

MMDH On-boarding Tool Procedures & Canned Data Contents

**HKEX Orion Market Data Platform
Securities Market & Index Datafeed Products (OMD-C)
Mainland Market Data Hub (MMDH)**

Version 1.1
22 Aug 2013

DOCUMENT HISTORY

Distribution Version

Version	Date of Issue	Comments
V1.0	27 May 2013	First version of MMDH On-boarding Tool Procedures & Canned Data Contents
V1.1	22 Aug 2013	Revised Edition with the following update 1) Update the value of the field “PreviousClosingPrice” in Security Definition message of Security 07015 (Part A Test case 6). 2) Remove the invalid field “NumberOfTrades” in Closing Price message (Part A Test Case 11) 3) The 10 BBO and Broker Queue for Security 00051 (Part B Test Case 11)

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1. Purposes

Before participating in the MMDH Certification Test, a client has to perform its own system test by using the MMDH On-Boarding Tool and the canned data provided by HKEX. This document provides the details of the procedures and the requirements for completing the test with the On-Boarding Tool. It also provides the correct data values that the On-boarding Tool disseminates from the canned data so as to enable the client to verify if its system can decode the MMDH messages of various types and build the aggregated order book correctly.

2. Procedures

A client should have achieved positive results in both the Functional Test and the Workload Test with the On-boarding Tool before proceeding to the Certification Test.

2.1 Functional Test

The Functional Test aims at ensuring that the program logics for interpreting the MMDH messages and building the aggregated order book are correct.

Please refer to MMDH On-boarding Tool User Guide Section 3.4 and section 4.1 for the details about starting the MMDH On-boarding Tool and replaying the canned data. Upon the completion of the data replay, the client can check the data values in its system against the data values provided in **Section 4 of this document**. Should any discrepancy be found, the client should rectify the program logic and redo the test until all data values are good.

2.2 Workload Test

The Workload Test aims at ensuring that the feed handler has sufficient capacity to handle the installed maximum of MMDH.

Please refer to MMDH On-boarding Tool User Guide Section 3.5 and Section 4.1 for how to perform the Workload Test. In performing the test, the client has to set the throttle rate to **8500 messages per second** and achieve a mean delay of **less than one second**. Upon the completion of the Workload Test, the client is required to submit the “MMDH On-boarding Tools Workload Report” to HKEX by email to IVSupport@hkex.com.hk.

Below is the sample MMDH On-boarding Tools Workload Report for your reference where the minute-by-minute throttle rate (i.e. Workload Rate) and the Mean Delay are shown.

Date: 2013-05-23				
Configured Workload Rate: 8500 messages per second (msg/s)				
Time	Workload Rate (msg/s)	Max Delay (s)	Mean Delay (s)	
20:03	8373.982162	0.794421	0.568212	
20:04	8492.388152	0.997230	0.749797	
20:05	8581.482590	0.963401	0.770550	
Average of [Workload Rate (msg/s)] = 8482.731844				
Maximum of [Max Delay (s)] = 0.997230				
Average of [Mean Delay (s)] = 0.700364				

3. Test Conditions

This section lists out the conditions to be covered in functional test and workload test.

3.1 Functional Test

Test Condition	Details	IS* Reference
1	<u>Handling of Market Data Messages</u>	
1.1	<i>Market Definition</i> messages covering all markets	Reference Data (3.6.1)
1.2	<i>Security Definition</i> messages covering (i) all available <u>InstrumentType</u> (ii) 0, 1 & 20 <u>NoUnderlyingSecurities</u> (iii) securities in all markets (iv) securities with non-blank <u>FreeText</u>	Reference Data (3.6.2)
1.3	<i>Liquidity Provider</i> messages with at least one with <u>NoLiquidityProviders</u> set to each of 1 & 50	Reference Data (3.6.3)
1.4	<i>Currency Rate</i> messages covering all currencies currently available in HKEX Securities Market	Reference Data (3.6.4)
1.5	<i>Trading Session Status</i> messages covering the full range of values in <u>TradingSessionSubID</u> , <u>TradingSesStatus</u> & <u>TradingSesControlFlag</u>	Status Data (3.7.1)
1.6	<i>Security Status</i> messages will be sent with <u>SecurityTradingStatus</u> set to 2 (Trading Halt) & 3 (Resume) at Start of Day and Intraday	Status Data (3.7.2)
1.7	A series of book messages covering all possible book operations for <u>Bid/Offer</u> orders during various trading sessions in a normal trading day <i>Aggregate Order Book Update</i> messages covering all possible aggregate book management operations <i>Broker Queue</i> messages covering empty broker queue, broker queues with more than 1 spread broker information, broker queues with exactly 40 entries and broker queues with more than 40 entries in the book <i>Add / Delete Odd Lot Order</i> messages covering odd lot order book management operations.	Order Book Data (3.8)
1.8	<i>Trade Ticker</i> messages covering different <u>TrdType</u> and at least one of the messages with <u>TrdCancelFlag</u> set on and non-zero <u>AggregateQuantity</u> to set example for partial ticker cancel	Trade & Price Data (3.9.1)
1.9	<i>Closing Price</i> messages covering majority non-zero closing price and a few zero closing price (for new securities without order/trade activities)	Trade & Price Data (3.9.2)

Test Condition	Details	IS* Reference
1.10	<i>Nominal Price</i> messages covering majority non-zero nominal price and a few zero nominal price (for new securities without order/trade activities)	Trade & Price Data (3.9.3)
1.11	<i>Indicative Equilibrium Price</i> messages covering that during Auction Session (majority non-zero and some zero IEP) and after Auction Matching (all zero IEP)	Trade & Price Data (3.9.4)
1.12	<i>Statistics</i> messages covering both shortsell and non-shortsell securities and securities with some of the statistics data unavailable, e.g. <u>HighPrice</u> , <u>LowPrice</u> , <u>Turnover</u> , <u>SharesTraded</u> , <u>LastPrice</u> if no order/trades activities for the securities	Value Added Data (3.10.1)
1.13	<i>Market Turnover</i> message covering all markets and all available currencies available in HKEX Securities Market	Value Added Data (3.10.2)
1.14	<i>Yield</i> messages covering non-zero <u>Yield</u> and zero <u>Yield</u> (i.e. yield is not available)	Value Added Data (3.10.3)
1.15	<i>News</i> messages covering multiple segmented news and news with zero and maximum values for <u>NoSecurityCodes</u> , <u>NoMarketCodes</u> and <u>NoNewsLines</u>	News (3.11.1)
1.16	<i>Index Definition</i> messages covering all indexes offered in OMD Index datafeed product	Index Data (3.12.1)
1.17	<i>Index Data</i> messages covering all indexes offered in OMD Index with some of the messages with Null and/or populated values for some of the fields <i>Clients are able to build the correct aggregate order book, full odd lot order book and conflated broker queue comprising spread and broker information. The final book and broker queue image of specific securities should match perfectly the expected results in the Canned Data Answer Book.</i>	Index Data (3.13.2)

3.2 Workload Test

Test Condition	Details	IS* Reference
2	<u>Workload Test</u>	N/A
2.1	Transmission of high volume data to enable Clients to test the ability of their feed handler to meet the capacity requirements.	

* IS refers to the latest MMDH Interface Specifications for Securities Market & Index Datafeed Products – Binary Protocol

4. Functional Test Content Verification

Part A – Message Decoding

When replaying the canned data, the MMDH On-boarding Tool disseminates all types of messages under various data scenarios. Correct data values are provided for each of the test cases below. Clients can verify the respective data values in their systems against the correct values provided.

