

**IT Development Division**  
**Trading Systems Development Department**



# **OASIS – IDS**

## **Market Data Feed Specification**

**Version 5.0.3**

*Athens, December 2017*

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| Revision History |            |   |
|------------------|------------|---|
| Issue            | Date       | Description   |
| 1.3.6            | 20/09/2006 | Original Document (used as a reference)   |
| 2.0.0            | 1/12/2006  | <p>Includes extensive modifications/additions to the Original Document. If the reader is familiar ONLY with the version 1.3.6 or the earlier ones then he/she should read the entire document.</p> <p>Indicatively, the most important modifications are the following:</p> <ul style="list-style-type: none"> <li>a) The new spec is compliant with the CESR recommendations <ul style="list-style-type: none"> <li>a. DATE and TIME fields where formatted according to ISO standard 8601</li> <li>b. Introducing (in the header) the Market Identification Code (MIC) defined by ISO 10383</li> </ul> </li> <li>b) <b>Introduced:</b> (in the header) the Subcategory field which identifies the financial product (e.g. bond, warrant, index, etc.) and imposes a second level of message categorization</li> <li>c) <b>Introduced:</b> the idea of variable-message-length categories. Namely the categories <b>B</b> (Quote), <b>F</b> (Index Baseline), <b>H</b> (News)</li> <li>d) <b>Defined:</b> 4 new message categories. Namely the categories <b>M</b> (Projected-Auction/Auction-Open Price), <b>N</b> (High/Low Limit Modification), <b>O</b> (Security State), <b>P</b> (Market Status)</li> <li>e) <b>Modified:</b> the semantics and format of 3 message categories. Namely the categories <b>D</b> (from Statistics became Security Record), <b>H</b> (from OTC Sale became News), <b>L</b> (from Projected-Open/Pre-Open/Closing Price became Closing Price)</li> <li>f) <b>Renamed:</b> 2 message categories. Namely the categories <b>A</b> (the Last Sale was changed to Trade), <b>I</b> (the Cancelled Sale was changed to Cancelled Trade)</li> <li>g) <b>Enriched:</b> the payload of message categories <b>A, B, F, G</b> and <b>I</b></li> <li>h) <b>Shorten</b> the payload of message category <b>E</b></li> <li>i) <b>Deleted:</b> the message category <b>J</b> (Securities Modifications) and the control messages <b>KB</b> (Market Open), <b>KD</b> (Trading Halt/Resume) and <b>KG</b> (Market Close)</li> </ul> <p>Finally the specification was renamed from "ATHEX MARKET DATA FEED SPECIFICATION" (version 1.3.6 and its predecessors) to "OASIS MARKET DATA FEED SPECIFICATION" (version 2.0.0 and its successors).</p> |
| 2.0.1            | 24/1/2007  | <p><b>Addition:</b> The meaning of the space character as a packet's subcategory (paragraph 3.3.4 Message Subcategory and Table 7-3, Message Subcategories)</p> <p><b>Addition:</b> The four-spaces string in the Venue ID table</p> <p><b>Addition:</b> Complementary information pertinent to the Stop and SPACE phase IDs and the Resume status (paragraphs 7.8 Phase ID and 7.9 Instrument Status)</p> <p><b>Modification:</b> The explanation of the last three characters of the timestamp field was changed from "hundredths of second" to "milliseconds" and one of the Phase ID values was changed to 'S' (Stop) from 'J' (Projected Auction) Table 7-6, Phase IDs)</p> <p><b>Correction:</b> There are <b>five</b> Category K subsections and not six and the size of the Composition Information group is <b>34</b> bytes</p>  |

|       |            |   |
|-------|------------|---|
|       |            | <p>long and not 35 (paragraphs 4.2 Category K - Control Message Formats,</p> <p><b>Rewriting:</b> The wording of the description for the fields “Outstanding Shares” and in paragraphs</p> <p><b>Correction:</b> The “Projected Auction” character was replaced by the “Stop” character and the SPACE character was added as the null Phase ID (paragraph 4.11 Category O – Instrument State Message and Table 7-6, Phase IDs)</p>  |
| 2.0.2 | 21/11/2007 | <p><b>Addition:</b> Complementary information pertinent to Category M messages (paragraph 4.9 Category M – Projected-Auction / Auction-Open / Projected Close Price Message)</p> <p><b>Addition:</b> The meaning of the ‘T’ status for Auction-type markets (paragraph 7.7 Market Status)</p> <p><b>Rewriting:</b> The wording of the description of the ‘Reference ISIN Code’ field in Category ‘E’)</p> <p><b>Correction:</b> The fields Company and Security Codes in Category ‘E’ were ‘Typed’ as Numeric Characters (Category ‘E’))</p> <p><b>Clarification:</b> Which condition triggers a Line Verification Control message (paragraph 4.2.4 Type “T” Line Verification Control Message (Category ‘K’))</p> <p><b>Addition:</b> The ENAX string in the Venue ID table and the meaning of the four-spaces string</p> <p><b>Addition:</b> The three new Market IDs (T, F, G) in the Market IDs table</p> <p><b>Addition:</b> The symbol ‘R’ as an new market status in Category P messages (paragraph 7.7 Market Status)</p>   |
| 3.0.0 | 15/09/2008 | <p><b>Definition:</b> 4 new messages. Namely Category Q – Order Message, Category R – Cancelled Order Message, Category S – Exchange Notifications Message and Category U – APA Post Trade Message</p> <p><b>Clarification:</b> Which condition triggers a Line Verification Control message (paragraph 4.2.4 Type “T” Line Verification Control Message (Category ‘K’))</p> <p><b>Modification:</b> The size of all PRICE fields as well as all quantity-related (e.g. volume, outstanding shares etc.) fields was increased. (see Table 2-1, Table 4-5, Table 4-9, Table 4-10, Table 4-15, Table 4-16, Table 4-11)</p> <p><b>Addition:</b> New fields at message categories A, B, E, F and I</p> <p><b>Modification:</b> Replacement of the Trade Type field with the Board ID field at the Category A – Trade Message</p> <p><b>Modification:</b> Omission of the Text, RTF and HTML content formats from the Category H – News Message and renaming this category into Financial News (see Table 7-1)</p> <p><b>Addition:</b> The HOTC string in the Venue ID table</p> |

|       |           |  |
|-------|-----------|--|
|       |           | <b>Addition:</b> An example of the parsing of a Category Q Message   |
| 3.0.1 | 3/4/2009  | <p><b>Clarification:</b> The possible values put in the order number and date fields (for Buy and Sell), pertinent to Pre-Agreed trades (see paragraph 4.3)</p> <p><b>Removal:</b> The phrase “(currently the IDS can support ONLY one Quote level for Bonds and up to five Quote levels for all other tradable securities)”, from the Category B – Quote Message paragraph (see paragraph 4.7)</p> <p><b>Clarification:</b> The possible values put in the Price field of Category Q – Order Message (see text below Table 4-7)</p> <p><b>Addition:</b> The fields Order Release Date, Order Release Time and Last Order Update Date in the Category Q – Order Message (see paragraph 4.5)</p> <p><b>Clarification:</b> The dissemination of the Category G – Instrument Summary Message (see paragraph 4.13)</p> <p><b>Addition:</b> The flag Actual Projected Close (2) in the Category M – Projected-Auction / Auction-Open / Projected Close Price Message and other information in general (see paragraph 4.9)</p> <p><b>Note:</b> The calculation of the volumes in Bond-related data feed messages (see paragraph 2.4.3)</p> <p><b>Addition:</b> Two new fields (i.e. OTC Type and OTC Price Type) and their respective tables (paragraph : 5.4 Category U – APA Post Trade Message and)</p> |
| 3.0.2 | 16/4/2009 | <p><b>Addition:</b> The XECM string in the Venue ID table</p> <p><b>Addition:</b> The two new Market IDs (I, J) in the Market IDs table</p>  |
| 3.0.3 | 16/2/2010 | <p><b>Clarification:</b> The dissemination of a Projected Close Price Message (see paragraph 4.9 Category M – Projected-Auction / Auction-Open / Projected Close Price Message)</p> <p><b>Addition:</b> The new Market ID (L) in the Market IDs table</p> <p><b>Clarification:</b> The possible values of the <b>OTC Price</b> field (paragraph : 5.4 Category U – APA Post Trade Message)</p>   |
| 3.0.4 | 31/5/2011 | <p><b>Modification:</b> The number of decimal digits of the PRICE type fields (see paragraph 2.3)</p> <p><b>Addition:</b> The ‘R’ character in the Subcategory table (Table 7-3)</p> <p><b>Addition:</b> The EUAX string in the Venue ID table</p> <p><b>Addition:</b> The new Market ID (R) in the Market IDs table</p> <p><b>Addition:</b> The Ceil, Floor Price fields Category N – High/Low Limit Modification Message.</p>  |
| 3.0.5 | 2/9/2011  | <b>Modification:</b> The valid market ID table   |
| 4.0.0 | 2/4/2013  | <p><b>Note:</b> The communication Interface as well as the Protocol specifications of the IDS subsystem is now common for the instruments of all Greek &amp; Cyprus markets (Stock, Fixed-income and Derivatives)</p> <p><b>Renaming:</b> Security record message is renamed to Instrument record, Index baseline message to Index record, Security State</p>  |

|       |            |   |
|-------|------------|---|
|       |            | <p>message to Instrument state message, Security Summary message to Instrument Summary message, Closing Price to Closing/Fixing price message</p> <p><b>Removal:</b> High % limit, Low % limit fields from Instrument Record and High/Low Limit modification messages</p> <p><b>Modification:</b> Replacement of the ISIN code field with the Exchange symbol field in all information messages. The ISIN code where it is applicable is provided by the reference data message of Category D.</p> <p><b>Addition:</b> The Instrument code (probably Bloomberg code) is provided in the reference data message of Category D</p> <p><b>Modification:</b> The size of all volume fields is 17 numeric characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow</p> <p><b>Addition:</b> A number of new fields concerning the derivatives market has been added to the corresponding reference data messages ( Category D)</p> <p><b>Removal:</b> All IRR related fields have been removed from Category A, B, Q, R, G messages.</p> <p><b>Addition:</b> Market Model Typology related fields on Category A, I, T messages</p> <p><b>Removal:</b> Type “C” Set Sequence control message (Category K)</p> <p><b>Addition:</b> Field Reference Index symbol</p> <p><b>Removal:</b> Reference ISIN Code field</p> <p><b>Note:</b> Category E messages are transmitted ONLY for SPOT market instruments</p> |
| 4.0.1 | 05/12/2013 | <p><b>Addition:</b> The Product and Instrument Type fields</p> <p><b>Modification:</b> The size and the possible values of the Underlying product field.</p> <p><b>Modification:</b> The size of Category O – Instrument State Message</p> <p><b>Modification:</b> The ordering of Reference Index Symbol and Number Of Instrument Composing the Index fields</p> <p><b>Addition:</b> The ISIN code field</p>   |
| 4.0.2 | 17/02/2014 | <p><b>Removal:</b> The ‘EUAX’ from the Venue id list and the ‘R’ from the message subcategory list (Table 7-3)</p> <p><b>Modification:</b> The Market Id of Index Derivatives market changed from ‘2’ to ‘1’. The Market Id of Stock Derivatives market changed from ‘1’ to ‘2’. See</p> <p><b>Addition:</b> The value ‘11’ (Municipal) in the list of values for the Product field.</p> <p><b>Modification:</b> The type of Market Mechanism, Trading Mode and Publication Mode fields in Category A – Trade Message and Category U – APA Post Trade Message changed from Numeric to Alpha Characters</p>  |

