R&S®PR200
PORTABLE MONITORING RECEIVER

High-performance spectrum monitoring and direction finding in a handheld format

Product Brochure
Version 11.00

ROHDE&SCHWARZ
Make ideas real

AT A GLANCE

The R&S®PR200 portable monitoring receiver is engineered to effectively support your spectrum monitoring, interference hunting and site testing tasks. It reliably detects, analyzes and locates signals from 8 kHz to 8 GHz. Optimized for field operations, it provides a perfect balance between RF performance and operability, and offers a wide range of measurement functions also suitable for complex signals such as 5G signals.

The R&S®PR200 portable monitoring receiver with up to 40 MHz real-time bandwidth covers the frequency range from 8 kHz to 8 GHz. This range can be extended up to 20 GHz with the R&S®HE400DC handheld directional antenna and from 18 GHz to 33 GHz with the R&S®HE800-DC30 handheld directional antenna both with an integrated downconverter. The R&S®PR200 offers a perfect balance between RF performance, speed, usability and size, weight and power (SWaP) to handle typical tasks in every mobile spectrum monitoring, spectrum clearance, interference hunting and site testing mission in indoor and outdoor environments.

Apart from the polychrome spectrum display and fast spectral overviews with scan speeds of up to 60 GHz/s, the R&S®PR200 features analog demodulation and versatile signal measurements, including level measurements, field strength measurements and ITU-compliant modulation parameter measurements. The R&S®PR200 also provides time domain analysis with simultaneous signal representation in the frequency and time domains. The gated spectrum application can even uncover hard-to-detect interference signals by computing the real-time spectrum only within an adjustable time gate when matched to particular time slots in time division multiplexing networks.

For evaluation and analysis, the R&S®PR200 offers comprehensive visualization modes, a wide range of markers and signal measurement functions, extensive mapping features, I/Q data streaming, a history mode, audio and trace recording as well as LAN remote control for later replay and documentation.

In addition to manual homing direction finding with R&S®HE400 or R&S®HE800 handheld directional antennas, the R&S®PR200 equipped with compact R&S®ADDx07 DF antennas can be upgraded to perform highly accurate angle of arrival (AoA) based direction finding from 20 MHz to 6 GHz. The high timestamp accuracy thanks to the internal GNSS module enables operation in a network of multiple receivers to perform precise time difference of arrival (TDOA) radiolocation.

The R&S®PR200 has an innovative application based user interface to quickly switch between measurement tasks, enabling signals of interest to be detected, analyzed and located in the shortest possible time. Thanks to its powerful feature set, low weight of 3.5 kg (with battery) and its battery life of over 3.5 h, the R&S®PR200 is one of the most sophisticated and easy-to-operate instruments for on-site spectrum monitoring and interference hunting.

KEY FACTS

- Detect, analyze and locate RF signals from 8 kHz to 8 GHz; extendable up to 20 GHz with the R&S®HE400DC handheld directional antenna and from 18 GHz to 33 GHz with the R&S®HE800-DC30 handheld directional antenna both with an integrated downconverter
- Extensive preselection filtering and automatic overload protection
- High-speed panorama scanning with up to 60 GHz/s over the entire frequency range
- Simultaneous measurements in the frequency and time domain with time-gated spectrum calculation
- Accurate AoA based direction finding from 20 MHz to 6 GHz with compact Rohde&Schwarz DF antennas
- Optimized for demanding field operation with minimal size, weight and power consumption
- Innovative application based user interface for convenient, simple and intuitive operation

TYPICAL APPLICATIONS

Spectrum monitoring in the field

Spectrum monitoring helps detect and locate unknown interference signals, verify compliance with licenses, regulations and communications standards and facilitates network management. The R&S®PR200 is designed to perform these tasks during mobile operation in both indoor and outdoor environments. The wideband operation with gapless 40 MHz real-time processing, various spectrum scan modes and powerful measurement toolset including polychrome spectrum, time domain analysis, direction finding and ITU-compliant measurements enable efficient and convenient spectrum monitoring sessions in the field.

Interference hunting

With the rapid increase in wireless transmission devices in urban areas, a growing number of unwanted interference signals can disrupt the communications link quality. Mitigating these interferers is crucial to proper spectrum use. The R&S®PR200 is ideal for quickly detecting, analyzing and locating interferers in indoor and outdoor operations. Thanks to its real-time operation, polychrome spectrum and time domain analysis with time-gated spectrum function, even hard-to-detect interference can be spotted reliably. Once found, interferers can be located with manual homing and direction finding, automatic AoA based direction finding or from a moving vehicle in combination with the PC based R&S®MobileLocator software.

Many other applications

The R&S®PR200 is a powerful instrument for many other applications that require flexibility and mobility. Whether performing on-site signal measurements in the frequency and time domains to ensure proper network performance, online signal analysis in combination with PC based signal analysis software in communication intelligence (COMINT) applications or detecting and locating miniature transmitters indoors with a differential spectrum, the R&S®PR200 is a compact, battery-operated and easy-to-operate solution.

Reliable outdoor spectrum monitoring with the R&S®PR200.

Manual homing direction finding with the R&S®PR200 and the R&S®HE400.

HIGH-PERFORMANCE MONITORING WITH FAST SPECTRAL SCANS

Monitoring and direction finding over wide frequency ranges

The R&S®PR200 has a 40 MHz real-time bandwidth and covers the monitoring frequency range from 8 kHz to 8 GHz, which can be extended up to 20 GHz with the R&S®HE400DC handheld directional antenna and from 18 GHz to 33 GHz with the R&S®HE800-DC30 handheld directional antenna both with an integrated downconverter, which is completely controlled by the R&S®PR200. When upgraded with the R&S®CS-DF option, the R&S®PR200 can perform angle of arrival (AoA) direction finding from 20 MHz to 6 GHz.

Automatic adaptation to unknown signal environments

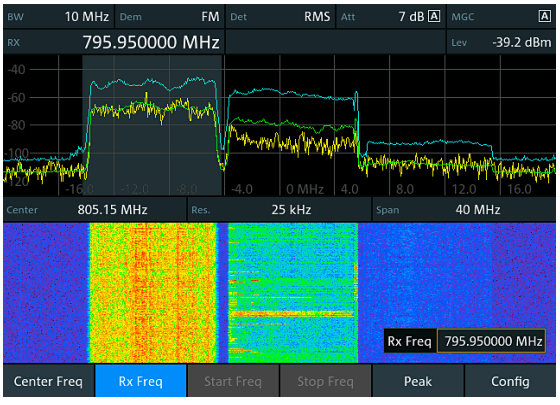
In contrast to spectrum analyzers, the R&S®PR200 is designed for operation on wideband antennas and features extensive preselection filtering to reduce signal load and protect against intermodulation from strong out-of-band signals. The R&S®PR200 also has an attenuator that can be operated manually or automatically. The automatic insertion of attenuation helps alleviate overload conditions in the receiver, which is essential when operating the instrument in unknown, dynamic or changing signal environments. Thanks to various preamplifier gain settings, the R&S®PR200 offers the sensitivity needed to reliably detect weak signals.

