Tender Document

For Upgradation of VSAT terminals, Comprehensive Annual Maintenance Contract (CAMC) of VSAT terminals (152 nos.) and its accessories, VSAT satellite bandwidth, Backhaul connectivity etc. for a period of ONE year and extendable

National Center for Seismology (NCS)
Ministry of Earth Sciences
Lodi Road, New Delhi-110 003

23rd DECEMBER 2020

SECTION – I
GENERAL INSTRUCTIONS TO BIDDERS

1. Introduction:

1.1	The Purchaser has issued this Tender Enquiry (TE)document for offering VSAT Services as detailed in "Request for Proposal (RFP)", which also indicates, inter alia, the required Services for upgradation of VSAT terminals from DVB-S technology to DVB-S2 or equivalent or better technology, comprehensive maintenance of VSAT terminals and its accessories, VSAT satellite bandwidth, MPLS connectivity between shared hub of the Bidder to the operational Centres of INCOIS and NCS, buy-back of old VSAT HUB and field system equipments, maintenance of power systems including battery and solar panels etc. This section "General Instructions to Bidders" (GIB) provides the relevant information as well as instructions to assist the prospective Bidders in preparation and submission of tenders.
1.2	Bidders shall have to agree/accept all the terms and conditions of Tender document including payment terms etc. Acceptance shall be unconditional and Bidders shall have no claim and right in future on their terms, if any.
1.3	Whenever there is any conflict between the provision in the "General Instructions to Bidders" with regard to specific item/para/clause under this section and that in the "RFP", the provision contained in the RFP shall have an over-riding effect and treated as final. Any special instructions as per "RFP" section will also apply for this purchase. The conditions (like qualification criteria, maintenance services, penalty charges, etc.) mentioned in "RFP" will also apply for this purchase.

2. Language of Tender& Tender Currency:

2.1	The tender submitted by the bidder and all subsequent correspondence and documents relating to the tender exchanged between the bidder and the purchaser, shall be written in English language.
2.2	The tender currency is in Indian Rupees only. No payment will be made in foreign currency.

3. Eligible Goods and Services:

3.1	All goods and related VSAT services are to be supplied by the Indian Equipment Manufacturing Firms or the System Integrator companies or VSAT Service Providers based in India.
3.2	a) Firms having regular arrangement with a particular foreign manufacturer for supply of VSAT equipment and who adapt/ tropicalize the equipment to suit Indian conditions and can prove the performance of the same at their premises in India shall also be considered as suppliers. b) They are required to produce documentary proof of import and certificate of origin at the time of supply. They are also required to have established facilities for after sales services for the equipment in India. The Firms are required to have valid agreements entered into between them and their foreign principals. Copy of such agreement, clearly indicating the responsibilities and duties of different partners is to be submitted along with the technical bid. Direct bid by Foreign technology partner is not acceptable.

4. Tender Validity:

4.1	The tenders shall remain valid for acceptance for a period of 180 days (one hundred eighty days) after the date of tender opening prescribed in the Notice Inviting Tender (NIT) document.
4.2	The purchaser reserves the right to accept in part or in full any tender or reject any tender without assigning any reason or to cancel the tendering process and reject all tenders at any time prior to award of contract, without incurring any liability, whatsoever to the affected Bidder or Bidders.

5. Tendering Expenses:

5.1	The Bidder shall bear all the costs and expenditure incurred and/or to be incurred by them in preparation, and uploading their tender including attending the pre-bid conference and/ or arranging demonstration of Services or Presentations before the Committee that may be deemed necessary by the Purchaser.

6. Price preference:

6.1	Price preference shall be given to Micro and Small Industries registered for stores and services specified in this tender document with National Small Industries Corporation or any other Government Agencies as per the latest guidelines/orders from Government of India. Purchase preference and quantity etc. shall be decided as per the Government of India orders. The Bidders shall have to attach valid Registration Certificate. Micro and Small Enterprises are exempted for submission of Earnest Money Deposit (EMD) also known as security deposit. **However Micro and Small Enterprises are not exempted for Performance Security. Micro and Small Enterprises shall have to furnish Performance Security. if purchase order is placed to them. There is no relaxation in this regard**.

7. Pre-Bid Conference:

7.1	Pre-bid conference shall be held as per NIT schedule so as to provide an opportunity to the participating Bidders to interact with NCS and INCOIS with regard to various tender provisions/clauses, before the bids are submitted. Bidders should depute their authorized representative for pre-bid meeting. In case, due to the points/doubts raised by the prospective Bidders, needs to be modified, and then the same will be considered for modification. **After pre-bid conference, tender conditions will be frozen. No change will be permissible after pre-bid meeting**. Request for Clarification needed if any may be sent before commencement of pre-bid meeting. The date of Pre-Bid meeting is given in NIT. No reply in this regard shall be sent to individual Bidders. Pre-Bid minutes shall be uploaded on e-Procurement portal (https://eprocure.gov.in/eprocure).
7.2	a) NCS and INCOIS shall hold a pre-bid meeting as per schedule given in NIT. All social distancing norms and criteria prevailing for COVID-19 should require to be followed during the meeting. b) Queries received in writing, from the Bidders, prior to the pre-bid meeting shall be addressed. The queries can be sent to NCS through email at ravi5ravi@yahoo.com, g.suresh@imd.gov.in, and venu@incois.gov.in.
7.3	Conditional tenders shall not be accepted on any ground and shall be rejected straightway. If any clarification is required, the same should be obtained on or before pre-bid meeting. No correspondence will be entertained after pre-bid meeting.
7.4	Regular visit of website: Prospective Bidders are advised to see e-Procurement portal

	http://eprocure.gov.in/cppp/ or NCS website (www.seismo.gov.in/content/tenders) on regular basis for any change in NIT schedule, amendment / corrigendum in Tender Document including technical requirement and pre-bid minutes etc.

8. Amendments to Tender enquiry (TE) documents:

8.1	a) At any time, prior to the deadline for submission of tender, the purchaser may, for any reason deemed fit by it, modify the Tender Enquiry document by issuing suitable amendment(s) to it. b) The amendment will be uploaded on CPP portal eprocure.gov.in / e-procure only. In order to provide reasonable time to the prospective bidders to take necessary action in preparing their tenders as per the amendment, the purchaser may, at its discretion extend the deadline for the submission of tenders and other allied time frames, which are linked with that deadline

9. Documents Comprising the Tender:

Tender Enquiry Document seeks quotation in two parts by following TWO Bid System. The First Part will be known as 'Techno-Commercial Bid', and the Second Part will be known as 'Price Bid' (Details given below)	
9.1	**Techno-Commercial Tender (Un-priced Bid) comprises of following:** a) Registration certificate of bidding firm with any State and Central Government body of India like Department of Telecommunication. Credential/document shall be attached. b) DoT license for VSAT Hub services. c) Checklist section (as per **Annexure-I**) properly filled and signed. d) Technical Proposal with compliance statement/table to the clauses of tender. e) A copy of the blank price bid for NCS and INCOIS component of works as per **Annexure-VII and VIII**. The list of deliverables (un-priced) with type of service, bandwidth etc. should also be submitted along with the technical bid. f) Scanned copy of Earnest Money Deposit (EMD) in the form of Fixed Deposit Receipt/ Bank Guarantee (FDR/BG). Original EMD in physical form shall be submitted to Sh. Kamalesh Chowdhury, R.No.303, Sat-Met Building, Mausam Bhavan Complex, Lodi Road, New Delhi-110 003 on or before opening of tender. g) Documentary evidence for fulfillment of Eligibility /Qualification criteria (s). h) Certificate issued by competent authority from Ministry of MSME/ National Small

	Industries Corporation shall be uploaded on eprocure.gov.in/e procure (CPP Portal) and original shall be submitted in NCS HQ on or before opening of tenders. i) Submission of PDF copy of tender document on CPP Portal is mandatory. Otherwise bid will be rejected. j) The bidder, who quotes for goods, manufactured by some other manufacturers which are required for upgradation and maintenance of VSAT equipments, shall furnish Manufacturer's Authorization Form. (**Annexure-III**) k) All the above documents must be enclosed with technical bids, otherwise bids may be either ignored or not considered for technical evaluation. l) All the pages should be numbered, indexed, and duly signed and stamped by the authorized signatory (with Name and Designation in the firm) m) A hard copy of Technical BID of the tender document which is identical to the copy uploaded in CPP Portal, is required to be submitted in hand (or by speed post or courier) to Sh. Kamalesh Chowdhury, R.No.303, Sat-Met Building, Mausam Bhavan Complex, Lodi Road, New Delhi -110003. **Each page is to be duly signed and stamped.** If any discrepancy between the details in bid document submitted through CPP Portal and hardcopy, the details submitted in CPP Portal will be considered as final version for evaluating the proposal. **Note: The above documents must be signed & stamped on each page, and scanned & shall be attached in the beginning of technical bid. The scanned copy of technical bid (in PDF format) should be uploaded in CPP Portal.**
9.2	**The following documents are to be furnished by the bidder along with <u>Price Bid</u>:** a) All pages of the price bid should be page numbered, indexed and signed with company/firm seal by authorized signatory. b) Prices should be quoted as per Price Schedule Format (**Annexure-VII and VIII**). The domestic Bidder shall indicate on the Price Schedule specifying all components of prices shown therein including the unit prices and total tender prices of the upgradation, services, packing, inland transportation/freight/insurance to the sites and GST etc. against the requirement. c) Costing of each and every item, sub items offered in bidder's technical bid, shall be done with all breakup prices. Cost of upgradation, bandwidth services, CAMC, backhaul connectivity, battery and solar panels maintenance etc. are to be indicated separately. d) In case any charges are not mentioned by the Bidder in the price bid, it will be treated as "all the charges are free of cost for that item".

