Phase Noise

PN9500 Digital Spectrum Monitoring

- Real Time FFT
- Built-in
- Wide and Narrow Span
- Harmonics measurement
- Pulsed Spectrum analysis

The Digital Spectrum Monitoring function finally offers the PN9500 much more than traditional phase noise measurements. In fact the PN9500 already integrated a frequency counter, a digital oscilloscope, a power meter and now integrates one of the best RF tools, a Digital Spectrum Monitoring function.

The PN9500 has the inherent flexibility of having plug-in options available in one integrated package instead of having to rack and stack equipment and deal with results correlation issues. The addition of the DSM function simplifies connection changes for the user by keeping the same instrument for multiple test tasks.

The DSM uses the microwave Local Oscillator available in the PN9500 to down convert the RF signal to an IF that is digitized by a 100 MS/s converter. Then a spectral analysis of the signal in a real time bandwidth of 30 MHz is performed using FFT processing.

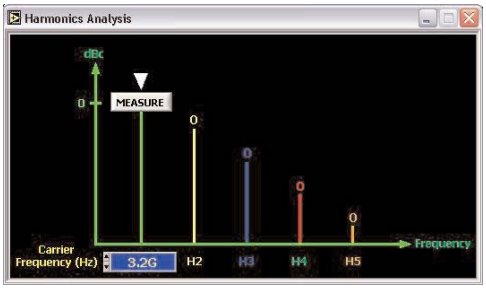
Not only can the user perform narrowband spectrum analysis but they can also select to measure wideband spectrum into the DC to 18 GHz range. The monitoring function can be specified into a very flexible range.

As for a traditional spectrum analyzer, this function measures power level, power variations, ACPR, Harmonic distortion and more by setting markers. The DSM software also allows exporting of text files or pictures in various formats for post-processing or storage in third party software.

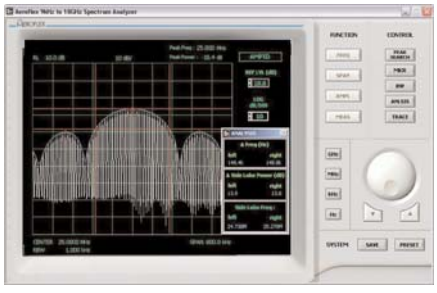
In addition to the standard functions usually present on spectrum analyzers, the DSM also integrates specific processes well adapted to the RADAR market. In the case of a pulsed signal, it measures the spectral response of a pulsed signal and analyzes the power difference between the side lobes. This analysis is done with a 30 MHz maximal span.

This new option also guarantees a better Return On Investment for the owner as the Spectrum Monitoring function uses hardware parts usually dedicated to phase noise measurements.

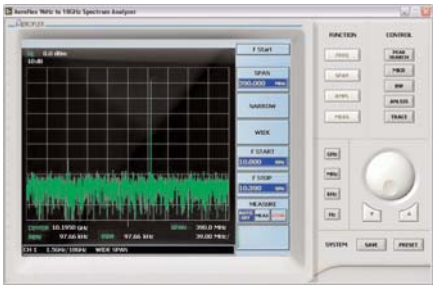
DSM is a software option available for all PN9500 systems as an upgrade or an option in a new unit.



Harmonic Analysis



Pulsed Spectrum



Wide spectrum capable

SPECIFICATION

INPUT CHARACTERISTIC

Input Impedance

50 Ω

Maximum input level

+20 dBm

Frequency Range

DC-18 GHz

Frequency span

10 KHz-16 GHz

Resolution Bandwidth

100 Hz to 100 kHz (steps 1,2,4...)

Maximum real time FFT

30 MHz

FREQUENCY SWEEP TIME

Span=10 MHz, RBW=10 kHz

50 ms/Avg

FREQUENCY RESPONSE

DC - 18 GHz

±2 dB

NOISE RESPONSE

Phase Noise (Offset from Carrier): typical values at 1 GHz

100 Hz	*-105 dBc/Hz*
1 KHz	*-130 dBc/Hz*
10 kHz	*-136 dBc/Hz*
100 kHz-	*-136 dBc/Hz*
1 MHz	*-152 dBc/Hz*
10 MHz	*-152 dBc/Hz*

Displayed Average Noise Level (DANL): -158 dBm/Hz typical values

AMPLITUDE SPECIFICATION

1 dB gain compression

+9 dBm (high level mixer) +3 dBm (standard mixer)

IP3

+18 dBm (typical, high level mixer)

Residual response

<-100 dBm

Spurious (mixer level -40 dBm)

F <15 MHz from carrier (-73 + 20 log(N)) dBc

F >15 MHz from carrier (-90 + 20 log(N)) dBc

N= 1 2 GHz to 4, 5 GHz

N= 2 4, 5 GHz to 9 GHz

N=4 9 GHz to 18 GHz

ORDERING INFORMATION

When ordering please quote the full ordering number information.

Ordering Numbers	Versions
PN95-DSM-00	Digital Signal Monitor for PN9500 systems

CHINA Beijing
Tel: [+86] (10) 6467 2716
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