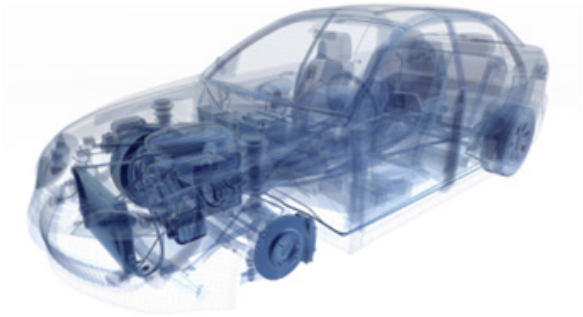
Keysight Technologies
BroadR-Reach PHY Compliance Test Solutions

Product Fact Sheet

Simple and accurate evaluation and debug of BroadR-Reach physical layer



To meet the demand for higher security in automobiles, a faster and more reliable in-vehicle network is required to improve vehicle control. In addition, simultaneous streaming of high quality video and sound, and the digitization of camera systems have increased network traffic for in-vehicle information systems.

Automotive Ethernet, which can cover both control and information systems, is gaining attention. The OPEN (One-pair Ethernet) Alliance SIG has developed an in-vehicle Ethernet specification, based on Broadcom's BroadR-Reach technology.

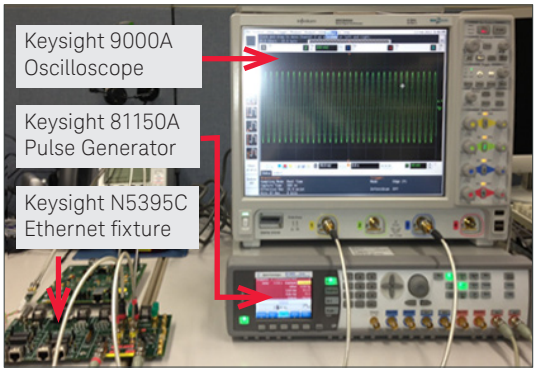
Keysight provides the necessary equipment, including an oscilloscope and network analyzer, for BroadR-Reach PHY transmitter and link segment measurements.

Transmitter Evaluation

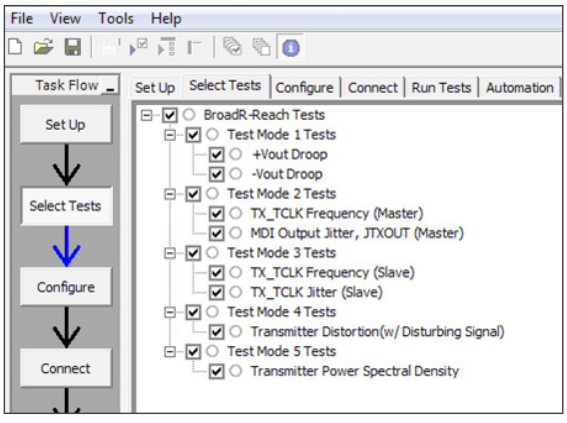
Transmitter evaluation is performed on the DUT output signal. Test signals are defined by the standards for each test item. The N6467A BroadR-Reach compliance application software, which runs on the Keysight Technologies, Inc. 9000A/90000A series oscilloscope, automatically performs measurements of each test item, pass/fail judgment, and report generation. You can reduce evaluation time, because measurements are fast and objective regardless of the test operator.

For some test items, an interference signal needs to be superimposed on the test signal. The Keysight 81150A arbitrary waveform generator can be used as the interference signal source. In addition, the Keysight N5395C Ethernet test fixture can be used to superimpose the interference signal. Power spectrum measurement using a spectrum analyzer is defined in the specification. The Keysight X-Series spectrum analyzer can be controlled directly from this software and measurement results are imported into the test report. With the exception of some test items, you can select a differential probe or coaxial cable as a signal input method to the oscilloscope.

It should be noted that BroadR-Reach does not specify a standard connector type. Therefore, the test fixture should be prepared, as necessary.



BroadR-Reach Transmitter Measurement Setup Example



BroadR-Reach Compliance Software

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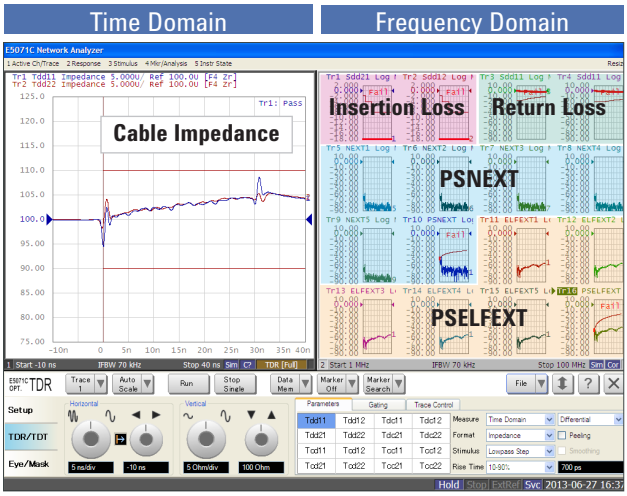
Cable / Connector Evaluation

Traditionally, a TDR oscilloscope was used for time domain measurements and a vector network analyzer for frequency domain measurements. With ENA Option TDR, both the time and frequency domains can be analyzed with a single instrument.

By recalling the necessary setup file, you can easily setup, measure, and perform limit testing for pass/fail judgment.



ENA Option TDR Introduction

Features	Values
Multi-domain analysis	Frequency domain, time domain, and eye diagram analysis is available in a single instrument. By observing both the time and frequency domain response at the same time, deeper signal integrity insight can be obtained.
Simple and intuitive operation	The user interface is designed to provide a similar look-and-feel to traditional TDR oscilloscopes. You can easily measure with equal or greater operability compared to the TDR oscilloscope. Following the Setup Wizard menu, complex measurements can be set up in four simple steps.
Fast and accurate measurements	Due to the low noise architecture, oftentimes averaging is not required as in traditional TDR oscilloscopes. Real-time analysis allows for more efficient troubleshooting of designs.
ESD Robustness	High ESD robustness (up to 3 kV) is achieved through internal protection circuits.
Certified for a variety of high speed digital standards	Certified equipment for USB, HDMI, DisplayPort, SATA, MHL cable/connector compliance test. Method of Implementation (MOI) documents are also available free of charge.

Ordering Information

(*) Please contact your local Keysight sales representative for the detailed configuration.

DSO9104A	Infiniium 9000 Series Oscilloscope
Opt 065	BroadR-Reach Compliance Application

E5071C	ENA Series Network Analyzer
Opt 445	4-port test set, 100 kHz to 4.5 GHz with bias tees
Opt TDR	Enhanced Time Domain Analysis

www.keysight.co.jp/find/BroadR-Reach
www.keysight.co.jp/find/ena-tdr_compliance

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