	e) Bidder shall quote prices on F.O.R destination (field sites of NCS and INCOIS) basis. Payment will be made in Indian Rupees only. No payment will be made in foreign currency. f) The bidder supplying indigenous goods or already imported goods shall quote only in Indian Rupees. g) The Price Bid is separate for INCOIS and NCS. The combined total cost will be considered for deciding L1. h) The bidder shall indicate on the Price Schedule specifying all components (main units and sub units etc. of each item) of prices shown therein including the unit prices and total tender prices of the upgradation, services, inland transportation/freight/insurance to the sites, GST or any other duties and taxes applicable against the requirement. i) Wherever, the Purchaser's invitation to tender calls for installation and commissioning of the instrument/equipment by the bidder, the bidders must clearly and separately quote the prices for the supply of the stores and the charges and the terms for installation and commissioning as the case may be. The charges towards upgradation, installation and commissioning should not be included in the price of the stores. j) The Supplier shall bear all the taxes (GST/IGST/SGST/Income-tax /WCT/or any other taxes) levied by the state / central government in force in India, as per the rates prevailing at the time of undertaking the job in accordance with the Income-tax Act. k) Comprehensive Annual Maintenance Contract (CAMC) shall be on whole of items including batteries, solar panels, backhaul connectivity, maintenance of VSAT terminals (including IFL cables and all its accessories), therefore prospective bidders are advised to quote CAMC charges accordingly. The charges are to be quoted on annual basis. It should not be quoted in terms of percentage of project cost. The cost of warranty charges, installation charges, training charges etc. are not covered under CAMC. Price bids shall not be accepted if CAMC charges are quoted in percentage. l) The upgraded parts of VSAT terminals are under ONE-year warranty from the date of commissioning. m) In case any charges not mentioned in the price bid, it will be treated as all the charges are free of cost for that item and included in the price bid. n) Purchaser shall not be responsible for custom clearance, if any. Prices quoted by the bidder shall remain firm and fixed during the period of the contract. o) Statutory levies, taxes and duties etc., if any, chargeable on the goods are payable on actual basis as applicable.

	p) If there is a discrepancy between the amount expressed in words and figures, the amount in words shall prevail. **Note: - Price bid shall prima-facia be rejected in case of any <u>deviation from the un-priced bid given with the technical bid of the bidder</u>.**

10. **Signing and Submission of Tender:** Properly signed and stamped tender on the company letterhead must be uploaded ONLINE through CPP Portal. Submission of only **<u>Hard copy of bids shall not be accepted for</u>**. The tender shall not contain any over-writing. <u>Only the scanned copy in pdf format</u> of the tender shall be uploaded on CPP portal. Each and every page is to be assigned page-number serially.

11. **Alternative Tenders:** Alternative Tenders are not permitted.

12. **Purchaser's Right to accept any tender and to reject any or all tenders:** The purchaser reserves the right to accept in part or in full any tender or reject any tender without assigning any reason or to cancel the tendering process and reject all tenders at any time prior to award of contract, without incurring any liability, whatsoever to the affected bidder(s).

13. **Validity of Tender and EMD**: As per details given in NIT.

14. **Alteration and Withdrawal of Tender:** The bidder, after submitting its tender, is permitted to alter / modify and upload its tender any number of times before the last date/time for submission of tender. The earlier tenders will get cancelled automatically and the latest uploaded tender will remain effective.

15. **Bidder's Eligibility Criteria:**

15.1	**<u>Qualification / Experience:</u>** The Bidder should have expertise and "hands-on" experience in India in the field of VSAT satellite communication, including Wide Area Network design involving VSATs, system integration, supply, installation and commissioning, comprehensive maintenance of VSAT terminals etc.
15.2	a) The Bidder should offer VSAT bandwidth services from Indian satellite only. b) The bidder must be an Indian firm / company/ organization registered under applicable Act/Laws in India.
15.3	Bidder should be either an Original Equipment Manufacturer (OEM) of VSAT equipments or authorized partner of OEM. In case the bidder is an Authorized partner of the OEM, Bidder needs to provide Manufacturer Authorization Form (MAF) from OEM stating that bidder is authorized partner of OEM and authorized to participate in

	this tender. OEM can quote directly or through authorized partners. However, both i.e. OEM & their authorized partner cannot participate in the RFP. In case, both (OEM & his authorized partner) participate, only bid of the OEM will be considered.
15.4	The Bidder MUST have maintained at least 500 numbers of VSATs and atleast ONE VSAT Hub (with valid commercial share hub license from DoT on ext-C band technology) of offered current and latest DVB technology during the past FIVE years (from the date of publication of tender). **Requisite document to support this claim should be furnished.** The document should clearly indicate the number of VSAT terminals of different frequency-bands and VSAT-HUBs owned by the firm in different locations in India at the time of date of tender publishing.
15.5	The average annual turnover of the Bidder for the last THREE consecutive years should be a minimum of Rs.10.0 Cr (Rupees Ten crore). The Balance sheet, Profit and Loss Statement copies of the last two years may be attached. The bidder should be profitable organization (on the basis of PAT) for at least 3 years
15.6	If the quote is from a foreign firm it should be through an Indian partner who meets the above experience criteria. The Bidder should have end-to-end arrangement with the OEM to supply and maintain the equipments. The Bidder as consortium can also quote meeting the required qualification.
15.7	The Bidder (Service Provider) should have back-to-back support agreement with OEM for this contract. **A letter from OEM needs to be furnished as per Annexure-III** along with the tender document ensuring the availability of service support for the entire period of the contract. <u>The issue date of the letter from the OEM should be after the date of publishing of the present tender enquiry in e-Procurement Portal.</u>
15.8	Client references and contact details (email/ landline/ mobile) of customers for whom the Bidder has executed similar projects (during last 3 years) (At least TWO client references are required)
15.9	The Bidder must have countrywide support and provide the details on technical manpower. The Bidder should indicate their business model for providing the service support. NCS reserves the right to verify the coverage of tech-support base as indicated by Bidder. In case of false or un-true claims found for any Bidder, such Bidder could be accordingly disqualified from further evaluation & processing of their bids for this tender. In this regard, no further communication with the Bidder shall be entertained.
15.10	The registration number, GST and PAN numbers of the firm should be submitted, failing which Bidder's bid-offer would become invalid & same shall be rejected.

15.11	The Bidder should submit the details of agreements entered into with various Manufacturers/Partners/Sub-contractors for providing CAMC of VSAT Hub and VSAT terminals and their experience to meet the qualification & experience criteria.
15.12	A self-certificate stating that the Bidder is not presently blacklisted and hasn't been black listed by any institution of the Central/State Government in the past three years should be submitted.
15.13	The Bidder is requested to furnish documents to establish their eligibility for each of the above clauses. Relevant portions, in the documents submitted in pursuance of eligibility criteria mentioned above, should be highlighted. If tender were not accompanied by all the above documents mentioned, the same would be rejected. Undertaking for subsequent submission of any of the above document will not be entertained. However, NCS reserves the right to seek fresh set of documents or seek clarifications on the already submitted documents. All documents should be submitted electronically in PDF format. Upon verification, evaluation / assessment, if in case any information furnished by the Bidder is found to be false / incorrect, their bid shall be summarily rejected and no correspondence on the same shall be entertained.
15.14	The bid submitted by any bidder not fulfilling the eligibility conditions / criteria detailed above, will not be considered. Documentary evidence must be furnished against each of the above criteria. All documents must be signed by the authorized signatory of the bidder and properly to be indexed in the Technical Bid. Relevant portions, in the documents submitted in pursuance of eligibility criteria, should be highlighted

16. Bid Submission:

16.1	The Bidder has to quote for all items mentioned in Scope of the Services, as per Price-bid format given in **Annexure-VII & VIII**.
16.2	No deviations in terms & conditions of the tender document will be accepted in any case.
16.3	Uploading of bids on e-Procurement portal is essential requirement. Bids not submitted through e-Procurement portal will not be considered for tender evaluation. The bids submitted by fax/ E-mail / manually etc. shall not be considered. No correspondence will be entertained on this matter.
16.4	All the documents attached to the tender for considering offer are supposed to be complete in all respects. Therefore, it is important that all tender documents (scanned

	copies in PDF format) are duly filled in, duly signed-in and duly stamped, in all respects before uploading.
16.5	All the bids documents should be signed by the authorized signatory with company seal. All pages of the bid being submitted must be sequentially numbered by the Bidder.
16.6	NCS will not be responsible for any delay on the part of the Bidder in obtaining the terms and conditions of the tender notice or submission of the online bids.
16.7	Without EMD unless exempted, bid will be treated as cancelled.
16.8	Part-I (Technical Bid) and Part-II (Commercial Bid) should be uploaded in the prescribed format in the e-Procurement portal. Original Fixed Deposit Receipt (FDR) or Bank Guarantee (BG) towards EMD in one cover sealed and super scribed "EMD – for Offering of VSAT Services for 152 nos. of VSAT terminals due on 04.01.2021." should be submitted physically to Mr. Kamalesh Chowdhary, Meteorologist-A, Room No. 303, III Floor, Sat-Met Building, Mausam Bhavan Complex, Lodi road, New Delhi-03, Tel no. 011-43824593. However, the scanned copies of Bank drafts related to EMD, must be uploaded (PDF format) electronically (along with Technical Bid) on e-Procurement Portal (https://eprocure.gov.in).

17. Opening of Tenders:

17.1	**Opening of Tenders:** The purchaser shall open the tenders after the specified date/time and at the place as indicated in the NIT document. In case the specified date of tender opening falls on a holiday (or subsequently declared a closed day for the purchaser), then the tenders will be opened at the appointed time and place on the next working day. The bids downloaded by this office from CPP Portal will be available for the bidders automatically. The bidders need not come to this office as they can also download the opened bids directly from the CPP Portal. In case the bidders wish to come to this office during tender opening, they must bring an Authorization Certificate from their respective firms. The process of opening of the tenders in Two Bid System is as follows.
17.2	**First Stage**: The Technical Bids are to be opened in the first stage on/after the prescribed date and time. These Bids are scrutinized and evaluated by Technical Evaluation Committee (**TEC**) constituted by the competent authority with reference to parameters prescribed in the Tender Enquiry Document. The bidders whose Technical

	Bids are found responsive and acceptable will pass on to the second stage. The details of the bidders, whose Technical bids have been accepted, will be uploaded on the CPP Portal along with the Report of TEC. The date of opening of Financial/Price Bids will also be published.
17.3	**Second Stage**: In the Second Stage, the Price Bids of technically qualified bids only will be opened. The Price Bids will be scrutinized by Financial Evaluation Committee (**FEC**) constituted by the competent authority. The report of the FEC will decide the lowest bidder. This report will also be uploaded on CPP Portal. Supply Order will then be issued to the lowest bidder.