Efficient and intuitive spectrum monitoring

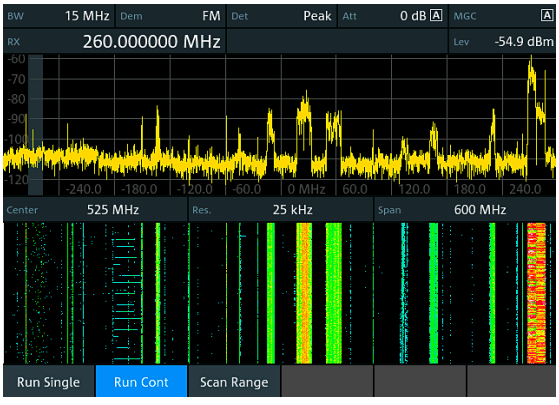
The R&S®PR200 provides a quick spectral overview with its well-organized spectrum and waterfall display. With up to three configurable spectrum traces and selectable resolution bandwidths, no signal goes unnoticed. Easily accessible marker sets and mathematical trace functions enable fast spectrum measurements and comparisons.

Fast spectral scans with dedicated scan modes

Whether the operational focus is on detecting unknown signals over wide frequency ranges or monitoring known communications channels, the R&S®PR200 offers various dedicated scan modes for every task. While the R&S®CS-PS panorama scan option provides a fast spectral overview with adjustable frequency resolution and speeds of up to 60 GHz/s, frequency scan (FSCAN) and memory scan (MSCAN) modes can scan through equispaced or distinct communications channels at up to 2000 channels/s. Configurable squelch levels and dwell times enable demodulation and listening into active channels while scanning.



40 MHz real-time bandwidth with an adjustable demodulation bandwidth (gray) and up to three configurable spectrum traces.



Fast spectral scan (panorama scan) with waterfall display across wide frequency ranges.

SEPARATE SPECTRUM AND DEMODULATION PATHS

Two digital receive paths for individual tasks

The R&S®PR200 features two parallel digital receive paths with up to 40 MHz bandwidth each. The real-time spectrum path enables fast detection and maximum scan speed, while the demodulation and measurement path enables accurate and intuitive measurements of signal parameters. This digital signal processing architecture enables many tasks such as spectral measurements and demodulation or time domain analysis to be performed simultaneously.

Wideband spectrum display during demodulation and measurement

During measurement, demodulation or content extraction of detected signals spectral situational awareness is typically compromised. The two parallel digital receive paths of the R&S®PR200 allow placement of a narrowband demodulation channel anywhere within the real-time bandwidth while maintaining a wideband overview of the real-time spectrum, tremendously reducing reaction times on emerging higher priority spectral events.

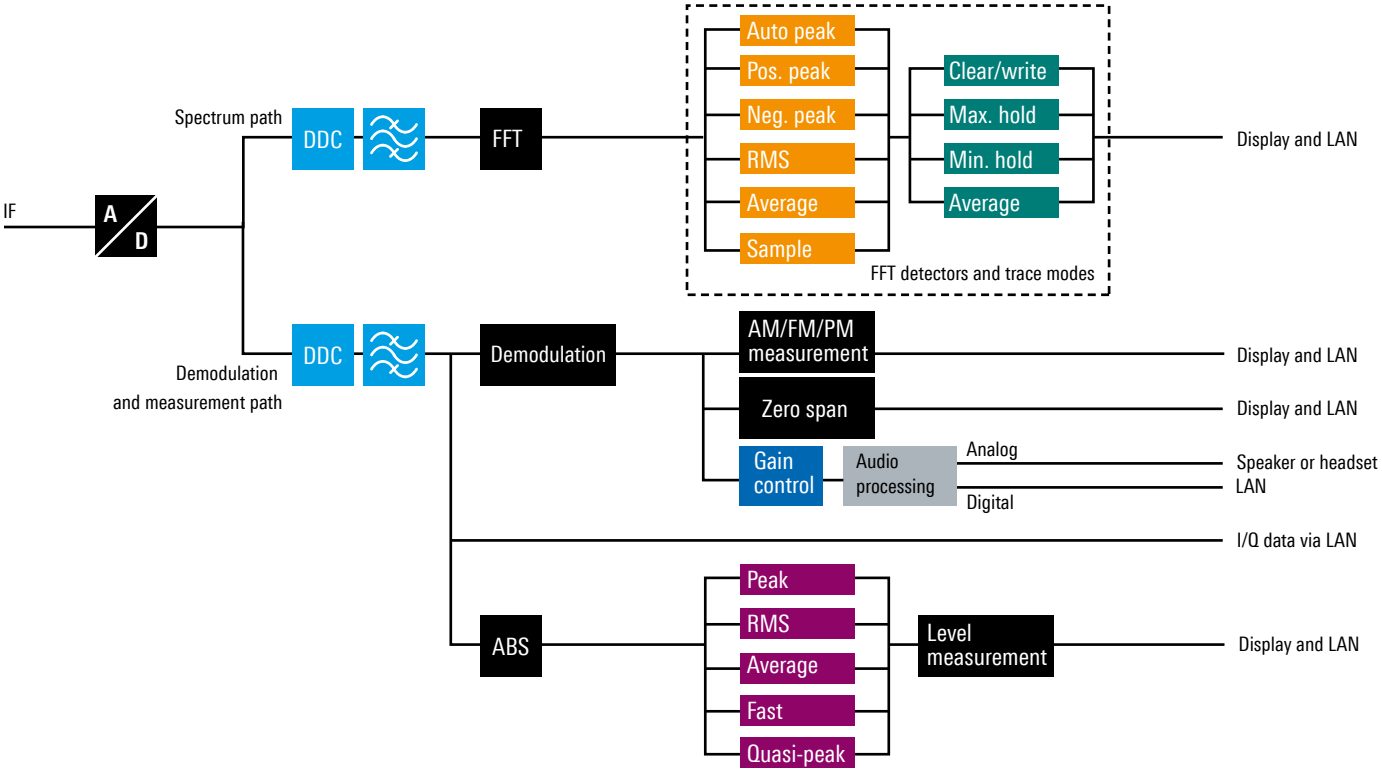
Detection and monitoring in real time

The R&S®PR200 provides operation in real time for the spectrum display thanks to fast Fourier transform (FFT) signal processing with 50 % overlap implemented on a powerful FPGA. The R&S®PR200 can detect signals as short as 0.75 µs with 100 % probability of intercept (POI) while maintaining full amplitude accuracy. Various FFT detectors and spectrum trace modes help focus on detecting specific signal types. The waterfall display with a built-in history buffer and time resolution of up to 100 µs per line makes it possible to analyze short-time signals in great detail.

Signal measurements and demodulation

The demodulation and measurement path offers a wide array of functions for every task. In addition to accurate level measurements with several detectors, built-in analog demodulation including AM, FM and PM demodulators provide continuous and gain controlled audio output. Optional modulation measurements and time domain analysis complete the toolset. A seamless I/Q data stream is available for digital signal analysis in combination with PC based signal analysis software.

Simplified diagram of digital signal processing in the R&S®PR200



MANUAL DIRECTION FINDING

Manual homing direction finding

With the R&S®PR200 connected to the R&S®HE400 handheld directional antenna, continuous unwanted emissions up to 8 GHz can be detected and manually located based on the received signal level in indoor and outdoor operation. The R&S®HE400DC and the R&S®HE800-DC30 handheld directional antennas with an integrated downconverter can be used for interference hunting up to 20 GHz and from 18 GHz to 33 GHz. The built-in tone function also emits a tone with a varying pitch or pulse rate representing the received signal level that is then transmitted to the built-in speaker or a headset to aid in the homing operation.

