

# **SOLA Derivatives**

# Guide to Certification (SAIL)

**Certification Guide** 

Issue 2.0

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# **Certification Guide**

#### **Disclaimer**

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# **Contents**

| 1.0        | Intr  | oduction  | 4   |
|------------|---|---|---|
|            | 1.1   | Purpose   | 4   |
|            | 1.2   | •   | 4   |
|            | 1.3   | •   | 4   |
|            | 1.4   | •   | 4   |
|            |   |   |   |
|            |   |   |   |
| 2.0        | Cer   | tification Programme  | 5   |
|            | 2.1   | Access to the Live Service  | 5   |
|            | 2.2   | Software Identification   | 5   |
|            | 2.3   | Mandatory Certification Requirements  | 5   |
|            | 2.4   | Certification Policy  | 5   |
|            | 2.5   | Test Scenario Exception Policy  | 6   |
|            | 2.6   | Passport across LSEG Venues   | 6   |
|            | 2.7   | Non-Conformant Behaviour on the Live 6  | Service   |
|            | 2.8   | Self Certification Email  | 6   |
|            | 2.9   | Test Charges  | 6   |
|            |   | 3   |   |
|            |   |   |   |
|            |   |   |   |
|            |   |   |   |
| 3.0        | Cer   | tification Process  | 6   |
| 3.0<br>4.0 |   | tification Process  | 6<br>7  |
|            |   |   |   |
|            | Cer   | tification Test Scenarios  Test Procedure Submitting execution report and notifyi   | <b>7</b>  |
|            | <b>Cer</b>  | tification Test Scenarios  Test Procedure   | <b>7</b>  |
|            | <b>Cer</b> 4.1 4.2  | tification Test Scenarios  Test Procedure Submitting execution report and notifyi   | <b>7</b> 7 ng result  |
|            | 4.1<br>4.2<br>4.3   | tification Test Scenarios  Test Procedure Submitting execution report and notifyi 8 Certification Instruments   | <b>7</b> 7 ng result  |
|            | 4.1<br>4.2<br>4.3<br>4.4  | tification Test Scenarios  Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology   | 7 7 7 ng result 8 9   |
|            | 4.1<br>4.2<br>4.3<br>4.4<br>4.5   | tification Test Scenarios  Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology Technical Test Cases  | 7 7 7 7 7 8 9 9   |
|            | 4.1<br>4.2<br>4.3<br>4.4<br>4.5<br>4.6  | tification Test Scenarios  Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology Technical Test Cases Unsolicited Service Test Cases   | 7 7 7 ng result 8 9 9 15                                      |
|            | 4.1<br>4.2<br>4.3<br>4.4<br>4.5<br>4.6<br>4.7<br>4.8<br>4.9   | Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology Technical Test Cases Unsolicited Service Test Cases Order Creation Test Cases Order Cancellation Test Cases Order Modification Test Cases  | 7 7 7 7 8 9 9 15 16 36 38                                     |
|            | 4.1<br>4.2<br>4.3<br>4.4<br>4.5<br>4.6<br>4.7<br>4.8<br>4.9<br>4.10   | tification Test Scenarios  Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology Technical Test Cases Unsolicited Service Test Cases Order Creation Test Cases Order Cancellation Test Cases Order Modification Test Cases Indication of Interest to Trade Test Cases  | 7 7 7 7 7 9 9 15 16 36 38 8 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 |
|            | 4.1<br>4.2<br>4.3<br>4.4<br>4.5<br>4.6<br>4.7<br>4.8<br>4.9<br>4.10<br>4.11   | Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology Technical Test Cases Unsolicited Service Test Cases Order Creation Test Cases Order Cancellation Test Cases Order Modification Test Cases Indication of Interest to Trade Test Cases Bulk Quote Test Cases   | 7 7 7 7 7 9 9 15 16 36 38 8 9 8 15 43                         |
|            | 4.1<br>4.2<br>4.3<br>4.4<br>4.5<br>4.6<br>4.7<br>4.8<br>4.9<br>4.10<br>4.11<br>4.12   | Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology Technical Test Cases Unsolicited Service Test Cases Order Creation Test Cases Order Cancellation Test Cases Order Modification Test Cases Indication of Interest to Trade Test Case Bulk Quote Test Cases Trade Management Test Cases  | 7 7 7 7 7 9 9 15 16 36 38 sees42 43 51                        |
|            | 4.1<br>4.2<br>4.3<br>4.4<br>4.5<br>4.6<br>4.7<br>4.8<br>4.9<br>4.10<br>4.11<br>4.12<br>4.13   | Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology Technical Test Cases Unsolicited Service Test Cases Order Creation Test Cases Order Cancellation Test Cases Order Modification Test Cases Indication of Interest to Trade Test Case Bulk Quote Test Cases Trade Management Test Cases Market Maker Protection Test Cases   | 7 7 7 7 7 7 9 9 15 16 36 38 sees42 43 51 54                   |
|            | 4.1<br>4.2<br>4.3<br>4.4<br>4.5<br>4.6<br>4.7<br>4.8<br>4.9<br>4.10<br>4.11<br>4.12<br>4.13<br>4.14                                 | Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology Technical Test Cases Unsolicited Service Test Cases Order Creation Test Cases Order Cancellation Test Cases Order Modification Test Cases Indication of Interest to Trade Test Case Bulk Quote Test Cases Trade Management Test Cases Market Maker Protection Test Cases Market Maker Alarms   | 7 7 7 7 7 7 9 9 15 16 36 38 38 sees 42 43 51 54 55            |
|            | 4.1<br>4.2<br>4.3<br>4.4<br>4.5<br>4.6<br>4.7<br>4.8<br>4.9<br>4.10<br>4.11<br>4.12<br>4.13<br>4.14<br>4.15                         | Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology Technical Test Cases Unsolicited Service Test Cases Order Creation Test Cases Order Cancellation Test Cases Order Modification Test Cases Indication of Interest to Trade Test Case Bulk Quote Test Cases Trade Management Test Cases Market Maker Protection Test Cases Market Maker Alarms Drop Copy Test Cases  | 7 7 7 7 7 7 9 9 15 16 36 38 sees 42 43 51 54 55 57            |
|            | 4.1<br>4.2<br>4.3<br>4.4<br>4.5<br>4.6<br>4.7<br>4.8<br>4.9<br>4.10<br>4.11<br>4.12<br>4.13<br>4.14<br>4.15<br>4.16                 | Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology Technical Test Cases Unsolicited Service Test Cases Order Creation Test Cases Order Cancellation Test Cases Order Modification Test Cases Indication of Interest to Trade Test Case Bulk Quote Test Cases Trade Management Test Cases Market Maker Protection Test Cases Market Maker Alarms Drop Copy Test Cases User Defined Strategies (FLEXCO)                             | 7 7 7 7 7 7 9 9 15 16 36 38 sees 42 43 51 54 55 57 59         |
|            | 4.1<br>4.2<br>4.3<br>4.4<br>4.5<br>4.6<br>4.7<br>4.8<br>4.9<br>4.10<br>4.11<br>4.12<br>4.13<br>4.14<br>4.15<br>4.16<br>4.17         | Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology Technical Test Cases Unsolicited Service Test Cases Order Creation Test Cases Order Cancellation Test Cases Order Modification Test Cases Indication of Interest to Trade Test Case Bulk Quote Test Cases Trade Management Test Cases Market Maker Protection Test Cases Market Maker Alarms Drop Copy Test Cases User Defined Strategies (FLEXCO) Bundle Order Test Scenarios | 7 7 7 7 7 7 9 9 15 16 36 38 38 51 54 55 57 59 60              |
|            | 4.1<br>4.2<br>4.3<br>4.4<br>4.5<br>4.6<br>4.7<br>4.8<br>4.9<br>4.10<br>4.11<br>4.12<br>4.13<br>4.14<br>4.15<br>4.16<br>4.17<br>4.18 | Test Procedure Submitting execution report and notifyi 8 Certification Instruments Terminology Technical Test Cases Unsolicited Service Test Cases Order Creation Test Cases Order Cancellation Test Cases Order Modification Test Cases Indication of Interest to Trade Test Case Bulk Quote Test Cases Trade Management Test Cases Market Maker Protection Test Cases Market Maker Alarms Drop Copy Test Cases User Defined Strategies (FLEXCO)                             | 7 7 7 7 7 7 9 9 15 16 36 38 sees 42 43 51 54 55 57 59         |

#### 1.0 Introduction

#### 1.1 Purpose

The purpose of this document is to provide customers with a detailed overview of the Certification service across the eligible London Stock Exchange Group venues London Stock Exchange and Borsa Italiana.

The SAIL Certification Test Cases Guide provides test cases for participants and independent software vendors for the certification of their application in order to interface with SOLA using the native SOLA Access Information Language (SAIL) Protocol

#### 1.2 Readership

The target audience for these publications is anyone working at either the business or Information Technology (IT) level of an organisation interested in certification for the SOLA trading platform.

#### 1.3 Document History

This document has been through the following iterations:

| Issue | Date       | Description  |
|-------|------------|--|
| 1.0   | 30/09/2013 | Initial Issue  |
| 1.1   | 08/07/2015 |  |
| 1.2   | 16/03/2016 | Annual Certification procedure and contacts  |
| 1.3   | 23/01/2017 | Certification Test Scenarios: 4.7.34; 4.9.36; 4.17.3; 4.19; 4.20.  |
| 1.4   | 15/03/2017 | Review Certification Test Scenarios  |
| 1.5   | 16/08/2017 | Review Certification Test Scenarios  New Test cases: ORD-29, ALR-02, TRD04, TRD-05  Certification policy updated  New Passport policy                    |
| 1.6   | 05/08/2017 | Certification policy updated Review Certification Test Scenarios New Test cases: ORD-30, ORD-31, BUQ-04a, BUQ-04b, BUQ-04c                               |
| 1.7   | 12/03/2018 | Review of test cases ORD-24 and ORD-26 ORD-25 and ORD-27 have been modified according to the new Deferred Publication functionality New test case: BO-06 |
| 1.8   | 26/06/2019 | Rebranding   |
| 1.9   | 26/06/2019 | SOLA Version update  |
| 2.0   | 16/09/2019 | SOLA Version update  |

In subsequent issues, where amendments have been made to the previous version, these changes will be identified using a series of side bars as illustrated opposite.

#### 1.4 Contacts

Please contact Market Access Italy if you have any functional questions about SOLA platform functionalities detailed in this document.

Phone: 0039 02 72426668

• Email: <u>market-access@borsaitaliana.it</u>

#### 2.0 Certification Programme

The Certification Programme is based on regulatory compliance supporting interoperability against the three eligible London Stock Exchange Group (LSEG) venues. The current eligible venues are London Stock Exchange and Borsa Italiana.

The following Certification Programme applies to anyone connecting a software application to an LSEG *Live Service*. A Live service is any production Trading or Information Services environment across LSEG.

Under EU and national regulatory requirements (including the ESMA Guidelines on Systems and Controls in a Highly Automated Trading Environment) the eligible LSEG venues are required to have procedures and arrangements to ensure fair and orderly trading. This includes requirements for physical and electronic security to protect systems from misuse or unauthorised access and to ensure the integrity of the data that is part of or passes through the systems. The eligible venues are required to undertake standardised certification testing to ensure that members and participants systems used to access the venues have a minimum level of functionality that is compatible with fair and orderly trading on those venues.

Customer non-compliance with this certification programme may constitute a breach of the eligible venue terms and conditions or rules.

#### 2.1 Access to the Live Service

Access to the LSEG Live Services is permitted only when a customer's software application has been certified as being fit for purpose.

#### 2.2 Software Identification

All customer software must be identifiable by a software name and version number. Software applications that do not have both a name and version number will not be certified. Certification is limited to a single version of the named software.

#### 2.3 Mandatory Certification Requirements

Customer confirms that the certified trading application is fully conformant to all aspects of the Technical Specifications. Customer also confirms that its application has in place the following controls:

- ✓ limits on transaction per second sent by Trading sessions
- ✓ limits on order quantity and order countervalue
- ✓ order and trade price limits against static and dynamic controls prices

#### 2.4 Certification Policy

Customers are required to certify or re-certify their applications under the following conditions:

- ✓ Prior to use the application in the live environment (for new applications);
- ✓ The customer modifies the software in any way that directly impacts LSEG interfaces. This includes but is not limited to updates to Gateways, Order Management, Execution Management and Quote Management Software;
- ✓ The Exchange upgrades its production environment to a later version of softwar e;
- ✓ The customer is requested to re-certify their application by the relevant venue.

If no certifications have been performed during a solar year (because any of the previous conditions occurred), the customer will be asked to self-certify (by sending an email to the relevant Trading Venue team that look after certifications) that no changes have been applied to the application since the last certification.

#### 2.5 Test Scenario Exception Policy

Customers only need to complete the test cases relating to the functionalities that they will use on the Live Services. If a customer's application does not support the functionality described in a particular test scenario and they do not intend to complete the scenario during the test, this must be agreed before the start of the certification test and reported in the certification report.

#### 2.6 Passport across LSEG Venues

The Group is pleased to confirm that upon successful certification against one of the venues IDEM, CurveGlobal markets Equity Derivatives or Interest Rate Derivatives, the certified application will be permitted to access all SOLA Production systems – London and Milan, according with the membership agreement currently in place.

However, please be aware that in order for the passport to be applicable, the certified functionalities must be the same across all the venues where the customer wishes to connect to with the same application software.

#### 2.7 Non-Conformant Behaviour on the Live Service

Any non-conformant behaviour by a customer's software application on the Live Services may lead to the software application being disconnected and not re-connected until it has been re-certified and the non-conformant behaviour corrected.

#### 2.8 Self Certification Email

If no certifications have been performed during a solar year (because any of the conditions reported in §2.4 occurred), the customer will be asked to self-certify (by sending an email) that no changes have been applied to the application since the last certification.

Email confirmation should be sent to Market-access@borsaitaliana.it

#### 2.9 Test Charges

The published venue specific Certification charges apply to all certification testing regardless of the test being assisted or not.

#### 3.0 Certification Process

The Certification Process is an integral part of the Certification Programme.

Mandatory testing will be required for all applications that wish to connect to the production environment and mandatory functions will need to be tested in order to confirm conformant behaviour.

Customers should consider their software application's 'production ready' before attempting the test. Customers should also read and familiarise themselves with this document and the Market and Product Specific Testing documents. These documents contain important guidance that must be read before completing the certification process. When ready to take the test, customers should complete the following steps:

- Customers should contact Market Access Italy to book a certification test slot providing the Sotware name, version and gateway interfaces.
- The Market Access team will forward the relevant Certification Test Report to the customer.

#### **Before Taking the Test**

The Market Access Italy team will be available to assist participants in completing part of their certification test by performing both mandatory and optional functions.

Customers must identify the venue and the test scenarios supported by their application, by ticking the relevant boxes on the Certification Test Report. The report form must then be sent to: <a href="Market-access@borsaitaliana.it">Market-access@borsaitaliana.it</a>

This is a formal record of the software application that is being certified.

Customers should save a copy of the test report as they will be required to use it during the test to record their test results.

#### **During the Test**

Customers should complete the full set of uncoordinated test cycles described in Section 4 and inform Market Access Italy when this has been completed. If required some limited support can be provided during this phase.

Customers should record the test results on the Full Certification Test Report using the test procedure shown at the start of section 4. Customers are required to complete all test scenarios previously marked on the Full Certification Test Report within a trading day. If a customer does not complete a pre-agreed test scenario, the test will fail.

When all of the uncoordinated test scenarios have been completed, the customer must then complete a set of coordinated test scenarios, assisted by a tester.

The customer can repeat this part as many times as necessary, however additional test sessions may have to be booked if the testing exceeds two hours.

When all test scenarios have been completed, the customer should email the completed Certification Test Report to the tester. The email should be addressed to <a href="mailto:Market-access@borsaitaliana.it">Market-access@borsaitaliana.it</a>

#### After the Test

After the test the tester will check the details on the completed Full Certification Test Report and review the log files for the completed test scenarios. A report is generated detailing how the customer's application has performed during the test. If no retesting is required, he report will be sent to the customer to sign off the application as fit for purpose and ready for production access.

The following items are checked:

- The functional behaviour and message sequencing in each scenario
- If the session was maintained for the entire period or if it dropped
- If any errors were produced over the time period

If multiple interfaces were included in the test, the results are concatenated into a single report.

The report will be run specifying a time ranged limited to a single day.

If the customer is required to repeat any of the testing they should do so within 24 hours of the original test.

By returning the signed copy of the Full Certification Test Report the customer is confirming that their application is fully conformant to all aspects of the SOLA Platform Technical Specifications and technically behaves as described in the guidance given in the technical specification.

#### 4.0 Certification Test Scenarios

#### 4.1 Test Procedure

Before proceeding with the certification test, customers must send the Certification Report to <a href="market-access@borsaitaliana.it">market-access@borsaitaliana.it</a> and ask for an available date to schedule the conformance test session.

The certification report must contain the following information:

- Sotware name, version and gateway interfaces
- which functionalities are supported by the software
- the Venue where the test will be run and the Venue(s) the software connects to

Customers must perform all of the steps in each of the test scenarios reported in this document and record the results in the relevant sections of the Test Report.

A Certification report will be run after the customer has confirmed a successful run of their application on the CDS.

The report will extract all the relevant functions performed by the application and presented them in a format to be reviewed by the testing team to confirm a pass or fail.

Prior to the report being run the customer will be required to confirm the **venue**, the **gateway interfaces** they are certifying and the **userIDs** they are using for each gateway. This will be detailed in the supporting certification report (detailed below) submitted by the customer. The reporting tool will use this information to extract all behaviour for a given time period.

Considerations for the report are listed below.

- 1. The report will be run against any of the interfaces at once or against each separate interface individually depending on the customer application.
- 2. The report will be run specifying a time range limited to a single day.
- 3. The report will extract all message interface behaviour and represent this in a readable format in order to identify a successful set of functional testing.
- 4. The report will identify if the session was maintained for the entire period or if it dropped.
- 5. The report will check for any and all errors produced over the time period.
- 6. The report will be sent to the customer to sign off the application as fit for purpose and ready for production access.
- 7. The customer is responsible for any information declared on the signed-off Certification Test Report.

#### 4.2 Submitting execution report and notifying result

The Customer has to run the Self Certification tests (not coordinated), the Certification Report tests (coordinated) in coordination with the testing team and mark the result of test cases on Certification Report.

At the end of the Self Certification and Certification Session the Customer should consolidate the Certification Report and send a copy of it to the testing team at <a href="Market-access@borsaitaliana.it">Market-access@borsaitaliana.it</a>

The testing team will verify the reports within 1-3 business days.

The testing team will then send back the result of the test (PASS or FAIL) and the Certification Report for final customer signoff.

Final sign off by the customer should be sent to  $\underline{\text{Market-access} @\,borsaitaliana.it}.$ 

#### 4.3 Certification Instruments

Instruments involved in the various certification test cases are identified as INST1 to INST22. These symbols may refer to any instrument available in the SOLA test environment. According to the client requirements, the list of instruments to be used may either be formally defined prior to the certification or "on the fly" as the certification goes.

Symbols GRP1 and GRP2 may refer to any instrument group available in the SOLA test environment. Symbol GRP1 may refer to any strategy instrument group. As for instruments, the list of groups to be used may either be formally defined prior to the certification or "on the fly" as the certification goes, in accordance with the client's requirements

The price and quantity specified in the test case description are indicative.

