SIAC

SECURITIES INDUSTRY AUTOMATION CORPORATION

CONSOLIDATED QUOTATION SYSTEM

CQS

OUTPUT MULTICAST LINE

INTERFACE SPECIFICATION

April 22, 2015
Version 59a

TABLE OF CONTENTS

SUMMARY OF CHANGES

VERSION #30B – February 07, 2007	
79-81	Revised: Timeline of CQS Multicast Line Messages for the BSE, CHX and NYSE Open for select securities (effective February 9, 2007): • From: 09:30 A.M. To: 08:20 A.M. ET
VERSION #30B – February 23, 2007	
79-81	Revised: Timeline of CQS Multicast Line Messages for the NSX (effective February 26, 2007): Market Open From 09:30 A.M. - To 08:00 A.M. ET Market Closed From 04:00 P.M. - To 06:30 P.M. ET
VERSION #30B – February 23, 2007	
23, 79-81	Revised Name: • From: Chicago Board Options Exchange - CBOE To: Chicago Board of Options Stock Exchange – CBSX Revised Timeline of CQS Multicast Line Messages for the CBSX (effective March 5, 2007): • Market Open From 09:30 A.M. - To 09:15 A.M. ET
VERSION #30B – March 2, 2007	
23, 79-81	Correction to Name Revision for CBOE (effective March 5, 2007): From: Chicago Board of Options Stock Exchange To: CBOE Stock Exchange Revised Timeline of CQS Multicast Line Messages for the NASD (effective March 05, 2007): • Market Open From 08:30 A.M. - To 08:00 A.M. ET • Market Closed From 08:00 P.M. - To 06:30 P.M. ET
VERSION #30B – March 23, 2007	
4-2, 4-5, 6-1, 8-1 and 8-5	Deleted: Category C, Type P – 'NASD NAQS Wipe-Out' control message (no longer applicable)
10-10, 10-12, D-1, D-2 and G-3	Deleted: All references to "NAQS" Market Maker ID (no longer applicable)
VERSION #31 – June 25, 2007	
65, 78, 87 & 90	Added: New code 'Y' to Quote Condition field to denote Sub-Penny Trading
VERSION #32 – January 29, 2008	
79-81	Revised: Timeline of CQS Multicast Line Messages for the International Securities Exchange (ISE) effective February 11, 2008: • Market Open: From 09:30 A.M. - To 09:00 A.M. ET • Market Closed From 04:00 P.M. - To 04:15 P.M. ET

SUMMARY OF CHANGES

VERSION #33 – August 18, 2008	
23, 62 & 64 79-81	Added: New CQS Participant 'BATS Trading' • New Participant ID – 'Z' • New Primary Listing Market ID – 'Z' • New Trade Reporting Facility (TRF) ID – 'Z' Added: Timeline of CQS Multicast Line Messages for new CQS Participant 'BATS Trading': • Market Open: To 08:00 A.M. ET • Market Closed: To 04:18 P.M. ET
VERSION #34 – September 29, 2008	
79-81	Revised: Timeline of CQS Multicast Line Messages for the International Securities Exchange (ISE) effective October, 2008: • Market Open From 09:00 A.M. - To 08:00 A.M. ET • Market Closed From 04:15 P.M. - To 05:00 P.M. ET
VERSION #35 – December 24, 2008	
79-81	Revised: Timeline of CQS Multicast Line Messages for the International Securities Exchange (ISE): Market Closed From 05:00 P.M. - To 08:00 P.M. ET
All	Revise Participant ID Value: • From: NASD To: FINRA
VERSION #36 – February 20, 2009	

All	Revised: Participant ID Value:
	• From: American Stock Exchange
	  To: NYSE AMEX
	• From: Boston Stock Exchange
	  To: NASDAQ OMX BX
	• From: NASDAQ
	  To: NASDAQ OMX
	• From: Philadelphia Stock Exchange
	  To: NASDAQ OMX PHLX

18-20, 38 & 81	Revised: Total number of IP Multicast Lines broadcasting CQS messages: • From: 5 lines To: 24 lines Revised: Message routing by Network and Security Symbol over 24 Multicast Lines.
80	Revised: End of Participant Reporting for NYSE AMEX from 16:25 to 17:30 Added: End of Participant Reporting for NYSE at 17:30
VERSION #37 – May 13, 2009	
79-81	Revised: Timeline of CQS Multicast Line Messages for BATS Trading: Market Closed From 04:00 P.M. ET - To 05:00 P.M. ET

SUMMARY OF CHANGES

VERSION #38 – September 17, 2009	
23, 62, 64	Revised: Participant ID Value: • From: BATS Trading To: BATS Exchange Inc.
23, 62, 64, 79-80	Added New Participant: Direct Edge A: • New Participant ID 'J' • New Primary Listing Market ID 'J' • New Trade Reporting Facility (TRF) ID 'J' Added: Timeline of CQS Multicast Line Messages for new CQS Participant Direct Edge A: • Market Open: 08:00 A.M. ET • Market Closed: 08:00 P.M. ET
23, 62, 64, 79-81	Added New Participant: Direct Edge X: • New Participant ID 'K' • New Primary Listing Market ID 'K' • New Trade Reporting Facility (TRF) ID 'K' Added: Timeline of CQS Multicast Line Messages for new CQS Participant Direct Edge X: • Market Open: 08:00 A.M. ET • Market Closed: 08:00 P.M. ET
23, 62, 64, 79-81	Added: New CQS Participant 'BATS Y-Exchange' • New Participant ID – 'Y' • New Primary Listing Market ID – 'Y' • New Trade Reporting Facility (TRF) ID – 'Y' Added: Timeline of CQS Multicast Line Messages for new CQS Participant 'BATS Y-Exchange': • Market Open: 08:00 A.M. ET • Market Closed: 05:00 P.M. ET
79-81	Revised: Timeline of CQS Multicast Line Messages for the Chicago Stock Exchange: • Market Open: From 09:30 A.M. ET - To 07:00 A.M. ET • Market Closed: From 04:00 P.M. ET - To 04:15 P.M. ET
VERSION #39 – October 29, 2009	
79-81	Revised: Timeline of CQS Multicast Line Messages for the CBOE Stock Exchange: • Market Open: From 09:15 A.M. ET - To 09:00 A.M. ET
VERSION #40 – January 11, 2010	
79-81	Revised: Timeline of CQS Multicast Line Messages for the CBOE Stock Exchange (CBSX): • Market Closed: From 04:00 P.M. ET - To 04:30 P.M. ET
23, 62 & 64	Revised: Participant ID Value and Primary Listing Participant ID: • From: NASDAQ OMX PHLX To: NASDAQ OMX PSX
79-81	Revised Timeline of CQS Multicast Line Messages for the NASDAQ OMX PSX: • Market Open: To 08:00 A.M. ET • Market Closed: To 05:00 P.M. ET

SUMMARY OF CHANGES

VERSION #41 – May 24, 2010	
65, 78, 87 & 89	Redefined Quote Condition **'M'** (Regulatory Halt Reason**)**: • From: Additional Information To: Volatility Trading Pause Redefined Quote Condition **'Q'**: • From: Additional Information – Due to Related Security To: Undefined
VERSION #42 – July 09, 2010	
27, 43, 69 & 78	Added: New Short Sale Restriction Indicator in Long Quote (Category B/E/L, Type B) message Added: Short Sale Restriction Indicator in Field Appearances Within Messages Added: New Short Sale Restriction Indicator field Added: New Short Sale Restriction Indicator to Field Descriptions and Glossary
VERSION #43 – July 30, 2010	
79-81	Revised: Timeline of CQS Multicast Line Messages for the National Stock Exchange: • Market Close: From 06:30 P.M. ET - To 08:00 P.M. ET
VERSION #44 – August 18, 2010	
20	Revised: Multicast Line Symbol Distribution for Network E and Network F
VERSION #45 – September 29, 2010	
79-81	Revised: Timeline of CQS Multicast Line Messages for the CBOE Stock Exchange: • Market Open: From 09:00 A.M. ET - To 08:30 A.M. ET • Market Close: From 04:30 P.M. ET - To 04:45 P.M. ET
VERSION #46 – December 10, 2010	
19 & 68	Added: New dedicated 'Test' symbols: • Network E: CBO and CBX • Network F: IBO and IGZ
VERSION #47 – March 25, 2011	
79-81	Revised: Timeline of CQS Multicast Line Messages for the NASDAQ OMX BX: • Market Open: From 08:00 A.M. ET - To 07:00 A.M. ET

SUMMARY OF CHANGES

VERSION #48 – October 11, 2011	
19 & 68	Added: New dedicated 'Test' symbols: Network F: ZBZX and ZTEST
23, 25, 37 & 48	Added: New Limit Up-Limit Down (LULD) Indicator field

25, 28, 29, 36-38, 46 & 51	Revised: From – FINRA Market Maker Geographical Location (2 bytes)
	        To – Reserved (1 byte) and,
	        To – National BBO LULD Indicator (1 byte)
	Revised: From – FINRA Market Maker Desk Location
	        To – FINRA BBO LULD Indicator
	Revised: From – BEST BID and BEST OFFER FINRA Market Maker
	        Geographical Location (in Long National and FINRA BBO
	        Appendage)
	        To – Reserved
	Revised: From – BEST BID and BEST OFFER FINRA Market Maker Desk
	        Location (in Long National and FINRA BBO Appendage)
	        To – Reserved

27, 43, 52, 54 & 58	Added: New SIP Generated Message Identifier field
25, 37, 56 & 57	Added: New National BBO Limit Up-Limit Down (LULD) Indicator field
25, 37, 41, 51 & 52	Added: New FINRA BBO Limit Up-Limit Down (LULD) Indicator field

27, 41, 42, 47, 52, 54, 57 & 59	Revised to support 'Limit Up-Limit Down (LULD)':
	• From - Bid Price Denominator Indicator
	  To - Bid Price/Lower Limit Price Band Denominator Indicator
	• From - Offer Price Denominator Indicator
	  To - Offer Price/Upper Limit Price Band Denominator Indicator
	• From - Bid Short Price
	  To - Bid Short Price/Lower Limit Price Band
	• From - Bid Price
	  To - Bid Price/Lower Limit Price Band
	• From - Offer Short Price
	  To - Offer Short Price/Upper Limit Price Band
	• From - Offer Price
	  To - Offer Price/Upper Limit Price Band

58, 65,70, 78, 87 & 91	Added: New Quote Condition Codes/Values: • 0 - Limit Up-Limit Down (LULD) Price Bands • 9 - Republish Limit Up-Limit Down (LULD) Price Bands
75 (Glossary)	Added: 'Limit Up-Limit Down' (with website link) and 'Limit State'
VERSION #49 – January 12, 2012	
27, 43 & 67	Added: New 'Retail Interest Indicator' field to Long Quote Category B/E/L, Type B messages
VERSION #50 – May 10, 2012	
11, 18, 19, 23, 50, 61, 62, 64, 65, 68, 74, 75, 79, 80, 87 & 90	Revised: Participant name: • From: NYSE AMEX Stock Exchange To: NYSE MKT Stock Market

SUMMARY OF CHANGES

VERSION #51 – JUNE 27, 2012	
15, 16, 19, 32, 33, 34, 41 & 42	Added: New Message Category Code 'M' for Market Status messages. Added: New Category 'M' messages: - New 'Market-Wide Circuit Breaker Decline Level Status' - Message Category M, Type K - New 'Market-Wide Circuit Breaker Status' - Message Category M, Type L
64, 85 & 89	Added: New 'Market-Wide Circuit Breaker' codes 1, 2 and 3 to 'Quote Condition' field of Short Quote (Category E/L, Type D) and Long Quote (Category B/E/L, Type B) messages.
76	Added the following to the Glossary: - Market-Wide Circuit Breaker Level 1 – 7% Decline - Market-Wide Circuit Breaker Level 2 – 13% Decline - Market-Wide Circuit Breaker Level 3 – 20% Decline
26	Renamed the following fields appearing in the Short Quote (Category E, Type D) message: - From - Bid Price/Lower Limit Price Band Denominator Indicator To - Bid Price Denominator Indicator - From - Bid Short Price/Lower Limit Price Band To - Bid Short Price - From - Offer Price/Upper Limit Price Band Denominator Indicator To – Offer Price Denominator Indicator - From - Offer Short Price/Upper Limit Price Band To - Offer Short Price
VERSION #51-A – JULY 24, 2012	
35	Revised the total number of bytes indicated for Market-Wide Circuit Breaker Status (Category M, Type L) message from 46 to 4 .
VERSION #51-B – FEBRUARY 21, 2013	
57	Revised 'National BBO LULD (Limit Up-Limit Down Indicator') code 'I': - From - National Best Bid equals Upper Limit Price Band **and** National Best Offer equals Lower Limit Price Band - To - National Best Bid equals Upper Limit Price Band **and** National Best Offer equals Lower Limit Price Band **(Crossed – *NOT in Limit State*)**
VERSION #52 – March 6, 2013	
79	Revised 'Market Open' for NASDAQ OMX: From 7:00 AM ET To 4:00 AM ET

SUMMARY OF CHANGES

VERSION #53 – June 28, 2013	
23	Revised description in the 'Timestamp' section as follows: • From: "The Timestamp indicates the Time that a transaction is disseminated over the Multicast Line(s)". To: "The Timestamp indicates the Time that processing a message is completed". • From: "For Retransmissions, the Time will reflect the original Time that the message was disseminated". To: "For Retransmissions, the Time will reflect the original Time that processing the message was completed".
41, 49 & 74	Added new Financial Status Code 8 to denote 'Creations and/or Redemptions Suspended for Exchange Traded Product'
43 & 70	Revised description of 'SIP Generated Message Identifier' field.
VERSION #54 – October 4, 2013	
41, 49 & 74	Redefined: Existing code '8' in Financial Status field: • From: Creations and/or Redemptions Suspended for Exchange Traded Product (for Exchange Traded Product). • To: Creations Suspended (for Exchange Traded Products).
41, 49 & 77	Added: New code '9' in Financial Status field to denote 'Redemptions Suspended' (for Exchange Traded Products).
41, 49 & 75	Added: New code 'A' in Financial Status field to denote 'Liquidation' (for Exchange Traded Products).
VERSION #54a – February 3, 2014	
N/A	Note: FINRA reactivation – no functionality changes.
VERSION #55 – May 6, 2014	
17, 20, 36 & 39	Added: New Control Message: Category C Type P - 'Disaster Recovery Data Center Activation'.
VERSION #56 – May 16, 2014	
81	Revised 'Market Closed' for NSX: • From: 8:00 PM ET To: 5:00 PM ET

SUMMARY OF CHANGES

VERSION #57 – October 31, 2014	
17, 23, 24, 27, 28, 29, 31, 32, 38, 39, 102 & 103	Added: <u>New Expanded</u> Message Header (**39 Bytes**) including the following: • Modified Message Header Identifier • New Transaction ID Part A field (Reserved for internal use only) • New Transaction ID Part B field (Reserved for internal use only) • Modified CQS Timestamp (represented in microseconds since midnight ET) • New Timestamp (represented in microseconds since midnight ET)
VERSION #58 – November 6, 2014	
21-22	Revised: Message Routing by Network and Symbol
VERSION #59 – February 4, 2015	
17, 23, 27-32, 38-39	Modified: New *Expanded* Message Header (increased from 39 Bytes to **45 Bytes**) to include a second Timestamp (represented in microseconds since midnight ET) Updated: Total length of messages adjusted to include new Message Header length of 45 Bytes Revised: Effective Date from April 2015 to July 2015
VERSION #59a – April 22, 2015	
28-29	Added: Definitions for Timestamp 1 and Timestamp 2 fields of the <u>New</u> *Expanded* Message Header Revised: Effective Date from July 2015 to August 3, 2015

_____

REFERENCE MATERIAL

For Technical Specifications visit www.ctaplan.com - and select Tech Spec tab for the following:

■ CQS Multicast Output Specification
■ CQS Input Specification
■ Common IP Multicast Distribution Network Specification
■ Enhanced Autolink Facility User Guide

FURTHER INFORMATION

■ CTA Announcements including feed enhancements, traffic rates, etc. visit www.ctaplan.com

RELATED RESOURCES

For customers selecting to initiate Secure Financial Transaction Infrastructure (SFTI) connections to CQS**:**

■ Submit a request at: http://www.nyxdata.com/Connectivity
■ Contact SFTI Sales at: NYSE-Technologies-Sales@nyx.com
■ For supporting SFTI® documentation including Customer and Technical guides visit www.nyxdata.com/docs.

1.0 INTRODUCTION

1.1 BACKGROUND

The Securities Industry Automation Corporation (SIAC) has continuously served as the "Processor" for the Consolidated Quote Plan from its inception on August 1, 1978. In fulfilling its role as the Processor, SIAC plans, develops, operates, and maintains the Consolidated Quote System (CQS).

