

Member Access using FIX 4.2 UTP protocol NYSE Euronext Testing Guide

September 2009 – V 0.5

VERSION HISTORY

Version Number	Date	Source Documents Used	Reasons for issuing a New Version	Sections changed
V 0.5	17 Sept 2009			-

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I- SLE CONNECTIVITY

CYCLE C01: LOGON MANAGEMENT

CYCLE C02: RESTART MANAGEMENT

CYCLE C03: RETRANSMISSION MANAGEMENT

CYCLE C04: ADMINISTRATIVE MESSAGES MANAGEMENT

CYCLE C05: CLORDID MANAGEMENT

CYCLE C01: LOGON MANAGEMENT

CYCLE OBJECTIVES:

This cycle tests SLE ability to receive and interpret the messages sent when a log-on attempt fails.

CYCLE PREPARATION:

- Exchange ensures that the SLE is logged off.
- Customer checks their connections and make sure that SLE is not logged on.

CYCLE DESCRIPTION:

UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
1. Logon Failure due to invalid sequence number	Customer initiates an SLE logon with a MsgSeqNumber lower than expected	<ul style="list-style-type: none"> • SLE should interpret correctly logon reject. SLE should not keep retrying as long as customer has not corrected the problem.
2 Logon Failure due to invalid NextExpectedMsgSeqNumber	Customer initiates an SLE logon with a NextExpectedMsgSeqNumber higher than expected	<ul style="list-style-type: none"> • SLE should interpret correctly logon reject. SLE should not keep retrying as long as customer has not corrected the problem
2. Logon Failure due to invalid SLE Id.	Customer initiates an SLE logon with an invalid SLE Id	<ul style="list-style-type: none"> • SLE should interpret correctly logon reject. SLE should not keep retrying as long as customer has not corrected the problem.
3. Logon Failure due to port mismatch	Customer initiates an SLE logon using a port of a different SLE. (Applicable only if customer owns several SLE's).	<ul style="list-style-type: none"> • SLE should interpret correctly logon reject. SLE should not keep retrying as long as customer has not corrected the problem.
4. Logon Failure due to already existing connection.	Customer initiates a second SLE logon after already having established a first place logon with the same SLE ID.	<ul style="list-style-type: none"> • SLE should interpret correctly logon reject. SLE should not keep retrying as long as customer has not corrected the problem.
5. Logon Failure due to invalid reset sequence management.	Customer initiates an SLE logon without reset the sequence number.	<ul style="list-style-type: none"> • SLE should interpret correctly logon reject. SLE should not keep retrying as long as customer has not corrected the problem.

CYCLE DETAILED INSTRUCTIONS:

UNIT 1: LOGON FAILURE DUE TO INVALID SEQUENCE NUMBER

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to begin test.		
Customer	Customer initiates a SLE logon with MsgSeqNumber lower than last sent.	SLE ID valid Tag 34 is lower or same than last message the SLE sent	Logon (A) 34=MsgSeqNumber Logon Reject (j) : field RejCode.

COMPLETION CRITERIA:

- SLE receives and interprets logon reject. SLE should not keep retrying as long as customer has not corrected the problem.

UNIT 2: LOGON FAILURE DUE TO INVALID NEXTEXPECTEDMSGSEQNUMBER
INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to begin test.		
Customer	Customer initiates a SLE logon with MsgSeqNumber higher than last received.	SLE ID valid MsgSeqNumber is last message sent + 1 NextExpectedMsgSeqNumber is much higher than last received Sequence Number	Logon (A) 34=MsgSeqNumber 789=NextExpectedMsgSeqNumber Logon Reject (j) : field RejCode.

COMPLETION CRITERIA:

- SLE receives and interprets logon reject. SLE should not keep retrying as long as customer has not corrected the problem.

UNIT 3: LOGON FAILURE DUE TO INVALID SLE ID.
INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to Begin the test.		
Customer	Customer initiates an SLE log-on with invalid SLE Id.	SLE ID invalid in tag 142 MsgSeqNumber equal to last message sent + 1 NextExpectedMsgSeqNumber equal to last message received + 1	Logon (A) 142=SenderLocationID 34=MsgSeqNumber 789=NextExpectedMsgSeqNumber Logon Reject (j) : field RejCode.

COMPLETION CRITERIA:

- SLE receives and interprets logon reject. SLE should not keep retrying as long as customer has not corrected the problem.

UNIT 4: LOGON FAILURE DUE TO PORT MISMATCH (*)**INSTRUCTIONS:**

(*) this test is applicable only if customer owns several connections.

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to Initiate an SLE log-on.		
Customer	Customer initiates an SLE logon with a port of another SLE that he owns.	SLE ID valid Port invalid	Logon (A) Logon Reject (j) : field RejCode

COMPLETION CRITERIA:

- SLE receives and interprets logon reject. SLE should not keep retrying as long as customer has not corrected the problem.

UNIT 5: LOGON FAILURE DUE TO ALREADY EXISTING CONNECTION

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to Initiate an SLE log-on.		
Customer	Customer initiates a first SLE log-on with valid sequence number	SLE ID invalid LastMsgSeqNum equal to last message received	Logon (A)
Customer	Customer initiates a second SLE log-on with valid sequence number	SLE ID invalid LastMsgSeqNum equal to last message received	Logon (A) Logon Reject (j) : field RejCode

COMPLETION CRITERIA:

- SLE receive and interpret logon reject. SLE should not keep retrying as long as customer has not corrected the problem.

UNIT 6: LOGON RESET SEQUENCE MANAGEMENT

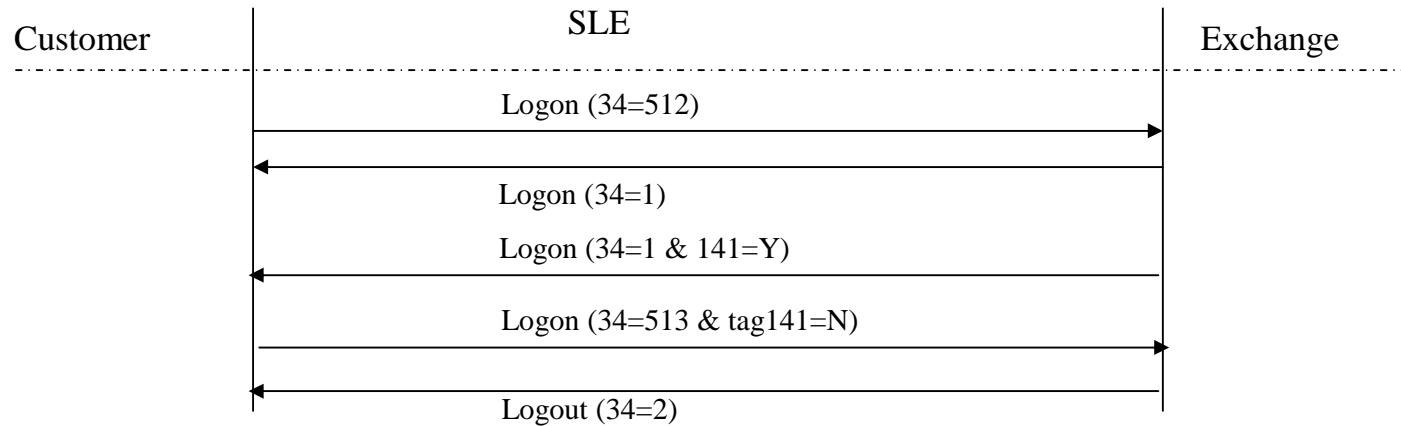
INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to Initiate an SLE log-on.		
Customer	Customer initiates an SLE log-on without reset the sequence number	SLE ID valid Authentication data: TAG141<N	FIX msg: Logon (A) 141= ResetSeqNumFlag

COMPLETION CRITERIA:

SLE receives and interprets logon refusal.

DATA FLOW DIAGRAM:



CYCLE C02: RESTART MANAGEMENT

CYCLE OBJECTIVES:

This cycle tests the software ability to restart data transmission correctly.

CYCLE PREPARATION:

- Exchange ensures that the SLE is disconnected.
- Customer checks their connections and make sure that SLE is not logged on.