Test case 1: Interpretation of Market Definition (message type: 10)

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	ETS	<input type="checkbox"/>
MarketName	EXTENDED TRADING SEC	<input type="checkbox"/>
CurrencyCode	USD	<input type="checkbox"/>
NumberOfSecurities	26	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	GEM	<input type="checkbox"/>
MarketName	GROWTH ENTERPRISE MARKET	<input type="checkbox"/>
CurrencyCode	HKD	<input type="checkbox"/>
NumberOfSecurities	113	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	MAIN	<input type="checkbox"/>
MarketName	MAIN BOARD	<input type="checkbox"/>
CurrencyCode	HKD	<input type="checkbox"/>
NumberOfSecurities	2206	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	NASD	<input type="checkbox"/>
MarketName	NASDAQ-AMEX BOARD	<input type="checkbox"/>
CurrencyCode	HKD	<input type="checkbox"/>
NumberOfSecurities	31	<input type="checkbox"/>

Test case 2: Interpretation of Currency Rate (message type: 14)

OMD Field Name	Expected Value	Result (✓ if correct)
CurrencyCode	CNY	<input type="checkbox"/>
CurrencyFactor	0	<input type="checkbox"/>
CurrencyRate	1.0043	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
CurrencyCode	JPY	<input type="checkbox"/>
CurrencyFactor	3	<input type="checkbox"/>
CurrencyRate	88.4400	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
CurrencyCode	CAD	<input type="checkbox"/>
CurrencyFactor	0	<input type="checkbox"/>
CurrencyRate	6.6223	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
CurrencyCode	EUR	<input type="checkbox"/>
CurrencyFactor	0	<input type="checkbox"/>
CurrencyRate	10.1030	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
CurrencyCode	GBP	<input type="checkbox"/>
CurrencyFactor	0	<input type="checkbox"/>
CurrencyRate	15.2625	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
CurrencyCode	HKD	<input type="checkbox"/>
CurrencyFactor	0	<input type="checkbox"/>
CurrencyRate	1.0000	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
CurrencyCode	SGD	<input type="checkbox"/>
CurrencyFactor	0	<input type="checkbox"/>
CurrencyRate	6.4530	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
CurrencyCode	USD	<input type="checkbox"/>
CurrencyFactor	0	<input type="checkbox"/>
CurrencyRate	7.8000	<input type="checkbox"/>

Test case 3: Interpretation of Trading Session Status (message type: 20)

OMD Field Name	Expected Value	Result (✓ if correct)
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MarketCode	MAIN	<input type="checkbox"/>
TradingSession ID	1	<input type="checkbox"/>
TradingSessionSubID	0	<input type="checkbox"/>
TradingSesStatus	100	<input type="checkbox"/>
TradingSesControlFlag	1	<input type="checkbox"/>
StartDateTime	13-03-01 21:01:00	<input type="checkbox"/>
EndDateTime	N/A	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	GEM	<input type="checkbox"/>
TradingSession ID	1	<input type="checkbox"/>
TradingSessionSubID	0	<input type="checkbox"/>
TradingSesStatus	100	<input type="checkbox"/>
TradingSesControlFlag	1	<input type="checkbox"/>
StartDateTime	13-03-01 21:01:00	<input type="checkbox"/>
EndDateTime	N/A	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	ETS	<input type="checkbox"/>
TradingSession ID	1	<input type="checkbox"/>
TradingSessionSubID	0	<input type="checkbox"/>
TradingSesStatus	100	<input type="checkbox"/>
TradingSesControlFlag	1	<input type="checkbox"/>
StartDateTime	13-03-01 21:02:00	<input type="checkbox"/>
EndDateTime	N/A	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	NASD	<input type="checkbox"/>
TradingSession ID	1	<input type="checkbox"/>
TradingSessionSubID	0	<input type="checkbox"/>
TradingSesStatus	100	<input type="checkbox"/>
TradingSesControlFlag	1	<input type="checkbox"/>
StartDateTime	13-03-01 21:02:00	<input type="checkbox"/>
EndDateTime	N/A	<input type="checkbox"/>

Test case 4: Interpretation of Security Status (message type: 21)

OMD Field Name	Expected Value	Result (✓ if correct)
Security Code	00002	<input type="checkbox"/>
SecurityTradingStatus	2	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
Security Code	00037	<input type="checkbox"/>
SecurityTradingStatus	3	<input type="checkbox"/>

Test case 5: Interpretation of Securities Definition (message type: 11) for Equity

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	08001	<input type="checkbox"/>
MarketCode	GEM	<input type="checkbox"/>
ISINCode	HK0017000149	<input type="checkbox"/>
InstrumentType	EQTY	<input type="checkbox"/>
SpreadTableCode	01	<input type="checkbox"/>
SecurityShortName	STK 8001	<input type="checkbox"/>
CurrencyCode	HKD	<input type="checkbox"/>
SecurityNameGCCS		<input type="checkbox"/>
SecurityNameGB		<input type="checkbox"/>
LotSize	1000	<input type="checkbox"/>
PreviousClosingPrice	0.090	<input type="checkbox"/>
ShortSellFlag	Y	<input type="checkbox"/>
CCASSFlag	Y	<input type="checkbox"/>
DummySecurityFlag	N	<input type="checkbox"/>
TestSecurityFlag	N	<input type="checkbox"/>
StampDutyFlag	Y	<input type="checkbox"/>
ListingDate	19991111	<input type="checkbox"/>
DelistingDate	0	<input type="checkbox"/>
FreeText		<input type="checkbox"/>
EFNFlag	N/A	
AccruedInterest	N/A	
CouponRate	N/A	
ConversionRatio	N/A	
StrikePrice	N/A	
MaturityDate	N/A	
CallPutFlag	N/A	
Style	N/A	
NoUnderlyingSecurities	N/A	
UnderlyingSecurityCode	N/A	
UnderlyingSecurityWeight	N/A	

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	04331	<input type="checkbox"/>
MarketCode	NASD	<input type="checkbox"/>
ISINCode	US24702R1014	<input type="checkbox"/>
InstrumentType	EQTY	<input type="checkbox"/>
SpreadTableCode	01	<input type="checkbox"/>
SecurityShortName	DELL-T	<input type="checkbox"/>
CurrencyCode	HKD	<input type="checkbox"/>
SecurityNameGCCS	戴爾—T	<input type="checkbox"/>
SecurityNameGB	戴尔 T	<input type="checkbox"/>
LotSize	20	<input type="checkbox"/>
PreviousClosingPrice	0.016	<input type="checkbox"/>
ShortSellFlag	Y	<input type="checkbox"/>
CCASSFlag	Y	<input type="checkbox"/>
DummySecurityFlag	N	<input type="checkbox"/>
TestSecurityFlag	N	<input type="checkbox"/>
StampDutyFlag	N	<input type="checkbox"/>
ListingDate	20000531	<input type="checkbox"/>
DelistingDate	0	<input type="checkbox"/>
FreeText	NASDAQ L/S PRICE US\$	<input type="checkbox"/>
EFNFlag	N/A	
AccruedInterest	N/A	
CouponRate	N/A	
ConversionRatio	N/A	
StrikePrice	N/A	
MaturityDate	N/A	
CallPutFlag	N/A	
Style	N/A	
NoUnderlyingSecurities	N/A	
UnderlyingSecurityCode	N/A	
UnderlyingSecurityWeight	N/A	

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	02388	<input type="checkbox"/>
MarketCode	MAIN	<input type="checkbox"/>
ISINCode	HK2388011192	<input type="checkbox"/>
InstrumentType	EQTY	<input type="checkbox"/>
SpreadTableCode	01	<input type="checkbox"/>
SecurityShortName	BOC HONG KONG	<input type="checkbox"/>
CurrencyCode	HKD	<input type="checkbox"/>

SecurityNameGCCS	中銀香港	<input type="checkbox"/>
SecurityNameGB	中銀香港	<input type="checkbox"/>
LotSize	500	<input type="checkbox"/>
PreviousClosingPrice	16.960	<input type="checkbox"/>
ShortSellFlag	Y	<input type="checkbox"/>
CCASSFlag	Y	<input type="checkbox"/>
DummySecurityFlag	N	<input type="checkbox"/>
TestSecurityFlag	N	<input type="checkbox"/>
StampDutyFlag	Y	<input type="checkbox"/>
ListingDate	20020725	<input type="checkbox"/>
DelistingDate	0	<input type="checkbox"/>
FreeText		<input type="checkbox"/>
EFNFlag	N/A	
AccruedInterest	N/A	
CouponRate	N/A	
ConversionRatio	N/A	
StrikePrice	N/A	
MaturityDate	N/A	
CallPutFlag	N/A	
Style	N/A	
NoUnderlyingSecurities	N/A	
UnderlyingSecurityCode	N/A	
UnderlyingSecurityWeight	N/A	

