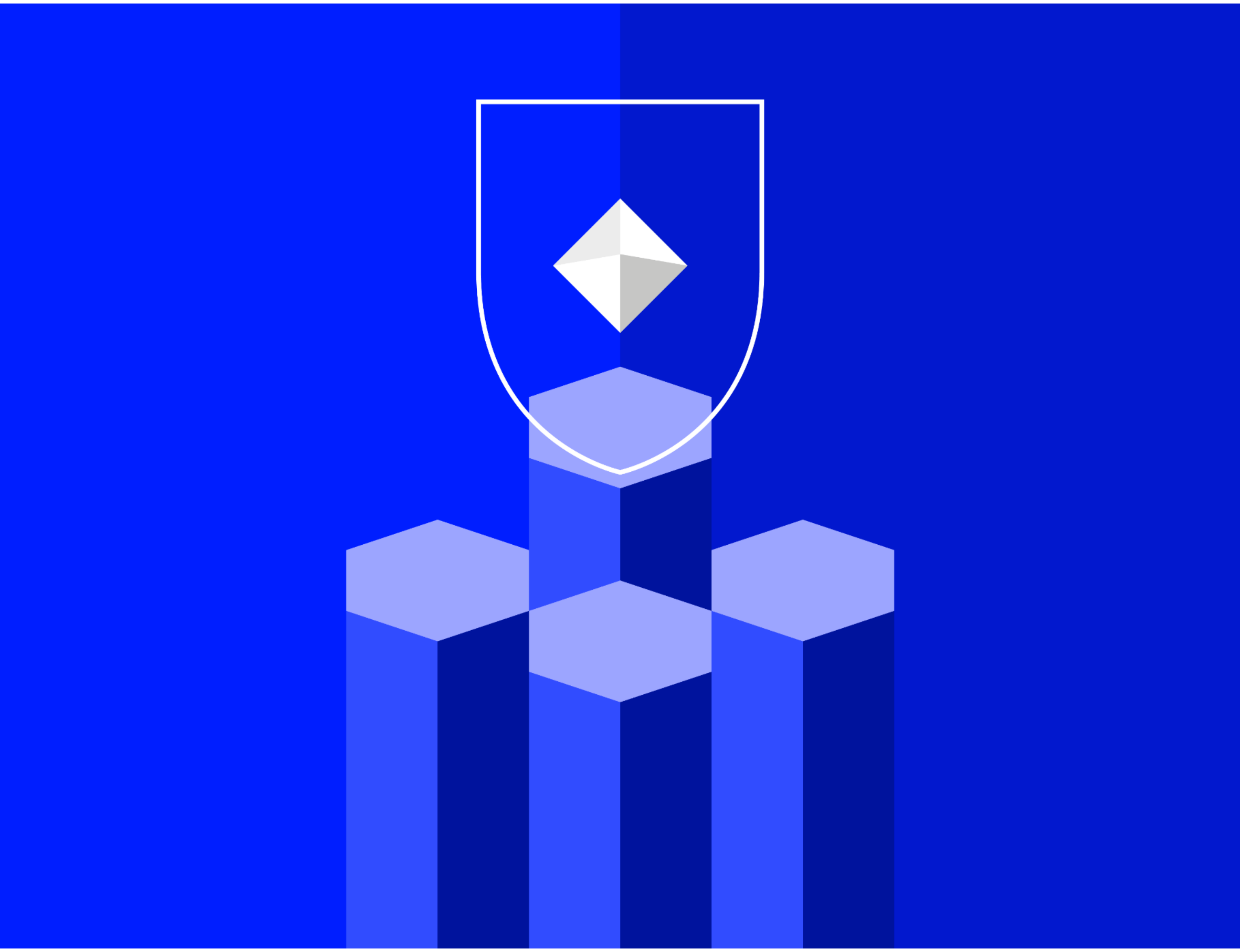
TURQUOISE BLOCK DISCOVERY

Trading Service Description

Version 2.29.1

04 July 2025



LONDON STOCK EXCHANGE

TURQUOISE

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1.0 About Turquoise

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

Turquoise Global Holdings Europe B.V. (TGHE or Turquoise Europe and together with TGHL, Turquoise) is an investment firm authorised and regulated by the Autoriteit Financiële Markten (AFM) of the Netherlands. TGHE is a wholly-owned subsidiary of TGHL.

Turquoise operates two Multilateral Trading Facilities (MTF); One by TGHL, and one by TGHE. TGHL supports the trading of UK, Swiss, US and EEA Financial Instruments, whilst TGHE supports the trading of EEA instruments. With a single connection, members of TGHL and TGHE can trade shares, depository receipts, ETFs, ETCs, and European Rights Issues in up to 19 European countries, with an Open Access model that allows members to choose from 3 different CCPs to clear these trades on an interoperable basis.

Membership to TGHL and TGHE is open to eligible 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.

TGHL and TGHE both feature three Order Books:

- **Turquoise Lit** combines simple limit and iceberg orders with Large In Scale hidden Orders.
- **Turquoise Periodic Auctions**[1] are price forming auctions, operating frequently and with pre-trade transparency throughout the trading day, supporting simple limit and PBBO bid/midpoint/offer pegged orders, and allows users to configure a Minimum Execution Size.
- **Turquoise Retail Max** matching provides the opportunity for Retail Liquidity Providers to provide liquidity for Retail Brokers (within **Turquoise Periodic Auctions**, with pre-trade transparency throughout the trading day.
- **Turquoise Dark**[2] non-displayed midpoint prioritises orders by size and allows users to configure a Minimum Execution Size; it features two distinct mechanisms, each executing at the midpoint of the PBBO: Continuous matching and **Turquoise Dark Uncross**, an innovation that provides randomised uncrossings during the trading day, ideal for larger and less time sensitive passive orders.
- **Turquoise Block Discovery** matches undisclosed electronic Block Indications and manual Client Block Indications and that execute in **Turquoise Dark Uncross**.
- **Turquoise Dark Lit Sweep** provides the opportunity for price improvement (with no loss of queue priority) by matching against contra liquidity in the Turquoise Dark Order Book at the Primary market's midpoint, before aggressing available liquidity in the Turquoise Lit Order Book.
- **Turquoise Dark Trade At Last** matching, provides the opportunity to continue matching at the Primary market's Closing Price at the end of the trading day.

The Turquoise securities trading platform is hosted in 3rd party datacentres and features interfaces common to other LSEG markets, including London Stock Exchange, ensuring that customers accessing other LSEG markets can enjoy access to Turquoise with little incremental cost or effort.

[1] From 4 July 2025, Turquoise rebranded its Turquoise Plato Lit Auctions™ services as **Turquoise Periodic Auctions.**
[2] From 4 July 2025, Turquoise rebranded its non-displayed Turquoise Plato™ services as **Turquoise Dark**.

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 **Turquoise Block Discovery** for Turquoise (TGHL) and Turquoise Europe (TGHE).

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

This document has been written to reflect the introduction of Turquoise Block Discovery as part of the Millennium Exchange platform used by Turquoise.

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

3.0 Change history

Date	Version	Changes
20/10/2014	2.0	Turquoise Block Discovery™ first published version.
24/10/2014	2.1	Updated all references of ITCH to MITCH following rebrand. Sections 5.1 and 5.3.5 updated to change contact for Reputational Score breach to Client Support. Section 10.2 updated to include Client Support contact details.
14/01/2015	2.2	Section 12.2 updated (minor update).
16/01/2015	2.3	Updated the following sections to reflect to upgrade of Millennium Exchange. Changes include: Section 5.3.5.1 updated to reflect Turquoise Uncross™ Only with TIF of GFA is now a valid QBO response. Section 9.7 updated to add clarity. Section 9.7.1 updated to reflect a change in behaviour for 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™). 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 no longer be amended or cancelled. Sections 1.0, 4.0, 5.1, 5.4.2, 5.4.6 and 8.2 updated (minor updates).
21/04/2015	2.4	Section 9.8 added and Section 11 updated to introduce optional Member Priority Matching within Turquoise Block Discovery™.
28/05/2015	2.5	Section 4.0 and 9.7 updated – Turquoise Uncross™ then Continuous definition added. Section 5.3.2 updated adding Turquoise Uncross™ then Continuous as a BDN option. Section 5.4.2 updated Instrument count. Section 9.5 added clarity regarding "Pegged" Order Type. Section 11.0 updated to add clarity regarding Minimum Quantity (MES).
12/08/2015	2.6	Section 1.0 updated to reflect number of instruments. Section 4.0 updated to remove MIS term and add MIV and MNV terms. Sections 5.1, 5.3.1 and 5.3.2 updated to reflect change from MIS to MIV for BI validation and addition for MNV for BDNs. Section 5.3.5.1 updated to reflect that the MES of the BI/OSR, not MIS that is checked against the Quantity, plus removal of reference to future enhancement. Section 5.4.4 updated to reflect change from MIS (a shares-based validation) to MIV (a value-based validation). Section 5.4.5 added to reflect the new MNV validation for BDNs participation in Turquoise Block Discovery™.
05/10/2015	2.7	Sections 1.0 updated to reflect Polish securities can be traded in the Turquoise Lit Book. Section 8.1 updated to delete HUF and CZK.

Date	Version	Changes
19/11/2015	2.8	Sections 5.3.5.1, 9.7.1, 10.2, 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. Section 5.3.5.2 added to define the Reputational Scoring behaviour for cancelling a QBO and resubmitting a new QBO. Sections 5.2.1, 5.3.5 and 5.3.5.1 updated to reflect a new definition of "marketable" QBO. Participants may now add/change a Limit Price on their QBO such that it becomes less marketable than the BI to which it relates, as long as it stays within the price tolerance set. Section 10.3 updated to reflect Time in Force is not amendable.
26/01/2016	2.9	Section 5.3.5 updated to remove the introduction of a new definition of "marketable" QBO noted in version 2.8 of this document.
04/04/2016	2.10	Sections 5.2.1 and 5.3.3 updated to provide details around the randomness and duration of the Turquoise Uncross™ event after the Call Market has been published. Section 8.1 updated for Maximum Indication Value.
11/07/2016	2.11	Section 1.0 and 4.0 updated to include Turquoise SwapMatch™.
21/07/2016	2.12	Section 10.3 updated to remove reference to primary market hours.
06/09/2016	2.13	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	2.14	Section 5.4.2 updated to reflect introduction of Czech and Hungarian instruments for trading in the Turquoise Plato™ Order Book. Section 5.4.3 updated to reflect the addition of CZK and HUF currencies. 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 here: http://www.lseg.com/resources/media-centre/press-releases/plato- partnership-enters-cooperation-agreement-turquoise.
21/11/2016	2.15	Section 5.3.5 updated to reflect the change in Reputational Score methodology, by turning off the Liquidity and Consideration weighting. Section 11 updated to clarity matches starts with the largest BI/BDN on the buy side of the order book.
07/12/2016	2.16	Sections 5.4.4 and 8.2 updated to clarify new or amended Market BIs will be rejected when the PBBO mid-price is unavailable.
08/12/2016	2.17	Section 10.3 updated to reflect behaviour that Valid Till is amendable.
08/02/2017	2.18	Section 5.3.2 updated to clarify how a BDN can be applied to an Order. Section 5.3.5 updated to remove % signs, as Reputational Scores are absolute values.
08/05/2017	2.19	Removed ® from Turquoise throughout the document. Sections 4.0, 5.2, 5.2.1, 5.3.3, 5.3.4 and 9.7 updated to reflect the enhancement to the Turquoise Plato Uncross™ event, with the introduction of Continuous matching of BIs and eligible BDNs. Section 5.3.5.2 term updated from Confirmation Interval to Order Submission Interval.
16/05/2017	2.20	Section 5.3.5 updated to reflect increase in OSR response time from 450ms to 500ms.
01/07/2017	2.21	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.

