Trade Data Dissemination Service

(TDDS)

Data Feed Interface Specification

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1.0 Introduction

1.1 Background Information

The Trade Data Dissemination Service℠ (TDDS℠) data feed is designed to carry over-the-counter (OTC) trade data via the FINRA OTC Reporting Facility (ORF) for publicly traded equities that are not NMS stocks, as defined in Rule 600(b) of SEC Regulation NMS and traded over the counter.

The TDDS data feed provides the following data elements:

- Real-time data for ORF transactions in all OTC Bulletin Board® (OTCBB) securities.
- Real-time data for ORF transactions in Other-OTC securities that are traded over the counter (OOTC) in the United States;
- End-of-Day Trade Summary Report (including high price, low price, closing price, net change, and volume) for all OTCBB issues; and
- End-of-Day Trade Summary Report for OOTC issues that traded during the current business day.

1.2 NASDAQ OMX Feeds and Display Issues

As noted above, the TDDS data feed carries trade data for OTCBB and OOTC issues. In addition to TDDS, firms may be interested in processing the Bulletin Board Dissemination Service℠ (BBDS℠), which contains market participant and inside quotation data for OTCBB issues. Firms must process both data feeds to create a complete OTCBB display.

Please note that neither TDDS nor BBDS carry quotation data for OOTC securities on its data feed products.

1.3 Entitlement Level

OTCBB data, which is disseminated on the BBDS and TDDS data feeds, is currently part of the UTP Level 1 data entitlement. For more information, please refer to the Level 1 product page on the NASDAQ OMX Trader® website.

1.4 Connectivity Options

Direct access to TDDS is available via the same connectivity providers as NASDAQ OMX trading and market data products. Please refer to the NASDAQ OMX Connectivity Provider List on NASDAQ OMX Trader for details.

1.5 Document Scope

This data feed interface specifications document defines the communications interface and message format requirements for the direct connect subscribers to the Trade Data Dissemination Service (TDDS) product. All time references in this data feed interface specification are stated in Eastern Standard/Daylight Time.

This document was last updated on **July 12, 2013**. Please refer to Appendix E of this document for version control information. NASDAQ OMX reserves the right to add, delete, or modify any of the message formats outlined in this document as needed. As noted above, direct data feed subscribers are required to code their systems to handle data feed format changes. In advance of each TDDS product change, NASDAQ OMX will post a Vendor Alert on the NASDAQ OMX Trader web site detailing the data feed format change and release schedule.

1.6 Contact Information

Questions about the TDDS data feed product should be directed to NASDAQ OMX Global Data Products at +1 301 978 5307.

2.0 General System Description

2.1 Bandwidth Requirements

As of May 2012, the recommended bandwidth allocation for the TDDS data feed is:

Data Feed Channel	Bandwidth Allocation (Per Multicast Group)
TDDS	500 Kbps

To ensure data receipt, NASDAQ OMX broadcasts two (a primary and a back-up) multicast groups with TDDS data feeds. With the exception of the IP addresses, the data for the two multicast groups is identical.

Please note that NASDAQ OMX and FINRA reserve the right to modify the TDDS bandwidth allocation for these IP calls as system capacity dictates. Direct data feed subscribers are required to maintain sufficient network capacity to handle the NASDAQ OMX and FINRA data feed products ordered.

2.2 Transmission Protocol

2.2.1 Protocol Overview

Regardless of network option, TDDS transmissions will be transmitted in a non-interactive simplex mode using Internet Protocol (IP) multicast. A broadcast transmission with no answer back will be employed. A version of Cisco's Protocol Independent Multicast (PIM) routing protocol will be used to route multicast packets through the network. All transmissions will be in standard ASCII code with 7 data bits (8^{th} bit is zero).

NASDAQ OMX data feeds are designed to adhere to Request for Comment (RFC) 1112 standard from The NIC Group for IP multicast protocol. This RFC states:

> *IP multicasting is the transmission of an IP datagram to a "host group", a set of zero or more hosts identified by a single IP destination address. A multicast datagram is delivered to all members of its destination host group with the same "best-efforts" reliability as regular unicast IP datagrams, i.e., the datagram is not guaranteed to arrive intact at all members of the destination group or in the same order relative to other datagrams.*

To minimize data loss, NASDAQ OMX provides primary and back-up groups for its data feed services. NASDAQ OMX strongly recommends that all direct data feed subscribers program their systems to process both the primary and back-up groups.

The data messages are identical for two groups with the exception of the following UDP message header field values: Source IP Address, Destination IP Address, UDP Source Port Number, and UDP Destination Port Number.

The purpose of two host groups is to provide an extra layer of data redundancy within the extranet and end-user networks. By reading and utilizing both multicast groups into their production environment, IP multicast customers can help to protect themselves against network anomalies which could cause interruptions in data flow. To minimize data loss,

NASDAQ OMX strongly recommends that data feed customers process both the primary and back-up groups within their networks.

2.2.2 IP Multicast Addresses

Each IP multicast stream will be assigned a unique Class D host group address for transmission via the extranets. The Class D addresses have been registered by NASDAQ OMX with The NIC Group. Please refer to the IP Multicast Data Feed Addressing Information page on the NASDAQ OMX Trader website for the current IP multicast addresses and port assignments for TDDS.

2.3 Transmission Block

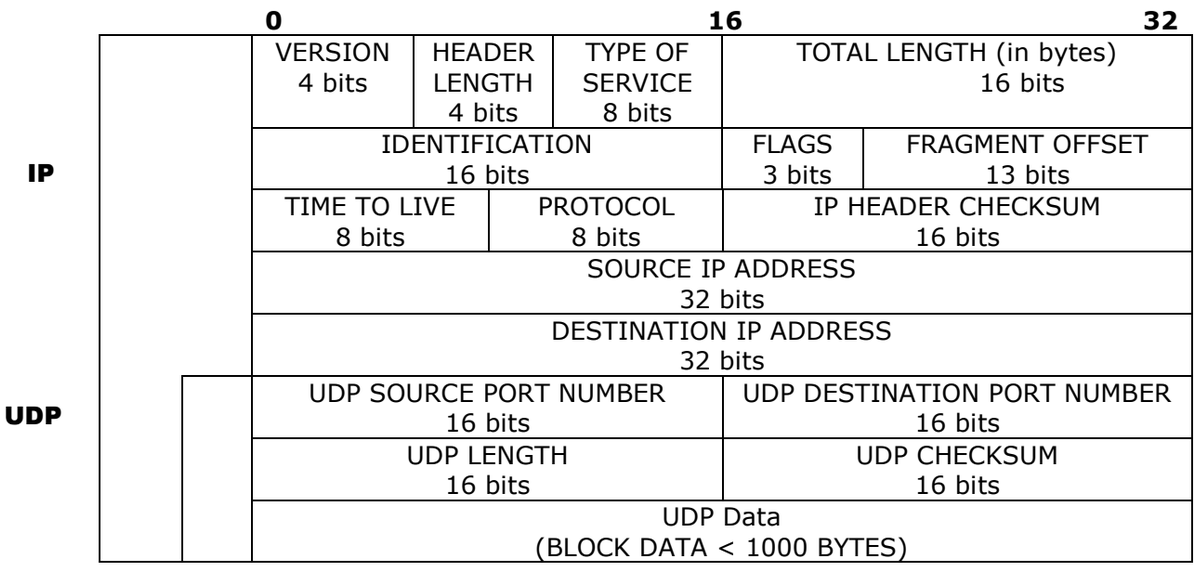
Messages sent to data feed recipients are blocked to provide more efficient line utilization. Each block contains a maximum of 1000 data characters. Messages may not span blocks. Each message in a block ends in a Unit Separator (US) except the last message, which ends in an End of Text (ETX). With the exception of certain messages (e.g. Control messages), each message sent over TDDS contains a fixed format header and a text section that has a format and length that varies for each message type.

DATA BLOCK FORMAT

UDP/IP Headers	SOH	Message 1 header and text	US	Message 2 header and text	US	Message n header and text	ETX
	1000 Byte Block (Max) from SOH to ETX						

2.4 UDP/IP Headers

Each IP datagram includes the IP and UDP headers as well as the block text data. The datagram fields can be read left to right starting at the top and working your way down through the datagram.



2.5 Field Descriptions

2.5.1 IP Header Fields

The following field descriptions pertain to the IP header:

- **VERSION** – 4 bit field used to define the current version of the IP protocol for transmission. The value will be set to 4.
- **HEADER LENGTH** – 4 bit field to define the number of 32 bit words in the IP header portion of the datagram. For multicast packets being generated by NASDAQ OMX, the value will be set to 5.
- **TYPE OF SERVICE** – 8 bit field with the first 3 bits generally ignored by most network equipment. The next 5 bits are set to zero. Based on this description this field will always have the value of zero (0) for all multicast packets.
- **TOTAL LENGTH** – 16 bit field contains the length in bytes of the entire IP datagram (including UDP header). Since the maximum length of the block text is 1000 bytes, the maximum value for this field is 1028.
- **IDENTIFICATION FIELD** – 16 bit field contains a value that is incremented by one for each packet sent by the system. Not supported for UDP/IP packets.
- **FLAGS AND FRAGMENT OFFSET** – Combined 16 bit field is only used when an IP datagram is fragmented. Not supported for UDP/IP packets.
- **TIME TO LIVE (TTL)** – 8 bit field contains a value that determines the number of routers that a datagram can pass through. Each router that forwards the

datagram will decrement this value by one; when it reaches zero, the router throws it away. It is initially set to 32 by the multicast source systems.

