

SPECTRUM TRADING MANUAL

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1. INTRODUCTION

1.1 PURPOSE

The purpose of this document is to provide participants with:

- Communication channels related to trading on the Spectrum System.
- Overview and reference to the technical interfaces of the Spectrum Trading System.
- A business overview of Spectrum Trading System.
- Details regarding Trading Operations.
- Procedures to handle recovery end extraordinary Events.

This document sets out guidance and practical information on SPECTRUM and the processing and implementation of the rules as set down in the Spectrum Rulebook. In case of discrepancies the rules and definitions of 1. the Spectrum Rulebook or 2. the prospectus of Products traded on the Spectrum Trading System prevail.

1.2 RELEVANT SPECTRUM COMMUNICATION CHANNELS

TARGET GROUP FOR PHONE AND MAIL

All Spectrum phone and mail contacts are only for the communication between Spectrum and its business Partners (including regulators) or entities preparing for a potential membership. Other groups should use the contacts of their current or intended contracting party.

RECORDING OF PHONE CALLS TO AND FROM SPECTRUM

Callers of Spectrum Phone numbers must agree that phone calls with Spectrum can be recorded. In case there is a disagreement to recording communication must be done in written form (e.g. e-mail).

SPECTRUM RULEBOOK

The current Spectrum Rulebook is available on: www.spectrum-markets.com/rulebook

Changes or amendments to the Spectrum Rulebook will be announced by Website Notice.

WEBSITE NOTICES

Spectrum Website Notices including historical ones are published on: www.spectrum-markets.com/notices

SPECTRUM MARKET OPERATIONS (DURING SPECTRUM OPERATING HOURS)

Functional enquiries and questions regarding trading and rulebook can be addressed to:

Telephone: +49 69 4272991 11

Email: operations@spectrum-markets.com

SPECTRUM IT (DURING SPECTRUM OPERATING HOURS)

Technical enquiries and questions regarding connectivity and messages can be addressed to:

Telephone: +49 69 4272991 12

Email: it@spectrum-markets.com

SPECTRUM COMPLIANCE

Compliance related enquiries and complaints according to Spectrum Rulebook can be addressed to:

Email: compliance@spectrum-markets.com

1. INTRODUCTION (CONTINUED)

1.3 COMMUNICATION FROM SPECTRUM TO MEMBERS

Members must provide Spectrum with Telephone and E-Mail address for enquiries and urgent Information (e.g. trade cancellation/amendment), separate contacts can be provided for different areas of enquiries. Telephone and e-Mail of the trading contact must be processed during Spectrum operating hours by a Person who is authorised to act on behalf of the member (e.g. consultation/agree on Transaction cancellations/amendments) and agrees to the recording of the phone calls. Members must also assure, that in case of connecting or forwarding calls the caller agrees to the recording.

1.4 SPECTRUM MEMBER CONTACTS

Spectrum will publish a page with the contact Details of every member on the Spectrum Website (www.spectrum-markets.com/member-contacts). Members have to assure, that the contact information published there is up to date. Members can provide their contact Information via e-mail to operations@spectrum-markets.com. In case no special contact details were sent by a member the data will be taken from the Onboarding documents. Contact Data will consist of:

Company Name

Company Address

Telephone Number

Fax Number (optional)

E-mail address

LEI

Member-ID

Type of Membership (e.g. Broker, Market Maker)

CSD (e.g. Clearstream)

CSD Account Number, and relevant CSD BIC11

Custody Account number within the relevant CSD

Beneficiary BIC8 for the provided account details

1.5 READERSHIP

This document is intended as a Major source of information for all functions involved in executing or preparing a trading membership with Spectrum in a function related to Trading, BackOffice, System Design, IT or compliance.

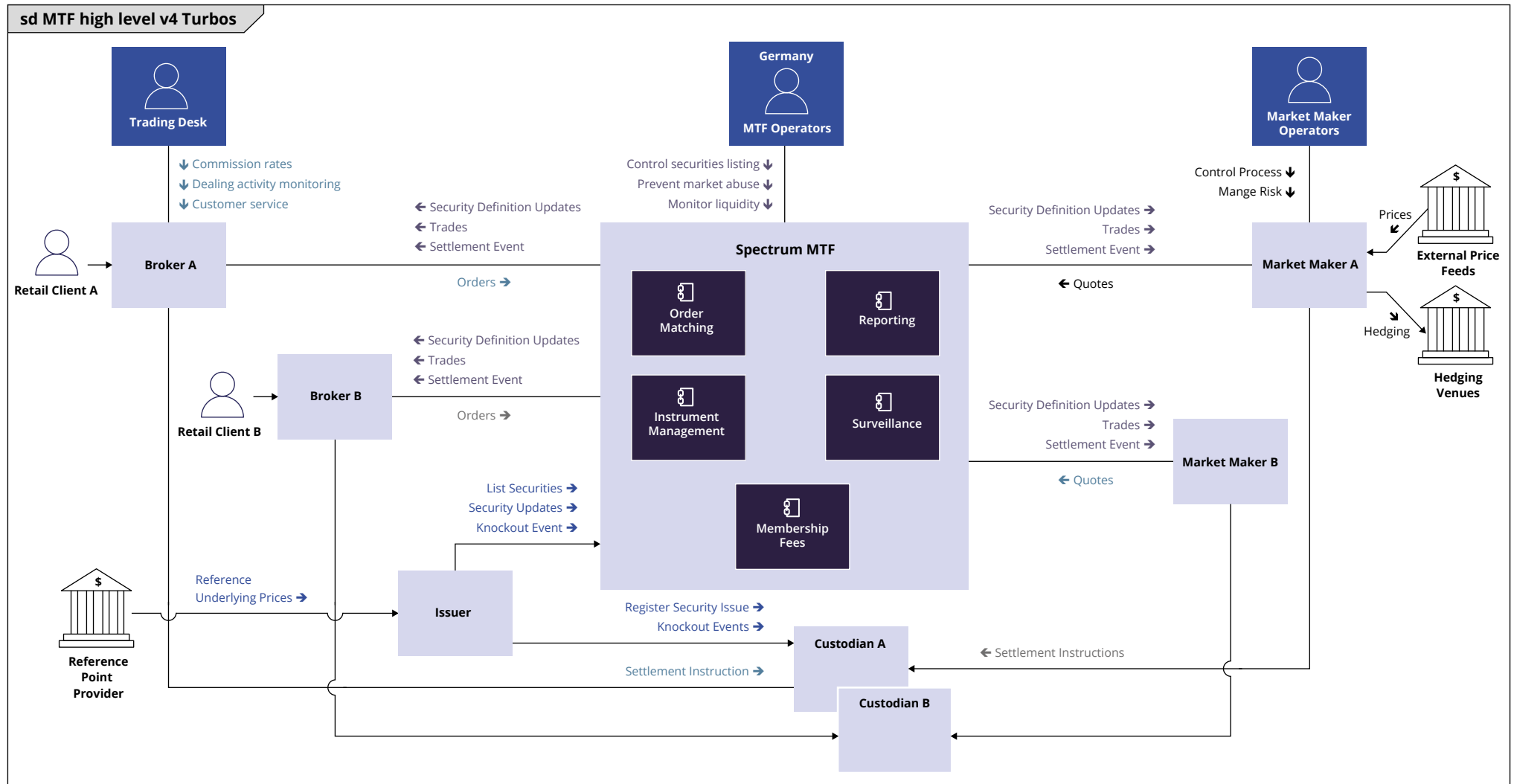
1.6 DOCUMENT SERIES DOCUMENT HISTORY

VERSION	DATE PUBLISHED	DESCRIPTION
1.0		Initial Version

2. SPECTRUM EXCHANGE TECHNICAL CUSTOMER INTERFACES

2.1 OVERVIEW

The following diagram shows the main interfaces of Spectrum:



