Civil Radar Systems

With extensive radar heritage exceeding 20 years, ASELSAN is a new generation manufacturer of indigenous, state-of-the-art radar systems. ASELSAN’s current radar product portfolio includes land, naval and airborne applications scanning a vast range of high technology radar products and ASELSAN is working to develop highly specialized radar technologies such as multi-function radar, mobile radar and spaceborne radar. With current know-how and capabilities gained through military radars and by benefiting from various building blocks developed in-house, such as transceiver units, power amplifier units, signal processing units, microwave modules and antennas; ASELSAN is widening its portfolio by developing following civil radars:

ASELSAN Civil Radar Systems

• **Airport Radars**
  - Air Traffic Control Radar
  - Foreign Object Debris Detection Radar
  - Surface Movement Radar

• **Weather Radars**
  - Doppler Weather Radar
  - Airborne Weather Radar

• **Security Radars**
  - 3-D Security Radar
  - Perimeter Security Radars
  - Traffic Control Radar
  - Automotive Radar
Air Traffic Control Radar is the main radar system used for the detection and tracking of all aircrafts in the airspace of associated airport. It includes two sub-systems: Preliminary Surveillance Radar (PSR) and Secondary Surveillance Radar (SSR). PSR operates in the S-Band and it enables the operator to focus on the moving targets specifically with its Moving Target Indication feature. SSR is based on beacon architecture which enables tracking of airplanes by interrogation.

- Operating Frequency: S-Band (PSR) & L-Band (SSR)
- Instrumented Range: 60 NM (PSR) & 250 NM (SSR)
- Dual Channel Integrated PSR & SSR Radars
- Highly Reliable, Dual redundant PSR & SSR Design
- Solid State Power Amplifier Design
- Stand-Alone PSR / SSR Operable
- IFF interrogation (Mod 1,2,3 / A, C, 4, 5, S)
- High Range and Angular Resolution
- Continuous Monitoring of Airspace
- Separate Weather Channel
- Advanced Clutter Suppression Techniques
- Board/Module Level Built-In Test Capability
- Module/Board Replacement Capability During Operation
- Continuous Data / Event / Audio / Video Recording Capabilities
- Compliance with ICAO & EUROCONTROL Standards
- Compliance with MIL-STD-461, MIL-STD-810
Foreign Object Debris Detection Radar (FODR)

FOD events, due to foreign objects on the airport movement surfaces, are presenting a risk to passenger safety, disrupting airport services and causing huge costs at airports. FOD Radar provides instant monitoring of runways, taxi ways and parking areas at airports and thereby detects and characterizes the foreign objects enabling the clearance of the runways to prevent possible threats immediately.

- W-Band
- Detection of Very Small Objects by High Resolution
- Integrated Mechanic/Electronic Beam Steering
- Distributed System Architecture Supporting Full Runway Coverage
- Advanced Electro Optics Suite to Monitor Detected Objects During Day and Night
- FOD Recording Capability to Track the Source of FODs.
- LASER Pointing Capability for Easy Object Removal
Surface Movement Radar (SMR)

Surface Movement Radar (SMR) is a high-performance radar system, which is used for enabling air traffic controllers to detect and track aircraft and all moving vehicles on the ground surface of the airport and thereby increase safety. SMR is the non-cooperative primary sensor of Advanced Surface Movement Guidance and Control Systems (A-SMGCS) at airports.

- X-Band
- High Range and Angular Resolution
- Continuous Monitoring of Surface Targets
- Advanced Clutter Suppression Techniques
- Low Life Cycle Cost
- Non-Cooperative Surveillance
WEATHER RADARS

Doppler Weather Radar

Doppler Weather Radar provides highly reliable instantaneous meteorological information. It is most suitable to be used at airports, municipalities and as "gap filler" in areas not covered by C-Band Weather Radars.

- X-Band Fully Solid State Design
- Dual Polarized (Horizontal and Vertical) Waveform
- High Range and Angular Resolution
- Wide Area Coverage
- Continuous Monitoring of Airspace Weather
- Detection and Classification of Hydrometeors
- Wind Shear Detection and Warning System
- Advanced Clutter Suppression Techniques
Airborne Weather Radar

Airborne Weather Radar is the radar system integrated to civil and military airborne platforms to provide meteorological data on the route.

- X-Band
- Weather Phenomena Detection Function
- Turbulence Detection Function
- Ground Mapping Function
- Rain Echo Compensation Feature
- Auto-Tilt Feature
- Search and Rescue Function
- Horizontal and Vertical Sector Scan
- Built-In-Test Capability
- Compliance with DO-173 Performance Standard
- Compliance with DO-160 Environmental Conditions Standard
ASELSAN’s 3D Security Radar (3DSR) System is an ultra-wideband radar imaging system:

- Capable of high resolution 3D imaging of metallic and non-metallic objects hidden beneath clothing which could potentially pose a threat,
- Featuring Automatic Target Detection,
- Used in crowded areas such as airports, bus terminals, subway stations, malls and stadiums in order to prevent security risks.

- High resolution 3D imaging
- Harmless operation to human health by very low power ultra-wideband operation
- Electronic beam steering
- Automatic detection of both metallic and non-metallic foreign objects hidden beneath clothing
- Protection of privacy by displaying only relevant detection results
Perimeter Security Radars

Perimeter Security Radar is used for detecting, classifying and tracking targets moving on or close to ground or sea at day and night in all weather conditions to ensure security in airports or other critical facilities.

- High range / doppler resolution
- Track-While-Scan, TWS
- Low peak power emission
- Multi-target tracking
- Automatic target classification
- Remote control from a command control center
Automotive Radar

Automotive Radar is used within the Advanced Emergency Braking System (AEBS) to reduce the risk of collision of the vehicle. It detects targets on the road, calculates the risk of collision due to the vehicle’s & target’s speed, and thereby warns the driver day/night in all weather conditions.

- W Band
- Automatic target classification
- Self-calibration capability
- Built-In-Test Capability

Traffic Control Radar

Traffic Control Radar is used in Traffic Violation Detection System to:
- Detect and track vehicles, violating red light, speed limit, emergency lane or traffic way
- Classify vehicles,
- Provide coordinates of the vehicles to camera system used for license plate recognition and monitoring.

- K Band
- Operation in day / night / all weather conditions
- Simultaneously 50 vehicle detection, tracking and reporting
- Coverage up to 4 lanes
- Flexible Installation: on-the-gantry or mast arm, at the road-side or mobile configuration
- Emergency Lane Violation Detection
- Red Light Violation Detection
- Wrong Way Detection
- Speed Limit Violation detection
- Target classification as low-weight/high-weight vehicle/pedestrian