

Part III: Manner of Operations

Item 7: Order Types and Attributes

- a. Identify and explain each order type offered by the NMS Stock ATS. In your explanation, include the following:
 - i. priority, including the order type's priority upon order entry and any subsequent change to priority (if applicable); whether and when the order type can receive a new time stamp; the order type's priority vis-à-vis other orders on the book due to changes in the NBBO or other reference price; and any instance in which the order type could lose execution priority to a later arriving order at the same price;
 - ii. conditions, including any price conditions (e.g., how price conditions affect the rank and price at which it can be executed; conditions on the display or non-display of an order; or conditions on executability and routability);
 - iii. order types designed not to remove liquidity (e.g. post-only orders), including what occurs when such order is marketable against trading interest on the NMS Stock ATS when received;
 - iv. order types that adjust their price as changes to the order book occur (e.g., price sliding orders or pegged orders) or have a discretionary range, including an order's rank and price upon order entry and whether such prices or rank may change based on the NBBO or other market conditions when using such order type; when the order type is executable and at what price the execution would occur; whether the price at which the order type can be executed ever changes; and if the order type can operate in different ways, the default operation of the order type;
 - v. whether an order type is eligible for routing to other Trading Centers;
 - vi. the time-in-force instructions that can be used or not used with each order type;
 - vii. the circumstances under which order types may be combined with another order type, modified, replaced, canceled, rejected, or removed from the NMS Stock ATS; and
 - viii. the availability of order types across all forms of connectivity to the NMS Stock ATS and differences, if any, in the availability of an order type across those forms of connectivity.

Continuous Crossing Session

~~Beginning on July 12, 2021, VAL will make changes to the POSIT Continuous Crossing Session in terms of its manner of operations on a symbol by symbol basis. Descriptions to follow under the heading ‘New Matcher’ will apply to symbols that have migrated to this new manner of operation under the schedule set forth below, while descriptions under the heading ‘Current Matcher’ will apply to symbols that remain in the current manner of operation under the schedule set forth below.~~

~~Migration Schedule~~

~~July 12, 2021: New Matcher: Symbol: ZVZZT, Current Matcher: All other symbols~~

~~July 14, 2021: New Matcher: Symbols: ZVZZT, ZWZZT, ZXIET, ZXYZ.A, ZXZZT, ZY, ZYME, ZYNE, ZYXI, ZZK, ZZZ Current Matcher: All other symbols~~

~~July 16, 2021: New Matcher: All symbols beginning with the letter ‘Z’, Current Matcher: All other symbols~~

~~July 19, 2021: New Matcher: All symbols beginning with the letters ‘T’—‘Z’, Current Matcher: All other symbols~~

~~July 21, 2021: New Matcher: All symbols beginning with the letters ‘N’—‘Z’, Current Matcher: All other symbols~~

~~July 23, 2021: New Matching: All symbols, Current Matcher: No symbols~~

New Matcher

POSIT accepts Peg orders, Day orders and Immediate or Cancel (“IOC”) orders. Peg and Day orders may execute against contra-side Peg orders, contra-side Day orders or against IOC orders. IOC orders may only cross against contra-side Peg orders or contra-side Day orders. These order types may be entered with other instructions that will be used by the matching algorithm to determine whether and how they will interact with other orders.

Priority in the POSIT Continuous Crossing Session for all order types is price, then size, then time. For orders without a peg instruction, the limit price submitted ~~will be~~ used to determine the price portion of the queue priority. For orders with a peg instruction, the less aggressive price between the current peg price and limit price submitted ~~will be~~ used to determine the price portion of the queue priority. If the algorithm modifies the terms of a previously transmitted order, the order will receive a new order time stamp for matching purposes (i.e. the order will lose queue spot). The only exception is a reduction in order quantity which, absent any other changes to the terms of the order, will not update the order time stamp for matching purposes.

The following instructions are available for orders entered in the POSIT Continuous Crossing Session. The instructions placed on orders will affect whether an order is eligible to be executed against contra-side orders.

(1) Peg Orders: Peg orders remain open until executed, canceled by the Subscriber or until the end of the daily matching session. Peg orders can be designated with the following execution instruction:

(i) Market: A Market instruction designates that a buy order can be executed up to the national best offer and a sell order can be executed down to the national best bid.

(ii) Mid-Point: A Mid-Point instruction designates that an order can be executed up to the mid-point between the national best bid and national best offer ("NBBO").

(iii) Primary: A Primary instruction designates that the order can only be executed at the national best bid in the case of a buy order and the national best offer in the case of a sell order.

