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Dear OPRA Market Data Recipients:

I have attached an updated symbology implementation plan. The plan includes the definition of the new/expanded fields, information on the changes for FLEX options and information on a new control message to verify line integrity.

If you have any questions, please call.

Very truly yours,

Joe Corrigan
Executive Director

JC\km

OPRA Symbology Data Recipient Implementation Plan

Revised September 6, 2007

1. OPRA Enhancements:

- Changes reported in this document affect OPRA Output Lines 1-24. Messages on the FCO Only Line are not affected by these changes.
- New/Modified Fields (Symbology format) for the following messages:
 - Last Sale (Category, a)
 - Quote with Size (Category, k)
 - Open Interest (Category, d)
 - End of Day Summary (Category, f)
- FLEX messages will continue to use Category C messages and not the formatted quote or last sale messages. The conventions currently used for Category C messages have been updated to incorporate new symbology.
- A new control message (Category H Type N) will be established for line integrity.
- New Output Header (includes 10 byte Sequence #, Milliseconds in Timestamp and Fall Back Message Header ID) for all OPRA messages.
- New Fast Encoder/Decoder (incorporates format and header changes) – FAST will include a new value for the Start of Header (e.g., SOH 255 instead of 1) to alert data recipients of packets containing the new header and modified fields.

2. Implementation Schedule:

February, 2008

- Begin first phase of Data Recipient testing of the new header and modified fields (with Strike Price Code populated temporarily, total message using 18 bytes), using canned output data.

Mid June, 2008

- Complete first phase Data Recipient testing.

June 30, 2008

- Disseminate new output formats only (Strike Price Code populated temporarily).

July 1, 2008

- Begin Second Phase of Data Recipient testing of the new header and modified fields (without Strike Price Code, replaced with a Reserved byte, total message using 17 bytes), using canned output data.

July 31, 2009

- Complete Second Phase Data Recipient testing.
- Discontinue population of the Strike Price Code in output message formats.
- OPRA in place for symbology change when determined (no further action necessary).

3. **OUTPUT MESSAGE HEADER**

Applies to all OPRA messages

OUTPUT MESSAGE HEADER (Existing) – 18 Bytes

PARTICIPANT ID	RETRANSMISSION REQUESTER	MESSAGE IDENTIFICATION	MESSAGE SEQUENCE NUMBER	TIME (HHMMSS)
1	1	2	8	6

|←----- 18 BYTES -----→|

OUTPUT EXPANDED MESSAGE HEADER (New) – 26 Bytes

MESSAGE HEADER ID	PARTICIPANT ID	RETRANSMISSION REQUESTER	MESSAGE IDENTIFICATION	RESERVED	MESSAGE SEQUENCE NUMBER	TIME HHMMSSsss
1	1	1	2	2	10	9

|←----- 26 BYTES -----→|

New or expanded fields

Message header ID – 1 position numeric field indicating new header and symbol in record. The field will contain a value of 1.

Message sequence number – 10 position numeric field. See section 4.05 of Data Recipient Specification for additional details.

Time – 9 position numeric field adding milliseconds to current field.

4. **Affected OPRA Message Formats:**

- Last Sale (Category, a)
- Quote with Size (Category, k)
- Open Interest (Category, d)
- End of Day Summary (Category, f)

Existing Output Message - Existing fields applicable to all 4 Equity/Index Messages:

SECURITY SYMBOL	RESERVED	EXPIRATION MONTH	YEAR	STRIKE PRICE CODE	*STRIKE PRICE DENOMINATOR CODE	EXPLICIT STRIKE PRICE
5	2	1	1	1	1	7

|←----- 18 BYTES ----->|

***Existing Strike Price Denominator Code**

1 Byte, Alphanumeric, Space filled.

The Strike Price Denominator Code field indicates the position of the floating decimal point.