Date	Version	Changes
03/01/2018	2.22	Branding changes: Turquoise (made non-bold), Turquoise Integrated Order Book, now called Turquoise Lit™ Order Book. Section 1.0 updated with reference to Turquoise Lit Auctions™ Order Book. Section 4.0 updated terms – Security/Securities (Instrument) to Financial Instrument(s), Participant definition, updated MiFID definition, added ESMA, LIS, LIS Waiver, RPW Waiver, Turquoise Lit Auctions™ and MiFIR definitions. Section 5.2 footnote update regarding eligible BDN size when RPW is Allowed and when RPW is not Allowed. Sections 4.0, 5.3.3, 9.4 and 9.7.1 updated, along with other sections to change reference from 'Call Market' to 'start of Order Submission Interval' (where appropriate). Sections 5.4.4 and Sections 5.4.5 updated re: Minimum Sizes when RPW is Allowed and is not Allowed. Section 5.4.7 updated to reflect that all BIs/BDNs must have a Limit Price which is a valid Tick. Section 6.0 updated. Section 7.2 updated re: PMP. Section 10.2 updated to reflect Close at 16:30:01 and End of Day 16:30:02. Section 13.0 deleted regarding Test Securities. Section 14.0 onwards re-referenced. Section 14.6 updated, Sections 14.7 and 14.8 added re: Testing/Conformance and GTP. General updates on hyperlinks. Updated reference to surveillance to be consistent as "market surveillance".
09/04/2018	2.23	Section 5.3.5.1 updated to reflect that a QBO's Quantity does not now have to be equal to or greater than MES on the corresponding BI at the time the OSR was sent.
29/05/2018	2.24	Section 8.1 updated Maximum Indication Values to €200m for Turquoise Plato Block Discovery™.
29/05/2018	2.24a	Sections 5.3.1 and 5.3.5.1 updated to add footnote to clarify OrderType of 'Pegged' and OrderSubType of 'BI' or 'BDN'.
13/07/2018	2.25	Sections 5.3.1, 5.3.2, 5.3.5 and 9.5 updated to reflect that Order Type of 'Pegged' with Order Sub Type of 'BI' or 'BDN' (including QBOs) is supported via the FIX Trading Gateway. Sections 4.0 and 5.3.2 updated to reflect that Participants can default a BDN onto their Orders per UserID (excludes QBOs).
17/09/2018	2.26	Section 1.0 updated to include LCH SA as their 4th CCP.
01/11/2018	2.27	New version for the introduction of Turquoise Global Holdings Europe B.V. (the). Sections 1.0, 4.0, 5.1, 5.3.2, 5.4.2, 5.4.3, 5.4.4, 5.4.5, 5.4.7, 6.0, 9.7, 9.8, 11.0 and 12.3 plus Disclaimer updated to reflect the above.
25/01/2019	2.27.1	Sections 14.5 and 14.6 updated to reflect that the MITCH market data protocol was decommissioned (2018). Updated various sections to reflect Turquoise's rebrand of Turquoise Lit Auctions™ services as Turquoise Plato Lit Auctions™.
08/04/2019	2.27.1a	Section 5.3.5 updated to reflect the increase in number of events considered in user's Reputational Score calculations from 50 to 100 events.
26/07/2019	2.27.1b	Sections 1.0, 5.4.2, 5.4.4, 5.4.5 and 5.4.7 updated to reflect Turquoise plans in the event of a Hard Brexit.
10/10/2019	2.27.1c	Section 1.0 updated to reflect Turquoise EurotheTGHE) will only trade EEA instruments.

Date	Version	Changes
13/07/2020	2.27.1d	Section 1.0 updated to reflect the new Turquoise NYLON™ Cash Order Book.
		Sections 1.0 & 4.0 updated to reflect Turquoise Swapmatch™ decommissioning.
		Sections 4.0, 5.1, 5.2, 5.4.2, 5.4.4, 5.4.5, 5.4.7, 5.6, 7.3, 8.2, 9.5, 9.8, 10.2 and 11.0 updated/added to reflect the extended Trade at Last (TAL) matching phase and matching at the Primary market Closing Price (PCP) applies to Turquoise Plato Block Discovery™.
28/09/2020	2.27.2	Section 1.0 updated to reflect: The introduction of the Turquoise Plato Trade At Last™ matching phase Turquoise Plato is a registered Trademark of Turquoise Global Holdings Limited (TGHL) The Turquoise NYLON™ Cash Order Book will only be available to TGHL Members Section 8.2 updated to reflect that Euronext does sometimes publish two different valid PCPs for some Financial Instruments on the same trading day.
26/02/2021	2.27.3	This version of the document has been updated to reflect brand changes for London Stock Exchange Group (LSEG), Turquoise® and Turquoise Europe™. Front page – Introduces Turquoise as 'An LSEG Business'. Section 1.0 updated with new Turquoise introduction. Section 2.0 updated to reflect the document relates to Turquoise® and Turquoise Europe™. Various sections updated to reflect use of the Turquoise brand and its trade marks.
26/05/2021	2.27.3i	Section 1.0 updated to correct the summary description of the Turquoise NYLON Cash Order Book™.
17/12/2021	2.27.4	Sections 5.2.1 and 5.3.3 updated to reflect the change to the Turquoise Plato Uncross™ random period from 1,500ms to 500ms. Sections 10.2 and 10.3 updated to reflect new email address for live incidents.
26/01/2024	2.28.0	Section 1.0 updated to reflect the decommissioning of **Turquoise NYLON Cleared Contract™** and **Turquoise NYLON™** Cash Order Book.
26/07/2024	2.28.1	Section 1.0 updated to reflect the decommissioning of LCH SA as a CCP.
19/08/2024	2.28.2	Section 4.0 updated to reflect Reputational Score Thresholds are set to 0 for new users to allow them to generate historic events, before being increased to a maximum threshold of 15.
11/10/2024	2.28.3	Section 8.1 updated to reflect the raising of Max Indication Values.
11/04/2025	2.29.0	Sections 1.0, 4.0, 5.1-5.3.7.1, 5.4.2, 5.4.4, 5.4.5, 6.0, 7.0, 8.1-8.2, 9.1-9.7.1, 10.2-10.3, 11.0, 11.1, 12.3, 14.0-14.5 updated to reflect the launch of manual Client Block Indications within Turquoise Plato Block Discovery™; and Turquoise Plato Order Book™ (and supporting Nominated Broker model). Sections 4.0, 5.3.4 updated to reflect the optimisation of **Turquoise Plato Uncross™** events that are triggered by a random timer.
04/07/2025	2.29.1	Various sections updated to reflect the rebrand following the end of the Turquoise Plato Partnership. • **Turquoise®** and **Turquoise Europe™** have been rebranded to **Turquoise and Turquoise Europe**. • **Turquoise Plato™** and **Turquoise Plato™ Order Books** have been rebranded to **Turquoise Dark** and **Turquoise Dark Order Books**, respectively. ○ **Turquoise Plato Uncross™** has been rebranded to **Turquoise Dark Uncross** ○ **Turquoise Plato Block Discovery™** has been rebranded to **Turquoise Block Discovery** ○ **Turquoise Plato Trade At Last™** has been rebranded to **Turquoise Dark Trade At Last**

Date	Version	Changes
		◦ **Turquoise Plato Continuous™** has been rebranded to **Turquoise Dark Continuous** ◦ **Turquoise Plato Dark Lit Sweep™** has been rebranded to **Turquoise Dark Lit Sweep** • **Turquoise Plato Lit Auctions™** and **Turquoise Plato Lit Auctions™ Order Books** have been rebranded to **Turquoise Periodic Auctions** and **Turquoise Periodic Auctions Order Books**, respectively. • **Turquoise Lit™** and **Turquoise Lit™ Order Books** have been rebranded to **Turquoise Lit** and **Turquoise Lit Order Books**, respectively. • **Appital Turquoise BookBuilder™** has been rebranded to **Appital Turquoise BookBuilder** • **Turquoise Block Insights™** has been rebranded to **Turquoise Block Insights**

4.0 Terms and acronyms

Term	Meaning
Block Discovery Notification (BDN)	A BDN is an attribute of an order sub type and corresponds directly to a live Order 'typically of block-size' submitted to **Turquoise Dark Order Books** and is eligible for participation in Turquoise Block Discovery. Available on an 'opt-in' basis to all Turquoise Participants, who wish to access **Turquoise Block Discovery**. Participants can also 'opt-in' to have a BDN added by default onto all their **Turquoise Dark** Orders (per user ID). For further information, please see Section 5.3.1.
Block Indication (BI)	Is a non-actionable indication of interest submitted to **Turquoise Block Discovery** (greater in size or equal to the Minimum Indication Size threshold for **Turquoise Block Discovery**) that corresponds to a live In-hand Order over which the Participant has full discretion, and can be immediately converted into a firm QBO if a matching opportunity is identified. On identification of a matching opportunity, the BI will be expired automatically. For further information, please see Section 5.3.2.
Call Market	Symbol Status Message sent via market data feeds to notify Turquoise Participants of an impending **Turquoise Dark Uncross** within **Turquoise Dark Order Books**. For further information, please see Section 5.3.3.
Client Block Indication (CBI)	Is an actionable indication of interest submitted to **Turquoise Block Discovery** (greater in size or equal to the Minimum Indication Size threshold for **Turquoise Block Discovery**) that corresponds to a live In-hand Order over which the Participant has full discretion and can be manually converted into a firm QBO if a matching opportunity is identified. On identification of a matching opportunity, the CBI will be expired automatically. For further information, please see Section 5.3.2.
Composite Reputational Score (BIs only)	The Composite Reputational Score is compared against the Reputational Score Threshold in order to determine whether a Participant is permitted to continue using BIs within Turquoise Block Discovery. It is calculated from the individual Event Reputational Scores of instances where a potential match for a BI was identified, an OSR was sent, and whether the Participant sent in a firm QBO. The current Composite Reputational Score is provided to Participants each time they receive an OSR and persists from one day to the next.
EEA	European Economic Area.
ESMA	European Securities and Markets Authority.
Event Reputational Score	Event Reputation Scores are calculated for each an individual event where a potential match for a BI/CBI was identified, and an OSR was sent. Please see Section 5.3.6 for more information on how Event Reputational Scores are calculated for BIs and CBIs.
Fill or Kill (FOK)	An Order that is executed immediately in its entirety or expired.
Financial Instrument	A Financial Instrument eligible for trading on Turquoise in accordance with Section 4 of the Turquoise UK Rule Book and Section 4 of the Turquoise Europe Rule Book. A Financial Instrument can also be referred to as an "Instrument" or "Security".
Good for Auction (GFA)	Only applicable to Turquoise Dark Order Book. GFA Orders are designed to facilitate participation in a single **Turquoise Dark Uncross**. They are expired either after attempting to match during the **Turquoise Dark Uncross** it is scheduled to participate in or at the time of the scheduled **Turquoise Dark Uncross** if, for example, the

Term	Meaning
	Turquoise Dark Uncross fails to happen due to a WFMC failure. i.e. a GFA Order can only ever participate in a single **Turquoise Dark Uncross** event. Please see Section 9.4 for details of **Turquoise Dark Uncross** GFA Orders' behaviour around the start of the Order Submission Interval. Not applicable to BIs/CBIs.
Good Till Date (GTD)	An Order (+ BDN) or BI/CBI 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 9.4 for details of **Turquoise Dark Uncross** GTD Orders' behaviour around the start of the Order Submission Interval.
Good Till Time (GTT)	An Order (+ BDN) or BI/CBI 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 9.4 for details of **Turquoise Dark Uncross** GTT Orders' behaviour around the start of the Order Submission Interval.
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.
In-hand Order	An Order which the Participant has received, which will be submitted immediately (for BIs) / Manually (for CBIs) upon receipt of an OSR to the appropriate **Turquoise Dark Order Book**.
Large in Scale (LIS)	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 Turquoise Dark Order Books, which permits Turquoise and Turquoise Europe to support Hidden Orders which are LIS without making them pre-trade transparent to the market.
Market Identifier Codes (MIC)	Are ISO10383 codes used by Turquoise to recognise its Business (Operating MIC) and Order Books (Segment MICs) as follows: Operating MICs: **Turquoise Global Holdings Limited (TRQX)** **Turquoise Global Holdings Europe B.V. (TQEX)** Segment MIC for TRQX: **Turquoise Dark Order Book (TRQM)** Segment MIC for TQEX: **Turquoise Dark Order Book (TQEM)**
MiFID	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	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 Execution Size (MES)	Minimum Execution Size (single fill match) sent on an Order or BI by Participants as a minimum quantity that is to be matched.
Minimum Indication Value (MIV)	The value that a BI/CBI must be greater than or equal to for it to be accepted into **Turquoise Block Discovery**. MIV is defined on a per Financial Instrument basis (as a value in the Financial Instrument's trading currency). The MIV for BIs is 25% of LIS or 100% of LIS when use of the Reference Price Waiver is suspended in relation to ESMA's Double Volume Cap Mechanism. The MIV for CBIs is 100% of LIS.
Minimum Notification Value (MNV)	The leaves value that a BDN must be greater than or equal to for it to participate in **Turquoise Block Discovery**. MNV is defined on a per Financial Instrument basis (as a value in the Financial Instrument's trading currency).

Term	Meaning
	For BDNs to match with: • BIs, the MNV is 25% of LIS or 100% of LIS when use of the Reference Price Waiver is suspended in relation to ESMA's Double Volume Cap Mechanism. • CBIs, the MNV is 100% of LIS.
Multilateral Trading Facility (MTF)	As defined in article 4(1)(15) of MiFID.
Non-displayed Order	An Order that is not displayed to the market.
Order	An Order to buy or sell a Financial Instrument specified by the Participant.
Order Submission Interval	Following a **Turquoise Block Discovery** match of contra BIs and/or BDNs, the 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 Dark Uncross**. The Order Submission Interval is set at 500ms (+/- 1ms) for all Financial Instruments.
Order Submission Request (OSR)	A request by **Turquoise Block Discovery** to a Participant to convert their BI/CBI into a firm QBO. The OSR contains no information about the size, MES, price or type (e.g. BI, CBI, BDN corresponding to a firm Order) or the potential counterparty – but receipt of an OSR implies that a potential match is available for at least the Participant's own MES. For further information, please see Section 5.3.5.
Order Sub Type	The subtype of orders includes: Order (for **Turquoise Dark Order Book**) Order (for **Turquoise Dark Order Book**) + BDN (for **Turquoise Block Discovery**) BI (for **Turquoise Block Discovery**) CBI (for **Turquoise Block Discovery**) Orders are received by the **Turquoise Dark Order Book**. BIs, CBIs and BDNs are received by **Turquoise Dark** and are used within the **Turquoise Block Discovery** service.
Qualifying Block Order (QBO)	An Order which qualifies as a valid firm Order for Reputational Scoring purposes sent in response to an OSR, which is intended for participation in **Turquoise Dark Uncross** events. For further information, please see Section 5.3.7.
Participant	A Participant is a user who accesses Trading Services provided by TGHL and/or TGHE. A Participant may also be a Member of TGHL and/or TGHE.
Pegged Order	An Order to buy or sell a financial instrument at the PMP then PCP once published by the Primary market, until the end of the trading day (within the Turquoise Dark Trade at Last session).
Pegged Limit Order	An Order to buy or sell Financial Instruments at the PMP then PCP once published by the Primary market, until the end of the trading day (within the **Turquoise Dark** Trade at Last session) equal to or better than a Limit Price specified by the Participant.
Primary Best Bid and Offer (PBBO)	The Primary market's Best Bid and Offer price for a Financial Instrument.
Primary market	Means the market on which the Financial Instrument was first admitted to trading (or the market on which Turquoise management determined a Financial Instrument has its primary listing).
Primary market Closing Price (PCP)	Is defined as being equal to the close price published by the Primary markets.
Primary Midpoint Price (PMP)	Is the Midpoint Price of the PBBO for a financial instrument.
Reference Price Waiver (RPW)	Is a waiver used by the **Turquoise Dark 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 the Turquoise Trading Service Description.

