R&S®EFL240/R&S®EFL340
Portable TV Test Receiver
Professional installation of cable and satellite TV systems and antennas

R&S®EFL240/ R&S®EFL340 Portable TV Test Receiver

At a glance

The R&S®EFL240/R&S®EFL340 is a compact, portable TV test receiver for satellite, cable and terrestrial television. Its versatile measurement functions and its operating convenience are ideal for the installation of cable TV systems, satellite receiver systems, in-building distribution systems and antennas. Its favorable price makes the test receiver extremely attractive for these applications.

The R&S®EFL240 and the R&S®EFL340 support all critical measurements on QAM cable TV signals, QPSK/8PSK satellite TV signals and terrestrial OFDM signals, and the R&S®EFL340 can even measure DVB-T2 signals. These measurements include MER, BER and constellation diagram as well as channel impulse response and MER(f)

for OFDM signals. The R&S®EFL240/R&S®EFL340 also analyzes the received transport stream and displays NID, PID, SID, service names and service profiles. The test receiver decodes the audio and video services (SD and HD) and outputs them via the color display and the built-in loudspeaker. The Common Interface makes this possible even for encrypted programs. In addition, the R&S®EFL240/ R&S®EFL340 is able to analyze analog TV and FM sound broadcasting. The built-in spectrum analyzer measures up to 2500 MHz.

Measurements during the installation of cable and satellite systems must be fast and simple. The R&S®EFL240/ R&S®EFL340 supports these measurements in various ways: Its clear-cut ergonomic keypad allows intuitive operation. The Scan & Log function and the Macro Measurement function largely automate frequent measurement tasks. Pre-installed channel tables and transponder lists save the user valuable time when entering parameters.

The R&S®EFL240/R&S®EFL340 has been optimized for mobile use. It is compact, lightweight and robust, and its lithium-ion battery supplies power for more than four hours of operation. The test receiver and its wide range of accessories come in a carrying bag.

Key facts
▪ Frequency range from 5 MHz to 2500 MHz
▪ MPEG-2 and MPEG-4 decoding
▪ Common Interface for encrypted programs
▪ 5.7" TFT color display for SD and HD video output
▪ Battery operation > 4 hours

R&S®EFL240/ R&S®EFL340 Portable TV Test Receiver

Benefits and key features

Extensive measurement functions for cable, satellite and antenna

▍ Multistandard test receiver
  ▪ Analysis of DVB-T2, DVB-T, DVB-H, DVB-C, DVB-S and DVB-S2
  ▪ Measurement of constellation, MER(f) and echoes
▍ MPEG decoding and video output
  ▪ MPEG-2 and MPEG-4
  ▪ SD and HD
  ▪ Transport stream input and output via ASI
▍ Analog TV and FM sound broadcasting
  ▪ PAL, SECAM and NTSC
  ▪ Videoscope functionality
  ▪ RDS decoder
▍ Spectrum measurement with zoom function and Combo mode
  ▪ Spectrum analysis up to 2500 MHz
  ▪ Spectrum, results and TV picture – all at a glance
▷ page 4

Optimized operating concept for mobile use

▍ Ergonomic design and easy operation
▍ Independent work in the field
▍ Automated measurements simplify routine work
  ▪ Automatic program search
  ▪ User-defined measurement sequences
  ▪ R&S®EFL-Suite software for transferring measurement results to a PC
  ▪ Remote operation via LAN
▷ page 5
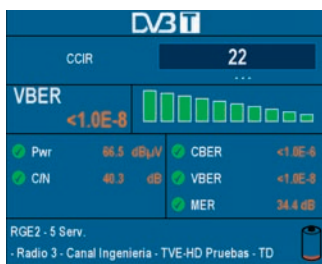
Model overview		
Measurements	**R&S®EFL240**	**R&S®EFL340**
DVB-T, DVB-H, DVB-C, DVB-S, DVB-S2	●	●
DVB-T2	–	●
Analog TV and FM sound broadcasting	●	●
MPEG-2/MPEG-4 decoding	●	●
Transport stream input/output via ASI	–	●
Remote operation via LAN	–	●

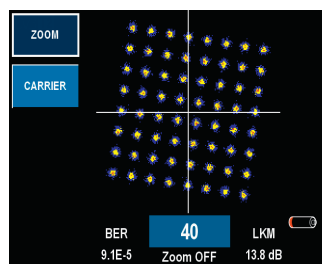# Extensive measurement functions for cable, satellite and antenna