Mobile app for convenient homing

The R&S®PR200 mobile app for iOS or Android smartphones helps simplify homing operations and allows users to focus on the task at hand. A smartphone running the R&S®PR200 mobile app can be easily mounted on the antenna handle with a commercial, off-the-shelf mobile phone holder. The app provides a spectrum view with various settings to control the R&S®PR200 with wireless LAN. A wireless connection can be set up between the receivers USB port and the mobile phone using an external Wi-Fi router.

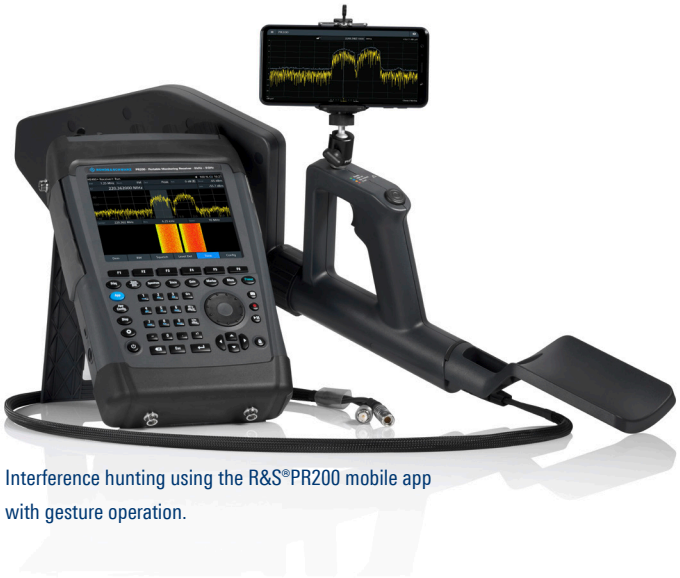
R&S®HE800-DC30 handheld directional antenna with an integrated downconverter.

Triangulation based on manual DF results

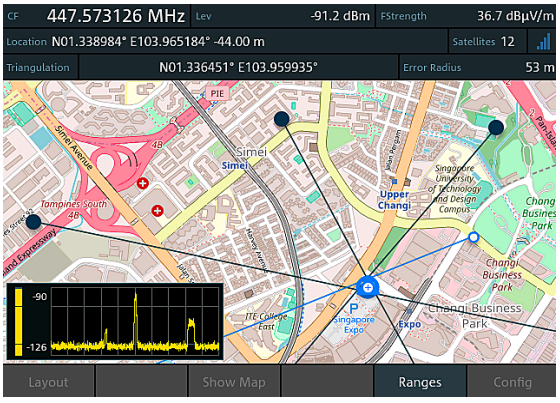
The R&S®CS-MAP mapping option provides the R&S®PR200 with an integrated map display for localizing signals of interest. Once several DF results and positions have been recorded from the internal GNSS module, automatic triangulation determines the location of the interferer. All map applications include a convenient integrated spectral display, allowing users to keep track of signals during signal hunting and homing operations. OpenStreetMap (OSM) maps can be easily downloaded with the OSM wizard and transferred to the receiver via SD card, USB stick or the remote control PC drive.

Horizontal scan

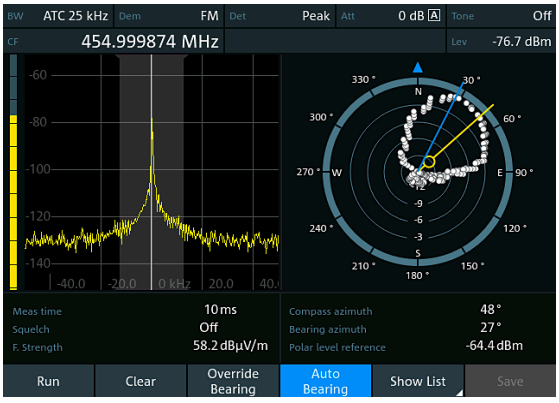
The horizontal scan (HSCAN) function as part of the R&S®CS-MAP option plots the level of the signal received via the directional antenna on a polar diagram. It helps users easily determine the point of highest signal strength and its direction.



Interference hunting using the R&S®PR200 mobile app with gesture operation.



Triangulation based on multiple DF results recorded at several locations.



Horizontal scan plot on a polar diagram visualizes the direction of the incoming signal.

AUTOMATIC DIRECTION FINDING AND RADIOLOCATION

Accurate AoA direction finding

The R&S®CS-DF direction finding option and the connected R&S®ADDx07 compact DF antennas upgrade the R&S®PR200 to a portable and easy-to-operate angle-of-arrival (AoA) based direction finder from 20 MHz to 6 GHz. Fast and highly accurate DF results for a selected signal within the real-time bandwidth are displayed in a polar diagram. Depending on the selected DF antennas and frequency bands, the R&S®PR200 based DF system can offer a typical system DF accuracy of 1° to 3° (RMS) thanks to the correlative interferometer method. Whether operated as a transportable DF system or installed in a commercial vehicle, it can handle virtually all types of interferers, irrespective of bandwidth and modulation type.

Wideband direction finding

The R&S®CS-DF direction finding option enables wideband direction finding with up to 40 MHz real-time bandwidth. Simultaneous DF results for all signals within the real-time bandwidth can be displayed in an azimuth vs. frequency diagram. Changes in azimuth of moving transmitters can be tracked over time via a color-coded DF waterfall display.

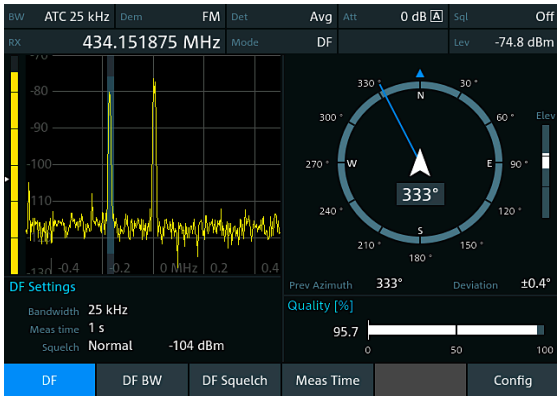
Triangulation of sporadic interferers

To locate sporadic interferers or public mobile radio emissions, a network of multiple transportable DF stations based on the R&S®PR200 can be set up at different locations for triangulation. The compact DF antennas are mounted on lightweight wooden tripods and installed temporarily at these exposed sites, such as the rooftop of tall buildings.

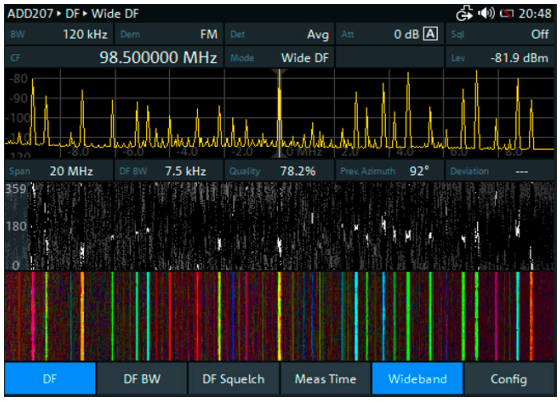
Radiolocation of emitters from a moving vehicle

To locate continuous emitters quickly and efficiently, the R&S®PR200 connected to a compact DF antenna (R&S®ADD107 or R&S®ADD207) can be operated with the PC based R&S®MobileLocator localization software [1], which turns any commercial vehicle into an accurate mobile direction finder. To overcome the problem of misleading information due to reflections in urban multipath environments, hundreds of DF results per minute are fed to the R&S®MobileLocator software, which uses sophisticated statistical analysis to discard irrelevant readings.

