TURQUOISE TRADING SERVICE DESCRIPTION

Version 3.34.9d

20 April 2018

London
Stock Exchange Group

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1.0 About Turquoise

Turquoise Global Holdings Limited[1] (TGHL or Turquoise) is an investment firm authorised and regulated by the Financial Conduct Authority of the United Kingdom. Initially founded in 2006 by a consortium of nine investment banks, Turquoise has been majority owned by London Stock Exchange Group (LSEG) in partnership with the user community since 2010.

Turquoise operates a Multilateral Trading Facility (MTF). With a single connection, members can trade shares, depository receipts, ETFs, and European Rights Issues of 19 European countries, with an Open Access model that allows members to choose among 3 different CCPs to clear these trades.

Membership is uniformly open to qualified firms, with members including banks, brokers, specialist trading firms and retail intermediaries. Sponsored Access and Direct Market Access are available to non-member participants. Turquoise participants benefit from fully risk-managed clearing solutions, and market surveillance to ensure fair and orderly operations.

Turquoise features three Order books. **Turquoise Lit™** combines simple limit and iceberg orders with Large In Scale hidden Orders. **Turquoise Lit Auctions™** are price forming auctions within a Primary Market Best Bid and Offer (PBBO) Reference Price Collar, operating frequently and with pre-trade transparency throughout the trading day, supporting simple limit and PBBO midpoint pegged orders, and allows users to configure Minimum Execution Size. **Turquoise Plato™**[2] non-displayed midpoint prioritizes orders by size and allows users to configure Minimum Execution Size; it features two distinct mechanisms, each executing at the midpoint of the PBBO: Continuous matching and **Turquoise Plato Uncross™**, an innovation that provides randomised uncrossings during the trading day, ideal for larger and less time sensitive passive orders.

Turquoise Plato Block Discovery™ matches undisclosed Block Indications that execute in **Turquoise Plato Uncross™**, and **Turquoise SwapMatch™** is a neutral arranging mechanism for financial institutions to match block interests in equity total return swaps.

The Turquoise trading platform is hosted in LSEG data-centres and features interfaces common to other LSEG markets, including London Stock Exchange and Borsa Italiana, ensuring that customers accessing other LSEG markets can enjoy access to Turquoise with little incremental cost or effort.

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[1] © 2017. Turquoise is a trademark of Turquoise Global Holdings Limited. SwapMatch is a trademark of Turquoise SwapMatch Limited.

[2] From 6 September 2016, Turquoise rebranded its non-displayed services as **Turquoise Plato™**. For further details see the press release, http://www.lseg.com/resources/media-centre/press-releases/plato-partnership-enters-cooperation-agreement-turquoise.

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2.0 About this Document

The objective of this document is to provide an understanding of the most relevant technical, operational and business features of the Equities (includes non-equities) trading platform of Turquoise.

This document is not intended to be used as a Technical Specification for the development of any software application.

This document has been updated to reflect changes to the service being introduced as part of a scheduled upgrade to the Millennium Exchange platform.

Anyone already familiar with previous versions of the document is strongly encouraged to read this update.

For any feedback or queries about this document please contact sales@tradeturquoise.com.

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3.0   Change History

Date	Version	Changes
27/04/2012	3.4	Updates to functionality of the Dark Midpoint Order Book Change in priority of resting orders from Time to Size/Time Change in Minimum Fill logic from MAQ to MES Addition of a Continuous-only execution instruction Updates to reflect the availability of Sponsored Access Update to reflect the availability of EMCF as an interoperable CCP in addition to ECCP, LCH and X-Clear
11/06/2012	3.5	Accommodates text that was previously contained in the Turquoise Rule Book
22/10/2012	3.6	Updated to reflect changes to Price Band Controls and new order parameters
30/09/2013	3.7	Updates reflecting new and existing Terms and Acronyms used (e.g. Security, Participants, Minimum Quantity, **Turquoise Uncross**^{TM} replacing Periodic Uncrossing terminology etc.) Updates reflecting new TIF 'GFA' and changes to GTD (for FIX) *Updates reflecting new Call Market message for Turquoise Uncross^{TM}. (For Future Use Only – This is NOT available in Production, but is available in CDS for testing purposes)* Updates reflecting enhancements to Iceberg Orders, where Participants can now elect to randomise their Iceberg peaks Updates reflecting Self Execution Prevention, Passive Only and Distance from BBO and option to change Order level default for Execution Instruction features Updates reflecting new Trade Liquidity Indicator Updates to include Trade Reporting Service
24/10/2013	3.8	Update to add Iceberg Randomisation parameters Updates reflecting GTT and **Turquoise Uncross**^{TM} Only behaviour
13/02/2014	3.8.0.1	Section 5.10 and 5.11 updated for trading US and Spanish Securities. Section 6.1 updated in respect to EuroCCP and EMCF merger.
10/02/2014	3.8.1	Updates reflecting new Call Market message for **Turquoise Uncross**^{TM} is now available in Production. Sections updated: 4.0 (Call Market, Order Submission Interval, GFA, GTT terms); 9.4 (TIFs – GFA, GTT, GTD); 9.7; 9.7.1; 9.7.1.1; 9.7.1.2; 10.3 and 16.5(iii).
18/06/2014	3.8.2	Section 4.0 – Updated Order Submission Interval definition. This will not be published via MITCH Symbol Directory Message.

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Date	Version	Changes
22/07/2014	3.8.3	Section 1.0 – Updated Introduction. Section 4.0 – Updated Definitions/Terms; added Good Till Date (GTD) definition. Section 5.5 – Added clarity to text for Lot Size. Removed TQ acronym, replacing with Turquoise; Removed TQ Dark and TQ Lit references; Removed ' – ' from Primary-market. Updated terms Client & User (where appropriate) to "Participant". Deleted sections 9.7.1 which referred to Call Market being 'disabled'. Updated Disclaimer (Back Page).
26/08/2014	3.8.4	Section 9.7.1 – Behaviour of Execution Instruction '**Turquoise Uncross™** only', with TIF of 'GFA' updated for when submitted between a **Turquoise Uncross™** and Call Market.
22/09/2014	3.8.5	Section 8.4 – Updated WFMC. Section 11.3 – Updated Trade Liquidity Indicators.
20/10/2014	3.9	Published version includes **Turquoise Block Discovery™** features.
24/10/2014	3.10	Updated all references of ITCH to MITCH following rebrand Section 9.9 – Removed GFA reference from Self Execution Prevention section
25/11/2014	3.11	Removed references to Off-Book Trade Reporting
19/12/2014	3.12	Section 12.2 updated (minor update).
16/01/2015	3.13	Updated the following sections to reflect to upgrade of Millennium Exchange. Changes include: Section 4.0 / 9.7 – Added **Turquoise Uncross™** then Continuous Execution Instruction Section 10.3 – Updated to reflect change in behaviour for Amendment of Execution Instruction and **Turquoise Uncross™** Only orders with a TIF of GFA, which can now <u>not</u> be amended or cancelled Section 9.7.1 updated to reflect a change in behaviour **Turquoise Uncross™** Only orders with a TIF of GFA and **Turquoise Uncross™** Only orders with a TIF of GTD/GTT (which are received between a Call Market and **Turquoise Uncross™**). Added behaviour of **Turquoise Uncross™** then Continuous orders with a TIF of GFA Section 1.0, 4.0, 5.0, 5.4, 5.9.1, 5.11, 6.1, 7.3, 8.4, 9.4, 9.6, 9.7, 9.9 updated (minor comments / formatting), removal or sections originally referenced 7.2 and 7.3.
19/01/2015	3.14	Updated Sections 5.9 and 5.9.1 to reflect how LIS are set for non-MiFID instruments (using ESMA methodology where possible).

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Date	Version	Changes
21/04/2015	3.15	Section 4.0 added **Turquoise Block Discovery™** term. Section 5.4 and 11.1 updated and Section 9.10.2 added to introduce optional Member Priority Matching within the Turquoise Dark Midpoint Order Book.
28/05/2015	3.16	Sections 1.0 and 5.0 updated Instrument count. Section 4.0 updated non-Persistent and Persistent terms. Section 5.4 & 9.6 updated to add reference to and contact details to change Minimum Quantity default. Section 5.10 updated to reflect how LIS are set for non-MiFID instruments (using ESMA methodology where possible). Section 11.1 updated to add clarity regarding Minimum Quantity (MES).
08/09/2015	3.17	Section 5.11 updated to reflect Spanish securities can now be cleared via LCH Clearnet Limited (in addition to EuroCCP.NV). Section 9.9 updated to add clarity SEP does not apply during **Turquoise Plato Block Discovery™** events. Add clarity around post trade internalisation.
05/10/2015	3.18	Sections 1.0, 5.0 and 5.1 updated to reflect Polish securities can be traded in the **Turquoise Lit™** Book. Section 5.7 updated to add Polish Zloty (PLN) to currency list. Section 5.12 added to reflect the choice of CCP for Polish Securities. Section 8.3 updated to include Max Order values for Polish Securities.
30/10/2015	3.19	Sections 9.7.1 and 10.3 – Updated to reflect change in behaviour for Cancellation of Execution Instruction and **Turquoise Uncross™** Only orders or Continuous and **Turquoise Uncross™** with a TIF of GFA, which can now be cancelled. Sections 4.0 and 9.2 updated, 9.2.1 added for the new Dark Lit Sweep Order. Section 9.8 updated for minor terminology change (Lit to Integrated). Section 10.3 updated to reflect Time In Force is no longer amendable. Section 11.2 – Price Differential deleted. Section 11.3 renumbered to 11.2.
04/04/2016	3.20	Section 4.0 and 5.4 updated and Section 5.4.1 added to provide details around the randomness and duration of the **Turquoise Uncross™** event after the Call Market has been published. Section 8.3 updated some Maximum Order Values.

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Date	Version	Changes
06/06/2016	3.21	Section 5.10 updated regarding US securities. Section 5.13 and 5.14 added to reflect clearing arrangements for Czech and Hungarian securities. Section 14.0 hyperlink to tariff updated.
11/07/2016	3.22	Section 1.0 and 4.0 updated to include **Turquoise SwapMatch™**.
21/07/2016	3.23	Section 10.3 updated to remove reference to primary market hours.
06/09/2016	3.24	Updated Turquoise to **Turquoise Plato™** where appropriate for Dark Midpoint Order Book and **Turquoise Plato™** Block Discovery services, and updated Turquoise to **Turquoise** where appropriate.
03/10/2016	3.25	Section 5.1updated to reflect introduction of Czech and Hungarian for trading in the **Turquoise Plato™** Order Book. Various Sections updated to change terms and reflect that from 6 September 2016, Turquoise rebranded its non-displayed services as **Turquoise Plato™**. For further details see the press release, http://www.lseg.com/resources/media-centre/press-releases/plato-partnership-enters-cooperation-agreement-turquoise.
21/11/2016	3.26	Section 5.4 and 10.3 updated to add clarity around Size priority and Size. Section 9.9 updated to add clarity that SEP does not apply during Continuous Trading, when both sides are resting. Sections 5.13 and 5.14 updated to include LCH Clearnet Limited who now clear Czech and Hungarian securities.
07/12/2016	3.27	Section 10.3 updated to clarify behaviour when Displayed Quantity in increased. Price Type renamed Order type, which is non-amendable.
08/12/2016	3.28	Section 10.3 updated to clarify behaviour as Valid Till is amendable.
08/02/2017	3.29	Section 10.3 updated to add clarify. Section 5.4 updated to reflect the change that all **Turquoise Plato Uncross™** events are randomised to occur between 5 and 10 seconds for all instruments.
11/05/2017	3.30	Removed ® from Turquoise throughout the document. Sections 5.4, 5.4.1 updated to reflect the enhancement to the **Turquoise Plato Uncross™** event, with the introduction of Continuous matching of BIs and eligible BDNs. Section 6.4 updated to remove "CFD Give Up" capacity.
16/05/2017	3.31	Section 5.4 updated diagram at point 1.
28/06/2017	3.32	Various Sections updated hyperlinks which reference documents.

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Date	Version	Changes
01/07/2017	3.33	**Turquoise Plato Block Discovery™** is now regulated activity by Turquoise, the MTF, so as everything is now an MTF activity, minor updates have been made.
03/01/2018	3.34	Turquoise Integrated or Lit book rebranded **Turquoise Lit™** Order Book.
		Sections 1.0 updated to include the **Turquoise Lit Auctions™** Order Book.
		Section 2.0 updated to reflect this document comes into effect as a result of MiFID II from 3 January 2018, including the new Member Portal and the new **Turquoise Lit Auctions™** Order Book.
		Section 4.0 and various other sections – Added new terms "Financial Instrument" to describe Securities/Instruments, "ESMA", "LEI", "**Turquoise Lit Auctions™**", "Member Portal", "LIS Waiver", "OMF Waiver" and "RPW".
		Section 4.0 added GFA Order behaviour for **Turquoise Lit Auctions™**.
		Sections 4.0, 5.4.1, 9.4, 9.7 and 9.7.1 wording changed to reference "start of Order Submission Interval" rather than "Call Market". Note: There is no change in system behaviour.
		Sections 5.1, 4.3, 5.6, 6.2, 5.11, 5.13, 5.14, 7.5, 8.1, 8.1.2, 8.3, 8.4, 9.2, 9.4, 9.5, 9.6, 9.9, 9.10, 9.10.2, 10.2, 10.3, 11.1, 11.2, 11.3, 12.1, 12.3, 13, 13.1, 13.2, 14.5 created/updated to include the **Turquoise Lit Auctions™** Order Book.
		Section 5.2 changed to include reference to OMF Waiver and LIS Waiver.
		Section 5.2 and 9.6 updated to reflect the new EUR 10,000 threshold for Iceberg Orders.
		Section 5.4 changed to include reference to RPW and LIS Waiver, plus how Turquoise will manage Financial Instruments capped out by the Double Caps. New diagrams added re: **Turquoise Plato Uncross™** being initiated by **Turquoise Plato Block Discovery™** match or random timer.
		Section 5.4.2 added for **Turquoise Plato Block Discovery™**.
		Section 5.4.2, 6.3, 6.5, 6.10, 9.9 and 14.0 updated to reflect view and manage functionality available within the Member Portal.
		Section 5.6 updated to reflect all Limit Prices on all Orders must now confirm to a valid tick size.
		Section 5.9 updated to reflect new Pre-Trade LIS thresholds.
		Section 6.1 updated eligibility to align with revised rule book revisions.
		Section 6.1.1 created regarding the new Member Portal.
		Section 6.2 updated to reflect Sponsored Access to available to **Turquoise Lit™**, **Turquoise Plato™** including **Turquoise Plato Block Discovery™** only.

