

INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai 600 036

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Date: 23.06.2023

The Manager (Project Purchase)

Open Tender Reference No: OE/MURA/127/2023/VHFCLASSBASER

GEM NAR ID: GEM/GARPTS/23062023/U847DHTM9QEG Due Date/Time: 13.07.2023@ 3:00 PM

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, Tenders are invited in two bid system from Class-I local suppliers and Class II local suppliers, for the supply of: "VHF Class-A Base Station and VHF Remote Console and their accessories" Conforming to the specifications given in Annexure -A.

Tender Documents may be downloaded from Central Public Procurement Portal https://etenders.gov.in/eprocure/app. Aspiring Bidders who have not enrolled / registered in e-procurement should enroll / register before participating through the website https://etenders.gov.in/eprocure/app. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at "Help for contractors". [Special Instructions to the Contractors/Bidders for the e-submission of the bids online through this eProcurement Portal"]

Bidders can access tender documents on the website (For searching in the NIC site, kindly go to Tender Search option and type "IIT": Thereafter, click on "GO" button to view all IIT Madras tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website https://etenders.gov.in/eprocure/app as per the schedule attached.

	Pre-bid Meeting	:	NA
<u>1)</u>	Details		
2)	ICSR Vendor	:	Vendor registration code. Vendor registration with IC&SR (IITM) is mandatory for
<u>2)</u>	Registration	•	bidders to participate in tenders.
	Registi ation		bluders to participate in tenders.
			** For Vendor Registration & Guidelines, Please follow the website: https://icandsr.iitm.ac.in/vendorportal; Helpdesk: vendorhelpdesk@icsrpis.iitm.ac.in

No manual bids will be accepted. All tender documents including Technical and Financial bids should be submitted in the E-procurement portal.

Last date for receipt of tender	:	13.07.2023 @ 3:00 PM
Date & time of opening of tender	:	14.07.2023 @ 3:00 PM

3. Instructions to the Bidder:

<u>A)</u>	Searching for tender documents	:	 There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender published on the CPP Portal. Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective "My Tender" folder. This would enable the CPP Portal to intimate the bidders through
			 SMS / email in case there is any corrigendum issued to the tender document. The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.
<u>B)</u>	Assistance to bidders	:	 Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender. Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is [0120-4200462, 0120-4001002, 0120-4001005]
<u>C)</u>	Enrollment to Bidders Process	•	

			 (DSC) in the form of smart card/e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through https://etenders.gov.in/eprocure/app Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site https://etenders.gov.in/eprocure/app under the "Information about DSC".
<u>D)</u>	Preparation of bids	:	Bidder should take into account any corrigendum published on the tender document before submitting their bids.
			 Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
			 Bidder, in advance, should prepare the bid documents to be submitted as indicated in the tender document / schedule and generally shall be in PDF / XLS formats as the case may be. Bid documents may be scanned with 100 dpi with black and white option. To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, GSTIN Details, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Documents" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.
<u>E)</u>	Submission of bids	:	Bidder should log into the site well in advance for bid submission so that he/she can upload the bid in time i.e. on or before the bid submission date and time. Bidder will be responsible for any delay due to other issues.
			The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
			• Bidder has to select the bid security declaration. Otherwise, the tender will be summarily rejected.
			• A standard BOQ format has been provided with the tender document to be filled by all the bidders. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders are required to download the BOQ file, open it and complete the detail with their respective financial quotes and other details (such as name of the bidder). If the BOQ file is found to be modified by the bidder, the bid will be rejected.
			• The server time (which is displayed on the bidders" dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The

		bidders should follow this time during bid submission.
		• The Tender Inviting Authority (TIA) will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local issues.
		The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
		• Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
		 Kindly add scanned PDF of all relevant documents in a single PDF file of compliance sheet. More information useful for submitting online bids on the CPP Portal may be obtained at: https://etenders.gov.in/eprocure/app. All tender documents including pre-qualification bid, Technical Bid &Financial Bid should be submitted separately in online CPP portal as per the specified format only. Right is reserved to ignore any tender which fails to comply with the above instructions. No manual bid submission will be entertained.
<u>F)</u>	Marking on Technical Bid	• The bidder eligibility criteria, technical specification and supply of item for this tender is given in Annexure A.
		• The Bidders shall go through the specification and submit the technical bid.
		• The Technical bid should be submitted in the proforma as per Annexure-B in pdf format only through online (e-tender). No manual submission of bid will be entertained.
		• The technical bid should have a page-wise heading as "Technical Bid" and page no. in all pages with seal and signature of authorized signatory. The total no. of pages should be mentioned at the last page of the documents.
		The technical bid should consist of bidder eligibility criteria details and all technical details along with catalogue/ pamphlet which will give a detailed description of product with technical data sheet so that technical compliance can be verified.
<u>G)</u>	Marking on Price Bid	• Financial bid (BoQ) should be submitted in the prescribed proforma format as per Annexure-C in xls format through e-tender only. No manual or other form of submission of Financial Bid will not be entertained

4) **Preparation of Tender**: The bidders should submit the bids in two bid system as detailed below.

Bid I Technical Bid

The technical bid should consist of bidder eligibility criteria and technical specification compliance sheet as per Annexure-B.

Bid II Price Bid

The price bid should be submitted in excel format (BoQ) as per the proforma (Annexure C) uploaded in the e-Tender web site. The Quoted price should be for supply and installation of the item and inclusive of all cost and statutory levies at IIT Madras.

5) Price:

- a) The price should be quoted only in INR net per unit (after breakup) and must include all packing, transit insurance and delivery charges to the NTCPWC, IITM.
- b) The rate quoted shall be all inclusive of all taxes and no extra payment will be made other than statutory revisions as per the terms and conditions stipulated in this contract document.
- c) The percentage of tax & duties should be clearly indicated separately. IIT Madras is eligible for custom duty (5.5%). Relevant certificates will be issued wherever necessary.
- d) The offer/bids should be submitted through online only in two bid system i.e. Technical Bid and Financial Bid separately.

