Agilent E2953A Option #100 InfiniBand Compliance Test Suite

User’s Guide

Revision 1.0

Agilent Technologies

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Document History

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Table of Contents

Introduction

The Compliance Test Suite consists of a standalone graphical user interface that allows you to execute a number of compliance tests using the E2953A and a device under test.

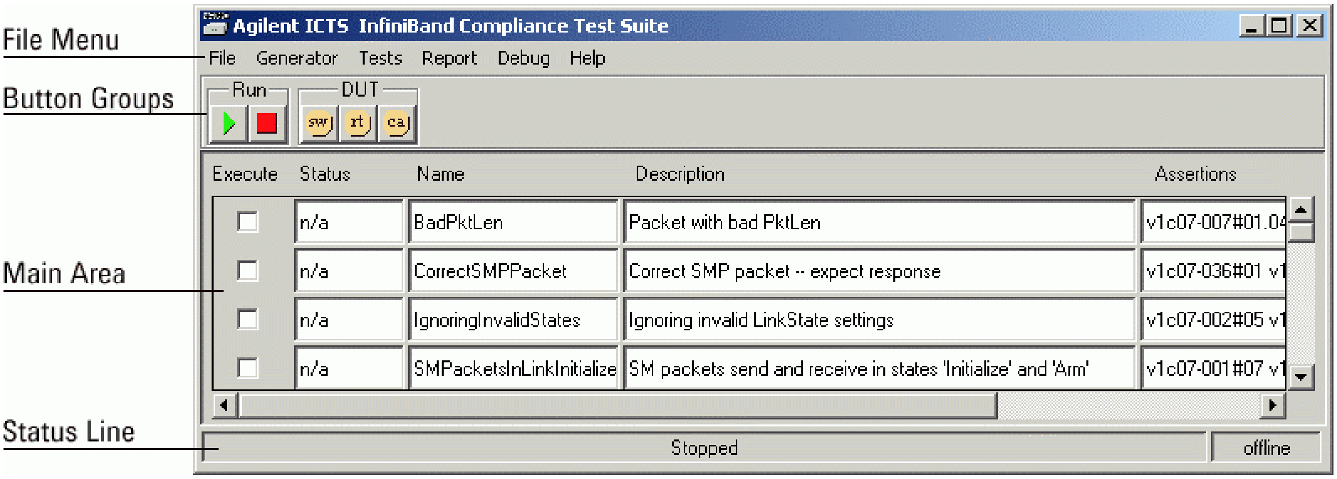
- The user interface is completely realized in tcl/tk command language.
- The tests are based on the *InfiniBand Architecture Test Specification*, version 0.8 from May 2001, available from the InfiniBand TA.

The compliance tests allow you to send correct and incorrect packets to the DUT and verify its behavior. You can test channel adapters, switches and routers.

User Interface Overview

The *Agilent ICTS InfiniBand Compliance Test Suite* window is the user interface for setting up and running system tests.

The Main Window of the User Interface consists of the menu bar, button groups, the main area, and the status line.


File Menu
Button Groups
Main Area
Status Line
Agilent ICTS InfiniBand Compliance Test Suite
File Generator Tests Report Debug Help
Run
DUT
sw
rt
ca
Stopped
offline

Execute	Status	Name	Description	Assertions
☐	n/a	BadPktLen	Packet with bad PktLen	v1c07-007#01.04
☐	n/a	CorrectSMPPacket	Correct SMP packet -- expect response	v1c07-036#01 v1
☐	n/a	IgnoringInvalidStates	Ignoring invalid LinkState settings	v1c07-002#05 v1
☐	n/a	SMPacketsInLinkInitialize	SM packets send and receive in states 'Initialize' and 'Arm'	v1c07-001#07 v1

Menu Bar The different menus in the menu bar give you access to all of the Agilent ICT InfiniBand Compliance Tester functions. See *"Testing with the Compliance Tester User Interface" on page 3-1*.

Button Groups The software provides the following button groups:

Run Contains two buttons for running and stopping the tests. See *"How to Run Tests" on page 3-5*.

DUT Contains three buttons to select all tests for Switches (SW), Routers (RT) and Channel Adapter (CA). See *"How to Select Tests" on page 3-4*.

Main Area

In the main area, a table lists all available tests. The columns of the table provide the following information:

- *Execute*

  This column shows which will be executed during the test run.

