

ATS-N/UA: Part III: Manner of Operations

Item 11: Trading Services, Facilities and Rules

a. Provide a summary of the structure of the NMS Stock ATS marketplace (e.g., crossing system, auction market, limit order matching book) and explain the means and facilities for bringing together the orders of multiple buyers and sellers on the NMS Stock ATS.	<p>Luminex is a crossing system utilized by its Subscribers, who are large buy-side asset management institutional investors and Transition Management Brokers that trade on behalf of similar types of asset managers. Only Subscribers may enter orders or trading interest and execute orders on the System; the System does not accept orders or trading interest from broker-dealers that are not Transition Management Brokers admitted to the ATS. Subscribers may enter Firm Orders, Negotiable Orders, or Conditionals as defined in Part III Items 7 and 9, at the Subscriber's option and as permitted by the functionality of the means used by the Subscriber to enter orders or trading interest into the System. All NMS Stocks are eligible to trade in the System. Assuming orders or trading interest are marketable, the System prioritizes orders and trading interest based on the following factors, in the following order: (1) AutoEx Quantity (for Firm and Negotiable Orders only), (2) Top Quantity, and (3) time of order entry.</p>
b. Are the means and facilities required to be identified in Item 11(a) the same for all Subscribers and the Broker-Dealer Operator?	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
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	<p>Assuming orders or trading interest are marketable, the System prioritizes orders and trading interest based on the following factors, in the following order: (1) AutoEx Quantity (for Firm and Negotiable Orders only), (2) Top Quantity, and (3) time of order entry. There are no order type restrictions following a stoppage of trading in a security during regular trading hours.</p> <p>Order Interaction - It is possible for any of the supported order or trading interest types - Firm and Negotiable Orders and Conditionals - to interact with each other, as described more fully in the attached chart. In the scenarios described in the chart, the actions of the buyer who enters a particular order or trading interest type with various characteristics are mapped against the seller who enters a particular order or trading interest type with various characteristics. The scenarios assume both sides are marketable and show what the result would be if the buyer and seller took particular actions. A helpful way to read the chart, for each scenario, is, "Assume the buyer entered an order or trading interest of this type, for this size, at this price, and matched against a seller who entered an order or trading interest of this type, for this size, and at this price. If the buyer and/or seller</p>

execution errors, and the time-stamping of orders and executions.

responded to the match in this way or these ways, here is the expected result." Where at least one side of a match is either a Conditional or a Negotiable Order, an invitation to trade is sent to that Subscriber (a "Firm-Up Request" or a "Size-Up Request," respectively). In the case of a Negotiable Order, the Subscriber is required to trade at least the Subscriber's entered AutoEx Quantity and may elect to trade some, all or none of its negotiable shares as represented in its entered Top Quantity. Note that "SSR" in the chart refers to short sale restriction. (Please see the Order Interaction during an Exchange Act Rule 201 Short Sale "Circuit Breaker" below.)

Auto Execution - Where there are two marketable orders in the same security on opposite sides, the orders will match. Firm Orders that match will execute immediately at the midpoint of the National Best Bid or Offer (NBBO) at the time of the match, with the execution size being the smaller of the two orders' AutoEx Quantities ("Auto Execution"). If a Firm Order matches with a Negotiable Order and the Firm Order's AutoEx Quantity is either equal to or less than the Negotiable Order's AutoEx Quantity, this match will also result in an Auto Execution at the smaller of the two orders' AutoEx Quantities. Firm and Negotiable Orders that match with either another Firm or Negotiable Order within six seconds of the close of trading will be subject to Auto Execution (i.e., execution for the smaller of the two orders' AutoEx Quantity). A Firm Order can match and execute against another Firm Order until 15:59:59.