Customer must follow the prices and quantities accepted for the instrument on which it operates

# 4.4 Terminology

| Term             | Definition   |
|------------------|--|
| Client           | Refers to a computer system able to interact with the SOLA trading platform and to support the specific range of functionalities required by the firm's trading activities.    |
| Instrument       | A specific tradable option or future or strategy. For options, there are two instruments for each underlying, expiry month and strike price combination: one put and one call. |
| Instrument group | Refers to all instruments with the same underlying.  |

# 4.5 Technical Test Cases

# 4.5.1 Establishing a SAIL session

| ID #: TEC-01 Type: Technical |   | Type: Technical       | Requirement:           | Mandatory       | Co-ordinated Test: N         |  |  |  |  |
|------------------------------|---|-----------------------|------------------------|-----------------|------------------------------|--|--|--|--|
| Description                  | Description: Establishing the first SAIL connection of a trading session. |                       |                        |                 |                              |  |  |  |  |
| Comment                      | s: First Time U   | ser Connection (Messa | ge Type TC).           |                 |                              |  |  |  |  |
| Prerequis                    | sites   |                       |                        |                 |                              |  |  |  |  |
| None.                        |   |                       |                        |                 |                              |  |  |  |  |
|                              |   |                       | Expected Results       |                 |                              |  |  |  |  |
| #                            | # Test Steps  |                       | Trading Engine Respo   | onses           | Market Information<br>(HSVF) |  |  |  |  |
| 1                            | Client: Conn  | ects to SOLA.         | Connection established | d.              |                              |  |  |  |  |
|                              | Sends a TC  | message.              | Sends a TK message     |                 |                              |  |  |  |  |
|                              | [Exchange N   | /lessage ID: 0]       | [User sequence ID: 0]  |                 |                              |  |  |  |  |
| 2                            |   |                       | Sends a Heartbeat mes  | ssage question. |                              |  |  |  |  |
|                              |   |                       | Sends a TH message     |                 |                              |  |  |  |  |
| 3                            | response wit<br>timeframe [In   |                       |                        |                 |                              |  |  |  |  |

# 4.5.2 Terminating a SAIL session

| ID #: TE  | C-02   | Type: Technical  | Requirement:                  | Mandatory | Co-ordinated Test: N         |  |  |  |
|-----------|--|------------------|-------------------------------|-----------|------------------------------|--|--|--|
| Descripti | Description: Terminating a SAIL session                  |                  |                               |           |                              |  |  |  |
| Commen    | Comments: User's Disconnection Request (Message Type TD) |                  |                               |           |                              |  |  |  |
| Prerequi  | sites  |                  |                               |           |                              |  |  |  |
| Execution | n of test case TE  | EC-01            |                               |           |                              |  |  |  |
|           |  |                  | Expected Results              |           |                              |  |  |  |
| #         | Test Steps   |                  | Trading Engine Resp<br>(SAIL) | onses     | Market Information<br>(HSVF) |  |  |  |
| 1         | Client: Discon   | nects from SOLA. | Connection is terminate       | ed.       |                              |  |  |  |
|           | Sends a TD m   | nessage          | Sends a TL message            |           |                              |  |  |  |

# 4.5.3 Restarting a SAIL session

| ID #: TE  | C-03  | Type: Technical                                 | Requirement:  | Mandatory  | Co-ordinated Test: N       |  |  |  |
|-----------|---|---|---|------------|----------------------------|--|--|--|
| Descripti | Description: User Reconnection during the session – Retransmission from next message. |   |   |            |                            |  |  |  |
| Commer    | its: User Reconn  | nection (Message Type T                         | TC)   |            |                            |  |  |  |
| Prerequi  | isites  |   |   |            |                            |  |  |  |
| Executio  | n of test cases T   | EC-01 and TEC-02                                |   |            | -                          |  |  |  |
|           |   | E   | Expected Results  |            |                            |  |  |  |
| #         | Test Steps  |   | rading Engine Resp<br>SAIL)   |            | arket Information<br>ISVF) |  |  |  |
| 1         | Sends a TC m  | nessage with a ge Message ID:  sessage ID: " "] | eends an arbitrary nur<br>nessages and the con<br>e-established.<br>ends a TK message:<br>User sequence ID!= r<br>xpected User sequen | nection is |                            |  |  |  |

# 4.5.4 Disconnection Instruction Management – Exchange Disconnection

| ID #: TEC-04 |  | Type: Technical                      | Requirement: Optional   |       | Co-ordinated Test: N  |  |  |  |
|--------------|--|--------------------------------------|---|-------|---|--|--|--|
| Descrip      | Description: Disconnection Instruction Management – Disconnection by Exchange; outstanding quotes are cancelled. |                                      |   |       |   |  |  |  |
| Comme        | Comments: None.  |                                      |   |       |   |  |  |  |
| Prerequ      | uisites  |                                      |   |       |   |  |  |  |
| None.        |  |                                      |   |       |   |  |  |  |
|              |  |                                      | Expected Results  |       |   |  |  |  |
| #            | Test Steps   |                                      | Trading Engine Response (SAIL)  |       | larket Information<br>HSVF)   |  |  |  |
| 1            | Client: Connec   | cts to SOLA.                         | Connection established.   |       |   |  |  |  |
|              | Sends a TC m   | nessage:                             | Sends a TK message  |       |   |  |  |  |
|              | [Exchange Me   | essage ID: 0]                        |   |       |   |  |  |  |
|              | [Inactivity Inte   | rval: 1]                             |   |       |   |  |  |  |
| 2            | Client: Active   | Y(ON)                                |   |       |   |  |  |  |
| 3            | Client: Specific instructions.   | es disconnection                     | Disconnection Instruction is accepted.  | S     |   |  |  |  |
|              | Sends a TA m   | nessage:                             | Sends a TM message  |       |   |  |  |  |
|              | [Disconnection   | n Instruction: Q]                    |   |       |   |  |  |  |
| 4            | Client: Sends  | a few quotes.                        | Quotes are accepted.  | Q     | luote or Market Depth sent.   |  |  |  |
|              | Sends several  | I Q <i> messages</i>                 | Sends several LA message  | es S  | everal /FFF or H/HF messages are sent.  |  |  |  |
|              |  |                                      |   | F     | or strategy: Several FS or HS message are sent  |  |  |  |
| 5            |  | longer than the rval" period defined | SOLA disconnects client ar<br>cancels all outstanding quo                                       | otes. | Quote or Market Depth sent. Several F/FF or H/HF messages are sent. Sor strategy: Several FS or HS message are sent |  |  |  |
| 6            | Client: Reconn<br>missed messa<br>Sends a TC m<br>[Exchange me   | nessage:                             | Connection accepted.  Sends a TK message  Quotes cancellation notice sent.  Sends an KG message | is    |   |  |  |  |

# 4.5.5 Disconnection Instructions Management - Client Disconnection

| ID #: TE | C-05 Type: Technical   | Requirement: Optional                                   | Co-ordinated Test: N                            |  |  |  |  |  |
|----------|--|---|---|--|--|--|--|--|
| Descript | Description: Disconnection Instruction Management – Disconnection by Client; outstanding quotes are cancelled. |   |   |  |  |  |  |  |
| Commer   | nts: None.   |   |   |  |  |  |  |  |
| Prerequ  | isites   |   |   |  |  |  |  |  |
| None.    |  |   |   |  |  |  |  |  |
|          |  | Expected Results  |   |  |  |  |  |  |
| #        | Test Steps   | Trading Engine Responses (SAIL)                         | Market Information (HSVF)                       |  |  |  |  |  |
| 1        | Client: Specifies disconnection instructions.  | Disconnection Instruction is accepted.                  |   |  |  |  |  |  |
|          | Sends a TA message:  | Sends a TM message                                      |   |  |  |  |  |  |
|          | [Disconnection Instruction: Q]   |   |   |  |  |  |  |  |
|          |  |   |   |  |  |  |  |  |
| 2        | Client: Active Y(ON)   |   |   |  |  |  |  |  |
| 3        | Client: Sends a few quotes.  | Quotes are accepted.                                    |   |  |  |  |  |  |
|          | Sends several Q <i> messages</i>   | Sends several LA messages                               |   |  |  |  |  |  |
| 4        | Client: Disconnects.   | Disconnection is accepted.                              | Quote or Market Depth sent.                     |  |  |  |  |  |
|          | Sends a TD message   | Sends a TL message                                      | Several /FFF or H/HF messages are sent.         |  |  |  |  |  |
|          |  | All outstanding quotes are cancelled.                   | For strategy: Several FS or HS message are sent |  |  |  |  |  |
|          |  |   |   |  |  |  |  |  |
| 5        | Client: Reconnects and receives missed messages.   | Connection accepted. Sends a TK message                 |   |  |  |  |  |  |
|          | Sends a TC message: [Exchange message ID: " "]   | Quotes cancellation notice is sent. Sends an KG message |   |  |  |  |  |  |
|          | [Exchange message ID: 3 "]   |   |   |  |  |  |  |  |

# 4.5.6 Disconnection Instruction Management – Quotes not Cancelled

| ID #: TEC-06 Typ |   | Type: Technical                 | Requirement:   | Optional | Co-ordinated Test: N  |  |  |  |
|------------------|---|---------------------------------|--|----------|---|--|--|--|
| Descriptio       | Description: Disconnection Instruction Management – Disconnection by Client; outstanding quotes are not cancelled |                                 |  |          |   |  |  |  |
| Comment          | s: Instruction  | to cancel quotes is rer         | moved  |          |   |  |  |  |
| Prerequis        | sites   |                                 |  |          |   |  |  |  |
| Execution        | of test case  | TEC-05                          |  |          |   |  |  |  |
|                  |   |                                 | Expected Results   |          |   |  |  |  |
| #                | Test Steps  | 3                               | Trading Engine Resp<br>(SAIL)  |          | Market Information<br>(HSVF)  |  |  |  |
| 1                |   | cifies<br>ion instructions.     | Disconnection Instruct<br>accepted.  Sends a TM message                            |          |   |  |  |  |
|                  | [Disconned  | ction Instruction: Q]           |  |          |   |  |  |  |
| 2                | Client: Acti  | ve N(OFF)                       |  |          |   |  |  |  |
| 3                | Client: Sen<br>Sends seve<br>messages   | ds a few quotes. eral Q <i></i> | Quotes are accepted.  Sends several LA med   | ssages   | Quote or Market Depth sent.  Several F/FF or H/HF messages are sent.  For strategy: Several FS or HS message are sent |  |  |  |
| 4                | Client: Disc<br>Sends a TI  | connects.<br>D message          | Disconnection is acce<br>outstanding quotes ar<br>cancelled.<br>Sends a TL message |          |   |  |  |  |
| 5                | Client: Red<br>Sends a To   |                                 | Connection is accepted Sends a TM message  |          |   |  |  |  |

# 4.5.7 Sequence Resynchronization

| ID #: TEC   | C-07  | Type: Technical | Requirement: Mandato  | ry | Co-ordinated Test: N     |  |  |  |
|-------------|---|-----------------|---|----|--------------------------|--|--|--|
| Description | Description: Re-synchronization from out of sequence situation. |                 |   |    |                          |  |  |  |
| Comment     | ts: None.   |                 |   |    |                          |  |  |  |
| Prerequis   | sites   |                 |   |    |                          |  |  |  |
| Client mu   | st be disconn   | ected.          |   |    |                          |  |  |  |
|             |   |                 | Expected Results  |    |                          |  |  |  |
| #           | Test Steps  | 3               | Trading Engine Responses<br>(SAIL)  |    | rket Information<br>SVF) |  |  |  |
| 1           | Client: Con   | nects to SOLA   | Connection established.   |    |                          |  |  |  |
|             | Sends a To  | C message:      | Sends a TK message  |    |                          |  |  |  |
|             | [Exchange   | Message ID: 0]  |   |    |                          |  |  |  |
| 2           | quote.  |                 | Message is out of sequence. Client is disconnected. Client must reconnect.  |    |                          |  |  |  |
|             | [   | -               | Sends a TO message:   |    |                          |  |  |  |
|             |   |                 | [Received User Sequence ID: z]  |    |                          |  |  |  |
|             |   |                 | [Expected User Message ID: x]   |    |                          |  |  |  |
| 3           | Client: Red<br>Sends a To                                       | C message       | Re-connection and Disconnection<br>Instructions are accepted.<br>Sends a TK |    |                          |  |  |  |
| 4           | Client: Sen quote.  |                 | Message is in sequence. Order or quote is accepted.                         |    |                          |  |  |  |
|             | [User Sequ  | ience ID: x]    |   |    |                          |  |  |  |

# 4.5.8 End of Transmission

| ID #: TE  | C-08   | Type: Technical | Requirement:                 | Mandatory | Co-ordinated Test: N         |  |  |  |
|-----------|--|-----------------|------------------------------|-----------|------------------------------|--|--|--|
| Descripti | Description: End of Transmission                     |                 |                              |           |                              |  |  |  |
| Commer    | nts: None.   |                 |                              |           |                              |  |  |  |
| Prerequ   | isites   |                 |                              |           |                              |  |  |  |
| Executio  | n of test case TE                                    | C-01            |                              |           |                              |  |  |  |
|           |  | E               | Expected Results             |           |                              |  |  |  |
| #         | Test Steps   |                 | rading Engine Respo<br>SAIL) | onses     | Market Information<br>(HSVF) |  |  |  |
| 1         | Client: Sends a<br>Transmission r<br>end of the trad | message at the  | Sends a TT message           |           |                              |  |  |  |
|           | Restart SAIL F gateway.                              | ront End        |                              |           |                              |  |  |  |

# 4.6 Unsolicited Service Test Cases

# **4.6.1 Group Status Change Notification**

| ID #: UN  | IS-01  | Type: Unsolicited Services |   | Requirement:   | Optional | Co-ordinated Test: N |  |  |  |
|-----------|--|----------------------------|---|----------------|----------|----------------------|--|--|--|
| Descripti | Description: Group State Change Notification |                            |   |                |          |                      |  |  |  |
| Commer    | nts: None.                                   |                            |   |                |          |                      |  |  |  |
| Prerequ   | isites                                       |                            |   |                |          |                      |  |  |  |
| Choose    | a Group and cha                              | nge the status of the      | group.  |                |          |                      |  |  |  |
|           |  |                            | Expected Results  |                |          |                      |  |  |  |
| #         | # Test Steps                                 |                            | Trading En<br>(SAIL)  | gine Responses | mation   |                      |  |  |  |
| 1         | Client: Is connered to remessage type.       | eceive NG                  |   |                |          |                      |  |  |  |
| 2         | _  |                            | Sends an NG message when an instrument group change from pre-opening** to Continuous Trading  Group Status Updated.  A GR message is sent |                |          |                      |  |  |  |

# 4.6.2 Instrument State Change Notification

| ID #: UN  | S-02  | Type: Unsolicited    | Type: Unsolicited Services |   | Optional              | Co-ordinated Test: N  |  |  |  |  |
|-----------|---|----------------------|----------------------------|---|-----------------------|---|--|--|--|--|
| Descripti | Description: Instrument State Change Notification |                      |                            |   |                       |   |  |  |  |  |
| Commer    | Comments: None.                                   |                      |                            |   |                       |   |  |  |  |  |
| Prerequ   | isites  |                      |                            |   |                       |   |  |  |  |  |
| Choose    | an instrument ar                                  | nd change the status | of the instrumen           | t.  |                       |   |  |  |  |  |
|           |   |                      | Expected Res               | sults   |                       |   |  |  |  |  |
| #         | Test Steps  |                      | Trading Engi               | ne Responses  | Market Info<br>(HSVF) | Market Information (HSVF)   |  |  |  |  |
| 1         | Client: Is conr<br>requested to r<br>message type |                      |                            |   |                       |   |  |  |  |  |
| 2         | _   |                      | instrument gro             | nessage when an<br>oup change from<br>to Continuous | An F/FF or            | Market Depth sent.<br>H/HF message is sent<br>y: FS or HS message is sent |  |  |  |  |

# 4.6.3 Bulletin Message

| ID #: UI | NS-03  | Type: Unsolicited    | Services  | Requirement: | Optional   | Co-ordinated Test: Y    |  |  |  |
|----------|--|----------------------|---|--------------|------------|-------------------------|--|--|--|
| Descrip  | Description: Bulletin message (Market Supervision message) sent from |                      |   |              |            |                         |  |  |  |
| Comme    | ents: None.  |                      |   |              |            |                         |  |  |  |
| Prereq   | uisites  |                      |   |              |            |                         |  |  |  |
| MOC er   | nters a bulletin to  | be disseminated to m | narket participa  | nts          |            |                         |  |  |  |
|          |  |                      | Expected Re   | sults        |            |                         |  |  |  |
| #        | Test Steps   |                      | Trading Engine Responses (SAIL) Market Information (HSVF) |              |            |                         |  |  |  |
| 1        | 1 Client: Is connected on HSVF                                       |                      |   |              |            |                         |  |  |  |
| 2        | BIT: sends a lito the clients  | oulletin messages    |   |              | Bulletin m | essage.<br>sage is sent |  |  |  |

# 4.7 Order Creation Test Cases

# 4.7.1 Market Top order

| ID #: OF | D#: ORD-01 Type: Order Creation Require                                |                      | Requirement:  | Optional                                       | Co-ordinated Test: N   |  |  |  |  |  |
|----------|--|----------------------|---|--|--|--|--|--|--|--|
| Descrip  | Description: Entering a Market Top order.                              |                      |   |  |  |  |  |  |  |  |
| Comme    | Comments: None.  |                      |   |  |  |  |  |  |  |  |
| Prerequ  | Prerequisites  |                      |   |  |  |  |  |  |  |  |
| The boo  | k for instrument   | INST1 must be set to | [Buy 12@2.  | 00 - Sell 10@2.50]                             | no other orders m  | nust be in the book.   |  |  |  |  |
| 2. Group | for instrument I   | NST1 must be in 'Cor | ntinuous Trad                                       | ling' mode.                                    |  |  |  |  |  |  |
|          |  |                      | Expected  | Results  |  |  |  |  |  |  |
| #        | # Test Steps   |                      | Trading E<br>(SAIL)                                 | ngine Responses                                | Market In (HSVF)   | formation  |  |  |  |  |
| 1        | Client: Enters order for 20 construment IN: Sends an OE [Price type: M | ST1.<br>message:     | Order is pa<br>Sends 1 N<br>For Strate<br>Sends 1 N | E message<br>artially/full filled<br>T message | An F/FF of For strates  Trade ser  A C/CF m  Strategy:  A CS mes | Market Depth sent.  r H/HF message is sent gy: FS or HS message is sent nt. essage is sent essage is sent essage per leg is sent |  |  |  |  |

# 4.7.2 Limit Order

| ID #: OR  | D-02  | Type: Order Creat                    | Requirement: Manda                               |  | atory            | Co-ordinated Test: N                     |                 |  |  |
|-----------|---|--------------------------------------|--|--|------------------|--|-----------------|--|--|
| Descript  | Description: Entering a limit order. The order opens the position.                  |                                      |  |  |                  |  |                 |  |  |
| Commer    | Comments: None.   |                                      |  |  |                  |  |                 |  |  |
| Prerequi  | isites  |                                      |  |  |                  |  |                 |  |  |
| 1. The bo | ook for instrumer   | nt INST1 must be set                 | to [Buy 12                                       | 2@0.10 – Sell 10@0.  | 20].             |  |                 |  |  |
| 2. Group  | for instrument II   | NST1 must be in 'Cor                 | itinuous T                                       | rading' mode.  |                  |  |                 |  |  |
|           |   |                                      | Expecte  | ed Results   |                  |  |                 |  |  |
| #         | Test Steps  |                                      |  |  | Market<br>(HSVF) | Information                              |                 |  |  |
| 1         | Client: Enters 15@0.20, Ope instrument INS Sends an OE [Open/Close: [Price type: L] | en Position, for<br>ST1.<br>message: | Sends at<br>The order<br>Sends at<br>For Strates | booked.  KE message er is partially/fully trad NT message tegy NT message and essage per leg | ded.             | An F/FF For stra Trade s A C/CF Strategy | message is sent |  |  |

# 4.7.3 Opening Order

| ID #: O | #: ORD-03 Type: Order Creation Requirem  |                        | Requirement:      | t: Mandatory  |                  | Co-ordinated Test: N     |  |  |  |
|---------|--|------------------------|-------------------|---|------------------|--------------------------|--|--|--|
| Descrip | <b>Description:</b> Entering an opening order (price Type: "O") during the pre-opening** phase. The order will participate to the auction and totally filled in.   |                        |                   |   |                  |                          |  |  |  |
| Commo   | Comments: None.  |                        |                   |   |                  |                          |  |  |  |
| Prereq  | uisites  |                        |                   |   |                  |                          |  |  |  |
|         |  | INST1 must be set to   |                   |   | <u>201.50</u> ]. |                          |  |  |  |
|         |  |                        | Expecte           | ed Results  |                  |                          |  |  |  |
| #       | Test Steps   |                        | Trading<br>(SAIL) | Engine Respons  |                  | Market In<br>HSVF)       | formation  |  |  |
| 1       | opening price for instrument Sends an OE [Price type: O [Duration Typ [Open/Close: the status of the | message:<br>]<br>e: F] | Sends a           | booked.  a KE message er is traded at oper uring the auction pl  NT message | ning // hase.    | An F/FF of<br>For strate | Market Depth sent.  or H/HF message is sent egy: FS or HS message is sent  nt. nessage is sent |  |  |

# 4.7.4 Limit Order during Pre-Opening Phase

| ID #: OR | D-04   | Type: Order Creation                           | n Requirement:  | Mandatory                 | Co-ordinated Test: N                |  |  |  |
|----------|--|--|---|---------------------------|-------------------------------------|--|--|--|
| Descript | Description: Entering a limit order (price Type: "L") during the pre-opening** phase. The order will partially participate to the auction. |  |   |                           |                                     |  |  |  |
| Comme    | nts: None.   |  |   |                           |                                     |  |  |  |
| Prerequi | isites   |  |   |                           |                                     |  |  |  |
|          |  | NST1 must be set to [l<br>In must be pre-openi | Buy 12@200.00 – Sell <u>10@2</u><br>i <b>ng** phase</b>   | 201.50].                  |                                     |  |  |  |
|          |  |  | Expected Results  |                           |                                     |  |  |  |
| #        | Test Steps   |  | Trading Engine Response (SAIL)  | Market Information (HSVF) |                                     |  |  |  |
| 1        | opening price,<br>message:<br>[Price type: L]<br>The status of to  |  | Order is booked.  Sends a KE message  The order is traded at opening price. Remaining quantity with pass into continuous trading.  Sends 1 NT message | Trade sent                | ssage is sent<br>HS message is sent |  |  |  |

#### 4.7.5 Passive Limit Order

| ID #: OF | RD-05 Type: Order Creation   | n              | Requirement:     | Optic  | onal                | Co-ordinated Test: N         |  |  |  |
|----------|--|----------------|------------------|--------|---------------------|------------------------------|--|--|--|
| Descrip  | Description: Entering a limit order that gets booked. The order is good until a specific date.   |                |                  |        |                     |                              |  |  |  |
|          | Comments: This test is to validate that the client application is using the right date format, namely 'YYYYMMDD'. Represents the order's last active date. |                |                  |        |                     |                              |  |  |  |
| Prerequ  | iisites  |                |                  |        |                     |                              |  |  |  |
|          | ook for instrument INST1 must be s   |                |                  | @201.5 | 50].                |                              |  |  |  |
| 2. Grou  | p for instrument INST1 must be in 'C   |                |                  |        |                     |                              |  |  |  |
| ,,       | T ( 0 )  | Expected       | l Results        |        |                     |                              |  |  |  |
| #        | Test Steps   | Trading (SAIL) | Engine Responses | i      | Market In<br>(HSVF) | formation                    |  |  |  |
| 1        | Client: Enters a Sell order  | Order is b     | ooked.           |        | Quote or            | Market Depth sent.           |  |  |  |
|          | 12@201.40, Good until Date with a date before the instrument   | Sends a        | KE message       |        | An F/FF o           | or H/HF message is sent      |  |  |  |
|          | expiry date and with a day number less than 12 (ex: Dec  |                |                  |        | For strate          | gy: FS or HS message is sent |  |  |  |
|          | 10th, June 5th, March 2nd), for instrument INST1   |                |                  |        |                     |                              |  |  |  |
|          | Sends an OE message:   |                |                  |        |                     |                              |  |  |  |
|          | [Price type: L]  |                |                  |        |                     |                              |  |  |  |
|          | [Duration Type: D]   |                |                  |        |                     |                              |  |  |  |
|          | [GTD Data: YYYYMMDD<br>(Represents the order's last<br>active day)]  |                |                  |        |                     |                              |  |  |  |

# 4.7.6 Fill and Kill

| ID #: OR | D-06 Type: Order Creat                         | ion Requirement: Op                 | tional                    | Co-ordinated Test: N |  |  |  |  |  |
|----------|--|-------------------------------------|---------------------------|----------------------|--|--|--|--|--|
| Descript | Description: Entering a 'Fill and Kill' order. |                                     |                           |                      |  |  |  |  |  |
| Commer   | nts: None                                      |                                     |                           |                      |  |  |  |  |  |
| Prerequi | sites  |                                     |                           |                      |  |  |  |  |  |
| 1. The m | arket for instrument INST1 must be s           | set to [12@2.00 – <u>10@2.50</u> ]. |                           |                      |  |  |  |  |  |
| 2. Group | for instrument INST1 must be in 'Co            | ntinuous Trading' mode.             |                           |                      |  |  |  |  |  |
|          |  | Expected Results                    |                           |                      |  |  |  |  |  |
| #        | Test Steps                                     | Trading Engine Responses (SAIL)     | Market Information (HSVF) |                      |  |  |  |  |  |
| 1        | Client: Enters a Sell 'Fill and Kill'          | Order is filled/cancelled           | Quote or Market Dep       | th sent.             |  |  |  |  |  |
|          | order 15@2.00 for instrument INST1.            | Sends a KE message                  | An F/FF or H/HF mes       | sage is sent         |  |  |  |  |  |
|          | Sends an OE message:                           | Sends 1 NT message and NZ message   | For strategy: FS or H     | S message is sent    |  |  |  |  |  |
|          | [Duration Type: E] For Strategy                |                                     |                           |                      |  |  |  |  |  |
|          | Sends 1 NT message and                         |                                     |                           |                      |  |  |  |  |  |
|          |  | 1 NL message per leg                |                           |                      |  |  |  |  |  |

