NPAC SMS/Individual Service Provider Certification and Regression Test Plan

For New Entrants Certification and Existing Service Providers/Vendors Regression Testing up to and including NPAC Release 3.4.8

Chapter 16

Table of Contents

15. Individual Turn Up Test Scenarios related to NPAC Release 3.4.6.

Section 16 contains all test cases written for individual Vendor Turn Up testing of Release 3.4.6 of the NPAC software. These test cases were migrated from the old Interoperability Test Plan that was previously used for vendor testing.

1. Vendor–Stack to Stack

A. TEST IDENTITY

Test Case Number:	Ping-1	SUT Priority:	SOA	Optional
			LSMS	Optional
Objective:	To verify that the IP layer is functioning properly. (ITP name: S2S.SOA.PING and S2S.LSMS.PING) Severity Explanation: Does not impact ability to provide service. No requirements for functionality. May be waived if System Software used does not support/provide a ping utility.			

B. REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C. PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS.

D. TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues a ping.	NPAC	NPAC SMS responds to ping. Ping is successful.

E. Pass/Fail Analysis, Ping-1

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A. **TEST IDENTITY**

Test Case Number:	FTP-1	SUT Priority:	SOA	Required
			LSMS	Required
Objective:	To verify that the TCP layer is functioning properly. (ITP name: S2S.SOA.FTP and S2S.LSMS.FTP) Severity Explanation: Direct impact on ability to accomplish downloads. May also be used instead of "ping" as a diagnostic tool to test TCP/IP part of stack.			

B. **REFERENCES**

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C. **PREREQUISITE**

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS.

D. **TEST STEPS and EXPECTED RESULTS**

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues an FTP open with user and password.	NPAC	NPAC SMS accepts FTP login request. FTP login is successful.

E. **Pass/Fail Analysis, FTP-1**

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	ACSE-1	SUT Priority:	SOA	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS can issue an ACSE association request and establish an association with the NPAC SMS. (ITP name: S2S.SOA.VAL.ASSOC and S2S.LSMS.VAL.ASSOC) Severity Explanation: Severe impact on ability to provide service.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association request (AARQ).	NPAC	NPAC SMS accepts association indication.
2.	NPAC	NPAC SMS issues an association response (AARE).	SP	SOA/LSMS accepts association confirmation.

E.   Pass/Fail Analysis, ACSE-1

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   **TEST IDENTITY**

Test Case Number:	ACSE-2	SUT Priority:	SOA	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS can issue an ACSE association release request. (ITP name: S2S.SOA.VAL.RELES and S2S.LSMS.VAL.RELES) Severity Explanation: Direct impact on ability to provide service. A-ABORT may be used to provide this functionality (See S2S.SOA.Val.Abort).			

B.   **REFERENCES**

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   **PREREQUISITE**

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association has been established between the SOA/LSMS and NPAC SMS.

D.   **TEST STEPS and EXPECTED RESULTS**

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association release request (RLRQ).	NPAC	NPAC SMS accepts the association release indication.
2.	NPAC	NPAC SMS issues an association release response (RLRE).	SP	SOA/LSMS accepts association release confirmation.

E.   **Pass/Fail Analysis, ACSE-2**

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	ACSE-3	SUT Priority:	SOA	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS can issue an ACSE association abort request. (ITP name: S2S.SOA.VAL.ABORT and S2S.LSMS.VAL.ABORT) Severity Explanation: Direct impact on ability to provide service. May be used instead of Unbind (S2S.SOA.VAL.RELES).			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association has been established between the SOA/LSMS and NPAC SMS.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association abort request (ABRT).	NPAC	NPAC SMS accepts the association abort indication.

E.   Pass/Fail Analysis, ACSE-3

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	**ACSE-4**	SUT Priority:	**SOA**	Required
			LSMS	Required
Objective:	To verify that the NPAC SMS can terminate an ACSE association established by the SOA/LSMS with an ACSE abort request. (ITP name: S2S.SOA.VAL.ABORT.BYNPAC and S2S.LSMS.VAL.ABORT.BYNPAC) Severity Explanation: Direct impact on ability to provide service.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	**Change Order Number(s):**	N/A
NANC FRS Version Number:	N/A	**Relevant Requirement(s):**	N/A
NANC IIS Version Number:	N/A	**Relevant Flow(s):**	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association has been established between the SOA/LSMS and NPAC SMS.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	NPAC	NPAC issues association abort request (ABRT).	SP	SOA/LSMS accepts the association abort indication.

