REQUEST FOR INFORMATION (RFI) FOR PROCUREMENT OF 35 SECURE PORTABLE LTE NETWORKING SYSTEM

1. The Ministry of Defence, Government of India, intends to procure 'Secure Portable LTE Networking System' (Quantity – 35).

2. This request for information (RFI) consists of two parts as indicated below:-

(a) Part I The first part of the RFI incorporates operational characteristics and features that should be met by the equipment. Few important technical parameters of the proposed equipment are also mentioned.

(b) Part II The second part of the RFI states the methodology of seeking response of vendors. Submission of incomplete response format will render the vendor liable for rejection.

PART I

3. **Intended Use of Equipment (Operational Requirement)**. The Secure Portable LTE Networking System will provide real time, dynamic and adaptable exchange of information/data across Indian Coast Guard platforms/mission teams at sea using 4G LTE compatible User Equipment (UE – Mobile Handsets/Tabs/Laptops/Camera/ or any other 4G compatible equipment) alongwith suitable Apps and network.

4. **Important Technical Parameters**. The OSRs/Questionnaires are placed at **Appendix 'C'** of this document

5. Vendor should confirm following conditions and which are acceptable:-

(a) The solicitations of offer will be as per "Single Stage-Two Bid System". It would imply that a 'Request for Proposal' would be issued soliciting the technical and commercial offers together, but in two separate sealed envelopes. The validity of commercial offers would be at least 18 months from the date of submitting of offers. (**Confirmation – Yes/No**)

(b) The technical offers would be evaluated by a Technical Evaluation Committee (TEC) to check its compliance with RFP. (**Confirmation – Yes/No**)

(c) The equipment of all TEC cleared vendors would be put through a trial evaluation in India on a 'No Cost No Commitment' basis. A staff evaluation would be carried out by the SHQ to analyse the result of field evaluation and shortlist the equipment for introduction in to service. (**Confirmation – Yes/No**)

(d) Amongst the vendors cleared by GS evaluation, a Contract Negotiation Committee (CNC) would decide the lowest bidder (L1) and conclude the appropriate contract. (**Confirmation – Yes/No**)

(e) Vendor would be bound to provide product for time period specified in the RFP, which includes spares and maintenance tools/jigs/fixtures for field and component level repairs. (**Confirmation – Yes/No**)

(f) The vendor would be required to accept the general conditions of contract given in standard contract document at Chapter VI of DAP 2020. (**Confirmation – Yes/No**)

(g) **Integrity Pact (if applicable)**. An integrity pact is a mandatory requirement in the instant case (Refer Annexure I to Appendix O of schedule I). (**Confirmation – Yes/No**)

(h) A **Performance-cum-Warranty Bond** both equal **5%** value of the contract inclusive of taxes and duties is required to be submitted after signing of contract. (**Confirmation – Yes/No**)

PART-II

6. **Procedure for Response**.

(a) The vendor must fill the forms of response as placed at **Appendix 'B'** to this RFI. Apart from filling details about the company, details about the exact product meeting others generic technical specifications should also be carefully filled. Additional literature on the product can also be attached with the form.

(b) The filled form should be dispatched to the under mentioned address:-

User Directorate

The Director General
{for Principal Director(COM & SAR)}
Coast Guard Headquarters
National Stadium Complex
Purana Quila Road
New Delhi-110001

TEL: +91 011-23386700
FAX: +91 011- 23073529

E Mail Id: dte.com@indiancoastguard.nic.in

(c) Last date of acceptance of filled form is 02 Oct 24. The vendors shortlisted for issue of RFP would be intimated.

7. The Government of India invites response to this request only from Original Equipment Manufacturers (OEMs)/Authorised Vendors/Government Sponsored

Export Agencies (applicable in the case of countries where domestic law do not permit direct export by OEMs).The end user of the equipment is Indian Coast Guard.

8. This information is being issued with no financial commitment and Ministry of Defence reserves the right to change or vary any part thereof at any stage. The Government of India also reserves the right to withdraw it should it be so necessary at any stage. The acquisition process would be carried out under the provisions of DAP.