# 4.7.7 Limit Order with Clearing Instruction and Owner Data

| ID #: OR | F: ORD-07 Type: Order Creation Requirement: Mandatory Co-ordinated Test: N      |                                 |                                 |  |  |  |  |  |  |
|----------|---|---------------------------------|---------------------------------|--|--|--|--|--|--|
| Descript | Description: Entering a limit order with a Clearing Instruction and Owner Data. |                                 |                                 |  |  |  |  |  |  |
| Commer   | nts: None.  |                                 |                                 |  |  |  |  |  |  |
| Prerequi | isites  |                                 |                                 |  |  |  |  |  |  |
|          | arket for instrument INST1 must be s  |                                 |                                 |  |  |  |  |  |  |
| 2. Group | for instrument INST1 must be in 'Co   | ntinuous Trading' mode          |                                 |  |  |  |  |  |  |
|          |   | Expected Results                |                                 |  |  |  |  |  |  |
| #        | Test Steps  | Trading Engine Responses (SAIL) | Market Information<br>(HSVF)    |  |  |  |  |  |  |
| 1        | Client: Enters a Sell Limit Order   | Order is booked.                | Quote or Market Depth sent.     |  |  |  |  |  |  |
|          | 40@2.25 with a Clearing<br>Instruction and Owner Data, for<br>instrument INST1. | Sends a KE message              | An F/FF or H/HF message is sent |  |  |  |  |  |  |
|          | Sends an OE message:  |                                 | Strategy: An HS message is sent |  |  |  |  |  |  |
|          | [Clearing Instruction: anything]  |                                 |                                 |  |  |  |  |  |  |
|          | [Owner Data: anything]  |                                 |                                 |  |  |  |  |  |  |

# 4.7.8 Booked Order Filled at 2 Prices

| ID#: OF | RD-08 <b>T</b>  | ype: Order Creation | Requirement:   | Optional   | Co-ordinated Test: N  |  |  |  |  |
|---------|---|---------------------|--|--|---|--|--|--|--|
|         | Description: Entering a Book any price order that gets filled at 2 different prices.  Comments: None. |                     |  |  |   |  |  |  |  |
| Prerequ | Prerequisites   |                     |  |  |   |  |  |  |  |
| #       | Test Steps  |                     | ected Results  | s Market In                                      | formation   |  |  |  |  |
| 1       | Client: Enters 2 c<br>10@2.50, 15@2.  | , i                 | L)   | An F/FF o  | Market Depth sent. or H/HF message is sent An HS message is sent  |  |  |  |  |
| 2       | Client: Enters a Sprice Order for 20 instrument INST Sends an OE me [Price type: W]                   | O contracts for     | r is filled at 2 different p<br>2.60.and 5@2.50<br>ds 2 NT messages<br>egy:<br>messages each follow<br>message per leg | 2 C/CF m Strategy: Per Leg: 0 Quote or An F/FF o | nt. nessage are sent 2 CS are sent C or CF message is sent Market Depth sent. or H/HF message is sent An HS is sent |  |  |  |  |

# 4.7.9 Minimum Fill Order

| ID #: OR | D-09 Type: Order Creati  | ion Requirement: Optional       | Co-ordinated Test: N         |  |  |  |  |  |  |
|----------|--|---------------------------------|------------------------------|--|--|--|--|--|--|
| Descript | Description: Entering a Minimum Fill volume order.   |                                 |                              |  |  |  |  |  |  |
| Commer   | nts: None.   |                                 |                              |  |  |  |  |  |  |
| Prerequi | sites  |                                 |                              |  |  |  |  |  |  |
| 1. The m | arket for instrument INST1 must be s   | set to [10@2.00 - 10@2.50].     |                              |  |  |  |  |  |  |
| 2. Group | for instrument INST1 must be in 'Cor   | ntinuous Trading' mode.         |                              |  |  |  |  |  |  |
|          |  | Expected Results                |                              |  |  |  |  |  |  |
| #        | Test Steps   | Trading Engine Responses (SAIL) | Market Information<br>(HSVF) |  |  |  |  |  |  |
| 1        | Client: Enters a Buy Limit Order 10@2.40 for instrument INST1 with a minimum fill volume of 5. |                                 |                              |  |  |  |  |  |  |
|          | Sends an OE message:   | Sends a KE message:             |                              |  |  |  |  |  |  |
|          | [Quantity Term: M]   |                                 |                              |  |  |  |  |  |  |
|          | [Additional Quantity: 5]   |                                 |                              |  |  |  |  |  |  |

# 4.7.10 Stop Order

| ID#: OR   | Type: Order Cre   | ation   | Requirement:                                  | Optional          | Co-ordinated Test: N  |  |  |  |  |
|---|---|---|---|-------------------|---|--|--|--|--|
| Descript  | Description: Entering a Stop Order and being able to handle it when it gets triggered.  |   |   |                   |   |  |  |  |  |
| Commer  | Comments: None.   |   |   |                   |   |  |  |  |  |
| Prerequi  | isites  |   |   |                   |   |  |  |  |  |
| 1. The INST21 needs to allow Stop Orders.  2. Group for instrument INST1 must be in 'Continuous Trading' mode  3. The market for instrument INST21 must be set to [30@2.00 – 10@2.50].  4. The last Price or the previous day's close for INST21 must be greater than 2.00. |   |   |   |                   |   |  |  |  |  |
|   |   | Expected Ro   | esults  |                   |   |  |  |  |  |
| #   | Test Steps  | Trading Eng<br>(SAIL)   | ine Responses                                 | Market<br>(HSVF)  | Information   |  |  |  |  |
| 1   | Client: Enters a Sell Stop Order 9@2.00 for instrument INST21, trigger price 2.10.  Sends an OE message:  [Additional Price: 2.10]  [Special Price Term: S] | Order is accellated booked.  Sends a KE  [Status: S]                                    | epted and not<br>message                      | An F/FF           | or Market Depth sent.<br>For H/HF message is sent<br>tegy: FS or HS message is sent   |  |  |  |  |
| 2   | Client: Enters an order on INST21 to sell 25@2.00.  | at 2.00 again The client on traded 5@2.  Sends an NT For Strategy Sends 1 NT 1 NL messa | message and ge per leg og 4 contracts are 00. | Strategy Quote of | message is sent  y: 1 CS are sent and 1 C/CF message per leg or Market Depth sent.  For H/HF message is sent tegy: FS or HS message is sent |  |  |  |  |

# 4.7.11 Stop on Ask Order

**ID #:** ORD-11 Type: Order Creation Requirement: Co-ordinated Test: N Description: Entering a Stop on Ask Order and being able to handle it when it gets triggered. (Not booked immediately) Comments: None. **Prerequisites** 1. The INST21 needs to allow Stop Orders. 2. Group for instrument INST1 must be in 'Continuous Trading' mode 3. Instrument Book must be clear 4. The market for instrument INST21 must be set to [12@10.00 - 10@10.50]. **Expected Results Test Steps** Trading Engine Responses Market Information (SAIL) (HSVF) Client: Enters a Sell StopOnAsk 1 Order is accepted and is not on Quote or Market Depth sent. Order 8@10.00 for instrument the book. An F/FF or H/HF message is sent INST21, trigger price 10.25 Sends a KE message For strategy: FS or HS message is sent Sends an OE message: [Status: "S "] [Additional Price: 10.25] [Special Price Term: I] 2 Client: Enters a sell order on Limit order triggers StopOrder. Trade sent. INST21 15@10.25. StopOrder match bid side. A C/CF message is sent Trade 8@10.00 is done. Sends an NT message Strategy: 1 CS are sent and 1 C/CF message per For Strategy Sends 1 NT message and Quote or Market Depth sent. 1 NL message per leg An F/FF or H/HF message is sent For strategy: FS or HS message is sent The remaining 4 Qty are booked at 10.00 on Bid side

Sends a KE message

# 4.7.12 Stop on Bid Order

| <b>ID</b> #: OF  | RD-12 <b>1</b>  | Type: Order Creation              | 1                                       | Requirement:         | Optional        | Co-ordinated Test: N   |  |  |  |
|------------------|---|-----------------------------------|---|----------------------|-----------------|--|--|--|--|
| Descrip          | Description: Entering a Stop on Bid Order and being able to handle it when it gets triggered. (booked immediately)  |                                   |   |                      |                 |  |  |  |  |
| Comme            | Comments: None.   |                                   |   |                      |                 |  |  |  |  |
| Prerequ          | Prerequisites   |                                   |   |                      |                 |  |  |  |  |
| Group     Instru | 1. The INST21 needs to allow Stop Orders. 2. Group for instrument INST1 must be in 'Continuous Trading' mode 3. Instrument Book must be clear 4. The market for instrument INST21 must be set to [10@10.00 – 10@10.35].  Expected Results |                                   |   |                      |                 |  |  |  |  |
| #                | Test Steps  |                                   | Trading Eng<br>(SAIL)                   | ine Responses        |                 | Market Information<br>(HSVF)   |  |  |  |
| 1                | Client: Enters a I Order 8@10.25 INST21, trigger p Sends an OE me [Additional Price   | for instrument price 9.90 essage: | Order is acce<br>booked<br>Sends a KE i | epted, is immediatel | y triggered and | Quote or Market Depth sent.  An F/FF or H/HF message is sent  For strategy: FS or HS message is sent |  |  |  |

#### 4.7.13 Stop on Last Order

**ID #:** ORD-13 Type: Order Creation Requirement: Co-ordinated Test: N Optional Description: Entering a Stop on Last Order and being able to handle it when it gets triggered. (booked and traded immediately) Comments: **Prerequisites** 1. The INST21 needs to allow Stop Orders. 2. Group for instrument INST1 must be in 'Continuous Trading' mode 3. Instrument Book must be clear 4. Two opposite orders with Price 10,20 must be traded **Expected Results Test Steps** Trading Engine Responses Market Information (SAIL) (HSVF) Client Enters a bid order on 1 Order is accepted and is on the Quote or Market Depth sent. INST21 12@10.30. book. An F/FF or H/HF message is sent Sends a KE message For strategy: FS or HS message is sent Client: Enters a ask StopOnLast 2 Stop is enter Trade sent. Order 15@10.30 for instrument A C/CF message is sent Order is immediately triggered. INST21, trigger price 10.30 StopOrder match bid side. Sends an OE message: Trade 12@10.30 is done. Strategy: 1 CS are sent and 1 C/CF message per leg [Additional Price: 10.30] Sends an NT message [Special Price Term: S] For Strategy Sends 1 NT message and Quote or Market Depth sent. 1 NL message per leg An F/FF or H/HF message is sent The remaining 3 Qty are booked For strategy: FS or HS message is sent

at 10.30 on Ask side
Sends a KE message

# 4.7.14 Ask Touched Order

| ID #: OR  | Type: Order Creation   |   | ion  | Requirement:                       | Optional                | Co-ordinated Test: N  |  |  |  |
|-----------|--|---|--|------------------------------------|-------------------------|---|--|--|--|
| Descript  | Description: Entering an If Ask Touched Order and being able to handle it when it gets triggered. (Not booked immediately) |   |  |                                    |                         |   |  |  |  |
| Comme     | Comments: None.  |   |  |                                    |                         |   |  |  |  |
| Prerequi  | Prerequisites  |   |  |                                    |                         |   |  |  |  |
| 1. The IN | IST21 needs to al  | llow If Touched Orde                                      | ers.   |                                    |                         |   |  |  |  |
| · ·       |  | ST1 must be in 'Cor                                       | ŭ  |                                    |                         |   |  |  |  |
| 3. The m  | arket for instrume   | ent INST21 must be  | set to 12@10.00.   |                                    |                         |   |  |  |  |
|           | T  |   | Expected Resu  | ılts                               |                         |   |  |  |  |
| #         | Test Steps   |   | Trading Engine (SAIL)  | e Responses                        | Market Inform<br>(HSVF) | nation  |  |  |  |
| 1         | Client: Enters a IfAskTouched ( for instrument I price 10.75  Sends an OE n [Additional Price I                            | Order 8@10.00<br>NST21, trigger<br>nessage:<br>ce: 10.75] | Stop Order is an<br>on the book.<br>Sends a KE me<br>[Status: "S "]                        | essage                             | An F/FF or H/F          | ket Depth sent.<br>HF message is sent<br>FS or HS message is sent     |  |  |  |
| 2         | Client: Enters a<br>INST21 15@10   |   | Limit order trigg  Trade 8@10.00  Sends an NT m  For Strategy  Sends 1 NT me  1 NL message | is done.<br>nessage<br>nessage and | Quote or Mark           | s are sent and 1 C/CF message per set Depth sent.  HF message is sent |  |  |  |
|           |  |   | Sends a KE me  | essage                             | For strategy: F         | FS or HS message is sent  |  |  |  |

#### 4.7.15 Bid Touched Order

| ID#: OR   | D-15  | Type: Order Creati    | on                        | Requirement:  | Optional     | Co-ordinated Test: N  |  |  |  |
|-----------|---|-----------------------|---------------------------|---|--------------|---|--|--|--|
| Descript  | Description: Entering an If Touched on Bid Order and being able to handle it when it gets triggered. (booked immediately) |                       |                           |   |              |   |  |  |  |
| Commer    | Comments: None.   |                       |                           |   |              |   |  |  |  |
| Prerequi  | Prerequisites   |                       |                           |   |              |   |  |  |  |
| 1. The IN | IST21 needs to a  | allow If Touched Orde | ers.                      |   |              |   |  |  |  |
| 2. Group  | for instrument IN   | NST1 must be in 'Cor  | ntinuous Trad             | ding' mode  |              |   |  |  |  |
| 3. The m  | arket for instrum   | ent INST21 must be    | set to [10@1              | 0.00 – 10@10.35].   |              |   |  |  |  |
|           |   |                       | Expected                  | Results   |              |   |  |  |  |
| #         | Test Steps  |                       | Trading E<br>(SAIL)       | ngine Responses   | Market Info  | mation  |  |  |  |
| 1         |   | message:<br>ce:10.10] | triggered a<br>contract m | ccepted, is immediately<br>nd booked but no<br>ade<br>E message | An F/FF or F | arket Depth sent.<br>I/HF message is sent<br>FS or HS message is sent |  |  |  |

Requirement:

#### 4.7.16 Touched on Last Order

Type: Order Creation

**ID #:** ORD-16

| Descri  | Description: Entering a If Touched on Last Order and being able to handle it when it gets triggered. (booked and traded immediately)                                     |   |  |  |  |  |  |  |
|---------|--|---|--|--|--|--|--|--|
| Comm    | Comments: None.  |   |  |  |  |  |  |  |
| Prereq  | uisites  |   |  |  |  |  |  |  |
| 2. Grou | The INST21 needs to allow If Touched Orders.     Group for instrument INST1 must be in 'Continuous Trading' mode     Two opposite orders with Price 10.20 must be traded |   |  |  |  |  |  |  |
|         |  | Expected Results  |  |  |  |  |  |  |
| #       | Test Steps   | Trading Engine Responses (SAIL)   | Market Information<br>(HSVF)   |  |  |  |  |  |
| 1       | Client: Enters a sell order on INST21 15@10.30.  | Order is accepted and is on the book.  Sends a KE message   | Quote or Market Depth sent.  An F/FF or H/HF message is sent  For strategy: FS or HS message is sent |  |  |  |  |  |
| 2       | Client: Enters a buy If Touched on Last Price 17@10.30 for instrument INST21, trigger price 10.10  Sends an OE message:  [Additional Price: 10.10]                       | Order is immediately triggered.  If touch order match bid side.  Trade 15@10.30 is done.  Sends an NT message  For Strategy  Sends 1 NT message and | Trade sent.  A C/CF message is sent  Strategy: 1 CS are sent and 1 C/CF message per leg              |  |  |  |  |  |
|         | [Special Price Term: T]  | 1 NL message per leg The remaining 2 Qty are booked at 10.30 on Ask side Sends a KE message   | Quote or Market Depth sent.  An F/FF or H/HF message is sent  For strategy: FS or HS message is sent |  |  |  |  |  |

Optional

Co-ordinated Test: N

# 4.7.17 Circuit Breaker Triggered

| ID #: OR | RD-17 Type: Or   | der Creation   | Requiremer                            | nt: Mandatory  | Co-ordinated Test: N |  |  |  |  |  |
|----------|--|--|---------------------------------------|--|----------------------|--|--|--|--|--|
| Descrip  | Description: Circuit Breaker** Triggered to Y price limit violation  |  |                                       |  |                      |  |  |  |  |  |
| Comme    | Comments: None.  |  |                                       |  |                      |  |  |  |  |  |
| Prerequ  | Prerequisites  |  |                                       |  |                      |  |  |  |  |  |
| 2. Group | The INST21 needs to allow Circuit Breaker.      Group for instrument INST1 must be in 'Continuous Trading' mode      Instrument Book must be clear   |  |                                       |  |                      |  |  |  |  |  |
|          |  | Expected Results   |                                       |  |                      |  |  |  |  |  |
| #        | Test Steps   | Trading Engine Resp<br>(SAIL)  | onses                                 | Market Information (HSVF)  |                      |  |  |  |  |  |
| 1        | Client: Enters a Sell Order Q@P for instrument INST21.  P>Y  P <x (yhigh<p<xhigh)="" an="" message<="" oe="" sends="" td=""><td>Order is accepted and book.  Sends a KE message</td><th>is on the</th><td>Quote or Market De</td><td></td></x> | Order is accepted and book.  Sends a KE message  | is on the                             | Quote or Market De   |                      |  |  |  |  |  |
| 2        | Client: Enters a Buy order AT Market price for quantity Q  | Orders is deleted due<br>breaker (KE sent with<br>Status : C)<br>NI Message with Instru<br>changes in Suspended<br>After 1minute NI mess<br>Status 'N' | Order<br>ument state<br>I Status 'S'. | H send with Instrum Quote or Market De An F/FF or H/HF me after one minute H s | epth sent.           |  |  |  |  |  |

# 4.7.18 Circuit Breaker Triggered

| ID #: OR   | D-18  | Type: Order Creation   |  | Requirement:   | Mandatory                | Co-ordinated Test: N  |  |  |
|------------|---|--|--|--|--------------------------|---|--|--|
| Descript   | Description: Circuit Breaker** Triggered to Z price limit violation |  |  |  |                          |   |  |  |
| Commer     | Comments: None.   |  |  |  |                          |   |  |  |
| Prerequi   | isites  |  |  |  |                          |   |  |  |
| 1. The IN  | IST21 needs to  | allow Circuit Breaker.   |  |  |                          |   |  |  |
| 2. Group   | for instrument I  | NST1 must be in 'Continuous  | s Tradin                                       | g' mode  |                          |   |  |  |
| 3. Instrur | nent Book must  | be clear   |  |  |                          |   |  |  |
| 4. Two o   | pposite orders v  | vith Price 10 must be traded   |  |  |                          |   |  |  |
|            |   |  | Expe   | cted Results   |                          |   |  |  |
| #          | Test Steps  |  |  | ng Engine<br>onses<br>)  | Market Informa<br>(HSVF) | ation   |  |  |
| 1          | 100@20 for in   | 20 <yhigh<xhigh< th=""><th>on the</th><th>is accepted and is book. So a KE message</th><th>Quote or Marke</th><th>et Depth sent.<br/>F message is sent</th></yhigh<xhigh<> | on the   | is accepted and is book. So a KE message   | Quote or Marke           | et Depth sent.<br>F message is sent   |  |  |
| 2          | Client: Enters  | an order on Sell 100@20  | circuit<br>with C<br>NI Me<br>Instru<br>in Sus | is is deleted due to<br>breaker (KE sent<br>Order Status: C)<br>essage with<br>ment state changes<br>spended as Status<br>iter 1min NI message<br>nstrument Status 'N' | H send with Ins          | et Depth sent. F message is sent trument Status F e H send with Instrument Status T |  |  |

# 4.7.19 House Order

| ID #: O | RD-19  | Type: Order Creat | ion                  | Requirement:   | Mandato | atory Co-ordinated Test: N   |  |  |  |  |
|---------|--|-------------------|----------------------|----------------|---------|--|--|--|--|--|
| Descri  | escription: Entering a House order.  |                   |                      |                |         |  |  |  |  |  |
| Commo   | Comments: None.  |                   |                      |                |         |  |  |  |  |  |
| Prereq  | uisites  |                   |                      |                |         |  |  |  |  |  |
|         | 1. The market for instrument INST1 must be set to [12@2.00 – 10@2.50].  2. Group for instrument INST1 must be in 'Continuous Trading' mode |                   |                      |                |         |  |  |  |  |  |
|         |  |                   | Expected R           | esults         |         |  |  |  |  |  |
| #       | Test Steps   | :                 | Trading En<br>(SAIL) | gine Responses |         | arket Information<br>HSVF)   |  |  |  |  |
| 1       | Order 100@<br>the instrum  | DE message:       | Order is boo         |                | An I    | Quote or Market Depth sent.  n F/FF or H/HF message is sent  or strategy: FS or HS message is sent |  |  |  |  |

# 4.7.20 Client Limit Order

| ID #: O | RD-20                                      | Type: Order Creation |                       | Requirement:  | Mandatory           | Co-ordinated Test: N                   |  |  |  |  |
|---------|--|----------------------|-----------------------|---------------|---------------------|--|--|--|--|--|
| Descri  | Description: Entering a Client Limit Order |                      |                       |               |                     |  |  |  |  |  |
| Commo   | Comments: None.                            |                      |                       |               |                     |  |  |  |  |  |
| Prereq  | uisites                                    |                      |                       |               |                     |  |  |  |  |  |
| The ma  | arket for instrument                       | INST1 must be set    | to [10@2.00 –         | 10@2.50].     |                     |  |  |  |  |  |
|         |  |                      | Expected Re           | esults        |                     |  |  |  |  |  |
| #       | Test Steps                                 |                      | Trading Eng<br>(SAIL) | ine Responses | Market Infor (HSVF) | mation                                 |  |  |  |  |
| 1       | Client: Enters a I                         | •                    | Order is book         | ed            | Quote or Ma         | rket Depth sent.                       |  |  |  |  |
|         | 100@2.40, Pro, for instrument INST1.       |                      |                       | nessage       | An F/FF or H        | /HF message is sent                    |  |  |  |  |
|         | Sends an OE me                             | essage:              | [Status: ]            |               | For strategy:       | For strategy: FS or HS message is sent |  |  |  |  |
|         | [Account Type: 1                           | 1]                   |                       |               |                     |  |  |  |  |  |
|         |  |                      |                       |               |                     |  |  |  |  |  |

