

Radar Products

PN9002 Pulse to Pulse Radar Stability Test Set



The PN9002 is a UNIQUE instrument on the market. Based on the heritage of the PN9000 product line, it is a stand-alone system, fully compliant to radar stability measurements.

- Simple and Fast Measurements
- Complete Frequency Coverage
- Versatile Modular Architecture
- NIST Traceable Accuracy

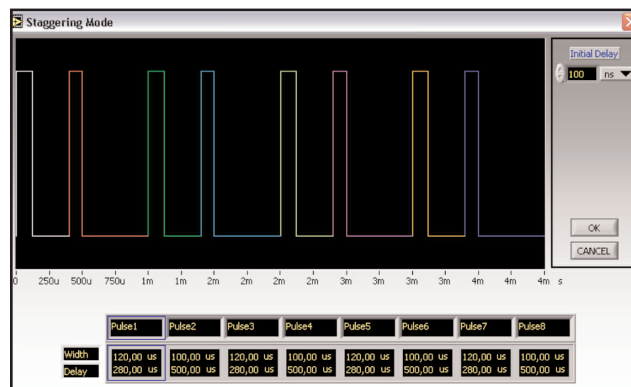
The PN9002 is a UNIQUE instrument on the market. Based on the heritage of the PN9000 product line, it is a stand-alone system, fully compliant to radar stability measurements. It integrates all the needed hardware and software to test a two port module for amplitude and phase stability. The PN9002 acts as a "micro-Radar" providing pulsed signals to the DUT and analyzing the received pulses.

It easily covers 400 MHz to 18 GHz in a scalable concept that can be extended in the future. The heritage from the PN9000 product line guarantees the lowest noise floor available. The dynamic range reaches -79 dBc typical (-76 dBc guaranteed) in stability integration over the bandwidth of the "equivalent receiver".

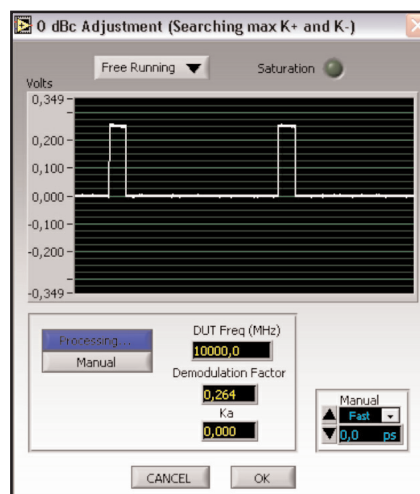
The PN9002 system enables measurements of amplitude and phase stability of RADAR pulses with an unprecedented dynamic range.

Time Domain Measurements

The system demodulates all Phase and AM variations. It works like a Phase and Amplitude oscilloscope. For either pulse to pulse or intra-pulse analysis, the PN9002 computes Phase and AM RMS value, peak to peak, drift, etc ...



Signal definition



0 dBc Adjustment

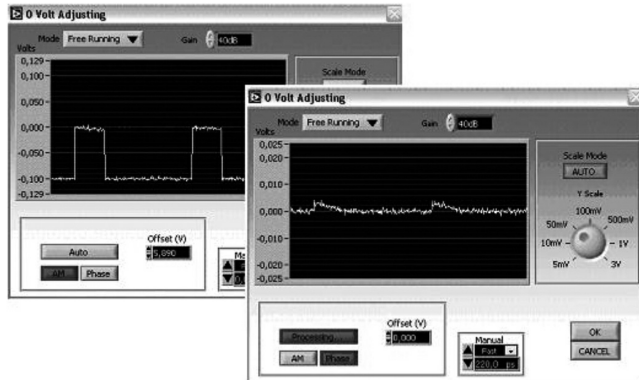
Frequency Domain Measurements

On time domain the system adds a FFT analyzer and computes the cancellation factor and stability into user defined Doppler filters with control over the integration bandwidth.

