

EXHIBIT 5

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Nasdaq PHLX Rules

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OPTIONS RULES**Rules Applicable to Trading of Options on Stocks, Exchange-Traded Fund Shares and Foreign Currencies (Rules 1000—1098)****Rule 1000. Applicability, Definitions and References**

(a) No change.

(b) **Definitions.** The following terms as used in the Rules shall, unless the context otherwise indicates, have the meanings herein specified:

1. – 13. No change.

14. The term "professional" means any person or entity that (i) is not a broker or dealer in securities, and (ii) places more than 390 orders in listed options per day on average during a calendar month for its own beneficial account(s). A professional will be treated in the same manner as an off-floor broker-dealer for purposes of Rules 1014(g)(except with respect to all-or-none orders, which will be treated like customer orders, except that orders submitted pursuant to Rule [1080(n)]1087 for the beneficial account(s) of professionals with an all-or-none designation will be treated in the same manner as off-floor broker-dealer orders), 1033(e), 1064, Commentary .02 (except professional orders will be considered customer orders subject to facilitation), [1080(n)]1087 and [1080.07]1098, as well as Options Floor Procedure Advices B-6 and F-5. Member organizations must indicate whether orders are for professionals.

(i) No change.

[(ii)]

15. – 44. No change.

(c) – (g) No change.

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Rule 1080. Phlx

(a) – (b) No change.

(c) Phlx XL automatically executes eligible orders using the Exchange disseminated quotation (except if executed pursuant to the NBBO Feature in sub-paragraph (i) below) and then automatically routes execution reports to the originating member organization. AUTOM orders not eligible for AUTO-X are executed manually in accordance with Exchange rules. Manual execution may also occur when AUTO-X is not engaged, such as pursuant to sub-paragraph (iv) below. An order may also be executed partially by AUTO-X and partially manually. The terms "Book Match" and "Book Sweep" are subsumed under the term "AUTO-X" for purposes of these rules.

In Phlx XL II, respecting situations in which the Quote Exhaust feature is engaged, the system will automatically execute transactions as set forth in Rule 1082.

The Exchange may for any period restrict the use of AUTO-X on the Exchange in any option or series provided that the effectiveness of any such restriction shall be conditioned upon its having been approved by the Securities and Exchange Commission pursuant to Section 19(b) of the Securities Exchange Act of 1934 and the rules and regulations thereunder. Any such restriction on the use of AUTO-X approved by the Exchange will be clearly communicated to Exchange membership and AUTOM users on the Exchange's web site. Such restriction would not take effect until after such communication has been made

The Exchange shall provide automatic executions for eligible customer and broker-dealer orders up to the Exchange's disseminated size as defined in Exchange Rule 1082 except with respect to orders eligible for "Book Match."

(i) No change.

(ii) **Order Entry Firms and Users**

(A) – (B) No change.

(C) Order Entry Firms shall comply with the following requirements when interacting with orders on the limit order book which they represent as agent.

(1) Principal Transactions: Order Entry Firms may not execute as principal against orders on the limit order book they represent as agent unless: (a) agency orders are first exposed on the limit order book for at least one (1) second, (b) the Order Entry Firm has been bidding or offering on the Exchange for at least one (1) second prior to receiving an agency order that is executable against such order, (c) the Order Entry Firm proceeds in accordance with the crossing rules contained in Rule 1064, (d) the orders are entered into Price Improvement XL or "PIXL" pursuant to Rule [1080 (n)]1087, (e) the orders are entered into the Complex Order Live Auction or "COLA" pursuant to Rule 1080, Commentary .02(c)(ii)(e), or (f) orders entered into the Qualified Contingent Cross or "QCC" mechanism pursuant to Rules 1080(o).

(2) Solicitation Orders. Order Entry Firms must expose orders they represent as agent for at least one (1) second before such orders may be automatically executed, in whole or in part, against orders solicited from members and non-member broker-dealers to transact with such orders, except for: (a) orders entered into PIXL pursuant to Rule [1080 (n)]1087, (b) orders entered into COLA pursuant to Rule 1080, Commentary .02(c)(ii)(e), or (c) orders entered into the QCC mechanism pursuant to Rules 1080(o).

(3) It shall be a violation of Rule 1080(c)(ii)(C) for any Exchange member or member organization to be a party to any arrangement designed to circumvent Rule 1080(c)(ii)(C) by providing an opportunity for a customer, member, member organization, or non-member broker-dealer to execute immediately against agency orders delivered to the Exchange, whether such orders are delivered via AUTOM or represented in the trading crowd by a member or a member organization, except for: (a) orders entered into PIXL pursuant to Rule [1080 (n)]1087, (b) orders entered into COLA pursuant to Rule 1080, Commentary .02(c)(ii)(e), or (c) orders entered into the QCC mechanism pursuant to Rules 1080(o).

(iii) – (vi) No change.

(d) - (m) No change.

(n) Reserved. **[Price Improvement XL ("PIXL")**

A member may electronically submit for execution an order it represents as agent on behalf of a public customer, broker-dealer, or any other entity ("PIXL Order") against principal interest or against any other order (except as provided in sub-paragraph (n)(i)(F) below) it represents as agent (an "Initiating Order") provided it submits the PIXL Order for electronic execution into the PIXL Auction ("Auction") pursuant to this Rule. The contract size specified in Rule 1080(n) as applicable to PIXL Orders shall apply to Mini Options. For purposes of this Rule, a public customer order does not include a professional order.

(i) Auction Eligibility Requirements. All options traded on the Exchange are eligible for PIXL. A member (the "Initiating Member") may initiate an Auction provided all of the following are met:

(A) if the PIXL Order (except if it is a Complex Order) is for less than 50 option contracts, and if the difference between the National Best Bid and National Best Offer ("NBBO") is \$0.01, the Initiating Member must stop the entire PIXL Order at one minimum price improvement increment better than the NBBO on the opposite side of the market from the PIXL Order, and better than any limit order on the limit order book on the same side of the market as the PIXL Order.

- (B) if the PIXL Order (except if it is a Complex Order) is for the account of a public customer and such order is for 50 option contracts or more, or if the difference between the NBBO is greater than \$0.01, the Initiating Member must stop the entire PIXL Order (except if it is a Complex Order) at a price that is equal to or better than the NBBO and the internal market BBO (the "Reference BBO") on the opposite side of the market from the PIXL Order, provided that such price must be at least one minimum price improvement increment (as determined by the Exchange but not smaller than one cent) better than any limit order on the limit order book on the same side of the market as the PIXL Order.
- (C) If the PIXL Order (except if it is a Complex Order) is for the account of a broker dealer or any other person or entity that is not a public customer and such order is for 50 option contracts or more, or if the difference between the NBBO is greater than \$0.01, the Initiating Member must stop the entire PIXL Order (except if it is a Complex Order) at a price that is the better of: (i) the Reference BBO price improved by at least one minimum price improvement increment on the same side of the market as the PIXL Order, or (ii) the PIXL Order's limit price (if the order is a limit order), provided in either case that such price is at or better than the NBBO and the Reference BBO.
- (D) If the PIXL Order is a Complex Order and of a conforming ratio, as defined in Rule 1098(a)(i) and (a)(ix), the Initiating Member must stop the entire PIXL order at a price that is better than the best net price (debit or credit) (i) available on the Complex Order book regardless of the Complex Order book size; and (ii) achievable from the best Phlx bids and offers for the individual options (an "improved net price"), provided in either case that such price is equal to or better than the PIXL Order's limit price. Complex Orders consisting of a ratio other than a conforming ratio will not be accepted. This subparagraph (D) shall apply to all Complex Orders submitted into PIXL.
- (E) PIXL Orders that do not comply with the requirements of sub-paragraphs (A), (B), (C), and (D) above are not eligible to initiate an Auction and will be rejected.
- (F) PIXL Orders submitted at or before the opening of trading are not eligible to initiate an Auction and will be rejected.
- (G) PIXL Orders submitted during the final two seconds of the trading session in the affected series are not eligible to initiate an Auction and will be rejected.
- (H) An Initiating Order may not be a solicited order for the account of any Exchange specialist, SQT, RSQT or non-streaming ROT assigned in the affected series.