CQS collects and processes all equity quotes in listed securities, local issues and bonds from all U.S. Stock Exchanges and the Financial Industry Regulatory Authority (FINRA). In addition, CQS calculates and identifies the National and FINRA "Best Bid and Offer" (highest bid and lowest offer). CQS Participant messages, input to the CQS processor, are validated, processed, recorded and merged to form the High Speed outputs. This information is made available via computer-to-computer linkages to the financial community in the U.S. and abroad.

Essential in ensuring the timely reporting of quote information are the CQS Multicast Line (ML) output facilities. Approved subscribers of the CQS service can redistribute CQS data worldwide to their customers as part of their individual services or use the data for their own purposes.

The consolidated ML output facilities designate traffic with two network identifiers. An "E" identifier is used to represent NYSE listed securities quoted by CQS Participants. A 'F' identifier represents quotes for securities that are listed on BATS, NYSE ARCA, NYSE MKT, and those eligible for NYSE MKT listing but listed on regional stock exchanges.

1.2 DUAL SITE REDUNDANCY

Computer systems that support the processing and dissemination of consolidated trades are operational at two Data Centers at physically and geographically diverse locations, thereby providing redundancy in the event of a disaster at either location. If a disaster should occur at one of the locations, all of the computer processing operations in support of trade reporting would be transferred to the surviving site. The dual-site configuration provides system fold-over for a limited site disaster (system failure) or full site disaster (loss of facility). A CQS dual site configuration is illustrated in **Appendix A.**

1.3 SCOPE

This specification defines the communications interface and message format requirements for Data Recipients (vendors, broker/dealers or others who receive the data feed) connecting to the National Market System (NMS) IP Multicast distribution network.

2.0 GENERAL DESIGN OF DATA DISTRIBUTION NETWORK

The CQS Communications Interface design utilizes the IP Multicast protocol with T1 and T3 circuits. The requirements for the IP Multicast Network interface are defined in the supplement to this document, "National Market Systems Common IP Multicast Distribution Network Recipient Interface Specification" which can be accessed at the following website: http://www.ctaplan.com and select the Technical Specifications tab.

3.0 TRANSMISSION CHARACTERISTICS

3.1 TRANSMISSION BLOCK

Encapsulated within each IP packet is a single transmission block. One type of transmission block is used for all types of messages:

S O H	BLOCK TEXT	E T X

|<------ TRANSMISSION BLOCK ------>|

A block can have a maximum of 1,000 characters, which includes the Message Header and text.

3.2 CHARACTER SET

All transmissions are in standard 8-bit USASCII code.

3.3 SOH AND ETX

The Start of Header (SOH) control character (x01) indicates the beginning of the block, whereas the End of Text (ETX) control character (x03) signifies the end of the block.

3.4 US

The Unit Separation (US) control character (x1F) is needed in multiple message blocks to signify the end of the preceding message but not the end of the block.

3.5 BLOCK TEXT

The block text can consist of multiple messages. A message is a unit of data that can be processed by the receiving station independently of other data. A message may not span a block boundary.

A message consists of a Message Header, which is of fixed length and format, and a Message Text segment, which is variable in length and format. A US character delimits each message, while an ETX character delimits the last message in the block.

_____

3.6   BLOCK TEXT FORMAT

The block text consists of multiple messages with each message consisting of a Message Header and, with the exception of certain control messages, a Message Text.

The block text is depicted below:

S O H	MESSAGE 1 HEADER & TEXT	U S	MESSAGE 2 HEADER & TEXT	U S	~ ~ ~ ~	MESSAGE n HEADER & TEXT	E T X

|<------------- BLOCK TEXT ------------>|

3.7   DATA FORMAT

USASCII filler characters are inserted, as required, in accordance with the following rules:

1.   Zeroes (hex 30) are inserted in numeric fields. All numeric fields are right justified, as required.
2.   Spaces (hex 20) are inserted in alphabetic, alphanumeric and alphanumeric/special character fields. All alphabetic, alphanumeric and alphanumeric/special character fields are left justified, as required.
3.   Spaces (hex 20) are inserted in alphanumeric fields, except Price Denominator fields, which are zero-filled.

_____

_____

3.8   RETRANSMISSION CAPABILITY

CQS safe-stores all messages transmitted to the Data Recipients within a single trading day. This safe-store provides a facility for message retransmission.

If Data Recipients do not receive a message(s), they can request to have the message retransmitted. Retransmission requests are accepted in the period following transmission of the Start of Day message and before the transmission of the End of Retransmission message.

The Enhanced AutoLink Facility is utilized for automatically receiving and processing CQS message retransmission requests.

The Enhanced AutoLink Facility works in conjunction with the Retransmission and Playback System (RAPS), a server associated with the CQS host, which supports CQS retransmissions. In addition, during non-production hours, RAPS provides data playback capability facilitating test requirements to IP multicast Data Recipients.

A Data Recipient may request automated retransmission(s) by connecting directly through SFTI to the Enhanced AutoLink Facility via TCP/IP addresses and ports. A Data Recipient is required to enter their assigned user ID and password along with system, line, and sequence number information. The request will be forwarded to the Enhanced AutoLink Facility, then to a RAPS server associated with the CQS host, and out to the proper IP multicast groups. An '**Enhanced AutoLink Facility User Guide'** for automated retransmission requests can be accessed at the following website: http://www.ctaplan.com and select the Technical Specifications tab.

When a message is retransmitted, its retransmission requester field contains the unique character(s) identifying the Data Recipient who requested the retransmission. The MSN field in the retransmitted message contains the original message sequence number and the original time of transmission. If the MSN counter for a line has been reset to Zero, no messages transmitted prior to reset are available for retransmission.

Retransmissions are transmitted at a lower message rate than regular original messages in order <u>not</u> to delay transmission of current messages. The total number of retransmissions requested at any one time by a particular Data Recipient may be divided into several smaller output message blocks.

If for any reason, RAPS does not receive a message(s) or is unavailable to perform its functions, CQS has the ability to retransmit messages to RAPS and Data Recipients over the Production multicast IP groups. In this case, retransmission messages are sent in a separate message block from original messages and other requested retransmission messages. The following message types are not included in retransmissions:

1. Start of Test Cycle (cycles of test messages are not available for retransmissions)
2. End of Test Cycle
3. Line Integrity

_____

_____

RETRANSMISSION CAPABILITY, continued

In the event of an AutoLink failure, a manual method of requesting retransmission(s) is also available. A Data Recipient can place a telephone call to the SIAC CQS Control Center and provide the timeframe required or the first and last message number in the sequence range to be retransmitted.

Note: It is the responsibility of the Data Recipient to ignore retransmitted messages not requested by them.

4.0   MESSAGE HEADER

The Message Header can represent an entire message or appears before the Message Text segment in each message transmitted. The Message Header contains a total **24** Bytes and conforms in all cases to the following data fields:

Field Name	OLD Length (bytes)
Message Category	1
Message Type	1
Message Network	1
Retransmission Requester	2
Header Identifier	1
Reserved	2
Message Sequence Number	9
Participant ID	1
CQS Timestamp	6
Total Length:	**24**

EXPANDED MESSAGE HEADER WILL BE EFFECTIVE AUGUST 3, 2015

EXPANDED MESSAGE HEADER

The **Expanded Message Header** uniquely identifies the Category and Type of each message within a Block. The **Expanded Message Header** can represent an entire message or appears before the Message Text segment in each message transmitted. The **Expanded Message Header** contains a total of **45** Bytes and consists of the following data fields:

Field Name	NEW Length (bytes) EFFECTIVE AUGUST 3, 2015
Message Category	1
Message Type	1
Message Network	1
Retransmission Requester	2
Message Header Identifier	**1**
Transaction ID Part A	**2**
Message Sequence Number	9
Participant ID	1
CQS Timestamp	**6**
Timestamp 1	**6**
Timestamp 2	**6**
Transaction ID Part B	**9**
Total Length:	**45**

_____

OLD (CURRENT) AND EXPANDED MESSAGE HEADER FIELD DESCRIPTIONS

4.1   MESSAGE CATEGORY

The Message Category is a 1 Byte, Alphabetic character field containing one of the following Message Categories:

Message Category	Value
A	ADMINISTRATIVE
B	BOND
C	CONTROL
E	LISTED EQUITY
L	LOCAL ISSUE
M	MARKET STATUS

Note: Additional Message Category(s) will be implemented as required. If Data Recipients are not prepared to process new Message Category(s) when implemented, they should be able to handle them to the extent that they do not impact their normal data processing.

_____

4.2   MESSAGE TYPE

The Message Type is a 1 Byte, Alphabetic character field containing one of the following Message Types. The Message Category field, along with the Message Type field identifies the message as follows:

Message Category*	Message Type	Value
Administrative Messages		
A	H	Administrative Unformatted
Bond Messages		
B	B	Bond Long Quote
Control Messages		
C	C	FINRA Close
C	I	Start of Day
C	L	Reset Message Sequence Number
C	M	Start of Test Cycle
C	N	End of Test Cycle
C	O	FINRA Open
C	P	Disaster Recovery Data Center Activation
C	T	Line Integrity
C	Z	End of Transmission
Equity Messages		
E	B	Equity Long Quote
E	D	Equity Short Quote
Local Issue Messages		
L	B	Local Issue Long Quote
L	D	Local Issue Short Quote
Market Status Messages		
M	K	Market-Wide Circuit Breaker Decline Level Status
M	L	Market-Wide Circuit Breaker Status

`

Note: Additional Message Type(s) will be implemented as required. If Data Recipients are not prepared to process new Message Type(s) when implemented, they should be able to handle them to the extent that they do not impact their normal data processing**.**

4.3 MESSAGE NETWORK

The Message Network is a 1 Byte, Alphabetic character field identifying the Network on which the message is disseminated:

Network Field Value	Description
E	Message relates to symbols with NYSE as the primary market. The Primary Listing Market Participant ID identifies the primary listing market in instances when the primary market is an Exchange other than the NYSE.
F	Message relates to symbols with the NYSE MKT Stock Market or one of the regional Exchanges as the primary market. Message can also be for local issues and bonds. The Primary Listing Market Participant ID identifies the primary listing market in instances when the primary market is an Exchange other than the NYSE MKT Stock Market.

CQS messages are disseminated over a total of **twenty-four (24)** IP Multicast lines:

- For messages with 'E' in the Network field, there are **twelve (12)** lines dedicated to listed equity messages.

- For messages with 'F' in the Network field, there are **twelve (12)** lines dedicated to listed equity, bond and local issue messages.

4.4 MESSAGE ROUTING

In total, CQS messages are disseminated over **twenty-four (24)** IP Multicast broadcast lines designated in this document as:
Line 1 (**L1**) through Line 12 (**L12**) for Network 'E'
&
Line 1 (**L1**) though Line 12 (**L12**) for Network 'F'.

Messages will be routed over the twenty-four IP multicast lines according to the network and security symbol range distribution.

Note: Data Recipients are responsible for handling any symbol over any line. Redistribution of traffic **will not** occur intraday. Notification **may not** be sent to the Data Recipients regarding redistribution of traffic.

_____

Message Routing, continued

Traffic for CQS Network 'E' and Network 'F' messages will be routed by network and security symbol to twenty-four (24) assigned multicast lines as follows:

CQS NETWORK 'E' Symbol Range Distribution			CQS NETWORK 'F' Symbol Range Distribution		
Multicast Lines	**From**	**To**	**Multicast Lines**	**From**	**To**
1	A	ANZZZZ	1	A	DZZZZZ
2	AO	BXZZZZ	2	E	EWZZZZ
3	BY	CRZZZZ	3	EX	GZZZZZ
4	CS	ELZZZZ	4	H	IWEZZZ
5	EM	GLZZZZ	5	IWF	KIZZZZ
6	GM	IQZZZZ	6	KJ	RMZZZZ
7	IR	LVZZZZ	7	RN	SKZZZZ
8	LW	NOZZZZ	8	SL	SPZZZZ
9	NP	PRZZZZ	9	SQ	UMZZZZ
10	PS	STZZZZ	10	UN	VNZZZZ
11	SU	USZZZZ	11	VO	XLEZZZ
12	UT	ZZZZZZ	12	XLF	ZZZZZZ

Test Messages:
- CQS messages containing dedicated 'Test' symbols for Listing Market NYSE (CBO, CBX) will route according to the above symbol range distribution to multicast lines for Network 'E'.

- CQS messages containing dedicated 'Test' symbols for Listing Market NYSE MKT Stock Market (IBO), Listing Market NYSE ARCA (IGZ) and Listing Market BATS (ZBZX, ZTEST) will route according to the above symbol range distribution to multicast lines for Network 'F'.

Note: Data Recipients are responsible for handling any symbol over any line. Redistribution of traffic will not occur intraday. Notification may not be sent to the Data Recipients regarding redistribution of traffic.

Message Routing, continued

Distribution of Message Types over a total of twenty-four (24) multicast lines:

Message Category	Message Type	Value	Distribution of Message Types over Multicast Lines 1-24	
			Network E	Network F
ADMINISTRATIVE, ANNOUNCEMENT & VOLUME MESSAGES				
A	H	Administrative Unformatted (free form text) **from NYSE**	L1	N/A
A	H	Administrative Unformatted (free form text) **from Participants (not NYSE)**	N/A	L1
BOND MESSAGES				
B	B	Bond Long Quote	N/A	L1-12
CONTROL MESSAGES				
C	C	FINRA Close	L1-12	L1-12
C	I	Start of Day	L1-12	L1-12
C	L	Reset Message Sequence Number	L1-12	L1-12
C	M	Start of Test Cycle	L1-12	L1-12
C	N	End of Test Cycle	L1-12	L1-12
C	O	FINRA Open	L1-12	L1-12
C	P	Disaster Recovery Data Center Activation	L1-12	L1-12
C	T	Line Integrity	L1-12	L1-12
C	Z	End of Transmission	L1-12	L1-12
EQUITY MESSAGES				
E	B	Equity Long Quote	L1-12	L1-12
E	D	Equity Short Quote	L1-12	L1-12
LOCAL ISSUE MESSAGES				
L	B	Local Issue Long Quote	N/A	L1-12
L	D	Local Issue Short Quote	N/A	L1-12
MARKET STATUS MESSAGES				
M	K	Market-Wide Circuit Breaker Decline Level Status	L1-12	L1-12
M	L	Market-Wide Circuit Breaker Status	L1-12	L1-12

_____

4.5   RETRANSMISSION REQUESTER

The Retransmission Requester field is 2 Bytes, Alphabetic/Special Character, Left Justified, and Space-filled. It identifies the data recipient requesting the retransmission. The character(s) can be upper case, lower case or a special character. Alphabetic upper case character "O" (meaning original message) is entered in the Retransmission Requester field for non-retransmission messages.

The alphabetic upper case character "V" is entered in the Retransmission Requester field to indicate transmission of the associated message to **<u>all</u>** Data Recipients. A unique identification character(s) is assigned to each participating data recipient.

Note:	All currently defined one-character Retransmission Requester codes will be expanded by a space character. That is, the first character is the already defined code and the second character is a space. It is the responsibility of the data recipient to ignore retransmitted messages not requested by them.

4.6   OLD MESSAGE HEADER IDENTIFIER

The old Message Header Identifier is **1** Byte, ASCII Alphanumeric field that distinguishes between the use of the previous old header (16 bytes) and the current expanded message header (24 bytes) formats.

Header Identifier Value	Representation	Description
A	Alphabetic	Expanded Message Header
0-9	Numeric	Old Message Header

NEW MESSAGE HEADER IDENTIFIER WILL BE EFFECTIVE AUGUST 3, 2015

4.7   NEW MESSAGE HEADER IDENTIFIER

The new modified **Message Header Identifier** is **1** Byte, ASCII Alphanumeric field that distinguishes between the use of the old (existing) message header (24 bytes) and the **Expanded Message Header** (**45 bytes**) formats.

Header Identifier Value	Description
A	**Old Message Header (24 bytes)**
B	**New Message Header (45 bytes)**

_____

4.8   RESERVED (OLD MESSAGE HEADER)

The Reserved field is **2** Bytes, Alphanumeric and Blank Filled. It will be redefined and implemented as required, and is reserved for future use.

Note: Reserved fields will be redefined and implemented as required. If Data Recipients are not prepared to process newly defined fields when implemented, they should be able to handle them to the extent that they do not impact their normal data processing.

NEW TRANSACTION ID PART A WILL BE EFFECTIVE AUGUST 3, 2015

4.9   TRANSACTION ID PART A

The **Transaction ID Part A** field is **2** Bytes, ASCII Printable base95 Alphanumeric/Special Character (values in the range of 32-126 inclusive) which will be populated by CQS and is **Reserved for Internal Use** only.

Note: Data Recipients should ignore/disregard this field to the extent that it does not impact their normal data processing.