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Date	Version	Changes
03/01/2018	3.34	Section 6.3 minor updates. Section 6.4 updated to reflect new MiFID II capacities introduced. Section 6.5 updated to add clarity about setting up clearing arrangements as a clearing member or via a general clearing member. Section 6.8 updated to add clarity around clearing/settlement internalisation. Section 7.5 updated to reflect venue's reference price used as PMP. Section 7.6 Reference Price Collar moved and merged into updated Section 8.1, 8.1.1 and 8.1.2. Section 8.3 updated to reference TQ501 and Instrument File and include thresholds for the **Turquoise Lit Auctions™** Order Book. Section 9.10 and 9.10.1 restructured. Section 10.2 updated to reflect GFA Orders within **Turquoise Plato™** cannot be amended. Note: No change in behaviour here. Section 10.3 and 10.4 updated/created to reflect Turquoise will never amend Orders or Trades, Turquoise will only ever cancel. Section 11.2 created to explain Execution Venue and MICs. Section 11.3 updated to add FIX Tag 851 and Native equivalent Trade Liquidity Indicators. Section 13.0 deleted regarding Test Securities. See Section 14.7. Section 14.7 added regarding Certification and Testing Services. Section 14.8 added regarding GTP documentation.
03/01/2018	3.34.1	Additional changes to v3.34 Section 2.0 added reference to MiFIR. Section 4.0 updated terms relating to Reference Price Collars (previously Price Bands), Financial Instrument, LIS, MiFID, MiFIR and MTF. Section 5.9.1 updated LIS to refer to MiFIR. Sections 8.2 and 10.2 updated terms relating to Reference Price Collars.
03/01/2018	3.34.2	Section 9.6 updated to with Iceberg EUR 10,000 values in other trading currencies.
03/01/2018	3.34.3	Section 9.6 updated CHF and USD Iceberg EUR 10,000 equivalent values.
03/01/2018	3.34.4	Section 5.4, 6.1 updated to reflect Turquoise has Trading Members and Members. Section 6.7 updated to refer to Primary Market (instead of Exchange)

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Date	Version	Changes
03/01/2018	3.34.5	Section 5.4 updated to reflect BDN values when RPW trading is Allowed and RPW trading is <u>not</u> Allowed. Additionally all non-persistent Orders must be equal too or greater than LIS when RPW trading is <u>not</u> allowed.
		Section 6.10 added to reflect Turquoise Risk Controls are available to all Members. *Section 6.10 relabelled 6.12.*
		Section 6.11 added to define Turquoise Order to Trade Ratio limits for Trading Members and Market Makers.
		Section 10.2 updated to reflect changes to the End of Day.
03/01/2018	3.34.6	Section 4.0 updated to include Trading Venue Transaction Identification Code (TVTIC).
		Section 6.11 clarity added.
		Section 6.13 added section re: Market Making Arrangements. Heading also updated.
		Section 11.4 added to define Turquoise's Trading Venue Transaction Identification Code (TVTIC).
03/01/2018	3.34.7	Section 6.13 updated re: Market Making Schemes.
		Section 9.6 updated to reflect new instrument's trading CCY Iceberg thresholds.
09/01/2018	3.34.8	Section 4.0 added **Turquoise Lit Auctions™** term along with update to **Turquoise Lit™** Order Book.
		Section 5.6 minor updates, including hyperlink to reference data section.
		Section 5.3 updated and 8.3 added to include the new EUR 2,000 Minimum Order Value for **Turquoise Lit Auctions™** Order Book.
		Section 8.3 re-referenced Section 8.4 and Section 8.4 referenced Section 8.5.
22/01/2018	3.34.9	Sections 1.0, 4.0, 5.3, 9.6, 9.10.1, 10.3, 11.1 updated to reflect support of Minimum Quantity (MES) on all Orders within the **Turquoise Lit Auctions™** Order Book.
		Section 8.3 updated (minor).
		Section 9.10 updated to add clarity that opting into Member Priority applies to both **Turquoise Plato™** and **Turquoise Lit Auctions™** Order Books.
23/01/2018	3.34.9a	Section 8.3 updated Maximum Order Values to €200m for **Turquoise Plato™** and **Turquoise Lit Auctions™** Order Books.

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Date	Version	Changes
26/03/2018	3.34.9b	Section 5.3 updated and Section 8.3 deleted as the Minimum Order value (€2,000) no longer applies to orders entering the **Turquoise Lit Auctions™** Order Book. Section 8.4 re-referenced Section 8.3 and Section 8.5 referenced Section 8.4. Section 9.7 updated to add clarity.
09/04/2018	3.34.9c	Section 2.0 updated. Section 4.0 updated **Turquoise Lit Auctions™** definition to remove reference to Minimum Order Value. Section 5.3 updated to include Member Group priority within the **Turquoise Lit Auctions™** Order Book. Section 6.2 updated to reflect Sponsored Access users can access **Turquoise Plato Block Discovery™**. Section 9.10 updated to reflect 'opt-in' to Member Priority is now available for per **Turquoise Plato™** and/or **Turquoise Lit Auctions™** Order Books and 'opt-in' is available to for Member Group Priority within the **Turquoise Lit Auctions™** Order Book. Section 9.10.1 updated to include Member Group Priority and MES reduction iterations within the **Turquoise Lit Auctions™** Order Book. Section 11.1 updated to include Member Group Priority within the **Turquoise Lit Auctions™** Order Book. Note: Member Group Priority and MES reduction iterations within the **Turquoise Lit Auctions™** Order Book are subject to FCA non-objection.
20/04/2018	3.34.9d	Sections 5.3, 9.10, 9.10.1, 11.1 updated to reflect Member Group Priority and MES reduction iterations within the **Turquoise Lit Auctions™** Order Book functionality is no longer subject to FCA non-objection.

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4.0 Terms and Acronyms

Term	Meaning
Call Market	Symbol Status Message sent via market data feeds to notify Participants of an impending **Turquoise Plato Uncross™** within the **Turquoise Plato™** Order Book. For further information, please see [Section 5.4.1](#).
Continuous and Turquoise Plato Uncross™ *(previously known as Periodic Uncrossing)*	means the execution instruction selected by the Participant on Order entry whereby its Order is open to matching during Continuous Trading and any unexecuted volume will rest in the **Turquoise Plato™** Order Book open to 'Continuous' matching and matching during the randomised **Turquoise Plato Uncross™** events.
Continuous Only	means the execution instruction selected by the Participant on order entry whereby its Order will only be open to matching against contra-side Orders resting during the Continuous trading sessions.
Dark Lit Sweep Order	An IOC order that sweeps the **Turquoise Plato™** Order Book first to try and find as much liquidity as possible at the PMP during continuous trading, before sweeping the **Turquoise Lit™** Order Book with any remaining unexecuted quantity.
Dynamic Reference Price Collar	means the range of prices, as determined by Turquoise Market Operations, on each side of the TDRP by which the Reference Price Collar is established
ESMA	means European Securities and Markets Authority.
Fill and Kill (FAK)	also referred to as Immediate or Cancel (IOC).
Fill or Kill (FOK)	An Order that is executed immediately in its entirety or expired.
Financial Instrument	means a Financial Instrument eligible for trading on Turquoise in accordance with Section 4 of the Turquoise Rule Book. *A Financial Instrument can also be referred to as an "Instrument" or "Security".*
General Clearing Member (GCM)	A General Clearing Member is an entity that has been approved by the clearing house for clearing of principal transactions and Participant transactions on behalf of GCM clients.
Good for Auction (GFA)	GFA Orders are only accepted into the **Turquoise Lit Auctions™** Order Book and **Turquoise Plato Uncross™** (part of the **Turquoise Plato™** Order Book). GFA Orders for the **Turquoise Lit Auctions™** are expired after participation in a single auction event or at the time of the scheduled auction if the event fails to happen due to a WFMC for example. GFA Orders for the **Turquoise Plato Uncross™** are expired either after attempting to match during the **Turquoise Plato Uncross™** it is scheduled to participate in or at the time of the scheduled **Turquoise Plato Uncross™** if the **Turquoise Plato Uncross™** fails to happen due to a WFMC failure for example. Please see [Section 9.7.1](#) for details of **Turquoise Plato Uncross™** GFA Orders' behaviour around the start of the Order Submission Interval.

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Term	Meaning
Good Till Date (GTD)	An Order with Expiry Time will be treated as a Day Order, expiring at the time specified that day or the close of the normal trading day on the day on which it was entered. Applicable on the FIX Trading interface only. Please see Section 9.7.1 for details of **Turquoise Plato Uncross™** GTD Orders' behaviour around the start of the Order Submission Interval.
Good Till Time (GTT)	An Order with an expiry time which will rest passively until executed or until the expiry time (or end of trading day) has been reached. TIF of GTT is used with expiry time in the Native trading interface, whilst TIF of GTD is used with expiry time in the FIX trading interface. Please see Section 9.7.1 for details of **Turquoise Plato Uncross™** GTT Orders' behaviour around the start of the Order Submission Interval.
Hidden Order	An Order which is Non-displayed and not made transparent pre-trade.
Iceberg Limit Order	means an Order where only a portion of the total Order quantity of an Iceberg Order is visible in the Order Book at any one time. Once the designated display quantity is filled, then the display quantity is automatically and immediately refreshed reducing the quantity held in reserve. The display quantity can either be refreshed as an explicit quantity or where enabled, Participants can elect to have their refreshed peak size randomised for their Order. On each peak refresh, the randomised iceberg peak will be 1 share plus between 100% and 120% of initial peak size. The total quantity of the Order is always reflected in the matching engine and eligible for execution. The display quantity must be submitted as an explicit quantity and not a percentage of the total quantity.
Immediate or Cancel (IOC)	also referred to as FAK (Fill And Kill). An Order that is executed as far as possible immediately with any remaining part of the Order expired.
Integrated Order Book	is referred to within this document as the **Turquoise Lit™** Order Book and is the Turquoise Order Book containing only visible Orders and non-displayed Orders meeting the Large in Scale requirement.
Large in Scale (LIS)	means a size of Order as compared to the normal market size for the share or type of share in question and as determined by MiFIR.
Large in Scale (LIS) Waiver	is a waiver used by the **Turquoise Lit™** and **Turquoise Plato™** Order Books, which permits Turquoise to support Hidden Orders which are LIS without making them pre-trade transparent to the market. For further information on the LIS Waiver and its usage, please see in Section 5.2.and Section 5.4.
Legal Entity Identifier (LEI)	is a unique ID associated with a single corporate entity.
Limit Order	means an Order to buy or sell Financial Instruments at a price equal to or better than a Limit Price specified by the Participant.
Limit Price	is specified on a Limit Order by the Participant to buy or sell a Financial Instrument at a price equal to or better than the Limit Price.

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Term	Meaning
MiFID	means the Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU.
MiFIR	means the Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012.
Minimum Acceptable Quantity (MAQ)	Minimum Acceptable Quantity (multiple fill match) sent on an Order by Participants as a minimum quantity that is to be matched for any non-persistent Lit Order in the **Turquoise Lit™** Order Book.
Market Order	means an Order to buy or sell Securities at the price available in the Order Book, subject to the Reference Price Collar.
Market Order execution Limit (MOEL)	the price beyond which the balance of a Market Order will be cancelled rather than executed
Member Portal	means the online communication tool operated by Turquoise for the management of member firm information.
Minimum Execution Size (MES)	Minimum Execution Size (single fill match) sent on an Order by Participants as a minimum quantity that is to be matched for any non-displayed Order in the **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books.
Minimum Quantity	means the Order's MAQ or MES that is to be matched as a minimum during 'Continuous' trading or matched during '**Turquoise Plato Uncross™**' events or matched during '**Turquoise Lit Auctions™**'.
Multi-lateral Trading Facility (MTF)	as defined in article 4(1)(22) of MiFID.
Non-displayed Order	An Order that is not displayed to the market, often referred to as a 'Hidden Order'.
Non-persistent Order	An Order which may execute only against persistent Orders, but which will not itself rest on the Order Book. e.g. An Order with a TIF of IOC or FOK.
Order	means an Order to buy or sell a Financial Instrument specified by the Participant.
Order Book	Turquoise provides trading facilities on 3 Order Books. These being: • **Turquoise Lit™** Order Book • **Turquoise Lit Auctions™** Order Book • **Turquoise Plato™** Order Book
Order Management Facility (OMF) Waiver	is a waiver used by the **Turquoise Lit™** Order Book, which permits Turquoise to support Iceberg Limit Orders. Please note this is also mentioned in Section 5.2.

Term	Meaning
Order Submission Interval	The **Turquoise Lit Auctions™** Order Book Order Submission Interval is a period of time for Participants to send in their Orders to participate in the **Turquoise Lit Auctions™**. • The Order Submission Interval is set at 50ms (+/- 1ms) for all Financial Instruments. The **Turquoise Plato™** Order Book Order Submission Interval is a period of time (after the Call Market has been sent), for Participants to send in their Orders to participate in the **Turquoise Uncross™**. • The Order Submission Interval is set at 500ms (+/- 1ms) for all Financial Instruments.
Participant	A Participant is a user who accesses Trading Services provided by Turquoise. A Participant may also be a Member of Turquoise.
Persistent order	An Order which will rest on the Order Book until execution, cancellation or expiry. e.g. An Order with a TIF of DAY, GTT/GTD or GFA.
Primary market	means the market on which the Financial Instrument was first admitted to trading.
Primary market Best Bid and Offer (PBBO)	the Primary market's Best Bid and Offer price for a Financial Instrument.
Primary market Closing Price	is defined as being equal to the close price published by the Primary markets.
Primary market Midpoint Price (PMP)	is the Midpoint Price of the PBBO for a Financial Instrument. For further information, please see Section 7.5.
Reference Price Collar	means the range of Prices within which aggressive Limit Orders will be accepted, and within which Market Orders will be executed.
Reference Price Waiver (RPW)	is a waiver used by the **Turquoise Plato™** Order Book, which permits Turquoise to support trading at the PBBO midpoint when the LIS Waiver is not used. For further information on the RPW and its usage, please see Section 5.4.
Self Execution Prevention (SEP)	This is optional functionality, which allows firms for most Order types to prevent themselves matching against their own contra Orders, by either having their resting Order or incoming Order expired.
Static Reference Price Collar	means the range of prices, as determined by Turquoise Market Operations, on each side of the TSRP by which the Reference Price Collar is established
Time in Force (TIF)	defines how long an Order is valid for.
Trade	means an agreement between 2 counterparties to Buy/Sell shares in a Financial Instrument at a specific Price.
Trade Liquidity Indicator	identifies the trading session the Trade was executed in. i.e. **Turquoise Plato Uncross™** or Continuous Trading.

