

SATELLITE GROUND STATION TESTING UP TO 44 GHz WITH THE R&S® SPECTRUM RIDER FPH HANDHELD SPECTRUM ANALYZER



Your task

Ground stations are essential in satellite communications networks and feature a large amount of RF components, such as antennas, cables, amplifiers, filters and up/down-converters. Regular maintenance testing of these components is important to:

- ▶ Ensure a reliable communications link with the satellites in orbit
- ▶ Prevent failures and maximize the life of the components
- ▶ Comply with the frequency use regulations and eliminate interference

Rohde & Schwarz solution

With the R&S® Spectrum Rider FPH handheld spectrum analyzer, field engineers can verify satellite ground station components up to 44 GHz such as:

- ▶ Block upconverters (BUC)
- ▶ Low-noise block (LNB) downconverters
- ▶ Feed cable signals between BUC and LNB
- ▶ Bandpass and lowpass filters

Application

Integrated signal source for component characterization

To measure the frequency response of filters, amplifiers, attenuators and antennas, the R&S® Spectrum Rider FPH can be equipped with a tracking generator. Its frequency ranges from 30 kHz to 44 GHz. This generator can be used as an independent CW source or coupled to a frequency of interest or to the spectrum analyzer's frequency.

Spectrum measurements and interference hunting

The R&S® Spectrum Rider FPH offers preconfigured RF measurements to enable a swift interpretation of the spectrum and conduct spectrum clearance and survey measurements. It can also be used to help locate interference sources. For this purpose, it can be equipped with additional interference analysis and signal strength mapping applications.

Handheld directional antennas

Rohde & Schwarz provides several handheld directional antennas to conduct measurements in various frequency bands up to millimeterwave.

The R&S® HE800-PA is a handheld directional antenna with an integrated low-noise preamplifier that covers the frequency range from 18 GHz to 44 GHz and supports the K band.



R&S® Spectrum Rider FPH with
R&S® HE800-PA handheld directional antenna

Application Card | Version 01.00

ROHDE & SCHWARZ

Make ideas real



The R&S®HE400 is a handheld directional antenna family with wide dynamic range, an embedded GNSS receiver and an electronic compass. The antenna features exchangeable frequency modules up to 20 GHz to support the L, S, C, X and Ku frequency bands.

Precise power with and without a power sensor

The R&S®Spectrum Rider FPH can be used as a power meter to conduct precise power measurements on ground station feeder cables, achieving a level measurement accuracy of 0.3 dB without the need for a power sensor. When combined with R&S®NRPxxP power sensors, the accuracy is even higher.



Power measurements with R&S®Spectrum Rider FPH and R&S®NRP-Z81 (now replaced by R&S®NRP18P)

Excellent in the field

The R&S®Spectrum Rider FPH is designed for both field and lab applications in indoor and outdoor environments.

Due to its fanless design, the analyzer operates noise free and is clean and reliable, since no dust or water can enter through the vent guard.

The battery lasts an entire working day. Its light weight, small form factor and ruggedness make the analyzer easy to carry.

The R&S®Spectrum Rider FPH and its accessories can be stored in a soft or a hard case for easy transportation.



R&S®HA-Z321 hard case

Designation	Type	Order No.
Handheld spectrum analyzer, 5 kHz to 2 GHz	R&S®Spectrum Rider FPH	1321.1111.02
Handheld spectrum analyzer, 5 kHz to 6 GHz	R&S®Spectrum Rider FPH	1321.1111.06
Handheld spectrum analyzer, 5 kHz to 13.6 GHz	R&S®Spectrum Rider FPH	1321.1111.13
Handheld spectrum analyzer, 5 kHz to 26.5 GHz	R&S®Spectrum Rider FPH	1321.1111.26
Handheld spectrum analyzer, 5 kHz to 44 GHz	R&S®Spectrum Rider FPH	1321.1711.44
Handheld spectrum analyzer, 5 kHz to 13.6 GHz, with tracking generator	R&S®Spectrum Rider FPH	1321.1711.23
Handheld spectrum analyzer, 5 kHz to 26.5 GHz, with tracking generator	R&S®Spectrum Rider FPH	1321.1711.36
Handheld spectrum analyzer, 5 kHz to 44 GHz, with tracking generator	R&S®Spectrum Rider FPH	1321.1711.54

Accessories supplied

Lithium-ion battery pack, USB cable, AC power supply with country-specific adapters for EU, UK, US, AUS, CH, documentation, quick start guide, side strap