_____

4.10   MESSAGE SEQUENCE NUMBER (MSN)

The Message Sequence Number (MSN) field is **9** Bytes, Numeric, Right Justified and Zero-filled. All messages are assigned a sequence number. On a per line basis, the MSN on the MLs are set to zero at the start of each day and are incremented by one each time a message (other than a Retransmission, Line Integrity, or Reset Message Sequence Number message) is transmitted. The following exceptions or special considerations should be noted:

1.   Retransmitted messages contain the Message Sequence Number (MSN) of the original message.

2.   The Category C, Type T (Line Integrity) message contains the sequence number of the last message transmitted, which was not a retransmitted message.

3.   The MSN field in the message header of a Category C, Type L (Reset Message Sequence Number) message contains the number to which the MSN counter is to be reset. This number is either zero or a number greater than the highest number previously transmitted.

4.   Category C, Type Z (End of Transmission) message which is transmitted three times to ensure positive recognition, contain the same sequence number in each iteration of the message, one higher than the last non-retransmission message. The MSN does not change when the message is transmitted the second and third time.

5.   The Category C, Type M (Start of Test Cycle) and Category C, Type I (Start of Day) messages contain a zero sequence number.

4.11   CQS FAILURE AND RECOVERY-TREATMENT OF MESSAGE SEQUENCE NUMBER

TYPE OF RESTART	RECOVERY CONDITION
"WARM"	CQS failed but is able to recover; MSNs are transmitted without a gap. Upon recovery, possible duplicate sequence numbers may be transmitted
"COLD"	CQS failed and is unable to perform a WARM recovery; the first MSN after recovery is reset to a multiple of a minimum of 100,000 greater than the last number transmitted before the failure and message transmission is resumed

_____

_____

4.12   PARTICIPANT ID

The Participant ID is a 1 Byte, Alphabetic character field, which identifies the Exchange or Processor that initiated the message:

Code	Value
A	NYSE MKT Stock Market
B	NASDAQ OMX BX Stock Exchange
C	National Stock Exchange
D	Financial Industry Regulatory Authority
E	Consolidated Quotation System
I	International Securities Exchange
J	Direct Edge A Stock Exchange
K	Direct Edge X Stock Exchange
M	Chicago Stock Exchange
N	New York Stock Exchange
P	NYSE Arca ^{SM}
T	NASDAQ OMX Stock Exchange
W	CBOE Stock Exchange
X	NASDAQ OMX PSX Stock Exchange
Y	BATS Y-Exchange
Z	BATS Exchange

Note: Additional Participant ID(s) will be implemented as required. If Data Recipients are not prepared to process new Participant ID(s) when implemented, they should be able to handle them to the extent that they do not impact their normal data processing**.**

4.13   OLD MESSAGE HEADER CQS TIMESTAMP

The Timestamp field format is **6** Bytes and comprised of the following characters:

(a) **HMS**, Alphanumeric/Special Character, where the first 3 Bytes are formatted **H**=Hours, **M**=Minutes and **S**=Seconds and the Modified USASCII character set is used for Time (Military Eastern Time) representation.

(b) **Milliseconds**, Numeric, where the last 3 bytes represent the **actual** time in milliseconds.

(c) The Timestamp indicates the Time that processing a message is completed. For Retransmissions, the Time will reflect the original Time that processing the message was completed**.**

The Timestamp indicates the Time that processing a message is completed. For Retransmissions, the Time will reflect the original Time that processing the message was completed.

A Time Conversion Table listing the ASCII representations for **HMS** (the first 3 Bytes) is provided in **Appendix B.**

NEW CQS TIMESTAMP WILL BE EFFECTIVE AUGUST 3, 2015

4.12   NEW EXPANDED MESSAGE HEADER CQS TIMESTAMP

The **CQS Timestamp** field is **6** Bytes, ASCII Printable base95 Alphanumeric/Special Character (values in the range of 32-126 inclusive) time in terms of the number of microseconds since midnight Eastern Time (ET).

For the ASCII Printable base95 allowable characters reference **Appendix I**.

The **CQS Timestamp** indicates the time that processing a message is completed. For Retransmissions, the time will reflect the original time that processing the message was completed**.**

Sample:

Old (existing) CQS Timestamp (6 Bytes)		Modified CQS Timestamp (6 Bytes)		
Wall Time ET	Converted to HMS and Milliseconds	Wall Time ET	Converted to Microseconds Since Midnight	Microseconds Since Midnight
14:28:45.413543	>L]413	14:28:45.413543	&e{Q(Z	52125413543

NEW TIMESTAMPS WILL BE EFFECTIVE AUGUST 3, 2015

4.13   TIMESTAMP 1

The **Timestamp 1** is **6** Bytes, ASCII Printable base95 Alphanumeric/Special Character field (values in the range of 32-126 inclusive), which will be populated with the provided timestamp representing the number of microseconds since midnight Eastern Time (ET) as follows:

- **If from an Exchange: Timestamp 1** denotes the time where the quote bid price and/or the offer price for a security is designated with an Exchange's Matching Engine Publication timestamp. Exchanges use a clock sync methodology ensuring that timestamps are accurate within tolerances of 100 microseconds or less. Exchanges shall provide the timestamp in terms of the number of microseconds since midnight Eastern Time (ET).

- **If from the FINRA Alternative Display Facility (ADF): Timestamp 1** denotes the time of the quote bid price and/or the offer price for a security that a FINRA member reports to the FINRA Alternative Display Facility.   FINRA shall convert times that its members report to it in seconds or milliseconds to microseconds and shall provide such times to the Processor in microseconds since midnight Eastern Time (ET).

4.14   TIMESTAMP 2

The **Timestamp 2** is **6** Bytes, ASCII Printable base95 Alphanumeric/Special Character field (values in the range of 32-126 inclusive), which will be populated with the provided timestamp representing the number of microseconds since midnight Eastern Time (ET) as follows:

- **If from an Exchange: Timestamp 2** field will be blank.

- **If from the FINRA Alternative Display Facility (ADF):**

    - **If the FINRA ADF** provides a proprietary feed of its quotation information, then the FINRA ADF will publish the time of the quotation as also published on the facility's proprietary feed. FINRA shall convert times that it reports quotations on its proprietary feed in seconds or milliseconds to microseconds and shall provide such times to the Processor in microseconds since midnight Eastern Time (ET).

    - **If the FINRA ADF** does **not** have a proprietary quotation feed then the **Timestamp 2** field will be blank.

Timestamps, continued

New Timestamps - 6 Bytes, ASCII Printable base95 Samples						
Wall Time ET	base95					Microseconds since midnight
04:00:00.000000	!	q	k	J	r	C	14400000000
09:30:00.000000	$	G	t	2	a		34200000000
10:11:33.015317	$	f	N	x	&	O	36693015317
12:30:00.000000	%	m	M	j	W	R	45000000000
16:00:00.000000	'	J	0	l	L	M	57600000000

Please Note: For the 16:00:00.000000 Example the base95 code is:
('J0lLM = 'single quote, Uppercase J, zero, lowercase L, uppercase L, Uppercase M)

For ASCII Printable base95 allowable characters reference **Appendix I**.

Note: In the absence of the provided 'Timestamp 1' and 'Timestamp 2', and for messages generated by CQS, e.g., Price Band messages, Administrative messages, Control messages and Market Status messages, the **Timestamp 1** and **Timestamp 2** fields will be blank.

NEW TRANSACTION ID PART B WILL BE EFFECTIVE AUGUST 3, 2015

4.14   TRANSACTION ID PART B

The **Transaction ID Part B** is **9 Bytes, ASCII** Printable base95 **Alphanumeric/Special Character** field which will be populated by CQS and is **Reserved for Internal Use** only.

Note: Data Recipients should ignore/disregard this field to the extent that it does not impact their normal data processing.

5.0   MESSAGE FORMATS

Each message transmitted by CQS consists of a Message Header and a Message Text. The particular message category and message type entered in the message header determines the format of the text. Message formats are fixed field formats (with the exception of Administrative and some Control messages which have unformatted text). Quote messages are disseminated over L1-12 based on the network and the first letter of the security symbol.

5.1   MESSAGE FORMAT FIELD DESCRIPTIONS

Detailed information on each field specified in every message format is contained in alphabetical order in the Field Descriptions section of this document.

Modification(s) within message formats are **shaded in yellow** to indicate the most up-to-date information on technical changes being made.

5.2   GLOSSARY

A definition of terms is contained in the Glossary section, **Appendix C**.

5.3   SUMMARY OF DAILY CQS MULTICAST LINE MESSAGES

A summary of a day's CQS Multicast Line messages is provided in **Appendix D**.

5.4   CQS CLOSING ROUTINE

A summary detailing the CQS Closing Routine is provided in **Appendix E**.

5.5   NATIONAL AND FINRA BEST BID AND OFFER OVERVIEW

A National and FINRA Best Bid and Offer Overview is provided in **Appendix F**.

5.6   QUOTE CONDITIONS

Quote Condition definitions are provided in **Appendix G**.

5.7   ALLOWABLE SYMBOL SUFFIXES FOR CQS QUOTES

A list of allowable suffixes for CQS and their respective descriptions is provided in **Appendix H**.

5.8   ASCII Printable base95 Table

An ASCII Printable base95 table is provided in Appendix I.

_____

6.0 MESSAGE CATEGORIES AND TYPES

6.1 SHORT QUOTE

The Short Quote format is used to report quote data for a CTA eligible security, or Local Issue only if the quote meets all the field restrictions. If any of the field restrictions are **not** met, the Long Quote format is used. This message can also be used to report trading suspensions in a security, price indications and trading range indications. **Note: 'Limit Up-Limit Down' is not applicable to Local Issues or Bonds.**

Field Restrictions:

a. Security symbol does not exceed 3 bytes.

b. Temporary suffix is not required.

c. Financial Status indicator is not required.

d. Currency is in U.S. Dollars.

e. Bid and Offer prices meet the requirements for an 8 byte price field (see Price Denominator Indicator field description in section 10).

f. Bid and Offer sizes are less than 1000 round-lots (001-999).

g. 'Instrument Type' is not required.

h. Quote is not a Bond or FINRA quote.

i. Settlement condition is regular way settlement.

j. Market condition is normal auction market.

k. Primary Listing Market Participant Identifier is not required.

l. Short Sale Restriction Indicator is not required.

m. SIP Generated Message Identifier is not required.

n. National BBO LULD Indicator is not required.

o. FINRA BBO LULD Indicator is not required.

_____

SHORT QUOTE, continued

Message Category	Type
E	D
L	D

Field Name	OLD Length (bytes)	NEW Length (bytes) EFFECTIVE AUGUST 3, 2015
Message Header	**24**	**45**
Security Symbol	3	3
Quote Condition	1	1
Limit Up – Limit Down (LULD) Indicator	1	1
Reserved	1	1
Bid Price Denominator Indicator	1	1
Bid Short Price	8	8
Bid Size Units of Trade	3	3
Reserved	1	1
Offer Price Denominator Indicator	1	1
Offer Short Price	8	8
Offer Size in Units of Trade	3	3
Reserved	1	1
National BBO Indicator	1	1
FINRA BBO Indicator	1	1
Total Length	**58**	**79**

6.2 LONG QUOTE

The Long Quote format is used to report quote data for a CTA eligible security, Local Issue or Bond that does **not** meet the Short Quote format restrictions. This message is also used to report a cancellation of a previous quote or corrected price indication, trading suspensions in a security, price indications and trading range indications. **Note: 'Limit Up-Limit Down' is not applicable to Local Issues or Bonds.**

Message Category	Type
B	B
E	B
L	B

Field Name	OLD Length (bytes)	NEW Length (bytes) EFFECTIVE AUGUST 3, 2015
Message Header	**24**	**45**
Security Symbol	11	11
Temporary Suffix	1	1
Test Message Indicator	1	1
Primary Listing Market Participant Identifier	1	1
SIP Generated Message Identifier	1	1
Reserved	1	1
Financial Status	1	1
Currency Indicator	3	3
Instrument Type	1	1
Cancel/Correction Indicator	1	1
Settlement Condition	1	1
Market Condition	1	1
Quote Condition	1	1
Limit Up-Limit Down (LULD) Indicator	1	1
Retail Interest Indicator	1	1
Bid Price / Lower Limit Price Band Denominator Indicator	1	1
Bid Price / Lower Limit Price Band	12	12
Bid Size in Units of Trade	7	7
Offer Price / Upper Limit Price Band Denominator Indicator	1	1
Offer Price / Upper Limit Price Band	12	12
Offer Size in Units of Trade	7	7
FINRA Market Maker ID	4	4
Reserved	1	1
National BBO LULD Indicator	1	1
FINRA BBO LULD Indicator	1	1
Short Sale Restriction Indicator	1	1
Reserved	1	1
National BBO Indicator	1	1
FINRA BBO Indicator	1	1
Total Length	**102**	**123**

6.3   SHORT NATIONAL BBO APPENDAGE

The Short National BBO Appendage is generated whenever a new quote has caused a new National Best Bid and/or Best Offer and the BBO data meets all the field restrictions. If any of the field restrictions are **not** met, the Long National BBO Appendage format is used. If it is determined that a Short National BBO appendage is required, the appropriate BBO information is appended following the FINRA BBO Indicator field of the Short or Long Quote format. Refer to **Appendix F** for National and FINRA Best Bid and Offer Overview.

Field Restrictions:

a. Bid and Offer prices meet the requirements for an 8 byte price field.
(See Price Denominator Indicator in field description section)

b. Bid and Offer sizes are less than 1000 round-lots (001-999).

c. No FINRA quotes are involved in generating the National BBO.

Field Name	Length (bytes)
Best Bid Participant ID	1
Best Bid Price Denominator Indicator	1
Best Short Bid Price	8
Best Bid Size in Units of Trade	3
Reserved	1
Best Offer Participant ID	1
Best Offer Price Denominator Indicator	1
Best Short Offer Price	8
Best Offer Size in Units of Trade	3
Reserved	1
Total Length	**28**

6.4   LONG NATIONAL BBO APPENDAGE

The Long National BBO Appendage is generated whenever a new quote has caused a new National Best Bid and/or Best Offer and the BBO data does **not** meet the Short National BBO Appendage format restrictions. If it is determined that a new Long National BBO appendage is required, the appropriate BBO information is appended following the FINRA BBO Indicator field of the Short or Long Quote format. Refer to **Appendix F** for National and FINRA Best Bid and Offer Overview.

Field Name	Length (bytes)
Reserved	2
Best Bid Participant ID	1
Best Bid Price Denominator Indicator	1
Best Bid Price	12
Best Bid Size in Units of Trade	7
Best Bid FINRA Market Maker ID	4
Reserved	3
Best Offer Participant ID	1
Best Offer Price Denominator Indicator	1
Best Offer Price	12
Best Offer Size in Units of Trade	7
Best Offer FINRA Market Maker ID	4
Reserved	3
Total Length	**58**

6.5   FINRA BBO APPENDAGE

> The FINRA BBO Appendage is generated whenever a new FINRA quote has caused a new FINRA Best Bid and/or Best Offer and the quote itself is **not** the FINRA best. If it is determined that a new FINRA BBO appendage is required, the appropriate FINRA BBO information is appended following either the FINRA BBO Indicator field or the National BBO appendage, if present, of the Short or Long Quote format. Refer to **Appendix F** for National and FINRA Best Bid and Offer Overview.

Field Name	Length (bytes)
Reserved	2
Best Bid Price Denominator Indicator	1
Best Bid Price	12
Best Bid Size in Units of Trade	7
Best Bid FINRA Market Maker ID	4
Reserved	3
Best Offer Price Denominator Indicator	1
Best Offer Price	12
Best Offer Size in Units of Trade	7
Best Offer FINRA Market Maker ID	4
Reserved	3
Total Length	**56**

_____

7.0   ADMINISTRATIVE MESSAGES

7.1   ADMINISTRATIVE UNFORMATTED (FREE FORM TEXT) - CATEGORY A, TYPE H

General Administrative Unformatted messages (called admins) are those messages that, because of the nature of the information they contain, cannot be readily arranged in a fixed format.

7.2   ADMINISTRATIVE MESSAGE LENGTH

The length of an Administrative message is variable. The total length of the entire message **cannot** exceed 300 characters, including the SOH character, the Message Header, the ETX character and all characters between those characters.

7.3   ADMINISTRATIVE MESSAGE TEXT

The text section of the Administrative message is transmitted in free format.

