



सत्यमेव जयते
Ministry of Defence
Government of India

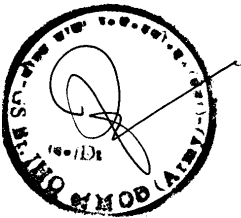
**REQUEST FOR INFORMATION
BY
MINISTRY OF DEFENCE
GOVERNMENT OF INDIA
FOR PROCUREMENT OF**

HAND HELD RADIO SET (HRS)

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The contents of this RFI must not be disclosed to unauthorised persons and must be used only for the purpose of submission of responses.

This document contains 34 pages including cover page and Appendices.



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File No: B/46236/HHRS/Sigs 5(b)

Directorate General of Signals
General Staff Branch
Signals-5, Room No -604,
'A' Wing, Sena Bhawan,
Integrated HQ of MoD (Army)
DHQ PO New Delhi - 110011

22 Jun 2022

To

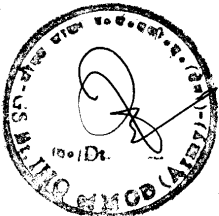
REQUEST FOR INFORMATION (RFI) FOR HAND HELD RADIO SET (HHRS)

1. The Ministry of Defence, Government of India, intends to procure an approximate quantity of 50,000 units of light-weight, ergonomic and easy to handle Hand Held Radio Set (HHRS).
2. This Request for Information (RFI) for the HHRS consists of three parts as given below:-
 - (a) **Part I.** This gives out the operational requirements, characteristics and features that should be met by the equipment. Important technical requirements that the equipment should fulfil are also mentioned.
 - (b) **Part II.** The second part of the RFI states the methodology of seeking response from the vendors. Submission of incomplete response will lead to rejection and non-consideration of the same.
 - (c) **Part III.** This part lays down the guidelines for Framing Criteria for Vendor Selection / Pre-Qualification in Buy Indian (IDDM), Buy (Indian) and Buy and Make (Indian) Cases.

PART I : OPERATIONAL AND TECHNICAL PARAMETERS

Operational Requirements

3. **Intended Use of Equipment.** Hand Held Radio Set (HHRS) is intended to meet the communication requirements of the tactical section and platoon level communication in all type of terrains viz plains, deserts, mountainous and super high altitude area.



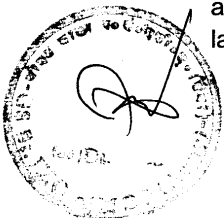
4. **General Description.** In view of the proposed deployment and utility, the HHRS should be so designed that it is light, ergonomic, compact, portable and easy to handle. It should be modular to facilitate quick troubleshooting, repair and up gradation. The equipment should be ruggedized to meet the rigours of the operating environment and the requisite standards for EMI / EMC compliance.

5. **Configuration of Equipment.** The equipment to be configured as Hand Held Radio Set (HHRS), HHRS Base Stations and HHRS Repeater Stations. Hand Held Radio Set (HHRS), HHRS Base Stations and HHRS Repeater Stations and accessories will be from single OEM and will be fully compatible with each other in all modes and aspects.

6. **Repair and Maintenance.** Post warranty, engineering / maintenance support for the equipment will be under taken by in-house maintenance agency i.e. **Electronics and Mechanical Engineers (EME)** for complete full life cycle of the product being procured. For this, the developer of the equipment should plan and develop suitable repair / Engineering Support Package (ESP) comprising readily available spare parts, assemblies or sub assemblies, test jigs, maintenance tools and technical literature, The system should be easily repairable on account of design and construction mentioned above and after suitable training of in-house repair agency technicians. The details of Engineering Support Package to include Manufacturer's Recommended List of Spares, Special Maintenance Tools, Special Test Equipment and Test Jigs, training, training aggregates and technical literature will be checked during the Maintainability Evaluation Trials (MET). The vendor will be required to give an undertaking to provide the spares and other Engineering Support Package aspects support throughout the life cycle of the equipment.

7. **Design & Construction.** The Hand Held Radio Set (HHRS), Base Station, Repeater and its constituents should meet the following requirements as far as possible:-

- (a) Modular in construction.
- (b) Built In Test Equipment (BITE) and Power On Self-Test(POST), to identify defects upto Printed Circuit Boards/ Modules and for constant monitoring of all system functions and any other integrated diagnostic facilities.
- (c) Use of military grade indigenous components.
- (d) Low import content.
- (e) Capability for software upgrades with adequate memory and restorability of software.
- (f) **Safety features.** To include protection from over/ under voltage, reverse polarity, power surges, lightning protection etc.
- (g) Should have a tangible obsolescence management plan and upward compatibility for latest modules.
- (h) **Generators and Batteries.** The generators and batteries, if applicable, should be indigenous. The generators should be compliant to latest Central Pollution Control Board specification.



8. **Special Maintenance Tools, Special Test Equipments and Test Jigs.**

All Special Maintenance Tools, Special Test Equipment and Test Jigs will be developed for the equipment to support diagnostics and repairs at various echelons of repair as per repair philosophy of Indian Army. The Special Test Equipment/ Test Jig must have provision of taking print of test report for the for serviceability check as per testing parameters.

9. **Technical Literature.** All technical literature will be developed in softcopy and hard copy (if required) as per **Joint Services Specification 0251-01: 2015** (Revision No 2) and will be made available by the vendor prior to Maintainability Evaluation Trials (MET). The following publications as per specified standards must be made available:-

- (a) User Hand Book (UHB)/ Operator's manual in English and Hindi.
- (b) Design specifications.
- (c) Technical manual (Part I to IV):-
 - (i) **Part I.** Technical description, specifications, functioning of various systems.
 - (ii) **Part II.** Inspection/ maintenance tasks, repair procedures, materials used, fault diagnosis and use of Special Maintenance Tools(SMTs) and Special Test Eqpts (STE).
 - (iii) **Part III.** Procedure for assembly/ disassembly repair up to component level, safety precautions.
 - (iv) **Part IV:-**
 - (aaa) Part list with drawing reference.
 - (aab) List of Special Maintenance Tools/ Special Test Equipments with Test Bench.
- (d) Manufacturer's Recommend-ed List of Spares (MRLS).
- (e) Illustrated Spare Part List (ISPL).
- (f) Technical manuals on STEs with drawing reference.
- (g) A Class IV (or better) Interactive Electronic Technical Manual (IETM) will be developed using above technical literature.

10. **Training and Training Aggregates.**

- (a) The vendor would be required to organize training for maintenance personnel to undertake repair and maintenance of equipment.
- (b) Requirement of training aggregates for conduct of training via training aids, projection system, complete equipment with accessories, technical literature, charts, slides, blow up diagrams, training work models, training brochures, Computer Based Training (CBT) package based on interactive multimedia using graphics, animation, text and sound must be



catered. The Computer Based Training package provided by the vendor should include symptom-fault correlation.