|       |            |  |
|-------|------------|--|
|       |            | <p><b>Modification:</b> Closing prices (Category L – Closing/Fixing Price Message) will be calculated by the trading platform both for spot AND derivatives market and disseminated through IDS. Closing prices will also be available via the Category G – Instrument Summary Message</p>   |
| 4.0.3 | 28/02/2014 | <p><b>Addition:</b> The 'BMFM', 'SBMF' and 'BMFA' strings in the Venue ID table.</p> <p><b>Modification:</b> The type of Market Mechanism, Trading Mode and Publication Mode fields in Category U – APA Post Trade Message changed from Numeric to Alpha Characters</p> <p><b>Removal:</b> The 'T' from the message subcategory list (Table 7-3)</p> <p><b>Clarification:</b> The 'R' value in message subcategory list is used for the identification of REPOS instruments</p>  |
| 4.0.4 | 11/06/2014 | <p><b>Addition:</b> Dissemination of Standard Combination market data. Messages for combos may contain negative values in PRICE type fields</p> <p><b>Addition:</b> The character 'V' in the <b>Table 7-3, Message Subcategories</b></p> <p><b>Addition:</b> The new Market IDs ('U','Y', '6', '7', '8') in the Market IDs table</p> <p><b>Modification:</b> The value of Order type field in <b>Category Q – Order Message</b> and <b>Category R – Cancelled Order Message</b> changed from ' ' to 'N' for normal orders.</p> <p><b>Modification:</b> The values of Buy Order type and Sell Order type fields in <b>Category A – Trade Message</b> changed from ' ' to 'N' for normal orders.</p> <p><b>Addition:</b> The value 'OOF' (Options on Futures) in the list of values for the Instrument type field</p> <p><b>Addition:</b> The value '7' (Index) in the list of values for the Underlying Product field</p> |
| 4.0.6 | 25/9/2014  | <p><b>Addition: The value '4' (Currency) in the list of values for the Underlying Product field in the Category D – Instrument Record Message</b></p> <p><b>Addition:</b> The Local Symbol field</p>   |
| 4.0.7 | 09/04/2015 | <p><b>Clarification:</b> Dissemination of Category L – Closing/Fixing Price Message; fixing prices will also be transmitted the next trading date</p>  |
| 5.0.0 | 09/05/2017 | <p><b>Removals:</b> 1) The reference data messages (Category: D, U, F, E) has been removed. This information will be provided though the ORDS new service. 2) Message of Category H (Financial News) has been removed. 3) Message of Category T (OTC Messages) has been removed. 4) The Market Model Topology fields have been removed from Category A and Category I messages.</p> <p><b>Additions:</b> 1) A trading event timestamp has been added to the</p>  |

|       |            |   |
|-------|------------|---|
|       |            | <p>body of some messages 2) A number of new fields for transparency have been added to Category A and Category I messages</p> <p><b>Modifications:</b> The publication timestamp in message header has been changed according to MiFID II</p> <p><b>Clarifications:</b> The Category T message will be provided through the relax channel in the context of the APA Service (MiFID II). The exact format of this message will be detailed in the following version of this document.</p> <p>Important note: The Real Time channel (OASIS messages) will not be affected in any case</p>   |
| 5.0.1 | 23/07/2017 | <p><b>Additions:</b> 1) "Accrued Interest" field has added into Category N message. 2) the "phase ID" = "A" has added in Table 6.6</p> <p><b>Clarifications:</b> "Price" field in Category O message has been clarified. The order and trade IDs are unique across the trading engine (all markets/all instruments) per trading day.</p>  |
| 5.0.2 | 23/09/2017 | <p><b>Additions: 1)</b> The chapter 5 about MiFID II APA implementation has been added.<br/> <b>2)</b> Fields Waiver Indicator &amp; Algo have been added for both buy and sell sides.<br/> <b>3)</b> A new Category W message has been added to relaxed channel to serve the derivatives fixing/settlement prices and open interest calculated by the Clearing System (DSS). Until now, this information was served by the Category L. The Category L message will continue to serve the closing prices calculated by the Trading System (OASIS). Additionally, the open interest field in L Category message will always be set to zeros.</p> <p><b>Modifications: 1)</b> Price field from message O has been removed<br/> 2) Waiver indicator field has been modified<br/> 3) Changed the format of Accrued Interest in Category N messages from 17 to 14 and updated the message size.<br/> 4) Changed the format of Notional Amount in Category A and C messages from 17 to 14 and updated the message size.</p> |
| 5.0.3 |            | <p><b>Additions:</b> 1) Table with message categories of relaxed channel<br/> 2) The size of Categ.U messages<br/> 3) The size of Categ.V messages</p> <p><b>Clarifications:</b> 1) Identified with blue colour the fields that will be populated in case there is no ISIN code in APA messages U &amp; V as mentioned in the current document.<br/> 2) Clarification of the Venue field in Categ. U messages<br/> 3) Fields "Buy Waiver Indicator" and "Sell Waiver Indicator" will always have the same value. Fields "Buy Algo" and "Sell Algo" will also have the same value in Category A and I messages<br/> 4) Clarified dissemination of Categ. Q and R messages for Combos</p>   |



## **Table of Contents**

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|   |           |
|---|-----------|
| <b>1. Introduction</b> .....  | <b>13</b> |
| 1.1. Information Dissemination System.....  | 13        |
| 1.2. Document Scope.....  | 13        |
| 1.3. Document Layout.....   | 14        |
| 1.4. Definitions, Acronyms and Abbreviations.....                                       | 14        |
| 1.5. Contact Information.....   | 15        |
| 1.6. Final Note.....  | 15        |
| <b>2. General Overview</b> .....  | <b>16</b> |
| 2.1. Prologue.....  | 16        |
| 2.2. Communication Protocols.....   | 16        |
| 2.3. Field Characteristics and ISO Compliance.....                                      | 16        |
| 2.4. General Parsing Information.....   | 17        |
| <b>3. Message Packet Structure</b> .....  | <b>19</b> |
| 3.1. Message Overview.....  | 19        |
| 3.2. Message SOH.....   | 19        |
| 3.3. Message Header.....  | 19        |
| 3.4. Message Text Formats.....  | 22        |
| 3.5. Message ETX.....   | 22        |
| 3.6. Message LRC.....   | 22        |
| <b>4. Message Categories and Formats</b> .....  | <b>23</b> |
| 4.1. Prologue.....  | 23        |
| 4.2. Category K - Control Message Formats.....  | 23        |
| 4.3. Category A – Trade Message.....  | 24        |
| 4.4. Category I - Cancelled Trade Message.....  | 27        |
| 4.5. Category Q – Order Message.....  | 29        |
| 4.6. Category R – Cancelled Order Message.....  | 31        |
| 4.7. Category B – Quote Message.....  | 32        |
| 4.8. Category C - Index Message.....  | 33        |
| 4.9. Category M – Projected-Auction / Auction-Open / Projected Close Price Message..... | 34        |
| 4.10. Category N – High/Low Limit Modification Message.....                             | 35        |
| 4.11. Category O – Instrument State Message.....  | 36        |
| 4.12. Category P – Market Status Message.....   | 36        |
| 4.13. Category G – Instrument Summary Message.....                                      | 37        |
| 4.14. Category L – Closing/Fixing Price Message.....                                    | 37        |
| 4.15. Category S – Exchange Notifications Message.....                                  | 38        |
| <b>5. Relaxed Channel</b> .....   | <b>39</b> |
| 5.1. Category W – Fixing Price Message.....   | 39        |

|           |   |           |
|-----------|---|-----------|
| 5.2.      | Category T – OTC Message .....                                    | 39        |
| 5.3.      | Field Characteristics and ISO Compliance for U & V Messages ..... | 40        |
| 5.4.      | Category U – APA Post Trade Message.....                          | 42        |
| 5.5.      | Category V – APA Pre-Trade Message .....                          | 46        |
| <b>6.</b> | <b>Appendix A: Transmission Schedule.....</b>                     | <b>49</b> |
| <b>7.</b> | <b>Appendix B, Information on Various Field Codes.....</b>        | <b>51</b> |
| 7.1.      | Content Format.....   | 51        |
| 7.2.      | Symbol.....   | 51        |
| 7.3.      | Halt/Suspended .....  | 51        |
| 7.4.      | Message Subcategory.....  | 51        |
| 7.5.      | Local Symbol .....  | 52        |
| 7.6.      | Board ID .....  | 52        |
| 7.7.      | Market Status .....   | 52        |
| 7.8.      | Phase ID.....   | 52        |
| 7.9.      | Instrument Status .....   | 53        |
| 7.10.     | Order Status .....  | 53        |
| 7.11.     | Order Side .....  | 53        |
| 7.12.     | Order Original Price Type.....                                    | 53        |
| 7.13.     | Order Lifetime.....   | 54        |
| 7.14.     | Order Special Condition .....                                     | 54        |

## ***List of Tables***

---

|   |    |
|---|----|
| Table 1-1, Definitions, Acronyms and Abbreviations .....                                | 14 |
| Table 2-1, Field Types and ISO Compliance.....  | 17 |
| Table 3-1, Message Packet general structure .....                                       | 19 |
| Table 3-2, Message Header format .....  | 19 |
| Table 3-3, Message Categories (real-time channel) .....                                 | 20 |
| Table 3-4, Message Categories (relaxed channel).....                                    | 21 |
| Table 4-1, Type “A” Start of Day Message format.....                                    | 23 |
| Table 4-2, Type “F” Administrative Message format .....                                 | 23 |
| Table 4-3, Type “H” End of Day Message format.....                                      | 24 |
| Table 4-4, Type “T” Line Verification Message format .....                              | 24 |
| Table 4-5, Category A – Trade Message format .....                                      | 26 |
| Table 4-6, Category I –Cancelled Trade Message format.....                              | 29 |
| Table 4-7, Category Q –Order Message format .....                                       | 31 |
| Table 4-8, Category R –Cancelled Order Message format .....                             | 32 |
| Table 4-9, Category B –Quote Message format.....  | 33 |
| Table 4-10, Category C - Index Message format .....                                     | 34 |
| Table 4-11, Category M – Proj.-Auction / Auction-Open / Proj. Close Price Message ..... | 35 |
| Table 4-12, Category N – High/Low Limit Modification Message format .....               | 35 |
| Table 4-13, Category O – Instrument State Message format.....                           | 36 |
| Table 4-14, Category P – Market Status Message format .....                             | 36 |
| Table 4-15, Category G – Instrument Summary Message format.....                         | 37 |
| Table 4-16, Category L – Closing Price Message format.....                              | 38 |
| Table 4-17, Category S – Exchange Notifications Message format.....                     | 38 |
| Table 5-1, Category W – Fixing Price Message format.....                                | 39 |
| Table 5-2, Category T – OTC Message format .....  | 40 |
| Table 5-3, Category U – APA Post Trade Message format.....                              | 45 |
| Table 5-4, Category V – APA Pre-trade Message format .....                              | 48 |
| Table 6-1, Messages transmission schedule .....   | 50 |
| Table 7-1, Content Format.....  | 51 |
| Table 7-2, Halt/Suspend Reason.....   | 51 |
| Table 7-3, Message Subcategories .....  | 52 |
| Table 7-4, Board IDs.....   | 52 |
| Table 7-5, Market Statuses.....   | 52 |
| Table 7-6, Phase IDs .....  | 53 |
| Table 7-7, Instrument Statuses.....   | 53 |
| Table 7-8, Order Statuses .....   | 53 |
| Table 7-9, Order Sides.....   | 53 |
| Table 7-10, Order Original Price Types .....  | 54 |

Table 7-11, Order Lifetimes ..... 54  
Table 7-12, Order Special Conditions..... 54

# 1. Introduction

## 1.1. *Information Dissemination System*

The Information Dissemination System (IDS) provides real time, trading-related, data feed information for all instruments traded in the OASIS platform (spot and derivatives markets). The Information Dissemination System (IDS) (or Feed Server (FS) for sort) is the system that accomplishes this task.

In addition to this information, the IDS IDS/session-related control messages (administrative, keep-alive etc).

The following bullets list these types of data messages and their source of origin.