E.   Pass/Fail Analysis, ACSE-3

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

2. Vendor–Security

A. TEST IDENTITY

Test Case Number:	Assoc Data-1	SUT Priority:	SOA	Optional
			LSMS	Optional
Objective:	To verify that the SOA/LSMS can issue an ACSE association request with the access control field populated with the proper values for all fields except for signature and establish an association with the NPAC SMS. (ITP name: SEC.SOA.VAL.ASSOC.NOSIG and SEC.LSMS.VAL.ASSOC.NOSIG) Severity Explanation: No impact on ability to provide service, available for convenience only to allow a phased approach to the implementation of the security protocol. Function will never be used outside this test.			

B. REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C. PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes. Access Control attribute set according to Chapter 5 of NPAC SMS Interoperable Interface Specification. The Signature field is not populated.

D. TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association request (AARQ).	NPAC	NPAC SMS accepts the association indication.
2.	NPAC	NPAC SMS issues an association response (AARE).	SP	SOA/LSMS accepts association confirmation. Association is correctly established between SOA/LSMS and NPAC SMS.

E. Pass/Fail Analysis, Assoc Data-1

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	Assoc Data-2	SUT Priority:	SOA	Required
			LSMS	Required
Objective:	Verify SOA/LSMS aborts the association when the NPAC SMS replies with an invalid System ID. (ITP name: SEC.SOA.INV.ASSOC.INVSYS and SEC.LSMS.INV.ASSOC.INVSYS) Severity Explanation: Direct impact on ability to provide a secure interface.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes. Access Control attribute set according to Chapter 5 of NPAC SMS Interoperable Interface Specification. The Signature field is not populated.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association request (AARQ).	NPAC	NPAC SMS accepts the association indication.
2.	NPAC	NPAC SMS issues an association response (AARE) with invalid systemId.	SP	SOA/LSMS aborts association with no reason provided.

E.   Pass/Fail Analysis, Assoc Data-2

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	Assoc Data-3	SUT Priority:	SOA	Required
			LSMS	Required
Objective:	Verify SOA/LSMS aborts the association when the NPAC SMS replies with delayed CMIP Departure time. (ITP name: SEC.SOA.INV.ASSOC.INVT and SEC.LSMS.INV.ASSOC.INVT) Severity Explanation: Direct impact on ability to provide a secure interface.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes. Access Control attribute set according to Chapter 5 of NPAC SMS Interoperable Interface Specification. The Signature field is not populated.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association request (AARQ).	NPAC	NPAC SMS accepts the association indication.
2.	NPAC	NPAC SMS issues an association response (AARE) with delayed CMIP Departure time.	SP	SOA/LSMS aborts association with no reason provided.

E.   Pass/Fail Analysis, Assoc Data-3

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	**Assoc Data-4**	SUT Priority:	**SOA**	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS aborts the association when the NPAC SMS replies with an out-of-order sequence number. (ITP name: SEC.SOA.INV.ASSOC.SEQ and SEC.LSMS.INV.ASSOC.SEQ) Severity Explanation: Direct impact on ability to provide a secure interface.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	**Change Order Number(s):**	N/A
NANC FRS Version Number:	N/A	**Relevant Requirement(s):**	N/A
NANC IIS Version Number:	N/A	**Relevant Flow(s):**	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes. Access Control attribute set according to Chapter 5 of NPAC SMS Interoperable Interface Specification. The Signature field is not populated.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association request (AARQ).	NPAC	NPAC SMS accepts the association indication.
2.	NPAC	NPAC SMS issues an association response (AARE) with non-zero sequence number.	SP	SOA/LSMS aborts association with no reason provided.