11. **Product Support and Upgradability.** The seller will guarantee product support for the 10 years in terms of maintenance, material, spares and online/ tele support as required. The equipment should be upgradable in hardware/software by the manufacturer, if required, for the enhanced performance features or due to modifications required to obviate the recurring defects / faults / obsolescence. Even after the said mandatory period, the seller would be bound to give at least two years notice prior to closure of production line to enable Life Time Buy of spares.
12. **Qualitative Requirements for equipment having Software.** Software used, except the software used in COTS equipment, should undergo software quality assurance as per relevant and latest international military standards. The software life cycle concept will be followed/ observed. The software should be restorable in field. Any upgrades or patches required in the software will be provided free of cost. Adequate memory should be available to accept any upgradation.
13. **MET (Maintainability Evaluation Trial).** To check maintainability of HHRS by the maintenance agency that is **Electronics and Mechanical Engineers(EME)**, the equipment will be subjected to a Maintainability Evaluation Trial. All aspects of engineering support like spares, Special Maintenance Tools, Special Test Equipment and Test Jigs, training aggregates, technical literature and training will be validated during the Maintainability Evaluation Trial.
14. The detailed deployment and configuration of the equipment, including sub-assemblies and accessories of each configuration will be indicated in detail by the vendor. Non conformity/ no response to any query in the RFI would in no way debar vendors from issue of RFP. The Vendors to respond the RFI as per the RFI matrix issued along with the hyperlinks of the technical details in the brochure. Also the soft copy of the RFI response should not be the scanned version, to be in pdf/ word where search, copy options can be performed.
15. The vendors are required to follow the procedure for response as explained in **Appendix A** of this document. In addition, the vendors are required to furnish details as per Performa at **Appendix 'B'** (refer Annexure II of Appendix A of Chapter II of DAP 2020). The vendor must furnish answers to the Questionnaire as given at **Appendix 'C'**.
16. Vendors should also confirm that the following conditions are acceptable: -
 - (a) The solicitation of offers 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 last date of submission of offers.
 - (b) The technical offers would be evaluated by a Technical Evaluation Committee (TEC) to check its compliance with the RFP.

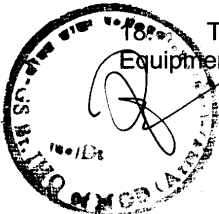


- (c) The equipment of all vendors who have cleared TEC would be put through a trial evaluation in India on a 'No Cost No Commitment' basis. A staff evaluation would be carried out by SHQ to analyse the result of field evaluation and shortlist the equipment for introduction into service.
- (d) Amongst the vendors cleared by staff evaluation, a Contract Negotiations Committee (CNC) would decide the lowest cost bidder (L1) and conclude the appropriate contract.
- (e) The Vendor would be bound to provide product support for the time period specified in the RFP, which includes spares and maintenance tools, jigs and fixtures for field and component level repairs.
- (f) The vendor would be required to accept the general conditions of contract given in the Standard Contract Document at Chapter VI of DAP 2020.
- (g) **Integrity Pact.** An integrity pact along with appropriate IPBG is a mandatory requirement in the instant case (Refer Annexure I to Appendix M of Schedule I of DAP 2020).
- (h) **Performance-cum-Warranty Bond.** Performance-cum-Warranty Bond both equal to 3% value of the contract inclusive of taxes and duties is required to be submitted after signing of contract.
- (j) **ToT (if applicable).** GOI is desirous of license production of equipment after acquiring ToT in the case.

PART-II

17. Procedure for Response.

- (a) Vendors must fill the form of response as given in **Appendix 'A' (Refers to Annexure I of Appendix A of Chapter II of DAP 2020)**. Apart from filling details about the company, details about the exact product meeting other generic technical specifications should also be carefully filled. Additional literature on the product can also be attached with the form.
- (b) The filled form along with softcopy in a CD should be dispatched to the address given at **Para 3 of Appendix 'A'**.
- (c) The Vendors to respond the RFI as per the RFI matrix issued along with the hyperlinks of the technical details in the brochure. Also the soft copy of the RFI response should not be the scanned version, to be in pdf/ word where search, copy options can be performed.
- (d) An interaction will be scheduled on the 2nd week after the issue of the RFI, ie on 06 Jul 22 at 1400H. All vendors who has got any query on the RFI to intimate the agenda points to Directorate Gen Sigs (Sigs-5), IHQ MoD (Army), Room No 602, A Wing, Sena Bhawan. Tele and Fax No: 0112301110, Email: tac.comns-5@gov.in. The agenda points to be forwarded within 10 days of RFI Publication ie on 02 Jul 22 by 1400H.
- (e) The details of the representatives want to intect of the RFI may intimate the office for necessary passes and coordination.
- (f) Last date of acceptance of filled form is 17 Aug 22 at 1400H (8 weeks from interaction).



The Government of India invites responses to this request only from Original Equipment Manufacturers (OEM), Authorised Vendors or Government Sponsored

Export Agencies (applicable in the case of countries where domestic laws do not permit direct export by OEMs). The end user of the equipment is the Indian Armed Forces. A copy of the response also to be shared with Department of Defence Production (DDP) by the firms for updating the competency map of the firm held with DDP.

19. This information is being issued with no financial commitment and the 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 2020.

PART III

GUIDELINES FOR FRAMING CRITERIA FOR VENDOR SELECTION / PREQUALIFICATION IN 'BUY (INDIAN-IDDMM)' 'BUY (INDIAN)' AND 'BUY AND MAKE (INDIAN)' CASES (REFER ANNEXURE IV OF APPENDIX A OF CHAPTER II of DAP 2020)

20. The guidelines prescribed for short-listing/ pre-qualification of Indian vendors in Buy (Indian-IDDMM), Buy (Indian) and Buy and Make (Indian) cases are enumerated in the succeeding paragraphs. Paragraph 21 deals with the parameters that may be considered for short-listing of vendors, whereas Paragraph 22 amplifies the process for applying selected parameters to the process of Vendor Short listing.

21. Parameters.

(a) General Parameters.

(i) Applicant Entity should be an Indian Vendor as defined at Paragraph 20 of Chapter I of DAP 2020.

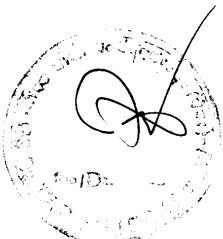
(ii) Business dealing with applicant Entity or any of its allied entities should not have been suspended or banned, by MoD/ SHQ or any Government Department or organization (as defined in Guidelines for Penalties in Business Dealings with Entities issued vide Ministry of Defence, D(Vigilance) MoD ID No 31013/II/2006-D(Vig) Vol II dated 21 Nov 2016). None of the Promoters and Directors of applicant entity should be a wilful defaulter.

(iii) "Entities" will include companies, with whom the Ministry of Defence has entered into, or intends to enter into, or could enter into contracts or agreements.

(iv) "Applicant entity" may be a company, subsidiary, an associate company (as defined in the Companies Act, 2013), a consortium or a Joint Venture (JV).

(b) Technical Parameters.

(i) Vendor shall be a manufacturing entity or a system integrator of defence equipment and not a trading company, except in cases where the OEM participates only through its authorised Vendors.



(ii) Minimum two years' experience in broad areas like manufacturing/ electronics/ Radio Communication Equipment in the instant procurement case. If not, then cumulative experience of at least three years in above areas, resulting in gaining of competence for manufacturing the proposed product.

(iii) Where product involves integration, previous experience of not less than one year/ one project in integration of systems/ equipment shall be required.

(c) **Financial Parameters.**

(i) **Average Annual Turnover.** Minimum average annual turnover for last three financial years, ending 31st March of the previous financial year i.e 31 Mar 2022.

(ii) **Net Worth.** Net worth of entities, ending 31st March of the previous financial year i.e 31 Mar 2022.

(iii) **Insolvency.** The entity should not be under insolvency resolution as per Indian Bankruptcy Code at any stage of procurement process from the issuing of RFP to the signing of contract.

(iv) **Credit Rating (Desirable Financial Parameter).** Long term credit rating equivalent to CRISIL rating on Corporate Credit Scale as CCR-BBB or better, and SME-04 or better for SMEs issued by credit rating agencies recognized by SEBI. Credit rating should be as on 31st March of the previous financial year, i.e 31 Mar 2022.

(d) **Other Parameters.**

(i) **Industrial License (IL).** Details of Valid defence industrial license with a copy to be enclosed by the vendor.

(ii) **Registration.** Details of registration.