- **PROTOCOL** – 8 bit field contains a value representing the next level encapsulated protocol. Since multicast uses UDP, the value is set to 0x17, which is 23 decimals.
- **HEADER CHECKSUM** – 16 bit field contains a checksum made up of the IP header fields only. The calculation is based on the one's complement sum of the header broken into 16 bit words.
- **IP SOURCE ADDRESS** – 32 bit field contains the Registered Class C address of the multicast datagram source system. Please see the IP Multicast Data Feed Addressing Information page on the NASDAQ OMX Trader website for the current TDDS addresses. **IP DESTINATION ADDRESS** – 32 bit field contains the Registered Class D address for each IP Multicast Group. Please see the IP Multicast Data Feed Addressing Information page on the NASDAQ OMX Trader website for the current TDDS addresses.

2.5.2 UDP Header Fields

The following field descriptions pertain to the UDP header:

- **UDP SOURCE PORT NUMBER** – 16 bit field identifies the $Port_{16}$ address for each IP multicast group. Please see the IP Multicast Data Feed Addressing Information page on the NASDAQ OMX Trader website for the current TDDS addresses. **UDP DESTINATION PORT NUMBER** – 16 bit field identifies the $Port_{10}$ address for each IP multicast group. Please see the IP Multicast Data Feed Addressing Information page on the NASDAQ OMX Trader website for the current TDDS addresses. **UDP LENGTH –** 16 bit field contains the length in bytes of the UDP headers plus the Data Block. The maximum value is 1008.
- **UDP CHECKSUM –** 16 bit field contains a checksum made up of the UDP header plus the Data Block. In addition, it includes the UDP pseudo header, which is made up of selected fields from the IP headers such as Source Address, IP Destination Address, Protocol, and UDP Length. The calculation is based on the one's complement sum of the datagram broken into 16 bit words.

2.5.3 UDP Data Fields

The following field descriptions pertain to the Data Block transmission:

- **SOH AND ETX** – The start of a block of data will be indicated by the Start of Header (SOH) control character. The end of the block will be signified by an End of Text (ETX) control character.
- **US** – The Unit Separator (US) character is utilized in message blocks with multiple messages to signify the end of the preceding message but not the end of the block.
- **BLOCK TEXT** – The block text may consist of one or more messages. A message may not span block boundaries. A message shall consist of a Message Header and a Message Text. Each message in a block shall be delimited by a US character except the last message, which will be delimited by an ETX character.
- **DATA FORMAT** – Alphanumeric fields will be left justified and space (hex 20) filled unless otherwise noted. Numeric fields will be right justified and zero (hex 30) filled unless otherwise noted.

2.6 Character Set

All transmissions will be in standard ASCII code: 7 data bits and the 8th bit always zero.

2.7 Retransmission Capability

The NASDAQ OMX front-end processor will log messages transmitted to recipients. The message formats are defined in subsequent sections of this document. This log will be accessible as a record of messages sent, and will provide a full retransmission capability. Message types not logged and therefore unavailable for retransmission include:

Type	Value
M	Start of Test Cycle
N	End of Test Cycle
T	Line Integrity

Please note that the pre-formatted messages contained between the Start and End of the Test Cycle messages will not be available for retransmission. In the event of a system problem, NASDAQ OMX may also be unable to fulfill requests for messages sent prior to the Message Sequence Number Reset or Intra-Day Quote Wipe-Out control message.

TDDS retransmission requests may be made by sending an electronic mail message to RETRANT@bnasdaqomx.com. Retransmission requests will only be honored during the period from the Start of Day (Category C – Type I) message through the End of Retransmission Request (Category C – Type K) message. The recipient can specify by message sequence number which message range the recipient would like retransmitted.

To ensure proper identification of each vendor, a line specific password must be supplied to the operator taking the request. To request a retransmission, the firm must provide the following information to NASDAQ OMX Computer Operations:

- Data Feed Subscriber's Firm Name
- NASDAQ OMX-Assigned Retransmission Password
- Missing Message Sequence Number(s)
- Contact Name and Telephone Number

Retransmissions will be assigned a low priority in the outgoing message queue in order to prevent any delay or interference with current message delivery. As with original transmissions, retransmissions are broadcast to all direct connect subscribers on both networks. **It is the responsibility of the data feed recipient to ignore retransmitted messages not intended for their firm.** Retransmission messages can be identified by the following attributes:

- **Message Blocking:** Retransmission messages will never be mixed with current messages in the same message block, but current message blocks and retransmission blocks can be interspersed.
- **Message Sequence Number:** The message header will contain the same message sequence number as the original message. Please note that if the Message Sequence Number is reset, no intra-day messages sent prior to the reset control message can be retransmitted.

- **Retransmission Requester:** The message header will contain the unique two-character retransmission requester assigned to the intended recipient. Each firm is given a unique two-character retransmission requester that they should code for in its system. Refer to section 2.7 for more information on the retransmission requester.
- **Date/Time:** The message header will contain the same date and time stamp as the original message.

To obtain the retransmission requester and passwords for your firm, please send an email to NASDAQ OMX Global Data Products at dataproducts@nasdaqomx.com.

3.0 Message Header

Each TDDS message will begin with a 22-byte header. The Message Header defines the format of the data message that follows.

The Message Header is 22 bytes in length and contains the following data fields:

Message Category	Message Type	Session Identifier	Retransmission Requester	Message Sequence Number
1	1	1	2	8

Market Center Originator ID	Date/Time	Reserved
1	7	1

The field definitions for the TDDS message header are outlined in the remainder of this section. Please note that alphabetic and alphanumeric fields are left justified, space filled and numeric fields are right justified, zero filled, unless otherwise specified.

3.1 Message Category

The Message Category is comprised of one alphabetic byte. This field, along with the Message Type, identifies the message format to follow. The allowable values are as follows:

Code	Description
A	Administrative Messages
C	System Control Messages
T	Trade Related Messages

3.2 Message Type

The Message Type is comprised of one alphanumeric byte. This field, along with the Message Category, identifies the message format to follow. The allowable values by category are as follows:

Control Messages *(Defined in section 8 of this document)*:

Category	Type	Usage
C	I	Start of Day
C	J	End of Day
C	O	Market Session Open
C	C	Market Session Close
C	K	End of Retransmission Requests
C	Z	End of Transmissions

Message Header

Category	Type	Usage
C	M	Start of Test Cycle
C	N	End of Test Cycle
C	T	Line Integrity
C	L	Sequence Number Reset
C	X	End of Trade Reporting

Trade-Related Messages *(Defined in sections 5.1)*:

Message Category Code	Message Type Code	Message Format Description
T	1	Short Form Trade Report
T	2	Long Form Trade Report
T	3	Trade Cancel/Error
T	4	Trade Correction

Administrative Messages *(Defined in section 5.3)*:

Message Category Code	Message Type Code	Message Format Description
A	A	General Administrative Message (Free-Form Text)
A	1	Closing Trade Summary

3.3 Session Identifier

The Session Identifier is comprised of one alphabetic byte. This field indicates the market session of the message to follow. The allowable values are as follows:

Code	Description
A	All Market Sessions or Session Independent
U	U.S. Market Session

3.4 Retransmission Requester

The Retransmission Requester is comprised of two, alphanumeric bytes. This field indicates if the message is an original transmission or retransmission. If the message is a retransmission, this field indicates the two-character retransmission identifier of the intended data recipient.

All TDDS recipients must code their systems to process the following values:

Code	Description
O (space)	An original transmission to all recipients
R (space)	A retransmission to all recipients
T (space)	A test cycle transmission to all recipients.
Specific Vendor ID	To be assigned on vendor-by-vendor basis.

In addition to these three codes, NASDAQ OMX has also assigned a special two-character retransmission requester to each direct subscriber of the TDDS data feed. Customers should code their system to process the two-character code assigned to their firm as well as the three global values outlined above. To obtain your retransmission requester, please send an email to NASDAQ OMX Global Data Products. For more information on the TDDS retransmission capability, please refer to section 3.6 of this document.

3.5 Message Sequence Number

The Message Sequence Number is comprised of eight, numeric bytes. At the beginning of each operational cycle, this number will be set to 00000000 (for the Start of Day) of each data channel. Throughout the day, the message sequence number for each original transmission will be incremented by one with the exception of the test cycle and the following control messages:

- The Start of Day (Category C – Type I) message is sent three times to ensure receipt. All three messages in this series will contain a message sequence number of zero.
- The Line Integrity (Category C – Type T) message is sent at one-minute intervals. The message sequence number for these control messages will not be incremented. The message sequence number will contain the same value as the prior original transmission message.
- The Sequence Number Reset (Category C – Type L) message will contain the number to which the Message Sequence Number counter is to be reset. This number is either zero or a number greater than the highest number previously transmitted.
- The End of Day (Category C – Type J) message is sent three times to ensure receipt. Only the first message in this sequence will be incremented.
- The End of Retransmission Requests (Category C – Type K) message is sent three times to ensure receipt. Only the first message in this sequence will be incremented.
- The End of Transmissions (Category C – Type Z) message is sent three times to ensure receipt. Only the first message in this sequence will be incremented.
- The End of Trade Reporting (Category C – Type X) message is sent three times to ensure receipt. Only the first message in this sequence will be incremented.

For more information on these control messages, please refer to section 8 of this document. To obtain the TDDS test cycle messages, please refer to Appendix D of this document.