E.   Pass/Fail Analysis, Assoc Data-4

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	Assoc Data-5	SUT Priority:	SOA	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS can issue an ACSE association request with the access control field populated with the proper values for all fields and establish an association with the NPAC SMS. (ITP name: SEC.SOA.VAL.ASSOC and SEC.LSMS.VAL.ASSOC) Severity Explanation: Direct impact on ability to provide a secure interface.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes. Access Control attribute set according to Chapter 5 of NPAC SMS Interoperable Interface Specification. Encrypted Signature field is populated.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association request (AARQ).	NPAC	NPAC SMS accepts the association indication.
2.	NPAC	NPAC SMS issues an association response (AARE).	SP	SOA/LSMS accepts association confirmation. Association is correctly established between SOA/LSMS and NPAC SMS.

E.   Pass/Fail Analysis, Assoc Data-5

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	Assoc Data-6	SUT Priority:	SOA	Required
			LSMS	Required
Objective:	Verify SOA/LSMS aborts the association when the NPAC SMS replies with an invalid Security Key. (ITP name: SEC.SOA.INV.ASSOC.INVK and SEC.LSMS.INV.ASSOC.INVK)
	Severity Explanation: Direct impact on ability to provide a secure interface.

B.   REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS.
	System clocks synchronized to within 5 minutes.
	Access Control attribute set according to Chapter 5 of NPAC SMS Interoperable Interface Specification. Encrypted Signature field is populated.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association request (AARQ).	NPAC	NPAC SMS accepts the association indication.
2.	NPAC	NPAC SMS issues an association response (AARE) with invalid keyId or listId.	SP	SOA/LSMS aborts association with no reason provided.

E.   Pass/Fail Analysis, Assoc Data-6

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   **TEST IDENTITY**

Test Case Number:	Assoc Data-7	SUT Priority:	SOA	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS rejects an ACSE association when the response of the NPAC Tool contains an access control field with an invalid signature. (ITP name: SEC.SOA.INV.ASSOC.INVSIG and SEC.LSMS.INV.ASSOC.INVSIG) Severity Explanation: Direct impact on ability to provide a secure interface.			

B.   **REFERENCES**

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   **PREREQUISITE**

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes. Access Control attribute set according to Chapter 5 of NPAC SMS Interoperable Interface Specification. Encrypted Signature field is populated.

D.   **TEST STEPS and EXPECTED RESULTS**

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association request (AARQ).	NPAC	NPAC SMS accepts the association indication.
2.	NPAC	NPAC SMS issues an association response (AARE) with invalid signature.	SP	SOA/LSMS aborts association with no reason provided.

E.   **Pass/Fail Analysis, Assoc Data-7**

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	**Assoc Data-8**	SUT Priority:	**SOA**	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS aborts an association when it receives a notification from the NPAC SMS which contains an access control field with an invalid signature. (ITP name: SEC.SOA.INV.NOT.INVSIG and SEC.LSMS.INV.NOT.INVSIG) Severity Explanation: Direct impact on ability to provide a secure interface. Verifies security violation handling at CMIP M-EVENT-REPORT level.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	**Change Order Number(s):**	N/A
NANC FRS Version Number:	N/A	**Relevant Requirement(s):**	N/A
NANC IIS Version Number:	N/A	**Relevant Flow(s):**	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	NPAC	NPAC SMS issues an lnpNPAC-SMS-Operational-Information notification with an invalid signature field.	SP	SOA/LSMS accepts the notification.
2.	SP	SOA/LSMS detects the invalid signature.	SP	SOA/LSMS aborts association with no reason provided.

E.   Pass/Fail Analysis, Assoc Data-8

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	Assoc Data-9	SUT Priority:	SOA	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS aborts an association when it receives a create request from the NPAC SMS which contains an access control field with an invalid sequence number. (ITP name: SEC.SOA.INV.CRETE.INVSEQ and SEC.LSMS.INV.CREATE.INVSEQ)			
	Severity Explanation: Direct impact on ability to provide a secure interface. Verifies security violation handling at CMIP M-CREATE level.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	NPAC	NPAC SMS sends a create request with an invalid sequence number.	SP	SOA/LSMS accepts the request.
2.	SP	SOA/LSMS detects the invalid sequence number.	SP	SOA/LSMS aborts association with no reason provided.