Term	Meaning
Reputational Tiers (CBIs only)	Reputational Tiers are updated weekly based on a Buyside trader's (i.e. per CBI user) Event Reputational Scores and made available via Luminex's GUI (Graphic User Interface).
Reputational Score Threshold (BIs only)	Participants who submit BIs must have a Composite Reputational Score greater than the Reputational Score Threshold set by Turquoise for their BI to be accepted, for their BIs to participate in **Turquoise Block Discovery** and to be able to receive OSRs. Reputational Score Thresholds are set to 0 for new users to allow them to generate historic events, before being increased to a maximum threshold of 15. For further information, please see Section 5.3.6.
Time in Force (TIF)	Time in Force of an Order, Order + BDN, BI or CBI.
Trade	An agreement between two counterparties to buy or sell shares in a Financial Instrument at a specific Price.
Trade Liquidity Indicator	Advises Participants how their Order impacted liquidity in the **Turquoise Lit, Turquoise Periodic Auctions and Turquoise Dark Order Books**, e.g. Added liquidity, Removed Liquidity, etc.
Turquoise Global Holdings Limited (TGHL)	TGHL is majority owned by London Stock Exchange Group (LSEG) in partnership with the user community and operates an MTF trading UK, Swiss and US Financial Instruments. TGHL is also referred to as Turquoise.
Turquoise Global Holdings Europe B.V. (TGHE)	TGHE is a wholly owned subsidiary of TGHL and operates an MTF trading EEA Financial Instruments. It does not support the trading of UK, Swiss or US Financial Instruments. TGHE is also referred to as Turquoise Europe.
Turquoise Periodic 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 Block Discovery	Facilitates the trading of larger 'Parent' or 'Block' Orders by seeking and identifying block matching opportunities, between electronic Block Indications / manual Client Block Indications (with a quantities above or equal to the Minimum Indication Size thresholds) and Block Discovery Notifications. Where matches are identified, Participants are required to convert their electronic Block Indications / manual Client Block Indications by submitting firm Qualifying Block Orders, designated as eligible for existing **Turquoise Dark Uncross** events that already exist as part of the **Turquoise Dark Order Book** to trade at the Midpoint of the PBBO 'PMP', then PCP once published by the Primary market, until the end of the trading day.
Turquoise Dark Continuous and Turquoise Dark Uncross	An execution instruction selected by the Participant on order entry whereby it's Order is open to matching during **Turquoise Dark Continuous** trading and any unexecuted volume will rest in the **Turquoise Dark Order Books** open to **Turquoise Dark Continuous** matching and matching during randomised **Turquoise Dark Uncross** events. Please see Section 9.7.1 which details different behaviour when used with a TIF of GFA around the start of the Order Submission Interval.
Turquoise Dark Order Book	The Order Book containing only non-displayed Orders pegged to the PMP, then PCP once published by the Primary market, until the end of the trading day. For further information on the **Turquoise Dark Order Books**, please refer to the Turquoise Trading Service Description.
Turquoise Dark Trade At Last	Is a matching phase within the trading session in **Turquoise Dark Order Books** (including **Turquoise Block Discovery**), which matches Orders (and Block Indications) at the PCP once published by the Primary market, until the end of the trading day.
Turquoise Dark Uncross	A **Turquoise Dark Uncross** event supports the submission and matching of persistent Order types. Participants on Order entry must select the **Turquoise Dark Uncross** execution instruction for its Order to be open to matching against contra-side Orders resting in the **Turquoise Dark Order Book** during randomised **Turquoise Dark Uncross** events.

Term	Meaning
	Turquoise Dark Uncross events are started either by the continuous matching of electronic Block Indications (BIs) and/or eligible Block Discovery Notifications (BDNs) or by a random timer, whichever happens sooner. **Turquoise Dark Uncross** events started by the continuous matching of a BIs and or BDNs will take place at a random point between 0.5 seconds and 1 second after the Order Submission Interval. A Call Market is published to signal the start of these events. Between the start of an Order Submission Interval and these types of **Turquoise Dark Uncross** events, continuous matching of Block Indications (BIs) / eligible BDNs and CBIs is paused. **Turquoise Dark Uncross** events started by the random timer will take place at a random point between 5 second and 10 seconds, from the last **Turquoise Dark Uncross** event. A Call Market is not published for these events, and there is no Order Submission Interval.
Turquoise Dark Uncross then Continuous	The execution instruction selected by the Participant on Order entry whereby its Order is not open to matching during **Turquoise Dark Continuous** trading until it has participated in a **Turquoise Dark Uncross** event which has a valid PMP which has passed **Turquoise Dark** WFMC. Any unexecuted volume will then rest in the **Turquoise Dark Order Book** open to '**Turquoise Dark Continuous**' matching and matching during subsequent randomised '**Turquoise Dark Uncross**' events. Please see Section 9.7.1 which details different behaviour when used with a TIF of GFA around the start of the Order Submission Interval.
Well Formed Market Checks (WFMC)	A series of checks performed to check the Primary market reference prices used within the **Turquoise Dark Order Books** and **Turquoise Block Discovery** are well formed. For further information, please see Section 8.2.

For Turquoise and Turquoise Europe terms, as defined in the respective Rulebooks, please refer to:

http://www.lseg.com/markets-products-and-services/our-markets/turquoise/information-centre/document-library

5.0 Turquoise Block Discovery

5.1 Introduction to Turquoise Block Discovery

Turquoise Block Discovery facilitates the trading of larger "Parent" or "Block" Orders by seeking and identifying block matching opportunities between BIs/CBIs (with a value above or equal to the MIV thresholds) and BDNs (with a value above or equal to the MNV threshold). Where matches are identified, Participants are required to convert their BIs/CBIs by submitting firm QBOs, designated as eligible for **Turquoise Dark Uncross** events that exist within **Turquoise Dark Order Books** to trade at the Midpoint of the PBBO (PMP) or in the **Turquoise Dark Trade At Last** matching phase at the Primary market Closing Price (PCP).

The conversion of BIs into firm QBOs is monitored by a system of "Reputational Scoring" and market surveillance which will immediately exclude Participants who do not meet the Reputational Score Threshold. Participants that do not meet the Reputational Score Threshold but want to be re-included must contact Client Support and meet set criteria.

The conversion of Buyside Trader's CBIs into firm QBOs is monitored, with Buyside Traders classified into "Reputational Tiers". Turquoise has the discretion to exclude Buyside Traders (or specific CBIs) who do not meet appropriate standards.

As **Turquoise Block Discovery** matches are consummated, Participants using the **Turquoise Dark Uncross** feature of the **Turquoise Dark Order Books**, but not electing to participate in **Turquoise Block Discovery**, may nonetheless benefit from additional liquidity contributed by those who do participate in **Turquoise Block Discovery**.

To access **Turquoise Block Discovery**, individual BIs/CBIs/BDNs must be submitted with explicit instructions to participate.

It is possible for a customer to access both the existing **Turquoise Dark Order Book** and **Turquoise Block Discovery** with a single Order, but this is not the default behaviour. For Orders sent to the **Turquoise Dark Order Book** that are not explicitly flagged for participation in **Turquoise Block Discovery**, the characteristics of the current **Turquoise Dark Order Book** (including matching logic, priority, etc.) do not change.

5.2 Event Model

Turquoise Block Discovery follows the following event model, which is elaborated upon with specific examples below:

<table>
<tr><th colspan="2">Step</th></tr>
<tr><td>1.</td><td>Participant's submission of BIs/CBIs and BDNs.</td></tr>
<tr><td>2.</td><td>When a new or amended BI/CBI or eligible BDN[6] is entered, Turquoise Block Discovery is prompted to immediately check[7] for a match against existing contra BIs/CBIs and eligible BDNs as follows:

- BIs and eligible BDNs are matched. Fully and partially matched BIs are expired. Then…
- CBIs, unmatched eligible BIs and remaining unmatched quantity of eligible BDNs (from BI/eligible BDN match) are matched. Fully and partially matched CBIs are expired.

Additionally, following any Turquoise Dark Uncross or a reference price change, the system checks to see whether it's possible to match BIs/CBIs and eligible BDNs to identify possible block trading opportunities (as above).</td></tr>
<tr><td>3.</td><td>Where potential matches are identified, Participants may receive an OSR to submit a firm QBO to the Turquoise Dark Order Book. The following clarifies who receives OSRs and when:

- BI users who match with BIs or eligible BDNs will receive an OSR.
- CBI users who match with eligible BIs or eligible BDNs, will receive an OSR.</td></tr>
</table>

[6] To match with a BI or BDN, an eligible BDN must have a remaining value equal to or greater than 25% of LIS (when RPW is allowed) or equal to or greater than 100% of LIS (when RPW is not allowed). To match with a CBI, an eligible BDN must have a remaining value equal to or greater than 100% of LIS.

[7] Between the start of an Order Submission Interval and the relevant **Turquoise Dark Uncross** event, continuous matching of Block Indications (BIs) and eligible Block Discovery Notifications is paused.

Step	
	Note: Eligible BI users who match with CBI users will not receive an OSR until the CBI firms up with a QBO. i.e. An Order + BDN. When this happens, the BI will match with the BDN and receive an OSR.
4.	The windows for Participant's to submit a firm QBO to the **Turquoise Dark Order Book** is as follows: - If the OSR is related to a BI, the participant will have 500ms for their algo to submit their QBO. - If the OSR is related to a CBI, the participant (a Buyside trader) will have 20 seconds to submit their QBO.
5.	Matching of Orders (i.e. QBOs) takes place in the **Turquoise Dark Order Book**, in **Turquoise Dark Uncross** events.
6.	Composite Reputational scores are updated with Event Reputational Scores (for BI users). Participants are advised of their Composite Reputational Score on the next OSR that they receive. Reputational Tiers are updated weekly based on a Buyside Trader's (i.e. CBI users) historic Event Reputational Scores and made available via Luminex's GUI (Graphic User Interface).

For further information on the **Turquoise Dark Uncross** event and matching logic, see Section 5.4 of the Turquoise Trading services Description.

5.2.1. Turquoise Block Discovery Event Model – Block Indications

Step		Notes
1.	The Participant submits a BI for a conditional In-hand Order.	No information sent to any other Participant.
2.	Upon submission, if the BI matches with a corresponding BI or eligible BDN, (or at a time where the system checks for matches of BIs and eligible BDNs due to a reference price change), a **Turquoise Dark Uncross** event will begin. When the **Turquoise Dark Uncross** event is triggered by a BI/BDN match, a "Call Market" message is disseminated to all participants to signal the start of a **Turquoise Dark Uncross** event (with a 500ms (0.5 second) call period and a 500ms (0.5 second) random period). If any potential match is identified (against a BI or BDN), the Participant who submitted a BI is sent an OSR requesting they firm up (submit) their QBO to **Turquoise Dark** and their matched BI will be expired automatically. If the counterparty matching opportunity is also a BI, then the counterparty will also receive an OSR and their matched BI will be expired automatically. If the BI did not match with a corresponding BI or eligible BDN (subject to meeting the Minimum Indication Value (i.e. LIS) and opted in to match with CBIs), eligible BIs (and eligible BDNs) will attempt to match with corresponding CBIs. Note: Eligible BI users who match with CBI users will not receive an OSR until the CBI firms up with a QBO. i.e. An Order + BDN. When this happens, the BI will match with the BDN and receive an OSR.	Parties submitting BIs that match with a BI/BDN each receive an OSR (but no details regarding nature of counterparty Order/BI), Parties submitting BIs that match with a CBI do not receive an OSR until the CBI firms up with a QBO i.e. An Order + BDN. No information sent to any other Participant.
	Turquoise Block Discovery identifies potential matches where the Minimum Execution Size 'MES' of the Participant's BI (and CBI/BDN 'MES') have been met. The counterparty matching opportunity could either be a BDN (corresponding to a firm Order already), or a BI subject to immediate firming-up upon demand, or a CBI subject to manual firming-up upon demand.	
	BI Users who receive OSRs have up to 500ms (0.5 second) (being the Order Submission Interval 500ms (+/- 1ms)) to submit a firm QBO.	