6) Tenderer shall submit along with this tender:

- (i) Proof of having ISO or other equivalent certification given by appropriate authorities.
- (ii) Name and full address of the Banker and their swift code and PAN No. and GSTIN number.
- (iii) GST registration proof showing registration number, area of registration etc.
- (iv) All of your future correspondences including Invoices should bear the GST No. and Area Code.

7) Terms of Delivery:

Supplier will be fully responsible for the safe carriage, Installation/Commissioning of goods up to the NTCPWC at Paradip Port Authority, Paradip – 754 142, Odisha or named place as per PO, Insurance coverage will be in the scope of the supplier.

The tenderer should indicate clearly the time required for delivery of the item (subject to the approval of the Executive Committee-IIT-Madras). In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.

In the event of delay or non-supply of materials/execution of Contract beyond the date of delivery/completion of job. The penalty will be levied @1% per week of delay subject to a max of 10% of the value of purchase order and if the delay is more than accepted time frame by IIT M, the PO would be partially or fully cancelled and liquidated damages will be enforced accordingly.

8) Period for which the offer will remain open:

The Tender shall remain open for acceptance/validity till: 120 days from the date of opening of the tender. However, the day up to which the offer is to remain open being declared closed holiday for the Indian Institute of Technology Madras, the offer shall remain open for acceptance till the next working day.

9) EMD:

The EMD of Rs.1,40,000 to be transferred to the account details mentioned in Annexure G and proof should be enclosed in the Technical Bid. Any offer not accompanied with the EMD shall be rejected summarily as non-responsive.

The EMD of the unsuccessful bidders shall be returned within 30 days of the end of the bid validity period. The same shall be forfeited, if the tenderers withdraw their offer after the opening during the bid validity period. The Institute shall not be liable for payment of any interest on EMD. EMD is exempted for Micro and Small Enterprises (MSE) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) and Startups as recognized by Department of Industrial Policy & Promotion (DIPP). (MSE/MSME/DIPP PROOF should be enclosed in the cover containing technical bid) 10) **Performance Security: -**The successful bidder should submit Performance Security for an amount of 3% of the value of the contract/supply. The Performance Security may be furnished in the form of an Account Payee DD, FD Receipt in the name of "The Registrar, IIT Madras" from any scheduled commercial bank or Bank Guarantee from any scheduled commercial bank in India. The performance security should be furnished within 14 days from the date of the purchase order. Performance Security in the form of Bank Guarantee: - In case the successful bidder wishes to submit Performance Security in the form of Bank Guarantee, the Bank Guarantee should be routed directly to IIT Madras from the Bank. The Bank Guarantee should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including the warranty obligations. For the same tender, either the OEM or the authorized dealer/service provider can only quote. But both 11) of them cannot quote separately for the same tender. 12) The offers/bids should be sent only for a item/Equipments of latest version that is available in the market and supplied to a number of customers. A list of customers in India with details must accompany the quotations. Quotations for a prototype machine will not be accepted Original catalogue (not any photocopy) of the quoted model duly signed by the principals must 13) accompany the quotation in the Technical bid. 14) Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal/OEM. 15) Risk Purchase Clause In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause. 16) **Payment:** No Advance payment will be made. However, 90% Payment against Delivery and 10% after installation are agreed to wherever the installation is involved. Advance Payment: No advance payment is generally admissible. In case a specific percentage of advance payment is required, the Vendor has to submit a Bank Guarantee from a scheduled commercial bank in India equivalent to the amount of advance payment. 17) **On-site Installation:** The equipment/item or Machinery has to be installed or commissioned by the successful bidder within the number of days (as prescribed by PI) from the date of receipt of the item at the site of IIT Madras. 18) Warranty/Guarantee: The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately (For more details please refer our Technical Specifications). ** Note: PO which involves installation, warranty/guarantee shall be applicable from date of

	installation.
19)	Acceptance and Rejection:
	Failure to comply with any of the instructions stated in this document or offering unsatisfactory explanations for non-compliance will likely to lead to rejection of offers.
	I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.
20)	Debarment from Bidding:
	In case of breach of Terms & Conditions, Bidder may be suspended from being eligible for bidding in any contract with the IIT Madras up to 2 Years [as per Rule 151(iii) of GFR] from the date of Tender.
21)	Disputes and Jurisdiction:
	Settlement of Disputes: Any dispute, controversy or claim arising out of or in connection with this PO including any question regarding its existence, validity, breach or termination, shall in the first instance be attempted to be resolved amicably by both the Parties. If attempts for such amicable resolution fails or no decision is reached within 30 days whichever is earlier, then such disputes shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996. Unless the Parties agree on a sole arbitrator, within 30 days from the receipt of a written request by one Party from the other Party to so agree, the arbitral panel shall comprise of three arbitrators. In that event, the supplier will nominate one arbitrator and the Project Coordinator of IITM shall nominate on arbitrator. The Dean IC&SR will nominate the Presiding Arbitrator of the arbitral tribunal. The arbitration proceeding shall be carried out in English language. The cost of arbitration and fees of the arbitrator(s) shall be shared equally by the Parties. The seat of arbitration shall be at IC&SR IIT Madras, Chennai. a. The Applicable Law: The Purchase Order shall be construed, interpreted and governed by the Laws of India. Court at Chennai shall have exclusive jurisdiction subject to the arbitration clause.
	b. Any legal disputes arising out of any breach of contact pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.
22)	Force Majeure: The Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
	For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
	If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
23)	Eligibility Criteria:
	> As per the Government of India Order, only "Class - I Local Suppliers" and "Class - II Local Suppliers" can participate in this tender.
	Bidder should confirm their acceptance that they comply with the provisions with report to "Guidelines for eligibility of a bidder from a country which shares a land border with India as detailed at Annexure-E. The bidder should submit Certificate for "Bidder from/Not from Country sharing Land border with India & Registration of Bidder with Competent Authority" as per Order of DoE F.No.6/18/2019-PPD dated 23.07.2020 as

mentioned.

