HISTORICAL FULL BOOK (SECURITIES MARKET)

Update History

No.	Issue Date	Details
1	2013-09-30	First Issue
2	2016-07-08	Revised Edition with the following updates, with effect from the issue of 25 July 2016: • Section 1.2 – Introduce two fields “VCM Flag” and “CAS Flag” in Securities Definition – Add new possible value “O” for others for the data field CallPutFlag in addition to the existing possible values “C” for Call and “P” for Put – Format change to Security Definition (11) message to insert a number of fillers inside the message • Section 2.1 – New field values for new trading sessions in CAS • Section 3.7 – Add new VCM Trigger (23) message • Section 3.8 – Add new Reference Price (43) message • Section 3.9 – Add new Order Imbalance (56) message
3	2018-01-22	Revised Edition with the following updates, with effect from the issue of 05 February 2018: • Section 2 - Remove Security Status (21) message - Rename section name • Section 3 - Add Security Status (21) message • Section Overview, 3, 4 - Update content description for files
4	2018-04-20	Revised Edition with the following updates, with effect from the issue of 30 April 2018: • Section 1.2 a) Replace reserved fillers with new reference data: o Product Type; o Upper Strike Price; o Warrant Type; o Call Price; o Entitlement; and o Number of Warrants per Entitlement b) Revise description of existing attributes to reflect the enlarged coverage after the enrichment o Conversion Ratio o Style c) Replace obsolete data fields with fillers o Test Security Flag o Underlying Security Weight d) Remove reference to basket warrants e) Change all references to “market” to “market segment” • Section 1.1 a) Change all references to “market” to “market segment” • Section 2.1 a) Change all references to “market” to “market segment” b) Replace obsolete Trading Session ID with filler • Section 3.1 a) Update reference to Public trade type

5	2019-06-24	Revised Edition with the following updates, with effect from the issue of 15 July 2019: • Section 1.2 - Added value 15 – Inline warrants for ProductType field
6	2019-12-24	Revised Edition with the following update, with effect from the issue of 10 February 2020: • Section 1.2 - Added value 04 – Inline Warrants for SpreadTableCode field - Added value 05 – Part D for SpreadTableCode field

The Historical Full Book includes 4 types of information – (1) Securities Reference data, (2) Trading Session Status data, (3) Securities Full Order Book data and (4) Securities Market Odd Lot Order data. Please refer to the below sub-sections for the details of the 4 types of information.

The following table lists out the data files to be found in each issue:

File Name	Contents
MC01_All_YYYYMMDD	Securities Reference
MC02_All_YYYYMMDD	Trading Session Status
MC30_All_YYYYMMDD	Securities Full Order Book file for stock group #1
MC31_All_YYYYMMDD	Securities Full Order Book file for stock group #2
MC32_All_YYYYMMDD	Securities Full Order Book file for stock group #3
MC33_All_YYYYMMDD	Securities Full Order Book file for stock group #4
MC34_All_YYYYMMDD	Securities Full Order Book file for stock group #5
MC35_All_YYYYMMDD	Securities Full Order Book file for stock group #6
MC36_All_YYYYMMDD	Securities Full Order Book file for stock group #7
MC37_All_YYYYMMDD	Securities Full Order Book file for stock group #8
MC38_All_YYYYMMDD	Securities Full Order Book file for stock group #9
MC70_All_YYYYMMDD	Securities Market Odd Lot Order file for stock group #1
MC71_All_YYYYMMDD	Securities Market Odd Lot Order file for stock group #2
MC72_All_YYYYMMDD	Securities Market Odd Lot Order file for stock group #3
MC73_All_YYYYMMDD	Securities Market Odd Lot Order file for stock group #4
MC74_All_YYYYMMDD	Securities Market Odd Lot Order file for stock group #5
MC75_All_YYYYMMDD	Securities Market Odd Lot Order file for stock group #6
MC76_All_YYYYMMDD	Securities Market Odd Lot Order file for stock group #7
MC77_All_YYYYMMDD	Securities Market Odd Lot Order file for stock group #8
MC78_All_YYYYMMDD	Securities Market Odd Lot Order file for stock group #9

1) YYYYMMDD is the date of file

2) If there is no record in the file, a dummy file with zero-length size will be provided.