18. Scrutiny and Evaluation of Tenders:

18.1	**Unresponsive bids:** The tenders will be scrutinized to determine whether they are complete and meet the essential and important requirements, conditions etc. as prescribed in the Tender Enquiry Document. The tenders are liable to be treated as non-responsive and will be summarily ignored if following documents are not provided along with technical bids. a) Checklist (**Annexure-I**). b) Tender Acceptance Letter (**Annexure-II**) is not duly signed and stamped. (Bidder has to agree to accept all the terms & conditions of the Tender Enquiry Document) c) Tender Validity Period is shorter than the required period. d) Required EMD (Amount, Validity, etc.)/ Exemption document have not been provided. e) Bidder has not agreed to deposit the required performance security (In case of allotment of the tender). f) Copy of agreement of Bidder with its OEM with the precise relationship between them and nature of services which would be available for Bidder with OEM. Copy of this agreement must be attached with the tender. g) By any means/reason, the incomplete bid uploaded on e-procurement.gov.in shall also be treated as Unresponsive.
18.2	**Technical Evaluation:**
	a) A duly constituted Technical Evaluation Committee (TEC) will first select Bidders on the basis of eligibility criteria of this tender. The Bids conforming to the eligibility

	criterion will be considered for further evaluation b) If during the preliminary examination, the purchaser finds any minor deviation/ and/or irregularity and/or non-conformity in a tender, the purchaser may waive the same provided it does not constitute any material deviation and financial impact and, also, does not prejudice or affect the ranking order of the Bidder. Wherever necessary, the purchaser will convey its observation on such 'minor' issues to the Bidder asking the Bidder to respond by a specified date. If the Bidder does not reply by the specified date or gives evasive reply without clarifying the point at issue in clear terms, that bid will be liable to be ignored. c) Technical Evaluation Committee (TEC) will shortlist Technical Bids on the basis of technical parameters, offered technical solutions/products and their features. The TEC can make any enquiry/seek clarification from the Bidders on the offered Service Solution. In such a situation, the Bidder shall extend full co-operation. The Bidders can also be asked to give technical presentation/discussion on the offered solution, in a short period notice, as such the Bidders have to be ready for the same. d) During the detailed Technical Presentations/Discussions, Bidder has to ensure availability of appropriate specialist, along with required documentation for interacting with Technical Evaluation Committee. If the required specialist along with proper documentation is not made available by Bidders, then such defaulting Bidders are likely to be debarred from further tender evaluation process. e) Compliance statement in the form of **'Complied' or 'Not Complied'** shall be given against each term and specification mentioned in the tender document. The compliance statement as per **Annexure-VI** should contain the signature of the authorized person and the seal of the company. Any deviation should be mentioned / explained by the Bidder in Compliance Statement. The compliance statements should be supported by authentic documentation. Deviations in lower side will not be accepted. f) No enquiry shall be made by the Bidder(s) during the course of evaluation of the tender, after opening of bid, till final decision is conveyed to the successful Bidder(s). g) The names of technically short-listed Bidders will be announced to only those Bidders whose bids will qualify for opening of the Price/Financial/Commercial Bids.
18.3	**Financial Evaluation:** In the second stage, the Price Bids of technically qualified bidders

	only shall be opened for further scrutiny and evaluation. a) The Financial Bids of only those Bidders short-listed from the Technical Bids by TEC will be opened in the presence of their representatives on a specified date and time to be intimated to the respective Bidders, and the same will be evaluated by a duly constituted Finance Evaluation Committee (FEC). b) No enquiry shall be made by the Bidder(s) during the course of evaluation of the tender, after opening of bid, till final decision is conveyed to the successful Bidder(s). However, the Committee/its authorized representative and office of NCS can make any enquiry/seek clarification from the Bidders, which the Bidders must furnish within the stipulated time else bid of such defaulting Bidders will be rejected. c) If there is a discrepancy between the unit price and total price, The Unit Price shall prevail. d) The buy-back price of old VSAT Hub and other items shall be considered in evaluating the total price of the contract. The price of buy-back items shall be deducted from the quoted price. e) In case any charges not mentioned in the price bid, it will be treated as all the charges are free of cost for that item and included in the price bid. f) The Price Bid is separate for INCOIS and NCS. The combined total cost will be considered for deciding L1.

19. Earnest Money Deposit (EMD):

19.1	a) The Bidder shall furnish along with its tender, Earnest Money for an amount as detailed in the NIT b) The bidders who are registered on Tender submission date with National Small Industries Corporation, New Delhi, shall be eligible for exemption from EMD. Micro and Small Enterprises specified by Ministry of Micro, Small & Medium Enterprises (MSME) is exempted from the submission of Earnest Money Deposit (EMD).
19.2	EMD of an amount as shown in NIT has to be submitted through FDR/Bank Guarantee of any Scheduled Commercial Bank drawn in favour of "DDO, National Centre for Seismology, New Delhi", physically **before 1500hrs before the date/time mentioned in NIT. Otherwise, bid will be rejected. However, the**

	scanned copy of FDR/BG along with the Bid must be uploaded electronically on e-Procurement site.
19.3	The EMD shall be valid as per details given in NIT.

20. Refund of EMD:

20.1	In the case of those Bidders who fail to qualify the eligibility criteria, the Earnest Money Deposit (EMD) will be refunded without any interest accrued immediately thereafter.
20.2	In the case of those Bidders whose technical bids do not qualify, the EMD will be refunded without any interest accrued within one month of the acceptance of TEC's recommendations.
20.3	In the case of those Bidders whose technical bids have qualified but are not selected, the EMD will be refunded without any interest accrued within one month of the acceptance of Financial Evaluation Committee's (FEC) recommendations.
20.4	Bidder whose bid was accepted and selected, the EMD will be refunded without any interest accrued after the submission of Performance Security/Guarantee.
20.5	The clause Encashment/release of FDR/BG requires clearance certificate from the main Purchaser i.e., Director, National Centre for Seismology, New Delhi must be mentioned in issued FDR/BG by Bank.
20.6	Application of request for refund of EMD is given at **Annexure-IV**

21. Forfeit of EMD:

21.1	Earnest money of a Bidder will be forfeited, if the Bidder withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender or if it comes to notice that the information/documents furnished in its tender is incorrect, false, misleading or forged without prejudice to other rights of the purchaser.
21.2	The successful Bidder's EMD will be forfeited without prejudice to other rights of Purchaser if supplier fails to furnish the required performance security within the specified period detailed in Clause 22.1.
21.3	Firm shall have to extend the validity of EMD if extension of tender validity is agreed on the request of purchaser in exceptional cases.

22. Performance Security:

22.1	Successful Bidder shall submit performance security within thirty (30) days from date of dispatch of supply order/award of contract by the purchaser or within twenty-one (21) days from the receipt of supply order by the supplier whichever is earlier.
22.2	The purchaser may consider annulment/cancellation of supply order/ award of contract if performance security not received in stipulated time.
22.3	There is no relaxation/exemption in submitting of Performance Security.
22.4	The supplier shall furnish performance security to the purchaser for an amount equal to ten percent (10%) of the total value of the contract (excluding optional items), valid up to sixty (60) days beyond the CAMC period. The format of bank guarantee to be submitted as performance security is given in **Annexure-V**.
22.5	The successful Bidder will have to deposit Performance Security within specified time limit given above, equivalent to 10% (Ten Percent) of the total value of the work order, in the form of FDR or Bank Guarantee from a Nationalized/ Scheduled Commercial Bank in favour of "DDO, National Centre for Seismology, New Delhi". If the Security Deposit is not paid within time specified, the Earnest Money Deposit of the Bidder shall be forfeited. No interest will be payable for "Performance Security".
22.6	Performance Security has to be submitted irrespective of its registration DGS&D/NSIC etc. Performance security is not relaxed to any supplier/service provider. Submission of Performance Security is must for all shortlisted suppliers/service providers.
22.7	It shall be in any one of the forms namely Fixed Deposit Receipt or Bank Guarantee drawn/issued by a commercial bank doing Government business in the prescribed form in favor of the purchaser. In the event of any amendment issued to the contract, the supplier shall, within twenty-one (21) days of issue of the amendment, furnish the corresponding amendment to the Performance Security (as necessary), rendering the same valid in all respects in terms of the contract, as amended.
22.8	On completion of the CAMC period, the Performance Bank Guarantee without any interest accrued shall be released after ascertaining that satisfactory support that has been provided during CAMC period. In case, it is found that appropriate satisfactory support has not been provided by the Bidder, NCS will ensure that the

	prescribed penalty for the default in service has been realized or shall be recovered from the Bidder out of already due payments.
22.9	In the event of non-providing the services, the Performance Security shall be forfeited to the extent the services are not provided. Further, if the purchaser has to get the services from any other Bidder because of failure to provide in full or part by the successful Bidder, the difference in payment may be made from such amount. Also, the amount retained towards "Performance Security" is subject to forfeiture if it is found at any point of time during the period of contract that the services offered by the supplier are not in conformity to the accepted specifications mentioned in RFP by the purchaser.
22.10	In case the Bidder backs out of the contract in mid-stream without explicit consent of the NCS, the PBG will stand forfeited.
22.11	On completion of the tenure of contract, the Performance Security without any interest accrued shall be released after ascertaining that satisfactory support that has been provided during CAMC period. In case, it is found that appropriate satisfactory support has not been provided by the Bidder, NCS will ensure that the prescribed penalty as per clause nos. 22.9 and 22.10 for the default in service(s) (which explained in RFP Section) has been realized or shall be recovered from the Bidder out of already due payments from PBG.
22.12	After selection of the recommended bidder, two work orders will be issued separately, each by NCS and INCOIS for their respective work components. The payments will be made by the two organizations for their respective work components as per the terms and conditions of the contract. Performance Bank Guarantee (PBG) is also required to be submitted separately to NCS and INCOIS as per their work orders. The work components of each organization are detailed in price bid formats.

23. Warranty:

23.1	Warranty for a period of 12 months from the date of site acceptance of the systems at respective sites, in respect of upgraded parts of VSAT antenna systems. Accordingly, the CAMC price is to be quoted.

24. Payment Terms:

24.1	No advance payment will be made in any case.
24.2	The upgradation cost of VSAT terminals will be paid immediately after successful commissioning of the VSAT terminals. The Invoice should be submitted with the Test Report of NCS or INCOIS officials.
24.3	Payment for Services of AMC of VSAT terminals would be made on quarterly basis on completion of quarterly period. Final payment of completed quarterly period based on the performance report of the NCS or INCOIS (as the case may be) and deduction of penalty charges, if any; TDS etc.
24.4	Payments shall be subject to deductions of any amount for which the Bidder is liable under the Service Contract. Further, all payments shall be made subject to deduction of TDS (Tax Deduction at Source) as per the Income-Tax Act, 1961 and any other applicable taxes; and also, penalty charges due to deficiency in service (if any).
24.5	All payments will be made through RTGS only. In this connection, Bidder shall submit particulars of his Bank Account details – a) Account Number b) Branch Name and Address c) IFS code d) MICR number e) PAN etc.
24.6	Bidder needs to submit monthly performance report duly certified by the NCS/INCOIS user along with the bill and Project Manager / Technical Manager of this contract.
24.7	Bidder need to submit copy of Preventive Maintenance (PM) (to be done once in six-month period for each VSAT terminal) certificate duly certified by NCS or INCOIS along with bill.
24.8	During the AMC period the Bidder is expected to maintain the services as per RFP Service level requirements mentioned in RFP, failing which the penalties will be charged by NCS and payments are made after adjusting the penalties for not meeting the service levels. A Service Level Agreement is required to be signed within two months from the date of issue of Supply Order.