2.2 MESSAGE WORKFLOW, TYPES AND FORMATS

The technical interaction between Spectrum and its Members is performed using the FIX (Financial Information eXchange) protocol. The corresponding Messages and Formats are described in the Document "Spectrum FIX Rules of Engagement" available on the Spectrum Website www.spectrum-markets.com/fixroe

2.3 TIME SYNCHRONISATION

Members shall synchronise the business clocks they use to record the date and time of events with Coordinated Universal Time (UTC) issued and maintained by timing centers list in the latest BIPM annual report. Spectrum System times refer to local time of Frankfurt/Main, Germany.

2.4 SUPPORTED HARD AND SOFTWARE

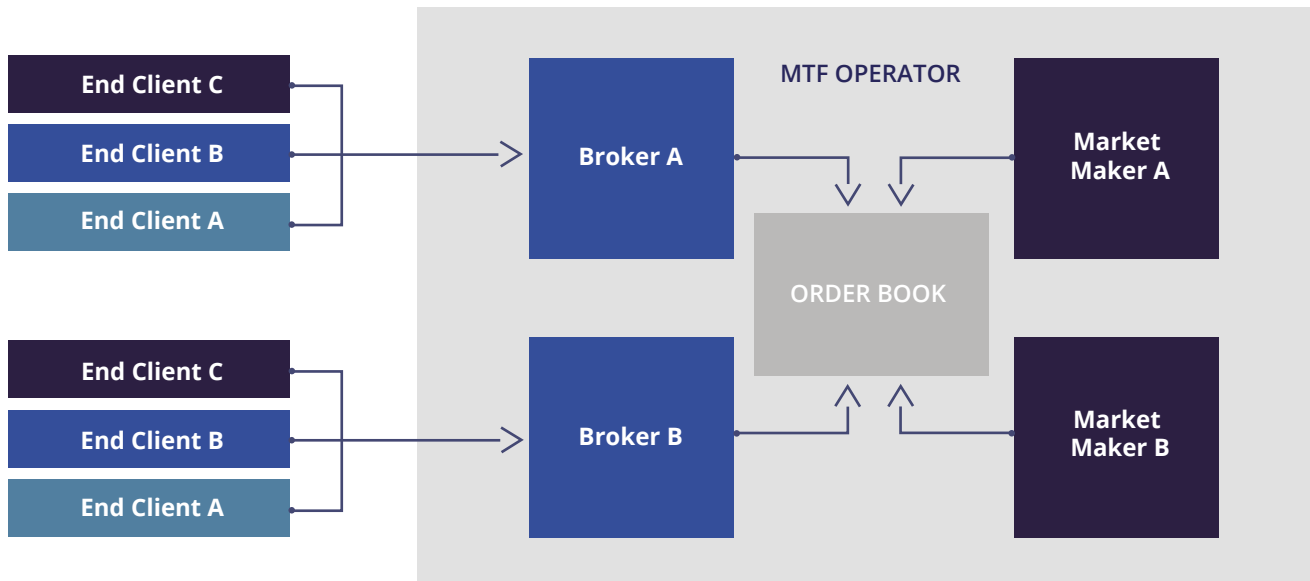
Currently there are no restrictions on supported Hard and Software as Long as it is conform to the "Spectrum FIX Rules of Engagement" and the "Spectrum Technical connectivity guide".

3.1 PARTICIPANTS

Participants within Spectrum are known as Members and these Members are divided into the 2 following groups:

- Market Maker Members - These are Members posting two-way executable quotes into the order book.
- Standard Members - These are Brokers submitting End Client (retail) order flow on a matched principal basis into the order book.

The following diagram shows the basic structure of the of the Spectrum Operator along with the connectivity of the 2 types of Members outline previously. All trading connectivity into Spectrum will be facilitated over FIX Protocol, further details of which can be found in the "Spectrum FIX Rules of Engagement" available on the Spectrum Website.



Orders and quotes contained within the Order Book shall be executed in accordance with the applicable provisions governing the matching process to form Transactions as defined in the Spectrum Rule-book.

3. MARKET STRUCTURE (CONTINUED)

3.2 TRADING TIMES

The trading venue days and trading cycle of Spectrum shall generally be the days determined by the Management Board of Spectrum.

Spectrum will offer trading on a 24 hour by 5 day trading cycle with each 24 hour trading session being punctuated with a 2-minute closed period to allow for instrument maintenance. Instrument maintenance here refers to the Strike and Barrier Knock-Out levels of the instruments made available for trading, being adjusted to accommodate overnight funding, and any Index divided adjustments as required. Closing and Opening prices either side of this 2-minute period will be calculated and published. The 2-minute closure will begin at 23:00 CE(S)T and opening of the new trading session will commence at 23:02 CE(S)T.

The Spectrum trading week will commence on a Sunday Evening at 23:00 CE(S)T, offering continuous trading (less the 2-minute closures for security maintenance every 23:00 to 23:02 CE(S)T) until its conclusion at 23:00 CE(S)T on a Friday evening, when Spectrum closes for the weekend to accommodate any system maintenance that may be required. The chart below outlines the weekly Spectrum trading cycle:

		OPEN		CLOSED			
SUN	MON	TUES	WED	THU	FRI	SAT	
CLOSED	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSED	
	23.00	23.00	23.00	23.00	23.00		
23.00	23.02	23.02	23.02	23.02	23.02		

Spectrum will operate every week, Sunday night through to Friday night irrespective of any National public holidays, with the exception of Christmas Day (25th December) and New Years Day (1st January) where these days fall on a business day.

3.3 SETTLEMENT, PROVISIONS AND DISCIPLINE

Trades concluded on Spectrum are not subject to Central Clearing and as such Members are responsible to ensure that bilateral settlement occurs directly with the Spectrum counter-party that formed the transaction with them.

Spectrum will provide Members with the Legal Entity Identifier (LEI code) of the contra counter-party that they have transacted with on Spectrum as part of the FIX Execution Report (ER) that they receive back into their Order Management System (OMS) following the partial or full execution of an order to trade submitted onto Spectrum. Members should use this LEI code to identify whom they should be instructing to match settlement instructions with in the relevant Central Securities Depository (CSD), where the settlement of transactions concluded on Spectrum shall be done. Members shall ensure that settlement occurs on the intended delivery date, which for securities offered for trading on Spectrum is 2 business days after the date of the transaction (T+2).