CYCLE DESCRIPTION:

UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
1. First connection of SLE of the day.	Customer initiates SLE for the first time of the day (NextExpectedMsgSeqNumber is not sent or empty) and then send the first message of the day.	<ul style="list-style-type: none"> • SLE session starts correctly. • SLE receives all Beginning of Day unsolicited messages. • SLE data flow correct.
2. SLE Customer initiated Logout N° 1	Customer disconnects	<ul style="list-style-type: none"> • SLE session terminates correctly.
3. SLE Restart after Customer initiated Logout N° 1	After SLE customer disconnected, customer initiates SLE restart. Then, Exchange sends unsolicited message.	<ul style="list-style-type: none"> • SLE session restarts correctly. • SLE receives unsolicited message. • SLE data flow correct
5. SLE Restart after Customer initiated Logout N° 2	After a SLE customer initiated logout, Exchange sends unsolicited message then invites customer to initiate SLE restart. Then, customer sends a message.	<ul style="list-style-type: none"> • SLE session restarts correctly. • SLE receives pending message. • SLE transmits message. • SLE data flow correct
6. Exchange initiated Logout N° 1	Exchange initiates SLE logout	<ul style="list-style-type: none"> • SLE session terminates correctly. • SLE data flow correct
7. SLE Restart after Exchange initiated Logout N° 1	After an Exchange initiated logout, SLE logged on and initiates SLE connection. Exchange sends an unsolicited message. The SLE processes the message	<ul style="list-style-type: none"> • SLE session restarts correctly. • SLE receives unsolicited message. • SLE transmits message. • SLE data flow correct
8. Exchange initiated Logout N° 2	Exchange initiates SLE logout	<ul style="list-style-type: none"> • SLE session terminates correctly. • SLE data flow correct
9. SLE Restart after Exchange initiated	After Exchange initiated SLE logout, Exchange sends	<ul style="list-style-type: none"> • SLE session restarts correctly.

Logout N° 2	unsolicited message then invites customer to initiate SLE restart. Then, customer sends a message	<ul style="list-style-type: none">• SLE receives pending message.• SLE transmits message.• SLE data flow correct
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CYCLE DETAILED INSTRUCTIONS:

UNIT 1: FIRST CONNECTION OF DAY.

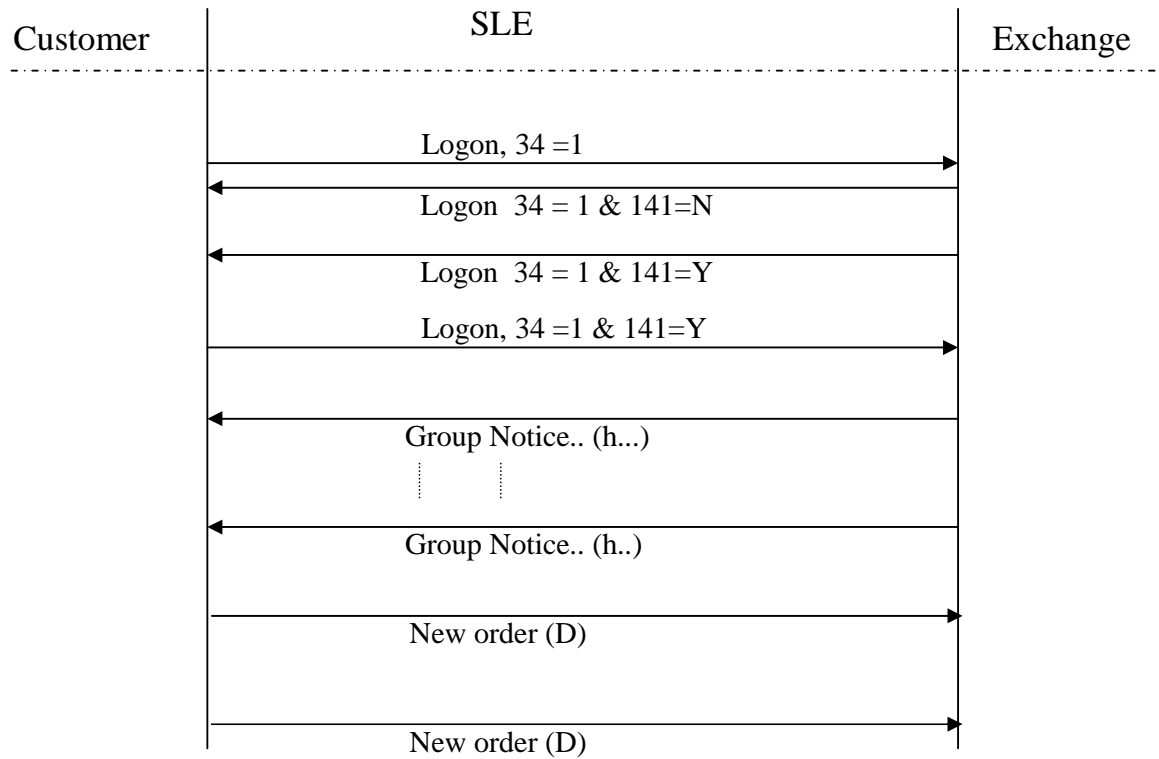
INSTRUCTIONS

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to start the test.		
Customer	Customer initiates a SLE logon.	SLE sequence number (TAG34)	FIX msg: 1st Logon message (A)
Exchange	Exchange send a first logon immediately followed by a second logon message	TAG34=1 TAG141=Y	FIX msg: 2nd Logon message (A)
Customer	SLE receives the two logon message and send back a second logon message	TAG34=1 TAG141=Y	FIX msg: 2nd Logon message (A)
Exchange	Exchange checks SLE data flow reception.	SLE send/receives application messages	FIX msg=D (New order single...) FIX msg=h, ...

COMPLETION CRITERIA

- SLE session receive the two logon message
- SLE send a second logon message with the TAG 141(sequence reset) equal to Yes
- SLE data flow correct

DATA FLOW DIAGRAM:



UNIT 2: SLE ‘CUSTOMER INITIATED’ LOGOFF N° 1

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to start the test.		
Customer	Customer disconnects		
Exchange	Exchange checks SLE session terminated correctly.		

COMPLETION CRITERIA

- SLE session terminates correctly.

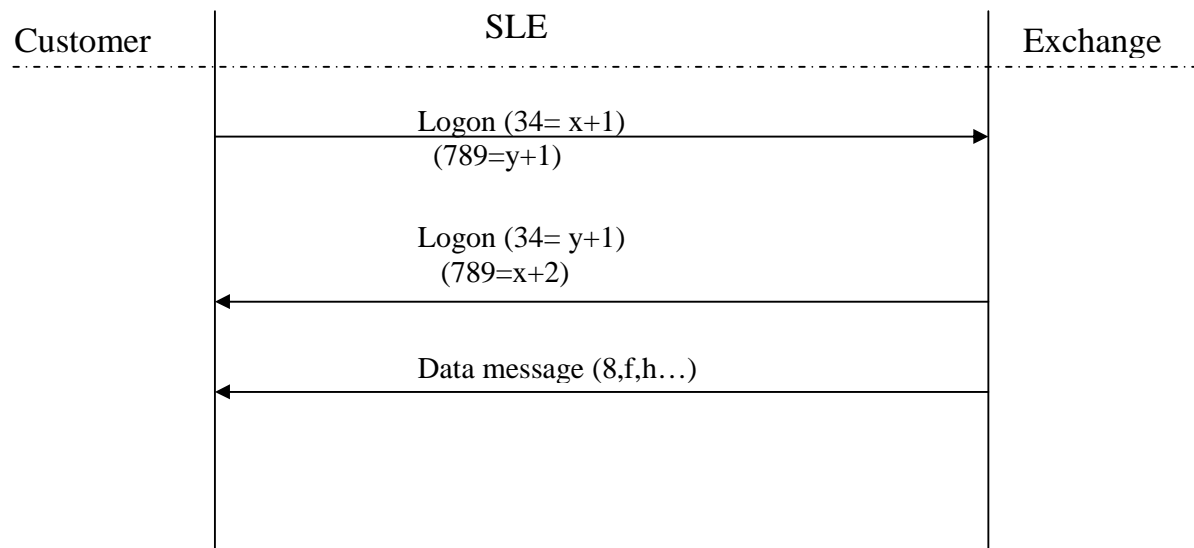
UNIT 3: SLE RESTART AFTER ‘CUSTOMER INITIATED’ DISCONNECTION

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to start the test.		
Customer	Customer initiates a SLE restart	SLE ID, Authentication data SLE NextExpectedMsgSeqNumber	Logon TAG34 = Next Seq Num
Exchange	Exchange checks SLE restart handshaking.	MsgSeqNumber and NextExpectedMsgSeqNumber within customer logon MsgSeqNumber and NextExpectedMsgSeqNumber within CCG logon	Logon TAG34 = Next Seq Num TAG789 = NextExpectedMsgSeqNumber
Exchange	Exchange sends 1 unsolicited message	CCG MsgSeqNumber incremented with one	
Customer	Customer confirms reception of the unsolicited message.	SLE process the incoming message	
Exchange	Exchange confirms SLE is up and running.		