- Preference to "class I Local Suppliers": preference will be given to "class 1 local suppliers" (subject to class -I local supplier's quoted price falling within the margin of purchase preference) as per public procurement (preference to make in India) order 2017 .O.M No P- 45021/2/2017 pp(BE 11) dt 04/06/2020 subject to the conditions that the "class 1 Local Supplier" should agree to supply goods / provide service at L1 rate and furnish a certificate with the technical bid document that the goods/service provided by them consists local content equal to or more than 50%.(certificate from Chartered Accountant in case value of contract exceeds Rs 10 crore).
 - ➤ 'Class I local supplier' means a supplier or service provider whose goods, services or works offered for procurement consists of local content equal to or more than 50% as defined under the above said order. Declaration to be provided as per Annexure-D per item/service/work.
 - → 'Class II local supplier' means a supplier or service provider whose goods, services or works offered for procurement consists of local content equal to 20% but less than 50% as defined under the above said order. Declaration to be provided as per Annexure-D per item/service/work.
 - Margin of purchase preference': The margin of purchase preference shall be 20%. The Definition of the margin of purchase preference is defined in the Govt. of India Order No: P-45021/12/2017-PP (BE-II) Dt.4th June, 2020) Order 2017. As per the Government of India Order "Margin of Purchase Preference" means the maximum extent to which the price quoted by a "Class-I local supplier" may be above the L1 for the purpose of purchase preference.

**Note: Local content percentage to be calculated in accordance with the definition provided at clause 2 of revised public procurement preference to Make in India Policy vide GoI Order no. P-45021/2/2017-PP (B.E.-II) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019and 04.06.2020) MOCI order No. 45021/2/2017-PP (BE II) Dt.16th September 2020 & P-45021/102/2019-BE-II-Part(1) (E-50310) Dt.4th March 2021

Evaluation of Bids

Bid evaluation will take place in two stages.

Stage I Technical Bid evaluation

All bidders who have fully complied with bidder eligibility criteria I, II and technical evaluation (Annexure A) will only be considered for opening of price bid.

Stage II: Price Bid Evaluation

The price bid evaluation will be based on price quoted by the bidder. The rate quoted for VHF Class-A Base Station and VHF Remote Console and their accessories unit will alone be taken up for arrival of Lowest Bid (L1) value.

26) Selection of successful bidder and Award of Order

The order will be directly awarded to the technically qualified bidder as per the condition in para 3A of DIPP, MoCI Order No. 45021/2/2017-PP (BE II) dated 16th September 2020.

- All information including selection and rejection of technical or financial bids of the prospective bidders will be communicated through e-Tender portal. In terms of Rule 173(iv) of General Financial Rule 2017, the bidder shall be at liberty to question the bidding conditions, bidding process and/or rejection of bids.
- The tenderer shall certify that the tender document submitted by him / her are of the same replica of the tender document as published by IIT Madras and no corrections, additions and alterations made to the same. If any deviation found in the same at any stage and date, the bid / contract will be rejected / terminated and actions will be initiated as per the terms and conditions of the contract.
- Due to Covid-19 pandemic pre-bid meeting will be conducted through online. Clarification to the queries and doubts raised by the bidders will be issued as a corrigendum/addendum in the e-tenders portal.
- Due to Covid-19 pandemic the bidders will not be entertained to participate in opening of Bids. Since the tender is e-tender, the opening of the bids may be checked using the respective logins of the bidders.

<u>ACKNOWLEDGEMENT</u>
It is hereby acknowledged that I/We have gone through all the points listed under "Specification, Guidelines, Terms and Conditions" of tender document. I/We totally understand the terms and conditions and agree to abide by the same.
SIGNATURE OF TENDERER ALONG WITH SEAL OF THE COMPANY WITH DATE

Bidder Eligibility Criteria and Technical Specification for VHF Class-A Base Station and VHF Remote Console and their accessories

Tender No. OE/MURA/127/2023/VHFCLASSBASER

Bidder Eligibility Criteria – I (Public Procurement – Preference to Make in India)

Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE-II) dated 16th September 2020 and other subsequent orders issued therein.

Bidder Eligibility Criteria - II

The participating Bidder's firm shall be the Original Equipment Manufacturer (OEM) or OEM Certified / authorized firm. (Annexure F)

The bidder/OEM shall attach proof of minimum three purchase orders for having supplied (i) Marine VHF Class-A Base Station and (ii) VHF Remote Console to Ports, Navy, Coast Guard, IWAI, IITs or other Government organizations in the last 5 years in the period 2018 to 2022. Purchase Orders, Invoice copies, Work Completion Certificates, Performance Certificates along with contact details of end user need to be submitted as the proof of supply. IIT Madras reserves its right to verify the claims submitted by the bidder and the feedback from the previous customers will be part of technical evaluation.

III. TECHNICAL SPECIFICATION for VHF Class-A Base Station and VHF Remote Console and their accessories

1) Scope of the supply:

NTCPWC, IIT Madras is inviting tender for the supply of Marine VHF Class-A Base Station (Qty: 2 Nos.) and VHF Remote Console (Qty: 1 No.) and their accessories as per the technical specification mentioned below for the project site at Paradip Port Authority, Paradip – 754 142, Odisha, India.

