

Technical Information

Trigger for Coverage Measurements R&S ESPI-K50

Measurement of field-strength profiles with Test Receiver R&S ESPI

The Firmware Option R&S ESPI-K50 adds measurements of field-strength profiles controlled by a displacement sensor to the application range of Test Receivers R&S ESPI 3 and R&S ESPI 7. For these measurements, the option is provided with additional channel filters for bandwidths from 5.6 MHz to 8 MHz for DVB-T signals.

When equipped with the firmware option, the R&S ESPI replaces the previous test receivers models R&S ESVD (mobile radio) and R&S ESVB (DAB and DVB-T broadcasting).

- Features
- Measurement rate at one frequency > 100,000 measurements/s (incl. transmission via IEC/IEEE bus or LAN)
- External trigger of field-strength measurements
- Measurements using channel lists (max. 10,000 channels)
- Internal buffer for max. 200,000 values

Measurement of field-strength profiles

Function

To measure the coverage field-strength of a communication or broadcast network, continuous level measurements have to be performed with a sufficiently high measurement rate and the results must be forwarded to an evaluation unit. The measured level values are normally processed by the controller which remote-controls the R&S ESPI via IEC/IEEE bus or a LAN interface.

When a displacement sensor/GPS system is used, the external trigger input of the R&S ESPI can be used to start the single measurements. The level values can thus be accurately assigned to the measurement site.

The coverage measurement function is only available in the receive mode and in the case of remote control. The R&S ESPI performs the coverage measurement in two different ways:

- All measurements are performed on a discrete frequency.
- A channel list is cyclically processed, i.e. a new frequency is set for each measurement.

Measurements on a Discrete Frequency

In this operating mode the R&S ESPI organizes the level values into blocks. This considerably reduces the overhead for result processing and measurement rates of more than 100,000 measurements/s can be achieved. The number of results in a block varies. It is dynamically set by the receiver so that as many data as possible are transmitted each time a query is sent by the controller.

To avoid the time grid of the level measurement being violated if the controller is not able to query data from the R&S ESPI in due time, the receiver contains an internal buffer where 200,000 measurement results can be stored. With a rate of 10,000 measurements/s, the results of 20 seconds can be stored before data must be queried by the controller.

Measurements Using Channel Lists

If more than one frequency is to be monitored, up to ten channel lists can be defined and cyclically processed. Level measurements are performed on each frequency. A channel list (scan range) may contain up to 1000 channels. This means that 10,000 channels can be programmed altogether. The channels are defined via the IEC/IEEE bus.

Additional Channel Filters

The firmware option makes provides filters with bandwidths of 5.6 MHz to ≤ 8 MHz for DVB-T signals in addition to the channel filters included as standard in the R&S ESPI.

5.6	MHz	ISDB-T (Japan)
6.0	MHz	DVB-T (USA)
6.4	MHz	
7.0	MHz	DVB-T (Europe, Australia)
8.0	MHz	DVB-T (Europe)

Enabling the Firmware Option

The Firmware Option is enabled by entering a license keycode. The keycode is delivered with the option. If the option is factory-installed, it is already enabled.

Ordering Information

Order Designation

Trigger for Coverage Measurements

Type

R&S ESPI-K50

Order No.

1106.4386.02