22. **Stipulations for Applying Parameters.**

(a) Areas like manufacturing/ electronics/ Radio Communication Equipment etc.

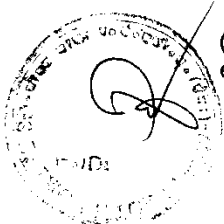
(b) In case the Applicant Entity is unable to meet the Financial Parameters by itself, it may rely on its Holding Company (as defined in the Companies Act, 2013 and amendments thereof) ("Companies Act") for fulfilment of the Financial Parameters, in which case reliance must be placed on the Holding Company towards fulfilment of ALL the Financial Parameters.

(c) In case the Applicant Entity is unable to meet one or more of the Technical Parameters by itself, it may rely on a Group Company(ies) for fulfilment of the Technical Parameters. A Group Company in relation to the Applicant Entity may be:-

(i) A company of which the Applicant Entity it is an Associate Company. Such company should have ownership, directly or indirectly, of at least 26% of the voting shares of the Applicant Entity.



- (ii) A company which is an Associate Company of the Applicant Entity. The Applicant Entity should have ownership directly or indirectly, of at least 26% of the voting shares of such Associate Company.
- (iii) A Company with whom the Applicant Entity is commonly owned, directly or indirectly, for at least 26% of the voting shares by another company. For example: An Applicant Company A is an Associate Company of Company B, in which B holds at least 26%. Further, C is also an Associate Company of B, in which B holds at least 26%. In this case the Applicant Company may use the credentials of C as well.
- (iv) The Holding Company and Subsidiary Companies (as defined under the Companies Act) of the Applicant Entity.
- (d) The Applicant entity may be a single entity or a group of entities (the "Consortium"), coming together to implement the project. In such case:-
- (i) The credentials of only those members or their related entities may be counted, who have at least 26% equity stake in the Consortium.
 - (ii) Each Consortium should have a designated Lead Member.
 - (iii) For Technical Parameters, any of the Consortium members or their Group Companies may meet the criteria.
 - (iv) For Financial Parameters; the Turnover and Net Worth of the Consortium Member shall be reckoned proportionate to Consortium Member's equity stake in the Consortium, and each Consortium member should meet the other criteria pertaining to Insolvency and Credit Rating. In case the Consortium Member relies on its Holding Company for any one of the above-mentioned Financial Parameters, then reliance must be placed on the Holding Company for meeting all the financial Parameters.
- (e) Vendors should provide all necessary self-authenticated documentation in support of their achievement of criteria. Such documentation should inter-alia include:-
- (i) Details of projects/ supply orders successfully executed in the last two years.
 - (ii) Annual reports for three years of applicant entity, parent and associate companies, consortium and JV partners.
 - (iii) Details of shareholders, promoters, associated, allied and JV companies.
 - (iv) Details of vigilance action, viz. ongoing investigation and suspension/ debarment/ blacklisting actions against the applicant entity or any of its allied entities, parent company or consortium and JV partners, if any by any Department/agency of Central Government.
 - (v) A certificate from CA/CS indicating the financial parameters for the last three years as per Paragraph 13(c).
- (f) Any vendor furnishing false information will be liable for action as per existing guidelines.



Appendix A

(Ref to Para 15 and 17
of RFI B/46236/ HHRs/
Sigs5(b) dt 22 Jun 22)

REQUEST FOR INFORMATION: PROCEDURE FOR RESPONSE**General**

1. The Indian Army is planning to procure HHRs. With the view to identify probable vendors who can undertake the said project, OEMs and Authorised Vendors are requested to forward information on the product which they can offer. The parameters and broad specifications of the item are mentioned in the questionnaire attached as per **Appendix 'C'**. In addition, the vendors are required to furnish details as per Performa at **Appendix 'B'** (refer Annexure II of **Appendix A of Chapter II of DAP 2020**).

2. Apart from the information sought in the Appendices, the vendors may also forward technical details, product brochures and literature etc pertaining to the item in question.

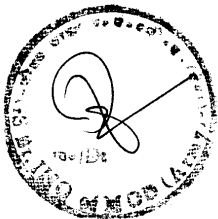
3. The required information / details may please be forwarded to the following address by 17 Aug 22 :-

(a) Directorate Gen Sigs (Sigs-5), IHQ MoD (Army), Room No 602, A Wing, Sena Bhawan. Tele and Fax No: 0112301110, Email: tac.comns-5@gov.in

(b) Directorate General of Capability Development (CD-9) General Staff Branch Room No -411, A Wing, Sena Bhawan, Integrated HQ MoD (Army), DHQ PO, New Delhi -110011, Fax No : 011-23793274, email: tac.comns-5@gov.in

(c) Army Design Bureau (GSQR Cell), General Staff Branch, Room No -16, C Wing, Sena Bhawan, Integrated HQ MoD (Army), DHQ PO New Delhi 110011, email: tac.comns-5@gov.in

(d) ADG Acquisition Technical, Room No -30, D2 Wing, Sena Bhawan, Integrated HQ MoD (Army), DHQ PO New Delhi 110011, email: tac.comns-5@gov.in



Appendix B

(Ref to Para 15 of RFI and
Para1 of Appendix A of RFI
B/46236 / HRS / Sigs5(b)
dt 20 Jun 22

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.**

- (a) Postal Address :
(b) Building No :
(c) City :
(d) State :
(e) Pin Code :
(f) Tele :
(g) Fax :
(h) URL / Web Site :
(i) Email :

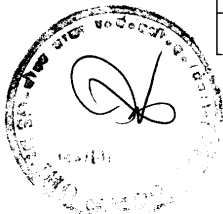
4. **Local Branch / Liaison Office / Agent (if any).**

- (a) Name :
(b) Postal Address :
(c) Building No :
(d) City :
(e) State :
(f) Pin Code :
(g) Tele :
(h) Fax :
(i) URL / Web Site :
(j) Email :

5. **Financial Details.** Category of Industry (Large / Medium / Small Scale): _____

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

<u>Ser</u>	<u>Agency</u>	<u>Certification</u>	<u>Applicable from (Date and Year)</u>	<u>Valid Till (Date and Year)</u>



7. **Details of Registration.**

<u>Agency</u>	<u>Registration No</u>	<u>Validity (Date)</u>	<u>Equipment</u>
GeM			
DGQA/DGAQA/DGNAI			
OFB			
DRDO			
Any other Govt Agency			

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

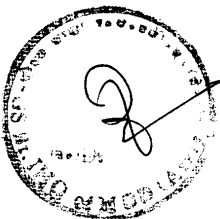
<u>Ser</u>	<u>Name of Organisation</u>	<u>Membership Number</u>
(a)	DMR Association	
(b)	FICCI	
(c)		
(d)		

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

- (a) Name of Product :
(IDDM Capability be indicated against the product) (Should be given category wise for e.g. all products under night vision devices 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 License Number:
- (f) Indigenous component of the product (in percentage)
- (g) Status (in service / design and development stage):
- (h) Production capacity per annum:
- (i) Countries / agencies where equipment supplied earlier (give details of quantity supplied):
- (j) Estimated price of the equipment.
- (k) Alternatives for meeting the objectives of the equipment set forth in the RFI.
- (l) Any other relevant information

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

(Authorised Signatory)



Appendix C

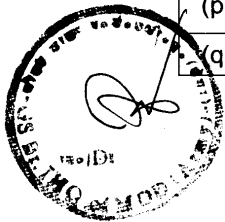
(Ref to Para 15 of RFI and
Para1 of Appendix A of RFI
B/46236/ HHRS/Sigs5(b) dt
22 Jun 22)

REQUEST FOR INFORMATION: QUESTIONNAIRE**Operational Requirements**

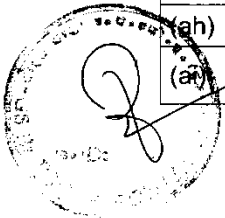
1. **General.** The proposed service employment of HHRS and terrain of operation have been covered in in Paragraphs 1 – 6 of this RFI. The vendor is required to clearly indicate suitability of the equipment for the same.

