SIAC

SECURITIES INDUSTRY AUTOMATION CORPORATION

CONSOLIDATED TAPE SYSTEM

CTS

OUTPUT MULTICAST LINE
INTERFACE SPECIFICATION

Revision: May 13, 2009
Version 52

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

SUMMARY OF CHANGES

VERSION #40A – January 31, 2007	
DESCRIPTION	
Appendix D	Revised: Timeline of CTS Multicast Line Messages for the NYSE Open for select securities (effective February 1, 2007): From: 9:30 AM To: 8:20 AM
	Re-Activation of NASDAQ (effective February 1, 2007) – Hours of Operation: - Market Open – 7:00 AM - Market Close – 8:05 PM (20:05)
VERSION #40A – February 07, 2007	
DESCRIPTION	
Appendix D	Revised: Timeline of CTS Multicast Line Messages for the BSE, CHX and NYSE Open for select securities (effective February 9, 2007): From: 9:30 AM To: 8:20 AM
Appendix H-1	Revised: Consolidated and Participant Open/High/Low/Last Calculation Table for 'Blank' - (No Sale Condition) to 'N/A' (Not Applicable).
Appendix H-2	Revised: "Open/High/Low/Last Calculations" Note #4.
VERSION #40A – February 23, 2007	
DESCRIPTION	
Appendix D	• Revised: Timeline of CTS Multicast Line Messages for the NSX (effective February 26, 2007): -Market Open: From 9:30 AM - To 8:00 AM E.T. -Market Closed: From 4:00 PM - To 6:30 PM E.T.
VERSION #40A – February 28, 2007	
DESCRIPTION	
4-14, 11-20, 11-24 & 11-35, Appendix D	• Renamed: Chicago Board Options Exchange (CBOE) to Chicago Board of Options Stock Exchange (CBSX). • Revised: Timeline of CTS Multicast Line Messages for the CBSX (effective March 05, 2007): -"Market Open": From 9:30 AM - To 9:15 AM E.T.
VERSION #40A –March 02, 2007	
DESCRIPTION	
4-14, 11-20, 11-24 & 11-35, Appendix D	• <u>Correction</u> to Name Revision for CBOE to CBOE Stock Exchange (CBSX) effective March 05, 2007. • Revised: Timeline of CTS Multicast Line Messages for the National Association of Securities Dealers (NASD) effective March 05, 2007: -"Market Close": From 8:00 PM - To 6:30 PM E.T.
VERSION #40B – May 04, 2007	
DESCRIPTION	
Appendix D	Revised: Timeline of CTS Multicast Line Messages for the Boston Stock Exchange (BSE) effective May 07, 2007: -"Market Open": From 9:30 AM - To 8:00 AM E.T. -"Market Closed": From 4:00 PM - To 6:30 PM E.T.

SUMMARY OF CHANGES

VERSION #41 – June 25, 2007	
DESCRIPTION	
11-7,	Added: New code 'Y' in Halt Reason field denoting Sub-Penny Trading
Appendix C-10	Added: Sub-Penny Trading

6-24 thru 6-27, 10-1, 10-4, 10-8, 11-17, 11-27 & 11-33	Added: New 'Index Sign' field utilizing Reserved byte in the following Index messages:
	  ♦ Category Y, Type X - Short Index
	  ♦ Category Y, Type Y - Long Index
	Added new Bid Index Sign and Offer Index Sign fields utilizing Reserved byte in the following Index messages:
	  ♦ Category Y, Type V – Short Bid & Offer Index
	  ♦ Category Y, Type W – Long Bid & Offer Index

VERSION #42 – July 3, 2007	
DESCRIPTION	

11-42-43, Appendix C and H	Deleted an <u>existing</u> Sale Condition (Note: the code may be repurposed at a future date):
	  • 'G'- 'Opening/Reopening Trade Detail'
	Redefined the following <u>existing</u> Sale Condition:
	  • 'H' - From: 'Intraday Trade Detail'
	        To: 'Price Variation Trade'
	Added <u>new</u> Sale Conditions:
	  • 'M' -Market Center Official Close
	  • 'Q' -Market Center Official Open
	  • 'X' -Cross Trade
	Modification to: Processing criteria of Consolidated Last for Sale Condition 'O' – Market Center Opening Trade

VERSION #43 – July 23, 2007	
DESCRIPTION	

11-19 & 11-37	Added new Consolidated High/Low/Last Price Indicator code:
	  • 'H' – High/Low
	Added new Participant Open/High/Low/Last Price Indicator codes:
	  • 'L' – Open/Last
	  • 'M' – Open/High/Low
	  • 'N' – Open/High/Last
	  • 'O' – Open/Low/Last
	  • 'P' – High/Low
	  • 'Q' – High/Low/Last
	Redefined Participant Open/High/Low/Last Price Indicator code:
	  • 'G' – From: 'Not Applicable'
	        To: 'Unused'

Appendix G	Modification to Approximate 'Volume' Administrative Message

SUMMARY OF CHANGES

VERSION #44 – July 31, 2007	
DESCRIPTION	
3-3, 4-3, 4-11, 4-13, 6-1, 9-1 & 9-2	Eliminated All References to: • Category C Type J 'End of Day' and Category C Type K 'End of Retransmission Request' Control Messages
4-7 & 4-8	Modified Message Type Routing of: • Category A Type A 'Start of End of Day Summary' • Category A Type B 'End of End of Day Summary' • Category A Type C 'Start of Start of Day Summary' • Category A Type D 'End of Start of Day Summary' • Category E Type O 'Equity Start of Day Summary' • Category E Type S 'Equity Consolidated End of Day Summary' • Category E Type T 'Equity Participant End of Day Summary'
Summary of Changes Section	Eliminated <u>Summary of Changes</u> VERSION #1 – September 12, 2004 up to and including VERSION #35 – October 19, 2005 (maintaining a 2-year Summary of Changes)

VERSION #45 – October 31, 2007	
DESCRIPTION	
103-105	Added <u>new</u> Sale Condition: • 'V' - Stock-Option Trade
Appendix C/127	Added: Glossary Definition of Stock-Option Trade

VERSION #46 – December 3, 2007	
DESCRIPTION	
Appendix D	Revised: Timeline of CTS Multicast Line Messages for the New York Stock Exchange (NYSE) effective December 13, 2007: -"Market Open": **From** 8:20 a.m. - **To** 9:30 a.m. E.T.
104	Revised Consolidated Last and Participant Last Processing Criteria for: • Sale Condition '4' – Derivatively Priced Trade
24	Modified Message Type Routing of Market Summary Messages with an '**A**' in the Message Network Field: • Category M Type B 'Start of Most Active Issues' • Category M Type C 'Most Active Issues' • Category M Type D 'End of Most Active Issues' • Category M Type E 'Start of Closing Trade Prices' • Category M Type F 'Closing Trade Prices' • Category M Type G 'End of Closing Trade Prices' • Category M Type H 'Start of Closing Bid/Offer Prices' • Category M Type I 'Closing Bid/Offer Prices' • Category M Type J 'End of Closing Bid/Offer Prices'

VERSION #47 – January 29, 2008	
DESCRIPTION	
Appendix C	Revised: Timeline of CTS Multicast Line Messages for the International Securities Exchange (ISE) effective February 11, 2008: -"Market Open": From 9:30 AM - To 9:00 A.M. ET -"Market Closed": From 4:00 PM - To 4:15 P.M. ET

SUMMARY OF CHANGES

VERSION #48 – August 18, 2008	
DESCRIPTION	
30, 97, 101 & 114	Added: New CTS Participant 'BATS Trading' • New Participant ID – 'Z' • New Primary Listing Market ID – 'Z' • New Trade Reporting Facility (TRF) ID – 'Z'
128-129	Added: Timeline of CTS Multicast Line Messages for new CTS Participant 'BATS Trading': -Market Open: 8:00 A.M. ET -Market Closed: 4:00 P.M. ET
VERSION #49 – September 29, 2008	
DESCRIPTION	
Appendix C	Revised: Timeline of CTS Multicast Line Messages for the International Securities Exchange (ISE) effective October, 2008: -"Market Open": From 9:00 AM - To **8:00 A.M. ET** -"Market Closed": From 4:15 PM - To **5:00 P.M. ET**
VERSION #50 – January 05, 2009	
DESCRIPTION	
Appendix C	Revised: Timeline of CTS Multicast Line Messages for the International Securities Exchange (ISE): -"Market Closed": From 5:00 P.M. ET - To **8:00 P.M. ET**
30, 97, 101, 114, 126, 128 & 129	Revised: Participant ID Value: From: National Association of Securities Dealers To: FINRA
VERSION #51 – February 27, 2009	
DESCRIPTION	
All	Revised: Participant ID Value: • From: American Stock Exchange To: NYSE AMEX • From: Boston Stock Exchange To: NASDAQ OMX BX • From: Philadelphia Stock Exchange To: NASDAQ OMX PHLX
22-26, 30, 56 & 68	• Revised: Total number of IP Multicast Lines broadcasting CTS messages: From: 4 lines To: 26 lines • Revised: Message routing by symbol and network over 26 Multicast Lines.
VERSION #52 – May 13, 2009	
DESCRIPTION	
Appendix C - 122	Revised: Timeline of CTS Multicast Line Messages for BATS Trading: -"Market Closed": From 4:00 P.M. E.T. - To 5:00 P.M. ET

1.0   INTRODUCTION

1.1 BACKGROUND

The Securities Industry Automation Corporation (SIAC) has continuously served as the "Processor" for the Consolidated Tape Plan from its inception on April 30, 1976. In fulfilling its role as the Processor, SIAC plans, develops, operates, and maintains the Consolidated Tape System (CTS).

CTS receives, validates and sequences the last sale price and size of all equity transactions in listed securities from all U.S. Stock Exchanges and the Financial Industry Regulatory Authority. This information is made available via computer-to-computer linkages and ticker networks to the financial community in the U.S. and abroad.

Essential in ensuring the timely reporting of trade information are the CTS Multicast Line (ML) output facilities. Approved subscribers of the CTS service can redistribute CTS 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 "A" identifier represents last sales for NYSE listed securities traded by CTS Participants. A "B" identifier represents last sales for securities that are listed on the NYSE AMEX, securities eligible for the NYSE AMEX listing but traded solely by Regional Exchanges, Local Issues and Bonds. CTS also generates the Tape A and Tape B visual Low Speed Ticker (LST).

1.2 DUAL SITE REDUNDANCY

Computer systems that support the processing and dissemination of consolidated trades are operational at two data centers are 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 and quote 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 CTS 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 CTS 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".

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 including the 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 Separator (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. Zeros (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

CTS 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 Transmission message.

AutoLink, a PC based facility, is utilized for automatically receiving and processing CTS message retransmission requests. AutoLink works in conjunction with the Retransmission and Playback System (RAPS), a server associated with the CTS host, which reads CTS production data and supports retransmissions. In addition, during non-production hours, RAPS can be used to transmit test data.

Utilizing AutoLink, a Data Recipient may request retransmission(s) from a touch-tone telephone set. The facility has automatically generated voice responses prompting a Data Recipient to enter information for retransmission requests. Each Data Recipient is assigned a user logon identification number, password and a unique retransmission requester ID code. Data Recipients would first call AutoLink. Then, after entering logon identifiers and passwords, they would be prompted to enter the appropriate data "lines" on which the "gap" occurred and the sequence number(s) to be retransmitted. The request is forwarded to an associated RAPS server which transmits the requested messages over a set of Retransmission IP multicast groups. Reference the AutoLink User Guide which may be obtained at the following website: www.nysedata.com under Support/Documentation/Technical.

When a message is retransmitted, its retransmission requester field contains the unique character 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, CTS 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

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 CTS Control Center and provide the timeframe required or the first and last message number in the sequence range to be retransmitted.

When a message is retransmitted, its retransmission requester field contains the character(s) identifying the data recipient who requested the retransmission.

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

4.0   MESSAGE HEADER

The Message Header supplied on each message contains a total **24 Bytes** and conforms in all cases to the following data fields:

MESSAGE CATEGORY	MESSAGE TYPE	MESSAGE NETWORK	RETRANSMISSION REQUESTER	HEADER IDENTIFIER	RESERVED
1	1	1	2	1	2

|<---8 BYTES--->|

MESSAGE SEQUENCE NUMBER	PARTICIPANT ID	TIME STAMP
9	1	6

|<------------------------- 16 BYTES ----------------------->|

4.1 MESSAGE CATEGORY

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

Code	Value
A	Administrative
B	Bond
C	Control
E	Listed Equity
L	Local Issue
M	Market Summary
Y	Index

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:

Message Category	Message Type	Value
ADMINISTRATIVE, ANNOUNCEMENT & VOLUME MESSAGES		
A	A	Start of End of Day Summary
A	B	End of End of Day Summary
A	C	Start of Start of Day Summary
A	D	End of Start of Day Summary
A	H	Administrative Unformatted (free form text)
A	S	Market Volume and Index
BOND MESSAGES		
B	B	Bond Long Trade
B	F	Bond Trading Status
B	J	Bond Prior Day
B	K	Bond Prior Day Correction
B	L	Bond Prior Day Cancel/Error
B	O	Bond Start of Day Summary
B	P	Bond Correction
B	Q	Bond Cancel/Error
B	S	Bond Consolidated End of Day Summary
B	T	Bond Participant End of Day Summary
CONTROL MESSAGES		
C	I	Start of Day
C	L	Reset Message Sequence Number
C	M	Start of Test Cycle
C	N	End of Test Cycle
C	T	Line Integrity
C	Z	End of Transmission

*Category codes are repeated for clarification.

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.**

Message Types (continued)

Message Category	Message Type	Value
* EQUITY MESSAGES		
E	B	Equity Long Trade
E	F	Equity Trading Status
E	I	Equity Short Trade
E	J	Equity Prior Day
E	K	Equity Prior Day Correction
E	L	Equity Prior Day Cancel/Error
E	O	Equity Start of Day Summary
E	P	Equity Correction
E	Q	Equity Cancel/Error
E	S	Equity Consolidated End of Day Summary
E	T	Equity Participant End of Day Summary
* LOCAL ISSUE MESSAGES		
L	B	Local Issue Long Trade
L	F	Local Issue Trading Status
L	I	Local Issue Short Trade
L	J	Local Issue Prior Day
L	K	Local Issue Prior Day Correction
L	L	Local Issue Prior Day Cancel/Error
L	O	Local Issue Start of Day Summary
L	P	Local Issue Correction
L	Q	Local Issue Cancel/Error
L	S	Local Issue Consolidated Local Issue End of Day Summary
L	T	Local Issue Participant Local Issue End of Day Summary

*Category codes are repeated for clarification.

| 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. |

Message Types (continued)

Message Category	Message Type	Value
		MARKET SUMMARY MESSAGES
M	B	Start of Closing Trade Prices (For Most Active Stocks)
M	C	Most Active Issues Closing Trade Prices
M	D	End of Closing Trade Prices (For Most Active Stocks)
M	E	Start of Closing Trade Prices
M	F	NYSE or NYSE AMEX Closing Trade Prices
M	G	End of Closing Trade Prices
M	H	Start of Closing Bid/Offer Prices
M	I	Closing Bid/Offer Prices
M	J	End of Closing Bid/Offer Prices
M	N	Approximate Adjusted Volume Market Center
M	O	Approximate Total Trades and Dollar Value
M	P	Crossing Session Summary
		INDEX MESSAGES
Y	X	Short Index
Y	Y	Long Index
Y	V	Short Bid and Offer Index
Y	W	Long Bid and Offer Index

*Category codes are repeated for clarification.

> **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:

Message Network Field Value	Description
A	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.
B	Message relates to symbols with NYSE AMEX 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 AMEX.
C	Message relates to all the Exchanges

CTS messages are disseminated over a total of twenty-six (26) IP Multicast lines:

- **For messages with 'A' in the Network field, there are twelve (12) lines dedicated to listed equity messages.**
- **For messages with 'B' in the Network field, there are twelve (12) lines dedicated to listed equity, bond and local issue messages.**
- **For messages with 'A' and/or 'B' in the Network field, there are two (2) lines dedicated to Index messages.**
- **Messages with "C" in the network field can be sent across any or all lines depending on the message routing rules listed in the following section.**

4.4 MESSAGE ROUTING

Traffic for Network 'A' and Network 'B' messages are routed by network and security symbol to twenty-six (26) assigned multicast lines as follows:

MESSAGE ROUTING					
Traffic for Network 'A' and Network 'B' Messages are routed by Network and Security Symbol as follows:					
Multicast Lines	Symbol Range Distribution		Multicast Lines	Symbol Range Distribution	
Network 'A'	From	To	Network 'B'	From	To
1	A	BZZZZZ	1	A	BZZZZZ
2	C	DZZZZZ	2	C	DZZZZZ
3	E	FZZZZZ	3	E	FZZZZZ
4	G	HZZZZZ	4	G	HZZZZZ
5	I	JZZZZZ	5	I	JZZZZZ
6	K	LZZZZZ	6	K	LZZZZZ
7	M	NZZZZZ	7	M	NZZZZZ
8	O	PZZZZZ	8	O	PZZZZZ
9	Q	RZZZZZ	9	Q	RZZZZZ
10	S	TZZZZZ	10	S	TZZZZZ
11	U	WZZZZZ	11	U	WZZZZZ
12	X	ZZZZZZ	12	X	ZZZZZZ

INDEX MESSAGE ROUTING		
Traffic for Network 'A' and Network 'B' Index Messages are routed by index symbol as follows:		
Multicast Lines	Symbol Range Distribution	
Network 'A' & 'B'	From	To
1	A	MZZZZZ
2	N	ZZZZZZ

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

Message Routing, continued

Distribution of Message Types over a total of twenty-six (26) multicast lines:

Message Category	Message Type	Value	Distribution of Message Types over 24 Multicast Lines	
			Network 'A'	Network 'B'
ADMINISTRATIVE & ANNOUNCEMENT MESSAGES - (With 'C' in the Network field are disseminated over all lines.)				
A	A	Start of End of Day Summary	L1-12	L1-12
A	B	End of End of Day Summary	L1-12	L1-12
A	C	Start of Start of Day Summary	L1-12	L1-12
A	D	End of Start of Day Summary	L1-12	L1-12
A	H	Administrative Unformatted (free form text)	L1-12	L1-12
VOLUME MESSAGES				
A	S	Market Volume and Index	L1-12	N/A
BOND MESSAGES				
B	B	Bond Long Trade	N/A	L1-12
B	F	Bond Trading Status	N/A	L1-12
B	J	Bond Prior Day	N/A	L1-12
B	K	Bond Prior Day Correction	N/A	L1-12
B	L	Bond Prior Day Cancel/Error	N/A	L1-12
B	O	Bond Start of Day Summary	N/A	L1-12
B	P	Bond Correction	N/A	L1-12
B	Q	Bond Cancel/Error	N/A	L1-12
B	S	Bond Consolidated End of Day Summary	N/A	L1-12
B	T	Bond Participant End of Day Summary	N/A	L1-12
CONTROL MESSAGES (With 'C' in the Network field are disseminated over any or all lines.)				
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	T	Line Integrity	L1-12	L1-12
C	Z	End of Transmission	L1-12	L1-12

> **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-six (26) multicast lines:

Message Category	Message Type	Value	Distribution of Message Types over 24 Multicast Lines	
			Network A	Network B
EQUITY MESSAGES				
E	B	Equity Long Trade	L1-12	L1-12
E	F	Equity Trading Status	L1-12	L1-12
E	I	Equity Short Trade	L1-12	L1-12
E	J	Equity Prior Day	L1-12	L1-12
E	K	Equity Prior Day Correction	L1-12	L1-12
E	L	Equity Prior Day Cancel/Error	L1-12	L1-12
E	O	Equity Start of Day Summary	L1-12	L1-12
E	P	Equity Correction	L1-12	L1-12
E	Q	Equity Cancel/Error	L1-12	L1-12
E	S	Equity Consolidated End of Day Summary	L1-12	L1-12
E	T	Equity Participant End of Day Summary	L1-12	L1-12
LOCAL ISSUE MESSAGES				
L	B	Local Issue Long Trade	N/A	L1-12
L	F	Local Issue Trading Status	N/A	L1-12
L	I	Local Issue Short Trade	N/A	L1-12
L	J	Local Issue Prior Day	N/A	L1-12
L	K	Local Issue Prior Day Correction	N/A	L1-12
L	L	Local Issue Prior Day Cancel/Error	N/A	L1-12
L	O	Local Issue Start of Day Summary	N/A	L1-12
L	P	Local Issue Correction	N/A	L1-12
L	Q	Local Issue Cancel/Error	N/A	L1-12
L	S	Local Issue Consolidated Local Issue End of Day Summary	N/A	L1-12
L	T	Local Issue Participant Local Issue End of Day Summary	N/A	L1-12

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

Message Routing, continued

Distribution of Message Types over a total of twenty-six (26) multicast lines:

Message Category	Message Type	Value	Distribution of Message Types over 24 Multicast Lines	
			Network A	Network B
MARKET SUMMARY MESSAGES				
M	B	Start of Closing Trade Prices (For Most Active Stocks)	L1-12	L1-12
M	C	Most Active Issues Closing Trade Prices	L1-12	L1-12
M	D	End of Closing Trade Prices (For Most Active Stocks)	L1-12	L1-12
M	E	Start of Closing Trade Prices	L1-12	L1-12
M	F	NYSE or NYSE AMEX Closing Trade Prices	L1-12	L1-12
M	G	End of Closing Trade Prices	L1-12	L1-12
M	H	Start of Closing Bid/Offer Prices	L1-12	L1-12
M	I	Closing Bid/Offer Prices	L1-12	L1-12
M	J	End of Closing Bid/Offer Prices	L1-12	L1-12
M	N	Approximate Adjusted Volume Market Center	L1-12	L1-12
M	O	Approximate Total Trades and Dollar Value	L1-12	L1-12
M	P	Crossing Session Summary	L1-12	L1-12

Message Category	Message Type	Value	Distribution of Index Message Types over 2 Multicast Lines
			Network 'A' & 'B'
INDEX MESSAGES			
Y	X	Short Index	L1-2
Y	Y	Long Index	L1-2
Y	V	Short Bid and Offer Index	L1-2
Y	W	Long Bid & Offer Index	L1-2

> **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.

