

# NASDAQ OMX PSX Last Sale

For PSX Trading Venue

## 1 Overview

PSX Last Sale<sup>SM</sup> (PLS) is a direct data feed product offered by NASDAQ OMX to support the PSX Trading Market upon launch. PLS covers the full range of issues including NASDAQ-, New York Stock Exchange (NYSE)-, NYSE Amex-, NYSE Arca- and BATS-listed securities. PLS provides real-time, intra-day trade data from the PSX execution system.

Market data distributors may use the PLS data feed to update real-time stock tickers, portfolio trackers, trade alert programs, time and sale graphs, and other display systems.

The PLS 1.1 feed is designed to support the expanded equity symbols up to 8 characters in total length.

For pricing and ordering information:

- Refer to [Market Data section](#) of the NASDAQ OMX Trader website.
- Contact the [NASDAQ OMX Global Data Products Account Team](#) at +1 301 978 5307 or +45 33 93 33 66.

## 2 Network Protocol Options

For direct data feed subscribers, NASDAQ OMX PSX will offer PLS in the following protocol options:

- [SoupTCP](#)
- [MoldUDP](#)

For network support and ordering information, please refer to the [NASDAQ Direct Data Products Specifications Page](#) on the NASDAQ OMX Trader website.

## 3 Architecture

PLS will be made up of a series of sequenced messages. Each message is variable in length based on the message type and is composed of non-control ASCII bytes. The messages that make up the PLS protocol are typically delivered using a higher level protocol that takes care of sequencing and delivery guarantees.

## 4 Data Types

All numeric fields are represented in ASCII digits and are right-justified. Padding spaces appear on the left as necessary.

Prices are given in decimal format with 6 whole number places followed by 4 decimal digits. The whole number portion is padded on the left with spaces; the decimal portion is padded on the right with zeros. The decimal point is implied by position; it does not appear inside the price field.

Timestamp reflects the PSX system time at which the outbound message was generated. PSX states time as the number of milliseconds past midnight. The time zone is U.S. Eastern Time.

All alpha fields are left-justified. Padding spaces appear on the right as necessary.

## 5 Message Formats

**Note:** For consistency, NASDAQ OMX has coded the PSX Last Sale (PLS) to use the same data formats as the NASDAQ Last Sale (NLS) 1.1 and BX Last Sale (BLS) 1.1 data feed offerings. Functionality that will not be supported for the PSX market upon initial market implementation has been grayed out.

### 5.1 System Event Message

System Event Messages is used to signal key market or data feed control events.

| System Event Message |                       |     |              |   |  |
|----------------------|-----------------------|-----|--------------|---|--|
| Name                 | Offset                | Len | Value        | Notes   |  |
| Time Stamp           | 0                     | 8   | Numeric      | Time Stamp  |  |
| Message Type         | 8                     | 1   | Alphanumeric | S = System Event Message  |  |
| Event Code           | 9                     | 1   | Alphanumeric | Denotes the type of event for which the message is being generated. The allowable values are: |  |
|                      |                       |     |              | Code  | Value  |
|                      |                       |     |              | O   | Start of Transmissions:<br>Denotes that the PSX Last Sale has started its daily transmission schedule.   |
|                      |                       |     |              | S   | Start of System Hours: This message indicates that NASDAQ is open and ready to start accepting orders.   |
|                      |                       |     |              | Q   | Start of Market Hours:<br>Denotes the start of the regular US market session. Traditionally, only trade transactions reported during the regular market session are considered to be "last sale" eligible. |
|                      |                       |     |              | M   | End of Market Hours:<br>Denotes the end of the regular US session.   |
|                      |                       |     |              | E   | End of System Hours:<br>Indicates that NASDAQ is now closed and will not accept any new orders today.  |
| C                    | End of Transmissions: |     |              |   |  |

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|  |  |  |  |  |   |  |
|--|--|--|--|--|---|--|
|  |  |  |  |  | Denotes that the PSX Last Sale has ended its daily transmission schedule. |  |
|--|--|--|--|--|---|--|

## 5.2 Trade Report

The following message is used to relay PSX execution system transactions that are reported for the current business day. Please note that PSX only reports one-side of a trade execution on the PSX Last Sale (PLS) feed and other data feed products.

| Trade Report Message     |                      |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
|--------------------------|----------------------|-----|--------------|---|------|-------|---|----------------------|---|-------------------|---|-----------------|---|-----------------|---|-------------------|
| Name                     | Offset               | Len | Type         | Value/Description   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Time Stamp               | 0                    | 8   | Numeric      | Denotes the time stamp of the PX system that generated the trade transaction.   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Message Type             | 8                    | 1   | Alphanumeric | T = Trade Report  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Market Center Identifier | 9                    | 1   | Alphabetic   | Denotes the PSX market system that generated the trade report message. The allowable values are: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>PSX execution system</td> </tr> </tbody> </table>   | Code | Value | X | PSX execution system |   |                   |   |                 |   |                 |   |                   |
| Code                     | Value                |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| X                        | PSX execution system |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Issue Symbol             | 10                   | 8   | Alphanumeric | Denotes the security symbol for the issue of the security for which the trade report is being generated. For details on symbology, please refer to Appendix B.  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Security Class           | 18                   | 1   | Alphabetic   | Indicates the primary listing market for the issue. Allowable values are: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Q</td> <td>NASDAQ Listed Issue</td> </tr> <tr> <td>N</td> <td>NYSE Listed Issue</td> </tr> <tr> <td>A</td> <td>NYSE Amex Issue</td> </tr> <tr> <td>P</td> <td>NYSE Arca Issue</td> </tr> <tr> <td>Z</td> <td>BATS Listed Issue</td> </tr> </tbody> </table> | Code | Value | Q | NASDAQ Listed Issue  | N | NYSE Listed Issue | A | NYSE Amex Issue | P | NYSE Arca Issue | Z | BATS Listed Issue |
| Code                     | Value                |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Q                        | NASDAQ Listed Issue  |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| N                        | NYSE Listed Issue    |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| A                        | NYSE Amex Issue      |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| P                        | NYSE Arca Issue      |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Z                        | BATS Listed Issue    |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Trade Control Number     | 19                   | 10  | Alphanumeric | Indicates the PSX system internal control number associated with the given trade transaction.<br><br>Please note that the Trade Control Number is specific to the PSX host system reflected in the Market Center ID field. This number is used as a key field for trade cancellations and trade corrections.  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Trade Price              | 29                   | 10  | Numeric      | Denotes the report price on the trade transaction. Price format is \$\$\$\$\$\$dddd.  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Trade Size               | 39                   | 9   | Numeric      | Indicates the reported number of shares on the trade transaction.   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |

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| Sale Condition Modifier           | 48                  | 4 | Alphanumeric        | Sale condition modifier consists of four levels as defined below.  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
|-----------------------------------|---------------------|---|---------------------|--|------|-------|---|--------------------|---------|-----------------|------|---------------------|---|-------------------|---|------------------|---|---------------|---------|----------------|
| Sale Condition Modifier – Level 1 | 48                  | 1 | <i>Alphanumeric</i> | Used for Settlement Type information. Allowable values are:<br><table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>@</td> <td>Regular Settlement</td> </tr> <tr> <td>C</td> <td>Cash Settlement</td> </tr> <tr> <td>N</td> <td>Next Day Settlement</td> </tr> <tr> <td>R</td> <td>Seller Settlement</td> </tr> </tbody> </table>   | Code | Value | @ | Regular Settlement | C       | Cash Settlement | N    | Next Day Settlement | R | Seller Settlement |   |                  |   |               |         |                |
| Code                              | Value               |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
| @                                 | Regular Settlement  |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
| C                                 | Cash Settlement     |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
| N                                 | Next Day Settlement |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
| R                                 | Seller Settlement   |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
| Sale Condition Modifier – Level 2 | 49                  | 1 | <i>Alphanumeric</i> | For Reg NMS eligible securities, this sale condition level is used to define the trade through reason code. For the PSX trading market, the allowable codes are:<br><table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>F</td> <td>Intermarket Sweep</td> </tr> <tr> <td>&lt;space&gt;</td> <td>Not applicable</td> </tr> </tbody> </table><br>For non-Reg NMS securities, this sale condition level is used to identify cross transactions. For cross-eligible securities, the allowable codes are:<br><table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Opening Print</td> </tr> <tr> <td>5</td> <td>Re-Opening Print</td> </tr> <tr> <td>6</td> <td>Closing Print</td> </tr> <tr> <td>&lt;space&gt;</td> <td>Not applicable</td> </tr> </tbody> </table> | Code | Value | F | Intermarket Sweep  | <space> | Not applicable  | Code | Value               | 0 | Opening Print     | 5 | Re-Opening Print | 6 | Closing Print | <space> | Not applicable |
| Code                              | Value               |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
| F                                 | Intermarket Sweep   |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
| <space>                           | Not applicable      |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
| Code                              | Value               |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
| 0                                 | Opening Print       |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
| 5                                 | Re-Opening Print    |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
| 6                                 | Closing Print       |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |
| <space>                           | Not applicable      |   |                     |  |      |       |   |                    |         |                 |      |                     |   |                   |   |                  |   |               |         |                |

