

## EMPAR SHIPBORNE MULTIFUNCTION RADAR

**EMPAR (European Multifunction Phased Array Radar) is the state-of-the-art multifunction radar. It operates at C-band, performing concurrently 3D detection, multiple target tracking and missile guidance.**

EMPAR is designed to be on board medium and large tonnage vessels playing the role of principal ship sensor.

EMPAR may be integrated within both Combat and Missile systems supporting:

- Self Defence
- Local Area Defence
- Medium Range Defence
- Long Range Defence.

It counters different threats as:

- High Diving and Sea Skimming Missiles
- Aircraft and Helicopters
- Large Vessels and Fast Patrol Boats.

EMPAR is a rotating phased array antenna radar which uses a single pencil beam in transmission and multiple beams in reception. Each beam can be steered, within a wide angular sector, along any bearing and elevation direction with respect to the antenna broadside, resulting in a whole hemisphere coverage.

This radar performs a real time management of its time/energy budget, executing operational functions (search, tracking, etc.) on the basis of the assigned priorities.

EMPAR continuously analyses the environment and adapts operating mode, by selecting in real time:

- Transmitted Frequency
- Waveforms
- Signal and Data Processing.

### MULTIFUNCTION CAPABILITIES

- Full volumetric search coverage
- Low Altitude and Surface search
- Multiple Target Tracking
- Up-link transmission when needed for missile guidance.

### MAIN FEATURES

Confirmation on detection  
Initial threat evaluation and support to System Kill Assessment  
Clutter and jammer analysis and mapping  
Passive track on jammer and Burn through

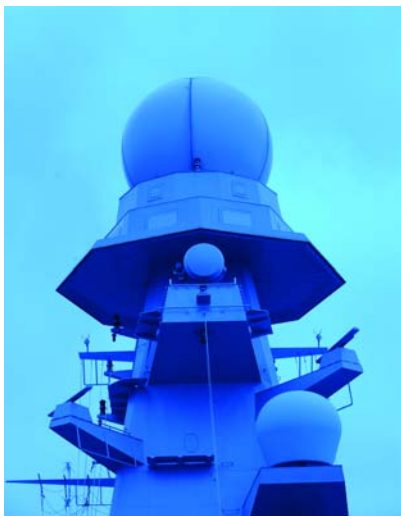


Main Beam Cancellation (MBC) for continuous jamming  
 Sidelobe Cancellation (SLC) for Continuous Jamming  
 Sidelobe Blanking (SLB) for pulsed jamming and point source  
 Clutter cancellation  
 Advanced anti Multi path techniques  
 Equipment redundancy, fault tolerance and graceful degradation  
 Equipment monitoring and automatic reconfiguration

**STATUS**

Fully tested and evaluated by means of extensive sea trials on board Italian Navy's Carabiniere Frigate (2400 tons standard), it is on board the new Orizzonte Class Frigades and the new Garibaldi aircarrier for the Italian Navy.

**TECHNICAL CHARACTERISTICS**



**Antenna**

Planar array electronically stabilised rotating at 60 rpm

**Transmitter**

C-band driven TWT

**Receiver**

Fitted with a number of receiving channels for monopulse angular extraction, clutter and jamming cancellation and redundancy

**Signal Processor**

Digital Pulse Compression, coherent and non-coherent signal processing

**Management computer**

Data processing, equipment supervising and external communications

**STANDARDS**

EMPAR meets all the requirements stated by European and American Military (NATO) standards



**INSTALLATION DATA**

Antenna Group (above deck)

- Dimensions (h w d):	mm (2100x2200x1010)
- Weight:	kg 2500

Radome

- Diameter:	mm 5000
- Weight:	kg 350

Equipment (below deck)

- Weight:	kg 6000
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