A Limit Price instruction can be specified for Peg orders in conjunction with the above referenced execution instruction.

(2) Day Orders: Day orders remain open until executed, canceled by the Subscriber or until the end of the daily matching session. Day orders can also include a Market, Mid-Point, Primary Peg or Limit Price instruction.

(3) IOC Orders: IOC orders will either execute if an eligible contra side order exists against which the order can be executed or if not the order is canceled. Subscribers may enter IOC orders with Market, Mid-Point, Primary Peg or Limit Price instructions.

Other available Instructions and Designations for the Continuous Crossing Session: The following instructions may be applied to the above order types unless otherwise indicated. These instructions may be implemented by either transmitting a specified value over a FIX tag on an order by order basis, or requesting a session level configuration that will apply the requested instruction across all orders sent to the session specified by the Direct Subscriber, unless otherwise indicated:

(i) Minimum Execution Quantity (MEQ): An MEQ instruction specifies the minimum number of shares that must be available for a contra side order to be eligible for execution. POSIT does not aggregate multiple contra side orders to satisfy a MEQ instruction on a single order. POSIT will cancel back an order to the Direct Subscriber if the residual quantity of an order falls below the MEQ instruction.

(ii) Locked Market: A Locked Market instruction specifies that an order is not eligible for execution during locked markets. IOC orders entered with a Locked Market instruction will be accepted if the NBBO is locked, but will receive a 'Nothing Done' message. Peg orders will be accepted but ineligible for execution until the NBBO unlocks.

(iii) Peg Order Add-Only Liquidity Instruction ("Add Only"): An Add-Only instruction specifies that the order is only eligible for execution when it adds liquidity to POSIT upon entry. Peg orders that would remove liquidity from POSIT will be accepted by POSIT and remain open but ineligible for execution until such a time as the order adds liquidity to POSIT. Contra-side Peg orders on the book at the time a Peg order with an Add Only

instruction is entered will not interact with the Peg Add Only order. The Add Only instruction will be ignored if specified for an IOC order.

(iv) Virtu Principal Opt Out: Direct and Indirect Subscribers may request to have their orders not interact with Virtu principal orders. This instruction will only prevent interaction against orders entered by VAL under the MPID's NITE, VIRT and VALX. Principal orders entered by VAL or the Affiliates, as defined in Part II, Item 2a, using other MPIDs will not be subject to this opt out. See Part II, Item 3a for more detail. This order instruction can only be specified at the session level, and cannot be specified on an order by order basis via a FIX tag.

(v) POSIT Liquidity Profiles and Limits on Interaction: This instruction specifies the types of counterparties that an order may interact with based on the counterparty's Liquidity Profile. POSIT uses quantitative metrics to create one or more Liquidity Profiles for each POSIT Subscriber. The metrics include execution performance relative to the market over different time horizons for all fills in POSIT. POSIT makes discretionary decisions in assigning a Liquidity Profile to a new or previously uncategorized Subscriber. POSIT will inform Subscribers about their own profile information upon request. See Part III, Item 13a for more detail on POSIT Liquidity Profiles.

(vi) Self-Match Prevention: Subscribers may provide instructions that will prevent orders from crossing if the resulting cross may result in a transaction with no change in beneficial ownership. This order instruction can only be specified at the session level, and cannot be specified on an order by order basis via a FIX tag.

An order that contains a value in a utilized FIX field other than a value recognized by VAL (as described in its FIX specifications) will be rejected. An order containing a value in a non-utilized FIX field will be accepted, but that instruction will not be processed.

Current Matcher

~~Continuous Crossing Session~~
~~POSIT accepts Peg orders and Immediate or Cancel ("IOC") orders. Peg orders may execute against contra-side Peg orders or against IOC orders. IOC orders may only execute against contra-side Peg orders. These order types may be entered with other instructions, as described below, that will be used by the matching algorithm to determine whether and how they will interact with other orders.~~

~~(1) Peg Orders: Peg orders remain open until executed, canceled by the Subscriber or until the end of the daily matching session. Peg orders can be designated with the following execution instruction:~~

~~(i) Market: A Market instruction designates that a buy order can be executed up to the national best offer and a sell order can be executed down to the national best bid.~~

~~(ii) Mid-Point: A Mid-Point instruction designates that an order can be executed up to the mid-point between the national best bid and national best offer ("NBBO").~~

~~(iii) Primary: A Primary instruction designates that the order can only be executed at the national best bid in the case of a buy order and the national best offer in the case of a sell order.~~

