

Dolby® compliance testing

Audio analyzers and test software from Rohde & Schwarz enable Dolby® licensees to subject their new products to the required compliance tests.



Your task

The use of Dolby® technologies is permitted only when licensed by Dolby Laboratories. Every new device must pass a compliance test in line with Dolby Laboratories specifications before it is put on the market. This requirement ensures that the implemented technology, e.g. in a TV set, functions exactly as defined by Dolby®. To make work easier for licensees when developing new devices, Dolby® provides defined test signals and detailed test instructions for compliance tests. These tests are quite extensive and place some demands on the user, since they require close attention to numerous conditions and their interdependencies and because they must be performed exactly in line with the instructions.

Different Dolby® technologies are used, depending on the device type and the application. The test requirements also depend on the device under test (DUT) – TV sets and A/V receivers require different tests. For each application, Dolby® has created packages that help developers to

integrate Dolby® technologies into audio devices. These packages, called system development kits (SDK), also contain all test instructions.

Fast and error free – the Rohde & Schwarz solution

The R&S®UPP audio analyzer and the test programs from Rohde & Schwarz not only make all these tasks considerably easier and more convenient to perform, they also ensure that no errors occur. The programs prompt users to enter the configuration settings and, based on these settings, automatically select the suitable subtests. Under program control, the test signals are played and the measurements performed. While the individual steps are being carried out, a test report is automatically generated and only needs to be sent to Dolby Laboratories.

The first test program Rohde & Schwarz implemented is the one for the Dolby® software development kit (SDK) called “Dolby® Digital Plus Decoder for Consumer Broadcast Products”, the second is for the SDK called “Dolby® MS11 Multistream Decoder System”. Both SDKs are designed for TV sets and set-top boxes.

In a typical test setup for TV sets, the R&S®SFC compact modulator modulates the Dolby® test data streams onto the RF carrier. Since TV standards are different in Europe and the USA, for example, the R&S®SFC compact modulator must be equipped with the appropriate coder options. The streams are fed to the antenna input of the DUT, which demodulates the RF signal and decodes the audio signals.

The R&S®UPP can perform measurements on analog outputs (line out, loudspeakers or headphones) and on the S/P-DIF and HDMI™ audio return channel (ARC) digital interfaces. If the DUT has output lines for coded audio signals (S/P-DIF or HDMI™ with compressed signals in line with IEC 61937), these signals can be decoded for the measurement directly on the R&S®UPP.

It is best to use the R&S®UPP800 with eight channels, because this model can handle all possible interfaces and can measure all analog channels in parallel, even with 7.1 applications. The analyzer needs to be equipped with the options for measurements on digital interfaces.

The audio analyzer's test program guides the user through the entire sequence, and the built-in computer executes the Dolby® test program. Each test step begins with a window telling the user how to configure the DUT, which connections need to be made and what to do next.

Now the required test case can be started. It often comprises a series of individual tests for which different test data streams are used. Users do not have to bother with all these details; the R&S®UPP audio analyzer and R&S®SFC compact modulator play the right test signals, and the measurements are performed exactly in line with Dolby® specifications. This avoids errors in the test sequence, and the entire test procedure takes much less time than with the manual method used in the past.

In the Internet-enabled tests, test signals are fed to the DUT's USB interface, simulating modern TV sets' capability to receive films via the Internet. Unlike the tests described above, the test signals must be read manually from an external hard disk via the DUT. The program guides users also through these tests and tells them which Dolby® test data stream to play.

In addition, listening tests are defined in which, for example, channel assignment is checked. Here, too, the R&S®UPP audio analyzer's test program guides the user through the entire test sequence. Once all test steps are completed, the test report merely needs to be sent to Dolby Laboratories.

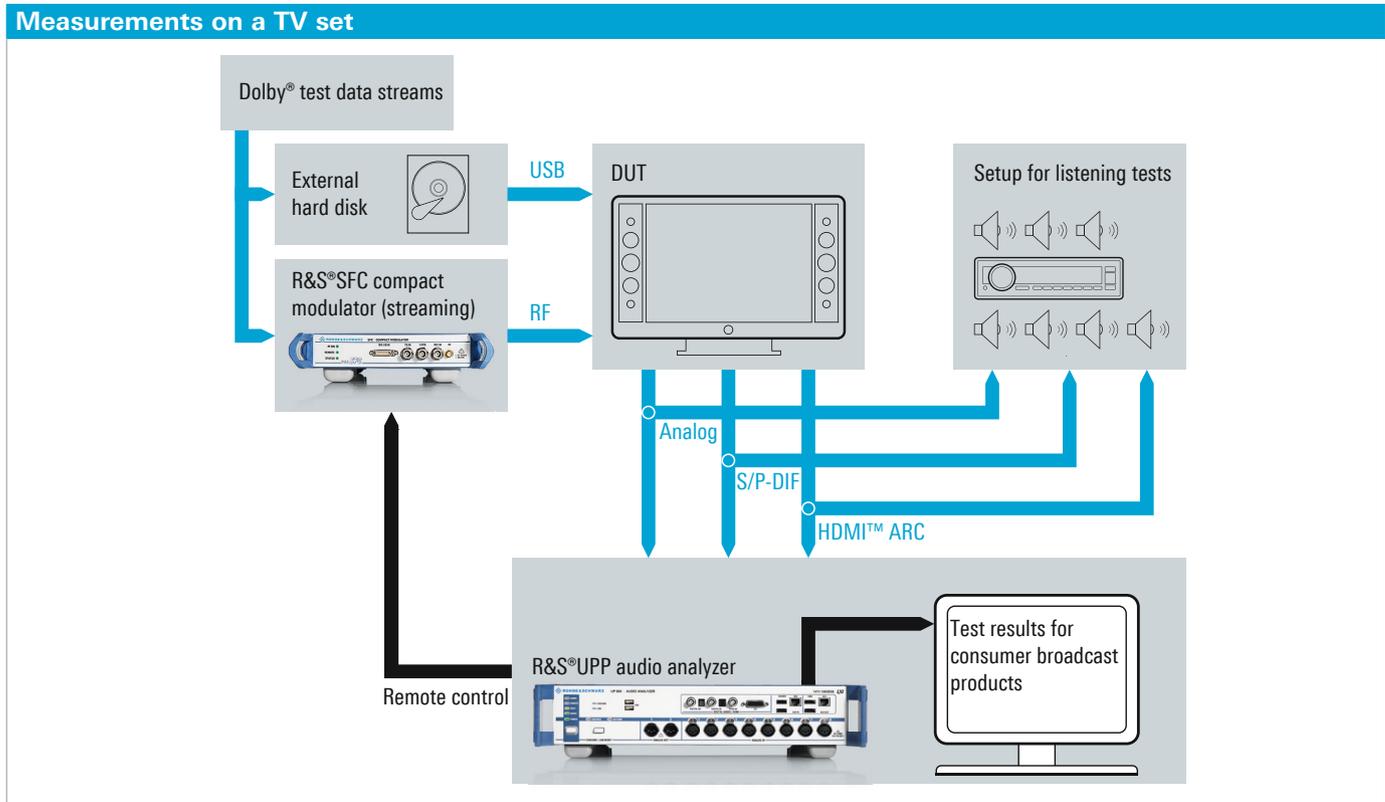
Summary

The Rohde & Schwarz test program makes compliance testing easier for Dolby Laboratories licensees. It automates the required tests and helps save time because users no longer have to work through the extensive instructions. The program guides users through the entire test and prevents relevant DUT information from being omitted. The test report is generated automatically.

See also

www.rohde-schwarz.com/product/UPP

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