



Advanced Monopulse Secondary Surveillance Radar

- Self-contained Transportable MSSR system
- Designed to support safe and efficient airspace operations
- Perfect for supplementing existing systems or where gap-filler surveillance solution is required
- Ideal for use at expeditionary or seasonally operated airfields
- Contained within single 40ft ISO footprint with two integral equipment rooms
- Mode I, 2, 3/A, C and Mode-S up to level 5, ELS/EHS.
- Low maintenance, highly cost-effective airspace surveillance solution.

easat[®]

RADAR SYSTEMS

Easat Radar Systems Ltd was founded in 1987 as an independent specialist Company to design and build high-performance radar antennas. Since then the Company, a subsidiary of Goodwin PLC, has established itself as market leader in the manufacture of complete radar systems.

Easat offers a full range of radar antennas, pedestals, towers and complete radar systems for Air Traffic Control (ATC) and Coastal Surveillance (CS) applications.

Easat's radar equipment is in service in over 60 countries worldwide, with more than 500 installations.

Products include:

- ATC using permanent or transportable radar systems, Primary Surveillance Radar (PSR) & Monopulse Secondary Surveillance Radar (MSSR).
- Air defence ATC using permanent or transportable systems.
- Airport Surface Movement Radar (SMR) and Advanced-Surface Movement Guidance and Control System (A-SMGCS).
- Automatic Dependent Surveillance - Broadcast (ADS-B) Systems.
- Precision Approach Radar upgrades (PAR).
- Offshore and Coastal Surveillance radar systems.

Easat is able to deliver complete turn-key packages, from site survey to final installation safety case approval of installed system. Scope of supply can include complete radar systems, civil engineering works, project management and long-term equipment support, ensuring the highest levels of support and maintenance.

Easat's Transportable Mode-S Secondary Surveillance Radar system is fully compliant with ICAO and Eurocontrol standards.

This MSSR system, which is unique to Easat, provides cooperative air traffic surveillance in accordance with elementary and enhanced Mode-S specifications.

Easat's transportable MSSR is configured within a single 40ft ISO trailer format. It has two integral equipment rooms, one air-conditioned for the Mode-S MSSR interrogator and control and monitoring system (CMS) and the other for the uninterruptible power supply (UPS), generator and hydraulic system. Hydraulic outriggers ensure system stability.

The system can be used either as a stand-alone system or integrated with PSR, ADS-B and MLAT systems (fixed and/or transportable installations). Where part of an integrated surveillance system, a common CMS will display status and performance parameters of all systems simultaneously and PPI screen will display combined targets processed by advanced built-in tracking system.

CMS software is operating system (OS) independent and can be installed on any number of computers. CMS features a user-friendly interface and provides factory remote support capability.

Easat's Transportable MSSR is extremely compact, highly modular and fully solid-state, ensuring high reliability with low life-cycle costs. Automatic switch-over and hot swapping functions ensure system availability.

Main Features

- 40ft ISO footprint with two built in equipment rooms one for the Mode-S MSSR interrogator and CMS and the other for the UPS, generator and hydraulic system.
- Developed in full compliance with ICAO and Eurocontrol
- Mode 1, 2, 3/A, C and Mode-S ELS/EHS.
- Automatic system reconfiguration and switch-over.
- Built-in data processing and combining for MSSR, PSR, ADS-B and MLAT.
- Built-in track processor and output data formatter.
- BITE for continuous monitoring of MSSR subsystems and non-radar equipment.
- Diagnostic CMS to provide local and remote control of operation.
- Archiving, playback and statistical analysis of surveillance data.
- Cost-effective and low maintenance cost solution.
- Remotely controlled SSR Mode-S monitor.
- Built-in extended reception channel testing.
- Built-in high performance and flexible data communication system.

Transportable Monopulse Secondary Surveillance Radar



High Stability Scissor Lift



40ft Integrated Trailer
& Container



Outrigger



Antenna Stowed



Equipment and Control &
Monitoring System (CMS)



Dual Redundant Mode-S
MSSR Interrogator



Diesel Generator



Air Conditioned

Advanced Monopulse Secondary Surveillance Radar



Interrogator

- Full EMS compatibility.
- Dual channel fully redundant system.
- Interrogation, detection and acquisition of Modes 1, 2, 3/A, C and S.
- Mode-S Addressed Elementary Surveillance;
 - ICAO aircraft address
 - Flight identity
 - Transponder capability report
 - Altitude reporting to 25 ft
 - Flight status
- Mode-S Addressed Enhanced Surveillance;
 - Lockout protocols
 - Basic data protocols
 - Standard length communication protocols
 - Extended length communication transactions
 - Aircraft identification protocol
- Interlace with up to 4 modes.
- Programmable interrogation strategy based on target position.
- Adaptive parameter adjustment including advanced anti-reflector.
- Multiple input tracking and data combining.

Control and Monitoring System (CMS)

- Fully redundant system.
- Any number of local and remote CMS terminals.
- Supports communication such as serial, optic, LAN, radio links etc.
- Information archiving, replay and analysis.
- Factory remote service support capability.

Radar Data Display

- Multiple data (plots and/or tracks) input display including PSR, MSSR, ADS-B and MLAT.
- Display all enhanced Mode-S data.
- Geographical maps and air navigation charts.
- Surveillance data archiving and replay.

Antenna System

- Compact SSR antennas with SUM, DIFF and OMNI channels for 150NM coverage.
- Superior RF performance.
- Shaped elevation patterns.
- Meets ICAO requirements.
- Dual motor antenna drive system.
- Dual azimuth encoder system.
- Antenna drive system includes comprehensive BITE with numerous sensors (oil level, vibration, temperature etc) displayed on CMS.

Hydraulic and Power Generator Equipment Room

- Built-in uninterruptible power supply (UPS) with KVA and battery back up options.
- Diesel generator back up power supply.
- Hydraulic equipment for trailer stabilizer control and antenna deployment.

Operation Mode	1, 2, 3/A, C and S ELS/EHS
Antenna Drive	Dual Motor
Rotation Rates	6-15 RPM
Coverage	
Maximal range	150 NM
Minimal range	0.25 NM
Height	66,000 ft
Elevation	0.3° – 45.0°
Maximum Number Of Aircrafts	1000
Accuracy (random errors)	
Azimuth	0.068°
Range, Mode A/C	30 m
Range, Mode-S	15 m
Detection Probability	≥ 0.99
Code Detection Probability	≥ 0.99
Probability of Combining	≥ 0.95
Output Format	ASTERIX
Output Data Link Type	Serial/LAN/optic