If any of the above criteria are not met, the PIXL Order will be rejected. Pursuant to Rule 1080(n)(vi), the Exchange will allow a public customer-to-public customer PIXL Order to trade on either the bid or offer, if the NBBO is \$0.01 wide, provided (1) the execution price is equal to or within the NBBO, (2) there is no resting

customer at the execution price, and (3) \$0.01 is the Minimum Price Variation (MPV) of the option. The Exchange will continue to reject a PIXL Order to buy (sell) if the NBBO is only \$0.01 wide and the Agency order is stopped on the bid (offer) if there is a resting order on the bid (offer).

(ii) Auction Process. Only one Auction may be conducted at a time in the same series or same strategy, otherwise the orders will be rejected. Once commenced, an Auction may not be cancelled and shall proceed as follows:

(A) Auction Period and PIXL Auction Notification ("PAN").

(1) To initiate the Auction (except if it is a Complex Order), the Initiating Member must mark the PIXL Order for Auction processing, and specify either: (a) a single price at which it seeks to execute the PIXL Order (a "stop price"); (b) that it is willing to automatically match as principal or as agent on behalf of an Initiating Order the price and size of all PAN responses, and trading interest ("auto-match") in which case the PIXL Order will be stopped at the better of the NBBO or the Reference BBO on the Initiating Order side; or (c) that it is willing to either: (i) stop the entire order at a single stop price and auto-match PAN responses and trading interest at a price or prices that improve the stop price to a specified price (a "Not Worse Than" or "NWT" price); (ii) stop the entire order at a single stop price and auto-match all PAN responses and trading interest at or better than the stop price; or (iii) stop the entire order at the better of the NBBO or Reference BBO on the Initiating Order side, and auto-match PAN responses and trading interest at a price or prices that improve the stop price up to the NWT price. In all cases, if the PBBO on the same side of the market as the PIXL Order represents a limit order on the book, the stop price must be at least one minimum price improvement increment better than the booked limit order's limit price. Once the Initiating Member has submitted a PIXL Order for processing pursuant to this subparagraph, such PIXL Order may not be modified or cancelled. Under any of the circumstances described in sub-paragraphs (a)-(c) above, the stop price or NWT price may be improved to the benefit of the PIXL Order during the Auction, but may not be cancelled. Under no circumstances will the Initiating Member receive an allocation percentage, at the final price point, of more than 50% with one competing quote, order or PAN response or 40% with multiple competing quotes, orders or PAN responses, when competing quotes, orders or PAN responses have contracts available for execution.

When starting an Auction, the Initiating Member may submit the Initiating Order with a designation of "surrender" to the other PIXL participants ("Surrender") which will result in the Initiating Member forfeiting the priority and trade allocation privileges which he is otherwise entitled to as per paragraph (n)(ii)(E)(2)(a). If Surrender is specified the Initiating Order will only trade if there is not enough interest available to fully execute the PIXL Order at prices which are equal to or improve upon the stop price. The Surrender function will

never result in more than the maximum allowable allocation percentage to the Initiating Member than that which the Initiating Member would have otherwise received in accordance with the allocation procedures set forth in this Rule. Surrender will not be applied if both the Initiating Order and PIXL Order are public customer orders. Surrender information will not be available to other market participants and may not be modified.

- (2) To initiate the PIXL Complex Order Auction, the Initiating Member must mark the PIXL Order for Auction processing, and specify either: (a) a single price at which it seeks to execute the PIXL Order (a "stop price"); or (b) that it is willing to either: (i) stop the entire order at a single stop price and automatch PAN responses and trading interest at a price or prices that improve the stop price to a specified price (a "Not Worse Than" or "NWT" price); or (ii) stop the entire order at a single stop price and auto-match all PAN responses and trading interest at or better than the stop price. Once the Initiating Member has submitted a PIXL Complex Order for processing pursuant to this subparagraph, such PIXL Order may not be modified or cancelled. Under any of the circumstances described in sub-paragraphs (a)-(b) above, the stop price or NWT price may be improved to the benefit of the PIXL Order during the Auction, but may not be cancelled.

When starting a PIXL Complex Order Auction, the Initiating Member may submit the Initiating Order with a designation of "surrender" to the other PIXL participants ("Surrender") which will result in the Initiating Member forfeiting the priority and trade allocation privileges which he is otherwise entitled to as per paragraph (n)(ii)(E)(2)(d). If Surrender is specified the Initiating Order will only trade if there is not enough interest available to fully execute the PIXL Order at prices which are equal to or improve upon the stop price. The Surrender function will never result in more than the maximum allowable allocation percentage to the Initiating Member than that which the Initiating Member would have otherwise received in accordance with the allocation procedures set forth in this Rule. Surrender will not be applied if both the Initiating Order and PIXL Complex Order are public customer orders. Surrender information will not be available to other market participants and may not be modified.

- (3) When the Exchange receives a PIXL Order for Auction processing, a PAN detailing the side and size and option series of the PIXL Order will be sent over the Exchange's TOPO Plus Orders data feed and Specialized Quote Feed.
- (4) The Auction will last for a period of time, as determined by the Exchange and announced on the Nasdaq Trader website. The Auction period will be no less than one hundred milliseconds and no more than one second.
- (5) Any person or entity may submit responses to the PAN, provided such response is properly marked specifying price, size and side of the market.

- (6) PAN responses will not be visible to Auction participants, and will not be disseminated to OPRA.
- (7) (a) The minimum price increment for PAN responses and for an Initiating Member's stop price and/or NWT price (except if it is a Complex Order) shall be the minimum price improvement increment established pursuant to subparagraph (i)(A)(1) above.
- (b) The minimum price increment for PAN responses and for an Initiating Member's stop price and/or NWT price in the case of a Complex Order shall be .01.
- (8) A PAN response size at any given price point may not exceed the size of the PIXL Order. A PAN response with a size greater than the size of the PIXL Order will be immediately cancelled.
- (9) A PAN response (except if it is a Complex Order) must be equal to or better than the NBBO and the Reference BBO at the time of receipt of the PAN response. A Complex Order PAN response must be equal to or better than the cPBBO, as defined in Rule 1098(a) at the time of receipt of the PAN response. PAN responses may be modified or cancelled during the Auction. A PAN response (except if it is a Complex Order) submitted with a price that is outside the better of the NBBO or Reference BBO will be immediately cancelled. A Complex Order PAN response submitted with a price that is outside the cPBBO will be rejected. A PAN or Complex Order PAN response which is inferior to the stop price of the PIXL order will be cancelled.
- (10) PAN responses on the same side of the market as the PIXL Order are considered invalid and will be immediately cancelled.
- (11) Multiple PAN responses from the same member may be submitted during the Auction. Multiple orders at a particular price point submitted by a member in response to a PAN may not exceed, in the aggregate, the size of the PIXL Order.
- (B) Conclusion of Auction. The PIXL Auction shall conclude at the earlier to occur of (1) through (4) below, with the PIXL Order executing pursuant to paragraph (C)(1) through (3) below.
- (1) The end of the Auction period;
- (2) For a PIXL Auction (except if it is a Complex Order), any time the Reference BBO crosses the PIXL Order stop price on the same side of the market as the PIXL Order;

