



**London**  
Stock Exchange Group

# LONDON STOCK EXCHANGE GROUP

## GROUP TICKER PLANT

### GTP 003 - STATISTICS GUIDE

ISSUE 10.7  
01 December 2020

Powered by  
MillenniumIT 

One product, **infinite possibilities.**

## Contents

<b>Guide Disclaimer .....</b>	<b>3</b>
<b>1. Documentation .....</b>	<b>4</b>
1.1 This Guide .....	4
1.3 Document Series .....	4
1.4 Document History .....	5
1.5 Enquiries.....	6
<b>2. Statistics Overview .....</b>	<b>7</b>
2.1 Statistics Delivery and Data Recovery .....	7
<b>3. Statistics Logics.....</b>	<b>8</b>
3.1 Official Opening Price .....	8
3.2 Official Closing Price.....	8
3.3 Best Closing Bid and Ask.....	8
3.4 Turnover .....	8
3.5 Number of Trades.....	9
3.6 Volume .....	9
3.7 Volume Weighted Average Price (VWAP).....	9
3.8 Trade High/Trade High On-Book/Trade High Off Book .....	10
3.9 Trade Low/Trade Low On-Book/Trade Low Off Book.....	10
3.10 52-week Trade High and Low .....	10
3.11 Open Interest.....	11
3.12 Volatility .....	11
3.13 Indicative Auction Information .....	11
3.14 Last Traded .....	11
<b>4. Additional Information.....</b>	<b>11</b>
4.1 London Stock Exchange Best Closing Bid and Ask .....	11
4.2 Applicable Trade Types (Statistics Message) .....	12
4.3 Applicable Trade Types (Statistics Update Message) .....	13
4.4 TRADEcho MiFID II Statistics .....	14

## Guide Disclaimer

The content of this publication is not offered as advice on any particular matter and must not be treated as a substitute for specific advice. In particular, information in this publication does not constitute professional, financial or investment advice and must not be used as a basis for making investment decisions and is in no way intended, directly or indirectly as an attempt to market or sell any type of financial instrument. London Stock Exchange Group plc. and its group undertakings (the “London Stock Exchange Group”) attempts to ensure that all information used in this publication is accurate at the time of publication, however all information is provided “as is” and on an “as available” basis and may not be accurate or up to date and the London Stock Exchange Group shall not be liable for decisions made in reliance on it. The information provided by the London Stock Exchange Group may or may not have been prepared by the London Stock Exchange Group but is made available without responsibility on the part of the London Stock Exchange Group. No responsibility is accepted by or on behalf of the London Stock Exchange Group for any errors, omissions, or inaccurate information. The London Stock Exchange Group does not make any representations and disclaims all express, implied and statutory warranties of any kind, including warranties as to accuracy, timeliness, completeness, merchantability or fitness for any particular purpose. Except as is otherwise indicated, the London Stock Exchange Group is the owner of the copyright in all the information and of all related intellectual property rights, including but not limited to all database rights, trade marks, service marks and logos.

Whilst this document may be updated at any time, the London Stock Exchange Group will endeavor to provide notice to customers of changes being made. This notice, however, cannot always be guaranteed. The information in this publication is therefore for guidance only.

For further information, please contact your usual London Stock Exchange Group contact.

## 1. Documentation

### 1.1 This Guide

The purpose of this document is to provide an overview of the statistics derived and published by the Group Ticker Plant.

### 1.2 Readership

This document is particularly relevant to business and technical teams within member firms, information vendors and other market participants who currently receive or are interested in receiving London Stock Exchange Group market data from the Group Ticker Plant.

When read in conjunction with other Group Ticker Plant documents it is intended to provide an overview of how our statistics are calculated and published to directly connected clients..

### 1.3 Document Series

This guide, **GTP003 – Statistics Guide**, forms part of the documentation library supporting those clients interacting with the Group Ticker Plant. For information, the full series of currently available documentation is outlined below:

- GTP001 – Product Guide;
- GTP002 – Technical Guide;
- GTP003 – Statistics Guide (this document);
- GTP004 – Parameters Guide;
- GTP005 – Testing Services Guide;
- GTP006 – External Sources Guide;
- GTP007 – GTP Lite Guide.
- GTP008 – Market Attributes Guide

Further documentation to support displaying our data and our go-live will be released in due course.

