

# **Application for the OMnet API**

**Derivatives Trading**

**Hong Kong Exchanges and Clearing Limited**

**May 2016**

## Flowchart for OAPI Certification Test

1. *Request for OAPI Information*

Send an email to HKEx – Derivatives Trading (clicksupport@hkex.com.hk) (DT) to request for OAPI documentation and connection details for HKATS testing environment



2. *Program Development and user acceptance test*

Make use of HKATS testing environment for program development, system test and user acceptance test.



3. *Arrange Certification test with HKEx*

When ready, request for OAPI certification test by submitting the following two forms:  
(a) Request for OAPI Certification Test;  
(b) Application Form for OMnet API (Appendix A)



4. *Certified by HKEx*

Perform certification test with HKEx (certification script in Appendix B) and upon successful completion of the OAPI certification test, return OAPI certification test results (Appendix C) with company chop and signatures to DT



5. *Connect the certified OAPI program to production*

Connect the certified OAPI program to HKATS production environment  
  
\*Certified OAPI Program for market making requires an additional two and a half hour market maker trial run test in the HKATS testing environment before the switching\*



6. *Program change of the certified OAPI program*

When ready, submit forms to DT to request for OAPI certification test as any program change in the certified OAPI program should be subject to re-certification

Fax : (852)25090724 / (852)28770017

**Application Form for OAPI under Genium Platform  
(Version 1.4)**

Exchange Participant : \_\_\_\_\_

The OAPI program is developed from the following Exchange-provided library: (Please put a “√” in the appropriate box)

- Windows Server 2008 (32-bit)     
  Red Hat Enterprise Linux 5 (32-bit)     
  SunOS 5.10  
 Windows Server 2008 (64-bit)     
  Red Hat Enterprise Linux 5 (64-bit)

Version number of Operating System used by the OAPI program: \_\_\_\_\_

The OAPI program is connection to:   
 Network Gateway(NG)   
 Central Gateway(CG)   
 Both NG and CG

Our OAPI program will perform the following function(s): (Please put a “√” in the appropriate box)

- Market Making function**  
 (must support item 1, 2 and 3 in the following functionality list)  
 **Trading function**  
 (must support item 1, 2 and 4 in the following functionality list)  
 **Price Feed function**  
 (must support item 1 and 5 in the following functionality list)

The OAPI program do not support price feed function, the market data source from:

- HKATS NG by other OAPI program     
  Orion Market Data Platform – Derivatives Market (OMD-D)  
 Information Service Vendor: \_\_\_\_\_

The OAPI program can support trading beyond mid-night:   
 Yes   
 No / Not applicable

Number of OAPI Connection(s) required to run the OAPI Program :

\_\_\_\_\_ for market making (must connected via CG), \_\_\_\_\_ for trading and \_\_\_\_\_ for price feed

Indicate the supported functions of your OAPI program in the following function list by putting a “√” in the appropriate box under the first column together with answer for the corresponding questions under the “Test successful / information” column, if applicable.

Please note that most EPs and OAPI Vendor who failed HKATS OAPI certification test mainly because they were unfamiliar with the certification test requirement and their OAPI programs. To ensure certification test will be run smoothly, the column “Information or tested result” should be filled in by the tester who participates for the OAPI certification test. The tester should also read the OMex Genium OAPI Certification Test Script provided in Appendix B before the certification test.

**\*\* No exemption requests will be accepted after the certification test started. The OAPI program will be considered as failed in the certification if it cannot complete all mandatory functions.**

Checklist:	Yes	No
1) Supported functions were checked?	<input type="checkbox"/>	<input type="checkbox"/>
2) Information or tested result provided?	<input type="checkbox"/>	<input type="checkbox"/>
3) The tester has read the OMex Genium OAPI Certification Test Script in Appendix B	<input type="checkbox"/>	<input type="checkbox"/>

	<b><u>Functionality</u></b>	<b>Test successful / information</b>																					
		<b>Yes</b>	<b>No</b>																				
<input checked="" type="checkbox"/>	<b>1. Mandatory Functions for all types of program</b>																						
	<b>1.1.1 Program Identification</b> The program name and version defined in appl_ident_s in omni_login_t structure) is equal to or less than 18 characters (please fill in below table)? <table border="1" data-bbox="264 434 1098 510" style="width: 100%; height: 34px;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>																					<input type="checkbox"/>	<input type="checkbox"/>
	<b>1.1.2 Genium Library Verification</b> The program is using Genium Library?	<input type="checkbox"/>	<input type="checkbox"/>																				
	<b>1.2 Change of expired Login Password</b> The program can identify the expired logon and change the password successfully.	<input type="checkbox"/>	<input type="checkbox"/>																				
	<b>1.3 Connection Status</b>																						
	The program: 1.3.1 can still connect to the system after 15 minutes of no action (i.e. no order or query activities)	<input type="checkbox"/>	<input type="checkbox"/>																				
	1.3.2 has subscribed BI9 broadcast and polls it in regular manner	<input type="checkbox"/>	<input type="checkbox"/>																				
	1.3.3 will prevent re-login into HKATS after 9 consecutive login failure attempts	<input type="checkbox"/>	<input type="checkbox"/>																				
	1.3.4 will make re-login attempt only after 1 minute	<input type="checkbox"/>	<input type="checkbox"/>																				
	1.3.5 will wait for at least 1 second after login before initiating the first transaction or query	<input type="checkbox"/>	<input type="checkbox"/>																				
	1.3.6 Load test on series update – Exchange suspends or resumes 10 stocks underlying and the login account must not be disconnected / heartbeat automatically within 5 minutes.	<input type="checkbox"/>	<input type="checkbox"/>																				
	1.3.7 When Exchange suspends or resumes 10 stocks underlying in item 1.3.6, the login account without Stock Options trading rights must not be disconnected / heartbeat automatically within 5 minutes.	<input type="checkbox"/>	<input type="checkbox"/>																				
	<b>1.4. The program has polling interval at most 250 milliseconds for any transactions which involve Read Events (Broadcast Messages)</b>	<input type="checkbox"/>	<input type="checkbox"/>																				
	<b>1.5 The program can get the message code and text description for any transactions which provide completion and/or transaction status</b>	Change the login password or execute an order and get the following status in words:  Completion status Message Code: _____ Text Description: _____  Transaction Status Message Code: _____ Text Description: _____																					
	<b>1.6 The program will use <u>omniapi_logout_ex</u> to logout the testing account</b>	<input type="checkbox"/>	<input type="checkbox"/>																				

	<b><u>Functionality</u></b>	<b>Test successful / information</b> Yes      No
	<b>1.7 Receive Market Message (BI81) and identify below information:</b> 1.7.1 message priority (message_priority_c) in text description: 1.7.2 message subject (message_header_s): 1.7.3 message content (text_line_s): 1.7.4 the market that receives the message (market code in series_t) (optional):	<input type="checkbox"/> <input type="checkbox"/>
	<b>1.8 Confirmation on real-time addition of instrument series and Tailor Made Combo (TMC) series:</b> (Tester needs to perform the following without re-login the program)	
	1.8.1 Confirmation on newly added TMC series by BU124 and BU126. Please write down the newly added TMC series names. (e.g. TMC_HSI/001; HKB85.00X4/L4SY):  1.8.2a Tester needs to confirm whether buy/sell for each series when buying and selling for the newly added series by BU126: (i.e. the definition of the combo series. e.g. for buying HKB85.00X4/L4SY- buy HKB85.00L4 and sell HKB85.00X4; for selling HKB85.00X4/L4SY - sell HKB85.00L4 and buy HKB85.00X4).  1.8.2b Tester needs to confirm the definition of an existing series by using DQ126:	Please provide below information : Date: _____  TMC series name: _____  The definition of the newly added TMC: _____ _____ _____  The TMC series selected: _____  The definition of the TMC / combo series: _____ _____ _____
	<b>1.8.3 Handling the delist of TMC series</b> 1.8.3.1 Program can identify which TMC series had been delisted. 1.8.3.2 Handling of a new TMC series with the same combo definition as a delist TMC series. (After step 1.8.3.1, the Exchange will add a new TMC series with the same combo definition. Tester can identify the newly added TMC series and the combo definition.)	<input type="checkbox"/> <input type="checkbox"/>
	<b>1.9 Market Status (BI41 &amp; DQ29) (i.e. PREOPEN, PREOPENALLOC, OPENALLOC, PAUSE, PRE_MKT_ACT, OPEN_DPL, OPEN &amp; CLOSE)</b>	
	<b>1.9.1 Use DQ29 to retrieve all the market status defined in the system.</b>	List out all available market status: _____ _____ _____ _____ _____ _____

	<b><u>Functionality</u></b>	<b>Test successful / information</b> Yes      No
	<b>1.9.2 After login HKATS, check the market status of MHI market (e.g. PREOPEN, PREOPENALLOC) and write it down:</b>	Time: _____ Market Status: _____
	<b>1.9.3 Identify the change of “Instrument session state” on an instrument series and underlying which is not same as trading session state.</b>	<input type="checkbox"/> <input type="checkbox"/>
	<b>1.10 Get expiration date and last trading time of a series</b>	
	1.10.1 Check the last trading date and time of a series and/ or combo series	Series name: _____ The last trading date and time are: _____
	1.10.2 Check a series with different last trading date and time, expiration date and effective expiration date. (e.g. HSI128000X5)	Series name: _____ The last trading date and time are: _____ The expiration date: _____ The effective expiration date: _____
	<b>1.11 Resumption and suspension of Trading (BI1 &amp; BU124)</b> Exchange will resume and suspend a contract. Tester needs to confirm which contracts have been resumed/suspended	<input type="checkbox"/> <input type="checkbox"/>
	1.11.1 Tester inputs orders/quotes on two contracts which one is going to be suspended (for program that will input orders/quotes)	
	1.11.2 Exchange will suspend one of the contract and tester should be able to identify which contract is suspended.	
	1.11.3 Exchange will resume the suspended contract and tester should be able to identify which contract is resumed	
	1.11.4 Exchange will suspend the product by underlying and all contracts based on this underlying will be suspended.	
	1.11.5 Exchange will resume the product suspended in previous steps and tester should be able to identify the resumed contracts.	
	<b>1.12 Handling of products with different features</b>	
	1.12.1 The program can handle different products with different trading currencies.	
	1.12.1.1 Tester can identify the trading currency of the product (via the field “base_cur_s” field in DQ122)	<input type="checkbox"/> <input type="checkbox"/> And it can identify the trading currency for CUS market as: _____
	1.12.1.2 Tester can place and execute orders in products other than HKD, e.g. GLD and CNY futures.(Not applicable for OAPI with View-Only function only)	<input type="checkbox"/> <input type="checkbox"/>
	1.12.2 The program will use the tick size and strike price information from instrument class viaDQ122.	
	Classes with different tick sizes in stock options market are set up (e.g. XAB, XBC, XCC & XIC) 1.12.2.1 Tester can identify the tick size of an instrument class (via the field “dec_in_premium_n” field in DQ122)	The field “dec_in_premium_n” in transaction DQ122 [Instrument Class QUERY] for XAB Call is _____

