EQUITY MARKET
BISTECH OUCH CERTIFICATION PROGRAM

September 2020, Version 4.0

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BISTECH OUCH CERTIFICATION PROGRAM

………………………………………… A.Ş.'   BISTECH OUCH ORDER ENTRY STAGE CONNECTIVITY TEST

To The Attention of Our Members:

The purpose of this test is to enable our members to test their own systems as they are in BISTECH OUCH environment.

Order entry part of the test is segmented according to required phases of routine operation. It comprises Opening Session, Continuous Transaction and Throttling (Maximum number of orders allowed in unit time) test sections.

Please perform the below transactions in order and make sure to check the messages incoming at every step when you carry out these transactions.

First, determine the impact expected to occur when order is sent to the system.

Whether expected impact occurred or not after order or any request is sent to the system will be controlled by dimensional and contextual integrity and accuracy of the response which reached you with respect to the activity at the first degree. By controlling whether the activities are accurately processed or not at your main system which is the source of the activities carried out from every channel at the back in the second degree, proper blanks below each option will be ticked.

Inform the officers immediately if an unexpected situation occurs.

Please send the document to Borsa Istanbul officers after filling the part spared for you at the end of the test.

Legal Liability fully pertains to the member in disputes which may arise between the customers and members who do not use some of order and transaction functions in their OUCH programs which are taking part in existing transaction rules of Equity Market and allowed by Equity Market to be used with BISTECH OUCH.

For this reason, we recommend our members to inform their customers on this subject and form the proper legal basis with their customers.

Our members are fully responsible for faultless perform of the member system.

Contents

SECTION 1:

CONNECTIVITY TEST

1. **Login Request Packet**
   - ➢ Send the Login Request Packet with 0 (zero) in Requested Sequence Number field and empty Requested Session field (Password=123456). Login Accepted Packet should be received.

   ( ) Expected messages are received.   ( ) Problem with messages

2. **Heartbeat Packet**
   - ➢ The server and the client should send a Server Heartbeat Packet anytime more than 1 second passes where no data has been sent to the counter side. At this step, it should be confirmed that Heartbeat Packet of server is received and Heartbeat Packet is sent by client fulfilling the Heartbeat requirement mentioned above.

   ( ) Expected messages are received.   ( ) Problem with messages

3. **Logout Request Packet**
   - ➢ Send Logout Request Packet and system terminates the TCP/IP socket.

   ( ) Expected messages are received.   ( ) Problem with messages

4. **Login Request Packet Failure**
   - ➢ Send the Login Request Packet with 0 (zero) in Requested Sequence Number field and empty Requested Session field (Password=123). **Login Rejected** will be received with Reject Reason Code=A (Incorrect Username/Password).

   ( ) Expected messages are received.   ( ) Problem with messages

5. **Login Request Packet**
   - ➢ Send the Login Request Packet with 0 (zero) in Requested Sequence Number field and empty Requested Session field (Password=123456). Login Accepted Packet should be received.

   ( ) Expected messages are received.   ( ) Problem with messages

SECTION 2 :

ORDER ENTRY AND FUNCTIONALITY

Instruments that will be used during test are listed below with Partition, Base Price and OrderBookID information:

SYMBOL	Part	Base Price	Order Book ID
ADANA.E	1	6.000	70636
ALCAR.E	1	5.000	71116
ASELS.E	1	5.000	71536
FRIGO.E	1	0.210	74136
GARAN.E	1	6.000	74196
TCELL.E	**2**	7.000	78296
ZOREN.E	**2**	5.000	79596
ATAGY.E	1	5.000	71636
ADEL.E	1	5.000	70676
AYGAZ.E	1	7.000	71876
BAKAN.E	1	15.000	71936
EUKYO.E	1	0,620	73916
CCOLA.E	1	6.000	72556

Reference Data (Security Definition, Security Status, Price Limits etc.) regarding the instruments that are listed will be available through FIX Reference Data and ITCH Market Data connection.

