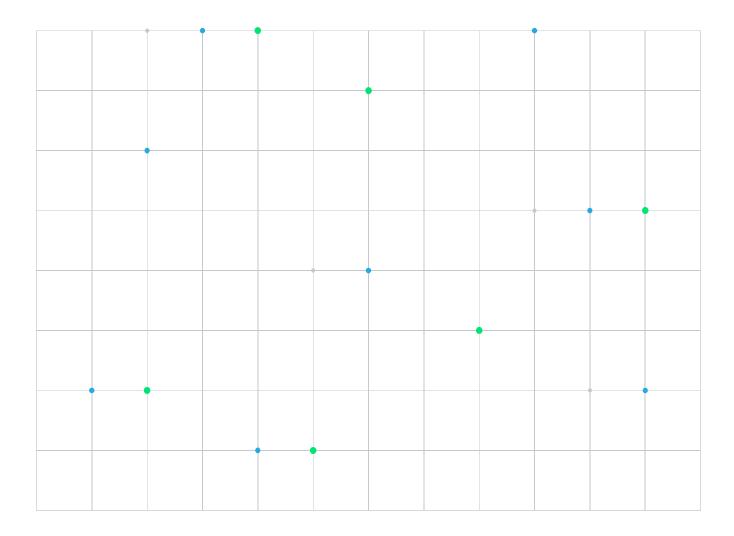# CME Group

NEX SEF
Operational Parameters Annex

January 2022

Introduction and Background

The NEX SEF is a Multilateral Trading Facility under MiFID II. Under MiFID II legislation (Directive 2014/65/EU ("MiFID II") and Regulation 600/2014 ("MiFIR")), and relevant secondary legislation including regulatory technical standards ("RTS"), in particular Commission Delegated Regulation (EU) 2017/584 ("RTS 7"), as retained in UK law under the European Union (Withdrawal) Act 2018, NEX SEF Limited ("the Operator") is required to have in place effective systems, procedures and arrangements to ensure the fair and orderly functioning of the markets that it operates.

This Annex describes the various arrangements the Operator has put in place to meet its obligations. Where relevant, further technical details of each arrangement are set out within the Operator's internal operational procedures.

Contents

1. Pre-Trade and Post-Trade Controls

1.1. Pre-Trade controls

As per RTS 7 requirements, the NEX SEF governs the use of its electronic order systems through pre-trade controls on price, value of orders and order entry messaging thresholds.

1.1.1. Price Controls

1.1.1.1. Price Check - AI

AI customers have several price check validations which are on ("Y") by default, however, can be turned off ("N") by the users via the logon response message. Hardcoded parameters such as X-Pips are hardcoded and cannot be controlled by the user.

Control	Optional (Y/N)
Large DifferenceCheck	Y
PriceCheck	Y
WideSpreadCheck	Y
X-pips	N

LargeDifferenceCheck: The AI server will reject a bid/offer price that varies (higher or lower) from the current Dealable Best bid/offer by more than the large difference pips for the currency pair. The default setting is "Y". The Large Difference value is set and hard coded by the MTF per pair.

PriceCheck: If "Y" when submitting a bid/offer, a check is performed to determine if the price is inverted. If "Y", orders with inverted prices are rejected (bid is greater than offer and vice versa). If "N", and the order deviates from the market price by more than the X-Pips amount, the order is rejected. The default setting is "Y". The X-Pips value is set per pair and hard coded by the MTF.

WideSpreadCheck: If "Y", the Ai server ensures that a bid price less than the current Dealable Best Offer by more than the wide spread pips is rejected, and an offer that exceeds the current dealable Best Bid by more than the wide spread pips is rejected. If "N", no restriction is in effect and the order is accepted. The default setting is "Y". The Wide Spread value is set and hard coded by the MTF per pair.

X-Pips: Prevents the user submitting a Bid/Offer greater than the X-pips value through the other side best. The X-Pips value is stated per pair and hardcoded by the MTF and is not controlled by the customer. This parameter systematically prevents a GTC order being submitted that breaches the coded values.

1.1.1.2. Price Check - Manual

Manual customers have several price check validations / warnings, some of which are enabled by the users. Hardcoded parameters such as X-Pips are hardcoded and cannot be controlled by the user.

Control	Optional (Y/N)
Large Difference	N
Check Rate	N
Wide Spread	Y
Bid > Dealable Offer	Y
X-pips	N

Large Difference: The GUI will provide a warning on the order request panel stating 'Large Difference' if the user attempts to enter an order which varies from the current Dealable Best bid / offer. The user can enter this order by clicking or pressing the 'SEND' button a second time following the warning.