The supply includes installation, commissioning, training, import clearances and coordination for obtaining operating licence from Wireless Planning & Coordination Wing (WPC), Department of Telecommunication, Ministry of Communications, Govt. of India.

1A Marine VHF Class-A Base Station 2 Qty

Sl.		
No.	Specification	
1.	Frequency range	156-174 MHz
2.	Operating modes	Simplex, Semi-Duplex, Duplex, and Dual Watch
3.	RF power output	100/75/50 Watts selectable (Optional)
4.	Modulation type	16K0G3E (FM)
5.	Frequency stability	+/- 1.5 ppm
6.	Sensitivity	-120 dBm for 12 dB SINAD
7.	Channel spacing	12.5 kHz and 25 kHz, all international maritime channels
8.	Antenna impedance	50 ohms unbalanced
9.	Audio output power	4 watts at 10% THD
10.	Audio distortion	Less than 10% at 60% modulation
	Operating temperature	
11.	range	-20°C to +55°C
12.	Supply voltage	24V DC nominal (20 to 32V DC range)
13.	Power consumption	6A at 100W, 3A at 50W, and 1.5A at 25W
14.	Receiver selectivity	-70 dB adjacent channel, -60 dB co-channel

15.	Intermodulation rejection	-75 dB
	Spurious response	
16.	rejection	-80 dB
17.	Audio input impedance	600 ohms
18.	Audio input level:	Adjustable -20 dBm to +8 dBm
	Distress alert:	
19.		DSC (Digital Selective Calling) Class-A, ITU-R M.493-14 compliant
	Other features	GPS input for automatic vessel position reporting, external speaker
20.		output, remote control option
21.	Receiver sensitivity	Less than 0.25 μV for 12 dB SINAD
	Spurious and image	
22.	rejection	More than 70 dB
	Adjacent channel	
23.	selectivity	More than 70 dB
24.	Intermodulation rejection	More than 68 dB
25.	Audio distortion	Less than 5% at rated output power
26.	Temperature range	-20°C to +55°C (-4°F to +131°F)
	W. C. C.	IPx7 (To protect against immersion up to 1 meter for up to 30
27.	Waterproof rating	minutes)
28.	Power supply voltage	12 to 24 V DC
	antenna	150 100 100
29.	Frequency range	156 to 162 MHz
30.	VSWR	1.5:1 maximum
31.	Gain	6 dBd (8.15 dBi) minimum
32.	Polarization	Vertical
33.	Impedance	50 ohms
34.	Connector	Type N female
35.	Radiation pattern	Omnidirectional
36.	Power handling capacity	200 Watts
37.	Wind survival	100 knots
38.	Mast diameter	1.5" to 2.5" (38.1 mm to 63.5 mm)
39.	Weight	1.7 kg (3.75 lbs)
40.	Dimensions	2.0" x 79.0" (50.8 mm x 2006.6 mm)
41.	Temperature range	-40°C to +70°C
42.	Wind load area	0.18 m² (1.9 ft²)
43.	Radome material	Fiberglass Side an acceptance of the control of the
44.	Mounting Lightning protection	Side or mast mount
45.	Lightning protection	DC grounded
46.	Radiation efficiency Vibration	50%
47.		MIL-STD-810E
48.	Salt spray	MIL-STD-810E
49.	UV resistance	ASTM D4329-99
		100 private channels and in all modes.
		86 International marine channels, US channel, CA channel, BI
50.	Number of channels	channel, Alternative channels Deviation 3 kHz nom, 5 kHz max Blocking Better than 90 dB
50.	TAUTHOUT OF CHAIRIES	1-75 Watt adjustable RX sensitivity Better than -117 dBm / 20 dB
		SINAD before duplexer.
		Better than -119 dBm / 12 dB SINAD before duplexer Channels All
51.	RF output power	international marine channels
J1.	1st output power	memational marme enamicis

		Operating modes Duplex, Semi-I -85 dB Relative Carrier Spurious 80 dB	Ouplex, Simplex Spurious emission < response Better than
		Transmitter power level 1–75 Wa	att Duty cycle 100% Adjacent
		Better than 80 dB Intermodulation Squelch reference	n rejection Better than 85 dB
		Customer defined levels Duplex	spacing 4.6 MHz
		Modulation +6 dB / Octave Adja 80 dB RX audio balance 245 mV +/- 6 dB	cent channel selectivity Better than
		Channel spacing 12.5 and 25 kHz	Z
		Distortion Better than 3% Co-cha	annel rejection Better than 10 dB
52.	REMOTE READINGS	Supply power level 0-18V ± 0.1 V	
		0.5 ppm Hum and noise Better th -40 dB	an 40 dB Hum and noise Better than
		Transmitter power level 1–75 Wa	att Supply
		Intermodulation Better than 40 d	B at
		30 dB attenuation between transr	
		-	Current consumption Transmission
		< 15A (75 Watt)	
		Standby < 0.5A TX antenna conf	nection
		50Ω RX Antenna connection 50	
53.	Frequency stability	Temperature level -30 - +80°C, 5	
		remote control	0 hours LAN interface For audio and
		Temore control	
		RS 422 interface For local control	ol and operation,
		Compliance EN 301 929 V2.1.1	VHF IEC EN 60950-1
54.	Interfaces	Safety VoIP multicastprotocol G	.711 & G.723.1 EURO CAE ED
		Tx to Rx Separation – typical	4.6MHz
		Low & High Pass Port	
		Insertion Loss – typical	≤ 1.5dB
		Input Power (CW) – max	100W
		Frequency MHz Return Loss / VSWR	136-174MHz >14dB / 1.5:1
		Port to Port Isolation	≥75dB
		Loss	Low Insertion Loss
55.	VHF Duplexer	Power	50 W (CW)
	1	ı	\ /