- **Control Messages**
  - Start of Day
  - Administrative
  - End of Day
  - Line Verification
- **Market Data Messages**
  - Trades (Trading & Clearing System)
  - Cancelled Trades
  - Orders
  - Cancelled Orders
  - Quotes
  - Indices
  - Market Status
  - Instrument State
  - High/Low Limits Modification
  - Projected Auction / Auction Open / Projected Close Price
  - Closing/Fixing Prices (Trading & Clearing System)
  - Summaries
  - Exchange Notifications

## 1.2. *Document Scope*

This document specifies the dissemination protocol used by IDS. In its pages the reader would find the following types of information:

- IDS transmission characteristics
- Message packet format
- Message categories, their format, and their dissemination periodicity

### 1.3. Document Layout

The document is divided in the following seven chapters.

- **Chapter 1, Introduction.** This is the current chapter.
- **Chapter 2, General Overview.** This chapter provides the general characteristics of the service and its respective Data Feed Specification.
- **Chapter 3, Message Packet Structure.** This chapter defines the structural components found in any message packet.
- **Chapter 4, Message Categories and Formats.** This chapter lists the different message packet categories, and defines their format and dissemination periodicity.
- **Chapter 5, Appendix A: Transmission Schedule,** This chapter defines the order in which the various message packets will be disseminated, for a given market, during the trading session.
- **Chapter 6, Appendix B: Information on Various Field Codes,** This chapter provides additional information relevant to the values found in various message categories.
- **Chapter 7, Appendix C: Parsing Examples,** This chapter contains the analytical parsing of four message categories.

### 1.4. Definitions, Acronyms and Abbreviations

| Acronym | Explanation                                 |
|---------|---|
| ANSI    | American National Standards Institute       |
| ATHEX   | Athens Exchange (previously denoted as ASE) |
| BBO     | Best Bid Offer                              |
| CSE     | Cyprus Stock Exchange                       |
| ETF     | Exchange Traded Funds                       |
| FS      | Feed Server                                 |
| HTML    | Hyper Text Markup Language                  |
| HW      | Hardware                                    |
| IDS     | Information Dissemination System            |
| INAV    | Indicative Net Asset Value                  |
| IOCP    | Internet Oriented Communication Portal      |
| ISO     | International Standards Organization        |
| IT      | Information Technology                      |
| MIC     | Market Identification Code                  |
| OASIS   | Integrated Automated Trading System         |
| OTC     | Over The Counter                            |
| SW      | Software                                    |
| XML     | eXtensible Markup Language                  |

**Table 1-1, Definitions, Acronyms and Abbreviations**

## **1.5. Contact Information**

Please address your questions/recommendations pertinent to the contents of this document by mail to:

**Data Feed Services**  
**Athens Exchange S.A.**  
**110, Athinon Ave., GR 104 42 Athens**  
**Tel. +30 210 336 6340,**  
**Fax. (+30) 210 336 6296**  
**DFS@athexgroup.gr**

## **1.6. Final Note**

The exchange has set a number of rules which ensure the proper and rational use of its computing and network infrastructure. This service is subjected to these rules whenever it utilizes the aforementioned infrastructure.

## 2. General Overview

### 2.1. Prologue

This chapter provides the general characteristics of the service and its respective Data Feed Specification. Specifically, it describes the communication protocol used for delivering the data feed packets to the Data Vendors, outlines the formats/data types/messaging standards utilized by the various fields and provides information pertinent to message-parsing.

### 2.2. Communication Protocols

The service utilizes the TCP/IP protocol for feed transmission. Namely, via the Internet Oriented Communication Portal (IOCP), which is an extension to the IDS infrastructure, the service enables Vendor-Service interaction and facilitates real-time recovery/retransmission features (read the **FIC-IOCP Service Interface Technical Specification** for more information).

### 2.3. Field Characteristics and ISO Compliance

This data feed specification utilizes ten different types of data fields. Although the specification is a proprietary one the formats of the majority of the fields comply with the relevant ISO standards. Table 2-1 lists these data field types, outlines their format and points out their respective ISO standards.

| Field Type         | Compliance | Format   |
|--------------------|------------|--|
| Alpha Characters   | -          | A series of characters, left justified. The empty space on the right side, if existing, is filled with spaces  |
| Numeric Characters | -          | A series of numeric characters, right justified. The empty space on the left side, if existing, is filled with zeros. The field can represent a whole number or a float number with <b>two</b> or <b>four</b> decimals   |
| PRICE              | -          | 9 Numeric characters.<br>The first 5 digits, with an optional sign character, is a whole number and 4 decimal digits follow<br>A Note for BONDS: The price denotes a percentage of the Nominal Value<br>A Note for REPOS: The price denotes an annualized interest rate<br>A Note for Standard Combinations: The price may have negative values<br>This type complies with the general rules of the numeric fields mentioned earlier |
| TEXT               | -          | Any printable ANSI character. Right justification is NOT applied   |
| ISIN               | ISO 6166   | 12 alphanumeric characters   |



|               |           |   |
|---------------|-----------|---|
| MIC           | ISO 10383 | Four alpha characters (e.g. XATH)                     |
| COUNTRY CODE  | ISO 3166  | Three alpha characters (e.g. GRE)                     |
| CURRENCY CODE | ISO 4217  | Three alpha characters (e.g. EUR)                     |
| TIME          | ISO 8601  | HHMMSSMMM (H:Hour, M:Minute, S:Second, M:Millisecond) |
| DATE          | ISO 8601  | YYYYMMDD (Y:Year, M:Month, D:Day)                     |
| DATETIME      | ISO 8601  | YYYYMMDDHHMMSSdddddd                                  |

**Table 2-1, Field Types and ISO Compliance**

Note that the IDS uses the **Windows 1253** character coding.

## 2.4. General Parsing Information

The parsing of the data feed messages described in this document should be a straightforward task. The Vendor's parser should identify a new message after reading the SOH character, conclude the new message and validate its length after reading the ETX character, and compare the parsed LRC character with the one computed. Any message passing both validations is a correct one.

The extraction of the actual information out of a data feed message is also straightforward. The Vendor's parser should map the message's bytes into the relevant fields and extract the information according to their formats.

Although most of the formats listed on Table 2-1 are self-explained, an additional elaboration on the terms **Left** and **Right Justified**, as well as, the particularities of the numeric character fields, might become helpful.

### 2.4.1. Left Justified (Alpha Character Fields) distinct

Let **n** and **m** to be the size of the field and the data string respectively. If the field is left justified, then the **m** characters of the data string will be copied to the field starting from the left, and all remaining right **n-m** characters will be set to space ' '. (i.e. if the field is the **Symbol** and the string is "ETE" then the value entered in this field will be "ETE "). **Left justification is applied only to those fields containing text strings.**

### 2.4.2. Right Justified (Numeric Character Fields)

Let **n** and **m** to be the size of the field and the data string respectively. If the field is right justified, then the **m** characters of the data string will be copied to the field starting from the right, and all remaining left **n-m** characters will be set to zero '0'. (i.e. if the field is the **Price** for a Stock and the price 1,25 then the value entered in this field will be "000012500"). **Right justification is applied only to those fields containing numeric strings.** For standard combinations, if the price field of an Order message has value -00012700 then the value sent to vendors is -1,27.

### 2.4.3. More on Numeric Character Fields

As already mentioned, the numeric character fields contain values that have two or more decimal digits. The decimal digits represent values either in **thousandths** of a given currency (**Stock prices**) or **percentage** of the Nominal Value (**Bond prices**). For example if the **Price** field of a Trade message for a stock (traded in Euros) has the value of 000153210 then the value sent to the Vendors is 15,321 (15 Euro and 32 Eurocent, and 1 tenth of a Eurocent). If there is no decimal value then the last four characters will be set to zero (i.e. a fifteen-Euro value will look like this 000150000).

There is one exception to this rule. This exception is the **Dividend** field, found inside a Stock baseline. (for more information on baselines). Specifically, the values in this field represent numbers with 7 integral digits and 2 decimal ones. However, the integral digits represent a number in multiples of a cent and the decimal digits a number in hundredths of a cent. For example if the field has the value of 000153221 for a stock (traded in Euros) then the value sent to the Vendors is 15,3221 (15 Euro, 32 Eurocent, and 21 Hundredths of a Eurocent).

NOTE: The volume(s) in a Bond-related data feed message is/are expressed as multiples of the Bond's nominal value

## 3. Message Packet Structure

### 3.1. Message Overview

Every message packet sent to the Data Vendors consists of the structural components listed on Table 3-1.

| Message Format | Sizes    | Description  |
|----------------|----------|--|
| SOH (ASCII #1) | 1        | Start Of Header (SOH), CHAR (1)                            |
| Message Header | 35       | For the description of Message Header see paragraph 3.3.   |
| Message Text   | Variable | For the description of Message Text see paragraph 3.4.     |
| ETX (ASCII #3) | 1        | End of TeXt (ETX), CHAR (3)                                |
| LRC            | 1        | The LRC (Longitudinal Redundancy Check) checksum character |

**Table 3-1, Message Packet general structure**

The following five sections will further explain the meaning and purpose of these components.

### 3.2. Message SOH

This is the first character of every message packet. It takes the value of ASCII code 1 (char(1) in C terminology) and signals the beginning of the packet.

### 3.3. Message Header

This component is twenty-four characters long and succeeds the SOH character. The format of the Message Header is listed on Table 3-2:

| Field  | Size      | Type               | Description          |
|--|-----------|--------------------|----------------------|
| Vendor Identifier                                  | 2         | Characters         | See paragraph 3.3.1. |
| Message Category                                   | 1         | Character          | See paragraph 3.3.2. |
| Message Subcategory                                | 1         | Character          | See paragraph 3.3.4  |
| Venue ID   | 4         | MIC                | See paragraph 3.3.5  |
| Message Sequence Number                            | 7         | Numeric characters | See paragraph 3.3.6. |
| Message Header Time Stamp or Publication Timestamp | 20        | DATETIME           | See paragraph 3.3.7. |
| <i>Total Size:</i>                                 | <i>35</i> | <i>Characters</i>  |                      |

**Table 3-2, Message Header format**

The following six subsections will further explain the meaning and purpose of these fields.

### 3.3.1. Vendor Identification Field

This field is two characters long, and its value identifies the Data Vendor to whom the given message packet is indented for. There are three possible values for this field. These values are the following:

- “ ” (two spaces)
- “**TV**” (Test Vendor)
- “**<any two alphabet characters>**” (a unique Data Vendor’s code)

If the value is “ ” then the given packet should be read by all Data Vendors. A Data Vendor should not omit the processing of such packet. Note that every packet sent during the trading session has this value.

If the value is “**TV**” then the given packet is sent for testing purposes. Such packet could be sent during the following two cases:

- The operator performs a full test cycle on the IDS’s functional components.
- A Data Vendor wants to test the underlined network connection and/or application.

If the Data Vendor does not participate in the given testing session, then it can discard all such packets.

Finally, if the value is “**<any two alphabet characters>**” then the given packet should be read ONLY by the Data Vendor whose code matches this value. Every Data Vendor has a unique Data Vendor Code declared and stored inside the IDS. Based on that code, the Data Vendor can distinguish which packets should process or not. Note that the IDS would send such packet ONLY during retransmission.

### 3.3.2. Message Category – Real-time channel

This field is a one character long and identifies the category of the transmitted message. The possible values used are:

| No | Message Category   | Code |
|----|--|------|
| 1  | Control Message  | K    |
| 2  | Trade Message  | A    |
| 3  | Quote Message  | B    |
| 4  | Index Message  | C    |
| 5  | Instrument Summary Message                                   | G    |
| 6  | Canceled Trade Message                                       | I    |
| 7  | Closing/Fixing Price Message                                 | L    |
| 8  | Projected-Auction/Auction-Open/Projected Close Price Message | M    |
| 9  | High/Low Limit Modification Message                          | N    |
| 10 | Instrument State Message                                     | O    |
| 11 | Market Status Message  | P    |
| 12 | Order Message  | Q    |
| 13 | Canceled Order Message                                       | R    |
| 14 | Exchange Notifications Message                               | S    |

**Table 3-3, Message Categories (real-time channel)**

### 3.3.3. Message Category – Relaxed channel

| No | Message Category             | Code |
|----|------------------------------|------|
| 1  | Closing/Fixing Price Message | W    |
| 2  | OTC Message                  | T    |
| 3  | APA Post-Trade Message       | U    |
| 4  | APA Pre-Trade Message        | V    |

**Table 3-4, Message Categories (relaxed channel)**

Additional information about these categories and their message format can be found in Chapter 4.