A directory of Spectrum Members, their LEI codes, and their associated Standard Settlement Instructions (SSIs) for the relevant CSDs is available on the Spectrum Website, to assist members in the provision of orderly settlement of trades concluded on Spectrum, and can be found at the following link <https://www.spectrum-markets.com/member-contacts>. Members are also responsible for informing the Spectrum operations team of any changes to their SSIs.

Where the buyer Member and the seller Member or their respective custodian agent are participants to the CSD securities settlement system, and they bilaterally settle a transaction through the said settlement system, the said CSD settlement regulations shall apply.

Settlement Message Netting and Timing

Spectrum requires that members, or their custodians within the relevant CSD, submit netted settlement instructions per ISIN, per contra counterparty in line with the timings outlined in the section that follows this. All executions between a unique pair of counter-parties for a given unique instrument (ISIN) will be added up with buys as + and sells as - the result will represent a netted instruction of - → SELL + → BUY.

If netting addition ends up being either zero in the cash consideration or number of units to be delivered or received it is classified as strange net and BUYs should be separated from SELLs as aggregated settlement instructions per ISIN, per contra counter-party, and separate aggregated BUY and SELL settlement instructions should be sent to the relevant CSD.

The following image gives 2 simple examples of the netting of settlement instructions, resulting in firstly a delivery versus payment (DVP) netted instruction, and secondly a resulting receipt versus payment (RVP) netted instruction;

NET TYPE: ORDINARY DELIVERY Vs PAYMENT	TRADE #	DIRECTION	# OF SHARES	PRICE	CONSIDERATION
	Trade 1	BUY	80	1	-80
	Trade 2	SELL	100	2	200
	NET	SELL	20		120
NET TYPE: ORDINARY RECEIVE Vs PAYMENT	TRADE #	DIRECTION	# OF SHARES	PRICE	CONSIDERATION
	Trade 1	BUY	100	2	-200
	Trade 2	SELL	80	1	80
	NET	BUY	20		-120

Strange nets can occur when netting addition results in one of the following seven circumstances;

- The netting of all buys and sells in an ISIN/Counterparty has resulted in just securities being delivered and cash has netted as zero.

STRANGE NET TYPE: JUST SECURITIES DELIVERED	TRADE #	DIRECTION	# OF SHARES	PRICE	CONSIDERATION
	Trade 1	BUY	100	1	-100
	Trade 2	SELL	80	1.25	100
	Trade 3	BUY	300	1.2	-360
	Trade 4	SELL	400	0.9	360
	NET	SELL	80	0	0
	Aggregate BUY	BUY	400		-460
	Aggregate SELL	SELL	480		460

3. MARKET STRUCTURE (CONTINUED)

3.3 SETTLEMENT, PROVISIONS AND DISCIPLINE (CONTINUED)

- The netting of all buys and sells in an ISIN/Counterparty has resulted in just securities being received and cash has netted as zero.

STRANGE NET TYPE: JUST SECURITIES RECEIVED	TRADE #	DIRECTION	# OF SHARES	PRICE	CONSIDERATION
	Trade 1	BUY	200	1	-200
	Trade 2	SELL	80	2.5	200
	Trade 3	BUY	300	1.2	-360
	Trade 4	SELL	400	0.9	360
	NET	BUY	20	0	0
	Aggregate BUY	BUY	500		-560
	Aggregate SELL	SELL	480		560

- The netting of all buys and sells in an ISIN/Counterparty has resulted in just cash being delivered and securities has netted as zero.

STRANGE NET TYPE: JUST CASH DELIVERED	TRADE #	DIRECTION	# OF SHARES	PRICE	CONSIDERATION
	Trade 1	BUY	100	1	-100
	Trade 2	SELL	100	1.25	125
	Trade 3	BUY	100	1.2	-120
	Trade 4	SELL	100	0.5	50
	NET		0		-45
	Aggregate BUY	BUY	200		-220
	Aggregate SELL	SELL	200		175

- The netting of all buys and sells in an ISIN/Counterparty has resulted in just cash being received and securities has netted as zero.

STRANGE NET TYPE: JUST CASH RECEIVED	TRADE #	DIRECTION	# OF SHARES	PRICE	CONSIDERATION
	Trade 1	BUY	100	1	-100
	Trade 2	SELL	100	1.5	150
	Trade 3	BUY	100	1.2	-120
	Trade 4	SELL	100	1.3	130
	NET		0		60
	Aggregate BUY	BUY	200		-220
	Aggregate SELL	SELL	200		280

- The netting of all buys and sells in an ISIN/Counterparty has resulted in both securities and cash being delivered.

STRANGE NET TYPE: BOTH SECURITIES AND CASH DELIVERED	TRADE #	DIRECTION	# OF SHARES	PRICE	CONSIDERATION
	Trade 1	BUY	100	1	-100
	Trade 2	SELL	80	1.25	100
	Trade 3	BUY	300	1.2	-360
	Trade 4	SELL	400	0.5	200
	NET	SELL	80		-160
	Aggregate BUY	BUY	400		-460
	Aggregate SELL	SELL	480		300

- The netting of all buys and sells in an ISIN/Counterparty has resulted in both securities and cash being received.

3. MARKET STRUCTURE (CONTINUED)

3.3 SETTLEMENT, PROVISIONS AND DISCIPLINE (CONTINUED)

STRANGE NET TYPE: BOTH SECURITIES AND CASH RECEIVED	TRADE #	DIRECTION	# OF SHARES	PRICE	CONSIDERATION
	Trade 1	BUY	200	1	-200
	Trade 2	SELL	80	1.1	88
	Trade 3	BUY	300	1.2	-360
	Trade 4	SELL	400	1.5	600
	NET	BUY	20		128
	Aggregate BUY	BUY	500		-560
	Aggregate SELL	SELL	480		688

- The netting of all buys and sells in an ISIN/Counterparty has resulted in neither securities and cash being delivered or received.

STRANGE NET TYPE: ZERO SECURITIES AND CASH MOVED	TRADE #	DIRECTION	# OF SHARES	PRICE	CONSIDERATION
	Trade 1	BUY	100	1	-100
	Trade 2	SELL	100	1.1	110
	Trade 3	BUY	100	1.2	-120
	Trade 4	SELL	100	1.1	110
	NET		0	0	0
	Aggregate BUY	BUY	200		-220
	Aggregate SELL	SELL	200		220

Sending time of netted settlement instructions for trades concluded on Spectrum

Spectrum operates 24/5 from 23:00 (23:02) CET to 23:00 CET. This means for a given Trading Session on Spectrum there will be 2 sets of Settlement Instructions that members are required to send for settlement;

- Trades executed after 24:00 CET till 18:00 CET (First Set).
- Trades executed after 18:00 CET till 24:00 CET, previous calendar day (Second Set).