Order Details:

- ✓ For Order Entry via OUCH Protocol, OrderBookID (SecurityID) of the instrument must be used instead of Symbol name. OrderBookID of the instruments that are used for Certification Test are given on the table above.
- ✓ Orders should be **Limit** priced **Day** and **Client** orders unless it is noted otherwise.
- ✓ For orders with AccountType **FUND,** AFK field (Client/Account) with **XRM** value must be included in the order.
- ✓ Values sent in Account and Reference fields will not be checked (pass-through fields). These are mandatory fields OUCH protocol and should be sent in compliance with below table (Enter Order) which originally published in OUCH Specification Document.

Name	Offset	Length	Value	Notes
Client/Account	34	16	Alpha	Mandatory for Fund orders. Agency/Fund Code (AFK)
Customer Info	50	15	Alpha	Client Reference field.
Exchange Info	65	32	Alpha	Client Account number.

- ➤ Clients are allowed to send Cancel Order and Enter Order (New) messages instead of sending Replace Order. Please note that cancelling an order and sending a new one will definitely cause losing the time priority of the order while it is possible to retain the time priority with Replace Order message in certain circumstances.

DropCopy Connection

Execution Report messages of Order Entry/Replace/Cancel messages that are entered via OUCH protocol will be received over FIX DropCopy connection. Clients will be provided with DropCopy connection details to be used during the Certification Test on request.

Default configuration of DropCopy connection is aimed at receiving messages of all users of the participant without any filter (FIX, TW, OUCH). It is possible to configure the DropCopy connection to receive messages of specific users.

OPENING AUCTION

1. **ADANA.E** enter orders listed below and receive Order Accepted messages.

i.	ADANA.E – BUY – 200 lot – 6.200 TL – Day - Client	**[Order Token=10]**
ii.	ADANA.E – BUY – 90 lot – 6.090 TL – Day - Client	**[Order Token=20]**
iii.	ADANA.E – BUY – 80 lot – 6.080 TL – Day - Client	**[Order Token=30]**
iv.	ADANA.E – BUY – 70 lot – 6.070 TL – Day - Client	**[Order Token=40]**
v.	ADANA.E – BUY – 60 lot – 6.060 TL – Day - Portfolio	**[Order Token=50]**
vi.	ADANA.E – BUY – 50 lot – 6.050 TL – Fill and Kill - Client	**[Order Token=60]**
vii.	ADANA.E – SELL– 10 lot – 6.200 TL – Day – Fund – AFK: XRM	**[Order Token=70]**
viii.	ADANA.E – SELL– 20 lot – 6.100 TL – Day - Client	**[Order Token=80]**
ix.	ADANA.E – SELL– 250 lot – 6.260 TL – Day – Portfolio	**[Order Token=90]**
x.	ADANA.E – SELL– 350 lot – 6.270 TL – Day – Fund – AFK: XRM	**[Order Token=100]**
xi.	ADANA.E – SELL– 450 lot – 6.280 TL – Day – Fund – AFK: XRM	**[Order Token=110]**
xii.	ADANA.E – SELL– 550 lot – 6.290 TL – Day – Fund – AFK: XRM	**[Order Token=120]**

( ) Expected messages are received.   ( ) Problem with messages

2. **ADANA.E cancel** below orders with **Order Token** as reference (Cancel Order by Order Token) and receive Order Cancelled messages.

i.   (Order Token=20) ADANA.E – BUY – 90 lot – 6.090 TL – Day - Client

[Order Token=130]

ii.   (Order Token=90) ADANA.E – SELL– 250 lot – 6.260 TL – Day – Portfolio

[Order Token=140]

( ) Expected messages are received.   ( ) Problem with messages

3. **ADANA.E cancel** below orders with **OrderID** as reference (Cancel Order by OrderID) and receive Order Cancelled messages.

i.   (Order Token=50) ADANA.E – BUY – 60 lot – 6.060 TL – Day - Portfolio

[Order Token=150]

ii.   (Order Token=120) ADANA.E – SELL – 550 lot – 6.290 TL – Day– Fund – AFK: XRM

