easat
RADAR SYSTEMS

Primary Surveillance Radar Systems

Advanced S-Band Solid-State Primary Surveillance Radar

- High performance fail-soft transmitter
- Extended range up to 120 NM
- Field proven wind-farm effect mitigation
- 4G networks interferance mitigation
- CAP 670 approval

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RADAR SYSTEMS

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

Easat design and build antennas and complete radar sensor systems for a wide range of applications.

Easat high-gain radar antennas provide enhanced protection of high-value offshore production facilities in challenging security environments.

Easat's surveillance systems are in use globally for long-range detection of maritime vessels and for the identification of potential threats from pirates and militants.

The Primary Radar System is intended for ATC surveillance within airport terminal area, but the extended range feature allows use for en-route applications as well.

This radar is very low maintenance, featuring full solid-state technology, it's highly modular and reliable design with integrated comprehensive BITE system makes it very cost-effective to run and operate. The radar offers an improved system stability, effective clutter attenuation and elimination of false targets with maintained high probability of target detection up to a distance of 120 NM. Advanced beam switching and combining algorithms mitigate dynamic high-speed clutter such as road traffic, wind turbines and trains. It also includes an independent high-resolution weather channel providing precise information on weather conditions (US-NWS 6 level).

This PSR radar system can be easily integrated with a MSSR, ADS-B or MLAT system.

Main Features

- Advanced solid state S band PSR
- High performance fail-soft transmitter with extra-long pulse feature
- Extended range up to 120 NM
- 4G networks interference mitigation
- Advanced MTD algorithms
- Field proven wind-farm effect mitigation
- Independent 6 level weather channel
- Advanced CMS with remote support capabilities
- CAP 670 approval

Antenna System

- Double-curvature antenna reflector with two beams provides cosec² coverage diagram.
- Dual Polarizers with linear and circular polarization.
- EP1643 dual drive turning unit with dual azimuth encoders.
- The EP1643 has an comprehensive BITE system with numerous sensors (oil level, vibration, temperature etc.) displayed on CMS.

Transmitter

- Full solid-state, highly modular system with 12/24 amplifying units, allowing uninterrupted operation during maintenance procedures.
- Very long pulses up to 300 µs.
- Distributed BITE system with detailed diagnostics and online performance calculation.
- Fail-soft architecture with air cooling.
- Target detection characteristics guaranteed with one or two failed amplifiers.

Radar Data Display

- Multiple data (plots and/or tracks) input display including PSR, MSSR, ADS-B and MLAT.
- Weather maps display with up to 256 levels.
- Raw video display, geographical maps and air navigation charts.
- Surveillance data archiving and replay.