- *Status*

  - If n/a is displayed in the status field, no status for this test is available (the test has not yet been started).
  - If the status field background is blue, the test is currently running.
  - If the status field background is green, the test was passed.
  - If the status field background is red, the test was failed.

- *Name*

  This is the name of the function that contains the test. A prefix `TD_` indicates that this is the implementation of a Test Description.

- *Description*

  This is a short description of the test.

- *Assertions*

  These are the assertions covered by the test.

Status Line

In the left part of the status line, the current Run/Stop status is displayed. The right part displays *USB <PortNum>* where <PortNum> is the port number, or *offline* if there is no generator connected. If you double-click this part of the status line, the *Agilent ICT List of available Generators* window pops up, where you can connect a generator (see *"How to Connect a Generator" on page 3-2*).

Platform Relevant Information

The E2953A Option #100 InfiniBand Compliance Test Suite software package runs on any personal computer using the Windows 98®, Windows 98SE®,Windows 2000®, or Windows ME® operating systems equipped with a functional USB interface. Windows NT® 4.0 is supported for demo/offline mode.

License Requirements

No software license is necessary to run the software.

The standard software shipment includes four free tests. To add/update tests, you need a file that contains the encoded test files and a license key.

Software Installation

The E2953A Option #100 InfinBand Compliance Test Suite is part of the Agilent E2953A Generator for InfiniBand software.

Install the software on the PC as described below:

1 Insert the Agilent InfiniBand Series Software CD-ROM into the PC that will control the Generator.

2 Run the file `Setup.exe` on your system and follow the instructions on the screen.

If you choose the *Custom* Setup Type in the InstallShield, it is sufficient to select the component *Program Files* for the compliance GUI to be installed.

You also need to install Tcl\Tk, because it is necessary for the GUI to work.

3 To start the application, launch the Agilent ICTS InfiniBand Compliance Test Suite from the Start Menu:

Start \Programs\Agilent E2953A Generator for InfiniBand\ Compliance GUI

The Compliance GUI is installed by default in the following directory:

```
C:\Program Files\Agilent E2953A 1x Generator for InfiniBand\Compliance
```

NOTE You can open this manual by the following:

Start>Programs>Agilent E2953A IB Compliance Test Suite User's Guide

Testing with the Compliance Tester User Interface

To set up and execute compliance tests with the User Interface:

1 Connect the generator required for the test.

See *“How to Connect a Generator” on page 3-2*.

2 Add/Update tests. All executable tests are listed in the main area.

See *“How to Add or Update Tests” on page 3-3*.

3 Select the tests that should be executed.

See *“How to Select Tests” on page 3-4*.

4 Run the selected tests.

See *“How to Run Tests” on page 3-5*.

5 View the test report generated during the test.

The report is displayed in the *Agilent ICTS – Report* window, but you can also create a report file. See *“How to Set Up and View the Report” on page 3-6*.

The application also allows you to debug tcl scripts. See *“How to Debug tcl Scripts” on page 3-8*.

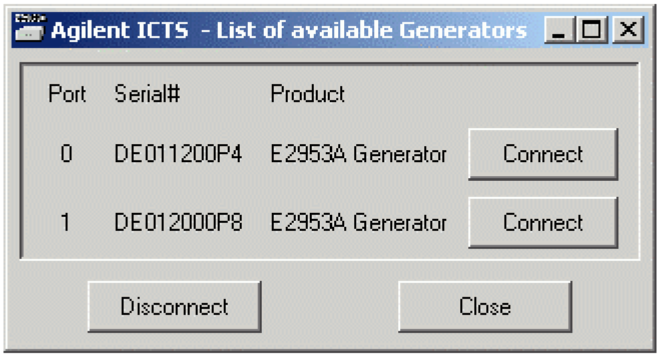
How to Connect a Generator

Connecting

To connect a generator for the test:

1 In the *Generator* menu, select *Connect*.

This opens the *Agilent ICTS – List of available Generators* window, which provides a list of generators connected to your system.



Port	Serial#	Product
0	DE011200P4	E2953A Generator
1	DE012000P8	E2953A Generator

2 Click *Connect* next to the generator you want to use for the test.

Disconnecting

To disconnect a generator:

1 In the *Agilent ICTS – List of available Generators* window, click *Disconnect*.

or:

In the *File* menu, select *Exit*.