Negotiation - Size-Ups and Firm-Ups - In the absence of an Auto Execution, orders can enter negotiation after matches that include either a Negotiable Order or a Conditional. Where both orders are Negotiable Orders, or where only one order is a Negotiable Order and a contra-side Firm Order's AutoEx Quantity is larger than the Negotiable Order's AutoEx Quantity, the System will send a Size-Up Request to one or both Subscriber(s) to size-up. Subscribers that enter Conditionals and receive a match are sent Firm-Up Requests. For matches that occur in the System up until 15:59:37, Subscribers that receive invitations to negotiate are given 20 seconds in which to determine whether, and for what quantity, to size-up or firm-up. The Subscriber(s) will be given the option to size-up to their Top Quantity, regardless of the contra-side's Top Quantity. A Negotiable Order's Size-Up Quantity equals that order's AutoEx Quantity and the number of shares, if any, of the order's Negotiable Quantity that the Subscriber elects to make available for execution in response to a Size-Up Request. A Conditional's Firm-Up Quantity equals the number of shares, if any, of the Conditional's Top Quantity that the Subscriber elects to make available for execution in response to a Firm-Up Request. As noted, where a Conditional has a MinQ, a Subscriber may not firm-up for an amount less than the Conditional's MinQ. Upon an invitation to size-up or firm-up, a trader solely enters a share quantity and no other terms or conditions. Once submitted, a Size-Up or Firm-Up Quantity cannot be modified or cancelled. During the Negotiation Period, which is the time period that a Subscriber has to determine whether to firm-up or size-up, the Subscriber's order cannot match with another order. Additionally, neither party may cancel or modify its order once the initial match has occurred and the parties are in negotiation. Any cancellation requests will pend or queue in the System and will be processed once the negotiation has concluded. Execution size is determined upon the earlier of (a) the last required Subscriber's election to size-up or firm-up, or (b) 20 seconds from the time of the initial match (i.e., the Negotiation Period for all trades other than at the very end of the trading day). The size of the execution will be (1) in the event only one Subscriber was asked to size-up or firm-up, the lesser of that order's Size-Up or Firm-Up Quantity and the AutoEx

Quantity of the contra-side order and (2) in the event both Subscribers are asked to size-up or firm-up, the smaller of the Size-Up Quantity or Firm-Up Quantity elected. The Negotiable Order's AutoEx Quantity will be used in lieu of a Size-Up Quantity if the Subscriber does not respond to the Size-Up Request. Execution price will be based on a decaying weighted average of the midpoints of the NBBO (based upon the Securities Information Processor ("SIP") feed for such security) observed each second of the Negotiation Period, starting at the time of the initial match, plus the two seconds immediately thereafter, where each midpoint price receives half the weight of the prior midpoint price (the "Derived Price"). The Derived Price will be rounded to the nearest halfpenny, subject to any constraints associated with an order's terms and conditions. In the event the Derived Price is worse than a Subscriber's limit price (the Exceeded Limit Price), the match between a Firm Order or Negotiable Order and another Firm Order or Negotiable Order will be limited to the lesser of the two orders' AutoEx Quantities at the Exceeded Limit Price. If one party to a match had entered a Conditional, or if both parties to a match had entered a Conditional, then an execution would not occur in the System if either party's limit price would be breached by the Derived Price of a transaction. See Part III Item 8(e) above for Mixed Lot Processing.

Order Interaction during an Exchange Act Rule 201 Short Sale "Circuit Breaker" - When an Exchange declares a short sale "circuit breaker" pursuant to Exchange Act Rule 201, trading centers, with limited exceptions, are prohibited from executing short sales at a price that is equal to or below the national best bid. The "circuit breaker" restrictions generally remain in place on the day the "circuit breaker" is declared and for the entire following trading day. As noted, where both the seller and buyer have entered marketable Firm Orders and match, the System will immediately execute the transaction at the NBBO midpoint, as discussed herein. During a Rule 201 "circuit breaker," if the seller has entered a Firm Order, a Negotiable Order, or a Conditional to sell short that matches against a Negotiable Order or a Conditional, the System may execute that order if the Derived Price of the transaction following the Negotiation Period is determined to be above the national best bid, in conformance with SEC Rule 201. If the Derived Price is determined to be at or below the national best bid, there will be no execution. Similarly, in these scenarios, the System will also check the Derived Price against the seller's limit price (if any), and if the Derived Price would violate the seller's limit price, there will be no execution.