Appendix 'A'

REQUEST FOR INFORMATION: PROCEDURE FOR RESPONSE

Request for Information for Procurement of 35 Secure Portable LTE Networking System

1. The Indian Coast Guard is planning to procure 35 Secure Portable LTE Networking System with the view to identify probable vendors who can undertake the said project, OEMs/Authorised Vendors are requested to forward information on the product which they can offer. The parameters/broad specifications of the items are mentioned in the questionnaire attached as per **Appendix 'C'**. In addition the vendors are required to furnish details as per proforma at **Appendix 'B'**.

2. Apart from the information as per the Appendices the vendors may also forward technical details/product brochures/literature etc pertaining to the items in question.

3. The required information/details may please be forwarded at following address by 02 Oct 24.

(a) **User Directorate**

The Director General
{for Principal Director(Com & SAR}
Coast Guard Headquarters
National Stadium Complex
Purana Quila Road
New Delhi-110001

TEL: +91 011-23386700
FAX: +91 011- 23073529

E Mail Id: dte.com@indiancoastguard.nic.in

(b) **ADG Acquisition Technical**

The ADG (Acquisition-Technical)
Maritime & System
Defence Procurement Board
Room No-05, D-2 Wing
Ministry of Defence
New Delhi-110011

Tel: +91 011-21411712
Telefax: +91 011-21411710

E Mail Id: tmms-modacq@navy.gov.in

Appendix 'B'
{Refer para 6(a)}

VENDOR INFORMATION PROFORMA

1. **Name of the Vendor/Company/Firm.**

_____
_____

(Company profile including share Holding pattern, in brief, to be attached)

2. **Type (Tick the relevant category).**

Original Equipment Manufacturer (OEM) Yes/No

Authorised Vendor of foreign Firm Yes/No (attach details, if yes)

Others (give specific details) _____
_____
_____

3. **Contact Details.**

Postal Address: _____
_____
_____
City : _____ State : _____
Pin Code : _____ Tele : _____
Fax : _____ URL/Web Site: _____
Email:_____

4. **Local Branch/Liaison Office/Agent**

Name & Address: _____
Pin code : _____ Tel : _____ Fax : _____
E Mail:-_____

5. **Financial Details.**

Category of Industry (Large/medium/Small Scale):_____

6. **Certification by Quality Assurance Organisation**.

Name of Agency	Certification	Applicable from (Date & Year)	Valid Till (Date & Year)

7. **Details of Registration**.

Agency	Registration No.	Validity (Date)	Equipment
GeM			
DGQA/DGAQA/DGNAI			
OFB			
DRDO			
Any other Government Agency			

8. **Membership of FICCI/ASSOCHAM/CII or other Industrial Associations**.

Name of Organisation	Membership Number

9. **Equipment/Product Profile (to be submitted for each product separately)**

(a) Name of Product: _____
{Indian – Indigenously Designed Developed and Manufactured(IDDM) Capability be indicated against the product}
(Should be given category wise for e.g. all products under CDDS to be mentioned together)

(b) Description (attach technical literature): _____

(c) Whether OEM or Integrator: _____

(d) Name and address of Foreign collaborator (if any):_____

(e) Industrial Licence Number: _____

(f) Indigenous component of the product:-
(i) Overall IC (in percentage) _____
(ii) IC for material/component/software manufactured in India (in percentage) _____

(g) Status (in service /design & development stage): _____

(h) Production capacity per annum: _____

(j) Countries/agencies where and quantity of equipment supplied earlier: _____
_____
_____.

(k) Estimated price of the equipment _____.

(l) Indigenously produced subsystems, Line Repair Units, software and critical spares of the product: _____.

(m) Devices/Line Repair Units for which Input/Output Protocols are Indigenously available for enabling replacement by indigenous equivalents or interfacing with equipment of own choice: _____.

(n) Capability for carrying out Comprehensive Maintenance, Repair and Overhaul, calibration and obsolescence management of the equipment/platform/system along with associated jigs, fixtures and test setups, during the designed service life of the equipment within India: _____.

10. Alternatives for meeting the objectives of the equipment set forth in the RFI.

11. Any other relevant information: _____.

12. **Declaration**. It is certified that the above information is true and any changes will be intimated at the earliest.