1. Securities Reference

The Securities Reference file is in binary format and contains four types of messages – ***MarketDefinition***, ***SecurityDefinition***, ***LiquidityProvider*** and ***CurrencyRate***. There is only one Securities Reference file with filename MC01_All_YYYYMMDD, where YYYYMMDD is the date of the Securities Reference file.

The layout of the Securities Reference is as follows:

<RecordLength><PacketHeader><SecuritiesReference>…<RecordLength><PacketHeader><Securities Reference>…<RecordLength><PacketHeader><SecuritiesReference>

Following is the message layout of the ***RecordLength***

Offset	Field	Format	Len	Description
0	RecLen	Uint16	2	Size of the record (including this field)
Total length			2	

Following is the message layout of the ***PacketHeader***

Offset	Field	Format	Len	Description
0	PktSize	Uint16	2	Size of the packet (including this field)
2	MsgCount	Uint8	1	Number of messages included in the packet
3	Filler	String	1	
4	SeqNum	Uint32	4	Sequence number of the first message in the packet
8	SendTime	Uint64	8	The number of nanoseconds since *January 1*, 1970, *00:00:00 GMT*, precision is provided to the nearest millisecond.
Total length			16	

<SecuritiesReference> contains different combinations of the four types of messages – ***MarketDefinition***, ***SecurityDefinition***, ***LiquidityProvider*** and ***CurrencyRate.*** For example:

<MarketDefinition><SecurityDefinition><LiquidityProvider><CurrencyRate> or
<SecurityDefinition><SecurityDefinition><SecurityDefinition><SecurityDefinition>

Followings are the message layouts of the ***MarketDefinition***, ***SecurityDefinition***, ***LiquidityProvider*** and ***CurrencyRate***

1.1 Market Definition (10)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	**10** Market Definition
4	MarketCode	String	4	Market segment identifier	**MAIN** **GEM** **NASD** **ETS**
8	MarketName	String	25	Market Name	Alphanumerical
33	CurrencyCode	String	3	Base currency code of the market segment.	
36	NumberOfSecurities	Uint32	4	Number of securities within the market segment	
Total Length			40		

1.2 Security Definition (11)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	**11** Security Definition
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values **1** – **99999**

Offset	Field	Format	Len	Description	Values
8	MarketCode	String	4	Market segment identifier	**MAIN** **GEM** **NASD** **ETS**
12	ISINCode	String	12	ISIN code of the security.	
24	InstrumentType	String	4	Instrument type of the security.	**BOND** Bonds **EQTY** Equities **TRST** Trusts **WRNT** Warrants & structured products
28	ProductType	Uint8	1	Product type of the security	**1** Equity – Ordinary Shares **2** Equity – Preference Shares **7** Equity – Depository Receipt (HDR) – Ordinary Shares **12** Equity – Depository Receipt (HDR) – Preference Shares **6** Equity – Rights **13** Warrant – Equity Warrant **3** Warrant – Derivative Warrant (DW) **14** Warrant – Equity Linked Instrument (ELI) **11** Warrant – Callable Bull/Bear Contract (CBBC) **15** Inline warrants **4** Bond – Debt Security **5** Trust – Exchange Traded Fund (ETF) **8** Trust – Real Estate Investment Trust (REIT) **9** Trust – Other Unit Trusts **10** Trust – Leveraged and Inverse Product (LIP) **99** Others – None of the above
29	Filler	String	1		
30	SpreadTableCode	String	2	Spread table code of the security.	Spread table as per Second Schedule of Rules of the Exchange: **01** Part A **03** Part B **04** Inline Warrants **05** Part D
32	SecurityShortName	String	40	Security short name	
72	CurrencyCode	String	3	Security currency code of the market.	
75	SecurityNameGCCS	Binary	60	Security name in Traditional Chinese using Unicode	**Unicode UTF-16LE encoded**
135	SecurityNameGB	Binary	60	Security name in Simplified Chinese using Unicode	**Unicode UTF-16LE encoded**
195	LotSize	Uint32	4	Board lot size for the security	
199	Filler	String	4		