25. Duration of contract:

25.1	a) Initially the contract will be valid for one year from the date of issue of Supply Order for respective components of NCS and INCOIS but extendable to another two years or more under the same payment and terms conditions b) The bidder should have to agree for the extension of the contract (from the date of expiry of the contract) for a period not less than ONE year and such extension can be done any number of times. In case of the extension of the contract, the same terms and conditions of this RFP shall follow unless stated otherwise. Bidder needs to submit Certificate of compliance for the same.

26. Arbitration:

26.1	If dispute or difference of any kind shall arise between the purchaser and the supplier in connection with or relating to the extension of contract, the parties shall make every effort to resolve the same amicably by mutual consultations. If the parties fail to resolve their dispute or difference by such mutual consultation within twenty-one days of its occurrence, then, unless otherwise provided in the "List of requirements/ technical specifications" section either the purchaser or the supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided the applicable arbitration procedure will be as per Indian Arbitration and Conciliation Act, 1996. In the case of a dispute or difference arising between the Purchaser/ Consignee and all suppliers relating to any matter arising out of or connected with the contract, such dispute or difference shall be referred to the sole arbitration of an officer, appointed to be the arbitrator by the Director General of Meteorology. The award of the arbitrator shall be final and binding on the parties to the contract. Each party shall bear its own cost.
26.2	The venue of arbitration shall be the place from where the contract has been issued, i.e., New Delhi. The contract shall be interpreted in accordance with the laws of India.

27. Fall Clause:

27.1	The bidder undertakes that it has not supplied/is not supplying similar products/systems or subsystems at a price lower than that offered in the present bid in respect of Ministry/Department of the Government of India or Public Sector Unit (PSU) and if it is found at any stage that similar products/systems or subsystems was supplied by the BIDDER to any Ministry/Department of the Government of India or Public Sector Unit (PSU) at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and difference in the cost will be adjusted from their bills, or it would be refunded by the BIDDER to the BUYER (National Center for Seismology) if the contract has already been concluded.

28. Force Majeure Clause:

28.1	Force Majeure means an event beyond the control of the supplier and not involving the supplier's fault or negligence and which is not foreseeable. Such events may include, but are not restricted to, acts of the purchaser either in its sovereign or contractual capacity, wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes, lockouts, and freight embargoes. If there is delay in performance or other failures by the supplier to perform its obligation under its contract due to event of a Force Majeure, the supplier shall not be held responsible for such delays/failures. If a Force Majeure situation arises, the supplier shall promptly notify the purchaser in writing of such conditions and the cause thereof within twenty-one days of occurrence of such event. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event. If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of Force Majeure for a period exceeding sixty days, either party may at its option terminate the contract without any

	financial repercussion on either side. There may be a Force Majeure situation affecting the purchase organization only. In such a situation the purchase organization shall take up with the supplier on similar lines as above for further necessary action.

29. Termination of contract by the Purchaser:

29.1	From the time of submission of tender to the time of awarding the contract, if a Bidder needs to contact the purchaser for any reason relating to this tender enquiry and / or its tender, it should do so only in writing.
29.2	In case a Bidder attempts to influence the purchaser in the purchaser's decision on scrutiny, comparison & evaluation of tenders and awarding the contract, the tender of the Bidder shall be liable for rejection in addition to appropriate administrative actions being taken against that Bidder, as deemed fit by the purchaser.
29.3	The purchaser, without prejudice to any other contractual rights and remedies available to it (the purchaser), may, by written notice of default sent to the supplier, terminate the contract in whole or in part, if the supplier fails to deliver any or all of the goods or fails to deliver the VSAT services satisfactorily as per terms of the contract or fails to perform any other contractual obligation(s) within the time period specified in the contract, or within any extension thereof granted by the purchaser. In the event of the purchaser terminates the contract in whole or in part, the purchaser may procure goods and/or services similar to those cancelled, with such terms and conditions and in such manner as it deems fit and the supplier shall be liable to the purchaser for the extra expenditure, if any, incurred by the purchaser for arranging such procurement. If the supplier becomes bankrupt or otherwise insolvent, the purchaser reserves the right to terminate the contract at any time, by serving written notice to the supplier without any compensation, whatsoever, to the supplier, subject to further condition that such termination will not prejudice or affect the rights and remedies which have accrued and / or will accrue thereafter to the purchaser.
29.4	NCS and INCOIS with regard to their respective work components, reserve the right to terminate the contract at any time by giving three months notice, if the VSAT services mentioned in the RFP, rendered by the Bidder is not found satisfactory.

SECTION-II

REQUEST FOR PROPOSAL (RFP)

FOR

Upgradation of VSAT terminals, Offering of VSAT Satellite Bandwidth, Backhaul connectivity and Comprehensive Annual Maintenance Contract (CAMC) of 152 nos. of VSAT terminals

2.1 Background Details of Existing VSAT Network

2.1.1	National Centre for Seismology, is an attached office under Ministry of Earth Sciences (MoES) and is a nodal agency of Government of India for earthquake monitoring and related activities in the country. NCS is maintaining the Indian Seismic and GNSS Network (ISGN) since April 2018 which was earlier established and maintained by the INCOIS in the year 2012.
2.1.2	Under the ISGN project, the seismic and GPS observatories spread across the country, have been integrated through VSAT communication to the data centers at Indian National Centre for Ocean Information Services (INCOIS), Hyderabad and National Centre for Seismology (NCS), New Delhi for receiving real-time continuous ground motion data from these observatories to meet the operational activities of data centers at INCOIS and NCS.
2.1.3	At present, the ISGN Network comprises of two VSAT Hubs - one is located at INCOIS Office campus, Hyderabad (Telangana State); and second at National Centre for Medium Range Weather Forecasting (NCMRWF) office campus, Sector-62, Noida (U.P); and about 152 numbers of VSAT terminals installed at various Seismological and GPS field observatories spread across Indian mainland and A&N Island regions of the country, and serving the Emergency Operational Centers (EOCs) located in A&N Island.
2.1.4	The VSAT network, which is the product of OEM: M/s Gilat, Israel, was supplied by M/s Nelco Ltd, Hyderabad/Mumbai during 2011-12 and is presently under Comprehensive AMC contract with the same firm till March 2021.
2.1.5	a) The network operates in Ext-C band using GSAT-12 satellite with VSAT Hub at INCOIS, Hyderabad; and GSAT-16 satellite with the VSAT Hub at NCMRWF, Sec-62, Noida. Presently there are about 156 VSAT terminals spread across the country in the network. The VSAT Hub and terminals based on M/s Gilat SkyEdge-IP DVB-S platform are declared as end-of-life product by December 2020. However, the VSAT Network is under Comprehensive AMC contract with M/s Nelco Limited, Mumbai till March 2021. b) NCS is presently holding the VSAT captive CUG license from the DoT of the two Hubs and VSAT terminals. These licenses will be closed after migrating to the commercial shared Hub of the bidder.
2.1.6	a) At present, all the stations have been pointed to GSAT-12 and configured to receive real time continuous data at VSAT Hub, INCOIS, whereas VSAT Hub at NCMRWF, Noida is in redundant mode and in fully working condition. The detail of equipment installed at

	each Hub is enclosed as **Annexure-IX** and **Annexure-X**. The list of equipment which are installed with the VSAT terminal at each field station is enclosed as **Annexure-XI**. b) At present, equipment installed at each of VSAT Hub (at INCOIS, Hyderabad and NCMRWF, Noida), and all field station 152 VSAT terminals are working satisfactorily. c) The data transfer rate from each VSAT terminal depends upon the type of recorder connected to it. The details of existing data transfer rate (inclusive of IN and OUT bound) for different type of recorder, in the present set-up, is given below: i) The data transfer rate of a single GPS station is 10 kbps. ii) The data transfer rate of a single SEISMIC station is 10 Kbps. iii) The data transfer rate of co-located SEISMIC+GPS/SMA station is 20 Kbps iv) The data transfer rate of co-located GPS+SMA station is 30 Kbps. vi) Two dedicated voice channels for VoIP connection approximate bandwidth of 64kbps inbound and 64kbps outbound for all Emergency Operational centers EOC's (7 nos.) d) At present, the total dedicated bandwidth utilization is 2200kbps with regard to NCS. e) Similarly, in case of INCOIS, the total dedicated BW utilization is 1300kbps (90 % Inbound and 10% Outbound of total CIR). It also includes the two dedicated voice-channel for VoIP connection approximate bandwidth of 64kbps inbound and 64kbps outbound for 07 Emergency Operational centers EOC's mentioned at S.no 31 to 37 of **Annexure-XIII** where VoIP phones are already available. In the same voice channel, the data channel should be also configured/allowed to operate simultaneously. However, the priority has been set to voice channel when it becomes active. f) All the above data rates are inclusion of both IN and OUT bound of VSAT Hub, in general, OUT-bound is very small.
2.1.7	Out of total 152, 84 nos. of VSAT terminals are located in Mainland, 24 are in Himalaya and NE region; and 44 are in A&N Islands. At present INCOIS owns 42 VSAT terminals located in A&N Islands and remaining 110 by NCS. Further, INCOS would like to shift 5 existing stations to their new observatories in A&N Islands details are given in **Annexure-XIII {List of stations under INCOIS (42 nos.)}**. The location details with the postal address of 152 numbers of VSAT terminals are enclosed as **Annexure-XIII**.
2.1.8	Presently, the VSAT-Hub at INCOIS is receiving data from 152 observatories, which is being re-transmitted simultaneously to the Operational Centre of NCS Head Quarters (NCS HQ), Lodhi Road, New Delhi through 4Mbps terrestrial MPLS connectivity hired from BSNL/MTNL.