	<b><u>Functionality</u></b>	<b>Test successful / information</b> <b>Yes      No</b>																										
	1.12.2.2 Tester can identify the decimal place in the strike price of an instrument class (via the field "dec_in_strike_price_n" field in DQ122)	And the field "dec_in_strike_price_n" for XAB Call is _____																										
	1.12.2.3 Tester can place orders into the instrument class with different tick size and decimal place and confirm the order details which include the series strike price and order price. (Not applicable for OAPI program with View-Only function only)	<input type="checkbox"/> <input type="checkbox"/>																										
	1.12.3 The setting for Compression and encryption between OAPI Client and OMNet Gateway should be "ANY": - omniapi_set_option_ex(..., OMNIAPI_OPT_COMPRESS, OMNIAPI_OPVAL_ANY); - omniapi_set_option_ex(..., OMNIAPI_OPT_ENCRYPT, OMNIAPI_OPVAL_ANY);	<input type="checkbox"/> <input type="checkbox"/>																										
	1.12.4 "Omex Version"																											
	The OAPI program doesn't interpreted the "omex version", an internal reference used by HKEx, which will be returned by the following queries/transactions. • omniapi_get_info_ex (OMNI_INFOTYP_OMEXVERSION) • uq12 (omex_version_s) • cq68 (omex_version_s)	<input type="checkbox"/> <input type="checkbox"/>																										
<input type="checkbox"/>	<b>2. Mandatory Functions for Market Making and/or Trading program(s)</b>																											
	<b>2.1 Confirmation on own executed trades with the following information by both BO5 &amp; BD6</b> Execute a trades and use BO5 and BD6 to check the trade number (on BD6 only), instrument series, price, quantity, order number and match ID for their executed trades under username level (preferable under customer level)	<table border="1"> <tr> <td colspan="2" data-bbox="1123 1016 1533 1043"><b>BO5:</b></td> </tr> <tr> <td data-bbox="1123 1043 1315 1133"><u>Series Name:</u> <i>(e.g. HSI20000F6)</i></td> <td data-bbox="1315 1043 1533 1133"></td> </tr> <tr> <td data-bbox="1123 1133 1315 1167"><u>Price:</u></td> <td data-bbox="1315 1133 1533 1167"></td> </tr> <tr> <td data-bbox="1123 1167 1315 1200"><u>Quantity:</u></td> <td data-bbox="1315 1167 1533 1200"></td> </tr> <tr> <td data-bbox="1123 1200 1315 1290"><u>Order no.:</u> <i>(In 16-digit hexadecimal)</i></td> <td data-bbox="1315 1200 1533 1290"></td> </tr> <tr> <td data-bbox="1123 1290 1315 1379"><u>Match ID:</u> <i>(In 16-digit hexadecimal)</i></td> <td data-bbox="1315 1290 1533 1379"></td> </tr> <tr> <td colspan="2" data-bbox="1123 1379 1533 1406"><b>BD6:</b></td> </tr> <tr> <td data-bbox="1123 1406 1315 1496"><u>Series Name:</u> <i>(e.g. HSI20000F6)</i></td> <td data-bbox="1315 1406 1533 1496"></td> </tr> <tr> <td data-bbox="1123 1496 1315 1529"><u>Price:</u></td> <td data-bbox="1315 1496 1533 1529"></td> </tr> <tr> <td data-bbox="1123 1529 1315 1563"><u>Quantity:</u></td> <td data-bbox="1315 1529 1533 1563"></td> </tr> <tr> <td data-bbox="1123 1563 1315 1653"><u>Order no.:</u> <i>(In 16-digit hexadecimal)</i></td> <td data-bbox="1315 1563 1533 1653"></td> </tr> <tr> <td data-bbox="1123 1653 1315 1742"><u>Match ID:</u> <i>(In 16-digit hexadecimal)</i></td> <td data-bbox="1315 1653 1533 1742"></td> </tr> <tr> <td data-bbox="1123 1742 1315 1776"><u>Trade no:</u></td> <td data-bbox="1315 1742 1533 1776"></td> </tr> </table>	<b>BO5:</b>		<u>Series Name:</u> <i>(e.g. HSI20000F6)</i>		<u>Price:</u>		<u>Quantity:</u>		<u>Order no.:</u> <i>(In 16-digit hexadecimal)</i>		<u>Match ID:</u> <i>(In 16-digit hexadecimal)</i>		<b>BD6:</b>		<u>Series Name:</u> <i>(e.g. HSI20000F6)</i>		<u>Price:</u>		<u>Quantity:</u>		<u>Order no.:</u> <i>(In 16-digit hexadecimal)</i>		<u>Match ID:</u> <i>(In 16-digit hexadecimal)</i>		<u>Trade no:</u>	
<b>BO5:</b>																												
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	<b>2.2 Price and Quantity Deviation</b>																
	<p>2.2.1 Price Deviation Tester sets a limit on Price (e.g. compare to last traded price or the bid /ask price) in any instrument series. Then the tester places 2 orders which are higher and lower than the limit in the instrument series respectively. The tester cannot input any order with price outside the price limit</p>	<input type="checkbox"/> <input type="checkbox"/> And the warning message for price outside the price limit: _____ _____															
	<p>2.2.2 Quantity Deviation Tester sets a limit on Quantity for any instrument series. Then the tester places 2 orders which are higher and lower than the limit in the instrument series respectively. The tester cannot input any order with quantity greater than the limit</p>	<input type="checkbox"/> <input type="checkbox"/> And the warning message for quantity greater than the limit is: _____ _____															
	<b>2.3 Cross Modification</b>	<input type="checkbox"/> <input type="checkbox"/>															
	<b>2.4 The program can confirm outstanding orders after order deletion by others (e.g. exchange) via (BO5/MQ8) (Maximum of 1 MQ8 per second)</b>	<input type="checkbox"/> <input type="checkbox"/>															
	<b>2.5 Pre-Trade Risk Management (PTRM) rejection message code verification</b>																
	<p>2.5.1 Handle the message code and text description after place Order (MO31), Quote (MO37/MO97) and/or Trade Report (MO75, MO76, MO77) are rejected by PTRM system</p> <table border="1"> <thead> <tr> <th></th> <th>Completion Status (i.e. csts)</th> <th>Transaction Status (i.e. txstat)</th> </tr> </thead> <tbody> <tr> <td>i)</td> <td>-12</td> <td>-850002</td> </tr> <tr> <td>ii)</td> <td>-12</td> <td>-850004</td> </tr> <tr> <td>iii)</td> <td>-12</td> <td>-850006</td> </tr> <tr> <td>iv)</td> <td>-12</td> <td>-850008</td> </tr> </tbody> </table>		Completion Status (i.e. csts)	Transaction Status (i.e. txstat)	i)	-12	-850002	ii)	-12	-850004	iii)	-12	-850006	iv)	-12	-850008	<input type="checkbox"/> <input type="checkbox"/>
	Completion Status (i.e. csts)	Transaction Status (i.e. txstat)															
i)	-12	-850002															
ii)	-12	-850004															
iii)	-12	-850006															
iv)	-12	-850008															
	2.5.2 Handle BO5 broadcast after Mass Order Cancellation Function in PTRM system	<input type="checkbox"/> <input type="checkbox"/>															
	2.5.3 Handle the message code and text description after Price Alteration (MO33 and/or MO4+MO31) are rejected by PTRM system																



	<b>2.6 The program can identify post trade transactions (clearing transactions) from Trade Confirmation Message (BD6)</b>	<input type="checkbox"/>	<input type="checkbox"/>
	<p>2.6.1 Pre-Opening Session (must complete all items) (not applicable if the OAPI program can't input Give Up order)</p> <p>2.6.1.1 Give Up (to CCCC) and take up Auction Order</p> <p>2.6.1.2 Give Up (to CCCC) and take up Limit Order</p> <p>2.6.2 Normal Trading Session (must complete all items)</p> <p>2.6.2.1 Split Trade</p> <p>2.6.2.2 Change Free text</p> <p>2.6.2.3 Change account</p> <p>2.6.2.4 Solely trade rectification</p> <p>2.6.2.5 Give Up to CCCC</p> <p>2.6.2.6 Take Up</p> <p>2.6.2.7 Average Price Trade</p> <p>2.6.2.8 Transfer trade from DA(Default)Account</p> <p>2.6.2.9 Cancellation of trade</p> <p>2.6.2.10 Position netting</p> <p>2.6.2.11 Position transfer</p> <p>* <b>Filter:</b> The OAPI program does not display the back office trade confirmation message (BD6) to the user  <b># Identify:</b> The OAPI program displays the back office trade confirmation message (BD6) to the user and indicate to user that the above messages are back office messages, not trading messages</p>	<p><u>*Filter</u></p> <p><u>#Identify</u></p> <p><u>N/A</u></p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>
	<p><b><u>2.7 Market Making and/or Trading Program Participating in After-Hours Futures Trading (AHFT)</u></b> (The program have to perform this session once again beyond mid-night, if applicable)</p>		
	<p><b>2.7.1 Confirmation of Orders, Trades and Price Information (BO5, CQ68, MO31, MQ8, BD6 &amp; BD2) in T day</b> (Tester could refer to App B for the details of the test script)</p>		
	2.7.1.1 Enter orders in T session	<input type="checkbox"/>	<input type="checkbox"/>
	2.7.1.2 Execute the orders in T session and use BD6 to confirm the clearing date of the trades	<input type="checkbox"/>	<input type="checkbox"/>
	2.7.1.3 Trading State changes to AHT_INACT_T_ORDER, tester should be able to identify which orders are active and which orders have been inactivated by system.	<input type="checkbox"/>	<input type="checkbox"/>
	2.7.1.4 Trading State changes to AHT_NEXT_DAY, tester should be able to identify the price and turnover information in BD2 is re-set ("Blank" for prices and "0" for turnover). Please note that the figures in "Open Interest" will not be changed.	<input type="checkbox"/>	<input type="checkbox"/>
	2.7.1.5 Trading State changes to AHT_OPEN_PL, tester executes orders and use CQ68 to retrieve the clearing date (Clearing date is next business day) and locate the trade number, instrument series, price, quantity and order number in BD6.	<input type="checkbox"/>	<input type="checkbox"/>
	2.7.1.6 Trading State changes to AHT_OPEN_PL State, tester has to enter specific orders, execute orders and confirm the trade details.	<input type="checkbox"/>	<input type="checkbox"/>

	2.7.1.7 Query trades which will be cleared today and the next clearing date: Tester logouts the application and then Exchange will execute some trades. Tester logs in again and queries for trades cleared on today and the next clearing date via CQ10 using the current clearing date and next clearing date information in CQ68	<input type="checkbox"/>	<input type="checkbox"/>
	2.7.1.8 After mid-night, the program can enter orders, execute orders and confirm the trade details. (Not applicable for the OAPI program do not support trading beyond mid-night)	<input type="checkbox"/>	<input type="checkbox"/>
	<b>2.7.2 Orders and Trades Confirmation (BO5, CQ68, MQ8, BD6) in next business day (T+1 day)</b>		
	2.7.2.1 On the next business day, tester logs in and can identify the outstanding orders.	<input type="checkbox"/>	<input type="checkbox"/>
	2.7.2.2 Program can confirm the details of those trades which are executed in AHFT session of the previous business day.	<input type="checkbox"/>	<input type="checkbox"/>
	<b><u>2.8 Handling last trading time (LTT) during in After-Hours Futures Trading (AHFT)</u></b>		
	2.8.1 Trade execution in the expiring spot series with last trading time (LTT) during AHFT session, e.g., LME mini futures	<input type="checkbox"/>	<input type="checkbox"/>
	2.8.2 Order actions in the expiring spot series with last trading time (LTT) during AHFT session, e.g., LME mini futures (* order change only applicable for system support MO33)	<input type="checkbox"/>	<input type="checkbox"/>
	2.8.3 Verification of 'End of Trading' flag (optional)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<b>3. Mandatory Functions for Market Making Program</b> (* MO96 only applicable to Exchange Participant granted with it) (All quotes for market making are calculated by the program itself)		
	<b><u>3.1 Send quotes with bid and ask orders</u></b> with valid account type (e.g. 'M1' or 'R123') for an instrument series and combo series and can confirm the 16-digit hexadecimal order number after sending the quotes By MO37 By MO96 *	<input type="checkbox"/>	<input type="checkbox"/>
	<b><u>3.2 Replace the quotes for instrument series and combo series with valid account type</u></b> By MO37 By MO96 *	<input type="checkbox"/>	<input type="checkbox"/>
	<b><u>3.3 Bulk and individual cancellation of quote(s)</u></b> By MO4 By MO96 *	<input type="checkbox"/>	<input type="checkbox"/>
	<b><u>3.4 Identify the details of quote request for instrument series and TMC series</u></b>	<input type="checkbox"/>	<input type="checkbox"/>
	<b><u>3.5 Can send out zero-bid quote for out-of-money series</u></b> by providing "0" as the bid quantity By MO37 By MO96 *	<input type="checkbox"/>	<input type="checkbox"/>
	<b><u>3.6 Handling real-time addition of instrument series (for MO37 and MO96) and TMC series (for MO37 only)</u></b> 3.6.1 Placement of MO37 and MO96* orders 3.6.2 Receive quote requests (MI4) 3.6.3 Detailed retrieval of executed orders by BO5 and BD6	<input type="checkbox"/>	<input type="checkbox"/>

	<b><u>3.7 Market Making Program Participating in After-Hours Futures Trading (T+1 session)</u></b>																															
	3.7.1 During "Open" State, tester enters quotes with MO37 and/or MO96.	<input type="checkbox"/> <input type="checkbox"/>																														
	3.7.2 After the Trading State changed to AHT_NEXT_DAY, the program can identify the quotes are removed by HKATS	<input type="checkbox"/> <input type="checkbox"/>																														
	3.7.3 During AHT_OPEN State (AHFT session), the program can enter quotes By MO37 By MO96 *	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>																														
	3.7.4 During AHT_OPEN_PL State (AHFT session), the program can enter quotes By MO37 By MO96 *	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>																														
	3.7.5 After mid-night, the program can enter quotes (if system support beyond mid-night) By MO37 By MO96 *	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>																														
<input type="checkbox"/>	<b>4. Mandatory Functions for Trading Program (must complete all items)</b>																															
	4.1 Tester uses MO31 transaction to input rest of order with valid account type for existing instrument series and TMC series in two different partitions (e.g. HSI Futures and Stock Options) and confirm the 16-digit hexadecimal order number after placing the orders. For TMC series, tester needs to input three orders with positive, zero and negative price respectively	<input type="checkbox"/> <input type="checkbox"/>																														
	4.2 Tester uses MO4 to cancel the inputted orders on instrument series & TMC series	<input type="checkbox"/> <input type="checkbox"/>																														
	4.3 Handling real-time addition of instrument series and TMC series 4.3.1 Placement of MO31 rest of day limit order 4.3.2 Detailed retrieval of executed order by BO5 and BD6	<input type="checkbox"/> <input type="checkbox"/>																														
	<b>5. Functions for Price Feed Program (OAPI program must support at least one of following function):</b>																															
<input type="checkbox"/>	<b><u>5.1 Market Data function</u></b> <b>Market Data Retrieval for existing and newly added instrument and TMC series</b> 5.1.1 Price depth (IQ18 & BO14) Tester needs to write down the price and quantity for these series without re-login of the program:	<input type="checkbox"/> <input type="checkbox"/> Please fill in the box in left-hand side.																														
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="5">Bid</th> <th colspan="5">Ask</th> </tr> <tr> <th>5</th> <th>4</th> <th>3</th> <th>2</th> <th>1</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Bid					Ask					5	4	3	2	1	1	2	3	4	5											
Bid					Ask																											
5	4	3	2	1	1	2	3	4	5																							

