

WIDEBAND POWER SENSORS

Ideal for radar applications

The R&S®NRP-Z8x wideband power sensors are ideal for radar applications. In development or during installation and maintenance, pulse characteristics as well as output power have to be measured. Similar measurements are required in the production of radar systems and radar components. Thanks to a maximum video bandwidth of 30 MHz and a rise/fall time < 13 ns, the sensors can measure pulses with a pulse width as small as 50 ns.

Up to 44 GHz

The R&S®NRP-Z8x wideband power sensors are ideal for power measurements on microwave link modules. Especially the R&S®NRP-Z86 model .44 (upper frequency limit of 44 GHz) can be used for the development, production, installation and maintenance of the latest generation of microwave link modules. The user benefits from the sensor's high measurement speed and large dynamic range.

Outstanding dynamic range and accuracy

The dynamic range of the R&S®NRP-Z8x wideband power sensors yields a lower limit of -47 dBm for envelope power measurements and -60 dBm for average power measurements. This sensitivity is unique and so far unprecedented on the market. Users benefit from enhanced reproducibility and high measurement speed.

These sensors are therefore ideal for analyzing envelope power as well as for measuring average power.

High resolution mode

Some applications require the display of strongly magnified signal sections such as the rising edge of a pulse. To improve the graphical display in the trace mode, which has a resolution of 12.5 ns, a high density of samples is required. Equivalent time sampling with repetitive signals can achieve a time resolution of up to 100 ps.

Highest measurement speed

The R&S®NRP-Z8x wideband power sensors are the world's fastest sensors. In buffered mode, a specified measurement speed of > 9000 measurements/s can be achieved.

Sensor type	Frequency range	Measurement range	Connector type
R&S®NRP-Z81	50 MHz to 18 GHz	-60 dBm to +20 dBm	N
R&S®NRP-Z85	50 MHz to 40 GHz	-60 dBm to +20 dBm	2.92 mm
R&S®NRP-Z86, model .40	50 MHz to 40 GHz	-60 dBm to +20 dBm	2.4 mm
R&S®NRP-Z86, model .44	50 MHz to 44 GHz	-60 dBm to +20 dBm	2.4 mm



R&S®NRP-Z81/-Z85/-Z86 wideband power sensors

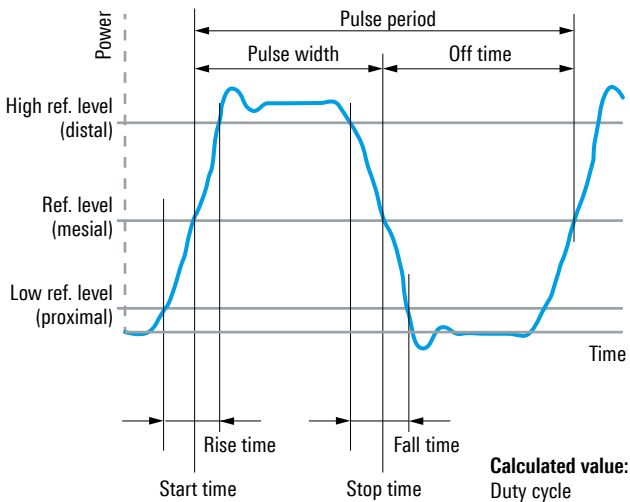
Automatic pulse analysis

Automatic pulse analysis supports users in measuring important pulse parameters. It eliminates the need for complex measurements using markers; changes in the pulse shape are immediately taken into account in the measurement results.

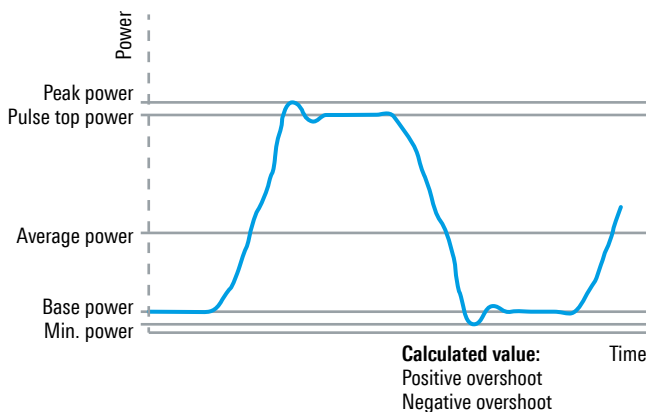
The following parameters are determined by automatic pulse analysis:

- ▶ Time parameters: rise/fall time, start/stop time, pulse width, duty cycle, pulse period, pulse off time
- ▶ Level parameters: pulse top, pulse base, peak, average, minimum, overshoot (positive and negative)

Time parameters



Level parameters



Statistical analysis

The R&S®NRP-Z8x wideband power sensors permit statistical analysis of the amplitude distribution of noise-like signals to determine key parameters such as peak envelope power, average power and peak-to-average power ratio. The measurement data supports the design of components for modern OFDM or CDMA based wireless systems such as EUTRA/LTE and 3GPP FDD. Using one million samples, the R&S®NRP-Z8x wideband power sensors can measure the CCDF, CDF or PDF in less than 25 ms at full video bandwidth.

It is also possible to perform statistical analysis on an individually configured time gate so that only specific signal sections are observed.

Trigger master mode (with base unit or R&S®NRP-Z5)

Combined with the R&S®NRX base unit or the R&S®NRP-Z5 sensor hub, an R&S®NRP-Z8x wideband power sensor can be used as a trigger source. In the trigger master mode, a trigger signal is derived from the measured signal inside the power sensor and forwarded to the base unit or sensor hub for further use. All other connected sensors can be externally triggered using this trigger signal. An additional external trigger source is not required. This feature can be used to determine the input and output level of power amplifiers when the level at the input is too low for an internally triggered measurement, yet the level at the output is sufficient. In this case, an R&S®NRP-Z8x used for measuring the output signal acts as the trigger master to trigger the input signal measurement.