COMPLETION CRITERIA

- SLE session restarts correctly.
- SLE receives unsolicited message.
 - SLE data flow correct



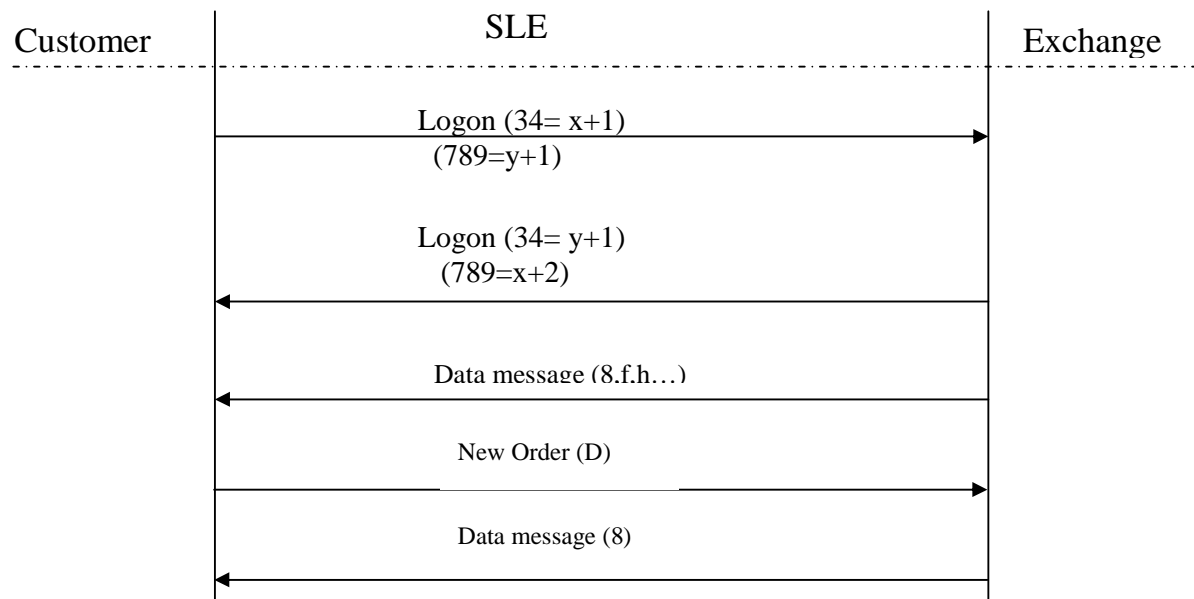
UNIT 4: SLE RESTART AFTER ‘CUSTOMER INITIATED’ LOGOUT N° 2

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange sends 1 unsolicited message		
Exchange	Exchange advises the customer to start the test.		
Customer	Customer initiates a SLE restart	SLE ID, Authentication data SLE NextExpectedMsgSeqNumber	Logon TAG34 = Next Seq Num TAG789 = NextExpectedMsgSeqNumber
Exchange	Exchange checks SLE restart handshaking.	MsgSeqNumber and NextExpectedMsgSeqNumber within customer logon MsgSeqNumber and NextExpectedMsgSeqNumber within CCG logon	Logon TAG34 = Next Seq Num TAG789 = NextExpectedMsgSeqNumber
Customer	Customer confirms reception of pending message	CCG MsgSeqNumber incremented with one	
Customer	Client sends 1 order message	Customer MsgSeqNumber incremented with one	New Order (D) 34= Next Seq Num
Exchange	Exchange confirms reception of order message.	Exchange processes the incoming message	
Exchange	Exchange confirms SLE is up and running.		

COMPLETION CRITERIA

- SLE session restarts correctly.
- SLE receives pending message.
- SLE sends message.
 - SLE data flow correct



UNIT 5: SLE 'EXCHANGE INITIATED' LOGOFF N° 1

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to start the test.		
Exchange	Exchange initiates a SLE logged off		
Customer	Customer confirms SLE session terminated correctly.		

COMPLETION CRITERIA

- SLE session terminates correctly.

UNIT 6: SLE RESTART AFTER ‘EXCHANGE INITIATED’ LOGOUT N° 1

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to start the test.		
Customer	Customer initiates a SLE restart	SLE ID, Authentication data SLE NextExpectedMsgSeqNumber	Logon TAG34 = Next Seq Num TAG789 = NextExpectedMsgSeqNumber
Exchange	Exchange checks SLE restart handshaking.	MsgSeqNumber and NextExpectedMsgSeqNumber within customer logon MsgSeqNumber and NextExpectedMsgSeqNumber within CCG logon	Logon TAG34 = Next Seq Num TAG789 = NextExpectedMsgSeqNumber
Exchange	Exchange sends 1 unsolicited message	CCG MsgSeqNumber incremented with one	Tag 34
Customer	Customer confirms reception of the unsolicited message.	SLE process the incoming message	
Exchange	Exchange confirms SLE is up and running.		
Customer	Client sends 1 order message	Customer MsgSeqNumber incremented with one	New Order (D) Tag 34
Exchange	Exchange confirms reception of order message.	Exchange processes the incoming message	
Exchange	Exchange confirms SLE is up and running.		

COMPLETION CRITERIA

- SLE session restarts correctly.
- SLE receives unsolicited message.
 - SLE data flow correct

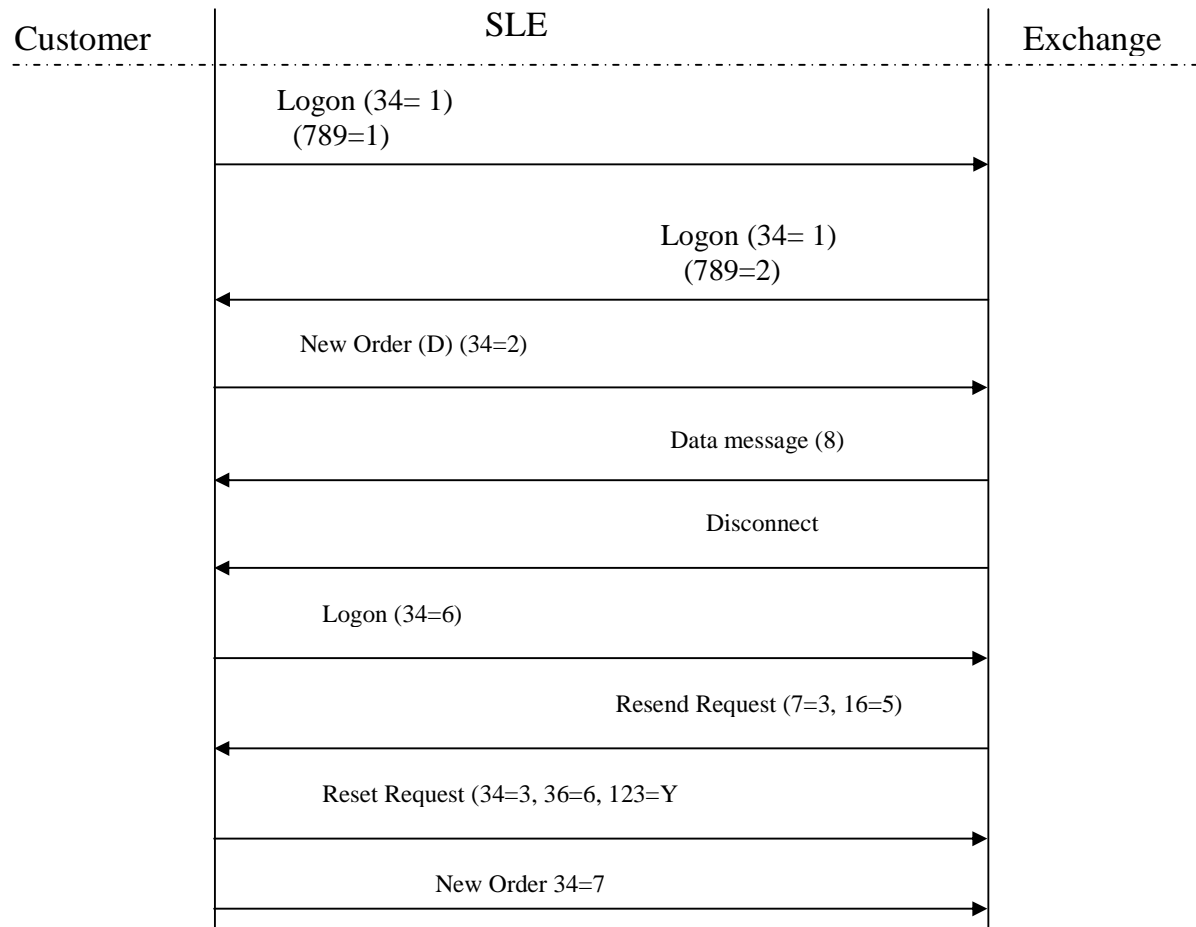
UNIT 7: SLE GAPFILL

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to start the test.		
Customer	Customer connects	SLE ID, Authentication data MsgSeqNumber and NextExpectedMsgSeqNumber in the login request are correct	Logon TAG34 = MsgSeqNumber TAG789 = NextExpectedMsgSeqNumber
Customer	Customer sends order	MsgSeqNumber increments correctly	TAG34 = MsgSeqNumber
Exchange	Exchange disconnects client		
Customer	Customer reconnects and sends a MsgSeqNumber higher than expected in the login request	SLE ID, Authentication data MsgSeqNumber in the login request is higher than last MsgSeqNumber sent by client .NextExpectedMsgSeqNumber is correct	Logon TAG34 = MsgSeqNumber TAG789 = NextExpectedMsgSeqNumber
Exchange	Exchange sends Resend Request	CCG sends Resend Request (2) including BeginSeqNumber and EndSeqNumber	Resend Request (2) 7 = BeginSeqNo 16 = EndSeqNo
Customer	Customer sends a GapFill	Customer sends a Sequence Reset (4). Tag 34 contains the same sequence number as the tag 7. Tag 36 contains the new sequence number (same as tag 16 Tag 123 is set to Y	Sequence Reset (4) 34 = MsgSeqNumber 36 = NewSeqNo 123=GapFillFlag
Exchange	Exchange confirms SLE is up and running.		
Customer	Client sends 1 order message	Customer MsgSeqNumber incremented with one	New Order (D) Tag 34
Exchange	Exchange confirms reception of order message.	Exchange processes the incoming message	
Exchange	Exchange confirms SLE is up and running.		