The First Set should be released after 18:00 CET on that trade day (T) Marked as having the current calendar date as (T) with a settlement date of +2 business days (T+2).

The second set should also be released after 18:00 CET and have the previous calendar day as the trade date (T) with a settlement date of +2 business days (T+2).

Members are obliged to submit all instructions for settlement to the relevant CSD in a timely manner for matching and settlement i.e. within the T+2 settlement window.

All settlement messages should be submitted using the standards set by the relevant CSD.

Spectrum offers members end of day netted settlement files, providing a summary of each execution concluded per unique ISIN, per unique contra counterparty in each of the 2 periods of time that the Spectrum settlement day is divided into, and the resulting netted (or aggregated in the case of strange netting) settlement instructions they are required to submit to the relevant CSD. Members should contact the operations team at operations@spectrum-markets.com if they wish to receive such files.

Settlement processing of 'Knocked-Out' securities

Once a trade has been executed on Spectrum, that trade must still be valid for settlement, even if the security is knocked out before contractual settlement has occurred, or, in the case of a Knock-Out on the day of trading, before settlement instructions are created. These trades must all still settle to show the change of beneficial ownership of the Turbo that happened at the point of the trades execution. Knock-Outs are always processed as T+5. This gives any trades that happened prior to KO (which all settle on a T+2 cycle) the chance to fully settle and be in the correct beneficiary accounts before the relevant CSD processes the Knock-Out and removes the securities from member accounts that were left holding the Turbo at the point of Knock-Out for zero value.

In addition, Members have to comply with Article 7 paragraphs 3 to 8 of Regulation (EU) No 909/2014 of 23 July 2014 on improving securities settlement in the EU and on central securities depositories. These are outlined in the following sections:

3. MARKET STRUCTURE (CONTINUED)

3.3.1 PREVENTION

After the partial or total completion of a transaction on Spectrum, the Members involved will receive confirmation and details of the said transaction via a FIX Execution Report (ER).

Members should ensure that they have all the necessary settlement information from their clients in time to allow for an effective and efficient settlement of transactions. To that end, Members should communicate with their clients to obtain the information relevant for an efficient settlement, including the standardised data needed for the settlement process.

Members shall require their retail clients to send them all the relevant settlement information for transactions concluded via Spectrum trading system by 12.00 CET on the trading day after that on which the transaction has taken place within the time zone of the investment firm, unless that client holds the relevant financial instruments and cash in custody under the name of the Member.

For their professional clients, Members are expected to require the necessary settlement information in accordance with Article 2 of Commission Delegated Regulation of 25/05/2018 with regard to regulatory technical standards on settlement discipline.

Members' settlement instructions shall be sent in accordance with the relevant CSD regulations or in accordance with their custodian agent where the settlement is to be done via an internalisation of settlement outside of such securities settlement system. Custodian agents shall identify Spectrum and the transactions in their settlement instructions in the absence of a direct transaction feed from Spectrum to the relevant CSD.

3.3.2 FAILED SETTLEMENT

Where it is found that a transaction concluded on Spectrum system is not settled by the agreed settlement date, Spectrum shall:

- (i) Seek provision of all relevant information concerning the settlement fail from Members involved in the transaction;
- (ii) Initiate proceedings for breach of CSDR provision(s) against the Member responsible for repeated and systematic settlement fails, without prejudice to any obligations for compensation
- (iii) If necessary, after communication with BaFin and immediate notification of the Member concerned, impose a suspension of its membership, and make public the fact of this suspension.

Notwithstanding the preceding paragraph, in case of failure to settle a transaction by the agreed settlement date, Spectrum shall be informed without delay of the fail by the Members that are party to the transaction.

The Member that causes a failed settlement of securities (the failing Member) shall have an extension period of seven (7) business days to regularise the settlement if the settlement fail persists.

Members that are party to the trade shall proceed to the buy-in of the securities that have not been delivered by the failing Member, under the expense of the latter and including any services costs. The securities subject to the buy-in shall be delivered within seven (7) business days to the Member that did not receive the securities (the receiving Member).

The failing Member shall also promptly compensate Spectrum for any amounts due under the preceding paragraph and for all incidental fees and expenses that Spectrum may have incurred as a result of the settlement failure of the failing Member.

If a buy-in of the undelivered securities is not possible, the receiving Member may accept a deferral of the buy-in to a maximum of seven (7) business days (deferral period) as determined by the failing Member, or receive cash compensation from the failing Member, at the latest within two (2) business days after the expiration of the extension period.

If it is found that the settlement of securities remains impossible at the expiration of the deferral period, cash compensation shall be paid by the failing Member to the receiving Member within two (2) business days after expiration of the deferral period.

3.3.3 MANDATORY BUY IN

Members that originally concluded the relevant transaction are responsible for the execution of the buy-in. The buy-in is to be effected at the level where the contractual obligations to buy and sell securities have been created. The failing Member bears responsibility for the payment of the buy-in costs, the price difference and the cash compensation in the first place.

Where the failing Member does not comply with their obligation to pay those amounts, their client, as the failing client, should, however, cover the buy-in costs and the price difference but not the cash compensation.

Delivery obligations of bought-in securities or the payment of cash compensation or of any price difference in the financial instruments subject to buy-in should ultimately be performed through the reception of the relevant securities or cash by the Members through their clients.

Where the buy-in fails and in the absence of express communication on whether to extend the buy-in period within the prescribed timeframe, cash compensation should be paid so as to protect the interests of the parties and avoid any uncertainty resulting from the failed buy-in.

3. MARKET STRUCTURE (CONTINUED)

3.3.4 INITIAL VERIFICATION

The receiving custodian shall inform the receiving Member(s) of any settlement fails without undue delay. The receiving Member(s) shall in turn immediately inform Spectrum of any settlement fails.

Spectrum shall disclose to the receiving Member the identity of the failing Member(s) upon request. On the business day following the expiry of the extension period, the receiving trading Member shall verify whether a buy-in is possible. Here however, due to the bi-lateral settlement process of trades executed on Spectrum, Members are aware of their execution counter-party immediately following an execution, as they are provided with the Legal Entity Identifier (LEI) of the contra-Member on the execution report they receive back from Spectrum. This process means they should not be required to contact Spectrum for identification of the failing Member.

A buy-in shall only be considered not possible where the relevant securities no longer exist or the failing Member is subject to insolvency proceedings.

Where a buy-in is possible, the receiving trading venue member shall appoint a buy-in agent on the business day following the expiry of the extension period and notify the failing Member thereof.

Upon receipt of the notification mentioned above, the failing Member shall ensure that any relevant settlement instruction relating to the settlement fail is put on hold. The failing Member may only deliver the securities to the buy-in agent where the buy-in agent gives prior consent.

Prior to receipt of the notification mentioned above, the failing Member may still deliver the securities directly to the receiving Member.

The receiving Member shall notify the results of the buy-in to the failing Member at the latest on the last business day of the seven business days after the extension period.

Where the buy-in is successful in part or in full, the notification mentioned shall include the quantity and price of the bought-in securities.

