

SASS

SILENT ACQUISITION AND SURVEILLANCE SYSTEM



SASS is a InfraRed Search and Track (IRST) system developed for the Italian flag ship: the aircraft carrier CAVOUR. SASS has been validated at sea by the Italian Navy and has been selected for the Italian Future European Multi Role Frigates (FREMM).

GENERAL DESCRIPTION

SASS is a long range, passive IRST for naval applications, operating simultaneously in MWIR (3-5 μ m) and LWIR (8-12 μ m) spectral bands.

It is able to detect and track air and surface targets with full 360° horizontal coverage and to provide InfraRed (IR) maps of the scene around the ship. It supports threat evaluation providing a statistical classification of tracks.

SASS has a modular architecture based on a stabilised panoramic head equipped with IR sensors and an electronic cabinet hosting the processing and control units. Special design care has been devoted to facilitate on-board maintenance.

MAIN FEATURES

- High sensitivity/ high resolution/ dual band IR head
- Accurate stabilisation against sea motion
- Long range passive surveillance
- Automatic target detection and track initialisation
- Multi-target tracking of air and surface targets
- Panoramic and blown up images, in two different bands
- Flexible interface with other on-board systems and with combat management systems
- High reliability and easy maintenance on-board.



SASS installations on-board Euro Maestrale (1) and NUM Cavour (2-3)

TECHNICAL SPECIFICATIONS

Panoramic Sensor Head (above deck)

Field of Regard	360° continuous horizontal -20° to +45° vertical
Elevation Field of View (FOV)	> 5°
Rotating Frequency	> 1 Hz
IR Bands	MWIR (3-5 μm) and LWIR (8-12 μm)
Optics	Refractive, athermalized, with special filters
Detectors	CMT, LLA with high overscan ratio and 6xTDI
Resolution (horizontal)	0.16 mrad
Stabilisation Accuracy	<1 mrad @1σ
Platform Height	81cm
Platform Diameter	68cm
Weight	120Kg
Power	<400 W (including Platform Electronic Unit)
Size (H x W x D)	51 x 56 x 60cm
Weight	23Kg
Electronic Cabinet (below deck)	
IR Data Interface	FO link
Pre-processing	Spatial filtering for size discrimination
Clutter Suppression	Specific algorithms for sea suppression
Plot Extraction	Real-time Plot to Track Association
Algorithms for maritime environment	False alarm suppression
Track Prediction and Update	Data fusion to form single bi-spectral tracks
Tracker Capacity	100 simultaneous tracks
Panoramic Image Display	4 sub-frames, 768x96 pixel, for each band
Blown up Images	Up to 5 full resolution pictures (768x288 pixels) for each band
Video Outputs	1 panoramic + 5 blown up (MWIR and LWIR), via 2 Ethernet links
Data/ Interface Size (H x W x D)	Command and navigation data via ethernet 181.5cm x 60cm x 100cm
Weight	230Kg
Power	< 1300W at 220V/50Hz

Local Console Unit (optional)

Displays	Two 23" LCD TFT -1600 x 1200 pixels
Control Desk	Keyboard, track ball and others (on demand)
Input / Output	VME Ethernet PCI, SCSI, 2 USB ports
Mission Data Recording	CD/DVD multi standard driver
Self Diagnostics	Built-In Test Equipment (BITE)
Size (H x W x D)	180cm x 61cm x 88cm
Weight	160Kg

Environmental Conditions (Above-deck equipment)

	Standard	Levels / notes
Temperature (op)	MIL-STD-2036	-28°C - +55°C
Temperature (storage)	MIL-STD-2036	-40°C - +70°C
Humidity	MIL-STD-810	Meth. 507.4/95%
Icing	MIL-STD-2036	20Kg/m ²
Salt Spray	MIL-STD-810	Meth 509.4 - 96 h
Vibration	MIL-STD-167-1	2-14Hz 1mm peak 15-23Hz 0.8g peak
Shock	Norm IT 9631	Level 4
Wind	MIL-STD-2036	140Km/h and 3s gusts of 185Km/h
Ship motion	DOD-STD-1399-301	+/-10° roll +/-7.5° pitch
EMI	MIL-STD-461 D	



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