- (3) For a Complex Order PIXL Auction, any time the cPBBO or the Complex Order book crosses the PIXL Order stop price on the same side of the market as the PIXL Order (defined for these purposes as a "Complex PIXL Order" or, as the context requires, a "PIXL Order"); or
- (4) Any time there is a trading halt on the Exchange in the affected series.
- (C) If the situations described in sub-paragraphs (B)(2), (3), or (4) above occur, the entire PIXL Order will be executed at: (1) in the case of the Reference BBO crossing the PIXL Order stop price, the best response price(s) or, if the stop price is the best price in the Auction, at the stop price, unless the best response price is equal to or better than the price of a limit order resting on the PHLX book on the same side of the market as the PIXL Order, in which case the PIXL Order will be executed against that response, but at a price that is at least one minimum price improvement increment better than the price of such limit order at the time of the conclusion of the Auction; (2) in the case of the cPBBO or the Complex Order book crossing the Complex PIXL Order stop price on the same side of the market as the Complex PIXL Order, the stop price against executable PAN responses and executable Complex Orders using the allocation algorithm in sub-paragraph (E)(2)(d)(i) through (iv); or (3) in the case of a trading halt on the Exchange in the affected series, the stop price, in which case the PIXL Order will be executed solely against the Initiating Order. Any unexecuted PAN responses will be cancelled.
- (D) An unrelated market or marketable limit order (against the PBBO) on the opposite side of the market from the PIXL Order received during the Auction will not cause the Auction to end early and will execute against interest outside of the Auction. In the case of a Complex PIXL Auction, an unrelated market or marketable limit Complex Order on the opposite side of the market from the Complex PIXL Order as well as orders for the individual components of the Complex Order received during the Auction will not cause the Auction to end early and will execute against interest outside of the Auction. If contracts remain from such unrelated order at the time the Auction ends, they will be considered for participation in the order allocation process described in sub-paragraph (E) below.
- (E) Order Allocation. At the conclusion of the Auction, the PIXL Order will be allocated at the best price(s) as follows:
- (1) Public customer orders shall have priority at each price level. For purposes of this Rule, a public customer order does not include a professional order.
- (2) After public customer interest at a particular price level has been satisfied, remaining contracts will be allocated among all Exchange quotes, orders and PAN responses as follows:

- (a) If the Initiating Member selected the single stop price option of the PIXL Auction (except if it is a Complex Order), PIXL executions will occur at prices that improve the stop price, and then at the stop price with up to 40% of the remaining contracts after public customer interest is satisfied being allocated to the Initiating Member at the stop price. However, if only one other participant matches the stop price, then the Initiating Member may be allocated up to 50% of the contracts executed at such price. Remaining contracts shall be allocated pursuant to the algorithm set forth in Exchange Rules 1014(g)(vii)(B)(1)(b) and (d) among remaining quotes, orders and PAN responses at the stop price. Thereafter, remaining contracts, if any, shall be allocated to the Initiating Member. The allocation will account for Surrender, if applicable.
- (b) If the Initiating Member selected the auto-match option of the PIXL Auction (except if it is a Complex Order), the Initiating Member shall be allocated an equal number of contracts as the aggregate size of all other quotes, orders and PAN responses at each price point until a price point is reached where the balance of the order can be fully executed, except that the Initiating Member shall be entitled to receive up to 40% (if there are multiple competing quotes, orders or PAN responses) or 50% (if there is only one competing quote, order or PAN response) of the contracts remaining at the final price point (including situations where the stop price is the final price) after public customer interest has been satisfied but before remaining interest. If there are other quotes, orders and PAN responses at the final price point the contracts will be allocated to such interest pursuant to the algorithm set forth in Exchange Rules 1014(g)(vii)(B)(1)(b) and (d). Any remaining contracts shall be allocated to the Initiating Member.
- (c) In the case of a PIXL (except if it is a Complex Order), if the Initiating Member selected the "stop and NWT" option of the PIXL Auction, contracts shall be allocated as follows:
- (i) first to quotes, orders and PAN responses at prices better than the NWT price (if any), beginning with the best price, pursuant to the algorithm set forth in Exchange Rules 1014(g)(vii)(B)(1)(b) and (d) at each price point;
- (ii) next, to quotes, orders and PAN responses at prices at the Initiating Member's NWT price and better than the Initiating Member's stop price, beginning with the NWT price. The Initiating Member shall be allocated an equal number of contracts as the aggregate size of all other quotes, orders and PAN responses at each price point, except that the Initiating Member shall be entitled to receive up to 40% (if there are multiple competing quotes, orders or PAN responses) or 50% (if there is only one competing quote, order or PAN response) of the contracts remaining at the final price point (including situations where the final price is the stop price) after public customer interest has been satisfied but before

remaining interest. In the case of an Initiating Order with a NWT price at the market, the Initiating Member shall be allocated an equal number of contracts as the aggregate size of all other quotes, orders and PAN responses at all price points, except that the Initiating Member shall be entitled to receive up to 40% (if there are multiple competing quotes, orders or PAN responses) or 50% (if there is only one competing quote, order or PAN response) of the contracts remaining at the final price point (including situations where the final price is the stop price) after public customer interest has been satisfied but before remaining interest. If there are other quotes, orders and PAN responses at the final price point the contracts will be allocated to such interest pursuant to the algorithm set forth in Exchange Rules 1014(g)(vii)(B)(1)(b) and (d). Any remaining contracts shall be allocated to the Initiating Member.

- (d) In the case of a Complex Order PIXL, if the Initiating Member selected the single stop price option of the PIXL Auction, PIXL executions will occur at prices that improve the stop price, and then at the stop price with up to 40% of the remaining contracts after public customer complex interest is satisfied being allocated to the Initiating Member at the stop price. If only one other participant matches the stop price, then the Initiating Member may be allocated up to 50% of the contracts executed at such price. Complex Orders on the PHLX Complex Order Book, PAN responses, and quotes and orders which comprise the cPBBO at the end of the Auction will be considered for allocation against the Complex PIXL order. Such interest will be allocated at a given price in the following order: (i) to public customer Complex Orders and PAN responses in time priority; (ii) to SQT, RSQT, and non-SQT ROT Complex Orders and PAN responses on a size pro-rata basis; (iii) to non-market maker off-floor broker-dealer Complex Orders and PAN responses on a size pro-rata basis, and (iv) to quotes and orders which comprise the cPBBO at the end of the Auction with public customer interest being satisfied first in time priority, then to SQT, RSQT, and non-SQT ROT interest satisfied on a size pro-rata basis, and lastly to non-market maker off-floor broker-dealers on a size pro-rata basis. If the final price point is equal to the stop price, the Initiating Member will be allocated 40% (or 50% if matching only one other participant) after public customer Complex Orders and PAN responses have been satisfied, thereafter the allocation will continue as stipulated in (ii) through (iv) of this sub-paragraph. Thereafter, remaining contracts, if any, shall be allocated to the Initiating Member. The allocation will account for Surrender, if applicable.
- (e) In the case of a Complex Order PIXL, if the Initiating Member selected the "stop and NWT" option of the PIXL Auction, contracts shall be allocated as follows:
- (i) First to Complex Orders and PAN responses at prices better than the NWT price, as well as to quotes and orders which comprise the cPBBO at

the end of the Auction, if such cPBBO is better than the NWT price, pursuant to the algorithm set forth above in (n)(ii)(E)(2)(d)(i) through (iv) of this rule;

- (ii) Next, to Complex Orders and PAN responses, as well as to quotes and orders which comprise the cPBBO at the end of the Auction, at the Initiating Member's NWT price and at prices better than or equal to the Initiating Member's stop price, beginning with the NWT price. The Initiating Member shall be allocated an equal number of contracts as the aggregate size of all other interest at each price point, except that the Initiating Member shall be entitled to receive up to 40% (or 50% if matching only one other participant) of the contracts remaining, after public customer Complex Orders and PAN responses have been satisfied, at the final price point (including situations where the final price is the stop price). In the case of an Initiating Order with a NWT price at the market, the Initiating Member shall be allocated an equal number of contracts as the aggregate size of all other interest at all price points, except that the Initiating Member shall be entitled to receive up to 40% (or 50% if matching only one other participant) of the contracts remaining, after public customer Complex Orders and PAN responses have been satisfied, at the final price point (including situations where the final price is the stop price). If there is other interest at the final price point the contracts will be allocated to such interest pursuant to the algorithm set forth in (n)(ii)(E)(2)(d)(i) through (iv) of this rule. Any remaining contracts shall be allocated to the Initiating Member.