COMPLETION CRITERIA

- SLE session restarts correctly.
- SLE receives unsolicited message.
 - SLE data flow correct



CYCLE C03: RETRANSMISSION MANAGEMENT

CYCLE OBJECTIVES:

This cycle tests the software ability to replay data reception correctly.

CYCLE PREPARATION:

- Exchange ensures that the SLE is disconnected.
- Customer checks their connections and make sure that SLE is not logged on.

CYCLE DESCRIPTION:

UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
1. SLE Beginning of the day reception replay	Customer initiates SLE Beginning of the Day restart (ie set NextExpectedMsgSeqNumber equal to 1).	<ul style="list-style-type: none"> • SLE session restarts correctly. • SLE receives all Beginning of Day unsolicited messages. • SLE data flow correct.
2. SLE intraday reception replay.	After SLE customer initiated logout, customer initiates SLE restart from a specific NextExpectedMsgSeqNumber. Then, Exchange resends messages from the requested NextExpectedMsgSeqNumber	<ul style="list-style-type: none"> • SLE session restarts correctly. • SLE receives resent messages. • SLE data flow correct

CYCLE DETAILED INSTRUCTIONS:

UNIT 1: SLE BEGINNING OF THE DAY RECEPTION REPLAY

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to start the test.		
Customer	Customer initiates a SLE beginning of day restart	NextExpectedMsgSeqNumber equal to 1	Logon (A) 789 = NextExpectedMsgSeqNumber
Exchange	Exchange resend messages		
Customer	Customer confirms retransmission of message.		

COMPLETION CRITERIA

- SLE session restarts correctly.
- SLE receives retransmission of all messages since Beginning of the Day.
 - SLE data flow correct

UNIT 2: SLE INTRADAY RECEPTION REPLAY.

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to start the test.		
Customer	Customer initiates a SLE beginning of day restart	NextExpectedMsgSeqNumber equal to a specific MsgSeqNumber	Logon (A) 789= NextExpectedMsgSeqNumber 34=MsgSeqNumber
Exchange	Exchange resend messages		
Customer	Customer confirms retransmission of message.		

COMPLETION CRITERIA

- SLE session restarts correctly.
- SLE receives retransmission of all messages since Beginning of the Day since the specific MsgSeqNumber
 - SLE data flow correct

CYCLE C04: ADMINISTRATIVE MESSAGES MANAGEMENT

CYCLE OBJECTIVES:

This cycle tests the software ability to send messages

CYCLE PREPARATION:

- Exchange ensures that the SLE is disconnected.
- Customer checks their connections and make sure that SLE is not logged.

CYCLE DESCRIPTION:

UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
1. Periodic reception of heartbeats	Customer establish connection without sending any message during a period of time	<ul style="list-style-type: none"> • SLE receive heartbeats periodically
2. Test request sent by customer	Customer establish connection without sending any message during a period of time	<ul style="list-style-type: none"> • SLE receive heartbeat reply from CCG
3. Test request sent by CCG	Customer establish connection without sending any message during a period of time	<ul style="list-style-type: none"> • SLE reply with heartbeat

CYCLE DETAILED INSTRUCTIONS:

UNIT 1- PERIODIC RECEPTION OF HEARTBEATS

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to begin test		.
Customer	Customer initiates a SLE start	LastMsgSeqNum equal to last message received	Logon (A)
Customer	Customer confirm reception of periodic reception of heartbeats		HeartBeat (0)

COMPLETION CRITERIA:

- SLE receive heartbeats periodically

UNIT 2- TEST REQUEST SENT BY CUSTOMER
INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to begin test		.
Customer	Customer initiates a SLE start	LastMsgSeqNum equal to last message received	Logon (A)
Customer	Customer provoke emission of Test Request		Test Request (1)
Exchange	Exchange confirm reception of Test Request		
Customer	Customer confirm reception of heartbeat		

COMPLETION CRITERIA:

- SLE receives heartbeat reply from CCG.

UNIT 3- TEST REQUEST SENT BY EXCHANGE
INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Exchange	Exchange advises the customer to begin test		.
Customer	Customer initiates a SLE start	LastMsgSeqNum equal to last message received	Logon (A)
Exchange	Exchange provoke emission of Test Request		Test Request (1)
Customer	Customer confirm reception of Test Request		
Exchange	Exchange confirm reception of heartbeat		

COMPLETION CRITERIA:

- SLE reply with heartbeat correctly

CYCLE C05: CLORDID MANAGEMENT

CYCLE OBJECTIVES:

This cycle is split in two sections. The first cycle concerns an access of a Service Bureau via an ASP. The second cycle concerns a regular access of a client.

The term "Regular Access" is used in the following case: When a firm contracts directly its own and exclusive order entry access mean with NYSE Euronext, the Firm Trading Solution type is called Regular Access.

The term "Service Bureau Access" is used in the following case: When a 3rd party customer, also named Service Bureau, contracts order entry access mean with NYSE Euronext to act as an order carrier on behalf of several firms, the Firm Trading Solution type is called Service Bureau Access.

The ClOrdID value assigned to any given order must be unique for the Firm across all available connections.

To ensure for a given firm there is no conflict among its several CCG accesses, the exchange has put in place a "mandatory prefix policy" and highly recommends an optional "instance prefix policy"

This cycle tests the software ability to respect the format of the ClOrderID.

Mandatory prefix in FIX4.2:

- Regular Access: must not start any ClOrdID value with the '-' character.
- Service Bureau:
 - Must start all ClOrdID values with the '-' character.

AND

- The next three characters must be populated with the unique 3-digit number assigned to the Service Bureau by the exchange..

Recommended Instance prefix in FIX4.2:

The exchange recommends to use a 2-character prefix (must be numerical if Firm requires UTP Direct vs UTP-FIX.4.2 compatibility – see also section 1.6). This prefix should be placed in the following locations within the ClOrdID value, depending on access type:

- Regular Access: The 2 leading characters, keeping in mind the "mandatory prefix policy"
- Service Bureau: The next 2 characters after the mandatory '-' character and the 3-character Service Bureau prefix

Important notes:

This document has no contractual value and is likely to change without notice
September 09

- 1- "Software Vendors" and "In house" developers must be able to extend the instance prefix size for firm which has more instances than the 2-character prefix available combinations can cover.
- 2- "Software Vendors" and "In house" developers must be able to encode Instance prefix as numerical if Firm requires UTP-Direct vs UTP-FIX.4.2 compatibility.

CYCLE PREPARATION:

- In case of an ASP, exchange verifies that the prefix has been configured
- Customer checks their connections and make sure their SLE is able to log in.