# 4.7.21 Limit Order with Disclosed Quantity

| ID#: OR  | Type: Order Crea  | tion Requirement:  | Optional | Co-ordinated Test: N   |  |  |  |  |  |  |
|----------|---|--|----------|--|--|--|--|--|--|--|
| Descript | Description: Entering a Limit Order with a Disclosed quantity.  |  |          |  |  |  |  |  |  |  |
| Comme    | Comments: None.   |  |          |  |  |  |  |  |  |  |
| Prerequi | isites  |  |          |  |  |  |  |  |  |  |
|          | narket for instrument INST1 must be of for instrument INST1 must be in 'C   | <u></u>  |          |  |  |  |  |  |  |  |
|          |   | Expected Results   |          |  |  |  |  |  |  |  |
| #        | Test Steps  | Trading Engine Response (SAIL)   |          | rket Information<br>SVF)   |  |  |  |  |  |  |
| 1        | Client: Enters a Buy Limit Order 30@2.05 with a Disclosed quantity of 25 for instrument INST1.  Sends an OE message: [Quantity Term: D] [Additional Quantity: 25] | Order is accepted and book and only 25 contracts are sl Sends a KE message | nown. An | uote or Market Depth sent. F/FF or H/HF message is sent r strategy: FS or HS message is sent |  |  |  |  |  |  |

# 4.7.22 Limit Order for Strategy

| ID #: OR  | RD-22   | Type: Order Creat   | on                | Requirement:                                 | Optic    | onal                    | Co-ordinated Test: N             |  |  |
|-----------|---|---|-------------------|--|----------|-------------------------|----------------------------------|--|--|
| Descrip   | Description: Entering a Limit Order for a Strategy (spread) that gets traded (Trade in Strategy Book) |   |                   |  |          |                         |                                  |  |  |
| Comme     | Comments: None.   |   |                   |  |          |                         |                                  |  |  |
| Prerequ   | Prerequisites   |   |                   |  |          |                         |                                  |  |  |
| 1. The in | strument INST2  | 4 is a strategy and co  | ntains 2 le       | gs (spread INST22 -                          | - INST2  | 3)                      |                                  |  |  |
| 2. Group  | for instrument I  | NST1 must be in 'Co   | ntinuous Tr       | ading' mode                                  |          |                         |                                  |  |  |
| 3. The m  | narket for instrun  | nent INST24 must be   | set to [10@       | 2.00 – 10@2.50].                             |          |                         |                                  |  |  |
| 4. The m  | narket for instrum  | nent INST22 (1st leg o  | f spread) m       | nust be set to [5@3.                         | 20 – 10  | @3.30].                 |                                  |  |  |
| 5. The m  | narket for instrum  | nent INST23 (2 <sup>nd</sup> leg  | of spread) r      | nust be set to [10@                          | 1.00 – 1 | 0@1.10].                |                                  |  |  |
|           |   |   | Expecte           | d Results                                    |          |                         |                                  |  |  |
| #         | Test Steps  |   | Trading<br>(SAIL) | Engine Responses                             | ;        | Market Inform<br>(HSVF) | nation                           |  |  |
| 1         |   | s a Sell Limit Order  |                   | accepted and traded                          | d        | Trade sent.             |                                  |  |  |
|           | 10@2.00 for i   | nstrument INST24.   |                   | ne client order.                             |          | 0,                      | CS message is sent followed by 1 |  |  |
|           | Sends an NT message for the strategy and 1 NL message per C/CF message per leg                        |   |                   |  |          |                         |                                  |  |  |
|           |   | For the legs: C/CF [PriceIndicatorMarket = P]   message is sent per leg |                   |  |          |                         |                                  |  |  |
|           | Trade sent.  Strategy Quote or Market Depth sent.   |   |                   |  |          |                         |                                  |  |  |
|           |   |   |                   | ssage for the spread<br>by 1 NL for each leg | -        | An FS or HS n           | nessage is sent                  |  |  |

# 4.7.23 Market Order at Instrument Limit

| ID#: OF  | Type: Order Cre   | cation Class: Optional   | Co-ordinated Test: N  |  |  |  |  |  |  |  |
|--|---|--|---|--|--|--|--|--|--|--|
| Descrip  | tion: Entering a Market Order at ins  | strument limit (Min/Max) price.  |   |  |  |  |  |  |  |  |
| Comme  | nts: None.  |  |   |  |  |  |  |  |  |  |
| Prerequ  | Prerequisites   |  |   |  |  |  |  |  |  |  |
| <ol> <li>The market for instrument INST1 must be set to [12@0.0001 – 10@99999.5000]; no other orders must be in the Book.</li> <li>Group for instrument INST1 must be in 'Continuous Trading' mode.</li> <li>Adjust Min/Max for Product/instrument in Configuration manager</li> </ol> |   |  |   |  |  |  |  |  |  |  |
| #  | Test Steps  | Trading Engine Responses (SAIL)  | Market Information - HSVF   |  |  |  |  |  |  |  |
| 1  | Client: Enters a Buy @0.0001 for 20 contracts for instrument INST1.  Client: Enters a Sell market for 12 contracts for instrument INST1.  Sends an OE message:  [Price type: M] | Order is accepted and trades completely  Sends a KE message  [Status: X]  Trade Sent  Sends 1 NT message  For Strategy  Sends 1 NT message and  1 NL message per leg | Quote or Market Depth sent.  An F/FF or H/HF message is sent  For strategy: FS or HS message is sent  Trade sent.  A C/CF message is sent  For strategy: CS message is sent followed by 1  C/CF message per leg |  |  |  |  |  |  |  |
| 2  | Client: Enters a Sell @99999.5000 for 15 contracts for instrument INST1.  Client: Enters a Buy market for 15 contracts for instrument INST1.                                    | Order is accepted and trades completely  Sends a KE message  [Status: X]  Trade Sent  Sends 1 NT message   | Quote or Market Depth sent.  An F/FF or H/HF message is sent  For strategy: FS or HS message is sent  Trade sent.  A C/CF message is sent   |  |  |  |  |  |  |  |
|  | Sends an OE message: [Price type: M]  | For Strategy Sends 1 NT message and 1 NL message per leg   | For strategy: CS message is sent followed by 1<br>C/CF message per leg  |  |  |  |  |  |  |  |

#### 4.7.24 Cross Order Block

| <b>ID</b> #: C | DRD-24   | Type: Order Creation         | Requirement:  | Optional            | Co-ordinated Test: N  |  |  |  |  |
|----------------|--|------------------------------|---|---------------------|---|--|--|--|--|
| Descri         | Description: Cross Order validation                  |                              |   |                     |   |  |  |  |  |
| Comm           | Comments: None.                                      |                              |   |                     |   |  |  |  |  |
| Prerec         | quisites   |                              |   |                     |   |  |  |  |  |
| 1. Gro         | up for instrument I                                  | NST1 must be in 'Conti       | nuous Trading' mode   |                     |   |  |  |  |  |
| 2. Instr       | rument Book must                                     | be clear                     |   |                     |   |  |  |  |  |
|                |  |                              | Expected Results  |                     |   |  |  |  |  |
| #              | Test Steps   |                              | Trading Engine Respons<br>(SAIL)  | Market II<br>(HSVF) | nformation  |  |  |  |  |
| 1              | Client: Enters Buy/Sell order create a spread INST1. | rs in order to               | Orders are accepted and be and spread is created.  Sends a KE message                                       |                     | Market Depth sent. or H/HF message is sent                  |  |  |  |  |
| 2              | within the spre<br>higher than th<br>volume          | ead and quantity e block min | Order is accepted and trac<br>Sends a KO message and<br>messages with Special Tra<br>Indicator= "B" (block) | two NT C<> mes      | essage is sent.<br>sage is sent with Price Indicator Marker |  |  |  |  |

#### 4.7.25 Deferred Cross Order

| ID #: OF  | Type: Order Crea   | Requirement:   | Optional         | Co-ordinated Test: N   |  |  |  |  |  |  |  |
|-----------|--|--|------------------|--|--|--|--|--|--|--|--|
| Descrip   | Description: Deferred Publication for Cross Orders   |  |                  |  |  |  |  |  |  |  |  |
| Comme     | Comments: None.  |  |                  |  |  |  |  |  |  |  |  |
| Prerequ   | Prerequisites  |  |                  |  |  |  |  |  |  |  |  |
| 2. Instru | 1. Group for instrument INST1 must be in 'Continuous Trading' mode 2. Instrument Book must be clear 3. Cross volume/value would respect the Post Trade LIS Value and Volume (please refer to Market Access Italy to know these thresholds) |  |                  |  |  |  |  |  |  |  |  |
|           |  | Expected Results   | Expected Results |  |  |  |  |  |  |  |  |
| #         | Test Steps   | Trading Engine Response (SAIL)   | Market I (HSVF)  | nformation   |  |  |  |  |  |  |  |
| 1         | Client: Enters two regular Buy/Sell orders in order to create a spread for instrument INST1.   | Orders are accepted and bo and spread is created.  Sends a KE message                            |                  | Quote or Market Depth sent.  An F/FF or H/HF message is sent |  |  |  |  |  |  |  |
| 2         | Client: Enters a cross order within the spread Send an Cross Order through OX message [Defferred Pubblication = D]   | Order is accepted and trade  Sends a KO message and t  messages with Defferred  Pubblication = D | day.             | essage will be sent at the end of the trading                |  |  |  |  |  |  |  |

# 4.7.26 Committed Block Order

| ID #: ORD-26 Type: Order Creation   |  | tion                | Requirement:     | Optional  | Co-ordinated Test: Y |   |  |  |  |  |
|---|--|---------------------|------------------|---|----------------------|---|--|--|--|--|
| Descript  | Description: Committed block order (interbank)   |                     |                  |   |                      |   |  |  |  |  |
| Comme   | Comments: None.  |                     |                  |   |                      |   |  |  |  |  |
| Prerequ   | Prerequisites  |                     |                  |   |                      |   |  |  |  |  |
| 1. Group  | for instrument II  | NST1 must be in 'Co | ntinuous Trading | ' mode  |                      |   |  |  |  |  |
| 2. Instrur  | ment Book must   | be clear            |                  |   |                      |   |  |  |  |  |
|   |  |                     | Expected Res     | sults   |                      |   |  |  |  |  |
| #   | Test Steps  Trading E (SAIL)   |                     |                  | ne Responses  | Market In<br>(HSVF)  | formation   |  |  |  |  |
| 1   | Client: Enters two regular Buy/Sell orders in order to create a spread for instrument INST1.  Orders are ac and spread is Sends a KE I |                     |                  |   |                      | Market Depth sent.<br>or H/HF message is sent             |  |  |  |  |
| Client: Enters a committed order within the spread and quantity higher than the block min volume, specifying as counter party BIT (0201)  Send an OE message with Price Type='C'  Crient: Enters a committed order order is accepted a Sends a Ke message with Price Type='C' |  |                     |                  |   |                      |   |  |  |  |  |
| 3   | within the spread specifying as  Client counter party  Sends a Ke me   |                     |                  | ted and traded.<br>essage and two NT<br>n Special Trade |                      | ssage is sent. sage is sent with Price Indicator Marker = |  |  |  |  |

# 4.7.27 Deferred Committed Order

| ID #: ORD-27        |   | Type: Order Creat                               | ion  | n Requirement: Opt   |                  | Co-ordinated Test: Y                           |  |  |  |  |
|---------------------|---|---|--|--|------------------|--|--|--|--|--|
| Descrip             | Description: Deferred Publication for Committed Order (interbank) |   |  |  |                  |  |  |  |  |  |
| Comme               | Comments: None.   |   |  |  |                  |  |  |  |  |  |
| Prerequ             | Prerequisites   |   |  |  |                  |  |  |  |  |  |
| 1. Group            | o for instrument I  | NST1 must be in 'Co                             | ntinuous Tradin                              | g' mode  |                  |  |  |  |  |  |
| 2. Instru           | ment Book must  | be clear  |  |  |                  |  |  |  |  |  |
| 3. Cross<br>thresho |   | would respect the P                             | ost Trade LIS                                | Value and Volume   | (please refe     | r to Market Access Italy to know these         |  |  |  |  |
|                     |   |   | Expected Re                                  | esults   |                  |  |  |  |  |  |
| #                   | Test Steps  |   | Trading Eng<br>(SAIL)                        | ine Responses  | Market<br>(HSVF) | Information                                    |  |  |  |  |
| 1                   | Client: Enters<br>Buy/Sell orde<br>create a sprea<br>INST1.       | -   | Orders are ad<br>and spread is<br>Sends a KE |  |                  | or Market Depth sent. For H/HF message is sent |  |  |  |  |
| 2                   | within the spre   | message with Price<br>Deferred                  |  | epted and traded.<br>message with<br>olication=D                 |                  |  |  |  |  |  |
| 3                   | 11  | committed order<br>ead specifying as<br>r party | Sends a Ke r                                 | epted and traded.<br>message and two Ni<br>th with Deferred<br>D | trading          | nessage will be sent at the end of the day.    |  |  |  |  |

#### 4.7.28 While Connected Orders

| ID #: OR | ID #: ORD-28 Type: Order Creation  |                  | Requirement:   | Optional            | Co-ordinated Test: N |  |  |  |  |  |
|----------|--|------------------|----------------|---------------------|----------------------|--|--|--|--|--|
| Descript | Description: While connected orders  |                  |                |                     |                      |  |  |  |  |  |
| Comme    | Comments: None.  |                  |                |                     |                      |  |  |  |  |  |
| Prerequ  | isites   |                  |                |                     |                      |  |  |  |  |  |
| 1. Group | for instrument INST1 must be in 'Co  | ontinuous Tradi  | ng' mode       | ·                   |                      |  |  |  |  |  |
|          |  | Expected Results |                |                     |                      |  |  |  |  |  |
| #        | Test Steps Trading Eng (SAIL)  |                  | gine Responses | Market In<br>(HSVF) | formation            |  |  |  |  |  |
| 1        | <u>Client:</u> Enters a regular order specifying in duration type = W  | Order is acc     | epted.         | F/FF or H           | H/HF messages Sent   |  |  |  |  |  |
| 2        | Client: Disconnection and re connection on the systems  Order status cha (EliminatedOnDis soon as the Clier connection |                  |                | F/FF or H           | /HF messages Sent    |  |  |  |  |  |

# 4.7.29 Matched Principal Order

| ID #: OR       | D-29 <b>Type:</b> Order Creati  | ion                     | Requirement: | Optional                  | Co-ordinated Test: N |  |  |  |  |  |  |
|----------------|---|-------------------------|--------------|---------------------------|----------------------|--|--|--|--|--|--|
| Descript       | Description: Entering a Limit order with account type Matched Principal.          |                         |              |                           |                      |  |  |  |  |  |  |
| Commer         | Comments: None.   |                         |              |                           |                      |  |  |  |  |  |  |
| Prerequi       | Prerequisites   |                         |              |                           |                      |  |  |  |  |  |  |
| 1.<br>2.<br>3. | Group for instrument INST1 must be in 'Continuous Trading' mode                   |                         |              |                           |                      |  |  |  |  |  |  |
|                |   | Expected Res            | ults         |                           |                      |  |  |  |  |  |  |
| #              | Test Steps  | Trading Engir<br>(SAIL) | ne Responses | Market Information (HSVF) | on                   |  |  |  |  |  |  |
| 1              | Client: Enters a Buy Limit Order 100@2.40, Matched Principal                      | Order is booke          | ed.          | Quote or Market I         | Depth sent.          |  |  |  |  |  |  |
|                | for the instrument INST1.    Sends a KE message   An F/FF or H/HF message is sent |                         |              |                           |                      |  |  |  |  |  |  |
|                | Sends an OE message:  |                         |              |                           |                      |  |  |  |  |  |  |
|                | [Price type: L]   |                         |              |                           |                      |  |  |  |  |  |  |
|                | [Account type: 6]   |                         |              |                           |                      |  |  |  |  |  |  |

# 4.7.30 Market Maker Limit Order

| ID #: ORD-30 Type: Order Creation |   |                        | on                | Requirement:      | Optional   | Co-ordinated Test: N                      |  |  |  |  |  |
|-----------------------------------|---|------------------------|-------------------|-------------------|------------|---|--|--|--|--|--|
| Descript                          | Description: Entering a Limit order with account type Market Maker. |                        |                   |                   |            |   |  |  |  |  |  |
| Comme                             | Comments: Not supported on IDEM                                     |                        |                   |                   |            |   |  |  |  |  |  |
| Prerequi                          | Prerequisites   |                        |                   |                   |            |   |  |  |  |  |  |
| 1.                                | The book for in   | nstrument INST1 mus    | t be set to [10   | @2.00 – 10@2.50]. |            |   |  |  |  |  |  |
| 2.                                | Group for instr   | ument INST1 must be    | e in 'Continuo    | us Trading' mode  |            |   |  |  |  |  |  |
| 3.                                | The trader ID r   | must be granted for th | ne account Ma     | rket Maker        |            |   |  |  |  |  |  |
|                                   |   |                        | Expected Results  |                   |            |   |  |  |  |  |  |
| #                                 | Test Steps  |                        | Trading En (SAIL) | gine Responses    | Market Int | formation                                 |  |  |  |  |  |
| 1                                 | 100@2.40, w   | 1                      | Order is boo      |                   |            | Market Depth sent. r H/HF message is sent |  |  |  |  |  |

#### 4.7.31 Best Price Setter

| ID#: OR  | D-31   | Type: Order Creati                                   | on         | Requirement:               | Optiona | al | Co-ordinated Test: N                       |  |  |  |  |
|----------|--|--|------------|----------------------------|---------|----|--|--|--|--|--|
| Descript | <b>Description:</b> Entering a limit order that becomes a best price setter. |  |            |                            |         |    |  |  |  |  |  |
| Commer   | Comments: Not supported on IDEM  |  |            |                            |         |    |  |  |  |  |  |
| Prerequi | Prerequisites  |  |            |                            |         |    |  |  |  |  |  |
| 1.       | The book for ir  | nstrument INST1 mus                                  | t be set t | to [10@2.00 – 10@          | 2.50].  |    |  |  |  |  |  |
| 2.       | Group for instr  | ument INST1 must be                                  | e in 'Cont | tinuous Trading' mo        | ode     |    |  |  |  |  |  |
| 3.       | Participant sub  | scribed the BP mess                                  | age on th  | ne TC Message              |         |    |  |  |  |  |  |
|          |  |  | Expec      | ted Results                |         |    |  |  |  |  |  |
| #        | Test Steps  Trading Engine Responses (SAIL)  Market Information (HSVF)       |  |            |                            |         |    |  |  |  |  |  |
| 1        | 40@101.10 v  | a Sell Limit Order vith a Clearing instrument INST1. |            | is booked.<br>a KE message |         |    | Market Depth sent. or H/HF message is sent |  |  |  |  |
|          | Sends an OE message: Sends a BP Message                                      |  |            |                            |         |    |  |  |  |  |  |
|          | [Clearing Inst   | ruction: anything]                                   |            |                            |         |    |  |  |  |  |  |

# 4.8 Order Cancellation Test Cases

# 4.8.1 Cancelling an Order

| ID #: C | ID #: CXL-01 Type: Order Cance                          |                     | ellation  | Requirement:                               | Mand | atory                     | Co-ordinated Test: N  |  |  |  |  |
|---------|---|---------------------|-----------|--|------|---------------------------|---|--|--|--|--|
| Descrip | Description: Cancelling an order.                       |                     |           |  |      |                           |   |  |  |  |  |
| Comme   | Comments: None.   |                     |           |  |      |                           |   |  |  |  |  |
| Prereq  | Prerequisites   |                     |           |  |      |                           |   |  |  |  |  |
| The ma  | arket for instrumen                                     | t INST1 must be set | to [10@2. | 00 – 10@2.50].                             |      |                           |   |  |  |  |  |
|         |   |                     | Expect    | ed Results                                 |      |                           |   |  |  |  |  |
| #       | Test Steps  | Test Steps          |           | J J  |      | Market Information (HSVF) |   |  |  |  |  |
| 1       | Client: Enters<br>order 10@2.2<br>INST1.<br>Sends an OE | 0 for instrument    |           | •  |      |                           | et Depth sent.<br>IF message is sent<br>S or HS message is sent |  |  |  |  |
| 2       | Client: Cancel order.  Sends an XE I [Cancelled Order]  | · ·                 | Sends a   | cancelled.<br>a KZ message<br>Status: "A"] |      |                           | et Depth sent.<br>IF message is sent<br>S or HS message is sent |  |  |  |  |

# 4.8.2 Cancelling an order by Market Operations

| ID #: CX  | L-02  | Type: Order Canc                              | ellation                             | Requirement:                       | Mandatory  | Co-ordinated Test: Y  |  |  |
|-----------|---|---|--------------------------------------|------------------------------------|------------|---|--|--|
| Descripti | Description: Cancelling an order by Market Control. |   |                                      |                                    |            |   |  |  |
| Commen    | ts: None.   |   |                                      |                                    |            |   |  |  |
| Prerequi  | sites   |   |                                      |                                    |            |   |  |  |
| The mark  | cet for instrumer                                   | nt INST1 must be set                          | to [10@2.00                          | 0 – 10@2.50].                      |            |   |  |  |
|           |   |   | Expected                             | l Results                          |            |   |  |  |
| #         | Test Steps  |   | Trading I                            | ormation                           |            |   |  |  |
| 1         |   | a regular Sell<br>0 for instrument<br>message | Order is b<br>Sends a l<br>[Order IE | KE message:                        | An F/FF or | larket Depth sent.  H/HF message is sent  y: FS or HS message is sent |  |  |
| 2         | BIT: Cancels Sends an XE [Cancelled Or              |   |                                      | cancelled.  NZ message  atus: "M"] | An F/FF or | larket Depth sent.  H/HF message is sent  /: FS or HS message is sent |  |  |

# 4.8.3 Cancelling a Partially Filled Order

|   | D #: CXL-03 Type: Order Cancellation Requirement: Mandatory Co-ordinated Test: N      |   |  |   |  |  |  |  |
|---|---|---|--|---|--|--|--|--|
|   | Description: Cancelling a partially filled order.  Comments: None.                    |   |  |   |  |  |  |  |
|   | Prerequisites The market for instrument INST1 must be set to [10@2.00 – 10@2.50].     |   |  |   |  |  |  |  |
|   |   | Expected Results  |  |   |  |  |  |  |
| # | Test Steps  | Trading Engine Responses (SAIL)   | gine Responses Market Information (HSVF)           |   |  |  |  |  |
| 1 | Client: Enters a regular Buy order 30@2.50 for instrument INST1.  Sends an OE message | Order is booked.  Sends a KE message: [Order ID: x]  Trade 10@2.50  Sends an NT message  For Strategy  Sends 1 NT message and  1 NL message per leg | An F/FF or F For strategy: Trade sent. A C/CF mess | CS message is sent followed by 1 C/CF                                 |  |  |  |  |
| 2 | Client: Cancels the previous order.  Sends an XE message:  [Cancelled Order ID: x]    | The remaining quantity of the order is cancelled.  Sends a KZ message [Status: "A"]   | An F/FF or F                                       | arket Depth sent.<br>H/HF message is sent<br>FS or HS message is sent |  |  |  |  |