- (f) A single quote, order or PAN response shall not be allocated a number of contracts that is greater than its size. Where the allocation of contracts results in remaining amounts, the number of contracts to be allocated shall be rounded down to the nearest integer. If rounding would result in an allocation of less than one contract, then one contract will be allocated to the Initiating Member only if the Initiating Member did not otherwise receive an allocation. If there are contracts remaining, such contracts shall be allocated for simple interest after rounding by randomly assigning all ROTs an order of allocation each trading day, and allocating orders, quotes and sweeps in accordance with the trading day's order assignment, provided the ROT is at the best price at which the order, quote or sweep is being traded, except with respect to Complex Orders, which allocation is described in Rule 1098. In the event that there are remaining contracts to be allocated for interest after rounding, such remaining contracts will be allocated in time priority, provided the off-floor broker-dealers are at the best price at which the order is being traded. Remaining shares will be allocated in time priority for Complex Orders. The allocation will account for Surrender, if applicable.

- (g) A Complex PIXL Order consisting of a stock/ETF component will not execute against interest comprising the cPBBO at the end of the Auction.

- (F) If there are PAN responses (except if it is a Complex Order) that cross the then-existing better of the Reference BBO and NBBO (provided such NBBO is not crossed) or Complex Order PAN responses that cross the then-existing cPBBO at the time of the conclusion of the Auction, such PAN responses will be executed, if possible, at their limit price(s).
- (G) If the PIXL Auction price (except if it is a Complex Order) is the same as that of an order on the limit order book represented in the PBBO on the same side of the market as the PIXL Order, the PIXL Order may only be executed at a price that is at least one minimum price improvement increment better than the resting order's limit price or, if such resting order's limit price is equal to or crosses the stop price, then the entire PIXL Order will trade at the stop price with all better priced interest being considered for execution at the stop price.
- (H) If the Complex Order PIXL Auction price is the same as that of a Complex Order on the Complex Order Book on the same side of the market as the PIXL Order, the PIXL Order may only be executed at a price that is at least one minimum price improvement increment better than the resting order's limit price; or if such resting order's limit price is equal to or crosses the stop price, then the entire PIXL Order will trade at the stop price with all better priced interest being considered for execution at the stop price.
- (I) Any unexecuted PAN responses will be cancelled.
- (J) Complex PIXL Orders with stock/ETF components.
- (1) Member organizations may only submit Complex PIXL Orders, Initiating Orders, Complex Orders, and/or PAN responses with a stock/ETF component if such orders/responses comply with the Qualified Contingent Trade Exemption from Rule 611(a) of Regulation NMS. Member organizations submitting such orders with a stock/ETF component represent that such orders comply with the Qualified Contingent Trade Exemption. Members of FINRA or The Nasdaq Stock Market ("Nasdaq") are required to have a Uniform Service Bureau/Executing Broker Agreement ("AGU") with Nasdaq Execution Services, LLC ("NES") in order to trade orders containing a stock/ETF component; firms that are not members of FINRA or Nasdaq are required to have a Qualified Special Representative ("QSR") arrangement with NES in order to trade orders containing a stock/ETF component.
 - (2) Where one component of a Complex PIXL Order, Initiating Order, Complex Order, or PAN response is the underlying security, the Exchange shall electronically communicate the underlying security component of a Complex PIXL Order (together with the Initiating Order, Complex Order, or PAN response, as applicable) to NES, its designated broker-dealer, for immediate execution. Such execution and reporting will occur otherwise than on the

Exchange and will be handled by NES pursuant to applicable rules regarding equity trading.

(3) When the short sale price test in Rule 201 of Regulation SHO is triggered for a covered security, NES will not execute a short sale order in the underlying covered security component of a Complex PIXL Order, Initiating Order, Complex Order, or PAN response if the price is equal to or below the current national best bid. However, NES will execute a short sale order in the underlying covered security component of a Complex PIXL Order, Initiating Order, Complex Order, or PAN response if such order is marked "short exempt," regardless of whether it is at a price that is equal to or below the current national best bid. If NES cannot execute the underlying covered security component of a Complex PIXL Order, Initiating Order, Complex Order, or PAN response in accordance with Rule 201 of Regulation SHO, the Exchange will cancel back the Complex PIXL Order, Initiating Order, Complex Order, and/or PAN response to the entering member organization. For purposes of this paragraph, the term "covered security" shall have the same meaning as in Rule 201(a)(1) of Regulation SHO.

(K) *PIXL ISO Order*. A PIXL ISO order (PIXL ISO) is the transmission of two orders for crossing pursuant to Rule 1080(n) without regard for better priced Protected Bids/Offers (as defined in Rule 1083) because the member transmitting the PIXL ISO to the Exchange has, simultaneously with the routing of the PIXL ISO, routed one or more ISOs, as necessary, to execute against the full displayed size of any Protected Bid/Offer that is superior to the starting PIXL Auction price and has swept all interest in the Exchange's book priced better than the proposed Auction starting price. Any execution(s) resulting from such sweeps shall accrue to the PIXL Order.

(iii) The PIXL Auction may be used only where there is a genuine intention to execute a bona fide transaction. It will be considered a violation of this Rule 1080(n) and will be deemed conduct inconsistent with just and equitable principles of trade and a violation of Rule 707 if an Initiating Member submits a PIXL Order (initiating an Auction) and also submits its own PAN response in the same Auction.

(iv) A pattern or practice of submitting multiple orders in response to a PAN at a particular price point that exceed, in the aggregate, the size of the PIXL Order, will be deemed conduct inconsistent with just and equitable principles of trade and a violation of Rule 707.

(v) A pattern or practice of submitting unrelated orders or quotes that cross the stop price, causing a PIXL Auction to conclude before the end of the PIXL Auction period will be deemed conduct inconsistent with just and equitable principles of trade and a violation of Rule 707. It will also be deemed conduct inconsistent with just and equitable principles of trade and a violation of Rule 707 to engage in a pattern of conduct where the Initiating Member breaks up a PIXL Order into

separate orders for the purpose of gaining a higher allocation percentage than the Initiating Member would have otherwise received in accordance with the allocation procedures contained in subparagraph (ii)(E) above.

- (vi) In lieu of the procedures in paragraphs (i) - (ii) above, an Initiating Member may enter a PIXL Order for the account of a public customer paired with an order for the account of a public customer and such paired orders will be automatically executed without a PIXL Auction, provided there is not currently an Auction in progress in the same series or same strategy, in which case the orders will be rejected. The execution price for such a PIXL Order (except if it is a Complex Order) must be expressed in the quoting increment applicable to the affected series. Such an execution may not trade through the better of the NBBO or Reference BBO or at the same price as any resting customer order. The execution price for such a Complex Order PIXL may be in .01 increments and may not trade at a price equal to or through the cPBBO or at the same price as a resting customer Complex Order.

