

In brief

R&S®CLG cable load generator — a one-box instrument for simulating up to 160 analog and digital cable TV signals

Analog and digital channels are still used together in cable TV networks. In the past, engineers and technicians needed multiple signal generators to simulate such a mixed-signal network in the lab. But now, manufacturers of cable TV electronic equipment need just one instrument for development and certification: the R&S®CLG cable load generator.

The R&S®CLG from Rohde&Schwarz is the first instrument on the market to simulate a cable TV network with all channels fully loaded with analog and digital TV signals. Although this compact instrument is only 19" wide and one HU high, it replaces the entire rack of signal generators commonly used in test systems.

The instrument has a frequency range from 47 MHz to 1002 MHz and can generate up to 160 freely combinable analog and digital signals. It is capable of simulating a US cable TV network with 158 channels and a European network with up to 119 channels. Manufacturers of cable TV tuners and set-top boxes now need only the R&S®CLG to test their products during development under the same conditions as in real-world cable TV networks. Many certification tests can also be performed with this instrument.

Fully modulated digital cable channels contain either video / audio content or a pseudo random bit sequence (PRBS) per channel. The analog channels carry test patterns and test tones. The R&S®CLG supports the J.83/B, DVB-C and ISDB-T digital standards and the PAL and NTSC analog standards.

Receiver tests in line with ANSI/SCTE 40 can also be performed. ANSI/SCTE 40 requires that TV receivers function properly even when all channels in a cable network are fully loaded and interference is present. The R&S®CLG simulates the AC supply frequency (AC hum) that often occurs in cable TV and which is manifested as superimposed amplitude modulation. In addition to full channel loading, the R&S®CLG also generates adjacent channel signals and a discrete CW interference signal for ANSI/SCTE 40 compliant tests. It can also generate CW signals and perform composite second order / composite triple beat (CSO / CTB) measurements to check the linearity of broadband CATV amplifiers.

The signal level and frequency can be separately set for each channel in order to simulate a cable TV network with full channel loading. To do this, it is not necessary to set the amplitude of each channel individually: The R&S®CLG allows the user to define a tilt across the entire spectrum, and it sets the individual channels to the corresponding levels.

The R&S®CLG can be operated using a PC and a web GUI, which makes it easy to configure complex test scenarios. In addition, it can be remote controlled using SCPI commands or SNMP, making it ideal for integration into automated test systems.

For more information, visit www.rohde-schwarz.com (search term: CLG)

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