Offset	Field	Format	Len	Description	Values
203	PreviousClosingPrice	Int32	4	Previous closing price of the security	3 implied decimal places
207	VCMFlag	String	1	Indicates whether Volatility Control Mechanism (VCM) is applicable to the security	Y VCM applicable N VCM not applicable
208	ShortSellFlag	String	1	Indicator for short-sell authorization.	Y Short-sell allowed N Short-sell not allowed
209	CASFlag	String	1	Indicates whether Closing Auction Session (CAS) is applicable to the security	Y CAS applicable N CAS not applicable
210	CCASSFlag	String	1	Indicates whether or not the security is a CCASS security	Y CCASS security N Non CCASS security
211	DummySecurityFlag	String	1	Dummy Security Flag.	Y Dummy security N Normal security
212	Filler	String	1		
213	StampDutyFlag	String	1	Indicator for stamp duty requirement	Y Stamp duty required N Stamp duty not required
214	Filler	String	1		
215	ListingDate	Uint32	4	Date of security listing	The representation is YYYYMMDD Value is 19000101 for unknown listing date
219	DelistingDate	Uint32	4	Date of security delisting	The representation is YYYYMMDD. Value is 0 if no date exists.
223	FreeText	String	38	Free text associated to the security	Fixed length array of free text. When there is no free text, spaces will be present instead.
261	Filler	String	82		
Bonds Specific Data					
343	EFNFlag	String	1	EFN Indicator	Y EFN N Non-EFN
344	AccruedInterest	Uint32	4	Accrued interest of the security.	3 implied decimal places
348	CouponRate	Uint32	4	Coupon rate of a bond security	3 implied decimal places
352	Filler	String	42		
Warrants and Structured Product specific data					
394	ConversionRatio	Uint32	4	Conversion ratio for Structured Product	3 implied decimal places
398	StrikePrice1	Int32	4	Strike price of the security if it has only one strike price, or Lower strike price of the security if it has lower and upper strike prices (i.e. upper strike price not = 0)..	3 implied decimal places
402	StrikePrice2	Int32	4	Upper strike price of the security if it has lower and upper strike prices	3 implied decimal places Value is 0 if the securities has only one strike price
406	MaturityDate	Uint32	4	Date of maturity of a warrant or structured security	The representation is YYYYMMDD

Offset	Field	Format	Len	Description	Values
410	CallPutFlag	String	1	Indicator of whether the warrant or structured product is a call or put option	For Derivative Warrants C Call P Put O Others For ELI & CBBC: C Bull P Bear / Rang
411	Style	String	1	Style of the warrant	A American style E European style <blank> Other
412	Filler	String	2		
414	WarrantType	String	1	Warrant type of the warrant	N Normal instrument X Exotic instrument "0" Not available
415	CallPrice	Int32	4	Call price for CBBC	See DecimalsInCallPrice for the number of decimal places defined 0 Not available
419	DecimalsInCallPrice	Uint8	1	Number of decimal places in Call Price	Not applicable if CallPrice = 0
420	Entitlement	Int32	4	Entitlement of the warrant	See DecimalsInEntitlement for the number of decimal places defined 0 Not available
424	DecimalsInEntitlement	Uint8	1	Number of decimal places in Entitlement	Not applicable if Entitlement = 0
425	NoWarrantsPerEntitlement	Uint32	4	Number of warrants per entitlement	Not applicable if Entitlement = 0
429	Filler	String	33		
462	NoUnderlyingSecurities	Uint16	2	Number of underlying security codes within this message	0 for structured product of which the underlying is not a security defined in Security Definition (11) message 1 for structured product of which the underlying is defined in Security Definition (11) message
464	UnderlyingSecurityCode	Uint32	4	5-digit code identifying the underlying security.	
468	Filler	String	4		
Total Length		$464 + 8n_U$			