Check Rate: The GUI will provide a warning when the market rate and the Bid/Offer pips entered by the user varies by more than the Check Rate pips. The Check Rate value is set per pair and hard coded by the MTF. The user can enter this order by clicking or pressing the 'SEND' button a second time following the warning.

Wide Spread: The GUI will provide a warning when:

(Bid Side) The difference between the EBS Market Bid and the submitted Bid price is greater than the Wide Spread pips.

(Offer Side) The difference between the EBS Market Offer and the submitted Offer price is greater than the Wide Spread pips.

The Wide Spread value is set per pair and hard coded by the MTF. The user can enter this order by clicking or pressing the 'SEND' button a second time following the warning.

1.1.2. Value Controls

NEX SEF validates order submissions prior to their release to the matching engine.
- The minimum and maximum trade sizes are set per and hard coded by the MTF.
- Order value minimums are market specific and set-out in the EBS Market – Guide to Pair Parameters which can be requested through EBS Customer Support.

1.1.3. Message Transmission Controls

1.1.3.1. Order Throttling

Ai

- EBS Market on a per AI session basis, enforces a throughput limit, defined as the number of new orders per rolling 5 seconds and the number of maximum active orders.
- If a participant reaches this threshold then new order submissions will be rejected.
- Cancellation requests of existing orders will still be permitted.
- The current AI servers allow up to 3 sessions per server.

Manual

- The GUI does not have a systematically enforced throughput limit.

1.1.3.2. Minimum Quote Life

AI

- A 'minimum quote life' (MQL) is enforced for selected pairs and is applied at the AI server.

- Both cancellation and order amend requests are subject to the MQL value.

- If a participant submits a cancellation for a quote pre the MQL expiry period, that order will be held at the AI server until its expiry.

- The MQL values are specified on a per pair basis in the EBS Market – Guide to Pair Parameters which can be requested through EBS Customer Support.

- The MQL values can be customised per AI session and thus per participant.

1.1.4. Counterparty Controls

1.1.4.1. Self-Match Prevention

- Intra-floor dealing (IFD) is a parameter available on a per floor code basis which prevents two Trader IDs under that floor code from trading with one another. If the value is enabled then this will be permitted.
- IFD can be permissioned by the EBS Customer Support team.

1.1.4.2. Counterparty Restrictions

- The GUI will display a white price if the Best Bid/Offer available has been submitted by a user from the same floor code.

- Prices from counterparties which do not have a bilateral credit relationship with the user will not be shown on the GUI, unless that price is features as the EBS Best bid or offer above the credit-screened prices.

- Participants are required to maintain their own credit counterparty matrices through the Trading Floor Administrator utility.

1.2. Post-Trade Controls

1.2.1. Unexecuted Orders to Transactions Ratio

NEX SEF calculates the ratio of unexecuted orders to transaction for each of its participants at the end of every trading session in both volume terms and in number terms:

Volume terms: (Total volume of orders/Total volume of transactions) - 1
Number terms: (Total number of orders/Total number of transactions) - 1

Unexecuted orders to transaction ratios are monitored against the maximum thresholds, which have been determined taking into account the nature and liquidity of instruments on the NEX SEF and normal trading patterns.

The thresholds are subject to ongoing review and calibration and participants will be notified via the appropriate channels of any changes to these thresholds.

1.2.2. Other Fill Ratios

NEX SEF may calculate and monitor other fill ratios to promote the orderly functioning of its markets. These would also be communicated by Market Notice.

Currently NEX SEF operates NDF Quote Fill Thresholds calculated over a rolling four week interval as follows:

- Volume of Good Till Cancelled ("GTC") orders traded in USD millions / Number of GTC orders submitted

During any rolling 4-week calculation window, NEX SEF will inform participants if they are not meeting the fill ratio thresholds. Following this notification, the participant will be given a two-week warning period to bring their fill ratios into compliance with the thresholds.

After the warning period, should the participant fail to meet the established fill ratio requirement for the currency pair, this would be deemed to be disruptive behaviour. Participants will be formally notified that their behaviour has been flagged as disruptive and instructed to desist trading within 24 hours via API in that currency pair for all timezones for a period of two weeks, after which they may resume trading.

2. Volatility Interruptions

Article 48(5) MiFID II requires regulated markets to be able to temporarily halt or constrain trading if there is a significant price movement during a short period of time in a financial instrument on that market or a related market.

NEX SEF will monitor for significant price movements during short periods of time. In the event a price movement exceeds either a pre-defined static or dynamic threshold in a specific instrument, NEX SEF will review and determine whether to introduce a trading halt.

3. Testing Facilities

3.1. Overview

All algorithmic participants trading on the NEX SEF are required, prior to trading in production, to test their algorithmic trading systems for both conformance to NEX SEF specifications as well as to ensure their trading systems will be able to handle, and not contribute to, disorderly trading conditions.

