

Advanced DRFM target generator for radar test and evaluation

Key Differentiators

Radar HWIL demonstration: In addition to verifying performance with RF test equipment, Dynerics performs extensive hardware-in-the-loop (HWIL) testing with a laboratory Doppler radar. This capability allows customers to observe their systems' execution of required EA techniques in range-Doppler map displays before delivery, lowering integration risk.

Integration support: PhantomRF includes a user manual and a network interface control document (ICD) to facilitate integrating the DRFM into a larger system. Dynerics personnel support integration activities on-site, reducing integration time and risk.

PhantomRF is an advanced, customizable digital radio frequency memory (DRFM) target generator from Dynerics. It provides radar test and evaluation programs with an affordable platform for high-fidelity false target generation.

In addition to generating false targets by repeating delayed copies of intercepted radar waveforms, PhantomRF is capable of implementing sophisticated, responsive electronic attack (EA) techniques for electronic protection (EP) testing requirements.

Specification	Value	Benefit
Instantaneous bandwidth	1 GHz	Supports testing with frequency agile and high-range resolution radar systems
Sampling	2.5 GHz sampling, 12-bit ADC, 14-bit DAC	Provides high-fidelity reproduction of radar waveform, high dynamic range for test flexibility
Intermediate frequency (IF)	1.375 to 2.375 GHz	Second Nyquist zone sampling facilitates excellent spectral purity in radio frequency (RF) downconversion/upconversion
Target range/delay	1 to 32 simultaneous targets <1- μ s to 4.5-ms target delay <150-m to 675-km target range	Provides flexible target generation
EA techniques supported	Coherent: range gate pull-off (RGPO), velocity gate pull-off (VGPO), coordinated RGPO/VGPO false targets, head-to-tail repeating pulse, Doppler noise Non-coherent: narrowband / wideband noise, cover pulse	Flexible technique generation for understanding the detailed radar interaction of EA

Dynerics PhantomRF



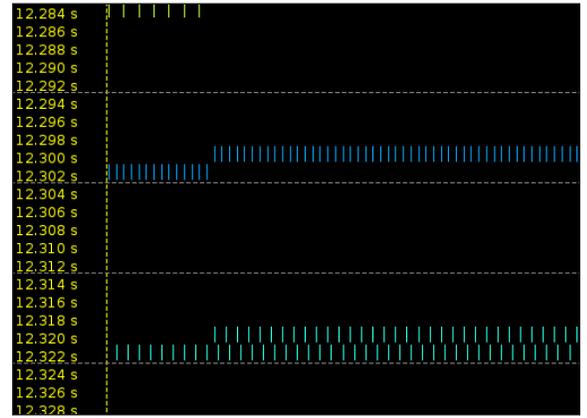


RF front-end of the PhantomRF unit

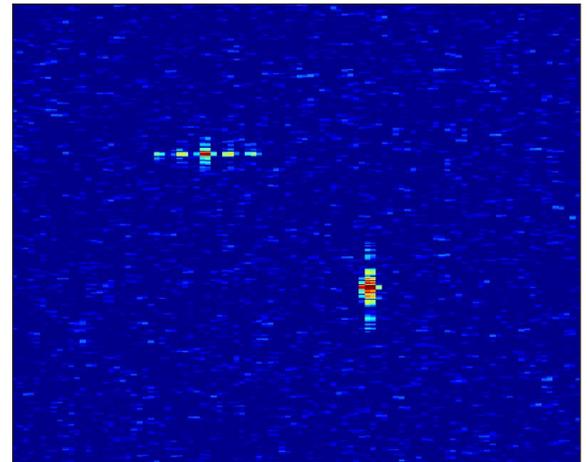
Optional Upgrades

- **RF front-end:** Although the base PhantomRF system has a fixed IF, Dynetics offers a standard 2 to 18 GHz RF downconversion/upconversion unit, or can design to meet customer RF requirements.
- **Pulse detection/pulse repetition interval (PRI) tracking:** PhantomRF has an option to detect pulses, encode pulse parameters into pulse descriptor words (PDWs), and deinterleave multiple emitters to detect and track PRIs. This functionality is useful for emitter waveform verification in test and evaluation applications and is a key enabler for advanced EA techniques against agile threats.
- **High-speed recording:** Dynetics can optionally supply a high-speed recorder to capture full-duty wideband sampled data to disk for offline analysis.
- **Additional EA techniques:** In addition to the EA techniques listed in the table, Dynetics can implement customer-specified EA techniques with firmware modifications.

Optional high-speed recorder available with PhantomRF



ELINT pulse viewer allows real-time view of detected pulses.



Independent range-Doppler DRFM scatterers facilitate modeling multiple targets, jet engine modulation (JEM), and range-extended false targets.

Innovating Sensor Technologies Since 1974

Dynetics has a rich heritage in radar system analysis, development, and testing. We have decades of experience supporting the U.S. intelligence community in reverse engineering, providing in-depth understanding of foreign weapon system capabilities, and developing air and missile defense systems. Dynetics comprehends the detailed interactions between radar systems and EA techniques and uses this expertise to solve challenging problems.

800.922.9261 x5020

www.dynetics.com

2018 Copyright. Dynetics, Inc. All Rights Reserved.

K140357