Drone-Mounted Radar Target Simulator

Airborne radar target simulator

The drone-mounted radar target simulator integrates a radar target simulator into a drone platform. It detects the radar's transmissions, applies controlled delay and Doppler shift, and retransmits them, creating virtual targets in real flight geometry. Simulated range and velocity are independent of the drone's own position and speed, so a nearby drone presents a distant or fast target. Because the platform physically moves in three dimensions, the radar is tested with a real airborne line of sight and at different elevations, with less ground clutter and multipath than a ground-based simulator. It reduces the need for piloted test aircraft and fixed test ranges.

APPLICATIONS

- Radar development testing
- Verification and validation
- Factory acceptance testing
- Field calibration
- Operator training
- ECCM evaluation



Figure 1. Drone-Mounted Radar Target Simulator

Key Features

- Range, Doppler and multiple targets
- Real flight geometry
- Less clutter and multipath
- Repeatable, dynamic scenarios

Capabilities

Range, Doppler and multiple targets

Generates virtual range and velocity independently of the drone's position and speed, simulates distant targets, produces multiple targets and false echoes, and supports pulse-Doppler radar testing.

Real flight geometry

The simulator moves physically in three dimensions, giving the radar a real airborne line of sight, elevation testing at different heights and realistic near and far geometry for tracking tests.

Less clutter and multipath

Operating from the air reduces ground reflections and multipath effects compared with a fixed, ground-based target simulator.

Repeatable, dynamic scenarios

Scenarios are repeated for consistent test results and changed dynamically during the flight, including multi-target emulation and ECCM and anti-jamming tests.

Warranty

All hardware and software procured from Zeta is under warranty against manufacturing or design failures for 2 years. Customer-specific warranty terms may be arranged.

Disclaimer

Due to ongoing research and development, Zeta reserves the right to change product specifications without notice.

About Zeta

Zeta Defence develops electronic intelligence (ELINT) and communication intelligence (COMINT) equipment and radar / electronic warfare simulators. Its capabilities include RF transceiver system design, digital design and large-scale software development.

Contact

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