

# R&S® FE44S

## EXTERNAL FRONTEND

### 24 GHz to 44 GHz

Signal generation and analysis  
at device connection



Product Brochure  
Version 03.00

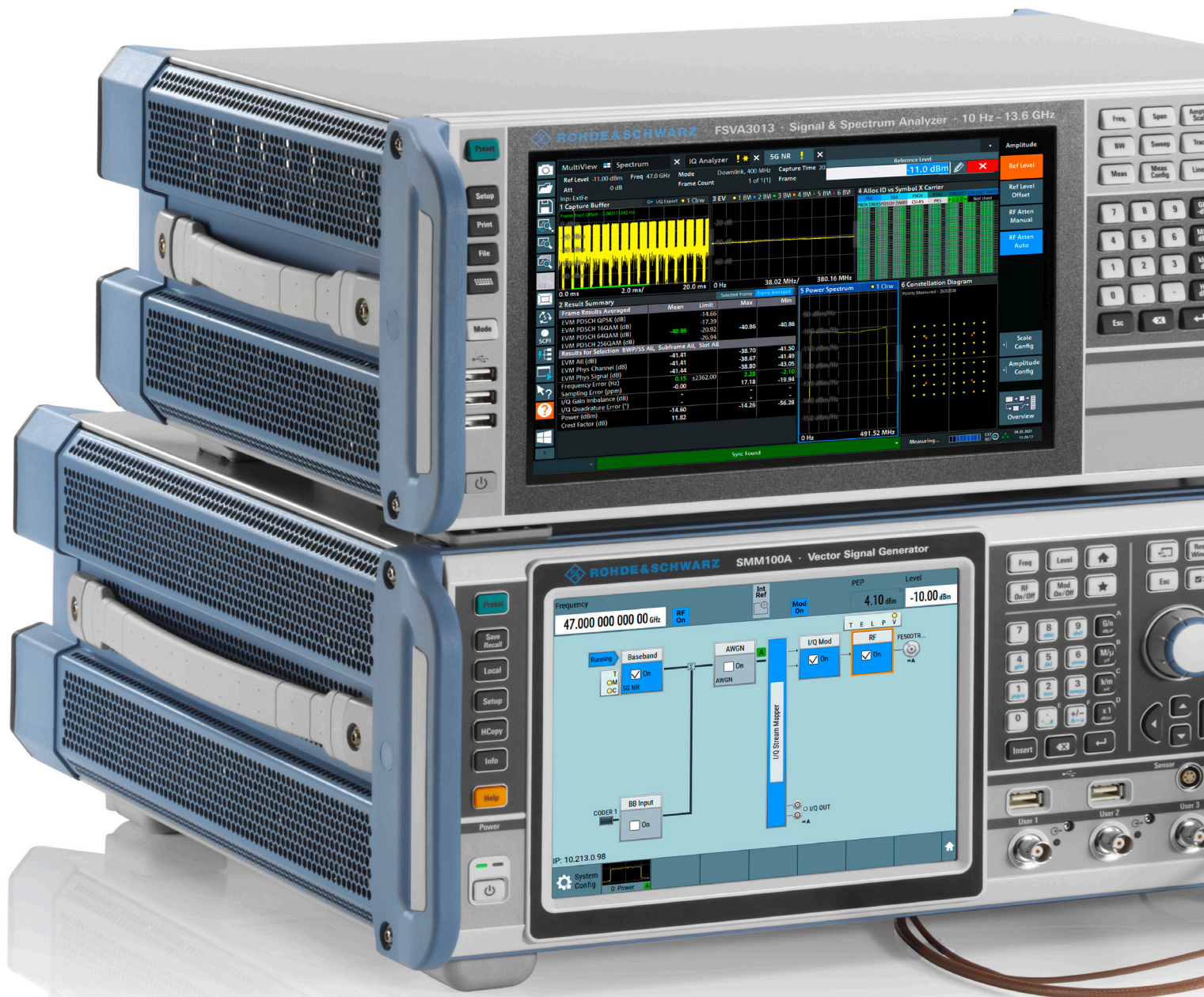
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# AT A GLANCE

The R&S®FE44S external frontend can extend the frequency range up to 44 GHz for Rohde & Schwarz signal and spectrum analyzers as well as signal generators. The R&S®FE44S enables signal upconversion and downconversion directly at the device under test (DUT), lowering cable losses, increasing sensitivity and delivering more power at the antenna in an over-the-air (OTA) environment.