7.4   ADMINISTRATIVE NOTIFICATION MESSAGE FOR REPORTING CQS DELAYS

Standard Message Sent Upon Detection of Delay:

ALERT ALERT ALERT THE CONSOLIDATED QUOTE SYSTEM IS EXPERIENCING A REPORTING DELAY STANDBY FOR FURTHER UPDATES AS INFORMATION BECOMES AVAILABLE

Example of Update Message on Status of Delay:

ALERT ALERT ALERT THE CONSOLIDATED QUOTE SYSTEM IS EXPERIENCING A REPORTING DELAY AFFECTING SYMBOLS S THROUGH ZZZ DUE TO A PROBLEM WITH SYMBOL XYZ REPORTING FOR ALL OTHER SYMBOLS IS NORMAL STANDBY FOR FURTHER UPDATES AS INFORMATION BECOMES AVAILABLE

Standard Message Sent Upon Return to Normal Reporting:

ALERT ALERT ALERT THE CONSOLIDATED QUOTE SYSTEM REPORTING IS NOW NORMAL

_____

8.0   MARKET STATUS

8.1   MARKET STATUS MESSAGES DESCRIPTIONS

Message Category	Type	Description
M	K	Market-Wide Circuit Breaker Decline Level Status
M	L	Market-Wide Circuit Breaker Status

8.1 MARKET-WIDE CIRCUIT BREAKER DECLINE LEVEL

The Market-Wide Circuit Breaker Decline Level Status format is used to report the calculated Level 1, Level 2 and Level 3 threshold values for the current trading day necessary to trigger a circuit breaker. Levels are reset each trading day based on the closing value of the S&P 500 Index. If Levels are set as a result of inaccurate activity, Levels will be reset and disseminated. The most recently disseminated Levels will be in effect for that trading day.

Note: The Market-Wide Circuit Breaker Decline Level Status Message will be disseminated by CQS on a daily trading day basis at approximately 7:00 am and at 8:00 am ET; and additional occurrences if necessary, e.g., due to erroneously set Levels.

Message Category	Type
M	K

Field Name	OLD Length (bytes)	NEW Length (bytes) EFFECTIVE AUGUST 3, 2015
Message Header	24	**45**
Price Denominator Indicator	1	1
Level 1 Value	12	12
Reserved	3	3
Level 2 Value	12	12
Reserved	3	3
Level 3 Value	12	12
Reserved	3	3
Total Length	70	**91**

_____

8.2 MARKET-WIDE CIRCUIT BREAKER STATUS

The Market-Wide Circuit Breaker Status format is used to report the Market-Wide Circuit Breaker threshold Level that has been breached. Each Level will be disseminated only once during the trading day, unless a Level is breached as a result of erroneous activity. The most recently disseminated breached Level will be in effect.

The duration of Market-Wide Circuit Breaker Level 1 and Level 2 Regulatory Trading Halts is fifteen minutes. Following Level 3 Market-Wide Circuit Breaker Regulatory Trading Halts, trading will be halted for the remainder of the trading day and carried over to the following trading day in a Regulatory Trading Halted state.

Message Category	Type
M	L

Field Name	OLD Length (bytes)	NEW Length (bytes) EFFECTIVE AUGUST 3, 2015
Message Header	24	**45**
Market-Wide Circuit Breaker Level Indicator	1	1
Reserved	3	3
Total Length	28	**49**

9.0   CONTROL MESSAGE SUMMARY

The following represents all control messages which are transmitted:

Category	Type	Description	Format
C	C	FINRA Close	Message Header only
C	I	Start of Day	Message Header only
C	L	Reset Message Sequence Number	Message Header only
C	M	Start of Test	Message Header only
C	N	End of Test	Message Header only
C	O	FINRA Open	Message Header only
C	P	Disaster Recovery Data Center Activation	Message Header only
C	T	Line Integrity	Message Header only
C	Z	End of Transmission	Message Header only

CONTROL MESSAGES, continued

9.1   CONTROL MESSAGE DESCRIPTIONS

Control messages are in a fixed format and perform specified system advisory and control functions.

Control messages consist of the standard Message Header only, and are **not** blocked with any other messages including control messages.

The Message Network field of the Message Header contains USASCII alphabetic upper case character "E" or "F" for all control messages.

The Participant ID field of the Message Header contains USASCII alphabetic upper case character "E" for all control messages.

While the Start of Day and End of Transmission control messages are normally transmitted three times with a one minute quiescent period after each transmission, when they are retransmitted they are sent out one time only and are **not** followed by the one minute quiescent period.

9.2   FINRA CLOSE - CATEGORY C, TYPE C

All FINRA Market Maker quotes must be in either an open or closed state, where open implies current and closed implies not current. The FINRA Open and FINRA Close messages are to be used by Data Recipients to open and close all Market Maker quotes.

Upon receipt of the FINRA Close message all individual Market Maker quotes are indicated as closed by the FINRA.

After receipt of the FINRA Close message, individual Market Maker quotes may be transmitted in either an open or closed state, and are so indicated in the Quote Condition field in the Message Text. The Data Recipients should mark these quotes accordingly within their respective systems.

9.3   START OF DAY - CATEGORY C, TYPE I

The Start of Day message signals the start of normal data dissemination over the Multicast Lines.

The Start of Day message is sent three times with a quiescent period of one minute following each of the three transmissions.

The Message Sequence Number (MSN) field in the Start of Day message always contains a sequence number of zero. The MSN counter is reset to zero, and is not incremented during the normal Start of Day message transmission cycle.

CONTROL MESSAGE DESCRIPTIONS, continued

9.4   RESET MESSAGE SEQUENCE NUMBER - CATEGORY C, TYPE L

The Reset Sequence Number message is transmitted when the sequence number on an output ML requires resetting.

The Message Sequence Number (MSN) field in the Reset Sequence Number message contains the number to which the MSN counter is to be reset. This number is higher than the highest MSN previously transmitted, or it may be zero.

9.5   START OF TEST – CATEGORY C, TYPE M

The Start of Test message is transmitted after the ML is started and before the Start of Day message is sent out. The Start of Test message is followed by the transmission of a repeated test message cycle.

The Message Sequence Number (MSN) is reset to zero by the Start of Test message, and increments by one, for each of the canned messages within the group. The purpose of the test message cycle is for Data Recipients to confirm systems and network connectivity.

There are two distinct test message cycles. Each test message cycle is initiated by transmission of the Start of Test message (one for each of the multicast lines). Each test message cycle includes a complete set of messages types routed over the respective ML with the exception of administrative messages and some control messages. The test message cycle is repeated until shortly before transmission of the Start of Day message and is terminated by transmission of an End of Test Message.

Retransmission requests are **not** accepted during the test message cycle.

9.6   END OF TEST - CATEGORY C, TYPE N

The End of Test message is transmitted to signal the end of the transmission of a test message group.

The Message Sequence Number (MSN) field of the End of Test message contains a number one greater than the number of the last test message transmitted in the final test message transmission group.

9.7   FINRA OPEN - CATEGORY C, TYPE O

All FINRA Market Maker quotes must be in either an open or closed state, where open implies current and closed implies not current. The FINRA Open and FINRA Close messages are to be used by Data Recipients to open and close all Market Maker quotes in their files.

Upon receipt of the FINRA Open message all individual Market Maker quotes that have been transmitted during the current day prior to receipt of the FINRA Open message are indicated as open by the FINRA.

CONTROL MESSAGE DESCRIPTIONS, continued

9.8   DISASTER RECOVERY DATA CENTER ACTIVATION – CATEGORY C, TYPE P

The Disaster Recovery Data Center Activation message is transmitted to signify that the Consolidated Quotation System (CQS) has switched processing from the Primary Data Center to the Disaster Recovery Data Center. The Disaster Recovery Data Center Activation message is preceded by the transmission of a Reset Sequence Number (Category C Type L) message.

The Message Sequence Number (MSN) field of the Disaster Recovery Data Center Activation message contains a number **one greater than the highest MSN previously transmitted**.

9.9   LINE INTEGRITY - CATEGORY C, TYPE T

The Line Integrity message is automatically transmitted over the Multicast Lines (MLs) at intervals of approximately one minute to verify continued integrity of ML transmission.

The Line Integrity message transmission does not interrupt a transmission in progress, but is transmitted whether or not additional messages are queued for transmission. Line Integrity messages are **<u>not</u>** retransmitted.

The Message Sequence Number (MSN) is not incremented for Line Integrity messages. The MSN field will contain the MSN of the last original message.

9.10   END OF TRANSMISSION - CATEGORY C, TYPE Z

The End of Transmission message is transmitted over the MLs to advise all Data Recipients that there are no further messages of any type transmitted for the day.

The message is transmitted three times, with a quiescent line interval of one minute following each transmission.

The Message Sequence Number (MSN) field of the End of Transmission message contains a number one greater than the highest MSN previously transmitted. The MSN counter is not incremented and the MSN does not change when the message is transmitted the second and third time in the normal message transmission sequence.

Note:	Under normal conditions, upon receiving the Category C, Type Z – 'End of Transmission' message, it is the data recipient's responsibility to terminate their production CQS output ML feeds from SIAC.

10.0   FIELD APPEARANCES WITHIN MESSAGES

FIELD NAME	MESSAGE APPEARANCE	# OF APPEARANCES /MSGS
- B -		
BEST BID FINRA MARKET MAKER ID	LONG NATIONAL BBO APPENDAGE FINRA BBO APPENDAGE	1 1
BEST BID PARTICIPANT ID	SHORT NATIONAL BBO APPENDAGE LONG NATIONAL BBO APPENDAGE	1 1
BEST BID PRICE	LONG NATIONAL BBO APPENDAGE FINRA BBO APPENDAGE	1 1
BEST BID PRICE DENOMINATOR INDICATOR	SHORT NATIONAL BBO APPENDAGE LONG NATIONAL BBO APPENDAGE FINRA BBO APPENDAGE	1 1 1
BEST BID SIZE IN UNITS OF TRADE	SHORT NATIONAL BBO APPENDAGE LONG NATIONAL BBO APPENDAGE FINRA BBO APPENDAGE	1 1 1
BEST OFFER FINRA MARKET MAKER ID	LONG NATIONAL BBO APPENDAGE FINRA BBO APPENDAGE	1 1
BEST OFFER PARTICIPANT ID	SHORT NATIONAL BBO APPENDAGE LONG NATIONAL BBO APPENDAGE	1 1
BEST OFFER PRICE	LONG NATIONAL BBO APPENDAGE FINRA BBO APPENDAGE	1 1
BEST OFFER PRICE DENOMINATOR INDICATOR	SHORT NATIONAL BBO APPENDAGE LONG NATIONAL BBO APPENDAGE FINRA BBO APPENDAGE	1 1 1

FIELD APPEARANCES WITHIN MESSAGES, continued

FIELD NAME	MESSAGE APPEARANCE	# OF APPEARANCES/ MSGS
- B -		
BEST OFFER SIZE IN UNITS OF TRADE	SHORT NATIONAL BBO APPENDAGE LONG NATIONAL BBO APPENDAGE FINRA BBO APPENDAGE	1 1 1
BEST SHORT BID PRICE	SHORT NATIONAL BBO APPENDAGE	1
BEST SHORT OFFER PRICE	SHORT NATIONAL BBO APPENDAGE	1
BID PRICE DENOMINATOR INDICATOR	SHORT QUOTE	1
BID PRICE/LOWER LIMIT PRICE BAND	LONG QUOTE	1
BID PRICE/LOWER LIMIT PRICE BAND DENOMINATOR INDICATOR	LONG QUOTE	1
BID SHORT PRICE	SHORT QUOTE	1
BID SIZE IN UNITS OF TRADE	SHORT QUOTE	1
- C -		
CANCEL/CORRECTION INDICATOR	LONG QUOTE	1
CURRENCY INDICATOR	LONG QUOTE	1
- F -		
FINANCIAL STATUS	LONG QUOTE	1
FINRA BBO INDICATOR	SHORT QUOTE LONG QUOTE	1 1
FINRA BBO LIMIT UP-LIMIT DOWN (LULD) INDICATOR	LONG QUOTE	1
FINRA MARKET MAKER ID	LONG QUOTE	1

FIELD APPEARANCES WITHIN MESSAGES, continued

FIELD NAME	MESSAGE APPEARANCE	# OF APPEARANCES/ MSGS
- I -		
INSTRUMENT TYPE	LONG QUOTE	1
- L -		
LEVEL 1 VALUE	MARKET-WIDE CIRCUIT BREAKER DECLINE LEVEL STATUS	1
LEVEL 2 VALUE	MARKET-WIDE CIRCUIT BREAKER DECLINE LEVEL STATUS	1
LEVEL 3 VALUE	MARKET-WIDE CIRCUIT BREAKER DECLINE LEVEL STATUS	1
LEVEL INDICATOR	MARKET-WIDE CIRCUIT BREAKER STATUS	1
LIMIT UP-LIMIT DOWN (LULD) INDICATOR	SHORT QUOTE LONG QUOTE	1 1
- M -		
MARKET CONDITION	LONG QUOTE	1
- N -		
NATIONAL BBO INDICATOR	SHORT QUOTE LONG QUOTE	1 1
NATIONAL BBO LIMIT UP-LIMIT DOWN (LULD) INDICATOR	LONG QUOTE	1
- O -		
OFFER PRICE DENOMINATOR INDICATOR	SHORT QUOTE	1
OFFER PRICE/UPPER LIMIT PRICE BAND	LONG QUOTE	1
OFFER PRICE/UPPER LIMIT PRICE BAND DENOMINATOR INDICATOR	LONG QUOTE	1
OFFER SHORT PRICE	SHORT QUOTE	1

FIELD APPEARANCES WITHIN MESSAGES, continued

FIELD NAME	MESSAGE APPEARANCE	# OF APPEARANCES/ MSGS
- O -		
OFFER SIZE IN UNITS OF TRADE	SHORT QUOTE LONG QUOTE	1 1
-P-		
PRICE DENOMINATOR INDICATOR	MARKET-WIDE CIRCUIT BREAKER DECLINE LEVEL STATUS	1
PRIMARY LISTING MARKET PARTICIPANT IDENTIFIER	LONG QUOTE	1
- Q -		
QUOTE CONDITION	SHORT QUOTE LONG QUOTE	1 1
- R -		
RETAIL INTEREST INDICATOR	LONG QUOTE	1
RESERVED	SHORT QUOTE SHORT NATIONAL BBO APPENDAGE LONG QUOTE LONG NATIONAL BBO APPENDAGE FINRA BBO APPENDAGE MARKET-WIDE CIRCUIT BREAKER DECLINE LEVEL STATUS MARKET-WIDE CIRCUIT BREAKER STATUS	3 2 4 8 8 3 1
- S -		
SECURITY SYMBOL	SHORT QUOTE LONG QUOTE	1 1
SETTLEMENT CONDITION	LONG QUOTE	1
SHORT SALE RESTRICTION INDICATOR	LONG QUOTE	1
SIP GENERATED MESSAGE IDENTIFIER	LONG QUOTE	1
- T -		
TEMPORARY SUFFIX	LONG QUOTE	1
TEST MESSAGE INDICATOR	LONG QUOTE	1

11.0   FIELD DESCRIPTIONS

Field Name	Bytes	Description
BEST BID FINRA MARKET MAKER ID	4	Alphanumeric/ Special Character. Left justified, space-filled. Contains the firm identifier of the FINRA Market Maker. Represents the FINRA Market Maker that submitted the Best Bid on a Consolidated and/or FINRA basis.
BEST BID PARTICIPANT ID	1	Alphabetic. Identifies the Participant that submitted the Best Bid on a Consolidated basis. The Best Bid Participant ID will be blank filled if the Best Bid Price in the Short National BBO Appendage or Long National BBO Appendage is zero. Refer to **PARTICIPANT ID** for codes.
BEST BID PRICE	12	Numeric. Right justified, zero-filled. The Best Bid Price contains the whole and fractional or decimal portion of the Bid Price information with the **BEST BID PRICE DENOMINATOR INDICATOR** determining the price representation. Represents the Best Bid price on a Consolidated and/or FINRA basis.
BEST BID PRICE DENOMINATOR INDICATOR	1	Numeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.
BEST BID SIZE IN UNITS OF TRADE	3 or 7	Numeric. Right justified, zero-filled. Primarily, a unit of trade or round-lot consists of 100 shares or multiples thereof (e.g., 200, 1000, 5000). Certain securities trade in round-lot multiples other than 100 shares; other units of trade are in 1, 10, 25 or 50 share round-lots. The Best Bid Size In Units of Trade represents the number of round-lots associated with the Best Bid Price for a security on a Consolidated and/or FINRA basis.

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
BEST OFFER FINRA MARKET MAKER ID	4	Alphanumeric/Special Character. Left justified, space-filled. Contains the firm identifier of the FINRA Market Maker. Represents the FINRA Market Maker that submitted the Best Offer on a Consolidated and/or FINRA basis.
BEST OFFER PARTICIPANT ID	1	Alphabetic. Identifies the Participant that submitted the Best Offer on a Consolidated basis. The Best Offer Participant ID will be blank filled if the Best Offer Price in the Short National BBO Appendage or Long National BBO Appendage is zero. Refer to **PARTICIPANT ID** for codes.
BEST OFFER PRICE	12	Numeric. Right justified, zero-filled. The Best Offer Price contains the whole and fractional or decimal portion of the Offer Price information with the **BEST OFFER PRICE DENOMINATOR INDICATOR** determining the price representation. Represents the Best Offer Price on a Consolidated and/or FINRA as basis.
BEST OFFER PRICE DENOMINATOR INDICATOR	1	Numeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.
BEST OFFER SIZE IN UNITS OF TRADE	3 or 7	Numeric. Right justified, zero-filled. Primarily, a unit of trade or round-lot consists of 100 shares or multiples thereof (e.g., 200, 1000, 5000). Certain securities trade in round-lot multiples other than 100 shares; other units of trade are in 1, 10 or 50 share round-lots. The Best Offer Size In Units of Trade represents the number of round-lots associated with the Best Offer Price for a security on a Consolidated and/or FINRA basis.
BEST SHORT BID PRICE	8	Numeric. Right justified, zero-filled. Appears in the Short National Appendage. The Best Short Bid Price contains the whole and decimal portion of the Bid Price information with the **BEST BID PRICE DENOMINATOR INDICATOR** determining the price representation. Represents the Best Bid price on a Consolidated and/or FINRA basis.