E.   Pass/Fail Analysis, Assoc Data-9

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	**Assoc Data-10**	SUT Priority:	**SOA**	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS aborts an association when it receives a set request from the NPAC SMS, which contains an access control field with an invalid signature. (ITP name: SEC.SOA.INV.SET.INVSIG and SEC.LSMS.INV.SET.INVSIG) Severity Explanation: Direct impact on ability to provide a secure interface. Verifies security violation handling at CMIP M-SET level.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	**Change Order Number(s):**	N/A
NANC FRS Version Number:	N/A	**Relevant Requirement(s):**	N/A
NANC IIS Version Number:	N/A	**Relevant Flow(s):**	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	NPAC	NPAC SMS sends a set request with an invalid signature.	SP	SOA/LSMS accepts the request.
2.	SP	SOA/LSMS detects the invalid signature.	SP	SOA/LSMS aborts association with no reason provided.

E.   Pass/Fail Analysis, Assoc Data-10

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	Assoc Data-11	SUT Priority:	SOA	~~Required~~Conditional
			LSMS	~~Required~~Conditional
Objective:	To verify that the SOA/LSMS aborts an association when it receives an action request from the NPAC SMS, which contains an access control field with an invalid system ID. (ITP name: SEC.SOA.INV.ACTION.INVSYS and SEC.LSMS.INV.ACTION.INVSYS) Severity Explanation: Direct impact on ability to provide a secure interface. Verifies security violation handling at CMIP M-ACTION level.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	NPAC	NPAC SMS sends an action request with an invalid system ID.	SP	SOA/LSMS accepts the request.
2.	SP	SOA/LSMS detects the invalid system ID.	SP	SOA/LSMS aborts association with no reason provided.

E.   Pass/Fail Analysis, Assoc Data-11

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	**Assoc Data-12**	SUT Priority:	**SOA**	~~Required~~N/A
			LSMS	Required

Objective:	To verify that the SOA/LSMS aborts an association when it receives a get request from the NPAC SMS, which contains an access control field with an invalid CMIP Departure Time. (ITP name: SEC.SOA.INV.GET.INVT and SEC.LSMS.INV.GET.INVT)
	Severity Explanation: Direct impact on ability to provide a secure interface. Verifies security violation handling at CMIP M-GET level.

B.   REFERENCES

NANC Change Order Revision Number:	N/A	**Change Order Number(s):**	N/A
NANC FRS Version Number:	N/A	**Relevant Requirement(s):**	N/A
NANC IIS Version Number:	N/A	**Relevant Flow(s):**	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	NPAC	NPAC SMS sends an action request with an invalid CMIP Departure Time.	SP	SOA/LSMS accepts the request.
2.	SP	SOA/LSMS detects the invalid CMIP Departure Time.	SP	SOA/LSMS aborts association with no reason provided.

E.   Pass/Fail Analysis, Assoc Data-12

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	Assoc Data-13	SUT Priority:	SOA	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS aborts an association when it receives a delete request from the NPAC SMS, which contains an access control field with an invalid signature. (ITP name: SEC.SOA.INV.DELETE.INVSIG and SEC.LSMS.INV.DELETE.INVSIG)			
	Severity Explanation: Direct impact on ability to provide a secure interface. Verifies security violation handling at CMIP M-DELETE level.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	NPAC	NPAC SMS sends a delete request with an invalid signature.	SP	SOA/LSMS accepts the request.
2.	SP	SOA/LSMS detects the invalid signature.	SP	SOA/LSMS aborts association with no reason provided.

E.   Pass/Fail Analysis, Assoc Data-13

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	**Assoc Data-14**	SUT Priority:	**SOA**	Conditional
			LSMS	N/A
Objective:	Verify SOA aborts the association when the NPAC SMS ITP Tool replies with an invalid System ID, the system id of the associated service provider. (ITP name: SEC.SOA.INV.ASSOC.ASSOCSP.INVSYS) Severity Explanation: This test case must be executed if the SOA is supporting associated service provider functionality.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	**Change Order Number(s):**	N/A
NANC FRS Version Number:	N/A	**Relevant Requirement(s):**	N/A
NANC IIS Version Number:	N/A	**Relevant Flow(s):**	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes. Access Control attribute set according to Chapter 5 of NPAC SMS Interoperable Interface Specification. The Signature field is not populated. SystemId specified is an invalid SystemId or if supported by the SOA is a SystemId of an associated service provider defined in the NPAC SMS.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association request (AARQ).	NPAC	NPAC SMS accepts association indication.
2.	NPAC	NPAC SMS issues an association response (AARE) with invalid systemId.	SP	SOA/LSMS aborts association with no reason provided.