Test case 6: Interpretation of Securities Definition (message type: 11) for Bond

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	07015	<input type="checkbox"/>
MarketCode	MAIN	<input type="checkbox"/>
ISINCode	XS0334902839	<input type="checkbox"/>
InstrumentType	BOND	<input type="checkbox"/>
SpreadTableCode	03	<input type="checkbox"/>
SecurityShortName	PB ISSUER B1303	<input type="checkbox"/>
CurrencyCode	USD	<input type="checkbox"/>
SecurityNameGCCS		<input type="checkbox"/>
SecurityNameGB		<input type="checkbox"/>
LotSize	100	<input type="checkbox"/>
PreviousClosingPrice	0.500	<input type="checkbox"/>
ShortSellFlag	N	<input type="checkbox"/>
CCASSFlag	N	<input type="checkbox"/>
DummySecurityFlag	N	<input type="checkbox"/>

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TestSecurityFlag	N		<input type="checkbox"/>
StampDutyFlag	N		<input type="checkbox"/>
ListingDate	20080306		<input type="checkbox"/>
DelistingDate	0		<input type="checkbox"/>
FreeText	FOR INTEREST-	CONTACT BROKER	<input type="checkbox"/>
EFNFlag	N		<input type="checkbox"/>
AccruedInterest	0.000		<input type="checkbox"/>
CouponRate	3.300		<input type="checkbox"/>
ConversionRatio	N/A		
StrikePrice	N/A		
MaturityDate	N/A		
CallPutFlag	N/A		
Style	N/A		
NoUnderlyingSecurities	N/A		
UnderlyingSecurityCode	N/A		
UnderlyingSecurityWeight	N/A		

OMD Field Name	Expected Value	Result (✓ if correct)	
SecurityCode	04161	<input type="checkbox"/>	
MarketCode	MAIN	<input type="checkbox"/>	
ISINCode	HK4159036564	<input type="checkbox"/>	
InstrumentType	BOND	<input type="checkbox"/>	
SpreadTableCode	03	<input type="checkbox"/>	
SecurityShortName	EFN 3.78 1612	<input type="checkbox"/>	
CurrencyCode	HKD	<input type="checkbox"/>	
SecurityNameGCCS		<input type="checkbox"/>	
SecurityNameGB		<input type="checkbox"/>	
LotSize	500	<input type="checkbox"/>	
PreviousClosingPrice	7.000	<input type="checkbox"/>	
ShortSellFlag	N	<input type="checkbox"/>	
CCASSFlag	Y	<input type="checkbox"/>	
DummySecurityFlag	N	<input type="checkbox"/>	
TestSecurityFlag	N	<input type="checkbox"/>	
StampDutyFlag	N	<input type="checkbox"/>	
ListingDate	20070215	<input type="checkbox"/>	
DelistingDate	0	<input type="checkbox"/>	
FreeText	EFN FINANCIAL	INFORMATION P7110-5	<input type="checkbox"/>
EFNFlag	Y		<input type="checkbox"/>
AccruedInterest	3294967.297		<input type="checkbox"/>
CouponRate	3.7800		<input type="checkbox"/>
ConversionRatio	N/A		

StrikePrice	N/A
MaturityDate	N/A
CallPutFlag	N/A
Style	N/A
NoUnderlyingSecurities	N/A
UnderlyingSecurityCode	N/A
UnderlyingSecurityWeight	N/A

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	01490	<input type="checkbox"/>
MarketCode	MAIN	<input type="checkbox"/>
ISINCode	NA	<input type="checkbox"/>
InstrumentType	BOND	<input type="checkbox"/>
SpreadTableCode	03	<input type="checkbox"/>
SecurityShortName	CABLE&W10000B12	<input type="checkbox"/>
CurrencyCode	CNY	<input type="checkbox"/>
SecurityNameGCCS		<input type="checkbox"/>
SecurityNameGB		<input type="checkbox"/>
LotSize	10000	<input type="checkbox"/>
PreviousClosingPrice	9.850	<input type="checkbox"/>
ShortSellFlag	N	<input type="checkbox"/>
CCASSFlag	N	<input type="checkbox"/>
DummySecurityFlag	N	<input type="checkbox"/>
TestSecurityFlag	N	<input type="checkbox"/>
StampDutyFlag	N	<input type="checkbox"/>
ListingDate	19960129	<input type="checkbox"/>
DelistingDate	0	<input type="checkbox"/>
FreeText	FOR INTEREST- CONTACT BROKER	<input type="checkbox"/>
EFNFlag	N	<input type="checkbox"/>
AccruedInterest	0.000	<input type="checkbox"/>
CouponRate	8.750	<input type="checkbox"/>
ConversionRatio	N/A	
StrikePrice	N/A	
MaturityDate	N/A	
CallPutFlag	N/A	
Style	N/A	
NoUnderlyingSecurities	N/A	
UnderlyingSecurityCode	N/A	
UnderlyingSecurityWeight	N/A	

Test case 7: Interpretation of Securities Definition (message type: 11) for Warrant

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	04862	<input type="checkbox"/>
MarketCode	MAIN	<input type="checkbox"/>
ISINCode	NA	<input type="checkbox"/>
InstrumentType	WRNT	<input type="checkbox"/>
SpreadTableCode	01	<input type="checkbox"/>
SecurityShortName	GSCLIFE@EC0707H	<input type="checkbox"/>
CurrencyCode	JPY	<input type="checkbox"/>
SecurityNameGCCS	中壽高盛七零七H	<input type="checkbox"/>
SecurityNameGB	中寿高盛七零七H	<input type="checkbox"/>
LotSize	10000	<input type="checkbox"/>
PreviousClosingPrice	0.480 (Actual value should be JPY 480 after taking into currency factor of 3 for JPY)	<input type="checkbox"/>
ShortSellFlag	N	<input type="checkbox"/>
CCASSFlag	Y	<input type="checkbox"/>
DummySecurityFlag	N	<input type="checkbox"/>
TestSecurityFlag	N	<input type="checkbox"/>
StampDutyFlag	N	<input type="checkbox"/>
ListingDate	20070205	<input type="checkbox"/>
DelistingDate	0	<input type="checkbox"/>
FreeText	EXER PRI:\$25.30/10W*LP9625-2978 2333	<input type="checkbox"/>
EFNFlag	N/A	
AccruedInterest	N/A	
CouponRate	N/A	
ConversionRatio	10.000	<input type="checkbox"/>
StrikePrice	25.300	<input type="checkbox"/>
MaturityDate	20070703	<input type="checkbox"/>
CallPutFlag	C	<input type="checkbox"/>
Style		<input type="checkbox"/>
NoUnderlyingSecurities	1	<input type="checkbox"/>
UnderlyingSecurityCode	100	<input type="checkbox"/>
UnderlyingSecurityWeight	0.000	<input type="checkbox"/>

Test case 8: Interpretation of Securities Definition (message type: 11) for Basket Warrant

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00199	<input type="checkbox"/>
MarketCode	MAIN	<input type="checkbox"/>
ISINCode		<input type="checkbox"/>