Denominator		Whole	Numerator 7 Byte Price Field (number of decimal places)
Code	Value		
A	10	6	1
B	100	5	2
C	1,000	4	3
D	10,000	3	4
E	100,000	2	5
F	1,000,000	1	6

New/Modified Output Message - applicable to all 4 Equity/Index Messages (FIRST PHASE DR TESTING):

SECURITY SYMBOL	EXPIRATION MONTH	EXPIRATION DATE	YEAR	*STRIKE PRICE DENOMINATOR CODE	EXPLICIT STRIKE PRICE	STRIKE PRICE CODE
5	1	2	2	1	6	1

| ←----- 18 BYTES ----->

New/Modified Output Message - applicable to all 4 Equity/Index Messages (SECOND PHASE DR TESTING):

SECURITY SYMBOL	EXPIRATION MONTH	EXPIRATION DATE	YEAR	*STRIKE PRICE DENOMINATOR CODE	EXPLICIT STRIKE PRICE	RESERVED
5	1	2	2	1	6	1

| ←----- 18 BYTES ----->

New or expanded fields

Security Symbol – is now alphanumeric

Expiration date – 2 position numeric field containing values 1 to 31 indicating the date the series expires. This date falls on a Saturday for Standard expirations, a Friday for Weekly expirations and the last business day of the appropriate month for Quarterly expirations.

Year – 2 position numeric field containing the last 2 digits of the expiration year. The field was previously defined as alpha numeric.

***Modified Strike Price Denominator Code** (Modified to remove Code ‘F’ and re-sequence the ‘Whole’ numerator code).

1 Byte, Alphanumeric, Space filled.

The Strike Price Denominator Code field indicates the position of the floating decimal point.

Denominator		Whole	Numerator 7 Byte Price Field (number of decimal places)
Code	Value		
A	10	5	1
B	100	4	2
C	1,000	3	3
D	10,000	2	4
E	100,000	1	5

Modified Administrative Equity And Index FLEX Message Standards (Category, C):

Update to Section 9.05 of Data Recipient Specification

1. Security Symbol is now 5 characters and alphanumeric
2. Request Identifier remains identified as alphanumeric, but will only be used as a numeric.
3. Strike Prices and Premium Prices will now be represented as decimal in the text fields (see examples below).
4. Clearing Symbol in the text field (if used) will follow the OCC standard as described in the OCC Symbology Plan (dropping the expiration day).

EQUITY AND INDEX OPTIONS			
Field Descriptions	Bytes	Character	Details
Product Type	4	Alphabetic	FLEX
Filler	1	Space	
FLEX Type	3	Alphabetic	I - Index E - Equity
Filler	1	Space	
Security Symbol	5	Alphanumeric Left Justified Space filled	
Filler	1	Space	
Message Type	3	Alphabetic	RFQ - Request for Quote QTE - Quote LST - Last Sale CXL - Cancel ADM - Admin Message IND - Indicative Quote
Filler	1	Space	
Request Identifier	5	Alphanumeric Left Justified Space filled	
Filler	1	Space	
Text	V	Alphanumeric	Variable text up to 428 character free form

EQUITY INDICATIVE QUOTE (IND)			
Field Descriptions	Bytes	Character	Details
Product Type	4	Alphabetic	FLEX
Filler	1	Space	
FLEX Type	3	Alphabetic	E - Equity
Filler	1	Space	
Security Symbol	5	Alphanumeric Left Justified Space filled	MSFT (Space)
Filler	1	Space	
Message Type	3	Alphabetic	IND - Indicative Quote
Filler	1	Space	
Text	V	Alphanumeric	2 YR ATMC 1.55-1.63
This message is an Equity FLEX Indicative Quote MSFT 2 Year at-the-money call. 1.55% bid, offered at 1.63%.			

EQUITY ADMINISTRATIVE MESSAGE (ADM)			
Field Descriptions	Bytes	Character	Details
Product Type	4	Alphabetic	FLEX
Filler	1	Space	
FLEX Type	3	Alphabetic	E - Equity
Filler	1	Space	
Security Symbol	5	Alphanumeric Left Justified Space filled	MSFT(Space)
Filler	1	Space	
Message Type	3	Alphabetic	ADM - Admin Message
Filler	1	Space	
Text	V	Alphanumeric	RFQ MSFT1 Market Closed
This message is an Equity FLEX Administrative Message that RFQ MSFT1 has been closed.			