4.5 RETRANSMISSION REQUESTER

The Retransmission Requester field is 2 Bytes, Alphabetic/Special Character, Left Justified, 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), and space 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 **all** Data Recipients. A unique identification character(s) is assigned to each participating data recipient.

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

4.6 HEADER IDENTIFIER

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

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

4.7 RESERVED

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.

4.8 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) messages, which are 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.

4.9 CTS FAILURE AND RECOVERY-TREATMENT OF MESSAGE SEQUENCE NUMBER

TYPE of RESTART	RECOVERY CONDITION
"WARM"	CTS failed but able to recover; MSNs are transmitted without a gap. Upon recovery, possible duplicate sequence numbers may be sent.
"COLD"	CTS failed and unable to perform a WARM recovery; the first MSN after recovery is reset to the next 100,000 from the last number transmitted before failure and incremented thereafter.

4.10 PARTICIPANT ID

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

Code	Value
A	NYSE AMEX
B	NASDAQ OMX BX
C	National Stock Exchange
D	FINRA
I	International Securities Exchange
M	Chicago Stock Exchange
N	New York Stock Exchange
P	NYSE Arca ^{SM}
T	NASDAQ OMX
S	Consolidated Tape System
W	CBOE Stock Exchange
X	NASDAQ OMX PHLX
Z	BATS Trading

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.**

4.11 TIME STAMP

The Time Stamp 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.

The Time Stamp indicates the Time that a transaction is disseminated over the Multicast line(s). For Retransmissions, the Time will reflect the original Time that the message was disseminated. A Time conversion table listing the USASCII, Hexadecimal and Decimal representations for **HMS** (the first 3 Bytes) is provided in **Appendix I.**

5.0   MESSAGE FORMATS

Each message transmitted by CTS consists of a Message Header and a Message Text. The Message Category and Type determine the format of the text. Message formats are fixed field formats (with the exception of Administrative and some Control messages which have unformatted text). Trade messages are disseminated over twenty-six multicast lines according to network and 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.

5.2 GLOSSARY

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

5.3 SUMMARY OF DAILY CTS MULTICAST LINE MESSAGES

A summary of a daily CTS Multicast Line messages along with "CTS post 4:00 p.m. Market Summary Messages' timeline are provided in **Appendix C**.

6.0 MESSAGE CATEGORIES AND TYPES

6.1 START OF DAY SUMMARY

MINIMUM 90 BYTES
PARTICIPANT DATA PORTION CAN INCLUDE UP TO 26 PARTICPANTS

The Start of Day (SOD) Summary messages are transmitted shortly after the Multicast Line "Start of Day" messages. The Participant ID field of the Message Header is populated with 'S', signifying that the message is generated by the Consolidated Tape System. It provides, by security, Consolidated and Participant previous close price and previous close price date information for CTA eligible securities, Local Issues, and Bonds. In instances when an issue trades on only one Exchange for the day, both the Consolidated and Participant summary information are identical. **If there is no price associated with a security, e.g., an Initial Public Offering (IPO), no Start of Day Summary message is generated for that security.** Other messages can be intermingled within this message transmission. This message transmission is preceded and ended by Start of Day Summary and End of Start of Day Summary administrative textual messages.

Message Category	Message Type
B	**O**
E	**O**
L	**O**

GENERAL

SECURITY SYMBOL	TEMPORARY SUFFIX	FINANCIAL STATUS	CURRENCY INDICATOR	INSTRUMENT TYPE	RESERVED
11	1	1	3	1	11

|<---28 BYTES--->|

CONSOLIDATED DATA

PARTICIPANT ID	PREVIOUS CLOSE PRICE DEMONINATOR INDICATOR	PREVIOUS CLOSE PRICE	PREVIOUS CLOSE PRICE DATE	RESERVED
1	1	12	6	10

|<---------------------------------------30 BYTES -->|

START OF DAY SUMMARY, continued

NUMBER OF ITERATIONS

NUMBER OF ITERATIONS 2

|<--2 BYTES -->|

PARTICIPANT DATA
(CAN INCLUDE UP TO 26 PARTICIPANTS)

PARTICIPANT ID	PREVIOUS CLOSE PRICE DENOMINATOR INDICATOR	PREVIOUS CLOSE PRICE	PREVIOUS CLOSE PRICE DATE	RESERVED
1	1	12	6	10

| <-- 30 BYTES -->|

6.2 SHORT TRADE

20 BYTES

The Short Trade format is used **only** if the trade meets all the field restrictions noted below. If any of the field restrictions are **not** met, the Long Trade format is used.

Field Restrictions:

Use the Short Trade format only if:

a)	The Security symbol does not exceed 3 bytes.
b)	A Temporary Suffix is not required.
c)	The Trade Reporting Facility (TRF) Identifier is not required.
d)	The Financial Status Indicator is not required.
e)	The currency is in U.S. Dollars.
f)	At most, there is one sale condition.
g)	Seller's Sale Days is not required.
h)	Price meets the requirements for a 8 byte price field. (Refer to Section 10: 'Price Denominator Indicator' field description)
i)	The volume does not exceed 9999 (4 bytes).
j)	The Stop Stock Indicator field is not required.
k)	The trade is not a Held Trade.
l)	The trade is not a Bond trade.
m)	Instrument Type is not required.
n)	The Trade Through Exempt Indicator is not required.
o)	The Primary Listing Market Participant Identifier is not required.

Message Category	Message Type
E	I
L	I

SECURITY SYMBOL	SALE CONDITION	TRADE VOLUME	PRICE DENOMINATOR INDICATOR	TRADE PRICE
3	1	4	1	8

|<-- 17 BYTES -->|

CONSOLIDATED HIGH/LOW/LAST PRICE INDICATOR	PARTICIPANT OPEN/HIGH/LOW/ LAST PRICE INDICATOR	RESERVED
1	1	1

<------------------------------------ 3 BYTES ------------------------------------>|

6.3 LONG TRADE

58 BYTES

The Long Trade format is used to report trade information that does **not** meet the Short Trade format.
Note: The Trade Reporting Facility (TRF) Identifier is restricted to Equity trades.

Message Category	Message Type
B	B
E	B
L	B

SECURITY SYMBOL	TEMPORARY SUFFIX	TEST MESSAGE INDICATOR	TRADE REPORTING FACILITY IDENTIFIER	PRIMARY LISTING MARKET PARTICIPANT IDENTIFIER	RESERVED	FINANCIAL STATUS
11	1	1	1	1	1	1

|<--- 17 BYTES --->|

CURRENCY INDICATOR	HELD TRADE INDICATOR	INSTRUMENT TYPE	SELLER'S SALE DAYS	SALE CONDITION	TRADE THROUGH EXEMPT INDICATOR	RESERVED
3	1	1	3	4	1	2

|<--- 15 BYTES --->|

PRICE DENOMINATOR INDICATOR	TRADE PRICE	TRADE VOLUME	CONSOLIDATED HIGH/LOW/ LAST PRICE INDICATOR	PARTICIPANT OPEN/HIGH/ LOW/LAST PRICE INDICATOR	RESERVED	STOP STOCK INDICATOR
1	12	9	1	1	1	1

|<---26 BYTES --->|

6.4 CORRECTION

264 BYTES

The Correction format is used to correct a CTA eligible security* (see Note 2), a Local Issue or a Bond transaction. The output sequence number to be corrected will reflect the sequence number of either the original trade, or, if the original trade has already been corrected, of the most recent correction to the trade. Included in the Correction message is the current status of the Consolidated Last, High, Low, Volume, and Previous Close Price Date and the Participant's Open, High, Low, Last, Previous Close Price Date, Volume, and Tick at the time of the correction for the affected security. In instances when an issue trades only on one exchange for the day, both the Consolidated and the Participant summary information are identical. In cases where no trades qualify to update the Last Price, the Previous Close Price is provided and the Previous Close Price Date field is populated.

*Note: The Trade Reporting Facility (TRF) Identifier is restricted to Equity transactions.

Message Category	Message Type
B	P
E	P
L	P

GENERAL TRADE INFORMATION

RESERVED	PRIMARY LISTING MARKET PARTICIPANT IDENTIFIER	TRADE REPORTING FACILITY IDENTIFIER	SECURITY SYMBOL	TEMPORARY SUFFIX
5	1	1	11	1

|<---19 BYTES-->|

FINANCIAL STATUS	CURRENCY INDICATOR	INSTRUMENT TYPE	OUTPUT SEQUENCE NUMBER OF TRANSACTION BEING ADJUSTED	RESERVED
1	3	1	9	1

|<----------------------------------15 BYTES-->|

CORRECTION, continued

ORIGINAL TRADE INFORMATION

SELLER'S SALE DAYS	SALE CONDITION
3	4

|<----------- 7 BYTES ---------->|

PRICE DENOMINATOR INDICATOR	TRADE PRICE	TRADE VOLUME	STOP STOCK INDICATOR	TRADE THROUGH EXEMPT INDICATOR	RESERVED
1	12	9	1	1	9

|<------------------------------------- 33 BYTES ------------------------------------->|

CORRECTED TRADE INFORMATION

SELLER'S SALE DAYS	SALE CONDITION
3	4

|<----------- 7 BYTES ---------->|

PRICE DENOMINATOR INDICATOR	TRADE PRICE	TRADE VOLUME	STOP STOCK INDICATOR	TRADE THROUGH EXEMPT INDICATOR	RESERVED
1	12	9	1	1	9

|<------------------------------------- 33 BYTES ------------------------------------->|

CORRECTION, continued

CONSOLIDATED DATA

LAST PARTICIPANT ID	LAST PRICE DENOMINATOR INDICATOR	LAST PRICE	PREVIOUS CLOSE PRICE DATE	HIGH PRICE DENOMINATOR INDICATOR	HIGH PRICE
1	1	12	6	1	12

|<---33 BYTES--->|

LOW PRICE ENOMINATOR INDICATOR	LOW PRICE	TOTAL VOLUME	RESERVED
1	12	11	11

|<-------------------------------- 35 BYTES --------------------------------->|

PARTICIPANT DATA

LAST PRICE DENOMINATOR INDICATOR	LAST PRICE	PREVIOUS CLOSE PRICE DATE	TOTAL VOLUME	TICK	OPEN PRICE DENOMINATOR INDICATOR	OPEN PRICE
1	12	6	11	1	1	12

|<--44 BYTES--->|

HIGH PRICE DENOMINATOR INDICATOR	HIGH PRICE	LOW PRICE DENOMINATOR INDICATOR	LOW PRICE	RESERVED
1	12	1	12	12

|<--------------------------------------- 38 BYTES--->|

6.5 CANCEL/ERROR

224 BYTES

The Cancel/Error format is used for CTA eligible securities* (see Note 2), Local Issues or Bonds to either report the cancellation of a trade (buyer and seller agrees to cancel a trade) or error a trade that never took place but was reported. The output sequence number to be corrected will reflect the sequence number of either the original trade, or, if the original trade has already been corrected, of the most recent correction to the trade. **Corrections are not applied to a cancelled or error trade. If a correction to a cancelled or error trade is required, the Participant will enter as a new trade.** Included in the Cancel/Error message is the current status of the Consolidated Last, High, Low, Volume, and Previous Close Price Date and the Participant's Open, High, Low, Last, Previous Close Price Date, Volume, and Tick at the time of the cancel/error. In instances when an issue trades only on one Exchange for the day, both the Consolidated and the Participant summary information are identical. In cases where no trades qualify to update the Last Price, the Previous Close Price is provided and the Previous Close Price Date field is populated.

*Note: The Trade Reporting Facility (TRF) Identifier is restricted to Equity transactions.

Message Category	Message Type
B	Q
E	Q
L	Q

GENERAL TRADE INFORMATION

RESERVED	PRIMARY LISTING MARKET PARTICIPANT IDENTIFIER	TRADE REPORTING FACILITY IDENTIFIER	SECURITY SYMBOL	TEMPORARY SUFFIX	FINANCIAL STATUS
5	1	1	11	1	1

|<---20 BYTES--->|

CURRENCY INDICATOR	INSTRUMENT TYPE	CANCEL/ERROR ACTION	OUTPUT SEQUENCE NUMBER OF TRANSACTION BEING ADJUSTED
3	1	1	9

|<--14 BYTES--->|

CANCEL/ERROR, continued

ORIGINAL TRADE INFORMATION

SELLER'S SALE DAYS	SALE CONDITION
3	4

|<------------- 7 BYTES ----------->|

PRICE DENOMINATOR INDICATOR	TRADE PRICE	TRADE VOLUME	STOP STOCK INDICATOR	TRADE THROUGH EXEMPT INDICATOR	RESERVED
1	12	9	1	1	9

|<---33 BYTES-->|

CONSOLIDATED DATA

LAST PARTICIPANT ID	LAST PRICE DENOMINATOR INDICATOR	LAST PRICE	PREVIOUS CLOSE PRICE DATE
1	1	12	6

|<----------------------------------20 BYTES---------------------------------->|

HIGH PRICE DENOMINATOR INDICATOR	HIGH PRICE	LOW PRICE DENOMINATOR INDICATOR	LOW PRICE	TOTAL VOLUME	RESERVED
1	12	1	12	11	11

|<--- 48 BYTES --->|

CANCEL/ERROR, continued

PARTICIPANT DATA

LAST PRICE DENOMINATOR INDICATOR	LAST PRICE	PREVIOUS CLOSE PRICE DATE	TOTAL VOLUME	TICK
1	12	6	11	1

|<-- 31 BYTES-->|

OPEN PRICE DENOMINATOR INDICATOR	OPEN PRICE	HIGH PRICE DENOMINATOR INDICATOR	HIGH PRICE	LOW PRICE DENOMINATOR INDICATOR	LOW PRICE	RESERVED
1	12	1	12	1	12	12

|<--- 51 BYTES --->|

6.6 TRADING STATUS

90 BYTES

The Trading Status format is transmitted when a Participant that is a Primary Market in a CTA eligible security, Local Issue or a Bond elects to notify CTS of an Opening Delay, a Trading Halt, a Trading Resume, a Price Indication or a Market Imbalance.

Message Category	Message Type
B	**F**
E	**F**
L	**F**

GENERAL TRADE INFORMATION

SECURITY SYMBOL	TEMPORARY SUFFIX	RESERVED	FINANCIAL STATUS	CURRENCY INDICATOR	INSTRUMENT TYPE
11	1	4	1	3	1

|<--- 21 BYTES -->|

SECURITY STATUS	HALT REASON	DUE TO RELATED SECURITY INDICATOR	IN VIEW OF COMMON INDICATOR	LAST PRICE DENOMINATOR INDICATOR	LAST PRICE
1	1	1	1	1	12

|<--- 17 BYTES -->|

STATUS INDICATOR	HIGH INDICATION PRICE DENOMINATOR INDICATOR	HIGH INDICATION PRICE	LOW INDICATION PRICE DENOMINATOR INDICATOR	LOW INDICATION PRICE
1	1	12	1	12

|<-------------------------------------- 27 BYTES-------------------------------------->|

RESERVED	BUY VOLUME	SELL VOLUME	RESERVED
1	9	9	6

|<--------------------------------- 25 BYTES --------------------------------->|

6.7 CONSOLIDATED END OF DAY SUMMARY

98 BYTES

The Consolidated End of Day (EOD) Summary messages are transmitted shortly before the "Goodnight" messages. The Participant ID field of the Message Header is populated with 'S', signifying that the message is generated by the Consolidated Tape System. The Consolidated EOD Summary message provides by security, the Consolidated High, Low, Last, Previous Close Price Date and Volume for CTA eligible securities, Local Issues and Bonds. In cases where no trades qualify to update the Last Price, the Last Price field will provide the security's Previous Close Price and the Previous Close Price Date field will be populated.

Note: If a trade qualifies to update the Last, the Previous Price Close Date field will be space filled. If there is no trading activity for a security for the day, then no Consolidated EOD Summary and no Participant EOD Summary will be generated for that security.

Message Category	Message Type
B	S
E	S
L	S

GENERAL

SECURITY SYMBOL	TEMPORARY SUFFIX	FINANCIAL STATUS	CURRENCY INDICATOR	INSTRUMENT TYPE	RESERVED
11	1	1	3	1	11

|<-- 28 BYTES -->|

CONSOLIDATED END OF DAY SUMMARY, continued

LAST PARTICIPANT ID	LAST PRICE DENOMINATOR INDICATOR	LAST PRICE	PREVIOUS CLOSE PRICE DATE	HIGH PRICE DENOMINATOR INDICATOR	HIGH PRICE
1	1	12	6	1	12

|<-- 33 BYTES -->|

LOW PRICE DENOMINATOR INDICATOR	LOW PRICE	TOTAL VOLUME	RESERVED
1	12	11	11

|<----------------------------- 35 BYTES ----------------------------->|

NUMBER OF PARTICIPANTS

NUMBER OF PARTICIPANTS
2

|<--2 BYTES -->|

6.8 PARTICIPANT END OF DAY SUMMARY
92 BYTES

The Participant End of Day (EOD) Summary messages are transmitted shortly before the "Goodnight" messages. The Participant ID field of the Message Header is populated with 'S', signifying that the message is generated by the Consolidated Tape System. The Participant EOD Summary message provides by security, the Participant Open, High, Low, Last, Previous Close Price Date, Volume and Tick information for CTA eligible securities, Local Issues and Bonds.   In cases where no trades qualify to update the Last Price, the Last Price field will provide the security's Previous Close Price and the Previous Close Price Date field will be populated.

Note: If a trade qualifies to update the Last, the Previous Price Close Date field will be space filled. If there is no trading activity for a security for the day, then no Participant EOD Summary and no Consolidated EOD Summary will be generated for that security.

Message Category	Message Type
B	T
E	T
L	T

SECURITY SYMBOL	TEMPORARY SUFFIX
11	1

|<---------- 12 BYTES --------->|

PARTICIPANT END OF DAY SUMMARY, continued

PARTICIPANT ID	LAST PRICE DENOMINATOR INDICATOR	LAST PRICE	PREVIOUS CLOSE PRICE DATE	TOTAL VOLUME	TICK
1	1	12	6	11	1

|<-- 32 BYTES -->|

OPEN PRICE DENOMINATOR INDICATOR	OPEN PRICE	HIGH PRICE DENOMINATOR INDICATOR	HIGH PRICE	LOW PRICE DENOMINATOR INDICATOR	LOW PRICE	RESERVED
1	12	1	12	1	12	9

|<-- 48 BYTES -->|

6.9 PRIOR DAY TRADE

72 BYTES

The Prior Day Trade format is used to report a trade that occurred earlier than the current day and was not reported.
*Note: The Trade Reporting Facility (TRF) Identifier is restricted to Equity transactions.