This disconnects the generator.

How to Add or Update Tests

To update current tests and to add tests to the test list in the main area:

1 Ensure that you have a encoded package, including the test files and a valid license key.

The test file has the extension .ctf (compliance test files).

2 In the *Test* menu, select *Add/Update tests...*.

This opens a message box, which informs you that during the update, existing tests may be overwritten.

CAUTION During the update, the currently existing test files will be replaced with the latest versions. If you have modified any tests, rename them first before you proceed.

3 Press *OK* to proceed. You will be prompted to select the encoded package including the test files, and to enter the license key.

This decodes the package including the test files. The new test files are saved into the directory `<InstallDir>/compliance/tests`.

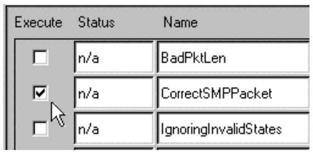
If there are already existing files with the same name, these files are overwritten.

How to Select Tests

Selecting Individual Tests

To select individual tests:

- In the main area, check the *Execute* checkboxes of the respective tests.



Execute	Status	Name
□	n/a	BadPktLen
☑	n/a	CorrectSMPPacket
□	n/a	IgnoringInvalidStates

Selecting Tests for Particular DUTs

To select tests for particular DUTs:

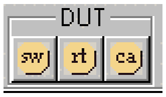
1. In the *Tests* menu, select *Select tests for DUT*.

   A selection list shows all possible DUTs: *Channel Adapters*, *Switches*, *Routers*, *Host Channel Adapters*, and *Target Channel Adapters*.

2. Click the required DUT.

   In the main area, the tests available for the DUT are selected.

You can also use the buttons in the DUT group of the toolbar:



sw selects all available tests for switches.

rt selects all available tests for routers.

ca selects all available tests for channel adapters.

Selecting/Unselecting All Tests

In the *Tests* menu, the *Select all tests/Unselect all tests* items lets you select or unselect all tests.

How to Run Tests

Running Tests

To run the tests:

1. Ensure that for all required tests are selected.
2. In the *Tests* menu, select *Run*, or

   click ▶ in the toolbar.

   All selected tests are executed, starting from the top of the table.

NOTE During the test run, a report is generated. For viewing the report and modifying the report options, see *"How to Set Up and View the Report" on page 3-6*.

Stopping Tests

To stop the test execution during the run (execution normally stops automatically after the last test):

♦ In the *Tests* menu, select *Stop*, or

click 🟥 in the toolbar.

The test execution is stopped. If there is currently a test running, this test will first be completed.

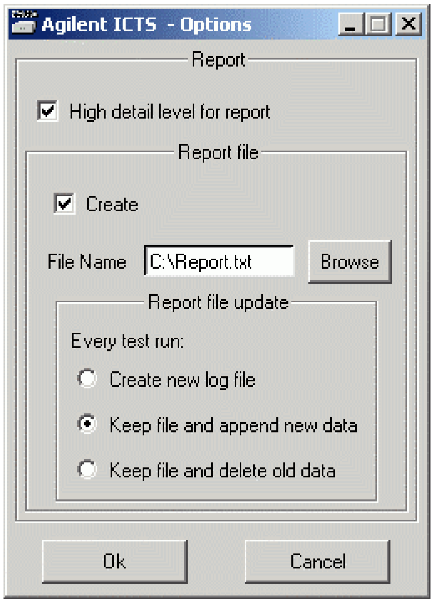
How to Set Up and View the Report

Modify Report Options

To modify the options for the report:

♦ From the *Report* menu, select *Options....*

This opens the *Agilent ICTS – Options* dialog box.



Agilent ICTS - Options

Report

☑ High detail level for report

Report file

☑ Create

File Name C:\Report.txt

Report file update

Every test run:

○ Create new log file

● Keep file and append new data

○ Keep file and delete old data

In this dialog box, you can:

- Increase the detail level of the report by checking *High detail level for report*.
- *Create* a report file.

  If you select *Create*, enter a name for the report file and choose whether you want to create a new file for each test run, or keep the file and append the new data, or overwrite the old file.

Viewing the Report

To view the report:

- From the *Report* menu, select *Show report window*.

  This opens the *Agilent ICTS – Report* window. This window shows the report that was generated during a test run.

