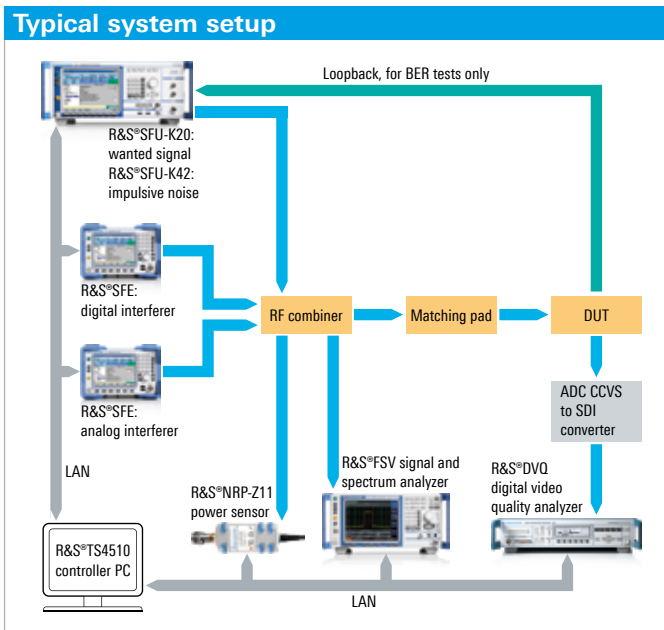


DVB-xx tests of set-top boxes

Wide range of set-top box tests in line with current DVB-xx standards using a variable, future-ready test system



Your requirements

Development and production environments for set-top boxes must be continually adapted to the new DVB-xx standards and new test cases need to be added.

Since existing DVB-xx standards are constantly being expanded and new standards added, these changes must be precisely incorporated in the design and functions of the instruments during their development and production.

T&M solution

The R&S®TS4510 test system allows a wide range of tests in line with various standards. The test cases have a modular structure and can be documented in easy-to-reproduce, editable reports. These reports can be exported to the CSV format for documentation and archiving purposes and easily processed in MS Office programs.

This test system enables users in development or production to test and assess compliance with the various specifications, as well as the DUTs' operability and the RF characteristics. Many different types of measurements, including the bit error rate (BER), are possible. Picture quality can be assessed interactively by the user or automatically by the system.

Due to its modular design, the R&S®TS4510 can keep pace with growing requirements and continually be adapted to new test requirements. In addition, new standards, or those required later, can be easily added with a software update.

The system consists of tried-and-tested T&M instruments from Rohde&Schwarz such as the R&S®SFU signal generator and the R&S®FSV signal and spectrum analyzer. The R&S®TS4510 is installed in a 19" rack with castors, allowing it to be easily moved anywhere it is needed.

The test software used has been developed to meet the highest quality standards and new standards are constantly being added.

Application

Test run and display of measurement results

The test cases are first configured on the connected PC via the graphical user interface. The test run is then controlled and the results are later assessed. Before starting, the desired test cases are selected from the test cases library. The required hardware and the corresponding connections are displayed in a graphical overview. Many different parameters can be set and monitored.

After the test run is completed, the results are displayed in reports which can be saved as well as evaluated and exported in a variety of ways.

Controlling the DUT

After the DUT has been connected to the system, it can be controlled in three different ways:

- The R&S®TS4510 test system is equipped with an adaptive, learning infrared transceiver that can learn and play the DUT commands
- The DUT can be connected via TCP/IP to the R&S®TS4510 test system which translates the commands into commands that can be understood by the DUT
- The DUT can be manually controlled using the on-screen display on the connected TV set

Signal flow

The wanted signal is generated in the R&S®SFU multistandard reference signal generator and routed to a combiner. There, the analog interference signal from the R&S®SFE broadcast signal generator is mixed with the digital interference signal. This interfering signal can also be generated internally in the R&S®SFU. If, instead of the R&S®SFU, an R&S®SFQ is used as the signal source, all other signals must be generated externally, e.g. with a second R&S®SFE.

The sum signal is made available to multiple instruments. The R&S®NRP-Z11 power sensor and the R&S®FSV signal and spectrum analyzer are able to measure this signal to an accuracy of 0.1 dB over a wide frequency range. The signal is also routed to the DUT.

The DUT can be evaluated by measuring either the picture failure or the bit error rate (BER).

- If picture failure is to be measured, the DUT output signal is routed to an R&S®DVQ digital video quality analyzer
- If BER is to be measured, the transport stream is fed back to the R&S®SFU, which must be equipped with the R&S®SFU-K60 option for this purpose

All measuring instruments are connected via LAN to the system control PC, which can be used to set and monitor the configuration of the test cases, the test run and the results.

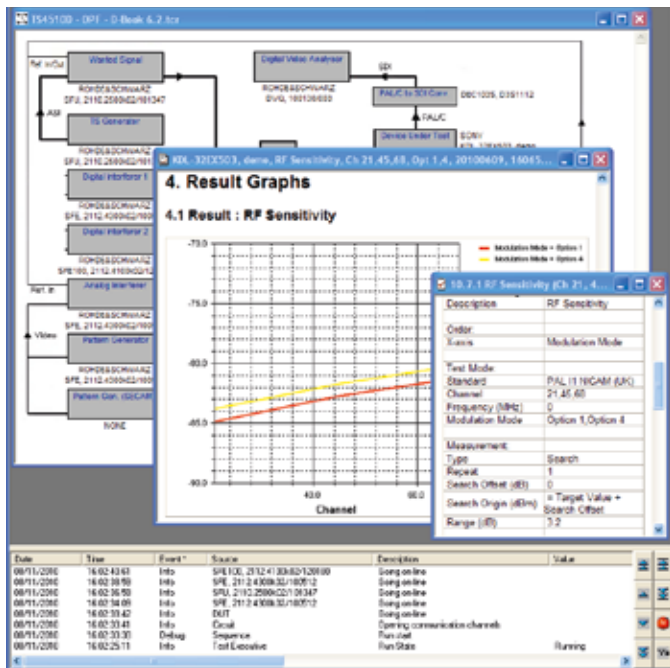
Further information

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Your local Rohde & Schwarz expert will help you determine the optimum solution for your requirements.

To find your nearest Rohde & Schwarz representative, visit www.sales.rohde-schwarz.com

Hardware test setup, signal flow and test results.



Example of test parameters.

10.7.1 RF Sensitivity (Ch 21, 45, 68; Opt 1,2,3,4,5,6,8,9,10).lst	
1.2 Test Settings	
Description	RF Sensitivity
Order	
X-axis	Modulation Mode
Test Mode	
Standard	PAL 11 NICAM (UK)
Channel	21,45,68
Frequency (MHz)	0
Modulation Mode	Option 1,Option 2,Option 3,Option 4,Option 5,Option 6,Option 8,Option 9,Option 10
Measurement:	
Type	Search
Repeat	1
Search Offset (dB)	0
Search Origin (dBm)	= Target Value + Search Offset
Range (dB)	3.2

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