InstrumentType	BWRT	<input type="checkbox"/>
SpreadTableCode	01	<input type="checkbox"/>
SecurityShortName	STOCK 199	<input type="checkbox"/>
CurrencyCode	HKD	<input type="checkbox"/>
SecurityNameGCCS		<input type="checkbox"/>
SecurityNameGB		<input type="checkbox"/>
LotSize	100	<input type="checkbox"/>
PreviousClosingPrice	12.100	<input type="checkbox"/>
ShortSellFlag	N	<input type="checkbox"/>
CCASSFlag	Y	<input type="checkbox"/>
DummySecurityFlag	N	<input type="checkbox"/>
TestSecurityFlag	N	<input type="checkbox"/>
StampDutyFlag	Y	<input type="checkbox"/>
ListingDate	20080101	<input type="checkbox"/>
DelistingDate	0	<input type="checkbox"/>
FreeText		<input type="checkbox"/>
EFNFlag	N/A	
AccruedInterest	N/A	
CouponRate	N/A	
ConversionRatio	0.000	<input type="checkbox"/>
StrikePrice	0.000	<input type="checkbox"/>
MaturityDate	0	<input type="checkbox"/>
CallPutFlag	C	<input type="checkbox"/>
Style	A	<input type="checkbox"/>
NoUnderlyingSecurities	3	<input type="checkbox"/>
UnderlyingSecurityCode (1)	00200	<input type="checkbox"/>
UnderlyingSecurityWeight (1)	0.350	<input type="checkbox"/>
UnderlyingSecurityCode (2)	00210	<input type="checkbox"/>
UnderlyingSecurityWeight (2)	2.500	<input type="checkbox"/>
UnderlyingSecurityCode (3)	00232	<input type="checkbox"/>
UnderlyingSecurityWeight (3)	0.500	<input type="checkbox"/>

Test case 9: Interpretation of Securities Definition (message type: 11) for Trust

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	04362	<input type="checkbox"/>
MarketCode	ETS	<input type="checkbox"/>
ISINCode	US4642867729	<input type="checkbox"/>
InstrumentType	TRST	<input type="checkbox"/>
SpreadTableCode	01	<input type="checkbox"/>
SecurityShortName	ISHARES KOR-TR	<input type="checkbox"/>

CurrencyCode	USD	<input type="checkbox"/>
SecurityNameGCCS	I S 南韓基金 T R	<input type="checkbox"/>
SecurityNameGB	I S 南韓基金 T R	<input type="checkbox"/>
LotSize	1000	<input type="checkbox"/>
PreviousClosingPrice	0.047	<input type="checkbox"/>
ShortSellFlag	Y	<input type="checkbox"/>
CCASSFlag	Y	<input type="checkbox"/>
DummySecurityFlag	N	<input type="checkbox"/>
TestSecurityFlag	N	<input type="checkbox"/>
StampDutyFlag	N	<input type="checkbox"/>
ListingDate	20010502	<input type="checkbox"/>
DelistingDate	0	<input type="checkbox"/>
FreeText	US LAST SALE PRICE US\$	<input type="checkbox"/>
EFNFlag	N/A	
AccruedInterest	N/A	
CouponRate	N/A	
ConversionRatio	N/A	
StrikePrice	N/A	
MaturityDate	N/A	
CallPutFlag	N/A	
Style	N/A	
NoUnderlyingSecurities	N/A	
UnderlyingSecurityCode	N/A	
UnderlyingSecurityWeight	N/A	

Test case 10: Interpretation of Nominal Price (message type: 40)

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00003	<input type="checkbox"/>
Nominal Price	17.820	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00008	<input type="checkbox"/>
Nominal Price	5.640	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00014	<input type="checkbox"/>
Nominal Price	23.350	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00020	<input type="checkbox"/>
Nominal Price	65.500	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00023	<input type="checkbox"/>
Nominal Price	100.700	<input type="checkbox"/>
OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00024	<input type="checkbox"/>
Nominal Price	17.040	<input type="checkbox"/>
OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00025	<input type="checkbox"/>
Nominal Price	7.720	<input type="checkbox"/>
OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00028	<input type="checkbox"/>
Nominal Price	46.850	<input type="checkbox"/>
OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00030	<input type="checkbox"/>
Nominal Price	14.360	<input type="checkbox"/>
OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00037	<input type="checkbox"/>
Nominal Price	2.900	<input type="checkbox"/>
OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00038	<input type="checkbox"/>
Nominal Price	12.400	<input type="checkbox"/>
OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00270	<input type="checkbox"/>
Nominal Price	5.890	<input type="checkbox"/>

Test case 11: Interpretation of Closing Price (message type: 62)

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00003	<input type="checkbox"/>
ClosingPrice	17.820	<input type="checkbox"/>
OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00008	<input type="checkbox"/>
ClosingPrice	5.640	<input type="checkbox"/>
OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00014	<input type="checkbox"/>
ClosingPrice	23.350	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
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SecurityCode	00020	<input type="checkbox"/>
ClosingPrice	65.500	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
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SecurityCode	00023	<input type="checkbox"/>
ClosingPrice	100.700	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
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SecurityCode	00024	<input type="checkbox"/>
ClosingPrice	17.040	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
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SecurityCode	00025	<input type="checkbox"/>
ClosingPrice	7.720	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
----------------	----------------	--------------------------

SecurityCode	00028	<input type="checkbox"/>
ClosingPrice	46.850	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
----------------	----------------	--------------------------

SecurityCode	00030	<input type="checkbox"/>
ClosingPrice	14.360	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
----------------	----------------	--------------------------

SecurityCode	00037	<input type="checkbox"/>
ClosingPrice	2.900	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
----------------	----------------	--------------------------

SecurityCode	00038	<input type="checkbox"/>
ClosingPrice	12.400	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
----------------	----------------	--------------------------

SecurityCode	00270	<input type="checkbox"/>
ClosingPrice	5.890	<input type="checkbox"/>

Test case 12: Interpretation of Indicative Equilibrium Price (message type: 41)

OMD Field Name	Expected Value	Result (✓ if correct)
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SecurityCode	00003	<input type="checkbox"/>
Price	17.820 (Last IEP before Matching)	<input type="checkbox"/>
AggregateQuantity	10000 (Last IEV before Matching)	<input type="checkbox"/>

Test case 13: Interpretation of Statistics (message type: 60)

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00003	<input type="checkbox"/>
SharesTraded	10000	<input type="checkbox"/>
Turnover	178200.000	<input type="checkbox"/>
HighPrice	0.000	<input type="checkbox"/>
LowPrice	0.000	<input type="checkbox"/>
LastPrice	0.000	<input type="checkbox"/>
VWAP	N/A	<input type="checkbox"/>
ShortSellSharesTraded	0	<input type="checkbox"/>
ShortSellTurnover	0.000	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00008	<input type="checkbox"/>
SharesTraded	11123	<input type="checkbox"/>
Turnover	63514.790	<input type="checkbox"/>
HighPrice	5.730	<input type="checkbox"/>
LowPrice	5.640	<input type="checkbox"/>
LastPrice	5.640	<input type="checkbox"/>
VWAP	N/A	<input type="checkbox"/>
ShortSellSharesTraded	0	<input type="checkbox"/>
ShortSellTurnover	0.000	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00014	<input type="checkbox"/>
SharesTraded	10000	<input type="checkbox"/>
Turnover	233500.000	<input type="checkbox"/>
HighPrice	23.350	<input type="checkbox"/>
LowPrice	23.350	<input type="checkbox"/>
LastPrice	23.350	<input type="checkbox"/>
VWAP	N/A	<input type="checkbox"/>
ShortSellSharesTraded	0	<input type="checkbox"/>
ShortSellTurnover	0.000	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00020	<input type="checkbox"/>
SharesTraded	9000	<input type="checkbox"/>
Turnover	589600.000	<input type="checkbox"/>
HighPrice	0.000	<input type="checkbox"/>