Example for a Report

The example report file shows the results of executing the following tests:

- BadPktLen
- CorrectSMPPacket
- IngnoringInvalidState
- SMPacketsInLinkInitialize
- StateTransitions

```
*****************************************************
 E2953A Compliance Tester Report File
 Compliance GUI Version: 1.0.1.1
 IGAPI Version         : 1.0.7.2
 Firmware Version      : 1.0.1.1
 Capricorn Version     : 1.0.0.6
 E2953A Serial Number  : DE011200P4
 Mon Feb 04 18:21:42 2002
*****************************************************

SanityCheck ok
+++ v1c07-007#01.04 DUT does not respond to PktLen+1 PASSED
*** Test BadPktLen PASSED ***

SanityCheck ok
*** Test CorrectSMPPacket PASSED ***

SanityCheck ok
Comparing Linkstate of Tester with LinkActive (2)(4) FAIL
LinkState of DUT could be modified by writing a 2 in
PortInfo:PortState
+++ v1c07-002#05 and v1c07-002#01 FAILED
*** Test IgnoringInvalidStates FAILED ***

+++ v1c07-001#07 LinkInitialize does xmit SM data packets PASSED
+++ v1c07-001#14 State LinkArm does transmit or receive SM data
packets PASSED
*** Test SMPacketsInLinkInitializeAndLinkArm PASSED ***
```

```
SanityCheck ok
+++ v1c07-001#05 State Link Down transitions to LinkInitialize if
PhyLink=Up PASSED
+++ v1c07-003#01 State LinkInitialize remains in state Initialize
PASSED
+++ v1c07-001#11 LinkState 'Init' transitions to LinkState 'Arm'
PASSED
+++ v1c07-001#18 State LinkArm transitions to LinkActive PASSED
+++ v1c07-001#23 State LinkActive transitions to LinkArm PASSED
+++ v1c07-001#27 State LinkActDefer transitions to LinkActive PASSED
*** Test StateTransitions PASSED ***
```

How to Debug tcl Scripts

To debug tcl scripts:

♦ From the *Debug* menu, select *Show console*.

This opens the TK console. This can be used to access the Tcl/Tk environment. The console opens the possibility to access test functions, utility functions used by the tests, variables, etc. Output to stdout will appear here, as well.

For further details, please refer to the Tcl manual.

Test Descriptions

The tests described here are based on *InfiniBand Architecture Specification Release 1.0.a* available at `http://www.infinibandta.org/`.

Some of them are implementations of already existing Test Descriptions from *InfiniBand Architecture Test Specification*, version 0.8 from May 2001, available from the InfiniBand TA. These can be recognized by a leading `TD_` in the name.

Available Tests

In this chapter, all tests are descibed by the following items:

- **Name**

  This is the name of the function that contains the test. A prefix `TD_` indicates that this is the implementation of a *Test Description*.

- **Description**

  Short description of the test.

- **Topology**

  All tests described here need a *Simple* topology. That means that the DUT must be connected to the tester, which is an E2953A generator.

- **Initial link state**

  The following initial link states are used:

  - Active
  - LinkDown

- **Assertions**

  Assertions covered by the test.

- **DUT**

  Specify which DUT the test is valid for.

- **Prerequisites**

  For most tests, the *SanityCheck* must be passed before the tests can be carried out..

  The *SanityCheck* is performed to ensure a valid InfiniBand connection. It consists of sending the `SubnDirectGet(PortInfo)` SMP to the DUT and waits 1000 ms for a response. This is repeated three times. If no response is detected, the check fails.

- **Test procedure**

  Descibes what happens during the test execution.

Packet with Bad DLID (for Channel Adapters)

Item		**Value**
Name		TD_10.2.4.1.5
Description		The test is used to ensure that the DUT does not respond to a packet with a DLID invalid for the DUT.
Topology		Simple
Initial link state		Active
Assertions		v1c07-007#01.08
DUT		Channel Adapter
Prerequisites		SanityCheck
Test procedure		1. The tester sets the LMC of the DUT to 0. 2. The tester then sets the LID of the DUT and checks if the DUT responds to that DLID. 3. Finally it sends out a packet with a DLID that is invalid for the DUT (LID of DUT +1) expecting no response.