The full library of Group Ticker Plant documentation can be found at:

[www.londonstockexchange.com/oneproductinfinitepossibilities](http://www.londonstockexchange.com/oneproductinfinitepossibilities)

## 1.4 Document History

This document has been subject to the following iterations:

Issue	Date	Description
1.0	30 November 2012	First issue of this document
10.4	13 July 2018	4.5 – Added Applicable Trade Types (Statistic Message) for Turquoise Plato™, Turquoise Lit™, Turquoise Lit Auctions™  4.7 – Updated TradeEcho MiFID II Statistics  4.7 – Removed ATF market model on Pending Price
10.5	23 December 2019	4.2 – Section updated to reflect introduction of Closing Auction period in Borsa Italiana MOT market.  4.5 – Section update to include Turquoise NYLON™ Cash Order Book Statistics derivation logic
10.6	9 March 2020	3.11 – Updated Open Interest – Statistics is carried forward to next trading day
10.7	01 December 2020	All sections – Removed content related to Borsa Italiana and associated venues

In subsequent issues of this document, where amendments have been made, these changes will be indicated through the use of **red text** and sidebars (example left).

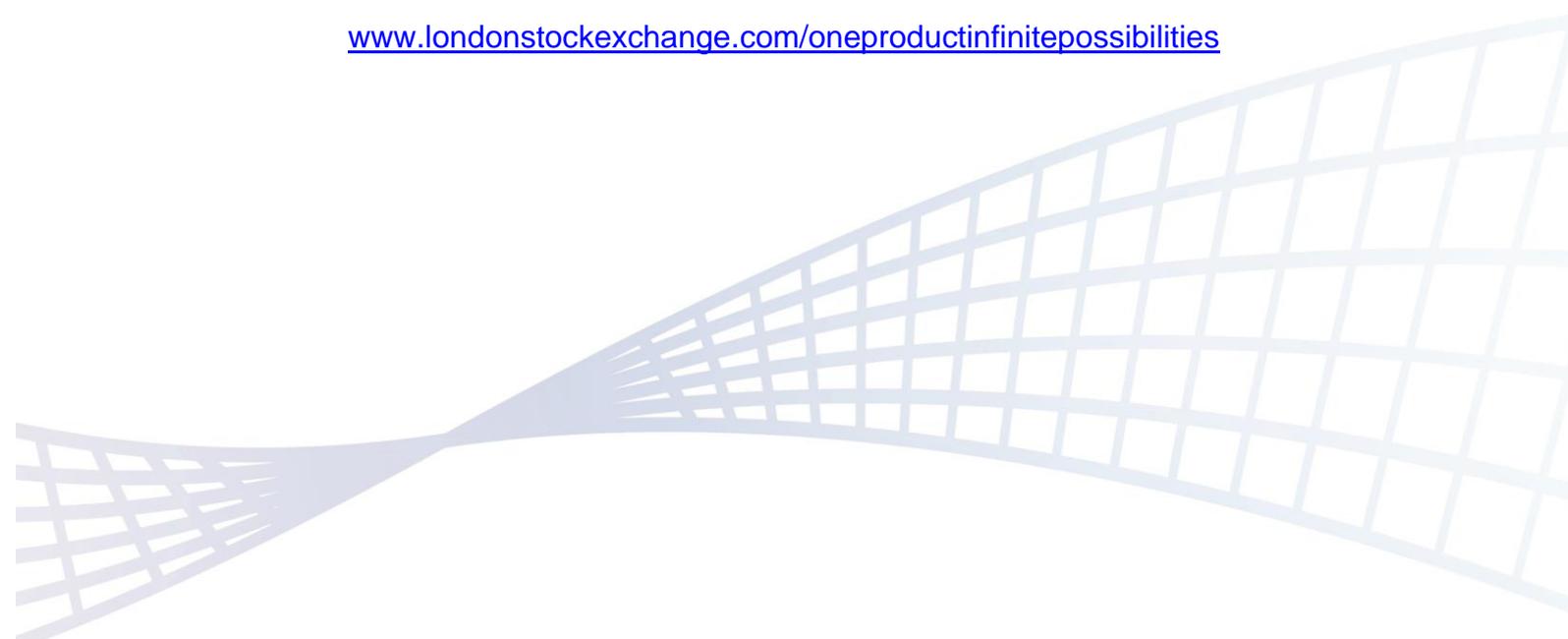
## 1.5 Enquiries

For further information on Group Ticker Plant, please contact either your Technical Account Manager or the Client Technology Services (UK):