#### 4.9 Order Modification Test Cases

# 4.9.1 Modifying the Price of an Order

| ID #: MOI   | D-01  | Type: Order Modif       | ication   | Requirement:  | Mandatory          | Co-ordinated Test: N     |  |  |
|-------------|---|-------------------------|---|---|--------------------|--------------------------|--|--|
| Description | Description: Modifying the price of an order; quantity remains unchanged. |                         |   |   |                    |                          |  |  |
| Comment     | s: The order is   | cancelled to "clear" th | e testing enviro                                | onment.   |                    |                          |  |  |
| Prerequis   | sites   |                         |   |   |                    |                          |  |  |
| The mark    | et for instrumer  | nt INST1 must be set t  | o [10@2.00 –                                    | 10@2.50].   |                    |                          |  |  |
|             |   |                         | Expected R                                      | esults  |                    |                          |  |  |
| #           | Test Steps  |                         | Trading Eng<br>(SAIL)                           | Trading Engine Responses (SAIL) Market Information (HSVF) |                    |                          |  |  |
| 1           | Client: Enters  | s a regular Sell        | Order is boo                                    | ked.  | Quote or Mark      | ket Depth sent.          |  |  |
|             | Sends an OE   |                         | Sends a KE message:  An F/FF or H/HF message in |   | HF message is sent |                          |  |  |
|             | Serius ari OE   | = me                    | [Order ID: x                                    |   | For strategy: F    | FS or HS message is sent |  |  |
| 2           | Client: Modifi  | ies the previous        | Order is boo                                    | ked.  | Quote or Mark      | ket Depth sent.          |  |  |
|             |   |                         | Sends a KM                                      | message:  | An F/FF or H/F     | HF message is sent       |  |  |
|             | Sends an Ol   | Ö                       | [Order ID: y]                                   |   | For strategy: F    | S or HS message is sent  |  |  |
|             | [Quantity Sig   |                         |   |   |                    |                          |  |  |
|             | [Modified Ord   |                         |   |   |                    |                          |  |  |
|             | -   | -                       |   |   |                    |                          |  |  |
| 3           | Client: Cance   | els the order.          | Order is can                                    |   |                    | ket Depth sent.          |  |  |
|             | Sends an XE   | message:                | Sends a KZ                                      | message:  | An F/FF or H/F     | HF message is sent       |  |  |
|             | [Cancelled C  | order ID: y]            | [Status: A]                                     |   | For strategy: F    | FS or HS message is sent |  |  |

### 4.9.2 Modifying Order Quantity

| ID #: MOI   | ID #: MOD-02 Type: Order Modifi  |                         | cation           | Requirement:                          | Man  | datory                  | Co-ordinated Test: N  |  |
|---|--|-------------------------|------------------|---------------------------------------|------|-------------------------|---|--|
| Description   | Description: Modifying the quantity (absolute) of an order.  |                         |                  |                                       |      |                         |   |  |
| Comment   | ts: The order is o   | ancelled to "clear" the | e testing en     | vironment.                            |      |                         |   |  |
| Prerequis   | sites  |                         |                  |                                       |      |                         |   |  |
| The mark  | et for instrument  | INST1 must be set to    | o [10@2.00       | - 10@2.50 <u>]</u> .                  |      |                         |   |  |
|   |  |                         | Expected         | Results                               |      |                         |   |  |
| #   | Test Steps   |                         | Trading E (SAIL) | ngine Responses                       |      | Market Inform<br>(HSVF) | nation  |  |
| 1   | Client: Enters<br>order 1@2.25<br>Sends an OE  |                         | 1@2.25.          | ccepted and booked  KE message:  : x] | d at | An F/FF or H            | rket Depth sent.<br>/HF message is sent<br>FS or HS message is sent |  |
| Client: Modifies the previous order 20@2.25.  Sends an OM message:  [Quantity Sign: =]  [Quantity: 20]  [Modified Order ID: x]    Order is booked. Modification is accepted and the Quantity is now 20.   Sends a KM message:   [Order ID: y] |  |                         |                  |                                       |      | An F/FF or H            | ket Depth sent.<br>/HF message is sent<br>FS or HS message is sent  |  |
| 3   | 3 Client: Cancels the order.  Sends an XE message:  [Cancelled Order ID: y]  Order is cancelled.  Sends a KZ message:  [Status: A] |                         |                  |                                       |      | An F/FF or H            | ket Depth sent.<br>/HF message is sent<br>FS or HS message is sent  |  |

### 4.9.3 Modifying an Order that was Previously Modified

| ID #: MC  | ID #: MOD-03 Type: Order Modification Requirement: Mandatory Co-ordinated Test: N       |                            |  |                      |  |                                |  |  |  |
|-----------|---|----------------------------|--|----------------------|--|--------------------------------|--|--|--|
| Descripti | on: Modifying ar  | n order that has beer      | n previously modified a  | and partially filled |  |                                |  |  |  |
| Commer    | Comments: The order is cancelled to "clear" the testing environment.                    |                            |  |                      |  |                                |  |  |  |
| Prerequ   | Prerequisites   |                            |  |                      |  |                                |  |  |  |
| The mar   | The market for instrument INST1 must be set to [10@2.00 – 10@2.50].                     |                            |  |                      |  |                                |  |  |  |
|           | Expected Results  |                            |  |                      |  |                                |  |  |  |
| #         | Test Steps  |                            | Trading Engine Re<br>(SAIL)  | esponses             | Market Information (HSVF)  |                                |  |  |  |
| 1         | Client: Enters<br>Order 21@2.5  | a regular Buy              | Order is accepted a 21@2.50.   | nd booked at         | Quote or Market Dept   | h sent.                        |  |  |  |
|           | Sends an OE   |                            | Sends a KE messag  | ae.                  | An F/FF or H/HF mess   | sage is sent                   |  |  |  |
|           | Serius arī OL   | . message                  | [Order ID: x]  | ge.                  | For strategy: FS or HS   | S message is sent              |  |  |  |
|           |   |                            | Trade 10@2.50  |                      | Trade cent   |                                |  |  |  |
|           |   |                            | Sends an NT messa  | age (partial fill)   | Trade sent.  A C/CF message is se                                | int                            |  |  |  |
|           |   |                            | For Strategies, send<br>message per leg  | ds NL                |  | age is sent followed by 1 C/CF |  |  |  |
| 2         | Client: Modifie   | es the previous            | Order is booked. Mo  | ndification is       | Quote or Market Dept   | h sant                         |  |  |  |
|           | order 21@2.5 Sends an OM [Quantity Sign [Quantity: 21]                                  | 50.<br>1 message:<br>n: =] | accepted and the Q<br>21 and price is 2.50<br>Sends a KM messa<br>[Order ID: y]              | uantity is now       | An F/FF or H/HF mess For strategy: FS or HS                      | sage is sent                   |  |  |  |
|           | [Modified Ord   | ler ID: x]                 |  |                      |  |                                |  |  |  |
| 3         | Client: Modified order 21@2.4 Sends an OM [Quantity Sign [Quantity: 21] [Modified Order | 1 message:<br>n: =]        | Order is booked. Maccepted and the Q 21 and price is 2.40 Sends a KM messa [New Order ID: z] | uantity is now       | Quote or Market Dept An F/FF or H/HF mess For strategy: FS or HS | sage is sent                   |  |  |  |
| 4         | Client: Cance   | els the order.             | Order is cancelled.  |                      | Quote or Market Dept   | h sent.                        |  |  |  |
|           | Sends an XE   |                            | Sends a KZ messag  | ge                   | An F/FF or H/HF mess   |                                |  |  |  |
|           | [Cancelled Or   | rder ID: z]                | [Status: A "]  |                      | For strategy: FS or HS   | message is sent                |  |  |  |

### 4.9.4 Modifying a Market Top Order

| ID #: MC | DD-04 Type: Order Mo  | dification   | Requirement:   | Optional   | Co-ordinated Test: N  |  |  |  |
|----------|---|--|--|--|---|--|--|--|
| Descript | ion: Modifying a Market Top order a   | nd assigning it a  | limit price.   |  |   |  |  |  |
| Commer   | Comments: The order is cancelled to "clear" the testing environment. (Conditional to ORD01)   |  |  |  |   |  |  |  |
| Prerequ  | isites  |  |  |  |   |  |  |  |
| The mar  | ket for instrument INST1 must be se   | et to [10@2.00 –   | 12@2.50]; no other   | orders must b  | e in the book.  |  |  |  |
|          |   | Expected R   | esults   |  |   |  |  |  |
| #        | Test Steps  | Trading Eng<br>(SAIL)  | gine Responses   | Market I<br>(HSVF)   | Information   |  |  |  |
| 2        | Client: Enters a Buy Market order for 20 Contracts.  Sends an OE message:  [Price type: M]  Client: Modifies the previous order 9@2.40.  Sends an OM message:  [Quantity Sign: +]  [Quantity: 1]  [Price type: L]  [Modified Order ID: x] | Sends an NT For Strategy Sends 1 NT 1 NL messa  Order is boo | .50 and the @2.50 is booked.  T message (partial fill message and age per leg ked. Modification is d the Quantity is now s 2.40.  message: | An F/FF For strain  Trade s A C/CF For strain message  Quote c An F/FF | or Market Depth sent.  for H/HF message is sent  tegy: FS or HS message is sent  ent.  message is sent  tegy: CS message is sent followed by 1 C/CF  e per leg  or Market Depth sent.  for H/HF message is sent  tegy: FS or HS message is sent |  |  |  |
| 3        | Client: Cancels the previous order.  Sends an XE message: [Cancelled Order ID: y]   | Order is cand<br>Sends a KZ<br>[Status: "A"]                 |  | An F/FF  | or Market Depth sent. i or H/HF message is sent tegy: FS or HS message is sent  |  |  |  |

#### 4.10 Indication of Interest to Trade Test Cases

#### 4.10.1 Indication of Interest to Trade

| ID #: IIT- | -01  | Type: Indication of | of Interest to Trade                                    | Requiremen | t: Optional                 | Co-ordinated Test: N |  |  |  |
|------------|--|---------------------|---|------------|-----------------------------|----------------------|--|--|--|
|            | Description: Sending an Indication of Interest to Trade message (previously known as Request for Quote). |                     |   |            |                             |                      |  |  |  |
|            | Comments: None.  Prerequisites  None.  |                     |   |            |                             |                      |  |  |  |
| #          | Test Steps   |                     | Expected Results  Trading Engine Results (SAIL)         | oonses     | Market Informatio<br>(HSVF) | n                    |  |  |  |
| 1          | Client: Enters<br>Interest to Tra<br>instrument IN:<br>quantity.<br>Sends an RQ                          | ST1 for any         | Indication of Interest to accepted.  Sends a KO message |            | Indication of Intere        |                      |  |  |  |

# 4.10.2 Responding to Indication of Interest to Trade

| ID #: IIT-0 | 2  | Type: Indication o                                    | f Interest to Trade                     | Requirement | t: Optional  | Co-ordinated Test: Y |  |  |
|-------------|--|---|---|-------------|--|----------------------|--|--|
| Descriptio  | Description: Responding to an Indication of Interest to Trade message (previously known as Request for Quote). |   |   |             |  |                      |  |  |
| Comments    | s:   |   |   |             |  |                      |  |  |
| Prerequis   | ites   |   |   |             |  |                      |  |  |
|             | ket for instrum  | nent INST1.   |   |             |  |                      |  |  |
|             |  |   | Expected Results                        |             |  |                      |  |  |
| #           | Test Steps   |   | Trading Engine Resp<br>(SAIL)           | oonses      | Market Information (HSVF)  |                      |  |  |
| 1           | Interest to 7  | an Indication of<br>Trade for the<br>INST1 for any    | Indication of Interest to accepted.     | o Trade is  |  |                      |  |  |
| 2           | market for i   | oonds by posting a nstrument INST1. DE or a Q <i></i> | Market is accepted. Sends a KE or an LA | message     | Quote or Market Depth<br>An F/FF or H/HF messa<br>For strategy: FS or HS | age is sent          |  |  |

#### 4.11 Bulk Quote Test Cases

# 4.11.1 Entering Bulk Quote

| ID #: <b>BU</b> | Q-01  | Type: Bulk Quote              | Requirement: Mandatory for Mar   | ket Makers               | Co-ordinated Test: N   |  |  |  |
|-----------------|---|-------------------------------|--|--------------------------|--|--|--|--|
| Descripti       | Description: Entering bulk quotes.  |                               |  |                          |  |  |  |  |
| Commen          | Comments: None.   |                               |  |                          |  |  |  |  |
| Prerequi        | isites  |                               |  |                          |  |  |  |  |
| 1. No ma        | rket for instrume   | ent INST1.                    |  |                          |  |  |  |  |
| 2. Partici      | pant must be co   | nfigured as Market Ma         | ker on group GRP1.   |                          |  |  |  |  |
| 3. Partici      | pant must send  | Clearing Data messag          | e BD ( for traderID/GroupID )  |                          |  |  |  |  |
|                 |   |                               | Expected Results   |                          |  |  |  |  |
| #               | Test Steps  |                               | Trading Engine Responses (SAIL)  | Market Informa<br>(HSVF) | ation  |  |  |  |
| 1               | and 1 ask) on<br>10@1.00, Ask   | x=10@1.20.<br>nessage (if not | Quotes are accepted and booked.  Sends a KD message  Sends an LA message |                          | et Depth sent.<br>F message is sent<br>S or HS message is sent |  |  |  |
| 2               |   | ŭ                             | Ouder: in accounted Tree do 5@4.00                                       | Overte en Manie          | et Double cout   |  |  |  |
| 2               | Client_Enters a regular Sell order 5@0.90 for instrument INST1.       Order is accepted Trade 5@1.00.       Quote or Market Depth sent.         Sends an NT message       For Strategy       For strategy: FS or HS message is sent         Sends 1 NT message and       1 NL message per leg       A C/CF message is sent         The market is now [5@1.00 – 10@1.20].       For strategy: CS message is sent followers |                               |  |                          |  |  |  |  |

### 4.11.2 Modifying Bulk Quote

| ID #: BU   | Q-02 Type: Bulk Quote   | Requirement: Mandatory for N  | larket Makers              | Co-ordinated Test: N  |
|------------|---|---|----------------------------|---|
| Descripti  | on: Modifying the price on quotes wh  | en some have been rejected.   |                            |   |
| Commer     | its: None.  |   |                            |   |
| Prerequi   | isites  |   |                            |   |
| 1. No ma   | rket for instruments in group GRP1.   |   |                            |   |
| 2. Instrur | ment INST10 has to be forbidden.  |   |                            |   |
| 3. Partici | pant must be configured as Market N   | laker on group GRP1.  |                            |   |
| 4 Particip | pant must send Clearing Data messa  | ge BD ( for traderID/GroupID )  |                            |   |
|            |   | Expected Results  |                            |   |
| #          | Test Steps  | Trading Engine Responses (SAIL)   | Market Informati<br>(HSVF) | on  |
| 1          | Client: Enters quotes for all instruments of GRP1. At least 101 instruments must be quoted on both sides with bids of 1000@100.00 and asks of 900@100.50. Only one bulk quote message must be sent.  Sends a Q <i>message</i> | All quotes are accepted and booked except the 2 on the forbidden instrument. The markets for selected instruments in group GRP1 are now [1000@100.00 – 900@100.50].  Sends an LA message: [Number of quotes in error: 002] [Error code: 1004] |                            | Depth sent.  I/HF messages are broadcasted  eral FS or HS message are |
| 2          | Client: Modifies the price of all quotes previously accepted.  Sends a Q <i> message</i>  | Quotes are modified. No error message is returned. Market is now:  [1000@100.10 – 900@100.30]  Sends an LA message  |                            | Depth sent.  I/HF messages are broadcasted  eral FS or HS message are |

### 4.11.3 Modifying quantity of quotes

| ID#: BU    | Q-03 Type: Bulk Quote  | Requirement: Mandatory for  | Market Makers   | Co-ordinated Test: N     |  |  |  |
|------------|--|---|---|--------------------------|--|--|--|
| Descript   | <b>Description:</b> Modifying the quantity for quotes.   |   |   |                          |  |  |  |
| Commer     | nts: None.   |   |   |                          |  |  |  |
| Prerequi   | sites  |   |   |                          |  |  |  |
| 1. No ma   | rket for instruments in group GRP1.  |   |   |                          |  |  |  |
| 2. Instrun | nent INST10 has to be forbidden.   |   |   |                          |  |  |  |
| 3. Partici | pant must be configured as Market N  | laker on group GRP1.  |   |                          |  |  |  |
| 4 Particip | pant must send Clearing Data messa   | ge BD ( for traderID/GroupID )  |   |                          |  |  |  |
|            |  | Expected Results  |   |                          |  |  |  |
| #          | Test Steps   | Trading Engine Responses (SAIL)   | Market Information (HSVF)   |                          |  |  |  |
| 1          | Client: Enters quotes for all instruments of GRP1. At least 101 instruments must be quoted on both sides with bids of 1000@100.00 and asks of 900@100.50. Only one bulk quote message must be sent.  Sends a Q <i> message</i> | All quotes are accepted and booked except the 2 on the forbidden instrument. The markets for selected instruments in group GRP1 are now [1000@100.00 – 900@100.50].  Sends an LA message: [Number of quotes in error: 002] [Error code: 1004] | Quote or Market Depth<br>Several F/FF or H/HF n<br>For strategy: Several F<br>broadcasted | messages are broadcasted |  |  |  |
| 2          | Client: Modifies the quantity of all quotes previously accepted.  Sends a Q <i> message</i>  | Quotes are modified. No error message is returned. Market is now:  [1010@100.00 - 800@100.50]  Sends an LA message  | Quote or Market Depth<br>Several F/FF or H/HF r<br>For strategy: Several F<br>broadcasted | messages are broadcasted |  |  |  |

# 4.11.4 Cancelling all Quotes

| ID #: BI  | UQ-04a   | Type: Bulk Quote                      | Requirement:   | Mandatory f                     | or Market Makers     | Co-ordinated Test: N            |  |  |
|-----------|--|---------------------------------------|--|---------------------------------|----------------------|---------------------------------|--|--|
| Descrip   | Description: Cancelling all quotes (Global Cancellation, formerly known as "Panic Quote"). |                                       |  |                                 |                      |                                 |  |  |
| Comme     | Comments: None.  |                                       |  |                                 |                      |                                 |  |  |
| Prerequ   | uisites  |                                       |  |                                 |                      |                                 |  |  |
| 1. No m   | narket for instrum   | ents in group GRP1.                   |  |                                 |                      |                                 |  |  |
| 2. Partio | cipant must be co  | onfigured as Market Ma                | aker on group GRP1.  |                                 |                      |                                 |  |  |
| 3. Partio | cipant must send   | Clearing Data messag                  | ge BD ( for traderID/Gro                                     | upID )                          |                      |                                 |  |  |
|           |  |                                       | Expected Results   |                                 |                      |                                 |  |  |
| #         | Test Steps  Trading Engine Responses (SAIL)  Market Information (HSVF)                     |                                       |  |                                 |                      |                                 |  |  |
| 1         |  | s 40 quotes (20 bid on instruments of | •  | Quotes are accepted and booked. |                      | epth sent.                      |  |  |
|           | group GRP1,  | Bid = 10@1.00,                        | The markets are now [10@1.00 · 10@1.20] for all instruments. |                                 | Twenty (20) F/FF or  | H/HF messages are sent          |  |  |
|           | Ask = 10@1.  | 20.                                   |  |                                 | For strategy: Twenty | y (20)FS or HS message are sent |  |  |

|   | Sends a Q <i> message</i>  | Sends an LA message  |  |
|---|--|--|--|
| 2 | Client Enters a regular Sell order 10@1.00 for instrument INST1.   | Order is accepted. Trade 10@1.00.  Sends an NT message For Strategy  Sends 1 NT message and 1 NL message per leg | Quote or Market Depth sent.  An F/FF or H/HF message is sent  For strategy: FS or HS message is sent  Trade sent.  A C/CF message is sent  For strategy: CS message is sent followed by 1 C/CF message per leg |
| 3 | Client: Cancels all quotes with a GC message with Type of Cancellation "QuotesOnly".  Sends a GC message  [Type of Cancellation=Q] | Quotes are cancelled. Market for instrument INST1 is now [0@0.00 – 10@1.00].  Sends a KG message                 | Quote or Market Depth sent.  Twenty (20) F/FF or H/HF messages are sent  For strategy: Twenty (20)FS or HS message are sent  |

### 4.11.5 Cancelling all Orders

| ID#: BU     | Q-04b Type: Bulk Quote  | Requirement: Mandatory for Market Makers Co-ordinated Test: N |   |  |  |  |  |  |
|-------------|---|---|---|--|--|--|--|--|
| Description | Description: Cancelling all Orders with Global Cancellation (Global Cancellation, formerly known as "Panic Quote"). |   |   |  |  |  |  |  |
| Commen      | ts: None.   |   |   |  |  |  |  |  |
| Prerequi    | sites   |   |   |  |  |  |  |  |
| 1. No ma    | rket for instruments in group GRP1.   |   |   |  |  |  |  |  |
| 2. Partici  | pant must send Clearing Data messa  | ge BD ( for traderID/GroupID )                                |   |  |  |  |  |  |
|             |   | Expected Results  |   |  |  |  |  |  |
| #           | Test Steps  | Trading Engine Responses (SAIL)                               | Market Information<br>(HSVF)  |  |  |  |  |  |
| 1           | Client: Enters 5 Buy  | Orders are booked.  | Quote or Market Depth sent.   |  |  |  |  |  |
|             | orders10@1.10 for instrument INST1.   | Sends a KE message  | Five (5) F/FF or H/HF messages are sent                             |  |  |  |  |  |
|             | Sends an OE message   |   | For strategy: Five (5) FS or HS message are sent                    |  |  |  |  |  |
| 2           | Client Enters a regular Sell order  | Order is accepted. Trade <u>5@1.10</u> .                      | Quote or Market Depth sent.   |  |  |  |  |  |
|             | 5@1.10 for instrument INST1.  | Sends an NT message   | An F/FF or H/HF message is sent                                     |  |  |  |  |  |
|             |   | For Strategy  | For strategy: FS or HS message is sent                              |  |  |  |  |  |
|             |   | Sends 1 NT message and  | Trade sent.   |  |  |  |  |  |
|             |   | 1 NL message per leg  | A C/CF message is sent  |  |  |  |  |  |
|             |   |   | For strategy: CS message is sent followed by 1 C/CF message per leg |  |  |  |  |  |
| 3           | Client: Cancels all orders with a   | Orders are cancelled.   | Quote or Market Depth sent.   |  |  |  |  |  |
|             | GC message with Type of Cancellation "OrdersOnly".  | Sends a KG message  | Five (5) F/FF or H/HF messages are sent                             |  |  |  |  |  |
|             | Sends a GC message  |   | For strategy: Five (5) FS or HS message are sent                    |  |  |  |  |  |
|             | [Type of Cancellation=0]  |   |   |  |  |  |  |  |