CYCLE DESCRIPTION:

SERVICE BUREAU (FOR ASP)

UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
1a. Order entry for prefix	Customer sends order with valid prefix	<ul style="list-style-type: none"> • Customer confirms acknowledgment of order • Exchange confirms CIOrdID has a negative value • Exchange confirms CIOrdID has the correct prefix
1b. Order entry for different prefix	Customer sends order with prefix 002	<ul style="list-style-type: none"> • Exchange confirms CIOrdID has a negative value • Exchange confirms CIOrdID has the prefix 002
2a. Order entry for prefix and instance 01	Customer sends order with valid prefix and instance 01	<ul style="list-style-type: none"> • Customer confirms acknowledgment of order • Exchange confirms CIOrdID has a negative value • Exchange confirms CIOrdID has the correct prefix • Exchange confirms CIOrdID contains the instance 01
2b. Order entry for prefix and instance 02	Customer sends order with valid prefix and instance 02	<ul style="list-style-type: none"> • Customer confirms acknowledgment of order • Exchange confirms CIOrdID has a negative value • Exchange confirms CIOrdID has the correct prefix • Exchange confirms CIOrdID contains the instance 02
3. Incorrect prefix	Customer sends order with invalid prefix	<ul style="list-style-type: none"> • Customer confirms rejection of order
4. Migration of FIX 4.2 to UTP Direct (optional test)	<ul style="list-style-type: none"> • Customer send order with protocol FIX 4.2 • Customer modifies order with protocol UTP Direct via a different connection 	<ul style="list-style-type: none"> • Customer confirms he can modify the order (to complete this scenario the CIOrdID needs to contain only numeric characters)
5. Drop copy	<ul style="list-style-type: none"> • Customer sends order with valid prefix 	<ul style="list-style-type: none"> • Customer confirms receipt of the execution on the drop copy

	<ul style="list-style-type: none"> Exchange executes order 	channel (if customer has a drop copy using UTP Direct the CIOrdID needs to contain only numeric characters)
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REGULAR ACCESS

UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
1a. Order entry for two bytes	Customer sends order with instance 01	<ul style="list-style-type: none"> Customer confirms acknowledgment of order Exchange confirms CIOrdID has a positive value Exchange confirms CIOrdID contains the instance 01
1b. Order entry for two bytes	Customer sends order with instance 02	<ul style="list-style-type: none"> Customer confirms acknowledgment of order Exchange confirms CIOrdID has a positive value Exchange confirms CIOrdID contains the instance 02
1a. Order entry for three bytes	Customer sends order with instance 001	<ul style="list-style-type: none"> Customer confirms acknowledgment of order Exchange confirms CIOrdID has a positive value Exchange confirms CIOrdID contains the instance 001
1b. Order entry for three bytes	Customer sends order with instance 002	<ul style="list-style-type: none"> Customer confirms acknowledgment of order Exchange confirms CIOrdID has a positive value Exchange confirms CIOrdID contains the instance 002
4. Migration of FIX 4.2 to UTP Direct (optional test)	<ul style="list-style-type: none"> Customer send order with protocol FIX 4.2 Customer modifies order with protocol UTP Direct via a different connection 	<ul style="list-style-type: none"> Customer confirms he can modify the order (to complete this scenario the CIOrdID needs to contain only numeric characters)
5. Drop copy	<ul style="list-style-type: none"> Customer sends order with valid prefix Exchange executes order 	<ul style="list-style-type: none"> Customer confirms receipt of the execution on the drop copy channel (if customer has a drop copy using UTP Direct the CIOrdID needs to contain only numeric characters)

II- SLE PROFILE

CYCLE P01: TRADING SUBSCRIPTION MANAGEMENT - UNSOLICITED MESSAGES

CYCLE P02: TRADING SUBSCRIPTION MANAGEMENT - SOLICITED MESSAGES

CYCLE P03: MULTI-MARKET SUBSCRIPTION

CYCLE P04: MULTI-MEMBER SUBSCRIPTION (SERVICE BUREAU/ASP ONLY)

CYCLE P01: TRADING SUBSCRIPTION MANAGEMENT – PRIVATE UNSOLICITED MARKET MESSAGES

CYCLE OBJECTIVES:

This cycle tests SLE ability to receive and interpret private unsolicited market messages from all subscribed trading systems.

CYCLE PREPARATION:

- Exchange ensures that the SLE is logged on.
- Customer checks their connections and make sure that SLE is logged on.

CYCLE DESCRIPTION:

System	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
UTP-SMARTPOOL	1. Order cancelled (order cancelled by surveillance)	Customer enters orders. Exchange cancel during the market session all the orders sent by the customer. Customer checks reception of this message for each order still alive in its book.	<ul style="list-style-type: none"> • SLE receives and interprets message (8), 150=4, 20=0, 39=S
	2. Order eliminated (Corporate action in post session)	Customer enters orders. Exchange cancels all his orders for a corporate action on that security during the post-market session. Customer checks reception of this message for each order still alive in its book for this security.	<ul style="list-style-type: none"> • SLE receives and interprets message (8), 150=O, 39=0, 39=O
	4. Order elimination (IOC order partially executed)	Customer enters a IOC order during continuous session likely to be partially filled. Customer checks reception of partial fill (8) and kill (8).	<ul style="list-style-type: none"> • SLE receives and interprets order outcome message (8) following execution (8) and elimination (8)
	5. Orders elimination (Global cancellation by the member)	Customer enters orders. Member cancels during the market session all his orders for a given security using global cancellation.. Customer checks reception of Order killed message for each order still alive in its book for this security.	<ul style="list-style-type: none"> • SLE receives and interprets private unsolicited market messages (8)

6. Orders elimination (Global cancellation by the Exchange)	Customer enters orders. Exchange cancels all his orders during the market session all his orders. Customer checks reception of Order killed message for each order still alive in its book.	<ul style="list-style-type: none"> SLE receives and interprets private unsolicited market messages (8), 150=4, 39=0, 20=S
7. Order Replaced	Customer enters an order during the market session. Then Customer modifies this order. Customer checks the reception of Order Replaced (8) 150=E, after reception of Order Cancel Replace Ack (8) 150=5.	<ul style="list-style-type: none"> SLE receives and interprets private unsolicited market messages (8), 150=E that follows solicited message (8), 150=5
8. Execution notice (order partially filled)	Exchange places some liquidity in a given security and invite customer to enter an order that partially trades. Customer checks reception of one or several partial fill message(s).	<ul style="list-style-type: none"> SLE receives and interprets private unsolicited market message(s) (8), 150=1, 20=0, 39=1
9. Execution notice (order fully filled)	Exchange places some liquidity in a given security and invite customer to enter an order that fully trades. Customer checks reception of one or several fill message(s).	<ul style="list-style-type: none"> SLE receives and interprets private unsolicited market message(s) (8), 150=2, 20=0, 39=2
10. Trade creation.	Customer is involved in a trade. Exchange cancels this trade. Customer checks reception of this message.	<ul style="list-style-type: none"> SLE receives and interprets private unsolicited market message (8), 150=2, 20=0, 39=2
11. Trade cancelled.	Customer is involved in a trade. Exchange cancels this trade. Customer checks reception of this message.	<ul style="list-style-type: none"> SLE receives and interprets private unsolicited market message (8), 150=2, 20=1
12. Drop Copy channel	Customer connects to a drop copy channel. Customer is involved in a trade. A copy of the trade is sent via the message Extended Response message (x) via the drop copy channel.	<ul style="list-style-type: none"> Drop copy SLE receives and interprets private unsolicited market message (x)
13. Resend of order book	(In case of a failover of DC1 to DC2 on the side of NYSE Euronext a resend of the order book can take place following the failover. The resend of the order book will be done via the Extended Response message (x). These messages will be sent for each outstanding order to the SLE that sent the order.) Customer sends several orders. Exchange performs a retransmission of the outstanding orders	<ul style="list-style-type: none"> SLE receives and interprets private unsolicited market message (x) per outstanding order

CYCLE P03: TRADING SUBSCRIPTION MANAGEMENT – SOLICITED MARKET MESSAGES

CYCLE OBJECTIVES:

This cycle tests SLE ability to receive and interpret solicited market messages from all subscribed trading systems.

CYCLE PREPARATION:

- Exchange ensures that the SLE is logged on.
- Customer checks their connections and make sure that SLE is logged on..

CYCLE DESCRIPTION:

System	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
UTP-SMARTPOOL	1. New Order outcome Ack	Customer enters a valid pegged order not executed and checks reception of ack message.	<ul style="list-style-type: none"> • SLE receives and interpret message (8)
	2. Cancel/Replace Request Ack	Customer modifies a valid pegged order not executed and checks reception of ack and confirmation messages.	<ul style="list-style-type: none"> • SLE receives and interprets messages (8), 150=E, 20=0, 39=E then (8), 150=5, 20=0
	3. Cancel Request Ack	Customer cancel a valid pegged order and checks reception ack and confirmation messages	<ul style="list-style-type: none"> • SLE receives and interpret messages (8), 150=6, 20=0, 39=6 then (8), 150=4
	4. Bulk Cancel Ack	Customer enters a couple of valid orders that remain in the book. Customer sends a Order Mass Cancel Request (q)	<ul style="list-style-type: none"> • SLE receives and interprets messages (8), 150=4, 20=0, 39=4.
	5. Order Reject	Exchange changes the status of an instrument to Forbidden. Customer enters a pegged order and checks reception of order reject.	<ul style="list-style-type: none"> • SLE receives and interpret message (8), 150=8, 20=0, 39=8

System	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
	6. Cancel Replace Reject	Customer enters an order that remains in the book. Exchange changes the status of an instrument to Forbidden. Customer tries to modify the outstanding order and checks reception of replace reject.	<ul style="list-style-type: none"> • SLE receives and interpret message (8)
	7. Cancel Reject	Customer enters an order that remains in the book. Exchange changes the status of an instrument to Forbidden. Customer tries to cancel the outstanding order and checks reception of replace reject.	<ul style="list-style-type: none"> • SLE receives and interpret message (8)

CYCLE P04: MULTI-MARKET SUBSCRIPTION

CYCLE OBJECTIVES:

This cycle tests the software ability to receive and interpret incoming market messages from all subscribed trading engines : UTP , NYSE ARCA EUROPE.