- Telephone: (+44) 207 797 3939
- Email: [lsetam@londonstockexchange.com](mailto:lsetam@londonstockexchange.com)

Further information can also be found on our project websites:

[www.londonstockexchange.com/oneproductinfinitepossibilities](http://www.londonstockexchange.com/oneproductinfinitepossibilities)



One product, **infinite possibilities.**

## 2. Statistics Overview

The Group Ticker Plant calculates a rich package of statistical information designed to educate customers on a security's behavior and facilitate interaction with the Group's markets through informed decision making. Whilst this document details the core logics employed to calculate the Group Ticker Plant statistics, the Group strongly advises clients to process statistical data as disseminated by the Group Ticker Plant - applying the information as delivered; this is of particular relevance for our customers redistributing London Stock Exchange Group data to third parties. When a customer redistributing data does implement their own method of calculation for a statistic it is advised that this is clearly identified as not originating from the Group Ticker Plant service lines.

Please note that whilst this document details the logics of how our statistics are derived from the underlying data, it does not describe best practice for the display of data as delivered by the Group Ticker Plant.

Customers should note that following the launch of the TRADEcho service, London Stock Exchange market data channels (market data groups A-G) will no longer broadcast off-book trade reports. As such, off-book statistics will no longer be calculated for these channels. In contrast, the TRADEcho market data channels (market data groups 1-4) will broadcast off-book statistics only; the On-Book statistic fields for these channels will always be blank with off-book trades published contributing to the All Trades fields only.

All other markets are unaffected by this change and therefore underlying trade types and their contribution statistics – sections 4.6 and 4.7 of this document - remain unchanged.

### 2.1 Statistics Delivery and Data Recovery

The Group Ticker Plant delivers statistics in two message types. In an effort to minimise the dissemination of redundant message fields, those statistics which update frequently as a result of an execution are contained within the Statistics message. In contrast, those statistics which update less frequently, such as Trade High and Low, are delivered to clients in the Statistics Update message. Further information is contained within GTP002 – Technical Guide.

The Group Ticker Plant statistics package is available for clients to recover during the trading day. Available via the recovery service, the Statistics Snapshot message contains the real-time statistics package and the last available auction information as calculated.

### 3. Statistics Logics

The Group Ticker Plant statistics package is derived from executions either on or off book. Customers should note that not all trades contribute to statistics – further information is contained within section 4 of this document.

#### 3.1 Official Opening Price

- Group Ticker Plant will publish the Official Opening Price as reported by upstream markets
- For details on how this is derived for London Stock Exchange, clients should refer to the Millennium Exchange and TRADEcho Business Parameters <http://www.londonstockexchange.com/products-and-services/millennium-exchange/technicalinformation/technicalinformation.htm>

#### 3.2 Official Closing Price

- Group Ticker Plant will publish the Official Closing Price as reported by upstream markets
- For details of how this is derived for London Stock Exchange, clients should refer to the Millennium Exchange and TRADEcho Business Parameters <http://www.londonstockexchange.com/products-and-services/millennium-exchange/technicalinformation/technicalinformation.htm>

#### 3.3 Best Closing Bid and Ask

- BBO is calculated using MBP order book reconstruction
- Section 4 details variances in derivation logic between different markets
- When the mid-price is used to derive the closing price, the Group Ticker Plant does not redistribute the contributing Bid or Offers used.
- No values are carried forward into the following day

#### 3.4 Turnover

- On-book Turnover equates to the total value of order book trades executed on the Group's electronic order books. The value of an individual On Book trade is calculated as follows:

$$\text{Trade Value} = \text{Price} \times \text{Executed Size}$$

- On-Book trade cancellations are applied as a reversal to the statistic
- Bulk Trade Amendments contribute to statistic calculations

$$\text{Trade Value} = \frac{(\text{Last Trade Price} \times \text{Last Executed Size})}{100}$$

- Trades reported with a delayed publication to a date other than the traded date do not update statistics
- Statistics which are cancelled on T+n, are not included in any statistic calculation
- The statistic is reset at the end of each day.