(Authorised Signatory)

Date: _____

Appendix 'C'
(Refer para 4)

REQUEST FOR INFORMATION: QUESTIONNAIRE

Ser No	Specifications/Parameter	Reply	Remarks
1.	**Objectives of RFI**. The objectives of this RFI is to lay down functional and technical requirements for 'Secure portable LTE Networking System (SLNS)' to enable high bandwidth tactical communication for real time information exchange between ICG platforms/mission teams at sea. The portable secure LTE networking system would provide a broad range of services viz. voice, data, image transfer and video streaming using 4G LTE compatible Use Equipment (UE) along with suitable Apps for use onboard and across Indian Coast Guard platforms.		
Operational Characteristics			
2.	**System Requirement**. The Purpose of 'Secure portable LTE Networking System (SLNS)' is to provide real time, dynamic and adaptable exchange of information/data across Indian Coast Guard platforms/mission teams at sea using 4G LTE compatible User Equipment (UE - Mobile Handsets/ Tabs/Laptops/ Camera/ or any other 4G compatible equipment) along with suitable Apps and networks.		
3.	**Air Interface or RAN (Radio Access Network)**. A RAN is part of mobile telecommunication system that provides connectivity between the UE and the core network. The 4G LTE solution should include complete package of Air interface or RAN (Radio Access Network) and core components. RAN should be user friendly to operate and maintain the network and associated hardware. RAN should provide access and coordinate the management of resources across various radio sites. RAN should also provide air/wireless interface and conversion from the UE to a wired network via an uplink e.g. satellite or backhaul. RAN should consist of Base Station Subsystems (BSS) that employ various radio access technologies. The BSS should comprise of:-		

	(a) Base Station Controller (BSC) or Radio Network Controller (RNC). (b) Enhanced Node B (eNB) Base Transceiver Station (BTS). (c) Antenna.		
4.	**Core Network**. The core network should consist of network and switching subsystems to provide coordination between different parts of the access network.		
5.	The eNB should be an integrated unit comprising of both Base Band Unit (BBU) and Radio Front End (RFE) in a single unit. The BBU section should manage the LTE protocol and system management. The RFE section should manage the Power Amplifier and filter sections.		
6.	**IP Media Subsystem (IMS)**. IMS is the telecommunications industry standard for delivering and manipulating multimedia applications on the network. The IMS consists of two components viz. the Applications Server (AS) responsible for hosting and executing services for the LTE network, and the Media Resource Function (MRF) that provides functions, such as media mixing.		
7.	**User Equipment (UE)**. Mobile phones and other wireless connected devices are known as user equipment (UE). UE in the instant system shall primarily consist of mobile phones, laptop and camera.		
8.	**System Functional/Operational Requirements**. The system should be self-contained, secure and should provide integrated 4G LTE network capability. The 4G LTE base station i.e. eNB developed as per the 3GPP release 10 (Backward compatibility with Release 8 and 9) should be capable of performing the following:-		
	(a) Provide robust and reliable communication between eNB onboard platforms and user Equipment (UE) on small boats/vessels using commercially available 4G LTE handsets/ Modems. The communication services should include voice, data, image transfer and video.		

<table>
<tr><td></td><td>(b)</td><td>The system is to be operated in LTE 28 Band (703-803 MHz) in FDD (Frequency Division Duplex) mode.</td><td></td><td></td></tr>
<tr><td></td><td>(c)</td><td>The system should have options of both omni-directional and directional Antenna.</td><td></td><td></td></tr>
<tr><td></td><td>(d)</td><td>Connectivity between all 35 systems being deployed to be indicated to ensure
(i) Communication between UEs connected to different eNBs and
(ii) Seamless mobility of UEs from vicinity of one eNB to other.</td><td></td><td></td></tr>
<tr><td></td><td>(e)</td><td>The system should achieve following range/ data rate:-