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| Sale Condition Modifier – Level 3 | 50  | 1 | <i>Alphanumeric</i> | <p>Used for Extended Hours or Sold Codes. Allowable values are:</p> <table border="1" data-bbox="792 275 1338 682"> <thead> <tr> <th data-bbox="792 275 959 327">Code</th> <th data-bbox="964 275 1338 327">Value</th> </tr> </thead> <tbody> <tr> <td data-bbox="792 333 959 386">T</td> <td data-bbox="964 333 1338 386">Extended Hours Trade</td> </tr> <tr> <td data-bbox="792 392 959 495">U</td> <td data-bbox="964 392 1338 495">Extended Hours Trade – Reported Late or Out of Sequence</td> </tr> <tr> <td data-bbox="792 501 959 579">L</td> <td data-bbox="964 501 1338 579">Sold Last – Reported Late But In Sequence</td> </tr> <tr> <td data-bbox="792 585 959 638">Z</td> <td data-bbox="964 585 1338 638">Sold – Out of Sequence</td> </tr> <tr> <td data-bbox="792 644 959 682">&lt;space&gt;</td> <td data-bbox="964 644 1338 682">Not applicable</td> </tr> </tbody> </table>  | Code | Value | T | Extended Hours Trade | U | Extended Hours Trade – Reported Late or Out of Sequence | L | Sold Last – Reported Late But In Sequence | Z | Sold – Out of Sequence      | <space> | Not applicable           |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
|-----------------------------------|---|---|---------------------|---|------|-------|---|----------------------|---|---|---|---|---|-----------------------------|---------|--------------------------|---|-----------------------|---|----------------------------|---|-------------|---|------------------------|---|-------------|---|-------------------|---------|----------------|
| Code                              | Value   |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| T                                 | Extended Hours Trade                                    |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| U                                 | Extended Hours Trade – Reported Late or Out of Sequence |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| L                                 | Sold Last – Reported Late But In Sequence               |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| Z                                 | Sold – Out of Sequence                                  |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| <space>                           | Not applicable  |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| Sale Condition Modifier – Level 4 | 51  | 1 | <i>Alphanumeric</i> | <p>Used for special sale condition codes. Allowable values are:</p> <table border="1" data-bbox="792 768 1338 1457"> <thead> <tr> <th data-bbox="792 768 959 821">Code</th> <th data-bbox="964 768 1338 821">Value</th> </tr> </thead> <tbody> <tr> <td data-bbox="792 827 959 879">A</td> <td data-bbox="964 827 1338 879">Acquisition</td> </tr> <tr> <td data-bbox="792 886 959 938">B</td> <td data-bbox="964 886 1338 938">Bunched</td> </tr> <tr> <td data-bbox="792 945 959 997">D</td> <td data-bbox="964 945 1338 997">Distribution</td> </tr> <tr> <td data-bbox="792 1003 959 1056">H</td> <td data-bbox="964 1003 1338 1056">Price Variation Transaction</td> </tr> <tr> <td data-bbox="792 1062 959 1115">M</td> <td data-bbox="964 1062 1338 1115">PSX Official Close Price</td> </tr> <tr> <td data-bbox="792 1121 959 1173">P</td> <td data-bbox="964 1121 1338 1173">Prior Reference Price</td> </tr> <tr> <td data-bbox="792 1180 959 1232">Q</td> <td data-bbox="964 1180 1338 1232">PSX Official Opening Price</td> </tr> <tr> <td data-bbox="792 1239 959 1291">S</td> <td data-bbox="964 1239 1338 1291">Split Trade</td> </tr> <tr> <td data-bbox="792 1297 959 1350">W</td> <td data-bbox="964 1297 1338 1350">Weighted Average Price</td> </tr> <tr> <td data-bbox="792 1356 959 1409">X</td> <td data-bbox="964 1356 1338 1409">Cross Trade</td> </tr> <tr> <td data-bbox="792 1415 959 1467">o</td> <td data-bbox="964 1415 1338 1467">Odd lot execution</td> </tr> <tr> <td data-bbox="792 1474 959 1526">&lt;space&gt;</td> <td data-bbox="964 1474 1338 1526">Not applicable</td> </tr> </tbody> </table> | Code | Value | A | Acquisition          | B | Bunched   | D | Distribution                              | H | Price Variation Transaction | M       | PSX Official Close Price | P | Prior Reference Price | Q | PSX Official Opening Price | S | Split Trade | W | Weighted Average Price | X | Cross Trade | o | Odd lot execution | <space> | Not applicable |
| Code                              | Value   |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| A                                 | Acquisition   |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| B                                 | Bunched   |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| D                                 | Distribution  |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| H                                 | Price Variation Transaction                             |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| M                                 | PSX Official Close Price                                |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| P                                 | Prior Reference Price                                   |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| Q                                 | PSX Official Opening Price                              |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| S                                 | Split Trade   |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| W                                 | Weighted Average Price                                  |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| X                                 | Cross Trade   |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| o                                 | Odd lot execution                                       |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |
| <space>                           | Not applicable  |   |                     |   |      |       |   |                      |   |   |   |   |   |                             |         |                          |   |                       |   |                            |   |             |   |                        |   |             |   |                   |         |                |

### 5.3 Trade Cancel/Error

The following message is used in the event that a PSX trade transaction is cancelled on the same business day that it is reported.

| Trade Cancel/Error Message       |                      |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
|----------------------------------|----------------------|-----|--------------|---|------|-------|---|----------------------|---|-------------------|---|-----------------|---|-----------------|---|-------------------|
| Name                             | Offset               | Len | Type         | Value/Description   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Time Stamp                       | 0                    | 8   | Numeric      | Denotes the time stamp of the PSX system that generated the trade cancel/error message.   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Message Type                     | 8                    | 1   | Alphanumeric | X = Trade Cancel/Error  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Market Center Identifier         | 9                    | 1   | Alphabetic   | Denotes the PSX market system that generated the trade report and cancel/error message. The allowable values are: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>PSX Execution System</td> </tr> </tbody> </table>  | Code | Value | X | PSX Execution System |   |                   |   |                 |   |                 |   |                   |
| Code                             | Value                |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| X                                | PSX Execution System |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Issue Symbol                     | 10                   | 8   | Alphanumeric | Denotes the security symbol for the issue for which the trade report is being generated. For details on symbology, please refer to Appendix B.  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Security Class                   | 18                   | 1   | Alphabetic   | Indicates the primary listing market for the issue. Allowable values are: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Q</td> <td>NASDAQ Listed Issue</td> </tr> <tr> <td>N</td> <td>NYSE Listed Issue</td> </tr> <tr> <td>A</td> <td>NYSE Amex Issue</td> </tr> <tr> <td>P</td> <td>NYSE Arca Issue</td> </tr> <tr> <td>Z</td> <td>BATS Listed Issue</td> </tr> </tbody> </table> | Code | Value | Q | NASDAQ Listed Issue  | N | NYSE Listed Issue | A | NYSE Amex Issue | P | NYSE Arca Issue | Z | BATS Listed Issue |
| Code                             | Value                |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Q                                | NASDAQ Listed Issue  |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| N                                | NYSE Listed Issue    |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| A                                | NYSE Amex Issue      |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| P                                | NYSE Arca Issue      |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Z                                | BATS Listed Issue    |     |              |   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Original Trade Control Number    | 19                   | 10  | Alphanumeric | Indicates the PSX system internal control number associated with the given trade transaction.<br><br>Please note that the Trade Control Number is specific to the PSX host system reflected in the Market Center ID field.  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Original Trade Price             | 29                   | 10  | Numeric      | Reported price for the transaction. Price format is \$\$\$\$\$\$dddd.   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Original Trade Size              | 39                   | 9   | Numeric      | Reported number of shares for transaction.  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Original Sale Condition Modifier | 48                   | 4   | Alphanumeric | Defines the sale condition modifiers as reported on the original trade transaction.   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |



#### 5.4 Trade Correction

The following message is used in the event that a TRF trade transaction is corrected on the same business day that it is reported.

