



METASENSING
RADAR SOLUTIONS

GUARDIAN

AIRBORNE SAR PAYLOAD

**EMPOWERING PRECISION
ADVANCED PROTECTION**

Your Ultimate Solution for Advanced
SAR Imaging



ADVANCED CAPABILITIES FOR SURVEILLANCE AND DETECTION

The Guardian is a state-of-the-art, lightweight, jamming-resistant Synthetic Aperture Radar (SAR) operating in the X-band frequency. Designed for Intelligence, Surveillance, and Reconnaissance (ISR) over water and land, it combines mechanical scanning of the antenna with electronic scanning of the radar beam. This hybrid approach enables real-time wide-area surveillance, ranging from long-range searches to exceptional small-target detection. Equipped with advanced Moving Target Indication (MTI) mode powered by Space Time Adaptive Processing (STAP), the Guardian can detect, track, and georeference moving targets, from fast vehicles to walking individuals.



HIGH-RESOLUTION IMAGING AND FLEXIBLE CONFIGURATION

The Guardian produces high-resolution SAR images, capturing detailed features of the environment for accurate target classification in all weather conditions and at any time of the day or night. It consists of three compact, ITAR-FREE Line Replaceable Units (LRUs): a Processor, a Stator/Pan-Tilt Unit (PTU), and an Antenna. These LRUs can be reconfigured for easy installation and reduced weight, offering flexibility for mounting either directly onto the platform or in a pod. This modular design ensures adaptability for diverse operational requirements.



VERSATILITY FOR MODERN AIRBORNE PLATFORMS

Providing an all-weather, high-resolution intelligence and surveillance solution, the Guardian is compatible with both new and existing airborne platforms, manned and unmanned, including MALE RPAS and UAVs. Its compact and lightweight design allows for integration alongside electro-optical and infrared sensors, even on platforms with limited payload capacity. The baseline version features four independent transmit/receive modules with four simultaneous sampling channels, while custom-scaled versions are available to meet specific operational needs.

GUARDIAN TECHNICAL DATA

MetaSensing GUARDIAN	Guardian Airborne SAR
Frequency	X-band (9.5 GHz)
Bandwidth	Up to 1 GHz
Coverage (installation dependent)	Fixed installation or Azimuth $\pm 170^\circ$, Elevation 45°
Maximum Range	60 km (Imaging) 120 km (Detection)
Ground Resolution	Up to 0.3 m
Modulation Type	Arbitrary Waveforms
Number of Channels	4
Payload Mass	37 kg (processor, stator & antenna) 24 kg (processor & antenna)
Cooling	Unconditioned Air (internal fans)
Interfaces	Ethernet, Power, GPS Antenna
Operational Modes	Stripmap, Spotlight, GMTI, MMTI, ISAR, Sea Surveillance, Ground Mapping
Moving Target Indicator (MTI)	Ground, Maritime, Dismount
Additional Features	Weight-on-Wheel, BIT, Multicast, Multi-maps
Standards	STANAG 7023 (Imaging) STANAG 4607 (MTI) MIL-STD-810H MIL-STD-461G

KEY FEATURES

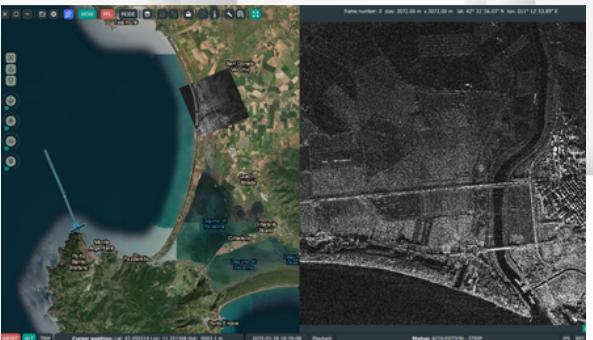
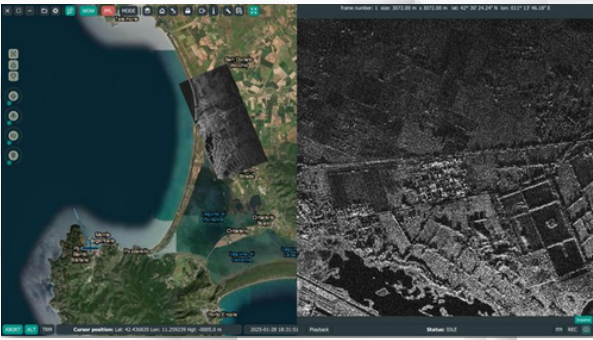
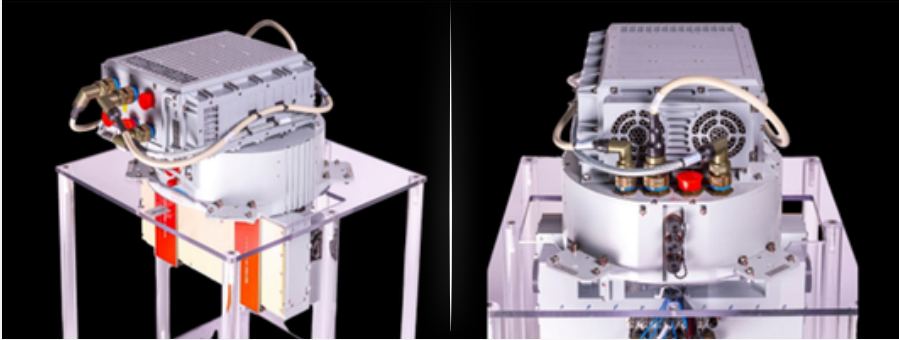
- Disruptive innovative SAR Real Time focuser
- Embedded Inertial Navigation System (INS)
- Heterogeneous computing (FPGA, CPU, GPU)
- High-resolution imaging (Spotlight, stripmap)
- Real-time detection (GMTI/DMTI/MMTI)
- Ground Mapping, Sea Surveillance
- Advanced classification (ISAR)

KEY BENEFITS

- Wide area monitoring
- Use of multiple Transmit/Receive Modules
- Jamming resistant
- Light-weight and compact
- Easy to install and use
- Modular, scalable and flexible design
- Low maintenance

APPLICATION:

- Data collection and intelligence
- Surveillance and Reconnaissance
- Search and Rescue applications
- Disaster monitoring and recovery
- Maritime and border surveillance
- Mapping and monitoring
- Illegal trafficking monitoring



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