The R&S®FE44S is an innovative product that targets 5G frequency bands from 24 GHz to 44 GHz, providing a measurement solution close to the DUT for signal generation and analysis with a bandwidth up to 1 GHz and excellent RF performance.

Base instruments, such as the R&S®FSV3000/R&S®FSVA3000 signal and spectrum analyzers, R&S®SMM100A/R&S®SMW200A vector signal generators or the PVT360A VSG/VSA single-box vector tester, completely control the R&S®FE44S. Users benefit from fully transparent frequency extensions for measurements, whether with traditional spectrum analyzers and signal generators or the PVT360A, optimized for FR1 base station, small cell and RF component testing in production and characterization environments.

The built-in low phase noise frequency generation provides excellent signal quality for both generation and analysis.

### Get closer to the DUT

An OTA test is standard for the 3GPP FR2 frequency ranges. Cable losses and costs increase significantly at these frequencies. The external frontend enables upconversion and downconversion directly at the DUT with better test setup performance and lower costs. The R&S®FE44S is connected to the base instrument at a lower IF frequency. Frequency and amplitude impact on the IF is automatically compensated in the firmware of the supported base instrument. This reduces measurement uncertainty for the test setup.

### Excellent signal quality on both transmit and receive side

The built-in high-performance voltage-controlled oscillator (VCO) with the lowest possible phase noise helps the R&S®FE44S generate signals with the highest fidelity. The excellent phase noise produces a very good signal-to-noise ratio (SNR) at the signal and spectrum analyzer. The EVM is well below 1% (-40 dB) over a wide range. The generated signals also have excellent performance on the transmit side.

### Frequency extension for existing instruments

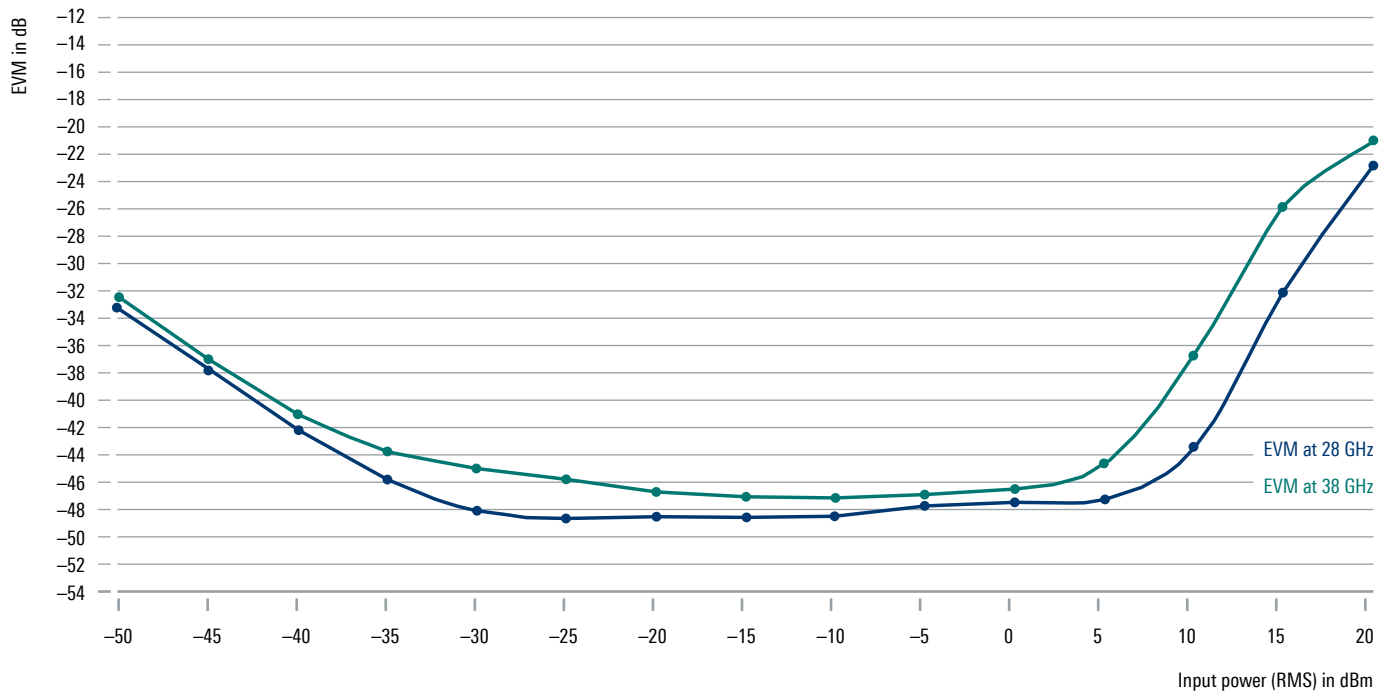
The R&S®FE44S extends the usable range from 3GPP FR1 to 3GPP FR2 frequency bands for existing R&S®FSV3000/R&S®FSVA3000 signal and spectrum analyzers, R&S®SMM100A/R&S®SMW200A vector signal generators and the PVT360A for greater flexibility with a wider range of applications.