Multistandard test receiver

The R&S®EFL240 and the R&S®EFL340 analyze signals for DVB-T, DVB-H, DVB-C, DVB-S, DVB-S2, analog TV and FM sound broadcasting, and the R&S®EFL340 also handles DVB-T2 signals. The test receiver measures level, MER, CBER, VBER and C/N and outputs a user-defined quality indicator for each parameter. As a result, the user gets a quick overview of signal quality. The constellation diagram as well as the graphical display of the MER for the individual OFDM carriers and of the channel impulse response allow a detailed analysis. A special feature is the measurement of the pulse delay profile (PDP). This enhanced channel impulse response also shows echoes outside the guard interval up to the duration of an OFDM symbol. The R&S®EFL240/R&S®EFL340 measures the PDP even when signal quality is so poor that the signal cannot be decoded.
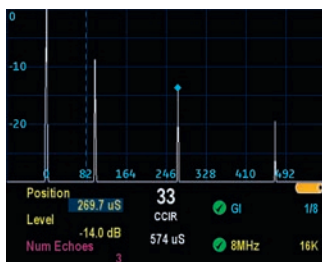
MPEG decoding and video output

The easiest way to check the quality of a TV signal is to control the audio and video content. The R&S®EFL240/ R&S®EFL340 outputs crystal-clear SD and HD videos on its 5.7" TFT color display – even for encrypted programs thanks to the Common Interface. Audio is output via the test receiver's built-in loudspeaker. The display includes NID, PID, SID, service names and service profiles. The R&S®EFL240 and the R&S®EFL340 decode MPEG-2 and MPEG-4.
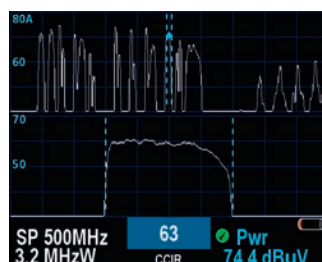
Analog TV and FM sound broadcasting

For analyzing analog TV signals, the R&S®EFL240/ R&S®EFL340 features a videoscope function, level, V/A and C/N measurement, as well as video and audio output for PAL (B/G, D/K, I, M), SECAM (B/G, D/K, L) and NTSC. The R&S®EFL240/R&S®EFL340 measures the level of FM sound broadcast signals and demodulates the audio signal.
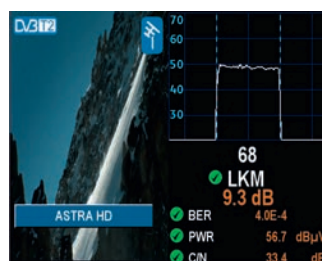
Spectrum measurement with zoom function and Combo mode

The R&S®EFL240/R&S®EFL340 includes a spectrum analyzer for the frequency range from 5 MHz to 2500 MHz. If necessary, the zoom function can be used to expand a subrange of the measured spectrum and to display it in a second trace. In cable TV applications, for example, it is possible to display the entire received spectrum with all channels and to simultaneously measure the spectrum of an individual channel in detail. The unique Combo mode presents the three main operating modes (i.e. TV signal analysis, spectrum analysis and video output) on the screen simultaneously. This means that the user can see all important information at a single glance.

Measurements for digital TV.

Constellation diagram.

Channel impulse response.

MER of OFDM carriers.

Videoscope for analog TV.

Spectrum analyzer with zoom.

Enhanced service information.

Combo mode display.

Optimized operating concept for mobile use

Ergonomically arranged keys for intuitive operation.

Ergonomic design and easy operation

The R&S®EFL240/R&S®EFL340 is compact and lightweight. Two carrying straps for shoulder and hip allow safe operation in any position. The keys are arranged ergonomically, and the design allows the instrument to be operated with two fingers. All main functions can be directly selected by pressing the appropriate function key. To enhance reliability, the R&S®EFL240/R&S®EFL340 has no mechanical rotary knob. Users can nevertheless "tune" the receive channel in the usual manner: A round key with arrows on the membrane keypad simulates the classic rotary knob.

Independent work in the field

The large, easily readable color display and the rain cover [1] facilitate outdoor work. A battery operating time of over four hours means that the user is not dependent on battery charger or AC supply. The R&S®EFL240/R&S®EFL340 and all accessories can be stowed in a carrying bag.

Automated measurements simplify routine work

The R&S®EFL240/R&S®EFL340 offers various functions for rapidly storing measurement results and instrument settings and can automatically run entire measurement sequences. The Instant Log function saves the current measurement results as data or graphics. The Scan&Log function performs a complete program search and stores the level, C/N and BER for each program that is found. This feature makes it possible to test an in-building cable and satellite distribution system at the press of a key. The Macro Measurement function defines various measurements that the instrument will then carry out automatically one after the other – either only once or multiple times at user-defined intervals. The results are written to a log file. For documentation and processing, the measurement results can be transferred to a PC using the R&S®EFL-Suite software supplied with the test receiver.