	<p>5.1.2 Order depth (MQ7) (Maximum of 1 MQ7 per second) Tester needs to write down the price and quantity for these series without re-login of the program:</p> <table border="1" data-bbox="264 280 868 546"> <thead> <tr> <th colspan="2">Bid Orders</th> <th colspan="2">Ask Orders</th> </tr> <tr> <th>BQty</th> <th>Bid</th> <th>Ask</th> <th>AQty</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	Bid Orders		Ask Orders		BQty	Bid	Ask	AQty																					<input type="checkbox"/> <input type="checkbox"/> Please fill in the box in left-hand side.
Bid Orders		Ask Orders																												
BQty	Bid	Ask	AQty																											
	5.1.3 Tester needs to confirm they can receive BD70 after deal execution	<input type="checkbox"/> <input type="checkbox"/>																												
	5.1.4 Tester needs to confirm they can receive BD71 after deal cancellation and deal rectification and the original BD70 that has been cancelled	<input type="checkbox"/> <input type="checkbox"/>																												
	5.1.5 Subscribe market data by instrument class / type (BO14)	The program allow only subscribe BO14 on market(s): _____ _____																												
<input type="checkbox"/>	<b><u>5.2. Handling of trading information for the traded series which has the last trading time (LTT) during AHFT session on last trading day (LTD)</u></b>																													
	5.2.1 Can the order and trade information be reflected correctly during the AHFT session but before LTT of the spot series?	<input type="checkbox"/> <input type="checkbox"/>																												
	5.2.2 Can the order and trade information in non-spot-next series be reflected correctly during the AHFT session but after LTT of the spot series?	<input type="checkbox"/> <input type="checkbox"/>																												
<input type="checkbox"/>	<b>6. Change order (MO33)</b> After inputting MO31 limit order, the program can use MO33 to 6.1 decrease quantity (will retain order priority) 6.2 increase quantity (may lose order priority) 6.3 decrease limit price (may lose order priority) 6.4 increase limit price (may lose order priority)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>																												
<input type="checkbox"/>	<b>7. Create Tailor-Made Combination (TMC) series for trading</b>																													
	<b>7.1 Tester use DC3 to create TMC series with 2 legs and input order in that new TMC in same time (via MO31/MO37)</b> 7.1.1 Order/quotes sent 7.1.2 Tester is able to identify the TMC and leg details (e.g. buy 1 lot of HSI25000L4 and buy 2 lot of HSI25000X4)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>																												
	<b>7.2 Tester use DC3 to create TMC series with 4 legs and input order in that new TMC in same time (via MO31/MO37)</b> 7.1.1 Order/quotes sent 7.1.2 Tester is able to identify the TMC and leg details	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>																												
	<b>7.3 Tester use DC3 to add TMC series without order or quote will be rejected by the OAPI program</b>	<input type="checkbox"/> <input type="checkbox"/>																												
	<b>8. Special Order Placement</b>																													
<input type="checkbox"/>	<b>8.1 Input and alteration of Auction Order</b>																													
<input type="checkbox"/>	<b>8.2 Good Till Date Order</b>																													

<input type="checkbox"/>	<b>8.3 Good Till Cancel Order</b>		
<input type="checkbox"/>	<b>8.4 Execution with FAK order</b>		
<input type="checkbox"/>	<b>8.5 Execution with FOK order</b>		
<input type="checkbox"/>	<b>8.6 Give-up Order</b>		
<input type="checkbox"/>	<b>8.7 Order Position (open/close)</b>		
<input type="checkbox"/>	<b>9. Trade Report</b>		
	9.1 T1 – Internal Trade Report (MO76)	<input type="checkbox"/>	<input type="checkbox"/>
	9.2 T2 – Combo Trade Report (MO77)	<input type="checkbox"/>	<input type="checkbox"/>
	9.3 T4 – Interbank Trade Report (MO75)	<input type="checkbox"/>	<input type="checkbox"/>
	9.3.1 MO74 – Unmatched Own T4 Trade Report Deletion	<input type="checkbox"/>	<input type="checkbox"/>
	9.3.2 MQ78-Query Unmatched Own T4 Trade Report	<input type="checkbox"/>	<input type="checkbox"/>
	9.3.3 MQ80 – Query T4 Trade Report waiting for matching from counterpart	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<b>10. Stop Loss order</b>		
	10.1 will use last traded price from BD2 as reference?	<input type="checkbox"/>	<input type="checkbox"/>
	10.2 Can identify trade that will not update the last traded price?	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<b>11. Get other user orderbook changes under the same customer (BO5)</b>		
<input type="checkbox"/>	<b>12. Issuing Quote Request (MC4) (Maximum of 1 Quote Request per second)</b>		
<input type="checkbox"/>	<b>13. Receiving Quote Request (MI4)</b>		
<input type="checkbox"/>	<b>14. Handling of the trading information for the traded series which include Opening Price, Day High Price, Day Low Price, Last Traded Price, Last Traded Quantity and Turnover (BD2)</b>		
	14.1 For existing and newly added instrument series	<input type="checkbox"/>	<input type="checkbox"/>
	14.2 For existing and newly added TMC series	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<b>15. Market Maker Protection (MMP) for Primary Market Maker</b> (*Market Maker Protection only applicable to Exchange Participant granted with it)		
	15.1 Tester can retrieve the parameters setting via query (DQ87)	<input type="checkbox"/>	<input type="checkbox"/>
	15.2 The Exchange changes one of the MMP setting and the tester can identify the changes via broadcast (BU87)	<input type="checkbox"/>	<input type="checkbox"/>
	15.3 Tester can use transaction to change the “Quantity Protection quantity”, “Delta Protection quantity”, “Exposure Limit Time Interval” and “Quotation Frozen time” (DC87)	<input type="checkbox"/>	<input type="checkbox"/>
	15.4 The program able to identify which underlying has MMP triggered and keeps normal (BO5 and BO38).	<input type="checkbox"/>	<input type="checkbox"/>
	15.5 Quotes will be rejected during the “Quotation Frozen time” period	<input type="checkbox"/>	<input type="checkbox"/>
	15.6 Order can be successfully issued during the “Quotation Frozen Time” period (optional for MM program that will use MO31 only)	<input type="checkbox"/>	<input type="checkbox"/>
	15.7 Reset the MMP setting (without changes the parameter) and issue quotes during the “Quotation Frozen Time” period.	<input type="checkbox"/>	<input type="checkbox"/>
	15.8 MMP had been triggered in three classes, the program able to identify which underlying has MMP triggered and keeps normal (handling of more than one MMP triggering).	<input type="checkbox"/>	<input type="checkbox"/>

	<b><u>Program support below market</u></b>	
<input type="checkbox"/>	<b>A. Index Products (Index Futures and Options)</b>	
<input type="checkbox"/>	<b>B. Index Products (Flexible Index Options)</b>	
<input type="checkbox"/>	<b>C. Equity Products (Stock Futures)</b>	
<input type="checkbox"/>	<b>D. Equity Products (Stock Options)</b>	
<input type="checkbox"/>	<b>E. Currency Products</b>	
<input type="checkbox"/>	<b>F. Interest Rate and Fixed Income Products</b>	
<input type="checkbox"/>	<b>G. Commodities Products</b>	

**OMex Genium OAPI Certification Test Script (Version 1.4)**

EP: \_\_\_\_\_ Tester Name: \_\_\_\_\_ Login ID: \_\_\_\_\_

Program Name & version: \_\_\_\_\_ Library Used: \_\_\_\_\_

Developed by: \_\_\_\_\_ Test Date: \_\_\_\_\_ Test Time: \_\_\_\_\_

The program will connect via  Central Gateway  Network Gateway

Type of program:  Market Making  Trading  Price Feed

Version number of Operating System used by the OAPI program: \_\_\_\_\_

**Document Version Control**

Version	Date	Remark
1.0	31 Jan 2013	First Version
1.1	1 Jan 2014	Addition of test cases for Market Maker Protection and series update handling
1.2	3 Mar 2014	Addition of trading beyond mid-night
1.3	1 Apr 2014	Addition of Omex version checking
1.3.1	25 Sep 2014	Update product name for trading beyond mid-night
1.3.2	1 Sep 2015	Addition of Last Trading Time for London Metal Mini Futures
1.4	10 May 2016	Addition of handle rejection code by PTRM

Please note that this test script may be changed from time to time. During the certification test, Exchange staff will certify the mandatory items and all functions which the OAPI program supports. The mandatory items must be passed in order to pass the certification test. Please note that only certified items can be used in HKATS production environment. Tester must go through the test script in details before the certification test. Since the certification test takes quite long time to finish, the tester must familiar with the functionality and the operation of the OAPI program.

<b><u>Functionality</u></b>	<b><u>Successful</u></b>	
	<b><u>Yes</u></b>	<b><u>No</u></b>
<b><u>1. Mandatory Functions for All Types of Program</u></b>		
<b><u>1.1.1 Program Name and version defined in the Program</u></b>		
The program must define the program name and version (appl_ident_s in omni_login_t structure) for starting a session. Exchange will verify the program name and version after the tester login the testing account. The program name and version must not contain more than 18 characters	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>1.1.2 Genium Library Verification</u></b>		
The program is using Genium Library?	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>1.2 Change of expired Login Password</u></b>		
Exchange sets the password expired for testing account. When the tester logs in the testing account, tester needs to change password	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>1.3 Connection Status (must complete all items)</u></b>		
1.3.1 Tester needs to logout the account and then login the account with 15 minutes' idle time. During the idle time, the login account must not be disconnected automatically	<input type="checkbox"/>	<input type="checkbox"/>
1.3.2 In order to maintain heartbeat of connection with the host (i.e. login status on/off), the program must subscribe BI9 broadcast and poll it in regular manner. Exchange perform some actions for the login account and check the login status (i.e. on/off) with the tester	<input type="checkbox"/>	<input type="checkbox"/>
1.3.3 Program / tester must have some controls to prevent 10 consecutive failed login attempts. Otherwise, the account will be locked (controlled by program/manual)	<input type="checkbox"/>	<input type="checkbox"/>
1.3.4 Login request time interval of 1 minute. Program / tester cannot relogin within one minute after previous logout. (controlled by program/manual)	<input type="checkbox"/>	<input type="checkbox"/>
1.3.5 Wait for at least 1 second after login before initiating the first transaction or query	<input type="checkbox"/>	<input type="checkbox"/>

<b><u>Functionality</u></b>	<b><u>Successful</u></b>	
	<b><u>Yes</u></b>	<b><u>No</u></b>
1.3.6 Load test on series update – Exchange suspends or resumes 10 stocks underlying and the login account must not be disconnected / heartbeat automatically within 5 minutes.	<input type="checkbox"/>	<input type="checkbox"/>
1.3.7 When Exchange suspends or resumes 10 stocks underlying in item 1.3.6, the login account without Stock Options trading rights must not be disconnected / heartbeat automatically within 5 minutes.	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>1.4 Polling interval for any transactions which involve Read Events (Broadcast Messages)</u></b>		
For any transactions (e.g.BD70/71, BD6) which involve Read Events (i.e.omniapi_read_event_ext_ex), the recommendation is to poll with time interval 250 milliseconds. The polling interval for the OAPI program is _____ milliseconds	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>1.5 Get the message code and text description for any transactions which provide completion status (i.e. cstatus) and / or transaction status (i.e. txstat)</u></b>		
The OAPI program needs to get the message code for any transactions which provide the completion status (i.e. cstatus) and/or transaction status (i.e. txstat) and call the function omniapi_get_message_ex() during login state to obtain the text description for the above status. Exchange staff requests the tester to perform some transaction(s) and then check the message code and description with the tester	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>1.6 Normal Logout (use omniapi logout ex to logout the testing account)</u></b>		
After the tester logs out the testing account. The testing account must not have heartbeat disconnect after 3 minutes	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>1.7 Receive Market Message (BI81) (must complete items 1.7.1 to 1.7.3)</u></b>		
The Exchange sends the market message and confirms the following with the tester: 1.7.1 message priority (message_priority_c) in text description 1.7.2 message subject (message_header_s) 1.7.3 message content (text_line_s) 1.7.4 the market that receives the message (market code in series_t) (optional)	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>1.8 Confirmation on real-time addition of instrument series and combo series (must complete all items)</u></b>		
After the Exchange adds the instrument series and combo series with immediate effect, tester needs to perform the following with the Exchange without re-login the program:	<input type="checkbox"/>	<input type="checkbox"/>
1.8.1 Confirmation on newly added instrument series by BU124 and TMC series by BU124 and BU126 (Tester needs to confirm which instrument series (e.g. HSI25000L4) and combo series (e.g. HKB85.00X4/L4SY) have been added)	<input type="checkbox"/>	<input type="checkbox"/>
1.8.2 Get the TMC definition of newly added series by BU126 and existing series by DQ126 - TMC with Two legs - TMC with three legs - TMC with four legs (Tester needs to confirm whether buy/sell for each series when buying and selling for the added (by BU126) and existing combo series (by DQ126) (e.g. for buying HKB85.00X4/L4SY - buy HKB85.00L4 and sell HKB85.00X4; for selling HKB85.00X4/L4SY - sell HKB85.00L4 and buy HKB85.00X4)	<input type="checkbox"/>	<input type="checkbox"/>
1.8.3 Handling the delist of TMC series 1.8.3.1 The Exchange will delist a TMC series and the tester can identify which TMC series is delisted. 1.8.3.2 Handling of a new TMC series with the same combo definition as a delist TMC series. (After step 1.8.3, the Exchange will add a new TMC series with the same combo definition. Tester can identify the newly added TMC series and the combo definition.)	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>1.9. Market Status (BI41 and DQ29)</u></b>		
1.9.1 After login HKATS, check the market status (e.g PREOPEN, PREOPENALLOC, OPENALLOC, PAUSE, PRE_MKT_ACT, OPEN_DPL, OPEN & CLOSE) in some markets (e.g. MHI) which retrieved from DQ29 with the tester	<input type="checkbox"/>	<input type="checkbox"/>
1.9.2 Exchange will change the market status in some market(s) (e.g. MHI). Check the market status (e.g PREOPEN, PREOPENALLOC, OPENALLOC, PAUSE, PRE_MKT_ACT, OPEN_DPL, OPEN & CLOSE) which	<input type="checkbox"/>	<input type="checkbox"/>