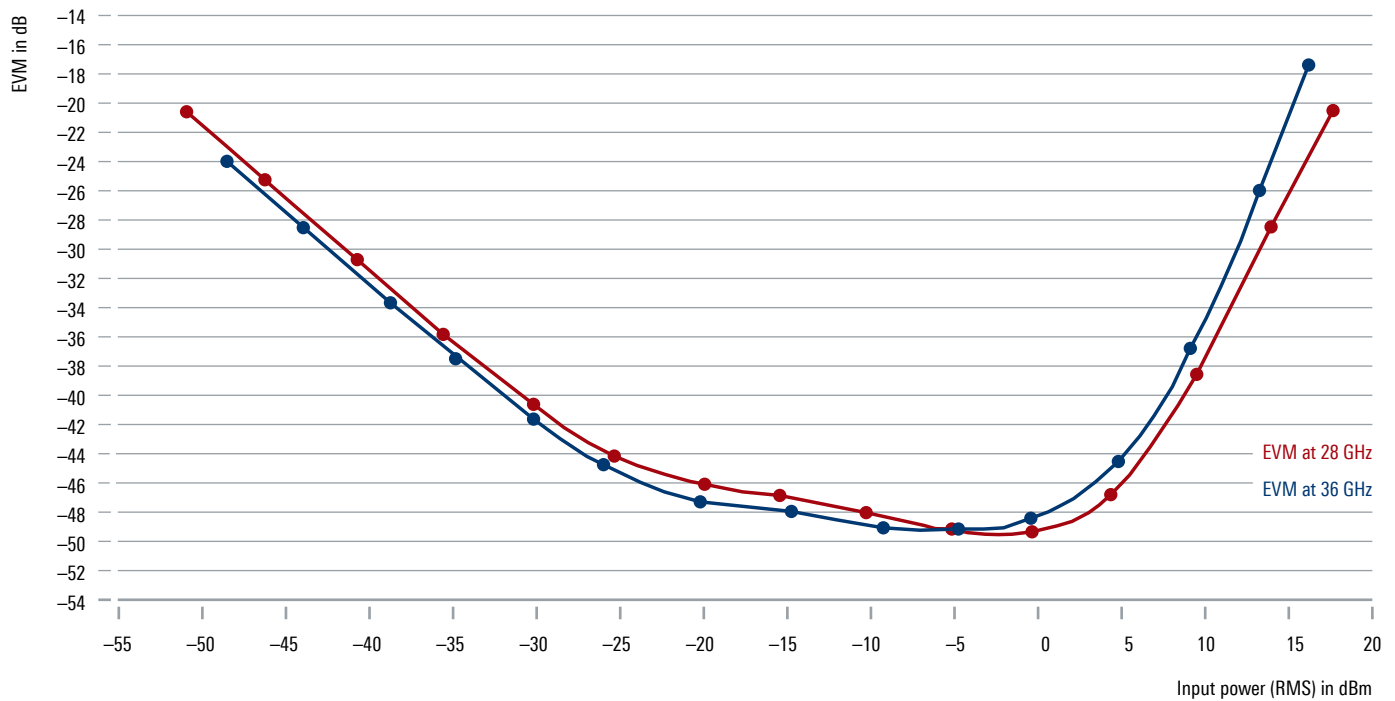
R&S®FE44S connected to the R&S®FSVA3013 signal and spectrum analyzer and the R&S®SMM100A vector signal generator