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Term	Meaning
Trade Venue Transaction Indication Code (TVTIC)	means Trading Venue Transaction Identification Code which is used for transaction reporting purposes.
Turquoise Lit Auctions™ Order Book	facilitates the trading of non-displayed Limit Orders and/or Pegged Orders to the PMP (with or without a Limit Price as protection) by seeking and identifying matching opportunities, equal to or within a Reference Price Collar (PBBO).
Turquoise Plato Block Discovery™	facilitates the trading of larger "Parent" or "Block" Orders by seeking and identifying block matching opportunities, between Block Indications (with a quantity above or equal to the Minimum Indication Size threshold) and Block Discovery Notifications. Where matches are identified, Participants are required to convert their Block Indications by submitting firm Qualifying Block Orders, designated as eligible for existing **Turquoise Plato Uncross™** events that already exist as part of the **Turquoise Plato™** Order Book to trade at the Midpoint of the PBBO. For further information, please see the **Turquoise Plato Block Discovery™** Trading Services Description.
Turquoise Plato™ Order Book	means the Order Book containing only non-displayed Orders pegged to the PMP.
Turquoise Dynamic Reference Price (TDRP)	Prior to the first Trade of the day on Turquoise the TDRP will be a Turquoise determined reference price (usually the closing price on the Primary market adjusted for corporate actions or other market activity). Thereafter, the TDRP will reflect the Turquoise Last Trade Price (TLTP).
Turquoise Last Trade Price (TLTP)	is the price of the last Trade on the Turquoise market. This is set by any Trade that occurs during the operation of the market. Prior to the first Trade of a trading day, the Last Trade Price is deemed to be undefined.
Turquoise Lit™ Order Book	means the **Turquoise Lit™** Order Book containing only visible Orders and non-displayed Orders meeting the Large in Scale requirement.
Turquoise Lit Auction™ Order Book	means the **Turquoise Lit Auctions™** Order Book containing only non-displayed Orders.
Turquoise Static Reference Price (TSRP)	Prior to the first Trade of the day on Turquoise the TSRP will be a Turquoise determined reference price (usually the closing price on the Primary market, adjusted for corporate actions or other market activity). Thereafter, the TSRP will reflect the latest Primary market Auction uncrossing price.
Turquoise SwapMatch™	is a neutral arranging mechanism for financial institutions to match block interests in equity total return swaps.
Turquoise Plato Uncross™ *(previously known as Periodic Uncrossing)*	means the execution instruction selected by the Participant on Order entry whereby its Order will only be open to matching against contra-side Orders resting in the **Turquoise Plato™** Order Book during the randomised **Turquoise Plato Uncross™** events.
Turquoise Plato Uncross™ then Continuous	means the execution instruction selected by the Participant on Order entry whereby its Order is not open to matching during continuous trading until it has participated in a **Turquoise Plato Uncross™** event which has a valid PMP which has passed the **Turquoise Plato™** WFMC. Any unexecuted volume will then rest in the **Turquoise Plato™** Order Book open to 'Continuous' matching and matching during subsequent randomised '**Turquoise Plato Uncross™**' events.

Term	Meaning
Visible Orders	means displayed Orders contained in the **Turquoise Lit™** Order Book.
Well Formed Market Checks (WFMC)	are a series of checks performed to check the Primary market reference prices used within the **Turquoise Plato™** and **Turquoise Lit Auctions™** Order Books are well formed. For further information, please see Section 8.4.

For Turquoise terms, as defined in the Turquoise Rulebook, please refer to http://www.lseg.com/markets-products-and-services/our-markets/turquoise/information-centre/document-library.

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5.0 Market Structure, Products and Reference Data

Turquoise offers Pan-European and US trading in approximately 4,200 Financial Instruments and ETFs from the following Markets:

- Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States.

5.1 Turquoise, Turquoise Lit Auctions™ and Turquoise Plato™ Order Books

Turquoise operates three discrete Order Books:

- The **Turquoise Lit™** Order Book – which is transparent on a pre-trade and post-trade basis
- The **Turquoise Lit Auctions™** Order Book – which is transparent on a pre-trade and post-trade basis
- The **Turquoise Plato™** Order Book – which is non-displayed pre-trade and transparent on a post-trade basis only

Most of the Financial Instruments are available for trading in both books, but US Financial Instruments, Poland and Luxembourg Financial Instruments are available only in the **Turquoise Lit™** Order Book.

5.2 Turquoise Lit™ Order Book

The **Turquoise Lit™** Order Book supports continuous trading and executes persistent Orders on a Price, Display type, Time priority basis.

The **Turquoise Lit™** Order Book is transparent pre-trade and post-trade, and a full depth-of-book feed including all displayed persistent orders and all Trades are published to Participants and market data vendors.

Supported persistent Order types are Limit Orders (displayed), Iceberg Orders (partly displayed)[3], LIS Hidden Orders (non-displayed)[4].

Supported non-persistent Order types, all of which are non-displayed, are IOC/FAK Orders, FOK Orders and Market Orders. Minimum Accepted Quantity (MAQ) is supported on non-persistent Order types only.

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[3] Turquoise is permitted to accept equity and non-equity Iceberg Orders using an OMF Waiver and subject to it having an Order value greater than EUR 10,000.

[4] Turquoise is permitted to accepted Hidden Orders greater than or equal to LIS, using a LIS Waiver.

Service Description
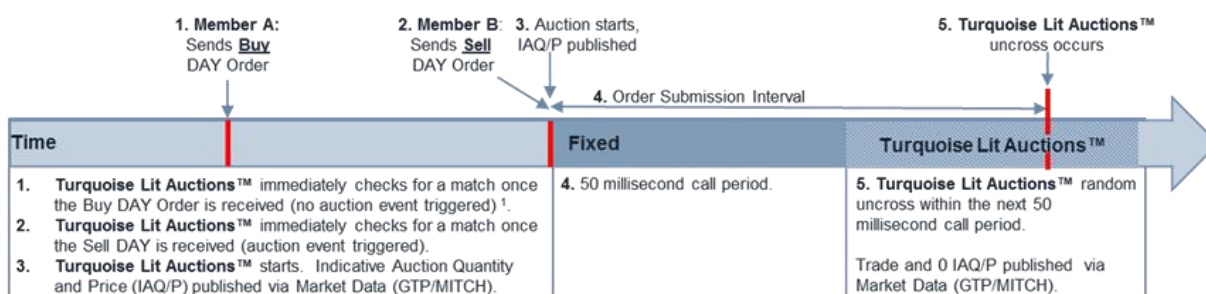20 April 2018

5.3 Turquoise Lit Auctions™ Order Book

The **Turquoise Lit Auctions™** Order Book supports frequent auction trading and executes persistent Orders only (and is independent from the **Turquoise Lit™** Order Book).

- The **Turquoise Lit Auctions™** determines the auction price by maximising the executable considering each Limit Order Price and the PMP, within the Reference Price Collar (PBBO). When a well-formed PBBO is not available (e.g. because a Financial Instrument is in an auction phase on its Primary market, the PBBO is crossed/locked or because the Primary market fails the Well Formed Market Checks defined by Turquoise), no matching occurs and any GFA Orders are expired. The Well Formed Market Checks are described in Section 8.4.

- Once the **Turquoise Lit Auctions™** price has been determined and the random timer for the auction end has been reached, it executes persistent Orders that can trade at the **Turquoise Lit Auctions™** price on a Member Group Priority** (in time order) basis first, followed by Member Priority** (in time order) basis second. Once all Member Group, and then Member Priority matching has been completed it executes remaining quantity using Time priority. Member Group and Member Priority** are optional and available upon request.

  ** For further information on Member Group and Member priority and 'opting in', please see Section 9.10.

- A **Turquoise Lit Auctions™** is started by a Buy and Sell Order that creates a crossed book, within the auction's Reference Price Collar (PBBO) or by receipt of a GFA Order (which ever happens sooner). **Turquoise Lit Auctions™** will last for a random period between 50 and 100 milliseconds.

  o Should Turquoise place a Financial Instrument into a halt during this time, all resting GFA Orders will immediately expire and the **Turquoise Lit Auctions™** will be stopped. When a halt is removed for a Financial Instrument, a **Turquoise Lit Auctions™** will commence when there is a crossed book or when a GFA order is received (which ever happens soonest).

The following diagram shows how the **Turquoise Lit Auctions™** random timer starts when a crossed Order Book is identified within the Reference Price Collar (PBBO):
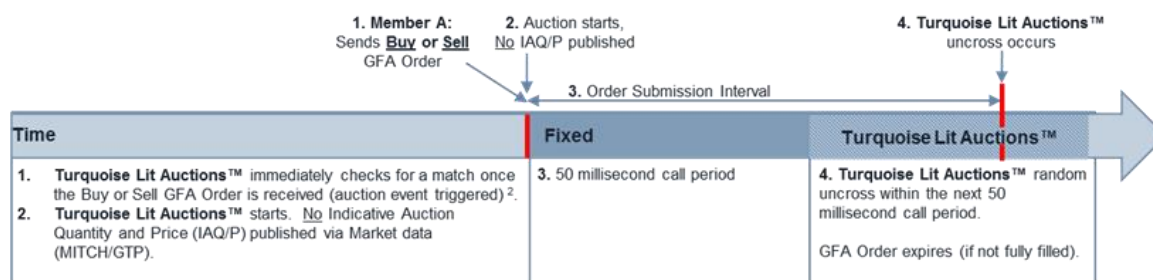
The following diagram shows how the **Turquoise Lit Auctions™** random timer starts when a GFA Order is received:

The **Turquoise Lit Auctions™** Order Book is transparent pre-trade and post-trade. When matching opportunities are identified, Indicative Auction Price and Aggregate Quantity (no imbalances) are published in real-time pre-trade and any resulting Trades are published individually to Participants and market data vendors.

Supported persistent Order types are Limit Orders and midpoint Pegged Orders to the PMP (with or without a Peg Cap/Floor), with a Time in Force (TIF) of DAY or GFA. Individual Orders are not displayed in pre-trade market data.

Minimum Quantity (MES) is supported on both persistent and non-persistent Order types.

Market Orders and Sponsored Access are not currently supported.

5.3.1 Turquoise Lit Auctions™ Order Submission Interval

Turquoise Lit Auctions™ have a fixed 50ms Order Submission Interval.

At the end of the Order Submission Interval, **Turquoise Lit Auctions™** will uncross and execute orders when possible at a random point during the next 50ms.

Orders may be entered, amended and deleted throughout the fixed and random intervals.

5.4 Turquoise Plato™ Order Book

The **Turquoise Plato™** Order Book is a 'non-displayed' price-referencing Order Book:

- All Trades take place at a Financial Instrument's Primary market Midpoint Price (PMP). When a well-formed PMP is not available (e.g. because a Financial Instrument is in an auction phase on its Primary market, the PBBO is crossed/locked or because the Primary market fails the Well

Formed Market Checks defined by Turquoise), no matching occurs. The Well Formed Market Checks are described in Section 8.4.

- It executes persistent Orders on a Size[5], Time priority basis by starting with the largest Order on the buy side of the order book, and offers both Continuous and **Turquoise Plato Uncross™** trading which helps achieve larger fill sizes. Optional Member Priority Matching** is available upon request.
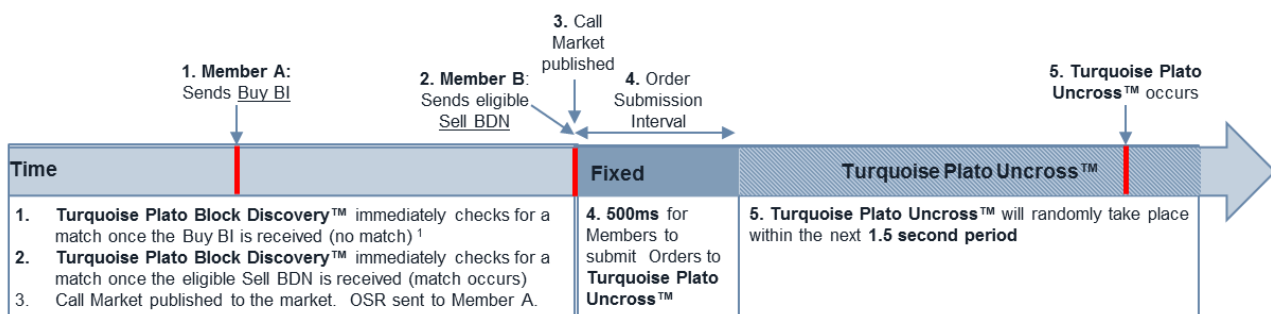
  ** For further information on Member prioritisation and 'opting in', please see Section 9.10.

The **Turquoise Plato™** Order Book is transparent post-trade but not pre-trade, and hence only trades are published. All Orders are non-displayed.

The **Turquoise Plato™** Order Book will operate with two matching modes:

- Continuous – allowing the submission and matching of both persistent and non-persistent Order types

- **Turquoise Plato Uncross™** – allowing the submission and matching of persistent Order types only during **Turquoise Plato Uncross™** events, which occur repeatedly intraday. **Turquoise Plato Uncross™** events are started either by the continuous matching of Block Indications (BIs) and eligible Block Discovery Notifications (BDNs)[6] or by a random timer, which ever happens sooner. Once started, the **Turquoise Plato Uncross™** will take place at a random point between 0.5 seconds and 2 seconds after the Order Submission Interval. Between the start of an Order Submission Interval and the relevant **Turquoise Plato Uncross™** event, continuous matching of Block Indications (BIs) and eligible Block Discovery Notifications is paused.

The following diagram shows how the **Turquoise Plato Uncross™** works, when initiated by a **Turquoise Plato Block Discovery™** continuous match of BIs (and/or eligible BDNs).

Time	Fixed	Turquoise Plato Uncross™	
1. **Turquoise Plato Block Discovery™** immediately checks for a match once the Buy BI is received (no match) [1] 2. **Turquoise Plato Block Discovery™** immediately checks for a match once the eligible Sell BDN is received (match occurs) 3. Call Market published to the market. OSR sent to Member A.	4. **500ms** for Members to submit Orders to **Turquoise Plato Uncross™**	5. **Turquoise Plato Uncross™** will randomly take place within the next **1.5 second period**	

1. Member A: Sends Buy BI
2. Member B: Sends eligible Sell BDN
3. Call Market published
4. Order Submission Interval
5. Turquoise Plato Uncross™ occurs

[1] Note: if a **Turquoise Plato Uncross™** cycle is already under way and the Order Submission Interval of 500ms has started, **Turquoise Plato Block Discovery™** will wait until cycle is completed before checking for a match between BIs/eligible BDNs.

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[5] Size is defined as the Order's original Order quantity. When the original Order quantity is amended up, the Order's size priority may increase and when amended down, the Order's priority may decrease (depending upon other Orders resting in the Order book at the time).

[6] An eligible BDN has a remaining value equal to or greater than 25% of LIS when Reference Price Waiver Trading is allowed OR 100% of LIS when Reference Price Waiver Trading is not allowed.