3.6 Market Center Originator ID

The Market Center Originator Identifier (ID) is comprised of one, alphabetic byte. Please note that this field is case sensitive. This field indicates the market center or NASDAQ OMX system that originated the message that follows. The allowable values are as follows:

Code	Description
E	Market Center Independent (Message Generated by Data Feed Handler)
U (upper case)	OTC Bulletin Board (OTCBB)
u (lower case)	Other OTC Issue (OOTC)
Q	NASDAQ OMX (Used for select control messages only)

3.7 Date/Time

The Date/Time is comprised of seven alphanumeric bytes. This field uses a special format to denote the calendar date and military time that the record was originally generated by the NASDAQ OMX system. This value is broken down as follows:

Date Year	Date Month	Date Day	Time Hour	Time Minute	Time Second
2	1	1	1	1	1

Within these subsections, the values will be formatted in the following manner:

- **Date Year:** The year the transaction occurred. This two-byte field will be stated in numeric format, with possible values 00 to 99.
- **Date Month:** The month the transaction occurred. This one byte field is stated in ASCII text format. The numeric month value will be converted into a single ASCII character based on the Date/Time translation table.
- **Date Day:** The day of the month the transaction occurred. This one byte field is stated in ASCII text format. The day value will be converted into a single ASCII character based on the Date/Time translation table.
- **Time Hour:** The hour of the day the transaction occurred in military time. This one byte field is stated in ASCII text format. The hour value will be converted into a single ASCII character based on the Date/Time translation table.
- **Time Minute:** The minute of the hour the transaction occurred. This one byte field is stated in ASCII text format. The minute value will be converted into a single ASCII character based on the Date/Time translation table.
- **Time Second:** The second of the minute the transaction occurred. This one byte field is stated in ASCII text format. The second value will be converted into a single ASCII character based on the Date/Time translation table.

Note: The Date/Time translation table is available in Appendix C of this document.

3.8 Reserved

This one-byte field is reserved for future use.

4.0 Data Formats

In this section, NASDAQ OMX illustrates the field layout for each TDDS message format. The message formats apply to all market categories (OTCBB, and OOTC). The data definition for each field is outlined in section 7 of this document.

4.1 Trade-Related Messages

4.1.1 Trade Report – Short Form Version

Category T – Type 1

To economize on bandwidth, NASDAQ OMX supports two different versions of the Trade Report Quote message format for TDDS. The short version of the trade report message is 20 bytes in length. NASDAQ OMX will use this short version only if all of the following criteria are met.

- Issue Symbol is 5 characters or less;
- Trade report price is stated in US currency;
- Trade price can be stated in 6 bytes;
- Sale condition modifier does not equal "R" (Seller); and
- Trade report volume is 999,999 shares or less.

The short form version of the Trade Report message contains the following fields:

Issue Symbol	Sale Condition	Trade Price Denominator	Trade Price	Report Volume	Price Change Indicator
5	1	1	6	6	1

The long version of the Trade Report message, which is 38 bytes in length, will be used if the criteria for the short form message listed above are not met. For Trade Report message processing guidelines, please refer to section 9 of this specification.

4.1.2 Trade Report – Long Form Version

Category T – Type 2

This version of the Trade Report message will be used for trades that do not meet the criteria listed in section 5.1.1.

Issue Symbol	Sale Condition	Seller's Sale Days	Trade Price Denominator	Trade Price	Currency
11	1	2	1	10	3

Report Volume	Price Change Indicator
9	1

4.1.3 Trade Cancel/Error

Category T – Type 3

Occasionally, a market participant firm must cancel a trade transaction that was reported to the ORF earlier in the trading day. NASDAQ OMX relays this trade cancellation to the public via the following message format.

Please note that the Trade Cancel/Error message is comprised of three parts:

- **Message Label:** This section contains the Issue Symbol and the Message Sequence Number of the original TDDS message. These elements are intended to help the TDDS subscriber to locate the trade report to be modified in its database.
- **Original Trade Information:** This section relays the trade characteristics of the original reported transaction.
- **Consolidated Trade Summary Information:** This section provides a summary of the consolidated trading activity at the time that the Trade Cancel/Error message was generated.

Label:

Original Message Sequence Number	Issue Symbol	Function
8	11	1

Original Trade Information:

Sale Condition	Seller's Sale Days	Trade Price Denominator	Trade Price	Currency	Report Volume
1	2	1	10	3	9

Trade Summary Information:

High Price Denominator	High Price	Low Price Denominator	Low Price	Last Sale Price Denominator	Last Sale Price
1	10	1	10	1	10

Last Sale Price Market Center	Currency	Total Issue Volume	Price Change Indicator
1	3	11	1

4.1.4 Trade Correction

Category T – Type 4

Occasionally, a market participant firm will modify a trade report that was submitted to ACT earlier in the trading day. NASDAQ OMX relays this trade correction to the public via the following message format.

Please note that the Trade Correction message is comprised of four parts:

- **Message Label:** This section contains the Issue Symbol for the trade correction as well as the Message Sequence Number of the original TDDS message. These elements are intended to help the TDDS subscriber to locate the trade report to be modified in its database.
- **Original Trade Information:** This section relays the trade characteristics of the original reported transaction. This is the trade data to be modified.
- **Corrected Trade Information:** This section relays the modified trade characteristics, as they should now be reported to the public.
- **Trade Summary Information:** This section provides a summary of the consolidated trading activity at the time that the Trade Correction message was generated.

Label:

Original Message Sequence Number	Issue Symbol
8	11

Original Trade Information:

Sale Condition	Seller's Sale Days	Trade Price Denominator	Trade Price	Currency	Report Volume
1	2	1	10	3	9

Corrected Trade Information:

Sale Condition	Seller's Sale Days	Trade Price Denominator	Trade Price	Currency	Report Volume
1	2	1	10	3	9

Trade Summary Information:

High Price Denominator	High Price	Low Price Denominator	Low Price	Last Sale Price Denominator	Last Sale Price
1	10	1	10	1	10

Last Sale Price Market Center	Currency	Total Issue Volume	Price Change Indicator
1	3	11	1

4.2 Administrative Messages

NASDAQ OMX supports a limited number of administrative messages on the TDDS data feed.

4.2.1 General Administrative (Free-Form Text) Message

Category A - Type A

NASDAQ OMX supports a variable length, free-form text message format to be used on an as-needed basis. Since the General Administrative Message is a flexible format message, it is up to the individual data feed subscriber to decide how to process these messages. Firms may wish to code their systems to generate a systems alert for data operations as manual processing of the General Administrative message may be required.

Text
1 to 300

VARIABLE NUMBER OF BYTES

4.2.2 Closing Trade Summary Report

Category A – Type 1

NASDAQ OMX will offer a closing trade summary report on the TDDS data feed for OTCBB and OOTC issues. The closing trade summary will reflect the daily high, low, and closing prices as well as the total volume for the issue.

NASDAQ OMX disseminates two closing trade summary reports on the TDDS data feed:

- The first closing report at 5:20 p.m., ET, reflects the preliminary closing price values for OTCBB and OOTC issues.[1]
- The second closing report at 8:10 p.m., ET, reflects the final high, low, and last sale prices as well as volume for OTCBB and OOTC issues.

NASDAQ OMX will send a Closing Trade Summary Report for every OTCBB issue in the system. If an OTCBB issue did not trade during the current business day, the Daily High Price, the Daily Low Price, the Closing Price, Net Change Amount, and Total Issue Volume fields shall be zero filled and the Net Change Direction shall be space filled.

NASDAQ OMX will also generate and disseminate closing report messages for any OOTC issues traded during the current business day and reported via the ORF.[2]

[1] On January 14, 2010, the SEC approved amendments to the FINRA rules to allow firms to submit reports of trade cancellations on trade date until the close of the FINRA/Nasdaq TRF and ORF at 8:00 p.m., Eastern Time (ET). As of April 12, 2010, when the new FINRA rule went into effect, TDDS subscribers need to process the TDDS closing trade summary report at 8:10 p.m., ET, for the final closing price values for OTCBB and OOTC issues supported on the data feed.

[2] Effective November 1, 2010, FINRA began supporting real-time trade dissemination for non-exchange-listed DPP securities.

Message Format:

Issue Symbol	Daily High Price Denominator	Daily High Price	Daily Low Price Denominator	Daily Low Price	Closing Price Market Center
11	1	10	1	10	1

Closing Price Denominator	Closing Price	Reserved	Net Change Denominator	Net Change Amount	Net Change Direction
1	10	1	1	10	1

Currency	Total Issue Volume
3	11

4.3 Control Messages

Control messages consist of a message header only. For processing information, please refer to section 8 of this document.

5.0 Field Occurrence Matrix

The following table outlines the Message Category and Message Type by field name:

Field Name	Message Category	Message Type
C		
Closing Price	A	1
Closing Price Denominator	A	1
Closing Price Market Center	A	1
Currency	T	2
	T	3
	T	4
	A	1
D		
Daily High Price	A	1
Daily High Price Denominator	A	1
Daily Low Price	A	1
Daily Low Price Denominator	A	1
F		
Function	T	3
H		
High Price	T	3
	T	4
High Price Denominator	T	3
	T	4
I		
Issue Symbol (Short Version)	T	1
Issue Symbol (Long Version)	T	2
	T	3
	T	4
	A	1
L		
Last Sale Price	T	3
	T	4
Last Sale Price Denominator	T	3
	T	4
Last Sale Price Market Center	T	3
	T	4
Low Price	T	3
	T	4
Low Price Denominator	T	3
	T	4
M		
N		
Net Change Amount	A	1

Field Occurrences

Net Change Denominator	A	1
Net Change Direction	A	1
O		
Original Message Sequence Number	T	3
	T	4
P		
Price Change Indicator	T	1
	T	2
	T	3
	T	4
R		
Report Volume (Short Version)	T	1
Report Volume (Long Version)	T	2
	T	3
	T	4
Reserved	A	1
S		
Sale Condition	T	1
	T	2
	T	3
	T	4
Seller's Sale Days	T	2
	T	3
	T	4
T		
Text	A	A
Total Issue Volume	T	3
	T	4
	A	1
Trade Price (Short Form)	T	1
Trade Price (Long Form)	T	2
	T	3
	T	4
Trade Price Denominator	T	1
	T	2
	T	3
	T	4

6.0 Field Definitions

***Note:** All alphabetic and alphanumeric fields are left justified and space filled unless otherwise stated. All numeric fields are right justified and zero filled unless otherwise stated.*

C

Closing Price

Category A – Type 1

10 bytes, Numeric. This Closing Price field reflects the final last sale eligible transaction reported to ORF for the issue during the current business day. Please note that the Closing Price Denominator field indicates where to place the decimal point. This field shall be zero filled if there are no last sale eligible trade reports entered during the current business day.