(n_U = value of NoUnderlyingSecurities)

Note:

(1) PreviousClosingPrice may be set to 0, for example on the first day of listing (no existing previous closing price)

(2) Fields in Bonds Specific Data & Warrants and Structured Product Specific Data should be ignored if they are not applicable to the InstrumentType

1.3 Liquidity Provider (13)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	13 Liquidity Provider

Offset	Field	Format	Len	Description	Values
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values 1 – 99999
8	NoLiquidityProviders	Uint16	2	Number of liquidity providers within this message.	1 to 50
10	LPBrokerNumber	Uint16	2	Broker number of the liquidity provider	
Total Length			10 + 2n_T		

(n_T = value of NoLiquidityProviders)

1.4 Currency Rate (14)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	14 Currency Rate
4	CurrencyCode	String	3	Currency code.	
7	Filler	String	1		
8	CurrencyFactor	Uint16	2	Currency factor conversion.	A non-zero value *n* means all price fields for this security should be interpreted as a value equal to the price multiplied by 10^n.
10	Filler	String	2		
12	CurrencyRate	Uint32	4	Currency rate	Rate, expressed in HKD for one foreign currency unit. 4 decimals implied.
Total Length			16		

2. Trading Session Status

The 2. Trading Session Status file is in binary format and contains only one type of messages – ***TradingSessionStatus***. There is only one Trading Session Status file with filename MC02_All_YYYYMMDD, where YYYYMMDD is the date of the Trading Session Status file.

The layout of the Trading Session Status is as follows:

<RecordLength><PacketHeader><TradingSessionStatus>…<RecordLength><PacketHeader><TradingSessionStatus>…<RecordLength><PacketHeader><TradingSessionStatus>

Following is the message layout of the ***RecordLength***

Offset	Field	Format	Len	Description
0	RecLen	Uint16	2	Size of the record (including this field)
Total length			2	

Following is the message layout of the ***PacketHeader***

Offset	Field	Format	Len	Description
0	PktSize	Uint16	2	Size of the packet (including this field)
2	MsgCount	Uint8	1	Number of messages included in the packet
3	Filler	String	1	
4	SeqNum	Uint32	4	Sequence number of the first message in the packet
8	SendTime	Uint64	8	The number of nanoseconds since *January 1,* 1970*, 00:00:00 GMT*, precision is provided to the nearest millisecond.
Total length			16	

Followings are the message layouts of the ***TradingSessionStatus***

2.1 Trading Session Status (20)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	**20** Trading Session Status
4	MarketCode	String	4	Market segment identifier	**MAIN** **GEM** **NASD** **ETS**
8	Filler	String	1		
9	TradingSessionSubID	Uint8	1	Trading session sub-identifier.	**0** Day Close (DC) **1** Pre-trading (Order Input OI) **2** Opening or Opening Auction (Matching MA) **3** Continuous trading (Continuous CT) **4** Closing or Closing Auction [Closing Auction Session (CAS)] Matching (MA) **5** Post-trading [CAS] Order Input (OI) **7** Quiescent (Blocking BL) **100** Not Yet Open (NO) **101** No Cancel/Modification (NC) **102** Exchange Intervention (EI) **103** Close (CL) **104** Order Cancel (OC) **105** Reference Price Fixing [CAS] (RP) **106** No Cancellation [CAS] (NW)

Offset	Field	Format	Len	Description	Values
					107 Random Close [CAS] (RC)
10	TradingSesStatus	Uint8	1	Status of the current trading session.	**0** Unknown (for NO) **1** Halted (for BL, EI) **2** Open (for [POS] OI, [POS] NC, [POS] MA, CT, OC) **3** Closed (for CL) **5** Pre-Close (for [CAS] RP, [CAS] NW, [CAS] RC, [CAS] MA, [CAS] OI) **100** Day Closed (for DC)
11	TradingSesControlFlag	String	1	Indicates how control of trading session and sub-session transitions are performed.	'**0**' Automatic (Default) '**1**' Manual (this invalidates the normal schedule for the day)
12	Filler	String	4		
16	StartDateTime	Uint64	8	Start time of the trading status	The data is provided as number of nanoseconds since Unix epoch Jan 1st 1970. Set to **0** if no time is available.
24	EndDateTime	Uint64	8	End time of the trading status	The data is provided as number of nanoseconds since Unix epoch Jan 1st 1970. Set to **0** if no time is available.
Total Length			32		