<table>
<tr><th>Ser</th><th>Antenna</th><th>Range</th><th>Minimum User Data Rate (with 10 MHz Bandwidth) at LOS Cell Edge</th><th>Minimum User Data Rate (with 10 MHz Bandwidth) at Cell Center</th></tr>
<tr><td>(i)</td><td>Omni-directional</td><td>8 km (without Router)</td><td>Downlink - 02 Mbps</td><td>Downlink - 100 Mbps</td></tr>
<tr><td></td><td></td><td>10 km (with Router)</td><td></td><td></td></tr>
<tr><td>(ii)</td><td>Directional</td><td>10 km (without Router)</td><td>Uplink - 01 Mbps</td><td>Uplink - 40 Mbps</td></tr>
<tr><td></td><td></td><td>14 km (with Router)</td><td></td><td></td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td></td><td>(f)</td><td>The eNB should have the following provisions/capabilities as per 3GPP Release 10 standard:-

(i) The number of MIMO antenna

(ii) The number of users in a cell/ sector

(iii) Sensitivity, ACLR, Spectral Mask transmission power requirements etc

(iv) Throughput</td><td></td><td></td></tr>
<tr><td></td><td>(g)</td><td>The system should be compact/ ruggedised for</td><td></td><td></td></tr>
</table>

		use in a maritime environment Commercially available Mobile handsets/ Modems/ IP Camera/ Body or Helmet Mounted Camera/ 4G enabled PTT communication set or any other suitable/selected equipment as part of UEs is to be available for use during scenarios such as VBSS operations, maritime search and rescue operations, boat operations, pollution response operations etc.		
	(h)	eNB should be able to communicate with another eNB on an IP network. The IP network would be provided by ICG from available or future deployed IP based networks.		
	(j)	The system should have the provisions to take timing information from external time server and should have inbuilt GPS for deriving timing information.		
	(k)	The system should have the capability to view video at Base station being streamed from multiple number (>5) of UEs.		
	(l)	The system should be capable of providing payload security using commercial AES 128/256 based encryption.		
	(m)	The eNB and UEs should be based on Open Source Operating System (OS). It should also have provision to connect any proprietary application for data exchange.		
	(n)	There should be a provision to manage the network through external GUI based application. GUI should be able to perform the following:- (i) There should be provision to block any UE through external application. (ii) There should be provision to provide variable throughput to different users. (iii) There should be provision to provide restricted access to services to the UE.		
	(p)	The system should have Wireless Wide Area Network (WWAN) and WAN connectivity so as to ensure scalability and compatibility with next generation network.		

	(q)	The system should not be connected to external/ commercial 4G network.		
	(r)	Each system should be capable of supporting minimum 32 active users/UEs.		
	(s)	The system should provide multiparty audio and video conferencing capacity.		
	(t)	The system should provide PTT (Push to Talk) over LTE Group Call multi-party and PTV (Push to Video) over LTE Group Call multi-party.		
	(u)	The system should provide bandwidth support at 5, 10 and 20 MHz or similar appropriate steps of bandwidth.		
	(v)	System Software should support 3GPP specified Quality of Service (QoS) Class Identifier.		
	(w)	The system should provide location tracking, live location sharing and location history logs.		
9.	**Capacity**. The system should be capable of the following:-			
	(a)	**Registered Users.** The capacity of registered users should be at least 100 users in a network.		
	(b)	**Connected & Active Users.** The network should support at least 32 active users.		
System Non-Functional Features:-				
10.	**Power Supply**. The system segments should mainly operate on 230V (±10%), Single phase, 50/60 Hz Frequency (±5%) as primary supply, or any other specified voltage required for operations on the nominated platform.			
11.	**Power-On and Built-In Test**. The sub-systems should be designed to support Computerised Diagnostics in addition to POST and BITE. Upon power-on, the systems should perform Power on Self-Test (POST) to determine status of its subsystems.			
12.	The system design should have open architecture to enable upgrade and replacement of system elements.			
13.	The System should be modular and reconfigurable, utilising open interfaces and standards to the extent possible and should be upgradable or be added as a part of an upgrade or as the core of a new communications system onboard ships.			
14.	The system should cater for ergonomic offerings in terms of flexibility of operations through HMI and			