Message Category	Message Type
B	**J**
E	**J**
L	**J**

PRIOR DAY TRADE DATE (MMDDYY)	RESERVED	PRIOR DAY TRADE TIME (HMS)	SECURITY SYMBOL	TEMPORARY SUFFIX	FINANCIAL STATUS
6	2	3	11	1	1

|<--- 24 BYTES -->|

CURRENCY INDICATOR	TRADE THROUGH EXEMPT INDICATOR	INSTRUMENT TYPE	SELLER'S SALE DAYS	SALE CONDITION
3	1	1	3	4

|<-- 12 BYTES-->|

PRICE DENOMINATOR INDICATOR	TRADE PRICE	TRADE VOLUME	STOP STOCK INDICATOR	TRADE REPORTING FACILITY IDENTIFIER	PRIMARY LISTING PARTICIPANT IDENTIFIER	RESERVED
1	12	9	1	1	1	11

|<--- 36 BYTES -->|

6.10 PRIOR DAY CORRECTION

138 BYTES

The Prior Day Correction format is used to correct a CTA eligible security* (see Note), a Local Issue or a Bond transaction originally reported earlier than or during the current day using the Prior Day Trade format. All other corrections should be reported using the Correction format.
*Note: The Trade Reporting Facility (TRF) Identifier is restricted to Equity transactions.

Message Category	Message Type
B	**K**
E	**K**
L	**K**

GENERAL TRADE INFORMATION

SECURITY SYMBOL	TEMPORARY SUFFIX
11	1

|<-------------- 12 BYTES ----------->|

FINANCIAL STATUS	CURRENCY INDICATOR	INSTRUMENT TYPE	TRADE REPORTING FACILITY IDENTIFIER	PRIMARY LISTING MARKET PARTICIPANT IDENTIFIER	RESERVED
1	3	1	1	1	11

|<-- 18 BYTES -->|

ORIGINAL TRADE INFORMATION

PRIOR DAY TRADE DATE (MMDDYY)	RESERVED	PRIOR DAY TRADE TIME (HMS)	SELLER'S SALE DAYS	SALE CONDITION
6	2	3	3	4

|<-- 18 BYTES -->|

PRICE DENOMINATOR INDICATOR	TRADE PRICE	TRADE VOLUME	STOP STOCK INDICATOR	TRADE THROUGH EXEMPT INDICATOR	RESERVED
1	12	9	1	1	12

|<-- 36 BYTES -->|

PRIOR DAY CORRECTION, continued

CORRECTED TRADE INFORMATION

PRIOR DAY TRADE DATE (MMDDYY)	RESERVED	PRIOR DAY TRADE TIME (HMS)	SELLER'S SALE DAYS	SALE CONDITION
6	2	3	3	4

|<--- 18 BYTES --->|

PRICE DENOMINATOR INDICATOR	TRADE PRICE	TRADE VOLUME	STOP STOCK INDICATOR	TRADE THROUGH EXEMPT INDICATOR	RESERVED
1	12	9	1	1	12

|<--- 36 BYTES --->|

6.11 PRIOR DAY CANCEL/ERROR

86 BYTES

The Prior Day Trade Cancel/Error format is used for CTA eligible securities*, Local Issues or Bonds to report the cancellation of a trade (buyer and seller agrees to cancel a trade) or error a trade that never took place but was reported. This format is strictly used to cancel/error a trade or correction originally reported earlier than or during the current day using the Prior Day Trade format or Prior Day Correction formats. All other cancel/error messages should be reported using the Cancel/Error format. ***Note: The Trade Reporting Facility (TRF) Identifier is restricted to Equity transactions.**

Message Category	Message Type
B	L
E	L
L	L

GENERAL TRADE INFORMATION

SECURITY SYMBOL	TEMPORARY SUFFIX	FINANCIAL STATUS
11	1	1

|<------------------- 13 BYTES --------------------->|

CURRENCY INDICATOR	INSTRUMENT TYPE	CANCEL/ ERROR ACTION	TRADE REPORTING FACILITY IDENTIFIER	PRIMARY LISTING MARKET PARTICIPANT IDENTIFIER	RESERVED
3	1	1	1	1	12

|<-- 19 BYTES -->|

PRIOR DAY CANCEL/ERROR, continued

ORIGINAL TRADE INFORMATION

PRIOR DAY TRADE DATE (MMDDYY)	RESERVED	PRIOR DAY TRADE TIME (HMS)	SELLER'S SALE DAYS	SALE CONDITION
6	2	3	3	4

|<-- 18 BYTES -->|

PRICE DENOMINATOR INDICATOR	TRADE PRICE	TRADE VOLUME	STOP STOCK INDICATOR	TRADE THROUGH EXEMPT INDICATOR	RESERVED
1	12	9	1	1	12

|<--- 36 BYTES --->|

6.12 SHORT INDEX

MAXIMUM 67 BYTES

The Short Index format is a variable length record and can accommodate a maximum number of 5 index groups. Each group contains the value of a stock index.

Message Category	Message Type
Y	X

NUMBER OF INDICES IN GROUP
2

|<----2 BYTES--->|

INDEX GROUP #1

INDEX SYMBOL #1	RESERVED	INDEX SIGN	INDEX VALUE (INCLUDES DECIMAL POINT)
3	1	1	8

|<---------------------- 13 BYTES------------------------->|

CAN INCLUDE UP TO
5 INDEX GROUPS

INDEX GROUP #5

INDEX SYMBOL #5	RESERVED	INDEX SIGN	INDEX VALUE (INCLUDES DECIMAL POINT)
3	1	1	8

|<---------------------- 13 BYTES------------------------->|

6.13 LONG INDEX

MAXIMUM 602 BYTES

The Long Index format is a variable length record and can accommodate a maximum number of 20 index groups. Each group contains the value of a stock index.

Message Category	Message Type
Y	Y

NUMBER OF INDICES IN GROUP
2

|<--- 2 BYTES-->|

INDEX GROUP #1

INDEX SYMBOL #1	INDEX VALUE DENOMINATOR INDICATOR	INDEX VALUE	INDEX SIGN	RESERVED
11	1	12	1	5

|<-------------------------------- 30 BYTES------------------------------------>|

CAN INCLUDE UP TO
20 INDEX GROUPS

INDEX GROUP #20

INDEX SYMBOL #20	INDEX VALUE DENOMINATOR INDICATOR	INDEX VALUE	INDEX SIGN	RESERVED
11	1	12	1	5

|<-------------------------------- 30 BYTES----------------------------------->|

6.14 SHORT BID AND OFFER INDEX

MAXIMUM 112 BYTES

The Short Bid and Offer Index format is a variable length record and can accommodate a maximum number of 5 index groups. Each group contains the Bid and Offer value of a stock index.

Message Category	Message Type
Y	V

NUMBER OF INDICES IN GROUP
2

|<----2 BYTES---->|

INDEX GROUP #1

INDEX SYMBOL #1	RESERVED	BID INDEX SIGN	OFFER INDEX SIGN	BID INDEX VALUE (INCLUDES DECIMAL POINT)	OFFER INDEX VALUE (INCLUDES DECIMAL POINT)
3	1	1	1	8	8

|<---------------------------------- 22 BYTES---------------------------------->|

CAN INCLUDE UP TO
5 INDEX GROUPS

INDEX GROUP #5

INDEX SYMBOL #5	RESERVED	BID INDEX SIGN	OFFER INDEX SIGN	BID INDEX VALUE (INCLUDES DECIMAL POINT)	OFFER INDEX VALUE (INCLUDES DECIMAL POINT)
3	1	1	1	8	8

|<---------------------------------- 22 BYTES---------------------------------->|

6.15 LONG BID AND OFFER INDEX

MAXIMUM 842 BYTES

The Long Bid and Offer Index format is a variable length record and can accommodate a maximum number of 20 index groups. Each group contains the Bid and Offer value of a stock index.
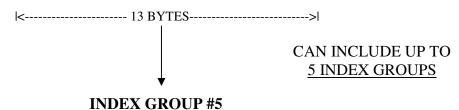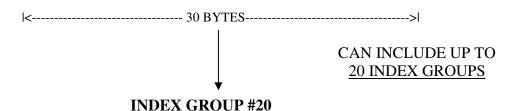
Message Category	Message Type
Y	W

NUMBER OF INDICES IN GROUP
2

|<--- 2 BYTES---->|

INDEX GROUP #1

INDEX SYMBOL #1	INDEX VALUE DENOMINATOR INDICATOR	BID INDEX VALUE	OFFER INDEX VALUE	BID INDEX SIGN	OFFER INDEX SIGN	RESERVED
11	1	12	12	1	1	4

|<------------------------------------ 42 BYTES-->|

CAN INCLUDE UP TO
<u>20 INDEX GROUPS</u>

INDEX GROUP #20

INDEX SYMBOL #20	INDEX VALUE DENOMINATOR INDICATOR	BID INDEX VALUE	OFFER INDEX VALUE	BID INDEX SIGN	OFFER INDEX SIGN	RESERVED
11	1	12	12	1	1	4

|<--------------------------------------- 42 BYTES--------------------------------------->|

7.0   ADMINISTRATIVE MESSAGES

7.1   ADMINISTRATIVE UNFORMATTED (FREE FORM TEXT)

Message Category	Message Type
A	H

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

A list of administrative messages commonly transmitted is provided in **Appendix D**. A list of frequently used abbreviations in Administrative messages is provided in **Appendix E**.

All Administrative messages are disseminated over any or all multicast lines, with the exception of the two lines disseminating Index Messages.

7.2   ADMINISTRATIVE MESSAGE LENGTH

The length of an Administrative message is variable. The total length of the entire message **cannot** exceed 1000 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. Administrative messages generally start with three "Begin Announce" (yyy) characters and end with two "End Announce" (xx) characters. In addition, Administrative messages include slashes and dots within the text.

Examples of Administrative messages are noted in **Appendix F**. The examples provided are intended to be indicative of the kinds of Administrative messages, not necessarily limited to the number of examples shown, that can be transmitted. Dots and slashes inserted **within** the text are not shown in all the examples.

ADMINISTRATIVE MESSAGES, continued

7.4 MARKET VOLUME AND INDEX

Message Category	Message Type
A	**S**

yyy1.00P M APPROX NYSE VOL STOCK 000 NY WS 00 MKT WS 00   MKT DN 00CTS
NYSE IDX000.00DN0.00 INDU000.00 TRAN000.00UNCH UTIL000.00UNCH
FINC000.00UNCHzz

7.5 START OF END OF DAY SUMMARY MESSAGES

Message Category	Message Type
A	**A**

7.6 END OF END OF DAY SUMMARY MESSAGES

Message Category	Message Type
A	**B**

7.7 START OF START OF DAY SUMMARY MESSAGES

Message Category	Message Type
A	**C**

7.8 END OF START OF DAY SUMMARY

Message Category	Message Type
A	**D**

8.0   MARKET SUMMARY

8.1 MARKET SUMMARY MESSAGES DESCRIPTIONS

Market Summary messages are formatted messages used to provide market data information that was previously provided using the administrative free text format. The following represents all Market Summary messages, which are transmitted over the Multicast lines:

Message Category	Message Type	Description
M	E	Start of Closing Trade Prices
M	F	Closing Trade Prices
M	G	End of Closing Trade Prices
M	B	Start of Most Active Issues
M	C	Most Active Issues Closing Trade Prices
M	D	End of Most Active Issues
M	H	Start of Closing Bid/Offer Prices
M	I	Closing Bid/Offer Prices
M	J	End of Closing Bid/Offer Prices
M	N	Approximate Adjusted Volume Market Center Message
M	O	Approximate Total Trades and Dollar Value
M	P	Crossing Session

The Closing Trade Prices, Most Active Issues, and Closing Bid/Offer Prices are all preceded by a start message and followed by an end message. The start and end messages consists of only the message header (with the exception of the Start of Closing Trade Prices for Most Active Stocks).

8.2 CLOSING TRADE PRICES

102 BYTES

The Closing Trade Prices format is used to report the closing trade prices for issues trading on the NYSE AMEX or the NYSE. The NYSE AMEX reports on Equities and Bonds, while the NYSE reports on Equities only. The entire Closing Trade Prices are reported with one message generated per issue. The Closing Trade Prices messages are preceded by a Start of Closing Trade Prices message and followed by an End of Closing Trade Prices message.

Note: A Participant is ONLY required to utilize the 'Security Symbol', 'Last Price Denom' & 'Last Price' fields in the Closing Trade Prices message. All other fields are filled dependent on the availability of data from the Participant. If a Participant does not provide data, then the unspecified fields are zero filled.

Message Category	Message Type
M	F

SECURITY SYMBOL	TEMPORARY SUFFIX	TRADE VOLUME	OPEN PRICE DENOMINATOR INDICATOR	OPEN PRICE	HIGH PRICE DENOMINATOR INDICATOR	HIGH PRICE
11	1	11	1	12	1	12

|<-- 49 BYTES -->|

LOW PRICE DENOMINATOR INDICATOR	LOW PRICE	LAST PRICE DENOMINATOR INDICATOR	LAST PRICE
1	12	1	12

|<----------------------------------- 26 BYTES ----------------------------------->|

NET CHANGE TICK INDICATOR	NET CHANGE IN PRICE DENOMINATOR INDICATOR	NET CHANGE IN PRICE	RESERVED	FINANCIAL STATUS INDICATOR	RESERVED
1	1	12	1	1	11

|<--- 27 BYTES --->|

8.3 MOST ACTIVE ISSUES

102 BYTES

The Most Active Issues format is used to report the closing trade prices of the NYSE 15 Most Active Issues and the NYSE AMEX 10 Most Active Issues. The NYSE AMEX reports on Equities and Bonds, while the NYSE reports on Equities only. The entire Most Active Issues are reported with one message generated per issue. The transmission of the Most Active Issues is preceded by a Start of Most Active Issues and concluded with the End of Most Active Issues message.

Note: A Participant is ONLY required to utilize the 'Security Symbol', 'Last Price Denominator Indicator' & 'Last Price' fields in the Most Active Issues message. All other fields are filled dependent on the availability of data from the Participant. If a Participant does not provide data, then the unspecified fields are zero filled.

Message Category	Message Type
M	**C**

SECURITY SYMBOL	TEMPORARY SUFFIX	TRADE VOLUME	OPEN PRICE DENOMINATOR INDICATOR	OPEN PRICE	HIGH PRICE DENOMINATOR INDICATOR	HIGH PRICE
11	1	11	1	12	1	12

|<--- 49 BYTES -->|

LOW PRICE DENOMINATOR INDICATOR	LOW PRICE	LAST PRICE DENOMINATOR INDICATOR	LAST PRICE
1	12	1	12

|<------------------------------------- 26 BYTES ------------------------------------->|

NET CHANGE TICK INDICATOR	NET CHANGE IN PRICE DENOMINATOR INDICATOR	NET CHANGE IN PRICE	RESERVED	FINANCIAL STATUS INDICATOR	RESERVED
1	1	12	1	1	11

|<--- 27 BYTES -->|

8.4 CLOSING BID/OFFER PRICES

52 BYTES

The Closing Bid/Offer Prices format is used to report the closing quote prices for issues regardless of trading activity on the NYSE AMEX. In addition this format is also used to report the Bid/Offer prices for stocks, which did not trade on the NYSE during the day. The NYSE AMEX reports on Equities and Bonds, while the NYSE reports on Equities only. The transmission of Closing Bid/Offer Prices is preceded by the Start of Closing Bid/Offer Prices and concluded with the End of Closing Bid/Offer Prices messages. Closing Bid/Offer Prices are provided for each issue.
Note: A Participant is required to utilize all fields in the Closing Bid/Offer Message.

Message Category	Message Type
M	**I**

SECURITY SYMBOL	TEMPORARY SUFFIX	CLOSING BID PRICE DENOMINATOR INDICATOR	CLOSING BID PRICE	CLOSING OFFER DENOMINATOR INDICATOR	CLOSING OFFER PRICE
11	1	1	12	1	12

|< -- 38 BYTES --->|

RESERVED	FINANCIAL STATUS INDICATOR	RESERVED
1	1	12

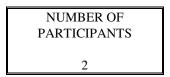|< ------------------------14 BYTES ------------------------>|

8.5 APPROXIMATE ADJUSTED VOLUME MARKET CENTER

MAXIMUM 678 BYTES

The Approximate Adjusted Volume Market Center format is a variable length record and can accommodate a maximum number of 26 market center groups. This format is used to report the volume of adjusted trading activity for each Participant that trades on Tape A and Tape B. As CTS calculates and generates these messages, the Participant ID field will be populated with "S" for CTS.

Message Category	Message Type
M	N

NUMBER OF PARTICIPANTS
2

|<-------2 BYTES------>|

PARTICIPANT GROUP #1

PARTICIPANT ID #1 GROUP	TRADING VOLUME	RESERVED
1	11	14

|<----------------------------- 26 BYTES ------------------------>|

CAN INCLUDE UP TO 26 PARTICIPANT GROUPS

PARTICIPANT GROUP #26

PARTICIPANT ID #26 GROUP	TRADING VOLUME	RESERVED
1	11	14

|<---------------------------- 26 BYTES -------------------------->|

8.6 APPROXIMATE TOTAL TRADES AND DOLLAR VALUE

46 BYTES

The Approximate Total Trades and Dollar Value format allows a Participant to report the total trades and total dollar value of trades at their respective market centers.

Message Category	Message Type
M	O

TOTAL TRADES	RESERVED	DOLLAR VALUE DENOMINATOR INDICATOR	DOLLAR VALUE	RESERVED
9	1	1	22	13

|<--- 46 BYTES-->|

8.7 CROSSING SESSION SUMMARY

58 BYTES

The Crossing Session Summary format is used to report the total volume and dollar value of trades transacted after the close of a Participant's regular session.

Message Category	Message Type
M	P

CROSSING I TRADING VOLUME	CROSSING II DOLLAR VALUE DENOMINATOR INDICATOR	CROSSING II DOLLAR VALUE	CROSSING II TRADING VOLUME	RESERVED
11	1	22	11	13

|<-- 58 BYTES-->|

8.8 START OF CLOSING TRADE PRICES

Message Category	Message Type
M	E

8.9 END OF CLOSING TRADE PRICES

Message Category	Message Type
M	G

8.10 START OF MOST ACTIVE ISSUES

Message Category	Message Type
M	B

NUMBER OF MOST ACTIVE ISSUES
2

8.11 END OF MOST ACTIVE ISSUES

Message Category	Message Type
M	D

8.12 START OF CLOSING BID/OFFER PRICES

Message Category	Message Type
M	H

8.13 END OF CLOSING BID/OFFER PRICES

Message Category	Message Type
M	J

9.0 CONTROL MESSAGES

9.1 CONTROL MESSAGE SUMMARY

The following list represents all control messages transmitted:

Message Category	Message Type	Description
C	I	Start of Day
C	L	Reset Message Sequence Number
C	M	Start of Test
C	N	End of Test
C	T	Line Integrity
C	Z	End of Transmission

9.2 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 "S" for all control messages.

The Participant ID field of the Message Header contains USASCII alphabetic upper case character "S" 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.

When included in a retransmission sequence, the Retransmission Requester field of a control message contains the specified requester code; otherwise this field contains the USASCII alphabetic upper case character "O" (meaning original message).

CONTROL MESSAGE DESCRIPTIONS (continued)

9.3 START OF DAY - CATEGORY C TYPE I

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

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.

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.

CONTROL MESSAGE DESCRIPTIONS (continued)

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. For each of the canned messages within the group, the sequence number will increment by 1. 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 (disseminated over all MLs). 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 LINE INTEGRITY - CATEGORY C TYPE T

The Line Integrity message is automatically transmitted over the 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 **not** 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.