Temperature C/F	-30" to 60" C / -22" to 140" F

1B <u>VHF Remote Console</u> 1 Qty

Sl.	Specification			
No.		Compatibility for the below specification VHF		
1.	Frequency range	HF, UHF, VHF, PTT		
1.		122, 0222, 122, 122		
II	VoIP Interface Module			
2.	Protocol	SIP (Session Initiation Protocol)SIP 1.0 and 2.0, Megaco H.248		
3.	Voice codecs	G.711, G.729, G.723.1.G.729A/B		
4.	Ethernet interface	10/100 Base-T		
5.	Power supply	230VAC or 12 to 48 V DC or PoE (Power over Ethernet)		
6.	Power consumption	less than 3 to 6 W		
7.	Operating temperature	-10°C to 60°C		
	range Operator Station and Vo	ID Madulos		
	Operator Station and Vo	ir wiodules		
8.	Display	LCD screen, resolution 800 x 480 pixels		
9.	Keyboard	24 keys, including 10 soft keys and 4 programmable function keys		
10.	Interfaces	Ethernet, USB, RS232		
11.	Power supply	24 V DC		
12.	Power consumption	less than 10 W		
13.	Operating temperature range	-10°C to 60°C		
14.	Functionalparameters	Support (Max) 4 E1/T1, 96 GSM/CDMA, 192 FXO/FXS, 128 IP Channels, 48 PTT, 96 Magnet, 96 E&M, 48 Audio interface. It's mainly going to be used in some specific industry, such as IPCC, IP Dispatching, unified communications, VoIP network, operators, and so on. NC-MG320A, each of ports can be a terminal to register into SIP Server; Audio interface interconnecting with dispatching station or MIC, can make the call to phone number of each port of NC-MG320A by VAD (Voice Activity Detection), this phone number can correspond with a terminal or a SIP Trunk. Call phone number of NC-MG320A's line, then can connect to speaker of audio interface of MG320A's line. The phone with different interfaces can support voice interconnection by NC-MG320A. Supporting wired and wireless multi-level communication, intercom, speech. Each audio interface of NC-MG320A correspond with one mixer, so that voice of mixer is connected into IP communication system. NC-MG320A can connect many kinds of Voice Input Terminal Device to the IP Voice communication System, such as mixer, MIC, Conference Terminal and so on.		
15.	Interface Specifications	Slot of Interface 4 to 12 Board Letterfore Point And GSM EVO/EVS E&M Manual Palls		
		Interface Board Audio, GSM, FXO\FXS, E&M, Magnet, RoIP		

		VoIP Channels	32 to 128	
		Audio Port	4 to 16	
		E1 Port	0-4E1	
		Analog port	32 to 64	
		E & M Port	8 to 16	
		GSM Port	1 to 4	
		RoIP	4 to 16	
16.	Hardware Platform	PCI or General Com	puter	
17.	Operating System	Windows or Real Ti	Windows or Real Time OS	
18.	Interface	Audio, VoIP, RoIP,	Magnet,GSM\CDMA\WCDMA,Analog, E1, SIP,	
		IMS		
19.	Source	IVR, Recording, Echo	cancellation	
20.	Protocol	SS7, R2/CAS, PRI, V	5.2, Q.SIG,	
		DPNSS, SIP, Megaco	H.248, IMS	
Acce	ssories			
21.	Accessories for VHF	PTT Desk Mic, From validity	PTT Desk Mic, Front Mic, Speaker, Touch screen, life time licence validity	

Other	Other Terms and Conditions				
1.	Warranty	The warranty for the above equipment shall be minimum of 12 months or more after the installation of the equipment or any portion thereof as the case may be. In case of any defect noticed in the equipment during the warranty period, the vendor has to rectify, service and replace the spares at free of cost and made it operational to the satisfaction of the end user. The warranty certificate should be furnished in the prescribed format.			
2.	Specification test on delivery of item	After delivery of item, specification test will be carried out on all supplied items by NTCPWC, IITM for its acceptance.			
3.	Training	Technical operational training to be provided to the Engineers of NTCPWC, IITM			
Genera	al Terms and Conditions	· · ·			
4.	Price should be inclusive of basic cost, freight, insurance year).	re, training, and warranty as applicable (Minimum 1			
5.	Delivery Time :All the items shall be supplied within 6	o - 8 weeks from the date of purchase order.			
6.	End-of-Life (EOL) & End-of-service-Life (EOSL) certificate for the product and spare availability for the next 5 years to be provided.				
7.	The successful L1 bidder has to coordinate for obtaining operating licence from WPC. Price escalation due to delay in getting licence from GoI/WPC will not be entertained.				
8.	Functional and operational Test Reports for all the com	ponents shall be provided.			

TECHNICAL BID PROFORMA

Tender No. OE/MURA/127/2023/VHFCLASSBASERC

Item Name: VHF Class-A Base Station and VHF Remote Console and their accessories

1.0 Bidder Eligibility Criteria:

-	I	Bidder Eligibility Criteria-I (Public Procurement – Preference to Make in India)	Class I / Class II	Local Content value	Reference, Page No.
	I	Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16 th September 2020 and other subsequent orders issued therein.			
I	I	Bidder Eligibility Criteria-II	Complied/N	ot Complied	Ref Pg.No
	1	The participating Bidder's firm shall be the Original Equipment Manufacturer (OEM) or OEM Certified / authorized firm. (Annexure F)			
	2	The bidder/OEM shall attach proof of minimum three purchase orders for having supplied (i) Marine VHF Class-A Base Station and (ii) VHF Remote Console to Ports, Navy, Coast Guard, IWAI, IITs or other Government organizations in the last 5 years in the period 2018 to 2022. Purchase Orders, Invoice copies, Work Completion Certificates, Performance Certificates along with contact details of end user need to be submitted as the proof of supply. IIT Madras reserves its right to verify the claims submitted by the bidder and the feedback from the previous customers will be part of technical evaluation.			