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The following diagram shows how the **Turquoise Plato Uncross™** random timer works:

² Note: If a **Turquoise Plato Uncross™** cycle is started by **Turquoise Plato Block Discovery™** matching BIs/eligible BDNs, the 5-10 second timer will be reset at the end of the **Turquoise Plato Uncross™** cycle.
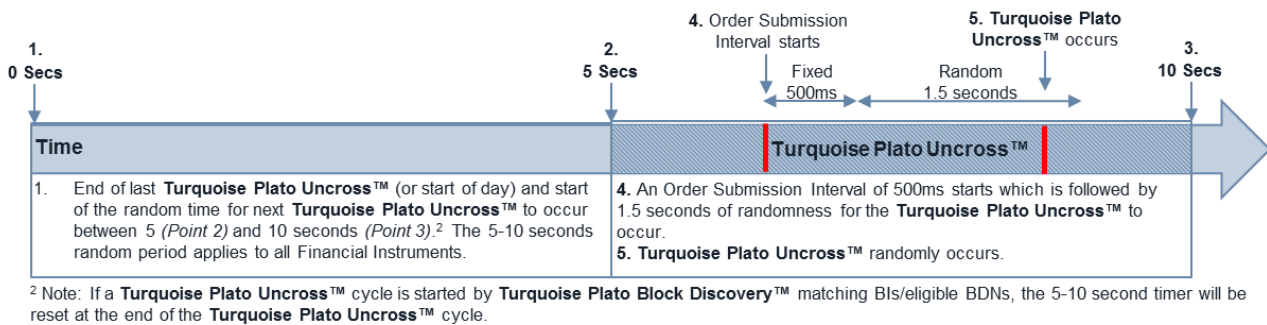
Please refer to Section 5.4.1 for more information on the Order Submission Interval, Call Market and timings of the **Turquoise Plato Uncross™** event.

Persistent Orders can be designated to Trade in one or both of Continuous trading and in the **Turquoise Plato Uncross**™, and by default will be eligible for both.

Orders designated for **Turquoise Plato Uncross**™ Only will not interact with non-persistent (immediacy demanding) Orders. This provides Participants with discretion over whether to interact with immediacy demanding flow, or to constrain interaction to patient flow.

Non-persistent Orders are only accepted for Continuous trading.

Supported persistent Order types are Midpoint Pegged Orders (with or without a Peg Cap/Floor), Limit Orders (which are interpreted as Midpoint Peg Orders with a Peg Cap/Floor), and Market Orders (which are interpreted as Midpoint Peg Orders without a Peg Cap/Floor).

Supported non-persistent Order types are IOC/FAK Orders and FOK Orders. For all Order types a Limit Price or Peg Cap/Floor determines an Order's eligibility to be matched at the prevailing PMP, and will not otherwise influence the execution price.

The **Turquoise Plato™** Order Book is permitted to accept persistent and non-persistent Order types using the Reference Price Waiver (RPW) and Large in Scale (LIS) Waiver. When the **Turquoise Plato™** Order Book is unable to accept Orders under the RPW (e.g. due to the ESMA Double Cap Mechanism), Turquoise will continue to accept all persistent and non-persistent Order types where the remaining ('Leaves') value is equal to or above the LIS threshold at the time of entry or amendment but reject new Orders or amendments which have a 'Leaves' value less than the LIS threshold for the Financial Instrument.

For further information on whether an Order in a Financial Instrument will be accepted under the RPW, TQ501 – Guide to Reference Data Services defines the Instrument File (YYYYMMDD_TRQX_Instrument.csv) which has a field "RPW Allowed", which is populated with a "Y" when Orders less that the LIS threshold are allowed, and "N" when they are not.

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Minimum Quantity (MES) is supported on both persistent and non-persistent Order types. Participants can specify (per User) whether MES will apply to the first execution only (default for non-persistent Orders) or to persist for the lifetime of the Order (default for persistent Orders). For more details, please refer to Section 9.6.

Please see Section 9.7.1 for details of **Turquoise Plato Uncross™** Orders' behaviour around the start of the Order Submission Interval.

5.4.1 Turquoise Plato™ Order Submission Interval and Call Market

At the start of the Order Submission Interval, a Call Market message (a Symbol Status Message) is sent via market data feeds to notify of an impending **Turquoise Plato Uncross™** within the **Turquoise Plato™** Order Book.

An Order Submission Interval of 500ms (+/- 1ms) follows the publication of each Call Market message which provides a period for Participants to send Orders specifically for the next **Turquoise Plato Uncross™**.

At the end of the Order Submission Interval, **Turquoise Plato Uncross™** will uncross and execute orders when possible at a random point during the next 1,500ms (1.5 seconds).

5.4.2 Turquoise Plato Block Discovery™

Turquoise Plato Block Discovery™ facilitates the trading of larger "Parent" or "Block" Orders by seeking and identifying block matching opportunities, between Block Indications (with a quantity above or equal to the Minimum Indication Size threshold) and Block Discovery Notifications. Where matches are identified, Participants are required to convert their Block Indications by submitting firm Qualifying Block Orders, designated as eligible for existing **Turquoise Plato Uncross™** events that already exist as part of the **Turquoise Plato™** Order Book to trade at the Midpoint of the PBBO.

For further information, please see the **Turquoise Plato Block Discovery™** Trading Services Description.

Trading Members can view whether they have access to **Turquoise Plato Block Discovery™** via the Member Portal.

5.5 Lot Size

A lot size of one (1) is used for all the Financial Instruments in all Order Books.

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5.6 Tick Sizes

The **Turquoise Lit™**, **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Book follow the tick size structure as defined in Section 3.5.1 of TQ501 – Guide to Reference Data Services and in the Price Tick File (YYYMMDD_TRQX_PriceTick.csv). All Orders submitted to the **Turquoise Lit™**, **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Book with a Limit Price must conform to the tick structure published by Turquoise, otherwise they will be rejected.

The **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Book will publish trades using half tick sizes (when applicable), as it uses the PBBO midpoint. Management of changes to tick size structures is handled by Turquoise Market Operations. Changes made by Market Operations are subsequently communicated to Participants.

Turquoise advises the specific tick size structure via a daily reference file published in the Turquoise Reference Data section on its website. Turquoise endeavours to provide a reasonable period of notice prior to implementing any change.

5.7 Currencies and Lines Traded

Trading is supported for the following currencies:

> GBX (for clarification, this acronym refers to GBP in pence), EUR, CHF, DKK, NOK, PLN, SEK, USD, CZK and HUF.

Turquoise only supports billing in GBP and EUR, not in local currencies.

5.8 Reference Data / Financial Instrument Identification

All messages use the common symbology naming scheme; a string that consists of the Primary market symbol, plus an identifier for the Primary market e.g. "RDSAl" and "RDSAa". Additionally, Orders submitted via the FIX Trading gateway can use a combination of ISIN, Currency and Primary market MIC to specify the Financial Instrument.

For further information on Reference Data see Turquoise Market Data specification document "TQ501 – Guide to Reference Data Services".

For further information on the FIX Trading Gateway refer to the specification document "TQ201 – FIX 5.0 Trading Gateway".

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5.9 Pre-Trade Large in Scale (LIS) Thresholds

For MiFID Financial Instruments, ESMA defines a Pre-Trade LIS threshold above which:

- Limit Orders may be hidden in the **Turquoise Lit™** Order Book.

- All Orders may persist in the **Turquoise Plato™** Order Book when they have a persistent TIF (i.e. DAY, GTD/GTT, GFA) and a leaves Order value equal too or greater than the LIS.

5.9.1 Eligibility to qualify as LIS under MiFIR

An Order shall be considered to be large in scale compared with **normal market size** if it is equal to or larger than the minimum size of Order. For the purposes of determining whether an Order is large in scale compared to **normal market size**, all Financial Instruments admitted to trading on a regulated market shall be classified in accordance with their average daily turnover, which shall be calculated in accordance with the procedure set out by ESMA.

The ESMA website maintains the reference values and FX rates used for determining the Pre-Trade LIS criteria are as follows:

Orders large in scale compared with normal market size for shares and depositary receipts

Class in terms of Average Daily Turnover	ADT <€50K	€50K ≤ ADT < €100K	€100K ≤ ADT < €500K	€500K ≤ ADT < €1M	€1M ≤ ADT < €5M	€5M ≤ ADT < €25M	€25M ≤ ADT < €50M	€50M ≤ ADT < €100M	ADT ≥ €100M	All ETFs
Min Size of Orders qualifying as LIS compared with normal market size	€15K	€30K	€60K	€100K	€200K	€300K	€400K	€500K	€650K	€1M

Orders large in scale compared with normal market size for ETCs determined to have a liquid and non-liquid market

Bond Type - ETCs	Liquid	Non-Liquid
Min Size of Orders qualifying as LIS compared with normal market size	€1,000,000	€900,000

Pre-Trade LIS Values in the Financial Instrument's trading currency known as "Pre-Trade LIS Value (Currency)" are defined in Sections 3.3.1 and 3.6.1 and Liquidity Indicator known as "Liquid" is defined in Section 3.3.1 of TQ501 – Guide to Reference Data Services and they are available in the Instrument File (YYYYMMDD_TRQX_Instrument.csv) and Block Discovery Min Values (YYYYMMDD_TRQX_BlockDiscoveryMinValues.csv) respectively.

5.10   US Financial Instruments

The following applies for US Financial Instruments

- EuroCCP.NV clears all US Financial Instruments for the **Turquoise Lit™** Order Book. Firms are required to have a settlement account with Euroclear Bank, either directly or indirectly via a GCM.

5.11   Spanish Financial Instruments

The following applies for Spanish Financial Instruments.

- EuroCCP.NV and LCH Clearnet Limited clear all Spanish Financial Instruments for **Turquoise Lit™**, **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books.

5.12   Polish Financial Instruments

The following applies for Polish Financial Instruments.

- EuroCCP.NV and LCH Clearnet Limited clear all Polish Financial Instruments for **Turquoise Lit™** Order Book.

5.13   Czech Financial Instruments

The following applies for Czech Financial Instruments.

- EuroCCP.NV, LCH Clearnet Limited and X-Clear clear all Czech Financial Instruments for **Turquoise Lit™**, **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books.

5.14   Hungarian Financial Instruments

The following applies for Hungarian Financial Instruments.

- EuroCCP.NV, LCH Clearnet Limited and X-Clear clear all Hungarian Financial Instruments for **Turquoise Lit™**, **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books.

6.0 Membership, Sponsored Access and Market Making Arrangements

6.1 Eligibility for Membership

Applicants are eligible to apply to become Trading Members of Turquoise provided they meet the following criteria:

(i)   The applicant must be an EEA regulated investment firm or credit institution (as defined under MiFID)

Or

(ii)   the applicant must show that it is:

a. is of sufficiently good repute;

b. has a sufficient level of trading ability, competence and experience;

c. has, where applicable, adequate organisational arrangements; and

d. has sufficient resources for the role they are to perform and, where applicable, clearing and settlement arrangements.

The applicant will also have to complete technical and functional conformance testing prior to conducting any business on Turquoise. The applicant must have relevant systems and controls, including pre-trade controls on price, volume and value of orders and usage of the system and, post-trade controls on its trading activities.

Trading Members must have clearing arrangements in place with a Central Counterparty connected to Turquoise, which include LCH Clearnet Limited, X-Clear and EuroCCP.NV, as either an independent clearing member of the central clearing party or by having an arrangement with a General Clearing Member (GCM).

Additionally, Turquoise allows Membership for firms without direct trading access to Turquoise, who do not qualify as Trading Members. For more details, refer to Section 3 of the Turquoise Rule Book, available on the Turquoise website at: https://www.lseg.com/markets-products-and-services/our-markets/turquoise/information-centre/document-library.

6.1.1   Member Portal

The Member Portal in an online communication tool that enables Turquoise members to view and manage their membership profile and technical configuration. This includes:

- *Company Details* – view and manage company name, address, regulatory authorisation, Legal Entity Identifier;
- *Contact Information* – view and manage business and compliance contacts for the member; register of persons authorised to request order deletions;
- *Trading Access* – view instrument group access for the Turquoise trading system;
- *Technical Configuration* – view and manage technical user set-up and related properties;

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- *Trading Declarations* relating to algorithmic trading and Direct Electronic Access;

- *Market Making* agreement and related security registration;

- *Short code/ long code mapping* for Turquoise order records;

For more information on the Member Portal and how to register to gain access (available from late 2017), please click the following link here.

Alternatively please contact the Membership Team:

- membership@lseg.com

- +44 (0) 20 7797 1900

6.2 Sponsored Access

Non-members may access **Turquoise Lit™** and **Turquoise Plato™** Order Books (including **Turquoise Plato Block Discovery™**) through the infrastructure of a member (Direct Market Access) or as a Sponsored Participant trading under the membership of a Sponsoring Member and subject to pre-trade risk controls developed by Turquoise.

Further information on Sponsored Access can be found on the Turquoise website at http://www.lseg.com/markets-products-and-services/our-markets/turquoise/information-centre/document-library under 'Sponsored Access'.

6.3 Nodes and Users

Trading Participants can organise their Turquoise activity into Nodes, Trader Groups and Users (Traders/Sessions). Nodes can be used by a Member to align its marketplace activity along certain defined organisational units, or to achieve flexibility in clearing.

A Member must have at least one Node, and each User must belong to a single Node. User configuration can be viewed and managed via the Member Portal.

Each Node can have its own permissions with respect to Instrument Groups that can be traded, and its own clearing arrangements per Instrument Group. Permissions can also be set at a User level, should such degree of flexibility be required.

Further information on setting up Nodes and Users is included in the Turquoise Technical Specifications found on the Turquoise website at http://www.lseg.com/markets-products-and-services/our-markets/turquoise/information-centre/document-library.

6.4 Trading

Turquoise supports the following trading capacities modelled after the standard market implementation.

- Dealing on own account (DEAL)
- Matched Principal (MTCH)
- Any other trading capacity (AOTC)

A trading Participant is required to flag each Order with the relevant trading capacity. If this information is not included, the Order will be rejected by Turquoise.

6.5 Clearing and Settlement

It is necessary to specify Clearing Instructions (the Clearing Member and Account) for each Node and Instrument Group combination. Without appropriate clearing instructions, a User associated with a Node will not be permitted to submit Orders.

Where a Member is a member of a Central Counterparty connected to Turquoise, they should contact the Central Counterparty to configure their clearing and settlement arrangements for Turquoise trades. Where a Member uses a third-party General Clearing Member (GCM) to support their Turquoise trading, they should contact their GCM to arrange this.

For the avoidance of doubt, membership with Turquoise as a Trading Member is entirely separate from clearing membership with the CCP, although a clearing and settlement relationship must exist for each and every Trading Member.

A Member's clearing configuration can be viewed via the Member Portal.

6.6 Fungibility

From a clearing perspective, Financial Instruments traded in Turquoise are fungible only with those that belong to the same line. Any cross-border clearing arrangements are to be arranged separately.

6.7 Settlement Instructions

All Trades executed by Turquoise are settled according to the default settlement practices of the Primary Market of the line that is being traded.

Non-standard settlement instructions are not supported.

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6.8 Internalisation – Choice of Sending Trades to Clearing

Trades that are executed with the same Member Firm on both sides are by default sent to the relevant CCP.