| <b>Trade Correction Message</b> |                      |            |              |  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
|---------------------------------|----------------------|------------|--------------|--|------|-------|---|----------------------|---|-------------------|---|-----------------|---|-----------------|---|-------------------|
| <i>Name</i>                     | <i>Offset</i>        | <i>Len</i> | <i>Type</i>  | <i>Value/Description</i>   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Time Stamp                      | 0                    | 8          | Numeric      | Denotes the time stamp of the PSX system that generated the trade correction message.  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Message Type                    | 8                    | 1          | Alphanumeric | C = Trade Correction   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Market Center Identifier        | 9                    | 1          | Alphabetic   | Denotes the PSX market system that generated the trade report and cancel/error message. The allowable values are:<br><table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>PSX Execution System</td> </tr> </tbody> </table>  | Code | Value | X | PSX Execution System |   |                   |   |                 |   |                 |   |                   |
| Code                            | Value                |            |              |  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| X                               | PSX Execution System |            |              |  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Issue Symbol                    | 10                   | 8          | Alphanumeric | Denotes the PSX-assigned issue symbol for which the trade correction message is being generated.<br><br>For details on symbology, please refer to Appendix B.  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Security Class                  | 18                   | 1          | Alphabetic   | Indicates the primary listing market for the issue. Allowable values are:<br><table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Q</td> <td>NASDAQ Listed Issue</td> </tr> <tr> <td>N</td> <td>NYSE Listed Issue</td> </tr> <tr> <td>A</td> <td>NYSE Amex Issue</td> </tr> <tr> <td>P</td> <td>NYSE Arca Issue</td> </tr> <tr> <td>Z</td> <td>BATS Listed Issue</td> </tr> </tbody> </table> | Code | Value | Q | NASDAQ Listed Issue  | N | NYSE Listed Issue | A | NYSE Amex Issue | P | NYSE Arca Issue | Z | BATS Listed Issue |
| Code                            | Value                |            |              |  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Q                               | NASDAQ Listed Issue  |            |              |  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| N                               | NYSE Listed Issue    |            |              |  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| A                               | NYSE Amex Issue      |            |              |  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| P                               | NYSE Arca Issue      |            |              |  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Z                               | BATS Listed Issue    |            |              |  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Original Trade Control Number   | 19                   | 10         | Alphanumeric | Indicates the PSX internal control number associated with the given trade transaction.<br><br>Please note that the Trade Control Number is specific to the PSX host system reflected in the Market Center ID field.  |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Original Trade Price            | 29                   | 10         | Numeric      | Reported price on the original trade transaction. Price format is \$\$\$\$\$\$ddddd.   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |
| Original Trade Size             | 39                   | 9          | Numeric      | Reported number of shares on the original trade transaction.   |      |       |   |                      |   |                   |   |                 |   |                 |   |                   |

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|-----------------------------------|----|----|--------------|--|
| Original Sale Condition Modifier  | 48 | 4  | Alphanumeric | Indicates sale condition modifiers associated with the original transaction.   |
| Corrected Trade Control Number    | 52 | 10 | Alphanumeric | Indicates the PSX internal control number associated with the adjusted trade transaction.<br><br>Please note that the Trade Control Number is specific to the PSX host system reflected in the Market Center ID field. |
| Corrected Trade Price             | 62 | 10 | Numeric      | Indicates the price for the corrected trade transaction. Price format is \$\$\$\$\$ddddd.  |
| Corrected Trade Size              | 72 | 9  | Numeric      | Indicates the number of shares for the corrected trade transaction.  |
| Corrected Sale Condition Modifier | 81 | 4  | Alphanumeric | Denotes the sale condition modifiers associated with the corrected trade transaction.  |

### 5.5 Administrative Messages

To help firms create a full display, PSX supports the following two administrative messages: (1) Trading Action and (2) Symbol Directory.

#### 5.5.1 Stock Trading Action

NASDAQ OMX uses this administrative message to indicate the current trading status of a security to the trading community.

Prior to the start of system hours, NASDAQ OMX will send out a Trading Action spin. In the spin, NASDAQ OMX will send out a Stock Trading Action message with the "T" (Trading Resumption) for all NASDAQ- and other exchange-listed securities that are eligible for trading at the start of the PSX system hours. If a security is absent from the pre-opening Trading Action spin, firms should assume that the security is being treated as halted in the PSX platform at the start of the system hours. Please note that securities may be halted in the PSX system for regulatory or operational reasons.

After the start of system hours, NASDAQ OMX will use the Trading Action message to relay changes in trading status for an individual security. Messages will be sent when a stock is:

- Halted
- Released for quotation
- Released for trading

| <b>STOCK TRADING ACTION</b> |               |               |              |   |
|-----------------------------|---------------|---------------|--------------|---|
| <b>Name</b>                 | <b>Offset</b> | <b>Length</b> | <b>Value</b> | <b>Notes</b>  |
| Time Stamp                  | 0             | 8             | Numeric      | Time Stamp  |
| Message Type                | 8             | 1             | Alphanumeric | "H" = Stock Trading Action Message.                                       |
| Issue Symbol                | 9             | 8             | Alphanumeric | Stock symbol right padded with spaces.                                    |
| Security Class              | 17            | 1             | Alpha        | Indicates the primary listing market for the issue. Allowable values are: |