	This BSNL/MTNL connectivity does not come under the scope of this present tender.
2.1.9	The VSAT terminals at each field station are presently operating with solar power supplied from the battery-bank of 4 batteries (each of 12V/100AH) which are being mainly charged through solar panels. Apart from solar power, the Maintenance Free Batteries are also being charged through Battery Charger (24V) connected to 230V AC main supply, in case solar power is insufficient to charge the batteries.
2.1.10	All the operating license of VSAT Hubs and VSAT terminals are presently issued to NCS and will be closed /surrendered after migrating to the shared Hub of the successful bidder.
2.1.11	**Existing Power Supply:** At present, VSAT modem at majority field sites are powered by DC-DC adapter from the Maintenance Free battery-bank which is in-turn charged through solar panels and online-float-type-battery-charger (DC 24V). At very few sites, VSAT modem is operating through an adapter connected to UPS.
2.1.12	Now, under this present purchase; NCS and INCOIS, now-on-wards called as Purchaser, has decided to close the two Hubs (at INCOIS and NCMRWF) and migrate all existing field VSAT terminals (152 numbers) to the shared Hub configuration of commercial service provider of the selected Bidder.
2.1.13	After selection of the recommended bidder, two work orders will be issued separately, each by NCS and INCOIS for their respective work components. The payments will be made by the two organizations for their respective work components as per the terms and conditions of the contract. Performance Bank Guarantee (PBG) is also required to be submitted separately to NCS and INCOIS as per their work orders. The work components of each organization are detailed in price bid formats.

2.2 Scope of the Services:

i. **Upgradation** of 152 VSAT terminals.
ii. VSAT bandwidth of **2200 Kbps** for **110 VSAT** terminals for **NCS**.
iii. VSAT bandwidth of **1300 Kbps** for **42VSAT** terminals for **INCOIS**.
iv. **2** Nos. of **MPLS** lines of **4Mbps** connectivity in redundant mode from two different service providers from VSAT service provider's Hub to **NCS** HQ New Delhi.
v. **2** Nos. of **MPLS** lines of **4Mbps** connectivity in redundant mode from two different service providers from VSAT service provider's Hub to **INCOIS**, Hyderabad.
vi. **CAMC** of all VSAT equipment's, VSAT connectivity, MPLS line connectivity, power system (Solar panel, solar charge controller, interconnecting cables, connectors, batteries), etc.
vii. Installation, Dismantling, Relocation of VSAT Terminals.
viii. Buy-back of old/obsolete items.

2.3 Bidder's Obligation: The following are the details of services required

2.3.1	a) The Bidder should carry out the upgradation of all 152 VSAT terminal spread across the country to the new DVB-S2 or equivalent or better technology. The work involves the supply, installation and commissioning of the VSAT parts like IDU, BUC, LNBC etc. which required to be replaced to make the VSAT terminal compatible to the new technology. b) The remaining existing parts like antenna, its mount, IFL cables etc. which do not require replacement and continue to be compatible with the new technology, need not to be replaced. c) The obsolete parts of the field VSAT terminals are to be quoted under buy-back arrangement and it's mandatory for the bidder to quote for the same." d) A simple block diagram of the tender requirement is shown in **Annexure-XIV.**
2.3.2	a) The Bidder on behalf of NCS/INCOIS shall collect information/data and prepare documents for the remote VSATs for obtaining DoT/ WPC / SACFA Clearances, submit at DoT/regulatory agencies for getting required licenses / regulatory clearances from DoT / WPC / SACFA/NOCC, due to the migration of VSAT services to the selected Bidder / Service Provider. b) Bidder is responsible for all above licenses to be obtained from DoT and other regulatory authorities for the operation of VSAT network under this contract.
2.3.3	a) The complete VSAT network should operate in a shared-Hub, extended-C band with dedicated closed user group (CUG) satellite bandwidth of 4500Kbps (including IN and OUT bound) from Indian satellite, for on-line transfer of data from field stations to the shared Hub of the Bidder. b) The date transfer rate for Emergency Operational Centres (7 nos.) is to be fixed at 128Kbps (dedicated voice channels of 64 kbps IN and OUT bound each)with the requirements of VoIP detailed under Clause no.2.1.6 (e) and 2.3.6(d). c) In future, INCOIS shall add the Tsunami-sirens to the VSATs in the existing 35 stations of INCOIS in Andaman Nicobar Islands. The Bidder should support the integration of sirens and extra bandwidth charges if any will be paid as per quoted. The implementation of Tsunami-siren project is depicted in **Annexure-XV.** d) The Inbound and outbound bandwidth may vary as per the field requirement; hence the

	Bidder should flexible to modify the Inbound and outbound configuration with simple E-mail communication/request from INCOIS and NCS to the Project Manager. e) INCOIS /NCS will have right to increase or decrease the bandwidth upto 50% at any time during the contract period. INCOIS/NCS reserves the right to modify the bandwidth as per the requirement in future. The above modifications need to be carried out at free of cost by the Bidder. However, the charges towards additional bandwidth utilization shall be paid by the Purchaser.
2.3.4	Bidder is responsible for the transmission of the recorded data from all 152 field VSAT terminals to the shared hub of the Bidder and subsequently, the data is re-directed simultaneously to two Data Centers locate at National Center for Seismology (NCS), Mausam Bhavan, Lodi Road, New Delhi-03 and Indian National Centre for Ocean Information Services (INCOIS), Hyderabad through MPLS link, for real-time monitoring of earthquake activity in the country and tsunamigenic earthquakes.
2.3.5	a) The Bidder is required to commission two backhaul links (primary and secondary) from the bidder's VSAT hub to each of Operational Centre of NCS and INCOIS using necessary equipment like routers, modems, switches, cables etc. So, there are total 4 links from the VSAT Hub of Bidder, 2 each for NCS and INCOIS. All the required accessories should be provided by the Bidder for successful commissioning of the link on turn-key basis. b) The initial bandwidth of each of the backhaul MPLS links shall be **4Mbps for NCS**, and **4Mbps for INCOIS**. c) The backhaul link may be either point-to-point MPLS link. d) Bidder should transmit the data received at shared-Hub, simultaneously to the data centers of NCS HQ, New Delhi and INCOIS, Hyderabad pertaining to their VSATs through the terrestrial MPLS links. e) For each operational centre, the backhaul links (primary and secondary) MUST be from two different service providers. f) Laying of cables up to the device of NCS and INCOIS shall be the responsibility of the Bidder. g) The primary and the secondary backhaul links MUST be configured in such a way that in case the primary link goes down, the secondary link should automatically get activated.

	h) The sharing of the backhaul links shall not be permitted unless prior approval is taken from the Purchaser. The sharing permission, issued by the Purchaser on the receipt of a written request from the selected bidder, may be either on a temporary or on a permanent basis. The decision for the same shall be at the sole discretion of the Purchaser. i) Maintenance and upkeep of all network equipment of backhaul connectivity provided by bidder shall be the responsibility of the selected bidder. The Purchaser will provide necessary power (power supply will be provided through UPS) and proper earthing for equipment. j) Backhaul links should be commissioned by the selected bidder **within 4 weeks** from the date of issue of Supply Order at NCS and INCOIS. k) The charges relating to backhaul connectivity and VSAT services shall be paid to the Bidder. l) Comprehensive AMC of the above two links during the contract period. m) Configuring the networking components to ingest the data into the user system at Purchaser sites (NCS and INCOIS).
2.3.6	a) For each VSAT terminal, committed information rate (CIR) will be around 10kbps. b) The INCOIS VSAT network should have allocated dedicated bandwidth of 1300kbps. The NCS VSAT network should have allocated dedicated bandwidth of 2200kbps.Data latency between the field stations to each of the CRS should be within 60 seconds. c) For INCOIS: Two Dedicated voice channels (64kbps inbound and 64kbps outbound) should be assigned within INCOIS dedicated bandwidth of 1300kbps. The VoIP-RTP Codec G.729AB should be enabled to receive the VoIP SIP server packets. The dedicated voice channels should be sharable among 07 EOC centers established at A&N Islands. The VSAT services should support existing VoIP services through the existing VoIP SIP server, which are being used for VSATs located in A&N Islands. **d)** At the time of Integration of VSATs with tsunami-sirens the S.no 31 VSAT at State Control room (SCR) PortBlair will require double hop transmission (both Tx and Rx) from the sirens installed at A&N. List of tentative siren-locations are given in **Annexure-XIII {List of stations under INCOIS (42 nos.)} and depicted in Annexure-XV.** **e)** The Bidder should configure the VSAT in such a way that the Tsunami-siren server

	available at SCR PortBlair should be able to unicast, broadcast the siren/trigger simultaneously from the SCR VSAT at PortBlair to the remaining sirens. **f)** After the sirens are integrated with VSATs the highest priority should be set to this channel of 128kbps dedicated voice & data channel wherein the siren server data transmission from SCR VSAT should supersede all the existing connections. **g)** The Bidder should coordinate/support during the demo of the Tsunami-siren with VSAT. INCOIS will coordinate with both the VSAT Bidder and tsunami-siren Bidder for this.
2.3.7	a) Configuring the network for receiving continuous data from all 152 field stations to each of the Data Centers by the above options, so that no data gaps in continuous waveform data is being received at each Data Centers (at NCS HQ and INCOIS). b) The in-coming data must be continuous waveform for monitoring earthquake activity. Data with gaps and broken is of no use. So, Bidder must ensure continuous flow of data to the operational centres of NCS and INCOIS from each VSAT.
2.3.8	a) After upgradation, the firm should provide comprehensive maintenance of VSAT equipment (which include antenna and its mounting rods, IDU, ODU, IFL cables, power-supply-adaptor of IDU, interconnecting cables, conduits, connectors, Solar Panels, Solar Charge controller, battery charger, maintenance-free batteries etc.) installed at each field station. b) Replacement of battery at field site when it becomes weak is the responsibility of the Bidder. c) Each and every field VSATs should be in operation without any down-time is the responsibility of the Bidder.
2.3.9	a) Bidder should preferably maintain the same IP network addresses which are currently in use at all the 152 field VSAT terminals. In case Bidder wants to change the IP details, then Bidder should make necessary changes in the configuration of Data Acquisition System installed at each field site. The necessary support and application software to change the parameters shall be provided by the Purchaser. b) Bidder is responsible for the IP network configuration to make the smooth flow of data simultaneously at INCOIS and NCS HQ from all 156 field station VSAT terminals. c) Bidder should provide at least three or four IPs to be configured in the recorder with a gateway IP of IDU. At most sites, two IPs are sufficient.