E.   Pass/Fail Analysis, Assoc Data-14

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

3. Vendor–Association Management

A. TEST IDENTITY

Test Case Number:	Assoc Mgmt-1	SUT Priority:	SOA	~~Required~~Conditional
			LSMS	~~Required~~Conditional
Objective:	To verify that the SOA/LSMS retries the same NPAC SMS address after the initial association request is rejected with reason as RETRY-SAME-HOST. (ITP name: AMG.SOA.ASSOC.SAME and AMG.LSMS.ASSOC.SAME) Severity Explanation: Direct impact on ability to provide service.			

B. REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C. PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes. Access Control attribute set according to Chapter 5 of NPAC SMS Interoperable Interface Specification.

D. TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association request (AARQ).	NPAC	NPAC SMS accepts the association indication.
2.	NPAC	NPAC SMS issues an association ~~response (AARE~~abort request (ABRT) with errorCode = retry-same-host.	SP	SOA/LSMS accepts association confirmation.
3.	SP	SOA/LSMS issues association request (AARQ) with same address as previously sent.	NPAC	NPAC SMS accepts the association indication.
4.	NPAC	NPAC SMS issues an association response (AARE).	SP	SOA/LSMS accepts association confirmation. Association is correctly established between SOA/LSMS and NPAC SMS.

E.   Pass/Fail Analysis, Assoc Mgmt-1

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A. **TEST IDENTITY**

Test Case Number:	Assoc Mgmt-2	SUT Priority:	SOA	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS tries the backup NPAC SMS address after the initial association request is rejected with reason as RETRY-OTHER-HOST. (ITP name: AMG.SOA.ASSOC.OTHER and AMG.LSMS.ASSOC.OTHER) Severity Explanation: Direct impact on ability to provide service.			

B. **REFERENCES**

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C. **PREREQUISITE**

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes. Access Control attribute set according to Chapter 5 of NPAC SMS Interoperable Interface Specification.

D. **TEST STEPS and EXPECTED RESULTS**

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association request (AARQ).	NPAC	NPAC SMS accepts the association indication.
2.	NPAC	NPAC SMS issues an association response (AARE) with errorCode = retry-other-host.	SP	SOA/LSMS accepts association confirmation.
3.	SP	SOA/LSMS issues association request (AARQ) to backup address of the NPAC SMS.	NPAC	NPAC SMS accepts the association indication.
4.	NPAC	NPAC SMS issues an association response (AARE).	SP	SOA/LSMS accepts association confirmation. Association is correctly established between SOA/LSMS and backup location of NPAC SMS.

E. **Pass/Fail Analysis, Assoc Mgmt-2**

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	Assoc Mgmt-3	SUT Priority:	SOA	~~Optional~~Conditional
			LSMS	~~Optional~~Conditional
Objective:	To verify that the SOA/LSMS times out a request after the configured retry interval when the NPAC SMS did not respond. (ITP name: AMG.SOA.REQTMOT and AMG.LSMS.REQTMOT) Severity Explanation: Current NPAC SMS guidelines do not suggest any retries.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes. The MIB is populated with all instances of the information model.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues a CMIP request (M-GET on all attribute of a managed object instance).	NPAC	NPAC SMS does not respond to the request.
2.	SP	SOA/LSMS times out the request and reissues it after the configured retry interval has elapsed.	NPAC	NPAC SMS accepts the second request.
3.	NPAC	NPAC SMS issues a CMIP response.	SP	SOA/LSMS receives response. First request times out. Second request is successful

E.   Pass/Fail Analysis, Assoc Mgmt-3

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A. TEST IDENTITY

Test Case Number:	**Assoc Mgmt-4**	SUT Priority:	**SOA**	Optional
			LSMS	Optional
Objective:	To verify that the SOA/LSMS retries a CMIP request for 3 times with a configured retry interval timeout between tries when the NPAC SMS does not respond. After the 3rd attempt, the SOA/LSMS aborts the association. (ITP name: AMG.SOA.RETRY.CMIP and AMG.LSMS.RETRY.CMIP) Severity Explanation: Current NPAC SMS guidelines do not suggest any retries.			