CONTROL MESSAGE DESCRIPTIONS (continued)

9.8 END OF TRANSMISSION - CATEGORY C TYPE Z

The End of Transmission message is transmitted over the Multicast Lines (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 his production CTS output ML feeds from SIAC.**

10.0   FIELD APPEARANCES WITHIN MESSAGES

FIELD NAME	MESSAGE NAME	# OF APPEARANCES/MSG
- B -		
BID INDEX SIGN	SHORT BID AND OFFER INDEX LONG BID AND OFFER INDEX	1 (per group) 1 (per group)
BID INDEX VALUE	LONG BID AND OFFER INDEX	1-20
BID INDEX VALUE (INCLUDES DECIMAL POINT)	SHORT BID AND OFFER INDEX	1-5
BUY VOLUME	TRADING STATUS	1
- C -		
CANCEL/ERROR ACTION	CANCEL/ERROR PRIOR DAY CANCEL/ERROR	1 1
CLOSING BID PRICE DENOMINATOR INDICATOR	CLOSING BID/OFFER PRICES	1
CLOSING BID PRICE	CLOSING BID/OFFER PRICES	1
CLOSING OFFER DENOMINATOR INDICATOR	CLOSING BID/OFFER PRICES	1
CLOSING OFFER PRICE	CLOSING BID/OFFER PRICES	1
CONSOLIDATED HIGH LOW/LAST INDICATOR	SHORT TRADE LONG TRADE	1 1
CROSSING I TRADING VOLUME	CROSSING SESSION	1
CROSSING II DOLLAR VALUE	CROSSING SESSION	1
CROSSING II DOLLAR VALUE DENOMINATOR INDICATOR	CROSSING SESSION	1
CROSSING II TRADING VALUE	CROSSING SESSION	1
CURRENCY INDICATOR	LONG TRADE CORRECTION CANCEL/ERROR TRADING STATUS CONSOLIDATED END OF DAY SUMMARY START OF DAY SUMMARY PRIOR DAY TRADE PRIOR DAY CORRECTION PRIOR DAY CANCEL/ERROR	1 1 1 1 1 1 1 1 1

FIELD APPEARANCES WITHIN MESSAGES, continued

FIELD NAME	MESSAGE NAME	# OF APPEARANCES/MSG
- D -		
DOLLAR VALUE	APPROXIMATE TOTAL TRADES AND DOLLAR VALUE	1
DOLLAR VALUE DENOM INDICATOR	APPROXIMATE TOTAL TRADES AND DOLLAR VALUE	1
DUE TO RELATED SECURITY	TRADING STATUS	1
- F -		
FINANCIAL STATUS	LONG TRADE CORRECTION CANCEL/ERROR TRADING STATUS CONSOLIDATED END OF DAY SUMMARY START OF DAY SUMMARY PRIOR DAY TRADE PRIOR DAY CORRECTION PRIOR DAY CANCEL/ERROR MOST ACTIVE ISSUES CLOSING TRADES PRICES CLOSING BID & OFFER PRICES	1 1 1 1 1 1 1 1 1 1 1 1
- H -		
HALT REASON	TRADING STATUS	1
HELD TRADE INDICATOR	LONG TRADE	1
HIGH INDICATION PRICE	TRADING STATUS	1
HIGH INDICATION PRICE DENOMINATOR INDICATOR	TRADING STATUS	1
HIGH PRICE DENOMINATOR INDICATOR	CORRECTION CANCEL/ERROR CONSOLIDATED END OF DAY SUMMARY PARTICIPANT END OF DAY SUMMARY CLOSING TRADE PRICES MOST ACTIVE ISSUES	2 2 1 1 1 1
HIGH PRICE	CORRECTION CANCEL/ERROR CONSOLIDATED END OF DAY SUMMARY PARTICIPANT END OF DAY SUMMARY CLOSING TRADE PRICES MOST ACTIVE ISSUES	2 2 1 1 1 1

FIELD APPEARANCES WITHIN MESSAGES, continued

FIELD NAME	MESSAGE NAME	# OF APPEARANCES/MSG
- I -		
IN VIEW OF COMMON INDICATOR	TRADING STATUS	1
INDEX SIGN	SHORT INDEX	1 (per group)
	LONG INDEX	1 (per group)
INDEX SYMBOL	SHORT INDEX	1 (per group)
	LONG INDEX	1 (per group)
	SHORT BID AND OFFER INDEX	1 (per group)
	LONG BID AND OFFER INDEX	1 (per group)
INDEX VALUE DENOMINATOR INDICATOR	LONG INDEX	1 (per group)
	LONG BID AND OFFER INDEX	1 (per group)
INDEX VALUE (INCLUDES DECIMAL POINT)	SHORT INDEX	1 (per group)
INDEX VALUE (INCLUDES DECIMAL POINT)	LONG INDEX	1 (per group)
INSTRUMENT TYPE	LONG TRADE	1
	CORRECTION	1
	CANCEL/ERROR	1
	TRADING STATUS	1
	CONSOLIDATED END OF DAY SUMMARY	1
	START OF DAY SUMMARY	1
	PRIOR DAY TRADE	1
	PRIOR DAY CORRECTION	1
	PRIOR DAY CANCEL/ERROR	1
- L -		
LAST PARTICIPANT ID	CORRECTION	1
	CANCEL/ERROR	1
	CONSOLIDATED END OF DAY SUMMARY	1
LAST PRICE	CORRECTION	2
	CANCEL/ERROR	2
	CONSOLIDATED END OF DAY SUMMARY	1
	PARTICIPANT END OF DAY SUMMARY	1
	TRADING STATUS	1
	CLOSING TRADE PRICES	1
	MOST ACTIVE ISSUES	1

FIELD APPEARANCES WITHIN MESSAGES, continued

FIELD NAME	MESSAGE NAME	# OF APPEARANCES/MSG
LAST PRICE DENOMINATOR INDICATOR	CORRECTION CANCEL/ERROR TRADING STATUS END OF DAY SUMMARY CLOSING TRADE PRICES MOST ACTIVE ISSUES CONSOLIDATED END OF DAY SUMMARY PARTICIPANT END OF DAY SUMMARY	2 2 1 2 1 1 1 1 1
LOW INDICATION PRICE	TRADING STATUS	1
LOW INDICATION PRICE DENOMINATOR INDICATOR	TRADING STATUS	1
LOW PRICE	CORRECTION CANCEL/ERROR CONSOLIDATED END OF DAY SUMMARY PARTICIPANT END OF DAY SUMMARY CLOSING TRADE PRICES MOST ACTIVE ISSUES	2 2 1 1 1 1
LOW PRICE DENOMINATOR INDICATOR	CORRECTION CANCEL/ERROR CONSOLIDATED END OF DAY SUMMARY PARTICIPANT END OF DAY SUMMARY CLOSING TRADE PRICES MOST ACTIVE ISSUES	2 2 1 1 1 1
- N -		
NET CHANGE TICK INDICATOR	CLOSING TRADE PRICES MOST ACTIVE ISSUES	1 1
NET CHANGE PRICE DENOMINATOR INDICATOR	CLOSING TRADE PRICES MOST ACTIVE ISSUES	1 1
NET CHANGE IN PRICE	CLOSING TRADE PRICES MOST ACTIVE ISSUES	1 1
NUMBER OF PARTICIPANTS	APPROXIMATE ADJUSTED VOLUME CONSOLIDATED END OF DAY SUMMARY	1 1

FIELD APPEARANCES WITHIN MESSAGES, continued

FIELD NAME	MESSAGE NAME	# OF APPEARANCES/MSG
NUMBER OF INDICES IN GROUP	SHORT INDEX LONG INDEX SHORT BID AND OFFER INDEX LONG BID AND OFFER INDEX	1 1 1 1
NUMBER OF MOST ACTIVE ISSUES	START OF MOST ACTIVE ISSUES	1
NUMBER OF ITERATIONS	START OF DAY SUMMARY	1
- O -		
OFFER INDEX SIGN	SHORT BID AND OFFER INDEX LONG BID AND OFFER INDEX	1 (per group) 1 (per group)
OFFER INDEX VALUE	LONG BID AND OFFER INDEX	1 (per group)
OFFER INDEX VALUE (INCLUDES DECIMAL POINT)	SHORT BID AND OFFER INDEX	1 (per group)
OPEN PRICE	CORRECTION CANCEL/ERROR PARTICIPANT END OF DAY SUMMARY CLOSING TRADE PRICES MOST ACTIVE ISSUES	1 1 1 1 1
OPEN PRICE DENOMINATOR INDICATOR	CORRECTION CANCEL/ERROR PARTICIPANT END OF DAY SUMMARY CLOSING TRADE PRICES MOST ACTIVE ISSUES	1 1 1 1 1
OUTPUT SEQUENCE NUMBER OF TRANSACTION BEING ADJUSTED	CORRECTION CANCEL/ERROR	1 1
- P -		
PARTICIPANT ID	APPROXIMATE ADJUSTED VOLUME PARTICIPANT END OF DAY SUMMARY START OF DAY SUMMARY	1 1 2
PARTICIPANT OPEN/HIGH/LOW/LAST INDICATOR	SHORT TRADE LONG TRADE	1 1
PREVIOUS CLOSE PRICE	START OF DAY SUMMARY	2
PREVIOUS CLOSE PRICE DENOMINATOR INDICATOR	START OF DAY SUMMARY	2

FIELD APPEARANCES WITHIN MESSAGES, continued

FIELD NAME	MESSAGE NAME	# OF APPEARANCES/MSG
- P -		
PREVIOUS CLOSE PRICE DATE	CORRECTION CANCEL/ERROR CONSOLIDATED END OF DAY SUMMARY PARTICIPANT END OF DAY SUMMARY START OF DAY SUMMARY	2 2 1 1 2
PRICE DENOMINATOR INDICATOR	SHORT TRADE LONG TRADE CORRECTION CANCEL/ERROR PRIOR DAY TRADE PRIOR DAY CORRECTION PRIOR DAY CANCEL/ERROR	1 1 2 1 1 2 1
PRIMARY LISTING MARKET PARTICIPANT IDENTIFIER	LONG TRADE CORRECTION CANCEL/ERROR PRIOR DAY TRADE PRIOR DAY CORRECTION PRIOR DAY CANCEL/ERROR	1 1 1 1 1 1
PRIOR DAY TRADE DATE (MMDDYY)	PRIOR DAY TRADE PRIOR DAY CORRECTION PRIOR DAY CANCEL/ERROR	1 2 1
PRIOR DAY TRADE TIME (HMS)	PRIOR DAY TRADE PRIOR DAY CORRECTION PRIOR DAY CANCEL/ERROR	1 2 1

FIELD APPEARANCES WITHIN MESSAGES, continued

FIELD NAME	MESSAGE NAME	# OF APPEARANCES/MSG
- R -		
RESERVED	START OF DAY SUMMARY	3
	SHORT TRADE	1
	LONG TRADE	3
	CORRECTION	4
	CANCEL/ERROR	4
	TRADING STATUS	3
	CONSOLIDATED END OF DAY SUMMARY	2
	PARTICIPANT END OF DAY SUMMARY	1
	PRIOR DAY TRADE	2
	PRIOR DAY CORRECTION	5
	PRIOR DAY CANCEL/ERROR	3
	SHORT INDEX	1 (per group)
	LONG INDEX	1 (per group)
	SHORT BID AND OFFER INDEX	1 (per group)
	LONG BID AND OFFER INDEX	1 (per group)
	CLOSING TRADE PRICES	1
	MOST ACTIVE ISSUES	1
	CLOSING BID/OFFER PRICES	1
	APPROXIMATE ADJUSTED VOLUME MARKET CENTER MESSAGE	1 (per group)
	APPROXIMATE TOTAL TRADES AND DOLLAR VALUE	2
	CROSSING SESSION	1
		1
- S -		
SALE CONDTION	SHORT TRADE	1
	LONG TRADE	1
	CORRECTION	2
	CANCEL/ERROR	1
	PRIOR DAY TRADE	1
	PRIOR DAY CORRECTION	2
	PRIOR DAY CANCEL/ERROR	1
SECURITY STATUS	TRADING STATUS	1

FIELD APPEARANCES WITHIN MESSAGES, continued

FIELD NAME	MESSAGE NAME	# OF APPEARANCES/MSG
SECURITY SYMBOL	SHORT TRADE	1
	LONG TRADE	1
	CORRECTION	1
	CANCEL/ERROR	1
	TRADING STATUS	1
	CONSOLIDATED END OF DAY SUMMARY	1
	PARTICIPANT END OF DAY SUMMARY	1
	CLOSING TRADE PRICES	1
	CLOSING BID/OFFER PRICES	1
	MOST ACTIVE ISSUES	1
	START OF DAY SUMMARY	1
	PRIOR DAY TRADE	1
	PRIOR DAY CORRECTION	1
	PRIOR DAY CANCEL/ERROR	1
SELL VOLUME	TRADING STATUS	1
SELLER'S SALE DAYS	LONG TRADE	1
	CORRECTION	2
	CANCEL/ERROR	1
	PRIOR DAY TRADE	1
	PRIOR DAY CORRECTION	2
	PRIOR DAY CANCEL/ERROR	1
STATUS INDICATOR	TRADING STATUS	1
STOP STOCK INDICATOR	LONG TRADE	1
	CORRECTION	2
	CANCEL/ERROR	1
	PRIOR DAY TRADE	1
	PRIOR DAY CORRECTION	2
	PRIOR DAY CANCEL/ERROR	1

FIELD APPEARANCES WITHIN MESSAGE, continued

FIELD NAME	MESSAGE NAME	# OF APPEARANCES/MSG
- T -		
TEMPORARY SUFFIX	LONG TRADE	1
	CORRECTION	1
	CANCEL/ERROR	1
	TRADING STATUS	1
	CONSOLIDATED END OF DAY	1
	SUMMARY	1
	PARTICIPANT END OF DAY SUMMARY	1
	CLOSING TRADE PRICES	1
	MOST ACTIVE ISSUES	1
	START OF DAY SUMMARY	1
	CLOSING BID/OFFER PRICES	1
	PRIOR DAY TRADE	1
	PRIOR DAY CORRECTION	1
	PRIOR DAY CANCEL/ERROR	1
TEST MESSAGE INDICATOR	LONG TRADE	1
TICK	CORRECTION	1
	CANCEL/ERROR	1
	PARTICIPANT END OF DAY SUMMARY	1
TOTAL TRADES	APPROXIMATE TOTAL TRADES AND DOLLAR VALUE	1
TOTAL VOLUME	CORRECTION	2
	CANCEL/ERROR	2
	CONSOLIDATED END OF DAY SUMMARY	1
	PARTICIPANT END OF DAY SUMMARY	1
TRADE PRICE	LONG TRADE	1
	SHORT TRADE	1
	CORRECTION	2
	CANCEL/ERROR	1
	PRIOR DAY TRADE	1
	PRIOR DAY CORRECTION	2
	PRIOR DAY CANCEL/ERROR	1

FIELD APPEARANCES WITHIN MESSAGES, continued

FIELD NAME	MESSAGE NAME	# OF APPEARANCES/MSG
- T -		
TRADE REPORTING FACILITY IDENTIFIER	EQUITY LONG TRADE EQUITY CORRECTION EQUITY CANCEL/ERROR EQUITY PRIOR DAY TRADE EQUITY PRIOR DAY CORRECTION EQUITY PRIOR DAY CANCEL/ERROR	1 1 1 1 1 1
TRADE THROUGH EXEMPT INDICATOR	LONG TRADE CORRECTION CANCEL/ERROR PRIOR DAY TRADE PRIOR DAY CORRECTION PRIOR DAY CANCEL/ERROR	1 2 1 1 2 1
TRADE VOLUME	SHORT TRADE LONG TRADE CORRECTION CANCEL/ERROR CLOSING TRADE PRICES MOST ACTIVE ISUES PRIOR DAY TRADE PRIOR DAY CORRECTION PRIOR DAY CANCEL/ERROR	1 1 2 1 1 1 1 1 2
TRADING VOLUME	APPROXIMATE ADJUSTED VOLUME MARKET CENTER MESSAGE	2

11.0   FIELD DESCRIPTIONS

- B -

11.1   BID INDEX SIGN

1 byte, Alphabetic, space-filled.

Represents the positive or negative value of the Bid Index's calculation formula.

Code	Value
Blank	Positive Value
A	Negative Value

11.2   BID INDEX VALUE

12 Bytes, Numeric. Right Justified, zero filled.

The Bid Index Value is the whole and fractional or decimal portion information with the Index Value Denominator Indicator determining the price representation. The Bid Index may represent a value of zero.

The Bid Index Value represents the value of the index's calculation formula using the current Bid values of the component securities.

> **Note: For Government Bonds, the BID INDEX VALUE could reflect a value that is greater than the OFFER INDEX VALUE.**

11.3   BID INDEX VALUE (INCLUDES DECIMAL POINT)

8 Bytes, Numeric. Right Justified, zero filled.

The Bid Index value may include a decimal point with digits to the right of the decimal or it may represent a value of zero.

> **Note: For Government Bonds, the BID INDEX VALUE could reflect a value that is greater than the OFFER INDEX VALUE.**

FIELD DESCRIPTIONS

11.4   BUY VOLUME

9 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled.

The Buy Volume represents the reported imbalance of buy orders without matching sell orders for the security for a Participant. Refer to **Appendix B** for Market Imbalance and Market on Close Imbalance (MOC) definitions.

- C -

11.5 CANCEL/ERROR ACTION

1 Byte, Numeric. Denotes whether the referenced transaction is to be cancelled (buyer and seller agrees to cancel a trade) or errored (error a trade that never took place but was reported).

Code	Value
1	Cancel
2	Error

11.6   CLOSING PRICE

12 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled.

The Price is the whole and fractional or decimal portion of the Participant closing price information with the Participant Closing Price Denominator Indicator determining the price representation.

The Participant Closing Price represents the last qualifying trade paid for a security by a Participant during the trading day.

11.7   CLOSING PRICE DENOMINATOR INDICATOR

1 Byte, Alphanumeric. Refer to **PRICE DENOMINATOR   INDICATOR** for codes.

FIELD DESCRIPTIONS

- C -

11.8 CONSOLIDATED HIGH/LOW/LAST PRICE INDICATOR

1 Byte, Alphanumeric. Identifies the Consolidated High/Low/Last Price applicable to the transaction.

Indicator	Value
A	None
B	High
C	Low
D	Last
E	High/Last
F	Low/Last
G	High/Low/Last
H	High/Low

11.9 CLOSING BID/OFFER PRICE

12 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled.

The Price is the whole and fractional or decimal portion of the Participant closing Bid/Offer price information with the Participant Closing Bid/Offer Price Denominator Indicator determining the price representation.

The Participant Closing Bid/Offer Price represents the last qualifying quote for a security by a Participant during the trading day.

11.10   CLOSING BID/OFFER PRICE DENOMINATOR INDICATOR

 1 Byte, Alphanumeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.

11.11   CROSSING SESSION II DOLLAR VALUE

22 Bytes, Numeric. Right Justified, zero filled. Refer to <u>Dollar Value</u> for codes.

FIELD DESCRIPTIONS

- C -

11.12   CROSSING SESSION II DOLLAR VALUE DENOMINATOR

1 Byte, Alphanumeric. Refer to <u>Dollar Value Denominator Indicator</u> table for code values.

11.13   CROSSING SESSION I VOLUME

11 Bytes, Numeric. Right Justified, zero filled. Contains the number of shares traded at the Participant's close price and taking place after the close of a participant's regular session.

11.14   CROSSING SESSION II VOLUME

11 Bytes, Numeric. Right Justified, zero filled. Contains the number of shares traded after the close of a Participant's regular session. Crossing Session II is designed to facilitate trading between member firms. Trades from the NYSE are executed at the aggregate price reported by member firms. Trades from the NYSE AMEX are executed at the close price of the NYSE AMEX.

11.15   CURRENCY INDICATOR

 3 Bytes, 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.

- D -

11.16   DOLLAR VALUE

22 Bytes, Numeric. Right Justified, zero filled. The Dollar Value is the whole and decimal portion, if any of the total dollar worth of the total daily trade transactions. **The DOLLAR VALUE PRICE DENOMINATOR INDICATOR** code determines the value representation.

FIELD DESCRIPTIONS

- D -

11.17   DOLLAR VALUE DENOMINATOR INDICATOR

1 Byte, Alphanumeric. The Dollar Value Denominator Indicator field can contain one of the codes listed below. Otherwise, this field is **zero** filled. It is used to identify the dollar value of the fraction or location of decimal.

Price Denominator Code	Denominator Value	22 Byte Field	
		Whole	Numerator
3	8	21	1
4	16	20	2
5	32	20	2
6	64	20	2
7	128	19	3
8	256	19	3
A	10	21	1
B	100	20	2
C	1,000	19	3
D	10,000	18	4
E	100,000	17	5
F	1,000,000	16	6
G	10,000,000	15	7
H	100,000,000	14	8
I	N/A (Whole Price Only)	22	0

FIELD DESCRIPTIONS

- D -

11.18 DUE TO RELATED SECURITY INDICATOR

1 Byte, Numeric. This Opening Delay or Trading Halt is used when events relating to one security will affect the price and performance of another security. Due to Related Security can be used by itself or in conjunction with a Halt Reason. Refer to **Appendix B** for definition of values.