Rule 1080(c)(ii)(C) prevents an Order Entry Firm from executing agency orders to increase its economic gain from trading against the order without first giving other trading interests on the Exchange an opportunity to either trade with the agency order or to trade at the execution price when the member was already bidding or offering on the book. However, the Exchange recognizes that it may be possible for a firm to establish a relationship with a customer or other person to deny agency orders the opportunity to interact on the Exchange and to realize similar economic benefits as it would achieve by executing agency orders as principal. It would be a violation of Rule 1080(c)(ii)(C) for a firm to circumvent Rule 1080(c)(ii)(C) by providing an opportunity for (i) a customer affiliated with the firm, or (ii) a customer with whom the firm has an arrangement that allows the firm to realize similar economic benefits from the transaction as the firm would achieve by executing agency orders as principal, to regularly execute against agency orders handled by the firm immediately upon their entry as PIXL customer-to-customer immediate crosses.

- (vii) There will be no minimum size requirement for orders to be eligible for the Auction.]

(o) – (p) No change.

••• *Commentary:* -----

.01 - .08 No change.

* * * * *

Rule 1087. [Reserved] Price Improvement XL ("PIXL")

[Reserved.]

A member may electronically submit for execution an order it represents as agent on behalf of a public customer, broker-dealer, or any other entity ("PIXL Order") against principal interest or against any other order (except as provided in sub-paragraph (a)(6) below) it represents as agent (an "Initiating Order") provided it submits the PIXL Order for electronic execution into the PIXL Auction ("Auction") pursuant to this Rule. The contract size specified in Rule 1087 as applicable to PIXL Orders shall apply to Mini Options. For purposes of this Rule, a public customer order does not include a professional order.

(a) Auction Eligibility Requirements. All options traded on the Exchange are eligible for PIXL. A member (the "Initiating Member") may initiate an Auction provided all of the following are met:

- (1) if the PIXL Order (except if it is a Complex Order) is for less than 50 option contracts, and if the difference between the National Best Bid and National Best Offer ("NBBO") is \$0.01, the Initiating Member must stop the entire PIXL Order at one minimum price improvement increment better than the NBBO on the opposite side of the market from the PIXL Order, and better than any limit order on the limit order book on the same side of the market as the PIXL Order.
- (2) if the PIXL Order (except if it is a Complex Order) is for the account of a public customer and such order is for 50 option contracts or more, or if the difference between the NBBO is greater than \$0.01, the Initiating Member must stop the entire PIXL Order (except if it is a Complex Order) at a price that is equal to or better than the NBBO and the internal market BBO (the "Reference BBO") on the opposite side of the market from the PIXL Order, provided that such price must be at least one minimum price improvement increment (as determined by the Exchange but not smaller than one cent) better than any limit order on the limit order book on the same side of the market as the PIXL Order.
- (3) If the PIXL Order (except if it is a Complex Order) is for the account of a broker dealer or any other person or entity that is not a public customer and such order is for 50 option contracts or more, or if the difference between the NBBO is greater than \$0.01, the Initiating Member must stop the entire PIXL Order (except if it is a Complex Order) at a price that is the better of: (A) the Reference BBO price improved by at least one minimum price improvement increment on the same side of the market as the PIXL Order, or (B) the PIXL Order's limit price (if the order is a limit order), provided in either case that such price is at or better than the NBBO and the Reference BBO.
- (4) If the PIXL Order is a Complex Order and of a conforming ratio, as defined in Rule 1098(a)(i) and (a)(ix), the Initiating Member must stop the entire PIXL order at a price that is better than the best net price (debit or credit) (A) available on the Complex Order book regardless of the Complex Order book size; and (B) achievable from the best Phlx bids and offers for the individual options (an "improved net price"), provided in either case that such price is equal to or better

- than the PIXL Order's limit price. Complex Orders consisting of a ratio other than a conforming ratio will not be accepted. This subparagraph (4) shall apply to all Complex Orders submitted into PIXL.
- (5) PIXL Orders that do not comply with the requirements of sub-paragraphs (1), (2), (3), and (4) above are not eligible to initiate an Auction and will be rejected.
- (6) PIXL Orders submitted at or before the opening of trading are not eligible to initiate an Auction and will be rejected.
- (7) PIXL Orders submitted during the final two seconds of the trading session in the affected series are not eligible to initiate an Auction and will be rejected.
- (8) An Initiating Order may not be a solicited order for the account of any Exchange specialist, SQT, RSQT or non-streaming ROT assigned in the affected series.

If any of the above criteria are not met, the PIXL Order will be rejected. Pursuant to Rule 1087(f), the Exchange will allow a public customer-to-public customer PIXL Order to trade on either the bid or offer, if the NBBO is \$0.01 wide, provided (1) the execution price is equal to or within the NBBO, (2) there is no resting customer at the execution price, and (3) \$0.01 is the Minimum Price Variation (MPV) of the option. The Exchange will continue to reject a PIXL Order to buy (sell) if the NBBO is only \$0.01 wide and the Agency order is stopped on the bid (offer) if there is a resting order on the bid (offer).

(b) Auction Process. Only one Auction may be conducted at a time in the same series or same strategy, otherwise the orders will be rejected. Once commenced, an Auction may not be cancelled and shall proceed as follows:

(1) Auction Period and PIXL Auction Notification ("PAN").

(A) To initiate the Auction (except if it is a Complex Order), the Initiating Member must mark the PIXL Order for Auction processing, and specify either: (i) a single price at which it seeks to execute the PIXL Order (a "stop price"); (ii) that it is willing to automatically match as principal or as agent on behalf of an Initiating Order the price and size of all PAN responses, and trading interest ("auto-match") in which case the PIXL Order will be stopped at the better of the NBBO or the Reference BBO on the Initiating Order side; or (iii) that it is willing to either: a) stop the entire order at a single stop price and auto-match PAN responses and trading interest at a price or prices that improve the stop price to a specified price (a "Not Worse Than" or "NWT" price); b) stop the entire order at a single stop price and auto-match all PAN responses and trading interest at or better than the stop price; or c) stop the entire order at the better of the NBBO or Reference BBO on the Initiating Order side, and auto-match PAN responses and trading interest at a price or prices that improve the stop price up to the NWT price. In all cases, if the PBBO on the same side of the market as

the PIXL Order represents a limit order on the book, the stop price must be at least one minimum price improvement increment better than the booked limit order's limit price. Once the Initiating Member has submitted a PIXL Order for processing pursuant to this subparagraph, such PIXL Order may not be modified or cancelled. Under any of the circumstances described in subparagraphs (i)-(iii) above, the stop price or NWT price may be improved to the benefit of the PIXL Order during the Auction, but may not be cancelled. Under no circumstances will the Initiating Member receive an allocation percentage, at the final price point, of more than 50% with one competing quote, order or PAN response or 40% with multiple competing quotes, orders or PAN responses, when competing quotes, orders or PAN responses have contracts available for execution.

When starting an Auction, the Initiating Member may submit the Initiating Order with a designation of "surrender" to the other PIXL participants ("Surrender") which will result in the Initiating Member forfeiting the priority and trade allocation privileges which he is otherwise entitled to as per paragraph (b)(5)(B)(i). If Surrender is specified the Initiating Order will only trade if there is not enough interest available to fully execute the PIXL Order at prices which are equal to or improve upon the stop price. The Surrender function will never result in more than the maximum allowable allocation percentage to the Initiating Member than that which the Initiating Member would have otherwise received in accordance with the allocation procedures set forth in this Rule. Surrender will not be applied if both the Initiating Order and PIXL Order are public customer orders. Surrender information will not be available to other market participants and may not be modified.