2. **Parameters of HHRS with Charger.**

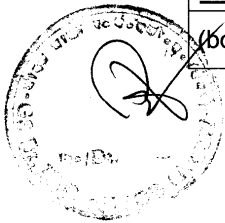
Ser No	Parameter	Value (Vendor to give details as sought in this column)
(a)	Frequency Range	Vendor to mention complete range of frequency of operation
(b)	Analog Operation	Yes/ No with detailed specifications
(c)	Digital Operation	Yes/ No with detailed specifications
(d)	DMR Standard	Vendor to specify the standard for eg Tier II
(e)	Channel Spacing	
(f)	Channel Capacity	
(g)	Type of Operation	Modes of operations possible viz Simplex, Semi-duplex, Press to Talk (PTT) etc to be mentioned by the vendor
(h)	Analog Modulation	
(j)	Digital Modulation	
(k)	Protocol/s Used	Vendor to indicate 'Open' or 'Proprietary' for each protocol used in the equipment
(l)	Power Source	
(m)	Operating time with duty Cycle	Vendor to mention the operating hours with applicable duty cycle at peak conditions
(n)	Dimensions (H x W x D) of the HHRS with Battery	
(o)	Weight of the HHRS including battery	
(p)	Dimension of the Battery(H x W x D)	
(q)	Weight of the Battery	



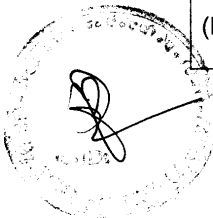
Ser No	Parameter	Value (Vendor to give details as sought in this column)
(r)	Battery Type	Vendor to indicate Rechargeable Battery or otherwise.
(s)	Battery Capacity	Vendor to indicate mAH ratings
(t)	Battery Technology	Vendor to indicate Technology viz Li-ion etc
(u)	Battery Charger Specifications	Vendor to indicate details of battery charger for the HHRS and ancillaries with respect to speed charging, time for normal charge, time of accelerated charge, ratings, power and voltage requirements. Specifications of both single unit rapid charger and multi port charger to be given by the vendor.
(v)	Display (No of lines)	
(w)	Readability of Display	Day, Night, Backlit be clearly mentioned by the vendor
(x)	Type of Display	LCD/LED
(y)	Maximum Characters that can be displayed	
(z)	Hands Free Operation	Yes/ No Provision Bluetooth or VOX or other solution provided for complete hands free operation to be mentioned by the vendor.
(aa)	Type of Keypad	Viz Alphanumeric keypad be mentioned by vendors.
(aa)	No of Characters in the Key Pad	
(ab)	Size of the keypad	
(ac)	Visual and Audio Alarms in the system	Vendor to mention different audio and visual alarms given in the HHRS, for eg Low Battery Alert.
(ad)	Feasibility of the HHRS to operate at static location	Yes/No;
(ae)	Range of communication of HHRS operate at static location	Specify ranges at 99, 99.9 and 99.99% reliability.
(af)	Feasibility of the HHRS to operate in Roaming mode	Yes/No; Vendor to give details of the specifications for the roaming operation
(ag)	Feasibility of the HHRS to integrate in the IP network	
(ah)	Text Messaging	Yes/No
(ai)	Number of Pre-defined , stored Messages	



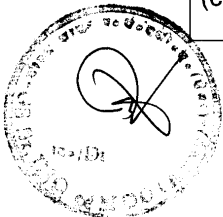
Ser No	Parameter	Value (Vendor to give details as sought in this column)
(aj)	Feasibility to send custom messages from keypad	Yes/No
(ak)	Feasibility to send message to specific HHRS in a network	Yes/No
(al)	Feasibility to send message to complete network	Yes/No; Vendor to indicate capability of the HHRS to send message to how many sets in the network at a time.
(am)	Provision of Belt Clips	Yes/ No
(an)	Accessories	Vendor to list all accessories required for functioning of HHRS
(ao)	Interfaces	Vendor to mention all available interfaces of the device
(ap)	Type of Antenna	Vendor to mention all antenna specifications
(aq)	Ruggedization of Antenna	
Transmitter		
(ar)	RF Power Output	
(as)	Programmable RF Power Output	Yes/ No; Vendor to mention the number of levels and values corresponding to each level;
(at)	FM Hum/ Noise	
(au)	Frequency Deviation	
(av)	Modulation Sensitivity	
(aw)	Modulation Distortion	
(ax)	Modulation Fidelity	
(ay)	Audio Distortion	
(az)	Frequency Stability	Vendor to give the value in ppm
(ba)	Communication Security	Vendor to mention the provision of communication security viz AES encryption
(bb)	Provision to support 3 rd party Encryption	Yes/No
(bc)	Requirement of external device to load encryption key	Yes/No; Specification of the device including technical parameters, type, form factor, SWaP parameters
Receiver		
(bd)	Analog Sensitivity	Vendor to mention the values at different levels for eg for 12dB SINAD



Ser No	Parameter	Value (Vendor to give details as sought in this column)
(be)	Digital Sensitivity	Vendor to mention the values at different levels for eg for 5% BER
(bf)	Spurious Rejection	In dB
(bg)	Inter Modulation	
(bh)	Audio Output	In watts
(bi)	Audio Distortion	In %
(bj)	Audio Response	
(bk)	Adjacent Channel Selectivity @ 12.5KHz	In dB
(bl)	Adjacent Channel Selectivity @ 25KHz	In dB
Environmental Factors		
(bm)	Dust and Water Intrusion Proofing	Vendor to mention IP rating Dust and Water proofing
(bn)	Compliances achieved by HHRS	<p>Vendor to confirm the Environmental Standard supported by the equipment. Vendor to mention Ruggedization Standard MIL-STD-810G/ JSS 55555 to be specified.</p> <p>The environmental specifications being met by the equipment will be indicated. Conformity to JSS 55555 Class L3 or MIL-STD-810G (all tests to be mentioned separately, Viz Altitude, Bounce, Bump, Damp Heat, Drop, Dust, Icing, Immersion, Mould Growth, High Temperature, Low Temperature, Tropical Exposure, Drop, Toppling, Rapid Temperature Cycling, Vibration etc) will be indicated. Any variations to JSS 55555 Class L3 or MIL-STD-810G specification to any of the module/ sub system of the radio equipment to be indicated separately. The equipment will be evaluated for the specifications during the trial stage.</p>
(bo)	Storage Temperature	Mention Min and Max
(bp)	Operating Temperature	Mention Min and Max



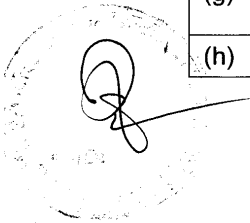
Ser No	Parameter	Value (Vendor to give details as sought in this column)
Features		
(bq)	Provision of inbuilt Bluetooth	
(br)	Provision of In-built GPS	
(bs)	Provision of GPS Tracking of HHRS from Remote Control Station	
(bt)	Provision to interface with GIS	
(bu)	Feasibility to interface system to PC /Console to access the messages and locations of the HHRS	
(bv)	Transmitter Time Out timer	Vendor to mention the details
(bw)	Provision of Emergency Button	Yes/No; Vendor to give detailed application
(bx)	Provision of Scan with Priority	Yes/No; Vendor to give detailed application and specifications related to the facility
(by)	Mode of Calls	Vendor to give details related to Selective Call, Group Call, Inter and Intra Group Call facility
(bz)	No of Contact List	Vendor to specify the number of users contacts can be saved.
(ca)	Availability of Remote Radio Killing/ Stun/ Revive Facility	Yes/No; Vendor to give detailed application and specifications related to the facility
(cb)	Caller ID Display	Yes/No; Vendor to mention the format of display
(cc)	Licences of DOT/WPC for supplying radio equipment in India	
(cd)	Provision of indigenous programming software	Yes/ No; Vendor to specify the detailed parameters; Also to mention whether any additional accessory I terms of cable required for the usage; If so parameters of all items to be given in detail.
(ce)	Safety Features in the HHRS	All safety features in the system be listed
(cf)	Provision for Programmable Button such as Emergency Call	Yes/ No



