RAFAEL
ADVANCED DEFENSE SYSTEMS LTD.

Sky Spotter™

Passive Early Warning / Air Surveillance Electro Optical (EO) System

Operational Capability

The modern airspace is becoming increasingly challenged as aerial threats are manifested with growing capabilities, in quantity, lethality and sophistication.

Low RCS threats sneaking simultaneously "below the radar" are posing a new level of difficulty for any air defence system. Furthermore, Suppression of Enemy Air Defence (SEAD) and EW techniques might cripple emitting radars which are both conspicuous and vulnerable. Additionally, Early Warning requirements have become very stringent: alert time is measured in seconds, while False Alarms are considered intolerable, mostly when civilian population is involved.

Sky Spotter is a passive Early Warning System with a high probability of detection and a very low false alarm rate. Used in a variety of missions, either as a vital component in the fixed national network of airspace management, or by deployments of standalone Automatic Sense and Warn (AS&W) application for Force Protection supporting C-UAS / GBAD operations.

Benefits

- Passive detection, tracking, classification and identification of aerial targets. Allowing GBAD's EO only target engagement
- Unaffected by radar's inherent challenges: Multipath, Clutter, Background, EW & CM, Low RCS-stealthy targets or their evasive manoeuvres
- Multiple targets simultaneous tracking, highly effective against low flying targets
- 24/7 persistent, automatic capability
- Highly accurate : Azimuth and Elevation (for single sensor) and Range by corroboration of multiple sensors
- Significantly Low Life Cycle Cost

Sky Spotter control Center

Sky Spotter uses highly sensitive MWIR, SWIR and Day sensors, establishing a passive aerial surveillance over tens of kilometers. Advanced algorithms of automation, image processing and Artificial Intelligence (AI), enable multiple targets to be detected , tracked and managed simultaneously.

Proprietary algorithms for coupling EO and radar readings into a unified picture, maximize the synergy of both 'physics', ensuring robust sensing capability against particularly tough scenarios.

Sky Spotter WFOV (Wide Field of View) detection & tracking sensors have work jointly with NFOV (Narrow Field of View) investigation sensors, acting as powerful telescopes and allowing zooming-in on selected targets. The NFOV sensors are pointed at the target by either early detection of the WFOV/radar or by a slaving request given by the operator for the purpose of target identification and tracking. An operator can manage up to 4 separate sensors simultaneously, each with two channels (MWIR/SWIR/CCD) , using dedicated algorithms to optimally controls the observation resources.

Fast Jet

Mini UAV
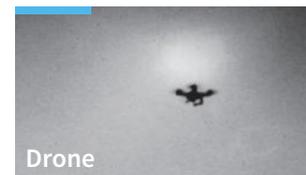
Drone

Target on Sky Spotter NFOV Sensor

Technical Specifications

WFOV Sensor

FOV	48º × 45º or 18º × 92º
Detector Format	1280 × 1024 pixels
Spectral Transmission Band	MWIR 3-5 µ

NFOV Sensor

Tracking accuracy	absolute 1 mRad
Spectral Band	MWIR, SWIR
Detector Format	both sensors 640 × 480 pixles
NFOV	MWIR: 10º-0.4º, SWIR: 1.1º-0.2º
Focal length	MWIR: 1400 mm, SWIR: 2500 mm