

Analyzers Benefit From 165-MHz Bandwidth

These spectrum analyzers have been upgraded with 165-MHz real-time analysis bandwidths suitable for testing the latest versions of wireless local-area networks.

TEST INSTRUMENTS IN the RSA5000B series and SPECMON series of real-time spectrum analyzers (RTSAs) from Tektronix (www.tektronix.com) already featured considerable measurement power for frequencies as high as 26.5 GHz. Now, however, all of these analyzers have been given a huge boost: All are now available with an analysis bandwidth as wide as 165 MHz. In addition to helping signal capture for any type of signals within the bandwidth of a given analyzer, the wide analysis bandwidth makes it possible to check newer wireless communications standards—such as the widest-bandwidth version of the IEEE 802.11ac wireless-local-area-network (WLAN) standard, which has an instantaneous bandwidth of 160 MHz.

The RSA5000B series of RTSAs includes models with top frequencies of 3.0, 6.2, 15.0, and 26.5 GHz (see figure). The SPECMON Series of RTSAs includes models covering 1 Hz to 3.0 GHz, 1 Hz to 6.2 GHz, and a new addition that spans 1 Hz to 26.5 GHz, with resolution bandwidths from 0.1 Hz to 10 MHz for a closer look at a signal of interest. Even without the 165-MHz acquisition bandwidth, these are impressive analyzers, offering +17-dBm third-order intercept at 2 GHz, ±0.3 dB amplitude accuracy to 3 GHz, and -142 dBm/Hz displayed average noise level at 26.5 GHz. Internal noise levels are well controlled, with phase noise of -134 dBc/Hz offset 10 kHz from a 10-MHz carrier and -113 dBc/Hz offset 10 kHz from a 1-GHz carrier.

Unlike traditional spectrum analyzers, which are often based on YIG filters, these RTSAs are not victims of the relatively narrow bandwidths of YIG components; they provide wide dynamic ranges at all bandwidths to display continuous-wave (CW), pulsed, and modulated signals. The analyzers can

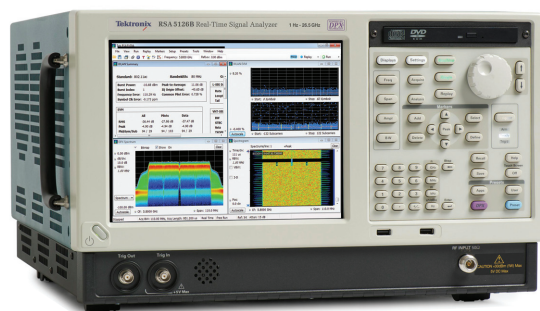
capture short-duration signals and are rated for 100% probability of intercept (POI) for signal durations as short as 2.8 μs. In terms of processing analyzed spectra, the instruments can process more than 390,000 spectra/s.

The analyzers are equipped with generous automatic real-time measurement capabilities, including amplitude modulation, frequency modulation, adjacent-channel leakage ratio, complementary cumulative distribution function, channel power, occupied bandwidth, and spurious signal measurements. In addition to making advanced pulsed measurements, the analyzers can also measure phase noise and jitter at offsets from 10 Hz to 1 GHz from a carrier frequency.

Captured signals are shown on a swept DPX® spectrum display, which uses color to show signal transients changing over time in the frequency domain. The analyzers can also be set to provide triggered spectrum analysis,

showing such measurements as time-qualified power and frequency and triggered frequency-mask measurements. The unique DPX Density Trigger allows the instrument to trigger on any signal seen in the DPX display based on the signal of interest's density over time.

The analyzers can capture a short or long pulse in a pulse train, and can capture frequency-domain events that may only last for a specified time. Triggers can be set on power levels from 0 to -100 dB from a reference level. Runt triggers can be set to capture infrequent pulses. Finally, the instruments feature 10.4-in. touchscreen displays. www.tektronix.com



The RSA5000B series of RTSAs is now available with instantaneous acquisition bandwidths as wide as 165 MHz for measurement ranges to 26.5 GHz.

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