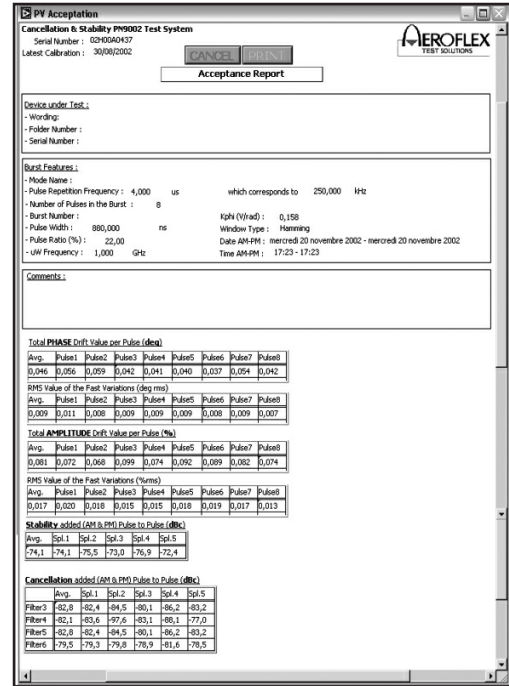
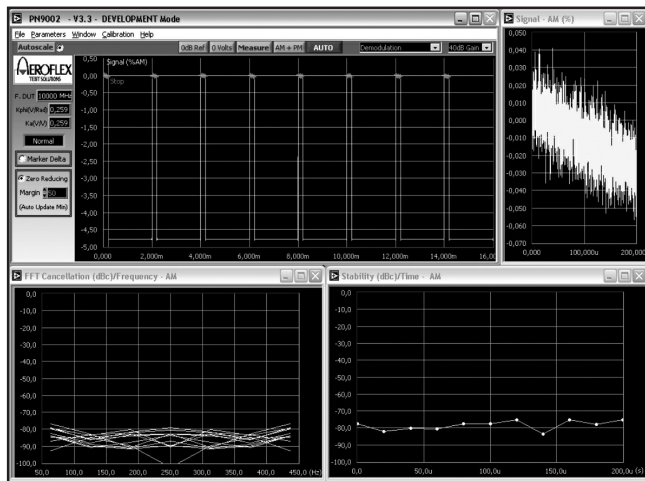
The PN9002 presents a full automatic process: designed for R&D and manufacturing measurements .

The user interface provides

- Full control of the system, pulse analysis and generation
- Open/Save measurements, export to spreadsheet
- Automated measurement procedures



Amplitude/Phase Adjustment



SPECIFICATIONS

DUT Input / Output Frequency Range

2 to 18 GHz, Option 0.4 to 18 GHz

Max available Level to DUT Input

13 dBm ± 2 dBm (PN9002 output)

DUT required Output Level

0 dBm to 2.5 dBm (PN9002 Input)

DUT power supply synchronization

Option, TTL

Clock Output for Synchronization

TTL 50 MHz

Resolution

20 ns or 200 ns clock
2 Msamples memory base

Minimum pulse width

200 ns

Maximum pulse width

500 μ s (20 ns resolution)
2 ms (200 ns resolution)

Sampling clock frequency

up to 50 MHz

Residual System Noise

- 76 dBc cancellation guaranteed
- 79 dBc typical
- 76 dBc stability guaranteed (9 mdeg RMS or 0.016% AM RMS)*
- 79 dBc typical (6.5 mdeg RMS or 0.011% AM RMS)*

System Accuracy

+/- 2 dB

Instantaneous Bandwidth

20 MHz max (digital adjustable Bessel filter)

* Within a receiver bandwidth of 20 MHz, AC coupled, on a monotonous pulse pattern.

PULSE MODULATOR SPECIFICATIONS

Non-Reflective Modulator Rise/Fall Time

10 ns

ON/OFF Ratio

80 dB

Stability

Included in residual system noise floor

PATTERN GENERATOR SPECIFICATIONS

Rise/Fall Time

10 ns

Minimum pulse width

200 ns

Output level

TTL, 50 Ω

Time resolution

20 ns

SOFTWARE SPECIFICATIONS

- | | |
|--------------------------|---|
| • Operating System | Microsoft Windows XP pro |
| • File management | Open / Save plots and configuration |
| • Printing utility | Print plots or acceptance report |
| • FFT Windows | Hanning, Hamming, Blackmann, etc... |
| • Time domain processing | Standard deviation, RMS, peak to peak, multiple interpolations |
| • Automated functions | Simple 0 dB adjustment by different methods, phase and amplitude measurement sequence |
| • Built-in modes | Standard pulse burst or Stagger pattern (Stagger not compatible with FFTs) Full feature access or restrict "acceptance only mode" |

FUNCTION CONFIGURATION

- Generator rack includes:
 - Internal low phase noise synthesizer
 - Pattern generator
 - Pulse modulator
- Analyzer rack includes:
 - Added noise module
 - Phase/AM detector
 - Video shifter, LNA amplifier
 - Signal processing module
- Programmable phase shifter

- Control Unit includes:

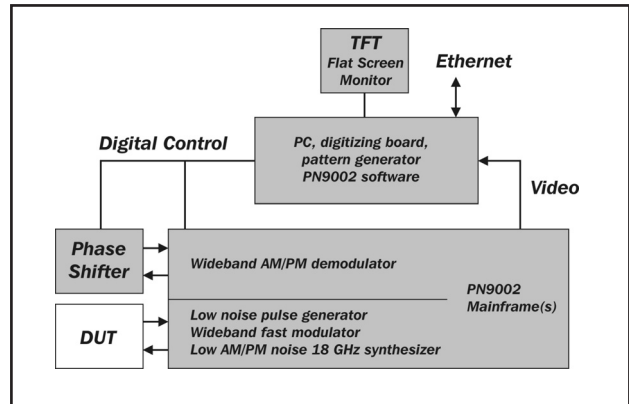
Display, keyboard and mouse

Pattern generator

Digitizer

MECHANICAL CONFIGURATION

- 2 Chassis 13.3 x 46 x 35 cm
- System Controller (PC) with internal specific boards
- Software tuneable phase shifter



Mechanical configuration

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.