<b><u>Functionality</u></b>	<b><u>Successful</u></b>	
	<b><u>Yes</u></b>	<b><u>No</u></b>
received from BI41 with the tester		
1.9.3 Tester can confirm the “Instrument session state” after the Exchange change it in <u>instrument series level and underlying level</u>	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>1.10 Get expiration date and last trading time of a series</u></b>		
1.10.1 Check with tester the last trading date and time of a series and a combo series	<input type="checkbox"/>	<input type="checkbox"/>
1.10.2 After the Exchange change the last trading date and the effective expiration date of an instrument series, tester needs to confirm which instruments have been changed and the updated last trading date and time and the new expiration date	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>1.11 Resumption and Suspension of Trading (BI1 &amp; BU124)</u></b>		
Exchange will suspend contracts for trading and OAPI program should be able to handle it properly.		
1.11.1 Tester inputs orders/quotes on two contracts that is going to be suspended (for program that will input orders/quotes)	<input type="checkbox"/>	<input type="checkbox"/>
1.11.2 Exchange will suspend one of the contract and tester should be able to identify which contract is suspended.	<input type="checkbox"/>	<input type="checkbox"/>
1.11.3 Exchange will resume the suspended contract and tester should be able to identify which contract is resumed	<input type="checkbox"/>	<input type="checkbox"/>
1.11.4 Exchange will suspend the product by underlying and all contracts based on this underlying will be suspended.	<input type="checkbox"/>	<input type="checkbox"/>
1.11.5 Exchange will resume the product suspended in previous steps and tester should be able to identify the resumed contracts.	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>1.12 Handling of products with different features</u></b>		
1.12.1 The program will utilize the currency information defined in Instrument Class level.		
1.12.1.1 Tester can identify the trading currency of the product (via the field “base_cur_s” field in DQ122)	<input type="checkbox"/>	<input type="checkbox"/>
1.12.1.2 Tester can place and execute orders in products other than HKD, e.g. GLD and CNY futures (not applicable View-Only program).	<input type="checkbox"/>	<input type="checkbox"/>
1.12.2 The program will utilize the tick sizes information defined in Instrument Class Level		
Product with different tick size in stock options market had been set up (e.g. XAB, XBC & XCC)	<input type="checkbox"/>	<input type="checkbox"/>
1.12.2.1 Tester can identify the tick size of an instrument class (via the field “dec_in_premium_n” field in DQ122)	<input type="checkbox"/>	<input type="checkbox"/>
1.12.2.2 Tester can identify the decimal place in the strike price of an instrument class (via the field “dec_in_strike_price_n” field in DQ122)	<input type="checkbox"/>	<input type="checkbox"/>
1.12.2.3 Tester can place orders into the instrument class with different tick size and decimal place and confirm the order details which include the series strike price and order price (not applicable for Price Feed only program).	<input type="checkbox"/>	<input type="checkbox"/>
1.12.3 The setting for Compression and encryption between OAPI Client and OMNet Gateway should be “ANY”: - omniapi_set_option_ex(..., OMNIAPI_OPT_COMPRESS, OMNIAPI_OPVAL_ANY ); - omniapi_set_option_ex(..., OMNIAPI_OPT_ENCRYPT, OMNIAPI_OPVAL_ANY );	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
1.12.4 “Omex Version”		
The OAPI program doesn’t interpreted the “omex version”, an internal reference used by HKEx, that will be returned by the following queries/transactions. • omniapi_get_info_ex (OMNI_INF_TYP_OMEXVERSION) • uq12 (omex_version_s) • cq68 (omex_version_s)	<input type="checkbox"/>	<input type="checkbox"/>

<b><u>Functionality</u></b>	<b><u>Successful</u></b>	
	<b><u>Yes</u></b>	<b><u>No</u></b>
<b>2. Mandatory Functions for Market Making and/or Trading Program(s)</b>		
<b><u>2.1 Confirm own executed trades by both BO5 &amp; BD6 (must complete all items)</u></b>		
Tester inputs the following orders with *valid account type (i.e. ex_client_s). Then the Exchange executes some orders. Tester needs to use BO5 and BD6 to check the trade number (BD6 only), instrument series, price, quantity, order number and Match ID for their executed trades under username level (preferable under customer level)	<input type="checkbox"/>	<input type="checkbox"/>
2.1.1 input more than 29 non-executed orders in the same instrument series		
2.1.2 input 1 order to execute more than 29 orders which are input by other users		
2.1.3 input several non-executed orders in different instrument series		
*valid account type : Non stock options - C/H/RXXX where XXX is the market maker trading account number, stock options – A1/P1/M1		
<b><u>2.2 Price and Quantity Deviation (must complete all items)</u></b>		
<b><u>2.2.1 Price Deviation</u></b>		
Request tester to set a limit on Price (e.g. compare to last traded price or the bid /ask price) in any instrument series. Then the tester places 2 orders with valid account type which are higher and lower than the limit in the instrument series respectively. The tester cannot input any order with price outside the price limit	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>2.2.2 Quantity Deviation</u></b>		
Request the tester to set a limit on Quantity for any instrument series. Then the tester places 2 orders with valid account type which are higher and lower than the limit in the instrument series respectively. The tester cannot input any order with quantity greater than the limit	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>2.3 Cross Modification (must complete all items)</u></b>		
<b><u>2.3.1 Order Executed during Alteration in Quantity</u></b>		
<b><u>2.3.1.1 Change in Quantity (lost time priority scenario)</u></b>		
- Tester inputs a buy order with valid account type, quantity 10 and price 20,000 in any futures series		
- Tester changes the quantity from 10 to 8 and the Exchange execute 9 lots (a) within the same second and (b) more than 1 seconds		
(9 lots executed, 1 lot remaining and the tester intends to change the order from 1 lot to 8 lots within the same second and more than 1 seconds after execution)		
<b>Results:</b>	(same second)	(>1 second)
Alert message is being generated (preferable)	<input type="checkbox"/>	<input type="checkbox"/>
Remaining order, 1 lot is still in the market	<input type="checkbox"/> or	<input type="checkbox"/> or
No remaining order	<input type="checkbox"/> or	<input type="checkbox"/> or
Extra order has been placed after the modification (    lots )	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>2.3.1.2 Change in Quantity (time priority remains unchanged)</u></b>		
Tester inputs a buy order with valid account type, quantity 10 and price 20000 in any futures series		
Tester changes the quantity from 10 to 7 and the Exchange execute 2 lots (a) within same second and (b) more than 1 second (2 lots executed, 8 lots remaining and the tester intends to change the order from 8 lots to 7 lots)		
<b>Results</b>	(same second)	(>1 second)
Alert message is being generated (preferable)	<input type="checkbox"/>	<input type="checkbox"/>
8 lots have been placed after modification	<input type="checkbox"/> or	<input type="checkbox"/> or
7 lots have been placed after modification	<input type="checkbox"/> or	<input type="checkbox"/> or
5 lots have been placed after modification	<input type="checkbox"/> or	<input type="checkbox"/> or
Did not place new order after execution	<input type="checkbox"/>	<input type="checkbox"/>

<b><u>Functionality</u></b>	<b><u>Successful</u></b>										
	<b><u>Yes</u></b>	<b><u>No</u></b>									
<b><u>2.3.2 Order Executed during Cancellation</u></b>											
<ul style="list-style-type: none"> <li>- Tester inputs 2 buy orders with valid account type, quantity 10 and price 20,000 in any futures series</li> <li>- Tester cancels the above orders and the Exchange executes whole or part of the order for each order within same second</li> </ul> <p>Results:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"></td> <td style="text-align: center; width: 25%;">Whole order</td> <td style="text-align: center; width: 25%;">Part of order</td> </tr> <tr> <td>Orders updated accordingly</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Alert message is being generated (preferred)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>		Whole order	Part of order	Orders updated accordingly	<input type="checkbox"/>	<input type="checkbox"/>	Alert message is being generated (preferred)	<input type="checkbox"/>	<input type="checkbox"/>		
	Whole order	Part of order									
Orders updated accordingly	<input type="checkbox"/>	<input type="checkbox"/>									
Alert message is being generated (preferred)	<input type="checkbox"/>	<input type="checkbox"/>									
<b><u>2.4 Confirm outstanding orders after the Exchange deletes some order(s) (BO5/MQ8)</u></b>											
After tester inputs several orders, the Exchange deletes some order(s). Tester need to confirm the outstanding order(s) with the Exchange	<input type="checkbox"/>	<input type="checkbox"/>									
<b><u>2.5 Pre-Trade Risk Management (PTRM) rejection message code verification</u></b>											
<b><u>2.5.1 Handle the message code and text description after place Order (MO31), Quote (MO37/MO97) and/or Trade Report (MO75, MO76, MO77) are rejected by PTRM system</u></b>											
<p>Exchange staff performs certain actions in PTRM system and requests the tester to perform Order (MO31), Quote (MO37/MO97) and/or Trade Report (MO75, MO76, MO77) and then check the message code and description with the tester.</p> <p>By MO31 <input type="checkbox"/> <input type="checkbox"/></p> <p>By MO37 and/or MO96 (optional) <input type="checkbox"/> <input type="checkbox"/></p> <p>By MO75, MO76 and/or MO77 (optional) <input type="checkbox"/> <input type="checkbox"/></p> <p>The OAPI program must be able to handle the 4 new return codes described below after the quotes are rejected by PTRM system and call the function <code>omniapi_get_message_ex()</code> during login state to obtain the text description for the new return codes</p> <p>a) Completion Status (i.e. csts) = -12 and Transaction Status (i.e. txstat) = -850002 Text Description = "User is in a blocked pre trade risk state" <input type="checkbox"/> <input type="checkbox"/></p> <p>b) Completion Status (i.e. csts) = -12 and Transaction Status (i.e. txstat) = -850004 Text Description = "User has breached order rate limit" <input type="checkbox"/> <input type="checkbox"/></p> <p>c) Completion Status (i.e. csts) = -12 and Transaction Status (i.e. txstat) = -850006 Text Description = "User has breached an intraday exposure limit" <input type="checkbox"/> <input type="checkbox"/></p> <p>d) Completion Status (i.e. csts) = -12 and Transaction Status (i.e. txstat) = -850008 Text Description = "User has exceeded max. order size limit" <input type="checkbox"/> <input type="checkbox"/></p> <p><u>* Screenshots for return messages (in PDF Format with clear indication to which step the screenshot belongs) are required</u></p>											
<b><u>2.5.2 Handle BO5 broadcast after Mass Order Cancellation Function in PTRM system</u></b>											
After tester inputs several quotes, Exchange staff deletes some quotes by using Mass Order Cancellation Function and the OAPI should receive the corresponding BO5.	<input type="checkbox"/>	<input type="checkbox"/>									

**2.5.3 Handle the message code and text description after Price Alteration (MO33 and/or MO4+MO31) are rejected by PTRM system**

**Exchange staff performs certain actions in PTRM system and requests the tester to perform MO33/ MO4+MO31 transaction(s) and then check the message code and description with the tester**

By MO33 (optional)

By MO4+MO31 (optional)

a) Completion Status (i.e. csts) = -12 and Transaction Status (i.e. txstat) = -850002  
Text Description = "User is in a blocked pre trade risk state"

b) Completion Status (i.e. csts) = -12 and Transaction Status (i.e. txstat) = -850004  
Text Description = "User has breached order rate limit"

c) Completion Status (i.e. csts) = -12 and Transaction Status (i.e. txstat) = -850006  
Text Description = "User has breached an intraday exposure limit"

d) Completion Status (i.e. csts) = -12 and Transaction Status (i.e. txstat) = -850008  
Text Description = "User has exceeded max. order size limit"

Note: Original order is kept in orderbook for price alteration with MO33 while the order is cancelled for price alteration with MO4 + MO31

