

Sea Tel[®] 2400

Frequency Flexibility. Platform Scalability. A Heritage of Reliability.
Any Orbit. Any Network. Anywhere.

Product Sheet

**COBHAM
SATCOM**
Connecting the future



The 9711 IMA C/Ku system powers HTS for more global offshore enterprises than any other brand today, unlocking new capabilities through unmatched performance and reliability. But, staying agile in the modern business environment demands greater flexibility than ever before. Managed IT service providers must position themselves to adapt quickly and cost effectively in delivering the desired customer outcome. Business decision makers increasingly expect a frictionless experience.

Sea Tel 2400 – a modern IT solution built for tomorrow's needs on the field-proven heritage of today's leading brand.

A Platform Designed for Scalability – invest at your own pace

Single, Dual, or Triband: invest in what you need today without sacrificing what you will want tomorrow. The Sea Tel 2400 brings choice as the end user will have a single antenna pedestal capable of supporting C Band, Ku Band and Ka Band in any combination they desire. Capable of operating in any orbit, including LEO,

MEO, GEO and HEO, Sea Tel 2400 is the most versatile solution in the industry. Businesses can scale IT investment to suit their digital roadmap with a platform that enables flexibility. Service providers can build 100% orbit and network agnostic on-demand managed service offerings to meet evolving customer needs.

Unmatched Efficiency & Throughput – True 2.4m Performance Across All Frequencies

Built upon a legacy of over 30 years of research, development and customer collaboration, Cobham SATCOM has invested significantly in enhancing the new design to push performance. The RF architecture offers the most efficient design in the industry allowing for almost double the RF power with the same size antenna, easily outperforming all other offerings.

The improved RF performance is driven by a number of factors including superior cross-pol isolation at Ku band; full transmit waveguide to keep the amplifiers for both transmit and receive close to the feed (OMT) to minimize loss whilst increasing RF performance; and finally full illumination of the Ka tolerant reflector as another way of reducing loss of performance.

Furthermore, Sea Tel 2400's RF payload design allows the system to support far greater amplifier power in all bands than any other option. Existing Sea Tel systems in operation today exceed 2Kw in RF power operating in C and Ku-band. The Sea Tel 2400 supports Ka-band amplifiers up to 160W today.

Robust Design & Ease of Installation

One of the most important design considerations for any system is the pointing accuracy and stability of the antenna to ensure it stays on satellite whatever happens. Cobham SATCOM invented the stabilized antenna systems and continues to lead the market in terms of robustness, vibration and shock tolerance.

The Sea Tel 2400 is no exception and has passed rigorous testing to include IEC 60945 and MIL 901D class B testing for shock and vibration as well as temperature testing to ensure the Sea Tel 2400 will continue to operate and survive in the harshest environments experienced at sea. The robust antenna design allows the antenna to absorb a tremendous level of shock and vibrations with no impact on performance or longevity of the system.

Shipped in two crates in three pre-assembled units, the system is easily installed in a single day. As the installation footprint is identical to that of Sea Tel 9711, there is no need to change platforms when upgrading to the Sea Tel 2400.

The Sea Tel 2400 series allows customers to purchase a dual band system now and upgrade to Triband whenever you decide to do so. There is no longer a need to tie up capital for equipment now that you will not use for a year or two – or may not be certain that you will ever need it in the future.

With the Sea Tel 2400 you are ready for the future. What you purchase today will be ready for the demands of tomorrow.

SYSTEM WEIGHT (ADE)

Install Weight (typically)	1300 Lbs (590kgs) (with 144" radome)
Shipment Weight (typically)	System Crate=1830lbs (830kgs) Radome Crate 1900lbs (862kgs)

STABILIZED ANTENNA PEDESTAL ASSEMBLY

Type	Three-axis (Level, Cross Level and Azimuth)
Stabilization	Torque Mode Servo / Two Axis W/Pol
Stability Accuracy	0.1° RMS, 0.2° peak in presence of specified ship motions (see below).