Code	Value
0	Not Due to Related Security
1	Due to Related Security

- F -

11.19 FINANCIAL STATUS

1 Byte, Numeric. Contains the financial status of the security:

Code	Value
0	Not Bankrupt / Not Below Continuing Listing Standards / Not Late Filing
1	Bankrupt
2	Below Continuing Listing Standards (*For NYSE, NYSE AMEX & Regional listed issues*)
3	Bankrupt & Below Continuing Listing Standards (*For NYSE, NYSE AMEX & Regional listed issues*)
4	Late Filing
5	Bankrupt & Late Filing
6	Below Continuing Listing Standards & Late Filing (*For NYSE, NYSE AMEX & Regional listed issues*)
7	Bankrupt, Below Continuing Listing Standards & Late Filing (*For NYSE, NYSE AMEX & Regional listed issues*)

FIELD DESCRIPTIONS

- H -

11.20   HALT REASON

1 Byte, Alphanumeric. Otherwise, this field is space filled. Denotes the reason for the Opening Delay or Trading Halt. Refer to **Appendix B** for definition of values.

Code	Value
I	Order Imbalance
X	Equipment Changeover
P	News Pending
D	News Dissemination
E	Order Influx
M	Additional Information
Y	Sub-Penny Trading

11.21   HELD TRADE INDICATOR

1 Byte, Alphabetic. Otherwise, this field is space filled. A "held trade" is a trade reported by a non-primary market during a regulatory trading halt on the primary market, and it is held by CTS for dissemination until after the close of the primary market. The Held Trade Indicator reflects whether this trade qualifies for the Participant or Consolidated last at the time it is disseminated:

Code	Value
A	This trade was held by the Processor during a primary market regulatory halt and should not be used as a last sale for the Participant in that security or on a Consolidated basis. Other trades were disseminated from this Participant for this security.
B	This trade was held by the Processor during a primary market regulatory halt and can be used as a last sale for the reporting Participant but <u>not</u> on a Consolidated basis.
C	This trade was held by the Processor during a primary market regulatory halt and can be used as a last sale both for the reporting Participant and on a Consolidated basis.

Note: For Corrections and Cancel/Error messages, the summary information details the Consolidated and Participant last details.

FIELD DESCRIPTIONS

- H -

11.22   HIGH INDICATION PRICE

12 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled.

The High Indication Price is the whole, fractional or decimal portion of the high indication price. The High Indication Price Denominator Indicator determines the price representation.

The High Indication Price represents an approximation of what the high end "Offer" price of a security's trading range may be. It is used for a security that is not Opening Delayed or Trading Halted, i.e., Trading Range Indication or following an Opening Delay or a Trading Halt, i.e., Price Indication.

Note:	**For Government Bonds, the HIGH INDICATION PRICE (i.e., BID) could reflect a value that is greater than the LOW INDICATION PRICE (i.e., Offer).**

11.23   HIGH INDICATION PRICE DENOMINATOR INDICATOR

1 Byte, Alphanumeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.

Note:	**In instances when no trades qualify to be included in the "High" calculation, either on a Consolidated or an individual Participant basis, this field is zero filled.**

11.24   HIGH PRICE

12 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled.

The High Price is the whole and fractional or decimal portion of the High Price information with the High Price Denominator Indicator determining the price representation.

The High Price represents the highest price paid for a security during the trading day.

Note:	**In instances when no trades qualify to be included in the "High" calculation, either on a Consolidated or an individual Participant basis, this field is zero filled.**

FIELD DESCRIPTIONS

- H -

11.25   HIGH PRICE DENOMINATOR INDICATOR

1 Byte, Alphanumeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.

> **Note:**   In instances when no trades qualify to be included in the "High" calculation, either on a Consolidated or an individual Participant basis, this field is zero filled.

- I -

11.26   IN VIEW OF COMMON INDICATOR

1 Byte, Numeric. Identifies whether matters affecting the common stock of a company also affect the performance of the associated non-common securities, e.g., warrants, rights, preferred, classes, etc. Those securities, which must be of the same company, are globally Opening Delayed, Trading Halted, Resumed or No Open/No Resume for a Participant in view of the common stock:

Code	Value
0	Not In View of Common
1	In View of Common

11.27   INDEX CHANGE TICK INDICATOR

1 Byte, Numeric. Refer to **Net Change Tick Indicator** for codes.

11.28   INDEX CHANGE VALUE

12 Bytes, Numeric. Right Justified, zero filled.

The Index Change Value is the whole and fractional or decimal portion of the index change information with the Index Value Denominator Indicator determining the value representation. The Index may represent a value of zero.

The Index Change Value represents a statistical composite that measures changes in the economy or in financial markets from the prior day's ending value.

FIELD DESCRIPTIONS

- I -

11.29   INDEX SIGN

1 Byte, Alphabetic, space-filled.

Represents the positive or negative value of the index.

Code	Value
Blank	Positive Value
A	Negative Value

11.30   INDEX SYMBOL

3 Bytes or 11 Bytes, Alphabetic, Left justified, space filled. Contains the Index symbol.

11.31   INDEX VALUE

12 Bytes, Numeric. Right Justified, zero filled.

The Index Value is the whole and fractional or decimal portion information with the Index Value Denominator Indicator determining the price representation. The Index may represent a value of zero.

The Index Value represents a statistical composite that measures changes in the economy or in financial markets.

11.32   INDEX VALUE DENOMINATOR INDICATOR

1 Byte, Numeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.

11.33   INDEX VALUE (INCLUDES DECIMAL POINT)

8 Bytes, Numeric. Right Justified, zero filled. The Index value may include a decimal point with digits to the right of the decimal or it may represent a value of zero.

FIELD DESCRIPTIONS

- I -

11.34   INSTRUMENT TYPE

1 Byte, Alphanumeric. Otherwise, this field is space filled. Identifies the instrument type relevant to the trade. Currently, this field is only applicable for Network B Bond Trades:

Code	Value
A	Corporate Bond
B	Government Bond

- L -

11.35   LAST PART. (PARTICIPANT) ID

1 Byte, Alphabetic. Identifies the Participant having the last sale on a Consolidated basis. Refer to **PARTICIPANT ID** for codes.

11.36   LAST PRICE

12 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled.

The Last Price is the whole and fractional or decimal portion of the last price information with the Last Price Denominator Indicator determining the price representation.

The Last Price represents the last price for that security either on a Consolidated or an individual Participant basis at the time it is disseminated.

Note 1:	For Trading Status Information, the Last Price is provided when the Security Status is either Opening Delay, Trading Halt, Price Indication or Trading Range Indication.
Note 2:	In instances when no trades qualify to be included in the "Last" calculation, either on a Consolidated or an individual Participant basis, the Last Price will reflect the most current Last Price, e.g., the previous close, or, if no previous close exists, Last Price is zero filled.

FIELD DESCRIPTIONS

- L -

11.37   LAST PRICE DENOMINATOR INDICATOR

1 Byte, Alphanumeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.

Note: In instances when no trades qualify to be included in the "Last" calculation, either on a Consolidated or an individual Participant basis, this field is zero filled.

11.38   LOW INDICATION PRICE

12 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled.

The Low Indication Price is the whole and fractional or decimal portion of the low indication price. The Low Indication Price Denominator Indicator determines the price representation.

The Low Indication Price represents an approximation of what the low end "Bid" price of a security's trading range may be. It is used for a security that is not Opening Delayed or Trading Halted, i.e., Trading Range Indication or following an Opening Delay or a Trading Halt, i.e., Price Indication.

Note: For Government Bonds, the HIGH INDICATION PRICE (i.e., BID) could reflect a value that is greater than the LOW INDICATION PRICE (i.e., OFFER).

11.39   LOW INDICATION PRICE DENOMINATOR INDICATOR

1 Byte, Alphanumeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.

Note: In instances when no trades qualify to be included in the "Low" calculation, either on a Consolidated or an individual Participant basis, this field is zero filled.

FIELD DESCRIPTIONS

- L -

11.40   LOW PRICE

12 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled.

The Low Price is the whole and fractional or decimal portion of the Low Price information with the Low Price Denominator Indicator determining the price representation.

The Low Price represents the lowest price paid for a security during the trading day.

Note: In instances when no trades qualify to be included in the "Low" calculation, either on a Consolidated or an individual Participant basis, this field is zero filled.

11.41   LOW PRICE DENOMINATOR INDICATOR

1 Byte, Alphanumeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.

Note: In instances when no trades qualify to be included in the "Low" calculation, either on a Consolidated or an individual Participant basis, this field is zero filled.

- N -

11.42   NET CHANGE IN PRICE

12 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled.

The Net Change In Price is the whole or decimal portion of the change in a security's price from the previous day's last price information with the **NET CHANGE IN PRICE DENOMINATOR INDICATOR** code determining the value representation.

11.43   NET CHANGE IN PRICE DENOMINATOR INDICATOR

1 Byte, Alphanumeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.

FIELD DESCRIPTIONS

- N -

11.44   NET CHANGE TICK INDICATOR

1 Byte, Alphanumeric. Represents for a security, the upward, downward or unchanged price movement from prior day's closing value:

Code	Value
1	+
2	-
3	Unchanged

11.45   NUMBER OF INDICES IN GROUP

2 Bytes, Numeric. Right Justified, zero filled. Represents the total number of indices contained in a particular message.

11.46   NUMBER OF PARTICIPANTS

2 Bytes, Numeric. Right Justified, zero filled. Represents the actual number of Participants for which an issue will be reported.

11.47   NUMBER OF ITERATIONS

2 Bytes, Numeric. Right Justified, zero filled. Represents the number of times that repeating fields are iterated.

11.48   NUMBER OF MOST ACTIVE ISSUES

2 Bytes, Numeric. Right Justified, zero filled. Represents the actual number of most active issues being reported.

FIELD DESCRIPTIONS

- O -

11.49   OFFER INDEX SIGN

1Byte, Alphabetic, space-filled.

Represents the positive or negative value of the Offer Index's calculation formula.

Code	Value
Blank	Positive Value
A	Negative Value

11.50   OFFER INDEX VALUE

12 Bytes, Numeric. Right Justified, zero filled. Represents the value of the index's calculation formula using the current offer values of the component securities.

The Offer Index Value is the whole and fractional or decimal portion information with the Index Value Denominator Indicator determining the price representation. The Offer Index may represent a value of zero.

Note: For Government Bonds, the BID INDEX VALUE could reflect a value that is greater than the OFFER INDEX VALUE.

11.51   OFFER INDEX VALUE (INCLUDES DECIMAL POINT)

8 Bytes, Numeric. Right Justified, zero filled. The Offer Index value may include a decimal point with digits to the right of the decimal or it may represent a value of zero.

Note: For Government Bonds, the BID INDEX VALUE could reflect a value that is greater than the OFFER INDEX VALUE.

11.52   OPEN/HIGH/LOW/LAST PRICE DENOMINATOR INDICATOR

1 Byte, Alphanumeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.

FIELD DESCRIPTIONS

- O -

11.53   OPEN HIGH/LOW/LAST PRICE

12 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled.

The price is the whole and fractional or decimal portion of the Participant Open/High/Low/Last Price information with the Participant Open/High/Low/Last Price Denominator Indicator determining the price representation.

These fields differ from the Open/High/Low/Last Price in that they are Participant specific.

11.54   OPEN PRICE

12 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled.

The Open Price is the whole and fractional or decimal portion of the Open Price information with the Open Price Denominator Indicator determining the price representation.

The Open Price represents the first qualifying price paid for a security during the trading day.

Note: In instances when no trades qualify to be included in the "Open Price" calculation, either on a Consolidated or an individual Participant basis, this field is zero filled.

11.55   OPEN PRICE DENOMINATOR INDICATOR

1 Byte, Alphanumeric. Refer to **PRICE DENOMINATOR INDICATOR** for codes.

Note: In instances when no trades qualify to be included in the "Open Price" calculation, either on a Consolidated or an individual Participant basis, this field is zero filled.

11.56   OUTPUT SEQUENCE NUMBER OF TRANSACTION BEING ADJUSTED

9 Bytes, Numeric. Right Justified, zero filled. The output sequence number to be corrected will reflect the sequence number of either the original trade, or, if the original trade has already been corrected, of the most recent correction to the trade.

FIELD DESCRIPTIONS

- O -

11.57   OUTPUT NETWORK

1 Byte, 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 stock as being a listed equity (field value = 0).

Network Field Value	Description
A	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.
B	Message relates to symbols with NYSE AMEX 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 AMEX.

- P -

11.58   PARTICIPANT ID

1 Byte, Alphabetic. Identifies the Participant or Processor that initiated the message.

Code	Value
A	NYSE AMEX
B	NASDAQ OMX BX
C	National Stock Exchange
D	FINRA
I	International Securities Exchange
M	Chicago Stock Exchange
N	New York Stock Exchange
T	NASDAQ OMX
P	NYSE Arca SM
S	Consolidated Tape System
W	CBOE Stock Exchange
X	NASDAQ OMX PHLX
Z	BATS Trading

FIELD DESCRIPTIONS

- P -

11.59   PARTICIPANT OPEN/HIGH/LOW/LAST PRICE INDICATOR

1 Byte, Alphabetic. Identifies the Participant High/Low/Last Price applicable to the transaction.

Indicator	Value
A	None
B	High
C	Low
D	Last
E	High/Last
F	Low/Last
G	Unused
H	Open
I	Open/High
J	Open/Low
K	Open/High/Low/Last
L	Open/Last
M	Open/High/Low
N	Open/High/Last
O	Open/Low/Last
P	High/Low
Q	High/Low/Last

11.60   PREVIOUS CLOSE PRICE

12 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled

The Previous Close Price is the whole and fractional or decimal portion of the Previous Close Price information with the Previous Close Price Denominator Indicator determining the price representation.

The Previous Close Price represents the last qualifying price paid for a security during the trading day.

FIELD DESCRIPTIONS

- P -

11.61   PREVIOUS CLOSE PRICE DENOMINATOR INDICATOR

1 Byte, Alphanumeric.   Refer to **PRICE DENOMINATOR INDICATOR** for codes.

11.62   PREVIOUS CLOSE PRICE DATE

6 Bytes, Numeric. Represented in MM/DD/YY format where MM = Right Justified, zero-filled month, DD = a Right Justified, zero-filled day, and YY = a Right Justified, zero-filled year. Represents the date the security last traded.

Note: When a trade qualifies for the last price, the previous close price date field will be space filled. This applies only to messages that do not contain a previous close price field.

FIELD DESCRIPTIONS

- P -

11.63   PRICE DENOMINATOR INDICATOR

1 Byte, Alphanumeric. The Price Denominator Indicator field contains one of the codes listed below. Otherwise, this field is **zero** filled. Identifies the price denominator of the fraction or the location of the decimal:

Fractional Prices					
Price Denominator Code	Denominator Value	12 Byte Price Field		8 Byte Price 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 Price Field		8 Byte Price 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

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

Note: The maximum whole price allowable is 92.2 billion.

* The five low order digits of numerator. High order digits of numerator are assumed to be zeroes.

FIELD DESCRIPTIONS

- P -

11.64   PRIMARY LISTING MARKET PARTICIPANT IDENTIFIER

1 Byte, Alphabetic. Identifies the Primary Listing Market in instances when the Primary Market is an Exchange <u>other than</u> the NYSE or the NYSE AMEX (NYSE and **NYSE AMEX** are identified in the Network ID field of the CTS Message Header by default).

Code	Value
B	NASDAQ OMX BX
C	National Stock Exchange
D	FINRA
I	International Securities Exchange
M	Chicago Stock Exchange
T	NASDAQ OMX
P	NYSE Arca SM
W	CBOE Stock Exchange
X	NASDAQ OMX PHLX
Z	BATS Trading

Note: Messages relating to symbols with the NYSE as the primary listed market are disseminated with the Network Identifier 'A'. Messages relating to symbols with the NYSE AMEX as the primary listed market are disseminated with the Network Identifier 'B'.

11.65   PRIOR DAY TRADE DATE

6 Bytes, Numeric. Represented in MM/DD/YY format where MM = a Right Justified, zero-filled month, DD = a Right Justified, zero-filled day, and YY = a Right Justified, zero-filled year. Represents the date the prior day trade was executed. In the Prior Day Correction messages, there are two Prior Day Trade Dates, one to denote the date the original trade was executed as reported in a Prior Day Trade and one to denote the corrected date of trade execution. In the Prior Day Cancel/Error messages, the date denotes the reported execution date of the original trade being cancelled or reported in error.

11.66   PRIOR DAY TRADE TIME

3 Bytes, Alphanumeric/Special Character. Format is HMS where H=Hours, M=Minutes and S=Seconds. Modified USASCII character set is used for time (Military Eastern Time) representation. Represents the time the prior day trade was executed. In the Prior Day Correction messages, there are two Prior Day Trade Times, one to denote the time the original trade was executed and one to denote the time the corrected trade was executed. In the Prior Day Cancel/Error messages, the time denotes the reported execution time of the original trade being cancelled or reported in error. A Time conversion table listing USASCII, Hexadecimal and Decimal representation is provided in **Appendix I.**

FIELD DESCRIPTIONS

- R -

11.67   RESERVED

N Bytes, Alphanumeric. Fields reserved for future use. Reserved fields are space or zero (0) 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

- S -

11.68   SALE CONDITION

1 Byte Representation, Alphanumeric, space field. Denotes a particular condition applicable to the trade. Refer to **Appendix B** for definition of values.

Code	Value
@	Regular Trade (indicates a trade with no associated conditions)
BLANK	No Sale Condition required within the Category it appears (Long Trade format only)
B	Average Price Trade
C	Cash Trade (Same Day Clearing)
E	Automatic Execution
F	Intermarket Sweep Order
H	Price Variation Trade
I	CAP Election Trade
K	Rule 127 (NYSE only) or Rule 155 (NYSE AMEX only)
L	Sold Last (Late Reporting)
M	Market Center Official Close
N	Next Day Trade (Next Day Clearing)
O	Market Center Opening Trade
P	Prior Reference Price
Q	Market Center Official Open
R	Seller
T	Extended Hours Trade
U	Extended Hours Sold (Out of Sequence)
V	Stock-Option Trade
X	Cross Trade
Z	Sold (Out of Sequence)
4	Derivatively Priced
5	Market Center Reopening Trade
6	Market Center Closing Trade
7	Reserved
8	Reserved
9	Reserved

Note: Reference the 'Open', 'Last', 'High', 'Low' Calculations Table for the impact of the above sale conditions on the Consolidated High, Low and Last; and Participant Open, High, Low and Last price calculations.

FIELD DESCRIPTIONS

- S -

SALE CONDITION (continued)

> **The Multicast Output 4-byte Sale Condition field is byte specific whereby a Sale Condition from Category 1 will be in the first byte position, a Sale Condition from Category 2 will be in the second byte position, a Sale Condition from Category 3 will be in the third byte position and a Sale Condition from Category 4 will be in the fourth byte position. Only one Sale Condition from each Category is allowable in its corresponding Category byte position of the 4-byte positions. The Category hierarchy of the new and redefined Sale Conditions represented in the 4-byte field is as follows:**

Category 1 – Settlement Type	Category 2 – Reason for Trade-Through Exemption	Category 3 – Extended Hours/Sequence Type	Category 4 – SRO Required Detail
The '@' code in the first byte followed by 'blanks' in the 2nd, 3rd, and 4th, bytes is used to indicate a trade without conditions.			
Blank (Regular Settlement)	Blank (No Trade Through Exempt Reason)	Blank (Not Extended Hours or Sold Out of Sequence)	Blank (No Unusual Trade Detail)
C Cash Trade (Same Day Clearing)	F Intermarket Sweep Order	L Sold Last (Late Reporting)	B Average Price Trade
N Next Day Trade (Next Day Clearing)	O Market Center Opening Trade	T Extended Hours Trade	E Automatic Execution
R Seller	4 Derivatively Priced	U Extended Hours Sold (Out of Sequence)	H Price Variation Trade
	5 Market Center Reopening Trade	Z Sold (Out of Sequence)	I CAP Election Trade
	6 Market Center Closing Trade		K Rule 127 (NYSE only) or Rule 155 (NYSE AMEX only)
	7 Reserved		M Market Center Official Close
	8 Reserved		P Prior Reference Price
	9 Reserved		Q Market Center Official Open
			V Stock-Option Trade
			X Cross Trade

> **Note 1:** Reference below for the impact of the above sale conditions on the: Consolidated High/Low/Last and Participant Open/High/Low/Last price calculations.
> **Note 2:** Sale Conditions within the same category are mutually exclusive (e.g., Sale Condition C, N or R cannot be used in combination).
> **Note 3:** Sale condition U (Extended Hours Sold – Out of Sequence) cannot be used in combination with any of the Sale Conditions listed in Category 2 – Reason for Trade-Through Exemption (Rule 611).
> **Note 4:** Sale Condition "L" (Sold Last – Late Reporting), Sale Condition "O" (Market Center Opening Trade), Sale Condition "P" (Prior Reference Price), and Sale Condition "Z" (Sold – Out of Sequence), are mutually exclusive of each other (i.e., cannot be used in combination).