### 3.3.4. Message Subcategory

This field is one character long, identifies the financial product (Bond, Stock, Index, Future Option etc.) whose information is conveyed and imposes a second level of categorization upon this information. Please read paragraph 7.4 for a complete list of the possible subcategories. If the packet's category is not directly related to a specific financial product (for example a Market Status Message) then the IDS will send **one space** as a Message Subcategory.

### 3.3.5. Venue ID (MIC)

This field is four characters long, utilizes the Market Identification Codes (MIC) defined by ISO 10383 standard and relates the packet's information with the Exchange/Regulated Market publishing it. The control message packets like Line Verification Control Messages will be sent with **four spaces** as a Venue ID.

### 3.3.6. Message Sequence Number Field

This field is seven characters long and denotes the sequence number of the given packet. All values in this field are right justified with **zero** (see paragraph 2.4.2 for additional information on left/right justified). The first message sent has a sequence number of **zero**. Every message sent thereafter increments the sequence number by one. Line verification control messages **do not increment** the sequence number.

The sequence number plays a very important role during retransmission. Specifically, the Data Vendor could ask the IDS to retransmit lost message packets **ONLY** if it specifies the first and the last sequence numbers to be sent. Note that the **retransmitted packets will contain the original sequence numbers**.

### 3.3.7. Publication Timestamp

This field is 20 characters long and contains the time when the given message packet was created in the IDS Subsystem and is always located at the header of the message. The time stamp has the form YYYYMMDDHHMMSSdddddd, and represents the following local time:

- "YYYY": for years
- "MM" for months
- "DD" : for days
- "HH": for hours

- “MM”: for minutes
- “SS”: for seconds
- “dddddd”: for microseconds

### **3.4. Message Text Formats**

This component is of variable length and its size and format depends mainly on the category and subcategory the given message falls under. For example, if the packet holds a Trade message for a stock (category A, subcategory S) then the size for this component becomes eighty five characters long and its format is given on Table 4-5. Furthermore, Control messages may vary their Message Text size according to their Message Type value. Read Chapter 4 for more information on the different message categories, and their variations.

#### **3.4.1. Trading Event Timestamp**

This field is 20 characters long and contains the time when the given message packet was created in the Trading System and is located at the body of the message when necessary. The time stamp has the form YYYYMMDDHHMMSSdddddd, and represents the following local time:

- “YYYY”: for years
- “MM” for months
- “DD” : for days
- “HH”: for hours
- “MM”: for minutes
- “SS”: for seconds
- “dddddd”: for microseconds

### **3.5. Message ETX**

This component is one character long and exists in every message packet. It takes the value of ASCII code 3 (char(3) in C terminology) and signals the end of the packet's text.

### **3.6. Message LRC**

The LRC (Longitudinal Redundancy Check) checksum character signals the packet's end and enables the Data Vendor to verify that the given packet was sent correctly. In order to derive this value the IDS computes sequentially the exclusive OR (XOR) of all message bytes, starting from the message's header up to the ETX (End of TeXt) character (inclusive).

## 4. Message Categories and Formats

### 4.1. Prologue

The twenty category codes listed on section 3.3.2 represent the twenty different types of message packets. These categories along with their variations (identified via the packet's Message Subcategory field) describe all possible data feed information currently disseminated via IDS.

The following twenty sections provide additional information about these categories, their variations, their formats and the total sizes of their payload. We remind you that the fixed-size fields listed on Table 3-1 (i.e. SOH, message header, ETX, LRC) exist in **every** message package sent by the IDS.

### 4.2. Category K - Control Message Formats

There are four types of control messages (i.e. "A", "F", "H", "T"). Through them, the IDS provide system specific information to Data Vendors. Additional information about these types and the information they provide is given in the following four subsections.

#### 4.2.1. Type "A" Start of Day Control Message

This is the first message transmitted to the Data Vendors and signals the start of the trading day. It also signals that the IDS is ready to process information packets sent by the trading platform.

The IDS will transmit only **one** such control message.

The message's sequence number is **zero** and the format of the Message Text field for this type is given bellow:

| Message Text       | Size     | Type              | Description             |
|--------------------|----------|-------------------|-------------------------|
| Message Type       | 1        | Alpha character   | The Category's type 'A' |
| <i>Total Size:</i> | <i>1</i> | <i>Characters</i> |                         |

Table 4-1, Type "A" Start of Day Message format

#### 4.2.2. Type "F" Administrative Message

This message contains free format text of **any** size between one and four hundred characters. Through this message the exchange would disseminate general information that may be of value to the investors. The message will be written in English.

The format of the Message Text field for this type is given bellow:

| Message Text       | Size         | Type              | Description             |
|--------------------|--------------|-------------------|-------------------------|
| Message Type       | 1            | Alpha character   | The Category's type 'F' |
| Free Text          | 1-400        | TEXT              | The actual message      |
| <i>Total Size:</i> | <i>1-400</i> | <i>Characters</i> |                         |

Table 4-2, Type "F" Administrative Message format

### 4.2.3. Type “H” End of Day Control Message

This is the last message transmitted to the Data Vendors and signals the end of the trading day. It also signals that the IDS has concluded its operation.

The IDS will transmit only **one** such control message. No other messages will follow.

The format of the Message Text field for this type is given below:

| Message Text       | Size     | Type              | Description             |
|--------------------|----------|-------------------|-------------------------|
| Message Type       | 1        | Alpha character   | The Category’s type ‘H’ |
| <i>Total Size:</i> | <i>1</i> | <i>Characters</i> |                         |

Table 4-3, Type “H” End of Day Message format

### 4.2.4. Type “T” Line Verification Control Message

This type of message will be transmitted on a minute basis given that the data dissemination line remains idle (i.e. there are not any other messages in the queue pending dissemination). The transmission, if any, will commence after the Start of Day Control Message (type “A”) and it can last up until the End of Day Control Message (type “H”). The IDS sends such messages to the Data Vendors in order to verify to them that it continues uninterrupted the processing and transmission of messages. The message’s Sequence Number equals the one of the last message sent; thus, this type of message does not increment the Sequence Number counter. Note that these messages are excluded from retransmission.

The format of the Message Text field for this type is given below:

| Message Text       | Size     | Type              | Description             |
|--------------------|----------|-------------------|-------------------------|
| Message Type       | 1        | Alpha character   | The Category’s type ‘T’ |
| <i>Total Size:</i> | <i>1</i> | <i>Characters</i> |                         |

Table 4-4, Type “T” Line Verification Message format

## 4.3. Category A – Trade Message

The IDS transmits this message category when an instrument trade occurs in the trading platform or the clearing system with the following Message Text field format:

| Message Text     | Size | Type               | Description  |
|------------------|------|--------------------|--|
| Symbol           | 15   | Alpha character    | The Instrument’s fifteen-character symbol  |
| Board ID         | 1    | Alpha character    | The trading board under which the instrument is being traded (see paragraph 7.6 for possible values)                 |
| Trade number     | 6    | Numeric Characters | Unique for the trading day   |
| Buy order number | 8    | Numeric Characters | The sequence number of the buy-side order being matched (see the 'Order Number' field of Category Q – Order Message) |
| Buy order date   | 8    | DATE               | The date the buy-side order was entered into the trading system  |



| Message Text         | Size | Type  | Description   |
|----------------------|------|---|---|
| Sell order number    | 8    | Numeric Characters  | The sequence number of the sell-side order being matched (see the 'Order Number' field of Category Q – Order Message)   |
| Sell order date      | 8    | DATE  | The date the sell-side order was entered into the trading system  |
| Price                | 9    | PRICE   | The trade's price   |
| Volume               | 17   | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | The trade's volume  |
| Total Volume         | 17   | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | The total number of stocks/contracts traded up to that point  |
| Trade Type           | 1    | Alpha Character   | 'N': NEW<br>'E': EDIT   |
| Trade Source         | 1    | Alpha Character   | T: Trading Platform<br>C: Clearing System   |
| Buy order type       | 1    | Alpha character   | 'B' Strategy (Combo)<br>'Q' Quote<br>'N' Normal   |
| Sell order type      | 1    | Alpha character   | 'B' Strategy (Combo)<br>'Q' Quote<br>'N' Normal   |
| Buy Waiver Indicator | 4    | Numeric characters  | Bitwise field that defines the waivers. Values:<br>1st bit: RFPT – Reference price<br>2nd bit: NLIQ – Negotiated (liquid)<br>3th bit: OILQ - Negotiated (illiquid)<br>4th bit: PRIC – Negotiated (conditions)<br>5th bit: SIZE – Above specified size<br>6th bit: ILQD – Illiquid instrument<br>Eg a) number 8 identifies |

| Message Text          | Size | Type   | Description  |
|-----------------------|------|--|--|
|                       |      |  | PRIC b) number 24 identifies PRIC & SIZE c) number 25 identifies RFPT, PRIC & SIZE   |
| Sell Waiver Indicator | 4    | Numeric characters   | Bitwise field that defines the waivers. Values:<br>1st bit: RFPT – Reference price<br>2nd bit: NLIQ – Negotiated (liquid)<br>3th bit: OILQ - Negotiated (illiquid)<br>4th bit: PRIC – Negotiated (conditions)<br>5th bit: SIZE – Above specified size<br>6th bit: ILQD – Illiquid instrument<br>Eg a) number 8 identifies PRIC b) number 24 identifies PRIC & SIZE c) number 25 identifies RFPT, PRIC & SIZE |
| Notional amount       | 14   | Numeric Characters, right justified, zero filled as required, 2 decimal digits follow. | Trade value  |
| Buy ALGO flag         | 1    | Alpha character  | 'Y' = Flag On<br>Other = Flag Off<br>Algorithmic transaction flag  |
| Sell ALGO flag        | 1    | Alpha character  | 'Y' = Flag On<br>Other = Flag Off<br>Algorithmic transaction flag  |
| SDIV flag             | 1    | Alpha character  | 'Y' = Flag On<br>Other = Flag Off<br>Special Dividend transaction Flag   |
| DUPL flag             | 1    | Alpha character  | 'Y' = Flag On<br>Other = Flag Off<br>Duplicative Trade reports flag  |
| TimeStamp             | 20   | DATETIME   | See paragraph 3.4.1  |
| Total Size:           | 147  | Characters   |  |

Table 4-5, Category A – Trade Message format

The **Buy order number**, **Buy order date**, **Sell order number**, **Sell order date** fields values will be set to zero in the following cases

- the Board ID field value is set to 'B' (Pre-Agreed Board, see paragraph 7.6)
- the Trade Source field is set to 'C' (Clearing System)

Buy order number and Sell order number may also be set to zero in some occasions of standard combinations in either side of the trade (order type = 'B').