A Member can optionally sign up for the service of not passing self matched Trades to clearing. This can be done on the basis of a group of Users within a Member.   A Trade will be internalised and not sent to clearing if:

- Both sides of the Trade belong to a User within the specified group; and

- Each side of the trade has the dealing capacities[7] Dealing on own account (DEAL) or Matched Principal (MTCH); and

- Each side of the trades has the same clearing account type (i.e. House or Client).

Such trades will be identified as internalised trades by setting the Novated Indicator (Custom Tag 20111) to 0 on Trade Capture Reports sent by the Post Trade FIX Gateway. Two Trade Capture Reports will be sent, one for each side of the trade. On each Trade Capture Report the counterparty will be specified as the Firm on the opposite side of the trade, not the CCP.

Likewise, Execution reports will also have the counterparty specified as the Firm on the opposite side of the trade.

To 'opt in' to internalisation a member firm should contact the Technical Account Management team:

- londontam@lseg.com

- +44 (0)20 7797 3939

6.9 Risk Management and Exposure Monitoring

Trading Participants' exposure is monitored by the CCP or GCM.

Turquoise has a mechanism to suspend Order entry for a Trading Participant should this be required by any CCP, GCM or regulator, or required by Turquoise to preserve the orderliness of its marketplace.

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[7] *Under MiFID I, this would have been applicable to Riskless Principal and Principal dealing capacities.*

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6.10 Turquoise Risk Controls

Turquoise Risk Controls are provided by Turquoise as part of its Sponsored Access Service. These controls are applied to all Orders and Block Indications submitted by Sponsored Users, in order to restrict and prevent trading beyond certain limits.

Whilst specifically designed for Sponsored Access use, Turquoise Risk Controls are available to all Members. For full details of the Turquoise Risk Controls which are available and to 'opt in' to use the controls, please refer to the Sponsored Access Service Description.

6.11 Turquoise Order to Trade Ratio (OTR) Limits

As required by European Regulation, Turquoise will calculate the ratio of unexecuted Orders to transactions effectively entered into the system by each of their Trading Members for every Financial Instrument traded under an electronic continuous auction order book or a quote-driven or a hybrid trading system.

Turquoise will calculate the ratio of unexecuted Orders to transactions for each of their Trading Members at least at the end of every trading session in both of the following ways:

(a) in volume terms: (total volume of orders/total volume of transactions) - 1;

(b) in number terms: (total number of orders/total number of transactions) - 1. Note, if total number of transactions is 0, then 1 will be used for the calculation.

Turquoise has determined OTR limits apply to all Trading Members, with separate limits applying to Market Makers (defined as any Trading Member which has entered into a Market Making Agreement or is registered with Turquoise as a Liquidity Provider).

The OTR limits are set per Trading Member/Market Maker, per Financial Instrument, per Trading Day.

The following tables provide maximum OTR limits by Number and by Volume of transactions for Trading Members / Market Makers. The Volume OTR Floor of 10,000 is a minimum total volume of transactions necessary for the Volume OTR calculation to apply.

Asset Class	Number OTR Trading Member	Number OTR Market Maker
Equities, DRs	100,000	200,000
ETFs, ETPs	150,000	300,000

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Asset Class	Volume OTR Trading Member	Volume OTR Market Maker
Equities, DRs	2,000,000	40,000,000
ETFs, ETPs	2,000,000	40,000,000

Turquoise OTR levels are monitored on a T+1 basis. If a Member Firm breaches the OTR limit, Turquoise may seek to engage with firms to enable a better understanding of a Trading Member's / Market Maker's activities in the context of maintaining a high quality service. Turquoise may consider taking disciplinary action in following non-exhaustive cases:

- Consistent breaches of the OTR limits, particularly a high concentration of breaches over a short period of time;

- Where the OTR limit breach(es) was/were as a result of a system and control failure

- Where the OTR limit breach(es) was/were as a result of a manipulative or abusive strategy

- Where OTR limit breaches continue to occur after Turquoise has directed the Trading Member / Market Maker to reduce OTR levels below OTR limits

6.12   Hosting and Network Connectivity

Turquoise Hosting is available at the London Stock Exchange Primary Data Centre. Details of the Hosting service and Network Connectivity options can be found on the London Stock Exchange website at

www.londonstockexchange.com/products-and-services/connectivity/hosting

Please also refer to the Turquoise Guide to Connectivity found on the Turquoise website at

http://www.lseg.com/sites/default/files/content/documents/TQ102_Connectivity_Guide.pdf Should a Firm only wish to connect to Turquoise but not connect to other LSEG Markets, then alternative arrangements can be made.

Members can view and manage their Systems, Applications and Products (SAP) configuration via the Member Portal.

Please contact connectivity@lseg.com for more information.

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6.13   Market Making Arrangements

As required by European Regulation, Turquoise provides details of the Market Making Arrangements in relation to:

(i)   Market Making Agreements for Trading Members engaging in algorithmic trading whilst pursuing a market making strategy; and

(ii)   a mandatory Market Making Scheme.

Trading Members can notify Turquoise they have entered into a Market Making Agreement, as well as "opting in" to a Market Making scheme where desired, via the Member Portal, and upload Financial Instruments in which they want to register.

Details of Turquoise Market Making Arrangements and the terms of the Market Making Scheme can be found within the Turquoise Document Library "Market Making and Liquidity Provision" section.

7.0 Reference Prices

Turquoise relies on a number of reference prices to control market behaviour and determining execution prices. These reference prices are derived from external and Turquoise Best Bid and Offer prices, the previous day's Primary market Closing Price, Turquoise Last Traded Price etc.

7.1 Turquoise Last Trade Price (TLTP)

The TLTP is defined as the price of the last Trade on the Turquoise market. This is set by any trade that occurs during continuous trading. Prior to the first Trade of a trading day, the Last Trade Price is deemed to be undefined.

7.2 Turquoise Dynamic Reference Price (TDRP)

The Turquoise Dynamic Reference Price is a Turquoise determined reference price (usually the closing price on the Primary market, adjusted for corporate actions or other market activity) at start of day. During trading hours the TDRP will be updated to be the TLTP. Where there is no TLTP it remains unchanged. Turquoise Market Operations can override the TDRP if appropriate.

7.3 Turquoise Static Reference Price (TSRP)

The Turquoise Static Reference Price is a Turquoise determined reference price (usually the closing price on the Primary market, adjusted for corporate actions or other market activity) at start of Day. During trading hours the TSRP will be updated to be the last Auction-uncrossing price disseminated by the Primary market for the Financial Instrument. Where there is no TLTP it remains unchanged. Turquoise Market Operations can override the TSRP if appropriate.

7.4 Primary market Best Bid and Offer (PBBO)

The PBBO is defined as the Best Bid and Offer prices as represented by visible Orders in the Primary market Order Book when that market is in Continuous Trading.

If there are no Orders in the relevant Primary market Order Book, or if the Primary market is not in continuous trading the PBBO is deemed to be undefined.

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7.5 Primary market Midpoint Price (PMP)

The PMP is defined as the average of the Primary Best Bid and Offer ('PBBO') prices. When the Primary market is locked / crossed the PMP is undefined.

Turquoise derives the price of the Financial Instrument from the trading venue where that Financial Instrument was first admitted to trading (i.e. the primary market). Alternatively, in certain cases, Turquoise may choose to derive the price using the most relevant market in terms of liquidity as permitted by ESMA.

Turquoise will continue to reference the SIX Swiss Exchange (the primary market), for its reference prices, for Swiss Financial Instruments admitted to trading on Turquoise, for the purpose of executions using both the RPW and LIS waivers in the **Turquoise Plato™** Order Book.

The PMP can have values with half-tick increments where there are an odd number of ticks between the PBBO prices. When the PBBO is undefined the PMP is also deemed to be undefined.

8.0 Price, Value and Market Checks

8.1 Reference Price Collars

8.1.1 Turquoise Lit™ Order Book

Reference Price Collars prevent Orders with an overly aggressive limit price from entering the **Turquoise Lit™** Order Book and trading. This also helps to protect the trader from executing at an unexpected price due to a 'fat finger' error.

For each Financial Instrument/Instrument Group, Turquoise defines two Reference Price Collars, a Static Reference Price Collar (applied to the Turquoise Static Reference Price) and a Dynamic Reference Price Collar (applied to the Turquoise Dynamic Reference Price). Each Reference Price Collar is applied to the applicable Reference Price to generate a single Price Collar for the Financial Instrument.

The ceiling of the Price Collar is the more conservative (lower) of the values generated by the Static and Dynamic calculations. The floor of the Price Collar is the more conservative (higher) of the values generated by the Static and Dynamic calculations.

Example of Calculations

	Reference Price	Reference Price Collars	Floor	Ceiling
Static	77.80	25%	58.35	97.25
Dynamic	93.00	5%	88.35	97.65
Reference Price Collar Floor			88.35	
Reference Price Collar Ceiling				97.25

Limit Orders with a price to buy greater than the upper Reference Price Collar limit, and Limit Orders with a price to sell less than the lower Reference Price Collar limit, will be rejected.

Upper Price Collar

TURQUOISE REFERENCE PRICE
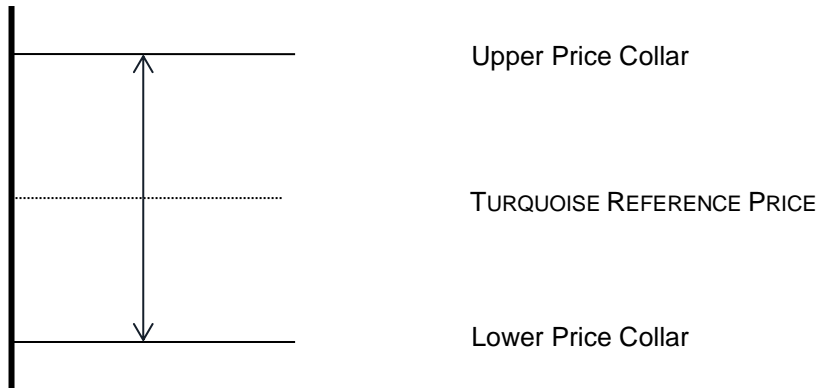
Lower Price Collar

Reference Price Collar Percentages are defined in Section 3.3.1 of TQ501 – Guide to Reference Data Services and available in the Instrument File (YYYYMMDD_TRQX_Instrument.csv) and monitored and maintained on an ongoing basis to ensure the limits set and imposed by Turquoise are suitable and effective. If any further information is required on Reference Price Collars, please contact Turquoise Market Operations (MOPS).

8.1.2 Turquoise Lit Auctions™ Order Book

A Reference Price Collar is used to prevent Limit Orders from trading which are outside the PBBO. The Reference Price Collar will not prevent any Order from being accepted. Limit Orders which have marketable Limit Prices outside the PBBO will trade up to the Best Bid (Sell) or Best Offer (Buy).

For example:

The PBBO for the Financial Instrument is: 99 – 101

- A Buy Order with a Limit Price of:

    105 may trade up to a price of 101

    98 will be excluded from the auction and not trade

- A Sell Order with a Limit Price of:

    95 may trade up to a price of 99

    102 will be excluded from the auction and not trade

Any change in the PBBO will lead to the resting Orders being re-assessed for inclusion/exclusion from the **Turquoise Lit Auctions™**.

8.2 Market Order Execution Limit (MOEL)

An 'Execution Limit' is applied to ensure that the Market Orders entering the **Turquoise Lit™** Order Book do not execute beyond a certain price point.

If persistent Orders exist on the sell side, a Buy Market Order will only execute up to the ceiling of the Reference Price Collar, with the unexecuted balance of the Order being cancelled.

If persistent Orders exist on the buy side, a Sell Market Order will only execute down to the floor of the Reference Price Collar, with the unexecuted balance of the Order being cancelled.

8.3 Maximum Order Value

A 'Maximum Order Value' is specified by Turquoise to ensure that a trader does not commit to an excessively large execution erroneously. All Orders in excess of the specified Maximum Order Value will be rejected.

CCY	Max Order Value (Trading Currency)		Approx Max Order Value in Euro (€)	
	Turquoise Lit™ Order Book	Turquoise Lit Auctions™ and Turquoise Plato™ Order Book	Turquoise Lit™ Order Book	Turquoise Lit Auctions™ and Turquoise Plato™ Order Book
CHF	20,000,000	200,000,000	18,500,000	171,000,000
CZK	500,000,000	5,000,000,000	18,500,000	196,000,000
DKK	150,000,000	1,500,000,000	20,000,000	201,000,000
EUR	20,000,000	200,000,000	20,000,000	200,000,000
GBX	2,000,000,000	20,000,000,000	25,000,000	225,000,000
HUF	6,000,000,000	20,000,000,000	19,000,000	64,000,000
NOK	200,000,000	2,000,000,000	21,000,000	203,000,000
PLN	80,000,000	n/a	19,000,000	n/a
SEK	200,000,000	2,000,000,000	21,500,000	203,000,000
USD	20,000,000	200,000,000	17,500,000	167,000,000

Turquoise Lit™, **Turquoise Lit Auctions™** and **Turquoise Plato™** Max Order Values in the Financial Instrument's trading currency are defined in Section 3.3.1 of TQ501 – Guide to Reference Data Services and available in the Instrument File (YYYYMMDD_TRQX_Instrument.csv). Should there be a difference between the values in the above table and the Instrument File, the value in the Instrument File will take precedence for the Financial Instrument.

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8.4 Well Formed Market Checks

The Turquoise platform will carry out Well Formed Market Check (WFMC) validation upon receipt of PBBO updates and Primary market status updates to determine if the PMP/PBBO is valid.

If the WFMC fails for a particular Financial Instrument, the market for that Financial Instrument is deemed not well formed, resulting in matches in the **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books not being permitted.

The WFMC will fail if anyone of the following is true:

- The Market Feed for the Primary market data is flagged as 'stale'

- If the Primary market data is not available

- The Primary market symbol does not have a valid PBBO spread; i.e.
    - If either or both the Primary market Bid and/or Offer don't exist, or
    - Either or both the Primary market Bid and/or Offer is equal to 0

- The PBBO spread is greater than a defined Maximum Spread threshold or lesser than the Minimum Spread threshold for the specific Financial Instrument as defined by Turquoise Operations

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9.0 Turquoise Order Types

This section defines the various types of Orders (including Market, Limit and Pegged) that are supported by Turquoise in terms of the key attributes that determines their behaviour and handling:

- Order type
- Target Book
- Display Quantity
- Duration (Time in Force)
- Price
- Size (including Minimum Quantity)
- Execution Instruction
- Passive Only and Distance from BBO
- Self-Execution Prevention

9.1 Order Type

On Order entry a trader can specify the type of Order which is received by Turquoise.