Where a buy-in is not possible, the receiving Member shall notify the failing Member of the results of the verification and the cash compensation amount calculated in accordance with the calculation of the cash compensation process below. The cash compensation shall be paid by the failing Member.

Where the buy-in fails in part or in full, the notification shall include the cash compensation amount calculated in accordance with the calculation of the cash compensation process below unless that notification specifies that the execution of the buy-in is deferred.

Where the execution of the buy-in is deferred, the receiving Member shall notify the results of that deferred buy-in to the failing Member at the latest on the last business day of the deferral period.

Where the buy-in fails in part or in full after the deferral period, the notification shall include the cash compensation amount calculated in accordance with the cash compensation process below.

The receiving Member shall accept and pay for the bought-in securities.

The receiving and the failing Members shall ensure that the following is carried out at the end of each business day on which the receiving Member receives the securities:

- (a) The settlement instructions relating to the settlement fail are cancelled;
- (b) The new settlement instructions are entered into the securities settlement system for any non-delivered securities and the CSD receives the information necessary to identify such new settlement instructions accordingly.

The failing Member shall pay the relevant cash compensation.

The failing and receiving Members shall ensure that the relevant settlement instructions relating to the settlement fail are cancelled upon payment of the cash compensation mentioned above or at the latest on the second business day after the notification of the amount of cash compensation.

3.3.5 CALCULATION OF THE CASH COMPENSATION

The cash compensation to be paid pursuant to CSDR Article 7(7) shall be the difference between the market value of the relevant securities on the business day before the payment of the cash compensation and the settlement amount included in the failed settlement instruction where that settlement amount is lower than that market value;

Where it not already included in the market value of the securities, the cash compensation to be paid pursuant to CSDR Article 7(7) shall include a component reflecting exchange rates variation, as well as corporate entitlements and accrued interest.

The market value of the securities shall be determined as the value determined on the basis of the closing price of Spectrum. Such market value and the component reflecting exchange rates variation, corporate entitlements and accrued interest, shall be disclosed to Members in a detailed breakdown.

4.1 INTRODUCTION TO TURBO WARRANT

Turbo Warrants are transferable securities that permit leveraged exposure into the price changes of the underlying financial instrument or asset that they represent. A Turbo Warrant provides a higher degree of exposure than investing the same amount of capital directly into the underlying financial instrument or asset, meaning that it also comes with more risk than the same investment into that underlying instrument or asset. Underlying financial instruments or assets as previously stated can be Indices, Currencies, Commodities or additional assets that issuers may offer. Turbo Warrants allow you to open a long or short position for a given underlying. Turbo Long Warrants prices benefit from rising prices in the underlying instrument or asset, whereas Turbo Short Warrants prices benefit from a fall in the price of the underlying financial instrument or asset that they represent. Every incremental movement in the price of the underlying financial instrument or asset can lead to disproportionately high returns or high losses due to the leveraged effect of these securities.

The price movements of Turbo Warrants have a delta of one in relation to the underlying market, which means that when the underlying market moves one point, the Turbo Warrant also moves one point. A key feature of Turbo Warrants is that the strike price and financing level are the same, which means that a Turbo Warrant is deemed worthless after a Knock Out-event. The leverage of said Turbo Warrants is determined by the current underlying price divided by the price of the specific Turbo Warrant.

However, while these leverage securities permit a higher exposure over investing directly in the underlying instrument or asset, the risk of losing the entire amount of initial capital invested if the Knock Out level is breached is its major downside. An Issuer will issue Turbo Warrants with strike prices equivalent to the Knock Out level. Turbo Long Warrants will have a strike level given below the current price of the underlying financial instrument or asset they represent. Turbo Short Warrants will have a strike level given above the current price of the underlying financial instrument or asset that they represent.

The Issuer will at any given time, issue different series of warrants covering the same underlying financial instrument or asset. These different warrants issues will be issued with differing "Strike Levels" at pre-determined points or ticks above the current level of the market price of the underlying that they represent (Turbo Short warrants), and at pre-determined points or ticks below the current level of the market price of the underlying that they represent (Turbo Long warrants).

Turbo Warrants representing the same underlying financial instrument or asset, but with differing "Strike Levels" will also be divided in Turbo Long and Turbo Short securities; totally separate financial instruments with different ISIN numbers. They are not fungible and will trade on separate order books.

Purchasing a Turbo Long or Short warrant with a strike level close to the current price of the underlying will provide the investor with greater leverage than choosing a warrant with a strike level further from the current level of the underlying. The major downside is the risk of a sharp market movement and as a consequence the strike level being breached (and the Turbo warrant is Knocked-Out) is of course greater when investing in a strike price close to the current underlying market price level.

The strike level of a Turbo Warrant is the price level at which the underlying market that it represents must breach for that security to be "Knocked Out" and become worthless, at which point the investor would lose all of the initial capital they invested when purchasing the warrant.

Turbo Warrants will be "Open-Ended", meaning that they will not be issued with an expiry date. Other Turbo Warrants in issuance at present may have a future expiry date.

Turbo Warrants may be redeemed by its Issuer or exercised by a Warrant Holder, and therefore receive a fixed expiry date. Please refer to the Issuer's Prospectus for further information about this processes.

4.2 LIFE CYCLE OF A TURBO WARRANT

- An Issuer will under a prospectus (Base prospectus and Final terms) issue Turbo Warrants as transferable securities, which will provide leveraged exposure into the price changes of the underlying financial instrument or asset that they represent.
- Different Warrants series representing an individual underlying will be issued to cover Long and Short exposure opportunities. Both these Long and Short warrants will have different strike price levels at pre-determined distances from the current price level of the underlying they represent.
- Each issue (Long/Short/Strike Level) is classed as a separate securities issue and as such will be allocated a unique ISIN and will trade on separate order books.
- Following the allocation of a unique ISIN for a given issue, the Issuer warrants will be authorised for trading on to Spectrum where liquidity in each unique strike price level will be provided by Market Maker(s).
- Market Maker(s) on Spectrum is (are) obligated to offer two- way executable quotes on each listed strike price level.
- Standard Members are free to submit End Client order flow to interact with the Market Maker quotes.
- Securities transactions must be settled via a custody entity or within the relevant CSD on a T+2 basis.
- The Turbo Warrants can then trade in a Multi-Lateral basis until the point where the strike price level of that issue is breached on the underlying that it represents.
- The issuer of the Turbo Warrants will determine when the strike price level of a warrant has been breached in the underlying market price and will in turn inform Spectrum and Market Maker(s) on Spectrum that the securities have been knocked-out, the issue is no longer active and that they should cease quoting prices. The securities will be suspended on Spectrum.
- Spectrum will purge the order book of any un-executed orders in the knocked out securities and reject further new orders from being submitted in this securities issue.
- Spectrum will remove the securities from its trading system.
- The issuer will make arrangements for securities to be removed from the relevant CSD where they are held, and all Members whom still had open positions in those securities will via their appointed custodian agent within the relevant CSD, be informed that the securities have now expired and will be removed, and any distributed redemption payments (should there be any, at present Turbo Warrants trading on Spectrum Knock-Out at zero value) will be made.