#### 4.4. *Category I - Cancelled Trade Message*

The IDS transmits this message category when a instrument trade cancellation occurs in the trading platform or clearing system with the following Message Text field format:

| Message Text          | Size | Type  | Description   |
|-----------------------|------|---|---|
| Symbol                | 15   | Alpha Character   | The Instrument's fifteen - character symbol   |
| Board ID              | 1    | Alpha character   | The trading board under which the Instrument is being traded (see paragraph 7.6 for possible values)                  |
| Trade number          | 6    | Numeric Characters  | Unique for the trading day  |
| Buy order number      | 8    | Numeric Characters  | The sequence number of the buy-side order being matched (see the 'Order Number' field of Category Q - Order Message)  |
| Buy order date        | 8    | DATE  | The date the buy-side order was entered into the trading system   |
| Sell order number     | 8    | Numeric Characters  | The sequence number of the sell-side order being matched (see the 'Order Number' field of Category Q - Order Message) |
| Sell order date       | 8    | DATE  | The date the sell-side order was entered into the trading system  |
| Cancelled Trade Price | 9    | PRICE   | The price of the cancelled trade  |
| Cancelled Volume      | 17   | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | The volume of the cancelled trade   |
| Total Volume          | 17   | Numeric Characters, the first 15 digits is a whole number, right  | The total number of Instrument traded in the current trading day up to  |

| Message Text          | Size | Type   | Description  |
|-----------------------|------|--|--|
|                       |      | justified, zero filled as required, 2 decimal digits follow.                               | that point (adjusted according to the cancelled volume)  |
| Trade Type            | 1    | Alpha Character  | 'C': CANCEL  |
| Trade Source          | 1    | Alpha Character  | T: Trading Platform<br>C: Clearing System  |
| Buy order type        | 1    | Alpha character  | 'B' Strategy (Combo)<br>'Q' Quote<br>'N' Normal  |
| Sell order type       | 1    | Alpha character  | 'B' Strategy (Combo)<br>'Q' Quote<br>'N' Normal  |
| Buy Waiver Indicator  | 4    | Numeric characters   | Bitwise field that defines the waivers. Values:<br>1nd bit: RFPT – Reference price<br>2rd bit: NLIQ – Negotiated (liquid)<br>3th bit: OILQ - Negotiated (illiquid)<br>4th bit: PRIC – Negotiated (conditions)<br>5th bit: SIZE – Above specified size<br>6th bit: ILQD – Illiquid instrument |
| Sell Waiver Indicator | 4    | Numeric characters   | Bitwise field that defines the waivers. Values:<br>1nd bit: RFPT – Reference price<br>2rd bit: NLIQ – Negotiated (liquid)<br>3th bit: OILQ - Negotiated (illiquid)<br>4th bit: PRIC – Negotiated (conditions)<br>5th bit: SIZE – Above specified size<br>6th bit: ILQD – Illiquid instrument |
| Notional amount       | 14   | Numeric Characters, the first 12 digits is a whole number, right justified, zero filled as | Canceled Trade value   |

| Message Text  | Size | Type                               | Description  |
|---------------|------|------------------------------------|--|
|               |      | required, 2 decimal digits follow. |  |
| Buy ALGO flag | 1    | Alpha character                    | 'Y' = Flag On<br>Other = Flag Off<br>Algorithmic transaction flag      |
| Buy ALGO flag | 1    | Alpha character                    | 'Y' = Flag On<br>Other = Flag Off<br>Algorithmic transaction flag      |
| SDIV flag     | 1    | Alpha character                    | 'Y' = Flag On<br>Other = Flag Off<br>Special Dividend transaction Flag |
| DUPL flag     | 1    | Alpha character                    | 'Y' = Flag On<br>Other = Flag Off<br>Duplicative Trade reports flag    |
| TimeStamp     | 20   | DATETIME                           | See paragraph 3.4.1  |
| Total Size:   | 147  | Characters                         |  |

Table 4-6, Category I –Cancelled Trade Message format

#### 4.5. Category Q – Order Message

The IDS will transmit this message category under the following three cases:

- At the beginning of the trading session if the order's lifetime spans multiples days (applies only to orders with **Order lifetime** field equal to 'C' or 'E')
- When a new order is entered in the trading platform
- When an already placed order is changed (e.g. Order status, Volume, Price etc.)

In the last case the **Order number** and **Order entry date** fields can be used to relate the reported modification with the original order.

This message category is not transmitted for Combinations.

| Message Text | Size | Type               | Description  |
|--------------|------|--------------------|--|
| Symbol       | 15   | Alpha character    | The Instrument's fifteen - character symbol  |
| Board ID     | 1    | Alpha character    | The trading board under which the instrument is being traded (see paragraph 7.6 for possible values) |
| Order number | 8    | Numeric Characters | The order's sequence   |

| Message Text        | Size | Type  | Description   |
|---------------------|------|---|---|
|                     |      |   | number  |
| Order entry date    | 8    | DATE  | The date the order entered the trading system   |
| Order status        | 2    | Alpha Characters  | The status of the order (see paragraph 7.10 for possible values)  |
| Side                | 1    | Alpha character   | The order's side (see paragraph 7.11 for possible values)   |
| Volume              | 17   | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | The order's disclosed volume  |
| Matched Volume      | 17   | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | The portion of the order's Volume that has been matched thus far(i.e. a partially matched order)  |
| Price               | 9    | PRICE   | The order's price   |
| Original price type | 1    | Alpha character   | The original price type (see paragraph 7.12 for possible values)  |
| Order lifetime      | 1    | Alpha character   | The order's lifetime (see paragraph 7.13 for possible values)   |
| Special conditions  | 1    | Alpha character   | The condition of the order if available (see paragraph 7.14 for possible values)  |
| Condition volume    | 17   | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | The volume pertinent to a special condition of type 'M' or 'O' (see paragraph 7.14)   |
| Order Release Date  | 8    | DATE  | The date the order was released to the Order Book or (for orders that undergo time priority changes) the date when the aforementioned change occurs |
| Order Release Time  | 12   | TIME  | The time the order was released to the Order Book or (for orders that undergo time priority changes) the time at which the                          |

| Message Text           | Size | Type            | Description  |
|------------------------|------|-----------------|--|
|                        |      |                 | aforementioned change occurs (HHMMSSdddddd format) |
| Last Order Update Date | 8    | DATE            | The date of the last order update/modification     |
| Order Type             | 1    | Alpha character | 'B' Strategy (Combo)<br>'Q' Quote<br>'N' Normal    |
| TimeStamp              | 20   | DATETIME        | See paragraph 3.4.1                                |
| Total Size:            | 147  | Characters      |  |

**Table 4-7, Category Q –Order Message format**

The **Price** field will be set to zero under the following cases:

- a) if the **Original price type** field has either the value 'M' or 'O' (see Table 7-10 for more information)
- b) if the **Original price type** field has the value 'C' (see Table 7-10 for more information) and the security's **Phase Id** field contains a value other than 'C' (see Table 7-6 for more information).

In addition the **Condition volume** field will be set to zero if the **Special Conditions** field is NOT 'M' (Minimum Fill) or 'O' (Multiples Off).

#### **4.6. Category R – Cancelled Order Message**

The IDS will transmit this message category whenever an order is cancelled.

This message category is not transmitted for Combinations.

| Message Text     | Size | Type  | Description  |
|------------------|------|---|--|
| Symbol           | 15   | Alpha character   | The Instrument's fifteen - character symbol  |
| Board ID         | 1    | Alpha character   | The trading board under which the security is being traded (see paragraph 7.6 for possible values) |
| Order number     | 8    | Numeric Characters  | The order's sequence number  |
| Order entry date | 8    | DATE  | The date the order entered the trading system  |
| Side             | 1    | Alpha character   | The order's side (see paragraph 7.11 for possible values)  |
| Volume           | 17   | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | The order's disclosed volume   |

| Message Text        | Size | Type  | Description   |
|---------------------|------|---|---|
| Matched Volume      | 17   | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | The portion of the order's Volume that has been matched thus far (i.e. a partially matched order) |
| Price               | 9    | PRICE   | The order's price   |
| Original price type | 1    | Alpha character   | The order's original price type (see paragraph 7.12 for possible values)                          |
| Order lifetime      | 1    | Alpha character   | The order's lifetime (see paragraph 7.13 for possible values)                                     |
| Special conditions  | 1    | Alpha character   | The condition of the order if available (see paragraph 7.14 for possible values)                  |
| Condition volume    | 17   | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | The volume pertinent to a condition of type 'M' or 'O' (see paragraph 7.14)                       |
| Order Type          | 1    | Alpha character   | 'B' Strategy (Combo)<br>'Q' Quote<br>'N' Normal   |
| TimeStamp           | 20   | DATETIME  | See paragraph 3.4.1   |
| Total Size:         | 117  | Characters  |   |

**Table 4-8, Category R –Cancelled Order Message format**

The **Price** field will be set to zero if the **Original price type** field has a value other than 'L'. In addition the **Condition volume** field will be set to zero if the **Special Conditions** field is NOT 'M' (Minimum Fill) or 'O' (Multiples Off).

#### **4.7. Category B – Quote Message**

The IDS transmits this message category when at least one side (i.e. Bid or Ask) of the supported Quote levels for the given instrument becomes changed. The number of Quote levels contained in the messages is defined by the **Quotes Levels** field. Note that the IDS will not send a Quote level if it contains no data (i.e. prices and volumes equal to zero).

| Message Text | Size | Type               | Description  |
|--------------|------|--------------------|--|
| Symbol       | 15   | Alpha character    | The Instrument's fifteen-character symbol              |
| Quote Levels | 3    | Numeric characters | The number of Bid/Ask levels (i.e. Prices, volumes and |



| Message Text       | Size        | Type  | Description   |
|--------------------|-------------|---|---|
|                    |             |   | orders) contained in this message for the given instrument  |
| Level Format       |             |   |   |
| <i>Bid Price</i>   | 9           | <i>PRICE</i>  | <i>The best Bid price</i>                                   |
| <i>Bid Size</i>    | 17          | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | <i>The best Bid volume</i>                                  |
| <i>Bid orders</i>  | 7           | <i>Numeric characters</i>   | <i>The number of orders composing the current bid level</i> |
| <i>Ask Price</i>   | 9           | <i>PRICE</i>  | <i>The best Ask price</i>                                   |
| <i>Ask Size</i>    | 17          | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | <i>The best Ask volume</i>                                  |
| <i>Ask orders</i>  | 7           | <i>Numeric characters</i>   | <i>The number of orders composing the current ask level</i> |
| <i>Total Size:</i> | $18+(n*66)$ | <i>Characters</i>   |   |

**Table 4-9, Category B –Quote Message format**

Where **n** equals to the value defined within the **Quote Levels** field and **66** is the size of each **Bid/Ask** level.

#### 4.8. Category C - Index Message

The IDS transmits this message category every time the trading platform calculates the price of a given index.

The format of the Message Text field for this category is given below:

| Message Text | Size | Type  | Description                          |
|--------------|------|---|--------------------------------------|
| Symbol       | 15   | Alpha character   | The Index's fifteen-character symbol |
| Index Price  | 9    | Numeric characters, the first 5 digits is a whole number, right justified, zero filled as required, 4 decimal digits follow | The calculated value of the Index    |

| Message Text | Size | Type       | Description |
|--------------|------|------------|-------------|
| Total Size:  | 24   | Characters |             |

Table 4-10, Category C - Index Message format

#### 4.9. Category M – Projected-Auction / Auction-Open / Projected Close Price Message

The following three bullets explain when the IDS will transmit a Projected-Auction, Auction-Open and Projected Close Price message:

- **Projected Auction:** The trading platform allows a market to have a Projected Auction Price calculation phase. During that phase, the trading platform will calculate and send the Projected Auction Price for each instrument participating in this market, whenever the instrument's number of matchable orders changes. Such messages will also be sent for a security during an Auction caused by a volatility interrupter or other Halt reason.
- **Auction Open:** Whenever a market opens from an Auction the trading platform, and subsequently the IDS, will calculate and send the Auction Open price for all instruments listed under this market. Only ONE such message will be sent for each instrument after each Auction opening. One such message will also be sent for an instrument if it opens from an Auction caused by a volatility interrupter or other Halt reason. Please note that such a message will NOT be sent at the opening of a Closing Auction if the Closing Price becomes derived from an algorithm and NOT from the opening of that auction
- **Projected Close:** This flag applies ONLY to those markets having a closing auction phase and ONLY if their listed instruments are setup to follow a given set of closing auction rules. The IDS will transmit one such message whenever the projected close price or volume changes. Please note that the trading server uses a given set of business rules to derive these values and these values can be equal to:
  - a) the Projected Auction price and volume
  - b) the Alternative Close price and volume computed by the Exchange's algorithm of choice. Although the Alternative Close Price will always be greater than zero the same does not hold true for its volume. The volume can equal to zero if there is no order matching at the given price.

