO modification to an existing order results in that order receiving a new time stamp associated with the time of the modification, thus potentially changing the priority of that order in the Order Book. Pegged orders do not receive a new time stamp if the order price is dynamically adjusted due to a change in NBBO. Time stamping is in microsecond intervals. The Matching Algorithm reviews the Order Book for potential executions (crosses). Subject to Subscriber preferences (e.g., counterparty interaction restrictions; see Part III, Item 13), a cross in the ATS will only be possible when liquidity on the Order Book is available for both buy orders and sell orders and the theoretical execution price for buy orders is greater than or equal to the lowest theoretical execution price for sell orders, limited by the NBBO and LULD bands. Price improvement, where available, will be fully assigned to the liquidity remover, i.e., the second order to arrive in the Order Book resulting in a cross. If the theoretical execution price of a buy order is greater than the lowest theoretical execution price of a sell order, the execution price will favor the liquidity remover over the liquidity provider, whichever side the liquidity remover is on. Thus, for example, if the NBBO for XYZ stock is 10.00 - 10.02, a liquidity providing market peg order to buy will cross with a liquidity removing market peg order to sell at 10.02. The liquidity remover receives full price improvement. An IOC order is a liquidity removing order. For the same NBBO, a resting (Day) limit order to sell at 10.00 will cross with a midpoint peg IOC order to buy at 10.00. The ATS ensures that all crosses are executed at prices at or within the prevailing consolidated NBBO. This is because the theoretical execution price of an order submitted to the Order Book is limited by the NBB or NBO as applicable. Therefore, pricing an order through the NBBO does not affect price improvement calculations. The ATS Matching Algorithm will not run as long as any of the exceptions below are in effect. Throughout the duration of a Matching Algorithm Exception, the Order Book will continue to accept new orders, as well as cancel or replace requests for existing orders. However, throughout the exception, the Matching Algorithm will be disabled, and IOC orders will be cancelled after they are placed on the Order Book. On the other hand, Day orders will remain on the Order Book for the remainder of the trading day until cancelled or replaced by the client. Matching Algorithm Exceptions: 1. A trading halt exists in the name's primary market 2. The market is crossed, i.e.  $NBO < NBB$ , or 3. The market data

quote received by the ATS is stale for more than a specific amount of time. This parameter is configurable and determined by the BDO. The ATS will continue to maintain the Order Book even when a Matching Algorithm exception is in effect. Other procedures governing trading:

Short sales: Stocks subject to the Reg SHO Rule 201 short sale restriction will trade in the ATS only at a price greater than the current national best bid, unless an exception applies. Short sale orders, except those exempted under Reg SHO Rule 203, must be accompanied by a Locate Broker ID. Locked markets: In a locked market ( $NBO=NBB$ ), the Matching Algorithm will operate but orders will only cross if both the buyer and seller have opted in to crossing in a locked market. Handling of execution errors: Execution errors in the ATS will be handled in the same manner as any other execution error, as set forth in the BDO's internal Error Handling policy. Manual or system-generated errors caused by the BDO will be moved to a principal account for risk management by the BDO. Generally, Subscriber errors (e.g., if a Subscriber routed a sell order to the ATS instead of an intended buy order) cannot be moved to a principal account. Under certain limited circumstances, when a Subscriber is on both sides of a cross and inadvertently crossed itself in the ATS, the BDO may remove ("bust") the buy and sell orders participating in the cross, as described in Part III, Item 7(a). The ATS will continue to accept limit orders priced outside LULD bands but will not cross outside the bands. For pegged orders, the ATS will replace all current references to NBB/O with: Adjusted NBB = Maximum of (NBB, Limit Down) Adjusted NBO = Minimum of (NBO, Limit Up) This will result in the following behavior under these market conditions:

- a. Normal Condition ( $NBB \geq LD$  and  $NBO \leq LU$ ): Matching will occur as prior to LULD
- b. Limit state ( $NBB=LU$  or  $NBO=LD$ ): Orders will match at LU or LD, if the client has chosen to participate in a "LULD locked market"
- c. Straddle - Two types of scenarios:
  - 1. LU straddle ( $NBO > LU$  and  $NBB < LU$  and  $NBB \geq LD$ ): Orders will match at or within NBB and LU (i.e. NBO is replaced by LU)
  - 2. LD straddle ( $NBB < LD$  and  $NBO > LD$  and  $NBO \leq LU$ ): Orders will match at or within LD and NBO (i.e. NBB is replaced by LD)
- d. Super straddle ( $NBB < LD$  and  $NBO > LU$ ): Orders will match between LD and LU
- e. NBBO outside bands - ( $NBO < LD$  or  $NBB > LU$ ): No matching, as this scenario should not occur.

Midpoint peg orders: The following applies to all orders sent with the Midpoint Peg execution instruction. The ATS accepts Midpoint peg orders for matching at the Midpoint of the NBBO in any given NMA stock traded in the ATS. The matching mechanism is near-continuous and matches orders at randomized time intervals from the start of trading until the end of the trading day. Midpoint peg orders will only match against contra side Midpoint peg orders. Non Midpoint peg order types will not interact with or match against Midpoint peg orders. Midpoint peg orders can be submitted with a Time In Force of Day or Immediate Or Cancel. Midpoint peg orders can be Market or Limit orders.