3. Securities Full Order Book

The Securities Full Order Book file is in binary format and contains ten types of messages – ***Trade***, ***TradeCancel***, ***AddOrder, ModifyOrder***, ***DeleteOrder, IndicativeEquilibriumPrice, VCM Trigger, Reference Price, Order Imbalance and Security Status***. There are totally 9 files, each corresponds to an stock group. The filenames of the 9 Securities Full Order file are as follows:

MC30_All_YYYYMMDD – securities full order book file for stock group #1
MC31_All_YYYYMMDD – securities full order book file for stock group #2
MC32_All_YYYYMMDD – securities full order book file for stock group #3
MC33_All_YYYYMMDD – securities full order book file for stock group #4
MC34_All_YYYYMMDD – securities full order book file for stock group #5
MC35_All_YYYYMMDD – securities full order book file for stock group #6
MC36_All_YYYYMMDD – securities full order book file for stock group #7
MC37_All_YYYYMMDD – securities full order book file for stock group #8
MC38_All_YYYYMMDD – securities full order book file for stock group #9
where YYYYMMDD is the date of the Securities Full Order Book file

The layout of the Securities Full Order Book is as follows:

<RecordLength><PacketHeader><SecuritiesFullOrderBook>…<RecordLength><PacketHeader><SecuritiesFullOrderBook>…<RecordLength><PacketHeader><SecuritiesFullOrderBook>

Following is the message layout of the ***RecordLength***

Offset	Field	Format	Len	Description
0	RecLen	Uint16	2	Size of the record (including this field)
Total length			2	

Following is the message layout of the ***PacketHeader***

Offset	Field	Format	Len	Description
0	PktSize	Uint16	2	Size of the packet (including this field)
2	MsgCount	Uint8	1	Number of messages included in the packet
3	Filler	String	1	
4	SeqNum	Uint32	4	Sequence number of the first message in the packet
8	SendTime	Uint64	8	The number of nanoseconds since *January 1*, 1970, *00:00:00 GMT*, precision is provided to the nearest millisecond.
Total length			16	

<SecuritiesFullOrderBook> contains different combinations of the ten types of messages – ***Trade***, ***TradeCancel***, ***AddOrder, ModifyOrder***, ***DeleteOrder, IndicativeEquilibriumPrice, VCM Trigger, Reference Price, Order Imbalance and Security Status.*** For example:

<Trade><TradeCancel><AddOrder><ModifyOrder><DeleteOrder><IndicativeEquilibriumPrice><VCM Trigger><Reference Price><Order Imbalance> or

<AddOrder><AddOrder><DeleteOrder><ModifyOrder><Trade><Trade>

Followings are the message layouts of the ***Trade***, ***TradeCancel***, ***AddOrder, ModifyOrder***, ***DeleteOrder IndicativeEquilibriumPrice, VCM Trigger, Reference Price and Order Imbalance.***

3.1 Trade (50)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	**50** Trade
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values **1** – **99999**
8	TradeID	Uint32	4	Unique identifier per security for each trade performed within the trading system. The ID is reset for each trading day.	Starting from **1**, incrementing by 1 for each trade
12	Price	Int32	4	Price	3 implied decimal places
16	Quantity	Uint32	4	Number of shares	

Offset	Field	Format	Len	Description	Values
20	TrdType	Int16	2	Public trade type.	0 Automatch normal (Public Trade Type <space>) 4 Late Trade (Off-exchange previous day) (Public Trade Type "P") 22 Non-direct Off-Exchange Trade (Public Trade Type "M") 100 Automatch internalized (Public Trade Type "Y") 101 Direct off-exchange Trade (Public Trade Type "X") 102 Odd-Lot Trade (Public Trade Type "D") 103 Auction Trade (Public Trade Type "U") 104 Overseas Trade
22	Filler	String	2		
24	TradeTime	Uint64	8	Time of trade	The number of nanoseconds elapsed since midnight Coordinated Universal Time (UTC) of January 1, 1970 TradeTime precision is currently provided to the nearest second.
Total Length			32		