The format of the Message Text field for this category is given below:

| Message Text | Size | Type                    | Description   |
|--------------|------|-------------------------|---|
| Symbol       | 15   | Alpha Character         | The Instrument's fifteen - character symbol   |
| Price Flag   | 1    | Alpha character         | Possible values: <ul style="list-style-type: none"> <li>• "0": for Projected Auction price,</li> <li>• "1": for Auction Open Price</li> <li>• "2": for Projected Close</li> </ul> |
| Price        | 9    | PRICE                   | The Instrument's projected or auction-open price, or the Instrument's projected close price when applicable.  |
| Volume       | 17   | Numeric Characters, the | The Instrument's projected  |

| Message Text       | Size      | Type  | Description                               |
|--------------------|-----------|---|---|
|                    |           | first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | or auction-open or Projected Close volume |
| TimeStamp          | 20        | DATETIME  | See paragraph 3.4.1                       |
| <i>Total Size:</i> | <i>62</i> | <i>Characters</i>   |   |

**Table 4-11, Category M – Proj.-Auction / Auction-Open / Proj. Close Price Message**

If during the opening of the Auction, no trade occurs for a certain instrument, the Auction-Open Price will be set to zero.

**NOTE:** In order to determine which business rule the trading system uses in any given time during the closing auction, you must compare the price and volume between the latest Projected Auction message and the respective Projected Close one. In that case:

1. If the two messages carry equal values (prices / volumes) then the Projected Close values are derived from the closing auction (i.e. equal to Projected Auction)
2. If they differ then the Projected Close values are derived by the algorithm of choice (i.e. equal to Alternative Close)

#### 4.10. Category N – High/Low Limit Modification Message

The IDS will transmit this message category at the beginning of the trading day or if the static High and Low limits for the given instrument change.

The format of the Message Text field for this category is given below:

| Message Text       | Size      | Type   | Description                                 |
|--------------------|-----------|--|---|
| Symbol             | 15        | Alpha Character  | The Instrument's fifteen - character symbol |
| Ceiling Price      | 9         | PRICE  | The Instrument's ceiling price              |
| Floor Price        | 9         | PRICE  | The Instrument's floor price                |
| Start Of Day Price | 9         | PRICE  | The start of day price of the instrument    |
| Accrued Interest   | 14        | Numeric Characters, the first 8 digits is a whole number, right justified, zero filled as required, 6 decimal digits follow. | For bonds                                   |
| <i>Total Size:</i> | <i>56</i> | <i>Characters</i>  |   |

**Table 4-12, Category N – High/Low Limit Modification Message format**

#### 4.11. Category O – Instrument State Message

The IDS will transmit this message category at the beginning of the trading day or whenever the instrument changes its trading phase (i.e. SPACE, pre-call, continuous, closing price trading, stop) or its status (i.e active, halt, suspended, resume). The format of the Message Text field for this category is given below:

| Message Text        | Size      | Type              | Description   |
|---------------------|-----------|-------------------|---|
| Symbol              | 15        | Alpha character   | The Instrument's fifteen - character symbol   |
| Phase ID            | 1         | Alpha character   | The Instrument's trading phase (i.e. Auction, Continuous, etc.) See paragraph 7.8 for possible values |
| Instrument Status   | 1         | Alpha character   | The Instrument's status (i.e. Halt, Suspend etc.) See paragraph 7.9 for possible values               |
| Halt/Suspend Reason | 1         | Alpha character   | The Reason for Halting or Suspending the Instrument (see paragraph 7.3 for possible values)           |
| TimeStamp           | 20        | DATETIME          | See paragraph 3.4.1   |
| <i>Total Size:</i>  | <i>38</i> | <i>Characters</i> |   |

Table 4-13, Category O – Instrument State Message format

#### 4.12. Category P – Market Status Message

The IDS will transmit this message category whenever the market changes its status (i.e. pre-call, projected auction, continuous, closing, end-of-trading, halt).

The format of the Message Text field for this category is given below:

| Message Text       | Size     | Type              | Description   |
|--------------------|----------|-------------------|---|
| Market ID          | 1        | Alpha character   | The Market's ID for possible values)                      |
| Market Status      | 1        | Alpha character   | The Market status (see paragraph 7.7 for possible values) |
| <i>Total Size:</i> | <i>2</i> | <i>Characters</i> |   |

Table 4-14, Category P – Market Status Message format

### 4.13. Category G – Instrument Summary Message

The IDS transmits this message category for each instrument right after the corresponding market status changes to End of Day (see paragraph 4.12 and Table 7-5) with the following Message Text field format:

| Message Text       | Size       | Type  | Description  |
|--------------------|------------|---|--|
| Symbol             | 15         | Alpha character   | The Instrument's fifteen-character symbol  |
| Opening Price      | 9          | PRICE   | The Instrument's opening price   |
| High               | 9          | PRICE   | The highest price with which the given Instrument was traded, during the trading day             |
| Low                | 9          | PRICE   | The lowest price with which the given Instrument was traded, during the trading day              |
| Last               | 9          | PRICE   | The last price with which the given Instrument was traded, during the trading day                |
| Closing Price      | 9          | PRICE   | The Instrument's closing price   |
| Start Of Day Price | 9          | PRICE   | Usually the previous day's closing price adjusted, if necessary, from various corporate actions. |
| Total Volume       | 17         | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | The sum of the volumes of all Instrument trades occurred, during the trading day                 |
| Total Value        | 17         | Numeric Characters, the first 15 digits is a whole number, right justified, zero filled as required, 2 decimal digits follow. | The total value traded in the given Market for the given Instrument, during the trading day      |
| <i>Total Size:</i> | <i>103</i> | <i>Characters</i>   |  |

Table 4-15, Category G – Instrument Summary Message format

### 4.14. Category L – Closing/Fixing Price Message

The IDS transmits one such message for every instrument whose closing price has been calculated by the trading platform. If for any reason the trading platform recalculates the closing price of an instrument then the IDS will disseminate a new category L message for the given instrument with the new price. The Open Interest field will always be set to zeroes

The format of the Message Text field for this category is given below:

| Message Text | Size | Type            | Description                |
|--------------|------|-----------------|----------------------------|
| Symbol       | 15   | Alpha Character | The Instrument's fifteen - |

| Message Text         | Size      | Type                      | Description  |
|----------------------|-----------|---------------------------|--|
|                      |           |                           | character symbol                                   |
| Closing              | 9         | PRICE                     | The Instrument's closing price (OASIS calculated). |
| <i>Open Interest</i> | 8         | <i>Numeric characters</i> | <i>Total number of outstanding contracts</i>       |
| <i>Total Size:</i>   | <i>32</i> | <i>Characters</i>         |  |

**Table 4-16, Category L – Closing Price Message format**

Since the derivatives fixing prices have been moved to Relaxed Channel the field "Open Interest" will always be set to zero.

#### 4.15. Category S – Exchange Notifications Message

There is no predefined event for triggering IDS to transmit this message category. Nonetheless, the format of the Message Text field for this category is given below:

| Message Text                     | Size       | Type               | Description  |
|----------------------------------|------------|--------------------|--|
| Notification Headline in English | 72         | Alpha characters   | The headline of the notification in the English language   |
| Notification Headline in Local   | 72         | Alpha characters   | The headline of the notification in the Local language   |
| Text Size in English             | 5          | Numeric Characters | The size of the notification Text written in the English language. The size cannot be more than 10KBytes |
| Text Size in Local               | 5          | Numeric Characters | The size of the notification Text written in the Local language. The size cannot be more than 10Kbytes   |
| English Notification Text        | n          | Alpha Characters   | The notification Text written in the English language  |
| Local Notification Text          | m          | Alpha Characters   | The notification Text written in the Local language  |
| Total Size:                      | 154 + n+ m | Characters         |  |

**Table 4-17, Category S – Exchange Notifications Message format**

Where **n** and **m** are the values defined within the **Text Size in English** and **Text Size in Local** fields respectively. These values cannot exceed the size of 10Kbytes each.

## 5. Relaxed Channel

This channel is used to transmit information which is not related to the real time information produced directly by the Matching Engine (OASIS). The following services are currently supported: 1) derivatives fixing prices calculated by the clearing system, 2) old OTC PTTS message which is going to be replaced by the new APA Service 3) pre-trade and post-trade messages produced by MiFID II APA service.

### 5.1. Category W – Fixing Price Message

The IDS will transmit this message category when the Clearing System concludes the calculation of the fixing price for each derivatives related instrument. In this case an update of Open Interest of the Instrument is also sent by the same Category W message.

Fixing prices will also be disseminated (via Category W message) the next trading date before the opening of the corresponding markets.

The format of the Message Text field for this category is given below:

| Message Text         | Size      | Type                      | Description                                     |
|----------------------|-----------|---------------------------|---|
| Symbol               | 15        | Alpha Character           | The Instrument's fifteen - character symbol     |
| Fixing Price         | 9         | PRICE                     | The Instrument's fixing price (DSS Calculated). |
| <i>Open Interest</i> | 8         | <i>Numeric characters</i> | <i>Total number of outstanding contracts</i>    |
| <i>Total Size:</i>   | <i>32</i> | <i>Characters</i>         |   |

Table 5-1, Category W – Fixing Price Message format

### 5.2. Category T – OTC Message

The Category T messages used to serve the old PTTS service of Athex (old APA service) will continue to be served until 3/1/2018. The only difference is that the Category T message will be provided through the relaxed channel not the real-time channel.

| Message Text      | Size | Type               | Description                                      |
|-------------------|------|--------------------|--|
| ISIN Code         | 12   | ISIN               | The OTC's underlying ISIN Code                   |
| Symbol            | 50   | Alpha Characters   | Description of the underlying instrument         |
| OTC Date          | 8    | DATE               | The date that OTC occurred                       |
| OTC Time          | 9    | TIME               | The time that OTC occurred                       |
| OTC Price         | 20   | Numeric Characters | The price (including decimals) as a whole number |
| Decimals in Price | 2    | Numeric Characters | The number of decimals contained within Price    |

| Message Text                     | Size       | Type               | Description   |
|----------------------------------|------------|--------------------|---|
| OTC Currency                     | 3          | CURRENCY CODE      | The currency in which the OTC trade was made                    |
| OTC Volume                       | 30         | Numeric Characters | The volume (including decimals) as a whole number               |
| Decimals in Volume               | 2          | Numeric Characters | The number of decimals contained within Volume                  |
| OTC Status                       | 1          | TEXT               | The status of the OTC trade                                     |
| OTC Type                         | 1          | TEXT               | The type of the OTC Trade                                       |
| OTC Price Type                   | 1          | TEXT               | The price type for Bond-related OTC trades                      |
| Trade Source                     | 1          | Alpha Character    | T: Trading Platform<br>C: Clearing System                       |
| Market Mechanism                 | 1          | Alpha Character    | Defines the fundamental functional market mechanism             |
| Trading Mode                     | 1          | Alpha Character    | Defines the trading mode under which the trade was executed     |
| Transaction Category             | 1          | Alpha Character    | Provides information on the type of transaction                 |
| Negotiated Transaction Indicator | 1          | Alpha Character    |   |
| Crossing Trade Indicator         | 1          | Alpha Character    |   |
| Modification Indicator           | 1          | Alpha Character    |   |
| Trade Condition Indicator        | 1          | Alpha Character    |   |
| Publication Mode                 | 1          | Alpha Character    | It defines the mode in which the transaction is being published |
| <i>Total Size:</i>               | <i>148</i> | <i>Characters</i>  |   |

**Table 5-2, Category T – OTC Message format**

The **OTC Price** field MUST always contain values greater than zero.

Furthermore, the value of the **OTC Price Type** field will be set to empty (SPACE) if the OTC trade does not involve bonds.