Closing Price Denominator

Category A – Type 1

1 byte, Alphanumeric. The Closing Price Denominator field indicates the whole dollar and decimal digit composition of the Closing Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown of Closing Price	
		Whole Dollar Digits	Decimal Digits
B	100	8	2
C	1000	7	3
D	10,000	6	4

Please note that the default value for this field will be "B".

Closing Price Market Center

Category A – Type 1

1 Byte, Alphanumeric. This field indicates the market center responsible for the closing price. Please note that this field is case sensitive. The allowable values are as follows:

Code	Value
U (upper case)	OTCBB
u (lower case)	OOTC
space	Not applicable (no last sale price exists)

Currency

Category A – Type 1; Category T – Type 2; Category T – Type 3;

Category T – Type 4

3 bytes, Alphanumeric. This field indicates the currency in which the trade transaction was reported. This field will use the currency abbreviation standard as defined by the ISO. The allowable value is as follows:

Code	Value
USD	US Dollars

D

Daily High Price

Category A – Type 1

10 bytes, Numeric. This Daily High Price field indicates the highest price at which the security traded during the session. Please note that Daily High Price Denominator field indicates where to place the decimal point in the price. This field shall be zero filled if there are no eligible trade reports during the session.

Daily High Price Denominator
Category A – Type 1

1 byte, Alphanumeric. The Daily High Price Denominator indicates the whole dollar and decimal digit composition of the Daily High Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown for Daily High Price	
		Whole Dollar Digits	Decimal Digits
B	100	8	2
C	1000	7	3
D	10,000	6	4

Please note that the default value for this field will be "B".

Daily Low Price
Category A – Type 1

10 bytes, Numeric. This Daily Low Price field indicates the lowest trade price at which the security traded during the session. Please note that the Daily Low Price Denominator field indicates where to place the decimal point in the price. This field shall be zero filled if there are no eligible trade reports during the session.

Daily Low Price Denominator
Category A – Type 1

1 byte, Alphanumeric. The Daily Low Price Denominator indicates the whole dollar and decimal digit composition of the Daily Low Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown for Daily Low Price	
		Whole Dollar Digits	Decimal Digits
B	100	8	2
C	1000	7	3
D	10,000	6	4

Please note that the default value for this field will be "B".

F

Function
Category T – Type 3

1 byte, Alphanumeric. This Function field denotes if the original trade report is being cancelled or was reported in error. The associated values are:

Code	Value
C	Cancel
E	Error

H

High Price
Category T - Type 3; Category T - Type 4

10 Bytes, Numeric. The High Price field indicates the highest price at which the security traded up to the current point in the trading session. Note that the High Price Denominator field indicates where to place the decimal point. This field shall be zero filled if there are no eligible trade reports during the session.

High Price Denominator

Category T – Type 3; Category T – Type 4

1 byte, Alphanumeric. The High Price Denominator indicates the whole dollar and decimal digit composition of the High Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown for High Price	
		Whole Dollar Digits	Decimal Digits
B	100	8	2
C	1000	7	3
D	10,000	6	4

Please note that the default value for this field will be "B".

I

Issue Symbol (Short Version)

Category T – Type 1

5 bytes, Alphanumeric. This Issue Symbol field indicates the security identifier assigned by NASDAQ OMX for a given issue.

For the current list of issues, please refer to the Symbol Directory section of the OTCBB website at www.otcbb.com/static/symbol.stm or via the NASDAQ OMX Trader.com website at http://www.nasdaqtrader.com/Trader.aspx?id=symbollookup. For updates to OTCBB listings, please refer to the OTCBB Daily List at www.otcbb.com/dailylist.

Issue Symbol (Long Version)

Category T – Type 2; Category T – Type 3; Category T – Type 4;

Category A – Type 1

11 bytes, Alphanumeric. The Issue Symbol field indicates the security identifier assigned by NASDAQ OMX for a given issue. See above for instructions on how to access the OTCBB symbol directory.

L

Last Sale Price

Category T – Type 3; Category T – Type 4

10 bytes, Numeric. This Last Sale Price field indicates the current last sale price for the given security. Please note that the Last Sale Price Denominator field indicates where to place the decimal point. This field shall be zero filled if there are no eligible trade reports during the session.

Last Sale Price Denominator

Category T – Type 3; Category T – Type 4

1 byte, Alphanumeric. The Last Sale Price Denominator field indicates the whole dollar and decimal digit composition of the Last Sale Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown for Last Sale Price	
		Whole Dollar Digits	Decimal Digits
B	100	8	2
C	1000	7	3
D	10,000	6	4

Please note that the default value for this field will be "B".

Last Sale Price Market Center

Category T – Type 3; Category T – Type 4

1 Byte, Alphanumeric. This alphanumeric field indicates the market center responsible for the last sale price. Please note that this field is case sensitive. The allowable values are as follows:

Code	Value
U (upper case)	OTCBB
u (lower case)	OOTC
space	Not applicable (no last sale price exists)

Low Price

Category T – Type 3; Category T – Type 4

10 Bytes, Numeric. The Low Price field indicates the lowest price at which the security traded up to the current point in the trading session. Please note that the Low Price Denominator field indicates where to place the decimal point. This field shall be zero filled if there are no eligible trade reports during the session.

Low Price Denominator

Category T – Type 3; Category T – Type 4

1 byte, Alphanumeric. The Low Price Denominator field indicates the whole dollar and decimal digit composition of the Low Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown for Low Price	
		Whole Dollar Digits	Decimal Digits
B	100	8	2
C	1000	7	3
D	10,000	6	4

Please note that the default value for this field will be "B".

N

Net Change Amount

Category A – Type 1

10 bytes, Numeric. The Net Change Amount field reflects the absolute value of the difference between the current closing price and the adjusted previous day's closing price. Please note that the Net Change Denominator field indicates where to place the decimal point.

Net Change Denominator
Category A – Type 1

1 byte, Alphanumeric. The Net Change Denominator indicates the whole dollar and decimal digit composition of the Net Change Amount field. The allowable values for this field are as follows:

Code	Denominator Value	Breakdown for Net Change	
		Whole Dollar Digits	Decimal Digits
B	100	8	2
C	1000	7	3
D	10,000	6	4

Please note that the default value is "B".

Net Change Direction
Category A – Type 1

1 byte, Alphanumeric (including special characters). This field indicates the direction of net change field. The allowable values are as follows:

Code	Value
+	Positive or zero net change (or Net Gain)
-	Negative net change (or Net Loss)

O

Original Message Sequence Number
Category T – Type 3; Category T – Type 4

8 bytes, Numeric. The Original Message Sequence Number field indicates the message sequence number of the original outbound message for the transaction being reversed. This field will be zero filled if original message sequence number is not available.

P

Price Change Indicator

Category T – Type 1; Category T – Type 2; Category T – Type 3; Category T – Type 4

1 byte, Alphanumeric. The Price Change Indicator field indicates if the high, low, and/or last sale prices were impacted by the current trade transaction. The allowable values are as follows:

Code	Value
0	No price change
1	Last price changed
2	Low price changed
3	Last and low prices changed
4	High price changed
5	Last and high prices changed
6	High and low prices changed
7	All prices changed

R

Report Volume (Short Version)

Category T – Type 1

6 bytes, Numeric. This field denotes the number of shares reported in the current Trade Report. For trades over 999,999 shares, NASDAQ OMX will use the long version of the Trade Report message format.

Please note that NASDAQ OMX currently reports round lot and mixed lot transactions only via TDDS.

Report Volume (Long Version)

Category T – Type 2; Category T – Type 3; Category T – Type 4

9 bytes, Numeric. This field denotes the number of shares reported in the current Trade Report.

Please note that NASDAQ OMX will use a General Administrative Text message to notify TDDS subscribers of trade reports in excess of 999,999,999 shares.

Reserved

Category A – Type 1

1 byte, Alphanumeric. This field will be space filled in initial release.

S

Sale Condition

Category T – Type 1; Category T – Type 2; Category T – Type 3; Category T – Type 4

1 byte, Alphanumeric (including special characters). This field is used to denote the sale condition associated with a trade transaction. Refer to Appendix A – Glossary of Terms for a definition of each sale condition. Please refer to section 9.4.1 for the processing rules for each sale condition. The associated values are:

Code	Value
@	Regular Trade
C	Cash Trade
I	Odd Lot Trade
N	Next Day
P	Prior Reference Price
R	Seller (Long-Form Message Formats Only)
T	Executed Outside Normal Market Hours
U	Executed Outside Normal Market Hours and Trade Reported Late
W	Average Price Trade
Z	Executed During Normal Market Hours and Trade Reported Late

Note: Odd lot trades that include attributes in addition to odd lot (e.g. weighted-average price trades, prior reference price trades, etc…) will only be disseminated with the odd lot trade modifier identifier. Trades marked as odd lot override the dissemination of any other trade modifier codes in that category that would otherwise be included.