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LowPrice	0.000	<input type="checkbox"/>
LastPrice	0.000	<input type="checkbox"/>
VWAP	N/A	<input type="checkbox"/>
ShortSellSharesTraded	1000	<input type="checkbox"/>
ShortSellTurnover	65550.000	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00051	<input type="checkbox"/>
SharesTraded	34000	<input type="checkbox"/>
Turnover	495400.000	<input type="checkbox"/>
HighPrice	14.600	<input type="checkbox"/>
LowPrice	14.560	<input type="checkbox"/>
LastPrice	14.560	<input type="checkbox"/>
VWAP	N/A	<input type="checkbox"/>
ShortSellSharesTraded	0	<input type="checkbox"/>
ShortSellTurnover	0.000	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00024	<input type="checkbox"/>
SharesTraded	3000	<input type="checkbox"/>
Turnover	51120.000	<input type="checkbox"/>
HighPrice	0.000	<input type="checkbox"/>
LowPrice	0.000	<input type="checkbox"/>
LastPrice	0.000	<input type="checkbox"/>
VWAP	N/A	<input type="checkbox"/>
ShortSellSharesTraded	0	<input type="checkbox"/>
ShortSellTurnover	0.000	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00025	<input type="checkbox"/>
SharesTraded	8000	<input type="checkbox"/>
Turnover	61760.000	<input type="checkbox"/>
HighPrice	7.720	<input type="checkbox"/>
LowPrice	7.720	<input type="checkbox"/>
LastPrice	7.720	<input type="checkbox"/>
VWAP	N/A	<input type="checkbox"/>
ShortSellSharesTraded	0	<input type="checkbox"/>
ShortSellTurnover	0.000	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
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SecurityCode	00270	<input type="checkbox"/>
SharesTraded	1296000	<input type="checkbox"/>
Turnover	7658360.000	<input type="checkbox"/>
HighPrice	5.920	<input type="checkbox"/>
LowPrice	5.890	<input type="checkbox"/>
LastPrice	5.890	<input type="checkbox"/>
VWAP	N/A	<input type="checkbox"/>
ShortSellSharesTraded	0	<input type="checkbox"/>
ShortSellTurnover	0.000	<input type="checkbox"/>

Test case 14: Interpretation of Market Turnover (message type: 61)

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	MAIN	<input type="checkbox"/>
Currency Code		<input type="checkbox"/>
Turnover	95130937052.460	<input type="checkbox"/>

OMD will disseminate the above value as the total market turnover for MAIN in HKD equivalent. Please verify the figure literally only as provided above. (This figure is purely an example. Clients independently converting non-HKD "Market Turnover" messages to accumulate a HKD equivalent turnover for MAIN may obtain a different value, which is not a concern for the purpose of this test case).

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	MAIN	<input type="checkbox"/>
Currency Code	JPY	<input type="checkbox"/>
Turnover	127337600.000	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	MAIN	<input type="checkbox"/>
Currency Code	HKD	<input type="checkbox"/>
Turnover	37180163418.590	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	MAIN	<input type="checkbox"/>
Currency Code	USD	<input type="checkbox"/>
Turnover	78302612.550	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	GEM	<input type="checkbox"/>
Currency Code		<input type="checkbox"/>
Turnover	60858893539.854	<input type="checkbox"/>

OMD will disseminate the above value as the total market turnover for GEM in HKD equivalent. Please verify the figure literally only as provided above. (This figure is purely an example. Clients independently converting non-HKD "Market Turnover" messages to accumulate a HKD equivalent turnover for GEM may obtain a different value, which is not a concern for the purpose of this test case).

OMD Field Name	Expected Value	Result
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		(✓ if correct)
MarketCode	GEM	<input type="checkbox"/>
Currency Code	USD	<input type="checkbox"/>
Turnover	3955193.000	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	GEM	<input type="checkbox"/>
Currency Code	HKD	<input type="checkbox"/>
Turnover	363718705.000	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	ETS	<input type="checkbox"/>
Currency Code		<input type="checkbox"/>
Turnover	71083370401.696	<input type="checkbox"/>

OMD will disseminate the above value as the total market turnover for ETS in HKD equivalent. Please verify the figure literally only as provided above. (This figure is purely an example. Clients independently converting non-HKD "Market Turnover" messages to accumulate a HKD equivalent turnover for ETS may obtain a different value, which is not a concern for the purpose of this test case).

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	ETS	<input type="checkbox"/>
Currency Code	USD	<input type="checkbox"/>
Turnover	4035554.950	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	NASD	<input type="checkbox"/>
Currency Code		<input type="checkbox"/>
Turnover	60366295813.142	<input type="checkbox"/>

OMD will disseminate the above value as the total market turnover for NASD in HKD equivalent. Please verify the figure literally only as provided above. (This figure is purely an example. Clients independently converting non-HKD "Market Turnover" messages to accumulate a HKD equivalent turnover for NASD may obtain a different value, which is not a concern for the purpose of this test case).

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	NASD	<input type="checkbox"/>
Currency Code	JPY	<input type="checkbox"/>
Turnover	107596370.000	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
MarketCode	NASD	<input type="checkbox"/>
Currency Code	HKD	<input type="checkbox"/>
Turnover	110504.450	<input type="checkbox"/>

Test case 15: Interpretation of Yield (message type: 44) for Yield = N/A

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	00270	<input type="checkbox"/>
Yield	0	<input type="checkbox"/>

Test case 16: Interpretation of Liquidity Provider (message type: 13)

OMD Field Name	Expected Value	Result (✓ if correct)
SecurityCode	09001	<input type="checkbox"/>
NoLiquidityProviders	3	<input type="checkbox"/>
LPBrokerNumber (1)	1603	<input type="checkbox"/>
LPBrokerNumber (2)	9500	<input type="checkbox"/>
LPBrokerNumber (3)	9600	<input type="checkbox"/>

Test case 17: Interpretation of News (message type: 22)

OMD Field Name	Expected Value	Result (✓ if correct)
NewsID	001	<input type="checkbox"/>
NewsType	EXN	<input type="checkbox"/>
HeadLine	EXN-The Exchange News	<input type="checkbox"/>
CancelFlag	N	<input type="checkbox"/>
LastFragment	Y	<input type="checkbox"/>
ReleaseTime	13-03-01 15:40:19	<input type="checkbox"/>
NoMarketCode	0	<input type="checkbox"/>
MarketCode		<input type="checkbox"/>
NoSecurityCodes	0	<input type="checkbox"/>
SecurityCode		<input type="checkbox"/>
NoNewsLines	5	<input type="checkbox"/>
NewsLine		<input type="checkbox"/>
NewsLine	Hong Kong Exchanges and Clearing Limited and/or its subsidiaries endeavour	<input type="checkbox"/>
NewsLine	to ensure the accuracy and reliability of the information provided but do	<input type="checkbox"/>
NewsLine	not guarantee its accuracy and reliability and accept no liability	<input type="checkbox"/>
NewsLine	for any loss or damage arising from any inaccuracies or omissions.	<input type="checkbox"/>

OMD Field Name	Expected Value	Result (✓ if correct)
NewsID	004	<input type="checkbox"/>

NewsType	EXC	<input type="checkbox"/>
HeadLine	聯會訊息-全日衍生權證的非自動對盤交易	<input type="checkbox"/>
CancelFlag	N	<input type="checkbox"/>
LastFragment	Y	<input type="checkbox"/>
ReleaseTime	13-03-01 15:40:40	<input type="checkbox"/>
NoMarketCode	1	<input type="checkbox"/>
MarketCode	MAIN	<input type="checkbox"/>
NoSecurityCodes	0	<input type="checkbox"/>
SecurityCode		<input type="checkbox"/>
NoNewsLines	3	<input type="checkbox"/>
NewsLine	於 13/12/2012 日全日之衍生權證的非自動對盤交易〔附註 1〕	<input type="checkbox"/>
NewsLine		<input type="checkbox"/>
NewsLine	NIL	<input type="checkbox"/>

Test case 20: Interpretation of Index Definition (message type: 70) - HSI (For HSI Index Feed Subscribers only)

OMD Field Name	Expected Value	Result (✓ if correct)
IndexCode	0000100	<input type="checkbox"/>
IndexSource	H	<input type="checkbox"/>
CurrencyCode		<input type="checkbox"/>

Test case 21: Interpretation of Index Definition (message type: 70) – S&P (For S&P Index Feed Subscribers only)

OMD Field Name	Expected Value	Result (✓ if correct)
IndexCode	SPHKG	<input type="checkbox"/>
IndexSource	S	<input type="checkbox"/>
CurrencyCode		<input type="checkbox"/>

Test case 22: Interpretation of Index Definition (message type: 70) - CSI (For CSI Index Feed Subscribers only)

OMD Field Name	Expected Value	Result (✓ if correct)
IndexCode	CSI300	<input type="checkbox"/>
IndexSource	C	<input type="checkbox"/>
CurrencyCode	CNY	<input type="checkbox"/>

Test case 23: Interpretation of Index Data (message type: 71) – Closing value (For HSI Index Feed Subscribers only)