<table>
<tr><td></td><td>remote operation capabilities.</td><td></td><td></td></tr>
<tr><td>15.</td><td>The system should be designed in a manner so as to be reliable with a high MTBF The system should be easy to maintain onboard with a low MTTR through replacement of sub-systems/parts. The system should have adequate off-line and online diagnostics to assist in quick defect identification and repair.</td><td></td><td></td></tr>
<tr><td colspan="4">Technical Characteristics</td></tr>
<tr><td>16.</td><td>The System must be modular in design with easy accessibility for maintenance through replacement of sub-systems/ parts in field conditions.</td><td></td><td></td></tr>
<tr><td>17.</td><td>The System design should be such that fault detection, fault identification, fault isolation, removal, replacement and test of failed hardware or software can be accomplished without use of special tools or support equipment. Modules and cable assemblies should be physically and functionally interchangeable without modification of such items or of equipment.</td><td></td><td></td></tr>
<tr><td>18.</td><td><u>Deliverables</u>. The equipment is to include installation material comprising eNodeB, cables, fasteners, connectors, shock mounts, antennae, accessories, software, laptops as applicable. The list of deliverables are as tabulated below:-
<table>
<tr><th>Ser</th><th>Item Description</th><th>Quantity (Per System)</th></tr>
<tr><td>(a)</td><td>LTE eNodeB</td><td>01</td></tr>
<tr><td>(b)</td><td>Antenna (Omni)</td><td>01</td></tr>
<tr><td>(c)</td><td>Antenna (Directional)</td><td>02</td></tr>
<tr><td>(d)</td><td>Antenna Mountings</td><td>03</td></tr>
<tr><td>(e)</td><td>EPC & IMS</td><td>01 Set</td></tr>
<tr><td>(f)</td><td>EMS license</td><td>01</td></tr>
<tr><td>(g)</td><td>Application with Laptop</td><td>01 Set</td></tr>
<tr><td>(h)</td><td>LTE Handsets with Wrist Band Phone Holder, Chest Mount Holder and Wireless Headsets</td><td>10 Set</td></tr>
<tr><td>(j)</td><td>4G compatible router with antenna</td><td>02</td></tr>
<tr><td>(k)</td><td>4-Port Ethernet Switch</td><td>01</td></tr>
<tr><td>(l)</td><td>IP Camera</td><td>02</td></tr>
<tr><td>(m)</td><td>Helmet/Body Mounted Camera with Mount Kit</td><td>05 Set</td></tr>
<tr><td>(n)</td><td>SIM Cards</td><td>10</td></tr>
<tr><td>(p)</td><td>RF Cable with Connectors</td><td>01 Set</td></tr>
</table></td><td></td><td></td></tr>
</table>

	Services				
	(q)	Installation & Commissioning (STW, HATS and Op Checks)	01 Set		
19.	**<u>Hardware Specifications</u>**. The hardware specifications for the system are tabulated below:-				

Ser	**Hardware Specifications**	
(a)	Antenna port configuration (eNB)	As per MIMO technology
(b)	Duplexing	Band 28, FDD mode
(c)	Antenna Type	External Antenna N type connector or any other universal standard
(d)	Remote Electrical Tilt (RET)	AISG 2.0
(e)	Radio Output Power	Upto 10 Watts per Antenna
(f)	Synchronisation	GPS or IRNSS or IEEE 1588
(g)	Network	1 SFP+ and 1 RJ45 connector up to 1 GEth
(h)	Power Consumption	~250W
(j)	Weight	Less than 20 Kg

Technical Specifications LTE Communication System

20. **<u>SLNS Specifications</u>**

Ser	**Parameter**	**Specification**
(a)	Capacity – Registered Users	≥100
(b)	Capacity – Connected and Active users	≥32
(c)	Frequency Band	Band 28, FDD mode
(d)	MIMO	2x2
(e)	Throughput 20 MHz Channel Bandwidth	100 Mbps DL, 40 Mbps UL
(f)	Tx output RF Power	10 Watt
(g)	LTE Channel Bandwidth (MHz)	5/10/15/20