Seller's Sale Days
Category T – Type 2; Category T – Type 3; Category T – Type 4

2 bytes, Numeric. If the sale condition code is equal to "R" (Seller), this field will reflect the number of days that may elapse before delivery of the stock. If the sale condition is not "R", this field will be zero filled.

T

Text
Category A – Type A

Variable length up to 300 bytes. Alphanumeric. Free-form text is used to notify data feed subscribers of corporate actions or special trading situations.

Total Issue Volume
Category A – Type 1; Category T – Type 3; Category T – Type 4

11 bytes, Numeric. This field reflects the total number of shares traded during the session for the given issue.

Trade Price (Short Form)
Category T – Type 1

6 bytes, Numeric. This field indicates the trade price for the current transaction. Please note that the Trade Price Denominator field indicates where to place the decimal point. For trade prices that require more than 6 digits, NASDAQ OMX will use the long version of the Trade Report message format.

Trade Price (Long Form)
Category T – Type 2; Category T – Type 3; Category T – Type 4

10 bytes, Numeric. This field indicates the trade price for the current transaction. Please note that the Trade Price Denominator field indicates where to place the decimal point.

Trade Price Denominator

Category T – Type 1; Category T – Type 2; Category T – Type 3; Category T – Type 4

1 byte, Alphanumeric. This field denotes the whole dollar and decimal digit composition for the Trade Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown for Long (10 byte) Price Field		Breakdown for Short (6 byte) Price Field	
		Whole Dollar Digits	Decimal Digits	Whole Dollar Digits	Decimal Digits
B	100	8	2	4	2
C	1000	7	3	3	3
D	10,000	6	4	2	4

Please note that the default value is "B".

7.0 Control Messages

7.1 Overview

A Control message is a fixed format message that performs a specific system function. All Control Messages consist of a standard Message Header only. As outlined in section 4, the Message Header is comprised of the following fields:

Message Category	Message Type	Session Identifier	Retransmission Requester	Message Sequence Number	Originator ID	Date/ Time	Reserved for Test Identifier
1	1	1	2	8	1	7	1

Control messages are used to notify TDDS subscribers of certain system events. NASDAQ OMX supports the following control messages on the TDDS data feed:

Category	Type	Usage
C	I	Start of Day
C	J	End of Day
C	O	Market Session Open
C	C	Market Session Close
C	K	End of Retransmission Requests
C	Z	End of Transmissions
C	M	Start of Test Cycle
C	N	End of Test Cycle
C	T	Line Integrity
C	L	Sequence Number Reset
C	X	End of Trade Reporting

The following Control messages will be session-specific: Market Session Open and Market Session Close. All other control messages will be session independent. For a schedule of transmissions, please refer to Appendix B.

7.2 Control Message Description

7.2.1 Start Of Day

Category C - Type I

The Start of Day control message signifies the beginning of each operational cycle for TDDS processing. Each day, the Start of Day control message will be sent to inform TDDS subscribers that all subsequent data transmitted will be real-time updates and should be treated accordingly. The message will be sent three times, at one-minute intervals, with the same Message Sequence Number (00000000) on each message.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.2 End Of Day

Category C - Type J

The End of Day control message signals the end of active message dissemination for the TDDS operational cycle. The system shall generate and disseminate the End of Day control message upon receipt of the appropriate inbound control messages from all inbound sources. The End of Day message will be sent three times, at one-minute intervals. The first End of Day control message will contain a Message Sequence Number one greater than the highest Message Sequence Number previously transmitted. The Message Sequence Numbers of the subsequent two control messages, however, will not be incremented.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.3 Market Session Open

Category C - Type O

The Market Session Open Control Message signifies the opening of NASDAQ OMX's market systems for the session indicated in the Message Header. Prior to the Market Session Open, all trade reports should be marked with a ".T" sale condition modifier. After receipt of the Market Open Control message, trade reports may contain sale condition modifiers that would update the consolidated last sale price. The Message Sequence Number Field for the Session Open will contain a number one greater than the highest Message Sequence Number previously transmitted.

Please note that the Market Center Originator ID in the message header for this control message will be "Q".

7.2.4 Market Session Close

Category C - Type C

The Session Close Control Message signals the closing of NASDAQ OMX's market systems for the session indicated in the Message Header. Upon receipt of this message, vendors should close the appropriate security records in their files. The Message Sequence Number Field for the Market Session Close will contain a number one greater than the highest Message Sequence Number previously transmitted.

Please note that the Market Center Originator ID in the message header for this control message will be "Q".

7.2.5 End Of Retransmission Requests

Category C - Type K

This message signals that no further retransmission requests will be honored. The End of Retransmission Requests message will be sent three times, at one-minute intervals. The first End of Retransmission Requests control message will contain a Message Sequence Number one greater than the highest Message Sequence Number previously transmitted. The Message Sequence Numbers of the subsequent two control messages, however, will not be incremented. The Message Sequence Number will not be incremented when the message is sent three times in the normal message transmission sequence. Although NASDAQ OMX operations may no longer accept retransmission requests after this control message is disseminated, it will disseminate retransmissions in queue.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.6 End Of Transmissions

Category C - Type Z

The End of Transmissions Message signals that there will be no further transmissions of data sent through the TDDS line. This message will be transmitted at the end of the day, and will be the last message of the day. The End of Transmissions message will be sent three times, at one-minute intervals. The End of Transmissions control message will contain a Message Sequence Number one greater than the highest Message Sequence Number previously transmitted. The Message Sequence Numbers in the subsequent two control messages, however, will not be incremented.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.7 Start Of Test Cycle

Category C - Type M

The Start of Test Cycle Control Message is transmitted following activation of the TDDS feed handler. It is the first message in the sequence of defined test messages sent prior to the Start of Day Control Message. The Message Sequence Number of the Start of Test Cycle Message always has a message sequence number of 00000000, with each subsequent message in the cycle incrementing the message sequence number by one. Please refer to Appendix D for the test cycle messages to follow this control message.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.8 End Of Test Cycle

Category C - Type N

The End of Test Cycle Control Message is the last message in the sequence of test messages transmitted prior to the Start of Day Control Message. It always has a message sequence number of one greater than the previous test message.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.9 Line Integrity

Category C - Type T

The Line Integrity Control Message will be transmitted at approximately one-minute intervals to verify the operational integrity of the TDDS message transmission, and will be intermixed with other messages. The Message Sequence Number will not be incremented for the Line Integrity Message. The Message Sequence Number will be equal to the message sequence number of the last message sent. Line Integrity Messages will not be retransmitted.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.10 Sequence Number Reset

Category C - Type L

The Sequence Number Reset Message forces the resetting of the Sequence Number. The Sequence Number will either be reset to zero or to a number greater than the last number previously transmitted. Please note that, if the Sequence Number Reset message is sent, the TDDS feed handler will not be able to process retransmission requests for messages sent prior to the Sequence Number Reset control message.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.11 End of Trade Reporting

Category C – Type X

The End of Trade Reporting Control Message signals that the ORF system is closed for market participant trade transactions. Upon receipt of the End of Trade Reporting control message, NASDAQ OMX will generate the Closing Trade Summary Report for TDDS. The End of Trade Reporting message will be sent three times, at one-minute intervals. This control message will contain a Message Sequence Number one greater than the highest Message Sequence Number previously transmitted. The Message Sequence Numbers in the subsequent two control messages, however, will not be incremented.

Please note that the Market Center Originator ID in the message header for this control message will be "Q".

8.0 Trade Message Processing

8.1 Hours of Operation

The ORF hours of operation are 08:00 to 20:00. In order to handle pre-opening and post-closing processing, the TDDS operational hours will be slightly longer. Please refer to Appendix B for the current TDDS Schedule of Transmissions.

8.2 Scope of Data

NASDAQ OMX currently disseminates trade data for the following classes of securities via the TDDS data feed:

- Securities quoted via the OTC Bulletin Board (OTCBB) service; and
- Non-NASDAQ OMX over-the-counter (OOTC) securities traded via the US over the counter markets by FINRA member firms.

The scope of data varies by security class.

8.2.1 OTCBB Issues

OTCBB is a regulated quotation service that displays real-time quotes, last-sale prices, and volume information in over-the-counter (OTC) equity securities. An OTC equity security generally is any equity that is not an NMS stock, as that term is defined in Rule 600(b) of SEC Regulation NMS. OTCBB securities include domestic and foreign equity issues, warrants, units, American Depositary Receipts (ADRs), and Direct Participation Programs (DPPs).

TDDS carries real-time trade data as well as end-of-day summary data for all classes of OTCBB securities.

The OTCBB Symbol and Market Participant Directories are available for download from the OTCBB web site at www.otcbb.com/static/symbol.stm and on the NASDAQ OMX Trader.com website at http://www.nasdaqtrader.com/Trader.aspx?id=symbollookup. TDDS subscribers should process the OTCBB Daily List from the OTCBB web site to ensure that they have the most up-to-date Issue Symbol Directory information. To access the Daily List, please refer to www.otcbb.com/dailylist.

8.2.2 OOTC (Other OTC) Issues

The FINRA is the regulator of the U.S. over-the-counter markets. In this role, FINRA has contracted with NASDAQ OMX for its members to use ORF to report trade transactions in non-OTCBB issues that trade via the US over-the-counter market (OOTC). The OOTC security types reported via TDDS include domestic and foreign equity issues, warrants, units, American Depositary Receipts (ADRs), and Direct Participation Programs (DPPs).

On November 1, 2010, TDDS began carrying real-time data for all OOTC equities reported via ORF.

Prior to October 31, 2010, FINRA limited the data dissemination for non-exchange-listed DPPs to daily summary reports only. Prior to October 27, 2008, FINRA also limited TDDS dissemination for foreign and ADR issues traded OOTC.