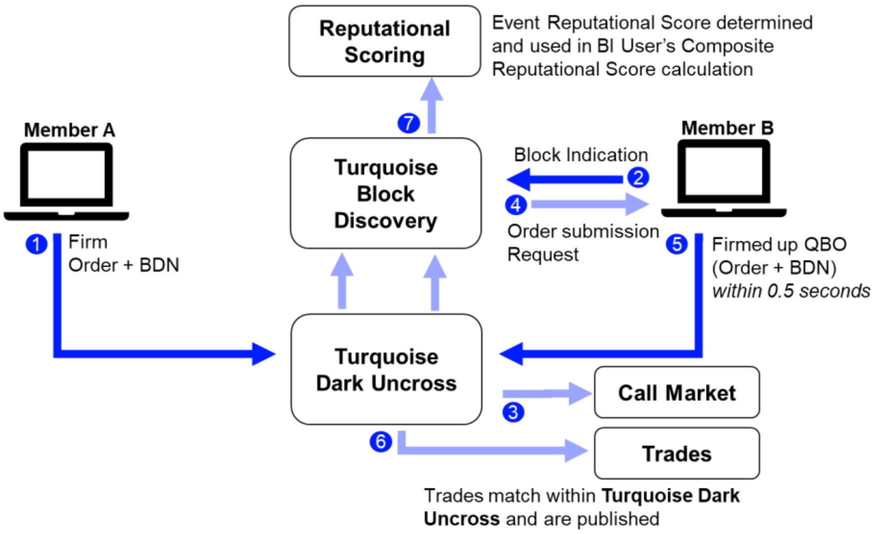
Step	Notes
The QBO must be "marketable" compared to the BI to which it relates. For further information, please see Section 5.3.6.	
After a further random delay of a maximum of 500ms (0.5 second), the Turquoise Dark Uncross takes place. Executions are confirmed, and un-matched residuals of Orders submitted for the single **Turquoise Dark Uncross** only are expired.	Participants receive execution reports. Residuals expire if appropriate.
3. Composite Reputational Scores (for BI Users) are updated for each Participant receiving an OSR.	For further information of the reputational scoring mechanism, please see Section 5.3.6.

5.2.2. Turquoise Block Discovery Event Model – Client Block Indications

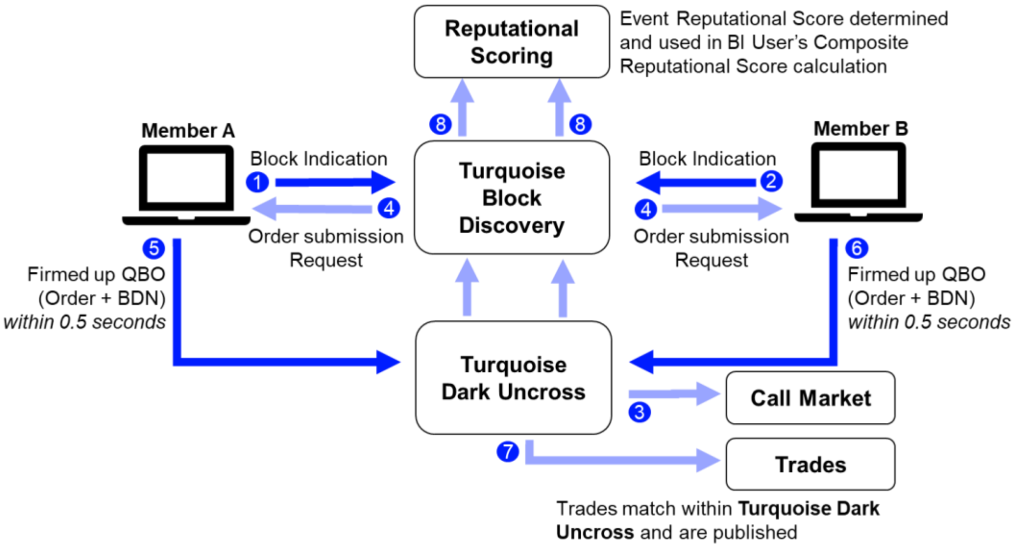
Step		Notes
1.	The Participant submits a CBI for a conditional In-hand Order.	No information sent to any other Participant.
2.	Upon submission, if the CBI matches with eligible BI(s) and/or eligible BDN(s), (or at a time where the system checks for matches of eligible BIs and eligible BDNs due to a reference price change), CBI Users will receive an OSR. Note: **Turquoise Dark Uncross** events cannot be triggered/started from any matching involving a CBI. i.e. CBI vs CBI, CBI vs BI, CBI vs BDN. If a potential match is identified, the Participant who submitted a CBI is sent an OSR requesting they firm up (submit) their QBO to **Turquoise Dark** and their matched CBI will be expired automatically. If the counterparty matching opportunity is also a CBI, then the counterparty will also receive an OSR and their matched CBI will be expired automatically.	Parties submitting CBIs that match each receive an OSR (but no details regarding nature of counterparty Order/BI/CBI). No information sent to any other Participant.
Turquoise Block Discovery identifies potential matches where the Minimum Execution Size 'MES' of the Participant's CBI (and BI/BDN 'MES') have been met. The counterparty matching opportunity could either be a BDN (corresponding to a firm Order already), or a BI subject to immediate firming-up upon demand, or a CBI subject to manual firming-up upon demand.		
CBI Users who receive OSRs, have up to 20 seconds to submit a firm QBO (which will have a minimum duration of 22 seconds from the corresponding OSR's timestamp). For further information regarding Reputational Scoring, please see Section 5.3.6.		
3.	Upon submission, when the firmed up QBO (i.e. BDN) from the CBI User matches with a corresponding BI or eligible BDN, (or at a time where the system checks for matches of BIs and eligible BDNs due to a reference price change), a **Turquoise Dark Uncross** event will begin. When the **Turquoise Dark Uncross** event is triggered by a BI/BDN match, a "Call Market" message is disseminated to all participants to signal the start of a **Turquoise Dark Uncross** event (with a 500ms (0.5 second) call period and a 500ms (0.5 second) random period). If the QBO (i.e. BDN) did not match with a corresponding BI or eligible BDN (subject to meeting the Minimum Indication Value (i.e. LIS) and opted in to match with CBIs), eligible BIs (and eligible BDNs) will attempt to match with corresponding CBIs.	
After a match is found in between BIs and/or BDNs, after the Call Market has been published, after the call period (500ms) and during the random period of a maximum of 500ms (0.5 second), the **Turquoise Dark Uncross** takes place. Executions are confirmed, and un-matched residuals of Orders (QBOs from CBI Users) submitted for **Turquoise Dark Uncross** events will persist until cancelled. Trades match within the **Turquoise Dark Uncross** and are published.		Participants receive execution reports. Residuals persist until cancelled.

Step	Notes
Nominated Brokers receive information via FIX Drop Copy about Trades from their CBI Users.	Nominated brokers receive trade information only
Event Reputational Scores are determined for each Buyside Trader (CBI User) receiving an OSR.	For further information of the reputational scoring mechanism, please see Section 5.3.6.

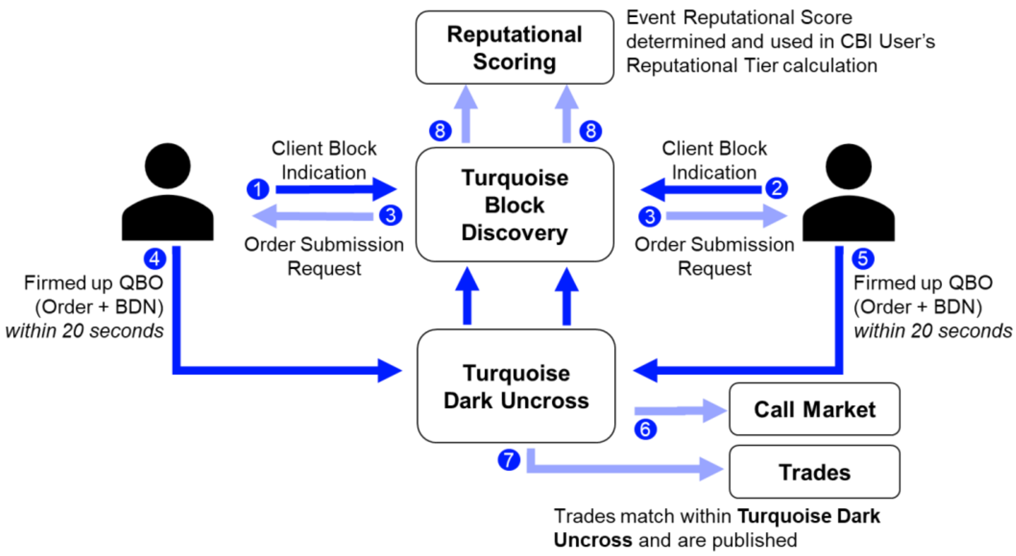
5.2.3. Turquoise Block Discovery example – Block Discovery Notification (BDN) vs Block Indication (BI)



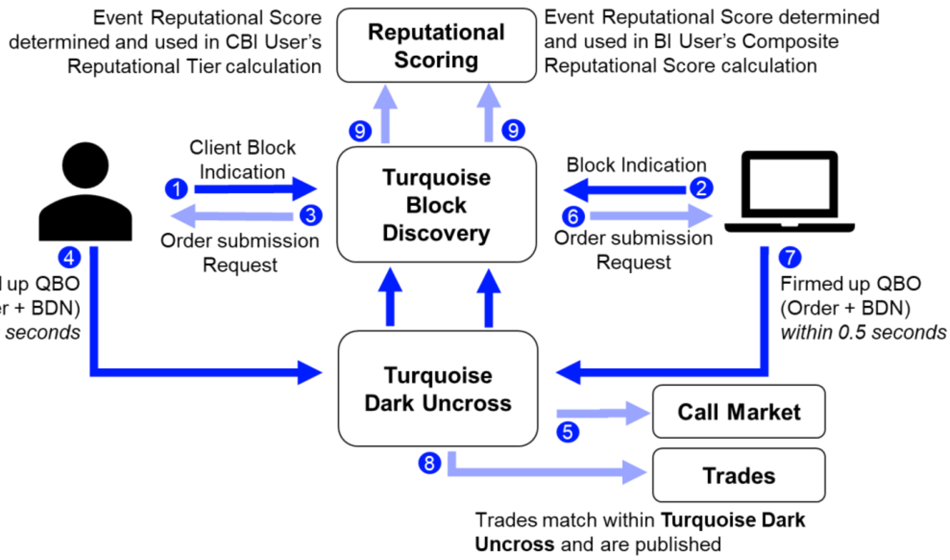
5.2.4. Turquoise Block Discovery example – Block Indication (BI) vs Block Indication (BI)



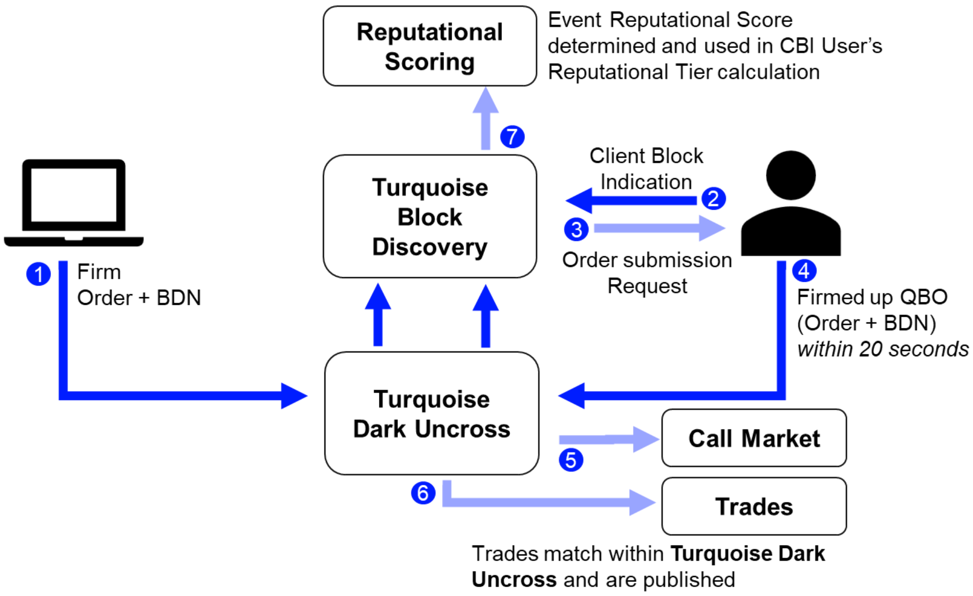
5.2.5. Turquoise Block Discovery example – Client Block Indication vs Client Block Indication



5.2.6. Turquoise Block Discovery example – Client Block Indication vs Block Indication



5.2.7. Turquoise Block Discovery example – Block Discovery Notification vs. Client Block Indication



5.3 Key Service Elements

5.3.1 Block Indication (BI)

A block-size indication corresponding to an In-hand Order over which a Participant has full discretion, and can be immediately converted into a firm QBO upon request. A BI typically consists of:

	FIX(Tag)	Native
Order Sub Type of BI "1"	OrderSubType(9020)	OrderSubType
Execution Instruction of "**Turquoise Dark Uncross** Only"	ExecInst(18)	Exec Instruction
Routing Instruction to **Turquoise Dark Order Book**	RoutingInst(9303)	Target Book
Order Type – Limit/Market *or Pegged via FIX only*[8])	OrdType(40)	Order Type
Time in Force DAY or GTD/GTT (with Expiry Time)	TimeInForce(59)	TIF
Account Type	AccountType(581)	ClearingAccount
Order Capacity	OrderCapacity(528)	Capacity
Instrument	Symbol(55);or SecurityID(48) SecurityIDSource(22) Currency(15) SecurityExchange(207)	CommonSymbol
Side	Side(54)	Side

[8] OrderType "Pegged" is only supported via the FIX Trading Gateway

	FIX(Tag)	Native
Quantity	OrderQty(38)	Order Qty
Limit Price (optional)	Price(44)	Limit Price
Minimum Quantity – MES (optional)	MinQty(110)	Minimum Quantity

The value of a BI must be equal to or greater than the MIV for the Financial Instrument to be accepted for matching by **Turquoise Block Discovery**. Please see Section 5.4.4 for details of the MIV validation.