Objective cell text:

To verify that the SOA/LSMS retries a CMIP request for 3 times with a configured retry interval timeout between tries when the NPAC SMS does not respond. After the 3rd attempt, the SOA/LSMS aborts the association. (ITP name: AMG.SOA.RETRY.CMIP and AMG.LSMS.RETRY.CMIP)

Severity Explanation: Current NPAC SMS guidelines do not suggest any retries.

B. REFERENCES

NANC Change Order Revision Number:	N/A	**Change Order Number(s):**	N/A
NANC FRS Version Number:	N/A	**Relevant Requirement(s):**	N/A
NANC IIS Version Number:	N/A	**Relevant Flow(s):**	N/A

C. PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes. The MIB is populated with all instances of the information model.

D. TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues a CMIP request (M-GET on all attribute of a managed object instance).	NPAC	NPAC SMS does not respond to the request.
2.	SP	SOA/LSMS times out the request and reissues it after the configured retry interval has elapsed.	NPAC	NPAC SMS does not respond to the request.
3.	SP	SOA/LSMS times out the request and reissues it after the configured retry interval has elapsed.	NPAC	NPAC SMS does not respond to the request.
4.	SP	SOA/LSMS aborts the association and establishes a new association.	NPAC	NPAC SMS responds to the bind request.

E. Pass/Fail Analysis, Assoc Mgmt-4

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	Assoc Mgmt-5	SUT Priority:	SOA	Optional
			LSMS	Optional
Objective:	To verify that the SOA/LSMS times out and retries when the NPAC SMS does not respond to an association request. (ITP name: AMG.SOA.RETRY.ASSOC and AMG.LSMS.RETRY.ASSOC) Severity Explanation: No requirements exist on how to troubleshoot an NPAC SMS connection. However, it is recommended that if an association cannot be established with the primary, the secondary NPAC SMS be attempted. If the secondary NPAC SMS replies with "retry-other-host", then proceed to retry and troubleshoot the primary connection.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	No association established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues association request (AARQ).	NPAC	NPAC SMS does not respond to the request.
2.	SP	SOA/LSMS times out the request and reissues it after the configured retry interval has elapsed, taking into consideration one of the following: 1. Automatically retry primary NPAC. 2. Automatically retry backup NPAC.	NPAC	NPAC SMS does not respond to the request.
3.	SP	SOA/LSMS issues association request (AARQ) to 1 and/or 2 until an association is established.	NPAC	NPAC SMS accepts the association indication.
4.	NPAC	NPAC SMS issues an association response (AARE).	SP	SOA/LSMS accepts association confirmation. Association is correctly established between SOA/LSMS and primary/backup location of NPAC SMS.

E.   **Pass/Fail Analysis, Assoc Mgmt-5**

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	**Assoc Mgmt-6**	SUT Priority:	**SOA**	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS detects and recovers from security violations. (ITP name: AMG.SOA.SECVIOL and AMG.LSMS.SECVIOL) Severity Explanation: Direct impact on ability to provide service.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	**Change Order Number(s):**	N/A
NANC FRS Version Number:	N/A	**Relevant Requirement(s):**	N/A
NANC IIS Version Number:	N/A	**Relevant Flow(s):**	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes. The MIB is populated with all instances of the information model.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	NPAC	NPAC SMS ITP Tool issues an M-EVENT-REPORT with an invalid signature on a pre-established and active association.	SP	SOA/LSMS detects the security breach and aborts the association with no reason provided.
2.	SP	SOA/LSMS proceeds to re-establish an association request (AARQ) with the NPAC SMS using either the same key or a different key.	NPAC	NPAC SMS accepts the association indication.
3.	NPAC	NPAC SMS issues an association response (AARE).	SP	SOA/LSMS accepts association confirmation. Compromised association is aborted and a new association is established with the same key or a different key between SOA/LSMS and NPAC SMS.