	(h)	User Mobility			< 80 Kmph		
	(j)	Power Consumption			~250W		
	(k)	Power Supply Input			230V AC (± 10%)/ 48V DC (± 5%)		
	(l)	Weight			< 20 kg		
	(m)	Outdoor Deployment			Minimum IP65		
	(n)	Omni-directional Antenna Gain			6 dBi or better		
	(p)	Directional Antenna Gain			11 dBi or better		
	(q)	Surge Protection Unit					
		(i)	Type		Self-Contained Outdoor Unit		
		(ii)	Typical Range		~100m		
		(iii)	Bandwidth		Up to 500 MHz		
		(iv)	Data Rate		Up to 1 Gb/s		
		(v)	Voltage		Up to 60V		
		(vi)	Ethernet		10/100 Base T		
		(vii)	Compatible Cables		Up to Cat 6		
		(viii)	Surge Current Rating		Up to 20 kA per pair		
		(ix)	Connector Type		Rugged IP65		
		(x)	Cable Type		Outdoor UV Protected		
		(xi)	Water and Dust Protection		IP65		
		(xii)	Operating Temperature Range		-20° C to +55 °C		
	(r)	AC-DC Converter					
		(i)	Input Supply		AC 110-300 V		
		(ii)	Efficiency		93% or more		
		(iii)	Protection		Short circuit /Overload/Over voltage		
		(iv)	DC Voltage		48V		
		(v)	Voltage Tolerance		±1%		
		(vi)	Frequency range		47-63 Hz		
	(s)	Lightening Protection					
		(i)	Lightening Protection		Upto 250 A		
		(ii)	Standard		IEC 62305, IEC-62561-2		

		(iii)	Material	Copper rod		
21.	**LTE Handset**					

Ser	Parameter	Specification
(a)	Screen Size	≥ 6 inch
(b)	Screen Protection	Corning Gorilla Glass V5 or better or equivalent
(c)	Touch Screen	Capacitive Touch Screen, Multi Touch
(d)	Sensor	Accelerometer, Fingerprint Sensor, Virtual Light Sensing, Virtual Proximity Sensing
(e)	Protection	Dust Proof, Waterproof
(f)	Operating System	Android 12.0 or above
(g)	Resolution	720/1600 or better
(h)	Video Recording	1080@30 fps or better
(j)	Internal memory	128 GB or more
(k)	RAM	8 GB or more
(l)	Processor	Octa Core (2.2 GHz) or better
(m)	SIM	Due SIM Physical
(n)	Battery	4000 mAH or better
(p)	Battery Type	Li-Ion or better
(q)	Camera Front End/back End	12/32 Mega Pixels or better
(r)	Flash	LED flash
(s)	Network Support	4G VoLTE, LTE
(t)	Wi-Fi Feature	Wi-Fi Direct, Mobile Hotspot
(u)	Bluetooth	Bluetooth v 5.0 or better
(v)	Navigation System	GPS/GLONASS
(w)	Audio Jack	3.5 mm
(x)	USB Connectivity	USB Type C for fast charging and data transfer
(y)	Encryption	Built into LTE Specs

22. **Private SIM**

Ser	Parameter	Specification
(a)	USIM	Pre-programmed, Non-editable
(b)	SIM Memory Size	128K
(c)	Security	MILENAGE
(d)	ISIM (IMPI, IMPU, Domain) parameters	Pre-programmed

23. **Ethernet Cable (Cat-6)**

Ser	Parameter	Specification
(a)	Impedance	100-ohm impedance, four shielded STP twisted pairs
(b)	RoHS	RoHS compliant
(c)	Type	Cat-6 outdoor shielded protected cable

24. **Helmet Mount Camera**. The helmet mount camera should have helmet-contoured base and low-profile housing for snag free fit. The camera should capture HD video/photos in visible light and infrared illumination at night and should be capable of live streaming video over wireless transmission. Specific camera parameters are as follows:-