### **5.3. Field Characteristics and ISO Compliance for U & V Messages**

| Symbol       | Data Type              | Definition       |
|--------------|------------------------|------------------|
| {ALPHANUM-n} | Up to n alphanumerical | Free text field. |



|                  |  |  |
|------------------|--|--|
|                  | characters   |  |
| {INTEGER-n}      | Integer number of up to n digits in total  | Numerical field for both positive and negative integer values.   |
| {DECIMAL-n/m}    | Decimal number of up to n digits in total of which up to m digits can be fraction digits | Numerical field for both positive and negative values. <ul style="list-style-type: none"> <li>- decimal separator is '.' (full stop);</li> <li>- negative numbers are prefixed with '-' (minus);</li> </ul> Values are rounded and not truncated   |
| {LEI}            | 20 alphanumerical characters   | Legal entity identifier as defined in ISO 17442  |
| {ISIN}           | 12 alphanumerical characters   | ISIN code, as defined in ISO 6166  |
| {CFI_CODE}       | 6 characters   | ISO 10962 CFI code   |
| {CURRENCYCODE_3} | 3 alphanumerical characters  | 3 letter currency code, as defined by ISO 4217 currency codes  |
| {DATETIME}       | 20 alphanumerical characters ISO 8601 date format  | YYYYMMDDHHMMSSdddddd   |
| {DATE}           | 8 alphanumerical characters ISO 8601 date format   | YYYYMMDD   |
| {INDEX}          | 4 alphabetic characters  | 'EONA' -- EONIA<br>'EONS' - EONIA SWAP<br>'EURI' - EURIBOR<br>'EUUS' - EURODOLLAR<br>'EUCH' - EuroSwiss<br>'GCFR' - GCF REPO<br>'ISDA' - ISDAFIX<br>'LIBI' - LIBID<br>'LIBO' - LIBOR<br>'MAAA' - Muni AAA<br>'PFAN' - Pfandbriefe<br>'TIBO' - TIBOR<br>'STBO' - STIBOR<br>'BBSW' - BBSW<br>'JIBA' - JIBAR<br>'BUBO' - BUBOR<br>'CDOR' - CDOR<br>'CIBO' - CIBOR |

|  |  |  |
|--|--|--|
|  |  | 'MOSP' - MOSPRIM<br>'NIBO' - NIBOR<br>'PRBO' - PRIBOR<br>'TLBO' - TELBOR<br>'WIBO' - WIBOR<br>'TREA' - Treasury<br>'SWAP' - SWAP<br>'FUSW' - Future SWAP |
|--|--|--|

#### 5.4. Category U – APA Post Trade Message

For the APA Service under MiFID II requirements, the new messages U & V will be also provided through the relaxed channel.

The Category U message in particular is used for ATHEX APA post-trade transparency service. The IDS will transmit this message category to its users whenever a trade is reported to IDS sub-system.

| Message Text              | Type            | Description  |
|---------------------------|-----------------|--|
| Report status             | {ALPHANUM-4}    | 'NEWT' - New<br>'CANC' - Cancellation  |
| Trading date and time     | {DATETIME}      |  |
| Trade ID Indicator        | {INTEGER-1}     | 1 - OASIS Trade ID<br>2 - Other Venue Trade ID   |
| Trade ID                  | {ALPHANUM-52}   |  |
| Venue                     | {ALPHANUM-4}    | MIC of the Market in which the instrument belongs (ISO 10383)<br>'XOFF': OTC (ISO 10383)<br>'SINT': Systematic internalizers             |
| Transaction to be cleared | {INTEGER-1}     | 1 - 'true'<br>0 - 'false'  |
| Price notation            | {ALPHANUM-4}    | 'MONE' - Monetary value<br>'PERC' - Percentage<br>'YIEL' - Yield<br>'BAPO' - Basis points<br>'PEDG' - Pending<br>'NOAP' - Not Applicable |
| Price                     | {DECIMAL-18/17} | {DECIMAL-18/13} in case the price is expressed as monetary value<br>{DECIMAL-11/10} in case the price is expressed as percentage         |

| Message Text                                 | Type                          | Description   |
|--|-------------------------------|---|
|  |                               | or yield<br>{DECIMAL-18/17} in case the price is expressed as basis points  |
| Price Currency                               | {CURRENCYCODE_3}              |   |
| Quantity                                     | {DECIMAL-18/17}               | {DECIMAL-18/17} in case the quantity is expressed as number of units<br>{DECIMAL-18/5} in case the quantity is expressed as monetary or nominal value   |
| Quantity currency                            | {CURRENCYCODE_3}              |   |
| Notation of the quantity in measurement unit | {ALPHANUM-25}                 | 'TOCD' – tons of carbon dioxide equivalent or<br>{ALPHANUM-25} otherwise  |
| Quantity in measurement unit                 | {DECIMAL-18/17}               |   |
| Notional amount                              | {DECIMAL-18/5}                |   |
| Notional currency                            | {CURRENCYCODE_3}              |   |
| Instrument ID type                           | {ALPHANUM-4}                  | 'ISIN' = where ISIN is available<br>'OTHR' = other identifier   |
| Instrument ID                                | {ISIN}                        |   |
| Instrument full name                         | {ALPHANUM-350}                |   |
| Instrument classification                    | {CFI_CODE}                    |   |
| Price multiplier                             | {DECIMAL-18/17}               |   |
| Underlying instrument code                   | {ISIN}                        |   |
| Underlying index name                        | {ALPHANUM-25}                 | {INDEX} Or<br>{ALPHANUM-25} - if the index name is not included in the {INDEX} list   |
| Term of the underlying index                 | {INTEGER-3} +<br>{ALPHANUM-4} | {INTEGER-3}+'DAYS' - days<br>{INTEGER-3}+'WEEK' - weeks<br>{INTEGER-3}+'MNTH' - months<br>{INTEGER-3}+'YEAR' - years  |
| Option type                                  | {ALPHANUM-4}                  | 'PUTO' - Put<br>'CALL' - Call<br>'OTHR' - where it cannot be determined whether it is a call or a put   |
| Strike price                                 | {DECIMAL-18/17}               | {DECIMAL-18/13} in case the price is expressed as monetary value<br>{DECIMAL-11/10} in case the price is expressed as percentage or yield<br>{DECIMAL-18/17} in case the price is expressed as basis points |

| Message Text              | Type             | Description  |
|---------------------------|------------------|--|
| Strike price currency     | {CURRENCYCODE_3} |  |
| Strike price notation     | {ALPHANUM-4}     | 'MONE' – Monetary value<br>'PERC' – Percentage<br>'YIEL' – Yield<br>'BAPO' – Basis points<br>'NOAP' – Not Applicable   |
| Option exercise style     | {ALPHANUM-4}     | 'EURO' - European<br>'AMER' – American<br>'ASIA' – Asian<br>'BERM' – Bermudan<br>'OTHR' - Any other type   |
| Maturity date             | {DATE}           | YYYYMMDD   |
| Expiry date               | {DATE}           | YYYYMMDD   |
| Delivery type             | {ALPHANUM-4}     | 'PHYS' - Physically settled<br>'CASH' - Cash settled<br>'OPTL' - Optional for counterparty or when determined by a third party   |
| Type (emission allowance) | {ALPHANUM-4}     | 'EUAE' – EUA<br>'CERE' - CER<br>'ERUE' - ERU<br>'EUAA' – EUAA<br>'OTHR' – Other (for derivatives only)   |
| OTC Post-trade indicator  | {INTEGER-4}      | This will be a bitmap populated with one or more of the following flags:<br>1st bit: 'BENC' – Benchmark<br>2nd bit: 'ACTX' – Agency cross<br>3th bit: 'LRGS' - Large in scale<br>4th bit: 'ILQD' - Illiquid instrument<br>5th bit: 'SIZE' - Above specified size<br>6th bit: 'CANC' - Cancellations<br>7th bit: 'AMND' - Amendments<br>8th bit: 'SDIV' – Special dividend<br>9th bit: 'RPRI' – Price improvement<br>10th bit: 'DUPL' – Duplicative<br>11th bit: 'TNCP' – Not contributing to price discovery process<br>12th bit: 'TPAC' - Package |

| Message Text       | Type                  | Description                              |
|--------------------|-----------------------|--|
|                    |                       | 13th bit: 'XFPH' – Exchange for Physical |
| Deferral Indicator | {INTEGER-1}           | 1 - 'true'<br>0 - 'false'                |
| LMTF               | {INTEGER-1}           | 1 - 'true'<br>0 - 'false'                |
| FULF               | {INTEGER-1}           | 1 - 'true'<br>0 - 'false'                |
| DATF               | {INTEGER-1}           | 1 - 'true'<br>0 - 'false'                |
| FULA               | {INTEGER-1}           | 1 - 'true'<br>0 - 'false'                |
| VOLO               | {INTEGER-1}           | 1 - 'true'<br>0 - 'false'                |
| FULV               | {INTEGER-1}           | 1 - 'true'<br>0 - 'false'                |
| FWAF               | {INTEGER-1}           | 1 - 'true'<br>0 - 'false'                |
| FULJ               | {INTEGER-1}           | 1 - 'true'<br>0 - 'false'                |
| IDAF               | {INTEGER-1}           | 1 - 'true'<br>0 - 'false'                |
| VOLW               | {INTEGER-1}           | 1 - 'true'<br>0 - 'false'                |
| COAF               | {INTEGER-1}           | 1 - 'true'<br>0 - 'false'                |
| <i>Total Size:</i> | <i>699 Characters</i> |  |

**Table 5-3, Category U – APA Post Trade Message format**

**Rules:**

1. Fields that have the column **Req** marked as (√) are required.
2. Fields that have the column **Req** marked as (+) are conditionally required.
  - a. If the field 'Instrument ID type' = 'ISIN' then the 'Instrument ID' field should provide the corresponding ISIN code of the instrument whereas the blue colored fields should be left blank.
  - b. If the field 'Price notation' or the field 'Strike price notation' = 'MONE' then the corresponding currency fields should have the appropriate currency value.

**Important note:** The Publication date and time is located at the header of the IT Message in DATETIME format (YYYYMMDDHHMMSSdddddd)

### 5.5. Category V – APA Pre-Trade Message

This message is used for ATHEX APA pre-trade transparency service (quotes). The IDS will transmit this message category to its users whenever a quote is reported to IDS Sub-system by the ATHEX@APA service.

| Message Text                          | Type             | Description   |
|---------------------------------------|------------------|---|
| Report Status                         | {ALPHANUM-4}     | 'NEW' - New<br>'AMND' - Amend<br>'CANC' - Cancellation  |
| Quote type                            | {INTEGER-1}      | Depending on the Quote type:<br>1- Bid<br>2- Offer  |
| Quote ID                              | {ALPHANUM 52}    | Unique Sequential number generated internally by the Member based on Instrument ID, MIC, currency, LEI  |
| Event Time                            | {DATETIME}       | Time when an event has been processed   |
| Quote Liquidity                       | {INTEGER-1}      | 1 - Liquid market for instrument<br>2 - Illiquid market for instrument  |
| Venue MIC                             | {ALPHANUM-4}     | 'MIC' of the Market in which the instrument belongs (ISO 10383)   |
| Submitting entity identification code | {LEI}            | LEI of the quote submitting entity  |
| Price notation                        | {ALPHANUM-4}     | 'MONE' - Monetary value<br>'PERC' - Percentage<br>'YIEL' - Yield<br>'BAPO' - Basis points   |
| Price                                 | {DECIMAL-18/17}  | {DECIMAL-18/13} in case the price is expressed as monetary value<br>{DECIMAL-11/10} in case the price is expressed as percentage or yield<br>{DECIMAL-18/17} in case the price is expressed as basis points |
| Price Currency                        | {CURRENCYCODE_3} |   |
| Quantity                              | {DECIMAL-18/17}  | {DECIMAL-18/17} in case the quantity is expressed as number of units<br>{DECIMAL-18/5} in case the quantity is expressed as monetary or nominal value   |