End of Session Order Interaction - The order interaction protocols described above apply until 15:59:37. Until this time, negotiations can last for up to twenty seconds, and executions occur approximately two seconds following the conclusion of the negotiation. Because the System requires approximately two seconds to effect trades following a negotiation, the System requires that all negotiations end by 15:59:57. Between 15:59:37 and 15:59:57, the System will permit Negotiation Periods of less than twenty seconds, the duration of which will be the maximum amount of time remaining in the trading day up to 15:59:57. The shortest permissible Negotiation Period during this window is three seconds. For example, if a match occurs at 15:59:40, negotiations may continue for up to seventeen seconds (i.e., the maximum amount of time remaining until 15:59:57). Similarly, if a match occurs at 15:59:50, negotiations may continue for up to seven seconds (i.e., the maximum amount of time remaining until 15:59:57). If a match occurs at 15:59:54, negotiations may continue for up to three seconds (i.e., the maximum amount of time remaining until 15:59:57). Orders may not enter into a negotiation after 15:59:54. As noted above, all Firm and Negotiable Orders

matched with either a Firm or Negotiable Order during the last six seconds of trading will automatically execute at the lesser of the two orders' AutoEx Quantities. Conditionals that do not receive a match by 15:59:54 or that are received by the System after 15:59:54 cannot execute before the close of trading. The truncated Negotiation Periods near the close of trading allow Subscribers the opportunity to execute transactions that might not otherwise be possible if the System only permitted a Negotiation Period of twenty seconds. In the event of a shortened trading day, such as a holiday, the same protocols would apply during the last 23 seconds of the shortened trading day.

Multiple buyers and sellers are not permitted in the same execution, and thus allocation does not apply in this context. Luminex considers the results of its pricing calculation to be price improvement for both buyer and seller given that it is either the midpoint of the NBBO or at a price derived from a series of NBBO midpoints as described above.

Errors or Accommodations - In the event of a System error, such as an execution at a price based upon outdated or erroneous market data, Luminex would contact the Subscriber who may have been disadvantaged through the error to ask if the Subscriber wishes to have its execution priced at the corrected price as determined by the Firm using updated market data. If the Subscriber states, either orally or in writing, that it wishes to have the corrected execution price, Luminex would adjust the price on that Subscriber's execution, assuming the money difference in the Firm's Error account. If the disadvantaged Subscriber determines and notifies the Firm orally or in writing that it does not want the erroneous execution at all, even if adjusted to the correct price, and the contra-side to the execution did not want to bust the trade, then the Firm would assume the Subscriber position resulting from error and would trade out of that position outside of the ATS by sending an order to its clearing firm for handling and execution. The Firm does not execute any principal orders in the System. The Firm also may, in limited circumstances and in its sole discretion, grant accommodations to Subscribers due to unusual execution scenarios that impact a Subscriber but are not the result of a System error. For example, a Subscriber may receive an execution in the System in a mixed lot and may prefer an execution in a round lot. In such a case, if requested by a Subscriber orally or in writing, the Firm may elect to fill the remaining shares that would create a round lot execution for the Subscriber. The Firm would price those remaining shares at the same price as the mixed lot execution in the System, and the Firm would send an order to its clearing firm for handling and execution to cover the shares needed to fill the odd lot portion of the Subscriber order. The Firm maintains separate Error and Facilitation accounts for handling these respective scenarios.

The System time stamps all phases of the order and trading interest life cycle and does so in ~~milliseconds~~nanoseconds.

d. Are the established, non-discretionary rules and procedures required to be identified in Item 11(c) the same for all

☒ Yes ☐ No

Subscribers and the Broker-Dealer
Operator?