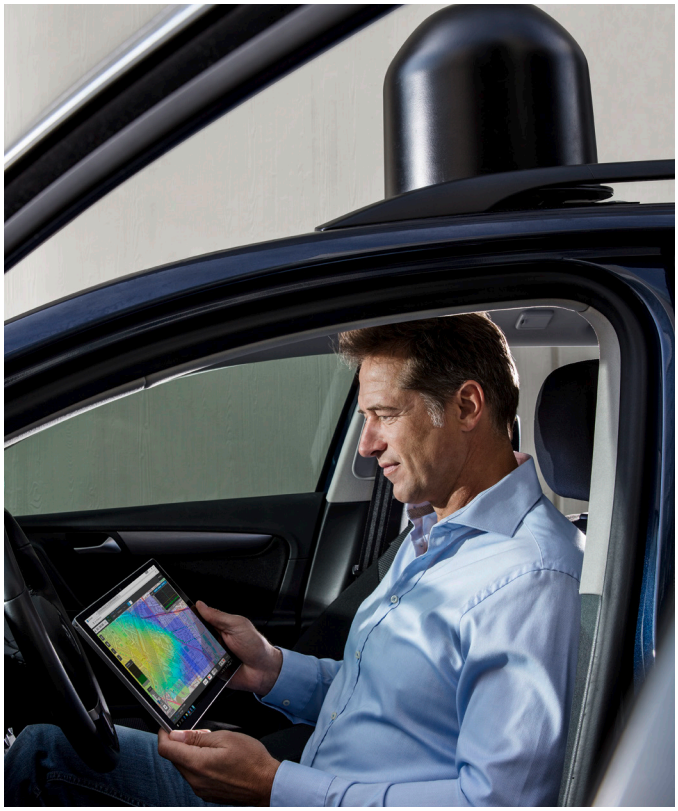
[1] See R&S®MobileLocator product brochure (PD 3607.1271.12).



DF polar display for AoA direction finding with R&S®CS-DF option.



Simultaneous DF of all signals within real-time bandwidth



Mobile DF with R&S®ADD207 compact DF antenna and R&S®MobileLocator PC based automatic radiolocation software.

COMPLEX SIGNAL MEASUREMENTS

Level and field strength measurements

The R&S®PR200 features simultaneous level measurements of up to three detectors with peak indicators. When equipped with the R&S®CS-FS field strength measurement option and paired with the R&S®HE400 handheld antenna, the R&S®PR200 performs field strength measurements in line with ITU-R SM.378-7. The connected R&S®HE400xx antenna module is automatically recognized and the prestored antenna factors in the R&S®PR200 are applied to convert the received signal level to field strength.

Analog modulation measurements

The R&S®CS-MM modulation measurement option enables RDS decoding and simultaneous measurements of the modulation parameters for AM, FM and PM modulated signals in line with the ITU Handbook on Spectrum Monitoring. The modulation depth, frequency deviation and phase deviation can be determined concurrently. Digitally modulated signals can be analyzed, classified and demodulated with the PC based R&S®CA100 [1] signal analysis software, which also enables manual parameter measurements in line with ITU-R SM.1600.

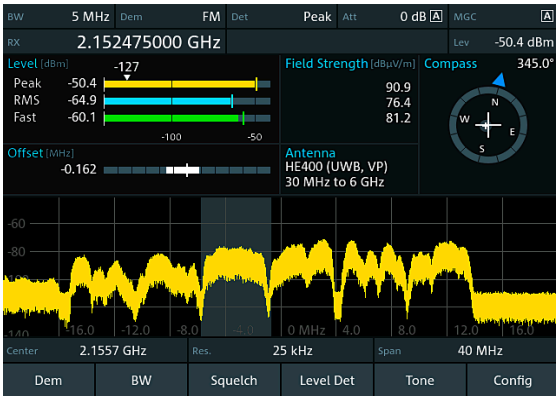
[1] See R&S®CA100 product brochure (PD 3606.9340.12).

Polychrome spectrum to distinguish superimposed signals

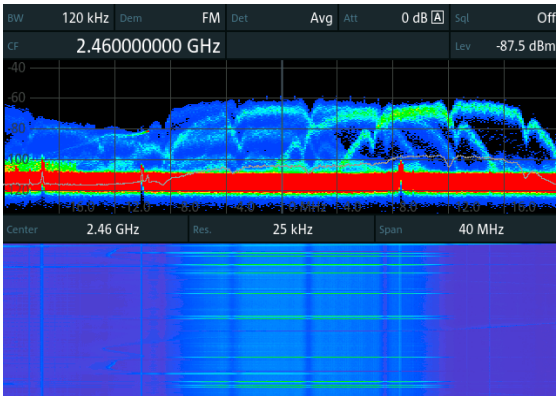
The R&S®CS-PC polychrome spectrum option makes it possible to separate superimposed, pulsed signals that cannot be differentiated with conventional methods such as spectrum, waterfall and the max. hold detector. To detect such pulsed interferers in a complex signal scenario, the frequency of the signal level occurrence is color-coded in the spectrum. The waterfall display can track changes in signal variation over time adding another dimension to characterize the signal.

Bandwidth and channel power measurements

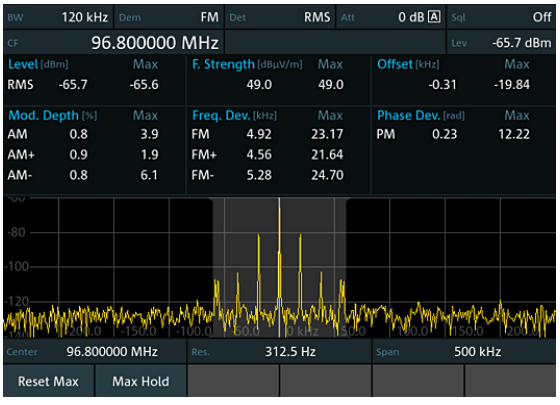
The R&S®CS-SPM spectral measurement option provides occupied bandwidth, bandwidth center offset and channel power measurements. In combination with the R&S®CS-PS panorama scan option, these measurements can be performed on signals wider than 40 MHz bandwidth during a panorama scan. Two methods are available for bandwidth measurements: x dB and ß %. Bandwidth measurements are in line with ITU-R Recommendations SM.328-11 and SM.443-4 and the ITU Handbook on Spectrum Monitoring, chapter 4.5.



The results of up to three level detectors along with their field strength measurements can be displayed simultaneously.



Polychrome spectrum uses color coding to indicate the relative level occupancy over time.



ITU-compliant measurements of AM depth, FM deviation and PM deviation in a single view.

Automatic occupied bandwidth measurement of a DVB-T signal (ß % method).

