

## Power Meter R&amp;S®NRP

# Measuring power in mobile radio: quick results with “Recall Standard”

## The Power Meter R&S®NRP (FIG 1)

provides numerous modes for measuring complex signal shapes of today's communications standards such as GSM, EDGE, DECT, etc: Continuous, Average, Burst, Timeslot, Timegate and Scope mode. Extensive setting options are available for these modes, offering a high degree of flexibility during measurements. Yet, things can be done more easily: With the “Recall Standard” function, you can automatically set the configuration by just pressing a few keys.

## 14 mobile radio setups

Due to complex signal shapes, displaying the power envelope has become indispensable for checking signal details such as overshoots, glitches or interference pulses, which influence the result of a power measurement, and for defining gates [1, 2]. The Scope mode in the R&S®NRP is ideal for these measurements. You select the graphical result display, set the trigger and horizontally and vertically define the required size of the screen window. For measurements with gates, you additionally define the beginning and end to accurately exclude unwanted parts of the signal. You can select up to 16 different parameters to configure the gates in the Scope mode.

## Just call up “Recall Standard” and the R&S®NRP is ready to go

Yet, things can be done more easily: The “Recall Standards” function largely frees you from most configuration

tasks. You merely have to select one of 14 common mobile radio setups, and the power meter then configures itself. Not only TDMA standards but also all other common CDMA standards such as TD-SCDMA, WCDMA/3GPP FDD and CDMA2000® (FIG 2) can be selected.

Four keystrokes on the R&S®NRP base unit are enough to easily measure the entire frame content of a GSM/EDGE signal with all timeslots active, for example. You merely have to set the frequency correction for the sensor. To do this, just press the PRESET key on the front panel of the power meter, select “Standard Recall”, select the mobile radio standard in the “Preset” window, and press the “Recall” softkey. The R&S®NRP is now configured (FIG 3). Not even the exclude gates have to be calculated and set. The R&S®NRP sets everything automatically. All necessary trigger conditions – the base unit knows six different conditions – are correctly set by calling up the “Recall Standard” function. The R&S®NRP manual contains a list of all preconfigured parameters.

## Automatic and complex measurements – no contradiction

All measurement modes available in the R&S®NRP will be completely configured if you call up “Recall Standard”. You can select the mode that best suits your needs. The default setting for “burst” signals is the Scope mode. By simply changing the tabs, you can call up “Gate” and “Timeslot” to perform your first measurements. If higher accuracy is required for your application, call up the corresponding mode in the sensor menu under “Mode...”. The R&S®NRP



FIG 1 The Power Meter R&S®NRP.

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is configured right for the measurement. If more exotic settings are required or you want to perform special measurements, additional menus are available. This eliminates having to manually configure the complete mode in advance. After you define the appropriate settings for an application, you can easily store them in a setup list in the "File" menu using customized or predefined names (setups 1 to 19).

### Also convenient for remote control

The "Recall Standard" function is also convenient for remote control of the R&S®NRP. When you want to initialize the power meter for a measurement, you do not have to transmit the list of parameters in advance [3]. An example is provided below for a command sequence of only five "Remote Control" commands for GSM/EDGE set by the power meter for the Power Sensors R&S®NRP-Z11 and R&S®NRP-Z2x so that after configuration the first results are transmitted from the sensor to the controller:

\*RST

:SYST:STAN:PRES "GSM/EDGE"

(Call-up of GSM/EDGE)

:SENS:FREQ 935E6

(Frequency-dependent correction value for the result)

:SENS:FUNC "POW:TSL:AVG"

(Call-up of the Timeslot mode in the Sensor menu)

:READ?

(Triggering of the measurement and fetching of the measured value)

These examples show that selective use of the "Recall Standard" function in the Power Meter R&S®NRP significantly facilitates operation of the instrument when complex measurements have to be performed. Taking a look at the manual is worthwhile.

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Mobile radio standard	
1	Bluetooth® DH1
2	Bluetooth® DH3
3	Bluetooth® DH5
4	CDMA2000®
5	DECT
6	GSM/EDGE
7	NADC/DOWNLINK
8	NADC/UPLINK
9	PDC/DOWNLINK
10	PDC/UPLINK
11	TD-SCDMA
12	WCDMA/3GPP FDD
13	WCDMA/3GPP TDD DL
14	WCDMA/3GPP TDD UL

FIG 2 The Power Meter R&S®NRP supports 14 mobile radio setups.

More information, operating manuals, and data sheet at  
[www.rohde-schwarz.com](http://www.rohde-schwarz.com)  
 (search term: NRP)

#### REFERENCES

- [1] Power Meter R&S®NRP: Evolution in power measurement – intelligent sensor technology. News from Rohde & Schwarz (2002) No. 174, pp 12–16
- [2] Power Meter R&S®NRP: Evolution in motion – new functions and sensors. News from Rohde & Schwarz (2003) No. 180, pp 42–44
- [3] R&S®NRP operating manual

FIG 3 Only four keystrokes are required and the R&S®NRP is ready to measure complex signal scenarios.