(B) To initiate the PIXL Complex Order Auction, the Initiating Member must mark the PIXL Order for Auction processing, and specify either: (i) a single price at which it seeks to execute the PIXL Order (a "stop price"); or (ii) that it is willing to either: a) stop the entire order at a single stop price and automatch PAN responses and trading interest at a price or prices that improve the stop price to a specified price (a "Not Worse Than" or "NWT" price); or (b) stop the entire order at a single stop price and auto-match all PAN responses and trading interest at or better than the stop price. Once the Initiating Member has submitted a PIXL Complex Order for processing pursuant to this subparagraph, such PIXL Order may not be modified or cancelled. Under any of the circumstances described in subparagraphs (i)-(ii) above, the stop price or NWT price may be improved to the benefit of the PIXL Order during the Auction, but may not be cancelled.

When starting a PIXL Complex Order Auction, the Initiating Member may submit the Initiating Order with a designation of "surrender" to the other PIXL participants ("Surrender") which will result in the Initiating Member forfeiting the priority and trade allocation privileges which he is otherwise entitled to as per paragraph (b)(5)(B)(iv). If Surrender is specified the Initiating Order will

- only trade if there is not enough interest available to fully execute the PIXL Order at prices which are equal to or improve upon the stop price. The Surrender function will never result in more than the maximum allowable allocation percentage to the Initiating Member than that which the Initiating Member would have otherwise received in accordance with the allocation procedures set forth in this Rule. Surrender will not be applied if both the Initiating Order and PIXL Complex Order are public customer orders. Surrender information will not be available to other market participants and may not be modified.
- (C) When the Exchange receives a PIXL Order for Auction processing, a PAN detailing the side and size and option series of the PIXL Order will be sent over the Exchange's TOPO Plus Orders data feed and Specialized Quote Feed.
- (D) The Auction will last for a period of time, as determined by the Exchange and announced on the Nasdaq Trader website. The Auction period will be no less than one hundred milliseconds and no more than one second.
- (E) Any person or entity may submit responses to the PAN, provided such response is properly marked specifying price, size and side of the market.
- (F) PAN responses will not be visible to Auction participants, and will not be disseminated to OPRA.
- (G) (i) The minimum price increment for PAN responses and for an Initiating Member's stop price and/or NWT price (except if it is a Complex Order) shall be the minimum price improvement increment established pursuant to Rule 1080(i)(A)(1) above.
- (ii) The minimum price increment for PAN responses and for an Initiating Member's stop price and/or NWT price in the case of a Complex Order shall be .01.
- (H) A PAN response size at any given price point may not exceed the size of the PIXL Order. A PAN response with a size greater than the size of the PIXL Order will be immediately cancelled.
- (I) A PAN response (except if it is a Complex Order) must be equal to or better than the NBBO and the Reference BBO at the time of receipt of the PAN response. A Complex Order PAN response must be equal to or better than the cPBBO, as defined in Rule 1098(a) at the time of receipt of the PAN response. PAN responses may be modified or cancelled during the Auction. A PAN response (except if it is a Complex Order) submitted with a price that is outside the better of the NBBO or Reference BBO will be immediately cancelled. A Complex Order PAN response submitted with a price that is outside the cPBBO

will be rejected. A PAN or Complex Order PAN response which is inferior to the stop price of the PIXL order will be cancelled.

(J) PAN responses on the same side of the market as the PIXL Order are considered invalid and will be immediately cancelled.

(K) Multiple PAN responses from the same member may be submitted during the Auction. Multiple orders at a particular price point submitted by a member in response to a PAN may not exceed, in the aggregate, the size of the PIXL Order.

(2) Conclusion of Auction. The PIXL Auction shall conclude at the earlier to occur of (A) through (D) below, with the PIXL Order executing pursuant to paragraph (3)(A) through (C) below.

(A) The end of the Auction period;

(B) For a PIXL Auction (except if it is a Complex Order), any time the Reference BBO crosses the PIXL Order stop price on the same side of the market as the PIXL Order;

(C) For a Complex Order PIXL Auction, any time the cPBBO or the Complex Order book crosses the PIXL Order stop price on the same side of the market as the PIXL Order (defined for these purposes as a "Complex PIXL Order" or, as the context requires, a "PIXL Order"); or

(D) Any time there is a trading halt on the Exchange in the affected series.

(3) If the situations described in sub-paragraphs (2)(B), (C), or (D) above occur, the entire PIXL Order will be executed at: (A) in the case of the Reference BBO crossing the PIXL Order stop price, the best response price(s) or, if the stop price is the best price in the Auction, at the stop price, unless the best response price is equal to or better than the price of a limit order resting on the PHLX book on the same side of the market as the PIXL Order, in which case the PIXL Order will be executed against that response, but at a price that is at least one minimum price improvement increment better than the price of such limit order at the time of the conclusion of the Auction; (B) in the case of the cPBBO or the Complex Order book crossing the Complex PIXL Order stop price on the same side of the market as the Complex PIXL Order, the stop price against executable PAN responses and executable Complex Orders using the allocation algorithm in sub-paragraph (5)(B)(iv)a) through d); or (C) in the case of a trading halt on the Exchange in the affected series, the stop price, in which case the PIXL Order will be executed solely against the Initiating Order. Any unexecuted PAN responses will be cancelled.

(4) An unrelated market or marketable limit order (against the PBBO) on the opposite side of the market from the PIXL Order received during the Auction will not cause the Auction to end early and will execute against interest outside of the Auction. In the case of a Complex PIXL Auction, an unrelated market or marketable limit Complex Order on the opposite side of the market from the Complex PIXL Order as well as orders for the individual components of the Complex Order received during the Auction will not cause the Auction to end early and will execute against interest outside of the Auction. If contracts remain from such unrelated order at the time the Auction ends, they will be considered for participation in the order allocation process described in sub-paragraph (5) below.

(5) Order Allocation. At the conclusion of the Auction, the PIXL Order will be allocated at the best price(s) as follows:

(A) Public customer orders shall have priority at each price level. For purposes of this Rule, a public customer order does not include a professional order.

(B) After public customer interest at a particular price level has been satisfied, remaining contracts will be allocated among all Exchange quotes, orders and PAN responses as follows:

(i) If the Initiating Member selected the single stop price option of the PIXL Auction (except if it is a Complex Order), PIXL executions will occur at prices that improve the stop price, and then at the stop price with up to 40% of the remaining contracts after public customer interest is satisfied being allocated to the Initiating Member at the stop price. However, if only one other participant matches the stop price, then the Initiating Member may be allocated up to 50% of the contracts executed at such price. Remaining contracts shall be allocated pursuant to the algorithm set forth in Exchange Rules 1014(g)(vii)(B)(1)(b) and (d) among remaining quotes, orders and PAN responses at the stop price. Thereafter, remaining contracts, if any, shall be allocated to the Initiating Member. The allocation will account for Surrender, if applicable.

(ii) If the Initiating Member selected the auto-match option of the PIXL Auction (except if it is a Complex Order), the Initiating Member shall be allocated an equal number of contracts as the aggregate size of all other quotes, orders and PAN responses at each price point until a price point is reached where the balance of the order can be fully executed, except that the Initiating Member shall be entitled to receive up to 40% (if there are multiple competing quotes, orders or PAN responses) or 50% (if there is only one competing quote, order or PAN response) of the contracts remaining at the final price point (including situations where the stop price is the final price) after public customer interest has been satisfied but before remaining interest. If there are other quotes, orders and PAN responses at the final price

point the contracts will be allocated to such interest pursuant to the algorithm set forth in Exchange Rules 1014(g)(vii)(B)(1)(b) and (d). Any remaining contracts shall be allocated to the Initiating Member.

