Agilent RouterTester

Powered by QA Robot Technology

Optical UNI RSVP Conformance Test Suite

E5171B

Technical Datasheet

The Agilent E5171B Optical UNI RSVP Conformance Test Suite allows developers and users of Intelligent Optical Internet devices to test their device conformance and interoperability to emerging industry standards.

Agilent Technologies

Key Features

- **Comprehensive conformance testing to emerging OIF UNI signaling standards**
- **RSVP, Neighbor Discovery and Service Discovery protocols tested**
- **Fully automated stimulus-and-response test suite**
- **Verify proprietary extensions for NNI protocols**
- **Controllable debug level for detailed diagnosis**
- **Clear verdict assignments for each test case**
- **Customizable test scripts**
- **Able to test over in-band and out-of-band signaling transport**

Product Overview

New signaling and routing protocols are adding intelligence to the evolving all-optical network core. When additional bandwidth is needed, optical network edge devices such as IP routers and Multi Service Provisioning Platforms request the dynamic provisioning of optical circuits across a mesh of optical switches. These new protocols are based on existing IP signaling and routing protocols. These include RSVP, LMP, LDP, OSPF, IS-IS and BGP-4.

Agilent's Optical UNI RSVP Conformance Test Suite is the world's first test solution specifically designed to test conformance and interoperability of RSVP-based optical signaling protocols.

It provides an extensive suite of test cases covering all aspects of the OIF UNI RSVP signaling conformance.

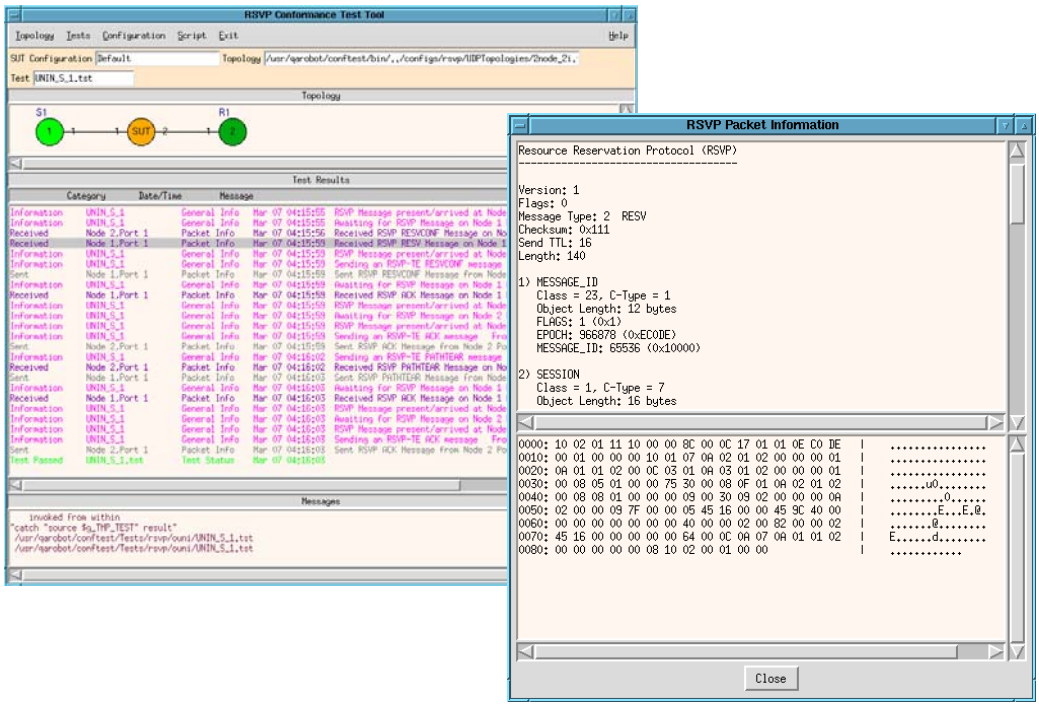
The conformance software provides:

- "Pass" or "Fail" verdict for all test cases
- Flexible reporting and debugging features to identify the detailed course of errors
- Access to add proprietary extensions to the protocol, for easy test software customization
- Access to test script source code, for easy test customization

The Optical UNI RSVP Conformance Test Suite can run both "in-band" and "out of band" modes on Agilent's powerful RouterTester platform.

The Optical UNI RSVP Conformance Test Suite can be complemented with the existing Agilent OSPF & BGP-4 protocol software to automatically set up the topology before starting signaling tests.

The list of applicable standards for this conformance test application is endless with the ability to customize the test software with new messages and new objects.



Optical UNI RSVP Conformance Test Suite

Product Features

OIF UNI Signaling Conformance

Agilent's Optical UNI RSVP Test Suite provides automatic conformance verification to the extended version of RSVP for the UNI 1.0 Signaling Specification, Release 2 through more than 200 test cases. The test suite provides comprehensive testing for both client and network devices:

- UNI-N Network Side
- UNI-C Client side

All common UNI signaling protocol behaviors can be verified for each interface type. These include:

- Setup and Teardown of path
- Error notification
- LMP Neighbor discovery
- LMP Service discovery
- Connection address granularity
- Connection framing type

Each test case contains a description of the test, as well as a statement of the test purpose.

Comprehensive messages decode display

The test progress display shows each message being sent and received in real time. This display shows the message in summary form. When a message is selected, a protocol decode viewer shows in detail all fields within the message.

Proprietary extension testing

Users can write scripts to extend the conformance test application to handle proprietary extensions to the UNI signaling protocols, by providing encoding and decoding capabilities to these extensions.