CYCLE PREPARATION:

- Exchange ensures that the SLE is logged on.
- Customer checks their connections and make sure that SLE is logged on.

CYCLE DESCRIPTION:

UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
1. Multi-Market Reception.	Customer checks reception of market messages coming from each trading engine customer has subscribed.	<ul style="list-style-type: none"> • SLE receives and interprets unsolicited market messages from each trading engine customer has subscribed.
2. Multi-Market Emission.	Customer enters an order for each trading engine customer has subscribed.	<ul style="list-style-type: none"> • SLE transmits orders for each trading engine customer has subscribed.

CYCLE P05: MULTI-MEMBER SUBSCRIPTION (SERVICE BUREAU/ASP ONLY)

CYCLE OBJECTIVES:

This cycle tests the SLE ability to manage emission and reception of all market messages belonging to each member SLE is entitled to route.

CYCLE PREPARATION:

- Exchange ensures that the SLE is logged on.
- Customer checks their connections and make sure that SLE is logged on..

CYCLE DESCRIPTION:

UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
1. Multi-Member Emission.	Customer checks reception of market messages belonging to each member SLE is entitled to route.	<ul style="list-style-type: none"> • SLE receives and interprets market messages belonging to each member SLE is entitled to route.
2. Multi-Member Reception.	Customer enters an order for each member SLE is entitled to route.	<ul style="list-style-type: none"> • SLE transmits order for each member SLE is entitled to route.
3. Member Versus Subscriber Mapping.	Customer enters an order for two members related to different SLE.	<ul style="list-style-type: none"> • Each order is routed by the right SLE.

III- TRADING FUNCTIONS

CYCLE T01: INCOMING MESSAGES DATA LAYOUT

CYCLE T02: SIDE OF ORDER

CYCLE T03: VALIDITY TYPE ORDER

CYCLE T04: TYPE OF PRICE

CYCLE T05: MULTI DECIMAL TRADING

CYCLE T06: SPECIAL CONDITIONS

CYCLE T07: COLLAR LOGIC

CYCLE T08: INTERNAL MATCHING SERVICE

CYCLE T01: INCOMING MESSAGES DATA LAYOUT

CYCLE OBJECTIVES:

This cycle tests customer software's ability to enter orders, modification and cancellation messages using the different validities and prices according to business data layout specification

Following below an overview of the differences between the sending of an order to SmartPool on NSC and the UTP engine:

NSC	UTP
How to participate in the continuous crossing sessions?	
Orders can be entered at any time except during core Auction periods.	
Order type must be Block .	Order type must be Pegged (P) with execution instruction of type <i>Mid-Price peg (M)</i>
Orders must be Good for Day or Fill or Kill	Orders must be Good for Day (0) , IOC(3) or GTT(6)
A limit price can be filled in	No limit price must be filled in – otherwise orders are rejected
Minimum quantity, alert and routing indicators can be filled in at the order level	Minimum quantity can be filled in at the order level. The alert and routing indicators will be added in 2010.
How to participate in NON VWAP call?	
Orders must be entered at any time before the next crossing	
Order type must be VWAP	Only order types of Market (1) or Limit (2) , with execution instruction of type Cross (X)
Order must be Good for all non-VWAP crossing	Time in force must be Valid for Auction (2)
No limit price must be filled in – otherwise orders are rejected	A limit price can be filled in
No minimum quantity is allowed at the order level	No minimum quantity must be filled in at the order level
How to participate in the VWAP?	
Orders must be entered during the VWAP accumulation period	
Order type must be VWAP	Only order types of Market (1) with execution instruction of type Cross (X)
Only order must be Fill and Kill	Time in force must be Good for VWAP crossing (V)
No limit price must be filled in – otherwise orders are rejected	No limit price must be filled in – otherwise orders are rejected
No minimum quantity is allowed at the order level	No minimum quantity must be filled in at the order level

CYCLE PREPARATION:

- Exchange selects a security on SmartPool, and convenes with the customer to use them during this cycle. This security is open open and authorized.
- As SmartPool will be using the SmartPool code of a security (SPxxxxxxxx) instead of the ISIN code extra attention should be focused on the settlement of the trades

CYCLE DESCRIPTION:

SYSTEM	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA	RESULT
UTP-SMARTPOOL	1a. Entry of Buy order during VWAP call (D).	<ul style="list-style-type: none"> • Customer sends a Buy Limit order, execution instruction Cross, Good for VWAP crossing. 	<ul style="list-style-type: none"> • Exchange checks that the order entry data layout is correct. 	
	1b. Entry of Sell order during VWAP call (D)..	<ul style="list-style-type: none"> • Customer sends a Sell Market order, execution instruction Cross, Good for VWAP crossing 	<ul style="list-style-type: none"> • Exchange checks that the order entry data layout is correct. 	
	1c. Entry of Buy order during Non VWAP call (D).	<ul style="list-style-type: none"> • Customer sends a Buy Limit order, execution instruction Cross, valid for Auction. 	<ul style="list-style-type: none"> • Exchange checks that the order entry data layout is correct. 	
	1d. Entry of Buy order during Non VWAP call (D).	<ul style="list-style-type: none"> • Customer sends a Buy Market order, execution instruction Cross, valid for Auction. 	<ul style="list-style-type: none"> • Exchange checks that the order entry data layout is correct. 	
	2a Entry of Buy order during Continuous call (D).	<ul style="list-style-type: none"> • Customer sends a Buy pegged order, execution instruction Mid-price Peg valid for Day 	<ul style="list-style-type: none"> • Exchange checks that the order entry data layout is correct. 	
	2b Entry of Buy order during Continuous call (D).	<ul style="list-style-type: none"> • Customer sends a Buy pegged order, execution instruction Mid-price Peg, validity IOC 	<ul style="list-style-type: none"> • Exchange checks that the order entry data layout is correct. 	
	2c. Entry of Sell order during Continuous call (D).	<ul style="list-style-type: none"> • Customer sends a Buy pegged order, execution instruction Mid-price Peg, validity GTT 	<ul style="list-style-type: none"> • Exchange checks that the order entry data layout is correct. 	
	2a. Modification of VWAP to Day (G)	<ul style="list-style-type: none"> • Customer enters a VWAP order during VWAP call. • Customer modifies the order to Day during VWAP call. 	<ul style="list-style-type: none"> • Exchange checks that the order modification data layout is correct. • Customer confirms the reception of the rejection messages and the reason of it 	
	2a. Modification of Day to VWAP (G)	<ul style="list-style-type: none"> • Customer enters a Day order during Continuous call. • Customer modifies the order to VWAP during continuous call. 	<ul style="list-style-type: none"> • Exchange checks that the order modification data layout is correct. • Customer confirms the reception of the rejection messages and the reason of it 	
	3a. Modification of quantity of VWAP order (G)	<ul style="list-style-type: none"> • Customer enters a VWAP order during VWAP call. • Customer modifies the quantity of the order during the VWAP call. 	<ul style="list-style-type: none"> • Exchange checks that the order modification data layout is correct. 	

	3b. Modification of quantity of Day order (G)	<ul style="list-style-type: none"> • Customer enters a Day order during continuous call. • Customer modifies the quantity of the order during the continuous call. 	<ul style="list-style-type: none"> • Exchange checks that the order modification data layout is correct. 	
	4a. Cancellation of VWAP order (F)	<ul style="list-style-type: none"> • Customer enters a VWAP order during VWAP call • Customer cancels the outstanding order 	<ul style="list-style-type: none"> • Exchange checks that the order cancellation data layout is correct. 	
	4b. Cancellation of Day order (F)	<ul style="list-style-type: none"> • Customer enters a Day order during continuous call • 	<ul style="list-style-type: none"> • Exchange checks that the order cancellation data layout is correct. 	
	5. Customer sends a Order Mass Cancel Request (q)	<ul style="list-style-type: none"> • Customer enters orders on a given security and then initiates order global cancellation on this security (Either the ClassID or the Symbol field must be populated). 	<ul style="list-style-type: none"> • SLE receives and interpret message (8), 150=4, 20=0, 39=4 	

CYCLE T02: SIDE OF ORDER

CYCLE OBJECTIVES:

This cycle tests SLE ability to enter the different types of sides of an order.