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

**2.6 Handling Additional Trade Confirmation Message (BD6) for clearing transactions**

Tester executes some trades on bid and ask sides in different instrument series. Tester needs to confirm whether their OAPI program receives the back office trade confirmation message (BD6) after the Exchange performs the following clearing transactions:

\*Filter #Identify N/A

2.6.1 Pre-Opening Session (must complete all items)  
(not applicable if the OAPI program can't input Give Up order)

2.6.1.1 Give Up (to CCCC) and take up Auction Order

2.6.1.2 Give Up (to CCCC) and take up Limit Order

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

2.6.2 Normal Trading Session (must complete all items)

2.6.2.1 Split Trade

2.6.2.2 Change Free text

2.6.2.3 Change account

2.5.2.4 Solely trade rectification

2.6.2.5 Give Up to CCCC

2.6.2.6 Take Up

2.6.2.7 Average Price Trade

2.6.2.8 Transfer trade from DA(Default)Account

2.6.2.9 Cancellation of trade

2.6.2.10 Position netting

2.6.2.11 Position transfer

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

\* **Filter:** The OAPI program does not display the back office trade confirmation message (BD6) to the user

# **Identify:** The OAPI program displays the back office trade confirmation message (BD6) to the user and indicate to user that the above messages are back office messages, not trading messages

<p><b><u>2.7 Market Making and/or Trading Program Participating in After-Hours Futures Trading (AHFT)</u></b>  <i>(including Market Marking beyond mid-night, if applicable)</i></p>	
<p><b><u>2.7.1 Orders, Trades and Price Information Confirmation (BO5, CQ68, MO31, MQ8, BD6 &amp; BD2) in T day</u></b></p>	
<p>2.7.1.1 During Open State, tester enters the following orders:</p> <ul style="list-style-type: none"> <li>i. Buy LRA Futures (Price 10040, Quantity 1) with “exch_order_type_n” set to 0</li> <li>ii. Buy LRA Futures (Price 10035, Quantity 1) with “exch_order_type_n” set to 2048</li> <li>iii. Buy LRA Futures (Price 10030, Quantity 1) with “validity” set to day and “exch_order_type_n” set to 0</li> <li>iv. Buy LRA Futures (Price 10025, Quantity 1) with “validity” set to good-till-cancel and “exch_order_type_n” set to 0</li> <li>v. Buy LRA Futures (Price 10010, Quantity 1) with “validity” set to day and “exch_order_type_n” set to 2048</li> <li>vi. Buy LRA Futures (Price 10020, Quantity 1) with “validity” set to day and “exch_order_type_n” set to 2048</li> <li>vii. Buy LRA Futures (Price 10005, Quantity 1) with “validity” set to good-till-cancel and “exch_order_type_n” set to 2048</li> <li>viii. Buy LRA Futures (Price 10015, Quantity 1) with “validity” set to good-till-cancel and “exch_order_type_n” set to 2048</li> </ul>	<input type="checkbox"/> <input type="checkbox"/>
<p>2.7.1.2 The Exchange executes the orders in i and ii. Then, tester use BD6 to confirm the clearing date of the trades.</p>	<input type="checkbox"/> <input type="checkbox"/>
<p>2.7.1.3 The Exchange changes the Trading State to AHT_INACT_T_ORDER, tester much be able to identify orders in v, vi, vii, and viii are active while orders in iii and iv are inactivated.</p>	<input type="checkbox"/> <input type="checkbox"/>
<p>2.7.1.4 The Exchange changes the Trading State to AHT_NEXT_DAY, tester should be able to identify the price and turnover information in BD2 is re-set (“Blank” for prices and “0” for turnover). Please note that the figures in “Open Interest” will not be changed.</p>	<input type="checkbox"/> <input type="checkbox"/>
<p>2.7.1.5 The Exchange changes the Trading State of HHI market to AHT_OPEN_PL, and then, executes orders in vi and viii . Tester use BD6 to confirm the clearing date of the trades.</p>	<input type="checkbox"/> <input type="checkbox"/>
<p>2.7.1.6 During AHT_OPEN_PL State (AHFT), tester enters the following orders:</p> <ul style="list-style-type: none"> <li>xi. Buy LRA Futures (Price 10155, Quantity 1) with “validity” set to day and “exch_order_type_n” set to 2048</li> <li>xii. Buy LRA Futures (Price 10165, Quantity 1) with “validity” set to day and “exch_order_type_n” set to 2048</li> <li>xiii. Buy LRA Futures (Price 10160, Quantity 1) with “validity” set to good-till-cancel and “exch_order_type_n” set to 2048</li> <li>xiv. Buy LRA Futures (Price 10170, Quantity 1) with “validity” set to good-till-cancel and “exch_order_type_n” set to 2048</li> </ul> <p>The Exchange executes the orders in xii and xiv. Then, tester use BD6 to confirm the trade details.</p>	<input type="checkbox"/> <input type="checkbox"/>
<p>2.7.1.7 Query trades that will be cleared today and next clearing date:  Tester logouts the application and then Exchange will execution some trades. Tester logins again and query for trades cleared on today and next clearing date via CQ10 by using the current clearing date and next clearing date information in CQ68</p>	<input type="checkbox"/> <input type="checkbox"/>

<p>2.7.1.8 After mid-night, tester have to enter specific orders, execute orders and confirm the trade details. (if system support beyond mid-night)</p> <p>xv. Buy LRA Futures (Price 10175, Quantity 1) with “validity” set to day and “exch_order_type_n” set to 2048</p> <p>xvi. Buy LRA Futures (Price 10185, Quantity 1) with “validity” set to day and “exch_order_type_n” set to 2048</p> <p>xvii. Buy LRA Futures (Price 10180, Quantity 1) with “validity” set to good-till-cancel and “exch_order_type_n” set to 2048</p> <p>The Exchange executes the orders in xvi. Then, tester use BD6 to confirm the trade details.</p> <p>(Not applicable for the OAPI program do not support trading beyond mid-night)</p>	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>2.7.2 Orders and Trades Confirmation (BO5, CQ68, MQ8 &amp; BD6) in next business day (T+1 day)</u></b>		
2.7.2.1 Tester logins to the testing environment and confirm the outstanding orders’ details (orders in iv, vii, xiii and xvii).	<input type="checkbox"/>	<input type="checkbox"/>
2.7.2.2 Tester confirms the trade details of the trades from orders in vi, viii, xii, xiv, xv and xvi (trades from AHFT session of previous business day)	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>2.8 Handling last trading time (LTT) during in After-Hours Futures Trading (AHFT) session</u></b>		
<b><u>2.8.1 Trade execution in the expiring spot series with last trading time (LTT) during AHFT session, e.g., LME mini futures</u></b>		
2.8.1.1 Tester executes trades <b>in the expiring spot series</b> in T session. Trades on 2 classes with different LTT are required, i.e., 1 trade in each class.	<input type="checkbox"/>	<input type="checkbox"/>
2.8.1.2 Tester executes trades <b>in the expiring spot series</b> in AHFT session but before the LTT. Trades on 2 classes with different LTT are required, i.e., 1 trade in each class.	<input type="checkbox"/>	<input type="checkbox"/>
2.8.1.3 Tester executes trades <b>in the spot-next series</b> in AHFT session after the LTT of spot series. Trades on 2 classes with different LTT are required, i.e., 1 trade in each class.	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>2.8.2 Order actions in the expiring spot series with last trading time (LTT) during AHFT session, e.g., LME mini futures</u></b>		
(* order change only applicable for system support MO33)		
2.8.2.1 In T session, Tester places at least 6 buy/ sell orders with T+1 flag in the expiring spot series (including relevant combo series), and cancel 1 of those orders subsequently.	<input type="checkbox"/>	<input type="checkbox"/>
2.8.2.2 Change 1 of those orders (only applicable for system support MO33).		
2.8.2.3 In AHFT session (before LTT), Tester cancels 1 of those orders placed in item 2.8.2.1	<input type="checkbox"/>	<input type="checkbox"/>
2.8.2.4 In AHFT session (before LTT), Tester places 1 new order and cancels it immediately.		
2.8.2.5 In AHFT session (before LTT), Tester changes 1 of those orders placed in item 2.8.2.1 (MO33*).		
2.8.2.6 In AHFT session (before LTT), Tester places 1 new order and changes it immediately (MO33*).		
2.8.2.7 In AHFT session (after LTT), Tester cancels 1 of those orders placed in item 2.8.2.1 and got rejected.	<input type="checkbox"/>	<input type="checkbox"/>
2.8.2.7 In AHFT session (after LTT), Tester places 1 new order and got rejected.		
2.8.2.8 In AHFT session (after LTT), Tester places 1 new order in the spot-next series and cancels it immediately.		
2.8.2.9 In AHFT session (after LTT), Tester changes 1 of those orders placed in item 2.8.2.1 and got rejected (MO33*).		
2.8.2.10 In AHFT session (after LTT), Tester places 1 new order in the spot-next series and changes it immediately (MO33*).		
<b><u>2.8.3 Verification of ‘End of Trading’ flag (optional)</u></b>		
2.8.3.1 Verify the ‘End of Trading’ flag is not with T session close (i.e. CLOSE_TODAY_E) and have no impact.	<input type="checkbox"/>	<input type="checkbox"/>

2.8.3.2 Verify the 'End of Trading' flag is with the AHFT close (i.e. AHT_CLOSE_E) and can serve as the signal of day close as required by the OAPI Program.		
<b>3. Mandatory Functions for Market Making Program</b>		
(* MO96 only applicable to Exchange Participant granted with it) (All quotes for market making are calculated by the program itself)		
<b>3.1 Send quotes with bid and ask orders</b> with valid account type (e.g. 'M1' or 'R123') for a newly created instrument series and combo series and confirms the 16-digit hexadecimal order number after sending the quotes By MO37 By MO96*	<input type="checkbox"/>	<input type="checkbox"/>
<b>3.2 Replace the quotes for instrument series and combo series with valid account type</b> By MO37 By MO96*	<input type="checkbox"/>	<input type="checkbox"/>
<b>3.3 Bulk and individual cancellation of quote(s)</b> By MO4 By MO96*	<input type="checkbox"/>	<input type="checkbox"/>
<b>3.4 Identify the details of quote request for instrument series and TMC series</b> After the Exchange sends the quote request for one of the instrument series and TMC series, tester needs to confirm which series have the quote request	<input type="checkbox"/>	<input type="checkbox"/>
<b>3.5 Send out zero-bid quote for out-of-money series by providing "0" as the bid quantity</b> By MO37 By MO96*	<input type="checkbox"/>	<input type="checkbox"/>
<b>3.6 Handling real-time addition of instrument series and TMC series</b> After the Exchange adds the instrument series and TMC series with immediate effect, tester needs to perform the following for the newly added instrument series and TMC series without re-login the program: 3.6.1 Tester input "rest of day" order with valid account type By MO37 By MO96* (instrument series only) 3.6.2 After the Exchange sends the quote request. Tester needs to confirm which instrument series and TMC series have the quote request 3.6.3 After the tester execute a trade, tester needs to confirm the executed trade with the instrument series, price, quantity and 16-digit hexadecimal order number from BO5 and BD6 (also confirms the trade number)	<input type="checkbox"/>	<input type="checkbox"/>
<b>3.7. Mandatory Functions for Market Making Program Participating in After-Hours Futures Trading (AHFT)</b> (including Market Marking beyond mid-night, if applicable)		
3.7.1 During Open State, tester enters quotes with MO37 and/or MO96	<input type="checkbox"/>	<input type="checkbox"/>
3.7.2 The Exchange changes the Trading State to AHT_NEXT_DAY, tester should be able to identify quotes are removed by HKATS	<input type="checkbox"/>	<input type="checkbox"/>
3.7.3 During AHT_OPEN State (AHFT session), tester enters quotes with MO37 and/or MO96	<input type="checkbox"/>	<input type="checkbox"/>
3.7.4 During AHT_OPEN_PL State (AHFT session), tester enters quotes with MO37 and/or MO96	<input type="checkbox"/>	<input type="checkbox"/>
3.7.5 After mid-night, tester enters quotes with MO37 and/or MO96 (if system support beyond mid-night)	<input type="checkbox"/>	<input type="checkbox"/>
<b>4. Mandatory Functions for Trading Program (must complete all items)</b>		
4.1 Tester uses MO31 transaction to input rest of order with valid account type for existing instrument series and TMC series in two different partitions (e.g. HSI Futures and Stock Options) and confirm the 16-digit hexadecimal order number after placing the orders. For TMC series, tester needs to input three orders with positive, zero and negative price respectively	<input type="checkbox"/>	<input type="checkbox"/>