3.0Technical Compliance:

1A Marine VHF Class-A Base Station 2 Qty

Sl.			Complied/Not	Ref Pg.No
No.	Specification		Complied	
1.	Frequency	156-174 MHz		
	range			
2.	Operating	Simplex, Semi-Duplex, Duplex, and		
	modes	Dual Watch		
3.	RF power	100/75/50 Watts selectable (Optional)		
	output			
4.	Modulation	16K0G3E (FM)		
	type			
5.	Frequency	+/- 1.5 ppm		
	stability			
6.	Sensitivity	-120 dBm for 12 dB SINAD		
7.	Channel	12.5 kHz and 25 kHz, all international		
	spacing	maritime channels		
8.	Antenna	50 ohms unbalanced		
	impedance			
9.	Audio output	4 watts at 10% THD		

	power			
10.	Audio	Less than 10% at 60% modulation		
	distortion			
11.	Operating	-20°C to +55°C		
	temperature			
	range			
12.	Supply voltage	24V DC nominal (20 to 32V DC		
		range)		
13.	Power	6A at 100W, 3A at 50W, and 1.5A at		
	consumption	25W		
14.	Receiver	-70 dB adjacent channel, -60 dB co-		
1.7	selectivity	channel		
15.	Intermodulation	-75 dB		
1.6	rejection	-80 dB		
16.	Spurious	-80 dB		
	response rejection			
17.	Audio input	600 ohms		
1 / .	impedance	ooo omns		
18.	Audio input	Adjustable -20 dBm to +8 dBm		
	level:			
19.	Distress alert:	DSC (Digital Selective Calling) Class-		
		A, ITU-R M.493-14 compliant		
20.	Other features	GPS input for automatic vessel		
		position reporting, external speaker		
		output, remote control option		
21.	Receiver	Less than 0.25 μV for 12 dB SINAD		
	sensitivity	26 4 70 47		
22.	Spurious and	More than 70 dB		
23.	image rejection	More than 70 dB		
23.	Adjacent channel	Wiole man /0 dB		
	selectivity			
24.	Intermodulation	More than 68 dB		
	rejection	Triore than 60 dB		
25.	Audio	Less than 5% at rated output power		
	distortion			
26.	Temperature	-20°C to +55°C (-4°F to +131°F)		
	range			
27.	Waterproof	IPx7 (To protect against immersion up		
	rating	to 1 meter for up to 30 minutes)		
28.	Power supply	12 to 24 V DC		
	voltage	DEA		
20	l p	RF Antenna		
29.	Frequency	156 to 162 MHz		
20	range	15.1 maximum		
30.	VSWR Gain	1.5:1 maximum 6 dBd (8.15 dBi) minimum		
31.	Polarization	Vertical		
33.	Impedance	50 ohms		
34.	Connector	Type N female		
J 4 .	COMMECTOR	1 ypc in iciliaic		

2.5	D 1' 4'	0 11 1 1	
35.	Radiation pattern	Omnidirectional	
36.	Power handling	200 Watts	
30.	capacity	200 Watts	
37.	Wind survival	100 knots	
38.	Mast diameter	1.5" to 2.5" (38.1 mm to 63.5 mm)	
39.	Weight	1.7 kg (3.75 lbs)	
40.	Dimensions	2.0" x 79.0" (50.8 mm x 2006.6 mm)	
41.	Temperature	-40°C to +70°C	
	range		
42.	Wind load area	0.18 m ² (1.9 ft ²)	
43.	Radome	Fiberglass	
	material		
44.	Mounting	Side or mast mount	
45.	Lightning	DC grounded	
	protection		
46.	Radiation	50%	
	efficiency		
47.	Vibration	MIL-STD-810E	
48.	Salt spray	MIL-STD-810E	
49.	UV resistance	ASTM D4329-99	
50.	Number of	100 private channels and in all modes.	
	channels	86 International marine channels, US	
		channel, CA channel, BI channel,	
		Alternative channels Deviation 3 kHz	
		nom, 5 kHz max Blocking Better than	
<i>5</i> 1	DEt	90 dB	
51.	RF output	1-75 Watt adjustable RX sensitivity	
	power	Better than -117 dBm / 20 dB SINAD before duplexer.	
		Better than -119 dBm / 12 dB SINAD	
		before duplexer Channels All	
		international marine channels	
		international marine enamicis	
		Operating modes Duplex, Semi-	
		Duplex, Simplex Spurious emission < -	
		85 dB Relative Carrier Spurious	
		response Better than	
		80 dB	
		Transmitter power level 1–75 Watt	
		Duty cycle 100% Adjacent channel	
		power	
		Better than 80 dB Intermodulation	
		rejection Better than 85 dB Squelch	
		reference	
		Customer defined levels Duplex	
		spacing 4.6 MHz	
		Modulation +6 dB / Octave Adjacent	
		Modulation + 0 ub / Octave Aujacelli	