OMD Field Name	Expected Value	Result (✓ if correct)
IndexCode	0000100	<input type="checkbox"/>
IndexStatus	C	<input type="checkbox"/>

IndexTime	13-03-01 16:01:16	<input type="checkbox"/>
IndexValue	18653.5800	<input type="checkbox"/>
NetChgPrevDay	132.2500	<input type="checkbox"/>
HighValue	18820.7700	<input type="checkbox"/>
LowValue	18597.4600	<input type="checkbox"/>
EASValue	18720.99	<input type="checkbox"/>
IndexTurnover	18282713900.0000	<input type="checkbox"/>
OpeningValue	18800.0300	<input type="checkbox"/>
ClosingValue	18652.7800	<input type="checkbox"/>
PreviousSesClose	18757.2500	<input type="checkbox"/>
IndexVolume	N/A	
NetChgPrevDayPct	0.7100	<input type="checkbox"/>
Exception		<input type="checkbox"/>

Test case 24: Interpretation of Index Data (message type: 71) – Closing value (For S&P Index Feed Subscribers only)

OMD Field Name	Expected Value	Result (✓ if correct)
IndexCode	SPHKG	<input type="checkbox"/>
IndexStatus	C	<input type="checkbox"/>
IndexTime	13-03-01 21:01:35	<input type="checkbox"/>
IndexValue	788.1900	<input type="checkbox"/>
NetChgPrevDay	4.2400	<input type="checkbox"/>
HighValue	789.8800	<input type="checkbox"/>
LowValue	782.5600	<input type="checkbox"/>
EASValue	N/A	
IndexTurnover	N/A	
OpeningValue	783.3700	<input type="checkbox"/>
ClosingValue	788.8500	<input type="checkbox"/>
PreviousSesClose	784.6100	<input type="checkbox"/>
IndexVolume	N/A	
NetChgPrevDayPct	0.5400	<input type="checkbox"/>
Exception		<input type="checkbox"/>

Test case 25: Interpretation of Index Data (message type: 71) – Closing value (For CSI Index Feed Subscribers only)

OMD Field Name	Expected Value	Result (✓ if correct)
IndexCode	CSI300	<input type="checkbox"/>
IndexStatus		<input type="checkbox"/>
IndexTime	12-12-28 16:29:51	<input type="checkbox"/>
IndexValue	2480.0490	<input type="checkbox"/>
NetChgPrevDay	35.4550	<input type="checkbox"/>

HighValue	2481.5920	<input type="checkbox"/>
LowValue	2444.3810	<input type="checkbox"/>
EASValue	N/A	
IndexTurnover	66053288179.0000	<input type="checkbox"/>
OpeningValue	2448.0760	<input type="checkbox"/>
ClosingValue	2480.0490	<input type="checkbox"/>
PreviousSesClose	2444.5940	<input type="checkbox"/>
IndexVolume	6716632100	<input type="checkbox"/>
NetChgPrevDayPct	1.4500	<input type="checkbox"/>
Exception		<input type="checkbox"/>

Part B – Order Book Building

During the same session as Part A, MMDH On-boarding Tool disseminates Order Book messages including Add/Delete Odd Lot Order (for odd lot order subscriber), Aggregate Order Book Update and Broker Queue with various order activities. The aggregated order book for the top 10 best bid and offers, or “10BBO”, as at the end of the data transmission is provided for each of the cases below. Clients can verify the respective order book recorded in their systems against the expected results provided.

Test case 1:

Full Odd-Lot Order Book (For Odd Lot Order Subscribers only)

Buy				Sell				Test Security: 00008
Order ID	Broker ID	Quantity	Price	Price	Quantity	Broker ID	Order ID	Result (✓ if correct)
141138	1230	234	5.720					<input type="checkbox"/>
144034	1230	134	5.710					<input type="checkbox"/>
				5.740	345	1230	147906	<input type="checkbox"/>
				5.750	456	1230	149826	<input type="checkbox"/>

10BBOs

Buy				Sell				Test Security: 00008
No. of Orders	Aggregated Quantity	Price	Price Level	Price Level	Price	Aggregated Quantity	No. of Orders	Result (✓ if correct)
1	1000	5.630	1					<input type="checkbox"/>
1	1000	5.620	2					<input type="checkbox"/>
1	2000	5.610	3					<input type="checkbox"/>
1	1000	5.600	4					<input type="checkbox"/>
				1	5.640	2000	1	<input type="checkbox"/>

Broker Queue

Buy		Sell		Test Security: 00008
Broker ID	Broker ID	Broker ID	Broker ID	Result (✓ if correct)
1230				<input type="checkbox"/>
(1)				<input type="checkbox"/>
1230				<input type="checkbox"/>
(2)				<input type="checkbox"/>
1230				<input type="checkbox"/>
(3)				<input type="checkbox"/>
1230				<input type="checkbox"/>
		3896		<input type="checkbox"/>
		(1)		<input type="checkbox"/>
		0		<input type="checkbox"/>
		(2)		<input type="checkbox"/>
		0		<input type="checkbox"/>
		(3)		<input type="checkbox"/>
		0		<input type="checkbox"/>
		(4)		<input type="checkbox"/>
		0		<input type="checkbox"/>

	(5)	<input type="checkbox"/>
	0	<input type="checkbox"/>
	(6)	<input type="checkbox"/>
	0	<input type="checkbox"/>
	(7)	<input type="checkbox"/>
	0	<input type="checkbox"/>
	(8)	<input type="checkbox"/>
	0	<input type="checkbox"/>
	(9)	<input type="checkbox"/>
	0	<input type="checkbox"/>
	(10)	<input type="checkbox"/>
	1230	<input type="checkbox"/>
	(11)	<input type="checkbox"/>
	1230	<input type="checkbox"/>
	(12)	<input type="checkbox"/>
	1230	<input type="checkbox"/>
	(13)	<input type="checkbox"/>
	1230	<input type="checkbox"/>

Trade Tickers

Trade Time	Ticker ID	Trade Type	Price	Quantity	Cancel (Yes or No)	Result (✓ if correct)
13-03-01 14:43:02	1	100	5.730	4000	N	<input type="checkbox"/>
13-03-01 14:43:02	2	0	5.730	6000	N	<input type="checkbox"/>
13-03-01 14:43:02	3	0	5.700	1000	N	<input type="checkbox"/>
13-03-01 14:43:02	4	0	5.680	2000	N	<input type="checkbox"/>
13-03-01 14:43:02	5	0	5.640	1000	N	<input type="checkbox"/>
N/A	2	0	5.730	3000	Y	<input type="checkbox"/>
13-03-01 14:52:09	6	102	5.730	123	N	<input type="checkbox"/>

Test case 2:

Full Odd-Lot Order Book (For Odd Lot Order Subscribers only)

Buy				Sell				Test Security: 00003
Order ID	Broker ID	Quantity	Price	Price	Quantity	Broker ID	Order ID	Result (✓ if correct)
Empty Book				Empty Book				<input type="checkbox"/>
Empty Book				Empty Book				<input type="checkbox"/>

10BBOs

Buy				Sell				Test Security: 00003
No. of Orders	Aggregated Quantity	Price	Price Level	Price Level	Price	Aggregated Quantity	No. of Orders	Result (✓ if correct)
1	2000	17.800	1					<input type="checkbox"/>
				1	17.820	4000	1	<input type="checkbox"/>
				2	17.840	4000	3	<input type="checkbox"/>
				3	17.860	2000	1	<input type="checkbox"/>
				4	17.880	1000	1	<input type="checkbox"/>

Broker Queue

Buy		Sell		Test Security: 00003
Broker ID		Broker ID		Result (✓ if correct)
3896				<input type="checkbox"/>
		3896		<input type="checkbox"/>
		(1)		<input type="checkbox"/>
		3896		<input type="checkbox"/>
		3896		<input type="checkbox"/>
		3896		<input type="checkbox"/>
		(2)		<input type="checkbox"/>
		3896		<input type="checkbox"/>
		(3)		<input type="checkbox"/>
		3896		<input type="checkbox"/>

