KT Vehicle Radar Test System

The KT Vehicle Radar Test System (KT VRTS) is a stand-alone radar test bench for 24 GHz and/or 76 to 82 GHz radar sensors. Modular and scalable by design, it can be configured to meet specific or comprehensive radar validation test plans. KT VRTS combines RF parametric measurement-based tests with object emulation-based tests for functional and performance radar sensor validation across the entire sensor field of view (FOV). And it's easy to integrate regression, repeatability, thermal, and shaking tests for a complete design and validation test plan.

The KT VRTS Advantage

- Reduce development time and increase test coverage with modular test plans built on NI hardware and software.
- Quickly improve design performance by easily updating validation tests using flexible, configuration-driven test plans.
- Lower the cost of test with a reduced system footprint by combining object emulation and parametric measurements in the same station.

Application Challenges

- Validation test plans for 24 GHz and/or 76 to 82 GHz radar sensors with up to 4 GHz operating bandwidth. Test single and multiple objects at varying ranges, sizes, and velocities for multiple angles of FOV.
- Extensive and comprehensive test plans to reliably and repeatably test and validate sensor design and performance across the complete FOV according to specifications and use cases.
- Efficient and configurable automated test equipment (ATE) to quickly implement a variety of radar tests for different sensors according to the sensor use case or validation test plan.

KT VRTS Solution

Modular, scalable, and integrated ATE for validation tests of 24 GHz and 76 to 82 GHz radar, up to 4 GHz operating bandwidth, and four objects on four angles of the FOV

Stand-alone functional ATE system for RF measurements like EIRP and operating bandwidth, and single or multiple independent object simulation tests on multiple angles of FOV

Build custom test sequences for complete sensor FOV and for controlled test sequence execution with the KT Radar Test and Measurement Suite. Add-on options are available for thermal and shake tests.

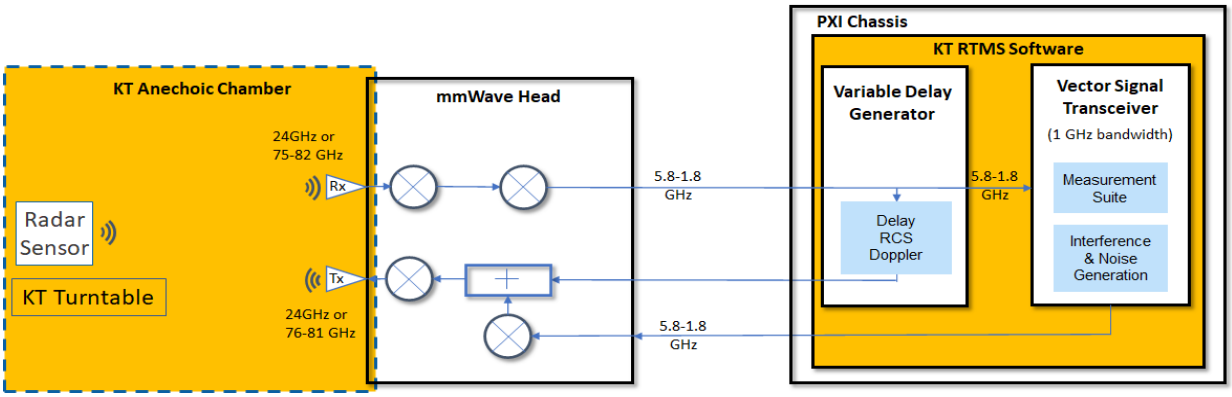

Figure 1. KT VRTS Solution System diagram

Key Specifications

Frequency Bands	4 GHz bandwidth over 6 GHz span for 75 to 82 GHz; 24 GHz
Number of objects	One to four objects on single Angle of Arrival (AoA)
Number of objects on multiple AoAs	Up to four independent objects on four independent AoAs
Emulated Object Range	3 m to 300 m
Range Resolution	5 cm
Doppler Range; Resolution	+/- 500 Km/hr (75 KHz); 0.1 km/hr (7.5 Hz)
RF Measurements	EIRP, occupied bandwidth, chirp analysis, linearity
Object Angular Movement (Azimuth)	+/- 100 deg at +/- 0.05 deg accuracy
Object Angular Movement (Elevation)	+/- 20 deg at +/- 0.8 deg accuracy

Figure 2. KT VRTS

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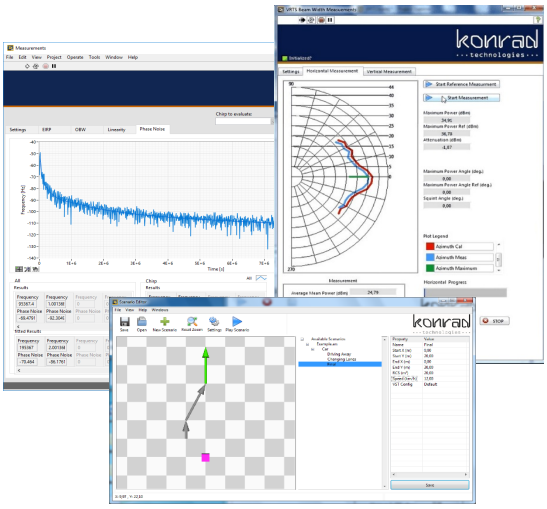

Figure 3. KT Radar Test and Measurement and Suite (RTMS)

System Integration on Your Terms

NI offers a variety of solution integration options customized to your application-specific requirements. You can use your own internal integration teams for full system control or leverage the expertise of our worldwide network of NI Partners to obtain a turnkey system. To learn how you can increase product quality and shorten test timelines, contact your account manager or NI at (888) 280-7645 or info@ni.com.

Contact Konrad Technologies or your NI account manager to learn more about how we can help you increase product quality and accelerate testing timelines.

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