[Order Token=160]

(   ) Expected messages are received.   (   ) Problem with messages

4. **ADANA.E** modifiy quantity of below orders and receive Order Replaced messges.

i.   (Order Token=30) – BUY – <u>79 lot</u> – 6.080 TL – Day- Client   **[Order Token=170]**
ii.   (Order Token=100) – SELL– <u>351 lot</u> – 6.270 TL – Day– Fund – AFK: XRM

[Order Token=180]

(   ) Expected messages are received.   (   ) Problem with messages

5. **ADANA .E** modify below orders as underlined and receive Order Replaced messages.

i.   (Order Token=40) BUY – 70 lot – <u>6.060 TL</u> – Day – Client   **[Order Token=190]**
ii.   (Order Token=110) SELL– <u>435 lot</u> – <u>6.210 TL</u> – Day – Fund – AFK: XRM

[Order Token=200]

(   ) Expected messages are received.   (   ) Problem with messages

6. **ADANA.E** enter below orders and receive Order Rejected messages with order reject codes indicated below.

i.   BUY – 100 lots – 10.000 TL – Day – Client   **[Order Token=210]**

Order Reject Code: (-420131) "The premium is outside the allowed price limits for this instrument"

ii.   SELL – 150 lots – 6,000 TL – Day - Client   **[Order Token=200]**

(A previously used Order Token should be sent !)

Order Reject Code: (-800002) "The token is not unique"

(   ) Expected messages are received.   (   ) Problem with messages

7. **ADANA.E** Opening Auction will be ended.

Check the Order Executed messages related with below executions:

    i.   Trade 1: 10 lot 6.200TL
    ii.   Trade 2: 20 lot 6.200 TL

(   ) Expected messages are received.   (   ) Problem with messages

Below Opening Auction order will be cancelled. Check the related Order Cancelled message.
    iii.   (Order Token=60) BUY – 50 lot – 6.050 TL – Limit - FaK- Client

(   ) Expected messages are received.   (   ) Problem with messages

CONTINOUS AUCTION

8. **ZOREN.E** enter below orders (2nd partition) and receive Order Accepted messages.

    i.   BUY – 100 lot – 5.200 TL – Day - Client   **[Order Token=220]**

    ii.   SELL–20 lot – 5.200 TL – Day – Client   **[Order Token=230]**

Check Order Executed messages of trade below:
    i. Trade1: 20 lot 5.200 TL

(   ) Expected messages are received.   (   ) Problem with messages

9. **ZOREN.E** modify quantity of your partially traded order and receive Order Replaced message.

    i. (Order Token=220) BUY – <u>70 lot</u>[*] – 5.200 TL – Day – Client   **[Order Token=240]**

(   ) Expected messages are received.   (   ) Problem with messages

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*Order with original quantity of 100 lots is partially executed and remains 80 lots in the orderbook befor modification. When order is modified as 70 lots, partially executed quantity will be extracted and passive order in the orderbook will be updated as 50 lots. Check and confirm that 50 is received in the Quantity (Quantity=50) field in Order Replaced message. *(This warning messages is for users who send Order Replace for order modification.)*

10. ZOREN.E modify quantity of your partially traded order and receive Order Executed message.

  i.   (Order Token=220) BUY – <u>90 lot</u> – 5.200 TL – Day – Client   **[Order Token=250]**

┌───┐
│ ( ) Expected messages are received.   ( ) Problem with messages │
└───┘

11. ASELS.E enter below orders (1st partition) and receive Order Accepted messages.

  i.   BUY – 20 lot – 5.200 TL – Day - Client   **[Order Token=260]**
  ii.   BUY – 30 lot – 5.100 TL – Day - Client   **[Order Token=270]**

  iii.   SELL– 100 lot – 5.200 TL –Day – Client   **[Order Token=280]**

  Check Order Executed messages of trades below:
    i. Trade 1: 20 lot 5.200 TL

┌───┐
│ ( ) Expected messages are received.   ( ) Problem with messages │
└───┘

12. ASELS.E modify quantity of your partially traded order and receive Order Replaced message.

  i.   (Order Token=280) SELL – <u>70 lot</u> – <u>5.100 TL</u> – Day – Client   **[Order Token=290]**

┌───┐
│ ( ) Expected messages are received.   ( ) Problem with messages │
└───┘

  ✓ Please note that your order has been traded immediately after modification and Order
     Replaced message includes following values: Quantity=20 and PreTrade Quantity=50.