Once a proprietary element (ie. object or message) is created, it can be included in any test script, and used as any other existing protocol element.

Test Methodology

Agilent's Optical UNI RSVP Conformance Test Suite directly reflects the OIF UNI signaling protocols as specified by the following OIF's contributions:

- OIF-UNI-01.0-R2-Common - User Network Interface (UNI) 1.0 Signaling Specification, Release 2: Common Part
- OIF-UNI-01.0-R2-RSVP - RSVP Extensions for User Network Interface (UNI) 1.0 Signaling, Release 2

Close alignment with these agreements will ensure your signaling implementations conform to the evolving OIF standards and maximize interoperability.

Diagnostics

Clear verdict assignments for each test case run (e.g. 'Pass'/ 'Fail') can help quickly identify implementation errors. More detailed diagnostics can be used to pinpoint the course of 'Fail' indications.

It is possible to view the 'Pass'/ 'Fail' results from an entire test suite at a glance. Details of each test case can then be further analyzed to identify faults. Further details can be analyzed at the signaling protocol PDU level for both 'incoming' and 'outgoing' packets.

Test repeatability is achieved by saving test session setups and results. This allows quick regression testing of product enhancements and bug fixes.

Test scripts customization

The Agilent Optical UNI RSVP Conformance Test Suite provides users with open access to all test scripts.

Test engineers can easily edit the scripts (or add new test scripts) to create their own customized test cases.

In-band and Out-of-band testing

The Agilent Conformance Test Suite can be used in in-band/in-fiber mode or out-of-band/out-of-fiber mode.

Online help

An extensive online help system provides complex descriptions and detailed usage instructions for every component of this application. Dialog-level context-sensitive help provides rapid access to the relevant sections of online documentation. A technology reference section provides a complete library of background information about optical control plane testing.

Technical Specifications

Control Channel Configuration

When out-of-band/out-of-fiber configuration is used, the Conformance Test Suite runs by initiating the Conformance tester from the QA Robot.

When in-band/in-fiber configuration is used, the Conformance Test Suite runs by initiating the Conformance tester from the Optical Tester after programming the control channel mask. This mask is used to identify octets from the SONET/SDH Transport Overhead (TOH) that are used for transporting the Control Plane messages.

Proprietary RSVP Extension Generator

The proprietary code generator takes the following parameters:

For RSVP Objects	• Object Name • Object Type value • A list of Fields in the Object, each containing the field name, field length and default value
For RSVP Messages	• Message Name • Message Type value

This generates the Tcl interfaces for Building, Receiving and Sending the Objects/Message that conform to the structures defined by RSVP (RFC 2205).

Eg. Object Name	New Object1
Object Type	FF
Object fields	Name Length (bits) Default Value

In-Band/In-Fiber Control Channel Trasmitter Mask

In in-band/in-fiber configuration, the control channel trasmitter mask is used to identify octets from the SONET/SDH TOH that are used for transmitting “in-band” Optical Control Plane messages. Once defined, the test module will segment the layer 2 frame (eg. HDLC, PPP in HDLC, LAPD) to fit into these selected octets.

Mask Dimensions	144 x 9 (OC-48c/STM-16c) E1, F1, D1~D12, S1/Z1, Z2/M1, E2 3 x 9 (OC-192c/STM-64c) E1, F1, D1~D12, E2

OIF UNI 1.0, Release 2 Tested Behaviors

UNI-C	Request creation of a connection Request deletion of a connection Query the status of a connection Respond to creation request Respond to deletion request Respond to Status Enquiry
UNI-N	Propagate creation request Propagate delete request Propagate creation request Propagate delete response Respond to Status Enquiry Initiate Status Enquiry
Other behaviors tested:	LMP Neighbor discovery LMP Service discovery

GMPLS Support

The conformance test tool supports the encoding and decoding of Objects as defined by:

- RFC 3471 GMPLS - Signaling Functional Description
- RFC 3473 GMPLS - RSVP-TE extensions

Test scripts can be written to use these Objects.

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Agilent's RouterTester system

Agilent's RouterTester system offers a powerful and versatile test platform to address the evolving test needs of metro/edge platforms, core routers and optical switches. RouterTester provides Network Equipment Manufacturers and Service Providers with the industry's leading tools for wire speed, multiport traffic generation and performance analysis of today's networking devices.

Warranty and Support

Hardware Warranty

All RouterTester and QA Robot hardware is warranted against defects in materials and workmanship for a period of 3 years from the date of shipment.

Software Warranty

All RouterTester and QA Robot software is warranted for a period of 90 days. The applications are warranted to execute and install properly from the media provided. This warranty only covers physical defects in the media, whereby the media is replaced at no charge during the warranty period.

Software Updates

With the purchase of any new system controller Agilent will provide 1 year of complimentary software updates. At the end of the first year you can enroll into the Software Enhancement Service (SES) for continuing software product enhancements.

Support

Technical support is available throughout the support life of the product. Support is available to verify that the equipment works properly, to help with product operation, and to provide basic measurement assistance for the use of the specified capabilities, at no extra cost, upon request.

Ordering Information

To order and configure the test system consult your local Agilent field engineer.

United States:

Agilent Technologies
Test and Measurement Call Center
P.O. Box 4026
Englewood, CO 80155-4026
1-800-452-4844

Canada:

Agilent Technologies Canada Inc.
5150 Spectrum Way
Mississauga, Ontario
L4W 5G1
1-877-894-4414

Europe:

Agilent Technologies
European Marketing Organisation
P.O. Box 999
1180 AZ Amstelveen
The Netherlands
(31 20) 547-2323

United Kingdom
07004 666666

Japan:

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www.agilent.com/comms/RouterTester

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