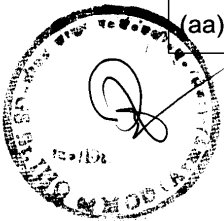
Ser No	Parameter	Value (Vendor to give details as sought in this column)
(cg)	Provision for Pseudo trunk operation	Yes/ No
(ch)	Provision for Priority Interrupt	Yes/ No
(ci)	Provision for Emergency calling	Yes/ No
(cj)	Provision for Man Down Alarm	Yes/ No
(ck)	Provision to press a button to confirm the safety of operator	Yes/ No
(cl)	Provision for remotely monitor radio communication	Yes/ No
(cm)	Provision to disable missing/stolen set and re-enable it once found	Yes/ No
(cn)	Any Additional Feature	

3. **HHRS Base Station.** The Base Stations should be lightweight, compact and ergonomic in design. It should be capable of operating in conventional system in static location and automatic roaming to other areas of operation using IP based repeater network without manual intervention. The Microprocessor control of key circuits should provide automatic operation of internal functions, which allows for consistent performance and reliability. The mobile radios should have cables for interconnection to battery and mounting fixtures. The values pertaining to the Base Station of HHRS may be provided by the vendor:-

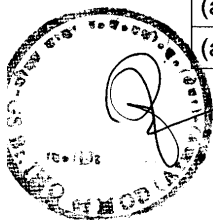
Ser No	Parameter	Value (Vendor to give details as sought in this column)
(a)	Frequency Range	Vendor to mention complete range of frequency of operation
(b)	Analog Operation	Yes/ No with detailed specifications
(c)	Digital Operation	Yes/ No with detailed specifications
(d)	DMR Standard	Vendor to specify the standard for eg Tier II
(e)	Channel Spacing	
(f)	Channel Capacity	
(g)	Type of Operation	Modes of operations possible viz Simplex, Semi-duplex, Press to Talk (PTT) etc to be mentioned by the vendor
(h)	Analog Modulation	



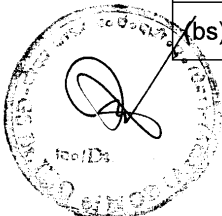
Ser No	Parameter	Value (Vendor to give details as sought in this column)
(j)	Digital Modulation	
(k)	Protocol/s Used	Vendor to indicate 'Open' or 'Proprietary' for each protocol used in the equipment
(l)	Power Source	
(m)	Reverse Polarity Protection	
(n)	Protection against high VSWR	
(o)	Other Safety Features	
(p)	Operating time with duty Cycle	Vendor to mention the operating hours with applicable duty cycle at peak conditions
(q)	Dimensions (H x W x D) of the Base Station with Battery	
(r)	Weight of the Base Station including battery excluding antenna	
(s)	Dimension of the Battery(H x W x D)	
(t)	Weight of the Battery	
(u)	Battery Type	Vendor to indicate Rechargeable Battery or otherwise.
(v)	Battery Capacity	Vendor to indicate mAH ratings
(w)	Battery Technology	Vendor to indicate Technology viz Li-ion etc
(x)	Battery Charger Specifications	Vendor to indicate details of battery charger for the HHRS and ancillaries with respect to speed charging, time for normal charge, time of accelerated charge, ratings, power and voltage requirements. Specifications of both single unit rapid charger and multi-port charger to be given by the vendor.
(y)	Display (No of lines)	
(z)	Readability of Display	Day, Night, Backlit be clearly mentioned by the vendor
(aa)	Type of Display	LCD/LED
(aa)	Maximum Characters that can be displayed	



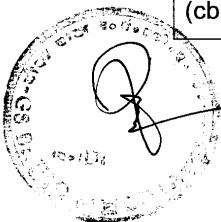
Ser No	Parameter	Value (Vendor to give details as sought in this column)
(ab)	DTMF Microphone	Yess/ No; Vendor to specify the parameters of the accessory.
(ac)	Type of Keypad	Viz Alphanumeric keypad be mentioned by vendors.
(ad)	No of Characters in the Key Pad	
(ae)	Size of the keypad	
(af)	Visual and Audio Alarms in the system	Vendor to mention different audio and visual alarms given in the HHRS, for eg Low Battery Alert.
(ag)	Feasibility of the HHRS to operate at static location	Yes/No;
(ah)	Range of communication of HHRS operate at static location	Specify ranges at 99, 99.9 and 99.99% reliability.
(ai)	Feasibility of the HHRS to operate in Roaming mode	Yes/No; Vendor to give details of the specifications for the roaming operation
(aj)	Feasibility of the HHRS to integrate in the IP network	
(ak)	Text Messaging	Yes/No
(al)	Number of Pre-defined , stored Messages	
(am)	Feasibility to send custom messages from keypad	Yes/No
(an)	Feasibility to send message to specific HHRS in a network	Yes/No
(ao)	Feasibility to send message to complete network	Yes/No; Vendor to indicate capability of the HHRS to send message to how many sets in the network at a time.
(ap)	Provision of Belt Clips	Yes/ No
(aq)	Accessories	Vendor to list all accessories required for functioning of HHRS
(ar)	Interfaces	Vendor to mention all available interfaces of the device
(as)	Type of Antenna	Vendor to mention all antenna specifications for different type of antenna viz Whip Antenna, Omni directional antenna.
(at)	Antenna Mast	
(au)	Mast Material	



Ser No	Parameter	Value (Vendor to give details as sought in this column)
(av)	Antenna cable Types	
(aw)	Antenna cable length	
(ax)	Weight of the antenna sub system	
(ay)	Ruggedization of Antenna	
Transmitter		
(az)	RF Power Output	
(ba)	Programmable RF Power Output	Yes/ No; Vendor to mention the number of levels and values corresponding to each level;
(bb)	FM Hum/ Noise	
(bc)	Frequency Deviation	
(bd)	Modulation Sensitivity	
(be)	Modulation Distortion	
(bf)	Modulation Fidelity	
(bg)	Audio Distortion	
(bh)	Frequency Stability	Vendor to give the value in ppm
(bi)	Communication Security	Vendor to mention the provision of communication security viz AES encryption
(bj)	Provision to support 3 rd party Encryption	Yes/No
(bk)	Requirement of external device to load encryption key	Yes/No; Specification of the device including technical parameters, type, form factor, SWaP parameters
Receiver		
(bl)	Analog Sensitivity	Vendor to mention the values at different levels for eg for 12dB SINAD
(bm)	Digital Sensitivity	Vendor to mention the values at different levels for eg for 5% BER
(bn)	Spurious Rejection	In dB
(bo)	Inter Modulation	
(bp)	Audio Output	In watts
(bq)	Audio Distortion	In %
(br)	Audio Response	
(bs)	Adjacent Channel Selectivity @ 12.5KHz	In dB