The NEX SEF testing environment is strictly separated from the production environment and is offered to participants, and prospective participants, on a scheduled basis to facilitate testing of their algorithms for conformance and for disorderly trading conditions.

Test conditions representative of production are recreated in the testing environment. Within that environment, in addition to testing all aspects of conformance with NEX SEF specifications, participants can test their algorithms against a number of disorderly market conditions.

3.2. Fair Usage

NEX SEF makes the testing environment available to participants and prospective participants for the purpose of conformance testing and to facilitate testing against disorderly trading conditions. There is no charge for the use of the testing facilities.

It is not intended that participants and prospective participants use the NEX SEF testing facilities to evaluate and iterate on the profitability of their trading models.

The NEX SEF reserves the right to restrict access to the testing facilities if usage is considered to be outside of expectations.

4. Trading Venue Self-assessment

RTS 7 sets out requirements for regulated market operators to assess at least once a year their compliance with the provisions of Article 48 of MiFID II including those relating to business continuity arrangements.

The following parameters are taken into consideration in the self-assessment:

Nature
- Nature of trading venue, instruments offered and their liquidity status
- Role of the trading venue in the market, whether instruments covered can be traded elsewhere

Scale
- Potential impact of NEX SEF on the fair and orderly functioning of the market
- Number of algorithms operating on the venue
- Messaging capacity
- Trading volumes
- Percentage of algorithmic trading and traded volume vs total activity
- Percentage of HFT activity and traded volume vs total activity
- Number of participants
- Ratio of unexecuted orders to transactions
- Number and percentage of API trading members
- Number of co-location sites provided
- Number of countries with business activity
- Volatility management mechanisms, dynamic or static trading limits used to halt trading or reject orders

Complexity
- Complexity of the NEX SEF offering and technical infrastructure
- Asset classes offered
- Trading protocols supported (order book, auction, hybrid)
- Pre-trade transparency waivers used
- Trading system diversity and level of control of parameters, software versions, testing and reviews

- Trading system ownership, governance, operation and physical location
- Level of technical and operational outsourcing
- Frequency of changes to protocols, system and membership

5. Participant Due Diligence

Prospective participants of the NEX SEF are required to meet the eligibility criteria and participant obligations set out in the NEX SEF Rulebook upon onboarding and on an on-going basis.

Upon onboarding, NEX SEF will undertake KYC/AML checks and participants are required to complete a participant questionnaire to enable NEX SEF to review and assess the arrangements the participant has in place to meet the rules of the NEX SEF.

In accordance with MiFID II, NEX SEF requires each participant and prospective participant to maintain adequate organisational procedures relating to:
- Pre-trade controls on price and value of orders
- Post-trade controls on credit/clearing and market risk
- Usage controls on message transmission via API
- Software development control and conformance testing to the NEX SEF
- Ability to cancel one or all live orders via use of kill functionality
- Qualified and experienced staff in key positions

NEX SEF conducts a periodic risk-based assessment of its participants to review whether participants continue to meet the participant obligations set out above and in the NEX SEF Rulebook.

6. Disorderly Trading Conditions

6.1. Overview

In accordance with MiFID II, NEX SEF has put in place arrangements to prevent disorderly trading including:
- Pre-trade controls on price and value of orders;
- Usage controls on message transmission via API;
- Unexecuted orders to transactions ratios;
- Mechanisms to manage volatility; and
- Kill functionality

All algorithmic participants trading on the NEX SEF are required, prior to trading in production, to test their algorithmic trading systems or strategies to ensure that they do not contribute to disorderly trading conditions.

In the event of disorderly trading conditions, NEX SEF is required to notify its national competent authority, to inform participants that are subject to market making agreements that their obligations are suspended and to consider and communicate any further action to halt or constrain trading.

6.2. Disorderly Trading Indicators

The NEX SEF Rulebook defines disorderly trading conditions as a situation where the maintenance of fair, orderly and transparent execution of trades is compromised.

NEX SEF will consider a number of indicators to determine disorderly trading conditions including but not limited to the following:

- the price discovery process is interfered with over a significant period of time;
- the capacities of the NEX SEF's trading systems are reached or exceeded; and
- failure of mechanisms designed to protect against the risk of algorithmic trading.

6.3. Process Overview

6.3.1. Monitoring

NEX SEF monitors in real-time order entry rates and significant processes for its trading systems. Automated alerts are distributed when thresholds are breached based on defined internal procedures.

6.3.2. Communication Protocol

Participants will be notified of disorderly trading conditions through the publication of a market-wide broadcast message.

Participants that have entered into a market making agreement for the NEX SEF will be informed of the suspension of their obligations under their market making agreement until normal trading is resumed.