245 mV +/- 6 dB 52. REMOTE Channel spacing 12.5 and 25 kHz READINGS	
I INLADINOS I	
Distortion Better than 3% Co-channel	
rejection Better than 10 dB	
Supply power level 0-18V ±0.1V	
53. Frequency stability 0.5 ppm Hum and noise Better than 40 dB Hum and noise Better than -40 dB	
stability dB Hum and noise Better than -40 dB	
Transmitter power level 1–75 Watt Supply	
Intermodulation Better than 40 dB at	
30 dB attenuation between transmitters	
Distortion Better than 3% Reflected	
power level 1-20 Watt Current consumption Transmission < 15A (75	
Watt)	
Standby < 0.5A TX antenna	
connection	
50 Ω RX Antenna connection 50 Ω	
Temperature level -30 - +80°C, 5°C	
tolerance Duplexer Optional	
54. Interfaces RSSI 0-40 dBμV MTBF > 50,000 hours LAN interface For audio and	
remote control	
RS 422 interface For local control and operation,	
Compliance EN 301 929 V2.1.1 VHF IEC EN 60950-1	
IEC EN 60930-1	
Safety VoIP multicastprotocol G.711	
& G.723.1 EURO CAE ED	
55. VHF Duplexer Tx to Rx Separation – 4.6MHz	
typical	
Low & High	
Pass Port ≤ 1.5dB Insertion Loss	
- typical	
Input Power 100W	
(CW) – max	
Frequency 136-174MHz MHz	

Return Loss	/ >14dB / 1.5:1	
VSWR		
Port to Port	≥75dB	
Isolation		
Loss	Low Insertion Loss	
Power	50 W (CW)	
Temperature	e -30" to 60" C / -22"	
C/F	to 140" F	

1B VHF Remote Console 1 Qty

Sl. No.	Specification			
I I	Compatibility	for the below specification VHF		
1.	Frequency range	HF, UHF, VHF, PTT		
II	VoIP Interface Modu			
2.	Protocol	SIP (Session Initiation Protocol)SIP		
		1.0 and 2.0, Megaco H.248		
3.	Voice codecs	G.711, G.729, G.723.1.G.729A/B		
4.	Ethernet interface	10/100 Base-T		
5.	Power supply	230VAC or 12 to 48 V DC or PoE		
		(Power over Ethernet)		
6.	Power consumption	less than 3 to 6 W		
7.	Operating	-10°C to 60°C		
	temperature range			
	Operator Station and			
8.	Display	LCD screen, resolution 800 x 480		
		pixels		
9.	Keyboard	24 keys, including 10 soft keys and 4		
		programmable function keys		
10.	Interfaces	Ethernet, USB, RS232		
11.	Power supply	24 V DC		
12.	Power consumption	less than 10 W		
13.	Operating	-10°C to 60°C		
	temperature range			
14.	Functional	Support (Max) 4 E1/T1, 96		
	parameters	GSM/CDMA, 192 FXO/FXS, 128 IP		
		Channels, 48 PTT, 96 Magnet, 96		
		E&M, 48 Audio interface. It"s mainly		
		going to be used in some specific		
		industry, such as IPCC, IP		
		Dispatching, unified communications,		
		VoIP network, operators, and so on.		
		NC-MG320A, each of ports can be a		
		terminal to register into SIP Server;		
		Audio interface interconnecting with		
		dispatching station or MIC, can make		
		the call to phone number of each port		
		of NC-MG320A by VAD (Voice		
		Activity Detection), this phone number		
		can correspond with a terminal or a		

		SIP Trunk.		
		Call phone number of NC-	MG3204's	
		line, then can connect to sp		
		audio interface of MG320		
		The phone with different in		
		can support voice inter-con	inection by	
		NC-MG320A.	1 14.	
		Supporting wired and wire		
		level communication, inter	com,	
		speech.	~	
		Each audio interface of NO		
		correspond with one mixer		
		voice of mixer is connected	d into IP	
		communication system.		
		NC-MG320A can connect		
		of Voice Input Terminal D		
		IP Voice communication S		
		as mixer, MIC, Conference	e Terminal	
		and so on.		
15.	Interface	Slot of Interface Board	4 to 12	
	Specifications	Interface Board	Audio,	
			GSM,	
			FXO\FXS,	
			E&M,	
			Magnet,	
			RoIP	
		VoIP Channels	32 to 128	
		Audio Port	4 to 16	
		E1 Port	0-4E1	
		Analog port	32 to 64	
		E & M Port	8 to 16	
		GSM Port	1 to 4	
		RoIP	4 to 16	
16.	Hardware Platform	PCI or General Computer		
17.	Operating System	Windows or Real Time OS	S	
18.	Interface	Audio, VoIP,		
		RoIP,Magnet,GSM\CDMA\WCDMA,		
		Analog, E1, SIP, IMS		
19.	Source	IVR, Recording, Echo cancellation		
20.	Protocol	SS7, R2/CAS, PRI, V5.2, Q.	,	
		DPNSS, SIP, Megaco H.248	, IMS	
Acce	essories			
21.	Accessories for VHF	PTT Desk Mic, Front Mic,	Speaker,	
		Touch screen, life time lice	ence validity	

Othe	er Terms and Conditio		
22.	Warranty	The warranty for the above equipment	
		shall be minimum of 12 months or more	
		after the installation of the equipment or	

		any portion thereof as the case may be. In	
		case of any defect noticed in the	
		equipment during the warranty period, the	
		vendor has to rectify, service and replace	
		the spares at free of cost and made it	
		operational to the satisfaction of the end	
		user. The warranty certificate should be	
		furnished in the prescribed format.	
23.	Specification test on	After delivery of item, specification test	
	delivery of item	will be carried out on all supplied items	
		by NTCPWC, IITM for its acceptance.	
24.	Training	Technical operational training to be	
		provided to the Engineers of NTCPWC,	
		IITM	
Gen	eral Terms and Condit	tions	
25.	Price should be inclusi	ve of basic cost, freight, insurance, training,	
	and warranty as applic	able (Minimum 1 year).	
26.	Delivery Time :All the	e items shall be supplied within 6 - 8 weeks	
	from the date of purch	ase order.	
27.	End-of-Life (EOL) &	End-of-service-Life (EOSL) certificate for	
	the product and spare a	availability for the next 5 years to be	
	provided.		
28.	The successful L1 bide	der has to coordinate for obtaining operating	
	licence from WPC.	Price escalation due to delay in getting	
	licence from GoI/WPC	C will not be entertained.	
29.	Functional and operat	ional Test Reports for all the components	
	shall be provided.	•	