(iii) In the case of a PIXL (except if it is a Complex Order), if the Initiating Member selected the "stop and NWT" option of the PIXL Auction, contracts shall be allocated as follows:

a. first to quotes, orders and PAN responses at prices better than the NWT price (if any), beginning with the best price, pursuant to the algorithm set forth in Exchange Rules 1014(g)(vii)(B)(1)(b) and (d) at each price point;

b. next, to quotes, orders and PAN responses at prices at the Initiating Member's NWT price and better than the Initiating Member's stop price, beginning with the NWT price. The Initiating Member shall be allocated an equal number of contracts as the aggregate size of all other quotes, orders and PAN responses at each price point, except that the Initiating Member shall be entitled to receive up to 40% (if there are multiple competing quotes, orders or PAN responses) or 50% (if there is only one competing quote, order or PAN response) of the contracts remaining at the final price point (including situations where the final price is the stop price) after public customer interest has been satisfied but before remaining interest. In the case of an Initiating Order with a NWT price at the market, the Initiating Member shall be allocated an equal number of contracts as the aggregate size of all other quotes, orders and PAN responses at all price points, except that the Initiating Member shall be entitled to receive up to 40% (if there are multiple competing quotes, orders or PAN responses) or 50% (if there is only one competing quote, order or PAN response) of the contracts remaining at the final price point (including situations where the final price is the stop price) after public customer interest has been satisfied but before remaining interest. If there are other quotes, orders and PAN responses at the final price point the contracts will be allocated to such interest pursuant to the algorithm set forth in Exchange Rules 1014(g)(vii)(B)(1)(b) and (d). Any remaining contracts shall be allocated to the Initiating Member.

(iv) In the case of a Complex Order PIXL, if the Initiating Member selected the single stop price option of the PIXL Auction, PIXL executions will occur at prices that improve the stop price, and then at the stop price with up to 40% of the remaining contracts after public customer complex interest is satisfied being allocated to the Initiating Member at the stop price. If only one other participant matches the stop price, then the Initiating Member may be allocated up to 50% of the contracts executed at such price. Complex Orders on the PHLX Complex Order Book, PAN responses, and quotes and orders which comprise the cPBBO at the end of the Auction will be considered for allocation against the Complex PIXL order. Such interest will be allocated at

a given price in the following order: a) to public customer Complex Orders and PAN responses in time priority; b) to SQT, RSQT, and non-SQT ROT Complex Orders and PAN responses on a size pro-rata basis; c) to non-market maker off-floor broker-dealer Complex Orders and PAN responses on a size pro-rata basis, and d) to quotes and orders which comprise the cPBBO at the end of the Auction with public customer interest being satisfied first in time priority, then to SQT, RSQT, and non-SQT ROT interest satisfied on a size pro-rata basis, and lastly to non-market maker off-floor broker-dealers on a size pro-rata basis. If the final price point is equal to the stop price, the Initiating Member will be allocated 40% (or 50% if matching only one other participant) after public customer Complex Orders and PAN responses have been satisfied, thereafter the allocation will continue as stipulated in b) through d) of this sub-paragraph. Thereafter, remaining contracts, if any, shall be allocated to the Initiating Member. The allocation will account for Surrender, if applicable.

(v) In the case of a Complex Order PIXL, if the Initiating Member selected the "stop and NWT" option of the PIXL Auction, contracts shall be allocated as follows:

- a. First to Complex Orders and PAN responses at prices better than the NWT price, as well as to quotes and orders which comprise the cPBBO at the end of the Auction, if such cPBBO is better than the NWT price, pursuant to the algorithm set forth above in (b)(5)(B)(iv)a) through d) of this rule;
- b. Next, to Complex Orders and PAN responses, as well as to quotes and orders which comprise the cPBBO at the end of the Auction, at the Initiating Member's NWT price and at prices better than or equal to the Initiating Member's stop price, beginning with the NWT price. The Initiating Member shall be allocated an equal number of contracts as the aggregate size of all other interest at each price point, except that the Initiating Member shall be entitled to receive up to 40% (or 50% if matching only one other participant) of the contracts remaining, after public customer Complex Orders and PAN responses have been satisfied, at the final price point (including situations where the final price is the stop price). In the case of an Initiating Order with a NWT price at the market, the Initiating Member shall be allocated an equal number of contracts as the aggregate size of all other interest at all price points, except that the Initiating Member shall be entitled to receive up to 40% (or 50% if matching only one other participant) of the contracts remaining, after public customer Complex Orders and PAN responses have been satisfied, at the final price point (including situations where the final price is the stop price). If there is other interest at the final price point the contracts will be allocated to such interest pursuant to the algorithm set forth in (b)(5)(B)(iv)a) through d) of this rule. Any remaining contracts shall be allocated to the Initiating Member.

- (vi) A single quote, order or PAN response shall not be allocated a number of contracts that is greater than its size. Where the allocation of contracts results in remaining amounts, the number of contracts to be allocated shall be rounded down to the nearest integer. If rounding would result in an allocation of less than one contract, then one contract will be allocated to the Initiating Member only if the Initiating Member did not otherwise receive an allocation. If there are contracts remaining, such contracts shall be allocated for simple interest after rounding by randomly assigning all ROTs an order of allocation each trading day, and allocating orders, quotes and sweeps in accordance with the trading day's order assignment, provided the ROT is at the best price at which the order, quote or sweep is being traded, except with respect to Complex Orders, which allocation is described in Rule 1098. In the event that there are remaining contracts to be allocated for interest after rounding, such remaining contracts will be allocated in time priority, provided the off-floor broker-dealers are at the best price at which the order is being traded. Remaining shares will be allocated in time priority for Complex Orders. The allocation will account for Surrender, if applicable.
- (vii) A Complex PIXL Order consisting of a stock/ETF component will not execute against interest comprising the cPBBO at the end of the Auction.
- (6) If there are PAN responses (except if it is a Complex Order) that cross the then-existing better of the Reference BBO and NBBO (provided such NBBO is not crossed) or Complex Order PAN responses that cross the then-existing cPBBO at the time of the conclusion of the Auction, such PAN responses will be executed, if possible, at their limit price(s).
- (7) If the PIXL Auction price (except if it is a Complex Order) is the same as that of an order on the limit order book represented in the PBBO on the same side of the market as the PIXL Order, the PIXL Order may only be executed at a price that is at least one minimum price improvement increment better than the resting order's limit price or, if such resting order's limit price is equal to or crosses the stop price, then the entire PIXL Order will trade at the stop price with all better priced interest being considered for execution at the stop price.
- (8) If the Complex Order PIXL Auction price is the same as that of a Complex Order on the Complex Order Book on the same side of the market as the PIXL Order, the PIXL Order may only be executed at a price that is at least one minimum price improvement increment better than the resting order's limit price; or if such resting order's limit price is equal to or crosses the stop price, then the entire PIXL Order will trade at the stop price with all better priced interest being considered for execution at the stop price.
- (9) Any unexecuted PAN responses will be cancelled.
- (10) Complex PIXL Orders with stock/ETF components.