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
BEST SHORT OFFER PRICE	8	Numeric. Right justified, zero-filled. Appears in the Short National BBO Appendage. The Best Short Offer Price contains the whole and decimal portion of the Offer Price information with the **BEST OFFER PRICE DENOMINATOR INDICATOR** determining the price representation. Represents the Best Offer Price on a Consolidated and/or FINRA basis.
BID PRICE DENOMINATOR INDICATOR	1	Numeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.
BID PRICE/LOWER LIMIT PRICE BAND	12	Numeric. Right justified, zero-filled. The Bid Price is the whole and decimal portion of the Bid Price information with the **BID PRICE DENOMINATOR INDICATOR** determining the price representation. **Bid Price**: represents the highest price a prospective buyer is prepared to pay at a particular time for a security. When the **BID PRICE** and the **BID SIZE IN UNITS OF TRADE** fields are all zeros, it represents a "No Bid" quote, a "No Quote" (i.e., neither a Bid nor an Offer, which zeroes out the quote) or an Opening Delay or Trading Halt condition. If the bid size is zero and there is a bid price, it represents either a Trading Range Indication or a Price Indication. **Lower Limit Price Band**: represents the lower price band value for a security. When the Quote Condition field code is 'Limit Up-Limit Down Price Band', the Lower Limit Price Band value will be contained in the Bid Price/Lower Limit Price Band fields. When the Lower Limit Price Band field is zero, it identifies that the previous Price Bands have been removed and are no longer effective for a security.

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
BID PRICE/LOWER LIMIT PRICE BAND DENOMINATOR INDICATOR	1	Numeric. Refer to PRICE DENOMINATOR INDICATOR for codes.
BID SHORT PRICE	8	Numeric. Right justified, zero-filled. Appears in the Short Quote. The Bid Short Price is the whole and decimal portion of the Bid Price information with the **BID PRICE DENOMINATOR INDICATOR** determining the price representation. **Bid Short Price:** represents the highest price a prospective buyer is prepared to pay at a particular time for a security. When the **BID PRICE** and the **BID SIZE IN UNITS OF TRADE** fields are all zeroes, it represents a "No Bid" quote, a "No Quote" (i.e., neither a Bid nor an Offer, which zeroes out the quote) or an Opening Delay or Trading Halt condition. If the bid size is zero and there is a bid price, it represents either a Trading Range Indication or a Price Indication.
BID SIZE IN UNITS OF TRADE	3 or 7	Numeric. Right justified, zero-filled. The Bid Size identifies the number of round-lots, for a security. Primarily, a unit of trade or round-lot consists of 100 shares or multiples thereof (e.g., 200, 1000, 5000). Certain securities trade in round-lot multiples other than 100 shares; other units of trade are in 1, 10, 25 or 50 share round-lots.

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
CANCEL/CORRECTION INDICATOR	1	Alphanumeric. This field is used by a Participant to cancel or correct the most recent quote for a particular security, which was originally sent in error. FOR PARTICIPANTS OTHER THAN FINRA ONLY THE LAST QUOTE THAT WAS SENT FOR A SECURITY BY THAT PARTICIPANT IS ELIGIBLE TO BE CANCELLED. FOR FINRA, THE LAST QUOTE FROM ANY FINRA MARKET MAKER IS ELIGIBLE TO BE CANCELLED BY THAT MARKET MAKER. In cancel quotes, cancel Price Indication, and cancel Trading Range Indication, the Security Symbol, Temporary Suffix, Financial Status Indicator, Currency Indicator and Instrument Type will be appropriately filled. The FINRA Market Maker ID field will contain the Market Maker ID of the last FINRA quote being cancelled. All other fields will be appropriately space or zero-filled. Quote messages with Quote Conditions E, F, T, U, V, W or Z are <u>not</u> eligible to be cancelled. Quote messages with Quote Conditions D, E, F, I, J, K, M, P, Q, S, U, W or X are <u>not</u> eligible to be cancelled <u>if</u> the Bid and Offer Prices and Sizes are zero. Quote messages with E, F, U and W are <u>not</u> eligible to be corrected.

Code	Value
A	Not a Cancel quote
B	Cancel quote/Cancel Price Indication/ Cancel Trading Range Indication
C	Corrected Price Indication

Note: A Cancel quote, Cancel Price Indication, or Cancel Trading Range Indication in effect eliminates the previous quote or indication as opposed to zeroing it out. A Corrected Price Indication replaces the previous Price Indication.

_____

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
CURRENCY INDICATOR	3	Alphabetic. Represents the International Standard Foreign Currency code in which the transaction was executed. For transactions executed in U.S. Dollars, this field is space-filled.
FINANCIAL STATUS	1	Alphanumeric. Contains the state of the security.

Code	Value
0	Not Bankrupt, Not Below Continuing Listing Standards & Not Late Filing, Not Creations Suspended (for Exchange Traded Products) / Not Redemptions Suspended (for Exchange Traded Products) / Not Liquidation (for Exchange Traded Products)
1	Bankrupt
2	Below Continuing Listing Standards (For NYSE, NYSE MKT Stock Market & Regional issues)
3	Bankrupt & Below Continuing Listing Standards (For NYSE, NYSE MKT Stock Market & Regional issues)
4	Late Filing
5	Bankrupt & Late Filing
6	Below Continuing Listing Standards & Late Filing (For NYSE, NYSE MKT Stock Market & Regional issues)
7	Bankrupt, Below Continuing Listing Standards & Late Filing (For NYSE, NYSE MKT Stock Market & Regional issues)
8	Creations Suspended (for Exchange Traded Products)
9	Redemptions Suspended (for Exchange Traded Products)
A	Liquidation (for Exchange Traded Products)

_____

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
FINRA BBO (FBBO) INDICATOR	1	Numeric. Indicates the affect the new quote has on the FINRA BBO. If it is determined that a new FINRA BBO appendage is required, the appropriate FINRA BBO information is appended following either the FINRA BBO Indicator field or the National BBO appendage, if present. If it is determined that the current quote is the new FINRA BBO or does not affect the FINRA BBO, an appendage is not present. Refer to **Appendix F** for National and FINRA BBO Overview.

Code	Value
0	**No FINRA BBO change** Current quote does not affect the BBO. No FINRA appendage is required.
1	**Quote contains all FINRA BBO information** Current quote is itself the new FINRA BBO. No FINRA appendage is required.
2	**No FINRA BBO** There is no calculation of FINRA BBO such as before Market Open or after Market Close. No FINRA appendage is required. There is no best or no change.
3	**FINRA BBO Appendage** A new FINRA BBO is generated and the new BBO information is contained in the FINRA BBO appendage.

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
FINRA BBO (FBBO) LIMIT UP-LIMIT DOWN (LULD) INDICATOR	1	Alphanumeric. Otherwise space-filled. Indicates the affect that the Limit Up-Limit Down Price Bands have on the FINRA Best Bid and FINRA Best Offer (FBBO).

Code	Value
Blank	Limit Up-Limit Down Not Applicable
A	FINRA Best Bid **and/or** FINRA Best Offer are Executable
B	FINRA Best Bid below Lower Limit Price Band – FINRA Best Bid is Non-Executable
C	FINRA Best Offer above Upper Limit Price Band – FINRA Best Offer is Non-Executable
D	FINRA Best Bid below Lower Limit Price Band **and** FINRA Best Offer above Upper Limit Price Band – FINRA Best Bid **and** FINRA Best Offer are Non-Executable

Note 1: CQS will modify and republish an FBBO if existing FBBOs require adjustments as a result of Limit Up-Limit Down Price Band changes (e.g., an FBBO update to Executable from Non-Executable [or vice-versa]). Price Band messages will contain the **latest** National and FINRA BBO LULD Indicators as well as the National and FINRA Best Bids and Best Offers.

Note 2: CQS will be identified as the source of a republished FBBO in the SIP Generated Message Identifier field, and the Message Header Participant ID field will identify the Participant that initiated the original Quote message.

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description

FINRA MARKET MAKER ID (MMID)	4	Alphanumeric. Left justified, space-filled. Otherwise this field is space-filled.
		
		Contains the FINRA Market Maker ID of the quoting participant on FINRA's Alternative Display Facility (ADF) or the FINRA ADF Identifier '**FNRA**'.
		
		Note: **The FINRA ADF MMID 'FNRA' will be identified in CQS quote messages as follows**:
		
		➢ Whenever CQS, on behalf of FINRA, generates closing quotes or as part of FINRA's 'End of Participant Quote Reporting' closing routine (*Reference Appendix E – Closing Routine*), quote messages will be generated containing the following characteristics:
		   o Participant ID 'D' in the Message Header
		   o Quote Condition 'L' – Market Maker Closed (FINRA)
		   o Zero-filled bid and/or offer prices and zero-filled bid and/or offer sizes
		
		➢ Whenever CQS on behalf of FINRA removes FINRA from the Best Bid and Best Offer CQS will generate quote messages containing the following characteristics:
		   o Participant ID 'D' in the Message Header
		   o Quote Condition 'R' – Regular
		   o Zero-filled bid and/or offer prices and zero-filled bid and/or offer sizes
		
		Note: When CQS is the originator of a quote message the SIP Generated Message Identifier field will be populated with 'E'.

INSTRUMENT TYPE	1	Alphanumeric. Otherwise, this field is space-filled. Identifies the instrument type relevant to the quote. This field is only applicable for Bond quotes (Network F):

Code	Value
A	Corporate Bond
B	Government Bond

_____

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
LEVEL 1, LEVEL 2 and LEVEL 3 VALUE	12	Numeric. Right Justified, Zero-filled. The Level 1, Level 2 and Level 3 Value is the whole and fractional or decimal portion of the 'Market-Wide Circuit Breaker Decline Level Status' information with the Price Denominator Indicator determining the price representation. Identifies the daily established drop level value (trigger value) associated with each Decline Level: • Level 1 = 7% of Previous Close S&P 500 Value • Level 2 = 13% of Previous Close S&P 500 Value • Level 3 = 20% of Previous Close S&P 500 Value
LEVEL INDICATOR	1	Alphanumeric. Identifies the threshold level that was breached. {table below}

Code	Value
1	Level 1 Breached
2	Level 2 Breached
3	Level 3 Breached

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
LIMIT UP-LIMIT DOWN (LULD) INDICATOR	1	Alphanumeric. Otherwise, this field is space-filled. Indicates the affect the Quote has on the Limit Up-Limit Down Price Band range. An Offer Price that is below the Lower Limit Price Band, or a Bid Price that is above the Upper Limit Price Band is identified as follows: {table below} **Note 1**: If a Bid or an Offer is marked as Non-Executable, it will not qualify for inclusion in the BBO calculations. **Note 2**: CQS will modify and republish a quote if existing Participant quotations require adjustments as a result of Limit Up-Limit Down Price Band changes, e.g., an update to a Bid/Offer Price to Executable from Non-Executable (or vice-versa). Price Band messages will contain the latest National and FINRA BBO LULD Indicators as well as the National and FINRA Best Bids and Best Offers. **Note 3**: CQS will be identified as the source of a republished Quote in the SIP Generated Message Identifier field, and the Message Header Participant ID field will identify the Participant that initiated the original Quote message.

Code	Value
Blank	Limit Up-Limit Down Not Applicable
A	Bid Price above Upper Limit Price Band – Bid is Non-Executable
B	Offer Price below Lower Limit Price Band Offer is Non-Executable

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
MARKET CONDITION	1	Alphanumeric. Identifies the market condition of a quote for a security. Crossed Market and Locked Market are only applicable to Network F Bonds. In cases of a Normal Auction Market, the Bid Price must be less than the Offer Price. In cases of a Crossed Market, the Bid Price must be greater than the Offer Price. In cases of a Locked Market, the Bid Price must be equal to the Offer Price. Refer to **Appendix C** for definition of values.

Code	Value
A	Normal Auction Market
B	Crossed Market
C	Locked Market

_____

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
NATIONAL BBO INDICATOR (NBBO)	1	Numeric. Indicates the affect the new quote has on the National BBO. If it is determined that a new National BBO appendage is required, the appropriate BBO information is appended following the FINRA BBO Indicator field of the Short Quote or Long Quote message. A National appendage is not present, if it is determined that the current quote is the new National BBO or does **not** affect the BBO. Refer to **Appendix F** for National and FINRA BBO Overview.

Code	Value
0	**No National BBO change** Current quote does not affect the BBO. No National appendage is required.
1	**Quote contains all National BBO information** Current quote is itself the new National BBO. No National appendage is required.
2	**No National BBO** There is no calculation of National BBO such as before Market Open or after Market Close. There is no best or no change. No National appendage is required.
4	**Long Format of National BBO Appendage** A new National BBO is generated and the new BBO information is contained in the Long National BBO appendage.
6	**Short Format of National BBO Appendage** A new National BBO is generated and the new BBO information is contained in the Short National BBO appendage.

_____

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
NATIONAL BBO (NBBO) LIMIT UP-LIMIT DOWN (LULD) INDICATOR	1	Alphanumeric. Otherwise, this field is space-filled. Indicates the affect that the Limit Up-Limit Down Price Band changes have on the National Best Bid and National Best Offer.

Code	Value
Blank	Limit Up-Limit Down Not Applicable
A	National Best Bid **and / or** National Best Offer are Executable
B	National Best Bid below Lower Limit Price Band – National Best Bid is Non-Executable
C	National Best Offer above Upper Limit Price Band – National Best Offer is Non-Executable
D	National Best Bid below Lower Limit Price Band **and** National Best Offer above Upper Limit Price Band – National Best Bid **and** National Best Offer are Non-Executable
E	National Best Bid equals Upper Limit Price Band – National Best Bid is in Limit State
F	National Best Offer equals Lower Limit Price Band – National Best Offer is in Limit State
G	National Best Bid equals Upper Limit Price Band – National Best Bid is in Limit State **and** National Best Offer above Upper Limit Price Band – National Best Offer is Non-Executable
H	National Best Bid below Lower Limit Price Band – National Best Bid is Non-Executable **and** National Best Offer equals Lower Limit Price Band – National Best Offer is in Limit State
I	National Best Bid equals Upper Limit Price Band **and** National Best Offer equals Lower Limit Price Band **(Crossed -** _**NOT** in Limit State_)

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
NATIONAL BBO (NBBO) LIMIT UP-LIMIT DOWN (LULD) INDICATOR, continued		**Note 1**: CQS will modify and republish an NBBO if existing NBBO's require adjustments as a result of Limit Up-Limit Down Price Band changes (e.g., an update to an NBBO to Executable from Non-Executable (or vice-versa). Price Band messages will contain the latest National and FINRA BBO LULD Indicators as well as the National and FINRA Best Bids and Best Offers. **Note 2**: CQS will be identified as the source of a republished NBBO in the SIP Generated Message Identifier field, and the Message Header Participant ID field will identify the Participant that initiated the original Quote message. **Note 3**: CQS will populate the 'National BBO LULD Indicator' field with a 'BLANK' as follows: (a) Prior to regular trading hours and after regular trading hours. (b) When the current quote does not affect the NBBO/FBBO (e.g., BBO non-qualifying quote conditions such as Non-Firm quotes). (c) When Price Bands are not in effect (e.g., Price Bands with zero values prevailing). (d) Until the Price Band for a symbol is published. (e) If no eligible quotes have taken place. .

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
OFFER PRICE DENOMINATOR INDICATOR	1	Numeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.
OFFER PRICE/UPPER LIMIT PRICE BAND	12	Numeric. Right justified, zero-filled. The Offer Price is the whole and fractional or decimal portion of the Participant Offer Price information with the **PRICE DENOMINATOR INDICATOR** code determining the price representation. **Offer Price:** represents the lowest price acceptable to a prospective seller at a particular time for a security. When the **OFFER PRICE** and the **OFFER SIZE IN UNITS OF TRADE** fields are all zeroes, this represents a "No Offer" quote, a "No Quote" (i.e., neither a Bid nor an Offer, which zeroes out the quote) or an Opening Delay or Trading Halt condition. If the offer size is zero and there is an offer price, it represents either a Trading Range Indication or a Price Indication. **Upper Limit Price Band:** represents the upper price band value for a security. When the Quote Condition field code is 'Limit Up-Limit Down Price Bands, the Upper Limit Price Band value will be contained in the Offer Price/Upper Limit Price Band field. When the Upper Limit Price Band field is zero, it identifies that the previous Price Bands have been removed and are no longer effective.
OFFER PRICE/UPPER LIMIT PRICE BAND DENOMINATOR INDICATOR	1	Numeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.