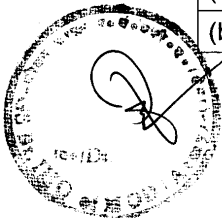
Ser No	Parameter	Value (Vendor to give details as sought in this column)
(bt)	Adjacent Channel Selectivity @ 25KHz	In dB
Environmental Factors		
(bu)	Dust and Water Intrusion Proofing	Vendor to mention IP rating Dust and Water proofing
(bv)	Compliances achieved by HHRS	Vendor to confirm the Environmental Standard supported by the equipment. Vendor to mention Ruggedization Standard MIL-STD-810G/ JSS 55555 to be specified. The environmental specifications being met by the equipment will be indicated. Conformity to JSS 55555 Class L3 or MIL-STD-810G (all tests to be mentioned separately, Viz Altitude, Bounce, Bump, Damp Heat, Drop, Dust, Icing, Immersion, Mould Growth, High Temperature, Low Temperature, Tropical Exposure, Drop, Toppling, Rapid Temperature Cycling, Vibration etc) will be indicated. Any variations to JSS 55555 Class L3 or MIL-STD-810G specification to any of the module/ sub system of the radio equipment to be indicated separately. The equipment will be evaluated for the specifications during the trial stage.
(bw)	Storage Temperature	Mention Min and Max
(bx)	Operating Temperature	Mention Min and Max
(by)	Humidity	Mention along with the applicable temperature.
Features		
(bz)	Provision of inbuilt Bluetooth	
(baa)	Provision of In-built GPS	
(ca)	Provision of GPS Tracking of HHRS from Remote Control Station	
(cb)	Provision to interface with GIS	



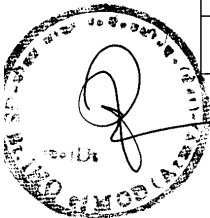
Ser No	Parameter	Value (Vendor to give details as sought in this column)
(cc)	Feasibility to interface system to PC /Console to access the messages and locations of the HHRS	
(cd)	Transmitter Time Out timer	Vendor to mention the details
(ce)	Provision of Emergency Button	Yes/No; Vendor to give detailed application
(cf)	Provision of Scan with Priority	Yes/No; Vendor to give detailed application and specifications related to the facility
(cg)	Mode of Calls	Vendor to give details related to Selective Call, Group Call, Inter and Intra Group Call facility
(ch)	No of Contact List	Vendor to specify the number of users contacts can be saved.
(co)	Availability of Remote Radio Killing/ Stun/ Revive Facility	Yes/No; Vendor to give detailed application and specifications related to the facility
(cp)	Caller ID Display	Yes/No; Vendor to mention the format of display
(cq)	Licences of DOT/WPC for supplying radio equipment in India	
(cr)	Provision of indigenous programming software	Yes/ No; Vendor to specify the detailed parameters; Also to mention whether any additional accessory I terms of cable required for the usage; If so parameters of all items to be given in detail.
(cs)	Any Additional Feature	

4. **HHRS Repeater Station.** The Repeater station should be lightweight, compact with state-of-the-art synthesized circuits to electronically generate the Radio frequencies. The Repeater should be continuous full duty cycle at rated power. It should be capable of operating in unattended mode with remote diagnostics and maintenance features. The repeater should support all features of HHRS with two simultaneous communications for Voice & Data in Digital Mode. The values pertaining to the HHRS Repeater Station of HHRS may be provided by the vendor:-

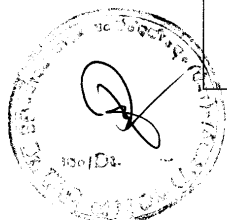
Ser No	Parameter	Value
(a)	Frequency Range	
(b)	No of Channels	



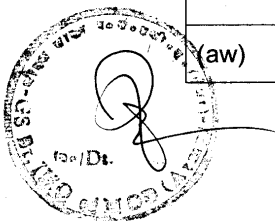
Ser No	Parameter	Value (Vendor to give details as sought in this column)
(c)	Channel Spacing	
(d)	Analog Operation	Yes/ No with detailed specifications
(e)	Digital Operation	Yes/ No with detailed specifications
(f)	DMR Standard	Vendor to specify the standard for eg Tier II
(g)	Analog Modulation	
(h)	Digital Modulation	
(j)	Protocol/s Used	Vendor to indicate 'Open' or 'Proprietary' for each protocol used in the equipment
(k)	Frequency Stability	
(l)	IP based Networking	
(m)	Capability to create a network grid of Repeater stations to enable Wide Area Network of user Radio sets operating in the network from one site to another	
(n)	Dimensions (H x W x D) without battery and antenna	
(o)	Weight without battery and antenna	
(p)	Type of Operation and Duty Cycle	For eg Repeater Mode at 100% Duty Cycle
(q)	Power Source: Operating AC supply voltage and frequency along with tolerance range	
(r)	Power Source: DC Voltage Range	
(s)	Provision of Automatic changeover from AC to DC and vice versa without the equipment switching off or rebooting.	Power supply system should fulfil the requirement of power for the system at High Altitude Area by taking Deration factor.
(t)	Safety and Protection Parameters	



Ser No	Parameter	Value (Vendor to give details as sought in this column)
(u)	Interfaces of device	
<u>Transmitter</u>		
(v)	RF Power Output	In Watts
(w)	Frequency Noise	
(x)	Frequency Deviation	
(y)	Modulation Sensitivity	
(z)	Modulation Distortion	
(aa)	Modulation Fidelity	
(aa)	Audio Distortion	
<u>Receiver</u>		
(ab)	Analog Sensitivity	Vendor to mention the values at different levels for eg for 12dB SINAD
(ac)	Digital Sensitivity	Vendor to mention the values at different levels for eg for 5% BER
(ad)	Spurious Rejection	In dB
(ae)	Audio Output	In watts
(af)	Audio Response	
(ag)	Inter Modulation	
(ah)	Adjacent Channel Selectivity	In dB
(ai)	Adjacent Channel Selectivity	In dB
<u>Environmental Factors</u>		
(aj)	Dust and Water Intrusion Proofing	Vendor to mention IP rating Dust and Water proofing
(ak)	Compliances achieved by HHRS	Vendor to confirm the Environmental Standard supported by the equipment. Vendor to mention Ruggedization Standard MIL-STD-810G/ JSS 55555 to be specified. The environmental specifications being met by the equipment will be indicated. Conformity to JSS 55555



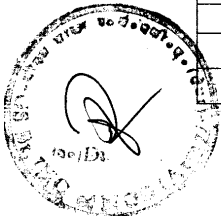
Ser No	Parameter	Value (Vendor to give details as sought in this column)
		Class L3 or MIL-STD-810G (all tests to be mentioned separately, Viz Altitude, Bounce, Bump, Damp Heat, Drop, Dust, Icing, Immersion, Mould Growth, High Temperature, Low Temperature, Tropical Exposure, Drop, Toppling, Rapid Temperature Cycling, Vibration etc) will be indicated. Any variations to JSS 55555 Class L3 or MIL-STD-810G specification to any of the module/ sub system of the radio equipment to be indicated separately. The equipment will be evaluated for the specifications during the trial stage.
(al)	Storage Temperature	Mention Min and Max
(am)	Operating Temperature	Mention Min and Max
(an)	Humidity	Mention along with the applicable temperature.
Accessories		
(ao)	Antenna Type	Types of Antenna and Deployment.
(ap)	Antenna Specification	Vendor to mention the antenna specifications
(aq)	Mast Type and Specification	
(ar)	Type of cable	
(as)	Cable Length	
(at)	Antenna Subsystem Weight (To incl Antenna, Mast, Cable, Brackets and ropes all inclusive)	
(au)	Length of Feeder for Antenna	Length of each type of feeder cable to be mentioned.
(av)	Type of Feeder cable and specification	Vendor to mention different type of feeder cables available along with functioning for eg flexible feeder cable
(aw)	Provision for suitable connector for vehicle	