Ser	Description	Remarks
(a)	Camera Dimension	< 10 x 15 x 20 cm
(b)	Weight per unit (Camera)	< 250 gm
(c)	Video streaming resolution	Minimum 720p
(d)	Photo	12 MP Manual photo, photo burst, time lapse (photo every 60, 30, 5, or 3 seconds)
(e)	Optics/lens	Aperture F2.8, 140^{o} Field of view and CMOS Sensor
(f)	Camera Connectivity	WiFi 802.11 b/g/n, 2.4GHz (Camera connectivity to main transmitter)
(g)	Memory	Micro SD card compatible up to 64GB. Card included for recording purpose at camera for retrieval in case of connectivity issues.
(h)	Microphone	Wireless Stereo WiFi 802.11b/g/n or bone conduction headsets
(j)	Image quality	Full HD colour and Black & White in visible and IR light spectrum from 420nm to 950nm
(k)	Battery life	Li-ion rechargeable battery for minimum 2 hours of continuous operation.
(l)	Helmet mount	For snag free fit of camera to

	camera kit	helmet using appropriate mounting kit.
(m)	Water resistance	Rain and splashes. IP 67 or better
(n)	Rotating lens	Manually rotate lens up to 190^0 to record horizontal video from any mounting position

25. **Laptop**

Ser	Parameter	Specification
(a)	Display	14 inches, OLED, ≥ 400 nits
(b)	Memory and Storage	32 GB RAM LPDDR5, 1 TB SSD, Graphics integrated
(c)	Processor	Intel core i7, 4.8 GHz or better
(d)	Protection	Dust Proof, Waterproof
(e)	Operating System	Pre-loaded Windows 11 or above with life time validity
(f)	Battery	Li-ion battery, ≥50 Wh
(g)	Camera	In built FHD + IR camera
(h)	Ports	USB-A, USB-C, HDMI
(j)	Screen Resolution	1920 x 1200 pixels
(k)	Wi-Fi Feature	Wi-Fi Direct, Mobile Hotspot
(l)	Bluetooth	Bluetooth v 5.0 or better

26. **Environment**. *The 'Secure LTE Network System' is intended for use onboard ICG ships and will therefore be deployed continuously in marine environment*. The system when installed/used should meet performance requirements as specified for operating environmental conditions specified herein. The system should operate within specified tolerances during the tests specified herein without adjustment or alignment other than those controls required for normal operation of the system. The system should operate without degradation to specified performance standards in the environmental conditions specified in subsequent paragraphs.

27. **Operating Conditions**. The system shall be capable of being stored and operated in the following environmental conditions-

(a) Operating Temperature : 0°C to 55°C
(b) Storage Temperature : -10°C to 70°C
(c) Relative Humidity (RH) : 95% at 40°C

28. **Environmental Specifications**. As per 4G LTE/3G PP/QM 333 standard (QM 333 standard as promulgated by Dept. of Telecommunication, Govt. of India).

29.	**Environmental Stress Screening (ESS) on Electronics including PCBs**. As per 4G LTE/3G PP/QM 333 standard.			
30.	**Endurance (Burn-in) Test**. As per 4G LTE/3G PP/QM 333 standard.			
31.	**EMI/EMC Specifications**. The system should conform to EMI/EMC MIL STD-461 F. The EMI/EMC testing should be carried out at any of the accredited labs as per MIL STD 461 F standards. Prior conduct of EMI/EMC test, the EMI/EMC Acceptance Plan formulated by Vendor will have to approved by CGHQ. Final test report will also be approved by CGHQ. All relevant test reports are to be submitted for scrutiny of CGHQ for clearance which will be one of the pre-requisites for dispatch of equipment to end consignee.			
32.	**Operational Maintenance**. The 'Secure LTE Network System' should be easy to use and maintain. The guidelines with respect to operation and maintenance are as follows:-			
	(a)	The system should be modular in design with easy accessibility for maintenance in field conditions by replacing modules and PCBs.		
	(b)	The system shall provide a GUI based 'Operation & Maintenance' interface for debugging, troubleshooting and for providing fault, configuration and performance data.		
	(c)	The system control software shall interact with various hardware/ software entities of the LTE network and provide the health status.		
	(d)	The system shall provide the count for the total number of 'UE' provisioned, active and idle.		
	(e)	The system should have life cycle of not less than 8 years.		
33.	**Maintainability and Testability**. The system shall be designed for ease of maintenance and also to reduce preventive and corrective maintenance requirements. The Mean Time to Repair (MTTR) of the equipment at system level for a single fault shall be less than 15 minutes. The maximum on board repair time for single occurrence of multiple faults shall not exceed 120 minutes.			
34.	**Test Procedure/Standard**. The base station i.e. eNB is required to be developed as per 3GPP Release 10 (with backward compatibility with Release 8 & 9) standard and will be tested accordingly.			
35.	**Power-On and Built-In Test**. Upon power-on, the systems should perform Power on Self-Test (POST)			