_____

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
OFFER <u>SHORT</u> PRICE	8	Numeric. Right justified, zero-filled. Appears in the Short Quote. The Offer Short Price is the whole decimal portion of the Participant Offer Price information with the **OFFER PRICE DENOMINATOR INDICATOR** code determining the price representation. The Offer Short Price represents the lowest price acceptable to a prospective seller at a particular time for a security. When the **OFFER PRICE** and the **OFFER SIZE IN UNITS OF TRADE** fields are all zeroes, it represents a "No Offer" quote, a "No Quote" (i.e., neither a Bid nor an Offer, which zeroes out the quote) or an Opening Delay or Trading Halt condition. If the offer size is zero and there is an offer price, it represents either a Trading Range Indication or a Price Indication.
OFFER SIZE IN UNITS OF TRADE	3 or 7	Numeric. Right justified, zero-filled. The Offer Size identifies the number of round-lots, for a security. Primarily, a unit of trade or round-lot consists of 100 shares or multiples thereof (e.g., 200, 1000 or 5000). Certain securities trade in round-lot multiples other than 100 shares; other units of trade are in 1, 10 or 50 share round-lots.

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
OUTPUT NETWORK	1	Alphabetic character. Identifies the ML network on which the output message should be disseminated. This field is used whenever there is no CTS master, and the input message local issue indicator denotes the security as being a listed equity (field value = 0).

Network Field Value	Description
E	Message relates to symbols with NYSE as the primary listed market. The Primary Listing Market Participant ID identifies the primary listing market in instances when the primary market is an Exchange *other than* the NYSE.
F	Message relates to symbols with NYSE MKT Stock Market or one of the regional Exchanges as the primary market. Message can also be for Local Issues and Bonds. The Primary Listing Market Participant ID identifies the primary listing market in instances when the primary market is an Exchange *other than* the NYSE MKT Stock Market.

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
PARTICIPANT ID	1	Alphabetic. Identifies the Exchange or Processor that initiated the quote message:

Code	Value
A	NYSE MKT
B	NASDAQ OMX BX
C	NSX
D	FINRA
E	CQS
I	ISE
J	EDGA
K	EDGX
M	CHX
N	NYSE
P	NYSE Arca
T	NASDAQ OMX
W	CBSX
X	NASDAQ OMX PSX
Y	BATS Y
Z	BATS

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
PRICE DENOMINATOR INDICATOR	1	Alphanumeric. **Note: If Bid and/or Offer Prices zero, this field is zero-filled.** Identifies the price denominator of the fraction or the location of the decimal. The Price Denominator Indicator field contains one of the codes listed below.

Fractional Prices					
Price Denominator Code	Denominator Value	12 Byte Field		8 Byte Field	
		Whole	Numerator	Whole	Numerator
3	8	11	1	7	1
4	16	10	2	6	2
5	32	10	2	6	2
6	64	10	2	6	2
7	128	9	3	5	3
8	256	9	3	5	3

Decimal Prices					
Price Denominator Code	Denominator Value	12 Byte Field		8 Byte Field	
		Whole	Numerator	Whole	Numerator
A	10	11	1	7	1
B	100	10	2	6	2
C	1,000	9	3	5	3
D	10,000	8	4	4	4
E	100,000	7	5	3	5
F	1,000,000	6	6	2	6
G	10,000,000	5	7	1	7
H	100,000,000	4	8	0	8

Decimal Prices					
Price Denominator Code	Denominator Value	12 Byte Field		8 Byte Field	
		Whole	Numerator	Whole	Numerator
I	N/A	12	0	8	0

Note: The maximum whole price allowable is 92.2 billion.

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
PRIMARY LISTING MARKET PARTICIPANT IDENTIFIER	1	Alphabetic. Identifies the Primary Listing Market only in instances when the Primary Market is an Exchange <u>other than</u> the NYSE or the NYSE MKT Stock Market (which by default are identified in the Message Network field of the CQS Message Header).

Code	Value
B	NASDAQ OMX BX
C	NSX
D	FINRA
I	ISE
J	EDGA
K	EDGX
M	CHX
T	NASDAQ OMX
P	NYSE Arca
W	CBSX
X	NASDAQ OMX PSX
Y	BATS Y
Z	BATS

Note:

- **NYSE listed securities** are disseminated with the Message Network value '**E**'.
- **NYSE MKT Stock Market listed securities** are disseminated with the Message Network value '**F**'.

▬▬▬

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
QUOTE CONDITION	1	Alphanumeric. Denotes a particular condition applicable to the quote. The Quote Condition field is also used to determine whether a quote qualifies for the National and FINRA Best Bid and Best Offer calculation. Refer to **Appendix G** for definition of values.

Code	Value	Regulatory	Non-Regulatory
A	Slow Quote on Offer Side		
B	Slow Quote on Bid Side		
C	Closing		
D	News Dissemination	X	
E	Slow Quote Due to an LRP or Gap Quote on the Bid Side - Eligible on *OFFER SIDE* only		
F	Slow Quote Due to an LRP or Gap Quote on the Offer Side - Eligible on *BID SIDE* only		
G	Trading Range Indication		
H	Slow Quote on the Bid and Offer Sides		
I	Order Imbalance		X
J	Due To Related Security-News Dissemination	X	
K	Due To Related Security-News Pending	X	
L	Closed Market Maker (FINRA)		
M	Limit-Up-Limit Down (LULD) Trading Pause	X	
N	Non-Firm Quote		
O	Opening Quote		
P	News Pending	X	
Q	Undefined		
R	Regular (FINRA Open)		
S	Due To Related Security		X
T	Resume		
U	Slow Quote Due to a NYSE Liquidity Replenishment Point (LRP), NYSE MKT Stock Market Tolerance Breach (Spread, Momentum or Gap Trade Tolerance), or Gap Quote on Both the Bid and Offer Sides		
V	In View of Common	X	
W	Slow Quote Due to Set Slow List on Both the Bid and Offer Sides		
X	Equipment Changeover		X
Y	Sub-Penny Trading		X
Z	No Open/No Resume		
0	Limit Up-Limit Down (LULD) Price Band		
1	Market-Wide Circuit Breaker Level 1 – Breached	X	
2	Market-Wide Circuit Breaker Level 2 – Breached	X	
3	Market-Wide Circuit Breaker Level 3 – Breached	X	
9	Republished Limit Up-Limit Down (LULD) Price Band		

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
QUOTE CONDITION, continued		

Code	BBO QUALIFYING QUOTE CONDITIONS*
A	Slow Quote on the Offer Side
B	Slow Quote on the Bid Side
E	Slow Quote Due to an LRP or Gap Quote on the Bid Side – Eligible on *OFFER SIDE* **only**
F	Slow Quote Due to an LRP or Gap Quote on the Offer Side – Eligible on *BID SIDE* **only**
H	Slow Quote on the Bid and Offer Sides
O	Opening Quote
R	Regular
W	Slow Quote Due to Set Slow List on Both the Bid and Offer Sides

Note: If a BBO qualifying Bid or Offer is marked as Non-Executable in the 'Limit Up-Limit Down (LULD) Indicator' field, the Non-Executable Bid or Offer side will <u>not qualify</u> for inclusion in the BBO calculations.

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
RETAIL INTEREST INDICATOR	1	Alphanumeric. Field is space-filled unless otherwise defined. When Retail Price Improvement (RPI) interest is priced better than the Protected Best Bid or Offer (PBBO) by a minimum of $0.001, an indication of interest on the Bid, Offer, or both the Bid and Offer will identify that interest will be eligible to interact with incoming Retail Order interest. **Code** / **Value** **Blank** — Retail Interest Not Applicable **A** — Retail Interest on Bid Quote **B** — Retail Interest on Offer Quote **C** — Retail Interest on both the Bid and Offer Quotes
RESERVED	N	Alphanumeric. Fields reserved for future use. Reserved fields are space-filled unless otherwise defined. **Note:** Reserved fields will be redefined and implemented as required. If Data Recipients are not prepared to process new field(s) when implemented, they should be able to handle them to the extent that they do not impact their normal data processing.

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description

SECURITY SYMBOL	3 or 11	Alphabetic. Left Justified, space-filled.
		
		 Identifies the unique symbol. Suffixes start with one of the following characters with no embedded blanks: (1) USASCII Letters Dot, (2) lower case p, (3) lower case r, or (4) lower case w. The security symbol length will remain at a maximum of 11 characters. Refer to **Appendix H** for the list of allowable symbol suffixes.
		
		 Security Symbol field exceptions:
		
		     a) Temporary Suffixes are **not** contained in this field.
		
		     b) Quote Conditions (News Pending, Opening Quote, etc.) are not contained in this field.
		
		 Note: CQS will allow for a base or root symbol to consist of from one (1) up to six (6) characters with the remaining characters in the security symbol field available for possible suffixes.
		
		 Identification of Test Data:
		
		 The purpose of a Test Message is to have a mechanism whereby end-to-end connectivity and functionality between the CQS Participant and Data Recipient can be tested prior to the opening or during normal operational hours. There are two types of test messages that can be disseminated, but **do not** contain the same characteristics:

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
SECURITY SYMBOL, continued		1.CQS messages containing a suffix of '.TEST' used with any base symbol that is not in the CQS database. Messages with a '.TEST' suffix are not included in any Participant statistics (e.g., quote counts, etc.). 2. CQS messages containing any of the following dedicated test symbols:

Test Symbol	Listing Market	Network(s)
CBO	NYSE	E
CBX	NYSE	E
IBO	NYSE MKT	F
IGZ	NYSE ARCA	F
ZVV	NYSE ARCA	F
ZZK	NYSE ARCA	F
ZZZ	NYSE ARCA	F
ZBZX	BATS	F
ZTEST	BATS	F

Messages with any of the dedicated test symbols will be included in Participant statistics (e.g., National and FINRA BBO calculations), but will be excluded in quote counts, etc.

_____

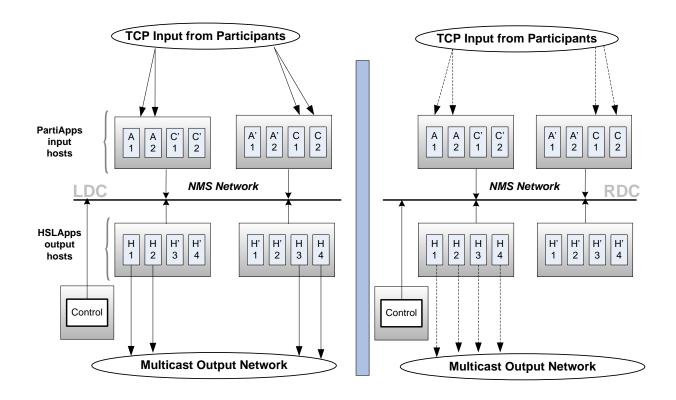## FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
SETTLEMENT CONDITION	1	Alphanumeric. Identifies the settlement condition for a security. Refer to **Appendix C** for definition of values.
SHORT SALE RESTRICTION INDICATOR	1	Alphanumeric space-filled. Identifies whether or not a Short Sale Restriction is in effect. A Short Sale Restriction is to be in effect if a security's price decreases by 10% or more from the previous day's closing price. Once activated, the Short Sale Restriction will remain in effect for the remainder of the day as well as the following day, unless deactivated.

For SETTLEMENT CONDITION:

Code	Value
A	Regular Way Settlement
B	Cash (only) Settlement
C	Next Day (only) Settlement

For SHORT SALE RESTRICTION INDICATOR:

Code	Value
Blank	Short Sale Restriction Not in Effect
A	Short Sale Restriction Activated
C	Short Sale Restriction Continued
D	Short Sale Restriction Deactivated
E	Short Sale Restriction in Effect

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
SIP GENERATED MESSAGE IDENTIFIER	1	Alphanumeric. Otherwise this field is space-filled. Identifies CQS as the originator of a message, used in instances when: • CQS is the originator of a **republished** Quote message (used when CQS republishes the LULD and/or LULD BBO Indicators as a result of a **Price Band change**). When CQS republishes a Quote message, the Participant ID field in the Message Header will identify the Participant that initiated the **original** message. • CQS is the source of a Quote message generated **on behalf of a Participant** (e.g., zero quote messages; closing quote messages). When CQS is the source of a Quote message requested by a Participant, the Participant ID field in the Message Header will identify the Participant that requested the Quote message (e.g., zero quote). • CQS is **the originator of a Price Band** message. The Participant ID field in the Message Header **and** the 'SIP Generated Message Identifier' field will both be populated with code 'E' identifying CQS as the originator of the message. <table><tr><th>Code</th><th>Value</th></tr><tr><td>E</td><td>Consolidated Quotation System</td></tr></table> **Note:** The 'SIP Generated Message Identifier' field applies to LULD active symbols only.

FIELD DESCRIPTIONS, continued

Field Name	Bytes	Description
TEMPORARY SUFFIX	1	Alphabetic. Otherwise, this field is space-filled. Contains the temporary status of a security. Refer to **Appendix C** for definition of values.
TEST MESSAGE INDICATOR	1	Alphanumeric. Otherwise this field is space-filled. Indicates whether the message is an actual quote or a test message.

For TEMPORARY SUFFIX:

Code	Value
A	Ex-Dividend
B	Ex-Distribution
C	Ex-Rights
D	New
E	Ex-Interest

For TEST MESSAGE INDICATOR:

Code	Value
BLANK	Not a Test Message
T	Test Message

Note: The purpose of a Test Message is to have a mechanism whereby end-to-end connectivity between the CQS Participant and Data Recipient can be tested prior to the opening or during intraday trading. A Test Message requires that a suffix of /TEST be used, with an non-existent base symbol. Test messages are not to be included in any Exchange statistics (e.g., quote counts, etc.).

APPENDIX A: DUAL SITE CONFIGURATION

CQS DUAL SITE CONFIGURATION

APPENDIX B: TIMESTAMP CONVERSION TABLE

The following conversion table is used to represent the 'Time' located in the Message Header 'Timestamp' field.

TIME	ASCII	HEX	DEC	TIME	ASCII	HEX	DEC
0	0	30	48	30	N	4E	78
1	1	31	49	31	O	4F	79
2	2	32	50	32	P	50	80
3	3	33	51	33	Q	51	81
4	4	34	52	34	R	52	82
5	5	35	53	35	S	53	83
6	6	36	54	36	T	54	84
7	7	37	55	37	U	55	85
8	8	38	56	38	V	56	86
9	9	39	57	39	W	57	87
10	:	3A	58	40	X	58	88
11	;	3B	59	41	Y	59	89
12	<	3C	60	42	Z	5A	90
13	=	3D	61	43	[	5B	91
14	>	3E	62	44	\	5C	92
15	?	3F	63	45	]	5D	93
16	@	40	64	46	^	5E	94
17	A	41	65	47	_	5F	95
18	B	42	66	48	`	60	96
19	C	43	67	49	a	61	97
20	D	44	68	50	b	62	98
21	E	45	69	51	c	63	99
22	F	46	70	52	d	64	100
23	G	47	71	53	e	65	101
24	H	48	72	54	f	66	102
25	I	49	73	55	g	67	103
26	J	4A	74	56	h	68	104
27	K	4B	75	57	i	69	105
28	L	4C	76	58	j	6A	106
29	M	4D	77	59	k	6B	107

APPENDIX C: GLOSSARY

TERM	DESCRIPTION
BELOW CONTINUING LISTING STANDARDS	A financial status designation pertaining to Tape 'A' and Tape 'B' listed securities. The status identifies a company, whose issue is listed on the New York Stock Exchange, the NYSE MKT Stock Market or on one of the Regional exchanges, and has failed to meet established listings standards. The listing exchange will subsequently review the appropriateness of continuing to list the issue, and may decide to commence the process of delisting the issue.
CASH (only) SETTLEMENT	A security settling in cash all day on a participant or consolidated basis, such as a Common, Preferred or Right that is nearing expiration. Participants can elect to report different settlements in the same security during the day based on their own settlement requirements. For example, one participant can report quotes as cash (only) settlement while another participant can report quotes as regular or next day settlement.
CREATIONS SUSPENDED (for EXCHANGE TRADED PRODUCTS)	A financial status designation used to denote the ability to create new shares of this Exchange Traded Product (ETP) has been temporarily suspended by the ETP Issuer. ETPs that are closed for Creations typically are allowed to continue trading on the listing market once the ETP Issuer publishes the press release. NYSE ARCA maintains a list of all U.S. Exchange Traded Products that have suspended the issuance of new shares which can be accessed at: https://etp.nyx.com/en/trading-information/us/funds-closed-creation
CROSSED MARKET	Indicates a Bid Price, which is greater than the Offer Price for a security for a quote. (Only applicable to Network F Bonds.)
CTA ELIGIBLE	Generally, any common stock, rights, long-term warrants or preferred stock which becomes registered on any national securities exchange or is admitted to unlisted trading privileges thereon and which at the time of such registration or at the commencement of such trading substantially meets the original listing requirements of the NYSE or the NYSE MKT Stock Market for such securities.
EX-DISTRIBUTION	Securities without the right to receive the forthcoming distribution of securities, which has been recently declared.
EX-DIVIDEND	Securities without the right to receive the forthcoming dividend, which has been recently declared.

