



SILENT ACQUISITION AND SURVEILLANCE SYSTEM

SASS is a new 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 SPECIFICATION

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 | Command and navigation data via Ethernet |
| Size (H x W x D) | 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 | |

