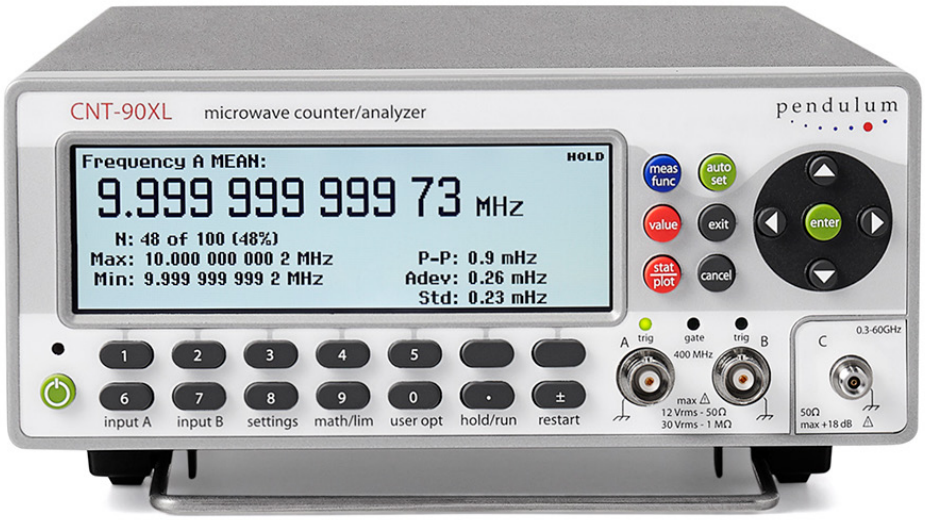
CNT-90XL

Radar Sensor Manufacturer Improves Performance and Reduces Cost using CNT-90XL

SUCCESS STORY

- Statistical analysis including histogram, trend & graphical presentation of results.
- CW and burst measurement of frequency and power.
- Optional TimeView SW provides in-depth modulation domain analysis.
- 250 000 measurements/sec to internal memory.
- 500 frequency results/s over GPIB (individually triggered).
- 14 digits display.
- Frequency range of 27, 40, 46 or
- 60 GHz models.



Background

The German company InnoSenT GmbH designs, manufactures and sells radar-based sensors for industrial, commercial and automotive applications. The company designs radar front ends for speed and distance measurements. Typical applications are detectors for door openers and security systems, traffic monitoring and speed enforcement and automotive sensors like side assist/blind spot detection and adaptive cruise control. Techniques used are CW-Doppler radar sensors as well as FM or FSK modules.

When the business expanded, InnoSenT needed instruments that could measure frequency, frequency stability, frequency agility and RF-power to about 24 GHz. The need was to be found both in R&D and production and before, InnoSenT had used Spectrum Analyzers in their production line. Most products use the 24 GHz ISM-band (24.0-24.25 GHz), but in some cases frequency bands around 10.5 GHz, 13.7 GHz, 2.4 GHz and 35 GHz are used.

InnoSenT started to evaluate different options and found out that the Pendulum CNT-90XL Microwave counter/analyzer was of big interest.

Applications for the CNT-90XL

- R&D: First, InnoSenT bought a CNT-90XL 27 GHz to be evaluated in their R&D department. Subassemblies like mixers, amplifiers, oscillators and VCOs' are designed by the R&D group, and needs to be both tested and qualified. The
- CNT-90XL is used for measuring frequency, output power and noise. The TimeViewTM SW is used in the R&D group for in-depth analysis of frequency changes vs time etc.
- Production: After the evaluation in the R&D group, there was decided to invest in three CNT-90XL 27 GHz Microwave counters/analyzers for the production. In production, the radar sensors have to be tuned in frequency, which happens by laser cutting resonant lines on the circuit
- board. Also, the oscillator frequency must be monitored during this process.
- End-of-line testing: After completing the assembly, many functions have to be tested in the end-of-line test. Examples of this are RF-frequency and RF-power (EIRP).

Why CNT-90XL?

InnoSenT evaluated both Pendulum counters and counters from Agilent. The good technical fit for a reasonable price was the main reason for InnoSenT to choose the Pendulum CNT-90XL Microwave counter/analyzer. A valuable extra for the R&D group was the ability to analyze frequency variations (doppler frequency shift, frequency settling, FM and FSK) vs time, using the TimeViewTM SW.

After the first evaluation in the R&D group, the decision was taken to also invest in the instrument for the production line. Spectrum Analyzers, which InnoSenT used before, is both more expensive, performs substantially fewer measurement results/s and doesn't provide the company with modulation domain info (frequency vs time) as the CNT-90XL.

InnoSenT is very happy by the performance and price of the CNT-90XL and has continued to buy pieces of the instrument, and will also continue to buy it in the future.

Success Summary

The customer has substantially reduced its costs for production test equipment by choosing the CNT-90XL 27 GHz over Spectrum Analyzers. In the R&D lab, the modulation domain analysis (TimeView plus CNT-90XL) provides valuable information about frequency shifts and modulation, earlier not achievable with existing test instruments.