Packet with Bad DLID (for All DUTs)

Item		Value
Name		TD_10.3.1.2.2
Description		The test is used to ensure that the DUT does not respond to a packet with a DLID invalid for the DUT.
Topology		Simple
Initial link state		Active
Assertions		v1c07-010#02
DUT		Channel Adapter, Switch, Router
Prerequisites		SanityCheck
Test procedure		1. The tester sets the LMC of the DUT to 0. 2. The tester then sets the LID of the DUT and checks if the DUT responds to that DLID. 3. Finally it sends out a packet with a DLID that is invalid for the DUT (LID of DUT +1) expecting no response.

Packet with Bad ICRC (for Channel Adapters)

Item		Value
Name		TD_10.2.4.1.2
Description		The test is used to ensure that the DUT does not respond to a packet with an invalid ICRC.
Topology		Simple
Initial link state		Active
Assertions		v1c07-007#01.02
DUT		Channel Adapter
Prerequisites		SanityCheck
		The generator property ‘BADPacketDiscard’ is set to zero.
Test procedure		A SubnDirectGet(PortInfo) SMP with a bad ICRC is sent to the DUT. No response is expected.

Packet with Bad ICRC (for Switches and Routers)

Item		Value
Name		TD_10.3.1.1.2
Description		The test is used to ensure that the DUT does not respond to a packet with invalid ICRC.
Topology		Simple
Initial link state		Active
Assertions		v1c07-009#01.02
DUT		Switch, Router
Prerequisites		SanityCheck The generator property ‘BADPacketDiscard’ is set to zero.
Test procedure		A SubnDirectGet(PortInfo) SMP with an invalid ICRC is sent to the DUT. No response is expected.

Packet with GRH and VL15 (for Channel Adapters)

Item		Value
Name		TD_10.2.4.1.7
Description		The test is used to ensure that the DUT does not respond to a packet with GRH and VL set to 15.
Topology		Simple
Initial link state		Active
Assertions		v1c07-007#01.10
DUT		Channel Adapter
Prerequisites		SanityCheck
Test procedure		A SubnDirectGet(PortInfo) SMP with a GRH (Global Route Header) is sent to the DUT. No response is expected.

Packet with GRH and VL15 (for Switches and Routers)

Item		Value
Name		TD_10.3.1.1.6
Description		The test is used to ensure that the DUT does not respond to a packet with GRH and VL set to 15.
Topology		Simple
Initial link state		Active
Assertions		v1c07-009#01.09
DUT		Switch, Router
Prerequisites		SanityCheck
Test procedure		A SubnDirectGet(PortInfo) SMP with a GRH (Global Route Header) is sent to the DUT. No response is expected.

Packet with GRH and VL15 (for All DUTs)

Item		Value
Name		TD_10.3.1.2.4
Description		The test is used to ensure that the DUT does not respond to a packet with GRH and VL set to 15.
Topology		Simple
Initial link state		Active
Assertions		v1c07-010#04
DUT		Channel Adapter, Switch, Router
Prerequisites		SanityCheck
Test procedure		A SubnDirectGet(PortInfo) SMP with a GRH (Global Route Header) is sent to the DUT. No response is expected.

Packet with Bad VCRC (for Channel Adapters)

Item		Value
Name		TD_10.2.4.1.1
Description		The test is used to ensure that the DUT does not respond to a packet with an invalid VCRC.
Topology		Simple
Initial link state		Active
Assertions		v1c07-007#01.01
DUT		Channel Adapter
Prerequisites		SanityCheck
Test procedure		A SubnDirectGet(PortInfo) SMP with an invalid VCRC is sent to the DUT. No response is expected.

Packet with bad VCRC (for Switches and Routers)

Item		Value
Name		TD_10.3.1.1.1
Description		The test is used to ensure that the DUT does not respond to a packet with an invalid VCRC.
Topology		Simple
Initial link state		Active
Assertions		v1c07-009#01.01
DUT		Switch, Router
Prerequisites		SanityCheck
Test procedure		A SubnDirectGet(PortInfo) SMP with an invalid VCRC is sent to the DUT. No response is expected.

Packet Receive Statemachine 'MARKED BAD PKT' (for Channel Adapters)

Item		Value
Name		TD_10.2.4.1.10
Description		The test is used to ensure that the DUT does not respond to a packet where the ‘EGP’ of this packet is replaced by an ‘EBP’.
Topology		Simple
Initial link state		Active
Assertions		v1c07-007#02.03
DUT		Channel Adapter
Prerequisites		SanityCheck
Test procedure		A SubnDirectGet(PortInfo) packet is sent out, but with 'EBP' (End of Bad Packet) instead of 'EGP' (End of Good Packet). No response is expected.