~~(iv.) Limit Price: A Limit Price instruction specifies a price above which a buy order and below which a sell order that the order will not be eligible for execution.~~

~~(2) IOC Orders: IOC orders will either execute if an eligible contra side order exists against which the order can be executed or if not the order is canceled. Subscribers may enter IOC orders with Market, Mid Point and Limit Price instructions.~~

~~Subscribers can include Minimum Execution Quantity ("MEQ") instructions on their orders via FIX, which specifies the minimum number of shares that must be available for a contra side order to be eligible for execution.~~

~~Subscribers can also request to apply the following instructions on their orders at the session level:~~

~~(i) Locked Market: Direct and Indirect Subscribers may request a Locked Market instruction, which specifies that an order is not eligible for execution during locked markets. IOC orders entered with a Locked Market instruction will be rejected if the NBBO is locked. Peg orders will be accepted but ineligible for execution until the NBBO unlocks.~~

~~(ii) Virtu Principal Opt Out: Direct and Indirect Subscribers may request to have their orders not interact with Virtu principal. This instruction will only prevent interaction against orders entered by VAL under the MPID's NITE, VIRT and VALX. Principal orders entered by VAL or the Affiliates using other MPIDs will not be subject to this opt out. See Part 2, Item 3a for more detail.~~

~~(iii) POSIT Liquidity Profiles and Limits on Interaction: This instruction specifies the types of counterparties that an order may interact with based on the counterparty's Liquidity Profile. POSIT uses quantitative metrics to create one or more Liquidity Profiles for each POSIT Subscriber. The metrics include execution performance relative to the market over different time horizons for all fills in POSIT. POSIT makes discretionary decisions in assigning a Liquidity Profile to a new or previously uncategorized Subscriber. POSIT will inform Subscribers about their own profile information upon request. See Part III, Item 13a for more detail on POSIT Liquidity Profiles.~~

~~(iv) MEQ Instruction Non Aggregation: Direct and Indirect Subscribers may request that multiple orders are not aggregated to meet a MEQ instruction. By default, POSIT will aggregate orders to meet a Subscriber's MEQ instruction.~~

~~(v) Cancel Residual if Below MEQ Instruction: Direct and Indirect Subscribers may request that a residual quantity be canceled back to the Subscriber if the residual quantity is less than the Subscriber's MEQ instruction. By default, POSIT will not cancel back an order if the residual is less than the MEQ instruction.~~

~~(vi) Default Peg Instructions: Direct and Indirect Subscribers may request that their IOC and/or Day orders have a Default Peg instruction.~~

~~An order that contains a value in a utilized FIX field other than a value recognized by VAL (as described in its FIX specifications) will be rejected. An order containing a value in a non-utilized FIX field will be accepted, but that instruction will not be processed. For resting Peg orders, priority in POSIT is based on the price instruction, i.e. market, mid, or primary. Resting Peg orders that can be executed at the same price receive a pro rata share allocation. However, POSIT will always attempt to execute at the midpoint of the NBBO, prior to executing at the NBB or NBO. Resting Peg orders with market instructions on the same side of the market will execute at the midpoint in a pro rata share allocation along with resting Peg orders with midpoint instructions also on the same side of the market. Peg orders with primary instructions, cannot execute at the midpoint, and would not participate and receive shares in a pro rata allocation when there are resting Peg orders with market and or midpoint price instructions on the same side. For IOC orders and Peg orders that remove liquidity, these orders are processed one at a time in time sequence. The following examples illustrate the matching process, assuming there are no instructions that would prevent an execution such as MEQ or a Limit Price that would be an order ineligible based upon the current NBBO.~~

~~Example 1:~~
Market bid/offer: \$10.00 x \$10.10
In POSIT, Order 1 is a Midpoint Peg order to buy 1,000 shares and Order 2 is a Market Peg order to buy 1,000 shares. An in-bound Peg order or IOC order with market or midpoint instructions to sell 1,000 shares is entered into POSIT. An execution of 1000 shares will occur at midpoint, with Order 1 receiving 500 shares, and Order 2 receiving 500 shares.

~~Example 2:~~
Market bid/offer: \$10.00 x \$10.10
In POSIT, Order 1 is a Midpoint Peg order to buy 1,000 shares and Order 2 is a Primary Peg order to buy 1,000 shares. An in-bound Peg order or IOC order with market or midpoint instructions to sell 1,000 shares is entered into POSIT. An execution of 1000 shares will occur at midpoint of the NBBO, with Order 1 receiving 1000 shares and Order 2 receiving no shares.