FIELD DESCRIPTIONS

- S -

SALE CONDITION (continued)

'OPEN', 'LAST', 'HIGH', 'LOW' CALCULATIONS

The following criteria will be used to determine the impact of Sale Conditions on the Open, Last, High, and Low calculations both on a Consolidated and Participant basis (shading reflects modifications):

CODE	SALE CONDITION	CONSOLIDATED		PARTICIPANT			SALE COND. UPDATE VOLUME
		LAST	HIGH/ LOW	OPEN	LAST	HIGH/ LOW	
Blank	No Sale Condition required within the Category it appears (Long Trade format only)	N/A					
@	REGULAR TRADE (Indicates a trade with no associated conditions)	YES	YES	#4	YES	YES	YES
B	AVERAGE PRICE TRADE	NO	NO	NO	NO	NO	YES
C	CASH TRADE (Same Day Clearing)	NO	NO	NO	NO	NO	YES
E	AUTOMATIC EXECUTION	YES	YES	#4	YES	YES	YES
F	INTERMARKET SWEEP ORDER	YES	YES	#4	YES	YES	YES
H	PRICE VARIATION TRADE	NO	NO	NO	NO	NO	YES
I	CAP ELECTION TRADE	NO	NO	NO	NO	NO	YES
K	**RULE 127** (NYSE Only) or **RULE 155** (NYSE AMEX only)	YES	YES	#4	YES	YES	YES
L	SOLD LAST (Late Reporting)	#3	YES	#4	YES	YES	YES
M	MARKET CENTER OFFICIAL CLOSE	NO	NO	NO	YES	YES	NO
N	NEXT DAY TRADE (Next Day Clearing)	NO	NO	NO	NO	NO	YES
O	MARKET CENTER OPENING TRADE	#1	YES	YES	#2	YES	YES
P	PRIOR REFERENCE PRICE	#2	YES	#4	#2	YES	YES
Q	MARKET CENTER OFFICIAL OPEN	NO	NO	YES	NO	YES	NO
R	SELLER	NO	NO	NO	NO	NO	YES
T	EXTENDED HOURS TRADE	NO	NO	NO	NO	NO	YES
U	EXTENDED HOURS SOLD (Out of Sequence)	NO	NO	NO	NO	NO	YES
V	STOCK-OPTION TRADE	YES	YES	#4	YES	YES	YES
X	CROSS TRADE	YES	YES	#4	YES	YES	YES
Z	SOLD (Out of Sequence)	#2	YES	#4	#2	YES	YES
4	DERIVATIVELY PRICED	**#2**	YES	#4	**#2**	YES	YES
5	MARKET CENTER REOPENING TRADE	YES	YES	#4	YES	YES	YES
6	MARKET CENTER CLOSING TRADE	YES	YES	#4	YES	YES	YES
7	RESERVED	NO	NO	NO	NO	NO	TBD
8	RESERVED	NO	NO	NO	NO	NO	TBD
9	RESERVED	YES	YES	#4	YES	YES	TBD

FIELD DESCRIPTIONS

- S -

SALE CONDITION (continued)

Deviations from a trade's qualification for the Open, Last, High and Low calculations both on a Consolidated and individual Participant basis are denoted with a number (i.e., Note #1, #2, #3 and #4) in the above calculation chart and are described below:

'OPEN', 'LAST', 'HIGH', 'LOW' CALCULATIONS

Note 1:	**YES**, if it is the only qualifying last; OR If it is that Participant's first qualifying last; OTHERWISE *NO*
Note 2:	**YES**, if it is the only qualifying last; OTHERWISE *NO*
Note 3:	**YES**, if it is the only qualifying last; OR If it is from the same participant as the last; OR If it is from the PRIMARY MARKET for that Security; OTHERWISE *NO*
Note 4:	**YES**, if it is the first qualifying or only qualifying trade of the day; OTHERWISE *NO*. (In instances of multiple Market Center Opening Trades, the latest trade takes precedence.)

In instances of multiple sale conditions, the following criteria will be used to determine the impact of the Sale Conditions on the Open, Last, High, and Low calculations both on a Consolidated and individual Participant basis:

MULTIPLE SALE CONDITION 'OPEN', 'LAST', 'HIGH', 'LOW' CALCULATIONS

- If all of the Sale Conditions indicate that the trade qualifies, it will be included in the calculations.

- If any one or all of the Sale Conditions indicate 'NO', the trade does not qualify, the 'NO' takes precedence and the trade will not be included in the calculations.

- If all of the Sale Conditions indicate that the trade qualifies, including a Sale Condition whose criteria deviates from a trade's qualification (i.e., Note #1, #2, #3 and #4) the trade qualifies, the 'Note Criteria' takes precedence and the trade will be included in the calculations.

FIELD DESCRIPTIONS

- S -

SALE CONDITION (continued)

Rule 611- Trade Reporting Matrix

			TTE Field	Sales Condition Field			
Rule	Short Name	Description	611 Exemption	Settlement Type	Reason for 611 Exemption	Extended Hours/Sold	SRO Required Detail
			Level 1	Level 2	Level 3	Level 4	Level 5
611b1	Self Help	The transaction that constituted the trade-through was effected when the trading center displaying the protected quotation that was traded through was experiencing a failure, material delay, or malfunction of its systems or equipment.	YES	N/A	N/A	N/A	TBD by each SRO
611b2	Not Regular Way	The transaction that constituted the trade-through was not a "regular way" contract	YES	YES	N/A	N/A	TBD by each SRO
611b3	Single Price Opening	The transaction that constituted the trade-through was a single-priced opening transaction by the trading center.	YES	N/A	O MARKET CENTER OPENING TRADE	N/A	TBD by each SRO
611b3	Single Price Reopening	The transaction that constituted the trade-through was a single-priced reopening transaction by the trading center.	YES	N/A	5 MARKET CENTER REOPENING TRADE	N/A	TBD by each SRO
611b3	Single Price Closing	The transaction that constituted the trade-through was a single-priced closing transaction by the trading center.	YES	N/A	6 MARKET CENTER CLOSING TRADE	N/A	TBD by each SRO
611b4	Crossed Market	The transaction that constituted the trade-through was executed at a time when a protected bid was priced higher than a protected offer in the NMS stock.	YES	N/A	N/A	N/A	TBD by each SRO
611b5	Intermarket Sweep	The transaction that constituted the trade-through was the execution of an order identified as an intermarket sweep order.	YES	N/A	F INTERMARKET SWEEP	N/A	TBD by each SRO
611b6	Intermarket Sweep	The transaction that constituted the trade-through was effected by a trading center that simultaneously routed an intermarket sweep order to execute against the full displayed size of any protected quotation in the NMS stock that was traded through.	YES	N/A	F INTERMARKET SWEEP	N/A	TBD by each SRO

FIELD DESCRIPTIONS

- S -

SALE CONDITION (continued)

Rule 611- Trade Reporting Matrix, continued

Rule	Short Name	Description	TTE Field	Sales Condition Field			
			611 Exemption	Settlement Type	Reason for 611 Exemption	Extended Hours/Sold	SRO Required Detail
			Level 1	Level 2	Level 3	Level 4	Level 5
611b7	Derivatively Priced	The transaction that constituted the trade-through was the execution of an order at a price that was not based, directly or indirectly, on the quoted price of the NMS stock at the time of execution and for which the material terms were not reasonably determinable at the time the commitment to execute the order was made.	YES	N/A	4 DERIVATIVELY PRICED	N/A	TBD by each SRO
611b9	Stopped Stock	The transaction that constituted the trade-through was the execution by a trading center of an order for which, at the time of receipt of the order, the trading center had guaranteed an execution at no worse than a specified price (a "stopped order"), where: (i) The stopped order was for the account of a customer;(ii) The customer agreed to the specified price on an order-by-order basis; and (iii) The price of the trade-through transaction was, for a stopped buy order, lower than the national best bid in the NMS stock at the time of execution or, for a stopped sell order, higher than the national best offer in the NMS stock at the time of execution.	YES	N/A	4 DERIVATIVELY PRICED	N/A	TBD by each SRO

FIELD DESCRIPTIONS

- S -

11.69 SECURITY STATUS

1 Byte, Alphanumeric. Identifies the trading status applicable to the transaction.
Refer to **Appendix B** for definition of values.

Code	Value
1	Opening Delay
2	Trading Halt
3	Resume
4	No Open/No Resume
5	Price Indication
6	Trading Range Indication
7	Market Imbalance Buy
8	Market Imbalance Sell
9	Market On Close Imbalance Buy
A	Market On Close Imbalance Sell
B	Reserved
C	No Market Imbalance
D	No Market On Close Imbalance

Note: **The Last Price is provided when the Security Status is an Opening Delay, Trading Halt, Price Indication or Trading Range Indication. Market Imbalances and Market on Close Imbalances contain either buy or sell volumes. The remaining security status values are <u>not</u> accompanied by either price or volume data.**

FIELD DESCRIPTIONS

- S -

11.70   SECURITY SYMBOL

3 Bytes or 11 Bytes, Alphabetic. Left justified, space filled. Contains the Security Symbol. Suffixes start with one of the following characters with no embedded blanks: (1) Letter slash, (2) lower case p, (3) lower case r, or (4) lower case w. 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)   Sale Conditions (SOLD, SOLD LAST, CASH TRADE, etc.) are **not** contained in this field.

Note:	**CTS 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.**

11.71   SELL VOLUME

9 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled. The Sell Volume represents the reported imbalance of sell orders without matching buy orders for the security for a Participant. Refer to **Appendix B** for Market Imbalance and Market on Close Imbalance (MOC) definitions.

11.72   SELLER'S SALE DAYS

3 Bytes, Numeric. Right Justified, zero filled. Used if Sale Condition = "R" (Seller). Otherwise, this field is zero filled. Specifies the number of days that may elapse before delivery of the security.

FIELD DESCRIPTIONS

- S -

11.73   STATUS INDICATOR

1 Byte, Alphanumeric. Otherwise this field is space filled. Identifies the status of a Market Imbalance, Price Indication, or Trading Range Indication. Refer to **Appendix B** for definition of values.

Code	Value
1	Price Indication
2	New Price Indication
3	Corrected Price Indication
4	Cancelled Market Imbalance / Price Indication / Trading Range Indication

Note 1: Price Indication/New Price Indication/Corrected Price Indication/Cancelled Price Indication - only valid with Security Status code of 5.
Note 2: Cancelled Market Imbalance - only valid with Security Status codes of 7, 8, 9, A, C, or D.
Note 3: Cancelled Trading Range Indication - only valid with Security Status code of 6.

11.74   STOP STOCK INDICATOR

1 Byte, Numeric. Refer to **Appendix B** for Stop Stock definition.

Code	Value
0	Not Applicable
1	Applicable

FIELD DESCRIPTIONS

- T -

11.75   TEMPORARY SUFFIX

1 Byte, Alphabetic. Otherwise, this field is space filled. Contains the temporary status of the security. Refer to **Appendix B** for definition of values. Refer to **Appendix H** for Temporary Suffix representation.

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

11.76   TEST MESSAGE INDICATOR

1 Byte, Alphanumeric. Indicates whether the message is an actual trade or a test message:

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 CTS 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 any base symbol. Test messages are not to be included in any Exchange statistics (e.g., trade counts, etc.).**

FIELD DESCRIPTIONS

- T -

11.77   TICK

1 Byte, Numeric. Represents for a Participant the upward, downward or unchanged price movement in a security's trades:

Code	Value
1	**+**
2	**-**
3	**0+**
4	**0-**

Note 1:	For values 3 & 4, if the price of the last sale is unchanged from the previous last sale for that security, the tick reflects a zero in addition to the tick of the previous last sale that changed.
Note 2:	**In instances when no trades qualify to be included in the tick calculation, the tick will reflect the most current calculated tick which may be the previous days' tick.**
Note 3:	**In instances when no trades qualify to be included in the tick calculation and <u>no</u> previous close exists, the tick will reflect a plus (+).**

11.78   TOTAL VOLUME

11 Bytes, Numeric. Right Justified, zero filled. Contains Total Volume of shares traded in a security either on a Consolidated or an individual Participant basis at the time it is disseminated. All trades **except** those having an "M" or a "Q" Sale Condition are included in the volume count.

11.79   TOTAL TRADES

11 Bytes, Numeric. Right Justified, zero filled. Contains the total number of trade transactions executed from a Market Center.

FIELD DESCRIPTIONS

- T -

11.80   TRADE PRICE

8 or 12 Bytes, Numeric. Right Justified, zero filled. Otherwise, this field is zero filled.

The Trade Price is the whole and decimal portion of the Trade Price information with the **PRICE DENOMINATOR INDICATOR** code determining the price representation.

The Trade Price is the monetary value of an individual share of stock at the time of the trade.

11.81   TRADE REPORTING FACILITY (TRF) IDENTIFIER

1 Byte, Alphabetic (including lower case), space-filled.

Identifies the Participant with whom a TRF has been formed. Otherwise, this field is space-filled. In cases of Bonds and Local Issues, which are not eligible for TRF transactions, the TRF Identifier field will be space-filled.

TRF Identifier Codes	Value
A	NYSE AMEX
B	NASDAQ OMX BX
C	National Stock Exchange
D	FINRA
I	International Securities Exchange
M	Chicago Stock Exchange
N	New York Stock Exchange
P	NYSE Arca SM
T	NASDAQ OMX
W	CBOE Stock Exchange
X	NASDAQ OMX PHLX
Z	BATS Trading

FIELD DESCRIPTIONS

- T -

11.82   TRADE THROUGH EXEMPT INDICATOR

1 Byte, Numeric, Zero filled. Denotes whether or not a trade is exempt (Rule 611) and when used jointly with certain Sale Conditions, will more fully describe the characteristics of a particular trade.

Code	Value
0	Not a Trade Through Exemption
1	Trade Through Exemption

Note: The Trade Through Exempt Indicator value will <u>not</u> have an effect on whether a trade qualifies for the Consolidated or Participant High, Low, Last and Open calculations. Only the Sale Condition determines if a trade qualifies.

11.83   TRADE VOLUME

4 Bytes or 9 Bytes, Numeric. Right Justified, zero filled. Contains the total number of shares traded in a single transaction for an individual security.

11.84   TRADING VOLUME

11 Bytes, Numeric. Right Justified, zero filled. Contains the total number of shares traded by a participant during the trading day up to the time of the report of the Participant's daily trading volume per security or across all securities
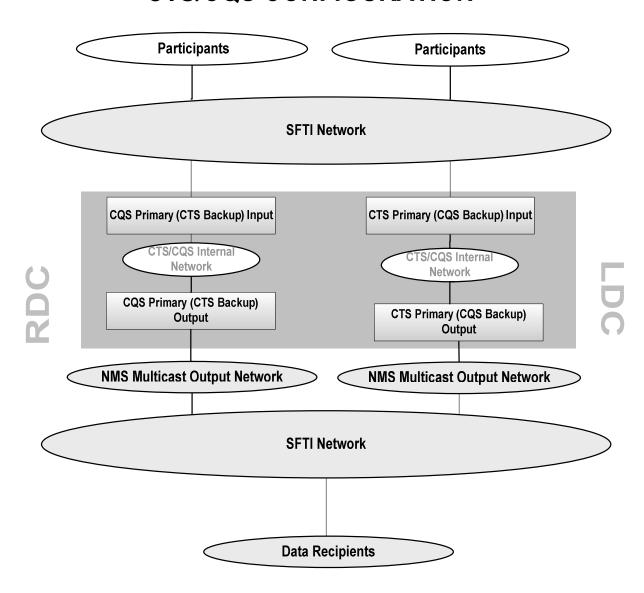
- W -

11.85   WHOLE PRICE

3 Bytes, Numeric. Right Justified, zero filled. Represents the whole dollar portion of the trade price.

APPENDIX A: DUAL SITE CONFIGURATION

CTS/CQS CONFIGURATION

```
                    ( Participants )              ( Participants )

    (                          SFTI Network                          )

  ┌─────────────────────────────────────────────────────────────────┐
  │  [ CQS Primary (CTS Backup) Input ]   [ CTS Primary (CQS Backup) Input ]
R │                                                                      L
D │      ( CTS/CQS Internal                 ( CTS/CQS Internal           D
C │          Network )                          Network )                C
  │  [ CQS Primary (CTS Backup)          [ CTS Primary (CQS Backup)
  │         Output ]                            Output ]
  └─────────────────────────────────────────────────────────────────┘

  ( NMS Multicast Output Network )      ( NMS Multicast Output Network )

    (                          SFTI Network                          )

                          ( Data Recipients )
```

APPENDIX B: GLOSSARY

TERM	DESCRIPTION
Additional Information	For a security that is Opening Delayed or Trading Halted, if inadequate information is disclosed during a "news dissemination or news pending" Opening Delay or Trading Halt, the Opening Delay or Trading Halt reason could be subsequently reported as "Additional Information".
Automatic Execution	A sale condition code that identifies a NYSE trade that has been automatically executed without the potential benefit of price improvement.
Average Price Trade	A trade where the price reported is based upon an average of the prices for transactions in a security during all or any portion of the trading day.
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 AMEX 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.
Cancelled Indication	Denotes a cancellation to the most recent indication for a security originally sent in error.
Cap (Conversion And Parity) Election Trade	The CAP Election Trade highlights sales as a result of a sweep execution on the NYSE, whereby CAP orders have been elected and executed outside the best price bid or offer and the orders appear as "repeat" trades at subsequent execution prices. This indicator provides additional information to market participants that an automatic sweep transaction has occurred with repeat trades as one continuous electronic transaction.
Cash Trade	A transaction which requires delivery of securities and payment on the same day the trade takes place.
Corrected Indication	Denotes a correction to the last indication or new indication. It will contain the corrected approximation of what that security's opening or reopening price range (Bid and Offer prices, no sizes) will be when trading resumes after a delayed opening or after a trading halt.
Cross Trade	Indicates that the trade resulted from a Market Center's crossing session.
Crossed Market	The transaction that constituted the trade-through was executed at a time when a protected Bid was priced higher than a protected offer in the NMS stock.

APPENDIX B: GLOSSARY

TERM	DESCRIPTION
Crossing Session I (NYSE AMEX)	Single-sided orders and coupled (both buy and sell side) orders may be entered into Crossing Session I (called "After Hours Trading" on the NYSE AMEX**)** between 4:15 p.m. and 5:00 p.m. (EST). Systemized limit orders entered during the normal 9:30 to 4 p.m. trading session labeled good-till-executed (GTX) migrate to the Crossing Session I for possible execution. There is a single NYSE AMEX Crossing Session I trade at 5:00 p.m. at the price of the NYSE AMEX closing price determined during the Exchange's 9:30 a.m. to 4:00 p.m. trading session. This trade is printed on the Consolidated Tape (Tape B). All coupled orders are executed in the trade. GTX and singled-sided orders are executed against each other (buys against sells) on a first-come-first-served basis. GTX orders, which are not executed, migrate back to the "book" for the next trading day. Single-sided orders, which are not executed, are cancelled. NYSE AMEX Crossing Session I is exempt from "up-tick rule" for sell short orders. ETFs, which participate in NYSE AMEX Crossing Session I, use the closing price at 4:15 p.m. See NYSE AMEX Rules 1300 to 1306 for more details.
Crossing Session I (NYSE)	For the NYSE, Crossing Session I operates between 4:15 p.m. and 5:00 p.m. (EST). During this time, one-sided, two-sided, or good-till-executed (GTX) orders for a particular stock can be entered for execution at 5:00 p.m. Matched orders are executed at the NYSE closing price determined during the Exchange's 9:30 a.m. to 4:00 p.m. trading session and are printed on the Consolidated Tape at approximately 6:40 p.m.
Crossing Session II (NYSE AMEX**)**	NYSE AMEX Crossing Session II (called "After Hours Trading Facility II" on the NYSE AMEX) operates between 4:00 p.m. and 5:15 p.m. (EST). This session on the NYSE AMEX accommodates the trading of NYSE AMEX coupled orders in baskets, which are composed of at least 15 NYSE securities valued at $1 million or more and also include NYSE AMEX securities. Members, that have either facilitated a basket trade or have paired two customers' baskets, submit aggregate information on transactions in NYSE AMEX securities included in the baskets to the NYSE AMEX for execution. At 5:15 p.m., the aggregate information of all NYSE AMEX securities included in baskets executed in this session prints to the Consolidated Tape (Tape B).
Crossing Session II (NYSE)	For the NYSE, Crossing Session II operates between 4:00 p.m. and 6:15 p.m. (EST). This session accommodates the trading of baskets of at least 15 NYSE securities valued at $1 million or more. NYSE Members that have either facilitated a basket trade or have paired two customers' baskets can submit aggregate information to the Exchange for execution. At approximately 6:40 p.m., the aggregate information of all baskets executed in this session prints to the consolidated tape.