8.3 Intra-Day Trade Processing

The U.S. market session runs from 09:30 to 16:00. During the US Session, market participants are required by rule to report transactions to ORF within a set number of seconds of execution.[3]

Market participants are also required to report trades executed during the pre-market session (from 08:00 to 09:29:59) and post-market session (16:00 to 20:00) within a set number of seconds of execution.[4] Please note that trades that occurred during the pre- and post-market sessions should be reported with a sale condition modifier of "T" or "U".

8.3.1 Market Center Originator ID

In the TDDS message header, there is a one-character Market Center Originator ID field. This field will be used to identify the market center that initiates the trade message. Please note that this field is case sensitive. The associated values for these two classes of securities are as follows:

Code	Value
U (upper case)	OTCBB
u (lower case)	Other OTC Issue (OOTC)

8.4 Message Contents

All trade-related messages will contain the following data fields:

- Issue Symbol
- Sale Condition Modifier
- Price
- Report Volume
- Price Change Indicator

[3] Effective November 1, 2010, FINRA amended its rules to require firms to report OTC transactions within 30 seconds of execution during ORF hours of operation. Prior to the rule change, the FINRA rules allowed firms up to 90 seconds to report transactions.

[4] Effective November 1, 2010, firms became required to report OTC transactions executed during the pre-market session and post-market session within 30 seconds of execution. Prior to the rule change, the FINRA rules allowed firms up to 90 seconds to report such transactions.

8.4.1 Sale Condition

The Sale Condition field used to indicate the type of transaction entered by a market participant. For a description of each modifier, please refer to Appendix A – Glossary of Terms. Market data subscribers may use this field to determine when to update the high, low, and last sale prices and volume for an issue. The Sale Condition Matrix is as follows:

Sale Condition Code	Description	Update High/ Low Price	Update Last Sale Price	Update Volume
@	Regular Sale	Yes	Yes	Yes
C	Cash Sale	No	No	Yes
I	Odd Lot	No	No	Yes
N	Next Day	No	No	Yes
P	Prior Reference Price	Yes	No*	Yes
R	Seller	No	No	Yes
T	Executed Outside Normal Market Hours	No	No	Yes
U	Executed Outside Normal Market Hours and Trade Reported Late	No	No	Yes
W	Average Price Trade	No	No	Yes
Z	Executed During Normal Market Hours and Trade Reported Late	Yes	No *	Yes

If there is a single asterisk (*) in the table above, market data vendors should only update the field values if the trade is the first last sale eligible trade of the business day.

If there is a double asterisk (**) in the table above, market data vendors should only update the value if the original message was received prior to 16:01:30.

Note: The Sale Condition field only disseminates one value per transaction. Trades that are reported which include an odd lot sale condition in addition to other noted sale conditions above will be disseminated only with the odd lot sale condition.

8.4.2 Price

NASDAQ OMX and FINRA have established a minimum price variation (MPV) of $0.0001 for all media-reportable trade transactions. It should be noted that market participants are permitted to enter ORF trade reports in increments as small as $0.000001. If a trade is entered at a price below the stated MPV, NASDAQ OMX will round trade reports to the nearest MPV for public dissemination. It is, therefore, possible for TDDS to carry a zero price for an OTCBB or OOTC issue that is trading for less than $0.00005.

8.4.3 Pricing Formats

The following table identifies the decimal point placement for the price fields. The available values are as follows**:**

Code	Denominator Value	Breakdown for Long (10byte) Price Field		Breakdown for Short (6 byte) Price Field	
		Whole Dollar Digits	Decimal Digits	Whole Dollar Digits	Decimal Digits
B	100	8	2	4	2
C	1000	7	3	3	3
D	10,000	6	4	2	4

How to Use Tables:

The price denominator field is designed to inform TDDS subscribers how to breakdown and read the price field. The following example is provided to ensure that customers understand the interdependency of these two fields.

Example: The price field in a short-form trade reads "000111".

If the price denominator code is A, the price should be stated in decimal format with the first 5 digits representing number to be shown to the left of the decimal point and the last digit representing the number to be shown to the right of the decimal point. In this example, the translated price would be $11.1. (Note: Programmers may want to code their systems to add a zero for this code so that the price is displayed as $11.10.)

If the price denominator code is B, the price should be stated in decimal format with the first 4 digits representing number to be shown to the left of the decimal point and the last 2 digits representing the number to be shown to the right of the decimal point. In this example, the translated price would be $1.11.

If the price denominator code is C, the price should be stated in decimal format with the first 3 digits representing number to be shown to the left of the decimal point and the last 3 digits representing the number to be shown to the right of the decimal point. In this example, the translated price would be $0.111. (Note: NASDAQ OMX strongly

recommends that firms show the decimal prices to the granularity at which they are disseminated on the data feed.)

If the price denominator code is D, the price should be stated in decimal format with the first 2 digits representing number to be shown to the left of the decimal point and the last 4 digits representing the number to be shown to the right of the decimal point. In this example, the translated price would be $0.0111. (Note: NASDAQ OMX strongly recommends that firms show the decimal prices to the granularity at which they are disseminated on the data feed.)

8.4.4 Volume

The trade message contains only the share volume as reported by the market participant for an individual transaction. While TDDS provides the Total Issue Volume field in the Trade Correction, Trade Cancel/Error, and Closing Trade Summary Report formats, it does not provide this statistic on a tick-by-tick basis.

To show an aggregated volume, market data vendors are responsible for performing the calculation on their end. Firms should factor trade cancel/error and trade correction as well as trade report messages into their algorithm.

8.4.5 Price Change Indicator

TDDS trade messages contain a Price Change Indicator field to denote which daily prices to update as a result of the transaction. The Change Indicator field is included on the Trade Report, Trade Correction, and Trade Cancel/Error message formats. The associated values for this field are as follows:

Code	Value
0	No price changed
1	Last price changed
2	Low price changed
3	Last and Low prices changed
4	High price changed
5	Last and High prices changed
6	High and Low prices changed
7	All prices changed

8.5 Trade Correction and Trade Cancel/Error Processing

If a transaction was misreported, a market participant may enter a cancel or correct the message. In the outbound message format of the Trade Cancel/Error and Trade Correction messages, TDDS includes the Original Message Sequence Number (MSN) and trade

characteristics to enable the data fed subscriber to properly mark or remove the incorrect transaction from their database. If the original message sequence number is unavailable (e.g., due to an intra-day message sequence number reset), TDDS will show the Original MSN field as zero-filled. If the Original MSN is unavailable, the subscriber may attempt to locate the transaction by using the trade characteristics (i.e., market center, price, sale condition, and report volume) in the original trade section of the message format.

8.6 Net Change Calculation

NASDAQ OMX only disseminates a net change indicator field on the TDDS data feed as part of the closing trade summary report message. Intra-day, TDDS recipients must perform their own calculation for last sale-eligible trades if they wish to show net change. The formula should be as follows:

Net Change for Issue Symbol = Current Trade Price - Adjusted Previous Close Price

To obtain the Adjusted Previous Close, market data vendors will need to apply dividends to the Closing Price field from the prior day's Closing Trade Summary Report message. As noted above, market data vendors may obtain dividend information from the OTCBB Daily List page. Dividend adjustments are typically applied to the closing price on the day prior to ex-date and reflected on the ex-date, the next business day. Cash dividends of $0.01 or greater should be subtracted from the closing price. For stock dividends, the closing price should be divided by the dividend amount.

For Initial Public Offerings (IPOs), TDDS subscribers should use the IPO price as established by the issuer as the basis for the net change calculation. IPO price information will be relayed via a General Administrative message from NASDAQ OMX Market Operations via TDDS. If no IPO price is given, firms should use the price of the first last sale-eligible trade from the primary market center as the basis for the net change calculation. Please refer to section 11.2.2 for information on how IPO prices are provided on TDDS.

9.0 Message Processing Guidelines – Administrative

9.1 Overview

NASDAQ OMX supports three types of administrative messages on TDDS:

- General Administrative (Free-Form Text Messages)
- TDDS Closing Summary Report Messages
- Market Wide Circuit Breaker Status

9.2 General Administrative Messages (Category A – Type A)

The General Administrative Message (Category A – Type A) is a free form text message used to notify TDDS subscribers of market events or special trading situations. The length of the Administrative Message is variable but cannot exceed a maximum of 300 characters. NASDAQ OMX may generate the General Administrative Message format on an as-needed basis.

Since the General Administrative Message is a flexible format message, it is up to the individual data feed subscriber to decide how to process these messages. Firms may wish to code their systems to generate a systems alert for data operations as manual processing of the General Administrative message may be required.

In general, the General Administrative Message format is intended to relay market information that does not easily lend itself to fixed message formats. NASDAQ OMX may use the General Administrative Message to relay IPO data and trading extension information to TDDS subscribers. Since there are no other messages that carry this news, TDDS subscribers must read and process these administrative messages. To help subscribers, NASDAQ OMX Market Operations will use the following language whenever possible:

9.2.1 Message Text for Trade Reporting Extension

The TDDS Trade Reporting System has the capability to extend trade reporting hours beyond the normal close time. If NASDAQ OMX elects to extend ORF trade reporting hours, an Administrative message will be transmitted on the TDDS line at the time the extension is entered into the TDDS system. The text field of these Administrative messages will be:

//TRADE/REPORTING/HOURS/EXTENDED

All Trade Reports entered during the extended hours, (i.e., from normal close time until the extended hours closing time) will be transmitted on the line as Out of Sequence Trades.

At the extended closing time, the End of Trade Reporting Control Messages will be sent. The remainder of the transmission scenario will follow in normal sequence, except that the scheduled times will be extended by the same increment that was applied to the time for the End of Trade Reporting Control Messages.