<p>4.3 Handling real-time addition of instrument series and TMC series After the Exchange adds the instrument series and TMC series with immediate effect, tester needs to perform the following for the newly added instrument series and TMC series without re-login the program:</p> <p>4.3.1 Tester uses MO31 transaction to input rest of order with valid account type. For TMC series, tester needs to input three orders with positive, zero and negative price respectively</p> <p>4.3.2 After the tester execute a trade, tester needs to confirm the executed trade with the instrument series, price, quantity and 16-digit hexadecimal order number from BO5 and BD6 (also confirms the trade number)</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p><b>5. Mandatory Functions for Price Feed or View-Only Program (Must support at least one of the following functions):</b></p>	
<p><b>5.1 Market Data function</b> <b>Market Data Retrieval for existing and newly added instrument and TMC series</b> After the Exchange adds instrument series and TMC series with immediate effect in two different partitions (e.g. HSI Futures and Stock Options) and inputs some quotes for the above mentioned series, tester needs to confirm the price and quantity for these series without re-login the program:</p> <p>5.1.1 Price depth (IQ18 &amp; BO14)</p> <p>5.1.2 Order depth (MQ7) (Maximum of 1 MQ7 per second)</p> <p>5.1.3 Tester need to confirm they can receive BD70 after deal execution</p> <p>5.1.4 Tester need to confirm they can receive BD71 after deal cancellation and deal rectification and the original BD70 that has been cancelled</p> <p>5.1.5 Subscribe market data by instrument class / type (BO14) Request tester to set market data subscription in any instrument class/type. Then Exchange sends the market data to see if tester can get the data.</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p><b>5.2 Handling of trading information for the traded series which has the last trading time (LTT) during AHFT session on last trading day (LTD)</b> Read order information of any order action on the same participant:</p> <p>5.3.1 Can the order and trade information be reflected correctly during the AHFT session but before LTT of the spot series?</p> <p>5.3.2 Can the order and trade information in non-spot-next series be reflected correctly during the AHFT session but after LTT of the spot series?</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p><b>6. Change order (MO33)</b> After tester inputs MO31 limit order, tester needs to use MO33 to</p> <p>6.1 decrease quantity (will retain order priority)</p> <p>6.2 increase quantity (may lose order priority)</p> <p>6.3 decrease limit price (may lose order priority)</p> <p>6.4 increase limit price (may lose order priority)</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p><b>7. Create Tailor-Made Combination (TMC) series for trading</b></p>	
<p>7.1 Tester use DC3 to add TMC series with 2 legs together with order input via MO31/MO37</p> <ul style="list-style-type: none"> <li>- Order/quotes sent</li> <li>- Tester is able to identify the TMC and its combo leg details (e.g. buy 1 lot of HSI25000L4 and buy 1 lot of HSI25000X4)</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>7.2 Tester use DC3 to add TMC series with 4 legs together with order input via MO31/MO37</p> <ul style="list-style-type: none"> <li>- Order/quotes sent</li> <li>- Tester is able to identify the TMC and its combo leg details</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>7.3 Tester use DC3 to add TMC series without order or quote will be rejected by the OAPI program</p>	<input type="checkbox"/> <input type="checkbox"/>

<p><b>8. Special Order Placement</b></p>	
<p><b>8.1 Input and alteration of Auction Order (must complete 1 and 2)</b></p>	
<p><b>8.1.1 Pre-Market Activities</b>  Tester inputs the following MO31 orders during Pre-Opening with any valid account type (e.g. 'C'), valid order position (optional) (i.e. open_close_req_c = 1 for open position, open_close_req_c = 2 for close position) on spot futures)</p>	
<p>8.1.1.1 Buy 7 lots of Auction order (AO) with close position (Give Up to HKCGA1 (i.e. give_up_member) if applicable)  8.1.1.2 Change the quantity of above AO order from 7 to 3  8.1.1.3 Change the quantity of above AO order from 3 to 5  8.1.1.4 Sell 7 lots of AO with open position  8.1.1.5 Cancel the above AO order with 7 lots  8.1.1.6 Sell 10 lots of AO with open position  8.1.1.7 Sell 10 lots of Limit order (LO) @ 23200 with open position (Good Till Date order if applicable, otherwise rest of day order, tester needs to confirm the 16-digit hexadecimal order number for good till date order) (Give Up to HKCGA1 (i.e. give_up_member) if applicable)  8.1.1.8 Change the price to 23300 and quantity to 5 lots for the above order  8.1.1.9 Buy 3 lots of LO @ 23200 with close position (Good Till Cancel order if applicable, otherwise rest of day order, tester needs to confirm the 16-digit hexadecimal order number for good till cancel order)  8.1.1.10 Change the price to 23300 and quantity to 1 lot for the above order  <i>Check with outstanding order details</i></p>	<input type="checkbox"/> <input type="checkbox"/>
<p><b>Exchange change the market status to Pre-Opening Allocation (POA):</b>  Please note that tester can input auction order only during this market status  <b>Exchange change the market status to Open-Allocation (OPA):</b>  Please note that tester cannot perform any order actions during this market status  <b>Exchange change the market status to Pause (PAU):</b>  During this period, orders will be matched. Confirm traded details in BD6 with the tester  a. Executed Instrument  b. Trade number  c. 16-digital hexadecimal order number  d. Traded Price and quantity  e. Give up account (if applicable)  f. Order position (if applicable)   Check with executed details and outstanding order details  <b>Change the market to Open session</b></p>	<input type="checkbox"/> <input type="checkbox"/>
<p><b>8.1.2 BO5 (AO conversion) during Pre-market</b>  8.1.2.1 Tester places AO with any valid account type on both Bid and Ask sides in any MHI Futures during Pre-Opening and confirms the 16-digit hexadecimal order number after placing the orders  8.1.2.2 Place LO on Bid side by the Exchange during Pre-Opening  8.1.2.3 Change market session to POA, OPA, PAU by the Exchange  8.1.2.4 Verify details of outstanding orders  (Ask AO removed and Bid AO converted to LO)</p>	<input type="checkbox"/> <input type="checkbox"/>
<p><b>8.2 Good Till Date (Need to be tested if 8.1.1.7 does not test good till date order)</b>  Tester inputs a good till date order with valid account type for any instrument series and confirms the 16-digit hexadecimal order number after placing the order</p>	<input type="checkbox"/> <input type="checkbox"/>

<b>8.3 Good Till Cancel (Need to be tested if 8.1.1.9 does not test good till cancel order)</b> Tester inputs a good till cancel order with valid account type for any instrument series and confirms the 16-digit hexadecimal order number after placing the order	<input type="checkbox"/>	<input type="checkbox"/>
<b>8.3 Good Till Cancel (Need to be tested if 8.1.1.9 does not test good till cancel order)</b> Tester inputs a good till cancel order with valid account type for any instrument series and confirms the 16-digit hexadecimal order number after placing the order	<input type="checkbox"/>	<input type="checkbox"/>
<b>8.4 Execution with FAK</b> Tester inputs a fill and kill order (FAK) with valid account type to execute one existing order and confirms the 16-digit hexadecimal order number after the execution	<input type="checkbox"/>	<input type="checkbox"/>
<b>8.5 Execution with FOK</b> Tester inputs a fill or kill order (FOK) with valid account type to execute one existing order with FOK order quantity greater than the existing order. (No order should be executed )	<input type="checkbox"/>	<input type="checkbox"/>
<b>8.6 Give-Up Order (Need to be tested if 8.1.1.7 does not test Give-up order)</b> Tester inputs a Give-Up Order to HKCGA1 with valid account type for any instrument series and confirms the 16-digit hexadecimal order number after placing the order.	<input type="checkbox"/>	<input type="checkbox"/>
<b>8.7 Order Position (open/ close) (Need to be tested if 8.1.1.7 &amp; 8.1.1.9 do not test order position)</b> Tester inputs two orders (one is open position and the other is close position) with valid account type for any instrument series	<input type="checkbox"/>	<input type="checkbox"/>
<b>9. Trade Report</b>		
<b>9.1 T1 – Internal Trade Report (MO76)</b> Tester sends several trade report series with valid account type in any Options series with non-blank information in the information field and Give Up to HKCGA1 if applicable. Tester needs to confirm the 16-digit hexadecimal order number after sending the above order	<input type="checkbox"/>	<input type="checkbox"/>
<b>9.2 T2 – Combo Trade Report (MO77) (Maximum 6 legs - under same partition only)</b> Tester sends a combo series trade report with valid account type with 2 legs in any Options series with non-blank information in the information field and Give Up to HKCGA1 if applicable. Tester needs to confirm the 16-digit hexadecimal order number after sending the above order and the resulting trade details from BO5 and BO6	<input type="checkbox"/>	<input type="checkbox"/>
<b>9.3 T4 – Interbank Trade Report (MO75)</b> Tester sends a Buy interbank trade report with valid account type to company HKCCC in any Options series with non-blank information in the information field and Give Up to HKCGA1 if applicable. Tester needs to confirm the 16-digit hexadecimal order number after sending the above order	<input type="checkbox"/>	<input type="checkbox"/>
<b>9.3.1 MO74-Unmatched Own T4 Trade Report Deletion (Optional)</b> After tester sends a T4 trade report, tester needs to delete the above order	<input type="checkbox"/>	<input type="checkbox"/>
<b>9.3.2 MQ78-Query Unmatched Own T4 Trade Report (Optional)</b> After tester sends several T4 trade reports, some T4 trade reports are executed by the Exchange. Tester needs to tell the Exchange for unmatched own T4 trade report	<input type="checkbox"/>	<input type="checkbox"/>
<b>9.3.3 MQ80-Query T4 Trade Report waiting for matching from counterpart (Optional)</b> Exchange will issue a T4 trade reports to tester for matching. Tester need to confirm the details of the trade report and match the trade report by sending out MO74	<input type="checkbox"/>	<input type="checkbox"/>
<b>10. Stop Loss (Use BD2 - Last Price as a stop loss reference price) (must complete 10.1)</b>		
<b>10.1 Support in Open Session</b>		
<b>10.1.1 Normal Trade which update the last traded price (must complete all items)</b> 10.1.1.1 Tester sets a stop loss instruction - to place a buy order (e.g. price 20100 with quantity 5)		

<p>with valid account type automatically if the last traded price in HSI spot futures is greater than the stop loss reference price (e.g. 20000)</p> <p>10.1.1.2 Execute a trade (e.g. 19900) by the Exchange in HSI spot futures with last traded price lower than the stop loss reference price. The program must not place any buy order (e.g. price 20100 with quantity 5) automatically</p> <p>10.1.1.3 Exchange place one bid or ask order for HSI spot futures with the price (e.g. 20100) greater than the stop loss reference price. The program must not place any buy order automatically</p> <p>10.1.1.4 Execute a trade (e.g. 20100) by the Exchange in HSI spot futures with last traded price greater than the stop loss reference price. The program must place a buy order (e.g. price 20100 with quantity 5) automatically. Tester needs to confirm the 16-digit hexadecimal order number after sending the above order</p>	<input type="checkbox"/> <input type="checkbox"/>
<p><b>10.1.2 Trades which do not update the last traded price (must complete all items)</b></p>	
<p>As there are trades (e.g. Combo versus Combo Trade and Trade Report) which do not update the last traded price for the executed outright series, the OAPI program must not place a stop loss order for the above trades.</p>	
<p>10.1.2.1 Tester sets a stop loss instruction - to place a sell order (e.g. price 19900 with quantity 5) with valid account type automatically if the last traded price in HSI spot futures equals to or lower than the stop loss reference price (e.g. 20000)</p> <p>10.1.2.2 Execute a Combo versus Combo Trade or Trade Report in HSI spot futures by the Exchange with the traded price in HSI spot futures equals to the stop loss reference price (e.g. 20000). The program must not place any sell order (e.g. price 19900 with quantity 5) automatically</p> <p>10.1.2.3 Execute a trade (e.g. 20000) by the Exchange in HSI spot futures with last traded price equals to the stop loss reference price. The program must place a sell order (e.g. price 19900 with quantity 5) automatically. Tester needs to confirm the 16-digit hexadecimal order number after sending the above order</p>	<input type="checkbox"/> <input type="checkbox"/>
<p><b>10.2 Support in Pre-market Session (if applicable) (must complete all items)</b></p>	
<p>10.2.1 Tester sets a stop loss instruction - to place a sell order (e.g. price 19900 with quantity 5) with valid account type automatically if the last traded price for HSI spot futures equals or lower than the stop loss reference price (e.g. 20000)</p> <p>10.2.2 During Pre-Opening, tester inputs (i) one bid and ask auction orders with 5 lots (ii) one bid and ask limit orders with 5 lots and the price equals to the stop loss reference price (e.g. 20000)</p> <p>10.2.3 Exchange changes the market status to POA, OPA and PAUSE in HSI futures market. The program must not place any sell order (e.g. price 19900 with quantity 5) automatically</p> <p>10.2.4 Exchange changes the market status to OPEN for HSI market. The program must place a sell order (e.g. price 19900 with quantity 5) automatically. Tester needs to confirm the 16-digit hexadecimal order number after sending the above order</p>	<input type="checkbox"/> <input type="checkbox"/>
<p><b>11. Get other user orderbook changes under the same customer (BO5)</b></p>	
<p>Exchange logins with an account of the same customer. Then the Exchange performs some order actions (e.g. place, change, delete order etc). Confirm what order actions the Exchange have performed</p>	<input type="checkbox"/> <input type="checkbox"/>
<p><b>12. Issuing Quote Request (MC4)</b></p>	
<p>12.1 Tester needs to send quote requests with any volume (Maximum of 1 Quote Request per second) for the newly added instrument series and TMC series without re-login the program</p>	<input type="checkbox"/> <input type="checkbox"/>