Trade Tickers

Trade Time	Ticker ID	Trade Type	Price	Aggregated Quantity	Cancel (Yes or No)	Result (✓ if correct)
13-03-01 14:20:01	1	103	17.820	10000	N	<input type="checkbox"/>

Test case 3:

Full Odd-Lot Order Book (For Odd Lot Order Subscribers only)

Buy				Sell				Test Security: 00030
Order ID	Broker ID	Quantity	Price	Price	Quantity	Broker ID	Order ID	Result (✓ if correct)
Empty Book								<input type="checkbox"/>
				Empty Book				<input type="checkbox"/>

10BBOs

Buy				Sell				Test Security: 00030
No. of Orders	Aggregated Quantity	Price	Price Level	Price Level	Price	Aggregated Quantity	No. of Orders	Result (✓ if correct)
3	6000	14.360	1					<input type="checkbox"/>
				1	14.380	3000	1	<input type="checkbox"/>
				2	14.400	219000	40	<input type="checkbox"/>

Broker Queue

Buy		Sell		Test Security: 00030
Broker ID		Broker ID		Result (✓ if correct)
0169				<input type="checkbox"/>
0169				<input type="checkbox"/>
0169				<input type="checkbox"/>
		0169		<input type="checkbox"/>
		(1)		<input type="checkbox"/>
		0169		<input type="checkbox"/>

	0169	<input type="checkbox"/>
	0169	<input type="checkbox"/>
	0169	<input type="checkbox"/>
	0169	<input type="checkbox"/>
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	0169	<input type="checkbox"/>
	0169	<input type="checkbox"/>

Trade Tickers

Trade Time	Ticker ID	Trade Type	Price	Aggregated Quantity	Cancel (Yes or No)	Result (✓ if correct)
No Trade Ticker						<input type="checkbox"/>

Test case 4:

Full Odd-Lot Order Book (For Odd Lot Order Subscribers only)

Buy				Sell				Test Security: 00032
Order ID	Broker ID	Quantity	Price	Price	Quantity	Broker ID	Order ID	Result (✓ if correct)
Empty Book								<input type="checkbox"/>

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	Empty Book	<input type="checkbox"/>
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10BBOs

Buy				Sell				Test Security: 00032
No. of Orders	Aggregated Quantity	Price	Price Level	Price Level	Price	Aggregated Quantity	No. of Orders	Result (✓ if correct)
Empty Book								<input type="checkbox"/>
				1	3.380	220000	40	<input type="checkbox"/>

Broker Queue

Buy		Test Security: 00032
Broker ID	Broker ID	Result (✓ if correct)
Empty Broker Queue		<input type="checkbox"/>
	0169	<input type="checkbox"/>
	0169	<input type="checkbox"/>
	0169	<input type="checkbox"/>
	0169	<input type="checkbox"/>
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	0169	<input type="checkbox"/>

Trade Tickers

Trade Time	Ticker ID	Trade Type	Price	Quantity	Cancel (Yes or No)	Result (✓ if correct)
No Trade Ticker						<input type="checkbox"/>

Test case 5:

Full Odd-Lot Order Book (For Odd Lot Order Subscribers only)

Buy				Sell				Test Security: 00025
Order ID	Broker ID	Quantity	Price	Price	Quantity	Broker ID	Order ID	Result (✓ if correct)
Empty Book								<input type="checkbox"/>
				Empty Book				<input type="checkbox"/>

10BBOs

Buy				Sell				Test Security: 00025
No. of Orders	Aggregated Quantity	Price	Price Level	Price Level	Price	Aggregated Quantity	No. of Orders	Result (✓ if correct)
Empty Book								<input type="checkbox"/>
				Empty Book				<input type="checkbox"/>

Broker Queue

Buy				Sell				Test Security: 00025
Broker ID				Broker ID				Result (✓ if correct)
Empty Broker Queue								<input type="checkbox"/>
				Empty Broker Queue				<input type="checkbox"/>

Trade Tickers

Trade Time	Ticker ID	Trade Type	Price	Aggregated Quantity	Cancel (Yes or No)	Result (✓ if correct)
13-03-01 15:31:22	1	100	7.720	5000	N	<input type="checkbox"/>
13-03-01 15:31:22	2	0	7.720	3000	N	<input type="checkbox"/>

Test case 6:

Full Odd-Lot Order Book (For Odd Lot Order Subscribers only)

Buy				Sell				Test Security: 00014
Order ID	Broker ID	Quantity	Price	Price	Quantity	Broker ID	Order ID	Result (✓ if correct)

Empty Book		<input type="checkbox"/>
	Empty Book	<input type="checkbox"/>

10BBOs

Buy				Sell				Test Security: 00014
No. of Orders	Aggregated Quantity	Price	Price Level	Price Level	Price	Aggregated Quantity	No. of Orders	Result (✓ if correct)
1	1000	23.200	1					<input type="checkbox"/>
1	2000	23.150	2					<input type="checkbox"/>
1	1000	22.950	3					<input type="checkbox"/>
1	1000	22.900	4					<input type="checkbox"/>
1	1000	22.850	5					<input type="checkbox"/>
1	2000	22.800	6					<input type="checkbox"/>
1	1000	22.750	7					<input type="checkbox"/>
				1	23.400	3000	1	<input type="checkbox"/>
				2	23.450	3000	1	<input type="checkbox"/>
				3	23.500	1000	1	<input type="checkbox"/>
				4	23.550	1000	1	<input type="checkbox"/>

Broker Queue

Buy		Sell		Test Security: 00014
Broker ID		Broker ID		Result (✓ if correct)
0169				<input type="checkbox"/>
(1)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(2)				<input type="checkbox"/>
0				<input type="checkbox"/>
(3)				<input type="checkbox"/>
0				<input type="checkbox"/>
(4)				<input type="checkbox"/>
0				<input type="checkbox"/>
(5)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(6)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(7)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(8)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(9)				<input type="checkbox"/>
0169				<input type="checkbox"/>
		0169		<input type="checkbox"/>
		(1)		<input type="checkbox"/>
		0169		<input type="checkbox"/>
		(2)		<input type="checkbox"/>
		0169		<input type="checkbox"/>
		(3)		<input type="checkbox"/>
		0169		<input type="checkbox"/>

Trade Tickers

Trade Time	Ticker ID	Trade Type	Price	Aggregated Quantity	Cancel (Yes or No)	Result (✓ if correct)
13-03-01 15:16:52	1	100	23.350	4000	N	<input type="checkbox"/>
13-03-01 15:16:52	2	0	23.350	6000	N	<input type="checkbox"/>

Test case 7:

Full Odd-Lot Order Book (For Odd Lot Order Subscribers only)

Buy				Sell				Test Security: 00023
Order ID	Broker ID	Quantity	Price	Price	Quantity	Broker ID	Order ID	Result (✓ if correct)
Empty Book								<input type="checkbox"/>
				Empty Book				<input type="checkbox"/>

10BBOs

Buy				Sell				Test Security: 00023
No. of Orders	Aggregated Quantity	Price	Price Level	Price Level	Price	Aggregated Quantity	No. of Orders	Result (✓ if correct)
1	3000	100.700	1					<input type="checkbox"/>
1	1000	100.200	2					<input type="checkbox"/>
				Empty Book				<input type="checkbox"/>

Broker Queue

Buy		Sell		Test Security: 00023
Broker ID		Broker ID		Result (✓ if correct)
0169				<input type="checkbox"/>
(1)				<input type="checkbox"/>
0				<input type="checkbox"/>
(2)				<input type="checkbox"/>
0				<input type="checkbox"/>
(3)				<input type="checkbox"/>
0				<input type="checkbox"/>
(4)				<input type="checkbox"/>
0				<input type="checkbox"/>
(5)				<input type="checkbox"/>
0169				<input type="checkbox"/>
		Empty Broker Queue		<input type="checkbox"/>

Trade Tickers

Trade Time	Ticker ID	Trade Type	Price	Aggregated Quantity	Cancel (Yes or No)	Result (✓ if correct)
No Trade Ticker						<input type="checkbox"/>

Test case 8:

Full Odd-Lot Order Book (For Odd Lot Order Subscribers only)

