



NAVAL MULTIFUNCTIONAL AESA RADAR

KRONOS® Grand Naval is a Medium/Long-Range multifunctional radar based on advanced Active Electronically Scanned Array (AESA) technology.

KRONOS Grand Naval applications include extended self-defence, air and surface surveillance and simultaneous multiple targets tracking, volumetric search and multiple missiles guidance.

THE SOLUTION

KRONOS Grand Naval is the most advanced multifunctional naval radar worldwide, demonstrated during several trials and recently against also Tactical Ballistic Missiles (TBMs) in the live exercise Formidable Shield 2017.

Its multifunctional capability enables heavy combatants, such as frigates and destroyers, to perform naval warfighting missions in complex scenarios against multiple attacks in very severe clutter and jammer environments. Hardware redundancy and the fully solid state architecture provide intrinsic graceful degradation and extend the Mean Time Between Critical Failures (MTBCF).

Thanks to the AESA antenna, KRONOS Grand Naval is able to simultaneously and independently perform surveillance and targets tracking by electronically scanning the beam both in azimuth and elevation, with constant mechanical rotation.

KEY FEATURES

KRONOS Grand Naval is the main radar in a 360° omnidirectional system providing multi-layer air defence to surface group warships or groups of unarmed support and merchant ships. It can cover three separate roles in a single naval air defence system: ship self-defence for warship protection, naval area defence for protection of nearby ships and fleet protection at medium and long range.

It encompasses the main missions of self/area defence through a certified embedded up-link for active missile guidance (ASTER15/30). It has successfully performed more than ten formal ASTER missile firing and more than 100 formal trials with cooperative targets (low level UAV and missiles, high diving missiles, helicopters, aircraft and ships).

KRONOS® GRAND NAVAL

MULTIFUNCTIONAL CAPABILITIES

KRONOS Grand Naval offers multifunctional capabilities with:

- AESA technology, developed within in-house foundry
- Ballistic Missile Defence by detecting and tracking, autonomously or on cueing, targets in boost and terminal phase
- Long-range surveillance to perform area protection and extended self-defence
- Integrated with ASTER missiles launcher, qualified via several live firings for Simultaneous multi-tracking capability for active missiles guidance (e.g., missiles guidance of up to 16 ASTER simultaneously) against missile threats in saturation attacks
- Multi-beam surveillance for optimised dwell-time over full sector with dynamic, adaptive beam forming
- Extremely fast reaction times to manage response to a wide spectrum of present and future threats, and minimising delays in the tracks initialisations
- Air and surface surveillance, search and dedicated tracking with very high elevation coverage to counter high diving missile threats
- Threats Evaluation with different Update Tracking rates up to 1s.
- Automatic jam strobe detection and tracking

OPERATIONAL ADVANTAGES

KRONOS Grand Naval can be easily integrated in a multilayered defence system, such as a combat system, providing the following operational advantages:

- Shortest reaction time for track initialisation. After the initial detection of a new threat, KRONOS® Grand Naval confirms the threat in the same rotation scan, initialising the track within the next mechanical scan.
- This capability is essential against pop-up targets, such as Sea Skimmer missiles and helicopters.



- Priorities assignments depending on the danger of the threats
- Accuracy required by a fire control tracking radar reached in a very short time combining beams through the scan off capability improving reaction capabilities times in the overall combat system engagement chain.

TECHNICAL FEATURES

Operating band	C-Band
Antenna technology	Active Full Phased Array, TX/RX solid state modules
Antenna rotation speed	60rpm
Electronic scanning capability	±45° Azimuth ±60° Elevation
Instrumented range	>300km
Elevation coverage	Up to 90° in tracking
Search volume	360° or in a sector
Uplink transmission	For precise active missile guidance
Integrated IFF and SLB antennas	4 channels for primary radar and 2 channels for secondary radar available
MTBCF	>3000h
MTTR	<45 minutes
EMI/EMC	Qualified MIL-STD-461E
Climatic environment	Qualified MIL-STD-810F
Mechanical	Qualified MIL-STD-167-1A