- Order

9.2 Target Book

On Order entry a trader can specify the Target Book, indicating whether the Order should be routed to the **Turquoise Lit™** Order Book, or **Turquoise Lit Auctions™** Order Book, or **Turquoise Plato™** Order Book, or routed to the **Turquoise Plato™** Order Book then the **Turquoise Lit™** Order Book (see Section 9.2.1 for details on **Turquoise Plato™** Dark Lit Sweep Orders). This is mandatory for Orders submitted via the Native Gateway but is optional for Orders submitted via FIX.

If the Target Book is not specified, the Order will be routed as summarised below.

Where an Order Book is not explicitly specified, the following Orders will be routed to the **Turquoise Lit™** Order Book:

- All visible Limit Orders (with Display Quantity > 0 or not specified);
- All Iceberg (partially visible) Limit Orders.
- All non-displayed Limit Orders that meet the MiFID Large in Scale (LIS) criteria and for which Minimum Quantity is not specified or is specified as 0.
- All IOC/FAK, FOK and Market Orders where Display Quantity <> 0;

Where an Order Book is not explicitly specified, the following Orders will be routed to the **Turquoise Plato™** Order Book:

- o All orders with a valid Midpoint Peg instruction
- o All Limit or Peg Orders with Display Quantity = 0 (with the exception of above LIS Limit Orders with no minimum quantity);
- o All IOC/FAK, FOK and Market Orders with Display Quantity = 0.

9.2.1 Turquoise Plato™ Dark Lit Sweep Order

On Order entry, a trader can specify for IOC Orders to sweep the **Turquoise Plato™** Order Book first to try and find as much liquidity as possible at the PMP during continuous trading, before sweeping the **Turquoise Lit™** Order Book with any remaining unexecuted quantity.

A **Turquoise Plato™** Dark Lit Sweep Order will maintain its priority in the **Turquoise Lit™** Order Book queue, whilst it sweeps the **Turquoise Plato™** Order Book.

To specify a **Turquoise Plato™** Dark Lit Sweep Order, Participants need to specify Tag 9303 - Routing Instruction (FIX) or the Target Book field (Native) on their Order as follows:

	FIX Trading Gateway	**Native Trading Gateway**
Field Name	Routing Instruction (Tag 9303)	TargetBook (offset 89)
Enum	S – Dark Lit Sweep	3 – Dark Lit Sweep

The following are supported characteristics for **Turquoise Plato™** Dark Lit Sweep Orders:

- Time in Force (TIF) – IOC only

- Order types – Market and Limit only *(Pegged Orders are not supported)*

- Any Displayed Quantity (Displayed Quantity is ignored for Orders with a TIF of IOC)

- Minimum Quantity – Acts as a MES as it sweeps the **Turquoise Plato™** Order Book and MAQ as it enters the **Turquoise Lit™** Order Book.

  Note: As detailed in Section 9.6 Participants can specify (per User) whether MES will apply to the first execution only (default for non-persistent Orders such as Orders with a TIF of IOC) or to persist for the lifetime of the Order.

- Self Execution Prevention (SEP) – The standard SEP validations (if enabled) will be applicable to **Turquoise Plato™** Dark Lit Sweep Orders and the SEP behaviour will remain unchanged. For

details on SEP, please see Section 9.9.   Below are two examples of what will happen should SEP validation fail as a **Turquoise Plato™** Dark Lit Sweep Order tries to execute in the **Turquoise Plato™** Order Book:

- o CIO (Cancel Incoming Order) – **Turquoise Plato™** Dark Lit Sweep Order will be completely expired (will *not* be swept onto the **Turquoise Lit™** Order Book).

- o CRO (Cancel Resting Order) – **Turquoise Plato™** Dark Lit Sweep Order will aggress the Turquoise Plato™ Order Book and then be swept onto the **Turquoise Lit™** Order Book. The resting **Turquoise Plato™** Order which interacted with the **Turquoise Plato™** Dark Lit Sweep Order will be completely expired.

Self Execution Prevention will also apply as appropriate for **Turquoise Plato™** Dark Lit Sweep Orders in the **Turquoise Lit™** Order Book.

A **Turquoise Plato™** Dark Lit Sweep Order will maintain its Order details as it sweeps from the **Turquoise Plato™** Order Book to the **Turquoise Lit™** Order Book. The following table shows how Execution Reports will be populated throughout the lifecycle of the **Turquoise Plato™** Dark Lit Sweep Order:

Order Attribute	Description
Client Order ID	The client specified identifier will remain unchanged throughout the lifecycle of the order.
Order ID	The Order ID will be the same for **Turquoise Plato™** Order Book and **Turquoise Lit™** Order Book executions.
Order Status	The Order will carry its previous Order status when transitioning to the **Turquoise Lit™** Order Book. e.g. If the Order was partially filled in the **Turquoise Plato™** Order Book, it will enter the **Turquoise Lit™** Order Book as a partially filled Order.
Cumulative Quantity / Leaves Quantity	The cumulative quantity value and the leaves quantity value will be updated and maintained for both **Turquoise Plato™** Order Book and **Turquoise Lit™** Order Book executions.
Order type / Time in Force (TIF) / Side / Order Quantity / Price / Account Type / Order Capacity	The client specified values will remain unchanged throughout the lifecycle of the Order.

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All Execution Reports will be stamped in the Routing Instruction (FIX) or Target Book (Native) field with their originating Order Book to allow firms to determine where:

- Trades have occurred. i.e. **Turquoise Plato™** Order Book or **Turquoise Lit™** Order Book.

- The Order expires where there is unexecuted quantity. Note: This will always be the **Turquoise Lit™** Order Book.

- The Order is rejected where there is no executed quantity. Note: This will always be the **Turquoise Lit™** Order Book.

A **Turquoise Plato™** Dark Lit Sweep Order that is rejected by the **Turquoise Plato™** Order Book will continue to be swept to the **Turquoise Lit™** Order Book. No Reject message will be sent in this instance.

Where a **Turquoise Plato™** Dark Lit Sweep Order is rejected by the **Turquoise Lit™** Order Book, if the Order was partially filled in the **Turquoise Plato™** Order Book, the Order will be expired. If the Order was completely unfilled, the Order will be rejected.

9.3 Display Quantity

Orders can either be Displayed or non-displayed (also referred to as Hidden), qualified by Displayed Quantity (0=non-displayed). A Display Quantity greater than zero but less than the total Order Quantity implies an Iceberg Order.

Where a target Order Book is not explicitly specified, Display Quantity is one factor that determines the Order Book that Orders are routed to. See Section 9.2 for details.

9.4 Duration (Time in Force)

Below is a list of the durations that Turquoise supports based on their maximum life expectancy in the Order Book (from shorter to longer).

Fill or Kill (FOK)	Must either be executed *immediately and in full* against one or more eligible (in price and size) persistent, opposite side Orders, or cancelled.
IOC (Immediate or Cancel) / Fill and Kill (FAK)	Will be executed *immediately, either partially or in full* against one or more eligible (in price) persistent, opposite side Orders, with any unexecuted balance immediately cancelled.

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Good for Auction (GFA)	GFA Orders are only accepted into the **Turquoise Lit Auctions™** Order Book and **Turquoise Plato Uncross™** (part of the **Turquoise Plato™** Order Book).
	GFA Orders for the **Turquoise Lit Auctions™** are expired either after attempting to match during the **Turquoise Lit Auctions™**, or at the time of the scheduled **Turquoise Lit Auctions™** if the event fails to happen due to a WFMC for example or the instrument is halted from trading.
	GFA Orders for the **Turquoise Plato Uncross™** are expired either after attempting to match during the **Turquoise Plato Uncross™** they are scheduled to participate in or at the time of the scheduled **Turquoise Plato Uncross™** if the **Turquoise Uncross™** fails to happen due to a WFMC failure for example. If the instrument is halted from trading, GFA Orders are expired immediately.
	Please see Section 9.7.1 for details of **Turquoise Plato Uncross™** GFA Orders' behaviour around the start of the Order Submission Interval.
Good Till Time (GTT)	An Order with an Expiry Time which will rest passively until executed, or until the specified time or the close of the normal trading day on the day on which it was entered.
	Applicable on the Native Trading interface only.
	Please see Section 9.7.1 for details of **Turquoise Plato Uncross™** GTT Orders' behaviour around the start of the Order Submission Interval.
Good Till Date (GTD) + Expiry Time	A GTD Order with Expiry Time will be treated as a Day Order, expiring at the time specified that day or the close of the normal trading day on the day on which it was entered.
	Applicable on the FIX Trading interface only.
	Please see Section 9.7.1 for details of **Turquoise Plato Uncross™** GTD Orders' behaviour around the start of the Order Submission Interval.
Day	The Order is valid until close of the normal trading day on the day on which it was entered. The close of the normal trading day is 16:30 UK Time 17:30 CET.

9.5 Price

Market	The Order does not have a specified price. All Market Orders are non-displayed (i.e. never pre-trade transparent), regardless of which Order Book they are routed to. In the **Turquoise Lit™** Order Book, a Market Order will be executed according to the priority of contra-side Orders up/down to the MOEL. An incoming Market Order can potentially Trade through one or more price levels. Market Orders are non-persistent (unexecuted balances will be cancelled immediately). In the **Turquoise Plato™** Order Book, a Market Order can be persistent or non-persistent, depending on the Order duration qualifier (Day, GFD, GTT, GTD (with expiry time) and GFA 'Time In Force' qualifiers will persist in the book, while IOC/FAK and FOK qualifiers will not). Market Orders are interpreted as Midpoint Pegged Orders without a Peg Cap. The **Turquoise Lit Auctions™** does not accept Market Orders (unless Pegged to the PMP).
Limit	The Order will be executed against any Order(s) in the opposite side of the book at a price that will never be worse than its Limit. Depending on the duration qualifier, a Limit Order can be persistent or non-persistent. Limit Prices must be set in whole ticks for all Orders.
Pegged	Turquoise only supports Pegged Orders that are pegged to the PMP, and these are routed to the **Turquoise Plato™** or **Turquoise Lit Auctions™** Order Books. Orders with other Peg instructions will be rejected. Pegged Orders may have a Limit Price (aka Peg Cap). Whilst the PMP is worse that the Limit Price, the Order will be excluded from matching.

9.6 Size

Non-displayed LIS (Large In Scale)	An Order is Large in Scale (LIS) if it meets the requirements described in Section 5.9. Orders that meet the LIS criteria can be non-displayed (Hidden) and accepted in the **Turquoise Lit™** Order Book as persistent (passive) Limit Orders. Orders that meet the LIS criteria can also be routed to the **Turquoise Plato Uncross™** Order Book by explicitly specifying the target book. The evaluation as to whether an Order qualifies as LIS will take place at the time the Order is submitted or its quantity or price is amended. A partial fill of an Order that is LIS will not change its qualification for being a non-displayed Order.
Non-displayed Non-LIS	Non-displayed persistent (passive) Orders that are smaller than LIS will: • Always be accepted into the **Turquoise Lit Auctions™** Order Book. • Only be accepted into the **Turquoise Plato™** Order Book when use of the RPW is allowed.

MAQ (Minimum Acceptable Quantity)	Turquoise supports MAQ on non-persistent Order types in the **Turquoise Lit™** Order Book. An Order with MAQ will only be matched subject to, at minimum, fulfilling its MAQ. The match quantity may be formed by multiple fills.
MES (Minimum Execution Size)	Turquoise supports MES on all Order types in the **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Book. Each individual fill will be equal to or greater than the specified MES. When an Order with MES is partially filled, if the remaining quantity is below the MES initially set then the MES value is set to the remaining Order quantity. Within the **Turquoise Plato™** Order Book, Participants can specify (per User) whether MES will apply to the first execution only (default for non-persistent Orders) or to persist for the lifetime of the Order (default for persistent Orders). To change your Minimum Quantity default a member firm should contact Turquoise Market Operations at London Stock Exchange: • market.operations@tradeturquoise.com • +44 (0) 20 7382 7676

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Iceberg	Turquoise supports Iceberg Orders on the **Turquoise Lit™** Order Book only. All equity and non-equity Iceberg Orders must have an Order value greater than EUR10,000 (or equivalent in the instrument's trading currency, else they will be rejected (as per the table below):

Currency	Minimum Iceberg Value (CCY)
EUR	10,000
GBX	887,230
USD	11,993
CHF	11,702
CZK	255,350
DKK	74,449
HUF	3,103,300
NOK	98,403
PLN	41,770
SEK	98,438

Iceberg Orders display only a portion of their total interest, with the remaining being hidden. The displayed quantity is replenished to its original size or a randomized value only when it is fully matched, at which point the time priority of the Order is re-set.

Participants can elect to have their refreshed peak size randomised for their Order. On each peak refresh, the randomised iceberg peak will be 1 share plus between 100% and 120% of initial peak size.

The display quantity is always defined as an explicit quantity.

If the remaining quantity is less than the original display quantity, the new display quantity will be set to the remaining quantity.

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9.7 Execution Instruction

This attribute is relevant to the **Turquoise Plato™** Order Book only. The Execution Instruction of an Order should be selected on Order entry from one of the options below:

Execution Instruction	Description
Turquoise Plato Uncross^{TM} Only	Persistent Orders can be submitted at any time during Normal Trading but will only be open to matching against contra-side persistent Orders in the Order Book during the randomised **Turquoise Plato Uncross^{TM}** events. Please see [Section 9.7.1](#) for details of **Turquoise Plato Uncross™** Orders' behaviour around the start of the Order Submission Interval.
Turquoise Plato Uncross™ then Continuous	Orders submitted are not open to matching during continuous Trading until it has participated in a **Turquoise Plato Uncross™** event which has a valid PMP which has passed the **Turquoise Plato™** WFMC. Any unexecuted volume will then rest in the **Turquoise Plato™** Order Book open to 'Continuous' matching and matching during subsequent randomised '**Turquoise Plato Uncross^{TM}**' events. Please see [Section 9.7.1](#) for details of **Turquoise Plato Uncross™** Orders' behaviour around the start of the Order Submission Interval.
Continuous and Turquoise Plato Uncross^{TM} **(default if omitted)***	Orders submitted will be open to immediate execution against contra persistent Orders during Normal Trading and any unexecuted volume will rest on the Order Book, open to Continuous matching and matching during the randomised **Turquoise Plato Uncross^{TM}** events. Please see [Section 9.7.1](#) for details of **Turquoise Plato Uncross™** Orders' behaviour around the start of the Order Submission Interval.
Continuous Only	Orders submitted as Continuous only will only execute during Continuous trading and will not match during randomised **Turquoise Plato Uncross^{TM}** events.

The Execution Instruction attribute is only applicable to Day, GFA, GTT and GTD Orders. FOK and IOC Orders will only ever execute against Orders resting on the Order Book (persistent Orders) during Continuous trading (i.e. persistent Orders with Execution Instructions set to 'Continuous and **Turquoise Plato Uncross^{TM}**' or '**Turquoise Plato Uncross^{TM}** then Continuous' after the Order has participated in a **Turquoise Plato Uncross™** event.