[1] Optional accessory.

Transfer of measurement results to a PC using R&S®EFL-Suite.

Specifications

Specifications		
RF parameters		
Frequency ranges	spectrum analysis	5 MHz to 2500 MHz
	FM sound broadcasting	88 MHz to 108 MHz
	terrestrial and cable TV	5 MHz to 1500 MHz
	satellite	950 MHz to 2200 MHz
Dynamic range	terrestrial standards and cable standards	60 dB
	satellite standards	55 dB
Level range	digital and analog TV	15 dBμV to 130 dBμV
Digital TV		
Measurements	DVB-T2 [1]	level, link margin, MER, MER(f), LDPCBER, BCHBER, C/N, constellation, uncorrected packets, echoes, PDP
	DVB-T, DVB-H	level, MER, MER(f), CBER, VBER, C/N, constellation, uncorrected packets, echoes, PDP
	DVB-C	level, MER, CBER, C/N, constellation, uncorrected packets
	DVB-S	level, MER, CBER, VBER, C/N, uncorrected packets
	DVB-S2	level, link margin, MER, CBER, BCHBER, C/N, constellation, uncorrected packets, multistream, physical layer scrambling (PLS)
MPEG analysis	parameter display	NID, video/audio PID, SID, SI, LCN
Video and audio output	video	MPEG-2, MPEG-4, SD, HD (1080p)
	audio	MPEG-1 L2, Dolby, AC3, AAC, DD+
Conditional access		Common Interface for MPEG-2 and MPEG-4
Analog TV		
Measurements		level, V/A, C/N, videoscope, sync pulse
Video and audio output		PAL (B/G, D/K, I, M), SECAM (B/G, D/K, L), NTSC, teletext
Spectrum analyzer		
Span		5 MHz to 2500 MHz
Resolution bandwidth		300 Hz to 6.4 MHz
Sweep time		< 10 ms
Enhanced functions		max./min. hold, zoom, marker, trigger
Interfaces		
RF input		75 Ω
Transport stream input/output [1]		ASI
Memory and PC		SD, USB
Video input/output		HDMI (output only), SCART (input/output)
LNB supply and control	DC via RF socket	5 V, 13 V, 18 V, 24 V, extra burst of 14 V and 19.5 V, 22 kHz tone, DiSEqC, SCR
Remote operation [1]		Ethernet LAN
General data		
Temperature loading		0 °C to +40 °C
Relative humidity		max. 80 % up to +31 °C, linearly decreasing to 50 % at +40 °C
Power consumption		max. 42 W
Display		5.7" TFT
Dimensions	W × H × D	302 mm × 148 mm × 120 mm (11.89 in × 5.83 in × 4.72 in)
Weight	with battery	2.48 kg (5.47 lb)

[1] R&S®EFL340 only.

Ordering information

Designation	Type	Order No.
Base unit		
Portable TV Test Receiver	R&S®EFL240	2116.8980.02
Portable TV Test Receiver	R&S®EFL340	2116.9070.03
Accessories supplied		
Carrying bag, two carrying straps, rechargeable battery, power cable, battery charger, 12 V car adapter, RF adapter set, SD card, USB cable, software and operating manual on CD		
External accessory		
Rain Cover	R&S®EFL-Z1	2116.9087.00
VHF/UHF Directional Antenna	R&S®EFL-Z100	2116.9158.02

Service options		
Extended Warranty, one year	R&S®WE1EFL	Please contact your local Rohde & Schwarz sales office.
Extended Warranty, two years	R&S®WE2EFL	
Extended Warranty, three years	R&S®WE3EFL	
Extended Warranty, four years	R&S®WE4EFL	
Extended Warranty with Calibration Coverage, one year	R&S®CW1EFL	
Extended Warranty with Calibration Coverage, two years	R&S®CW2EFL	
Extended Warranty with Calibration Coverage, three years	R&S®CW3EFL	
Extended Warranty with Calibration Coverage, four years	R&S®CW4EFL	

The R&S®EFL240/R&S®EFL340 comes with a wide range of accessories.

About Rohde & Schwarz

Rohde & Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications. Established more than 75 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

Environmental commitment
ı Energy-efficient products
ı Continuous improvement in environmental sustainability
ı ISO 14001-certified environmental management system

Certified Quality System
ISO 9001

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