ADVANCED TIME DOMAIN ANALYSIS

Measurements in the frequency and time domain

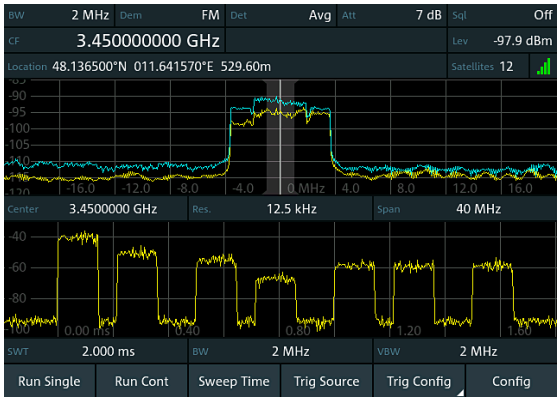
The R&S®CS-ZS time domain measurement option provides simultaneous signal representation in the frequency and time domain with up to 40 MHz real-time bandwidth. Thanks to various trigger and measurement functions, the time-dependent behavior of pulsed or burst signals can be evaluated while accounting for the spectrum. This is especially useful when analyzing the transmission modes or time slot occupancy in time division duplex (TDD) networks such as 5G-TDD and LTE-TDD or time division multiple access (TDMA) networks such as TETRA, GSM or DECT. The R&S®PR200 is well equipped for a large variety of performance and compliance measurements used in 5G mobile site testing such as bandwidth, occurrence, timing, and level measurements of SSB (SS/PBCH signal) blocks in 5G networks.

Time gated spectrum measurements

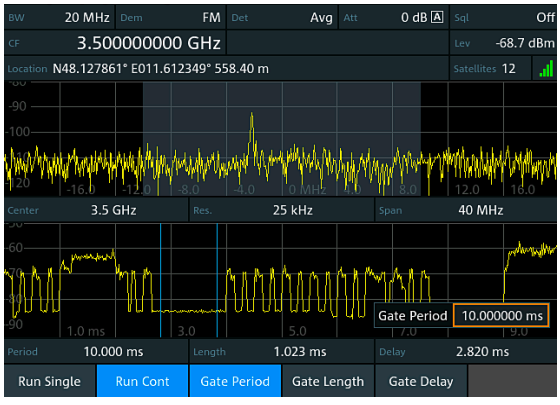
The R&S®PR200 gated spectrum application leverages the simultaneous frequency and time domain representation and enables real-time spectrum measurements within a freely selectable gate in the time domain. Once the gate is matched either to less-occupied time slots, such as the uplink slot, or to the guard interval between crowded downlink and uplink slots, hard-to-detect stationary or dynamic interference signals can be discovered and investigated. Subsequent manual homing direction finding can locate the interference source.

Time gated measurement mode for various applications

Once the time gate is configured in the gated spectrum application, the R&S®PR200 allows switching to various measurement applications that fully operate only during the time gate. For example, fast panorama scans can be performed during the time gate to reliably detect interference within signal bandwidths wider than 40 MHz. Additional gated level measurements for tone function, horizontal scan and level mapping make the R&S®PR200 the ideal tool for effective interference hunting in TDD and TDMA networks.



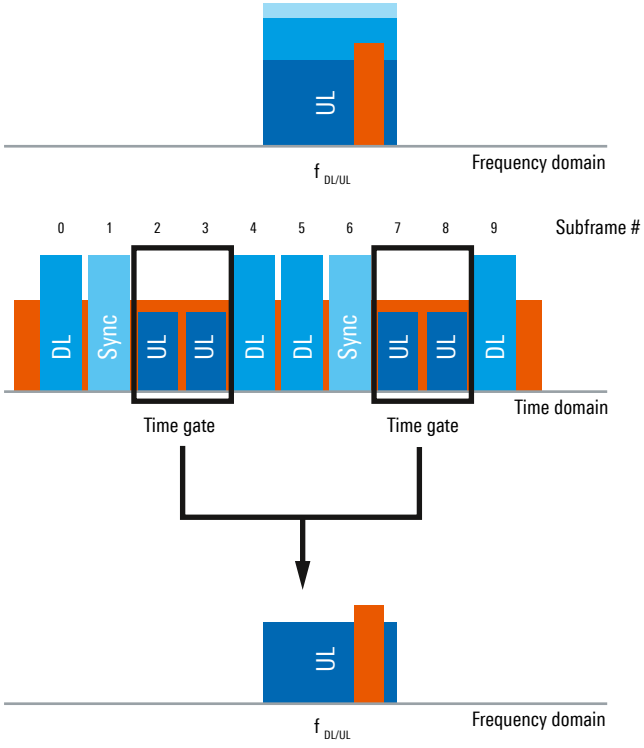
Simultaneous display of the frequency domain (top) and the time domain (bottom).



The real-time spectrum is computed from the adjustable time gate.

Interference hunting in TDD networks

With time gated spectrum measurements, the interference signal shown in red can be isolated in the spectrum by matching the time gate to the uplink time slot.



RECORDING AND DOCUMENTATION

History mode and history buffer export

If a signal is missed during observation, users can activate the history mode with the play & pause button to review the signal in the spectrum. The R&S®PR200 history memory buffer can store minutes of recordings and has a time resolution of up to 100 µs per line in the waterfall display. The history buffer can be exported to the internal memory, a USB stick or an SD card.

Trace and audio recording and replay

The R&S®CS-IR trace recording and replay option allows users to record monitoring traces with demodulated audio and geolocation, which can be replayed on the device or via the PC based R&S®PR200 GUI. Recorded information is saved internally or onto a USB stick or SD card. Recording and replay is particularly useful for continuous measurements in unattended or mobile monitoring missions or simply for documentation. Recordings made during mobile operations can be replayed on a map with the R&S®CS-MAP mapping option.

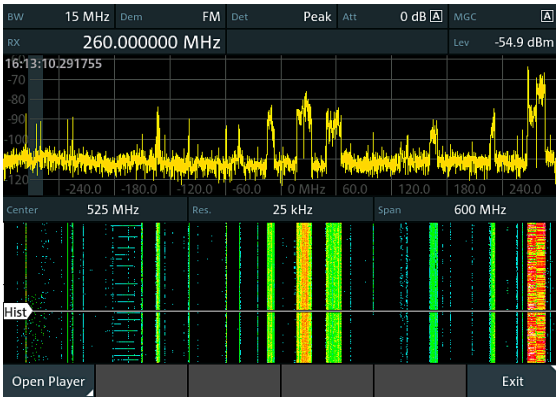
High-precision timestamps for synchronization

Equipped with the R&S®CS-TSA time stamp accuracy option, the R&S®PR200 built-in GNSS module provides extremely precise timestamps for measured I/Q data with an RMS error of less than 50 ns. The R&S®PR200 can also be operated as a sensor in a network of multiple receivers for accurate TDOA radiolocation. The R&S®CS-TSA option supports third-party navigation equipment such as gyro compasses or external GPS receivers (NMEA 0183) via the AUX 2 port.

Coverage measurements with digital maps

In addition to map display and triangulation, the R&S®CS-MAP mapping option enables easy level mapping, which is ideal for typical geotagging applications such as coverage measurements, interference hunting and transmitter range testing. While on the move, both the received signal strength and the receiver's GNSS position are collected and saved. Measurements are either triggered manually as "save an event" or automatically over distance or time. The results are overlaid on the map as a color-coded track, where different colors represent different signal strength levels. During level mapping, the spectral overview is maintained with the integrated spectrum view.

Replay and LAN remote control using the R&S®PR200 GUI running on a Windows laptop or tablet.