* Member Firms can elect on a per user basis to change the default Execution Instruction applied to their Order when omitted to any other Execution Instruction. e.g. **Turquoise Plato Uncross™** Only or Continuous Only. To change your Execution Instruction default a member firm should contact Turquoise Market Operations at London Stock Exchange:

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- market.operations@tradeturquoise.com

- +44 (0) 20 7382 7676

9.7.1. Behaviour of an Orders TIF and Execution Instruction around the Order Submission Interval within the Turquoise Plato™ Order Book

At the start of the Order Submission Interval, a Call Market is sent by the **Turquoise Plato™** Order Book, to indicate to Participants that there is an impending **Turquoise Plato Uncross™** in the **Turquoise Plato™** Order Book. Orders with the following Execution Instructions and TIF behave differently if submitted after a **Turquoise Plato Uncross™** but before the next start of an Order Submission Interval and when submitted after the start of an Order Submission Interval and before the next **Turquoise Plato Uncross™**:

Order Details (Combination of TIF and Execution Instructions)	Behaviour if the Order is submitted between a Turquoise Uncross™ and the start of the Order Submission Interval	Behaviour if the Order is submitted between the start of the Order Submission Interval and its Turquoise Uncross™
GFA – Continuous and **Turquoise Plato Uncross™**	Acts as an IOC Order in Continuous trading with any remainder expired. Orders are not amendable but can be cancelled.	The Order will not participate during Continuous trading and will wait to take part in the next immediate **Turquoise Plato Uncross™**. Any remainder will be expired after the **Turquoise Plato Uncross™**. Orders are not amendable but can be cancelled.
GFA – **Turquoise Plato Uncross™** Only	The Order will be immediately expired. Orders are not amendable but can be cancelled.	The Order will take part in the next immediate **Turquoise Plato Uncross™**. Any remainder will be expired after the **Turquoise Plato Uncross™**. Orders are not amendable but can be cancelled.
GFA – **Turquoise Plato Uncross™** then Continuous	The Order will not participate during Continuous trading and will wait to take part in the next immediate **Turquoise Plato Uncross™**. Any remainder will be expired after the **Turquoise Plato Uncross™**. Orders are amendable and can be cancelled.	

GTT or GTD + Expiry Time – **Turquoise Plato Uncross™** Only	The Order will take part in the next immediate **Turquoise Plato Uncross™**.
	If the Order's expiry time elapses before participation in any **Turquoise Plato Uncross™** it will be expired immediately.
	Any remainder will persist, participating in subsequent **Turquoise Plato Uncross™** events until the Order's expiry time is reached.
	Orders are amendable and can be cancelled.

9.8 Passive-Only and Distance from BBO

This attribute is relevant to the **Turquoise Lit™** Order Book only.

During Continuous Trading Participants are able to specify a visible price point below which they would not like the instruction to add the Order to be completed. Available options are:

Value	Description
0 or Null	No constraint. The Order will <u>not</u> be treated as Passive-Only.
99	Balance of Order will be expired rather than execute against a displayed Limit Order.
100	Balance of Order will be expired rather than execute against a displayed Limit Order, and Order will only be posted on the Order Book if it sets a new BBO
1	Balance of Order will be expired rather than execute against a displayed Limit Order, and Order will only be posted on the Order Book if it sets a new BBO or joins the existing BBO
2	Balance of Order will be expired rather than execute against a displayed Limit Order, and Order will only be posted on the Order Book if it sets a new BBO, joins the existing BBO, or joins/sets the next visible price point behind the BBO
3	Balance of Order will be expired rather than execute against a displayed Limit Order, and Order will only be posted on the Order Book if it sets a new BBO, joins the existing BBO, or joins/sets one of the next two visible price points behind the BBO

On submission of a Passive Only Order, it will match with any contra Hidden Order at a price better than the visible Turquoise BBO. If the quantity remaining would have otherwise matched with a visible Order, the remainder will be expired. If the remainder can rest on the Order Book it will follow the instruction laid down above. Where the instruction above can not be followed the remainder of the Order will be expired.

Where the Passive Order indicator is selected for a Hidden Order, only adding as a new Turquoise BBO may be selected otherwise the Order will be rejected on submission.

Passive Only Order indicators are ignored on Market Orders.

9.9 Self Execution Prevention (Optional)

Member firms that wish to avoid self-execution can register one or more of their own Native UserIDs or FIX CompIDs as a single Self Execution Prevention ("SEP") group. Where 2 Orders from the same SEP group would otherwise execute against each other, one of the Orders will instead be expired:

- Cancel Incoming Order (CIO), leaves the resting Order intact; or

- Cancel Resting Order (CRO), allows the incoming Order to execute / rest.

Member firms can either opt for all its Native UserIDs / FIX CompIDs in a SEP group to have the same standing instruction or alternatively can specify an individual instruction for each constituent of the SEP group, in which case the standing instruction attached to the aggressing (non-resting) constituent will be applied.

A SEP group can only consist of a single member firm's Native UserIDs / FIX CompIDs. Each individual Native UserIDs / FIX CompIDs can only be applied to a single SEP group. An individual member firm may have more than one SEP group.

SEP can be applied to all supported Order types. SEP will only prevent executions during Continuous Trading. It does not function during Continuous Trading when both orders are resting, **Turquoise Lit Auctions™** events, **Turquoise Plato Uncross™** events (or during **Turquoise Plato Block Discovery™** events) or for any of the following Time in Forces: FOK. Post trade internalisation is still available where SEP does not function.

SEP can be used in tandem with Sponsored Access functionality. Maximum Gross Consideration validation will be applied prior to SEP, whilst the Current Gross Consideration will exclude anything captured by SEP.

Self Execution Prevention configuration can be viewed and managed via the Member Portal.

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9.10 Member Group and Member Priority Matching within Turquoise Lit Auctions™ and Member Priority Matching within Turquoise Plato™ Order Books (Optional)

Member Firms that wish to increase the probability of matching with themselves within the **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books are now able to do so by registering their firm for Member Priority Matching. Should a Member Firm 'opt in' to Member Priority Matching, the functionality will apply to all of its Native UserIDs and FIX CompIDs once enabled for either or both Order Books.

Members, who 'opt in' to Member Priority matching within the **Turquoise Lit Auctions™** Order Book, can also 'opt in' to Member Group Priority[9] matching. Should a Member Firm 'opt in' to Member Group Matching, the functionality will apply to Native UserIDs and FIX CompIDs which have been assigned to a Member Group. Native UserIDs and FIX CompIDs can only belong to a single Member Group.

To 'opt in' to Member Priority Matching and Member Group Priority Matching within the **Turquoise Lit Auctions™** Order Book, a member firm should contact the Technical Account Management team:

- londontam@lseg.com

- +44 (0)20 7797 3939

9.10.1. Within Turquoise Lit Auctions™ Order Book (Optional)

If Member Group Matching is enabled, all passive Orders submitted by Member Firms that have 'opted in' to Member Group Priority Matching in the **Turquoise Lit Auctions™** Order Book will attempt to match all Orders which can match at the auction price against their Member Firm's own Orders in the same Member Group(s) on a Time priority order first, before attempting to match any remaining quantity with Orders from their own Member Firm in a Time priority order.

Once Member Group Priority and Member Priority matching has been completed, the auction will attempt to match any remaining quantity with Orders from other Firms on a Time priority basis.

The following matching logic applies:

1. Member Group Priority – The Order with Time priority on the BUY side of the **Turquoise Lit Auctions™** Order Book is always selected first for matching.

    a. If the Member that has input the Order with Time priority on the BUY side of the Order book has 'opted in' to Member Group Priority Matching, the matching engine looks to match against SELL Orders from that Member Group on a Time priority basis.

    b. If the Member that has input the largest order on the BUY side of the order book has not 'opted in' to Member Group Priority Matching, the matching engine will move to the next Order with on the BUY side (and repeat step 1a or this step 1b accordingly).**

2. Member Priority – Once all the Orders on the BUY side have been completely assessed for Member Group Priority matching with corresponding SELL orders, subject to there being unexecuted BUY Orders, the Order with Time priority on the BUY side of the **Turquoise Lit Auctions™** Order Book is reconsidered for matching against any remaining SELL Orders.

    a. If the Member that has input the Order with Time priority on the BUY side of the Order book has 'opted in' to Member Priority Matching, the matching engine looks to match against SELL Orders from that Member on a Time priority basis.

    b. If the Member that has input the largest order on the BUY side of the order book has not 'opted in' to Member Priority Matching, the matching engine will move to the next Order with on the BUY side (and repeat step 2a or this step 2b accordingly).**

3. <u>Time Priority</u> – Once all the Orders on the BUY side have been completely assessed for Member Priority matching with corresponding SELL orders, subject to there being unexecuted BUY Orders, the Order with Time priority on the BUY side of the **Turquoise Lit Auctions™** Order Book is reconsidered for matching against any remaining SELL Orders on a Time priority basis. The matching engine will then progress down the BUY side of the Order Book, until all Orders have been considered.**

**When an Order's MES reduces as a result of a Trade during a matching phase, subject to the number of iterations (set as a system parameter) not having been exceeded, the system will repeat that matching phase before moving onto to the next phase.

For Example: An Order for 20,000 shares, with a MES of 5,000 shares received a fill of 18,000 shares in the Member Group Priority phase. As a result of the Order's MES reduction to 2,000 shares, once all BUY Orders had been considered for matching during the phase, the matching logic would be would repeat the Member Group Priority phase (up to the maximum number of iteration attempts), before moving onto the Member Priority phase.

Any Minimum Quantity (MES) on an Order will always apply when attempting to match on a Member Group/Time, Member/Time or Time priority basis.

Self Execution Prevention does not apply.

9.10.2. Within Turquoise Plato™ Order Book (Optional)

Once enabled, aggressive Orders submitted by Member Firms that have 'opted in' to Member Priority Matching in Continuous Trading in the **Turquoise Plato™** Order Book, will first attempt to match against their Member Firm's own Orders before attempting to match any remaining quantity with Orders from other Firms on a Size/Time priority basis. Self Execution Prevention will remain enforced where the two users of the Member Firm are part of the same Self Execution Prevention group.

During Continuous trading where Orders on both sides of the **Turquoise Plato™** Order Book are passively resting when matching occurs due to a change in the PMP or a relevant change to the WFMC, or during **Turquoise Plato Uncross™** events, the following matching logic applies:

1. The largest Order on the BUY side of the **Turquoise Plato™** Order Book is always selected first for matching.

    a. If the Member that has input the largest Order on the BUY side of the Order Book has 'opted in' to Member Priority Matching, the matching engine first looks to match against SELL Orders from that Member on a Size / Time priority basis. If there is any remaining quantity unexecuted from this BUY order, the matching engine will attempt to complete the Order by matching against any remaining SELL Orders on a Size / Time priority basis.

b. If the Member that has input the largest order on the BUY side of the Order Book has not 'opted in' to Member Priority Matching, the matching engine looks to match against SELL orders on a Size / Time priority basis, irrespective of which Members have submitted these Orders.

2. Once the largest Order on the BUY side has been completely assessed for matching with corresponding SELL Orders, the matching engine will select the next largest BUY Order and repeat the process outlined in 1a or 1b as appropriate.

When a Member Firm opts in, should the firm also be permissioned for **Turquoise Plato Block Discovery™**, Member Priority Matching will equally apply to **Turquoise Plato Block Discovery™** events in the same way it does for **Turquoise Plato Uncross™** events. For more details on Member Priority Matching within **Turquoise Plato Block Discovery™**, see Section 9.8 of the **Turquoise Plato Block Discovery™** Trading Service Description.

10.0   Trading at Turquoise

10.1   Trading Calendar

Turquoise typically observes the domestic market practice for open business days. Therefore, where the Primary market of a Financial Instrument is closed on a business day, Turquoise will also be closed for that Market (for example, OMX Oslo is closed on the 24th December so Turquoise is also closed for the Norwegian Market). This applies to Turquoise Trading services.

Where there is cause for doubt a Market Notice is sent out to Participants for clarification. The up-to-date Turquoise Trading Calendar can also found on the Turquoise website.

10.2   Trading Sessions and Support

Each of the trading days within Turquoise is divided into the sessions shown in the following table and diagram.

Daily Trading Schedule

Time	Session Name	Order Book Type	Summary
04:31 – 07:59:59	System Start-up	**Turquoise Lit™ , Turquoise Lit Auctions™, Turquoise Plato™**	System connectivity allowed. No Order entry allowed.
08:00-16:30	Normal Trading	**Turquoise Lit™, Turquoise Lit Auctions™, Turquoise Plato™**	Order Entry allowed for all Financial Instruments. All Order constraints enforced. Price and Value Checks enforced. Reference Price Collar Validation and Execution Limit Enforced. Continuous Matching in the **Turquoise Lit™** Order Book. Continuous and random **Turquoise Uncross™** matching in the **Turquoise Plato™** Order Book.
Ad-Hoc	Trading Halt	**Turquoise Lit™ , Turquoise Lit Auctions™, Turquoise Plato™**	No Matching allowed. No Order Entry allowed. Cancellation of Orders is permitted but amendments are not.

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Time	Session Name	Order Book Type	Summary
16:30:01	Close	**Turquoise Lit™, Turquoise Lit Auctions™, Turquoise Plato™**	No Order management. No matching.
16:30:02	End of Day	**Turquoise Lit™, Turquoise Lit Auctions™, Turquoise Plato™**	Persistent Orders are cancelled.
17:00	End Of Day (CCPs)	**Turquoise Lit™ , Turquoise Lit Auctions™, Turquoise Plato™**	End Of Day Syncing with all CCPs.
17:05	System shutdown Start of end-of-day processes	**Turquoise Lit™, Turquoise Lit Auctions™, Turquoise Plato™**	No access for market Participants. The Closing Price will be calculated.

Support Schedule

Market Operations

Hours: 7:15 – 17:15

Number: +44 (0)20 7382 7676

Email: market.operations@tradeturquoise.com

Technical Account Management

Hours: 7:30 – 18:00

Number: +44 (0)20 7797 3939

Email: londontam@lseg.com

Client Support Team

Hours: 7:00 – 18:00

Number: +44 (0)20 7797 3939

Email: support@lseg.com

10.3 Order Amendment and Cancellation during Trading Sessions

Amendments to Orders are allowed at any time that the system accepts Orders.

Not all fields are amendable by Participants, and some amendments may cause the time priority of an Order to be re-set.

For example, reducing the Quantity of an Order in the **Turquoise Lit™** Order Book will not re-set the time priority.

Below is a summary of the main Order attributes and their amendment capabilities.