_____

GLOSSARY

TERM	DESCRIPTION
EX-INTEREST	Debt related securities without the right to receive the forthcoming interest, which has been recently declared.
EX-RIGHTS	Securities without the right to buy a company's securities at a discount from the prevailing market price, which was distributed until a particular date. Typically, after that date, the rights trade separately from the security itself.
LATE FILING	A financial status designation pertaining to Tape 'A' and Tape 'B' issues (i.e. issues listed on the NYSE, the NYSE MKT Stock Market or on one of the Regional exchanges). The status identifies a company, which has failed to meet established listings standards for filing its annual reports.
LIMIT UP-LIMIT DOWN (LULD) PRICE BAND	The Limit Up-Limit Down Price Band represents a price range which is set at a percentage level above and below the average price of a security over the immediately preceding five (5) minute period. Price Bands prevail for a minimum of thirty (30) seconds. During a Limit State Price Bands will not be disseminated and will recommence when Limit State is terminated. For further details related to Limit Up-Limit Down, reference the following: http://www.sec.gov/news/press/2011/2011-84.htm **Note:** There are no sizes associated with LULD Price Bands.
LIMIT UP-LIMIT DOWN (LULD) TRADING PAUSE	Denotes a five-minute regulatory trading halt (pause) for an individual security that does not exit a Limit State within 15 seconds.
LIMIT STATE	Indicates that a National Best Bid is equal to the Upper Limit Price Band, or that a National Best Offer is equal to the Lower Limit Price Band.
LIQUIDATION (FOR EXCHANGE TRADED PRODUCTS)	A financial status designation used to denote that the ETP Issuer announced the ETP will be liquidated and NYSE ARCA announced the date the ETP will be suspended from trading.
LOCAL ISSUE	A Local Issue is an issue that does **not** meet the NYSE MKT Stock Market or NYSE listing requirements (is not CTA eligible) but is traded at one or more Regional Exchanges.
LOCKED MARKET	Indicates an identical Bid and Offer Price for a security for a quote. (Only applicable to Network 'F' bonds.)

GLOSSARY

TERM	DESCRIPTION
MARKET-WIDE CIRCUIT BREAKER LEVEL 1 – 7% DECLINE	This Regulatory Trading Halt is used to denote that trading is suspended due to the S&P 500 Index reaching a 7% decline level below its closing value on the previous trading day. A Level 1 Market-Wide Circuit Breaker Regulatory Trading Halt would operate as follows: before 3:25 p.m. ET – duration 15 minutes; at or after 3:25 p.m. ET – trading shall continue, unless there is a Level 3 Market-Wide Circuit Breaker Regulatory Trading Halt.
MARKET-WIDE CIRCUIT BREAKER LEVEL 2 – 13% DECLINE	This Regulatory Trading Halt is used to denote that trading is suspended due to the S&P 500 Index reaching a 13% decline level below its closing value on the previous trading day. A Level 2 Market-Wide Circuit Breaker Regulatory Trading Halt would operate as follows: before 3:25 p.m. ET – duration 15 minutes; at or after 3:25 p.m. ET – trading shall continue, unless there is a Level 3 Market-Wide Circuit Breaker Regulatory Trading Halt.
MARKET-WIDE CIRCUIT BREAKER LEVEL 3 – 20% DECLINE	This Regulatory Trading Halt is used to denote that trading is suspended due to the S&P 500 Index reaching a 20% decline level below its closing value on the previous trading day. A Level 3 Market-Wide Circuit Breaker Regulatory Trading Halt would operate as follows: at any time during regular trading hours, trading shall Halt and not Resume for the remainder of the trading day.
NEW	A temporary suffix, which can be used when deemed necessary to identify a new status or structure of an issue, but where the symbol remains the same.
NEXT DAY (only) SETTLEMENT	Same definitions as cash (only) settlement except settlement is next day.
NON-REGULATORY OPENING DELAY OR TRADING HALT	An operational Opening Delay or Trading Halt for a Participant due to Order Imbalance, Order Influx, Equipment Changeover or Due to Related Security. In addition, Due To Related Security can be used in conjunction with a non-regulatory Delay/Halt Reason, i.e., Order Imbalance, Order Influx or Equipment Changeover.
NORMAL AUCTION MARKET	Where the quote bid price is less than the offer price for a security for a Participant.
OPENING DELAY	Postponement of the opening of trading in a security for a Participant.
PRICE INDICATION	Reflects an approximate price range of what a security's trading range (bid and offer prices) will be when trading resumes after an Opening Delay or a Trading Halt.

_____

GLOSSARY

TERM	DESCRIPTION
REDEMPTIONS SUSPENDED (FOR EXCHANGE TRADED PRODUCTS)	A financial status designation used to denote the ability to redeem shares of this ETP has been suspended by the ETP Issuer. ETPs that are closed for redemption will remain halted on the listing market.. Note: A list of securities that <u>suspend redemptions</u> is not available because, in all cases, they were suspended then liquidated.
REGULAR WAY SETTLEMENT	The settlement date is within three (3) business days following the date of the transaction.
REGULATORY OPENING DELAY OR TRADING HALT	An Opening Delay or Trading Halt in a particular security for a Participant in advance of a major news announcement and is noted with a News Dissemination or News Pending quote condition. In addition, Due To Related Security can be used in conjunction with a regulatory Delay/Halt Reason, i.e., News Dissemination or News Pending.
REPUBLISHED LIMIT UP-LIMIT DOWN PRICE BAND	Indicates that the Price Band being disseminated is a republication of the latest Price Band for a security.
RESUME	This quote condition along with zero-filled bid, offer and size fields is used to indicate that trading for a Participant is no longer suspended in a security which had been Opening Delayed or Trading Halted.
SHORT SALE RESTRICTION	A restriction designed to control short selling from further driving down the price of a security any day in which the price declines by 10% or more from the previous day's closing price. Once the Short Sale Restriction is activated, a Short Sale Restriction would be in effect in that security for the remainder of the day as well as the following day, unless deactivated.
SUB-PENNY TRADING	Indicates a non-regulatory Opening Delay or Trading Halt for a security whose price may fall below $1.05, possibly leading to a sub-penny execution.
TRADING HALT	Temporary halt in trading in a particular security for a Participant.

APPENDIX D: SUMMARY OF DAILY CQS MULTICAST LINE MESSAGES

> **Note:** **Time Ranges shown have approximate end times indicated, are dependent on daily traffic volume and are subject to change based on a Participant's hours of operation. Times are represented in *Eastern Standard Time* (ET).**

TIME (ET)		TRANSMISSION
01:40		Line Integrity Messages*
02:00		Start of Test Cycle Message
02:45		End of Test Cycle Message
03:30		Start of Day Message (sent three times at one minute intervals)
03:33-20:00		Administrative Messages Test Messages Trading Range Indications
03:33-20:30		Reset Message Sequence Number Messages (if required) Retransmission Messages Test Messages
04:00		Market Open NASDAQ OMX NYSE ARCA^{SM}
07:00		Market Open CHX & NASDAQ OMX BX
08:00		Market Open BATS, BATS Y, DIRECT EDGE A, DIRECT EDGE X, FINRA & NSX
09:00		Market Open NASDAQ OMX PSX

*   Line Integrity Messages are transmitted at intervals of approximately one minute throughout the day ending when the CQS Multicast Lines are brought down.

_____

APPENDIX D: SUMMARY OF DAILY CQS MULTICAST LINE MESSAGES, continued

Note:	Time Ranges shown have approximate end times indicated and are dependent on daily traffic volume and are subject to change based on a Participant's hours of operation. Times are represented in *Eastern Standard Time* (ET).

TIME (ET)		TRANSMISSION
09:30		Market Open NYSE & NYSE MKT Stock Market
09:30-20:00		Market Open Administrative Messages Bond (Network 'F') Quote Reports Equity Quote Reports In View of Commons Local Issue Quote Reports No Open/No Resumes Opening Delays/Trading Halts Price Indications Resumes
16:00		Market Close for: NYSE & NYSE MKT Stock Market
16:03		Suspend Best Bid and Best Offer for: NYSE (BBO Group 0 Stocks)** NYSE MKT Stock Market (BBO Group 0 Stocks)**
16:19		Suspend Best Bid and Best Offer for: NYSE MKT Stock Market (BBO Group 1 Stocks)** NYSE (BBO Group 1 Stocks)**
16:33		Suspend Best Bid and Best Offer for: CHX

** Suspend Best Bid and Best Offer (Suspend BBO) occurs for each Participant shortly after its market close. Participants can continue to send in quotes subsequent to the Suspend BBO, but these quotes will not be included in the BBO calculation. The Suspend BBO command removes the Participant from the BBO calculation and re-issues the last quote for that Participant as a closing quote if that quote was part of the BBO. A new BBO excluding that Participant is appended to the closing quote. However, each Participant has the option to continue quoting and remain in the BBO for a subset of securities past the market close. This subset of securities is assigned to BBO Group 1. All other issues are assigned to BBO Group 0. They are removed from the BBO for each Participant shortly after its market close.

_____

APPENDIX D: SUMMARY OF DAILY CQS MULTICAST LINE MESSAGES, continued

Note:	Time Ranges shown have approximate end times indicated and are dependent on daily traffic volume and are subject to change based on a Participant's hours of operation. Times are represented in *Eastern Standard Time* (ET).

TIME (ET)		TRANSMISSION
17:00		Market Close for: BATS, BATS Y, CHX, NASDAQ OMX PSX & NSX
17:00		End of Participant Reporting for: NASDAQ OMX PSX
17:03		Suspend Best Bid and Best Offer for: BATS & BATS Y (BBO Group 0 Stocks)
17:10		End of Participant Reporting for: NSX
17:15		End of Participant Reporting for: CHX
17:19		Suspend Best Bid and Best Offer for: BATS & BATS Y (BBO Group 1 Stocks)**
17:30		End of Participant Reporting for: NYSE & NYSE MKT Stock Market
18:30		Market Close and End of Participant Reporting for: FINRA
18:45		End of Participant Reporting for: BATS Y

**   Suspend Best Bid and Best Offer (Suspend BBO) occurs for each Participant shortly after its market close. Participants can continue to send in quotes subsequent to the Suspend BBO, but these quotes will not be included in the BBO calculation. The Suspend BBO command removes the Participant from the BBO calculation and re-issues the last quote for that Participant as a closing quote if that quote was part of the BBO. A new BBO excluding that Participant is appended to the closing quote. However, each Participant has the option to continue quoting and remain in the BBO for a subset of securities past the market close. This subset of securities is assigned to BBO Group 1. All other issues are assigned to BBO Group 0. They are removed from the BBO for each Participant shortly after its market close.

_____

_____

APPENDIX D: SUMMARY OF DAILY CQS MULTICAST LINE MESSAGES, continued

> **Note:** **Time Ranges shown have approximate end times indicated and are dependent on daily traffic volume and are subject to change based on a Participant's hours of operation. Times are represented in _Eastern Standard Time_ (ET).**

TIME (ET)		TRANSMISSION
19:00		Market Close and End of Participant Reporting for: NASDAQ OMX BX
20:00		End of Participant Reporting for: BATS
20:00		Market Close and End of Participant Reporting for: DIRECT EDGE A, DIRECT EDGE X, NASDAQ OMX & NYSE ARCA^{SM}
20:06		End of Transmission Message******* (sent three times at one minute intervals)

***   All CQS Participant Lines are brought down. Dependent on all Participants being closed.

AFTERHOURS TEST DATA DISSEMINATION:

> **Note**: CQS Multicast Data Recipients are reminded that test data dissemination over CQS multicast data feeds can commence as early as **8:30 P.M. ET** and terminate as late as **3:25 A.M**. ET during business weekdays. This test period is accommodated to allow testing opportunities for Participants and Data Recipients, as well as to provide test time to rectify any production problems that may have occurred the prior business day. Multicast data feed recipients should take the necessary precautions to protect their systems against any adverse impact (e.g., database corruption) if processing data throughout the test dissemination period. During the test period, note that test data can be disseminated over all CQS multicast channels (e.g., Production, Retransmission or Playback Test Group IP addresses).

APPENDIX E: CQS CLOSING ROUTINE

A Participant can individually close a security by sending in a closing quote to CQS. CQS disseminates this closing quote over the Multicast Line and appends a new BBO, excluding that Participant, if that Participant was part of the current BBO.

Participants in CQS are excluded from the BBO calculation at the Participant's designated closing time. A Participant can have multiple closing times, on a per security basis, thus allowing inclusion of quotes in the BBO calculation for those securities, which have not been closed. After a Participant is closed, CQS cycles through its database and disseminates a closing quote message using that Participant's last BBO eligible quote for only those securities for which that Participant was part or all of the current BBO. A Participant can continue to submit quotes for securities, which have been closed, however, the quotes will **not** be included in the BBO calculations.

_____

APPENDIX F: NATIONAL AND FINRA BEST BID AND OFFER OVERVIEW

National Best Bid and Best Offer calculations are performed for each Market Center beginning at various times (between 4:00 a.m. and 9:30 a.m. ET) whenever a new qualifying quote is received after a Participant Market Open. If it is determined that the new quote has caused a new National and/or FINRA BBO, the appropriate National and/or FINRA BBO information is appended to the new quote. Appendages are **not** added if it is determined that the current quote does **not** affect the National and/or FINRA BBO.

A new quote can be the entire new National and FINRA BBO quote (both Bid and Offer). In addition, the National and FINRA BBO **can** indicate a Crossed Market where the Bid price is higher than the Offer price or a Locked Market where both the Bid and the Offer prices are the same.

CQS generates a National and FINRA BBO based on the following criteria in this order:

- **Price** - Exchanges with highest Bid and lowest Offers have overall priority.

- **Size** - Largest size takes precedence when multiple Exchanges submit the same Bid and/or Offer price.

- **Time** - Earliest time takes precedence when multiple Exchanges submit the same Bid and/or Offer price with the same size.

Note: To avoid dissemination of duplicate National or FINRA BBO calculations: if a quote is received from a Participant who is currently part or all of the National or FINRA BBO, and the National or FINRA BBO's are not affected by the quote, then the National or FINRA BBO is not updated with a later time, and appendages are not added.

APPENDIX F: NATIONAL AND FINRA BEST BID AND OFFER OVERVIEW, continued

BBO Considerations

There are several trading conditions that affect the calculations of a National and FINRA BBO for a security, including:

Non-Qualifying Quote Conditions

If a quote with a non-qualifying quote condition is entered from a Participant which made up part or all of the current National and FINRA BBO, CQS will calculate and append a new National and/or FINRA BBO to the non-qualifying conditional Short Quote or Long Quote message.

Participant Overall Halt in Trading

If a Participant were to halt trading in all securities during the trading day (due to computer failure, market shutdown, etc.), CQS, when instructed by the Participant, can send a "Zero Quote" for only those issues in which that Participant had an outstanding BBO eligible quote. A new National and a FINRA BBO are calculated and, if necessary, either or both appended to the Short Quote or Long Quote message.

FINRA BBO Considerations

The FINRA submits individual FINRA Market Maker quotes. A FINRA BBO is calculated and included in the National BBO calculations.

If a new FINRA quote causes a new FINRA BBO, the appropriate FINRA BBO information, including Market Maker identifiers, is appended to the Short or Long Quote message.

If part of the new FINRA BBO is also part of the new National BBO, the appropriate National BBO information is also appended to the new Short Quote or Long Quote message.

_____

APPENDIX G: QUOTE CONDITIONS

Each quote message may contain a quote condition, which describes the nature of the quote (e.g., depth on bid, depth on offer, etc.) as well as the market conditions surrounding the quote. Quote conditions apply only to the quote so marked. If a situation indicated by the quote persists, each succeeding quote will contain the prevailing quote condition.

The quote conditions may be viewed as belonging to two classes:

1. Those that qualify for inclusion in the National and FINRA Best Bid & Offer (BBO) calculations.

2. Those that **do not** qualify for inclusion in the National and FINRA Best Bid & Offer (BBO) calculations.

Most quote conditions that **do not** qualify for inclusion in the National and FINRA BBO calculations indicate trading suspensions in a security.

BBO Eligible Quotes

The quote conditions in this section indicate active trading sessions in which quotes qualify for inclusion in the National and FINRA BBO calculation.

Quote Condition A - Slow Quote on the Offer Side

This condition indicates that the current offer is in "Slow" quote mode. While in this mode, auto-execution is not eligible on the Offer side, and can be traded through pursuant to anticipated Regulation NMS requirements.