INDEX OPTIONS REQUEST FOR QUOTE (RFQ)			
Field Descriptions	Bytes	Character	Details
Product Type	4	Alphabetic	FLEX
Filler	1	Space	
FLEX Type	3	Alphabetic	I - Index
Filler	1	Space	
Security Symbol	5	Alphanumeric Left Justified Space filled	OEX
Filler	1	Space	
Message Type	3	Alphabetic	RFQ - Request for Quote
Filler	1	Space	
Request Identifier	5	Alphanumeric Left Justified Space filled	1
Filler	1	Space	
Text	V	Alphanumeric	Call 12/31/01 105% EUR CL \$20M QUOTE IN % BY 1030 CST
This message is an Index FLEX Request for Quote for OEX call, Expiration date 12/31/01, Strike Price 5% out of the money (calculated at the close), European Expiration, settled on the close \$20,000,000. Quotes must be made in percentages of the closing index value and must be in by 10:30 central standard time.			

INDEX OPTIONS QUOTE (QTE)			
Field Descriptions	Bytes	Character	Details
Product Type	4	Alphabetic	FLEX
Filler	1	Space	
FLEX Type	3	Alphabetic	I - Index
Filler	1	Space	
Security Symbol	5	Alphanumeric Left Justified Space filled	XMI
Filler	1	Space	
Message Type	3	Alphabetic	QTE - Quote
Filler	1	Space	
Request Identifier	5	Alphanumeric Left Justified Space filled	12
Filler	1	Space	
Text	V	Alphanumeric	4 ¼%-5% \$10Mx\$10M
This message is an Index FLEX Quote for XMI, according to the terms of the request assigned identifier RFQ12. Bid 4/12%-Offer 5%, size \$10,000,000 up.			

INDEX OPTIONS LAST SALE (LST)			
Field Descriptions	Bytes	Character	Details
Product Type	4	Alphabetic	FLEX
Filler	1	Space	
FLEX Type	3	Alphabetic	I - Index
Filler	1	Space	
Security Symbol	5	Alphanumeric Left Justified Space filled	SPX
Filler	1	Space	
Message Type	3	Alphabetic	LST - LAST SALE
Filler	1	Space	
Request Identifier	5	Alphanumeric Left Justified Space filled	2
Filler	1	Space	
Text	V	Alphanumeric	250 @ 23.75 5NSX
This message is an Index FLEX Last Sale for SPX Request for Quote number 2. 250 contracts traded at 23.75; clearing symbol is 5NSX.			

EQUITY OPTIONS LAST SALE (LST)			
Field Descriptions	Bytes	Character	Details
Product Type	4	Alphabetic	FLEX
Filler	1	Space	
FLEX Type	3	Alphabetic	E - Equity
Filler	1	Space	
Security Symbol	5	Alphanumeric Left Justified Space filled	IBM
Filler	1	Space	
Message Type	3	Alphabetic	LST - LAST SALE
Filler	1	Space	
Request Identifier	5	Alphanumeric Left Justified Space filled	2
Filler	1	Space	
Strike Price	1-9	Alphanumeric	125.125
Filler	1	Space	
Type (call or put)	1	Alphabetic	C
Filler	1	Space	
Exercise Style (Amer, Eur)	3-4	Alphanumeric	AMER
Filler	1	Space	
Expiration Date	10	Alphanumeric	01.02.09
Filler	1	Space	
Volume	5	Alphanumeric	500
Filler	1	Space	
Premium	1-9	Alphanumeric	3.57
Filler	1	Space	
Clearing Symbol	6	Alphanumeric	1IBM
This message is an Equity FLEX Last Sale for IBM, 125.125 Call. American exercise, expiring 01/02/09. 500 sold at 3.57			