# 4.11.6 Cancelling all Orders and Quotes

| ID#: BU   | Q-04c   | Type: Bulk Quote               | Requirement: Mandatory for Market Makers Co-ordinated Test: N   |  |   |  |  |  |  |
|---|---|--------------------------------|---|--|---|--|--|--|--|
| Description: Cancelling all Orders and Quotes (Global Cancellation, formerly known as "Panic Quote"). |   |                                |   |  |   |  |  |  |  |
| Commen  | Comments: None.   |                                |   |  |   |  |  |  |  |
| Prerequi  | sites   |                                |   |  |   |  |  |  |  |
| 1. No ma  | rket for instrume   | ents in group GRP1.            |   |  |   |  |  |  |  |
| 2. Partici  | pant must be co   | nfigured as Market Ma          | aker on group GRP1.   |  |   |  |  |  |  |
| 3. Particip   | pant must send  | Clearing Data messag           | ge BD ( for traderID/GroupID )  |  |   |  |  |  |  |
|   |   |                                | Expected Results  |  |   |  |  |  |  |
| #   | Test Steps  |                                | Trading Engine Responses (SAIL)   | Market Informa<br>(HSVF)                   | ation   |  |  |  |  |
| 2   | and 20 ask) of group GRP1, Ask = 10@1.:  Sends a Q <i>Client: Enters 10@1.10 for it Sends an OE</i> | 5 Buy orders                   | Quotes are accepted and booked. The markets are now [10@1.00 – 10@1.20] for all instruments.  Sends an LA message  Orders are booked.  Sends a KE message  Orders are accepted.  Trades 5@1.00 and 5@1.10 | For strategy: FS  Quote or Marke           | nessages are sent<br>S or HS message are sent                           |  |  |  |  |
|   |   | strument INST1 strument INST1. | Sends an NT message For Strategy Sends 1 NT message and 1 NL message per leg  | For strategy: FS Trade sent. A C/CF messag | S or HS message is sent ge is sent S message is sent followed by 1 C/CF |  |  |  |  |
| 3   |   | message                        | Quotes are cancelled. Market for instrument INST1 is now [0@0.00 – 10@1.00].  Sends a KG message  |  | et Depth sent.<br>nessages are sent<br>S or HS message are sent         |  |  |  |  |

#### 4.11.7 Handling Unsolicited Cancellations of All Quotes

ID #: **BUQ-05** Type: Bulk Quote Requirement: Mandatory for Market Makers Description: Handling unsolicited cancellation of all quotes (done by the Market Operation Center.). Comments: None. **Prerequisites** 1. No market for instruments in group GRP1. 2. Participant must be configured as Market Maker on group GRP1. 3. Participant must send Clearing Data message BD (for traderID/GroupID) **Expected Results Trading Engine Test Steps** Responses **Market Information** (SAIL) (HSVF) Quotes are accepted and Client: Enters 40 quotes (20 Quote or Market Depth sent. bid and 20 ask) on booked. Twenty (20) F/FF or H/HF messages are sent instruments of group GRP1, Sends an LA message Bid = 10@1.00, Ask = For strategy: Twenty (20) FS or HS message are sent 10@1.20. Sends a Q<i> message 2 Client: Enters a regular Buy Trade sent. Order is accepted and is traded against the booked order 10@1.30 for A C/CF message is sent instrument INST1. quotes. Trade 10@1.20. For strategy: CS message is sent followed by 1 C/CF message Sends an NT message per leg For Strategy Quote or Market Depth sent. Sends 1 NT message and An F/FF or H/HF message is sent 1 NL message per leg For strategy: FS or HS message is sent BIT: Cancels all quotes for Quote or Market Depth sent. 3 Quotes are cancelled. the participant. Sends an NP message Twenty (20) F/FF or H/HF messages are sent (cancellation reason: M) For strategy: Twenty (20) FS or HS message are sent \*cancellation reason could be filled "S" in case of cancellation by the system.

#### 4.11.8 Unsolicited cancellation of all quotes by Trader

| ID #: BU   | Q-06 Type: B   | Bulk Quote      | Requirement: Mand  | atory for Market Makers  | Co-ordinated Test: N |  |  |  |
|------------|--|-----------------|--|--|----------------------|--|--|--|
| Descripti  | Description: Handling unsolicited cancellation of all quotes (done by Trader).   |                 |  |  |                      |  |  |  |
| Commer     | nts: None.   |                 |  |  |                      |  |  |  |
| Prerequ    | isites   |                 |  |  |                      |  |  |  |
| 1. No ma   | arket for instruments in   | n group GRP1.   |  |  |                      |  |  |  |
| 2. Partici | pant must be configu   | red as Market I | Maker on group GRP1.   |  |                      |  |  |  |
| 3. Partici | pant must be enable  | for Global Can  | cellation  |  |                      |  |  |  |
|            |  | E               | xpected Results  |  |                      |  |  |  |
| #          | Test Steps   | R               | rading Engine<br>esponses<br>SAIL)   | Market Information (HSVF)  |                      |  |  |  |
| 1          | Client: Enters 40 qu<br>bid and 20 ask) on<br>instruments of group<br>Bid = 10@1.00, Ask<br>10@1.20.<br>Sends a Q <i> mess</i> | p GRP1,         | uotes are accepted and<br>poked.<br>ends an LA message                                   | Quote or Market Depth ser<br>Twenty (20) F/FF or H/HF r<br>For strategy: Twenty (20) F |                      |  |  |  |
| 2          | Client: Cancels all c<br>trough a GC messa   | ige.            | uotes are cancelled. ends an NP message Quote cancellation reason: -Cancelled By Trader) | Quote or Market Depth ser<br>Twenty (20) F/FF or H/HF r<br>For strategy: Twenty (20) F |                      |  |  |  |

### 4.11.9 Unsolicited Cancellation of Quote by Circuit Breaker

| ID #: BU  | Q-07 Type: Bulk  | Quote | te Requirement: Mandatory for Market Makers Co-ordinated Test: N |  |   |  |  |  |
|-----------|--|-------|--|--|---|--|--|--|
| Descripti | Description: Handling unsolicited cancellation of all quotes (CancelledByCircuitBreaker).                                      |       |  |  |   |  |  |  |
| Commer    | nts: None.   |       |  |  |   |  |  |  |
| Prerequ   | Prerequisites  |       |  |  |   |  |  |  |
|           | No market for instruments in group GRP1.     Participant must be configured as Market Maker on group GRP1.                     |       |  |  |   |  |  |  |
|           | 3. Participant must send Clearing Data message BD (for traderID/GroupID )  4. Two opposite orders with Price 10 must be traded |       |  |  |   |  |  |  |
| #         | Test Steps   |       | Expected Results  Trading Engine                                 |  |   |  |  |  |
|           |  | Respo | onses  | Market Information (HSVF)  |   |  |  |  |
| 1         | Client Price 20  |       |  |  |   |  |  |  |
|           | XLow <ylow<zlow<yhiq<br>20<zhigh<xhigh< td=""><td>gh&lt;</td><td></td><td></td><th></th></zhigh<xhigh<></ylow<zlow<yhiq<br>    | gh<   |  |  |   |  |  |  |
| 2         | Client Enters a regular B order 100@20 for instrument INST1.   | booke | is accepted and<br>d.<br>a.1 an KE message                       | Quote or Market Depth sent. Twenty (20) F/FF or H/HF me For strategy: Twenty (20) FS | _ |  |  |  |

| 3 | Client: Enters 100 quotes                         | Quotes are deleted due to                          | Trade sent.   |
|---|---|--|---|
|   | (50 bid and 50 ask) on instruments of group GRP1, | circuit breaker (NP sent with cancellation reason: | A C/CF message is sent  |
|   | Bid = 50@19.5, Ask = 50@20.                       | C)) NI Message with                                | For strategy: CS message is sent followed by 1 C/CF message per leg |
|   | Sends a Q <i> message</i>                         | Instrument state changes in Suspended as 'S'       |   |
|   |   | After 1minute NI Message                           | Quote or Market Depth sent.   |
|   |   | with Instrument Status 'N'.                        | An F/FF or H/HF message is sent with Status "F"                     |
|   |   |  | For strategy: FS or HS message is sent with Status "F"              |
|   |   |  | After 1minute for H/HF or F/FF message is sent with Status "T".     |

Requirement: Mandatory for Market Makers

Co-ordinated Test: N

#### 4.11.10 Unsolicited Cancel of Quotes on Disconnect

Type: Bulk Quote

ID #: BUQ-08

| Descript  | Description: Handling unsolicited cancellation of all quotes (EliminatedOnDisconnect) |   |  |  |  |  |  |
|-----------|---|---|--|--|--|--|--|
| Commer    | Comments: None.   |   |  |  |  |  |  |
| Prerequ   | isites  |   |  |  |  |  |  |
| 1. No ma  | arket for instruments in group GF   | RP1.  |  |  |  |  |  |
| 2. Partic | ipant must be configured as Mar   | ket Maker on group GRP1.                            |  |  |  |  |  |
| 3. Partic | ipant must send Clearing Data m   | nessage BD (for traderID/Groupl                     | ID)  |  |  |  |  |
|           |   | Expected Results                                    |  |  |  |  |  |
| #         | Test Steps  | Trading Engine<br>Responses<br>(SAIL)               | Market Information<br>(HSVF)   |  |  |  |  |
| 1         | Client: Enters quotes Buy   | Quotes are accepted and booked.                     | Quote or Market Depth sent.  |  |  |  |  |
|           | and Sell quotes.  |   | Twenty (20) F/FF or H/HF messages are sent   |  |  |  |  |
|           |   | Sends a KD message Sends an LA message              | For strategy: Twenty (20) FS or HS message are sent  |  |  |  |  |
|           |   | Condo di El Micocago                                |  |  |  |  |  |
| 2         | Request for Disconnection by the Client Send TD                                       | Receives TL Message and<br>Client gets disconnected | Trade sent.  |  |  |  |  |
|           | Message   | and quotes are removed.                             | A C/CF message is sent   |  |  |  |  |
|           |   |   | For strategy: CS message is sent followed by 1 C/CF message per leg                                |  |  |  |  |
|           |   |   | Quote or Market Depth sent.  |  |  |  |  |
|           |   |   | An F/FF or H/HF message is sent  |  |  |  |  |
|           |   |   | For strategy: FS or HS message is sent   |  |  |  |  |
| 3         | Client: Re-connection on  | Quotes are deleted (NP                              | Trade sent.  |  |  |  |  |
|           | the system  | sent with Quote cancellation reason: I              | A C/CF message is sent   |  |  |  |  |
|           |   | (EliminatedOnDisconnect)                            | For strategy: CS message is sent followed by 1 C/CF message per leg                                |  |  |  |  |
|           |   |   | Quote or Market Depth sent. An F/FF or H/HF message is sent For strategy: FS or HS message is sent |  |  |  |  |

### **4.12 Trade Management Test Cases**

# 4.12.1 Many Fills for Same Order

| ID #: TR  | TRD-01 Type: Trade Management Requirement: Ma                          |  | Mandatory  | Co-ordinated Test: N  |                                       |  |  |  |  |
|-----------|--|--|--|---|---------------------------------------|--|--|--|--|
| Descripti | Description: Handling many fills for the same order.                   |  |  |   |                                       |  |  |  |  |
| Commer    | Comments: None.  |  |  |   |                                       |  |  |  |  |
| Prerequ   | Prerequisites  |  |  |   |                                       |  |  |  |  |
| 1. The m  | 1. The market for instrument INST1 must be set to [12@2.00 – 10@2.50]. |  |  |   |                                       |  |  |  |  |
| 2. Group  | for instrument I   | NST1 must be in 'Co  | ntinuous Tra   | ading' mode.  |                                       |  |  |  |  |
|           |  |  | Expected   | d Results   |                                       |  |  |  |  |
| #         | Test Steps   |  | Trading (SAIL)   | Engine Responses  | Market In (HSVF)                      | formation  |  |  |  |
| 1         |  | a Sell order or a uments INST1   | Order is a   | accepted.<br>KE or an LA messag   | e An F/FF o                           | Market Depth sent. or H/HF message is sent egy: FS or HS message is sent |  |  |  |
| 2         | Client: Enters<br>instrument: IN<br>3@MKT, 4@N<br>6@MKT, 7@N           | message  10 Buy orders for IST1 2@MKT , MKT, 5@MKT, MKT, 8@MKT, MKT, 11@MKT. | 5@2.40,<br>6@2.40,<br>9@2.40,<br>10@2.40<br>Sends 10<br>For each<br>Sends 1<br>1 NL me | s: 3@2.40, 4@2.40, 7@2.40, 8@2.40, , 11@2.40. 0 NT messages of the 10 strategies NT message and ssage per leg or instrument INST1 i | Trade se A C/CF m For strate C/CF mes |  |  |  |  |

#### 4.12.2 Manual Trade Cancellation

| ID #: TRI   | D-02   | Type: Trade Mana | gement   | Requiremen | nt: Mandatory                                    | Co-ordinated Test: Y |  |  |  |
|-------------|--|------------------|--|------------|--|----------------------|--|--|--|
| Description | Description: Handling manual cancellation of a regular trade by the Market Operation Center. |                  |  |            |  |                      |  |  |  |
| Commen      | Comments: None.  |                  |  |            |  |                      |  |  |  |
| Prerequi    | sites  |                  |  |            |  |                      |  |  |  |
| Execution   | n of test case TRI   | D-01             |  |            |  |                      |  |  |  |
|             |  |                  | Expected Results   |            |  |                      |  |  |  |
| #           | Test Steps   |                  | Trading Engine Resp<br>(SAIL)  | oonses     | Market Information (HSVF)                        |                      |  |  |  |
| 1           | BIT: Manually o  |                  | The 2 trades are cance   | elled.     | Trade Cancellation and Summary.                  |                      |  |  |  |
|             | and the last Trades from Test Case TRD-01 (2@2.40 and  |                  | and the last Trades from Test Case TRD-01 (2@2.40 and  Sends 2 NX messages  Two (2) I/IF |            | Two (2) I/IF and N/NF mes                        | ssages are sent      |  |  |  |
|             | 11@2.40).  | `                | · · · · · · · · · · · · · · · · · · ·  |            | egies  |                      |  |  |  |
|             |  |                  | Sends 1 NX message   | and        | For Strategy: Two (2) IS and NS messages are ser |                      |  |  |  |
|             | 1 NY message per leg   |                  |  |            |  |                      |  |  |  |

#### 4.12.3 Manual Trade Creation and Cancellation

| ID #: TRD-03 Type: Trade Mai |   | nagement   | Requirement:                  | Optional            | Co-ordinated Test: Y               |                                    |  |  |  |
|------------------------------|---|------------|-------------------------------|---------------------|------------------------------------|------------------------------------|--|--|--|
| Descript                     | Description: Handling manual trade creation and cancellation. |            |                               |                     |                                    |                                    |  |  |  |
| Commer                       | Comments: None.   |            |                               |                     |                                    |                                    |  |  |  |
| Prerequ                      | Prerequisites   |            |                               |                     |                                    |                                    |  |  |  |
|                              |   |            |                               |                     |                                    |                                    |  |  |  |
|                              |   |            | Expected Resu                 | ılts                |                                    |                                    |  |  |  |
| #                            | Test Steps  |            | Trading Engine (SAIL)         | e Responses         |                                    | Market Information<br>(HSVF)       |  |  |  |
| 1                            | BIT: Creates a ma   |            | A first trade is c            | reated.             |                                    | Trade sent.                        |  |  |  |
|                              | for instrument INS<br>the TraderID of the                     |            |                               |                     | A C/CF message is sent.            |                                    |  |  |  |
|                              | both sides of the t   | the trade. | For Strategy                  |                     |                                    | For strategy: CS message is sent   |  |  |  |
|                              |   |            | Sends 1 NT message and        |                     | followed by 1 C/CF message per leg |                                    |  |  |  |
|                              |   |            | 1 NL message per leg          |                     |                                    |                                    |  |  |  |
| 2                            | BIT: Creates a ma   |            | by using Sanda and NT massage |                     | Trade sent                         |                                    |  |  |  |
|                              | for instrument INS<br>the TraderID of the                     | , ,        |                               |                     |                                    | A C/CF message is sent             |  |  |  |
|                              | one side and a dif  |            | For Strategy                  |                     |                                    | For strategy: CS message is sent   |  |  |  |
|                              | opposite side of the  |            | Condo 1 NT massage and        |                     |                                    | followed by 1 C/CF message per leg |  |  |  |
|                              | 1 NL message per leg  |            |                               |                     |                                    |                                    |  |  |  |
| 3                            | BIT: Cancel trades created in                                 |            | Trades are cand               | celled.             |                                    | Trades Cancellation.               |  |  |  |
|                              | Steps 1 and 2.  |            | 2 NX messages                 | s are sent.         |                                    | I/IF and N/NF messages sent        |  |  |  |
|                              |   |            | For each of the               | 2 Strategies        |                                    | For Strategy: IS and NS messages   |  |  |  |
|                              |   |            | Sends 1 NX me                 | essage and 1 NY mes | sage per leg                       | are sent                           |  |  |  |

#### 4.12.4 Trade Amend

| ID #: TR | D-04 Type  | : Trade Managemen                                | nt Requirement:  | Optional            | Co-ordinated Test: Y  |  |  |
|----------|--|--|--|---------------------|---|--|--|
| Comme    | Description: Handling manual trade amend from Market Operation Center (MOC).  Comments: None.  Prerequisites |  |  |                     |   |  |  |
| Executio | n of test case TRD-01  |  |  |                     |   |  |  |
|          | T 101  | Expe   | Expected Results   |                     |   |  |  |
| #        | Test Steps   | Tradi<br>(SAIL                                   | ing Engine Responses<br>L)   | Market In (HSVF)    | formation   |  |  |
| 1        | BIT: Manually ar<br>price and quantit<br>first trade from T<br>TRD-01 (2@2.40                                | y of the est Case )).  Send [PTT Amer Send [PTT] | de is amended.  ds one NX message  Cancellations and ndments=C]  ds one NT message  Cancellations and ndments=A] | An I/IF an New Trad | tion and Summary.  N/NF messages are sent. e sent. nessage is sent cellation and Amendments=A |  |  |

### 4.12.5 Manual Trade Acceptance

| ID #: TR      | Type: Trade Mana  | gement   | Requirement:      | Optional  | Co-ordinated Test: Y |  |  |  |  |
|---------------|---|--|-------------------|---|----------------------|--|--|--|--|
| Descrip       | Description: Handling manual trade amend from Market Operation Center (MOC).  |  |                   |   |                      |  |  |  |  |
| Comme         | Comments: currently not supported on IDEM.  |  |                   |   |                      |  |  |  |  |
| Prerequisites |   |  |                   |   |                      |  |  |  |  |
| INST1 h       | as to support Manual Trade Acceptan   | ce   |                   |   |                      |  |  |  |  |
|               |   | Expected Resu  | ilts              |   |                      |  |  |  |  |
| #             | Test Steps  | Trading Engine (SAIL)                                  | Responses         | Market Inform<br>(HSVF)   | nation               |  |  |  |  |
| 1             | Client: Enters two regular Buy/Sell orders in order to create a spread for instrument INST1.                                  | Orders are acce<br>and spread is c<br>Sends a KE me    |                   | Quote or Market Depth sent.  An F/FF or H/HF message is sent                |                      |  |  |  |  |
| 2             | Client: Enters two cross orders within the spread with the same quantity and price  Send two Cross Orders through OX messages | messages [Spe  | essage and two NT | Trade message is sent.  C<> message is sent with Price Indicator Marke ="C" |                      |  |  |  |  |
| 3             | BIT: Manually Accept the trade  | The trade is acc<br>Sends one NT r<br>[Proposal Status | message           |   |                      |  |  |  |  |

#### **4.13 Market Maker Protection Test Cases**

#### 4.13.1 Max Volume

| ID #: MM    | Г-01   | Type: Trade Mana       | gement            | Requirement:        | Mand       | atory for MM              | Co-ordinated Test: N |  |  |
|-------------|--|------------------------|-------------------|---------------------|------------|---------------------------|----------------------|--|--|
| Description | Description: Max Volume: is designed to protect market making participants from "excessive" trades |                        |                   |                     |            |                           |                      |  |  |
| Comment     | s: Enabled by  | default for all Market | t Makers          |                     |            |                           |                      |  |  |
| Prerequis   | Prerequisites  |                        |                   |                     |            |                           |                      |  |  |
| For this te | st one MM (P   | articipant) and one T  | RADER (E          | xchange Controlled  | d) are nee | eded.                     |                      |  |  |
| Set MM p    | rotection Max  | Volume to 100 ON ir    | nstrument         | A of Group Z (in BD | messag     | e)                        |                      |  |  |
| Set MM p    | rotection to A   | dvanced (in RP mess    | sage)             |                     |            |                           |                      |  |  |
|             |  |                        |                   | Expected Results    |            |                           |                      |  |  |
| #           | Test Steps   | :                      | Trading<br>(SAIL) | Engine Response     | es .       | Market Information (HSVF) |                      |  |  |
| 1           | Client:  |                        | Quote is          | accepted.           |            |                           |                      |  |  |
|             | Buy 150 of   | A @ Price P            | Sends a           | LA message          |            |                           |                      |  |  |
|             | Sell 150 of<br>Tick  | A @ Price P + 1        |                   |                     |            |                           |                      |  |  |
|             | Sends an 0   | Qi message:            |                   |                     |            |                           |                      |  |  |
| 2           | Client:  |                        | Trade is          | done                |            |                           |                      |  |  |
|             | Sell 100 of  | A @ Market Price       | Sends 1           | NT message is sei   | nt         |                           |                      |  |  |
|             | Sends an   | OE message             | An NP r           | nessage is sent     |            |                           |                      |  |  |