<b>13. Receiving Quote Request (MI4)</b>		
After the Exchange sends the quote request for an newly added instrument series and TMC series, tester needs to confirm which series have the quote request	<input type="checkbox"/>	<input type="checkbox"/>
<b>14. Handling of the trading information for the traded series which include Opening Price, Day High Price, Day Low Price, Last Traded Price, Last Traded Quantity and Turnover) (BD2)</b> After the Exchange execute some trades on newly added series, tester needs to confirm the trading information for the selected series which include Opening Price, Day High Price, Day Low Price, Last Traded Price, Last Traded Quantity and Turnover		
14.1 For newly added instrument series	<input type="checkbox"/>	<input type="checkbox"/>
14.2 For newly added TMC series (include zero, positive and negative price)	<input type="checkbox"/>	<input type="checkbox"/>
<b>15. Market Maker Protection for Primary Market Maker</b> (*Market Maker Protection only applicable to Exchange Participant granted with it)		
15.1 Tester can retrieve the parameters setting via query (DQ87)	<input type="checkbox"/>	<input type="checkbox"/>
15.2 The Exchange changes one of the MMP setting and the tester can identify the changes via broadcast (BU87)	<input type="checkbox"/>	<input type="checkbox"/>
15.3 Tester can use transaction to change the “Quantity Protection quantity”, “Delta Protection quantity”, “Exposure Limit Time Interval” and “Quotation Frozen time” (DC87)	<input type="checkbox"/>	<input type="checkbox"/>
15.4 Tester place quotes with MO37/MO96 for 120 series each with 30 lots on both sizes. When Exchange executes the quotes with equal or exceed the protection amount, the remaining quotes will be removed automatically. The tested OAPI program will not be logout automatically and able to identify which underlying has MMP triggered (handling of BO5 and BO38).	<input type="checkbox"/>	<input type="checkbox"/>
15.5 During the “Quotation Frozen time” period, tester tries to issue quotes and the quotes will be rejected by HKATS	<input type="checkbox"/>	<input type="checkbox"/>
15.6 During the “Quotation Frozen Time” period, tester tries to issue limit order via MO31 and the order can be successfully issued (optional for MM program that will use MO31 only)	<input type="checkbox"/>	<input type="checkbox"/>
15.7 During the “Quotation Frozen Time” period, tester reset the MMP setting again (without changes the parameter) and then issue quotes (MO37/MO96).	<input type="checkbox"/>	<input type="checkbox"/>
15.8 Tester place quotes with MO37/MO96 for 120 series each with 30 lots on both sizes on the three classes. The Exchange executes the quotes with equal or exceeds the protection amount for all the three classes. The tested OAPI program will not be logout automatically and able to identify which underlying has MMP triggered (handling of more than one MMP triggering).	<input type="checkbox"/>	<input type="checkbox"/>

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## Results of OMex Genium Certification Test (Ver. 1.4)

Exchange Participant : \_\_\_\_\_

Contact Person : \_\_\_\_\_

Tel : \_\_\_\_\_ Fax: \_\_\_\_\_

E-Mail : \_\_\_\_\_

Program Name &Version: \_\_\_\_\_

Developed by : \_\_\_\_\_

Exchange Library Used : \_\_\_\_\_

Test Date : \_\_\_\_\_

The Program will connect to HKATS through:    Central Gateway    Network Gateway

Type of program:     Market Making  
                            Trading  
                            Price Feed

Market data source:  This OAPI program support Price Feed functions  
 HKATS NG by other OAPI program  
 Orion Market Data Platform – Derivatives Market (OMD-D)  
 Information Service Vendor: \_\_\_\_\_

Program can support trading beyond mid-night:     Yes     No

Version number of Operating System used by the OAPI program: \_\_\_\_\_

Please indicate the results of the OAPI certification test by putting a “✓” in the appropriate boxes.

<u>Functionality</u>	Completed	Not Applicable	Remark
1. Basic Functions for all types of program			
1.1.1 Program and version defined in the Program	<input type="checkbox"/>	<input type="checkbox"/>	
1.1.2 Genium library verification	<input type="checkbox"/>	<input type="checkbox"/>	
1.2 Change of expired Login Password	<input type="checkbox"/>	<input type="checkbox"/>	
1.3 Connection Status			
1.3.1 Connection is not disconnected after 15 minutes' idle time	<input type="checkbox"/>	<input type="checkbox"/>	
1.3.2 Login status (on/off) - subscribe Price Information Heartbeat	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Functionality</b>	<b>Completed</b>	<b>Not Applicable</b>	<b>Remark</b>
Broadcast and poll it in regular interval			
1.3.3 Restriction on re-login after 10 or more consecutive login failure attempts	<input type="checkbox"/>	<input type="checkbox"/>	
1.3.4 Login request time interval for 1 minute	<input type="checkbox"/>	<input type="checkbox"/>	
1.3.5 Wait for at least 1 second after login, before initiating the first transaction or query	<input type="checkbox"/>	<input type="checkbox"/>	
1.3.6 Load test on series update	<input type="checkbox"/>	<input type="checkbox"/>	
1.3.7 Connection is not disconnected when Exchange suspends or resumes 10 stocks underlying	<input type="checkbox"/>	<input type="checkbox"/>	
1.4 Polling interval for any transactions which involve Read Events (Broadcast Messages) - polling interval is _____ milliseconds	<input type="checkbox"/>	<input type="checkbox"/>	
1.5 Get the message code and text description for any transactions which provide completion and /or transaction status	<input type="checkbox"/>	<input type="checkbox"/>	
1.6 Normal Logout	<input type="checkbox"/>	<input type="checkbox"/>	
1.7 Receive Market Message (BI81)			
1.7.1 Message priority	<input type="checkbox"/>	<input type="checkbox"/>	
1.7.2 Message subject	<input type="checkbox"/>	<input type="checkbox"/>	
1.7.3 Message content	<input type="checkbox"/>	<input type="checkbox"/>	
1.7.4 Market / Market code (optional)	<input type="checkbox"/>	<input type="checkbox"/>	
1.8 Confirmation on real-time addition of instrument series and TMC series			
1.8.1 Confirmation on newly added instrument series by BU124 and TMC series by BU124 and BU126	<input type="checkbox"/>	<input type="checkbox"/>	
1.8.2 Get the TMC definition of newly added series by BU126 and existing series by DQ126	<input type="checkbox"/>	<input type="checkbox"/>	
1.8.3 Handling of delist of TMC series	<input type="checkbox"/>	<input type="checkbox"/>	
1.9 Market Status (BI41 & DQ29)	<input type="checkbox"/>	<input type="checkbox"/>	
1.10 Get expiration date and last trading time of a series	<input type="checkbox"/>	<input type="checkbox"/>	
1.11 Resumption and suspension of Trading	<input type="checkbox"/>	<input type="checkbox"/>	
1.12 Other best programming practices: utilize instrument class level information , set correct compression and encryption value, and not to interpret the Omex version	<input type="checkbox"/>	<input type="checkbox"/>	
2. Core Functions for Market Making and/or Trading Program(s)			
2.1 Confirm own executed trades with the following information by BO5 & BD6			
2.1.1 Trade number (BD6 only)	<input type="checkbox"/>	<input type="checkbox"/>	
2.1.2 Instrument Series	<input type="checkbox"/>	<input type="checkbox"/>	
2.1.3 Premium & Quantity	<input type="checkbox"/>	<input type="checkbox"/>	
2.1.4 Order number	<input type="checkbox"/>	<input type="checkbox"/>	
2.1.5 Match ID	<input type="checkbox"/>	<input type="checkbox"/>	
2.2 Price and Quantity Deviation	<input type="checkbox"/>	<input type="checkbox"/>	
2.3 Cross Modification			
2.3.1 Order Execution during Alternation in Quantity	<input type="checkbox"/>	<input type="checkbox"/>	
2.3.1.1 Alert message	<input type="checkbox"/>	<input type="checkbox"/>	
2.3.1.2 Orders updated accordingly	<input type="checkbox"/>	<input type="checkbox"/>	
2.3.2 Order Execution during Cancellation			
2.3.2.1 Alert message	<input type="checkbox"/>	<input type="checkbox"/>	
2.3.2.2 Orders updated accordingly	<input type="checkbox"/>	<input type="checkbox"/>	
2.4 Confirm outstanding orders after the Exchange deletes some	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Functionality</b>	<b>Completed</b>	<b>Not Applicable</b>	<b>Remark</b>
order(s) (BO5/MQ8)			
2.5 Pre-Trade Risk Management (PTRM) rejection message code verification	<input type="checkbox"/>	<input type="checkbox"/>	
2.6 Handling Additional Trade Confirmation Message (BD6) for clearing transactions			
2.6.1 Pre-Opening Session (For program with Give Up order functionality only)			
2.6.1.1 Give Up(to CCCC) and take up Auction Order	<input type="checkbox"/>	<input type="checkbox"/>	
2.6.1.2 Give Up (to CCCC) and take up Limit Order	<input type="checkbox"/>	<input type="checkbox"/>	
2.6.2 Normal Trading Session			
2.6.2.1 Split trade	<input type="checkbox"/>	<input type="checkbox"/>	
2.6.2.2 Change free text	<input type="checkbox"/>	<input type="checkbox"/>	
2.6.2.3 Change account	<input type="checkbox"/>	<input type="checkbox"/>	
2.6.2.4 Solely trade rectification	<input type="checkbox"/>	<input type="checkbox"/>	
2.6.2.5 Give Up to CCCC	<input type="checkbox"/>	<input type="checkbox"/>	
2.6.2.6 Take Up	<input type="checkbox"/>	<input type="checkbox"/>	
2.6.2.7 Average Price Trade	<input type="checkbox"/>	<input type="checkbox"/>	
2.6.2.8 Transfer trade from DA a/c	<input type="checkbox"/>	<input type="checkbox"/>	
2.6.2.9 Cancellation of trade	<input type="checkbox"/>	<input type="checkbox"/>	
2.6.2.10 Position Netting	<input type="checkbox"/>	<input type="checkbox"/>	
2.6.2.11 Position Transfer	<input type="checkbox"/>	<input type="checkbox"/>	
2.7 Market Making and/or Trading Program Participating in After-Hours Futures Trading (AHFT) (including trading beyond mid-night)			
2.7.1 Orders, Trades and Price Information Confirmation (BO5, CQ68, MO31, MQ8, BD6 & BD2) in T day	<input type="checkbox"/>	<input type="checkbox"/>	
2.7.2 Orders and Trades Confirmation (BO5, CQ68, MQ8 & BD6) in T +1 Day	<input type="checkbox"/>	<input type="checkbox"/>	
2.8 Handling last trading time (LTT) during in After-Hours Futures Trading (AHFT)			
2.8.1 Trade execution in expiring spot series with last trading time during AHFT session	<input type="checkbox"/>	<input type="checkbox"/>	
2.8.2 Order actions in expiring spot series with last trading time during AHFT session	<input type="checkbox"/>	<input type="checkbox"/>	
2.8.3 Verification of 'End of Trading' flag	<input type="checkbox"/>	<input type="checkbox"/>	
3. Core Functions for Market Making Program (All quotes for market making are calculated by the program itself)			
3.1 Send quotes for instrument series and TMC series by MO37 and / or MO96 (with account type field specified)	<input type="checkbox"/>	<input type="checkbox"/>	
3.2 Replace quotes (with account type field specified) by: MO37 (for instrument series and TMC series) MO96 (for instrument series only)	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	
3.3 Bulk and individual cancellation of quote(s) by MO4 (for instrument series and TMC series) MO96 (for instrument series only)	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	
3.4 Receive Quote Request for existing instrument series and TMC series by MI4	<input type="checkbox"/>	<input type="checkbox"/>	
3.5 Send out zero-bid quote for out-of-money series MO37 MO96	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	
3.6 Handling real-time addition of instrument series and TMC series 3.6.1 Placement of quotes by MO37 / MO96 3.6.2 Receive quote request (MI4) 3.6.3 Detailed retrieval of executed order by BO5 and BD6	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	