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|               |  |   |       | <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Q</td> <td>NASDAQ Listed Issue</td> </tr> <tr> <td>N</td> <td>NYSE Listed Issue</td> </tr> <tr> <td>A</td> <td>NYSE Amex Issue</td> </tr> <tr> <td>P</td> <td>NYSE Arca Issue</td> </tr> <tr> <td>Z</td> <td>BATS-Listed Issue</td> </tr> </tbody> </table>  | Code | Value | Q | NASDAQ Listed Issue                          | N | NYSE Listed Issue                                    | A | NYSE Amex Issue | P | NYSE Arca Issue | Z | BATS-Listed Issue |
|---------------|--|---|-------|---|------|-------|---|--|---|--|---|-----------------|---|-----------------|---|-------------------|
| Code          | Value  |   |       |   |      |       |   |  |   |  |   |                 |   |                 |   |                   |
| Q             | NASDAQ Listed Issue                                  |   |       |   |      |       |   |  |   |  |   |                 |   |                 |   |                   |
| N             | NYSE Listed Issue                                    |   |       |   |      |       |   |  |   |  |   |                 |   |                 |   |                   |
| A             | NYSE Amex Issue                                      |   |       |   |      |       |   |  |   |  |   |                 |   |                 |   |                   |
| P             | NYSE Arca Issue                                      |   |       |   |      |       |   |  |   |  |   |                 |   |                 |   |                   |
| Z             | BATS-Listed Issue                                    |   |       |   |      |       |   |  |   |  |   |                 |   |                 |   |                   |
| Trading State | 18   | 1 | Alpha | <p>Indicates the current trading state for the stock on the PSX market. Allowable values:</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>H</td> <td>Halted/Paused across all U.S. equity markets</td> </tr> <tr> <td>Q</td> <td>Quotation only period for cross-market halt or pause</td> </tr> <tr> <td>T</td> <td>Trading on PSX</td> </tr> </tbody> </table> | Code | Value | H | Halted/Paused across all U.S. equity markets | Q | Quotation only period for cross-market halt or pause | T | Trading on PSX  |   |                 |   |                   |
| Code          | Value  |   |       |   |      |       |   |  |   |  |   |                 |   |                 |   |                   |
| H             | Halted/Paused across all U.S. equity markets         |   |       |   |      |       |   |  |   |  |   |                 |   |                 |   |                   |
| Q             | Quotation only period for cross-market halt or pause |   |       |   |      |       |   |  |   |  |   |                 |   |                 |   |                   |
| T             | Trading on PSX                                       |   |       |   |      |       |   |  |   |  |   |                 |   |                 |   |                   |
| Reason        | 19   | 4 | Alpha | Trading Action reason.  |      |       |   |  |   |  |   |                 |   |                 |   |                   |

### 5.5.2 Reg SHO Short Sale Price Test Restricted Indicator

In November 2010, the Securities and Exchange Commission (SEC) will implement changes to Rule 201 of the Regulation SHO (Reg SHO). For details, please refer to [SEC Release Number 34-61595](#). In association with the Reg SHO rule change, NASDAQ will introduce the following Reg SHO Short Sale Price Test Restricted Indicator message format.

For NASDAQ-listed issues, NASDAQ will support a full pre-opening spin of Reg SHO Short Sale Price Test Restricted Indicator messages indicating the Rule 201 status for all active issues. NASDAQ will also send the Reg SHO Short Sale Price Test Restricted Indicator message in the event of an intraday status change.

For other exchange-listed issues, NASDAQ will relay the Reg SHO Short Sale Price Test Restricted Indicator message when it receives an update from the primary listing exchange. NASDAQ will process orders based on the most Reg SHO Restriction status value.

| REG SHO RESTRICTION |        |        |         |   |
|---------------------|--------|--------|---------|---|
| Name                | Offset | Length | Value   | Notes   |
| Timestamp           | 0      | 8      | Numeric | Time at which the market participant position message was generated   |
| Message Type        | 9      | 1      | "Y"     | Reg SHO Short Sale Price Test Restricted Indicator  |
| Stock               | 10     | 8      | Alpha   | Stock symbol right padded with spaces.  |
| Reg SHO Action      | 18     | 1      | Alpha   | Denotes the Reg SHO Short Sale Price Test Restriction status for the issue at the time of the message dissemination. Allowable values are:<br><br>"0" = No price test in place<br><br>"1" = Reg SHO Short Sale Price Test Restriction |

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|  |  |  |  |   |
|--|--|--|--|---|
|  |  |  |  | in effect due to an intra-day price drop in security<br>"2" = Reg SHO Short Sale Price Test Restriction remains in effect |
|--|--|--|--|---|

### 5.5.3 Stock Directory

At the start of each trading day, PSX disseminates stock directory messages for all active symbols in the PSX system.

Market data redistributors should process this message to populate the Financial Status Indicator (required display field) and the Market Category (recommended display field) for NASDAQ-listed issues.

| <b>Stock Directory Message</b> |                             |            |              |   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
|--------------------------------|-----------------------------|------------|--------------|---|------|-------|---|-------------------|---|-----------------|---|-----------------|---|-----------------------------|---|----------------------|---|-----------------------|---|-------------------|---------|---------------|
| <b>Name</b>                    | <b>Offset</b>               | <b>Len</b> | <b>Type</b>  | <b>Value/Description</b>  |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
| Time Stamp                     | 0                           | 8          | Numeric      | Time Stamp.   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
| Message Type                   | 8                           | 1          | Alphanumeric | R = Stock Directory   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
| Issue Symbol                   | 9                           | 8          | Alphanumeric | Denotes the security symbol for which the directory message is being generated. For details on symbology, please refer to Appendix B.   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
| Market Category                | 17                          | 1          | Alphanumeric | Denotes the listing market for the issue. The allowable values are: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>N</td> <td>NYSE Listed Issue</td> </tr> <tr> <td>A</td> <td>NYSE Amex Issue</td> </tr> <tr> <td>P</td> <td>NYSE Arca Issue</td> </tr> <tr> <td>Q</td> <td>NASDAQ Global Select Market</td> </tr> <tr> <td>G</td> <td>NASDAQ Global Market</td> </tr> <tr> <td>S</td> <td>NASDAQ Capital Market</td> </tr> <tr> <td>Z</td> <td>BATS Listed Issue</td> </tr> <tr> <td>&lt;Space&gt;</td> <td>Not available</td> </tr> </tbody> </table> | Code | Value | N | NYSE Listed Issue | A | NYSE Amex Issue | P | NYSE Arca Issue | Q | NASDAQ Global Select Market | G | NASDAQ Global Market | S | NASDAQ Capital Market | Z | BATS Listed Issue | <Space> | Not available |
| Code                           | Value                       |            |              |   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
| N                              | NYSE Listed Issue           |            |              |   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
| A                              | NYSE Amex Issue             |            |              |   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
| P                              | NYSE Arca Issue             |            |              |   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
| Q                              | NASDAQ Global Select Market |            |              |   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
| G                              | NASDAQ Global Market        |            |              |   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
| S                              | NASDAQ Capital Market       |            |              |   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
| Z                              | BATS Listed Issue           |            |              |   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |
| <Space>                        | Not available               |            |              |   |      |       |   |                   |   |                 |   |                 |   |                             |   |                      |   |                       |   |                   |         |               |