4. PRODUCT DESCRIPTION (CONTINUED)

4.3 PRICING OF TURBO WARRANTS

Turbo Warrants will be priced in primary issuance using a formula that is derived from the price of the underlying Financial Instrument or Asset that they represent. The resulting cost from this formula is classed as the premium for the security and this will determine the amount of leverage the investor taken.

For Turbo Long Warrants: Spot price (Current underlying Price) – Strike price.

For Turbo Short Warrants: Strike price – Spot price (Current underlying Price).

For example:

- The FTSE100 is currently trading at a level of 7000.
- An investor buys an Issuer Turbo Warrant FTSE100 Long Warrant with a Strike Level of 6930.
- Using the above formula the investor pays a premium of 70 and that is the current price/premium of the security.
- The investor has gained leverage of 100:1 in this example and any move in the underlying upwards of the 7000 mark will mean the investor is in profit.
- Any move downward in the price of the underlying from 7000 will mean the investor has made a loss, and should the underlying fall to 6930 the investor's security is knocked out and they have lost their invested capital.

Please note that secondary pricing on Spectrum will be facilitated using 2-way Market Maker quotes with a Bid and Offer spread, and a scaling factor. Using the example of the FTSE100 Long Warrant above where the premium of the product has been calculated as 70, indices products have a scaling factor of 0.01, meaning that the price on the order book with the market maker bid/offer spread could in reality be 0.69 / 0.71. In addition, Market Makers will in their secondary pricing on Spectrum apply their own premium to the Bid and Offer spread as insurance for Knock-Out events. This Market Maker premium is returned to Members should they sell an open position back to the Market Maker, again through the Bid and Ask pricing they quote. Please contact the Spectrum Operations team for further information regarding the scaling of the Turbo Warrant products being made available for trading.

Using another example:

- The DAX30 is currently trading at a level of 12500.
- An investor buys an Issuer Turbo Warrant DAX30 Short Warrant with a strike level of 13000.
- Using the above formula the investor pays a premium of 500 and that is the current price/premium of the security.
- The investor has gained leverage of 25:1 in this example and any move in the underlying downwards of the 12500 mark will mean the investor is in profit.
- Any move upwards in the price of the underlying from 12500 will mean the investor has made a loss, and should the underlying rise to 13000 the investor's security is knocked out and they have lost their invested capital.

4.4 OPENING PRICE

The Opening Price of the Instruments made available for trading on Spectrum will be updated at the start of every new trading session.

The Opening Price will be the Closing Price of the previous trading session.

Unless:

When new trading occurs on Sunday evening at 23:00pm CET after weekend downtime then:

- The Opening Price will be the midpoint of the first two way quote, for that trading session, sent by the Market Maker.

At the start on Spectrum for the introduction of new Instruments (new ISINs) then:

- The Opening Price will be the midpoint of the first two way quote, for that trading session, sent by the Market Maker.

4.5 CLOSING PRICE

The closing price of a daily trading session on Spectrum is the Last Traded Price (LTP) for the given instrument in that trading session.

Where there was no transaction at all during the said trading session on Spectrum:

- The closing price will be the midpoint of the last two way quote for the given instrument sent by the Market Maker in that trading session.

Closing prices will reset at session close (23:00 CET) and will remain published until the next session close.

Opening and Closing prices for instruments made available for trading on Spectrum, are available on request from the Spectrum Operations team at operations@spectrum-markets.com

5.1 STANDARD ORDERS

Spectrum offers two order types:

- Limit Order
 - A Limit Order is a priced order that remains visible when persistent in the order book and may be executed at a price equal to or better than its set price. Limit Orders will never have priority over a Market Order.
- Market Order
 - A Market Order is an un-priced order, which has priority over Limit Orders. During regular trading sessions, a Market Order cannot persist in the order book. Two Market Order types are offered; Fill or Kill and Immediate or Cancel, with the first type either executing the order completely or cancelling it without any execution. The latter allows an order to be partially executed, and any outstanding volume to be cancelled.

All persistent Limit Orders will be removed from the order book whenever the product Issuer applies an adjustment for dividends in the underlying market or when an underlying futures contract is changed from the front month to the back month future contract. Standard Members should re-send any end-client order flow that they wish to keep following such an event.

5.2 QUOTES

Spectrum operates a matching engine that uses the same mechanics as a standard cash instruments exchange, matching buying and selling interests (orders and quotes) on a price and time priority in a central limit order book. As written in Spectrum's Market Maker Agreement, section 4.1: Except in Exceptional Circumstances and where continuous trading takes place, the Market Maker is obliged, for at least the predetermined percentage time of the daily Trading Hours, and calculated for each Trading Day, unless otherwise notified by the Operator by posting a Website Notice, to post simultaneous Two-Way Quotes that qualify as Firm Quotes and are of Comparable Size and Competitive Prices in at least the Market Volume in all Financial Instrument on Spectrum they are authorised to quote. For full details regarding the Market Maker Agreement and Obligations, please see the Members' documents on Spectrum's website.

As referenced in Spectrum's Rulebook, section 6.14, the Operations team imposes parameters and/or limits on the number of Quotes that a Member can enter into on any one day, including the total value of those Quotes and the number of messages that can be submitted to the System. The Operations team will notify the relevant Member(s) of these parameters and limits, along with possible amendments.

5.3 TIME IN FORCE

Spectrum Members (Standard Members) submitting End Client order flow will be permitted to utilise the following combinations of Time in Force:

- Limit Order
 - Good to Day (DAY) - Expired at the end of the trading day (23:00 CE(S)T).
 - Good till Cancelled (GTC) - Expired when the order placer removes it manually.
 - Immediate or Cancel (IOC) - Executed upon entry, with any outstanding volume to be expired.
 - Fill or Kill (FOK) - Order is either executed fully upon entry, or expired without execution.
 - Good till Date (GTD) - Expired at the end of the trading day (23:00 CE(S)T) as specified in the order placing.
- Market Order
 - Immediate or Cancel (IOC) - Executed upon entry, with any outstanding volume to be cancelled.
 - Fill or Kill (FOK) - Order is either executed fully upon entry, or expired without execution.

ORDER TYPE	DAY	GTC	IOC	FOK	GTD
LIMIT ORDER	Yes	Yes	Yes	Yes	Yes
MARKET ORDER	No	No	Yes	Yes	No

Should a Standard Member attempt to submit an order to trade with a combination not supported in the above list, then that order will be rejected at the Spectrum FIX Gateway and a rejection message returned to the Standard Member with a rejection text.

5.4 TICK SIZES

Spectrum can accept a wide range of tick sizes when dealing with order and quote inputs. However, it is currently configured to Order and Quote inputs from Standard Members and Market Makers with a precision of three decimal points (0.001).

5.5 ORDER AND EXECUTION PRIORITY

Matching on Spectrum is operated by price-time priority. Orders are first ranked according to the price, and prices that have multiple orders are then ranked on the time each was entered. A Market Order will always have priority over a Limit Order.