9.2.2 IPO Message Text

NASDAQ OMX Market Operations will send an administrative message to give the initial trading price for a new listing. At the request of market data vendors, NASDAQ OMX Market Operations has defined standard language for these administrative messages.

For Initial Public Offerings (IPOs), the standard text is as follows:

IPO PRICE at [time quoted] [symbol] [IPO Price]

For new issues that previously traded on another market center, the standard text is as follows:

SEASONED SECURITY FIRST TRADE PRICE [symbol] [price]

9.3 Closing Trade Summary Report Message (Category A – Types 1)

For end-of-day vendors, NASDAQ OMX supports a Closing Trade Summary Report on the TDDS data feed. This administrative message is intended to provide the high, low, and last sale prices as well as volume for OTCBB issues at the end of the trading day. TDDS also includes trade summary reports for OOTC issues if a trade is reported to ORF during the current business day.

The TDDS Closing Trade Summary Report will be disseminated twice during the business day.

- The first closing report at 5:20 p.m., ET, reflects the preliminary closing price values for OTCBB and OOTC issues.
- The second closing report at 8:10 p.m., ET, reflects the final high, low, and last sale prices as well as volume for OTCBB and OOTC issues.

Specific information included in the TDDS Closing Trade Summary Report consists of:

- **Daily High Trade Price** – This field reflects the price of the highest trade price entered for the security during the regular trading session. Please note that firms should process the 8:10 p.m., ET, spin for the final values for the high, low, and last sale prices.
- **Daily Low Trade Price** – This field reflects the price of the lowest trade price entered for a security during the regular trading session.
- **Last Sale Price –** This field reflects the price of the final last sale-eligible trade entered for the security during the regular trading session.
- **Net Change Amount–** This field reflects the price movement for a security during the trading session from the previous day's adjusted close.
- **Net Change Direction-** This field reflects if the net change amount for the day is positive or negative.
- **Total Issue Volume** – This field reflects the final share volume for the issue for the session in the TDDS Closing Report message. Please note that the US

session volume includes ".T" trade report Volume from the pre-and post-market periods.

Please note that, prior to November 1, 2010, due to FINRA rules, no real-time trade data is available on TDDS for the non-exchange-listed Direct Participant Programs (DPPs) class of securities; for this class of security, the outbound data dissemination is limited to the end-of-day trade summary message on TDDS. Effective November 1, 2010, real-time trade data will be available on TDDS for non-exchange-listed DPPs.

10.0 Format Release and Testing Information

10.1 Release Notification

To keep pace with the changing business environment, NASDAQ OMX may modify its data feed format specifications for direct data feed customers. In advance of each release, NASDAQ OMX will notify its direct connect customers of the format change via a Vendor Alert on the NASDAQ OMX Trader web site. In the notice, NASDAQ OMX will outline the scope of the changes as well as the testing and release schedule. Direct connect customers are required to modify and test their code based on NASDAQ OMX notices.

10.2 Types of Testing

In advance of each release, NASDAQ OMX will offer test data for its direct data feed customers to be used for quality assurance (QA) purposes. Depending on the scope of the changes, the testing period will range from one day to one month. For its data feed customers, NASDAQ OMX offers the following type of testing opportunities:

- *Saturday production tests:* In advance of major releases, NASDAQ OMX will conduct user acceptance tests (UATs) on select Saturdays for its market participants. As market participants enter information into its production systems, NASDAQ OMX will broadcast this test data in the new data formats to direct data feed subscribers only. Prior to each UAT, NASDAQ OMX will post a Vendor Alert with the registration information.

For a list of upcoming testing and release dates for NASDAQ OMX data feed subscribers, please refer to the "Release Schedule" section of the NASDAQ OMX Trader web site. **NASDAQ OMX strongly recommends that <u>all</u> direct subscribers use these testing opportunities to check their hardware and software applications.** During the testing phase, NASDAQ OMX Global Data Products may ask market data vendors or market participants to provide status updates and/or submit testing verification forms as part of the QA process.

10.3 Identification of test data

During normal operational hours, NASDAQ OMX will identify test data in one of the following two ways:

- *Test Retransmission Requester:* In section 4.4 of this document, NASDAQ OMX provides for a test retransmission requester for its data feed message header. NASDAQ OMX populates this field for the test cycle messages sent prior to the start of the day only.

- *Test Symbols:* NASDAQ OMX may also send out intra-day test data using special issue symbols and market participant identifiers on its data feeds. Test securities are identified within the symbol Directory on FINRA.org.

During non-market hours, NASDAQ OMX will broadcast unmarked test data on its direct data feeds. Customers should take necessary precautions to protect their systems against database corruption during evenings, weekends, and market holidays. Please refer to the Appendix B of this document for the current data feed transmission schedule.

Appendix A – Glossary of Terms

Bulletin Board Dissemination Service (BBDS)	BBDS is a real-time market data feed designed to carry FINRA market participant and Inside quotation data for OTC Bulletin Board (OTCBB) issues. BBDS is a complimentary data feed product to TDDS. Both feeds are included as part of the Level 1 entitlement fees.
Financial Industry Regulatory Authority (FINRA)	The self-regulatory organization (SRO) of the securities industry responsible for the regulation of the over-the-counter markets. The FINRA operates under the authority granted it by the 1938 Maloney Act Amendment to the Securities Exchange Act of 1934. *[Note: Prior to July 2006, this SRO went by the name of the National Association of Securities Dealers (NASD).]*
High Price	The highest trade price reported to ORF with an eligible sale condition modifier received by any market participant.
Last Sale Price	The latest trade transaction, with an eligible sale condition modifier, received by ORF from a market participant.
Level 1 Entitlement:	Level 1 is a market data entitlement that is offered by market data redistributors. Under the Level 1 entitlement fee, redistributors are allowed to provide a subscriber with the best bid and offer (BBO) quotations and last sale trade data for NASDAQ OMX-listed securities as well as market participant quotations, Inside quotations, and last sale data for OTCBB issues. To create a Level 1 entitlement, a firm would need to process the Bulletin Board Dissemination Service (BBDS) and Trade Data Dissemination Service (TDDS) data feeds for OTCBB issue information as well as the UTP Quotation Data Feed (UQDF) and UTP Trade Data Feed (UTDF) for NASDAQ OMX issue data.
Level 1 Data Feed	Legacy NASDAQ OMX data feed product that featured real-time market participant and BBO quotes for OTC Bulletin Board (OTCBB) issues as well as end-of-day price data from the Mutual Fund Quotation Service (MFQS). Level 1 was retired in 2003 when OTCBB quotation data was migrated to the BBDS data feed product. Please note that, while the Level 1 data feed was retired, NASDAQ OMX continues to offer a Level 1 entitlement product via market data redistributors. (See definition above.)

NASDAQ OMX Trade Dissemination Service (NTDS)	The legacy NTDS data feed carried trade-related data for NASDAQ OMX, OTCBB and OOTC issues as well as intra-day values for NASDAQ OMX indexes. In 2002/2003, this data feed was replaced by the following three services: • UTP Trade Data Feed (UTDF) for NASDAQ OMX-listed issues; • NASDAQ OMX Index Dissemination Service (NIDS) for NASDAQ OMX index data; and • NASDAQ OMX ACT Trade Service (NATS) for OTCBB and OOTC issues.
OTC Bulletin Board (OTCBB)	OTCBB is a regulated quotation service that displays real-time quotes, last-sale prices, and volume information in over-the-counter (OTC) equity securities.
OTC Reporting Facility (ORF)	System designed to capture trade data for OTC equity securities from FINRA member firms. ORF previously was known as the FINRA/NASDAQ OMX Automated Transaction Confirmation Service (ACT).
OTC Markets	OTC Markets offers an electronic quotation media for over-the-counter securities that is separate and distinct from OTCBB. OTC Markets is a privately owned company located in New York, NY, and is not affiliated with NASDAQ OMX or FINRA in any way. For more information, please refer to http://www.otcmarkets.com/.
Previous Closing Price	The consolidated closing price from the prior business day that has been adjusted for ex-dividends.
Sale Condition	A modifier that denotes the type of transaction being reported by the FINRA member to the ORF. The allowable values are:
Average Price Trade (W)	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.
Cash Sale (C)	A transaction that calls for the delivery of securities and payment on the same day the trade took place.

Odd Lot (I)	A trade executed for less than the security's defined round lot size. These trades will not update the high, low or last sale prices, but do impact the volume for the security.
Executed Outside Normal Market Hours (T)	A trade executed before or after the regular US market hours. Please note that the Executed Outside Normal Market Hours modifier should be appended to all transactions that occur during the pre- and post-market sessions. The volume of Executed Outside Normal Market Hours trades will be included in the calculation of consolidated and market center volume. The price information in Executed Outside Normal Market Hours trades will not be used to update high, low and last sale data for individual securities or indices since they occur outside of normal trade reporting hours.
Next Day (N)	A transaction that calls for the delivery of securities between one and four days (to be agreed by both parties to the trade - the number of days are not noted with the transaction) after the trade date.
Prior Reference Price (P)	An executed trade that relates to an obligation to trade at an earlier point in the trading day or that refers to a prior referenced price. This may be the result of an order that was lost or misplaced or was not executed on a timely basis.
Seller (R)	A Seller's option transaction is a special transaction that gives the seller the right to deliver the stock at any time within a specific period, ranging from not less than four calendar days to not more than sixty calendar days.
Executed During Normal Market Hours and Trade Reported Late (Z)	Executed During Normal Market Hours and Trade Reported Late are used for trades transacted between 9:30 a.m. and 4:00 p.m. and reported to ORF more than 30 or 90 seconds[5] after execution.
Executed Outside Normal Market Hours and Trade Reported Late (U)	Executed Outside Normal Market Hours and Trade Reported Late are used for trades transacted before 9:30 a.m. or after 4:00 p.m. and reported to ORF more than 30 or 90 seconds[6] after execution.