<b>Functionality</b>	<b>Completed</b>	<b>Not Applicable</b>	<b>Remark</b>
3.7 Core Functions for Market Making Program Participating in After-Hours Futures Trading (AHFT) (including trading beyond mid-night)			
3.7.1 Enter quotes with MO37/MO96 in OPEN State	<input type="checkbox"/>	<input type="checkbox"/>	
3.7.2 Handle quotes removed by HKATS before AHFT session	<input type="checkbox"/>	<input type="checkbox"/>	
3.7.3 Enter quotes with MO37/MO96 in AHT_OPEN State	<input type="checkbox"/>	<input type="checkbox"/>	
3.7.4 Enter quotes with MO37/MO96 in AHT_OPEN_PL State	<input type="checkbox"/>	<input type="checkbox"/>	
3.7.5 After mid-night, tester enters quotes with MO37 / MO96	<input type="checkbox"/>	<input type="checkbox"/>	
4. Core Functions for Trading Program			
4.1 Input rest of day for existing instrument series and TMC series by MO31 (with account type field specified)	<input type="checkbox"/>	<input type="checkbox"/>	
4.2 Cancellation of orders on existing instrument series and TMC series	<input type="checkbox"/>	<input type="checkbox"/>	
4.3 Handling real-time addition of instrument series and TMC series			
4.3.1 Placement of MO31 rest of day order	<input type="checkbox"/>	<input type="checkbox"/>	
4.3.2 Detailed retrieval of executed order by BO5 and BD6	<input type="checkbox"/>	<input type="checkbox"/>	
5. Core Functions for Price Feed Program			
5.1 Market Data function Market Price Retrieval for existing and newly added instrument series and TMC series			
5.1.1 Price Depth (IQ18 and BO14)	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.2 Order Depth (MQ7- Maximum of 1 MQ7 per second)	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.3 Ticker (BD70)	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.4 Ticker amendment (BD71)	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.5 Subscribe market data by instrument class/type (BO14)	<input type="checkbox"/>	<input type="checkbox"/>	
5.2 Order and trade information before and after the last trading time (LTT) during AHFT session	<input type="checkbox"/>	<input type="checkbox"/>	
6. Change order (MO33)	<input type="checkbox"/>	<input type="checkbox"/>	
7. Create and trade Tailor-Made Combination(DC3)			
7.1 & 7.2 Create TMC together with order/quote input	<input type="checkbox"/>	<input type="checkbox"/>	
7.3 Reject TMC creation if no order/quote input	<input type="checkbox"/>	<input type="checkbox"/>	
8. Special Order Placement (with account type field specified)			
8.1 Input and alteration of Auction Order	<input type="checkbox"/>	<input type="checkbox"/>	
8.2 Good Till Date	<input type="checkbox"/>	<input type="checkbox"/>	
8.3 Good Till Cancel	<input type="checkbox"/>	<input type="checkbox"/>	
8.4 Execution with FAK	<input type="checkbox"/>	<input type="checkbox"/>	
8.5 Execution with FOK	<input type="checkbox"/>	<input type="checkbox"/>	
8.6 Give-Up Order	<input type="checkbox"/>	<input type="checkbox"/>	
8.7 Order Position (open / close)	<input type="checkbox"/>	<input type="checkbox"/>	
9. Trade Report			
9.1 T1 - Internal Trade Report (MO76)	<input type="checkbox"/>	<input type="checkbox"/>	
9.2 T2 - Combo Trade Report (MO77)	<input type="checkbox"/>	<input type="checkbox"/>	
9.3 T4 - Interbank Trade Report (MO75)	<input type="checkbox"/>	<input type="checkbox"/>	
9.3.1 Unmatched Own T4 Trade Report Deletion (MO74)	<input type="checkbox"/>	<input type="checkbox"/>	
9.3.2 Query Unmatched Own T4 Trade Report (MQ78)	<input type="checkbox"/>	<input type="checkbox"/>	
9.3.3 Query Unmatched T4 Trade Report as counterparty (MQ80)	<input type="checkbox"/>	<input type="checkbox"/>	

10. Stop Loss			
10.1 Support in Open Session	<input type="checkbox"/>	<input type="checkbox"/>	
10.2 Support in Pre-Market Session	<input type="checkbox"/>	<input type="checkbox"/>	
11. Get other user orderbook changes under the same customer (BO5)	<input type="checkbox"/>	<input type="checkbox"/>	
12. Issuing Quote Request (MC4) (Maximum of 1 Quote Request per second)	<input type="checkbox"/>	<input type="checkbox"/>	
13. Receiving Quote Request (MI4)	<input type="checkbox"/>	<input type="checkbox"/>	
14. Handling of the trading information for the traded series which include Opening Price, Day High Price, Day Low Price, Last Traded Price, Last Traded Quantity and Turnover (BD2)			
14.1 For existing and newly added instrument series	<input type="checkbox"/>	<input type="checkbox"/>	
14.2 For existing and newly added TMC series	<input type="checkbox"/>	<input type="checkbox"/>	
15. Market Maker Protection (MMP) for Primary Market Maker			
15.1 Tester can retrieve the parameters setting via query (DQ87)	<input type="checkbox"/>	<input type="checkbox"/>	
15.2 The Exchange changes one of the MMP setting and the tester can identify the changes via broadcast (BU87)	<input type="checkbox"/>	<input type="checkbox"/>	
15.3 Tester can use transaction to change the “Quantity Protection quantity”, “Delta Protection quantity”, “Exposure Limit Time Interval” and “Quotation Frozen time” (DC87)	<input type="checkbox"/>	<input type="checkbox"/>	
15.4 The program able to identify which underlying has MMP triggered and keeps normal (BO5 and BO38).	<input type="checkbox"/>	<input type="checkbox"/>	
15.5 Quotes will be rejected during the “Quotation Frozen time” period	<input type="checkbox"/>	<input type="checkbox"/>	
15.6 Order can be successfully issued during the “Quotation Frozen Time” period (optional for MM program that will use MO31 only)	<input type="checkbox"/>	<input type="checkbox"/>	
15.7 Reset the MMP setting (without changes the parameter) and issue quotes during the “Quotation Frozen Time” period.	<input type="checkbox"/>	<input type="checkbox"/>	
15.8 MMP had been triggered in three classes, the program able to identify which underlying has MMP triggered and keeps normal (handling of more than one MMP triggering).	<input type="checkbox"/>	<input type="checkbox"/>	
A. Index Products (Index Futures and Options)	<input type="checkbox"/>	<input type="checkbox"/>	
B. Index Products (Flexible Index Options)	<input type="checkbox"/>	<input type="checkbox"/>	
C. Equity Products (Stock Futures)	<input type="checkbox"/>	<input type="checkbox"/>	
D. Equity Products (Stock Options)	<input type="checkbox"/>	<input type="checkbox"/>	
E. Currency Products	<input type="checkbox"/>	<input type="checkbox"/>	
F. Interest Rate and Fixed Income Products	<input type="checkbox"/>	<input type="checkbox"/>	
G. Commodities Products	<input type="checkbox"/>	<input type="checkbox"/>	

By signing below, we consent to the processing of the personal data in accordance with the Privacy Policy Statement.

\_\_\_\_\_  
Signature of Tester  
Printed Name:

\_\_\_\_\_  
Authorized Signature  
With Company Chop  
Printed Name:

## Privacy Policy Statement

Hong Kong Exchanges and Clearing Limited, and from time to time, its subsidiaries (together the "Group") (and each being "HKEX", "we", "us" or "member of the Group" for the purposes of this Privacy Policy Statement as appropriate) recognise their responsibilities in relation to the collection, holding, processing, use and/or transfer of personal data under the Personal Data (Privacy) Ordinance (Cap. 486) ("PDPO"). Personal data will be collected only for lawful and relevant purposes and all practicable steps will be taken to ensure that personal data held by us is accurate. We will use your personal data which we may from time to time collect in accordance with this Privacy Policy Statement.

We regularly review this Privacy Policy Statement and may from time to time revise it or add specific instructions, policies and terms. Where any changes to this Privacy Policy Statement are material, we will notify you using the contact details you have provided us with and, where required by the PDPO, give you the opportunity to opt out of these changes by means notified to you at that time. Otherwise, in relation to personal data supplied to us through the HKEX website or otherwise, continued use by you of the HKEX website or your continued relationship with us shall be deemed to be your acceptance of and consent to this Privacy Policy Statement, as amended from time to time.

If you have any questions about this Privacy Policy Statement or how we use your personal data, please contact us through one of the communication channels set out in the "Contact Us" section below.

We will take all practicable steps to ensure the security of the personal data and to avoid unauthorised or accidental access, erasure or other use. This includes physical, technical and procedural security methods, where appropriate, to ensure that the personal data may only be accessed by authorised personnel.

Please note that if you do not provide us with your personal data (or relevant personal data relating to persons appointed by you to act on your behalf) we may not be able to provide the information, products or services you have asked for or process your requests, applications, subscriptions or registrations, and may not be able to perform or discharge the Regulatory Functions (defined below).

### Purpose

From time to time we may collect your personal data including but not limited to your name, mailing address, telephone number, email address, date of birth and login name for the following purposes:

1. to process your applications, subscriptions and registration for our products and services;
2. to perform or discharge the functions of HKEX and any company of which HKEX is the recognised exchange controller (as defined in the Securities and Futures Ordinance (Cap. 571)) ("Regulatory Functions");
3. to provide you with our products and services and administer your account in relation to such products and services;
4. to conduct research and statistical analysis;
5. to process your application for employment or engagement within HKEX to assess your suitability as a candidate for such position and to conduct reference checks with your previous employers; and
6. other purposes directly relating to any of the above.

### Direct marketing

Where you have given your consent and have not subsequently opted out, we may also use your name, mailing address, telephone number and email address to send promotional materials to you and conduct direct marketing activities in relation to HKEX financial services and information services, and financial services and information services offered by other members of the Group.

If you do not wish to receive any promotional and direct marketing materials from us or do not wish to receive particular types of promotional and direct marketing materials or do not wish to receive such materials through any particular means of communication, please contact us through one of the communication channels set out in the "Contact Us" section below. To ensure that your request can be processed quickly please provide your full name, email address, log in name and details of the product and/or service you have subscribed.

### Identity Card Number

We may also collect your identity card number and process this as required under applicable law or regulation, as required by any regulator having authority over us and, subject to the PDPO, for the purpose of identifying you where it is reasonable for your identity card number to be used for this purpose.

### Transfers of personal data for direct marketing purposes

Except to the extent you have already opted out we may transfer your name, mailing address, telephone number and email address to other members of the Group for the purpose of enabling those members of the Group to send promotional materials to you and conduct direct marketing activities in relation to their financial services and information services.

### Other transfers of your personal data

For one or more of the purposes specified above, your personal data may be:

1. transferred to other members of the Group and made available to appropriate persons in the Group, in Hong Kong or elsewhere and in this regard you consent to the transfer of your data outside of Hong Kong;
2. supplied to any agent, contractor or third party who provides administrative,

telecommunications, computer, payment, debt collection, data processing or other services to HKEX and/or any of other member of the Group in Hong Kong or elsewhere; and  
3. other parties as notified to you at the time of collection.

### How we use cookies

If you access our information or services through the HKEX website, you should be aware that cookies are used. Cookies are data files stored on your browser. The HKEX website automatically installs and uses cookies on your browser when you access it. Two kinds of cookies are used on the HKEX website:

**Session Cookies:** temporary cookies that only remain in your browser until the time you leave the HKEX website, which are used to obtain and store configuration information and administer the HKEX website, including carrying information from one page to another as you browse the site so as to, for example, avoid you having to re-enter information on each page that you visit. Session cookies are also used to compile anonymous statistics about the use of the HKEX website.

**Persistent Cookies:** cookies that remain in your browser for a longer period of time for the purpose of compiling anonymous statistics about the use of the HKEX website or to track and record user preferences.

The cookies used in connection with the HKEX website do not contain personal data. You may refuse to accept cookies on your browser by modifying the settings in your browser or internet security software. However, if you do so you may not be able to utilise or activate certain functions available on the HKEX website.

### Compliance with laws and regulations

HKEX and other members of the Group may be required to retain, process and/or disclose your personal data in order to comply with applicable laws and regulations or in order to comply with a court order, subpoena or other legal process (whether in Hong Kong or elsewhere), or to comply with a request by a government authority, law enforcement agency or similar body (whether situated in Hong Kong or elsewhere) or to perform or discharge the Regulatory Functions. HKEX and other members of the Group may need to disclose your personal data in order to enforce any agreement with you, protect our rights, property or safety, or the rights, property or safety of our employees, or to perform or discharge the Regulatory Functions.

### Corporate reorganisation

As we continue to develop our business, we may reorganise our group structure, undergo a change of control or business combination. In these circumstances it may be the case that your personal data is transferred to a third party who will continue to operate our business or a similar service under either this Privacy Policy Statement or a different privacy policy statement which will be notified to you. Such a third party may be located, and use of your personal data may be made, outside of Hong Kong in connection with such acquisition or reorganisation.

### Access and correction of personal data

Under the PDPO, you have the right to ascertain whether we hold your personal data, to obtain a copy of the data, and to correct any data that is inaccurate. You may also request us to inform you of the type of personal data held by us. All data access requests shall be made using the form prescribed by the Privacy Commissioner for Personal Data ("**Privacy Commissioner**") which may be found on the official website of the Office of the Privacy Commissioner or via this link  
<https://www.pcpd.org.hk/english/publications/files/Dforme.pdf>

Requests for access and correction of personal data or for information regarding policies and practices and kinds of data held by us should be addressed in writing and sent by post to us (see the "Contact Us" section below).

A reasonable fee may be charged to offset our administrative and actual costs incurred in complying with your data access requests.

### Termination or cancellation

Should your account or relationship with us be cancelled or terminated at any time, we shall cease processing your personal data as soon as reasonably practicable following such cancellation or termination, provided that we may keep copies of your data as is reasonably required for archival purposes, for use in relation to any actual or potential dispute, for the purpose of compliance with applicable laws and regulations and for the purpose of enforcing any agreement we have with you, for protecting our rights, property or safety, or the rights, property or safety of our employees, and for performing or discharging our functions, obligations and responsibilities.

### General

If there is any inconsistency or conflict between the English and Chinese versions of this Privacy Policy Statement, the English version shall prevail.

### Contact us

By Post:  
Personal Data Privacy Officer  
Hong Kong Exchanges and Clearing Limited  
12/F., One International Finance Centre  
1 Harbour View Street  
Central  
Hong Kong

By Email:  
[DataPrivacy@HKEX.COM.HK](mailto:DataPrivacy@HKEX.COM.HK)