Alert Crossing Session

The Alert Crossing Session supports all of the order types and instructions described in the Continuous Crossing Session section in Part III, Item 7(a), with the exception that the Alert Crossing Session does not accept IOC orders. Additionally, the below order type instructions are only available in the Alert Crossing Session.

- (i) **Conditional Indicator:** Peg orders entered into the Alert Crossing Session are by default designated as Conditional Orders. Conditional Orders are not firm and must respond affirmatively to an Invitation to Firm-Up from the Alert Crossing Session by transmitting a Firm-Up Response Order to be eligible to be executed against contra-side orders.
- (ii) **Firm-Up Response Order:** These orders are entered in response to invitations from the Alert Crossing Session.

- (iii) **Auto-Ex:** Human Participants, as described in Part III, Item 9(a), can designate a Conditional Order as Auto-Ex. If the Auto-Ex instruction is enabled for a Conditional Order, the Human Participant will not receive a pop up window requesting to Firm-Up, as described in Part III, Item 9(a), but instead the Conditional Order from the Human Participant will automatically Firm-Up against a contra side order.

See Part III, Item 9a for more detail on the Alert Crossing Session.

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.

POSIT operates two crossing sessions: (i) the Continuous Crossing Session and (ii) the Alert Crossing Session. POSIT offers the ability to participate in the two crossing sessions to all Subscribers. Note, the rules and procedures applicable to the Continuous Crossing Session apply to the Alert Crossing session unless otherwise stated. Subscribers can specify which session to route an order to via a specific FIX tag.

POSIT reserves the right to review any transaction based upon the request of a Subscriber or on its own motion and declare any transaction executed by POSIT null and void in the event that the transaction occurred at a price that was within the numerical guidelines for erroneous transactions of any exchange or was the result of a significant systems disruption. In reviewing transactions resulting from significant systems disruptions, in addition to the price of the transactions, POSIT may also take into account the volume of transactions as compared to the normal volume of transactions for the relevant security as executed by POSIT. POSIT reserves the right to use its discretion to provide price accommodations in circumstances that are not clearly errors or erroneous transactions but where the circumstances are appropriate, such as minor systems latency, to make a price adjustment as an accommodation to an affected client(s). In these scenarios, the Firm performs an analysis to determine the appropriate price and any profit or loss as a result of the adjustment is incurred by VAL.

Below are descriptions of the Continuous Crossing Session and the Alert Crossing Session.

Continuous Crossing Session

~~Beginning on July 12, 2021, VAL will make changes to the POSIT Continuous Crossing Session in terms of its manner of operations on a symbol by symbol basis. See Part III, Item 7a for more detail on the definitions of New Matcher and Current Matcher, and the corresponding migration schedule from the Current Matcher to the New Matcher.~~

New Matcher

POSIT will execute Peg and Day orders against eligible contra-side IOC, Day and Peg orders. For Peg and Day orders, priority is determined on a price, size, time basis. If a Subscriber modifies the terms of a previously transmitted order, the order will receive a new order time for matching purposes (i.e. the order will lose queue spot). The only exception is a reduction in order quantity which, absent any other changes to the terms of the order, will not update the order time for matching purposes. Providers receive price improvement. In the case of an IOC order, the IOC order is always the removing order. In the case of two Peg and/or Day orders, the first in time is the providing order.

Subscribers accessing POSIT directly can request that POSIT apply certain default instructions or attributes to the Subscriber's orders submitted to POSIT, as described in Part III, Item 7a, and Part III, Item 14a.

POSIT will execute crosses at prices within the permissible price bands established under the Limit Up – Limit Down Plan. POSIT is programmed to prevent executions outside of the Limit Up - Limit Down price bands.

Subscribers can include MEQ instructions on their orders. In that event, POSIT will not execute the order in an amount less than such minimum quantity. When the remaining quantity on the order is less than the MEQ instruction, POSIT will automatically cancel back the remaining quantity of the order.