#### 4.13.2 Delta Volume

| ID #: MM1  | Г-02   | Type: Trade Mana       | agement Requirement: Mandatory for MM Co-ordinated Test: N |                  |  |                           |  |  |
|------------|--|------------------------|--|------------------|--|---------------------------|--|--|
| Descriptio | Description: Delta Volume: is designed to protect market making participants from "excessive" trades |                        |  |                  |  |                           |  |  |
| Comments   | s: Enabled by  | default for all Market | Makers   |                  |  |                           |  |  |
| Prerequis  | Prerequisites  |                        |  |                  |  |                           |  |  |
| Set MM pi  | rotection Max  | Volume to 2000         |  |                  |  |                           |  |  |
| Set MM pi  | rotection Max  | Delta to 1000          |  |                  |  |                           |  |  |
| Set MM pi  | rotection to Ad  | dvanced                |  |                  |  |                           |  |  |
|            | Test Steps   |                        | Expected Results   |                  |  |                           |  |  |
| #          |  |                        | Trading E<br>(SAIL)  | Engine Responses |  | Market Information (HSVF) |  |  |
| 1          | Client:  |                        | Quote is a   | accepted.        |  |                           |  |  |
|            | Quote on Ir<br>Group Z:  | nstrument A of         | Sends a L  | .A message       |  |                           |  |  |
|            | Buy 1010 o   | of A @ Price P         |  |                  |  |                           |  |  |
|            | Sell 1010of<br>Tick  | A @ Price P + 1        |  |                  |  |                           |  |  |
|            | Sends an   | Qi message:            |  |                  |  |                           |  |  |

| 2 | Client: enters                | Trade is done              |  |
|---|-------------------------------|----------------------------|--|
|   |                               | Sends 1 NT message is sent |  |
|   | Sell 1010 of A @ Market Price | An NP message is sent      |  |
|   | Sends an OE message           |                            |  |

#### 4.14 Market Maker Alarms

#### 4.14.1 Market Maker Alarms

| ID #: ALR-01 Type: Trade Management Require |  |  | Requirement: Mandatory for Market Maker | rement: Mandatory for Market Maker Co-ordinated Test: N |  |  |  |  |
|---|--|--|---|---|--|--|--|--|
| Description                                 | Description:   |  |   |   |  |  |  |  |
| Commen                                      | Comments: For this test one MM (Participant) and one TRADER (Exchange Controlled) are needed.                                    |  |   |   |  |  |  |  |
| Prerequi                                    | sites  |  |   |   |  |  |  |  |
|   |  |  |   |   |  |  |  |  |
|   |  | Expected Results   |   |   |  |  |  |  |
| #   | Test Steps   | Trading Engine<br>Responses<br>(SAIL)  | Market Information (HSVF)               |   |  |  |  |  |
| 1   | Client: The MM will Quote on Instruments belonging to Group AA fulfilling its spread and volume obligation  Sends an Qi message: | Order is accepted  Sends an LA message  No market makers alarrare generated  |   |   |  |  |  |  |
| 2   | Client: The MM will Quote on Instruments belonging to Group AA not fulfilling its spread obligations                             | Order is accepted  Sends an LA message  Sail Messages MM is received after 2 minute advising that spread obligations are not fulfil  | S                                       |   |  |  |  |  |
| 3   | Client: The MM will Quote on Instruments belonging to Group AA not fulfilling its volume obligations                             | Order is accepted  Sends an LA message  Sail Messages MM is received after 2 minute advising that spread obligations are not fulfill | S                                       |   |  |  |  |  |
| 4   | Client: The MM will not<br>Quote on any Instruments<br>belonging to Group AA   | Sail Messages MM is<br>received after 2 minute<br>advising that prices are<br>missing Q  |   |   |  |  |  |  |
| 5   | Client: The MM will Quote on Instruments belonging to Group AA not fulfilling comparable size deviation                          | Sail Messages MM is received after 2 minute advising that Quantities outside comparable siz deviation [Alert Type =                  | s<br>re                                 |   |  |  |  |  |

#### 4.14.2 Market Maker Alarms under Stressed Market Condition

| ID#: ALR  | Type: Trade Management   | Requirement: Mano   | datory for Market Maker                        | Co-ordinated Test: Y |  |  |  |  |
|-----------|--|---|--|----------------------|--|--|--|--|
| Descripti | Description:   |   |  |                      |  |  |  |  |
| Commen    | ts: For this test one MM (Parti  | cipant) and one TRADER (Exch  | ange Controlled) are needed.                   |                      |  |  |  |  |
| Prerequis | sites  |   |  |                      |  |  |  |  |
| The trade | r has Market making obligation   |   |  |                      |  |  |  |  |
|           |  | Expected Results  |  |                      |  |  |  |  |
| #         | Test Steps   | Trading Engine<br>Responses<br>(SAIL)   | Market Information<br>(HSVF)                   |                      |  |  |  |  |
| 1         | BIT: sends Bulletin<br>message Stressed Market<br>Condition Start on Group<br>AA   |   | L(1) Regular Text Bulletin [Bulletin type = 2] |                      |  |  |  |  |
| 2         | Client: The MM will Quote on Instruments belonging to Group AA fulfilling its spread and volume obligation  Sends an Qi message: | Order is accepted  Sends an LA message  No market makers alarms are generated   | H/HF or F/FF messages ser                      | nt.                  |  |  |  |  |
| 3         | Client: The MM will Quote on Instruments belonging to Group AA not fulfilling its spread obligations                             | Order is accepted  Sends an LA message  Sail Messages MM is received after 2 minutes advising that spread obligations are not fulfilled | H/HF or F/FF messages sen                      | t.                   |  |  |  |  |
| 4         | Client: The MM will Quote on Instruments belonging to Group AA not fulfilling its volume obligations                             | Order is accepted  Sends an LA message  Sail Messages MM is received after 2 minutes advising that spread obligations are not fulfilled | H/HF or F/FF messages sent                     | t.                   |  |  |  |  |
| 5         | Client: The MM will not<br>Quote on any Instruments<br>belonging to Group AA   | Sail Messages MM is<br>received after 2 minutes<br>advising that prices are<br>missing Q  | H/HF or F/FF messages sen                      | t.                   |  |  |  |  |
| 6         | Client: The MM will Quote on Instruments belonging to Group AA not fulfilling comparable size deviation                          | Sail Messages MM is received after 2 minutes advising that Quantities outside comparable size deviation [Alert Type = 9]                | H/HF or F/FF messages sent                     | t.                   |  |  |  |  |

# 4.15 Drop Copy Test Cases

# 4.15.1 Drop Copy

| ID #: DC         | D #: DC-01 Type: Drop Copy extended messages Requirement: Optional Co-ordinated Test: N  |  |                           |   |  |  |  |
|------------------|--|--|---------------------------|---|--|--|--|
| Descript         | Description: It allows customers to manage orders entered by other traders in the firm   |  |                           |   |  |  |  |
| Comme            | Comments: Drop copy user type needs to be used   |  |                           |   |  |  |  |
| Prerequ          | uisites  |  |                           |   |  |  |  |
| Custome          | er must connect two users:   |  |                           |   |  |  |  |
| - One n          | normal order routing user;   |  |                           |   |  |  |  |
| - One D          | Orop Copy user;  |  |                           |   |  |  |  |
| Expected Results |  |  |                           |   |  |  |  |
| #                | Test Steps   | Trading Engine Respons<br>(SAIL)   | Market Information (HSVF) | 1 |  |  |  |
| 1                | Client:  | Order is accepted and is not the book.   | ot on                     |   |  |  |  |
|                  | Enter orders with normal OR user; - modify some of these orders                          | Sends a KE message   |                           |   |  |  |  |
|                  | - modify some of these orders - cancels some of those orders                             | [Status: "I "]   |                           |   |  |  |  |
|                  | leaving some other orders active on the market  Sends Internal messages cancellation for | In the drop copy connection these messages will be red in the extended format, ple verify that in the messages KE, KZ and NZ you can see additional field: | eived<br>ase<br>KM ,      |   |  |  |  |
|                  |  | Price Type   |                           |   |  |  |  |
|                  |  | Previous Displayed Quanti  | ty                        |   |  |  |  |
|                  |  | Previous Booked Price  |                           |   |  |  |  |
|                  |  | Displayed Quantity   |                           |   |  |  |  |
|                  |  | Filler String  |                           |   |  |  |  |
|                  |  | System Best Bid Price  |                           |   |  |  |  |
|                  |  | System Best Ask Price  |                           |   |  |  |  |
|                  |  | Filler String  |                           |   |  |  |  |
|                  |  | Filler String  |                           |   |  |  |  |
|                  |  | End of Message Block   |                           |   |  |  |  |
|                  |  | Special Price Term   |                           |   |  |  |  |
|                  |  | Additional Price   |                           |   |  |  |  |
|                  |  | Quantity Term  Additional Quantity   |                           |   |  |  |  |
|                  |  | Guaranteed Quantity  |                           |   |  |  |  |
|                  |  | Duration Type  |                           |   |  |  |  |
|                  |  | GTD Date   |                           |   |  |  |  |
|                  |  | Opposite Firm  |                           |   |  |  |  |
|                  |  | Filler String  |                           |   |  |  |  |
|                  |  | Order Type   |                           |   |  |  |  |

| Linked Quantity Filler String Filler String Remaining Quantity Filler String Remaining Quantity Filler String Remaining Quantity Filler String Remaining Quantity Filler String Sands 1 NT Trade is done Sands 1 NT Trade is done Sands 1 NT Trade is done Sands an OE message of a Strategy trade  Sands an OE message NT. Execution Notice NNL. Leg Execution Cancellation Notice  Sands Internal messages cancellation for trades  NV. Execution Cancellation Notice The following field are displayed: Provious Booked Quantity Order Type Liquidity Status End of Massage Block Remaining Quantity Filler String Timestamp Date Price Valration Net Change Open Price High Price Low Price Last Price Opening trade Filler String   |   |                     | Previous Order ID              |  |
|--|---|---------------------|--------------------------------|--|
| Filler String   Filler String   Femaning Quantity   Filler String   Femaning Quantity   Filler String   Fill   |   |                     | Linked Quantity                |  |
| Filler String   Remaining Quantity   Remaining Quantity   Filler String   Remaining Quantity     |   |                     |                                |  |
| 2 Client: Perform the following operation: Match partially an existing order Cancel an existing trade on a leg of a Strategy trade  Sends an OE message Cancellation for trades  Sends Internal messages Cancellation for trades  Notice  Notice  |   |                     |                                |  |
| Piller String   Priller String   |   |                     |                                |  |
| Client: Perform the following operation: Match partially an existing order Cancel an existing trade Cancel an existing trade Cancel an existing trade Cancel and the state of  |   |                     |                                |  |
| Perform the following operation: Match partially an existing order Cancel an existing trade Cancel an existing trade Cancel an existing trade Cancel an existing trade  Sends an OE message  Sends Internal messages Cancellation for trades  NY: Leg Execution Cancellation Notice  Order Type Liquidity Status End of Message Block Remaining Quantity Filler String Timestamp Date Price Variation Net Change Open Price High Price Low Price Last Price Opening trade Filler String Filler String Internal Market Bid   |   | Oli i               |                                |  |
| Match partially an existing order Cancel an existing trade Cancel an existing trade on a leg of a Strategy trade  Sends an OE massage  Sends Internal messages Cancellation for trades  NY: Execution Notice NN: Execution Cancellation Notice NN: Execution Cancellation Notice NN: Execution Cancellation Notice NY: Leg Execution Cancellation Notice NY: Execution Cancellation Notice NY: Leg Execution Cancellation Notice NY: Leg Execution Cancellation Notice NY: Execution Cancellation Notice NY: Execution Cancellation Notice NY: Leg Execution Cancellation Notice NY: Leg Execution Cancellation Notice NY: Execution Cancellation Notice NY: Leg Execution Cancellation Notice NY: Leg Execution Cancellation Notice NY: Leg Execution Cancellation Notice NY: Execution Cancellation Notice NY: Leg Execution Cancellation Notice NY: Leg Execution Cancellation Notice NY: Execution Cancellation Notice NY: Leg Execution Notice NY: Leg Execution Notice NY: Leg Execution Notice NY: Leg Execution Cancellation Notice NY: Leg Execution Cancellation Notice NY: Leg Execution Notic | 2 |                     |                                |  |
| Cancel an existing trade Cancel an existing trade on a leg of a Strategy trade  Sends an OE message  NT: Execution Notice  NL: Leg Execution Notice  NN: Leg Execution Cancellation Notice  Notice  NN: Leg Execution Cancellation Notice  NN: Leg Execution Cancellation Notice  Notice  Notice  NN: Leg Execution Cancellation Notice  Notice  NN: Leg Execution Cancellation Notice  Notice  Notice  NN: Leg Execution Cancellation Notice  Notice Notice  Notice  Notice  Notice  Notice  Notice  Notice Notice  Notice   |   |                     |                                |  |
| Cancel an existing trade on a leg of a Strategy trade  Sends an OE message  Notice  The following field are displayed:  Previous Booked Quantity  Previous Booked Price  Displayed Quantity  Order Type  Liquidity Status  End of Message Block  Remaining Quantity  Filler String  Timestamp Date  Price Variation  Net Change  Open Price  Last Price  Loy Price  Last Price  Loy Price  Last Price  Opening trade  Filler String  Internal Market Bid  Internal Market Ask   |   |                     |                                |  |
| of a Strategy trade  NT: Execution Notice  NL: Leg Execution Notice  NX: Execution Cancellation Notice  NY: Leg Execution Cancellation Notice  NY: Leg Execution Cancellation Notice  The following field are displayed: Previous Booked Quantity Previous Booked Price Displayed Quantity Order Type Liquidity Status End of Message Block Remaining Quantity Filler String Timestamp Date Price Variation Net Change Open Price List Price Last Price Opening trade Filler String Filler String Filler String Filler String Filler String Internal Market Bid Internal Market Bid Internal Market Bid  |   |                     | in the extended format, please |  |
| Sends Internal messages cancellation Notice  Sends Internal messages cancellation for trades  NY: Leg Execution Cancellation Notice  The following field are displayed: Previous Booked Quantity Previous Booked Price Displayed Quantity Order Type Liquidity Status End of Message Block Remaining Quantity Filler String Timestamp Date Price Variation Net Change Open Price Last Price Opening trade Filler String Internal Market Bid Internal Market Bid  |   |                     |                                |  |
| Sends Internal messages cancellation Notice  Sends Internal messages cancellation for trades  NY: Leg Execution Cancellation Notice  The following field are displayed: Previous Booked Quantity Previous Booked Price Displayed Quantity Order Type Liquidity Status End of Message Block Remaining Quantity Filler String Timestamp Date Price Variation Net Change Open Price Last Price Opening trade Filler String Internal Market Bid Internal Market Bid  |   |                     |                                |  |
| Sends Internal messages cancellation for trades  NY: Leg Execution Cancellation Notice  The following field are displayed: Previous Booked Quantity Previous Booked Price Displayed Quantity Order Type Liquidity Status End of Message Block Remaining Quantity Filler String Timestamp Date Price Variation Net Change Open Price High Price Low Price Last Price Opening trade Filler String Internal Market Bid Internal Market Bid  |   | Sends an OE message | NX: Execution Cancellation     |  |
| displayed: Previous Booked Quantity Previous Booked Price Displayed Quantity Order Type Liquidity Status End of Message Block Remaining Quantity Filler String Timestamp Date Price Variation Net Change Open Price High Price Low Price Last Price Opening trade Filler String Internal Market Bid Internal Market Bid  |   |                     |                                |  |
| Previous Booked Price Displayed Quantity Order Type Liquidity Status End of Message Block Remaining Quantity Filler String Timestamp Date Price Variation Net Change Open Price High Price Low Price Last Price Opening trade Filler String Filler String Filler String Filler String Filler String  |   |                     |                                |  |
| Displayed Quantity Order Type Liquidity Status End of Message Block Remaining Quantity Filler String Timestamp Date Price Variation Net Change Open Price High Price Low Price Last Price Opening trade Filler String Filler String Filler String Internal Market Bid Internal Market Ask  |   |                     | Previous Booked Quantity       |  |
| Order Type Liquidity Status End of Message Block Remaining Quantity Filler String Timestamp Date Price Variation Net Change Open Price High Price Low Price Last Price Opening trade Filler String Filler String Filler String Internal Market Bid Internal Market Ask   |   |                     | Previous Booked Price          |  |
| Liquidity Status End of Message Block Remaining Quantity Filler String Timestamp Date Price Variation Net Change Open Price High Price Low Price Last Price Opening trade Filler String Filler String Filler String Internal Market Bid Internal Market Ask  |   |                     | Displayed Quantity             |  |
| End of Message Block Remaining Quantity Filler String Timestamp Date Price Variation Net Change Open Price High Price Low Price Last Price Opening trade Filler String Filler String Filler String Internal Market Bid Internal Market Ask   |   |                     | Order Type                     |  |
| Remaining Quantity  Filler String  Timestamp Date  Price Variation  Net Change  Open Price  High Price  Low Price  Last Price  Opening trade  Filler String  Filler String  Internal Market Bid  Internal Market Ask   |   |                     | Liquidity Status               |  |
| Filler String Timestamp Date Price Variation Net Change Open Price High Price Low Price Last Price Opening trade Filler String Filler String Filler String Internal Market Bid Internal Market Ask   |   |                     | End of Message Block           |  |
| Timestamp Date Price Variation Net Change Open Price High Price Low Price Last Price Opening trade Filler String Filler String Internal Market Bid Internal Market Ask   |   |                     | Remaining Quantity             |  |
| Price Variation  Net Change  Open Price  High Price  Low Price  Last Price  Opening trade  Filler String  Filler String  Internal Market Bid  Internal Market Ask  |   |                     | Filler String                  |  |
| Net Change Open Price High Price Low Price Last Price Opening trade Filler String Filler String Internal Market Bid Internal Market Ask  |   |                     | Timestamp Date                 |  |
| Open Price High Price Low Price Last Price Opening trade Filler String Filler String Filler String Internal Market Bid Internal Market Ask   |   |                     | Price Variation                |  |
| High Price Low Price Last Price Opening trade Filler String Filler String Filler String Internal Market Bid Internal Market Ask  |   |                     | Net Change                     |  |
| Low Price  Last Price Opening trade  Filler String Filler String Filler String Internal Market Bid Internal Market Ask   |   |                     | Open Price                     |  |
| Last Price Opening trade Filler String Filler String Filler String Internal Market Bid Internal Market Ask   |   |                     | High Price                     |  |
| Opening trade  Filler String  Filler String  Filler String  Internal Market Bid  Internal Market Ask   |   |                     | Low Price                      |  |
| Filler String Filler String Filler String Internal Market Bid Internal Market Ask  |   |                     | Last Price                     |  |
| Filler String Filler String Internal Market Bid Internal Market Ask  |   |                     | Opening trade                  |  |
| Filler String Internal Market Bid Internal Market Ask  |   |                     | Filler String                  |  |
| Internal Market Bid Internal Market Ask  |   |                     | Filler String                  |  |
| Internal Market Ask  |   |                     | Filler String                  |  |
|  |   |                     | Internal Market Bid            |  |
| OppositeMsgType  |   |                     | Internal Market Ask            |  |
|  |   |                     | OppositeMsgType                |  |

| 1 | 1 |                          |  |
|---|---|--------------------------|--|
|   |   | Original Price           |  |
|   |   | Special Price Term       |  |
|   |   | Additional Price         |  |
|   |   | Additional Quantity Type |  |
|   |   | Additional Quantity      |  |
|   |   | Duration Type            |  |
|   |   | GTD Date                 |  |
|   |   | Filler String            |  |
|   |   | Clearing Firm            |  |
|   |   | Connection ID            |  |
|   |   | Exchange ID              |  |
|   |   | OrderTradingMode         |  |
|   |   | OrderTimeStamp           |  |
|   |   | Strategy Group           |  |
|   |   | Strategy Instrument      |  |
|   |   | Strategy Verb            |  |
|   |   | Strategy Trade Number    |  |
|   |   | Leg Number               |  |
|   |   | MatchNumber              |  |
|   |   | NumberInMatch            |  |
|   |   |                          |  |

# 4.16 User Defined Strategies (FLEXCO)

# 4.16.1 New Strategy Creation

| ID #: FLX   | -01 <b>Type:</b> New Strateg                                      | gy Instrument Creation          | Requirem                 | ent:  | Optional           | Co-ordinated Test: N |  |  |
|-------------|---|---------------------------------|--------------------------|-------|--------------------|----------------------|--|--|
| Description | Description: New Strategy Creation.                               |                                 |                          |       |                    |                      |  |  |
| Comment     | s: None.  |                                 |                          |       |                    |                      |  |  |
| Prerequi    | sites   |                                 |                          |       |                    |                      |  |  |
| None.       | None.   |                                 |                          |       |                    |                      |  |  |
|             |   | Expected Results                |                          |       |                    |                      |  |  |
| #           | Test Steps  | Trading Engine Responses (SAIL) |                          | Marke | t Information<br>) |                      |  |  |
| 1           | Client:   | Sends NI and KN Messa           | Sends NI and KN Messages |       |                    |                      |  |  |
|             | Send ON message specifying the Number of legs and the Instruments | Creation Status ='C'            |                          | Sends | JS/NS/HS m         | essages              |  |  |

### 4.16.2 Existed Strategy Modification

| ID #: FLX   | Type: New Strategy Inst   | rument Creation              | Requirement: | Optional                     | Co-ordinated Test: N |  |  |  |
|-------------|---|------------------------------|--------------|------------------------------|----------------------|--|--|--|
| Description | Description: Existed Strategy Modification                        |                              |              |                              |                      |  |  |  |
| Commen      | Comments: Strategy Already Exists and the System will modify      |                              |              |                              |                      |  |  |  |
| Prerequi    | sites   |                              |              |                              |                      |  |  |  |
| Execution   | of test case FLX01  |                              |              |                              |                      |  |  |  |
|             |   | Expected Results             | ılts         |                              |                      |  |  |  |
| #           | Test Steps  | Trading Engine Res<br>(SAIL) |              | Market Information<br>(HSVF) |                      |  |  |  |
| 1           | Client:   | Sends NI and KN Me           | essages      |                              |                      |  |  |  |
|             | Send ON message specifying the Number of legs and the Instruments | Creation Status ='M'         |              | Sends JS/NS/HS m             | essages              |  |  |  |