Quote Condition B - Slow Quote on the Bid Side

This condition indicates that the current bid is in "Slow" quote mode. While in this mode, auto-execution is not eligible on the Bid side, and can be traded through pursuant to anticipated Regulation NMS requirements.

Quote Condition E – Slow Quote Due to a Liquidity Replenishment Point (LRP) or Gap Quote on the Bid Side - Only OFFER SIDE is eligible for BBO

This condition is used to indicate that the current Bid is in Slow quote mode due to a Liquidity Replenishment Point (LRP) or Gap Quote. While in this mode, auto-execution is not eligible the quote is then considered Slow on the Bid side and can be traded through, as per Regulation NMS.

BBO Eligible Quotes, continued

Quote Condition F - Slow Quote Due to a Liquidity Replenishment Point (LRP) or Gap Quote on the Offer Side – Only BID SIDE is eligible for BBO

This condition is used to indicate that the current Offer is in Slow quote mode due to a Liquidity Replenishment Point (LRP) or Gap Quote. While in this mode, auto-execution is not eligible the quote is then considered Slow on the Offer side and can be traded through, as per Regulation NMS.

Quote Condition H - Slow Quote on the Bid and Offer Sides

This condition indicates that the quote is a "Slow" quote on both the Bid and Offer sides. While in this mode, auto-execution is not eligible on the Bid and Offer side, and either or both sides can be traded through pursuant to anticipated Regulation NMS requirements.

Quote Condition O - Opening Quote

This condition can be disseminated to indicate that this quote was the opening quote for a security for that Participant.

Quote Condition R - Regular (for FINRA - Market Maker Open)

This condition is used for the majority of quotes to indicate a normal trading environment. It is also used by the FINRA Market Makers in place of Quote Condition "O" to indicate the first quote of the day for a particular security. The condition may also be used when a Market Maker re-opens a security during the day.

Quote Condition W - Slow Quote Due to Set Slow List on Both the Bid and Offer Sides

This condition is used to indicate that the quote is a Slow Quote on both the Bid and Offer sides due to a Set Slow List that includes High Price securities. While in this mode, auto-execution is not eligible, the quote is then considered Slow on the Bid and Offer sides, and either or both sides can be traded through as per Regulation NMS.

━━

QUOTE CONDITIONS, continued

BBO-Ineligible Quotes

The quote conditions which result in quotes **not** qualifying for inclusion in the National and FINRA BBO calculations fall into distinct categories: closing quotes, opening delays/trading halts, price indications/trading range indications and non-firm quotes. To indicate an opening delay or a trading halt, a quote with the condition:

Code	Value	Regulatory	Non-Regulatory
C	Closing Quote		
D	News Dissemination	X	
G	Trading Range Indication		
I	Order Imbalance		X
J	Due To Related Security-News Dissemination	X	
K	Due To Related Security-News Pending	X	
L	Market Maker Quotes Closed		
M	Limit Up-Limit Down (LULD) Trading Pause	X	
N	Non-Firm Quote		
P	News Pending	X	
Q	Undefined		
S	Due To Related Security		X
T	Resume		
U	Slow Quote Due to a NYSE Liquidity Replenishment Point (LRP), NYSE MKT Stock Market Tolerance Breach (Spread, Momentum or Gap Trade Tolerance) or Gap Quote on Both the Bid and Offer Sides		
V	In View of Common	X	
X	Equipment Changeover		X
Y	Sub-Penny Trading		X
Z	No Open/No Resume		
0	Limit Up-Limit Down (LULD) Price Bands		
1	Market-Wide Circuit Breaker Level 1 – Breached	X	
2	Market-Wide Circuit Breaker Level 2 – Breached	X	
3	Market-Wide Circuit Breaker Level 3 – Breached	X	
9	Republished Limit Up-Limit Down (LULD) Price Band		

…..along with zero-filled bid/offer price and size fields are disseminated over CQS. Prior to re-commencing activity in a security (during an opening delay or trading halt), some of these conditions are used to indicate a probable trading price range (price indication) for a security. A bid and/or an offer will be disseminated without its corresponding size(s), along with the appropriate condition.

━━

_____

BBO- Ineligible Quotes, continued

Quote Condition C - Closing Quote

This condition can be disseminated to indicate that this quote was the last quote for a security for that Participant.

Quote Condition D - News Dissemination

This regulatory Opening Delay or Trading Halt is used when relevant news influencing the security is being disseminated. Trading is suspended until the primary market determines that an adequate publication or disclosure of information has occurred.

Quote Condition G - Trading Range Indication

The condition is used to denote the probable trading range (bid and offer prices, no sizes) of a security that is **not** Opening Delayed or Trading Halted. The Trading Range Indication is used prior to or after the opening of a security.

Quote Condition I - Order Imbalance

This non-regulatory Opening Delay or Trading Halt is used when there is a significant imbalance of buy or sell orders.

Quote Condition J - Due to Related Security-News Dissemination

This regulatory Opening Delay or Trading Halt is used when news, which may influence the price of the security, has been disseminated for a related security. Trading is suspended until the resultant impact is assessed.

Quote Condition K - Due to Related Security-News Pending

This quote condition indicates a regulatory Opening Delay or Trading Halt due to an expected news announcement in a related security. An Opening Delay or Trading Halt may be continued once the news has been disseminated.

_____

BBO-Ineligible Quotes, continued

Quote Condition L - Market Maker Quotes Closed

This condition is disseminated by each individual FINRA Market Maker to signify either the last quote of the day or the premature close of an individual Market Maker for the day. In the latter case, the Market Maker can re-open by transmitting a quote accompanied by the Quote Condition R.

Quote Condition M – Limit Up-Limit Down (LULD) Trading Pause

This quote condition indicates a regulatory Opening Delay or Trading Halt due to conditions in which a security experiences a 10% or more change in price over a five minute period.

Quote Condition N - Non-Firm Quote

This quote condition suspends a Participant's firm quote obligation for a quote for a security.

Quote Condition P - News Pending

This condition is used to indicate a regulatory Opening Delay or Trading Halt due to an expected news announcement, which may influence the security. An Opening Delay or Trading Halt may be continued once the news has been disseminated.

Quote Condition S - Due to Related Security

This non-regulatory Opening Delay or Trading Halt is used when events relating to one security will affect the price and performance of another related security (e.g., a call for redemption of a convertible preferred security or convertible debt security which could affect the related common security). This non-regulatory Opening Delay or Trading Halt is also used when non-regulatory halt reasons such as Order Imbalance, Order Influx and Equipment Changeover are combined with Due to Related Security on CTS.

Quote Condition T - Resume

This quote condition along with zero-filled bid, offer and size fields is used to indicate that trading for a Participant is no longer suspended in a security which had been Opening Delayed or Trading Halted.

BBO-Ineligible Quotes, continued

Quote Condition U - Slow Quote Due to a NYSE Liquidity Replenishment Point (LRP), NYSE MKT Stock Market Tolerance Breach (Spread, Momentum or Gap Trade Tolerance), or Gap Quote on Both the Bid and Offer Sides

This condition indicates that the quote is a "Manual" quote on both the Bid and Offer sides due to an LRP, Tolerance or Gap Quote. While in this mode, auto-execution is not eligible, the quote is then considered manual and non-firm in the Bid and Offer and either or both sides can be traded through as per Regulation NMS.

Quote Condition V - In View of Common

This quote condition is used when matters affecting the common stock of a company affect the performance of the non-common associated securities, e.g., warrants, rights, preferred, classes, etc. Those securities, which must be of the same company, are globally Opening Delayed, Trading Halted, or No Open/No Resume for a Participant in view of the common stock.

Quote Condition X - Equipment Changeover

This non-regulatory Opening Delay or Trading Halt is used when the ability to trade a security by a Participant is temporarily inhibited due to a systems, equipment or communications facility problem or for other technical reasons.

Quote Condition Y – Sub-Penny Trading

This non-regulatory Opening Delay or Trading Halt is used to indicate an Opening Delay or Trading Halt for a security whose price may fall below $1.05, possibly leading to a sub-penny execution.

Quote Condition Z - No Open/No Resume

This quote condition is used to indicate that an Opening Delay or a Trading Halt is to be in effect for the rest of the trading day in a security for a Participant.

_____

BBO-Ineligible Quotes, continued

Quote Condition 0 – Limit Up-Limit Down (LULD) Price Band

This quote condition is used to indicate that a Limit Up-Limit Down Price Band is applicable for a security.

> **Note**: When the Quote Condition code is set to 'Limit Up-Limit Down Price Band' and the Bid and/or Offer prices are zero-filled, it identifies that the previous Price Bands have been removed (zeroed out) and are no longer effective for a security.

Quote Condition 1 – Market-Wide Circuit Breaker Level 1 – Breached

This quote condition is used to indicate that trading is suspended due to the S&P 500 Index reaching a 7% decline level below its closing value on the previous trading day.

Quote Condition 2 – Market-Wide Circuit Breaker Level 2 – Breached

This quote condition is used to indicate that trading is suspended due to the S&P 500 Index reaching a 13% decline level below its closing value on the previous trading day.

Quote Condition 3 – Market-Wide Circuit Breaker Level 3 – Breached

This quote condition is used to indicate that trading is suspended due to the S&P 500 Index reaching a 20% decline level below its closing value on the previous trading day.

Quote Condition 9 – Republish Limit Up-Limit Down (LULD) Price Band

This quote condition is used to indicate that a Limit Up-Limit Down Price Band that is being disseminated is a 'republication' of the latest Price Band for a security.

> **Note**: When the Quote Condition code is set to 'Republished Limit Up-Limit Down (LULD) Price Band', it denotes that the Price Band being disseminated is a 'republish' of the latest Price Band for a security.

APPENDIX H: ALLOWABLE SYMBOL SUFFIXES FOR CQS QUOTES[*]

SUFFIX	DESCRIPTION
- A -	
/A	Series (or Class) A Also Series B-T & V-Z
/A/CL	Series A Called Also Series B-T & V-Z
/A/CV	Series A Convertible Also Series B-T & V-Z
/Aw	Series A When Issued Also Series B-T & V-Z
-C -	
/CL	Called
/CT	Certificates
/CV	Convertible
/CVR	Contingent Value Right
/CV/CL	Convertible Called
- D -	
/DP	Amount of most recent dividend to go "ex-distribution" (CTS Only)
/DV	Accumulated dividend per share, net of expenses, through and including the previous day's close of trading (CTS Only)
- E -	
/EC	EMERGING COMPANY MARKETPLACE[SM]
/EU	Estimated cash amount per creation unit (CTS Only)

[*]**All inclusive list of allowable symbol suffixes. Any combination of suffixes can be represented. Root Symbols for Government Bonds, e.g., TB, TN, US and ZC, and root symbols for Corporate Bonds, e.g., GMC are always followed by a three (3) upper case character suffix.**

APPENDIX H: ALLOWABLE SYMBOL SUFFIXES FOR CQS QUOTES*

SUFFIX	DESCRIPTION
- F -	
/F/N	Foreign News
- I -	
/ID	Index – differentiates an index from a security with the same root symbol
/IV	Intraday Net Asset Value per share
- M -	
/MN	"Mini"
- N -	
/NV	Net Asset Value per share, as of the close on the previous trading day (CTS Only)
- P -	
/PO	Percent Open
/PP	Partial Paid
/PT/CL	Part Called
p	Preferred
pA	Preferred Series A Also Series B-T & V-Z
pA/CV	Preferred Series A Convertible. Also Series B-T & V-Z
pA/CL	Preferred Series A Called Also Series B-T & V-Z
pAw	Preferred Series A When Issued. Also Series B-T & V-Z

*All inclusive list of allowable symbol suffixes. Any combination of suffixes can be represented. Root Symbols for Government Bonds, e.g., TB, TN, US and ZC, and root symbols for Corporate Bonds, e.g., GMC are always followed by a three (3) upper case character suffix.**

ALLOWABLE SYMBOL SUFFIXES FOR CQS QUOTES[*]

SUFFIX	DESCRIPTION
- P -	
pw	Preferred When Issued
p/CL	Preferred Called
p/CV	Preferred Convertible
p/CV/CL	Preferred Convertible Called
p/WD	Preferred When Distributed
p/CA	Indicates Class A of a Second Category of Preferred Also could be B-K and M-S
- R -	
r	Rights
rw	Rights When Issued
- S -	
/SC	Small Corporate Offering Registration
/SD	Stamped
/SO	Current Shares outstanding, in thousands (CTS Only)
/SM	"Mini" Settlement
/SP	Special
/SV	Settlement

*All inclusive list of allowable symbol suffixes. Any combination of suffixes can be represented. Root Symbols for Government Bonds, e.g., TB, TN, US and ZC, and root symbols for Corporate Bonds, e.g., GMC are always followed by a three (3) upper case character suffix.

ALLOWABLE SYMBOL SUFFIXES FOR CQS QUOTES[*]

SUFFIX	DESCRIPTION
- T -	
/TEST	Exclusive suffix used for intraday test messages
/TC	Total cash amount per creation unit in thousands (CTS Only)
/TT	Tier II Securities
- U -	
/U	Units (a combination of securities, composed of two or more warrants, common stocks, preferred stocks and/or Network 'F' bonds)
- V -	
/VR	Variable Common Right
- W -	
/WD	When Distributed
w	When Issued
/WS	Warrants
/W/WS	With Warrants
/WS/A	Warrants Series A Also Series B-T & V-Z
/WSw	Warrants When Issued

[*]**All-inclusive list of allowable symbol suffixes. Any combination of suffixes can be represented. Root Symbols for Government Bonds, e.g., TB, TN, US and ZC, and root symbols for Corporate Bonds, e.g., GMC are always followed by a three (3) upper case character suffix.**

TEMPORARY SUFFIX REPRESENTATION

Note: Temporary Suffixes are represented in a codified "Temporary Suffix" field. Refer   to the Field Descriptions section of this document for the Temporary Suffix codes.

TEMPORARY SUFFIX	REPRESENTATION
Ex-Dividend	XD
Ex-Distribution	XDIS
Ex-Rights	Xr
New	N
Ex-Interest	X\

APPENDIX I - ASCII PRINTABLE CHARACTER BASE 95 (32-126 Inclusive)

ASCII PRINTABLE CHARACTER BASE95 WILL BE EFFECTIVE AUGUST 3, 2015

ASCII	DEC	Description	ASCII	DEC	Description
	32	Space	<	60	Less than
!	33	Exclamation	=	61	Equals
"	34	Double quotes	>	62	Greater than
#	35	Number	?	63	Question mark
$	36	Dollar	@	64	At symbol
%	37	Percent	A	65	Uppercase A
&	38	Ampersand	B	66	Uppercase B
'	39	Single Quote	C	67	Uppercase C
(	40	Open Parenthesis	D	68	Uppercase D
)	41	Close Parenthesis	E	69	Uppercase E
*	42	Asterisk	F	70	Uppercase F
+	43	Plus	G	71	Uppercase G
,	44	Comma	H	72	Uppercase H
-	45	Hyphen	I	73	Uppercase I
.	46	Period	J	74	Uppercase J
/	47	Slash or Divide	K	75	Uppercase K
0	48	Zero	L	76	Uppercase L
1	49	One	M	77	Uppercase M
2	50	Two	N	78	Uppercase N
3	51	Three	O	79	Uppercase O
4	52	Four	P	80	Uppercase P
5	53	Five	Q	81	Uppercase Q
6	54	Six	R	82	Uppercase R
7	55	Seven	S	83	Uppercase S
8	56	Eight	T	84	Uppercase T
9	57	Nine	U	85	Uppercase U
:	58	Colon	V	86	Uppercase V
;	59	Semicolon	W	87	Uppercase W

APPENDIX I - ASCII PRINTABLE CHARACTER BASE 95 (32-126 Inclusive), continued

ASCII PRINTABLE CHARACTER BASE95 WILL BE EFFECTIVE AUGUST 3, 2015

ASCII	DEC	Description	ASCII	DEC	Description
X	88	Uppercase X	u	117	Lowercase u
Y	89	Uppercase Y	v	118	Lowercase v
Z	90	Uppercase Z	w	119	Lowercase w
[	91	Opening bracket	x	120	Lowercase x
\	92	Backslash	y	121	Lowercase y
]	93	Closing bracket	z	122	Lowercase z
^	94	Caret	{	123	Opening Brace
_	95	Underscore	|	124	Vertical Bar
`	96	Grave accent	}	125	Closing Brace
a	97	Lowercase a	~	126	Equivalency Sign-Tilde
b	98	Lowercase b			
c	99	Lowercase c			
d	100	Lowercase d			
e	101	Lowercase e			
f	102	Lowercase f			
g	103	Lowercase g			
h	104	Lowercase h			
i	105	Lowercase i			
j	106	Lowercase j			
k	107	Lowercase k			
l	108	Lowercase l			
m	109	Lowercase m			
n	110	Lowercase n			
o	111	Lowercase o			
p	112	Lowercase p			
q	113	Lowercase q			
r	114	Lowercase r			
s	115	Lowercase s			
t	116	Lowercase t			