13. ALCAR.E enter below orders and receive Order Accepted messages.

  i.   BUY – 100 lot – 5.200 TL – Day - Client   **[Order Token=300]**

  ii.   SELL– 60 lot – 5.200 TL – Day – Client   **[Order Token=310]**

  Check Order Executed messages of trades below:
    i. Trade 1: 60 lot 5.200 TL

┌───┐
│ ( ) Expected messages are received.   ( ) Problem with messages │
└───┘

14. ALCAR.E modify quantity of your partially traded order and receive Order Replaced message.

i.(Order Token=300) BUY – 50 lot^{**} – 5.200 TL – Day – Client   **[Order Token=320]**

( ) Expected messages are received.   ( ) Problem with messages

15. FRIGO.E enter below orders and receive Order Accepted messages.

i.   BUY – 100 lot – 0.215 TL – Day - Client   **[Order Token=330]**

ii.   SELL– 450 lot – 0.205 TL – Day - Client   **[Order Token=340]**

Check Order Executed messages of trades below:
- Trade 1: 100 lot – 0.215 TL

( ) Expected messages are received.   ( ) Problem with messages

16. Logout & Login Request Packet – Continue with last Sequence Number Received
- ➢ Send Logout Request Packet and terminate the connection.
- ➢ Send the Login Request Packet with the last received sequence number from the server in Requested Sequence Number field and empty Requested Session field (Password=123456). Login Accepted Packet should be received.

( ) Expected messages are received.   ( ) Problem with messages

Throttling Test

17. Send below BUY and SELL orders for 500 times each, total of 1000 orders in compliance with the Throttling limit of 100 orders per second which is configured in the system for your user at the moment of test.
Throttling limit is configured as 100 orders per second. Therefore total of 1000 orders below must be sent at a pace rate of 100 orders per second in 10 seconds.
   i.   **GARAN.E –** BUY – 10 lots – 6.000 TL – Day – Client   **[Order Token=600]**

   ii.   **GARAN.E –** SELL – 10 lots – 6.100 TL – Day – Client   **[Order Token=1100]**

( ) Expected messages are received.   ( ) Problem with messages

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^{**} Order with original quantity of 100 lots is partially executed and remains 40 lots in the orderbook before modification. When order is modified as 50 lots, partially executed quantity will be extracted and passive order in the orderbook will be deleted. Check and confirm that 0 is received in the Quantity field (Quantity=0) and Order State = 2 (Not on book). Please note that PreTrade Quantity field is received as 0 (zero) in the Order Replaced message. *(This warning messages is for users who send Order Replace for order modification.)*

Failover to Secondary Gateway

Terminate connection with Primary OUCH Gateway IP and Ports and connect to secondary OUCH Gateway IP and Port provided.

➢ Send Login Request Packet <u>without</u> resetting Sequence number (with the last sequence number received from system) and receive Login Accepted Packet.

( ) Expected messages are received.   ( ) Problem with messages

➢ Enter below orders to the secondary system and receive Order Accepted messages:
  o GARAN.E BUY Price: 6.060 20 LOT *(Partition1)*   **[Order Token=4]**
  o TCELL.E BUY Price: 7.500 10 LOT *(Partition2)*   **[Order Token=5]**

( ) Expected messages are received.   ( ) Problem with messages

End of Day Batch

End of Day Batch will be processed. Check cancel messages (Order Cancelled) for Expired Day orders.

( ) Expected messages are received.   ( ) Problem with messages

Logout from the system after expected cancel messages are received. System will be terminated after

( ) Expected messages are received.   ( ) Problem with messages

End of Day Batch.