	to determine status of its sub-system. The sub-systems should be designed to support computerised diagnostics in addition to POST and BITE.		
36.	**Qualification (Type) Tests**. The Qualification (Type) tests on the equipment/ system shall be undertaken on prototype or first of the production model.		
37.	**Quality Assurance Plan (QAP)**. Inspection and acceptance tests shall be jointly carried out by the representatives of the Indian Coast Guard and the manufacturer as per QAP document.		
38.	**System Performance**. The system parameters both for factory acceptance and post installation onboard are to be checked as per mutually agreed ATPs, FATS, HATs and Op checks document.		
39.	**System Maintenance**. The firm is to provide warranty period for two (02) year for all components supplied with the system (hardware and software). Further, the firm is to undertake repair and maintenance of the system under the terms and conditions of a Comprehensive Maintenance Contract (CMC) for a period of six (06) years from the date of completion of warranty.		
40.	No component/ part of system is to be of PRC country origin.		
41.	Duty Cycle should permit continuous usage without overheating the system for a minimum period of one month.		
42.	Vulnerability Assessment (VA) of system components (hardware and software) shall be undertaken as per extant ICG guidelines and regulations.		
43.	Defined patch management system to be installed.		
44.	The system must be protected against:- (a) Reverse polarity, should have fuses and other built in safety devices. (b) EMP to the extent possible. (c) Short/ open circuit antenna connection. (d) Lightning and against accidental contact with high-tension power wire. (e) The equipment/ sub-units positioned on upper decks/ exposed to weather should be IP-65 rating compliant.		
Miscellaneous Information			
45.	**Product Support and Upgradability**. The system should be upgradable in hardware and software by the manufacturer, if required, for enhanced performance features to obviate recurring defects and faults. Upgrades in hardware and software should be provided for entire duration of		

	warranty and Comprehensive Maintenance Contract by the Vendor.		
46.	**Training**. The training of Operators and Maintainers should be carried out at Level1 (O level).		
47.	**System Safety**. The system, including its software should be designed for minimum risk to personnel and equipment. The system design should preclude functional failure resulting in critical or catastrophic hazards to personnel or equipment.		
48.	**Electrical Safety**. The system should incorporate safe electrical design and hazard mitigation. It should protect against the risk of electrical shock and other hazards under all conditions of normal use (installation, operation and maintenance). The system should also protect against the risk of electrical shock and other hazards under a likely fault condition including human error.		
49.	**Mechanical Safety**. The system should be designed for minimum risk to personnel during installation, operation and maintenance. The system should have design such that it can be removed, handled and lifted safely. Equipment power switches should be protected so as to prevent inadvertent actuation.		
50.	**Lightning Safety**. Adequate lightning protection has to be provided in the system.		
Other Information			
51.	Indigenisation status and plan for the critical and niche technologies planned to be delivered.		
52.	Any dependency on foreign OEM for critical component/technology and long-term plan for indigenisation of such foreign components/technology.		
53.	Details about subsystems, LRUs and software that shall mandatorily be indigenously produced or developed along with details of foreign dependencies for critical enabling technologies/component etc.		
54.	Mandatory indigenous capabilities and training requirements needed to carry out comprehensive maintenance, repair, obsolesce and life cycle management of the equipment/platform/system along with associated test setups/equipment required during the design, development & service life of the system.		
55.	In case of foreign collaboration, along with scope, depth & range of ToT, details of formal acceptance by foreign partner's government (i.e country of origin) that any license required to transfer the technology will be granted in case selected. If any inter-governmental agreement is required, same also needs to be stated.		