Exhibit 1

1/28/22, 10:35 AM Web CRD - 8D Historical Filing» Schedule A [User Name: jdolan8, OrgID: 171752]
Primary Business Name: LU MIN EX TRADING & ANALYTICS LLC BD Number: 1717S2
BD - AMENDMENT
01/24/2022

BD - DIRECT OWNERS/EXECUTIVE OFFICERS
Are there any indirect owners of the *applicant* required to be reported on Schedule B?
C!'.i Yes C! No

Ownership Codes: NA - less than 5% B - 10% but less than 2S% D- 50% but less than 7S%

A - 5% but less than 10% C - 2S% but less than 50% E - 75% or more

Full Legal Name DE/FE/I Title or Status Date Own. Control PR CRD #(or S.S.No., IRS

Acquired Code Person Tax#, Emp. ID)

~~BILODEAU, IRENE FINOP, POO, PFO 03/2021 NA N N 6844916~~
~~MARIE~~

~~DOLAN, JAMES CHIEF COMPLIANCE 09/2015 NA y N 3219968~~
~~CHRISTOPHER OFFICER~~

~~DOLAN, JAMES I CHIEF LEGAL 10/2015 NA y N 3219968~~
~~CHRISTOPHER OFFICER~~

~~DOLAN, JAMES CHIEF EXECUTIVE 01/2022 NA y N 3219968~~
~~CHRISTOPHER OFFICER~~

~~EVARTS, NATHANIEL DIRECTOR 02/2019 NA N N 2460453~~
~~NELSON~~

~~FARLEY, BRENDA I DIRECTOR 07/2019 NA .N N 7146025~~
~~FMR SAKURA DE OWNER 03/2018 D y N 82 4664912~~

~~HOLDINGS, INC.~~
~~GEYER, WILLIAM I DIRECTOR 10/2019 NA N N 2250035~~

~~SENG~~
~~KINAK, MEHMET DIRECTOR 12/2019 NA N N 7208386~~

~~SINAN~~
~~LANE, DAVID DIRECTOR 11/2018 NA N N 2516957~~

~~KENNETH~~
~~PETROVICH, BOJAN DIRECTOR 05/2021 NA N N 4759932~~

~~SKOKO, DRAGAN DIRECTOR 06/2018 NA N N 4394961~~
~~STUTSMAN, PETER DIRECTOR 09/2018 NA N N 2986277~~

~~DUARD~~
~~WHITEHEAD, PAUL DIRECTOR 04/2015 NA N N 4336636~~

~~NOAH~~

STUPAY,MICHAEL ELLIOT Individual FINOP,PRINCIPAL OPERATIONS OFFICER, PRINCIPAL FINANCIAL OFFICER
03/2022 Less than 5% N N 2287906

TITAN PARENT COMPANY, LLC Domestic Entity OWNER
03/2022 75% or more Y N 20-1926812

MIELE, STEPHEN R Individual CHIEF STRATEGY OFFICER
03/2022 Less than 5% N N 2645590

CONARY, NEIL WHITNEY Individual CEO
03/2022 Less than 5% Y N 1060818

DOLAN, JAMES CHRISTOPHER Individual CHIEF COMPLIANCE OFFICER
09/2015 Less than 5% Y N 3219968

HAGEN, DAVID WALTER Individual CHIEF PRODUCT OFFICER
03/2022 Less than 5% N N 2101752

LINARES, JOHN FITZGERALD Individual GENERAL COUNSEL,
CORPORATE SECRETARY
03/2022 Less than 5% N N 3104547

Exhibit 2

Primary Business Name: LUMINEX TRADING & ANALYTICS LLC BD Number: 171752 BD - AMENDMENT 01/24/2022

BD - INDIRECT OWNERS

Ownership Codes: C - 25% but less than 50% E - 75% or more D - 50% but less than 75% F - Other General Partners

Full Legal Name DE/FE/I Entity in Which Interest is Owned Status Date Acquired Own. Code Control Person PR CRD # (or SSN, IRS Tax #, Emp. ID)

~~FMR LLC DE FMR SAKURA HOLDINGS, INC. OWNER 03/2018 E Y N 04-3532603~~

FMR, LLC Domestic Entity TITAN PARENT COMPANY, LLC
THROUGH FMR SAKURA HOLDINGS, INC./FIDELITY GLOBAL BROKERAGE GROUP, INC. SHAREHOLDER
03/2022 25% but less than 50% Y N 04-3532603

NASDAQ, INC. Domestic Entity TITAN PARENT COMPANY SHAREHOLDER
03/2022 25% but less than 50% Y Y 52-1165937