NEX SEF will notify its national competent authority of the disorderly trading conditions via email to the usual supervisory contact.

NEX SEF will consider and communicate any necessary additional measures such as trading halts or messaging restrictions.

6.3.3. Resumption of normal trading

Upon resumption of normal trading the communication protocol will be repeated and market making agreement obligations will apply to relevant participants.

6.3.4. Post-mortem

The appropriate internal teams conduct a post-mortem incident review for the NEX SEF management body to include the following points:
- Key findings
- Customer experience
- Process improvement

7. Kill Functionality

7.1. Overview

NEX SEF participants must be able to cancel immediately, as an emergency measure, any or all of its unexecuted orders by means of its kill functionality.

In accordance with RTS 7, NEX SEF operates a kill functionality to cancel unexecuted orders submitted by participants. Unexecuted orders may be cancelled at a single order level, at an instrument level or participant firm level.

NEX SEF's policy on the use of its kill functionality can be divided into three authorities:
• participant initiated;
• venue initiated; and
• regulator initiated

7.2. Participant Initiated

Participants may request the cancellation of unexecuted orders where the participant is technically unable to delete its own orders. Participants may call into Customer Support and request cancellation of one or many unexecuted orders.

Any such request must be made by an appropriately authorised individual and should include all necessary information relating to the orders to be cancelled.

Participants may be asked to provide further information relating to any technical failures that may have rendered their own kill functionality inoperable.

7.3. Venue Initiated

NEX SEF may use its kill functionality where required to preserve market integrity in the event of the order book containing erroneous duplicated orders or following a suspension initiated by a market operator or competent authority.

7.4. Regulator Initiated

NEX SEF may use its kill functionality at the initiative of its national competent authority following an instrument suspension or further to an instruction to suspend a specific participant's access to the trading systems.

8. Suspension and removal of instruments

The NEX SEF may suspend or remove an instrument from trading, unless such a step would be likely to cause significant damage to the interest of investors or the orderly functioning of the market. Furthermore, the competent authority may demand the suspension of an instrument from trading on the NEX SEF.

8.1. Venue Initiated

NEX SEF may decide to suspend or remove an instrument from trading under certain conditions including but not limited to the following:
• An International Securities Identification Number (ISIN – ISO 6166) is no longer assigned to the instrument
• The instrument is no longer available for trading, for example under foreign exchange restrictions
• There is little or no liquidity in an instrument over a significant period of time
• The suspension or removal is unlikely to cause significant damage to investors' interest or the orderly functioning of the market
• If an instrument is suspended or removed, then any derivatives that reference that instrument will also be suspended or removed

NEX SEF may seek the views of participants and its national competent authority prior to suspending or removing an instrument in order to determine the potential for significant damage to investors' interests or the orderly functioning of the market including the potential to increase systemic risk or where continued availability of the instrument on the NEX SEF is necessary to perform critical post-trade risk management functions.

8.2. Regulator Initiated

NEX SEF may be required to suspend or remove a specific instrument from trading upon notification from its national competent authority. In this event, NEX SEF is also required to consider whether to extend the decision to include related derivatives or other instruments.

NEX SEF will communicate any instrument suspension or removal to participants through the appropriate channels.

9. Business Clock Synchronisation

NEX SEF and its participants are required to ensure that the business clocks they use to record the date and time of any reportable event are synchronised with the Coordinated Universal Time (UTC) issued and maintained by the timing centres listed in the latest Bureau international des poids et mesures.

NEX SEF adheres to the levels of accuracy set out below taking into account that the gateway-to-gateway latency time of its trading system is above 1 millisecond.

Gateway-to-gateway latency time of the trading system	Maximum divergence from UTC	Granularity of the timestamp
> 1 millisecond	1 millisecond	1 millisecond or better

Participants must ensure that their business clocks adhere to the level of accuracy prescribed in RTS 25 Annex Table 2, which is reproduced below.

Type of trading activity	Description	Maximum divergence from UTC	Granularity of the timestamp
Activity using high frequency algorithmic trading technique	High frequency algorithmic trading technique	100 microseconds	1 microsecond or better
Activity on voice trading systems	Voice trading systems as defined in Article 5(5) of Commission Delegated Regulation (EU) 2017/583	1 second	1 second or better
Activity on request for quote systems where the response requires human intervention or where the system does not allow algorithmic trading	Request for quotes systems as defined in Article 5(4) of Delegated Regulation (EU) 2017/583	1 second	1 second or better

Activity of concluding negotiated transactions	Negotiated transaction as set out in Article 4(1)(b) of Regulation (EU) No 600/2014.	1 second	1 second or better
Any other trading activity	All other trading activity not covered by this table.	1 millisecond	1 millisecond or better