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| Financial Status Indicator | 18   | 1 | Alphanumeric | For NASDAQ-listed issues, this field indicates when a firm is not in compliance with NASDAQ continued listing requirements.   |                          |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |
|----------------------------|--|---|--------------|---|--------------------------|-------|---|-----------|---|------------|---|----------|---|------------------------|---|--------------------------|---|-------------------------|---|-------------------------------------|---------|--|--|----|--|-------------------------------|
|                            |  |   |              | The allowable values are:   |                          |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |
|                            |  |   |              | <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>D</td> <td>Deficient</td> </tr> <tr> <td>E</td> <td>Delinquent</td> </tr> <tr> <td>Q</td> <td>Bankrupt</td> </tr> <tr> <td>G</td> <td>Deficient and Bankrupt</td> </tr> <tr> <td>H</td> <td>Deficient and Delinquent</td> </tr> <tr> <td>J</td> <td>Delinquent and Bankrupt</td> </tr> <tr> <td>K</td> <td>Deficient, Delinquent, and Bankrupt</td> </tr> <tr> <td>&lt;space&gt;</td> <td>Company is in compliance with NASDAQ listing standards</td> </tr> <tr> <td></td> <td>OR</td> </tr> <tr> <td></td> <td>Issue is not listed on NASDAQ</td> </tr> </tbody> </table> | Code                     | Value | D | Deficient | E | Delinquent | Q | Bankrupt | G | Deficient and Bankrupt | H | Deficient and Delinquent | J | Delinquent and Bankrupt | K | Deficient, Delinquent, and Bankrupt | <space> | Company is in compliance with NASDAQ listing standards |  | OR |  | Issue is not listed on NASDAQ |
|                            |  |   |              | Code  | Value                    |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |
|                            |  |   |              | D   | Deficient                |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |
|                            |  |   |              | E   | Delinquent               |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |
|                            |  |   |              | Q   | Bankrupt                 |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |
|                            |  |   |              | G   | Deficient and Bankrupt   |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |
|                            |  |   |              | H   | Deficient and Delinquent |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |
|                            |  |   |              | J   | Delinquent and Bankrupt  |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |
| K                          | Deficient, Delinquent, and Bankrupt                    |   |              |   |                          |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |
| <space>                    | Company is in compliance with NASDAQ listing standards |   |              |   |                          |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |
|                            | OR   |   |              |   |                          |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |
|                            | Issue is not listed on NASDAQ                          |   |              |   |                          |       |   |           |   |            |   |          |   |                        |   |                          |   |                         |   |                                     |         |  |  |    |  |                               |

**6 Contact Information**

Questions about the PLS entitlement and display guidelines may be directed to NASDAQ OMX Global Data products at +1 301 978 5307 or [dataprodcts@nasdaqomx.com](mailto:dataprodcts@nasdaqomx.com).

Questions about PLS transmissions may be directed to NASDAQ OMX Global Software Development at [devsupport@nasdaqomx.com](mailto:devsupport@nasdaqomx.com).

## Appendix A – Last Sale Processing

### **SEC Vendor Display Rule**

The Securities and Exchange Commission (SEC) has established certain display standards for market data vendors. For more information, please contact the [SEC](#) directly.

PLS carries only trade transactions executed on the PSX system. Since PLS is not a consolidated trade data feed, it should not be used to feed market data displays that are subject to the SEC Vendor Display Rule.

### **Issue Statistic Calculations**

PLS only provides raw trade data from the PSX execution system. If needed, firms should create their own algorithms for issue- and market center-level statistics. To help in the process, PSX offers the following guidelines.

#### **a) Last Sale and Volume Calculation**

Within the market data industry, the term “last sale” has been widely used in conjunction with the SEC Vendor Display Rule. “Last Sale” is typically used to denote the most recent round or mixed lot trade transaction reported by a market center with an eligible sale condition code for the regular U.S. market session. For consolidated PSX displays, firms should use the time stamp field from the Trade Report message to determine the proper trade sequence order for last sale calculations as well as time and sales displays.

To facilitate a “Last Sale” calculation, PLS includes the sale condition modifier for the PSX execution system transactions. The Sale Condition Modifier field consists of four levels. A trade should only be applied to the high, low, last sale, and volume calculations if all four sales condition modifiers so allow.

**Condition – Level 1** denotes the settlement type of the transaction. If a transaction has a special settlement code, firms should not include transaction in high, low, or last sale price calculations. If the transaction has a regular settlement type, firms should process the next levels to determine proper processing.

| Code | Value               | High/Low                             | Last Sale                            | Volume                               |
|------|---------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| @    | Regular Settlement  | Yes, if other levels do not overrule | Yes, if other levels do not overrule | Yes, if other levels do not overrule |
| C    | Cash Settlement     | No                                   | No                                   | Yes                                  |
| N    | Next Day Settlement | No                                   | No                                   | Yes                                  |
| R    | Seller Settlement   | No                                   | No                                   | Yes                                  |

#### **Sale Condition – Level 2**

For Reg NMS eligible securities, this sale condition level is used to define the trade through reason code. For the PSX trading market, the allowable codes are:

| Code | Value                   | High/Low | Last Sale | Volume |
|------|-------------------------|----------|-----------|--------|
| F    | Intermarket Sweep Order | Yes      | Yes       | Yes    |

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|         |                |                  |                  |                  |
|---------|----------------|------------------|------------------|------------------|
| <space> | Not applicable | See other levels | See other levels | See other levels |
|---------|----------------|------------------|------------------|------------------|