Ser No	Parameter	Value (Vendor to give details as sought in this column)
(ax)	Carrying case	Details of the carrying case, material, design and weight to be specified by the vendor
Features		
(ay)	Wide Area IP connectivity for Voice & data Repeaters	Yes/ No; Vendor to specify the detailed parameters;
(az)	Provision for Remote monitoring & status check	Yes/ No; Vendor to specify the detailed parameters;
(ba)	Communication Security	Vendor to mention the provision of communication security viz AES encryption
Vibration etc) will be indicated.	Vibration etc) will be indicated.	Vibration etc) will be indicated.
(bb)	Provision to support 3 rd party Encryption	Yes/No
(bc)	Requirement of external device to load encryption key	Yes/No; Specification of the device including technical parameters, type, form factor, SWaP parameters
(bd)	Licences of DOT/WPC for supplying radio equipment in India	
(be)	Provision of indigenous programming software	Yes/ No; Vendor to specify the detailed parameters; Also to mention whether any additional accessory I terms of cable required for the usage; If so parameters of all items to be given in detail.
(bf)	Any additional Parameter which vendor wants to intimate	

5. **Range of Operation.** Communication range between HHRS, Base Station and Repeater Station at 99.9% reliability be indicated as follows:-

Ser	Range		Distance
	From	To	
(a)	HHRS	HHRS	
(b)	HHRS	Base Station	
(c)	HHRS	Repeater Station	
(d)	Base Station	Repeater Station	



(e)	Base Station	Base Station	
(f)	Repeater Station	Repeater Station	

6. **Camouflage.** Colour of the equipment and possibility to change the colour of the equipment as per user requirement will be specified.

7. **Vehicle Mounting Kit.** Details and specifications of the vehicle mounting kit, for in-service 2.5 ton, 5/7.5 ton and Light Vehicle , to include material of the kit will be indicated. Any loose items like rope and bolts can be listed in the accessories column. The format is as given below:-

<u>Ser</u>	<u>Description</u>	<u>Weight</u>	<u>Dimensions</u>	<u>Material</u>	<u>Accessories</u>
(a)					
(b)					

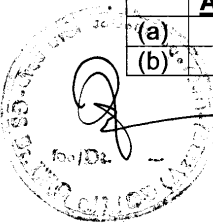
8. **Software Upgrades.** The vendor will indicate if any software is being used in the equipment. If yes, it will be indicated as to how memory is available to accommodate software upgrades and whether the software is restorable in field by user/maintenance agency.

9. **Indigenous Software.** In order to leverage the highly developed indigenous software expertise existing in the country, it is pertinent that maximum equipment should function with indigenous software driving the desired applications while the backend software i.e. Operating Systems continues to be OEM defined. Vendor to indicate availability of different software to be utilized by the user in detail. Info on availability of Online Inventory Management System (OIMS) for the eqpt to be provided. Vendor to indicate availability of different software to be utilized by the user in detail. Vendor to refer to Para 26(f) of Chapter I and Para 13 of Chapter II of DAP 2020 for necessary compliance

10. **Artificial Intelligence.** The vendor will indicate the feasibility of incorporating AI in the equipment. The possible areas where AI may be considered are for aspects like Malware Vulnerability Analysis, Spectrum Management, Network Traffic, Capability Planning, Jamming, Training with simulators or any other feature which the vendors may elaborate.

11. **Feeder / Cables / Connectors.** All types of feeder cables, other cables for connecting various parts of the equipment along with their specifications will be indicated separately. Ability to carry power in the feeder cable will also be indicated. If the vendor is offering any additional items for enhanced performance at the cost of incurring weight or size penalty, the same may be given in different tables.

<u>Ser</u>	<u>Name of Cable / Accessory</u>	<u>Material and Weight</u>	<u>Dimension</u>	<u>Technical Specifications</u>	<u>Purpose</u>
(a)					
(b)					



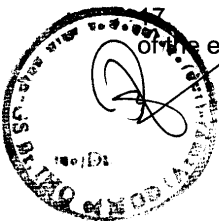
12. The following will also be indicated:-
- (a) Any other Mil standards being conformed to by the equipment.
 - (b) Joint Service Specifications (JSS) or Joint Service Guidelines (JSG) being conformed to by the equipment.
 - (c) Name of accredited laboratory (Indian / International) which has certified the equipment.
13. **Electromagnetic Compatibility.** The EMI/EMC compatibility and Mil Standards that can be provided for the equipment will be indicated. Conformity to Mil Std 461E or later at Sub System level and Electric Static Discharge (ESD) at system level will also be indicated.

<u>Ser</u>	<u>Query</u>	<u>Vendor Response</u>
(a)	Has the equipment/product/product family been tested for conformity to Mil Std 461 (Version E or later) at sub system level	<u>Yes/ No</u>
(b)	If Yes to 12(a) details of the test conducted along with the date and name of the lab with accreditation	
(c)	If No to 12(a) what other EMC Standards does it comply to	
(d)	Has the equipment/product/product family been tested for conformity to Mil Std 464 (Version C or later) at sub system level	<u>Yes/ No</u>
(e)	If Yes to 12(c) details of the test conducted along with the date and name of the lab with accreditation	
(f)	If No to 12(c) what other EMC Standards does it comply to	
(g)	Has the Base Station/ Repeater Station been tested for CS-117/MIL-STD-461E or later?	<u>Yes/ No</u>
(h)	If Yes to 12(g), details of the test conducted along with the date and name of the lab with accreditation	
(i)	If No to 12(g), what protection do the equipment offer against the lightning.	

Operating Aspects of the Equipment

14. **Built In Test Equipment (BITE).** The equipment will have BITE facility. The vendor will include methodology of conducting the BITE testing.
15. **POST.** The equipment will have POST to identify defects upto PCB level.
16. **Reliability.** The vendor will indicate for how many continuous hours the equipment will operate for without error and without switching off.

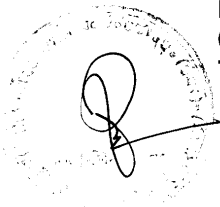
17. **Mean Time Between Failure and Mean Time to Repair.** MTBF and MTTR of the equipment will be indicated by the vendor.



18. **Counter for Usage.** The equipment will have a counter for displaying cumulative usage of the equipment for facilitating preventive and periodic maintenance.
19. **Reverse Polarity Protection.** Protection/provision to prevent reverse polarity fitment for all PCBs/Cards/Cables/Battery be provided.
20. **Modular Construction.** The equipment will have modular construction to facilitate repairs by replacement of PCBs and modules.
21. **Delivery Capacity.** The vendor will indicate the delivery capacity of the equipment. (Timeframe vis-à-vis quantity will be indicated).
22. **Equipment Life.** The service life and shelf life of the equipment will be given by the Vendor.

Repair and Maintenance

23. **Warranty.** The vendor will give details of the following:-
- (a) Guarantee.
 - (b) Warranty.
 - (c) AMC.
24. **After Sales Support.** The following details will be provided by the vendor:-
- (a) What is the repair methodology being proposed by the vendor/OEM?
 - (b) What are the levels of repair envisaged for Repair and Maintenance for various sub systems?
 - (c) What kind of Engineering Support Package (ESP) and Life Time support can be provided by the vendor, along with financial implications?
 - (d) What are the repair facilities available with the vendor in terms of infrastructure, test equipment and Component Level Repair facility for various sub systems?
 - (e) How are similar systems being maintained by the vendor?
 - (f) Will the requisite Spares, Special Maintenance Tools and Special Test Equipment for carrying out component level repair be provided by vendor?
 - (g) Will the test equipment being provided have facility to take print of diagnostic or serviceability check test reports?
 - (h) What is the training mechanism for operator and maintenance agency?
 - (j) Will CI-IV Interactive Electronic Technical Manuals (IETMs) be provided by vendor as part of technical literature?
 - (k) Vendor is requested to provide data regarding envisaged **Mean Time To Repair (MTTR) and Mean Time Between Failure (MTBF)** figures



in terms of hours/days for all major assemblies and sub assemblies of the system.