3.2 Trade Cancel (51)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	51 Trade cancel
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values 1 – 99999
8	TradeID	Uint32	4	Unique identifier per security for each trade performed within the trading system. The ID is reset for each trading day.	Starting from 1, incrementing by 1 for each trade
Total Length			12		

3.3 Add Order (30)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	30 Add Order
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values 1 – 99999

Offset	Field	Format	Len	Description	Values
8	OrderId	Uint64	8	Unique identifier per security for each order performed within the trading system	Values may not be consecutive
16	Price	Int32	4	Price	3 implied decimal places
20	Quantity	Uint32	4	Number of shares	
24	Side	Uint16	2	Side of the order	0 Bid 1 Offer
26	OrderType	String	1	Order type	'1' Market '2' Limit
27	Filler	String	1		
28	OrderBookPosition	Int32	4	Order rank information for the order position within the order book for each security	Integer
Total Length			32		

3.4 Modify Order (31)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	31 Modify Order
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values 1 – 99999
8	OrderId	Uint64	8	Unique identifier per security for each order performed within the trading system	Values may not be consecutive
16	Quantity	Uint32	4	Number of shares	
20	Side	Uint16	2	Side of the order	0 Bid 1 Offer
22	Filler	String	2		
24	OrderBookPosition	Int32	4	Order rank information for the order position within the order book for each security	Integer
Total Length			28		

3.5 Delete Order (32)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	32 Delete Order
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values 1 – 99999
8	OrderId	Uint64	8	Unique identifier per security for each order performed within the trading system	Values may not be consecutive
16	Side	Uint16	2	Side of the order	0 Bid 1 Offer

Offset	Field	Format	Len	Description	Values
18	Filler	String	2		
Total Length			20		

3.6 Indicative Equilibrium Price (41)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	41 Indicative Equilibrium Price
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values 1 – 99999
8	Price	Int32	4	IEP	3 implied decimal places Value is 0 if IEP is not available
12	AggregateQuantity	Uint64	8	IEV	
Total Length			20		

3.7 VCM Trigger (23)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	23 VCM Trigger
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values 1 – 99999
8	CoolingOffStartTime	Uint64	8	Time when the cooling off period starts	The data is provided as number of nanoseconds since Unix epoch Jan 1st 1970, precision is provided to the nearest second.
16	CoolingOffEndTime	Uint64	8	Time when the cooling off period ends	The data is provided as number of nanoseconds since Unix epoch Jan 1st 1970, precision is provided to the nearest second.
24	VCMReferencePrice	Int32	4	Reference Price for the cooling off period	3 implied decimal places
28	VCMLowerPrice	Int32	4	Lower price in the price band allowed during the cooling off period	3 implied decimal places
32	VCMUpperPrice	Int32	4	Upper price in the price band allowed during the cooling off period	3 implied decimal places
Total Length			36		

3.8 Reference Price (43)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	43 Reference Price
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values 1 – 99999
8	ReferencePrice	Int32	4	Reference price of the security for order input	3 implied decimal places Value is 0 if the reference price is not available
12	LowerPrice	Int32	4	Lower price of the allowed price band for order input	3 implied decimal places 0 means N/A
16	UpperPrice	Int32	4	Upper price of the allowed price band for order input	3 implied decimal places 0 means N/A
Total Length			20		

3.9 Order Imbalance (56)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	43 Reference Price
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values 1 – 99999
8	OrderImbalanceDirection	String	1	Indicates the imbalance direction when the matchable buy quantity and sell quantity at IEP are not equal	N Buy = Sell B Buy Surplus S Sell Surplus <space> Not applicable, i.e. when IEP is not available
9	Filler	String	1		
10	OrderImbalanceQuantity	Uint64	8	The absolute difference between the matchable buy quantity and the sell quantity at IEP Value should be ignored if Order Imbalance Direction is <space>	
18	Filler	String	2		
Total Length			20		