SECTION 3:

MARKET MAKER FUNCTIONALITY TEST

Notes

- ✓ Orders should be **Limit** priced, **Day** and **Client** orders.

- ✓ Values of Account and Reference fields will be checked for only steps that indicate these values in the scenario. These fields should be sent in compliance with OUCH Specification document.

- ✓ PartyID of MassQuote messages must be **"PYM"** .

- ✓ There will be response from the system for successful MassQuote entries. MassQuote Acknowledgement message will be also sent if one or more Quote entry has incorrect value. MassQuote message will be validated by Exchange operator and the user will be informed too.

- ✓ It is strongly recommended that the Quote IDs are taken from the same numbering series as the Order Token in cases where Orders and Quotes are submitted through the same OUCH session. This principle is applied for test steps below and previously used Order Tokens/TradeReportIDs are not used.

- ✓ "QuoteItem" value that will be given to each quote entry is started from 1 and incremented by one for each quote entry. Given QuoteItems are expected for MassQuote messages that include more than one quotes.

- ✓ Entered successful MassQuotes will be checked from Trader Workstation by Exchange Operator. The user will be received message for successful entries.

OPENING SESSION

1. **ATAGY.E** enter below orders and receive Execution Report messages.

      i.   BUY – 100 lot – 4,950 TL   **[Order Token=5010]**
      ii.   SELL – 700 lot – 5,100 TL   **[Order Token=5020]**

(   ) Expected messages are received.   (   ) Problem with messages

2. **ATAGY.E** enter MassQuote at price levels 5,100 – 5,110 and 500 lots each side.
                                               [Order Token=5030]

NOTE: The response will be received from system for a successful MassQuote entry. MassQuote entry will be checked also from Trading Workstation by Exchange Operator during the test.

OPENING SESSION MATCHING

Opening Session will be ended and match will be started. Check Execution Report ve Trade Capture Report messages for **ATAGY.E**:

    i.   Trade : 500 lot 5.100TL

(   ) Expected messages are received.   (   ) Problem with messages

3. **ATAGY.E** enter MassQuote at price levels 5,200 – 5,250 and 500 lots each side. Check Mass Quote Acknowledgement- Reject message is received.   **[Order Token=5040]**

NOT: MassQuote entry is not allowed in this session state.

(   ) Expected messages are received.   (   ) Problem with messages

CONTINOUS AUCTION

4. **ATAGY.E** enter MassQuote at price levels 5,200 – 5,250 and 500 lots each side. Quote entry on this instrument will be updated. Check below Execution Report and Trade Report messages are received after MassQuote update.

[Order Token=5050]

    i.   Trade : 200 lot 5.100TL

(   ) Expected messages are received.   (   ) Problem with messages

5. **ATAGY.E** enter MassQuote at price levels 5,300 – 5,350 and 250 lots each side. Quote entry on this instrument will be updated.

[Order Token=5060]

(   ) Expected messages are received.   (   ) Problem with messages

6. **ATAGY.E** enter below orders and receive Execution Report messages.

    i.   SELL – 100 lot – 5,310 TL   **[Order Token=5070]**
    ii.   SELL – 20 lot – 5,320 TL   **[Order Token=5080]**
    iii.   SELL – 30 lot – 5,330 TL   **[Order Token=5090]**

(   ) Expected messages are received.   (   ) Problem with messages

7. **ATAGY.E** update the price of BUY side of the quote as 5,330 TL
Check Execution Report and Trade Report messages are received for below trades after Quote update:

[Order Token=5100]

    i.   Trade : 100 lot 5.310 TL
    ii.   Trade : 20 lot 5.320 TL
    iii.   Trade : 30 lot 5.330 TL

(   ) Expected messages are received.   (   ) Problem with messages

8. **ATAGY.E** update the quantity of the SELL side of the quote as 400 lots.