It is intended that Participants will, via algorithmic trading platforms, be able to consistently submit corresponding firm QBOs in a timely fashion (i.e. within 500ms).

All BIs will expire automatically at the end of its uncrossing event when an OSR is sent requesting a firm QBO.

A BI to firm QBO conversion is subject to Reputational Scoring and market surveillance.

BIs will be opted in (default) to match with CBIs. A BI can opt out of matching with CBIs in 2 ways via:

- FIX or Native Trading User Level configuration:
  - To set up this option to opt-out for a FIX or Native Trading User, Participants will need to contact their Technical Account Manager or the Technical Account Management Team at:
    - LondonTAM@lseg.com
    - +44 (0) 207 7797 3939
- New Order Single message using FIX Tag 27010 – PassiveOnlyOrder / Native (98) Passive Only Order:
  - "0" – BI will be allowed to match with CBIs when the above User Level configuration is set to match with CBIs
  - "50" – BI will opt-out of matching with CBIs

5.3.2 Client Block Indication (CBI)

A block-size indication corresponding to an In-hand Order over which a buyside Trader (via Luminex) has full discretion and can be manually converted into a firm QBO upon request, via their chosen Nominated Broker (a Turquoise Member). A CBI typically consists of:

	FIX(Tag)
Order Sub Type of CBI "2"	OrderSubType(9020)
Execution Instruction of "**Turquoise Dark Uncross** Only"	ExecInst(18)
Routing Instruction to **Turquoise Dark Order Book**	RoutingInst(9303)
Order Type – Limit/Market *or Pegged via FIX only*[9])	OrdType(40)
Time in Force DAY or GTD/GTT (with Expiry Time)	TimeInForce(59)
Booking Type	BookingType(775)
Account Type	AccountType(581)
Order Capacity	OrderCapacity(528)
Instrument	Symbol(55);or SecurityID(48) SecurityIDSource(22) Currency(15) SecurityExchange(207)

[9] OrderType "Pegged" is only supported via the FIX Trading Gateway

	FIX(Tag)
Side	Side(54)
Quantity	OrderQty(38)
Limit Price (optional)	Price(44)
Minimum Quantity – MES (optional)	MinQty(110)

The value of a CBI must be equal to or greater than the MIV for the Financial Instrument to be accepted for matching by Turquoise Block Discovery. Please see Section 5.4.4 for details of the MIV validation.

It is intended that buyside Traders (via Luminex), will be able to manually submit corresponding firm QBOs via their chosen Nominated Broker (a Turquoise Member) in a timely fashion (i.e. within 20 seconds).

All CBIs will expire automatically at the end of its uncrossing event when an OSR is sent requesting a firm QBO.

A CBI to firm QBO conversion is subject to Reputational Scoring and market surveillance.

5.3.3 Block Discovery Notification (BDN)

A BDN is intended for use by all **Turquoise Dark Uncross** Participants. To use a BDN, Participants need to explicitly "opt-in" on a firm Order for **Turquoise Block Discovery**. Firms can do this by using an "Order + BDN" Order Sub Type.

A BDN corresponds directly to a live Order "typically block-size" submitted to **Turquoise Dark Order Books** and is eligible for participation in **Turquoise Dark Uncross** events. A BDN typically consists of:

	FIX(Tag)	Native
Order Sub Type of Order + BDN "3"	OrderSubType(9020)	OrderSubType
Execution Instruction of: "**Turquoise Dark Uncross** Only" or "**Turquoise Dark Continuous** and **Turquoise Dark Uncross**" or "**Turquoise Dark Uncross** then **Turquoise Dark Continuous**".	ExecInst(18)	Exec Instruction
Routing Instruction to **Turquoise Dark Order Book**	RoutingInst(9303)	Target Book
Order Type – Limit/Market or Pegged via FIX only[10]	OrdType(40)	Order Type
Passive Time in Force (with Expiry Date/Time as appropriate), i.e., Not IOC or FoK	TimeInForce(59)	TIF
Booking Type (optional)	BookingType(775)	n/a
Account Type	AccountType(581)	ClearingAccount
Order Capacity	OrderCapacity(528)	Capacity
Client Order Link ID (Order ID from acknowledgement of the BI/CBI or OSR required on all firm QBOs sent in response to an OSR for the purposes of Reputational Scoring)	ClOrdLinkID(583)	ClOrdLinkID
Instrument	Symbol(55); or SecurityID(48) SecurityIDSource(22) Currency(15) SecurityExchange(207)	CommonSymbol
Side	Side(54)	Side
Quantity	OrderQty(38)	Order Qty
Limit Price (optional)	Price(44)	Limit Price
Minimum Quantity – MES (optional)	MinQty(110)	Minimum Quantity

The leaves value of a BDN must be equal to or greater than MNVs for the Financial Instrument to participate in matching in Turquoise Block Discovery. Please see Section 5.4.5 for details of the MNV validations.

There are two types of Order + BDN supported in **Turquoise Block Discovery**, standalone order + BDNs and a QBO + BDNs that are related to a CBI/BI. A BDN submitted as part of a QBO is also used by **Turquoise Block Discovery**, for the purposes of Reputational Scoring. On the contrary, a standalone firm Order + BDN will not be scored due to its firm nature. For more details on Reputational Scoring, see Section 5.3.6 and for more information on QBOs, see Section 5.3.7.

TGHL or TGHE Member Firms can, on a per-user basis, elect to add a Block Discovery Notification (BDN) by default applied to their Order (excluding QBOs), when they send in an OrderSubType of 'Order'.

[10] OrderType "Pegged" is only supported via the FIX Trading Gateway

To change your OrderSubType default, a member firm should contact their Technical Account Manager or the Technical Account Management Team at:

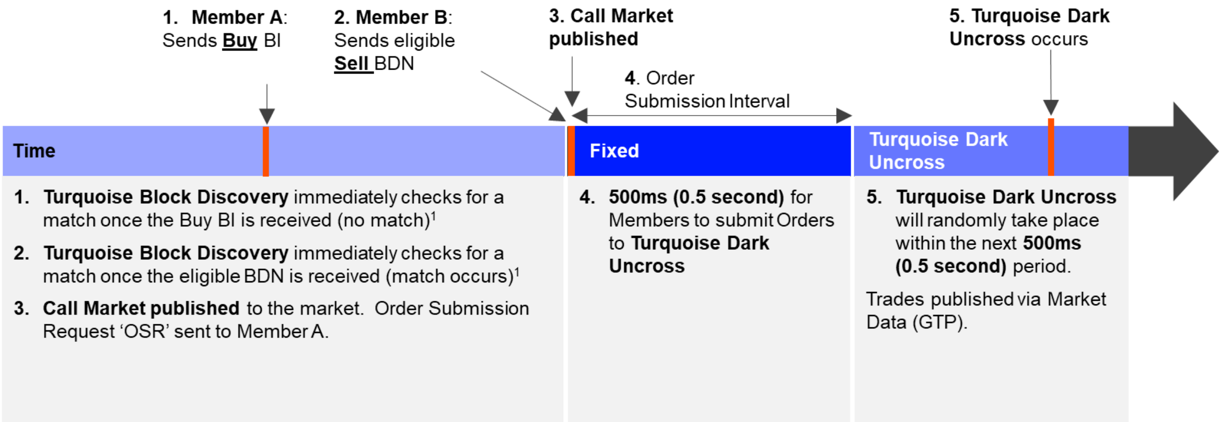
- londontam@lseg.com
- +44 (0) 207 7797 3939

5.3.4 Turquoise Dark Order Submission Interval and Call Market

Turquoise Dark Uncross events started by the continuous matching of BIs and or eligible BDNs[11] (i.e. a **Turquoise Block Discovery** match), will trigger the start of an Order Submission Interval and a Call Market message (a Symbol Status Message) is sent via market data feeds to notify of an impending **Turquoise Dark Uncross** within **Turquoise Dark Order Books**.

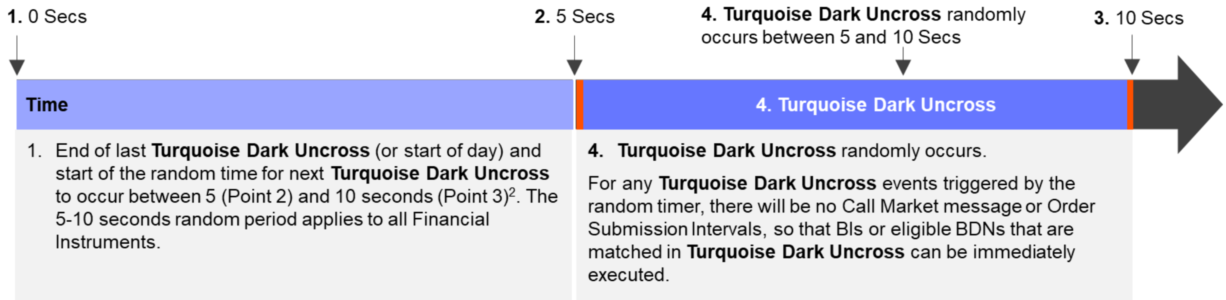
An Order Submission Interval of 500ms (+/- 1ms) follows the publication of each Call Market message which provides a period for Participants to send Orders specifically for the next **Turquoise Dark Uncross**.

At the end of the Order Submission Interval, **Turquoise Dark Uncross** will uncross and execute orders when possible at a random point during the next 500ms (0.5 seconds).



[1.] Note: If a **Turquoise Dark Uncross** event is already under way and the Order Submission Interval has already started, **Turquoise Block Discovery** waits for the **Turquoise Dark Uncross** event to complete before checking for a match between BIs/eligible BDNs and CBIs.

Turquoise Dark Uncross events that result from the scheduled random timer (every 5-10 seconds) occur immediately, without a Call Market being published or Order Submission Interval.



[2]Note: If a **Turquoise Dark Uncross** event is started by **Turquoise Block Discovery** matching BIs/eligible BDNs, the 5-10 second timer will be reset at the end of the **Turquoise Dark Uncross** event.

5.3.5 Order Submission Request (OSR)

Where a **Turquoise Block Discovery** matching opportunity is identified involving CBIs (vs CBI, eligible BI or eligible BDN) or for BIs (vs BI or eligible BDN), an OSR (an Execution Report with Exec Type = "L") is sent to the

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[11] An eligible BDN that can start a **Turquoise Dark Uncross** event 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.

Participant requesting that they firm up their order. BIs that match with CBIs do not get an OSR, only CBIs get an OSR in this matching scenario. The OSR contains no information about the size, MES or Price of the potential counterparty, but receipt of an OSR implies that a potential match is available for at least the Participant's own MES. An OSR will contain the following information:

	FIX(Tag)	Native
Execution Type = L (Triggered)	ExecType(150)	Exec Type
Order Status = 0 (New)	OrdStatus(39)	Order Status
Client Order ID specified by Participant	ClOrdID(11)	Client Order ID
Order ID (This is the same OrderID stamped on CBI/BI ack Execution Report, which needs to be sent back in the ClOrdLinkID field as part of a QBO)	OrderID(37)	Order ID
Limit price of the CBI/BI unless the CBI/BI was unpriced	Price(44)	n/a*
Executed Price – The price at which the CBI/BI was matched in Turquoise Block Discovery	LastPx(31)	Executed Price
Maximum MES of Order to be submitted	MinQty(110)	Minimum Quantity
Size of related CBI/BI (has no bearing of the size matched in **Turquoise Block Discovery**)	OrderQty(38)	Executed Qty
Financial Instrument of the Order to be submitted	Symbol(55) SecurityID(48) SecurityIDSource(22) Currency(15) SecurityExchange(207)	CommonSymbol
Side of the Order to be submitted	Side(54)	Side
Reputational Score of the Participant (On OSRs for matched BIs only)	Reputational Score(27012)	Reputational Score
Time the message was generated	TransactTime(60)	Transact Time

5.3.6 Reputational Scoring

Block Indications (BIs): Participants using BIs each have a Composite Reputational Score (calculated on a per-user basis) which is based upon their use of **Turquoise Block Discovery**. If a user's Composite Reputational Score drops below the specified Reputational Score Threshold at any time, the BI user will be immediately excluded from further use of the service. This means any new BIs submitted by an excluded user will be rejected, and any BIs already received will be excluded from **Turquoise Block Discovery** matching, thus being prevented from receiving any OSRs. Users will still be able to submit Orders and Order + BDNs to the **Turquoise Lit**, **Turquoise Periodic Auctions** and **Turquoise Dark Order Books**. To be re-introduced to **Turquoise Block Discovery**, Participants will need to contact Client Support and meet set criteria for the impacted user to be able to use **Turquoise Block Discovery** again.

The scoring system compares each Order Submission Request (sent by **Turquoise Block Discovery** to the user if a potential match is identified) to the subsequent submission of a firm QBO.

A Qualifying Block Order (from a BI user) must have the characteristics defined in Section 5.3.7, be received within the time required (i.e. within 500ms) and be "marketable" compared to the BI to which it relates.