| Message Text                                 | Type                          | Description   |
|--|-------------------------------|---|
| Quantity currency                            | {CURRENCYCODE_3}              |   |
| Notation of the quantity in measurement unit | {ALPHANUM-25}                 | 'TOCD' – tons of carbon dioxide equivalent or<br>{ALPHANUM-25} otherwise  |
| Quantity in measurement unit                 | {DECIMAL-18/17}               |   |
| Notional amount                              | {DECIMAL-18/5}                |   |
| Notional currency                            | {CURRENCYCODE_3}              |   |
| Instrument ID type                           | {ALPHANUM-4}                  | 'ISIN' = where ISIN is available<br>'OTHR' = other identifier   |
| Instrument ID                                | {ISIN}                        |   |
| Instrument full name                         | {ALPHANUM-350}                |   |
| Instrument classification                    | {CFI_CODE}                    |   |
| Price multiplier                             | {DECIMAL-18/17}               |   |
| Underlying instrument code                   | {ISIN}                        |   |
| Underlying index name                        | {ALPHANUM-25}                 | {INDEX} Or<br>{ALPHANUM-25} - if the index name is not included in the {INDEX} list   |
| Term of the underlying index                 | {INTEGER-3} +<br>{ALPHANUM-4} | {INTEGER-3}+'DAYS' - days<br>{INTEGER-3}+'WEEK' - weeks<br>{INTEGER-3}+'MNTH' - months<br>{INTEGER-3}+'YEAR' - years  |
| Option type                                  | {ALPHANUM-4}                  | 'PUTO' - Put<br>'CALL' - Call<br>'OTHR' - where it cannot be determined whether it is a call or a put   |
| Strike price                                 | {DECIMAL-18/17}               | {DECIMAL-18/13} in case the price is expressed as monetary value<br>{DECIMAL-11/10} in case the price is expressed as percentage or yield<br>{DECIMAL-18/17} in case the price is expressed as basis points |
| Strike price currency                        | {CURRENCYCODE_3}              |   |
| Strike price notation                        | {ALPHANUM-4}                  | 'MONE' – Monetary value<br>'PERC' – Percentage<br>'YIEL' – Yield<br>'BAPO' – Basis points   |

| Message Text          | Type                  | Description  |
|-----------------------|-----------------------|--|
|                       |                       | 'NOAP' – Not Applicable  |
| Option exercise style | {ALPHANUM-4}          | 'EURO' - European<br>'AMER' – American<br>'ASIA' – Asian<br>'BERM' – Bermudan<br>'OTHR' - Any other type                       |
| Maturity date         | {DATE}                | YYYYMMDD   |
| Expiry date           | {DATE}                | YYYYMMDD   |
| Delivery type         | {ALPHANUM-4}          | 'PHYS' - Physically settled<br>'CASH' - Cash settled<br>'OPTL' - Optional for counterparty or when determined by a third party |
| <i>Total Size:</i>    | <i>699 Characters</i> |  |

**Table 5-4, Category V – APA Pre-trade Message format**

**Rules:**

3. Fields that have the column **Req** marked as (√) are required.
4. Fields that have the column **Req** marked as (+) are conditionally required.
  - a. If the field 'Instrument ID type' = 'ISIN' then the 'Instrument ID' field should provide the corresponding ISIN code of the instrument whereas the blue colored fields should be left blank.
  - b. If the field 'Price notation' or the field 'Strike price notation' = 'MONE' then the corresponding currency fields should have the appropriate currency value.

**Important note:** The Publication date and time is located at the header of the IT Message in DATETIME format (YYYYMMDDHHMMSSdddddd)



## 6. Appendix A: Transmission Schedule

Table 6-1 lists the message categories and the order in which they are disseminated during a trading session.

| Messages  | Level   | Category | Transmitted  |
|---|---------|----------|--|
| <u>Start of Day Control Message</u>             | 1       | K        | At the start of the trading day. This is the first message sent  |
| <u>Index Messages *</u>                         | 1       | C        | Whenever the trading platform calculates them  |
| <u>Administrative Control Messages *</u>        | 1       | K        | Whenever decided by the exchange   |
|   |         |          |  |
| <u>Line Verification Control Message *</u>      | 1       | K        | Every minute after the Start of Day Control Message  |
| <u>Exchange Notifications Messages*</u>         | 1       | S        | Whenever decided by the exchange   |
| <i>Order Message **</i>                         | 2 and 3 | Q        | Whenever an order's lifetime spans multiple days, or a new order is entered in the trading platform, or an already placed order undergoes modification |
| <i>Market Status Message</i>                    | 2       | P        | Whenever the market changes its status   |
| <i>Instrument State Message</i>                 | 2       | O        | Whenever a trading phase or status change occurs for a given instrument  |
| <i>Projected Auction Price (when supported)</i> | 2       | M        | Whenever calculated by the trading platform  |
| <i>Auction Open Price</i>                       | 2       | M        | Whenever calculated by the trading platform  |
| <i>Trade Messages***</i>                        | 3       | A        | When a trade occurs  |
| <i>High/Low Limits Modification Messages**</i>  | 2 and 3 | N        | Whenever A High/Low limit change occurs for a given security   |
| <i>Quote Messages **</i>                        | 2 and 3 | B        | When there is a change in any of the Best Bid\Offer levels   |
| <i>Cancelled Trade***</i>                       | 3       | I        | When a trade is cancelled  |
| <i>Cancelled Order Message**</i>                | 3       | R        | When an order is cancelled   |
| <i>Projected Close Price</i>                    | 2       | M        | Whenever calculated by the trading platform  |
| <i>Closing/Fixing Price</i>                     | 1 and 2 | L        | Whenever calculated by the trading platform or clearing system. Fixing values will also be transmitted next trading date                               |
| <i>Summary Messages</i>                         | 2       | G        | Right after the Market Close Control Message is sent for the given market  |

|                                   |   |   |                               |
|-----------------------------------|---|---|-------------------------------|
| <u>End of Day Control Message</u> | 1 | K | At the end of the trading day |
|-----------------------------------|---|---|-------------------------------|

**Table 6-1, Messages transmission schedule**

Note that the messages written in *Italics* are scheduled according to the schedule of a specific market and not of the entire trading session; whereas, the messages written as Underlined are scheduled according to the schedule of the entire trading session.

Furthermore, the mark "\*" defines these messages that could be, and are sent at any point and time during Levels 1, 2 and 3, of the entire trading session schedule. The mark "\*\*" defines these messages that could be, and are sent at any point and time during Levels 2 and 3, of the given market schedule. Finally, The mark "\*\*\*" defines these messages that could be, and are sent at any point and time during Level 3, of the given market schedule.

## 7. Appendix B, Information on Various Field Codes

### 7.1. Content Format

It defines the format of the Financial News-message content. Table 7-1 lists these formats and their description.

| Content Format | Format Description |
|----------------|--------------------|
| X              | XML                |

Table 7-1, Content Format

### 7.2. Symbol

It is symbol of the tradeable instrument (stock or bond) or Index, written in the English Language. The symbol name could be up to 15 characters long.

### 7.3. Halt/Suspended

It defines the reason why a given instrument was halted or suspended. Table 7-2 lists these reasons and their description.

| Halt/Suspend Reason | Reason Description        |
|---------------------|---------------------------|
| SPACE               | Default value (No Reason) |
| E                   | Exchange                  |
| V                   | Volatility Interrupter    |

Table 7-2, Halt/Suspend Reason

### 7.4. Message Subcategory

It imposes a second level of categorization upon the packet's information. Table 7-3 lists the possible values.

| Code  | Message Subcategory                                      |
|-------|--|
| SPACE | Generic (applicable mainly to category K and P messages) |
| B     | Bond   |
| E     | ETF  |
| I     | Stock Index  |
| N     | ETF Indicative Net Asset Value (INAV)                    |
| S     | Stock/Rights   |
| W     | Warrant  |
| O     | Option   |
| F     | Future   |
| R     | Repos  |
| V     | Standard Combinations                                    |

**Table 7-3, Message Subcategories****7.5. Local Symbol**

It is symbol of the tradeable instrument (stock, bond etc) or Index, written in the Local Language. The symbol name could be up to 15 characters long.

**7.6. Board ID**

It defines uniquely the Board under which the instruments of a given Market can be traded. Table 7-4 lists these IDs and their description.

| <b>Board ID</b> | <b>Board Description</b>                         |
|-----------------|--|
| M               | Main Board                                       |
| O               | Odd Lot Board                                    |
| B               | Pre-Agreed Board                                 |
| S               | Special Terms (with the Hit & Take Method) Board |
| F               | Forced Sales (with the Hit & Take Method) Board  |

**Table 7-4, Board IDs****7.7. Market Status**

It defines the status of a given market. Table 7-5 lists these statuses and their description.

| <b>Market Status</b> | <b>Status Description</b>  |
|----------------------|----------------------------|
| P                    | Pre-Call                   |
| J                    | Projected Auction          |
| T                    | Continuous / Auction Event |
| C                    | Closing Price Trading      |
| R                    | Run Off                    |
| E                    | End of Day                 |
| H                    | Halt                       |

**Table 7-5, Market Statuses**

Please note that the Run Off status ('R') signals the conclusion of all trading activity pertinent to the instruments listed under the given market.

**7.8. Phase ID**

It defines the trading phase of a given instrument. Table 7-6 lists these IDs and their description.

| <b>Phase ID</b> | <b>Phase Description</b>                             |
|-----------------|--|
| SPACE           | Start Phase  |
| P               | Pre-Call   |
| T               | Continuous   |
| A               | Phase where the ATC Order are released in Order Book |
| C               | Closing Price Trading                                |
| S               | Stop   |

**Table 7-6, Phase IDs**

Note that the Stop phase applies ONLY to instruments traded through Call-Auctions and signals the conclusion of the Auction's opening. Orders could not be placed while the instrument is on the Stop phase. Finally, the SPACE as a phase ID is sent when an instrument cannot enter any of the listed trading phases (most likely because it became suspended before the beginning of the given trading session/day).

## 7.9. Instrument Status

It defines the status of a given instrument. Table 7-7 lists these statuses and their description.

| Security Status | Status Description |
|-----------------|--------------------|
| A               | Active             |
| H               | Halt               |
| S               | Suspended          |
| R               | Resumed            |

**Table 7-7, Instrument Statuses**

Note that the Resume status is given to an instrument when the instrument's Halt period concludes and the instrument transits to a Pre-Call one.

## 7.10. Order Status

It defines the order's current status. Table 7-8 lists these statuses and their description.

| Order status | Order Status description                        |
|--------------|---|
| N            | Not Released to the order book                  |
| I            | Inactive  |
| O            | Open  |
| EP           | Good till cancel, Good till date expired status |

**Table 7-8, Order Statuses**

## 7.11. Order Side

It defines the order's side. Table 7-9 lists these sides and their description.

| Order side | Order side description |
|------------|------------------------|
| 'B'        | Buy                    |
| 'S'        | Sell                   |

**Table 7-9, Order Sides**

## 7.12. Order Original Price Type

It describes the order's original price type. Table 7-10 lists these types and their description.

| Original Price Type | Original Price Type Description |
|---------------------|---------------------------------|
|---------------------|---------------------------------|

|     |              |
|-----|--------------|
| 'L' | Limit price  |
| 'M' | Market       |
| 'O' | At The Open  |
| 'C' | At The Close |

**Table 7-10, Order Original Price Types**

### **7.13. Order Lifetime**

It defines the order's lifetime. Table 7-11 lists these order lifetimes and their description.

| <b>Order Lifetime</b> | <b>Order Lifetime Description</b> |
|-----------------------|-----------------------------------|
| 'D'                   | Day                               |
| 'C'                   | Good till cancel                  |
| 'E'                   | Good till date                    |

**Table 7-11, Order Lifetimes**

### **7.14. Order Special Condition**

It denotes the special condition the order must fulfill prior to execution. Table 7-12 lists these special conditions and their description.

| <b>Order Special Conditions</b> | <b>Description</b>  |
|---------------------------------|---------------------|
| 'N'                             | None                |
| 'F'                             | Fill or kill        |
| 'I'                             | Immediate or cancel |
| 'S'                             | Stop Instrument     |
| 'D'                             | Stop Index          |
| 'A'                             | All or none         |
| 'M'                             | Minimum fill        |
| 'O'                             | Multiple of         |

**Table 7-12, Order Special Conditions**