5.6 ORDER AMENDMENT OR CANCELLATION

During the trading session, a Member who entered an Order may Change/Amend any Order that has not been cancelled, deleted, or executed in full. When Spectrum is closed, any persistent orders will remain in the order book, thus cannot be cancelled or amended. Changing/Amending an order will lead to a new time priority if the Limit Price is changed or if the Order Size is increased. The current time priority of an existing Order will remain the same if the Order Size is decreased.

6.1 ORDER BOOK MONITORING

With volatile markets and rapid price movements, Spectrum operates price movement monitoring. If our set price tolerance levels are breached, Spectrum will halt trading and resume after a random end. If this halt occurs during a Limit Order execution, the un-executed volume will remain in the order book. The price monitoring does not remove the Member's responsibility to ensure enough protection from erroneous order entries.

The price level thresholds, the random end duration's, the Order units and the Order values are continuously managed by Spectrum's operations team from a business perspective. Spectrum also incorporate pre-trading controls such as price collars to prevent erroneous trading, which are described in more detail in the following sections.

6.2 TRANSACTION CANCELLATION

As set forth in Spectrum's Rulebook, section 6.12, if both parties to a Transaction agree to the cancellation, the Operator may terminate such Transaction upon receipt of both notices no later than 30 minutes after the Transaction was executed. The fee for such a cancellation is €1000 to the initiating party, payable to Spectrum. Should one party request to have a Transaction Cancelled and the Spectrum Operations team is unable to reach the Transaction's counterpart - the Transaction will remain. Should the counterpart not be willing to agree to the proposed Transaction Cancellation - the Transaction will remain.

The following describes the process for Order, Trade and Quote Cancellation or Amendment, as set out in Spectrum's Rulebook sections 6.9 through to 6.12.

As set forth in Spectrum's Rulebook, section 6.9, any Member may request to cancel an Order or Quote. The Operator shall use reasonable endeavours to cancel the specific Order/Quote, subject to Rule 18.2. The Operator bears no responsibility or liability for such a cancellation, rather the Member acknowledges that it shall be responsible and liable for any Order or Quote entered where it is not reasonably practicable or possible to cancel an Order or Quote made by the Member.

The Operator may reject or cancel an Order or a Quote as set forth in Spectrum's Rulebook, section 6.10, and will notify the relevant Member(s) of its decision to take any action under Rules 6.9 as well as 6.10.

The Operator may, in accordance with the Rules and Regulations set forth in Spectrum's Rulebook, section 6.11, cancel, amend, or correct a Transaction. The Operator may at its discretion consult the relevant Member(s) and will notify them of its decisions and actions under this rule as soon as practicable. For further details, and specific instructions on how to cancel orders and quotes, please see section 7.4 below.

6.3 PRE- AND POST-TRADE CONTROLS

Spectrum in accordance with RTS 7 Article 20 will have in place a number of pre-trade controls that will reject automatically, potentially aberrant orders that maybe unusual in their number, price or size (in both units and value). These controls are described further in the following;

6.3.1 PRE-TRADE CONTROLS

Price Collars

Limit orders submitted to the Spectrum matching engine will be subject to a price collar check before being made available for execution. The price collar check is based on the prices available in the Spectrum order book for the instrument that is being submitted for possible execution. The check is processed following the below hierarchy. Should the incoming order fail any of the below checks in the 3 level hierarchy, it will be rejected back to the member that submitted the order with the rejection FIX message explaining that the order has failed the price collar validation. Should none of the below 3 levels of hierarchy be available to validate the price of the limit order against, then the order will be accepted and entered into the order book for possible execution.

- **If both sides of the book are priced, then:** Upper bound: Current touch (midpoint) X 2; Lower bound: One tick (0.001) above 0 (Knock-Out)
- **Else, if there is a LTP (Last Traded Price):** Upper bound: LTP x 2; Lower bound: One tick (0.001) above 0 (Knock-Out)
- **Else, if there is a previous trading session closing price:** Upper bound: Previous-close x 2; Lower bound: One tick (0.001) above 0 (Knock-Out)
- **Else (default)** Accept the order.

Maximum order value collar

Spectrum will automatically reject new incoming member orders should they be of a size (value in €) exceeding a configurable threshold for that instrument as determined by the Spectrum management. Please contact Spectrum's Operations team for full information on specific markets' thresholds in terms of monetary value for order value collar.

Maximum order size collar

Spectrum will automatically reject new incoming member orders should they be off a size (number of units) exceeding a configurable threshold for that instrument as determined by the Spectrum management. Please contact Spectrum's Operations team for full information on specific markets' thresholds in terms of maximum number of units.

6.3.2 LIFTING OF PRE-TRADE CONTROLS

In accordance with regulation, Spectrum is obliged to offer its members the facility to bypass the previously described pre-trade controls, should a member request such an action, and the nature of the order(s) to bypass the control has been disclosed to and approved by the Spectrum Operations team after they have reviewed the nature of the request against the current market conditions. Spectrum will provide a bypass code for each the Demo and the Live environment. The code for the Demo environment can be used by the members to test their software without further alignment with Spectrum. The bypass code for the live environment must only be used after written (email) approval of Spectrum Operations.

Please see the Spectrum FIX Rule of Engagement for full details regarding the FIX tag to be used to facilitate the described process.

The Spectrum matching engine will on the submission of the order requested to bypass the pre-trade controls, check the validity of the code, and if valid, allow it to bypass all of the pre-trade controls and become available for execution. Should the bypass pre-trade controls code be found to be expired, or for an incorrect member, then the order will be subject to the pre-trade controls described earlier, and should it fail those checks it will be rejected back to the member with a rejection FIX message saying it has failed pre-trade control checks with an invalid bypass code.

6.3.3 POST-TRADE CONTROLS

Spectrum is not obliged to have its own post trade controls because the entity does not offer clearing and settlement services. Spectrum has not the means to monitor its member positions after transactions.

6.4 MECHANISMS FOR VOLATILITY MANAGEMENT

Spectrum in accordance with RTS 7 Article 19 will have in place a number of dynamic system controls to facilitate the orderly functioning of the trading venue, and to ensure that there is sufficient capacity to carry out all its functions without system failures, outages or errors in the matching and execution of transactions. These controls are described in the following;

6.4.1 CIRCUIT BREAKERS

Spectrum has adopted a hybrid solution of circuit breaker to ensure the orderly functioning of its order books.

Trading will be automatically halted on Spectrum should the underlying price feed by which Turbo Warrants are priced move up or down by more than a pre-set percentage from the previous trading sessions closing price of the underlying asset that represents the Turbo Warrants in question. This value is set at 10% +/- from the previous trading session closing price of the underlying. Should a trading halt be initiated on Spectrum then the price point at which the 10% +/- is measured from will be re-set to be calculated from the first available mid-price/tick for that underlying asset when trading is resumed.