"Marketable" means:

– In relation to Price:

Where the BI was a Market Indication (un-priced) and the QBO was a Market Order (un-priced)

Where the BI had a Limit Price and the QBO was a Market Order (un-priced)

Where the BI had a Limit Price and the QBO had a Limit Price, the price test will pass if the Limit price of the QBO is equal to or more marketable than the Limit Price of the BI

– And where the MES specified on the Order is equal to or lower than the MES on the BI to which it relates.

Failure to send a valid QBO meeting the above criteria results in a zero-score.

If a valid QBO is submitted, then the score will range from 50 to 100 depending on the size of the QBO relative to the original BI.

Event Reputational Scores relating to each OSR are aggregated into a Composite Reputational Score using the following weighting factor:

Event Recency

– The most recent event has a weighting of 100, the next most recent 99, and so on.

The Composite Reputational Score for the respective user is provided to Participants each time they receive an OSR, and is persisted from one day to the next.

Participants are able to cancel a QBO and resubmit a new QBO. For more details on the impact this would have on a participant's reputational score, please see Section 5.3.7.1.

Client Block Indications (CBIs): The conversion of Buyside Trader's CBIs into firm QBOs is monitored, with Buyside Traders classified into Reputational Tiers. Turquoise's market surveillance has the discretion to exclude Buyside Traders (or specific CBIs) which do not meet appropriate standards.

Buyside trader's Reputational Tiering is assessed weekly, based on each Buyside trader's historic Event Reputational Scores.

Tiers	Weekly average Reputational Score of Buyside Trader
Tier 1	66 and above
Tier 2	In-between 33 and 66 Default tier which applies to all new Buyside traders.
Tier 3	33 and below

The scoring system compares each Order Submission Request (sent by **Turquoise Block Discovery** to the user if a potential match is identified) to the subsequent submission of a firm QBO.

A Qualifying Block Order (from a Buyside trader / CBI user) must have the characteristics defined in Section 5.3.7, be received within the time required (i.e. within 20 seconds).

QBOs (from CBI users) will always have:

- A "marketable" Limit Price
  - Manually firmed up QBOs, will always have a Limit Price equal to their CBI.
  - Automated firmed up QBOs, may have a tighter Limit Price (than their CBI), as long as the tighter Limit Price is equal to or more marketable than the **Turquoise Block Discovery** match price. Where the tighter Limit Price is not marketable versus the **Turquoise Block Discovery** match price the auto firm up set by the Buyside trader will fail and as a consequence the Buyside trader will need to manually firm up.
- A minimum Order quantity equal to LIS or the MES of the CBI to which the QBO relates to (whichever is the largest)
- A duration of at least 22 seconds from the OSR timestamp, during which time, the Buyside trader is not able to cancel.

A valid QBO meeting the above criteria results in a score of Reputational Event Score of 100. Failure to send a valid QBO meeting the above criteria results in a zero (0) Reputational Event Score.

The Reputational Tier for the respective Buyside trader (CBI user) is provided to Participants (via the Luminex GUI) and persists for a week. It is calculated based on the Buyside trader's average Event Reputational Scores from the last week or last 20 historic events (up to 3 months), whichever is greater. A minimum of 10 Event Reputational Scores is required, before a Buyside Trader's Tier is assessed/changed (from its starting tier).

5.3.7 Qualifying Block Order (QBO)

A Qualifying Block Order is a valid firm Order for the purposes of reputational scoring sent in response to an OSR, which is intended for participation in the **Turquoise Dark Uncross** in the **Turquoise Dark Order Book**.

The QBO is expected to be "marketable" compared to the BI/CBI to which it relates and is expected to have:

	FIX(Tag)	Native
Order Sub Type of Order + BDN "3"[12]	OrderSubType(9020)	OrderSubType
Execution Instruction of "**Turquoise Dark Continuous** and **Turquoise Dark Uncross**" or "**Turquoise Dark Uncross** Only"	ExecInst(18)	Exec Instruction
Routing Instruction to **Turquoise Dark Order Book**	RoutingInst(9303)	Target Book
Order Type – Limit/Market or Pegged via FIX only[13])	OrdType(40)	Order Type
TIF of GFA (QBOs from BI users) TIF of DAY or GTD plus timestamp (QBOs from CBI users)	TimeInForce(59)	TIF
Time the order expires (applicable when TIF is GFD)	ExpireTime(126)	n/a
Booking Type (Optional) (Required for firmed up QBOs from CBIs)	BookingType(775)	n/a
Account Type	AccountType(581)	ClearingAccount
Order Capacity	OrderCapacity(528)	Capacity
Client Order Link ID (populated with the Order ID on the corresponding OSR)	ClOrdLinkID(583)	ClOrdLinkID
Financial Instrument	Symbol(55); or SecurityID(48) SecurityIDSource(22) Currency(15) SecurityExchange(207)	CommonSymbol
Side	Side(54)	Side
Quantity	OrderQty(38)	Order Qty
Limit Price – QBOs must be "marketable" compared to any Limit Price on the BI/CBI to which it relates. See Section 5.3.6 for more information.	Price(44)	Limit Price
Minimum Quantity – MES optional, but must be no higher than any MES on the BI/CBI.	MinQty(110)	Minimum Quantity

The QBO is also expected to be received within the Order Submission Interval time (i.e., within 500ms +/-1 ms for BIs and within 20 seconds for CBIs) starting from the timestamp on the OSR.

QBOs (from BI users) are not amendable but can be cancelled.

[12] Note: A BDN cannot be defaulted (added) onto an Order to form a valid QBO
[13] OrderType "Pegged" is only supported via the FIX Trading Gateway

QBOs (from CBI users) will have a duration of at least 22 seconds from the OSR timestamp, during which time, the Buyside trader is not able to cancel.

Please see Section 5.3.7.1 for details on the reputational score impact of cancelling a QBO and resubmission of a new QBO. Please see Section 9.4 for details of GFA TIF behaviour.

5.3.7.1 Qualifying Block Order (QBO) Cancellation & Submission of New QBO

Participants are able to cancel any order with the TIF GFA and the execution instruction **Turquoise Dark Uncross** or **Turquoise Dark Continuous** and **Turquoise Dark Uncross** (also known as a QBO).

If a QBO linked to a BI (i.e., has an Order ID of an OSR generated due to a BI match), is cancelled and resubmitted, the reputational score will be recalculated as follows, based on the time the request is received.

	Request received within the Order Submission Interval	Request received after the Order Submission Interval before the immediate Turquoise Dark Uncross	Request received after the Turquoise Dark Uncross (or in a subsequent Order Submission Interval which comes after the next Turquoise Dark Uncross)
Cancellation request	The cancellation request will be accepted. The event score of the particular event should be made zero (0). The composite reputational score should be re-calculated, making the particular event score zero (0).		The cancellation request will be rejected, since the QBO will not be present in the system anymore. The event score will not be affected.
Newly submitted QBO (following a cancellation)	The new Order will be accepted. The event score which was made zero should be amended due to the newly submitted QBO. The composite reputational score should be re-calculated, based on the new QBO. If a new QBO is not submitted following the cancellation. The event score which is made zero (0) will remain zero (0).	The new Order will be accepted. The event score and composite reputational score should not be re-calculated, based on the new QBO.	The new Order will be accepted. The event score and composite reputational score should not be re-calculated, based upon the new QBO.

5.4 Trading Calendar, Reference Data

5.4.1 Trading Calendar

Turquoise Block Discovery uses the same trading calendar as that of Turquoise.

For more information, please see Section 10.0.

5.4.2 Financial Instrument Universe & Symbology

Turquoise Block Discovery is available for all Financial Instruments which are tradable in the **Turquoise Dark Order Books**.

Turquoise Dark offers Pan-European and US trading in approximately 4,300 Financial Instruments and ETFs from the following markets:

TGHL and TGHE support the trading of Financial Instruments in the following markets:

> Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

For more information, please refer to the Turquoise Trading Services Description.

5.4.3. Currencies

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.

TGHL supports billing in GBP and EUR, not in local currencies.

TGHE only supports billing in EUR, not in local currencies.

For more information, please refer to the Turquoise Trading Services Description.

5.4.4 Minimum Indication Value (MIV)

An MIV threshold is configured for all Financial Instruments by **Turquoise Block Discovery**. All BIs/CBIs must be of a value equal to or greater than their respective MIV threshold (set as a value in the Financial Instruments trading currency), otherwise they will be rejected.

The BI MIV for a Financial Instrument is linked to whether an Order in the Financial Instrument can be accepted by the **Turquoise Dark Order Books**, under the RPW. Where Orders can be accepted under the RPW, the MIV will be set to 25% of LIS. Where Orders cannot be accepted under the RPW, the MIV will be set to 100% of LIS.

The CBI MIV for a Financial Instrument is needs to be equal to or greater than Large In Scale ‘LIS’.

The value of a Buy BI/CBI is calculated as either:

Quantity of BI/CBI x Limit Price, where Limit Price is < or = to PBBO Mid-Price (PMP)*
or
Quantity of BI/CBI x PBBO mid-price (PMP)*, where Market BI/CBI or where Limit Price is > or = to PBBO Mid-Price (PMP)*

Or, when the Primary market Closing Price (PCP) for the **Turquoise Dark Trade At Last** matching phase is available:

Quantity of BI/CBI x Limit Price, where Limit Price is < or = to PCP*
or
Quantity of BI/CBI x PCP*, where Market BI/CBI or where Limit Price is > or = to PCP*

The value of a Sell BI/CBI is calculated as follows:

Quantity of BI/CBI x Limit Price, where Limit Price is > or = to PBBO Mid-Price (PMP)*
or
Quantity of BI/CBI x PBBO mid-price (PMP)*, where Market BI/CBI or where Limit Price is < or = to PBBO Mid-Price (PMP)*

Or, when the Primary market Closing Price (PCP) for the Turquoise Dark Trade At Last matching phase is available:

Quantity of BI/CBI x Limit Price, where Limit Price is > or = to PCP*
or
Quantity of BI/CBI x PCP*, where Market BI/CBI or where Limit Price is < or = to PCP*

*Where a PBBO mid-price (PMP) or Primary market Closing Price (PCP) is unavailable due to WFMC validation, new or amended Market BIs/CBIs will be rejected, and new or amended Limit BIs/CBIs will be valued using the BIs/CBIs Limit Price only.

The BI/CBI MIV threshold of each Financial Instrument is calculated annually and can be derived from daily reference data as published in the following Daily Symbol reference data file:

TRQX Symbol Reference/TQEX Symbol Reference

The files also include an indicator as to whether RPW trading is allowed within the **Turquoise Dark Order Books**. 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 (YYYMMDD_TRQX_Instrument.csv for TGHL or YYYMMDD_TQEX_Instrument.csv for TGHE) which has a field “RPW Allowed”, which is populated with a “Y” when Orders less than the LIS threshold are allowed, and “N” when they are not.

Firms may already be downloading these files or receiving them overnight by FTP or SFTP. Alternatively, both of the above files can be downloaded from the Turquoise website by clicking here.

The formula to calculate the MIV of a Financial Instrument (by value) is as follows:

- For BIs: LIS Value x 25% when RPW is Allowed (or LIS Value when RPW is not Allowed)
- For CBIs: LIS Value x100%

(Note: The value is always rounded up, e.g., to the nearest penny or cent)

The table below summarises where the LIS Value can be found in the Symbol reference files mentioned above:

	TRQX / TQEX Symbol Reference Files
LIS Value (100%)	Min Reserve Order Value

5.4.5 Minimum Notification Value (MNV)

An MNV threshold is configured for all securities by **Turquoise Block Discovery**. All BDNs must be of a leaves value equal to or greater than the MNV threshold (set as a value in the Financial Instruments trading currency), otherwise the BDN will not be considered for matching by Turquoise Block Discovery.

The MNV for a Financial Instrument is linked to whether an Order in the Financial Instrument can be accepted by the **Turquoise Dark Order Books**, under the RPW. Where Orders can be accepted under the RPW, the MIV will be set to 25% of LIS. Where Orders cannot be accepted under the RPW, the MIV will be set to 100% of LIS.

The value of a Buy BDN is calculated as follows:

Quantity of BDN x Limit Price, where Limit Price is < or = to PBBO Mid-Price (PMP)
or
Quantity of BDN x PBBO mid-price (PMP), where Market BDN or where Limit Price is > or = to PBBO Mid-Price (PMP)

Or, when the Primary market Closing Price (PCP) for the Turquoise Dark Trade At Last matching phase is available:

Quantity of BDN x Limit Price, where Limit Price is < or = to PCP
or
Quantity of BDN x PCP, where Market BDN or where Limit Price is > or = to PCP

The value of a Sell BDN is calculated as follows:

Quantity of BDN x Limit Price, where Limit Price is > or = to PBBO Mid-Price (PMP)
or
Quantity of BDN x PBBO mid-price (PMP), where Market BDN or where Limit Price is < or = to PBBO Mid-Price (PMP)

Or, when the Primary market Closing Price (PCP) for the Turquoise Dark Trade At Last matching phase is available:

Quantity of BDN x Limit Price, where Limit Price is > or = to PCP
or
Quantity of BDN x PCP, where Market BDN or where Limit Price is < or = to PCP

The MNV threshold of each Financial Instrument is calculated annually and can be derived from daily reference data as published in the following Daily Symbol reference data file:

TRQX Symbol Reference/TQEX Symbol Reference

The files also include an indicator as to whether RPW trading is allowed within the **Turquoise Dark Order Books**. 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 for TGHL or YYYYMMDD_TQEX_Instrument.csv for TGHE) which has a field “RPW Allowed”, which is populated with a “Y” when Orders less than the LIS threshold are allowed, and “N” when they are not.