At the start of the trading day, on a stock-by-stock basis, for each stock traded in the ATS, the ATS will select a random Midpoint Match event interval between 1000 and 5000 microseconds. This interval will be the time interval until up to the first scheduled Midpoint Match event. At the time of that first Midpoint Match event, any Midpoint peg orders eligible for matching, will match. Matches will be priced based on the NBBO at the time of the Midpoint Match event in time priority. Upon the occurrence of the Midpoint Match event, any unexecuted Midpoint Peg Immediate or Cancel orders will be cancelled.



Upon the occurrence of Midpoint Match event, the ATS will again select a random time that is between 1000 and 5000 microseconds. This new interval will be the period of time leading up to the next Midpoint Match event. This Midpoint Match event process will continue until the end of the trading day.

Customers may cancel or modify Midpoint peg orders up until the Midpoint Match event time. For the purposes of time prioritization, the modification of the size of an existing Midpoint Peg order to a lesser size will not result in the loss of prioritization for that order and order time will be maintained as the time of original order entry. For the purposes of time prioritization, the modification of the size of an existing Midpoint Peg order to a greater size or the modification of any limit price will result in the loss of prioritization for that order and order time will be reset to the time of the order amend.

Midpoint Peg Immediate or Cancel orders will be held in the order book and will be executed or automatically cancelled at the next Midpoint Match event time after the Midpoint Peg Immediate or Cancel order receipt.

Midpoint peg orders follow the suspension of trading rules as described in Part III Item 20. The Midpoint Match event time will continue to be calculated independently of the trading status of a stock. In the event of a resumption of trading in a previously suspended security, the next calculated Midpoint Match event will be the first instance when Midpoint peg order(s) will match in the resumed stock.

With the exception of the above, Midpoint peg orders will follow all other established ATS matching rules, including but not limited to, Min Quantity, Segmentation, and Counterparty Selection rules.

For Close orders: The ATS will accept Close orders for matching at the official closing price of the security's primary listing exchange. The ATS supports Buy, Long Sale and Short Sale Close order types. New Orders, Order modifications and order cancellations will be accepted up to the time of the ATS match event. For NYSE listed securities the match event time will be 15:58:50 EST. For all other exchanges, the match event time will be 10 seconds before the respective listing exchange's closing order cutoff time. At the match event, orders will be matched using time/size priority. Following the match event, participants will be notified of matched interest. Matched interest is the expected quantity that will be matched by the ATS after the closing price is disseminated by the primary listing exchange. Orders where the matched interest is less than the submitted quantity will be notified by having the submitted quantity of the respective order amended by the ATS to the matched interest quantity. orders where the matched interest quantity is equal to the full submitted quantity will receive no amendment. orders with no matched interest will be rejected back to the participant. Execution messages of the matched interest quantity will be sent after the official closing price is disseminated by the primary listed exchange. If no closing price for a symbol is provided by the primary listing exchange by 30 minutes after market close, Orders in such symbols will not be executed and will be cancelled

back to participants. Close Order transactions will be trade reported as described in Part III item 21. For Short Sale Close orders, in the event a Short Sale order is received in a stock subject to Reg SHO Rule 201(b) at the time of order entry, the Short Sale order will be rejected, Long Sale and Buy orders will not be affected. In the event a stock becomes subject to Reg SHO Rule 201(b) after order entry but before the match event time, Short Sale order(s) will be rejected to the sender(s) at the time of the match event, Long Sale and Buy orders will not be affected. In the event a stock becomes subject to Reg SHO Rule 201(b) after the match event time but before the official market center close, **and there is an eligible Sell Short order that is a Close order**, the ATS will not conduct a close match in that stock and will reject all open orders, Buy, Long Sale, and Short Sale back to the sender(s).

For Trajectory Cross orders: The ATS supports a Trajectory Cross order type. Trajectory Cross will only be available to indirect subscribers via BDOs internal Algos and Smart Order Routers. Trajectory Cross supports Buy, Long Sales, and Short Sale orders only. Trajectory Cross will support the Day Time in force only. Trajectory Cross will support Limit orders only. Trajectory Cross will not support a Min Qty parameter. Trajectory Cross will cross orders at the 5 Minute Interval Volume Weighted Average Price ("VWAP"). Trajectory Cross will match orders in time/price priority.

The calculation of the execution VWAP price will begin when a contra sider order arrives to match vs a resting order in the same symbol in any given Trajectory Cross interaction. After 5 minutes has elapsed, both orders will receive an execution at the size of the smaller order at the interval VWAP price. In the event that either side cancels before 1 minute has elapsed, the interaction is cancelled. In the event either side cancels after 1 minute, but before 5 minutes, both sides will receive a pro-rated execution. VWAP execution will only occur, in any scenario, as long as there are 5 regular prints on the tape during the interval in question. If that 5 print criteria is not met, the execution will be at the midpoint of the NBBO at the time of execution. After execution of a Trajectory Cross any order that was not fully executed will have any residual quantity cancelled. Attempted amends of orders that are in the process of matching will be rejected and not allowed. Only orders that are not in the process of being matched will be able to be amended.

Trajectory Cross orders follow the suspension of trading rules as described in Part III Item 20. In the event of a suspension of trading at the time of the trade reporting of a Trajectory Cross order, the trade report will occur when trading has resumed and all qualifying conditions have been met.

Trajectory Cross orders will trade report as described in Part III Item 21.