APPENDIX B: GLOSSARY

TERM	DESCRIPTION
Crossing Session III (NYSE: Guaranteed Price Orders)	For the NYSE, Crossing Session III operates between 4:00 p.m. and 6:30 p.m. This session functions to execute the unfilled portions of "guaranteed price" orders. The term "guaranteed price coupled order" means an order to buy for a minimum of 10,000 shares coupled with an order to sell the same quantity of the same security. One side of the guaranteed price coupled order must be for the account of a NYSE member organization and the other side must be for the account of one of its customers. Such orders must be entered and priced in accordance with Rule 907.
Crossing Session IV (NYSE:VWAP Orders)	For the NYSE, Crossing Session IV operates between 4:00 p.m. and 6:30 p.m. Crossing Session IV allows firms to execute the unfilled balance of an order at a price that is not pre-determined, but is calculated to ensure that the entire order is filled at a price no worse than the volume weighted average price (VWAP). Trades must be for a minimum of 10,000 shares (program trades for less than 10,000 shares can be completed in CS II) and can be priced up to four places to the right of the decimal.
CTA Eligible	Generally, any common stock, long-term warrant 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 AMEX for such securities.
Derivatively Priced	The transaction that constituted the trade-through was the execution of an order at a price that was not based, directly or indirectly, on the quoted price of the NMS stock at the time of execution, and for which the material terms were not reasonably determinable at the time the commitment to execute the order was made (REG NMS 611b7).
Dollar Value	Is the whole and decimal portion, if any, of the total dollar worth of the total daily trade transactions.
Due To Related Security	Describes a halt condition, and is used when events concerning 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).
Equipment Changeover	Denotes a non-regulatory Trading Halt. 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.
Ex-Distribution	Securities without the right to receive the forthcoming distribution of securities, which have been recently declared.
Ex-Dividend	Securities without the right to receive the forthcoming dividend recently declared.

APPENDIX B: GLOSSARY

TERM	DESCRIPTION
Ex-Interest	Securities without the right to receive the forthcoming interest 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.
Extended Hours Trade	Identifies a trade that was executed outside of regular primary market hours and is reported as an extended hours trade.
Extended Hours Sold (Out Of Sequence)	Identifies a trade that takes place outside of regular market hours and is reported as an extended hours trade out of sequence and at a time different from the actual transaction time.
Held Trades	Trades received from a non-primary Participant during a primary market regulatory halt. These trades are held by the CTS Processor and are disseminated after the close of the primary market with an appropriate Held Trade Indicator code applicable to the trade.
Indication	An approximation of what a security's opening or reopening price range (Bid and Offer prices, no sizes) will be when trading resumes after a delayed opening or after a trading halt.
Intermarket Sweep Order	The transaction that constituted the trade-through was the execution of an order identified as an Intermarket Sweep Order.
In View Of Common	Matters affecting the common stock of a company may 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 or Trading Halted for a Participant in view of the common stock.
Intraday Trade Detail	Indicates the trade was included as part of a transaction, other than an opening or reopening transaction that involved a group or "bunch" of orders executed at the same time and price and previously reported by the Participant as a single cumulative trade report.
Late Filing	A financial status designation pertaining to Tape 'A' and Tape 'B' issues (i.e. issues listed on the NYSE, the NYSE AMEX 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.

APPENDIX B: GLOSSARY

TERM	DESCRIPTION
Local Issue	A Local Issue is an issue that does <u>not</u> meet NYSE AMEX or NYSE listing requirements (is not CTA eligible) but is traded at one or more Regional Exchanges. Local Issues are included in the CTS database.
Market Center Closing Trade	The transaction that constituted the trade-through was a single priced closing transaction by the Market Center (REG NMS Rule 611b3).
Market Center Official Close	Indicates the 'Official' closing value as determined by a Market Center. This transaction report will contain the market center generated closing price.
Market Center Official Open	Indicates the 'Official' opening value as determined by a Market Center. This transaction report will contain the market center generated opening price.
Market Center Opening Trade	The trade that constituted the trade-through was a single priced opening transaction by the Market Center (REG NMS Rule 611b3).
Market Center Reopening Trade	The trade that constituted the trade-through was a single priced reopening transaction by the Market Center (REG NMS Rule 611b3).
Market Imbalance Buy	A 50,000 share or more excess of market orders to buy over market orders to sell as of 9:00 a.m. on expiration days.
Market Imbalance Sell	A 50,000 share or more, excess of market orders to sell over market orders to buy as of 9:00 a.m. on expiration days.
Market On Close (Moc) Imbalance Buy	An excess of 50,000 shares or more of MOC orders to buy over MOC orders to sell (including MOC sell plus and MOC sell short orders).
Market On Close (Moc) Imbalance Sell	An excess of 50,000 shares or more of MOC orders to sell (not including MOC sell short and MOC sell plus orders) over MOC orders to buy (including MOC orders to buy minus).
New	A temporary suffix, used when necessary, to identify a new status or structure of an issue, but where the symbol remains the same.

APPENDIX B: GLOSSARY

TERM	DESCRIPTION
News Dissemination	Denotes a regulatory trading halt 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.
New Indication	Newest indication on an already indicated security denoting a new approximation of what that security's opening or reopening price range (Bid and Offer prices, no sizes) will be when trading resumes after a delayed opening or after a trading halt.
News Pending	Denotes a regulatory 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.
Next Day Trade	A transaction that requires the delivery of securities on the first business day following the trade date.
No Market Imbalance	Indicates that the imbalance of market orders for a security is less than 50,000 shares as of 9:00 a.m. on expiration day.
No Market On Close (Moc) Imbalance	The difference between the number of shares to buy MOC and the number of shares to sell MOC is less than 50,000.
No Open/No Resume	Indicates an Opening Delay or Trading Halt is to be in effect for the rest of the trading day in a security for a Participant.
Non-Regulatory Halt Or Delay	An operational 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 Halt Reason, i.e., Order Imbalance, Order Influx or Equipment Changeover.
Not-Regular Way	The transaction that constituted the trade-through was not a 'regular way' contract.
One Or Two Point Rule	A trade must receive Floor Official approval and be published on the tape as "opened" or "sold last" if it is: 　　a. one point or more away from the last sale when the last sale is under $20.00; **or** 　　b. two points or more away from the last sale when the last sale is $20.00 or more
Opening Delay	Postponement of the opening of trading in a security for a Participant.
Opening/Reopening Trade Detail	An Opening/Reopening Trade Detail report indicates the trade was included as part of an opening or reopening transaction previously reported by a Participant on an aggregate basis.

APPENDIX B: GLOSSARY

TERM	DESCRIPTION
Order Imbalance	Denotes a non-regulatory halt condition where there is a significant imbalance of buy or sell orders.
Order Influx	Denotes a non-regulatory halt condition where there is a significant influx of orders.
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.
Price Variation Trade	Indicates a regular market session trade transaction that carries a price that is significantly away from the prevailing consolidated or primary market value at the time of the transaction.
Prior Reference Price	A sale condition that identifies a trade based on a price at a prior point in time, i.e. more than 90 seconds prior to the time of the trade report. The execution time of the trade will be the time of the prior reference price.
Regular Sale	A trade made without stated conditions is deemed regular way for settlement on the third business day following the transaction date.
Regulatory Halt Or Delay	An Opening Delay or Trading Halt called due to news dissemination or news pending. In addition, Due To Related Security can be used in conjunction with a regulatory Halt Reason, i.e., News Dissemination or News Pending.
Resume	Indicates that trading for a Participant is no longer suspended in a security which had been Halted or had its Opening delayed.
Rule 127 Trade (NYSE)	To qualify as a NYSE Rule 127 the trade is executed outside the present quote and meets one or both of the following conditions: (1) has a volume of 10,000 shares or more and/or (2) has a dollar value of $200,000 or more.
Rule 155 Trade (NYSE AMEX)	To qualify as an NYSE AMEX Rule 155, from time to time, a specialist may arrange for the sale, or purchase, of a block of stock, or other large number of shares of stock, at a single "clean-up" price. Generally such a sale or purchase is outside of the current market. Such sale or trade is designated as a Rule 155 trade.
Self Help	The transaction that constituted the trade-through was effected when the market center displaying the protected quotation that was traded through was experiencing a failure, material delay or malfunction of its systems or equipment.

APPENDIX B: GLOSSARY

TERM	DESCRIPTION
Seller	A Seller's Option transaction gives the seller the right to deliver the stock at any time within a specific period, ranging from not less than two calendar days, to not more than sixty calendar days. A stock offered "Seller's Option" may command a lesser price than if offered "Regular Way".
Single-Priced Opening	The transaction that constituted the trade-through was a single-priced opening transaction by the market center.
Single-Priced Reopening	The transaction that constituted the trade-through was a single-priced reopening transaction by the market center.
Single-Priced Closing	The transaction that constituted the trade-through was a single-priced closing transaction by the market center.
Sold	Sold is used when a trade is printed (reported) out of sequence and at a time different from the actual transaction time.
Sold Last	Sold Last is used when a trade prints in sequence but is reported late or printed in conformance to the One or Two Point Rule.
Stock-Option Trade	Stock-Option Trade is used to identify cash equity transactions which are related to options transactions and therefore potentially subject to cancellation if market conditions of the options leg(s) prevent the execution of the stock-option order at the price agreed upon.
Stopped Stock	The transaction that constituted the trade-through was the execution by a trading center of an order for which, at the time of receipt of the order, the trading center had guaranteed an execution at no worse than a specified price (a "stopped order"), where: (i) The stopped order was for the account of a customer;(ii) The customer agreed to the specified price on an order-by-order basis; and (iii) The price of the trade-through transaction was, for a stopped buy order, lower than the national best Bid in the NMS stock at the time of execution or, for a stopped sell order, higher than the national best offer in the NMS stock at the time of execution.
Sub-Penny Trading	Indicates a non-regulatory Opening Delay or Trading Halt for an NYSE security whose price may fall below $1.05, possibly leading to a sub-penny execution.
Trading Halt	A temporary halt in the trading of a particular security by a Participant.
Trading Range Indication	Denotes 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.

APPENDIX C: SUMMARY OF DAILY CTS MULTICAST LINE MESSAGES

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.

TIME		TRANSMISSION
01:40 (ET)		Line Integrity Messages*
02:00 (ET)		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 - 20:05		Administrative Messages Pre-Opening Indication Messages Stock Indices
03:33 - 20:30		Reset Message Sequence Number Messages (if required) Retransmission Messages Test Messages
03:45 & 07:45		Start of Day Summary Message
04:00		"MARKET OPEN" (NYSE ARCA)
07:00		"MARKET OPEN" (NASDAQ OMX)
08:00		"MARKET OPEN" (NASDAQ OMX BX, FINRA, ISE, NSX, NASDAQ OMX PHLX & BATS)
09:15		"MARKET OPEN" (CBOE)
9:30		"MARKET OPEN" (NYSE, NYSE AMEX, CHX)
09:30 - 20:05		"MARKET OPEN" Trade Reports Bond Reports Local Issue Reports Prior Day Reports Correction Messages Cancel/Error Messages Administrative Messages Primary Market Volume and Index Messages Stock Indices Test Messages Trading Status Messages

APPENDIX C: SUMMARY OF DAILY CTS MULTICAST LINE MESSAGES

TIME		TRANSMISSION
10:00 - 16:00		NYSE AMEX Approx ECM Volume (hourly) NYSE AMEX Corporate Bond Market Dollar Value (hourly)
16:00		yyyMARKET CLOSED TRDS FROM MKTS STILL OPN WILL CONTINUEzz
16:00		"MARKET CLOSED" (CHX, NYSE, NYSE AMEX)
16:00 - 16:15		<SYMBOL (S)> Not Available for NYSE Crossing Session Message (1st Iteration)
16:07 - 16:15		yyyCLOSEzz yyyTRDS FROM MKTS STILL OPN WILL CONTINUEzz Tape A & B Regional Held Trades NYSE Approx. Volume and Indices Message NYSE 15 Most Active Approx. Adjusted Volume Tape A (incl. NYSE) (1st Iteration) NYSE AMEX Approximate Volume
16:10		Approximate NYSE Trade and Dollar Value (1st Iteration)
16:15		Consolidated End of Day Summary Messages (1st Iteration) Participant End of Day Summary Messages (1st Iteration)
16:15 - 16:30		<SYMBOL (S)> Not Available for NYSE Crossing Session Message (2nd Iteration)
16:15 - 16:30		Prior Day Correction Administrative Messages Administrative Messages (e.g., Ex-Div Notices, New Listings, Admitted to Trading, Stock Splits, Stricken from Listing, etc.)
16:16		NYSE Closing Bid/Offer of Securities Not Traded
16:28		NYSE AMEX Closing XAM Index
16:30		yyyMARKET CLOSED TRDS FROM MKTS STILL OPN WILL CONTINUEzz NYSE AMEX Sub-Indices (Industrial & Geographical) NYSE Prior Day Correction Administrative Messages
16:30 - 16:50		NYSE Closing Prices Regional Approx Volume Tape A and B (2nd Iteration)

APPENDIX C: SUMMARY OF DAILY CTS MULTICAST LINE MESSAGES

TIME		TRANSMISSION
16:36		yyyCLOSEzz yyyTRDS FROM MKTS STILL OPN WILL CONTINUEzz Tape A & B Regional Held Trades (2nd Iteration) NYSE AMEX Final Approx. Volume
16:45		<SYMBOL (S)>Not available for NYSE Crossing Session..News Message
16:55		Approximate NYSE Market Summary Indices & Issues Traded, Up, Down and Unchanged (1st Iteration)
17:00		**"MARKET CLOSED" (BATS)**
17:01		NYSE Crossing Session I Trades NYSE AMEX Crossing Session Trades
17:00 - 17:15		NYSE AMEX Crossing Session Summary Message (I & II)
17:25 - 18:00		NYSE Volume and Indices Approximate NYSE Trade and Dollar Value (2nd Iteration) NYSE 15 Most Active (1st Iteration) NYSE Closing Prices (2nd Iteration) Regional Approx Volume Tape A and B (3rd Iteration) Final NYSE Market Summary Indices and Issues Traded, Up, Down and Unchanged (2nd Iteration)
17:30		"MARKET CLOSED" (CBSX)
17:30 - 18:00		NYSE AMEX Closing Prices - NYSE AMEX Equity, ECM's and Corporate Bond NYSE AMEX Closing Bid/Offer - NYSE AMEX Equity, ECM's and Corporate Bond NYSE AMEX Corporate Bond Market Dollar Value
18:00		"MARKET CLOSED" (NASDAQ OMX PHLX)
18:30		"MARKET CLOSED" (NASDAQ OMX BX, FINRA and NSX)
18:30		yyyMARKET CLOSED TRDS FROM MKTS STILL OPN WILL CONTINUEzz

APPENDIX C: SUMMARY OF DAILY CTS MULTICAST LINE MESSAGES

TIME		TRANSMISSION
18:40 - 18:50		Regional Approx Volume Tape A and B (4th Iteration)
18:40 - 18:50		Consolidated End of Day Summary Messages (2nd Iteration)
		Participant End of Day Summary Messages (2nd Iteration)
18:50		NYSE Crossing Session Summary Message (I & II)
18:50		NYSE Crossing Session Summary Administrative Messages (III & IV)
18:55		Approximate Total Trades and Dollar Value Message
20:00		"MARKET CLOSED" (ISE, NASDAQ OMX, NYSE ARCA)
20:04 - 20:11		Consolidated End of Day Summary Messages (3rd Iteration)
		Participant End of Day Summary Messages (3rd Iteration)
20:11 - 20:14		"Good Night Network A"
		"Good Night Network B"
20:14		End of Transmission**

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

**Dependent on when the "Good Night" Message is sent (i.e., approximately 20:04 - 20:11).

APPENDIX D: ADMINISTRATIVE MESSAGES TRANSMITTED

ADMINISTRATIVE MESSAGES TRANSMITTED

Administrative Message	Before Market Open	During Trading Hours	After Market Open	Anytime
Test Messages	X	X		
Listings to be admitted:				
-Bankrupt	X			
-Called for Redemption	X			
-Cash, Next Day or Regular Way Delivery	X			
-Change of Corporate Name	X			
-Trading Suspended		X		
-Trades will be regular way in lieu of when issued	X			
-Drop Old and New	X			
-Ex-Distribution	X			
-Ex-Rights	X			
-Ex-Dividends	X			
-Initial Public Notices	X			
-New Listings - admitted to the list and to dealings	X			X
-New Issues - added to list (usually AM)	X			
-New Issues - deleted from list (usually AM)	X			X
-Next Day and Cash Notices				X
-Rights to Subscribe	X		X	
-Rights and Warrants Admitted to Dealings			X	
-Settlement Date	X			
-Stock Symbol changes	X		X	X
-Stock and Bond Symbol Notices	X			
-Stricken from listings and registration	X			
Emergency (sent as needed) – Opening Delayed Due to Storm or other emergency conditions (e.g., transit strikes)	X			
New Membership Organization (sent as needed)	X			

ADMINISTRATIVE MESSAGES TRANSMITTED (continued)

Administrative Message	Before Market Open	During Trading Hours	After Market Open	Anytime
Special Exchange Closing (Thanksgiving/Emergency Situation)	X			
Trading Hour Changes (sent as needed)	X			
Market Open (sent daily)		X		
.5 Hourly and Hourly Index and Volume (sent daily)		X		
Index Corrections (sent as needed)		X		
Minutes of Silence (Veterans Day)		X		
Secondary / Complete Distribution (sent as needed)		X		
Special Bid and Special Offering (sent as needed)		X		
Stock XYZ will not open for trading today (sent as needed)		X		
Market Closed message (sent daily)			X	
Close (end of NYSE trading reporting) (sent daily)			X	
Crossing Session Summary messages (sent daily)			X	
Held Trade reports (sent daily)			X	
Regional exchange volumes (sent as needed)			X	
Adjusted volumes (Regional Exchanges) (sent daily)			X	

ADMINISTRATIVE MESSAGES TRANSMITTED (continued)

Administrative Message	Before Market Open	During Trading Hours	After Market Open	Anytime
NYSE 15/NYSE AMEX 10 Most Active Issues message (sent daily)			X	
Closing Prices (sent daily)			X	
Bid/Offer of issues that did not trade (sent daily)			X	
Prior Day Trade Reports and Prior Day Corrections (sent as needed)			X	
Daily Final index, weekly etc. (sent every Friday) summaries (Number of issues up, down and unchanged)			X	
NYSE Crossing Session Volume			X	
Crossing Session 2 - Shared Dollar Volume of NYSE trading and number of transactions (sent daily) (Adjusted NYSE Volume)			X	
Goodnight – date (sent daily)			X	
NYSE AMEX Closing Reports (sent daily)			X	
NYSE AMEX Stock and Bond Values (sent daily)			X	

APPENDIX E: ABBREVIATIONS FREQUENTLY USED IN ADMIN MESSAGES

ABBREVIATION	FULL WORD
- A -	
APPROX	APPROXIMATE
ADDL	ADDITIONAL
- B -	
BK	BACK
- C -	
CXL	CANCEL
C	CASH
CL	CALLED
CTS	CENTS
CHG	CHANGE
CV	CONVERTIBLE
CT	CERTIFICATE
- D -	
DLY	DELAYED
DISS	DISSEMINATION
DN	DOWN

ABBREVIATIONS FREQUENTLY USED IN ADMIN MESSAGES

ABBREVIATION	FULL WORD
- E -	
EFF	EFFECTIVE
ERR	ERROR
XDIS	EX-DISTRIBUTION
XD	EX-DIVIDEND
XRT	EX-RIGHTS
XINT	EX-INTEREST
- F -	
FINC	FINANCIAL
- H -	
HLT	HALTED
- I -	
IMB	IMBALANCE
IMMED	IMMEDIATELY
IDX	INDEX
IND	INDICATION
INDU	INDUSTRIALS

ABBREVIATIONS FREQUENTLY USED IN ADMIN MESSAGES

ABBREVIATION	FULL WORD
- M -	
MKT	MARKET
- N -	
N	NEW
ND	NEXT DAY
- O -	
OPN	OPEN
OPD	OPENED
OPG	OPENING
ODR	ORDER
- P -	
PND	PENDING
P R	PREFERRED
PREV	PREVIOUS
- R -	
R T	RIGHTS

ABBREVIATIONS FREQUENTLY USED IN ADMIN MESSAGES

ABBREVIATION	FULL WORD
- S -	
SLS	SALES
SLR	SELLER
SHRS	SHARES
SLD	SOLD
SLD.LAST	SOLD LAST
SP.OFF	SPECIAL OFFERING
SP	SPECIAL
SD	STAMPED
S̲ T	STOPPED STOCK
- T -	
TRDS	TRADES
TRD	TRADING
TRNS	TRANSACTIONS
TRAN	TRANSPORTATION

ABBREVIATIONS FREQUENTLY USED IN ADMIN MESSAGES

ABBREVIATION	FULL WORD
- U -	
UNCH	UNCHANGED
UTIL	UTILITY
- V -	
VOL	VOLUME
- W -	
WD	WHEN DISTRIBUTED
W̲ I	WHEN ISSUED
WS	WARRANTS

APPENDIX F: ADMINISTRATIVE MESSAGE TEXT SAMPLES

ADMINISTRATIVE MESSAGE FORMATS FOR INITIAL PUBLIC OFFERINGS (IPO)

The initial offering price of an IPO, rather than the first sale price reported to CTS is to be used in the calculation of the IPO "Net Change" during the first day of trading.