[5] Effective November 1, 2010, firms became required to report OTC transactions executed during the pre-market session and post-market session within 30 seconds of execution. Prior to the rule change, the FINRA rules allowed firms up to 90 seconds to report such transactions.

SIP	Abbreviation for Security Information Processor. The firm that collects quotation and trade information from all exchanges and markets in listed issues and disseminates resultant data feed(s) to the public.
Trade Data Dissemination Service (TDDS)	The TDDS data feed product is designed to carry trade-related data for OTCBB and OOTC security transactions reported by FINRA member firms. This data feed replaced NTDS as the primary source of trade data for over-the-counter equity securities.
UTP Quote Data Feed (UQDF)	This SIP data feed product carries the UTP participant BBO and National BBO quotations for NASDAQ OMX listed issues.
UTP Trade Data Feed (UTDF)	This SIP data feed product carries the trade transaction data from all market participants (including Market Makers, ECNs, and UTP participants) for NASDAQ OMX listed issues. This data feed replaced NTDS as the primary source of consolidated trade data for NASDAQ OMX listed issues.

[6] Effective November 1, 2010, firms became required to report OTC transactions executed during the pre-market session and post-market session within 30 seconds of execution. Prior to the rule change, the FINRA rules allowed firms up to 90 seconds to report such transactions.

Appendix B – TDDS Transmission Schedule

Note: All times referenced regarding TDDS *are approximate and are stated in US Eastern Time. This transmission schedule is based on a normal trading day. NASDAQ OMX reserves the right to alter this schedule as necessary with minimal advance notice.*

The TDDS transmission schedule is as follows:

Time	Transmission	Message Category	Message Type	Session ID
06:45	Start of Test Cycle Message	C	M	A
	Test Messages (See Appendix D for message contents)	Various	Various	A
	End of Test Cycle Message	C	N	A
07:00	Start of Day Control Message	C	I	A
07:01	Start of Day Control Message	C	I	A
07:02	Start of Day Control Message	C	I	A
08:00 - 09:30	US Session ".T" and ".U" Trades, Trade Corrections, and Trade Cancel/Errors	T	1, 2, 3, 4	U
09:30	US Market Session Open Message	C	O	U
09:30 - 16:01:30	US Session – Last sale eligible Trade Reports, Trade Corrections, and Trade Cancel/Errors	T	1, 2, 3, 4	U
16:00	US Market Session Closed Message	C	C	U
16:00 - 20:05	US Session ".T" and ".U" Trades, Trade Corrections, and Trade Cancel/Errors	T	1, 2, 3, 4	U
17:20	First Closing Trade Recap Spin with Preliminary High, Low, and Last Sale Prices	A	1	U
20:05	End of Trade Reporting Control Message	C	X	U
20:06	End of Trade Reporting Control Message	C	X	U
20:07	End of Trade Reporting Control Message	C	X	U
20:10	Second Closing Trade Recap Spin with Final High, Low, Last sale Prices and Volume	A	1	U
20:20	End of Day Control Message	C	J	A
20:21	End of Day Control Message	C	J	A
20:22	End of Day Control Message	C	J	A
20:23	End of Retransmission Control Message	C	K	A
20:24	End of Retransmission Control Message	C	K	A
20:25	End of Retransmission Control Message	C	K	A
20:26	End of Transmissions Control Message	C	Z	A
20:27	End of Transmission Control Message	C	Z	A

Time	Transmission	Message Category	Message Type	Session ID
20:28	End of Transmission Control Message	C	Z	A

Notes:

- *NASDAQ OMX may send out unmarked test data during non-market hours. See section 12 of this document for more information on NASDAQ OMX testing policy.*

Appendix C – Date/Time Translation Table

The following translation table is used to represent the Date and Time Stamp fields located in the Message Header of each TDDS message.

TIME	ASCII	HEXADECIMAL	DECIMAL
0	0	30	48
1	1	31	49
2	2	32	50
3	3	33	51
4	4	34	52
5	5	35	53
6	6	36	54
7	7	37	55
8	8	38	56
9	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

DATE/TIME TRANSLATION 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
39	W	57	87

DATE/TIME TRANSLATION TABLE

TIME	ASCII	HEXADECIMAL	DECIMAL
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 D – TDDS Test Cycle Messages

As part of the normal operational cycle, NASDAQ OMX will disseminate the following pre-defined messages between the Start of Test and End of Test control messages on the TDDS data feed.

Note: In the test messages below, an asterisk "*" is used to denote a space.

1. Message Header:

A	A	A	T*	00000001	E	System Generated	*

General Administrative Message*:*

ABCDEFGHIJKLMNOPQRSATUVWXYZ1234567890$0987654321$

2. Message Header:

T	1	U	T*	00000002	U	System Generated	*

Short Form Trade Report:

ZZZZZ	@	D	123456	005000	7

3. Message Header:

T	2	U	T*	00000003	U	System Generated	*

Long Form Trade Report:

ZZZZZ******	R	20	C	0000123456	USD	000005000	0

4. Message Header:

T	4	U	T*	00000004	U	System Generated	*

Trading Correction:

Label:

00000002	ZZZZZ******

Original Trade Information:

@	00	D	0000123456	USD	000005000

Corrected Trade Information:

@	00	C	0000123456	USD	000005100

Trade Summary Information:

C	0000123456	C	0000123456	C	0000123456	U	USD	00000010100	7

5. Message Header:

A	1	U	T*	00000005	U	System Generated	*

Closing Trade Recap Message:

ZZZZZ******	C	0000123456	C	0000123456	U
C	0000123456	*	C	0000000001	+
USD	00000010100				

Appendix E – Version Control Information

The following table outlines the changes made to the TDDS Interface Specifications document since it was originally published on August 4, 2003:

Version	Date	Description of Documentation Change(s)
2003-1	8/4/2003	• Initial Publication
2003-1a	9/2/2003	• Modified Appendix C – Date and Time Translation Table: Time Values, 49 thru 59 were corrected to reflect ASCII values as lowercase alphabetic, "a" thru "k" respectively.
2003-1b	9/15/2003	• Added section 4.8, definition for the reserved field in the message header.
2003-1c	10/9/2003	• Corrected section 4.6 to indicate that "Q" is a valid Market Center Originator ID for select control messages. • Within Section 8, added notes to indicate the Market Center Originator ID associated with each control message.
2004-1	11/19/2004	• Modified section 1 to reflect the quotation data feed changes for OTC Bulletin Board (OTCBB) securities. • Modified sections 2 and 3 to reflect the new MCI Financial Extranet delivery option for NASDAQ OMX data feeds. • Updated to section 7, section 9, and the glossary to reflect the new "U" sale condition value for Extended Hours – Sold Out of Sequence transactions. • Updated section 9 to reflect the new sale condition processing for Average Price ("W") transactions.
2004-1b	12/20/2004	• Updated document to reflect new extranet connectivity options.
2006-1	8/23/2006	• Modified section 1 to reflect the ownership transfer to the NASD. • Modified references to the hours of operation to denote that the ACT hours will be extended to 8 p.m., ET, in the fourth quarter of 2006 (pending SEC approval). • Modified TDDS Transmission Schedule in Appendix B to reflect the revised message timing associated with the ACT hours extension planned for the fourth quarter of 2006.
2006-1a	10/16/2006	• Modified section 1 to add upcoming initiative list. • Updated TDDS bandwidth allocation to 64 Kilobits (Kb) per multicast channel.
2007-1	09/12/2007	• Changed references from National Association of Securities Dealers (NASD) to Financial Industry Regulatory Authority (FINRA). • Updated Appendix B – TDDS Transmission Schedule to reflect new start of day processing times to be implemented in fourth quarter of 2007.
2008-1	9/17/2008	• Modified document to reflect that FINRA will support real-time dissemination of trade data for OOTC foreign and ADR issues effective October 27, 2008. • Updated phone numbers and email addresses for NASDAQ OMX departments.
2008-2	10/29/2008	• Updated section 2.1 to reflect a TDDS bandwidth upgrade. Effective January 26, 2009, FINRA will increase the TDDS bandwidth allocation from 64 Kb to 200 Kb.

Version	Date	Description of Documentation Change(s)
2010-1	1/26/2010	• Updated closing report sections to reflect the fact that FINRA has been approved by SEC to extend the trade cancelation and trade correction window for regular market hours transactions to 8:00 p.m., ET, as of April 12, 2010.
2010-2	9/27/2010	• Updated document to reflect that TDDS will begin to support real-time trade data dissemination for non-exchange-listed Direct Participation Program (DPP) securities on November 1, 2010. • Updated document to reflect: o Shortening of FINRA trade reporting window to 30 seconds of execution on November 1, 2010 o FINRA system name change from ACT to ORF. • Updated sale condition value lists: o Removed unused values of "A" (Acquisition), "B" (Bunched), "G" Bunched Sold Trades, "D" (Distribution), "K" (Rule 155 Trade), "L" (Sold Last) , "O" (Opened) and "S" (Split trade). o Updated names for "T", "U" and "Z" to be clearer as to purpose.
2012-1	5/25/2012	• Increased the TDDS bandwidth recommendation from 200 Kb to 500 Kb per data feed channel. • Removed 2010 data feed release description from section 1.
2013-1	7/19/2013	• Added Sale Condition value "I" for Odd Lot trades. This condition will have priority over any other sale condition if more than one sale conditions are present in a single transaction. • Entire document – Changed references of NASDAQ to NASDAQ OMX. • Entire document – Changed references of NNOTC to OOTC.