E.   Pass/Fail Analysis, Assoc Mgmt-6

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	**Assoc Mgmt-7**	SUT Priority:	**SOA**	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS detects and recovers from loss of association. (ITP name: AMG.SOA.LOSS and AMG.LSMS.LOSS)			
	Severity Explanation: Direct impact on ability to provide service.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	**Change Order Number(s):**	N/A
NANC FRS Version Number:	N/A	**Relevant Requirement(s):**	N/A
NANC IIS Version Number:	N/A	**Relevant Flow(s):**	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	NPAC	An established and active association between the NPAC SMS and SOA/LSMS is manually torn down (i.e., temporarily disconnect the network connection).	SP	SOA/LSMS detects the loss of association.
2.	SP	SOA/LSMS proceeds to re-establish an association request (AARQ) with the NPAC SMS.	NPAC	NPAC SMS accepts the association indication.
3.	NPAC	NPAC SMS issues an association response (AARE).	SP	SOA/LSMS accepts association confirmation. Lost association is detected and a new association is established.

E.   Pass/Fail Analysis, Assoc Mgmt-7

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A.   TEST IDENTITY

Test Case Number:	**Assoc Mgmt-8**	SUT Priority:	**SOA**	Required
			LSMS	Required
Objective:	To verify that the SOA/LSMS detects and recovers from NPAC SMS going down. (ITP name: AMG.SOA.DOWN and AMG.LSMS.DOWN) Severity Explanation: Direct impact on ability to provide service.			

B.   REFERENCES

NANC Change Order Revision Number:	N/A	**Change Order Number(s):**	N/A
NANC FRS Version Number:	N/A	**Relevant Requirement(s):**	N/A
NANC IIS Version Number:	N/A	**Relevant Flow(s):**	N/A

C.   PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes.

D.   TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	NPAC	The NPAC SMS is manually brought down.	SP	SOA/LSMS detects the NPAC SMS is down.
2.	SP	SOA/LSMS proceeds to re-establish an association request (AARQ) with the NPAC SMS.	NPAC	NPAC SMS accepts the association indication.
3.	NPAC	NPAC SMS issues an association response (AARE).	SP	SOA/LSMS accepts association confirmation. NPAC SMS failure is detected and an association is re-established.

E.   Pass/Fail Analysis, Assoc Mgmt-8

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>

A. TEST IDENTITY

Test Case Number:	Assoc Mgmt-9	SUT Priority:	SOA	~~Required~~Conditional
			LSMS	~~Required~~Conditional
Objective:	To verify that the SOA/LSMS handles an association abort error message when a second association bind request is received, and the first association is still active. (ITP name: AMG.SOA.NEW.BIND and AMG.LSMS.NEW.BIND) Severity Explanation: Direct impact on ability to provide service.			

B. REFERENCES

NANC Change Order Revision Number:	N/A	Change Order Number(s):	N/A
NANC FRS Version Number:	N/A	Relevant Requirement(s):	N/A
NANC IIS Version Number:	N/A	Relevant Flow(s):	N/A

C. PREREQUISITE

Prerequisite Test Cases:	N/A
Prerequisite NPAC Setup:	N/A
Prerequisite SP Setup:	An association is established between the SOA/LSMS and NPAC SMS. System clocks synchronized to within 5 minutes.

D. TEST STEPS and EXPECTED RESULTS

Row #	NPAC or SP	Test Step	NPAC or SP	Expected Result
1.	SP	SOA/LSMS issues another association request (AARQ) with the NPAC SMS.	NPAC	NPAC SMS accepts the association indication.
2.	NPAC	NPAC SMS issues an association response (AARE) with errorCode = new-bind-received.	SP	SOA/LSMS accepts association confirmation. First association is aborted, and second association is successfully established with NPAC SMS ITP Tool.

E. Pass/Fail Analysis, Assoc Mgmt-9

Pass	Fail	NPAC personnel performed the test case as written.
Pass	Fail	Vendor personnel performed the test case as written and <add Vendor-specific verifications required to evaluate test results>