### 3.5 Number of Trades

- Core On-book GTP channels include only On Book statistics, whereas TRADEcho channels include only Off Book statistics
- On-Book trade cancelations are applied as a reversal to the statistic
- Bulk Trade amendments update the statistic accordingly
- Under MiFID II, all Off Book Trades, except those reported with ESMA Flag CANC or DUPL contribute to the statistic
- Off Book Trades reported with ESMA Flag CANC are applied as a reversal to the statistic
- Trades reported with a delayed publication on a date other than the traded date do not update statistics
- Statistics which are cancelled on T+n, are not included in any statistic calculation
- The statistic is reset at the end of each day

### 3.6 Volume

- Core GTP channels include only On Book statistics, whereas TRADEcho channels include only Off Book statistics
- On-Book trade cancelations are applied as a reversal to the statistic
- Bulk Trade amendments update the statistic accordingly
- Under MiFID II, all Off Book Trades, except those reported with ESMA Flag CANC or DUPL contribute to the statistic
- Off Book Trades reported with ESMA Flag CANC are applied as a reversal to the statistic
- Trades reported with a delayed publication on a date other than the traded date do not update statistics
- Statistics which are cancelled on T+n, are not included in any statistic calculation
- The statistic is reset at the end of each day

### 3.7 Volume Weighted Average Price (VWAP)

- VWAP is calculated as follows:

$$VWAP = \frac{\sum (\text{Last Trade Price} \times \text{Last Executed Size})}{\sum \text{Executed Trade Size}}$$

- On-Book trade cancellations are applied as a reversal to the statistic
- VWAP is derived based on On-Book only trades
- Bulk Trade Amendments update the statistics accordingly
- Trades reported with a delayed publication on a date other than the traded date do not update statistics
- Statistics which are cancelled on T+n, are not included in any statistic calculation
- The statistic is reset at the end of each day

### 3.8 Trade High/Trade High On-Book/Trade High Off Book

- On-Book trade cancellations are applied as a reversal to the statistic
- TRADEcho channels do not offer this statistics
- Core GTP channels include only On Book statistics
- Bulk Trade Amendments update the statistics accordingly
- Trades reported with a delayed publication on a date other than the traded date do not update statistics
- Statistics which are cancelled on T+n, are not included in any statistic calculation
- The statistic is reset at the end of each day

### 3.9 Trade Low/Trade Low On-Book/Trade Low Off Book

- On-Book trade cancellations are applied as a reversal to the statistic
- TRADEcho channels do not offer this statistic
- Core GTP channels include only On Book statistics
- Bulk Trade Amendments update the statistics accordingly
- Trades reported with a delayed publication on a date other than the traded date do not update statistics
- Statistics which are cancelled on T+n, are not included in any statistic calculation
- The statistic is reset at the end of each day

### 3.10 52-week Trade High and Low

- This price may be updated within a trading day
- On-Book trade cancellations are applied as a reversal to the statistic
- This statistic is not offered on TRADEcho channels
- Core GTP channels include only On-Book trades in the derivation of statistic
- Bulk Trade Amendments update the statistics accordingly
- Trades reported with a delayed publication on a date other than the traded date do not update statistics

- Trades which are cancelled on T+n, are not included in any statistic calculation
- The statistic value is carried forward to the next day

### 3.11 Open Interest

- Open interest is not applicable to LSEG Trading Venues
- The value is re-published as reported by upstream systems
- The latest value calculated on the trading venue will be carried forward into the next trading day.