Packet Receive Statemachine 'MARKED BAD PKT' (for Switches and Routers)

Item		**Value**
Name		TD_10.3.1.1.9
Description		The test is used to ensure that the DUT does not respond to a packet where the ‘EGP’ of this packet is replaced by an ‘EBP’.
Topology		Simple
Initial link state		Active
Assertions		v1c07-009#02.03
DUT		Switch, Router
Prerequisites		SanityCheck
Test procedure		A SubnDirectGet(PortInfo) packet is sent out, but with 'EBP' (End of Bad Packet) instead of 'EGP' (End of Good Packet). No response is expected.

Packet Receive Statemachine 'BAD PKT' (for Channel Adapters)

Item		Value
Name		TD_10.2.4.1.9
Description		The test is used to ensure that the DUT does not respond to a packet where the ‘EGP’ of this packet is replaced by an invalid code group, ‘SLP’, and ‘SDP’.
Topology		Simple
Initial link state		Active
Assertions		v1c07-007#02.01 v1c07-007#02.02
DUT		Channel Adapter
Prerequisites		SanityCheck
Test procedure		1) A SubnDirectGet(PortInfo) packet is sent out, but with an invalid code group instead of 'EGP' (End of Good Packet). No response is expected. 2) A SubnDirectGet(PortInfo) packet is sent out, but with 'SLP' (Start of Link Packet) instead of 'EGP' (End of Good Packet). No response is expected. 3) A SubnDirectGet(PortInfo) packet is sent out, but with 'SDP' (Start of Data Packet) instead of 'EGP' (End of Good Packet). No response is expected.

Packet Receive Statemachine 'BAD PKT' (for Switches and Routers)

Item		Value
Name		TD_10.3.1.1.8
Description		The test is used to ensure that the DUT does not respond to a packet where the ‘EGP’ of this packet is replaced by an invalid code group, ‘SLP’, and ‘SDP’.
Topology		Simple
Initial link state		Active
Assertions		v1c07-009#02.01 v1c07-009#02.02
DUT		Switch, Router
Prerequisites		SanityCheck
Test procedure		1. A SubnDirectGet(PortInfo) packet is sent out, but with an invalid code group instead of 'EGP' (End of Good Packet). No response is expected. 2. A SubnDirectGet(PortInfo) packet is sent out, but with 'SLP' (Start of Link Packet) instead of 'EGP' (End of Good Packet). No response is expected. 3. A SubnDirectGet(PortInfo) packet is sent out, but with 'SDP' (Start of Data Packet) instead of 'EGP' (End of Good Packet). No response is expected.

Packet with Bad LVer (for Channel Adapters)

Item		Value
Name		TD_10.2.4.1.3
Description		The test is used to ensure that the DUT does not respond to a packet with invalid settings in the LRH field ‘LVer’.
Topology		Simple
Initial link state		Active
Assertions		v1c07-007#01.03
DUT		Channel Adapter
Prerequisites		SanityCheck
Test procedure		Sending SubnDirectGet(PortInfo) SMPs to the DUT with the 'LVer'-field in the LRH set to the invalid values 1-15. No response expected.

Packet with Bad LVer (for Switches and Routers)

Item		Value
Name		TD_10.3.1.1.3
Description		The test is used to ensure that the DUT does not respond to a packet with invalid settings in the LRH field ‘LVer’.
Topology		Simple
Initial link state		Active
Assertions		v1c07-009#01.03
DUT		Switch, Router
Prerequisites		SanityCheck
Test procedure		Sending SubnDirectGet(PortInfo) SMPs to the DUT with the 'LVer'-field in the LRH set to the invalid values 1-15. No response expected.

Packet with Bad LVer (for All DUTs)

Item		Value
Name		TD_10.3.1.2.1
Description		The test is used to ensure that the DUT does not respond to a packet with invalid settings in the LRH field ‘LVer’.
Topology		Simple
Initial link state		Active
Assertions		v1c07-010#01
DUT		Channel Adapter, Switch, Router
Prerequisites		SanityCheck
Test procedure		Sending SubnDirectGet(PortInfo) SMPs to the DUT with the 'LVer'-field in the LRH set to the invalid values 1-15. No response expected.