CYCLE PREPARATION:

- Exchange selects a security on SmartPool, and convenes with the customer to use them during this cycle. This security is open and authorized.
- As SmartPool will be using the SmartPool code of a security (SPxxxxxxxx) instead of the ISIN code extra attention should be focused on the settlement of the trades

CYCLE DESCRIPTION:

SYSTEM	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA	RESULT
UTP-SMARTPOOL	1. Entry of buy order	<ul style="list-style-type: none"> • Customer enters a buy order (side = "1"). 	<ul style="list-style-type: none"> • Exchange checks that the order entered by the customer is a buy order. • SLE receives and interprets correctly the order outcome. 	
	2. Entry of a sell order	<ul style="list-style-type: none"> • Customer enters a sell order (side = "2"). 	<ul style="list-style-type: none"> • Exchange checks that the order entered by the customer is a buy order. • SLE receives and interprets correctly the order outcome. 	

CYCLE T03: VALIDITY TYPE OF ORDER -

CYCLE OBJECTIVES:

This cycle tests the customer software’s ability to enter orders with the different validity types offered by the UTP system.

CYCLE PREPARATION:

- Exchange selects a security on SmartPool, and convenes with the customer to use them during this cycle. This security is open and authorized.
- As SmartPool will be using the SmartPool code of a security (SPxxxxxxxx) instead of the ISIN code extra attention should be focused on the settlement of the trades.

CYCLE DESCRIPTION:

SYSTEM	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA	RESULT
UTP-SMARTPOOL	1. The validity type is Dated by default.	<ul style="list-style-type: none"> • Customer enters an order with a validity type equal to “0” (TimeInForce=0). • The order is not or partially executed at the end of the trading session. 	<ul style="list-style-type: none"> • Exchange checks that the validity date is not filled in. • Customer checks that this order is no more in his book on the following trading day. 	
	2. The validity type is IOC	<ul style="list-style-type: none"> • Customer enters an order with a validity type equal to “3” (TimeInForce=3). • The order is executed. 	<ul style="list-style-type: none"> • Exchange checks that the validity date is not filled. • .SLE receives and interprets correctly the Order Filled (8) 150=2, 20=0, 39=2 	
		<ul style="list-style-type: none"> • Customer enters an order with a validity type equal to “3” (TimeInForce=3). • The order is not executed. 	<ul style="list-style-type: none"> • SLE receives and interprets correctly the Order Reject (8) 150=8, 20=0, 39=8. 	
		<ul style="list-style-type: none"> • Customer enters an order with a validity type equal to “3” (TimeInForce=3). • The order is partially executed. 	SLE receives and interprets correctly: <ul style="list-style-type: none"> • The order Ack (8) 150=0, 20=0, 39=0, • The Order Fill (8) 150=1, 20=0, 39=1, • The Order Killed (8) 150=4, 20=0, 39=4, concerning the remaining quantity 	

SYSTEM	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA	RESULT
UTP-SMARTPOOL	3. The validity type is VFA (Valid for Auction)	<ul style="list-style-type: none"> Customer sends an order with a validity type equal to "2" (TimeInForce=2) Exchange makes sure that the order won't execute at the next auction 	<ul style="list-style-type: none"> Exchange checks that the validity date is not filled in. SLE receives and interprets correctly the Order Killed (8) 150=8, 20=0, 39=8 following the auction 	
		<ul style="list-style-type: none"> Customer sends an order with a validity type equal to "2" (TimeInForce=2) 	<ul style="list-style-type: none"> Exchange checks that the validity date is not filled in. SLE receives and interprets correctly the execution notice (8) 150=2, 20=0, 39=2 following the auction 	
	4. The validity type is GTT (Good Till Time)	<ul style="list-style-type: none"> Customer sends an order with a validity type equal to "6" (TimeInForce=6), ExpireTimeFlag=T and ExpireTime=HHMMSS Exchanges makes sure the order expires and does not execute 	<ul style="list-style-type: none"> SLE receives and interprets correctly the Order ack (8) 150=0, 20=0, 39=0, SLE receives and interprets correctly the Order Killed (8) 150=3, 20=0, 39=0, once the order expires in x seconds 	
		<ul style="list-style-type: none"> Customer sends an order with a validity type equal to "6" (TimeInForce=6), ExpireTimeFlag=T and ExpireTime=HHMMSS Exchange makes sure the order executes 	<ul style="list-style-type: none"> SLE receives and interprets correctly the Order ack (A) 150=0, 20=0, 39=0. SLE receives and interprets correctly the Order Fill (8) 150=2, 20=0, 39=2 	
		<ul style="list-style-type: none"> Customer sends an order with a validity type equal to "6" (TimeInForce=6), ExpireTimeFlag=T and ExpireTime=HHMMSS Customer modifies the outstanding order before it expires or executes 	<ul style="list-style-type: none"> SLE receives and interprets correctly the Order ack (8) 150=0, 20=0, 39=0. Exchange confirms the order was modified (8) 150=5, 20=0, 39=5. 	
	5. The validity type is good for VWAP cross	<ul style="list-style-type: none"> Customer sends an order with a validity type equal to "V" (TimeInForce=V) Exchange makes sure that the order won't execute at the VWAP crossing phase 	<ul style="list-style-type: none"> Exchange checks that the order type is Market or Limit and Execution Instruction Cross. SLE receives and interprets correctly the Order Killed (8) 150=8, 20=0, 39=8 following the auction 	
		<ul style="list-style-type: none"> Customer sends an order with a validity type equal to "V" (TimeInForce=V) 	<ul style="list-style-type: none"> Exchange checks that the order type is Market or Limit and Execution Instruction Cross. The order Ack (8) 150=0, 20=0, 39=0, following the auction 	

CYCLE T04: TYPE OF PRICE

CYCLE OBJECTIVES:

This cycle tests:

- the different types of price offered by the UTP system,
- the related solicited and unsolicited messages.

CYCLE PREPARATION:

- Exchange selects a security on SmartPool, and convenes with the customer to use them during this cycle. This security is open open and authorized.
- As SmartPool will be using the SmartPool code of a security (SPxxxxxxxxxx) instead of the ISIN code extra attention should be focused on the settlement of the trades.

CYCLE DESCRIPTION:

SYSTEM	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
UTP-SMARTPOOL	1. Entry of a “limit order”	<ul style="list-style-type: none"> • Customer enters an order with a type of price equal to “2”. 	<ul style="list-style-type: none"> • Exchange checks that the order entry data layout is correct.
	2a. Entry of a “market order” with fully execution.	<ul style="list-style-type: none"> • Exchange reserves the security. • Customer enters an order with a type of price equal to “1” (Market). 	<ul style="list-style-type: none"> • Exchange checks that the order entry data layout is correct. • SLE receives and interprets correctly the reception of the order outcome.
		<ul style="list-style-type: none"> • Exchange makes sure the instrument is not reserved and in market Crossing phase. • Customer enters an order with a type of price equal to “1” (Market). • The order is fully executed. 	Exchange checks that the order entry data layout is correct. SLE receives and interprets correctly: <ul style="list-style-type: none"> • The reception of the order Ack (8) 150=0, 20=0, 39=0 • SLE receives and interprets correctly the Order Fill (8) 150=2, 20=0, 39=2

SYSTEM	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
UTP-SMARTPOOL	2b. Entry of a “market order” with partial execution.	<ul style="list-style-type: none"> Exchange makes sure the instrument is not reserved and in and in Crossing phase. Customer enters an order with a type of price equal to “1” (Market). The order is partially executed. 	Exchange checks that the order entry data layout is correct. SLE receives and interprets correctly: <ul style="list-style-type: none"> The reception of the order Ack (8) 150=0, 20=0, 39=0, The Order Fill (8) 150=1, 20=0, 39=1
	3. Peg order	<ul style="list-style-type: none"> Customer enters an order with a type of price equal to “P” (Pegged), ExecInst=M, Price=empty, TimeinForce=“0” Day 	Exchange checks that the order entry data layout is correct.
		<ul style="list-style-type: none"> Exchange makes sure there are no outstanding orders on the opposite side. Customer enters an order with a type of price equal to “P” (Pegged), ExecInst=M, Price=empty, TimeinForce=“3” IOC 	Exchange checks that the order entry data layout is correct. SLE receives and interprets correctly the Order Killed message (8) 150=8, 20=0, 39=8 concerning the peg order. Customer confirms he understands the peg order is eliminated due to the fact that there are not outstanding orders on the opposite side.
		<ul style="list-style-type: none"> Exchange makes sure there is an outstanding order on the opposite side. Customer enters an order with a type of price equal to “P” (Pegged), ExecInst=M, Price=empty, TimeinForce=“3” IOC 	Exchange checks that the order entry data layout is correct. SLE receives and interprets correctly: <ul style="list-style-type: none"> The reception of the order Ack (8) 150=0, 20=0, 39=0. The Order Fill (8) 150=1, 20=0, 39=1
		<ul style="list-style-type: none"> Exchange makes sure there are not outstanding orders on the opposite side. Customer enters an order with a type of price equal to “P” (Pegged), ExecInst=M, Price=empty, TimeinForce=“6” GTT 	Exchange checks that the order entry data layout is correct and that the order will expire. SLE receives and interprets correctly: <ul style="list-style-type: none"> The reception of the order outcome (8) 150=0, 20=0, 39=0. SLE receives and interprets correctly the Order Killed (8) 150=8, 20=0, 39=8 once the order expires in x seconds
	4. Peg order with max price		

SYSTEM	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
		<ul style="list-style-type: none"> Exchange makes sure there is an outstanding order Customer enters an order with a type of price equal to "P" (Pegged), ExecInst=M, Price=filled, TimeinForce="0" Day Exchange executes partially the quantity of the peg order 	Exchange checks that the order entry data layout is correct. <ul style="list-style-type: none"> SLE receives and interprets correctly the reception of the order Ack (8) 150=0, 20=0, 39=0. The Order Fill (8) 150=1, 20=0, 39=1

CYCLE T05: MULTI DECIMAL TRADING

CYCLE OBJECTIVES:

This cycle tests the customer software's ability to send and receive messages with a price of 3 and 4 decimals.