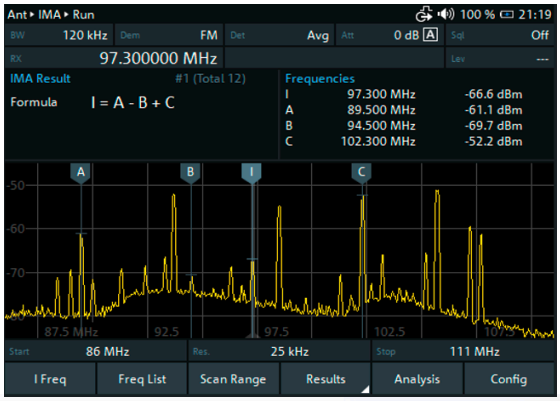


A missed signal event during the panorama scan is revisited using the history mode.

Coverage measurements via level mapping with integrated spectrum view.

Automatic interference analysis

Interference is often caused by spurious emissions such as harmonics and intermodulation distortion originating from imperfect active components such as amplifiers or malfunctioning electronic devices. To avoid focusing on products of distortion during interference hunting missions, the R&S®PR200 features automatic intermodulation detection with the R&S®CS-IA interference analysis option. Harmonics and intermodulation are identified based on trigonometric analysis of a list of input frequencies, which can be imported or generated on the spot. Audio comparison helps pinpoint the signals causing the distortion. All results can be exported for documentation.



An interference signal can be automatically identified as a harmonic or a product of intermodulation.

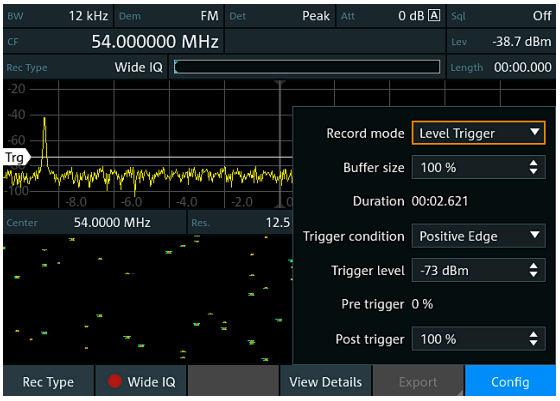
The R&S®PR200 mobile app effectively aids homing operation with the R&S®HE400DC handheld directional antenna with an integrated downconverter.

RECORDING, REPLAY AND ANALYSIS OF WIDEBAND DIGITAL I/Q DATA

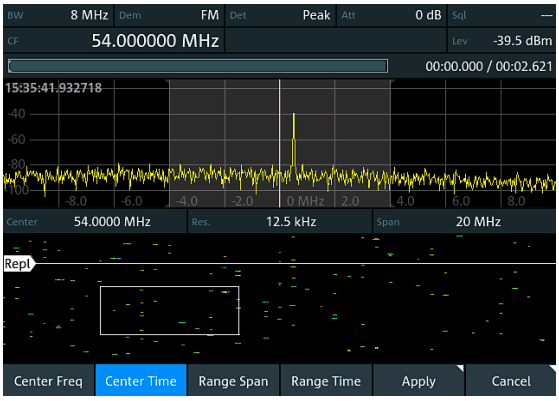
I/Q snapshot recording and replay

The R&S®CS-IQ I/Q snapshot recording and replay option supports the recording and replay of digital I/Q data up to 40 MHz real-time bandwidth. I/Q data replay is limited only by the recorded bandwidth and the internal memory size (512 Mbyte) of the R&S®PR200. A wide range of user-definable trigger conditions is available to start a recording. These include manual triggering at the press of a button, external triggering via the AUX 2 port (caused by events such as gate, positive/negative edge), and a level trigger that can be defined directly on the instrument GUI.

Recorded digital I/Q data is replayed from the internal memory and displayed directly on the R&S®PR200. It can also be replayed and evaluated offline using the I/Q analysis app. During a replay, all receiver functions are available, and parameters can be changed by the user. For a deeper analysis, the time resolution in the waterfall diagram can be increased to one microsecond per line. This provides users with a detailed view of the spectral signal characteristics even for very short events. Recorded I/Q data can be easily transferred from the internal memory to an external storage medium in various file formats (IQ, HDF5, ARB and WAV).



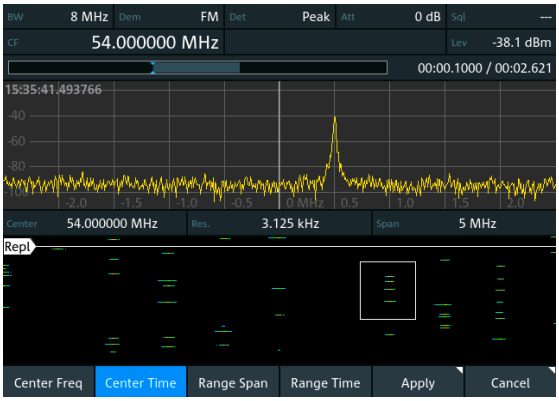
Easy selection of trigger events for I/Q snapshot recording on a live spectrum.



Recorded signals can be evaluated offline using the I/Q analysis app.

Maximum recording capacity of the internal memory

Span	Max. record length (approx.)
500 kHz	1.2 min
5 MHz	10.48 s
10 MHz	5.24 s
20 MHz	2.62 s
40 MHz	1.31 s



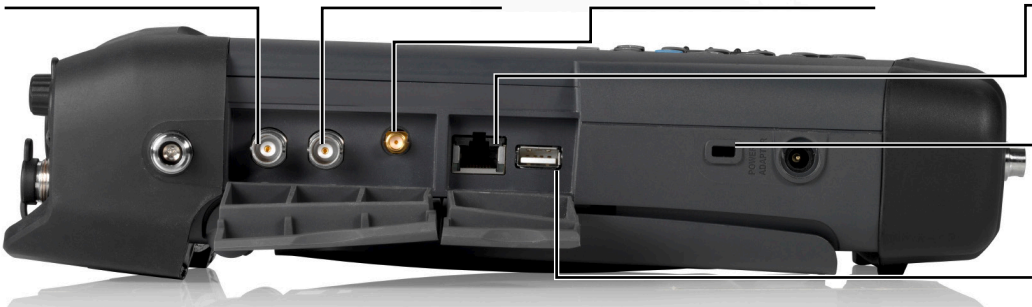
Detailed display of spectral signal characteristics with increased time resolution.