Buy				Sell				Test Security: 00024
Order ID	Broker ID	Quantity	Price	Price	Quantity	Broker ID	Order ID	Result (✓ if correct)
Empty Book								<input type="checkbox"/>
				Empty Book				<input type="checkbox"/>

10BBOs

Buy				Sell				Test Security: 00024
No. of Orders	Aggregated Quantity	Price	Price Level	Price Level	Price	Aggregated Quantity	No. of Orders	Result (✓ if correct)
1	2000	17.020	1					<input type="checkbox"/>
1	1000	16.840	2					<input type="checkbox"/>
				Empty Book				<input type="checkbox"/>

Broker Queue

Buy		Sell		Test Security: 00024
Broker ID		Broker ID		Result (✓ if correct)
0169				<input type="checkbox"/>
(1)				<input type="checkbox"/>
0				<input type="checkbox"/>
(2)				<input type="checkbox"/>
0				<input type="checkbox"/>
(3)				<input type="checkbox"/>
0				<input type="checkbox"/>
(4)				<input type="checkbox"/>
0				<input type="checkbox"/>
(5)				<input type="checkbox"/>
0				<input type="checkbox"/>
(6)				<input type="checkbox"/>
0				<input type="checkbox"/>
(7)				<input type="checkbox"/>
0				<input type="checkbox"/>
(8)				<input type="checkbox"/>
0				<input type="checkbox"/>
(9)				<input type="checkbox"/>
0169				<input type="checkbox"/>
		Empty Broker Queue		<input type="checkbox"/>

Trade Tickers

Trade Time	Ticker ID	Trade Type	Price	Aggregated Quantity	Cancel (Yes or No)	Result (✓ if correct)
13-03-01 15:28:20	1	100	17.040	3000	N	<input type="checkbox"/>

Test case 9:

Full Odd-Lot Order Book (For Odd Lot Order Subscribers only)

Buy				Sell				Test Security: 00028
Order ID	Broker ID	Quantity	Price	Price	Quantity	Broker ID	Order ID	Result (✓ if correct)
Empty Book								<input type="checkbox"/>
				Empty Book				<input type="checkbox"/>

10BBOs

Buy				Sell				Test Security: 00028
No. of Orders	Aggregated Quantity	Price	Price Level	Price Level	Price	Aggregated Quantity	No. of Orders	Result (✓ if correct)
1	2000	46.850	1					<input type="checkbox"/>
1	3000	46.800	2					<input type="checkbox"/>
1	4000	46.750	3					<input type="checkbox"/>
1	3000	46.700	4					<input type="checkbox"/>
1	1000	46.650	5					<input type="checkbox"/>
1	2000	46.600	6					<input type="checkbox"/>
1	1000	46.550	7					<input type="checkbox"/>
1	1000	46.500	8					<input type="checkbox"/>
1	1000	46.400	9					<input type="checkbox"/>
				Empty Book				<input type="checkbox"/>

Broker Queue

Buy		Sell		Test Security: 00028
Broker ID		Broker ID		Result (✓ if correct)
0169				<input type="checkbox"/>
(1)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(2)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(3)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(4)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(5)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(6)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(7)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(8)				<input type="checkbox"/>
0				<input type="checkbox"/>
(9)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(10)				<input type="checkbox"/>
0169				<input type="checkbox"/>
(11)				<input type="checkbox"/>

0169		<input type="checkbox"/>
	Empty Broker Queue	<input type="checkbox"/>

Trade Tickers

Trade Time	Ticker ID	Trade Type	Price	Aggregated Quantity	Cancel (Yes or No)	Result (✓ if correct)
No Trade Ticker						<input type="checkbox"/>

Test case 10:

Full Odd-Lot Order Book (For Odd Lot Order Subscribers only)

Buy				Sell				Test Security: 00017
Order ID	Broker ID	Quantity	Price	Price	Quantity	Broker ID	Order ID	Result (✓ if correct)
Empty Book								<input type="checkbox"/>
				Empty Book				<input type="checkbox"/>

10BBOs

Buy				Sell				Test Security: 00017
No. of Orders	Aggregated Quantity	Price	Price Level	Price Level	Price	Aggregated Quantity	No. of Orders	Result (✓ if correct)
1	1000	4.810	1					<input type="checkbox"/>
1	3000	4.800	2					<input type="checkbox"/>
1	3000	4.750	3					<input type="checkbox"/>
				Empty Book				<input type="checkbox"/>

Broker Queue

Buy		Sell		Test Security: 00017
Broker ID		Broker ID		Result (✓ if correct)
1230				<input type="checkbox"/>
(1)				<input type="checkbox"/>
1230				<input type="checkbox"/>
(2)				<input type="checkbox"/>
0				<input type="checkbox"/>
(3)				<input type="checkbox"/>
0				<input type="checkbox"/>
(4)				<input type="checkbox"/>
0				<input type="checkbox"/>
(5)				<input type="checkbox"/>
0				<input type="checkbox"/>
(6)				<input type="checkbox"/>
1230				<input type="checkbox"/>
(7)				<input type="checkbox"/>
0				<input type="checkbox"/>
(8)				<input type="checkbox"/>
0				<input type="checkbox"/>
(9)				<input type="checkbox"/>

0		<input type="checkbox"/>
(10)		<input type="checkbox"/>
1230		<input type="checkbox"/>
	Empty Broker Queue	<input type="checkbox"/>

Trade Tickers

Trade Time	Ticker ID	Trade Type	Price	Aggregated Quantity	Cancel (Yes or No)	Result (✓ if correct)
No Trade Ticker						<input type="checkbox"/>

Test case 11:

Full Odd-Lot Order Book (For Odd Lot Order Subscribers only)

Buy				Sell				Test Security: 00051
Order ID	Broker ID	Quantity	Price	Price	Quantity	Broker ID	Order ID	Result (✓ if correct)
Empty Book								<input type="checkbox"/>
				Empty Book				<input type="checkbox"/>

10BBOs

Buy				Sell				Test Security: 00051
No. of Orders	Aggregated Quantity	Price	Price Level	Price Level	Price	Aggregated Quantity	No. of Orders	Result (✓ if correct)
				14.580	1	1000	1	<input type="checkbox"/>
				14.600	2	18000	4	<input type="checkbox"/>
				14.620	3	23000	2	<input type="checkbox"/>
Empty Book								<input type="checkbox"/>

Broker Queue

Buy		Sell		Test Security: 00051
Broker ID		Broker ID		Result (✓ if correct)
		3895		<input type="checkbox"/>
		(1)		<input type="checkbox"/>
		3312		<input type="checkbox"/>
		0110		<input type="checkbox"/>
		0110		<input type="checkbox"/>
		3312		<input type="checkbox"/>
		(2)		<input type="checkbox"/>
		0110		<input type="checkbox"/>
		0110		<input type="checkbox"/>
Empty Broker Queue				<input type="checkbox"/>

Trade Tickers

Trade Time	Ticker ID	Trade Type	Price	Aggregated Quantity	Cancel (Yes or No)	Result (✓ if correct)
13-03-01 14:31:00	1	0	14.600	2000	N	<input type="checkbox"/>
13-03-01 14:34:17	2	0	14.600	2000	N	<input type="checkbox"/>

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13-03-01 14:54:28	3	0	14.580	1000	N	<input type="checkbox"/>
13-03-01 14:55:54	4	100	14.580	9000	N	<input type="checkbox"/>
13-03-01 14:57:03	5	0	14.560	4000	N	<input type="checkbox"/>
13-03-01 14:57:46	6	0	14.560	3000	N	<input type="checkbox"/>
13-03-01 14:58:29	7	0	14.560	4000	N	<input type="checkbox"/>
13-03-01 14:59:14	8	100	14.560	1000	N	<input type="checkbox"/>
13-03-01 15:00:28	9	100	14.560	11000	N	<input type="checkbox"/>
13-03-01 15:01:25	10	100	14.560	2000	N	<input type="checkbox"/>
N/A	9	0	14.560	8000	Y	<input type="checkbox"/>
N/A	10	0	14.560	0	Y	<input type="checkbox"/>

* * * End of Test * * *