Current Matcher

~~During the Continuous Crossing Session, Subscribers may only enter orders that are Peg or IOC order types. Peg orders can be submitted to POSIT beginning at 8:00 a.m. and through the trading day until the market closes at 4:00 p.m. and are held in POSIT's order book until they are executed, cancelled or until they expire. When a Peg order is submitted to POSIT, the system scans for available liquidity to determine whether there is a contra side Peg order residing in the system. If there is no contra side Peg order in POSIT, the Peg order will continue to rest in POSIT until executed or cancelled and returned. Peg orders in POSIT will execute immediately with contra side IOC orders, unless one of the orders' instructions make it ineligible for execution. Peg orders can be executed against contra side Peg orders and/or IOC orders; however, IOC orders can only be executed against Peg orders. POSIT cancels unexecuted Peg orders in accordance with the instructions of the submitting Subscriber, or by default at the close of regular trading in the market. If a Peg order expires without being fully or partially filled, the Subscriber submitting that order receives a "nothing done" report. IOC orders are immediately executed or immediately canceled upon receipt. For Subscribers' orders that partially executed during the Continuous Crossing Session, the residual shares will be cancelled back to the Subscriber after the close of trading. POSIT only executes orders at the midpoint of the NBBO, the NBO or the NBB. In the first instance, POSIT will attempt to cross eligible orders at the midpoint of the NBBO. If midpoint pricing is unavailable, POSIT will then look to other matching opportunities at the NBB or NBO, as applicable. Subscribers accessing POSIT directly can request that POSIT apply certain default instructions~~

~~or attributes to the Subscriber's orders submitted to POSIT, as described in Part III, Item 7(a), and Part III, Item 14a. POSIT will execute crosses at prices within the permissible price bands established under the Limit Up—Limit Down Plan. POSIT is programmed to prevent executions outside of the Limit Up—Limit Down price bands. Subscribers can include MEQ instructions on their orders. In that event, POSIT will not execute the order in an amount less than such minimum quantity. However, when the remaining quantity on the order is less than the MEQ instruction, POSIT will not automatically cancel back the remaining quantity of the order, but will attempt to execute that unfilled portion in a single execution. Subscribers can also instruct that their orders only execute against a single contra that meets the MEQ instruction for their order, as described in Part III, Item 7(a). If Subscribers do not request this, POSIT's default behavior is to consolidate contra interest to meet a Subscriber's MEQ Instruction. Subscribers can request that POSIT always cancel remaining shares after an execution where the remaining quantity on the order is less than the MEQ, as described in Part III, Item 7a. Where multiple resting orders have a MEQ instruction specified by the Subscriber, POSIT can alter the pro-rata formula to allow an execution when one might otherwise not occur: * In that circumstance pro-rata reallocation ratio is 80/20. This means that if an order is getting 1000 shares as per initial pro-rata calculation, 80% (800 shares) will be allocated, and 20% (200 shares) can be used to satisfy the minimum shares of other, larger orders with a minimum quantity size. In certain instances, the reallocation will result on one resting order being filled with all of the eligible shares and the other order(s) receiving no allocation. * There is a threshold above which the 80/20 rule applies. Orders with pro-rata allocations equal to or less than 200 shares are not guaranteed any allocation. If multiple orders do not meet their MEQ instructions in the initial allocation, order size priority is used as a tie-breaker to allocate additional shares to satisfy MEQ instructions. Please see Attachment 11(c) for illustrative examples.~~

Alert Crossing Session

VAL offers a conditional messaging system known as Alert. Alert is an anonymous Conditional Order matching application that exists outside of the POSIT matching engine. Please see Part III, Item 9a for a description of Alert.

All sessions

Locked and Crossed Markets: POSIT does not execute in a crossed market, but will execute in a locked market. Subscribers have the option of not executing in a locked market at the session level or via a fix tag.

Price Protection: There are no Price Protection mechanisms.

Short Sales: Subscribers are required to mark short sale orders as “sell short” or “sell short exempt”. POSIT does not execute short sell orders at the bid price in securities subject to a Reg SHO Rule 201 price restriction.

Attachment Part III, Item 11e

Part III, 11(e) examples:

~~This example demonstrates the re-allocation logic where both resting orders are filled but the larger orders receives more shares so as to satisfy its MEQ:~~

~~Minimum of 500 shares is met by re-allocating 100 shares (round lot size):~~

Side	Size	MEQ instruction	Pro-rata allocation	Traded	Remarks
B	1000	500	400	500	re-allocated to meet MEQ instruction
B	500	-	200	100	initial allocations equal to or less than 200 shares are not guaranteed any allocation
S	600	-	600	600	-

~~This example demonstrates a circumstance where the larger resting order receives all of the shares and the smaller resting order receives none:~~

Side	Size	MEQ instruction	Pro-rata allocation	Traded	Remarks
B	1000	700	600	900	re-allocated to meet MEQ instruction
B	500	400	300	0	pro-rata share allocation does not meet MEQ instruction
S	900	-	900	900	-