SIGNATURE OF BIDDER ALONG WITH SEAL OF THE COMPANY WITH DATE

FINANCIAL BID (PROFORMA) - BILL OF QUANTITIES (BOQ) Item Name: VHF Class-A Base Station and VHF Remote Console and their accessories Tender No. OE/MURA/127/2023/VHFCLASSBASER

It. No	Description of work	Quantity	Units	Basic Rate in INR	GST in Percentage	Total Amount with taxes in INR
1	Supply of Marine VHF Class-A Base Station and its accessories as per the technical Specification 1A. (The cost includes installation, commissioning and training)	2	Nos.			
2	Supply of VHF Remote Console and its accessories as per the technical Specification 1B. (The cost includes installation, commissioning and training)	1	No.			
3	Charges covering P&F, Transit Insurance and transport charges on door delivery basis upto destination project location of NTCPWC at Paradip Port Authority, Paradip – 754 142, Odisha.	Above 3	Nos.			
	Grand Total					

Total Amount Rupees in words	
------------------------------	--

FORMAT FOR AFFIDAVIT OF SELF-CERTIFICATION UNDER PREFERENCE TO MAKE IN INDIA – PER ITEM

Tender Reference Number:				
Name of the item / Service:				
Date:				
Hereby solemnly affirm and declare as under:				
That I will agree to abide by the terms and conditions of the Public Procurement (Preference to Make in India) Policy vide GoI Order no. P-45021/2/2017-PP (B.EII) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019and 04.06.2020) MOCI order No. 45021/2/2017-PP (BE II) Dt.16th September 2020 & P- 45021/102/2019-BE-II-Part (1) (E-50310) Dt.4th March 2021 and any subsequent modifications/Amendments, if any and				
That the local content for all inputs which constitute the said item/service/work has been verified by me and I am responsible for the correctness of the claims made therein.				
Tick (✓) and Fill the Appropriate Category I/We [name of the supplier] hereby confirm in respect of quoted items thatLocal Content is equal to or more than 50% and come under "Class-I Local Supplier" category.				
I/We [name of the supplier] hereby confirm in respect of quoted items that Local Content is equal to 20% but less than 50% and come under "Class-II Local Supplier" category.				
• The details of the location (s) at which the local value addition is made and the proportionate value of local content in percentage				
Address Percentage of Local content:%				
For and on behalf of(Name of firm/entity)				
Authorized signatory (To be duly authorized by the Board of Directors) <insert and="" contact="" designation="" name,="" no.=""></insert>				
[Note: In case of procurement for a value in excess of Rs. 10 Crores, the bidders shall provide this certificate from statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.]				

This letter should be on the letterhead of the quoting firm and should be signed by a competent authority. Non-submission of this will lead to Disqualification of bids.

$\underline{Annexure-E}$

	(To be given on the letter head of the bidder)
No	Dated:
	CERTIFICATE
	(Bidders from India)
	g restrictions on procurement from a bidder of a country which shares a land ertify that I am not from such a country.
	OR (whichever is applicable)
(Bidde	s from Country which shares a land border with India)
border with India and hereby registered with the Competen	g restrictions on procurement from a bidder of a country which shares a land certify that I from (Name of Country) and has been Authority. I also certify that I fulfil all the requirements in this regard and is / evidence of valid registration by the Competent Authority is to be attached)
Place: Date:	Signature of the Tenderer Name & Address of the Tenderer with Office Stamp

OEM CERTIFICATION FORM (In Original Letter Head of OEM)

Tender No:		Dated:			
We are Original Equipment Manufacturers	(OEM) of		(Nam	e of the	
company) Ms	(Name of the ve	endor) is on	e of our	
Distributors/Dealers/Resellers/Partners	(tick	one)	for	the	
		and is particip	ating in the	above-	
mentioned tender by offering our produ	ct model		(Nan	ne of the	
product with model number).					
	i	s authorized t	o bid, sell	and provide	
service support warranty for our product				·	
as mentioned above.					

Name and Signature of the authorized signatory of OEM along with seal of the company with Date



CENTRE FOR INDUSTRIAL CONSULTANCY & SPONSORED RESEARCH (IC&SR) INDIAN INSTITUTE OF TECHNOLOGY MADRAS CHENNAI 600 036



ELECTRONIC CLEARING SERVICE (Credit Clearing) / REAL TIME GROSS SETTLEMENT (RTGS) FACILITY FOR RECEIVING PAYMENTS A. Details of Account Holder

Name of the Institution	Indian Institute of Technology - Madras
Complete Contact Address	Industrial Consultancy and Sponsored Research Indian Institute of Technology-Madras, IIT- Madras Campus Post Office, Sardar Patel Road, Guindy, CHENNAI - 600 036
Telephone No./ Fax No.	Tel - 044-2257 8356
E- mail ID of the FO/AO/REG/DIR	dricsr@iitm.ac.in

B. Bank Account Details:

Institution Account Name (As per Bank	The Registrar, Indian Institute of
Record)	Technology - Madras
Account No.	2722101003872
Account Print Name	IIT F A/C , The Registrar IIT Madras
IFSC CODE	CNRB0002722
Bank Name (in full)	Canara Bank
Branch Name	IIT-Madras Branch
Complete Branch Address	Canara Bank,
	IIT-Madras Branch,
0	IIT- Madras Campus Post Office,
	Sardar Patel Road,
	Guindy, CHENNAI - 600 036
MICR No.	600015085
Account Type	Savings Account

Certified that the Institute's account is in an RTGS enabled branch.

I hereby declare that the particulars given above are correct and complete.

Date:

Signature of the Competent Authority of the Institution with seal.