2.3.10	In case the Indian satellite is to be migrated from one to another in future, VSAT terminal orientation and configuration etc. at each and every site shall be the responsibility of the Bidder.
2.3.11	Bidder is responsible for maintenance of existing chemical electrical-earthing of VSAT terminal at all field stations.
2.3.12	The list of existing of VSAT hubs Equipment at INCOIS, Hyderabad and NCMRWF, Noida specified at **Annexure-X and XI** need to be dismantled and procured by the Bidder under **buy-back** arrangement. The price of buy-back of equipment at each HUB should be quoted separately. Similarly, the old items like ODU, IDU, antenna components at each of 156 VSAT terminals, which were replaced with DVB-S2 technology, are to be procured by the Bidder under buy-back arrangement. The Bidder should remove the buy-back equipment from the office premises of INCOIS and NCMRWF within 6 months from the date of issue of supply order. The buy-back price will be considered for deciding L1.
2.3.13	a) The Bidder should re-locate 5 (Five) numbers of existing VSATs (1.8m antenna) including solar power system, located in A&N Islands to the selected new sites of INCOIS. These new five sites are also located in A&N Islands. The details of these new 5 sites of INCOIS are given in **Annexure-XIII {List of stations under INCOIS (42 nos.)}.** **b)** The re-location work includes the shifting (dismantling, packing & transportation) and re-installation of VSAT, solar power system, preparation of new chemical earthing, a new lighting arrestor conduiting (Metal conduit) of IFL cable, solar power cable, ethernet cables, connectors and all interconnecting cables and its accessories. It is further detailed in **Clause no. 2.3.19 and 2.3.20** c) VSAT feasibility site survey and minor civil works for VSAT and solar power system installation as per the site requirement. d) Commissioning of VSAT at each of 5 sites, with connectivity to Data Centre of INCOIS, Integration of seismic/GPS/GNSS equipment with VSAT and continuous streaming of data to INCOIS data center through the VSAT shared hub. e) The Bidder is solely responsible (at each of 05 sites) for all the site preparation work such as chemical earthing, providing AC power point (if required) within the room, laying of IFL, power cables in conduit metal pipes, antenna platform, solar panels mounting for the installation of VSAT & solar equipment at each site.
2.3.14	Bidder must perform two maintenance visits to each site in one calendar year for checking the health of the VSAT, battery, solar systems etc. and their up-keep. The Service Report

	providing the details of works carried out is required to be submitted to the Purchaser.
2.3.15	The Bidder should nominate a Project Manager, who is the nodal contact point for all technical matters relating to the project. He shall have the overall responsibility for coordination of the work in the phases of the upgradation, migration to the shared Hub, configuration of the site, technical problems in MPLS connectivity, etc. He shall act as a focal point for all correspondence, provide the necessary inputs with schedules and Progress reports, and assist NCS and INCOIS during regular engineer visits. He should also provide necessary inputs detailed under clause 2.3.11 and 2.3.12. All the maintenance issues will be monitored and handled by him for a speedy resolution of the technical problems. In case of Bidder proposes the change of Project Manager (Focal point), then Bidder must inform NCS and INCOIS before one month about the change. The Project Manager shall provide site-wise uptime along with bandwidth utilization on monthly basis in the form of a report.
2.3.16	If Data Acquisition System at any Field-site goes faulty and its revival seems to be not possible in near future. In such cases, NCS/INCOIS will inform about the situation. In such cases, the Hardware maintenance and VSAT bandwidth charges for that particular VSAT terminal(s) would not be paid. The Project Manager (Focal Point) will look into all such issues.
2.3.17	Bidder should quote for one unit of supply, installation and commission of solar system and one unit of battery charger for one field VSAT terminal, if desired by the Purchaser for new installations.
2.3.18	Bidder should quote for Iron-caging around VSAT antenna and solar panels to protect from monkey menace, in each region of operation. The quote should be for one field station located in each region of operation.
2.3.19	a) Bidder is responsible for re-location of VSAT terminal and its accessories including solar power system and battery bank, if required by the Purchaser. The firm should quote for dismantling and packing of the material from the existing site; re-installation and commissioning of VSAT and its accessories at new site including Chemical-electrical-earthing at new site. The transportation of the material to the new site is the responsibility of the Bidder. The transportation charges shall be paid to the Bidder as per actual. b) The transit insurance is to be borne by the bidder during shifting of the material and the same will be reimbursed upon submission of the invoices.
2.3.20	Bidder should quote for re-location of VSAT including all accessories like battery, solar

	panels, VSAT-antenna-iron-caging etc. New electrical-earthing (chemical) and fully commissioning at the new site, if Purchaser desires to re-locate the existing VSAT system from one site to another. It may be within city premises / a state /or any part of the country.
2.3.21	Any addition of VSAT stations by NCS and INCOIS should be done in the dedicated bandwidth assigned / earmarked for NCS & INCOIS only. In case of the expansion of the network where the assigned bandwidth is exhausted the additional bandwidth is to be assigned with the same QoS. Note: The Inbound and outbound bandwidth may vary as per the field requirement; hence the Bidder should flexible to modify the Inbound and outbound configuration with simple e-mail communication/request from INCOIS and NCS.
2.3.22	INCOIS has warranty for the 24 nos. of Morning-star solar-charge-controller till 30/11/2022 for the stations s.no.1 to 24 attached in the **Annexure-XIII {List of stations under INCOIS (42 nos.)}**. For above 24 stations INCOIS have 5 spares at Port Blair.
2.3.23	At the time of issue of Notice Inviting Tender (NIT), the total number of VSAT terminals is 152. This number may slightly increase or decrease at the time of issue of Supply Order. The locations of VSAT terminal may slightly change due to re-location of sites from one part of the country to another site.
2.3.24	The equipment/devices/links required to make the data reception at NCS and INCOIS, shall be supplied and commissioned at sites specified by the Purchaser on turn key basis. Maintenance and upkeep of all VSAT network equipment including battery, solar panel and its accessories, backhaul connectivity provided by bidder, shall be the responsibility of the selected bidder.
2.3.25	The bidder should provide the routing mechanism for transmission of data from INCOIS and NCS to the field VSAT through the VSAT hub and vice versa. The routing should support both TCP/IP, UDP, SIP, VoIP protocols, etc. as certain servers (SIP server, EDB server, Proxy server and EQAlert server) at INCOIS need to have connectivity to the remote VSATs. The hub to VSAT transmission data rate is already included for the VSATs as mentioned in Section point 2.3.3. The transmission to VSATs from INCOIS is not continuous but depends on utility and usage but availability should be 24x7.
2.3.26	The ON Site comprehensive AMC covers keeping the VSAT with the optimum level for the CW signal, co polarization and cross-polarization value.

2.4 BUY-BACK of old items, CAMC of VSAT terminals with solar power, batteries, iron-caging, electrical-earthing & Penalty Charges

2.4.1	a) The Bidder should **buy-back** of all hardware & software of existing Gilat's SkyEdge IP DVB-S system VSAT Hub at two sites, obsolete items which were replaced at VSAT terminals at 152 sites and spares of old technology. Desirous bidders may visit VSAT Hub location at Noida or at Hyderabad with prior intimation; and VSAT terminal location at INCOIS or NCS HQ or Ridge, near Delhi University north campus, Delhi; or at any location among 152 sites, with prior appointment, to check the equipment installed. To do so, Mr. Ravi Kant Singh, Scientist-E, National Center for Seismology, Mausam Bhavan, Lodi Road, New Delhi-03, may be contacted at Tel nos. 011-43824569 OR Mr. V. Venugopala Rao, Scientist-E, INCOIS, Hyderabad Tel No. 040-23886096. b) INCOIS is having the stock of 06 sets each (at Hyderabad), 10 sets each (at PortBlair), of LNB, BUC, and IDU of DVB-S technology which were procured as spares. Also, there are 3 complete set of VSAT terminal, are as spares lying at each site at PortBlair, Srinagar, and Gulmarg. These sets are also to be considered under buy-back while quoting by the Bidder/Bidder. c) The obsolete parts (which left after upgradation) of the field VSAT terminals are to be quoted under buy-back arrangement and it's mandatory for the bidder to quote for all buy-back items.
2.4.2	a) After selection of the recommended bidder, two work orders will be issued separately, each by NCS and INCOIS for their respective work components. The payments will be made by the two organizations for their respective work components as per the terms and conditions of the contract. Performance Bank Guarantee (PBG) is also required to be submitted separately to NCS and INCOIS as per their work orders. The work components of each organization are detailed in price bid formats given at **Annexure VII for NCS; and Annexure-VIII for INCOIS.** b) The payment terms remain the same as per tender document. c) The contract will be awarded to the bidder who is technically qualified and the lowest price for the whole part of the contract; i.e. sum of prices quoted for NCS and INCOIS. d) The Performance Bank Guarantee (PBG) need to be submitted to the respective organizations separately against each work order issued by INCOIS and NCS. Further Service Level Agreement (SLA) is to be executed with regard to each work order with each Institute/Organization, within one week of issue of Supply Order.
2.4.3	Bidder should initially establish back-haul connectivity between Bidder's VSAT Hub and Data

	Centers of NCS and INCOIS before proceeding to the upgradation of VSAT terminals.
2.4.4	Bidder should carry out the upgradation as per the priority of work given below: a) Commissioning of backhaul MPLS as detailed at Clause 2.3.5 (j) i.e., **within 4 weeks** from the date of issue of Supply Order at NCS and INCOIS. b) Upgradation of VSATs of 78 stations of NCS and its data transmission to NCS HQ and INCOIS, Hyderabad c) Upgradation of 37 VSAT terminals of INCOIS and its data transmission to NCS HQ and INCOIS, Hyderabad d) Re-location and upgradation of 5 VSATs in A&N Islands. e) Upgradation of remaining VSAT terminals and its data transmission to NCS HQ and INCOIS, Hyderabad. f) The Bidder should plan above works preferably to be executed simultaneously with no or least downtime.
2.4.5	a) The overall UP TIME of the network committed must be 99.9% on 24 hrs, seven day of a week and 365 days. b) The functioning of the network is essential to meet the operational requirement for real-time monitoring of earthquake activity of tsunamigenic potential; therefore, even brief downtime of the whole network is not acceptable. Hence, successful Bidder has to execute the whole job of migration and make the seismic telemetry network MUST be operational within one month from the date of issue of purchase order so that continuous data should be made available simultaneously at Data Centers of NCS and INCOIS: c) Successful Bidder has to execute the complete job and make the 152 VSAT terminals and back-haul link operational as envisaged above **in one month time** from date of issue of supply order as detailed in the delivery schedule. d) The VSAT bandwidth charges for a station should be from the date of commissioning i.e., from the date of establishment of connectivity and data reception at INCOIS and NCS.
2.4.6	The Bidder is required to undertake the Comprehensive AMC of the 152 field VSAT terminals with solar power accessories in existing power, environmental and earthing conditions, as is where is basis; and ensure that the configuration and fine-tuning of VSAT terminals, back-haul MPLS communication equipment, accessories etc. for the smooth functioning of the network.
2.4.7	The successful Bidder should ensure that taking over the maintenance of existing VSAT and solar power systems will be done without any disruption in the operational activity of both