Firms may already be downloading these files or receiving them overnight by FTP or SFTP. Alternatively, both of the above files can be downloaded from the Turquoise website by clicking here.

The formula to calculate the MNV threshold of a Financial Instrument (by value) is as follows:

- For BDNs to match with BIs:
  - LIS Value x 25% when RPW is Allowed (or LIS Value when RPW is not Allowed)
- For BDNs to match with CBIs:
  - LIS Value x100%

(Note: The value is always rounded up, e.g., to the nearest penny or cent)

The table below summarises where the LIS Value can be found in the Symbol reference files mentioned above:

	TRQX / TQEX Symbol Reference Files
LIS Value (100%)	Min Reserve Order Value

5.4.6 Lot Size

A lot size of one (1) is used for all the Financial Instruments within **Turquoise Block Discovery**.

5.4.7 Tick Sizes

Turquoise Block Discovery (along with the **Turquoise Dark Order Books**) follows the tick size structure as defined in Section 3.5.1 of TQ501 – Guide to Reference Data Services and in the Price Tick File (YYYYMMDD_TRQX_PriceTick.csv for TGHL or YYYYMMDD_TRQX_PriceTick.csv for TGHE). All Block Indications or Block Discovery Notifications submitted to **Turquoise Block Discovery** with a Limit Price, must conform to the tick structure defined by ESMA, otherwise they will be rejected.

The **Turquoise Dark Order Books** may publish trades using half tick sizes (when applicable), as it uses the PBBO midpoint (PMP) and the Primary market Closing Price (PCP). 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 and on the Turquoise website. Turquoise endeavours to provide a reasonable period of notice prior to implementing any change.

For information, please refer to the Turquoise Trading Services Description.

5.5 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 – Trading Gateway (FIX 5.0)”.

5.6 Turquoise Dark Trade At Last

Turquoise Block Discovery supports a **Turquoise Dark Trade At Last** matching phase which permits matching at the Primary market Closing Price (PCP) at the end of the trading day. For further information on the **Turquoise Dark Order Book**, **Turquoise Dark Trade At Last** matching phase please refer to the Turquoise Trading Services Description.

6.0 Turquoise Block Discovery Participation and Regulation

All TGHL and TGHE Member’s Participants can access **Turquoise Block Discovery**.

TGHL and TGHE Member’s can provide Buyside firm (and their traders) access use of manual Client Block Indications and access to **Turquoise Block Discovery** and **Turquoise Dark Order Books**, by setting themselves up as a Nominated Broker.

Further information can be found in Section 6.14 of the Turquoise Trading Services Description, which can be found in the Turquoise Document Library.

7.0 Reference prices

Turquoise Block Discovery uses reference prices derived from the Primary market's Best Bid and Offer prices to determine potential matches between BIs, CBIs and BDNs.

7.1 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 **Turquoise Dark Continuous** trading, the PBBO is deemed to be undefined.

7.2 Primary market Midpoint Price (PMP)

The PMP is defined as the average of the two 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.

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.

7.3 Primary market Closing Price (PCP)

The PCP is defined as being equal to the close price as published by the Primary markets.

8.0 Price, Value and Market Checks

8.1 Maximum Indication Value

A “Maximum Indication Value" will be specified by Turquoise to ensure that a Participant does not commit to an excessively large execution erroneously. **Turquoise Block Discovery** BIs, CBIs and BDNs in excess of the specified Maximum Indication Value will be rejected. The same validation “Maximum Order Value” equally applies to Orders.

	Max BI Value (local currency)	Approx. Max BI Value in euros (€)
CCY	**Turquoise Block Discovery**	**Turquoise Block Discovery**
CHF	425,800,000	460,000,000
CZK	11,370,000,000	460,000,000
DKK	3,425,000,000	460,000,000
EUR	460,000,000	460,000,000
GBX	40,000,000,000	460,000,000
HUF	40,000,000,000	105,000,000
NOK	5,170,000,000	460,000,000
PLN	N/A	N/A
SEK	5,100,000,000	460,000,000
USD	508,000,000	460,000,000

8.2 Well Formed Market Checks

Turquoise Dark will carry out Well Formed Market Checks (WFMC) validation upon receipt of PBBO updates and Primary market status updates to determine if the PMP is valid and Primary market Closing Price updates to determine if the PCP 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 of BIs, CBIs and BDNs not being permitted, i.e. no OSRs are sent. This is in addition to matches of firm Orders in the **Turquoise Dark Order Book** not being permitted, i.e. no Trades will occur. Additionally, no new or amended Market BIs/CBIs are accepted.

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

The Market Feed for the Primary market data is flagged as “stale”
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 less than the Minimum Spread threshold for the specific Financial Instrument, as defined by Turquoise

The WFMC will fail if any one of the following is true in respect to PCP matching within the **Turquoise Dark Order Books**, **Turquoise Dark Trade At Last** matching phases:

The Primary market is in its closing auction call phase

The Primary market publishes two different valid PCPs for the same Financial Instrument. This includes any manual PCP correction published by a Primary market

(Note: Euronext (e.g., XPAR, XDUB) is one such exchange that does for some Financial Instruments publish two valid PCPs for the same Financial Instrument on a given trading day)

The Primary market only publishes a manual PCP correction

9.0 Turquoise Order Types

This section defines the various types of BIs, CBIs and Orders + BDNs that are supported by Turquoise in terms of the key attributes that determines their behaviour and handling:

Order Sub Type
Target Book
Display Quantity
Duration (Time in Force)
Price
Size (including Minimum Quantity)
Execution Instruction

9.1 Order Sub Type

On BI/CBI/Order entry, a Participant can specify four different "Types of Order", as detailed below:

Order
Order + BDN
BI
CBI

Orders are received by **Turquoise Dark**.

BIs, CBIs and BDNs are received by **Turquoise Block Discovery**.

9.2 Target Book

To access **Turquoise Block Discovery**, Participants are required to specify the **Turquoise Dark Order Book** as their Target Book, so that their BIs, CBIs and BDNs are routed to **Turquoise Block Discovery** and Orders are routed to **Turquoise Dark Order Book**.

This is mandatory for BIs, CBIs (FIX only) and Orders + BDNs submitted via the Native and FIX Gateways.

9.3 Display Quantity

Display Quantity must always be zero for BIs, CBIs and Orders + BDNs.

9.4 Duration (Time in Force)

Below is a list of the durations that **Turquoise Dark** supports for BIs, CBIs and Orders + BDNs based on their maximum life expectancy in the **Turquoise Dark Order Books** (from shorter to longer).

GFA	Only applicable **to Turquoise Dark Order Books.** **GFA Orders are intended to take part in the Turquoise Dark Uncross. They are expired either after attempting to match during the Turquoise Dark Uncross it is scheduled to participate in**, **or at the time of the scheduled Turquoise Dark Uncross if**, for example, **the Turquoise Dark Uncross fails to happen due to a WFMC failure.** **Please see Section 9.7.1 for details of Turquoise Dark Uncross** GFA Orders' behaviour around the start of the Order Submission Interval. Not applicable to BIs/CBIs.
Good Till Time (GTT)	An Order (plus BDN) or BI/CBI with an Expiry Time which will rest passively until executed or until the expiry time (or end of trading day) has been reached. Applicable on the Native Trading interface only. Please see Section 9.7.1 for details of **Turquoise Dark Uncross** GTT Orders' behaviour around the start of the Order Submission Interval.

Good Till Date (GTD) + Expiry Time	An Order (plus BDN) or BI/CBI 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 Dark Uncross** GTD Orders' behaviour around the start of the Order Submission Interval.
Day	A Day Order (plus BDN) or BI/CBI 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 BI/CBI /Order + BDN does not have a specified Limit Price. For the purposes of **Turquoise Block Discovery, a Market BI/CBI/Order + BDN can only be persistent.** **BIs/CBIs must have a duration qualifier of Day, GTT or GTD (with Expiry Time where appropriate), so that they persist.** **Orders + BDNs can have a duration qualifier of Day, GTT, GTD (with Expiry Time where appropriate) or GFA so that they persist. It is also possible to submit a non-persistent duration qualifier of IOC**, **FOK**. H**owever**, **the addition of the BDN is ignored**, **and they are treated as an aggressive Order.** **Market Orders are interpreted as Midpoint (PMP) or**, **when in the Turquoise Dark Trade At Last** matching phase, Primary market Closing Price (PCP) Pegged Orders without a Peg Cap.
Limit	The BI/CBI/Order + BDN will be matched/executed against any BI/CBI/Order + BDN in the opposite side of the book at a price that will never be worse than its Limit. For the purposes of **Turquoise Block Discovery**, a Limit BI/CBI/Order + BDN can only be persistent. BIs/CBIs must have a duration qualifier of Day, GTT or GTD (with Expiry Time where appropriate), so that they persist. Orders + BDNs can have a duration qualifier of Day, GTT, GTD (with Expiry Time where appropriate) or GFA so that they persist. It is also possible to submit a non-persistent duration qualifier of IOC, FOK. However, the addition of the BDN is ignored and they are treated as an aggressive Order. Limit Prices must be set in whole ticks for BIs/CBIs/Orders + BDNs.
Pegged	**Turquoise Dark** only supports Pegged BIs/CBIs/Orders + BDNs that are pegged to the PMP or PCP when in the **Turquoise Dark Trade At Last** matching phase. Pegged BIs/CBIs/Orders + BDNs may have a Limit Price (a.k.a., Peg Cap). Whilst the PMP/PCP is worse than the Limit Price, the BI/CBI/Order + BDN will be excluded from matching. Note: For the purposes of **Turquoise Block Discovery**, the Order Type "Pegged" is only supported via the FIX Trading Gateway.

9.6 Size

MES (Minimum Execution Size)	**Turquoise Dark supports MES on BIs, CBIs and Orders + BDNs in the Turquoise Dark Order Books and Turquoise Block Discovery.** **Each individual match/fill will be equal to or greater than the specified MES.** **Participants can specify (per User) whether MES will apply to the first execution only or to persist for the lifetime of the order (default for persistent Orders). To change your Minimum Quantity default, a TGHL or TGHE Member Firm should contact should contact their Technical Account Manager or the Technical Account Management Team at:** - **LondonTAM@lseg.com** - **+44 (0) 207 7797 3939**

	When a MES order is partially filled, if the remaining quantity is below the MES initially set, the MES value is set to the remaining Order quantity.

9.7 Execution Instruction

This attribute is relevant to **Turquoise Block Discovery** and within the **Turquoise Dark Order Books**. The Execution Instruction of a BI/CBI/Order + BDN should be selected on entry from one of the options below:

Execution instruction	Description
Turquoise Dark Uncross Only	Persistent BIs/CBIs/Orders + BDNs can be submitted at any time during Normal Trading. They will be open to matching against contra-side persistent BIs/CBIs/Orders + BDNs in their respective Order Book upon submission[14] and during the randomised **Turquoise Dark Uncross** events.
Turquoise Dark Uncross then Turquoise Dark Continuous	Orders + BDNs submitted are not open to matching during **Turquoise Dark Continuous** trading until it has participated in a **Turquoise Dark Uncross** event which has a valid PMP which has passed **Turquoise Dark** WFMC. Any unexecuted volume will then rest in the **Turquoise Dark Order Book** open to **Turquoise Dark Continuous** matching and matching during subsequent randomised **Turquoise Dark Uncross** events.
Turquoise Dark Continuous and Turquoise Dark Uncross	Orders + BDNs submitted are not open to matching during **Turquoise Dark Continuous** trading until it has participated in a **Turquoise Dark Uncross** event which has a valid PMP which has passed **Turquoise Dark** WFMC. Any unexecuted volume will then rest in the **Turquoise Dark Order Book** open to **Turquoise Dark Continuous** matching and matching during subsequent randomised **Turquoise Dark Uncross** events.

The Execution Instruction attribute is only applicable to Day, GFA, GTT and GTD Orders.

Please see Section 9.7.1 for details of specific Orders' behaviour around the start of the Order Submission Interval.

* TGHL and/or TGHE Member Firms can, on a per-user basis, elect to change the default Execution Instruction applied to their BI/CBI/Order + BDN when omitted to **Turquoise Dark Uncross** Only. To change your Execution Instruction default, a Participant should contact their Technical Account Manager or the Technical Account Management Team at:

- LondonTAM@lseg.com
- +44 (0) 207 7797 3939

9.7.1. Behaviour of an Order's TIF and Execution Instruction around the start of the Order Submission Interval within the Turquoise Dark Order Book

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

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

[14] Note: Between the start of an Order Submission Interval and the relevant **Turquoise Dark Uncross** event, **Turquoise Dark Continuous** matching of Block Indications (BIs) and eligible Block Discovery Notifications is paused.

Order details (Combination of TIF and Execution Instructions)	Behaviour if the Order is submitted between a Turquoise Dark 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 Dark Uncross
GFA – Turquoise Dark 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 Dark Uncross**. Any remainder will be expired after the **Turquoise Dark Uncross**. Orders are not amendable but can be cancelled.
GFA – **Turquoise Dark Uncross** then **Turquoise Dark Continuous**	The Order will not participate during **Turquoise Dark Continuous** trading and will wait to take part in the next immediate **Turquoise Dark Uncross**. Any remainder will be expired after the **Turquoise Dark Uncross**. Orders are amendable and can be cancelled.	
GTT or GTD + Expiry Time – **Turquoise Dark Uncross** Only	The Order will take part in the next immediate **Turquoise Dark Uncross**. If the Order's expiry time elapses before participation in any **Turquoise Dark Uncross** it will be expired immediately. Any remainder will persist, participating in subsequent **Turquoise Dark Uncross** events until the Order's expiry time is reached. Orders are amendable and can be cancelled.	