POWER REQUIREMENTS

ADE	85-264 VAC, 47-63Hz, single phase, Pedestal=450 Watts (brake release, pedestal drive and BUC drive) PLUS RF Equipment=2150Watts max. Total power consumption=2600Watts
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ANTENNA REFLECTOR (PRIMARY)

Type	Honeycomb Fiberglass Parabola 2.4 Meter Modified Offset
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IN RADOME RF PERFORMANCE**C-Band**

TX Gain	41.7 dBi @ 6.18 GHz
RX Gain	37.5 dBi @ 3.95 GHz
G/T (30° elevation, clear sky)	19.2 dB/K @ 3.95 GHz (calculated)

Ku-Band

TX Gain	48.5 dBi @ 14.25 GHz (using Sub reflector)
RX Gain	46.7 dBi @ 11.8 GHz (using Sub reflector)
G/T (30° elevation, clear sky)	27.2 dB/K @ 12.75 GHz (calculated)

Ka-Band

TX Gain	53.9 dBi @ 28.75 GHz (using Sub reflector)
RX Gain	50.5 dBi @ 19.0 GHz (using Sub reflector)
G/T (30° elevation, clear sky)	26.4 dB/K @ 19.0 GHz (calculated)

PEDESTAL RANGE OF MOTION:

Elevation Bore Angle	-16.6 to +105.4 degrees
Cross Level (Inclined 30°)	+/- 30 degrees
Azimuth	Unlimited
Elevation Pointing	+0 to +85 degrees (with 15 degree Roll) +5 to +80 degrees (with 20 degree Roll) +10 to +75 degrees (with 25 degree Roll)
Relative Azimuth Pointing	Unlimited

MAXIMUM SHIP MOTIONS

Roll	+/- 25 degrees (Roll only) +/- 20 degrees (combined with Pitch)
Pitch	+/-15° at 6-12 sec periods
Yaw	+/-8 degrees at 15-20 sec periods
Turning rate	Up to 12 deg/sec and 15 deg/sec/sec
Headway	Up to 50 knots
Heave	0.5G
Surge	0.2G
Sway	0.2G

SPECIFIED SHIP MOTION (for stability accuracy tests)

Roll	+/- 20° at 8 second period
Pitch	10° Fixed
Relative Azimuth (Heading)	0, 45 and 90° with respect to roll input

POWER SUPPLY (ADE-PCU)

A/C Input Voltage	85-264 VAC, 47-63Hz, single phase
Voltage	24 VDC, 150W
Wattage	150W (total)
Current Capacity	13.0A (total)
GPS (On Board)	
Waterproof	IPX7
Operating Temperature	-30°C to +60°C
Storage Temperature	-40°C to +60°C
Altitude	-304m to 18,000m`
Vibration	IEC 68-2-64
Shock	50G Peak, 11ms
Connector	RJ11
NMEA output messages	GGA, GLL
Refresh Rate	1s

INTEGRATED CONTROL UNIT (ICU)**Integrated SCPC Receiver**

Tuning Range	950 to 1950 MHz in 1 KHz increments
Input RF Level	-85 to -25dBm typical
Output RF Level	Input level +/- 1dB typical
Sensitivity	30mV/dB typical (25 counts/dB typical)
Bandwidth (3dB)	150 KHz

Interfaces

Modem/MXP M&C Interface	OpenAMIP & Legacy
Network Interface	4-port managed fast ethernet switch
User Interface	Web Browser/Console Port 1s

RADOME ASSEMBLY (144 inch)

