

Stabilized Shipborne Antennas



This fully autonomous shipborne antenna system is able to point and acquire targets as low as horizon, even with severe roll and pitch angles .

This antenna system typically complies with medium-size ship inertia at sea (length > 80m).

The shipborne antenna can be directly mounted on the ship's deck for permanent shipborne use, or proposed in a transportable form factor, for mixed shipborne and land-based applications. When land-based operated, the stabilization system is kept functional, making extra antenna alignment unnecessary.

OFF-SHORE EXTENSION FOR TELEMETRY APPLICATIONS

Main Features

- Laser gyro inertia motion unit for an autonomous gyro-stabilized shipborne antenna
- Three axis pedestal featuring full hemispheric coverage vs roll-pitch-yaw
- Optimized dual shaped antenna available in 5.5 m and 4.6 m sizes
- High accuracy monopulse feeds for optimal tracking accuracy
- Quick tracking acquisition for any elevation angle
- **Special mobility form factors**

Main Benefits

- Off-shore extension of tracking & receiving range
- Field and time proven experience, used in many nation critical projects and campaigns

Mechanical and Servo-control Specifications

PEDESTAL

Azimuth travel range	$\pm 360^\circ$
Elevation travel range	$-25^\circ / +115^\circ$
Cross elevation range	$\pm 25^\circ/s$
Angular velocity	$20^\circ/s$
Angular acceleration	$20^\circ/s^2$
Motors	DC brushless
Position readouts	optical encoders

REFLECTOR

8 panel segmented carbon auto-aligned reflector

SERVO-CONTROL

Pointing accuracy, sea state 4	$\leq 0.4^\circ$ at 3σ
Tracking accuracy, sea state 4	$\leq 0.2^\circ$ at 3σ

Antenna Control Unit modes

Manual, slew, scan, autotrack, program-track

Digital Tracking Receiver modes

S or X band tracking

Coherent or non-coherent signal acquisition

Monitoring and Control System

Add functions to the antenna system for automated remote sensing stations :

- Satellite pass scheduling, and orbit calculation
- Automated pre-pass tests
- Configuration for each satellite
- Signal acquisition, autotrack, program-track in backup
- Log-book; pass graphical analysis
- M&C of Cortex HDR and Cortex CRT

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Environmental specifications

Operating Temperature Range:

Outdoor equipment	-20°C to $+50^\circ\text{C}$
Indoor equipment	$+10^\circ\text{C}$ to $+35^\circ\text{C}$

Operational Wind

Mean	$\leq 60\text{km/h}$
Gust	$\leq 80\text{km/h}$

Survival Wind

$\leq 160\text{km/h}$

Humidity

Outdoor	100 % condensing
Indoor	85 % non-condensing

Options

- ▶ Special mobility form factors (trailer, flat, ISO container)
- ▶ Also available in telecom band (L+C, Ku)
- ▶ Special telemetry RF feeds available
- ▶ Radome for fixed deck installation (necessary for 5.5m antenna)
- ▶ L/S/C Tri-band feed for telemetry applications



RF system Specifications

	L + C	S band	X band	Ku
Feed type	Cassegrain with corrugated horn	Central horn	Cassegrain with corrugated horn	Cassegrain with corrugated horn
Tracking	TE21 mode coupler	8 dipoles monopulse	TE21 mode coupler	TE21 mode coupler
Receive frequency range	1200 to 1600 MHz 3400 to 4200 MHz	2200 to 2300 MHz (Tx: 2025 to 2120MHz)	8000 to 8500 MHz	10700 to 12750 MHz
Receive polarization	L: LHCP or RHCP C: H/V or LHCP/RHCP	RHCP and LHCP	RHCP and LHCP	H/V
-3dB beamwidth	$\cong \pm 1.30^\circ$ $\cong \pm 0.50^\circ$	$\cong \pm 1.05^\circ$ $\cong \pm 0.80^\circ$	$\cong \pm 0.25^\circ$ $\cong \pm 0.22^\circ$	$\cong \pm 0.19^\circ$
G/T of data channel at 5° elevation 8250MHz / 2250MHz 20°C, clear sky	Upon request	13.5 dB/K (4.6m) 16.5dB/K (5.5m)	29.0 dB/K (4.6m) 31.5dB/K (5.5m)	Upon request

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