In brief

B class on the starting block

The mid-range class of signal generators is undergoing revision. Analog and vector models up to 6 GHz are now ready.

The mid-range signal generators R&S®SMB100A (analog) and R&S®SMBV100A (vector) have been established on the market for years, but they now have some impressive successors. In the type designations, A has changed to B; the new names are R&S®SMB100B (photo above) and R&S®SMBV100B. However, a lot more has happened with the technology, which was totally redeveloped. Both models have significantly higher output power and better signal quality combined with convenient touchscreen operation. Each signal generator also has its own specific features.

R&S®SMB100B analog RF signal generator

The frequency range of the R&S®SMB100B starts at 8 kHz and extends up to 1 GHz, 3 GHz or 6 GHz depending on the configuration. The base version is configured for CW signals, but the signal generator optionally also supports amplitude, frequency and phase modulation. Other options are available to generate single pulses and complex pulse trains.

The high RF quality of the base version can be further increased if necessary. The OCXO options reduce the aging and temperature dependency of the reference frequency by more than a power of ten and the SSB phase noise by more than 20 dB to –65 dBc (1 GHz, 1 Hz offset). The output power can also be boosted in two stages. The keycode-activated first stage increases the power from 20 dBm to 28 dBm (1 GHz). The ultra high output power option (separate installation required) adds another 6 dB to bring the total output power to +34 dBm – a unique value in this class. The signal generator is attractive in particular for users who want to update an older measuring system with state-of-the-art components. Thanks to the flexible reference frequency inputs/outputs as well as emulation of legacy generators, convenient plug-and-play operation is ensured.

Condensed data

- Frequency range: 8 kHz to 1 GHz, 3 GHz or 6 GHz
- Single sideband phase noise: < –132 dBc (typ.) at 1 GHz and 20 kHz offset
- Wideband noise: < –153 dBc (typ.) at 15 MHz < f ≤ 6 GHz and 30 MHz offset
- Output power: up to +34 dBm (measured) at 1 GHz

R&S®SMBV100B vector signal generator

Like its analog counterpart, the major strength of the R&S®SMBV100B lies in the high signal quality even at high levels. Bandwidth-hungry applications in sectors such as mobile communications and A&D can take advantage of the 500 MHz modulation bandwidth with extraordinarily low modulation frequency response (< 0.2 dB, meas.). The output power can be optionally boosted up to +34 dBm (1 GHz), eliminating the need for external amplifiers, simplifying test setups and improving the specifications. The automatic frequency response correction is also designed to improve overall performance. In this manner, the transmission characteristics of components in the signal path can be dynamically compensated – comparable to de-embedding in network analysis. The new model also delivers impressive flexibility. Many of the options are software-based, i.e. they are dormant in the signal generator and only require a keycode for activation. Time-limited licenses are another attractive possibility. They allow temporary functional requirements to be satisfied without a major capital investment.

Condensed data

- Frequency range: 8 kHz to 3 GHz or 6 GHz
- Output power: up to +34 dBm
- Modulation bandwidth: up to 500 MHz
- EVM (LTE TM 3.1): < 0.4 % at +18 dBm (RMS), ACPR: < –72 dB (WCDMA, 64 DPCH, meas.)