For non-Reg NMS securities, this sale condition level is used to identify cross transactions. For the cross eligible securities, the allowable codes are:

| Code    | Value            | High/Low         | Last Sale        | Volume           |
|---------|------------------|------------------|------------------|------------------|
| 0       | Opening Print    | Yes              | Yes              | Yes              |
| 5       | Re-Opening Print | Yes              | Yes              | Yes              |
| 6       | Closing Print    | Yes              | Yes              | Yes              |
| <space> | Not applicable   | See other levels | See other levels | See other levels |

**Sale Condition – Level 3** indicates if the transaction was reported during regular market hours with a “sold” code or during the extended trading hours session. Historically, only trades that occur during normal market hours and in proper sequence have been included in the “last sale” calculation.

| Code    | Value   | High/Low         | Last Sale  | Volume           |
|---------|---|------------------|--|------------------|
| T       | Extended Hours Trade                                    | No               | No   | Yes              |
| U       | Extended Hours Trade – Reported Late or Out of Sequence | No               | No   | Yes              |
| L       | Sold Last – Reported Late But In Sequence               | Yes              | Yes  | Yes              |
| Z       | Sold – Out of Sequence                                  | Yes              | No (except if first regular market trade of day) | Yes              |
| <space> | Not applicable  | See other levels | See other levels                                 | See other levels |

**Sale Condition – Level 4** indicates special trading situations.

For the PSX execution system, this sale condition level is used to denote when a trade record contains the PSX Official Opening Price or PSX Official Closing Price values. Since PSX also reports the underlying cross execution transaction to the tape, the PSX Opening and Closing report volume should not be included in the daily volume calculation.

For the Cross Trade (X) modifiers, firms should defer to the Level 2 and Level 3 sale condition codes to determine whether to include the trade in the high, low, and last sale calculation statistics.

As outlined in the table below, PSX also observes special processing rules for the Prior Reference Price (P), Weighted Average Price (W), and Odd Lot Execution (o) codes.



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| Code    | Value                      | High/Low  | Last Sale  | Volume           |
|---------|----------------------------|---|--|------------------|
| A       | Acquisition                | Yes   | Yes  | Yes              |
| B       | Bunched                    | Yes   | Yes  | Yes              |
| D       | Distribution               | Yes   | Yes  | Yes              |
| H       | Price Variation Trade      | No  | No   | Yes              |
| M       | PSX Official Close Price   | Yes for PSX market center only                  | Yes for PSX market center only                   | No               |
| o       | Odd lot execution          | No  | No   | Yes*             |
| P       | Prior Reference Price      | Yes   | No (except if first regular market trade of day) | Yes              |
| Q       | PSX Official Opening Price | Yes for PSX market center only displays         | No   | No               |
| S       | Split Trade                | Yes   | Yes  | Yes              |
| W       | Weighted Average Price     | No  | No   | Yes              |
| X       | Cross Trade                | Yes (if sent with an eligible Level 2 modifier) | Yes (if sent with an eligible Level 2 modifier)  | Yes              |
| <space> | Not applicable             | See other levels                                | See other levels                                 | See other levels |

**b) Last Trade Calculation**

The term “Last Trade” is more widely applied within the market data industry. Many firms use the term “last trade” to refer to the most recent trade transaction reported in sequence. In addition to the “last sale” codes, many firms include odd lots and extended trading hour executions in the “last trade” price calculations.

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\* Please note that the consolidated trade feeds offered by the NASDAQ Security Information Processor (SIP) and the Securities Information Automation Corporation (SIAC) do not include odd lot execution data at this time. While NASDAQ and NASDAQ OMX PSX believe that odd lot executions should be included in volume statistics, a firm may choose to omit odd lot executions from the calculation if it needs volume numbers to match across multiple system platforms.

**c) Net Change Calculation**

PLS does not include a net change indicator field. Data feed recipient must perform their own calculation for last sale eligible and last trade eligible transactions. The formula should be as follows:

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

To obtain the Adjusted Previous Close, firms will need to apply dividends to the previous day's closing price value. NASDAQ OMX offers several products to support NASDAQ-listed securities:

- For NASDAQ-listed securities, firms may obtain dividend information via the [NASDAQ Daily List product page](#) on the NASDAQ OMX Trader website.

For NYSE-, NYSE Amex-, NYSE Arca- and BATS-listed securities, firms should contact the listing exchange directly to inquire about corporate action data delivery options.

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.

## **Appendix B - Stock Symbol Convention**

For NASDAQ-listed issues, NASDAQ OMX currently restricts its symbol length to a maximum of 8 characters. For common stock issuances, NASDAQ, PSX and BX will only assign root symbols of 1 to 4 characters in length with possible fifth and or sixth character denoting a suffix. In certain instances, a dot “.” delimiter may be applied to symbols after the root and between the suffix eg., XXXX.A. For subordinate securities, NASDAQ and BX will assign a 5 character symbol for which the last character relays information about the issue class or issue type. For the current list of fifth and or six character symbol suffixes, please refer to [Ticker Symbol Convention](#) page on the NASDAQ OMX Trader website.

For NYSE-, NYSE MKT- and NYSE Arca-listed securities with subordinate issue types, please refer to [Ticker Symbol Convention](#) page on the NASDAQ OMX Trader website.

### Appendix C – Trading Action Reason Codes

For NASDAQ-listed issues, NASDAQ acts as the primary market and has the authority to institute a trading halt or trading pause in an issue due to news dissemination or regulatory reasons.

For CQS issues, NASDAQ, BX and PSX abide by any regulatory trading halts and trading pauses instituted by the primary or listing market as appropriate.

For all issue types, NASDAQ, BX and/or PSX may also halt trading for operational reasons.