<table>
<tr><td></td><td>centres at Hyderabad and Delhi. The existing IP addresses may try to be maintained. If not possible, the field-engineer need to configure the Data Acquisition Systems along with the upgradation of VSATs.</td></tr>
<tr><td>2.4.8</td><td>Bidder should ensure availability of sufficient number of equipments / critical spares etc. in their stock to replace the defective equipment on a priority basis</td></tr>
<tr><td>2.4.9</td><td>Any addition or discontinuation or closure of VSAT terminal at any station or site; is at the sole discretion of the Purchaser (NCS or INCOIS).</td></tr>
<tr><td>2.4.10</td><td>The Bidder should visit each and every site to carryout preventive maintenance (PM) of Remote VSAT systems at least once in six months and MUST carry out two visits to each site per year.</td></tr>
<tr><td>2.4.11</td><td>Mean Time to Repair (MTTR) for field/remote VSAT terminals from the time of reporting (through Email) of fault at field/remote VSATs is detailed below:
<table>
<tr><th>Region of operation</th><th>No. of days from the date of Email issue by the Purchaser (excluding the date of Email)</th></tr>
<tr><td>Mainland (M)</td><td>2</td></tr>
<tr><td>Himalayan & North-East region (HNE)</td><td>7</td></tr>
<tr><td>North & Middle Andaman stations</td><td>10</td></tr>
<tr><td>Nicobar Islands</td><td>21</td></tr>
<tr><td>Lakshadweep Islands* (LD)</td><td>45</td></tr>
</table>
*At present, there is no VSAT terminal installed in Lakshadweep Islands. However, it may come up in future.

The features of AMC of field VSAT

a) 24X7 Monitoring Operation.
b) VSAT network Performance report per site basis.
c) Network latency period not to exceed 5 seconds.
d) Review and setting of routing policies.
e) QoS implementation and review.</td></tr>
<tr><td>2.4.12</td><td>Bidder shall allocate a qualified & experienced Project Manager for VSAT operations and maintenance of VSAT Network including site creation/deletion, Bandwidth/Frequency allocation to sites, QoS implementation, all necessary support to establish data link/ circuits, carrying out necessary changes in Network as required by NCS / INCOIS from time to time, creation of log reports on performance of network, maintaining records of user details, interaction with field engineers for smooth installation, checking co-pole and x-pole signal of remote VSATs, interaction with users for trouble shooting, rectification of down VSATs, generation of various utilization/management reports on daily/weekly/monthly basis, call logging, escalation matrix and status up-dation on NCS/INCOIS’s complaint, etc.</td></tr>
<tr><td>2.4.13</td><td>Project-Engineer (as detailed above) will also provide a status report every day through email to INCOIS and NCS about the status of functioning of VSAT terminals at each site, support</td></tr>
</table>

	related complaints logged and actions taken to resolve them.
2.4.14	The Bidder's Project-Engineer shall provide site-wise uptime along with bandwidth utilization on monthly basis in the form of a report.
2.4.15	a) Maintenance and upkeep of all VSAT terminals, backhaul connectivity and its accessories shall be the responsibility of the selected bidder through the designated Project Manager exclusively earmarked for this project. He is responsible to manage the VSAT network using network management software/tools etc. However, VSAT terminal if any, or backhaul connectivity, is being faulty due to physical damage to the equipment due to mishandling or natural calamity and in case of theft etc. Bidder will not be liable to replace or repair the damaged equipment and Purchaser will have to bear the approved cost of replacement thereof. The extent of damage to the equipment will be evaluated by Bidder in their lab; and lab-report will be given in writing declaring the equipment faulty and beyond repair within 3 weeks of taking the damaged equipment from the location/user as the case may be. In case of physical damage visible to the naked eye, equipment being beyond repair will be admissible on approval of Purchaser and a pre-designated nodal officer. The Field-Engineer will provide the photographs of damaged parts/items through WhatsApp or Email to the designated Official of NCS or INCOIS. In case the damaged equipment is declared to be repairable by the lab report, Bidder will have to provide the replacement of damaged equipment in working condition to the location / Purchaser as the case may be within one month of submission of the lab report. b) In case of damage as detailed above, the Purchaser will **not** reimburse the visiting charges of Field-Engineer to the site to carry out the replacement of damaged equipment and to make the VSAT system operational. The said works required to be carried out as part of the maintenance contract to make the VSAT terminal fully operational.
2.4.16	Bidder should provide a detailed methodology of monitoring and calculating the up-time in the technical bid. The Purchaser reserves the right to evaluate the methodology suggested by the Bidder. In case the suggested methodology is not acceptable to the Purchaser (NCS and INCOIS), the Purchaser shall prescribe a suitable method at the time of implementation of the AMC of the project.
2.4.17	The Bidder should replace the batteries as and when required so that VSAT is to be fully operational. Accordingly, the price to be quoted. However, the maintenance of UPS at some field stations is the responsibility of the Purchaser.
2.4.18	a) Bidder is responsible for pruning of tree branches, if required. b) Bidder should carry out the works related to cleaning of grass and jungle bush; and

	cutting of tree branches in the premises of VSAT terminal, if desired by the Purchaser. The charges towards the bush-cutting, pruning of tree branches, etc. will be made in the subsequent quarterly period after successful completion of works. c) Purchaser will obtain necessary permissions.
2.4.19	The Bidder should carry-out the installation of iron-caging for **VSAT antenna** and **solar panels** as per the Purchaser request for a particular field / remote site. The charges towards the installation of iron-caging will be made in the subsequent quarterly period after successful completion of works. The specifications of Iron-caging are given at **Annexure-XII.**
2.4.20	a) The bidder should carry out the shifting of VSAT terminal and its accessories like batteries, solar panel etc. within city premises or any other distant site, as per Purchaser request. b) Civil/ Electrical work, if any, during shifting and alignment of antenna etc shall be the responsibility of the Bidder. c) The charges towards shifting of VSAT terminal and its accessories will be made in the subsequent quarterly period after successful completion of works.
2.4.21	As part of technical evaluation both NCS and INCOIS officials will visit the VSAT commercial shared hub of the bidders and the bidder should provide necessary clearances for the same.
2.4.22	**Penalty Charges in respect of service disruption of VSAT terminals & communication at Data Centers**: If a remote VSAT is down beyond the stipulated period after the intimating to Bidder's Project Manager about the VSAT problem through Email, Penalty shall be imposed as per table:2.4.22.
2.4.23	**Penalty charges in case of failure of MPLS link at each Data Centre:** In case of non functioning of leased line (Non availability of field data at data center) ; penalty shall be imposed as per table:2.4.23.

Table:2.4.22 Penalty Charges for non-functioned VSAT terminals:

Region	No. of days taken to resolve the fault	Penalty charges for each faulty VSAT and non-delivery of data
Mainland (M)	4-15	0.1% of total contract value of that year
	16-20	0.3% of total contract value of that year
	21-30	0.5% of per annum charges for VSAT BW and CAMC
	>30	1.0% of total contract value for each extra day beyond 30 days
Himalayan & North-East region (HNE)	8-15	0.1% of total contract value
	16-20	0.3% of total contract value
	21-30	0.5% of total contract value
	>30	1.0% of total contract value for each extra day beyond

		30 days
Andaman Islands (North and Middle)	11-15	0.1% of total contract value
	16-20	0.3% of total contract value
	21-30	0.5% of total contract value
	>30	1.0% of total contract value for each extra day beyond 30 days
Nicobar Islands	21-30	0.3% of total contract value
	30-45	0.5% of total contract value
	>45	1.0% of total contract value for each extra day beyond 45 days
*Lakshadweep Islands (LD)	45-60	0.3% of total contract value
	61-75	0.5% of total contract value
	>76	1.0% of total contract value for each extra day beyond 76 days
If 15 or more VSATs are defunct, even for a single day, no payment will be made towards VSAT services of that Quarterly Period.		

*At present, no VSAT terminal installed in Lakshadweep Islands. However, it may come up in future.

@The number of days is the period between the time of lodge of compliant to the Service Engineer through Email to the establishment of connectivity to the Operational Centre of NCS and INCOIS.

Table:2.4.23 Penalty Charges for non-availability of data at each Data Centre due to nonfunctioning of MPLS leased line:

At one Data Centre	**No of days@ taken to resolve the fault**	**Penalty of AMC charges corresponding to one unit of the respective component for the bill period of three months.**
One link (4Mbps MPLS connectivity) out of two, become defective	>3 days	3% of total contract value
	3-7 days	5% of total contract value
	>7	10% of total contract value for each extra day beyond 30 days
Failure of both MPLS links simultaneously	>15 Minutes < 6 Hours	No payment
Failure of both back-haul MPLS links.	> 6 hours	No Payment + ₹ 10,000/- per day to be recovered from PBG
Failure of both back-haul MPLS links.	> 7days	Contract terminated + PBG invoked