Packet with Bad PktLen

Item		Value
Name		BadPktLen
Description		The test is used to ensure that the DUT does not respond to a packet with an invalid setting in the LRH field ‘PktLen’.
Topology		Simple
Initial link state		Active
Assertions		v1c07-007#01.04 v1c07-009#01.04
DUT		Channel Adapter, Switch
Prerequisites		SanityCheck
Test procedure		The packet length of a SubnDirectGet(PortInfo) SMP is set to its true value + 1 and sent to the DUT. No response is expected.

The SL Field Shall be Ignored by DUT When Using VL15

Item		**Value**
Name		v1c07-025
Description		The ‘SL’ field in the LRH of a SMP is set to invalid values.
Topology		Simple
Initial link state		Active
Assertions		v1c07-025#01 v1c07-025#02
DUT		Channel Adapter, Switch, Router
Prerequisites		SanityCheck
Test procedure		A SubnDirectGet(PortInfo) SMP is sent to the DUT setting the value of the 'SL' field in the LRH to the invalid values 1-15. If the DUT does not respond, or the 'SL'-field in the response is not zero, the test fails.

LMC Check

Item		Value
Name		TD_10.10.1.1.1
Description		The ‘DLID’ field in the LRH of a SMP is set to values covered by the LMC of the DUT.
Topology		Simple
Initial link state		Active
Assertions		v1c07-066#01 v1c07-066#02
DUT		Channel Adapter, Router
Prerequisites		SanityCheck

Test procedure		The DUT must respond to all LIDs covered by the LMC value in the PortInfo attribute of the DUT. The algorithm for the test is as follows:
		for (NEWLMC = 0; NEWLMC<8; NEWLMC++) {
		1. BASELID=2^NEWLMC
		2. in PortInfo of DUT set 'LMC' to NEWLMC and 'LID' to BASELID
		3. LID routed packets with DLID set to valid and invalid values are now sent to the DUT:
		- a response is expected for DLID='BASELID-1+2^LMC'
		- no response is expected for DLID='BASELID-1' and
		DLID='BASELID+2^LMC'
		}

Number of VLs Supported

Item		Value
Name		v1c07-015
Description		The ‘OperationalVLs’ field in the PortInfo of the DUT is set to values covered ‘VLCap’.
Topology		Simple
Initial link state		Active
Assertions		v1c07-015#01
DUT		Channel Adapter, Switch, Router
Prerequisites		SanityCheck
Test procedure		The number of VLs supported by the DUT is requested from the PortInfo attribute 'VLCap': The PortInfo attribute 'OperationalVLs' of the DUT is configured with all valid values. It is checked if the DUT set the VL correctly.

State Transitions

Item		Value
Name		StateTransitions
Description		Valid transitions of the link state machine of the DUT are tested.
Topology		Simple
Initial link state		Active
Assertions		v1c07-001#05 v1c07-003#01 v1c07-001#11 v1c07-001#18 v1c07-001#23 v1c07-002#03 v1c07-002#04 v1c07-001#27
DUT		Channel Adapter, Switch, Router
Prerequisites		SanityCheck
Test procedure		1) The Link Training State machine of the tester is set to 'Sleep' and then to 'Poll'. After 300 ms, the link state of the DUT is expected to be 'Initialized'. 2) After another 1000 ms, the DUT is expected to be still in 'Initialized'. 3) The DUT is requested to switch to link state 'Arm' and expected to transition into this state. 4) The generator is set into link state 'Arm' and the DUT is requested to switch to link state 'Active' and expected to transition into this state. 5) The DUT is requested to switch back to link state 'Arm' and expected to transition into this state. 6) The DUT is set back to link state 'Active'. The tester is then set into link state ‘Down’. Because the link is up, the link state of the tester switches to 'Initialize'. The DUT is expected to switch to state ‘Initialize’ as well.

SM Packets Send and Receive in States 'Initialize' and 'Arm'

Item		Value
Name		SMPacketsInLinkInitializeAndLinkArm
Description		In link state ‘Initialize’ and ‘Arm’, SMPs are send to the DUT.
Topology		Simple
Initial link state		LinkDown
Assertions		v1c07-001#07 v1c07-001#14
DUT		Channel Adapter
Prerequisites		None
Test procedure		1) If the tester is in link state 'Initialize', the port number (PortNum) and the link state of the DUT are requested. If there is a response and the link state of the DUT is 'Initialize', this part of the test passes. 2) The link state of both the tester and the DUT is set to 'Arm'. If there is a reponse to the request of the link state of the DUT, the test passes.

