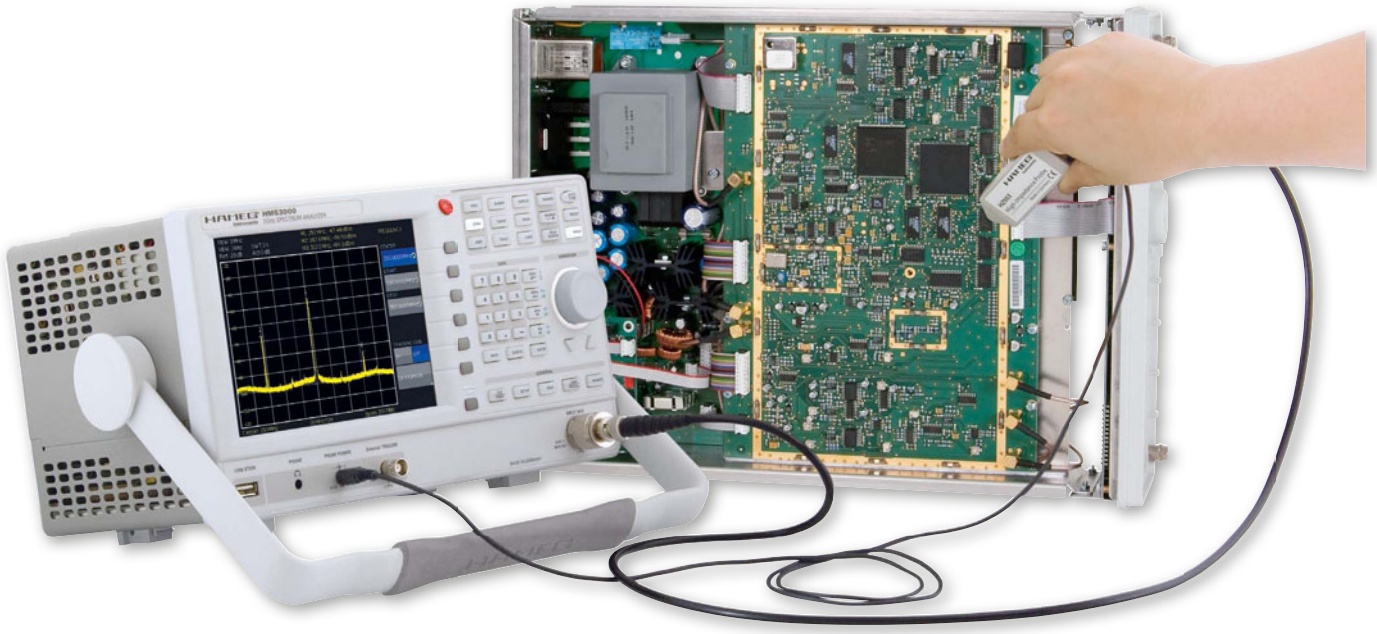
HAMEG
Spectrum Analyzer

New perspectives using spectrum analysis

Change of paradigms in the measuring instruments industry



The widespread use of wireless applications as well as the requirements of low EMI emission from state-of-the-art digital circuits caused a new thinking in laboratories and test departments. While the signal analysis in the time domain is well established, spectrum analysis is now demanding its place on the lab bench.

Up to now this measuring technique was not affordable for most users. Hameg Instruments traditionally offers high performance measuring equipment at a fair price. The HMS series puts an end to the exclusiveness. A practical user interface was considered as most important in order to let the complex theory of spectrum analysis take a back seat.

Any periodical signal - no matter whether it's a square wave, triangle, sawtooth or any other shape, can be represented by a sum of sine waves of the fundamental frequency and its harmonics with different amplitudes and phases. In other words: each non-sinusoidal signal contains a multitude of additional frequencies which may cause various problems, e.g. they may create distortions or undesired emissions. A spectrum analyzer makes these signals visible as spectral lines. The amplitudes of the individual lines may encompass a very large dynamic range. In order to display these, the signal gets logarithmically scaled and typically displayed as a power, calibrated in dBm (0dBm = 1mW) into 50 ohms.

The lab environment in real life

In order to save time and money, small and medium sized companies frequently use the (wireless) "Reference Designs"offered by the semiconductor manufacturers in their products. During all design phases it is desired to check the progress by performing Pre-Compliance measurements in-house using a spectrum analyzer. After formal approval the spectrum analyzer's capability of selective power measurements allows completely new and efficient functional and system level tests in the production of PCBAs and instruments.

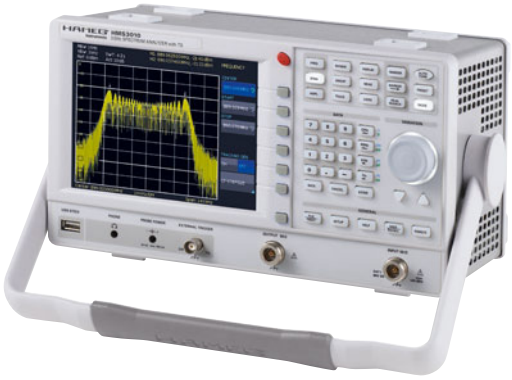
The HMS1000 and HMS3000 offer a frequency range of 100KHz to 1GHz/3GHz. Both instruments are also available with a tracking generator as HMS1010 and HMS3010. The amplitude measuring range extends from -114dBm to +20dBm (1KHz RBW); the optional preamplifier further extends this range to -135dBm (100Hz). The display has 10 divisions in both the amplitude and frequency axes. The spectral purity exceeds -100dBc/Hz for a carrier offset of 100KHz. Special attention was given to comprehensive and practical filter bandwidths.

The HMS300 covers the range from 100Hz to 1MHz (-3dB) in 1 – 3 steps; for EMI measurements the CISPR band widths 200Hz, 9KHz, 120KHz and 1MHz (-6dB) are provided as well. The user may choose between auto-, minimum-, maximum-, max-peak-, sample-, rms- or quasi-peak detectors.

Radio monitoring included

The built-in FM- and AM demodulators allow you to identify interference easily either via the headset output or the incorporated loudspeaker which helps to analyze the root cause fast. Apart from the classical laboratory measurements the applications range from transmitter-, cable-, and antenna tests to the judgment of the signal quality in the areas of public and private radio. The 8 markers provided including the delta marker as well as the various peak search functions shorten the analysis and processing times.

The HMS series is very compact in spite of the large 6.5" VGA - TFT display. The DVI output allows to connect a projector or a standard TFT monitor which is very useful in manual test stations when the instruments are mounted in 19" racks. 3 USB ports for mass storage, printer or remote control are standard, an IEEE-488 or an Ethernet/USB interface are optional. The instruments are available from stock.



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