Signal and Data Processor

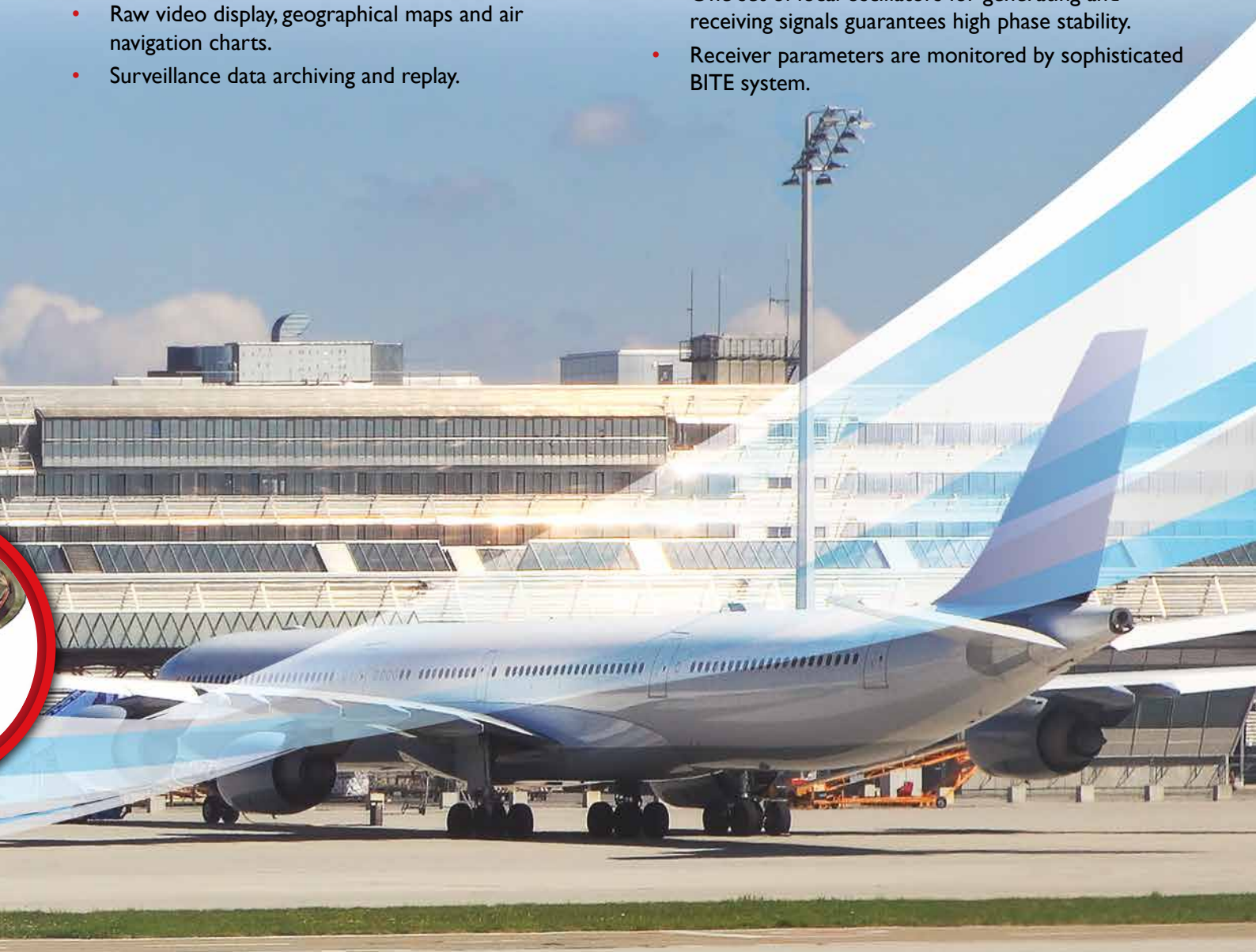
- Adaptive MTD with digital NLFM pulse compression.
- Doppler signal and CFAR adaptive filtering.
- US-NWS 6 level high-precision weather maps.
- Multiple input tracking and data combining.

Control and Monitoring System

- 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.

Receiver

- Super-heterodyne receiver with double frequency conversion.
- IF analogue-to-digital conversion provides extended dynamic range.
- Automated digital gain control guarantees high dynamic range stability.
- Digital sensitivity time control for expanding dynamic range in high-clutter regions.
- One set of local oscillators for generating and receiving signals guarantees high phase stability.
- Receiver parameters are monitored by sophisticated BITE system.



Frequency band	S-band, 2700 – 2900 MHz
Frequency diversity and agility	Full frequency diversity; frequency agility with 1 MHz step
Peak RF output power(12/24 modules)	16/28 kW
Pulse width	Short pulse: 1 µs Long pulse: adjustable, 40-300 µs
Antenna	Low/high beam gain: 34 / 33 dB Polarization: linear/circular
Elevation	0.3° – 45°
Rotation rate	6-15 RPM
Minimal range	0.5 NM
Instrumental detection range	60 / 80 / 100 / 120 NM
Accuracy	50m / 0.1°
Resolution	230m / 2°
Signal processor	A-MTD, MTAC and MTAT suppression, advanced beam switching and combining, interference suppression, advanced dynamic clutter maps
Sub-clutter visibility	> 55 dB
Post processor	Plot processing using weight-based algorithms and high precision maps
Tracking system	Multiple input processing supports more than 1000 tracks
Output format	ASTERIX or any other by request

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