Type	Frequency Tuned
Material	Composite foam/laminate
Size	
Diameter	365.76cm (144 inch)
Height	360-68cm (142 inch)
Hatch Size	45.72cm x 86.36cm (18" high x 34" wide)
Side Door	45.72cm x 91.44cm (18" wide x 36" high)
Number of panels	Twelve panels (6 upper & 6 lower panels), one top cap and one base pan
Installed height:	416-56cm (164 inch) including base frame if mounted with standard Legs, 375.92cm (148 inch) if Flush-mounted
Installed weight	See System Weight of the ADE Above (includes Radome, base frame w/standard legs & braces and the Antenna Pedestal Assembly)
Wind:	Withstand relative average winds up to 201 Kmph (125 mph) from any direction.
Ingress Protection Rating	IP 56
ADE ENVIRONMENTAL CONDITIONS	
Temperature Range (Operating)	-25° to +55° Celsius (-13° to +131° F)
Humidity	100% Condensing
Wind Speed	56 m/sec (125 mph)
Solar Radiation	1,120 Watts per square meter, 55° Celsius
Spray	Resistant to water penetration sprayed from any direction.
Icing	Survive ice loads of 4.5 pounds per square foot. Degraded RF performance will occur under icing conditions.
Rain	Up to 101.6mm (4 inches) per hour. Degraded RF performance may occur when the radome surface is wet.
Corrosion	Parts are corrosion resistant or are treated to endure effects of salt air and salt spray. The equipment is specifically designed and manufactured for marine use.

BELOW DECKS EQUIPMENT**Media Xchange Point (MXP)**

Standard 19 Inch Rack mount	One Unit High
Physical Dimensions	17 X 17 X 1.75 (Inches)/ 43.18 x 43.18 x 4.45 (cm)
Input Voltage	85-264 VAC, 47-63Hz, single phase, 110 Watts
Weight	6.6lbs/ 3.0 kgs

Rear Panel Connections

AC Input	Modular AC Power Input Receptacle
J1	F (F) - RXIF Output to Satellite Modem
J2	SMA (F) - RXIF Input from ADE
J3 B/A	Ethernet - 2 ports of the 4 Port 10/100
J4 B/A	Ethernet - 2 ports of the 4 Port 10/100
J5	SFP Gigabit Ethernet
J6	Mini USB Antenna M&C
J7	USB Host (Type A) - N/C - Future Development
J8	DE9 (F) - Serial Console - Antenna Serial M&C
J9 A/B	RJ45 Serial M&C - A=Radio M&C, B=Pass through
J10 C/D	RJ45 Serial M&C - C=Modem, D=OBM
J11	Terminal Strip - Gyro Compass (SBS-Synchro)

Interface Terminals

J12	Terminal Strip - Auxiliary Interface Terminals
J13	DE-9 (M) - NMEA 0183 Interface Port
J14	DE-9 (M) - AUX (RS-232) Interface Port
J15	NMEA 2000 Interface Port - Future Development

BDE ENVIRONMENTAL CONDITIONS

Temperature	0 to 40 degrees C
Humidity	Up to 100% @ 40 degrees C, Non-Condensing

Regulatory Compliance

Survival Shock and Vibration	IEC-60945, MIL-STD-167
Operational Shock and Vibration	Operational: IEC-60945, Survival: MIL STD-167
EMI/EMC Compliance Ku-Band	ETSI EN 301 843-1 V1.4.1 (2004-06) ETSI EN 301 489-1 V1.4.1 (2002-08) ETSI EN 300 339 (1998-03) IEC EN 60945:1997
Satellite Earth Stations and System (SES)	ETSI EN 301 428-1 V1.3.1 (2006-02) ETSI EN 302 340 V1.1.1 (2006-04)

Safety Compliance	IEC EN 60950-1:2001 (1st Edition)
Environmental Compliance	RoHS

Green Passport

FCC ESV Compliance C-Band	47 C.F.R. § 25.221
FCC ESV Compliance Ku-Band	47 C.F.R. § 25.222
FCC ESV Compliance Ka-Band	47 C.F.R. § 25.138 (FSS)
Options	Bluetooth

For further information please contact:

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