NOT: *The acknowledgement message will be sent from the system after a successful quote update. Exchange operator will check the new quantity of the quote from Trading Workstation after quote update.*

[Order Token=5110]

( ) Expected messages are received. ( ) Problem with messages

9. **ADEL.E** enter MassQuote at price levels 5,000 – 5,250 and 500 lots each side.

[Order Token=5120]

( ) Expected messages are received. ( ) Problem with messages

10. **ADEL.E** cancel only the BUY side of the quote entered to this instrument above.

[Order Token=5130]

( ) Expected messages are received. ( ) Problem with messages

11. **ADEL.E** cancel the SELL side of the quote entered to this instrument, too. So that there will be no valid quote remains in this instrument.

[Order Token=5140]

( ) Expected messages are received. ( ) Problem with messages

12. **ATAGY.E** enter MassQuote only on BUY side at price level 5,510 TL with 500 Lots.

[Order Token=5150]

( ) Expected messages are received. ( ) Problem with messages

13. **ATAGY.E** enter MassQuote only on SELL side at price level 5,580 TL with 500 Lots. (BUY side will be cancelled)

[Order Token=5160]

( ) Expected messages are received.   ( ) Problem with messages

14. **ATAGY.E** cancel the MassQuote on this instrument.

[Order Token=5170]

( ) Expected messages are received.   ( ) Problem with messages

15. Enter a single MassQuote message on below instruments with given price levels, size and QuoteItem.

[Order Token=5180]

AYGAZ.E	: BUY: 7,900 TL 5000 Lot − SELL: 8,600 5000 Lot	*(QuoteItem=1)*
CCOLA.E	: BUY: 6,000 TL 500 Lot − SELL: 6,200 1000 Lot	*(QuoteItem=2)*
EUKYO.E	: BUY: 0,530 TL 500 Lot − SELL: 0,550 500 Lot	*(QuoteItem=3)*
BAKAN.E	: BUY: 16,000 TL 500 Lot − SELL: 16,200 1000 Lot	*(QuoteItem=4)*

16. Enter a single MassQuote message on below instruments with given price levels, size and QuoteItem.

[Order Token=5190]

AYGAZ.E	: BUY: 8,000 TL 5000 Lot − SELL: 8,100 5000 Lot	*(QuoteItem=1)*
CCOLA.E	: BUY: 5,000 TL 500 Lot − SELL: 6,200 1000 Lot	*(QuoteItem=2)*
EUKYO.E	: BUY: 0,530 TL 500 Lot − SELL: 0,580 500 Lot	*(QuoteItem=3)*
BAKAN.E	: BUY: 17,000 TL 500 Lot − SELL: 16,200 1000 Lot	*(QuoteItem=4)*

Check that "Mass Quote Acknowledgement - Some Quotes Rejected" message is received due to rejection of 4th quote entry in the MassQuote message.

( ) Expected messages are received.   ( ) Problem with messages

17. Enter a single MassQuote message on below instruments with given price levels, size and QuoteItem.

[Order Token=5200]

AYGAZ.E   : BUY: 9,000 TL 5000 Lot − SELL: 8,100 5000 Lot   *(QuoteItem=1)*

CCOLA.E   : BUY: 5,019 TL 500 Lot − SELL: 6,220 1000 Lot   *(QuoteItem=2)*

EUKYO.E   : BUY: 0,529 TL 500 Lot − SELL: 0,579 500 Lot   *(QuoteItem=3)*

BAKAN.E   : BUY: 17,000 TL 500 Lot − SELL: 16,200 1000 Lot   *(QuoteItem=4)*

Check that "Mass Quote Acknowledgement – All Quotes Rejected" message is received due to rejection of all quote entries in the MassQuote message.

(   ) Expected messages are received.   (   ) Problem with messages

Test Evaluation

Title of the Brokerage House/ISV	
Technical Staff Participated in the Test (Client)	
Exchange Official Participated in the Test	
General Evaluation (to be filled by BIST officials)	

Please contact with ouch.nasdaqdestek@borsaistanbul.com for your questions.

Test Evaluation