

MORMUGAO PORT TRUST
ENGINEERING MECHANICAL DEPARTMENT

NOTICE INVITING BUDGETORY OFFERS

Name of Work	Supply of complete Solid State Radar for Vessel Traffic Management System at MPT, Goa.
Date of submission of offers	on or before 01/10/2016 at 1430 Hrs.
Address for communication:	Chief Mechanical Engineer, Engineering Mechanical Dept., Mormugao Port Trust, Headland Sada, Goa – 403804.
Contact Details	Phone :0832-2594207 Email : cme.mgpt@gmail.com
Website	www.mptgoa.com

CHIEF MECHANICAL ENGINEER
MORMUGAO PORT TRUST

BILL OF QUANTITIES

Sr. No.	Description of work	Unit	Qty.	Rate per Unit (foreign currency)		Amount (foreign currency)
				In figure	In words	
1.	<u>Radar System</u> : 'X' band Radar of not less than 18' scanner with circular polarization dual tranceiver (2x80-200W) including radar processor, as per Technical Specification. Make : Terma, KH, Consillium, GEM, JRC.	No.	1			

Note: The rates quoted shall be

- a.) Inclusive of all taxes and duties but exclusive of Custom Duty and
- b.) On CIF mode in Euros or Dollars only.

TECHNICAL SPECIFICATION FOR COMPLETE SOLID STATE RADAR

1.1. GENERAL

Mormugao Port Trust, Goa, has proposed to provide complete Solid State Radar – 01 no. for the Vessel Traffic Management System at Mormugao Goa.

1.2. Radar Sensor System

The proposed system is as follows –

1 no RADAR of high quality (2 x 80-200W), X band, Dual transceivers not less than 18' X-Band Circular Polarization Scanner. The proposed RADAR system shall provide Control and monitoring accessibility (locally and remotely) of RADAR transceivers and antennas on operators consoles, RADAR display and in the equipment room.

The RADAR antenna shall be of high performance sea surface surveillance in hard weather conditions. It shall also provide high gain and high operational and wind speed range.

Adjustment and control functions shall be of:

Selection of RADAR transceiver

Function of antenna starting and stopping

Function of breaking circuit for antenna and resetting

Selection of the pulse

Selection of the pulse repetition frequency

Function of transceiver adjustability

The RADAR scanner shall give an excellent coverage of the complete harbour area along with approach and sea area upto 22-24 nm range. The scanner shall be of slotted wave guide type.

In order to increase the availability, the RADAR configuration shall have two transceivers one transmitting and one hot standby with automatic switching. It is possible to control most of the RADAR parameters such as pulse, pulse width, power, clutter etc from the control centre. The detailed specifications of the RADAR system is as below –

Scanner size \geq 18 feet

Polarisation: Circular

Transmitter : 80-200W; complete Solid-state

Frequency : X- Band

Blanking Sector	: 07 (minimum)
Receiver	: Logarithmic
Dynamic range	: > 100 dB or better
Overall noise figure	: ≤ 2.5 dB
Tuning	: Automatic/ manual
Communication	: RS 422/ Co-axial
Video processing	: 32 bit floating point – fully digital processing
Video Out characteristics (IP network video)	: Logarithmic 8 bit (4k) in azimuth and 4k in range
Bearing count	: 4096 pulses/rev or better
Control	: RS 422
Power Reqt.	: 3 phase, 230V AC each phase, less than 2KW (including antenna)
BITE	: Fully integrated in all modules
Redundancy	: Dual radar transceiver (hot/stby)
Standards	: Compliant to IALA V-128 recommendations, IEC-60529, IEC-60068-2-3 and other relevant standards.
Scanner/ Antenna	: Slotted waveguide array
Array length	: 18 feet
Polarization	: Circular
Gain	: 37 dBi or better
VSWR	: 1.3:1 or better
Beamwidth	Horizontal : 0.42° or less
	Vertical : 11° or less
Operational wind speed	: up to 100 knots

Make: Terma, KH, Consillium, GEM, JRC

Radar shall have the provision to operate in the environmental module. However, please note that the above specifications are indicative and may vary according to the model and design of different makes.

The RADAR shall be installed in place of existing. This RADAR can give good coverage of approach channel, sea area up to 22-24 nautical miles.

The system shall have facility for tracking the targets by following options.

Up to 3 NM by using short pulse

Up to 6 NM by using medium pulse

beyond 6 NM by using long pulse

It shall be possible to control most of the radar parameters such as pulse width, power, clutter etc. from remote location (from the Control station).

Bidders should specify the range with calculation sheet in their technical bid. Complete technical specifications of all the major equipment for the radar system (example antenna, transmitter, and receiver) shall be submitted along with the tender.