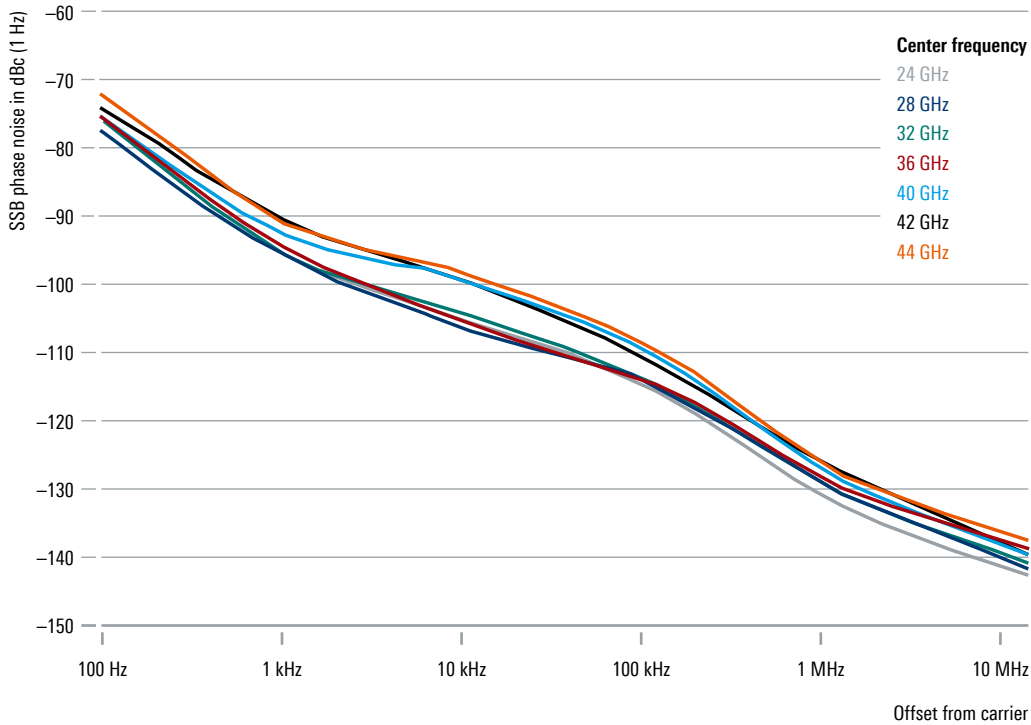
**EVM values versus input power (5G NR 100 MHz) at different center frequencies in combination with an R&S®FSVA3000**



**EVM values versus input power (5G NR 100 MHz) at different center frequencies in combination with an R&S®SMW200A**



**Typical single sideband phase noise at different center frequencies in combination with an R&S®FSVA3000**



# SPECIFICATIONS IN BRIEF

## Specifications in brief

Frequency range	24 GHz to 44 GHz	
Equalized bandwidth	RX and TX mode	1 GHz
Displayed average noise level	30 GHz <math> < f \leq 40 \text{ GHz}</math>	-154 dBm, -157 dBm (typ.)
Specified level range	24 GHz $\leq f_{\text{out}} \leq 36 \text{ GHz}$	-50 dBm to +14 dBm (PEP)
Reference input	10 MHz, 640 MHz, 1 GHz	
LAN interface	10BASE-T, 100BASE-T	

# ORDERING INFORMATION

For ordering information, see the R&S®FE44S specifications document (PD 3609.5545.22).

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