



RFEYE TECHNOLOGY

EARLY WARNING RF DETECTION FOR IAMD

Modern air defense depends on detecting threats as early as possible, without revealing your own position. Passive RF sensors deliver that capability.

Operating silently, they detect and geolocate hostile emitters in real time, allowing air defenders to maintain EMCON, gain valuable decision time, and cue other sensors or weapon systems for precise targeting.

Passive RF technology augments traditional radar systems—which are effective but exposed—by adding persistent, rapidly deployable sensors that deliver full Electronic Support Measures (ESM) capability. Aligned with the 'mix, mass, modularity' principles of modern IAMD, these sensors enable defenses that are flexible, scalable, and reconfigurable.



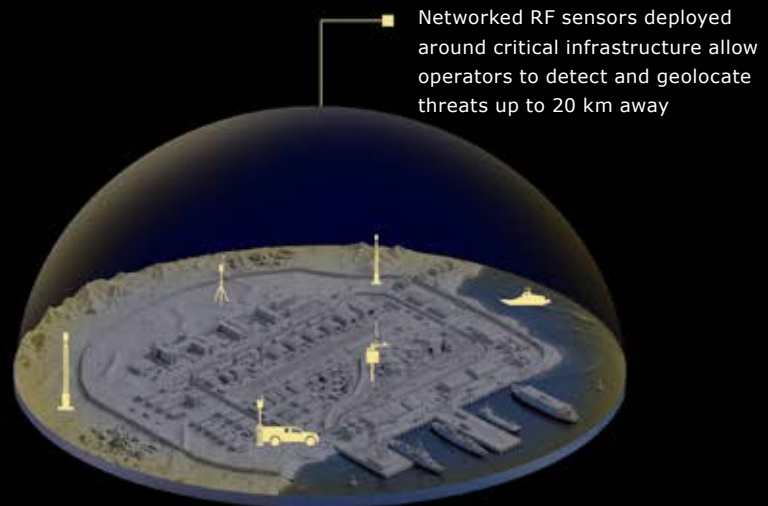
Problems overcome by adding RF sensors to traditional IAMD

Modern air threats now span the full spectrum of attack profiles—from ballistic missiles to low-flying kamikaze drones. Many existing air defense architectures are not optimized for persistent, low-altitude drone attacks operating within complex electromagnetic environments. As such, they can increasingly benefit from being complemented by distributed, networked sensing architectures operating across wide areas.

PROBLEM	HOW RF SENSORS HELP
Reliance on radar	
Radar emissions can be detected and targeted by adversaries.	Passive RF sensors detect threats without emitting, allowing radars to remain silent until needed.
SAM systems are optimized for medium- and high-altitude threats.	Passive RF sensing improves detection of low-altitude threats.
Active radar sensors are vulnerable to electronic attack.	Passive RF sensors can detect and geolocate sources of interference.
OWA drones	
Low-altitude, slow-flying OWA drones can attack from long range.	Networked RF monitoring provides early warning of approaching drones.
Small radar cross-sections make OWA drones difficult to detect.	RF sensors detect and locate drone emissions directly.
Advanced drones such as the Shahed-136 are designed to evade detection.	RF sensors detect associated emissions and supporting RF activity, complementing traditional air-defense sensors.
Cost	
Expensive interceptors are often used against low-cost drones.	RF analysis improves target identification and supports more efficient engagement decisions.
Situational awareness	
Air defense operators often rely only on the Recognized Air Picture (RAP).	Passive RF sensing adds a Recognized Electromagnetic Picture (REMP), improving warning, classification, and engagement decisions.
Rapidly changing waveforms can reduce the effectiveness of library-based detection.	Signal discovery identifies unknown signals that are not yet included in threat libraries.

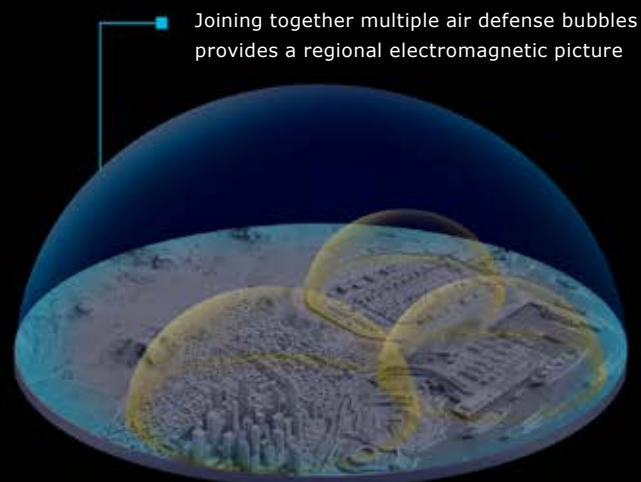
SHORT-RANGE AIR DEFENSE

Critical infrastructure –
up to 20 km



MID-RANGE AIR DEFENSE

Regional picture –
up to 100 km

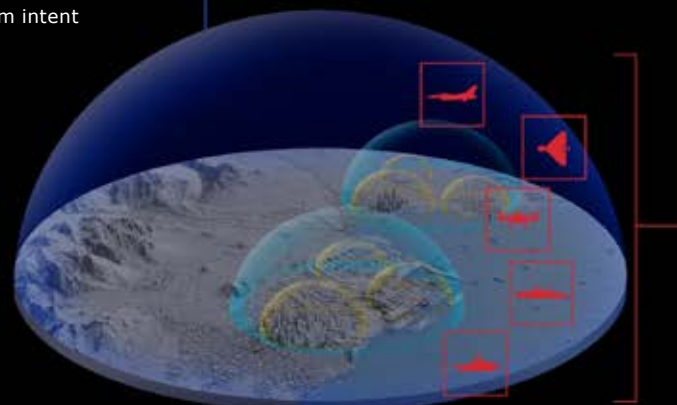


LONG-RANGE AIR DEFENSE

National REMP –
1000 km +

Gain the Recognized
Electromagnetic Picture
(REMP) for early warning
and platform intent

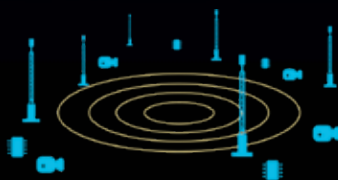
National spectrum awareness
reduces uncertainty, protects
survivability, improves
classification, and shortens the
path from sensing to decision



Modern air defense: Mix, mass, modularity



Find and fix: Early warning



Distributed, low-cost RF, and acoustic sensors provide wide-area detection before traditional systems are engaged.

Track and target: Fusion



Sensor fusion combines RF, radar, EO/IR, and acoustic data into a Recognized Electromagnetic Picture (REMP).

Engage and assess: Effectors



Improved classification helps air defenders apply the right effector to the threat.

RFEYE TECHNOLOGY



RFeYe® Receiver (Node)

Highly sensitive RF sensors with edge processing (up to 40GHz)



RFeYe® Site

Spectrum monitoring and geolocation software toolkit

RFeYe technology allows air defenders to:

- Detect any signal within the collection cone
- Initiate precise geolocations of signals of interest
- Identify the signal to understand if it is friend, foe, or unknown
- Correlate data from multiple sensors
- Maintain visibility of the signal in real-time