3.10 Security Status (21)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	21 Security Status

Offset	Field	Format	Len	Description	Values
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values 1 – 99999
8	SecurityTradingStatus	Uint8	1	Indentifies the trading status of a security.	2 Trading Halt 3 Resume
9	Filler	String	3		
Total Length			12		

4. Securities Market Odd Lot Order

The Securities Market Odd Lot Order file is in binary format and contains two types of messages – ***AddOddLotOrder***, and ***DeleteOddLotOrder***. There are totally 9 files, each corresponds to an stock group. The filenames of the 9 Securities Market Odd Lot Order file are as follows:

MC70_All_YYYYMMDD – securities market odd lot order file for stock group #1
MC71_All_YYYYMMDD – securities market odd lot order file for stock group #2
MC72_All_YYYYMMDD – securities market odd lot order file for stock group #3
MC73_All_YYYYMMDD – securities market odd lot order file for stock group #4
MC74_All_YYYYMMDD – securities market odd lot order file for stock group #5
MC75_All_YYYYMMDD – securities market odd lot order file for stock group #6
MC76_All_YYYYMMDD – securities market odd lot order file for stock group #7
MC77_All_YYYYMMDD – securities market odd lot order file for stock group #8
MC78_All_YYYYMMDD – securities market odd lot order file for stock group #9
where YYYYMMDD is the date of the Securities Market Odd Lot Order file

The layout of the Securities Market Odd Lot Order is as follows:

<RecordLength><PacketHeader><SecuritiesMarketOddLotOrder>…<RecordLength><PacketHeader><SecuritiesMarketOddLotOrder>…<RecordLength><PacketHeader><SecuritiesMarketOddLotOrder>

Following is the message layout of the ***RecordLength***

Offset	Field	Format	Len	Description
0	RecLen	Uint16	2	Size of the record (including this field)
Total length			2	

Following is the message layout of the ***PacketHeader***

Offset	Field	Format	Len	Description
0	PktSize	Uint16	2	Size of the packet (including this field)
2	MsgCount	Uint8	1	Number of messages included in the packet
3	Filler	String	1	
4	SeqNum	Uint32	4	Sequence number of the first message in the packet
8	SendTime	Uint64	8	The number of nanoseconds since *January 1,* 1970*, 00:00:00 GMT*, precision is provided to the nearest millisecond.
Total length			16	

<SecuritiesMarketOddLotOrder> contains different combinations of the two types of messages – ***AddOddLotOrder*** and ***DeleteOddLotOrder.*** For example:

<AddOddLotOrder><DeleteOddLotOrder><AddOddLotOrder><AddOddLotOrder> or
<AddOddLotOrder><AddOddLotOrder><AddOddLotOrder><AddOddLotOrder>

Followings are the message layouts of the ***AddOddLotOrder*** and ***DeleteOddLotOrder***

4.1 Add Odd Lot Order (33)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	33 Add Odd Lot Order
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values 1 – 99999
8	OrderId	Uint64	8	Unique identifier per security for each order performed within the trading system	Values may not be consecutive
16	Price	Int32	4	Price	3 implied decimal places
20	Quantity	Uint32	4	Number of shares	
24	BrokerID	Uint16	2	Integer identifier uniquely identifying the Broker	Integer
26	Side	Uint16	2	Side of the order	0 Bid 1 Offer
Total Length			28		

4.2 Delete Odd Lot Order (34)

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	34 Delete Odd Lot Order
4	SecurityCode	Uint32	4	Uniquely identifies a security available for trading	5 digit security codes with possible values 1 – 99999
8	OrderId	Uint64	8	Unique identifier per security for each order performed within the trading system	Values may not be consecutive
16	BrokerID	Uint16	2	Integer identifier uniquely identifying the Broker	Integer
18	Side	Uint16	2	Side of the order	0 Bid 1 Offer
Total Length			20		