NASDAQ, BX and/or PSX will send out a trading action message to inform its market participants when the trading status of an issue changes. For informational purposes, NASDAQ and PSX also attempt to provide the reason for each trading action update. For bandwidth efficiency reasons, NASDAQ, BX and PSX use a 4-byte code for the reason on its outbound data feeds.

| REASON CODES FOR TRADING HALT ACTIONS |   |
|---------------------------------------|---|
| Code                                  | Value   |
| T1                                    | Halt News Pending   |
| T2                                    | Halt News Disseminated  |
| T5                                    | Single Security Trading Pause In Affect                         |
| T6                                    | Regulatory Halt — Extraordinary Market Activity                 |
| T8                                    | Halt ETF  |
| T12                                   | Trading Halted; For Information Requested by Listing Market     |
| H4                                    | Halt Non-Compliance   |
| H9                                    | Halt Filings Not Current  |
| H10                                   | Halt SEC Trading Suspension                                     |
| H11                                   | Halt Regulatory Concern   |
| O1                                    | Operations Halt; Contact Market Operations                      |
| LUDP                                  | Volatility Trading Pause  |
| LUDS                                  | Volatility Trading Pause – Straddle Condition                   |
| MWC1                                  | Market Wide Circuit Breaker Halt – Level 1                      |
| MWC2                                  | Market Wide Circuit Breaker Halt – Level 2                      |
| MWC3                                  | Market Wide Circuit Breaker Halt – Level 3                      |
| MWC0                                  | Market Wide Circuit Breaker Halt – Carry over from previous day |
| IPO1                                  | IPO Issue Not Yet Trading                                       |
| M1                                    | Corporate Action  |
| M2                                    | Quotation Not Available   |
| <space>                               | Reason Not Available  |

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| <b>REASON CODES FOR QUOTATION/TRADING RESUMPTION ACTIONS</b> |   |
|--|---|
| Code   | Value   |
| T3   | News and Resumption Times   |
| T7   | Single Security Trading Pause / Quotation Only Period                 |
| R4   | Qualifications Issues Reviewed/Resolved; Quotations/Trading to Resume |
| R9   | Filing Requirements Satisfied/Resolved; Quotations/Trading To Resume  |
| C3   | Issuer News Not Forthcoming; Quotations/Trading To Resume             |
| C4   | Qualifications Halt ended; Maintenance Requirements Met; Resume       |
| C9   | Qualifications Halt Concluded; Filings Met; Quotes/Trades To Resume   |
| C11  | Trade Halt Concluded By Other Regulatory Auth.; Quotes/Trades Resume  |
| MWCQ   | Market Wide Circuit Breaker Resumption                                |
| R1   | New Issue Available   |
| R2   | Issue Available   |
| IPOQ   | IPO Security Released for Quotation (NASDAQ OMX Securities)           |
| IPOE   | IPO Security — Positioning Window Extension (NASDAQ OMX Securities)   |
| <space>  | Reason Not Available  |

For the current list of regulatory halts, please refer to the [Trading Halts page](#) on the NASDAQ OMX Trader website.

## Appendix D – Documentation Version Control Log

### November 1, 2013: PLS Version 1.1

NASDAQ OMX released a new version of the documentation to support details of expanded symbology (Appendix B).

### April 23, 2013: PLS Version 1.1

NASDAQ OMX added the following Event Codes in the System Event Message:

- S - Start of System Hours: This message indicates that NASDAQ is open and ready to start accepting orders.
- E - End of System Hours: Indicates that NASDAQ is now closed and will not accept any new orders today.

### March 11, 2013: PSX Last Sale (PLS) 1.1

NASDAQ OMX added the following Trading Action Reason Code for LULD to reflect when the National Best Bid is below the lower price band and/or the National Best Offer is above than the upper price band and the NMS Stock is not in a Limit State.

- LUDS - Volatility Trading Pause – Straddle Condition

### January 9, 2013: PSX Last Sale (PLS) 1.1

NASDAQ OMX added the following Trading Action Reason Code:

- MWC0 - Market Wide Circuit Breaker Halt – Carry over from previous day

### January 8, 2013: PSX Last Sale (PLS) 1.1

Released a new version of the PLS documentation to support the following changes:

- NASDAQ OMX removed the Trading Action State, “P”, from the Stock Trading Message.
- Corrected the specifications of the Stock Trading Action message.

### November 6, 2012: PSX Last Sale (PLS) 1.1

Released a new version of the PLS documentation to support the following changes:

- Added the “P” value to the Trading State in the Stock Trading Message.
- Modified the values for the Trading Action Reason Codes. Added the following codes:
  - LUDP - Volatility Trading Pause
  - MWC1 - Market Wide Circuit Breaker Halt – Level 1
  - MWC2 - Market Wide Circuit Breaker Halt – Level 2
  - MWC3 - Market Wide Circuit Breaker Halt – Level 3
  - MWCQ - Market Wide Circuit Breaker Resumption

### November 1, 2011: PSX Last Sale (PLS) 1.1

NASDAQ OMX added a new Market Center code, “Z”, for BATS-listed securities to the Market Category and Security Class fields.

### July 14, 2010: PSX Last Sale (PLS) 1.1

NASDAQ OMX added a new Regulation SHO Short Sale Price Test Restricted Indicator message format to be introduced in the fourth quarter of 2010.

### July 2, 2010 : PSX Last Sale (PLS) 1.1

NASDAQ OMX added new Action Trading code(s) to the Stock Trading Action message for the NASDAQ Volatility Guard trading pause.

### May 25, 2010: PSX Last Sale (PLS) 1.1

Inclusion of two new Trading Action Reason code values (T5 and T7) for single security trading pause situations

### February 26, 2010 : PSX Last Sale (PLS) 1.1

VERSION 1.10

11/1/2013

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PSX LAST SALE  
INTERFACE SPECIFICATION VERSION 1.10

Initial release of PSX documentation.

(Note: For cross market consistency, PSX is using the same version numbers as the NASDAQ and BX markets. There will be no PLS 1.0.)