Ignoring Invalid Link State Settings

Item		**Value**
Name		IgnoringInvalidStates
Description		The ‘PortState’ field in the PortInfo of the DUT is set to invalid values.
Topology		Simple
Initial link state		Active
Assertions		v1c07-002#05 v1c07-002#01
DUT		Channel Adapter
Prerequisites		SanityCheck
Test procedure		The 'PortState' field in the PortInfo of the DUT is set to the invalid states 2 and 0x5..0xF. If the link state of the tester changes from 'Active' into another state, this indicates that the DUT reacted to an invalid setting, and the test fails.

EUI-64 GUID Assigned by Manufacturer

Item		Value
Name		v1c04-001
Description		The ‘GUID’ field in the NodeInfo of the DUT is tested.
Topology		Simple
Initial link state		Active
Assertions		v1c04-001
DUT		Channel Adapter, Switch, Router
Prerequisites		None
Test procedure		Requests the GUID of the DUT and checks it. The 24-bit company ID of the GUID is expected to be non-zero.

4 Running Disparity Errors in a Sequence

Item		Value
Name		v2c05-013
Description		The test is used to ensure that the DUT does not respond to a packet where the symbol ‘EGP’ is replaced by 4 running disparity errors within 13 symbols.
Topology		Simple
Initial link state		Active
Assertions		v2c05-013
DUT		Channel Adapter, Switch, Router
Prerequisites		SanityCheck
Test procedure		A SubnDirectGet(PortInfo) packet is sent to the DUT. Instead of the symbol 'EGP', 4 running disparity errors spread out over 13 symbols are inserted. No response is expected.

Basic Directed Route SMP Response

Item		Value
Name		TD_17.1.2.1.1
Description		The test is used to ensure that the DUT correctly responds to a direct route SMP.
Topology		Simple
Initial link state		Active
Assertions		v1c14-009#02.07 v1c14-010#01 v1c14-010#02 v1c14-010#03 v1c14-011#04.02 v1c14-010#04 v1c14-011#03 v1c14-008#01 v1c14-009#02.01
DUT		Channel Adapter, Switch, Router
Prerequisites		None
Test procedure		Sending a SubnDirectGet(NodeInfo) SMP, the following tests are performed: 1) Check if there is a reponse. 2) Check if the 'Status' does not indicate problems. 3) Check if the direction bit is 1. 4) Check if the following values in the request packet and the response packet are equal: MgmtClass, HopCount, DrSLID, DrDLID, InitialPath. 5) Check if HopPointer and HopCount are equal in response packet. 6) Check if 'BaseVersion' and 'ClassVersion' are equal 1 in response packet. 7) Compare if 'TransactionID' and 'AttributeID' are equal in request and response packet. 8) In response packet, compare VL to 15, LVer to 0, SL to 0, Resv12 to 0, LNH with 2, Resv32 to 0, PktLen with expected packet length, OpCode with 'UD Send Only', PadCnt to 0, TVer with 0 9) Verify correct position of the DUTs LocalPortNum in the ReturnPath.

Correct SMP Packet -- Expect Response

Item		Value
Name		CorrectSMPPacket
Description		A correct SMP packet is sent to the DUT.
Topology		Simple
Initial link state		Active
Assertions		v1c07-036#01 v1c07-036#02
DUT		Channel Adapter, Switch
Prerequisites		none
Test procedure		A SubnDIRECTGet(PortInfo) is sent to the DUT.
		A response is expected.

SLID Check

Item		Value
Name		TD_10.6.6.1.1
Description		SLID Check
Topology		Simple
Initial link state		Active
Assertions		v1c070-046#01
DUT		Channel Adapter, Switch, Router
Prerequisites		SanityCheck
Test procedure		1. In the PortInfo attribute of the DUT, the LMC value is set to zero. 2. The LID in the PortInfo attribute of the DUT is set to the value 2^N and N is increased from 0 to 15. 3. If the LID value in the PortInfo of the response packet is not the same as in the request packet, the test fails.

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