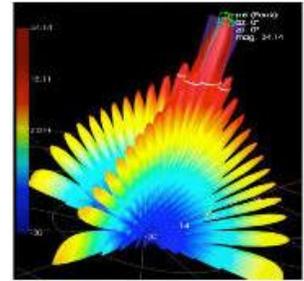


Accelerate Algorithm Development for AESA Phased Array Radar

Model Your System Performance Earlier in the Design Cycle

Designing Signals for Improved System Performance

Different applications for Radio Detection and Ranging can require significantly different signal types to optimize overall system performance for factors such as range, range resolution, doppler shift, and probability of detection. Additional considerations include susceptibility to noise, clutter, interference, and countermeasures.



Another fundamental design choice is antenna directivity, which substantially improves sensitivity to the target while minimizing detection or interference from other directions. Beamforming using active electronically scanned array (AESA) technology is beneficial in this regard, and the large number of antenna elements also improve redundancy, which is invaluable in mission-critical applications.

Prove New Waveforms and Algorithms

When developing new waveforms and algorithms for phased array antennas, you cannot afford to wait until all systems components are available. To stay ahead you need:

- A prototyping platform or digital twin that allows you to run parallel development
- Calibrated multi-channel signal generation and analysis that can scale to an appropriate number of phase-coherent ports.
- A method to fine tune modern radar systems for optimal performance in their specified operating mode.

The ability to prototype and evaluate new radar waveforms, together with the algorithms required for antenna beamforming, provides a powerful advantage during system development.

Extended Applications and Support

The latest generation of commercial off the shelf hardware and software allow new possibilities for flexible signal creation & analysis, scaled coherently to multiple RF ports. You can rely on Keysight's worldwide delivery and support services to fulfil the exact functionality you need for systems development and to sustain your program over the entire life-cycle.



Keysight Services

Augment your team. Enhance your advantage. Our applications specialists are available to share their expertise and address your specific test challenges.

For more information, refer to

<http://www.keysight.com/find/consulting>



Phase-Coherent Signal Generation and Analysis for Precise Waveform Prototyping and Beamforming Evaluation

A cost-effective solution for accelerating development of new radar waveforms and beamforming algorithms

System features:

- Flexible waveform generation & analysis
- Simplified data exchange with existing systems & signal formats
- Scalable multi-channel implementation with phase-coherent transmit and receive
- System-level calibration

Compact, commercial off-the-shelf hardware

- High-performance, phase-coherent Waveform Generators
- High-performance phase-coherent Digitizers
- Digital Up & Down conversion for improved dynamic range
- Optional external frequency conversion to extend RF range

Take the load off your team

Our applications specialists are available to share their expertise and address your specific design and test challenges including:

- System-level design and customization
- Hardware and software integration, including third-party elements
- User training
- Up-time support and ongoing maintenance

Conclusion

Developing and evaluating new signals for radar and phased array antennas benefits from early prototyping. Commercial off-the-shelf components from Keysight can be applied to assess the suitability different waveforms and beam-steering algorithms, so you can optimize for the required system performance.

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus



Example 16-channel coherent Tx/Rx configuration offered with system-level calibration