The following represents the format of the textual admin messages which will be used to broadcast IPO information over L2 and/ or L3 and the Low Speed Tickers:

I.   NETWORK A

ADMINISTRATIVE MESSAGE INCLUDING IPO PRICE

(3 "Begin Announce" Characters)

yyyTRADING BEGINS <COMPANY NAME> <INFORMATION ABOUT SECURITY>* TICKER SYMBOL XYZ POST$_2$SEC N SETTLEMENT IS SUBJECT TO THE CLOSING OF THE OFFERING ON <MMDDYY> UNDERWRITER REPORTS INITIAL PUBLIC OFFERING PRICE$_{\$25}$**zz**

(2 "End Announce" Characters)

ADMINISTRATIVE MESSAGE EXCLUDING IPO PRICE (TRADING BEGINS BEFORE IPO PRICE IS SENT)**

yyyTRADING BEGINS <COMPANY NAME> <INFORMATION ABOUT SECURITY> TICKER SYMBOL XYZ POST$_2$SEC N SETTLEMENT IS SUBJECT TO THE CLOSING OF THE OFFERING ON <MMDDYY> UNDERWRITER REPORTS INITIAL PUBLIC OFFERING PRICE FORTHCOMINGzz

ADMINISTRATIVE MESSAGE TEXT SAMPLES

ADMINISTRATIVE MESSAGE FORMATS FOR INITIAL PUBLIC OFFERINGS (IPO)

II.   NETWORK B

ADMINISTRATIVE MESSAGE INCLUDING IPO PRICE

yyy**NYSE AMEX** NOTICE..THE FOLLOWING SECURITY WILL BE ADMITTED TO LISTING AND REGISTRATION EFFECTIVE <IMMEDIATELY OR HH:MM A.M./P.M.> <COMPANY NAME> <INFORMATION ABOUT SECURITY>* TICKER SYMBOL XYZ POST$_2$UNDERWRITER REPORTS INITIAL PUBLIC OFFERING PRICE$_{\$25}$zz

ADMINISTRATIVE MESSAGE EXCLUDING IPO PRICE (TRADING BEGINS BEFORE IPO PRICE IS SENT)**

yyy**NYSE AMEX** NOTICE..THE FOLLOWING SECURITY WILL BE ADMITTED TO LISTING AND REGISTRATION EFFECTIVE <IMMEDIATELY OR HH:MM A.M./P.M.> <COMPANY NAME> <INFORMATION ABOUT SECURITY>* TICKER SYMBOL XYZ POST$_2$UNDERWRITER REPORTS INITIAL PUBLIC OFFERING PRICE FORTHCOMINGzz

III.   NETWORKS A and B

ADMINISTRATIVE MESSAGE REPORTING PREVIOUSLY OMITTED IPO PRICE

yyy<COMPANY NAME> TICKER SYMBOL XYZ UNDERWRITER REPORTS INITIAL PUBLIC OFFERING PRICE WAS$_{\$}$zz

ADMINISTRATIVE MESSAGE TEXT SAMPLES

ADMINISTRATIVE MESSAGE TO CORRECT IPO PRICE

> yyyCORRECTION..<COMPANY NAME> UNDERWRITER REPORTS INITIAL PUBLIC OFFERING PRICE
>
> CORRECTED TO$_{\$22}$zz

ADMINISTRATIVE MESSAGE TO CORRECT IPO TICKER SYMBOL

> yyyCORRECTION..<COMPANY NAME> TICKER SYMBOL CORRECTED TO XXX   UNDERWRITER
>
> REPORTS INITIAL PUBLIC OFFERING PRICE WAS$_{\$25}$zz

> **Note**: [*]<INFORMATION ABOUT SECURITY> -
>   Refers to additional information concerning the particular security, e.g., par value, ADR's, etc.
>   [**]In instances when the initial offering price of an IPO is forthcoming, CTS Data Recipients should temporarily calculate "Net Change" based on the first (opening) trade price. Afterwards, when an IPO price is received, the IPO price should be used as the base price to calculate "Net Change".

ADMINISTRATIVE MESSAGE REPORTING VOLUME

> yyyTODAY APPROXIMATE VOLUMES FOR TAPE etc ….$_{\$}$zz

ADMINISTRATIVE MESSAGE TEXT SAMPLES

TO BE ADMITTED TO THE LIST AND TO TRADING

yyyTO BE ADMITTED TO THE LIST AND TO TRADING AT THE OPENING OF THE TRADING
SESSION...<COMPANY NAME> COMMON STOCK TICKER SYMBOL XYZ POST 15 SECTION Jzz

TO BE SUSPENDED FROM TRADING

yyyTRADING WILL BE SUSPENDED BEFORE THE OPENING OF BUSINESS <MONTH DD YYYY> IN THE
COMMON STOCK OF <COMPANY NAME> ALL ORDERS IN THE HANDS OF SPECIALISTS-ODD-LOT
DEALERS WILL EXPIRE AT THE CLOSE OF BUSINESS TODAY. SUBJECT TO EFFECTIVENESS OF
MERGER. TICKER SYMBOL XYZ POST 2 SECTION Pzz

STRICKEN FROM LISTING AND REGISTRATION

(3 LETTER DOTS)

yyySTRICKEN FROM LISTING AND REGISTRATION**...**XYZ CORPORATION COMMON STOCK DEALINGS
WERE SUSPENDED <MONTH DD YYYY> DEALINGS CONTINUE UNDER XYZ CORPORATION
DELAWAREzz

SUSPENDED AND STRICKEN FROM LISTING AND REGISTRATION

yyySUSPENDED AND STRICKEN FROM LISTING AND REGISTRATION...XYZ CORPORATION COMMON
STOCK DEALINGS WERE SUSPENDED <MONTH DD YYYY> DEALINGS CONTINUE UNDER XYZ
CORPORATION DELAWAREzz

REGULAR WAY IN LIEU OF WHEN ISSUED

yyyCOMMENCING <MONTH DD YYYY> TRADING WILL BE REGULAR WAY IN LIEU OF WHEN ISSUED IN
THE COMMON STOCK OF XYZ ALL WHEN ISSUED ORDERS IN THE HANDS OF SPECIALISTS-ODD-LOT
DEALERS WILL EXPIRE AT THE CLOSE OF BUSINESS <MONTH DD YYYY> TICKER SYMBOL...XYZ POST
6 SECTION Ezz

ADMINISTRATIVE MESSAGE TEXT SAMPLES

WHEN DISTRIBUTED

yyySUBJECT TO OVERSUBSCRIPTION BEGINNING <MONTH DD YYYY> TRADING IN THE COMMON STOCK OF XYZ CORP. WILL BE ON A REGULAR WAY BASIS AND ON WHEN DISTRIBUTED BASIS. MEMBER ORGANIZATIONS ARE ADVISED THAT IF THEY ARE UNABLE TO MAKE DELIVERY ON A NORMAL THREE-DAY BASIS REGULAR WAY ORDERS SHOULD BE CANCELLED AND RE-ENTERED IN THE WHEN DISTRIBUTED MARKET TICKER SYMBOL XYZ POST 15 SECTION Jzz

CHANGE IN SECURITY SYMBOL

yyyCOMMENCING <MONTH DD YYYY> DEALINGS WILL BE IN COMMON STOCK OF <COMPANY NAME> IN VIEW OF CHANGE OF NAME FROM <COMPANY NAME> ALL ORDERS IN HANDS OF SPECIALISTS AND ODD LOT DEALERS AT CLOSE OF BUSINESS TODAY WILL BE EFFECTIVE AS TO PURCHASES AND SALES UNDER THE NEW NAME SUBJECT TO EFFECTIVENESS OF CHARACTER AMENDMENT NEW TICKER SYMBOL..XYZ..POST 20 SECTION Izz

RESTRICTION ON STOP ORDERS

yyyIN VIEW OF THE CONDITIONS WHICH EXIST IN THE MARKET <COMPANY NAME> COMMON STOCK THE NYSE HAS RULED THAT UNTIL FURTHER NOTICE NO MEMBER OR MEMBER ORGANIZATION SHALL ACCEPT STOP ORDERS IN THIS ISSUE IN ROUND LOTS OR IN ODD LOTS FOR EXECUTION ON THIS EXCHANGE AND ANY SUCH STOP ORDERS IN THIS ISSUE MUST BE CANCELLED PRIOR TO THE OPENING TODAY AND THE CUSTOMERS NOTIFIED OF THIS ACTIONzz

SECONDARY DISTRIBUTIONS

yyy<COMPANY NAME> ANNOUNCE THAT THE SECONDARY DISTRIBUTION OF 100.000 SHARES OF <COMPANY NAME> COMMON STOCK HAS BEEN COMPLETED AND THAT THEY DID NOT STABILIZE TO FACILITATE THE OFFERINGzz

ADMINISTRATIVE MESSAGE TEXT SAMPLES

WANTED FOR CASH

yyyWANTED FOR CASH..500 XYZ&Nzz

OFFERED FOR CASH

yyyOFFERED FOR CASH...2000 XYZ&Nzz

RIGHTS ADMITTED TO TRADING

yyyADMITTED TO DEALINGS LONG AND COMPANY RIGHTS WHEN ISSUED TICKER SYMBOL XYZ WT WI VARIATIONS 64Szz

NEW ISSUE ADDED TO LIST

yyyADMITTED TO LIST AND TO DEALINGS <COMPANY NAME> 8.16 PERCENT PREFERRED STOCK TICKER SYMBOL XYZ PRC 10 SHARE UNITzz

ISSUE DELETED FROM LIST

yyySTRICKEN FROM LISTING AND REGISTRATION <COMPANY NAME> COMMON STOCK SERIES A $1.70 CUMULATIVE CONVERTIBLE PREFERENCE STOCK DEALINGS WERE SUSPENDED <MONTH DD YYYY>zz

EX-DIVIDEND NOTICES

yyyREGULAR TRADES IN THE FOLLOWING STOCKS WILL BE EX DIVIDEND <DAY> <MONTH DD YYYY> AND CASH TRADES THROUGH THE RECORD DATE WILL INCLUDE DIVIDEND XYZ 35 CENTS BY PR 1 18 .75 AB PRB 1 95 CD PR 45 CENTSzz

DENOMINATOR CHANGE

yyyEFFECTIVE IMMEDIATELY AND UNTIL FURTHER NOTICE BIDS AND OFFERS SHALL BE IN VARIATIONS OF EIGHTHS IN <COMPANY NAME> COMMON STOCKzz

ADMINISTRATIVE MESSAGE TEXT SAMPLES

NYSE AMEX **EMERGING COMPANY MARKET MESSAGES**

yyyNYSE AMEX.ECM.APPROXIMATE.VOLUME$_{25.000}$zz

yyyNYSE AMEX.ECM.FINAL.VOLUME$_{25.500}$zz

CROSSING/AFTER HOURS SESSION MESSAGES

yyyNYSE..CROSSING.SESSION.I..SHARES$_{261.400}$CROSSING

SESSION.II.NYSE.LISTED.STOCKS.DOLLAR.VALUE$_{\$100.000.00}$

AND.SHARES$_{247.000}$zz

yyyNYSE AMEX.AFTER.HOURS.TRADING.SESSION.STOCKS.VOLUME

$_{25.000}$CUMULATIVE.DAILY.VOLUME$_{13.039.790}$zz

yyyREGIONAL.CROSSING.SESSION.I..VOLUME..PHLX$_{500..}$SHARES.

BSE$_{500..}$SHARESzz

NOTICE AFFECTING OPERATIONS OF AN EXCHANGE

yyyMARKET OPENING DELAYED BECAUSE OF STORM CONDITIONS NOTICE OF OPENING WILL BE
GIVEN AT LEAST 15 MINUTES IN ADVANCEzz

STOCKS NOT AVAILABLE FOR NYSE CROSSING

yyyXYZ NOT AVAILABLE FOR NYSE CROSSING SESSION NEWSzz

MARKET VOLUME AND INDEX MESSAGE (NYSE)

yyy$_{10.00}$ AM APPROX NYSE VOL STOCK$_{1.400.000}$NYSE WS NONE MKT UP$_{26}$CTS

NYSE IDX$_{251.24}$UP$_{1.90}$INDU$_{299.37}$UP$_{3.33}$TRAN$_{245.20}$UNCH UTIL$_{235.46}$UNCH FINC$_{221.75}$UP$_{0.01}$zz

ADMINISTRATIVE MESSAGE TEXT SAMPLES

NASDAQ OMX PHLX VOLUME WEIGHTED AVERAGE PRICE MESSAGES

yyyPHLX NETWORK A VOLUME WEIGHTED AVERAGE PRICE APPROX VOLUME$_{0.000.000}$zz

yyyPHLX NETWORK B VOLUME WEIGHTED AVERAGE PRICE APPROX VOLUME$_{00.000}$zz

END OF TRADING DAY

yyyGOODNIGHT NETWORK A <MONTH$_{DDYYYY}$>zz

yyyGOODNIGHT NETWORK B <MONTH$_{DDYYYY}$>zz

ADMINISTRATIVE NOTIFICATION MESSAGE FOR REPORTING CTS DELAYS

STANDARD MESSAGE SENT UPON DETECTION OF DELAY

yyyALERT ALERT ALERT THE CONSOLIDATED TAPE SYSTEM IS EXPERIENCING A REPORTING DELAY STANDBY FOR FURTHER UPDATES AS INFORMATION BECOMES AVAILABLEzz

EXAMPLE OF UPDATE MESSAGE ON STATUS OF DELAY

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

STANDARD MESSAGE SENT UPON RETURN TO NORMAL REPORTING

yyyALERT ALERT ALERT THE CONSOLIDATED TAPE SYSTEM REPORTING IS NOW NORMALzz

APPENDIX G: ALLOWABLE SYMBOL AND INDEX SUFFIXES FOR CTS[*]

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"
/DV	Accumulated dividend per share, net of expenses, through and including the previous day's close of trading.

Note: *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 AND INDEX SUFFIXES FOR CTS[*]

SUFFIX	DESCRIPTION
- E -	
/EC	EMERGING COMPANY MARKETPLACE[SM]
/EU	Estimated cash amount for creation unit
- F -	
/F/N	Foreign News
- I -	
/ID	Index – differentiates an index from a stock with the same root symbol
/IV	Intra-day Net Asset Value per share
- M -	
/MN	"Mini"
- N -	
/NV	Net Asset Value per share, as of the close on the previous trading day

Note: *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 AND INDEX SUFFIXES FOR CTS[*]

SUFFIX	DESCRIPTION
- 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
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

Note: *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 AND INDEX SUFFIXES FOR CTS[*]

SUFFIX	DESCRIPTION
- R -	
r	Rights
rw	Rights When Issued
- S -	
/SC	Small Corporate Offering Registration
/SD	Stamped
/SO	Current Shares (outstanding in thousands)
/SM	"Mini" Settlement
/SP	Special
/SV	Settlement
- T -	
/TC	Total cash amount per creation unit (in thousands)
/TEST	Exclusive suffix used for intraday test message
/TT	Tier II Securities

Note: *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 AND INDEX SUFFIXES FOR CTS[*]

SUFFIX	DESCRIPTION
- **U** -	
/U	Units (A combination of securities composed of two or more of warrants, common stocks, preferred stocks and/or 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

Note 1: *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	Description
XD	Ex-Dividend
XDIS	Ex-Distribution
Xr	Ex-Rights
N	New
XI	Ex-Interest

APPENDIX H: TIME STAMP CONVERSION TABLE

The Time Stamp conversion table is used to represent the time reflected in the Time Stamp field of the Message Header.

TIME	ASCII	HEXADECIMAL	DECIMAL
00	0	30	48
01	1	31	49
02	2	32	50
03	3	33	51
04	4	34	52
05	5	35	53
06	6	36	54
07	7	37	55
08	8	38	56
09	9	39	57
10	:	3A	58
11	;	3B	59
12	<	3C	60
13	=	3D	61
14	>	3E	62
15	?	3F	63
16	@	40	64
17	A	41	65
18	B	42	66

TIME STAMP CONVERSION TABLE

TIME	ASCII	HEXADECIMAL	DECIMAL
19	C	43	67
20	D	44	68
21	E	45	69
22	F	46	70
23	G	47	71
24	H	48	72
25	I	49	73
26	J	4A	74
27	K	4B	75
28	L	4C	76
29	M	4D	77
30	N	4E	78
31	O	4F	79
32	P	50	80
33	Q	51	81
34	R	52	82
35	S	53	83
36	T	54	84
37	U	55	85
38	V	56	86

TIME STAMP CONVERSION TABLE

TIME	ASCII	HEXADECIMAL	DECIMAL
39	W	57	87
40	X	58	88
41	Y	59	89
42	Z	5A	90
43	[	5B	91
44	\	5C	92
45	]	5D	93
46	^	5E	94
47	_	5F	95
48	`	60	96
49	a	61	97
50	b	62	98
51	c	63	99
52	d	64	100
53	e	65	101
54	f	66	102
55	g	67	103
56	h	68	104
57	i	69	105
58	j	6A	106
59	k	6B	107

APPENDIX I: CORRECTION/CANCEL/ERROR MESSAGES SAMPLES

Correction - **Trade Price**

EVENT	MESSAGE	SEQUENCE NUMBER	SEQUENCE NUMBER OF TRANSACTION BEING ADJUSTED	ORIGINAL PRICE	CORRECTED PRICE
1	TRADE	000011352		100	
2	TRADE	000011353		100 .13	
3	CORRECTION	000012684	000011352	100	100 .63

Correction to Correction - **Trade Price**

EVENT	MESSAGE	SEQUENCE NUMBER	SEQUENCE NUMBER OF TRANSACTION BEING ADJUSTED	ORIGINAL PRICE	CORRECTED PRICE
1	TRADE	000013598		100 .38	
2	CORRECTION	000014254	000013598	100 .38	100 .88
3	CORRECTION	000015477	000014254	100 .88	101 .13

Correction to Correction - **Sale Condition**

EVENT	MESSAGE	SEQUENCE NUMBER	SEQUENCE NUMBER OF TRANSACTION BEING ADJUSTED	ORIGINAL SALE CONDITION	CORRECTED SALE CONDITION
1	TRADE	000004211		REGULAR	
2	CORRECTION	000004649	000004211	REGULAR	SOLD
3	CORRECTION	000004650	000004649	SOLD	SOLD LAST

Note 1: Corrections are **not** applied to a cancelled or error trade. If a correction to a cancelled or error trade is required, the Participant will enter a new trade.

Note 2: Security Symbols are **not** corrected. If a trade is entered with a wrong Security Symbol, the trade is cancelled and a new trade entered by the Participant.