The parameters which govern the percentage price movement from the reference point before a trading halt is initiated will be configured in such a way that they can be adjusted intra-day should they need to be widened or narrowed.

6.4.2 TRADING HALT

Should a circuit breaker threshold be touched during the continuous trading period on Spectrum, the trading on the order books for all of the securities represented by the underlying asset subject to the circuit breaker event will be halted. Executing against market maker quotes and client orders will be unavailable during the halt. Orders currently passive in the book will remain but no matching/execution will be facilitated.

The trading halt will persist for a period of 10 seconds up to 30 seconds with a random end to prevent any gaming on the trading venue. Should once trading is resumed following a halt initiated by a circuit breaker event, see the price again move by enough to touch a circuit breaker threshold another trading halt will be activated. This process will continue until the underlying price has stabilised.

Securities authorised for trading on Spectrum will in addition to circuit breaker halts follow the underlying market that they represent into any unscheduled, intraday, limit up / limit down trading halts on that underlying market. They will also automatically resume trading in line with the underlying market once it resumes trading. Once again during these halts, executing against Market Maker quotes and client orders will be unavailable during the halt. Resting passive orders will stay frozen in the book until a trading resumption.

6.4.3 TRADING SUSPENSION

Spectrum may suspend or limit the availability for trading of securities or take any other measure it deems necessary in the interests of maintaining an orderly and proper market. Such suspension or limitation, and any restoration or resumption of availability for trading, shall be published on the Spectrum website.

Should a trading suspension be initiated then all resting orders and quotes in the order book subject to the suspension will be purged (removed/cancelled) clearing the order book of any open interest. Market makers will be prevented from posting new quotes and Broker members will see any new orders to trade rejected back to their OMS with a rejection text. This status will remain until the restoration of the trading suspension.

An Issuer may seek the suspension or withdrawal of securities from trading. To this end, a justified request specifying the reasons for such request must be addressed to the Spectrum Operations team. Upon review the request, the Spectrum Operations team shall take into account the interests of Spectrum and its Members, the interests of securities holders and, if applicable, interests of the Issuer.

Should an underlying market become suspended due to factors outside of the control of Spectrum, then Spectrum will follow the underlying market into the suspension and subsequent restoration.

6.4.4 MESSAGE RATE THROTTLING

To ensure stability, resilience, and performance optimisation, Spectrum is equipped with a configurable message rate throttling mechanism in the Order Entry Gateway to limit the rate at which Members can submit messages (orders & quotes) to the matching engine. The rates will be checked on a per FIX session basis and will be calculated as the number of incoming Member messages during a specified time bucket, during the session. This will be exercised at two levels as explained below:

- Hard Limit Rate, which if exceeded during a time bucket, will lead to the rejection of the incremental FIX messages from the Members. All the messages beyond the limit during this time bucket will be rejected and the Members will receive rejection messages back into their OMS. On the commencement of next time bucket, Messages will be accepted again.
- Soft Limit Rate, which is configured at a level lower than that of the hard limit rate will trigger an email notification to the Spectrum Operations Team, alerting with respect to potentially infringing Member(s).

There will be continuous monitoring within each time bucket during the ensuing FIX session and will lead to rejections and alerting based on the nature of breach, if any. Please contact the Spectrum's Operations Team for full information on message throttling in terms of soft limit, hard limit and time bucket specifications at operations@spectrum-markets.com

6.4.5 MATCHING ENGINE KILL SWITCH PROVISION

In the rare event of technical or market issues, it will become critical for the Spectrum Operations Team to instantly stop the matching engine to prevent any serious impact, financial or otherwise, on the overall working of the MTF. To that effect, Spectrum will be equipped with a "Kill Switch" feature within the system which will enable the Operations Team to shut down all of the matching engine functionality instantaneously at the press of a button.

The following process will be adhered to during deactivation and reactivation of the matching functionality using the Kill Switch:

- Spectrum Operations Team to use the switch to SHUTDOWN the MTF.
- Once shutdown is activated, the following processes will be initiated:
 - Rejection of new orders and quotes
 - Turn-off matching engines
 - Cancel all working orders
 - Cancel all working quotes
 - Set status of all the order books to **"Closed"**
- Spectrum Operations Team to use the switch to RESTART the MTF.
- Once restarted, Spectrum Operations Team will ensure:
 - Restoration of all order books to scheduled states
 - Turn-on matching engine
 - Accept new orders and quotes

However, it must be noted that the use of Kill Switch will not affect the Issuer connectivity into Spectrum in any manner. As a result, Issuer will be able to send new instruments and perform knockouts and strike price updates as usual. New instruments will be listed as scheduled but will be set to "Closed" state immediately thereafter in adherence to the Kill Switch process cited above.

Please contact Spectrum's Operations Team for more information on Matching Kill Switch Functionality at operations@spectrum-markets.com

7.1 INFORMATION CHANNELS

In case of unexpected Service interruptions or limitations. Spectrum will inform members by

- putting a notice on the Spectrum Website (<https://www.spectrum-markets.com/notices>)
- via email to the email addresses of the trading contact provided according to 1.3.

Information will be updated during the cause of the Limitation.

7.2 DESCRIPTION OF FAILOVER AND DISASTER RECOVERY PROCESSES

Spectrum fail-over and disaster recovery is described in the Spectrum “Technical connectivity guide” available on the Spectrum website under <https://www.spectrum-markets.com/client-connectivity-guide>.

Spectrum will offer regular time-slots (minimum once per year) for the members to test the fail-over and recovery processes together with Spectrum. Such Tests will be announced in advance by a notice on the Spectrum website. Respective tests will also be part of the technical conformance Tests during the process of member Onboarding.

7.3 SYSTEM STATES AFTER RECOVERY OR SERVICE INTERRUPTION

In case of a service interruption or disaster recovery the affected instruments will normally be set to halt status (description see above). There will be a time (announced by website notice) before trading is continued. During this time it can also happen, that Instruments or members are suspended.

7.4 DELETION OF ORDERS AND QUOTES FOR MEMBERS

In case Members have Problems with their trading Systems or the connection to Spectrum, Operations will on best effort Basis delete orders or quotes for a member. Such requests have to be addressed via phone by an authorised trader as provided in the membership application to Spectrum Market Operations. Spectrum Operations will verify authenticity by asking for the Pin provided in the list of authorised persons or calling back on the registered phone number.

8.1 DEFINITIONS

TERMS/ACRONYMS	EXPLANATION
CET	Means the time zone of Frankfurt/Germany that can be Central European time or Central European Summertime (CEST)
CSD	Central Securities Depository
CSDR	Central Securities Depository Regulation
ER	FIX 'Execution Report'
LEI	Legal Entity Identifier
Market Maker Member	These are Members posting two-way executable quotes into the order book
MTF	Multi-Lateral Trading Facility
Raydius	Means Raydius GmbH
Spectrum	Means the Spectrum MTF Operator GmbH
Standard Member	These are Brokers submitting End Client (retail) order flow on a matched principal basis into the order book
SSI	Standard Settlement Instruction

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Spectrum, Trading Manual, September 2020

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