#### **4.17 Bundle Order Test Scenarios**

# 4.17.1 Bundle Order against Different Counterparties

| ID #: BO-01 |  | Type: Bundle Order                                   | Requirement:  | Optional   | Co-ordinated Test: Y                 |  |  |
|-------------|--|--|---|--|--------------------------------------|--|--|
| Description | Description: Multiple proposal request against different counterparties completed successfully |  |   |  |                                      |  |  |
| Prerequi    | isites   |  |   |  |                                      |  |  |
| 1.          | The book for in:   | strument INST1 must be                               | e set to [Buy 12@2.00 -   | – Sell 10@6]; ı  | no other orders must be in the book. |  |  |
| 2.          |  |  | . ,   |  | no other orders must be in the book. |  |  |
| 3.          | Group for instru   | ument INST1 and INST2                                |   | us Trading mod   | de.                                  |  |  |
|             |  | L'   | Expected Results  |  |                                      |  |  |
| #           | Test Steps   |  | Trading Engine Respo<br>(SAIL)  |  | Market Information<br>(HSVF)         |  |  |
| 1           | on INST1 and   | Bundle Order (BO) I INST2 specifying unterparty1 and | Proposal acknowledgen ndicating the double of specified in the initial Preposal Status = W: Waiting for approval. The proposal legs with the Status = W: Waiting for approval reforoposal to be sent to the Entering Firm ID and the sided proposal to be see Opposite Firm ID (in the PR). Proposal Type= B: Bur | Legs roposal r ID used.  Order er to the ne e reverse nd to e original | None                                 |  |  |
| 2           | Exchange: Pr<br>Acceptance w<br>Proposal (OB   | vith Bundle  |   |  |                                      |  |  |

| 3 | Client                            | Bundle leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted.  Order Status = (blank):  Order put in the order book.  Proposal Status= W:  Waiting for approval. |  |
|---|-----------------------------------|---|--|
| 4 | Proposal Update (PU) unsolicited  | Proposal leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted.  Order Status=(blank): Order put in the order book  Proposal Status=W; Waiting for approval.     |  |
| 5 | Execution Notice (NT) unsolicited | _   | Trade price is updated for INST1 and INST2 |

# 4.17.2 Bundle Order against Different Counterparties Cancelled

| ID #: BO-02 Type: Bundle Order |   | Type: Bundle Order | Requirement: Optional   | Co-ordinated Test: N         |  |  |  |  |
|--------------------------------|---|--------------------|---|------------------------------|--|--|--|--|
| Description                    | Description: Multiple proposal requests against different counterparties cancelled.                             |                    |   |                              |  |  |  |  |
| Prerequis                      | sites   |                    |   |                              |  |  |  |  |
| 1.<br>2.<br>3.                 | 2. The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book. |                    |   |                              |  |  |  |  |
|                                |   |                    | Expected Results  |                              |  |  |  |  |
| #                              | Test Steps  |                    | Trading Engine Responses (SAIL)   | Market Information<br>(HSVF) |  |  |  |  |
| 1                              | Client: Client submit Bundle Order (BO) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2  |                    | Proposal acknowledgement indicating the double of Legs specified in the initial Proposal Request with the Trader ID used.  Proposal Status = W: Waiting for approval.  The proposal legs with Order Status = W:  Waiting for approval refer to the proposal to be sent to the Entering Firm ID and the reverse sided proposal to be send to Opposite Firm ID (in the original PR).  Proposal Type= B: Bundle Order. | None                         |  |  |  |  |
| 2                              | Client: Propo<br>(XP)   | sal Cancellation   | Proposal cancellation specifying any leg (Original Order ID) of the   |                              |  |  |  |  |

|   |                                  | Proposal and the <b>Refusal Reason</b> .   |  |
|---|----------------------------------|--|--|
| 3 | Client                           | Proposal cancellation acknowledgement with the latest Order Status and the Refusal Reason. Specifies the Trader ID used.  Proposal Status=R: Refused   |  |
| 4 | Proposal Update (PU) unsolicited | Sent to the PR Initiator Participant connection.  Contains only the refused leg with the latest order status and indicates the refusal reason.  Proposal status=R: Refused  Note: No further proposal Updates (PU) will be received after Proposal Status=R: Refused |  |

### 4.17.3 BO Leg Refusal

| <b>ID #</b> : BO- | 03 <b>Type:</b> Bundle Orde  | er Requirement: Optional   | Co-ordinated Test: Y         |  |  |  |  |  |
|-------------------|--|--|------------------------------|--|--|--|--|--|
| Description       | Description: BO leg refusal by participant.  |  |                              |  |  |  |  |  |
| Prerequis         | sites  |  |                              |  |  |  |  |  |
| 1.<br>2.          |  |  |                              |  |  |  |  |  |
|                   |  | Expected Results   |                              |  |  |  |  |  |
| #                 | Test Steps   | Trading Engine Responses (SAIL)  | Market Information<br>(HSVF) |  |  |  |  |  |
| 1                 | Client: Client submit Bundle Order (BO) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2 | Verify Proposal acknowledgement (KB)   | None                         |  |  |  |  |  |
| 2                 | Exchange: Proposal<br>Cancellation (XP)  |  |                              |  |  |  |  |  |
| 3                 | Client   | Sent to the BO initiator Participant connection.  Contains only the refused leg indicating the latest Order Status and the Refusal Reason.  Proposal Status = R: Refused  Note: No further Proposal updates (PU) will be received after Proposal status= R: Refused. | None                         |  |  |  |  |  |

#### 4.17.4 BO Automatic Cancellation

| ID #: BO-04 Type: Bundle Order |   | Type: Bundle Order | Requirement: Optional  | Co-ordinated Test: N      |  |  |  |  |  |
|--------------------------------|---|--------------------|--|---------------------------|--|--|--|--|--|
| Description                    | Description: BO automatic cancellation at market closure (expiry).  |                    |  |                           |  |  |  |  |  |
| Prerequis                      | sites   |                    |  |                           |  |  |  |  |  |
| 1.<br>2.<br>3.                 | 2. The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book. |                    |  |                           |  |  |  |  |  |
|                                |   |                    | Expected Results   |                           |  |  |  |  |  |
| #                              | Test Steps  |                    | Trading Engine Responses (SAIL)  | Market Information (HSVF) |  |  |  |  |  |
| 1                              | Client: Client submit Bundle Order (BO) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2  |                    | Verify Proposal<br>acknowledgement (KB)  | None                      |  |  |  |  |  |
|                                |   |                    | Order expiration notice at the end of the trading day.   |                           |  |  |  |  |  |
|                                |   |                    | Order status=E: The order has been eliminated by the trading engine.                                   |                           |  |  |  |  |  |
|                                |   |                    | Bundle orders are valid only during the trading day.   |                           |  |  |  |  |  |
|                                |   |                    | No specific message (PU or PN) will be sent at market closure, but all confirmed legs will be removed. |                           |  |  |  |  |  |

#### 4.17.5 Unsolicited Bundle order Proposal Notice

| ID #: <b>BO</b>   | -05                           | Type: Bundle Order | Requirement:           | Mandatory | Co-ordinated Test: Y   |  |  |  |
|---|-------------------------------|--------------------|------------------------|-----------|--|--|--|--|
| Description: unsolicited Bundle Order proposal Notice sent from the Exchange to the Clients. Clients have to confirm to manage PN message |                               |                    |                        |           |  |  |  |  |
| Prerequisites   |                               |                    |                        |           |  |  |  |  |
| 1.<br>2.  |                               |                    | - ,                    | -         | no other orders must be in the book.  no other orders must be in the book. |  |  |  |
| 3.  |                               |                    | 2 must be in Continuou |           |  |  |  |  |
|   |                               |                    | Expected Results       |           |  |  |  |  |
| #   | Test Steps                    |                    | Trading Engine Resp    | onses     | Market Information   |  |  |  |
|   |                               |                    | (SAIL)                 |           | (HSVF)   |  |  |  |
| 1   | Exchange sub<br>(Bundle order |                    | Proposal acknowledg    | lement KB |  |  |  |  |

Optional

Co-ordinated Test: Y

Requirement:

#### 4.17.6 Deferred Bundle Order

Description: Deferred Publication for Bundle Orders

Type: Bundle Order

ID #: BO-06

| Prerequ | Prerequisites  |  |  |  |  |  |  |
|---------|--|--|--|--|--|--|--|
| 1.      | The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.   |  |  |  |  |  |  |
| 2.      | The book for instrument INST2 must   | The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book.   |  |  |  |  |  |
| 3.      | Group for instrument INST1 and INS   | T2 must be in _Continuous Trading n  | node.  |  |  |  |  |
| 4.      | The volume/value of each leg wou know these thresholds)  | ıld respect the Post Trade LIS Value   | e and Volume (please refer to Market Access Italy to |  |  |  |  |
|         |  | 5. Expected Results  |  |  |  |  |  |
| #       | Test Steps   | Trading Engine Responses Market Information (SAIL) (HSVF)  |  |  |  |  |  |
| 1       | Client: Client submit Bundle Order (BO) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2  BO message with [Deferred Publication=D] | Proposal acknowledgement (KB message) indicating the double of Legs specified in the initial Proposal Request with the Trader ID used.  Proposal Status = W: Waiting for approval. The proposal legs with Order Status = W: Waiting for approval refer to the proposal to be sent to the Entering Firm ID and the reverse sided proposal to be send to Opposite Firm ID (in the original | None   |  |  |  |  |

|   |   | PR).  |  |
|---|---|---|--|
|   |   | Proposal Type= B: Bundle Order  |  |
|   |   | Deferred Publication=D: Deferred  |  |
|   |   | 20.01.00 . 02.000.01. 21.20.01.00   |  |
|   |   | A single KE message will be sent<br>for every leg (committed order) of<br>the Bundle Order. Order Status =<br>(blank): Order put in the order<br>book |  |
| 2 | Exchange: Proposal                      | Proposal Acceptance   |  |
|   | Acceptance with Bundle<br>Proposal (OB) | acknowledgment will be received by the Participant that sent the OB with the Trader ID used.  |  |
|   |   | Order Status = (blank): Order put in the order book   |  |
|   |   | Proposal Status = A: Approved   |  |
|   |   | A single KE will be sent for every leg (committed order) of the Bundle.   |  |
|   |   | Order Status = (blank): Order put in the order book   |  |
| 3 | Proposal Update (PU) unsolicited        | Proposal leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted.  |  |
|   |   | Order Status=(blank): Order put in the order book   |  |
|   |   | Proposal Status=W; Waiting for approval.  |  |
| 4 | Execution Notice (NT) unsolicited       |   | Trade price is updated for INST1 and INST2 |
|   | [Deferred Publication= D]               |   |  |

### **4.18 Third Party Trade Test Scenarios**

### 4.18.1 Third Party Trade

| ID #: TPT-01 Type: Third Party Trade Requirement: Optional Co-ordinated Test: Y |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|
| Description   | on: Third Party Trade request comple   | eted successfully  |  |  |  |  |  |  |
| Prerequi  | sites  |  |  |  |  |  |  |  |
| 1.  | The book for instrument INST1 mus  | t be set to [Buy 12@2.00 – Sell 10@6   | i]; no other orders must be in the book. |  |  |  |  |  |
| 2.  | Group for instrument INST1 must be   | e in _Continuous Trading mode.   |  |  |  |  |  |  |
|   | Expected Results   |  |  |  |  |  |  |  |
| #   | Test Steps   | Trading Engine Responses (SAIL)  | Market Information<br>(HSVF)             |  |  |  |  |  |
| 1   | Client: Client submit Proposal Request (PR) on INST1 specifying Exchange counterparty1 and counterparty2 | Proposal acknowledgement indicating the double of Legs specified in the initial Proposal Request with the Trader ID used.  Proposal Status = W: Waiting for approval. The proposal legs with Order Status = W: Waiting for approval refer to the proposal to be sent to the Entering Firm ID and the reverse sided proposal to be send to Opposite Firm ID (in the original PR).  Proposal Type= T: Inter Dealer Broker Order. | None                                     |  |  |  |  |  |
| 2   | Exchange: Proposal<br>Acceptance with Bundle<br>Proposal (OB)  |  |  |  |  |  |  |  |
| 3   | Client   | Bundle leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted.  Order Status = (blank):  Order put in the order book.  Proposal Status= W:  Waiting for approval.  |  |  |  |  |  |  |
| 4   | Proposal Update (PU) unsolicited   | Proposal leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted.  Order Status=(blank): Order put in the order book  Proposal Status=W; Waiting for approval.  | Trade price is updated for INST1         |  |  |  |  |  |
| 5   | Execution Notice (NT) unsolicited  |  | Trade price is updated for INST1         |  |  |  |  |  |

### 4.18.2 Third Party Trade Cancelled

| ID #: TP1   | Γ-02 <b>Type:</b> Third Party  | Trade Requirement: Optiona   | Co-ordinated Test: N                    |  |  |  |  |  |  |
|-------------|--|--|---|--|--|--|--|--|--|
| Description | Description: Multiple proposal requests against different counterparties cancelled.                      |  |   |  |  |  |  |  |  |
| Prerequi    | Prerequisites  |  |   |  |  |  |  |  |  |
| 1.<br>2.    | , ,  |  |   |  |  |  |  |  |  |
|             |  | Expected Results   |   |  |  |  |  |  |  |
| #           | Test Steps   | Trading Engine Responses (SAIL)  | Market Information<br>(HSVF)            |  |  |  |  |  |  |
| 1           | Client: Client submit Proposal Request (PR) on INST1 specifying Exchange counterparty1 and counterparty2 | Proposal acknowledgement indicating double of Legs specified in the initial Proposal Status = W: Waiting for approximate The proposal legs with Order Status = Waiting for approval refer to the proposisent to the Entering Firm ID and the resided proposal to be send to Opposite (in the original PR).  Proposal Type= T: Inter Dealer Broker Order. | roposal None  oval.  W: sal to be verse |  |  |  |  |  |  |
| 2           | Client: Proposal Cancellation (XP)   | Proposal cancellation specifying <u>any le</u> (Original Order ID) of the Proposal and <b>Refusal Reason</b> .   | = II                                    |  |  |  |  |  |  |
| 3           | Client   | Proposal cancellation acknowledgement the latest Order Status and the Refusa Reason. Specifies the Trader ID used.  Proposal Status=R: Refused   | ıl 📗                                    |  |  |  |  |  |  |
| 4           | Proposal Update (PU) unsolicited   | Sent to the PR Initiator Participant contains only the refused leg with the lorder status and indicates the refusal in Proposal status=R: Refused  Note: No further proposal Updates (PU received after Proposal Status=R: Re  | latest reason.  I) will be              |  |  |  |  |  |  |

### 4.18.3 Third Party Trade Leg Refusal

| ID #: TPT-03 |  | Type: Third Party Trade |  | Requirement:   | Optiona                | al                   | Co-ordinated Test: Y |  |  |
|--------------|--|-------------------------|--|--|------------------------|----------------------|----------------------|--|--|
| Description  | Description: TPT leg refusal by participant. |                         |  |  |                        |                      |                      |  |  |
| Prerequi     | Prerequisites                                |                         |  |  |                        |                      |                      |  |  |
| 1.<br>2.     |  |                         |  |  |                        |                      |                      |  |  |
|              |  |                         | Expected Res   | sults  |                        |                      |                      |  |  |
| #            | Test Steps                                   |                         | Trading Engi<br>(SAIL)   | ne Responses   |                        | Market Inf<br>(HSVF) | formation            |  |  |
| 1            | (PR) on INST                                 | unterparty1 and         | Verify Proposi   | al acknowledgement   | (KB)                   | None                 |                      |  |  |
| 2            | Exchange: Post Cancellation                  | •                       |  |  |                        |                      |                      |  |  |
| 3            | Client                                       |                         | connection.  Contains only the latest Order Reason.  Proposal State Note: No furth | PT initiator Participan the refused leg indicer Status and the Refused us = R: Refused ther Proposal updates and after Proposal stat | ating<br>fusal<br>(PU) | None                 |                      |  |  |

### 4.18.4 Third Party Trade Automatic Cancellation

| ID #: | TPT-04  | Type: Third P  | Party Trade Requirement: Optional |  | Co  | -ordinated Test: N |                           |  |
|-------|---|----------------|-----------------------------------|--|---|--------------------|---------------------------|--|
| Desc  | Description: TPT automatic cancellation at market closure (expiry).                                 |                |                                   |  |   |                    |                           |  |
| Prer  | equisites   |                |                                   |  |   |                    |                           |  |
|       | 1. The book for in  | strument INST1 | must be set to [B                 | Suy 12@2.00 – Sell                             | 10@6]; no other orders must b   | oe in th           | ie book.                  |  |
|       | 2. Group for instru   | ument INST1 m  | ust be in Continuo                | ous Trading mode.                              |   |                    |                           |  |
|       |   |                | Expected Resu                     | ılts   |   |                    |                           |  |
| #     | Test Steps  |                | Trading Engine (SAIL)             | e Responses                                    |   |                    | Market Information (HSVF) |  |
| 1     | Client: Client subm<br>Party Trade (TPT)<br>specifying Exchan<br>counterparty1 and<br>counterparty2 | on INST1<br>ge | Verify Proposal                   | acknowledgement (                              | KB)   |                    | None                      |  |
| 2     |   |                | Order status=E: engine.Third Pa   | arty Trades are valid<br>ge (PU or PN) will be | f the trading day.  n eliminated by the trading only during the trading day.Now sent at market closure, but a |                    |                           |  |

# 4.18.5 Unsolicited Third Party Prosopal Notice

| ID #: TPT   | -05  | Type: Third Party 1  | 「rade            | Requirement:                      | Mandatory           | Co-ordinated Test: Y |  |  |  |
|-------------|--|----------------------|------------------|-----------------------------------|---------------------|----------------------|--|--|--|
| Description | Description: unsolicited Proposal Notice sent from the Exchange to the Clients. Clients have to confirm to manage PN message |                      |                  |                                   |                     |                      |  |  |  |
| Prerequis   | Prerequisites  |                      |                  |                                   |                     |                      |  |  |  |
| 1.<br>2.    |  |                      |                  |                                   |                     |                      |  |  |  |
|             |  |                      | Expected Results |                                   |                     |                      |  |  |  |
| #           | Test Steps   |                      | Trading En       | gine Responses                    | Market Infor (HSVF) | mation               |  |  |  |
| 1           | Exchange sub<br>proposal requ  |                      | Receve a P       | roposal Notice from<br>ge.        | None                |                      |  |  |  |
|             | Client:<br>Receive a Thi<br>Proposal notic   | rd Party Trade<br>ce |                  | e Proposal Type T<br>Broker Order |                     |                      |  |  |  |

#### 4.19 Pre-Trade Validation

### 4.19.1 Exposition Risk Limit Rejection

| ID #: PTV-01  |   | Type: Pre-Trade Validation                                  |                     | Requirement:    | Optional           | Co-ordinated Test: N    |  |  |
|---|---|---|---------------------|-----------------|--------------------|-------------------------|--|--|
| Description: A new order hits a configured Exposition RiskLimit and is rejected |   |   |                     |                 |                    |                         |  |  |
| Prerequis   | Prerequisites   |   |                     |                 |                    |                         |  |  |
| 1.  | RiskLimits are configured on the Participant's Trader team or Firm.                                       |   |                     |                 |                    |                         |  |  |
| 2.  | 2. A RiskLimit matching the order's Side, Firm or Trader team and Instrument or Group is already reached. |   |                     |                 |                    |                         |  |  |
| 3.  | 3. The market for instrument INST1 must be set to [10@101.00 - 10@102.00].                                |   |                     |                 |                    |                         |  |  |
| 4.  | Group for instrument INST1 must be in 'Continuous Trading' mode   |   |                     |                 |                    |                         |  |  |
|   |   |   | Expected Results    |                 |                    |                         |  |  |
| #   | Test Steps  |   | Trading E<br>(SAIL) | ngine Responses | Market I<br>(HSVF) | nformation              |  |  |
| 1   | Client:   |   | Order is re         | jected.         | Quote o            | Market Depth sent.      |  |  |
|   | Enters a Sell   |   | Sends a E           | R message       | An F/FF            | or H/HF message is sent |  |  |
|   | Instruction, fo   | vith a Clearing<br>or instrument                            | [Status:]           |                 |                    |                         |  |  |
|   | INST1.  |   |                     |                 | Strategy           | : An HS message is sent |  |  |
|   | Side, Firm or   | natching the order's<br>Trader team and<br>Group is already |                     |                 |                    |                         |  |  |
|   | Sends a OE message  |   |                     |                 |                    |                         |  |  |

#### 4.19.2 Kill Switch

| ID #: PTV-02 Type: Pre-Trade  |  | de Validation           | Requirement:        | Optional                     | Co-ordinated Test: N |  |  |  |
|---|--|-------------------------|---------------------|------------------------------|----------------------|--|--|--|
| Descripti   | Description: Kill Switch by Risk Manager Participant |                         |                     |                              |                      |  |  |  |
| Prerequisites   |  |                         |                     |                              |                      |  |  |  |
| Firm / Trader / Risk Manager exist     The managed entity has at least one live order on book |  |                         |                     |                              |                      |  |  |  |
| #   |  | Expected                | Expected Results    |                              |                      |  |  |  |
|   | Test Steps   | Trading Er<br>(SAIL)    | ngine Responses     | Market Information<br>(HSVF) |                      |  |  |  |
| 1   | Risk Manager Participant send<br>the RT message      | Sends NZ<br>[Status = F | message to the star | andard users for ord         |                      |  |  |  |

# 4.19.3 Risk Limit Configuration

| ID #: PTV-03 |   | Type: Pre-Trade Validation  |                                    | Requirement: Optional  | (                         | Co-ordinated Test: N |  |  |
|--------------|---|---|------------------------------------|--|---------------------------|----------------------|--|--|
| Description  | Description: Risk limits configuration or update by Risk Manager  |   |                                    |  |                           |                      |  |  |
| Prerequi     | Prerequisites   |   |                                    |  |                           |                      |  |  |
| 1.           | 1. The market for instrument INST1 must be set to [10@2.00 – 10@2.50].  |   |                                    |  |                           |                      |  |  |
|              |   |   |                                    | Expected Results   |                           |                      |  |  |
| #            | Test Steps  |   | Trading Engine Responses<br>(SAIL) |  | Market Information (HSVF) |                      |  |  |
| 1            | MK to set risk entities or MQ to set Matheir manage  Firm, Trader, Limit Block, Corder Quanti Max Traded Stong=25, Ma | Risk Limits Configuration:  k limits for their managed  arket Maker Risk limits for d entities  Reset, Nember of Risk Group, Instrument, Max ity, Max Traded Long=5, Short, Max Exposed ax Exposed Short, Max ends, Max Exposed Spreads | ack                                | nds LB message - Exchange<br>nowledges with Bulk Command<br>ssage Acknowledge                          |                           |                      |  |  |
| 2            | Insert an orde<br>25 on INST 1  | er on Buy Side for quantity<br>at price P1  | out Ord KE/                        | k Limits Configuration MK/MQ is ser<br>ler/Modification Acknowledgment<br>/KM<br>k Limits Usage Notice | nt                        |                      |  |  |

| 3 | Insert an order on Buy Side for quantity 1 on INST 1              | Error Message ER 3103  |  |
|---|---|--|--|
|   |   | ExposedLong limit exceeded at the trader/instrument level  |  |
| 4 | Insert an order on Sell Side for quantity 6 on INST 1 at price P1 | Execution Notice  NT message  Risk Limits Usage Notice  MN message  Order Cancellation  NZ message with status T |  |

# **Certification Guide**

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