Book	Buy/Sell	Target Book	Symbol	Order type	Price	Qty +	Qty -	Displayed Qty +	Displayed Qty -	MinQty MAQ/MES +	MinQty MAQ/MES -	Valid Till	Exec Inst	Client Ref
Turquoise Lit™	×	×	×	×	↓	↓	✔	↓	✔	n/a	n/a	✔	n/a	✔
Turquoise Lit Auctions™	×	×	×	×	↓	↓	✔	↓	✔	↓	↓	✔	n/a	✔
Turquoise Plato™ *	×	×	×	×	↓	↑	↓	n/a	n/a	↓	↓	✔	↓	✔

✔ Change allowed without affecting Time (**Turquoise Lit™**, **Turquoise Lit Auctions™**) or Size/Time (**Turquoise Plato™** non-displayed) priority

↑ Change allowed, increases priority based on amendment of the original Order quantity (**Turquoise Plato™** non-displayed only)

↓ Change allowed, affecting Time priority (**Turquoise Lit™**, **Turquoise Lit Auctions™**) or Size/Time priority (**Turquoise Plato™** non-displayed – where Orders are of the same Size)

× Change not allowed, Order must be cancelled and re-entered

* Orders which have a TIF of GFA with an Execution Instruction of "Continuous and **Turquoise Plato Uncross™**" or "**Turquoise Plato Uncross™** Only" for the **Turquoise Plato™** Order Book are not amendable but can be cancelled. Any unfilled Quantity will automatically expire at the end of the **Turquoise Plato Uncross™** for which the Order was intended to participate (or will act as an IOC 'match and expire if not fully filled' in Continuous Trading if submitted between a **Turquoise Plato Uncross™** and the start of an Order Submission Interval).

With the exception of the above scenario, Order Cancellations by Participants can be made at any time, including during Trade Halts.

Additionally, Orders are cancelled by the system in the following circumstances:

- An Order has reached its expiration as set by the Participant.
- A GFA Order is expired, as a result of Turquoise applying a halt to the Financial Instrument within the **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books.

- At market close (including Day and GTD/GTT with Time Expiry Order).
- A Participant disconnects from the trading gateway, if the Cancel-on-Disconnect feature is specified by the Participant or is mandatory as part of the interface being used.
- Eligible Orders may execute partially up to the MOEL, with the remainder of the Order being cancelled.
- Turquoise may in certain circumstances, including if requested by a Participant, intervene and cancel an Order. Turquoise will never amend or end orders manually.
- If a user enters a Mass Cancellation, all Orders within the same Trader Group are cancelled from a single FIX session (FIX specific).

10.4 Trade Cancellations and Amendments during Trading Sessions

Cancellations of Trades on the **Turquoise Lit™**, **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books cannot be made by Participants at any time.

Turquoise may in certain circumstances, including if requested by a Participant, intervene and cancel a Trade.

Turquoise will never amend trades.

Service Description

11.0 Normal Trading

11.1 Execution Priority

The system determines execution priority based on the following hierarchy.

Turquoise Lit™ Order Book:

    i) Price: Orders that are priced more aggressively have priority

    ii) Visibility: Within a price point, Visible quantities of all Orders, will have priority over Hidden quantities. Hidden quantities of Iceberg Orders have priority over Hidden LIS order quantities

    iii) Time: Within a price point and visibility category, earlier time priority has preference.

    Time priority is assigned:

- when an Order is received during Normal Trading
- when an Order is modified (only for certain modification types)
- when an Iceberg Order's Visible display size is replenished after depletion.

Size constraints (MAQ): Applies only to Orders with IOC, FOK time qualifiers and Market Orders with MAQ specified.

Turquoise Lit Auctions™ Order Book:

Once the auction price has been determined which maximises the quantity that can be matched at applicable prices, including the PMP, the following execution priority applies:

    i) Member Group Priority: For Member Firms that have opted in to Member Group Priority matching, these Member Firm Groups will have all their Orders matched first, before they match with other orders not in their Member Group from their own Member Firm.

    ii) Member Priority: For Member Firms that have opted in to Member Priority matching, these Firms will have all their Orders matched first, before they match with other Firms.

    iii) Time: Time priority is assigned at the point of Order entry and may be updated when the Order is modified (only for certain modification types).

If the Limit Price precludes an Order matching at the prevailing PMP, the Limit Order will retain its queue priority, but will be prevented from matching whilst the prevailing PMP is beyond the specified Limit.

For Firms that opt into Member Group Priority Matching/Member Priority Matching, upon aggression or once their Order has been selected for matching within the **Turquoise Lit Auctions™** Order Book, an attempt to match against their own Orders first will be made, before attempting to match any remaining quantity with Orders from other Firms on a Time priority basis. See Section 9.10.1 for details of Member Group Priority and Member Priority.

Size constraints (MES): Applies to any Order with Minimum Quantity specified.

Turquoise Plato™ Order Book:

Orders with larger sizes will be given higher priority than Orders of smaller sizes. Partial filling of an Order will not result in an Order losing its priority.

Where two Orders share the same Size priority, Time priority will then apply. Time priority is assigned at the point of Order entry and may be updated when the Order is modified (only for certain modification types).

If the Limit Price precludes an Order matching at the prevailing PMP, the Limit Order will retain its queue priority, but will be prevented from matching whilst the prevailing PMP is beyond the specified Limit.

Turquoise Plato™ executes persistent Orders starting with the largest Order on the Buy side of the book and will work its way down the Buy side until no further executions are possible.

For Firms that opt into Member Priority Matching, upon aggression or once their Order has been selected for matching within the Turquoise Order Book, an attempt to match against their own Orders first will be made, before attempting to match any remaining quantity with Orders from other Firms on a Size/Time priority basis. See Section 9.10.2 for details of Member Priority Matching, during Continuous Trading, **Turquoise Plato Uncross™** events and **Turquoise Plato Block Discovery™.**

Size constraints (MES): Applies to all Orders with Minimum Quantity specified.

11.2   Execution Venue

Execution Reports which have the Routing Instruction (FIX Tag 9303) or Target Book (Native 137) field, advise Participants whether their Order was executed in the **Turquoise Lit™, Turquoise Lit Auctions™** or **Turquoise Plato™** Order Books.

FIX Tag 9303 Values	Native Position 137 Values	MIC	Description
I	1	TRQX	**Turquoise Lit™** Order Book
A	4	TRQA	**Turquoise Lit Auctions™** Order Book
M	0	TRQM	**Turquoise Plato™** Order Book

11.3   Trade Liquidity Indication

The Trade Liquidity Indicator advises Participants how their Order impacted liquidity on the **Turquoise Lit™**, **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books.

FIX Tags 851 / 9730 Values	Native Position 120 Values	Description
1 / A	A	Added Liquidity – An Order which upon receipt rests passively adding liquidity
2 / R	R	Removed Liquidity – An Order which upon receipt aggressively executes against a passive Order, therefore removing liquidity
4 / C	C	**Turquoise Lit Auctions™** or **Turquoise Plato Uncross**™ Execution – An Order which executes during a **Turquoise Lit Auctions™** or **Turquoise Plato Uncross**™ event
9 / S	S	Block Discovery Execution - **Turquoise Plato Uncross™** - An Order which executes during a **Turquoise Plato Uncross**™ event, which has a valid Client Order Link ID linking it back to an Order Submission Request from **Turquoise Plato Block Discovery™**.
8 / T	T	Block Discovery Execution – Continuous Trading - An Order which was received after a **Turquoise Plato Uncross™** event, but before the start of an Order Submission Interval, which has a valid Client Order Link ID linking it back to an Order Submission Request from **Turquoise Plato Block Discovery™**. As the Order was late for the **Turquoise Plato Uncross™**, it was treated as an IOC removing any available liquidity during Continuous Trading.

11.4   Trade Venue Transaction Indication Code

The Trading Venue Transaction Identification Code (TVTIC) is used for transaction reporting purposes. Turquoise transaction identification code fulfilling these requirements is made available to Participants in the Native Trading Gateway, field "TradeMatchID", and in the FIX Trading Gateway, Tag 880 "TradeMatchID" available in Execution Report messages and is the same code for both the buyer and seller.

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12.0   Trading Halts

Trading Halts are controlled by Turquoise Market Operations. A Trading Halt may be followed by resumption of the Normal Trading session if the market is not closed before Market Operations deems a Financial Instrument tradable.

12.1   Within Turquoise Lit™, Turquoise Lit Auctions™ and Turquoise Plato™ Order Books

In response to information within Turquoise, Market Operations can halt Financial Instruments immediately via an ad-hoc change to a Financial Instruments Trading Status.

12.2   Within Primary markets

Turquoise will ascertain from a Primary market's feed or a regulatory request whether a Trading Suspension/Halt was based on regulatory reasons, a volatility break or a technical fault and may halt a Financial Instrument if it considers there may be a dis-orderly market.

12.3   Impact of a Trading Halt

If a Trading Halt is enforced by Turquoise Market Operations, the trading on the **Turquoise Lit™**, **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books for the Financial Instrument halted will be affected as follows:

- Existing Orders will remain in the Order Book, except for GFA Orders which will be expired within the **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books.
- New Orders will be rejected, with appropriate error message.
- Participants will be able to cancel their Orders, but no Order amendment will be permitted.
- No matching will occur (updates to the PMP affecting the set of Orders available for matching in the **Turquoise Lit Auctions™** or **Turquoise Plato™** Order Books will not result in any matches).

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13.0   Trading Tariff Model

Turquoise uses a Passive/Aggressive (Maker/Taker) tariff model for its **Turquoise Lit™** Order Book, a flat tariff model for its **Turquoise Lit auctions™** and **Turquoise Plato™** Order Books. Pricing promotions including volume discounts are sometimes offered.

All tariff information is publically available. Please refer to the Tarff Schedule document located on the Turquoise website for up-to-date information: http://www.lseg.com/markets-products-and-services/our-markets/turquoise/fees

13.1   Categorisation of Trades

Turquoise Lit Auctions™ and Turquoise Plato™ Order Books

All Trades on the **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books are considered as Hidden for the purposes of billing.

Turquoise Lit™ Order Book

Executed orders will be categorised as Passive or Aggressive.

- Orders that 'rest' on the book prior to execution are Passive
- Orders (or portions of Orders) that execute without resting are Aggressive.

Executed Orders will additionally be categorised as Displayed or Hidden.

- Executed visible Passive Orders (including the visible portion of iceberg orders) disseminated in market data before execution are Displayed.
- LIS Hidden Orders and the non-displayed portion of iceberg Orders are Hidden
- Non-persistent Orders and LIS Hidden will be designated as Hidden

Note: Only the Passive Order will receive this categorisation. The Aggressive Order will always be "Not Specified".

13.2   Types of Trade for Billing

Turquoise currently charges differently for the following categories:

- Non-displayed – including **Turquoise Lit Auctions™** and **Turquoise Plato™** Midpoint Order Book executions and Hidden Passive executions on the **Turquoise Lit™** Book
- Passive – Displayed Passive executions on the **Turquoise Lit™** Order Book
- Aggressive – All Aggressive executions on the **Turquoise Lit™** Order Book

14.0   Interfaces and Information Dissemination

Turquoise provides gateways to enter Orders into the trading system, receive market data, download own Order and Trade information.

Participants can request and maintain CompIDs and UserIDs via the Member Portal.

14.1   Native Trading Gateway

The Native trading gateway provides a low latency trading interface which allows Participants to send and manage Orders on the trading system. The interface enables Participants to perform the following activities:

   i) Submit an Order

   ii) Cancel an Order

   iii) Mass Cancel Orders

   iv) Cancel/Replace an Order

The Native Trading Gateway uses a proprietary interface referred to as the Native interface. The Native interface consists of two channels. A Real-Time channel that provides the main Order management functionality and a Recovery channel that allows Participants to subscribe to missed messages due to a disconnection from the Real-Time channel.

14.2   FIX Trading Gateway

The FIX trading gateway allows Participants to send and manage Orders on the trading system. The interface enables Participants to perform the activities outlined below.

   i) Submit an Order

   ii) Cancel an Order

   iii) Mass Cancel Orders

   iv) Cancel/Replace an Order

14.3   FIX Drop Copy Gateway

Turquoise provides a gateway to receive additional copies of Execution Reports generated by the trading system. This gateway may also be used by Participants to download the current status of all their active Orders in the event of a failure. The drop copy service cannot be used to submit Orders or receive market data. The Drop Copy Gateway uses the FIX 5.0 SP2 protocol.

14.4   FIX Post Trade Gateway

Turquoise provides a FIX Post Trade Gateway that permits Participants to perform the activities outlined below:

i)   Receive real-time updates on executed Trades

ii)   Receive information on executed Trades via a query-based service to facilitate a recovery after a failure.

The entry of Orders (or Quotes) is not supported by the Post Trade Gateway. The Post Trade Gateway uses the FIX 5.0 SP2 protocol.

14.5   Market Data Gateway

The Market Data gateway provides a stream of fixed width binary messages which provides the following real-time information:

i)   Order depth for the entire **Turquoise Lit™** Order Book.

ii)   Indicative Auction Quantity and Price (no imbalance) for the **Turquoise Lit Auctions™** Order Book.

iii) Price and volume for each executed on-book Trade for the **Turquoise Lit™**, **Turquoise Lit Auctions™** and **Turquoise Plato™** Order Books.

iv)   Call Market message to notify Participants of a **Turquoise Plato Uncross™** event in the **Turquoise Plato™** Order Book.

v)   Trading status of each Financial Instrument.

The feed also includes a daily download of the Financial Instrument list of Turquoise (Symbol Directory). The Market Data gateway uses a proprietary interface based on the MITCH protocol via UDP multicast.

14.6 Detailed information regarding interfacing and information dissemination

For further information regarding interfacing with Turquoise please refer to the following documentation which can be found on the Turquoise website at the 'Document Library':

- TQ102 – Connectivity Guide
- TQ201 – Trading Gateway (FIX 5.0)
- TQ202 – Post Trade Gateway (FIX 5.0)
- TQ203 – Drop Copy Gateway (FIX 5.0)
- TQ301 – Trading Gateway (Native)
- TQ401 – Level 2 MITCH Market Data
- TQ501 – Guide to Reference Data Services

14.7 Detailed information regarding Certification and Testing Services

For further information regarding Certification of Participant's software and ongoing testing obligations with Turquoise, please refer to the following documentation which can be found on the Turquoise website at the 'Document Library':

- TQ601 – Guide to Certification
- TQ602 – Certification Report
- TQ603 – Guide to Testing Services

14.8 Detailed information regarding LSEG's Group Ticker Plant and Turquoise

For further information regarding interfacing with LSEG's Group Ticker Plant (GTP) to receive Turquoise market data, please refer to the following documentation which can be found on the GTP website at the 'GTP Documentation Library':

- GTP001 – Product Guide
- GTP002 – Technical Guide
- GTP003 – Statistics Guide
- GTP004 – Parameters Guide
- GTP005 – Testing Service Guide
- GTP006 – External Source Guide
- GTP008 – Market Attributes Guide

Disclaimer

Contact Details

Turquoise Global Holdings Limited
10 Paternoster square, London EC4M 7LS
E:sales@tradeturquoise.com
T: +44 20 7382 7600

Turquoise