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 Block Discovery** will also be closed for that Market (for example, OMX Oslo is closed on 24 December, so **Turquoise Block Discovery** is also closed on that day for the Norwegian Market).

Where there is cause for doubt, a Market Notice is sent out to Participants for clarification, and Participants should request to be added to Turquoise Market Notice's distribution list. The up-to-date Turquoise Trading Calendar can also be 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. The following will apply to the **Turquoise Dark Order Books** and for **Turquoise Block Discovery**.

Daily Trading Schedule:

Time	Session Name	Order Book Type	Summary
04:31–07:59:59	System Start-up	**Turquoise Dark/ Turquoise Block Discovery**	System connectivity allowed. No BI/CBI/Order + BDN entry allowed.
08:00-16:45	Normal Trading	**Turquoise Dark/ Turquoise Block Discovery**	BI/CBI/Order + BDN entry allowed for all Financial Instruments[15]. All BI/CBI/Order + BDN constraints enforced. Price and Value Checks enforced. Price Band Validation and Execution Limit Enforced. **Turquoise Dark Continuous** and **Turquoise Dark Uncross** matching in the **Turquoise Dark Order Books**. Orders are matched using the PMP, until the **Turquoise Dark Trade At Last** matching phase commences, when Orders are then matched using the Primary Market Closing Price (PCP).
Ad-Hoc	Trading Halt	**Turquoise Dark/ Turquoise Block Discovery**	No Matching allowed. No BI/Order + BDN entry allowed. Cancellation of BIs/CBI//Orders + BDNs is permitted but amendments are not.
16:45	Close	**Turquoise Dark/ Turquoise Block Discovery**	No BI/CBI/Order + BDN management. No matching. Persistent BIs/CBIs/Orders + BDNs are cancelled.
16:45:01	End of Day	**Turquoise Dark/ Turquoise Block Discovery**	Turquoise Market End.
17:30	End Of Day (CCPs)	**Turquoise Dark**	End Of Day Syncing with all CCPs.
17:30	System shutdown Start of end-of-day processes	**Turquoise Dark/ Turquoise Block Discovery**	No access for market Participants. The Turquoise Closing Price will be calculated.

[15] Where a Primary Market operates different trading hours for a Financial Instrument, Turquoise at its discretion will follow the Primary Market's trading hours for that Financial Instrument. The GTP Instrument Status message advises the trading status of all Financial Instruments.

Client Support

Hours: 24/7

Telephone: +44 (0)20 7797 1500

Email: support@lseg.com

Market Operations

Hours: 07:00 – 18:00 (London Time)

Telephone: +44 (0)20 7382 7676

Email: market.operations@tradeturquoise.com (reference data)

Email: turquoiseliveservice@tradeturquoise.com (immediate intraday live service actions)

Technical Account Management

Hours: 07:30 – 18:00 (London Time)

Telephone: +44 (0)20 7797 3939

Email: LondonTAM@lseg.com

10.3 Block Indication/Order + Block Discovery Notification Amendment and Cancellation during Trading Sessions

Amendments to BIs/CBIs are allowed at any time that the system accepts BIs/CBIs.

Not all fields are amendable by Participants, and some amendments may cause the Size/Time priority of a BI/CBI/Order + BDN to be re-set. As a general rule, if the amendment makes the BI/CBI/Order + BDN more executable, the time priority will not be re-set.

For example, changing the “Valid Till” of a BI/CBI will not re-set the time priority.

Below is a summary of the main Order attributes and their amendment capabilities. Please note there is one exception stated below:

Book	Buy/ Sell	Target Book	Symbol	Order Type	Price	Qty		MinQty MES		Valid Till	Exec Inst	Client Ref
						+	-	+	-			
Turquoise Dark *	X	X	X	X	↓	↑	↓	↓	↓	✓	↓	✓
Turquoise Block Discovery	X	X	X	X	↓	↑	↓	↓	↓	✓	↓	✓

✓ Change allowed without affecting Size/Time priority

↑ Change allowed, increase in Size may improve Size/Time priority based on amended Order quantity

↓ Change allowed, decrease in Size may reduce Size/Time priority based on amended Order quantity

X Change not allowed, order must be cancelled and re-entered

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

Additionally, BIs/CBIs/Orders + BDNs are cancelled by the system in the following circumstances:

A BI/CBI/Order + BDN has reached its expiration as set by the Participant

A BI/CBI which has been matched will then be expired automatically

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

Turquoise Live Service, part of Turquoise Market Operations (MOPS) may in certain circumstances, including if requested by a Participant, intervene and cancel BIs/CBIs/Orders + BDNs

If a Participant enters a Mass Cancellation, all BIs/CBIs/Orders + BDNs within the same Trader Group are cancelled from a single FIX session (FIX specific)

11.0 Matching Priority

BIs/CBIs/BDNs with larger sizes will be given higher priority than BIs/CBIs/BDNs of smaller sizes. Where two BIs/CBIs/BDNs share the same Size priority, Time priority will then apply. Time priority is assigned at the point of entry and may be updated when the BI/CBI/BDN is modified (only for certain modification types).

The matching logic prioritises the matching of electronic BIs and BDNs first, before considering manual CBIs, due to the speed difference that exists between algorithms and Buyside trader's ability to firm up and submit a QBO.

- BIs and BDNs match, then...
- CBIs introduced, CBIs, BIs and BDNs match

If the Limit Price precludes a BI/CBI/BDN matching at the prevailing PMP or PCP (when in the **Turquoise Dark Trade At Last** session), the Limit BI/CBI/BDN will retain its queue priority, but will be prevented from matching while the prevailing PMP is beyond the specified Limit.

Size constraints (MES): Applies to all BIs/CBIs/BDNs with Minimum Quantity specified.

For TGHL or TGHE Firms that opt into Member Priority Matching, once their BI/CBI/BDN has been selected for matching within **Turquoise Block Discovery**, an attempt to match against their own BIs/CBIs/BDNs first will be made, before attempting to match any remaining quantity with BIs/CBIs/BDNs from other Firms on a Size/Time priority basis.

For full details on how the Matching Priority (including Member Priority) logic works for **Turquoise Block Discovery**, see Section 11.1 below.

11.1 Member Priority Matching within Turquoise Block Discovery (optional)

TGHL and TGHE Member Firms that wish to increase the probability of matching with themselves within **Turquoise Block Discovery** are now able to do so by registering their firm for Member Priority Matching. Should a TGHL and TGHE Member Firm 'opt in' to Member Priority Matching within **Turquoise Block Discovery**, this functionality will apply to all of its Native UserIDs and FIX CompIDs.

Once enabled, BIs/CBIs/BDNs from TGHL and TGHE Member Firms that have 'opted in' to Member Priority Matching when selected for matching will first attempt to match against their Member Firm's own Orders before attempting to match any remaining quantity with BIs/CBIs/BDNs from other Firms on a Size/Time priority basis. During **Turquoise Block Discovery** events, the following logic applies:

BIs and BDNs match:

1. The largest BI/BDN on the BUY side of the **Turquoise Block Discovery** Book is always selected first for matching against contra BIs/BDNs.
   - If the Member that has input the largest BI/BDN on the BUY side of the order book has 'opted in' to Member Priority Matching, the matching engine first looks to match against SELL BIs/BDNs from that Member on a Size/Time 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.
   - If the Member that has input the largest BI/BDN on the BUY side of the book has not 'opted in' to Member Priority Matching, the matching engine looks to match against SELL BIs/BDNs on a Size/Time basis, irrespective of which Members have submitted these BIs/BDNs.
2. Once the largest BI/BDN on the BUY side has been completely assessed for matching with corresponding SELL BIs/ BDNs, the matching engine will select the next largest BUY BI/BDN and repeat the process outlined in the above bullet points as appropriate.

CBIs introduced, CBIs, BIs and BDNs match:

3. The largest BI/CBI/BDN on the BUY side of the **Turquoise Block Discovery** Book is always selected first for matching against contra BIs/CBIs/BDNs.
   - If the Member that has input the largest BI/CBI/BDN on the BUY side of the order book has 'opted in' to Member Priority Matching, the matching engine first looks to match against SELL BIs/CBIs/BDNs from that Member on a Size/Time 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.

- If the Member that has input the largest BI/CBI/BDN on the BUY side of the book has not ‘opted in’ to Member Priority Matching, the matching engine looks to match against SELL BIs/CBIs/BDNs on a Size/Time basis, irrespective of which Members have submitted these BIs/CBIs/BDNs.

4. Once the largest BI/CBI/BDN on the BUY side has been completely assessed for matching with corresponding SELL BIs/CBIs/BDNs, the matching engine will select the next largest BUY BI/CBI/BDN and repeat the process outlined in the above bullet points as appropriate.

When a TGHL or TGHE Member Firm opts in, Member Priority Matching will equally apply to Turquoise Dark Uncross events in the **Turquoise Dark Order Book** in the same way it does for **Turquoise Block Discovery** events. Member Priority Matching will also equally apply at the PCP within **Turquoise Dark Trade At Last** matching phase.

For more details on Member Priority Matching within the **Turquoise Dark Order Books**, see Section 9.10 of the Turquoise Trading Service Description.

To opt into Member Priority Matching, a Member Firm of TGHL or TGHE should contact their Technical Account Manager or the Technical Account Management team:

LondonTAM@lseg.com
+44 (0)20 7797 3939

12.0 Trading Halts

Trading Halts are controlled by Turquoise Market Operations and will apply to Financial Instruments being matched within **Turquoise Block Discovery**. 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 tradeable.

12.1 Within Turquoise

In response to information within Turquoise, Market Operations can halt Financial Instruments immediately via an ad-hoc change to a Financial Instrument's 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 disorderly market.

12.3 Impact of a Trading Halt

If a Trading Halt is enforced by Turquoise Market Operations, the matching within **Turquoise Block Discovery** for the Financial Instrument halted will be affected as follows:

- Existing BIs/CBIs/Orders + BDNs will remain in their respective Books
- New BIs/CBIs/Orders + BDNs will be rejected, with appropriate error message
- TGHL and TGHE Members will be able to cancel their BIs/CBIs/Orders + BDNs, but no BI/CBI/Order + BDN amendment will be permitted
- No matching will occur (updates to the PMP affecting the set of BIs/CBIs/Orders + BDNs available for matching in **Turquoise Block Discovery** book will not result in any matches)

13.0 Tariff Model

All executions take place in the **Turquoise Dark Order Books**. For up-to-date tariff information, please refer to the Tariff Schedule document located on the Turquoise website.

14.0 Interfaces and Information Dissemination

Turquoise provides gateways to enter BIs/CBIs/Orders + BDNs into the trading system, receive market data, send trade reports, download own order and trade information.

The interfaces used for **Turquoise Block Discovery** are the same as those used by **Turquoise Dark** for access to the **Turquoise Dark Order Books**.

14.1 Native Trading Gateway

The Native Trading Gateway provides a low latency trading interface which allows Participants to send and manage BIs/Orders + BDN on the trading system. It does not support CBIs. The interface enables Participants to perform the following activities:

i. Submit an BI/Order + BDN
ii. Cancel an BI/Order + BDN
iii. Mass Cancel BIs/Order + BDNs
iv. Cancel/Replace an BI/Order + BDN

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 a BI/CBI/Order + BDN
ii. Cancel a BI/CBI/Order + BDN
iii. Mass Cancel BIs/CBIs/Orders + BDNs
iv. Cancel/Replace a BI/CBI/Order + BDN

The FIX Trading Gateway uses the FIX 5.0 SP2 protocol.

14.3 FIX Drop Copy Gateway

Turquoise provides a gateway to receive additional copies of Execution Reports generated by the trading system. This will include Execution Reports generated as a result of using **Turquoise Block Discovery**. This gateway may also be used by Participants to download the current status of all their active BIs/Orders + BDNs in the event of a failure.

To protect order information related to CBIs, a Nominated Broker will be set up as “Drop Copy Only User” and will only be able to receive trade information via the Drop Copy Gateway.

The drop copy service cannot be used to submit BIs/CBIs/Orders + BDNs 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 non-displayed Midpoint Trades
ii. Receive information on executed Trades via a query-based service to facilitate a recovery after a failure.

The entry of BIs/CBIs/Orders + BDNs is not supported by the post trade gateway. The post trade gateway uses the FIX 5.0 SP2 protocol.

14.5 Market Data Gateway

No market data regarding BIs, CBIs or Orders + BDNs is disseminated for **Turquoise Block Discovery**.

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

i. Price and volume for each executed on-book trade for the **Turquoise Dark Order Books**
ii. Trading status of each Financial Instrument
iii. Call Market message to notify Participants of a **Turquoise Dark Uncross** event (tiggered by a **Turquoise Block Discovery** match) in the **Turquoise Dark Order Books**

The feed also includes a daily download of the Financial Instrument list of Turquoise and Turquoise Europe (Symbol Directory).

For further information on Turquoise Market Data, see Section 14.8.

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)
TQ501 – Guide to Reference Data Services

14.7 Detailed information regarding Certification and Testing Services

For further information regarding Certification of Participants' 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

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