CYCLE PREPARATION:

- Exchange selects a security on SmartPool, and convenes with the customer to use them during this cycle. This security is open open and authorized.
- As SmartPool will be using the SmartPool code of a security (SPxxxxxxxx) instead of the ISIN code extra attention should be focused on the settlement of the trades.

CYCLE DESCRIPTION:

SYSTEM	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
UTP- SMARTPO OL		•	•
	1. Order entry with a price of 3 decimals	<ul style="list-style-type: none"> Customer enters an order with a type of price equal to "2" of 3 decimals. 	<ul style="list-style-type: none"> Exchange checks that the order entry data layout is correct. SLE receives and interprets correctly the reception of the order Ack (8) 150=0, 20=0, 39=0

SYSTEM	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
	2. Order entry with a price of 4 decimals	<ul style="list-style-type: none"> Customer enters an order with a type of price equal to “2” of 4 decimals. 	<ul style="list-style-type: none"> Exchange checks that the order entry data layout is correct. SLE receives and interprets correctly the reception of the order Ack (8) 150=0, 20=0, 39=0
	3. Order entry on an instrument with a specific tick table	<ul style="list-style-type: none"> Customer enters an order with a type of price equal to “2” of 4 decimals that respects the tick table. 	<ul style="list-style-type: none"> Customer confirms the different levels of the tick table
	4. Order entry with a wrong price on an instrument with a specific tick table	<ul style="list-style-type: none"> Customer enters an order with a type of price equal to “2” of 4 decimals that does not respect the tick table. 	<ul style="list-style-type: none"> Customer confirms the reception of an error message
	5. Order modification (G)	<ul style="list-style-type: none"> Customer enters an order with a type of price equal to “2” of 4 decimals. Customer modifies the price 	<ul style="list-style-type: none"> Exchange verifies the layout of the modification message (G) Customer confirms the format of the price in the order Ack (8) 150=0, 20=0, 39=0
	7. Order elimination	<ul style="list-style-type: none"> Customer enters an order with a type of price equal to “2” of 3 decimals. Exchange eliminates the message 	<ul style="list-style-type: none"> Customer confirms the reception of the Order Killed message (8) 150=3, 20=0, 39=0
	8. Trade creation	<ul style="list-style-type: none"> Exchange creates a trade with a price of 4 decimals on behalf of the customer 	<ul style="list-style-type: none"> Customer confirms the reception of the Trade creation message (8) 150=G, 20=0, 39=2 and the price of the trade.
	9. Trade cancellation	<ul style="list-style-type: none"> Exchange cancels a trade on behalf of the customer 	<ul style="list-style-type: none"> Customer confirms the reception of the Trade Bust message (8) 150=2, 20=1, 39=2 and the details of the trade that has been cancelled.

CYCLE T06: ACCOUNT TYPE ORDER

CYCLE OBJECTIVES:

This cycle tests :

- The different types of order account offered by the UTP system
- The related solicited and unsolicited messages.

The result of this test does not validate if the customer is able to reconcile the trades with their clearing partner. NYSE Euronext strongly recommends the customer to validate the end to end test with their clearing partner.

CYCLE PREPARATION:

- Exchange selects a security on SmartPool, and convenes with the customer to use them during this cycle. This security is open and authorized.
- As SmartPool will be using the SmartPool code of a security (SPxxxxxxxx) instead of the ISIN code extra attention should be focused on the settlement of the trades.

CYCLE DESCRIPTION:

SYSTEM	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
UTP-SMARTPOOL	1. Entry of a Client account type order	• Customer enters a Customer account type order (Rule80A = "1")	• Exchange checks that the order entry data layout is correct
	2. Entry of a House account type order	• Customer enters a Customer account type order (Rule80A = "2")	• Exchange checks that the order entry data layout is correct
	4. Entry of a Related Party type order	• Customer enters a Customer account type order (Rule80A = "7")	• Exchange checks that the order entry data layout is correct
	5. Entry of a Riskless Principal type order	•	• Exchange checks that the order entry data layout is correct

CYCLE T07: SPECIAL CONDITIONS

CYCLE OBJECTIVES:

- This cycle tests the customer software’s ability to enter special conditions.

CYCLE PREPARATION:

- Exchange selects a security on SmartPool, and convenes with the customer to use them during this cycle. This security is open open and authorized.

CYCLE DESCRIPTION:

SYSTEM	UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA	RESULT
UTP-SMARTPOOL	1. Order with a minimum quantity	<ul style="list-style-type: none"> • Customer enters an order with a minimum quantity (MinQty). There are no orders on the opposite side of the market. 	<ul style="list-style-type: none"> • SLE receives and interprets a rejection message (8) 150=8, 20=0, 39=8 with the notice “No shares available” 	
		<ul style="list-style-type: none"> • Customer enters an order with a minimum quantity (MinQty) that must be multiple of the MIQ. The market phase must be in continuous, the remaining quantity of the order remains in the book 	SLE receives and interprets: <ul style="list-style-type: none"> • an order outcome indicating that the order is in the book (8) 150=0, 20=0, 39=0, • an execution notice for the quantity immediately filled (2) 150=2, 20=0, 39=2. 	

III- HIGH AVAILABILTY

CYCLE H01: CCG BINARY FAIL-OVER MANAGEMENT

CYCLE H01: CCG BINARY FAIL-OVER MANAGEMENT

CYCLE OBJECTIVES:

This cycle tests the software ability to recover following a CCG fail over :

- ability to detect message received duplicate
- ability to resend or not resend orders sent gap , in accordance of customer order retransmission policy.

CYCLE PREPARATION:

- Exchange ensures that the SLE is connected.
- Customer checks their connections is up and running
- Exchange invite customer to send orders in a sustained manner, then immediately provoke a fail over of CCG binary.

CYCLE DESCRIPTION:

UNIT Number	ACTIONS REQUIRED	UNIT COMPLETION CRITERIA
1. Logon handshake recovery	Customer reconnects immediately his SLE	<ul style="list-style-type: none"> • SLE reconnects correctly
2. Reception recovery	CCG resumes transmission of messages	<ul style="list-style-type: none"> • SLE resumes reception correctly and is able to detect any application message duplicate
3. Emission recovery	SLE resumes transmission of messages	<ul style="list-style-type: none"> • SLE resumes emission correctly and is able to detect and deal with any orders sent gap.

CYCLE DETAILED INSTRUCTIONS:

UNIT 1- LOGON HANDSHAKE RECOVERY

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Customer	Customer initiates a SLE start	LastMsgSeqNum equal to last message received	Logon (A)
Customer	Customer confirms SLE up and running	LastMsgSeqNum within customer logon LastMsgSeqNum within CCG logon	Logon (A)
Exchange	Exchange checks SLE restart handshaking.	LastMsgSeqNum within customer logon LastMsgSeqNum within CCG logon	Logon (A)

COMPLETION CRITERIA:

- SLE reconnects correctly

UNIT 2- . RECEPTION RECOVERY

INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Customer	Customer checks data received and confirms that software is able to detect any application message duplicate.	MsgSeqNum	.

COMPLETION CRITERIA:

- SLE resumes reception correctly and is able to detect any application message duplicate.

UNIT 3- EMISSION RECOVERY
INSTRUCTIONS:

Side	Instructions	Data Key Fields	Data Layout Reference
Customer	Customer checks orders sent gap	LastMsgSeqNum within CCG logon	Logon (A)
Customer	Customer checks whether SLE has resent the gap fill.		.
Exchange	Exchange checks if customer has sent any order duplicate	MsgSeqNum	

COMPLETION CRITERIA:

- SLE resumes emission correctly and is able to detect and deal with any orders sent gap, in accordance of customer order retransmission policy.

ANNEX1- FAIL-OVER RECOVERY DATA FLOW KINEMATICS