- (i) Member organizations may only submit Complex PIXL Orders, Initiating Orders, Complex Orders, and/or PAN responses with a stock/ETF component if such orders/responses comply with the Qualified Contingent Trade Exemption from Rule 611(a) of Regulation NMS. Member organizations submitting such orders with a stock/ETF component represent that such orders comply with the Qualified Contingent Trade Exemption. Members of FINRA or The Nasdaq Stock Market ("Nasdaq") are required to have a Uniform Service Bureau/Executing Broker Agreement ("AGU") with Nasdaq Execution Services, LLC ("NES") in order to trade orders containing a stock/ETF component; firms that are not members of FINRA or Nasdaq are required to have a Qualified Special Representative ("QSR") arrangement with NES in order to trade orders containing a stock/ETF component.
- (ii) Where one component of a Complex PIXL Order, Initiating Order, Complex Order, or PAN response is the underlying security, the Exchange shall electronically communicate the underlying security component of a Complex PIXL Order (together with the Initiating Order, Complex Order, or PAN response, as applicable) to NES, its designated broker-dealer, for immediate execution. Such execution and reporting will occur otherwise than on the Exchange and will be handled by NES pursuant to applicable rules regarding equity trading.
- (iii) When the short sale price test in Rule 201 of Regulation SHO is triggered for a covered security, NES will not execute a short sale order in the underlying covered security component of a Complex PIXL Order, Initiating Order, Complex Order, or PAN response if the price is equal to or below the current national best bid. However, NES will execute a short sale order in the underlying covered security component of a Complex PIXL Order, Initiating Order, Complex Order, or PAN response if such order is marked "short exempt," regardless of whether it is at a price that is equal to or below the current national best bid. If NES cannot execute the underlying covered security component of a Complex PIXL Order, Initiating Order, Complex Order, or PAN response in accordance with Rule 201 of Regulation SHO, the Exchange will cancel back the Complex PIXL Order, Initiating Order, Complex Order, and/or PAN response to the entering member organization. For purposes of this paragraph, the term "covered security" shall have the same meaning as in Rule 201(a)(1) of Regulation SHO.
- (11) PIXL ISO Order. A PIXL ISO order (PIXL ISO) is the transmission of two orders for crossing pursuant to Rule 1087 without regard for better priced Protected Bids/Offers (as defined in Rule 1083) because the member transmitting the PIXL ISO to the Exchange has, simultaneously with the routing of the PIXL ISO, routed one or more ISOs, as necessary, to execute against the full displayed size of any Protected Bid/Offer that is superior to the starting PIXL Auction price and has swept all interest in the Exchange's book priced better than the proposed

- Auction starting price. Any execution(s) resulting from such sweeps shall accrue to the PIXL Order.
- (c) The PIXL Auction may be used only where there is a genuine intention to execute a bona fide transaction. It will be considered a violation of this Rule 1087 and will be deemed conduct inconsistent with just and equitable principles of trade and a violation of Rule 707 if an Initiating Member submits a PIXL Order (initiating an Auction) and also submits its own PAN response in the same Auction.
- (d) A pattern or practice of submitting multiple orders in response to a PAN at a particular price point that exceed, in the aggregate, the size of the PIXL Order, will be deemed conduct inconsistent with just and equitable principles of trade and a violation of Rule 707.
- (e) A pattern or practice of submitting unrelated orders or quotes that cross the stop price, causing a PIXL Auction to conclude before the end of the PIXL Auction period will be deemed conduct inconsistent with just and equitable principles of trade and a violation of Rule 707. It will also be deemed conduct inconsistent with just and equitable principles of trade and a violation of Rule 707 to engage in a pattern of conduct where the Initiating Member breaks up a PIXL Order into separate orders for the purpose of gaining a higher allocation percentage than the Initiating Member would have otherwise received in accordance with the allocation procedures contained in subparagraph (b)(5) above.
- (f) In lieu of the procedures in paragraphs (a) - (b) above, an Initiating Member may enter a PIXL Order for the account of a public customer paired with an order for the account of a public customer and such paired orders will be automatically executed without a PIXL Auction, provided there is not currently an Auction in progress in the same series or same strategy, in which case the orders will be rejected. The execution price for such a PIXL Order (except if it is a Complex Order) must be expressed in the quoting increment applicable to the affected series. Such an execution may not trade through the better of the NBBO or Reference BBO or at the same price as any resting customer order. The execution price for such a Complex Order PIXL may be in .01 increments and may not trade at a price equal to or through the cPBBO or at the same price as a resting customer Complex Order.
- Rule 1080(c)(ii)(C) prevents an Order Entry Firm from executing agency orders to increase its economic gain from trading against the order without first giving other trading interests on the Exchange an opportunity to either trade with the agency order or to trade at the execution price when the member was already bidding or offering on the book. However, the Exchange recognizes that it may be possible for a firm to establish a relationship with a customer or other person to deny agency orders the opportunity to interact on the Exchange and to realize similar economic benefits as it would achieve by executing agency orders as principal. It would be a violation of Rule 1080(c)(ii)(C) for a firm to circumvent Rule 1080(c)(ii)(C) by providing an opportunity for (i) a customer affiliated with the firm, or (ii) a customer

with whom the firm has an arrangement that allows the firm to realize similar economic benefits from the transaction as the firm would achieve by executing agency orders as principal, to regularly execute against agency orders handled by the firm immediately upon their entry as PIXL customer-to-customer immediate crosses.

(g) There will be no minimum size requirement for orders to be eligible for the Auction.

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Rule 1098. Complex Orders on the System

(a) - (e) No change.

(f) Complex Limit Order Book ("CBOOK")

(i) – (ii) No change.

(iii) Execution of Complex Orders in the CBOOK. Complex orders in the CBOOK will be executed without consideration of any prices that might be available on other exchanges trading the same contracts.

(A) – (B) No change.

(C) Legging Orders. Legging Orders may be automatically generated on behalf of Complex Orders resting on the top of the CBOOK at a price that improves the cPBBO so that they are represented at the best bid and/or offer on the Exchange for the individual legs. The System will evaluate the CBOOK when a Complex Order enters the CBOOK and at a regular time interval, to be determined by the Exchange (which interval shall not exceed 1 second), following a change in the national best bid and/or offer ("NBBO") or Phlx best bid and/or offer ("PBBO") in any component of a Complex Order eligible to generate Legging Orders, to determine whether Legging Orders may be generated. The Exchange may determine to limit the number of Legging Orders generated on an objective basis and may determine to remove existing Legging Orders in order to maintain a fair and orderly market in times of extreme volatility or uncertainty.

A Legging Order is a limit order on the regular order book in an individual series that represents one leg of a two-legged Complex Order (which improves the cPBBO) that is to buy or sell an equal quantity of two options series resting on the CBOOK. Legging Orders are firm orders that are included in the Exchange's displayed best bid or offer. Legging Orders are not routable and are limit orders with a time-in-force of DAY, as they represent an individual component of a Complex Order.

(1) – (3) No change.

(4) A Legging Order is automatically removed from the regular order book : (i) if the price of the Legging Order is no longer at the Exchange's displayed best bid or offer on the regular limit order book, (ii) if execution of the Legging Order would no longer achieve the net price of the Complex Order when the other leg is executed against the Exchange's best displayed bid or offer on the regular limit order book (other than another Legging Order), (iii) if the Complex Order is executed in full or in part, (iv) if the Complex Order is cancelled or modified, (v) if the price of the Complex Order is outside the ACE Parameter of Rule 1098(i), (vi) upon receipt of a Qualified Contingent Cross Order which includes a component in which there is a Legging Order, an order that will trigger an auction under Exchange rules in a component in which there is a Legging Order (whether a buy order or a sell order), or pursuant to Rule [1080(n)(vi)]1087(f) a PIXL Order for the account of a public customer paired with an order for the account of a public customer, (vii) if a Legging Order is generated by a different Complex Order in the same leg at a better price or the same price for a participant with a higher priority, (viii) if a Complex Order is marketable against the cPBBO where a Legging Order is present and has more than one leg in common with the existing Complex Order that generated the Legging Order, (ix) if a Complex Order becomes marketable against multiple Legging Orders, (x) if a Complex Order consisting of an unequal quantity of components is marketable against the cPBBO where a Legging Order is present but cannot be executed due to insufficient size in at least one of the components in the cPBBO, (xi) if an incoming all-or-none order is entered onto the order book at a price which is equal to or crosses the price of a Legging Order, or (xii) when the Legging Order is on the book at a price which is not at the minimum price increment and which is more aggressive than the same side PBBO, and an away market moves to lock the PBBO (which is also the NBBO).

(g) – (h) No change.

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