R&S®PR200 OPERATING ELEMENTS

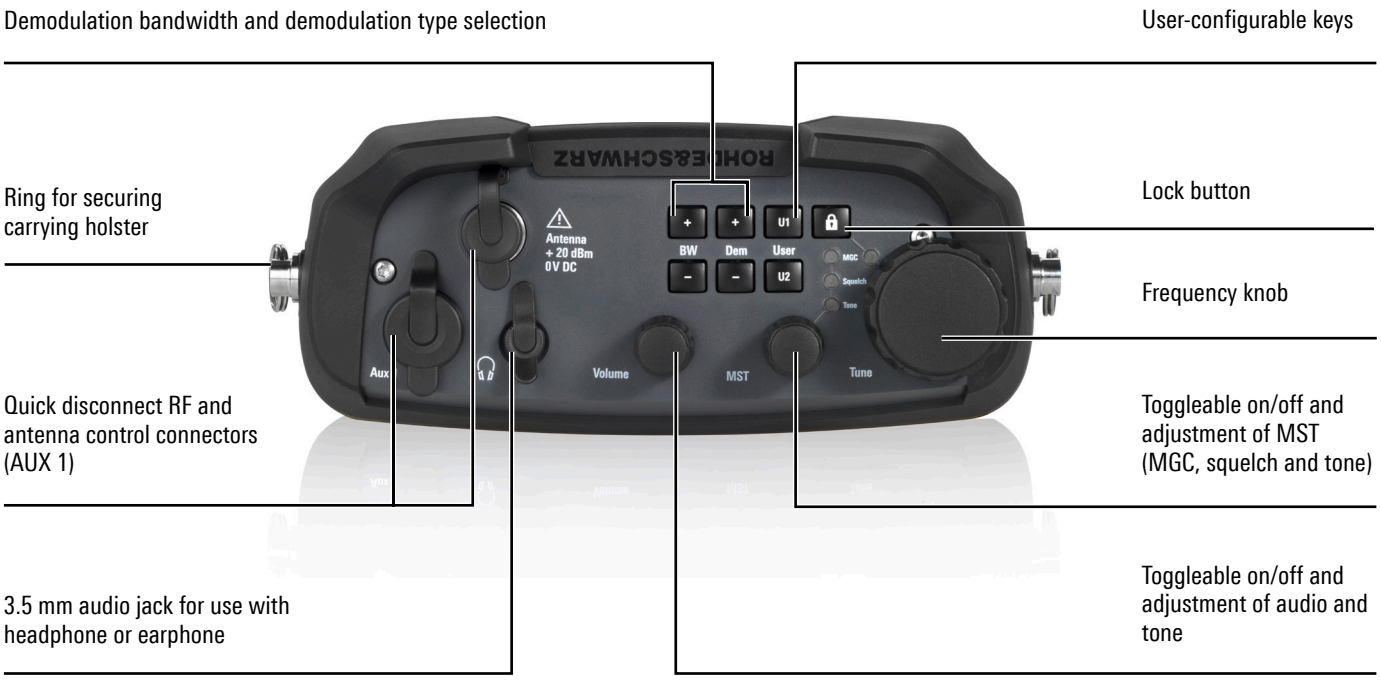
FRONT PANEL

SIDE PANELS

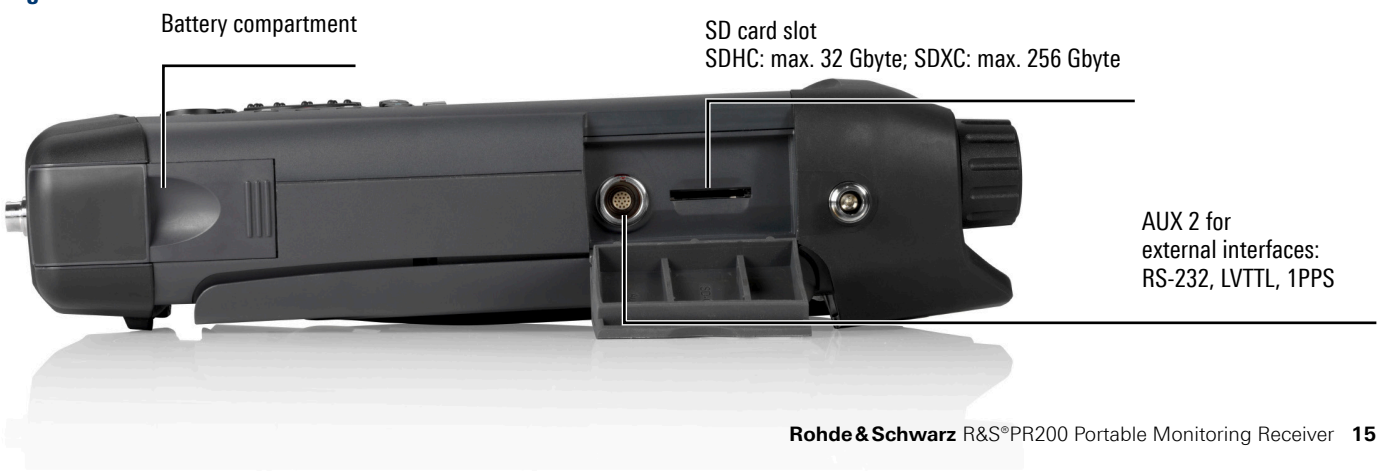
Left side



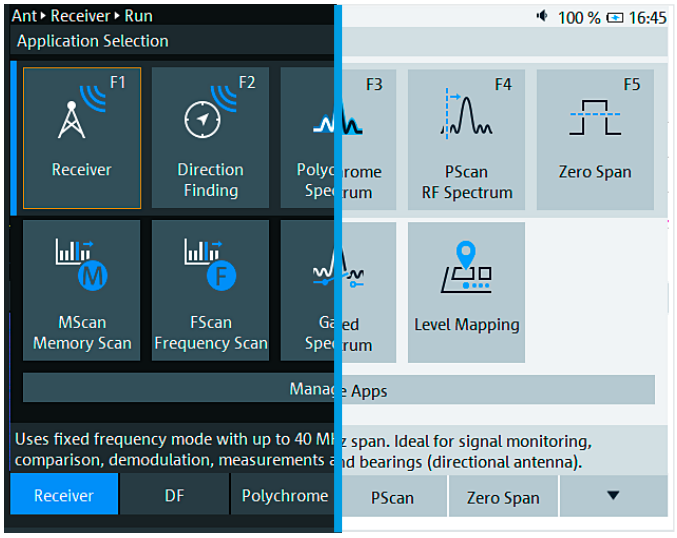
TOP PANEL



Right side



DESIGNED FOR USE IN THE FIELD



Application cockpit for convenient, easy and fast navigation between various functions (right: high color contrast).

- Fast boot time
- Intuitive, application-oriented operation
- Enhanced color schemes for operation in bright and low ambient light conditions
- High frequency accuracy, accurate positioning and time stamps with built-in GNSS
- Weighs approx. 3.5 kg including battery
- Typically up to 3.5 h on a single battery charge; compartment for easy battery replacement
- Portrait orientation for easy receiver holding and operation
- Dialog boxes with guidance for compass calibration
- Built-in self-test for troubleshooting and maintenance
- Tested in line with MIL-PRF-28800F environmental standard; suitable for outdoor and rugged use
- Quick disconnect and use with Rohde&Schwarz handheld antennas and compact DF antennas
- Wide range of setup and transport accessories, e.g. for homing (on foot), tripod (stationary) and mobile (on the move) applications

Quick disconnect and use with Rohde&Schwarz antennas.

The R&S®PR200 has a fold-out support for desk top use and also the R&S®HA-Z222 carrying with sun shade.

Automatic direction finding with Rohde&Schwarz compact DF antenna on a magnet mount (requires R&S®CS-DF option).

OPERATOR TRAINING COURSES

Our R&S®PR200 operator training courses range from eTraining courses and virtual classroom courses to classroom courses that include theory and practical exercises. They cover the most important topics to effectively help users with their operational tasks.

In these courses, participants learn how to configure the R&S®PR200 and use its scanning and spectrum measurement functions to detect signals of interest. They become familiar with the real-time capabilities and related functions to characterize the signal parameters. Optionally, they will use the R&S®HE400 handheld directional antenna to localize interference sources with homing and triangulation. Where automatic direction finding is important, participants will learn how to configure and set up the R&S®PR200 with our R&S®ADDx07 compact DF antennas. Finally, they can operate the R&S®PR200 with the R&S®MobileLocator software for the automatic localization of interferers from a moving vehicle.