(l) As per policy only indigenous generators & batteries are to be used. Are the same being provided?

(m) Does the equipment have Built in Test facilities to include Power on Self Test, Initiated Built in Tests or Continuous Built in Test to monitor the health of the system?

(n) Does the equipment have facility of recording of fault data and exploitation data in days/hours/date etc in an integrated fault diagnostic unit?

25. **Product Support and Upgradability.** The vendor will indicate and give details of the information sought in the following paragraphs.

(a) All major repair and overhaul facilities for major assemblies and component level repairs owned by the vendor in India or abroad.

(b) Base overhaul facilities and availability of infrastructure in India.

(c) Management of repairs and spares post contract.

(d) Engineering Support Package' recommended by the OEM / Vendor and estimated cost.

(e) Type of AMC provided and likely cost.

(f) Life time support provided.

(g) Budgetary estimate of life cycle support contract.

(h) Upgrades for the software (as applicable).

(j) Upgradability of hardware for enhanced performance features or due to modifications required to obviate recurring defects.

(k) Capability of the equipment to back up data and redundancies provided for the same.

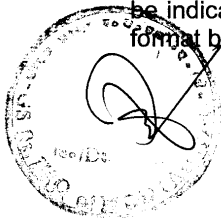
26. The vendor will indicate conformity to submission of Manufacturers Recommended List of Spares, Illustrated Spare Part List and Technical Manuals on STEs with drawing reference will be indicated.

27. The vendor will indicate willingness of the firm to participate in Joint Defect Investigation when a component suffers a defect will be indicated.

28. The vendor will indicate compliance to Tangible Obsolescence Management Plan and plan for upward compatibility for latest modules will be indicated.

29. **Provisioning.** The vendor will provide details of vendors and sub vendors, especially those with establishments in India and readiness / Lead time towards spares provisioning.

30. **NSN No.** Possibility of provision of NSN No for each spare / component will be indicated as per Bill of Material (BoM). Compliance to submission of BoM as per format below will be indicated:-



<u>Ser</u>	<u>Item</u>	<u>Part No</u>	<u>Drq No</u>	<u>NSN</u>	<u>Manufacturer</u>	<u>Schematic Ref</u>	<u>Standard of Reference</u>	<u>Qty</u>	<u>Mill/ Industrial / Commercial</u>

31. The vendor will indicate conformity to submission of Manufacturers Recommended List of Spares, Illustrated Spare Part List and Technical Manuals on STEs with drawing reference will be indicated.

32. The vendor will indicate willingness of the firm to participate in Joint Defect Investigation when a component suffers a defect will be indicated.

33. The vendor will indicate compliance to Tangible Obsolescence Management Plan and plan for upward compatibility for latest modules will be indicated.

Manufacturing and Production Aspects

34. **Experience.** The vendor will indicate the number of years of experience and areas of expertise. Details of any similar projects executed by the vendor to supply such equipment to any entity in India and abroad may be provided.

35. **Research, Development and Manufacturing Facilities.** The vendor will provide details of all R&D and manufacturing infrastructure in India and abroad.

36. **Indigenisation.** The vendor will give out his ability and willingness to supply the product to meet the requirements of Buy Indian (IDDM) and / or Buy Indian to meet the aim of Indigenisation as per provisions and spirit of the DAP 2020.

37. **Packaging of Deliverables.** To ensure that each deliverable may be transported in an undamaged and serviceable condition, the vendor will package the deliverables as applicable in accordance with DEFSTAN 81-041(Part 1), STANAG-4280 or an equivalent Military Standard.

38. **Production Capacity.** The vendor will give out his current and planned annual production capability and proposed delivery schedule of the equipment. The time required to deliver required quantity of the equipment for trials and post contract, time required to deliver the equipment.

Trials

39. The OEM / Vendor will bring out if he is willing to participate in trials as per DAP 2020 in India on 'NCNC' basis.

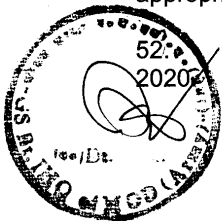
Timelines. The following data is also required to be provided by the vendor:-



- (a) Maximum quantity of equipment that can be made available for trials on 'NCNC' basis.
- (b) Lead time required to field prototype for trials post intimation of clearance in TEC will also be intimated. This should factor in all activities like time for clearance, transportation etc.
41. **Imports.** In case of imported content, the vendor will intimate the likely time and clearances required for import of equipment for trials in India.
42. **Test Standards.** Inputs on test standards adopted for equipment of similar type will be indicated.
43. **Certifications.** Parameters for which certifications can be made applicable and provided in lieu of trial evaluation. Details of parameters of the equipment which can be certified from NABL accredited labs will be indicated.
44. **Simulation and Modelling.** Trials for which simulation or modelling is available will be indicated. Accordingly, feasibility of simulating the trials as per provision of **DAP 2020** will be indicated.
45. The vendor will indicate compliance to submission of the equipment for Maintainability Evaluation Trial as per procedure. MET would be undertaken to establish maintainability of equipment and Engineering Support Package in accordance to the repair philosophy.
46. Willingness and capability of the firm to provide documentation as per JSS 0251 and as per applicable timelines will be indicated.
47. Willingness and capability of the firm to provide drawing of equipment for electronics and electrical stores as per JSS 50003 will be indicated.
48. Willingness and capability for ESS for all electronic and electrical equipment as per JSS 0613 will be indicated.
49. Conformity to Software Coding Standards IV and V testing as per JSG 0948 : 2017 will be indicated. Submission of Non Malware Certificate will be indicated. Confirmation of software as per IEEE 12207/ JSS 0950 will be indicated.
50. Willingness of firm for QA will be indicated by the vendor.

Financial Aspects

51. **Budgetary Quote and Cost.** The vendor will intimate the cost of one HHRS, One Base Station and One Repeater including all accessories without tax. Details of tax will be indicated separately. Details of cost will include factors like AMC, product support package, training etc. Additional details as deemed appropriate must also be indicated.



The vendor will indicate acceptability to the terms of payment as per DAP

53. The vendor will also indicate willingness for option clause as per DAP 2020.

Training

54. The vendor will indicate ability and willingness to offer the following:-

- (a) Sectioned / Cut Models, 3D models CDs for training.
- (b) Training aggregates for conduct of training like projection system, technical literature, charts, slides, blow-up diagrams, training work models, brochures and Computer Based Training (CBT) packages. The CBT should include symptom fault correlation.

55. The vendor will indicate the facilities available at OEM / Vendor premises to conduct training. He will also give out how he can assist in carrying out training of user, maintenance personnel and QA personnel.

56. Recommended training period of maintenance and QA persons and user will be given out by the vendor.

57. Availability and details including cost of simulators for the equipment.

58. Availability and willingness of the vendor to provide soft and hard copies of the 'User Handbook', Design Specifications, Technical Manuals including technical manuals along with the CBT for training as per JSS 0251-1.

Miscellaneous

59. Extract of the relevant Technology Perspective and Capability Roadmap TPCR will be included.

60. Any futuristic plans for modification and / or modernisation plans for the equipment being offered.

61. Vendors may consider RFI as advance information to obtain requisite government clearances.