### 3.12 Volatility

- Volatility is not applicable to LSEG Trading Venues
- Volatility is re-published as received from upstream exchange
- The value is not carried forward into the next trading day

### 3.13 Indicative Auction Information

- Values are re-published from exchange
- The values may be published multiple times per day
- Indicative Auction Price, Paired Quantity, Auction Type, Imbalance Direction and Imbalance Size values are disseminated
- Values are not carried forward into the next trading day

### 3.14 Last Traded

The Statistics Snapshot message, available via the Recovery service, will be enhanced to support the inclusion of three additional new fields. Used to disseminate the last trade time, quantity and price for a security, these fields will included on-book executions only (including Automatic, Uncrossing and Cross trades) in their derivation.

## 4. Additional Information

### 4.1 London Stock Exchange Best Closing Bid and Ask

Trading Model	Derivation Logic
SETS	Immediately prior to Closing Auction Call;
SETSqx	Immediately prior to Post-Mandatory session;
SEAQ	Immediately prior to Post-Mandatory session;
IOB	Immediately prior to Closing Auction Call;
IB	Immediately prior to Closing Auction Call;
ORB	Immediately prior to Closing Auction Call.

## 4.2 Applicable Trade Types (Statistics Message)

	Trade Type	Description	On-Book Only				Off Book & On-Book			
			Volume	VWAP	Number of Trades	Turnover	Volume	VWAP	Number of Trades	Turnover
Trade Message	0	Regular Trade	✓	✓	✓	✓	✓	✓	✓	✓
	1	Auction Trade - Bulk	✓	✓	✓	✓	✓	✓	✓	✓
	2	Auction Trade - Indiv.								
	22	Private RFQ					✓	✓	✓	✓
Trade Cross	5	Internal Cross	✓		✓	✓	✓	✓	✓	✓
	6	Internal BTF	✓		✓	✓	✓	✓	✓	✓
	7	Committed Cross	✓		✓	✓	✓	✓	✓	✓
	8	Committed BTF	✓		✓	✓	✓	✓	✓	✓

- Off-Book Trades with Trade Date other than that of the current trading day will not update our statistics package.
- Customers should note that TRADEcho Off Book statistics will be disseminated via the new TRADEcho channels.

	Trade Type	Description	Turquoise			
			Volume	VWAP	Number Of Trades	Turnover
Trade Message	Turquoise Plato™					
	0	Regular Trade	✓	✓	✓	✓
	2	Auction Trade - Indiv.	✓	✓	✓	✓
	Turquoise Lit™					
	0	Regular Trade	✓	✓	✓	✓
Turquoise Lit Auctions™						

	2	Auction Trade - Indiv.	✓	✓	✓	✓
	Turquoise NYLON™					
	2	Auction Trade - Indiv.	✓	✓	✓	✓

- Turquoise Plato™ statistics taken into account are Auction Trade–Indiv. and Regular Trade
- Turquoise Lit™ statistics taken in account are Regular Trade
- Turquoise Lit Auctions™ statistics taken into account are Auction Trade – Indiv.
- Turquoise NYLON™ Cash Order Book statistics derived from Auction Trade – Indiv.

### 4.3 Applicable Trade Types (Statistics Update Message)

	Trade /Cross Type	Description	On-Book Only	Off-Book	All Trades
			Trade High / Low	Trade High / Low	Trade High / Low
Trade Message	0	Regular Trade	✓		✓
	1	Auction Trade - Bulk	✓		✓
	2	Auction Trade - Indiv.			
	22	Private RFQ		✓	✓
Trade Cross	5	Internal Cross			✓
	6	Internal BTF			✓
	7	Committed Cross			✓
	8	Committed BTF			✓

- Off-Book Trades with Trade Date other than that of the current trading day will not update our statistics package.
- Customers should note that TRADEcho Off Book statistics will be disseminated via the new TRADEcho channels.

#### 4.4 TRADEcho MiFID II Statistics

- Statistics values will exclude trades published on the day different than the day of execution.
- Off Book Trades with a Trade Date other than that of the Current Trading Date will not update the statistics package. Including the supplementary deferrals and aggregated trades publications.
- Following TRADEcho Phase 2 Go-Live, GTP will publish Off Book statistics for Total Trades and Volume only. Off Book Trade statistics will not be published for supplementary and aggregated trade publications.