Courses are mostly instructor-led with an interactive approach. The instructor uses a mixture of question and answer sessions, continuous assessment and a final exam to ensure an effective knowledge transfer. All training participants receive a certificate after the completion of each course. In eTraining courses, participants can conveniently follow the guided exercises with their own R&S®PR200 device. In virtual classroom courses, modules are available in several web sessions with a trainer who demonstrates how to operate the R&S®PR200. The participants can ask questions at any time. In the classroom based training courses, extensive hands-on exercises improve familiarity with the R&S®PR200.

To benefit from these courses, participants should have a certain level of basic receiver and direction-finding knowledge. However, we also offer receiver and direction-finding basics as eTraining courses to refresh or to fill in any gaps. Please contact the local Rohde&Schwarz sales office for more information.

R&S®PR200 web based operator trainings			
Course title	**Target audience**	**Objective**	**Duration**
Module 1: Receiver operations	Operators of the R&S®PR200	Participants configure and operate the R&S®PR200 as a receiver.	4 eTrainings; with approx. 1 hour duration per eTraining
Module 2: Operations with R&S®HE400	Operators of the R&S®PR200 with R&S®HE400	Participants configure and operate the R&S®PR200 with the R&S®HE400 to localize a signal source.	1 hour
Module 3: Direction finder operations	Operators of the R&S®PR200 with R&S®ADDx07 compact DF antennas	Participants configure and operate the R&S®PR200 with R&S®ADDx07 to perform automatic direction finding.	1 hour
Module 4: Operations with R&S®MobileLocator	Operators of the R&S®PR200 with R&S®MobileLocator	Participants set up, configure and operate R&S®MobileLocator in a vehicle to localize a signal source.	1 hour
R&S®PR200 classroom operator trainings			
Course title	**Target audience**	**Objective**	**Duration**
Receiver operations and operations with R&S®HE400	Operators of the R&S®PR200 with R&S®HE400	Participants configure and operate the R&S®PR200 with the R&S®HE400 to localize a signal source.	1 day
Receiver operations, operations with R&S®HE400, direction finder and R&S®MobileLocator	Operators of the R&S®PR200 with R&S®HE400, R&S®ADDx07 compact DF antennas and R&S®MobileLocator	Participants configure and operate the R&S®PR200 with R&S®HE400, R&S®ADDx07 and R&S®MobileLocator. They can install the system in a vehicle and localize a signal source.	2 days

ORDERING INFORMATION

Designation	Type	Order No.
Base unit (including accessories supplied such as power cable, manual)		
Portable monitoring receiver	R&S®PR200	4500.5002.02
Software options		
Panorama scan	R&S®CS-PS	4500.7070.02
Polychrome spectrum	R&S®CS-PC	4500.7040.02
Field strength measurement	R&S®CS-FS	4500.7211.02
Modulation measurement	R&S®CS-MM	4500.7340.02
Time domain measurement	R&S®CS-ZS	4500.7111.02
Direction finding upgrade	R&S®CS-DF	4500.7370.02
Trace recording and replay	R&S®CS-IR	4500.7240.02
Timestamp accuracy and external GNSS	R&S®CS-TSA	4500.7170.02
Mapping and geotagging application	R&S®CS-MAP	4500.7140.02
Spectral measurement	R&S®CS-SPM	4500.7311.02
I/Q snapshot recording and replay	R&S®CS-IQ	4500.7270.02
Interference analysis	R&S®CS-IA	4500.7392.02
Documentation		
Documentation of calibration values	R&S®CS-DCV	4500.7011.02
Accessories		
Cable sets for DF		
DF cable set, for Rohde&Schwarz compact DF antennas with L shape connector, length: 5 m	R&S®CS-ZAD5M	4500.5090.00
DF cable set, for Rohde&Schwarz compact DF antennas, length: 5 m	R&S®CS-ZAD5T	4500.5077.00
Cable adapter, for use with existing cable sets from R&S®PR100/R&S®DDF007	R&S®CS-ZADX07	4500.5060.00
Navigational aids		
Active GNSS antenna	R&S®CS-ZNAV	4500.7440.00
Power supplies		
Car adapter, connector for cigarette lighter	R&S®HA-Z302	1321.1340.02
Battery charger, for R&S®HA-Z306 lithium-ion 6.4 Ah battery pack	R&S®HA-Z303	1321.1328.02
Lithium-ion 6.4 Ah battery pack	R&S®HA-Z306	1321.1334.02
Transport cases and bags		
Carrying holster including chest harness and rain cover	R&S®HA-Z222	1309.6198.00
Sun roof and carrying handle, accessory for R&S®HA-Z222	R&S®PR100-AP1	3589.9458.00
Suitcase kit, for R&S®PR200 hard-shell transit case with headphones, telescopic antenna and storage space for R&S®PR200 and mains adapter	R&S®PR100SC	4071.9258.02
Handheld directional antennas		
For detailed information on handheld directional antennas and accessories, see Handheld directional antennas, PD 3606.9140.12		
Compact DF antennas		
The R&S®PR200 is compatible with the R&S®ADD107, R&S®ADD207, R&S®ADD207P and R&S®ADD307 compact DF antennas.		
Operator training courses		
Web based operator training module 1: receiver operations	R&S®WT-PR200-1	3665.6866.02
Web based operator training module 2: operations with R&S®HE400	R&S®WT-PR200-2	3665.6743.02
Web based operator training module 3: direction finder operations	R&S®WT-PR200-3	3665.6737.02
Web based operator training module 4: operations with R&S®MobileLocator	R&S®WT-PR200-4	3665.6720.02
Classroom operator training: receiver operations and operations with R&S®HE400 (1 day)	R&S®CT-PR200ST	3665.6714.02
Classroom operator training: receiver operations, operations with R&S®HE400, direction finder and R&S®MobileLocator (2 days)	R&S®CT-PR200EX	3665.6708.02
Service options		
Extended warranty, one/two/three/four year(s)	Contact your local Rohde&Schwarz sales office.	
Extended warranty with calibration coverage, one/two/three/four year(s)		
Extended warranty with accredited calibration coverage, one/two/three/four year(s)		

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ACCESSORIES

R&S®HA-Z222 carrying holster.

R&S®HA-Z306 battery.

R&S®HA-Z303 desktop battery charger for R&S®HA-Z306 battery.

R&S®HA-Z302 car adapter.

R&S®HE400Z2 transport bag (small).

R&S®HE400Z1 transport case.

R&S®HE400Z6 transport bag suitable for R&S®HE400SHF/R&S®HE400SCB antenna module.

Service at Rohde&Schwarz
You're in great hands

- Worldwide
- Local and personalized
- Customized and flexible
- Uncompromising quality
- Long-term dependability

Rohde&Schwarz

The Rohde&Schwarz technology group is among the trailblazers when it comes to paving the way for a safer and connected world with its leading solutions in test&measurement, technology systems and networks&cybersecurity. Founded more than 85 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and has an extensive sales and service network with locations in more than 70 countries.

www.rohde-schwarz.com

Sustainable product design

- Environmental compatibility and eco-footprint
- Energy efficiency and low emissions
- Longevity and optimized total cost of ownership

Certified Quality Management
ISO 9001

Certified Environmental Management
ISO 14001

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PD 5216.4540.12 | Version 11.00 | June 2023 (sk)
R&S®PR200 Portable Monitoring Receiver
Data without tolerance limits is not binding | Subject to change
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