2.4.24	As per the NCS and INCOIS requirement, bidder shall be in a position to provide VSAT connectivity and services at any location in the country.
2.4.25	The Bidder shall treat all data and information about the network, obtained in the execution of the services as confidential and will not reveal any information to any other party without

	the prior written approval of NCS/INCOIS.
2.4.26	No deviations from these terms and conditions will be accepted; violation thereof will lead to rejection of the bid and forfeiture of EMD or PBG as the case may be.
2.4.27	The selected bidders shall have to provide acceptance to the offer issued by NCS and INCOIS for honoring all tender conditions and adherence to all aspects of fair-trade practices in executing the purchase orders issued separately by INCOIS and NCS for their respective component.
2.4.28	In the event of a Selected Company/Bidder or the concerned division of the Company /Bidder is taken over/bought over by another company, all the obligations and execution responsibilities under the agreement with the Purchaser, should be passed on for compliance by the new company in the negotiation for their transfer.
2.4.29	In case of selected bidder is found in breach of any condition(s) of tender or supply order, at any stage during the course of contract service period, the legal action as per rules/laws, shall be initiated against the bidder and Bank Guarantee/Security Deposits shall be forfeited, besides debarring and blacklisting the bidder concerned for at least three years, for further dealings with NCS, INCOIS and offices under control of MoES.
2.4.30	The Bidder should not assign or sublet the VSAT services contract or any part of it to any other agency in any form. Any such eventuality shall result in termination of contract and forfeiture of Security Deposit/EMD/PBG concerning such Bidders/Parties.
2.4.31	NCS may, at any time, terminate the VSAT Services Contract by giving written notice to the Bidder without any compensation, if the recommended bidder becomes bankrupt or otherwise insolvent, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Purchaser.
2.4.32	The Director, NCS or Director, INCOIS for their respective component of work, are reserves their right to terminate the maintenance contract at any time without assigning any reason. The bidder will not be entitled to claim any compensation against such termination. However, while terminating the contract, if any payment is due to the contractor for maintenance services already performed in terms of the contract, the same would be paid to it as per contract terms.
2.4.33	The contract can be terminated by NCS with prior notice of THREE months, without assigning any reason. In this connection the decision of Purchaser shall be final and binding on the Bidder/Service Provider.
2.4.34	The Bidder should support to add more VSAT stations or withdraw any VSAT field terminals as desired by the purchaser including VSAT configuration. The charges for new installation and

	upgradation will be paid by the Purchase either by NCS or INCOIS based on the purchase order issued by them.
2.4.35	The bidder should be ready to support to any upgradation or change in technology (DVB-S2 to the latest technology) if desired by purchaser for sustained and reliable performance of the Network.
2.4.36	The field-site-engineer of the Bidder should support and carryout the configuration, integration of digitizers/sirens/sensors etc. with VSATs as desired by NCS/INCOIS during their visits. The necessary application-software and instructions to carry out the configuration shall be provided by the Purchaser.
2.4.37	a) Most of the stations are un-manned and staff is NOT available at the site. Before proceeding for the site visit, the Field-Engineer needs to inform the Nodal Officer of NCS or INCOIS for making availability of room-keys and to take necessary permissions. b) It is also not possible for the Purchaser to provide the LED status of IDU/Modem etc. of VSAT as the site is un-manned.
2.4.38	The bidder should co-ordinate with data integrator, MPLS service provider and any other Bidder part of this project for smooth running of the network.
2.4.39	It is the responsibility of the Bidder to support any addition of hardware for integration to the network like routers, switches etc. as part of the network for continues transmission of data from shared Hub to the Operational centres at NCS, New Delhi and INCOIS,Hyderabad.
2.4.40	Tender will be evaluated on the basis of total expenditure give at price bids by the technically qualified bidders.
2.4.41	Bidder should be ready to provide additional bandwidth, if any, required in future as per the quoted prices throughout the period of the contract.
2.4.42	Purchaser (NCS and INCOIS) shall not be responsible for damages of any kind for any mishap/injury/accident caused to any service engineer of the Bidder/Service provider while performing duty at field sites and Purchaser premises. All liabilities, legal or monetary, shall be borne by the Bidder/Service provider.
2.4.43	Bidder shall be in a position to provide VSAT connectivity at any location in the country.
2.4.44	The Bidder should provide the details of offered technology of VSAT services and technology of the bidder's shared Hub, likely date of end-of-support and end-of-life of the offered technology etc.
2.4.45	The Bidder should provide the details of timelines of execution from the date of issue of supply order on various work components like upgradation, backhaul connectivity, migration of each and every VSAT terminals to the Hub, etc.

Annexure-I

CHECK LIST

S. No.	Activity	Compliance Yes/No/N.A.	Page No. of your bid
1	Company Profile, Infrastructure, and Registration Certificate, ISO certification of Services (if applicable), copy of requisite license as VSAT service provider issued by DoT		
2	Availability VSAT bandwidth (Kbps) held by the Bidder for meeting requirements mentioned in this tender enquiry		
3	Have you enclosed EMD as per NIT		
4	Is the EMD submitted by other firm other than participating firm? If yes, then bid is likely to be ignored.		
5	Is Registration certificate from Ministry of Micro, Small & Medium Enterprises (MoMSME) /NSIC attached for relaxation of EMD?		
6	Details of Permanent Income Tax account number& GST number? (Attach a copy)		
7	Have you kept EMD validity as per NIT		
8	a) Supporting documents for the terms mentioned under "Bidders Eligibility Criteria" (**Clause no. 15.1**) b) Back-to-back support agreement with OEM (details of OEM) for support during the CAMC contract as mentioned in Clause no. 15.7 c) State whether the business dealings with you have been banned/blacklisted by the Ministry of Earth Sciences (MoES) or any other State/Central Government Department, in the past, as per **clause no. 15.12** d) Have you enclosed all supporting documents as mentioned in Clause no. 15.13		
9	Copy of Tender document with each page signed and stamped as **per Clause no. 9.1 and 10.**		
10	Have you enclosed Tender Acceptance Form (**Annexure-II)** duly filled and signed (i.e., terms and conditions are acceptable) with original set of tender. Tenders may be ignored if not signed.		
11	Available Spares (Quantity in numbers) are held in stock by you for maintenance of VSAT communication equipments for entire period of the contract.		
12	All the documents attached to the tender for considering offer are supposed to be complete in all respects. Therefore, it is important that all tender documents are dully filled in, duly signed in and duly stamped, in all respects and the scanned copy of the same (in PDF format) should be uploaded in CPP portal, failing which the tender will be treated as incomplete and is liable to be rejected.		

13	One hard-copy of the Technical Bid identical to the copy uploaded, should be submitted (by post or by hand) to Sh. Kamalesh Chowdhury, Meteorologist 'B', NCS, R.No.303, 3rd floor, Sat-Met Building, Mausam Bhavan, Lodi Road, New Delhi-110 003, Tel no. 011-43824593.		
14	Have you enclosed clause-by-clause compliance statement for the general terms and RFP requirements mentioned under **Section-1 and Section-II?**		
15	Have you submitted copy of the last purchase order(s) and performance certificate from users?		
16	List of Service Centres/authorized Service Centres in India		
17	Is tender Submitted by an OEM?		
18	Is tender Submitted by an authorized Representative/ Agent/Dealer/Supplier/Distributor/ Stockist of OEM? If so is authorisation certificate attached?		
19	Backhaul connectivity as per Clause no. 2.3.5		
20	Have you quoted for dismantling, buy-back of Hub items and old field VSAT items?		
21	Is tender Submitted by an integrator Representative/ Agent/Dealer/Supplier/Distributor/ Stockist of OEM? If so whether Back-to-back support agreement with equipment manufacturer and software developer company attached?		
22	Have you submitted the Un-priced bid containing Bill of Materials for work components of NCS and INCOIS separately as per **Clause no. 9.2**		
23	Name of Bidder representative to be contacted in case any clarifications needed in the tender-bid submitted by the firm (Name, Office Phone number, Fax Number & Email ID)		
24	Please mention the Name, Designation and contact Email details of the Authorized signatory who signed on each page of the Bid document.		
25	Name of the Bidder with complete address to whom supply order to be placed.		

Signature of Bidder:
Full name, designation, and address of the person signing (in block letters):
Whether signing as proprietor/ partner/ Constituted attorney / duly Authorized by the company:

Annexure-II

TENDER ACEPTANCE FORM

(For all the terms & conditions of tender document are acceptable to Bidder/Tenderer)

To

The Director, National Centre for Seismology,

Mausam Bhawan Complex, Lodi Road, New Delhi-110003

Ref: TE document No. NCS/_____dated _____

I/We, the undersigned have examined the above mentioned TE document, including amendment/corrigendum No. _____, dated _____ (if any), the receipt of which is hereby confirmed. We now offer to CAMC services in conformity with your above referred document.

If our tender is accepted, we undertake to supply the goods and perform the Services of "**Upgradation of VSAT terminals, Comprehensive Annual Maintenance Contract (CAMC) of VSAT terminals (152 nos.) and it's accessories, VSAT satellite bandwidth, Backhaul connectivity etc. for a period of ONE year and extendable"** as mentioned in tender document with the requirements, terms and conditions specified in the Section 1 and Section II of tender document.

I/We further confirm that, if supply / purchase order is placed to firm, we shall provide performance security of required amount in an acceptable form for due performance of the contract.

I/We agree to keep our tender valid for acceptance as required in tender document or for subsequently extended period, if any, agreed to by us. I/We also accordingly confirm to abide by this tender up to the aforesaid period and this tender may be accepted any time before the expiry of the aforesaid period. I/We further confirm that, until a formal contract is executed, this tender read with your written acceptance thereof within the aforesaid period shall constitute a binding contract between us.

I/We further understand that you are not bound to accept the lowest or any tender you may receive against your above-referred tender enquiry.

We confirm that we do not stand de-registered/banned/blacklisted by any Govt. Authorities.

I/We confirm that we fully agree to the terms and conditions specified in above mentioned TE document, including amendment/ corrigendum etc. if any.

(Signature with date and seal of the company)
(Name and designation)

Note: Firm/company shall use their own printed letter head for issuing this certificate

Annexure-III

MANUFACTURER'S AUTHORISATION FORM

(Bidders, quoting products other than his own manufactured products, shall submit this certificate in following format on the Letter Head of the firm)

To,

The Director, National Centre for Seismology

Mausam Bhawan, Lodi Road, New Delhi-110003

Sub: Manufacturer Authorization for Tender No _____.

Sir,

We, **<OEM/ Manufacturer name>**having our registered office at**<OEM/ Manufacturer address>,** are an established and reputed manufacturer of VSAT equipments.

We confirm that **<Bidder Name>** having its registered office at **<Bidder Address>** is our authorized partner for our VSAT equipments. We authorize them to quote for VSAT Services with technology _____(*specify technology of VSAT system offered in the tender*) in the above-mentioned tender.

We hereby confirm that we shall provide all service and maintenance support to our authorized partner during the entire contract period. We also ensure to provide required spares and service support to the above authorized partner while offering onsite maintenance services of Hardware and software of the VSAT terminals installed at 152 sites spread across the country during the contract period.

Yours faithfully,

[Signature with date, name and designation]

for and on behalf of M/s_____

[Name & address of the manufacturers along with Seal of the firm]

Note: This letter of authorization should be on the letter head of the manufacturing firm and should be signed by a person competent and having legal binding to the manufacturer (original letter to be attached or to be shown at the time of opening of bids).

Annexure-IV

APPLICATION-CUM-BILL FOR REFUND OF EMD

Director, (Kind Attn. to: DDO) National Centre for Seismology
IMD Campus, Mausam Bhawan, Lodi Road, New Delhi-110003

MONTH…….BILL NO. ……..

Original Challan or Receipt No. & date	Bank/Office in which deposited	Name of depositor	Amount Originally deposited
1	2	3	4

Received this …….. day of ……..20…... the sum of ₹ ……..(₹ ……..) only being repayable on Account of release of deposited described above.

Claimant's Signature. ……..

(with revenue stamp affixed)

For use in Departmental Office

1.Received payment of ₹…….. (₹…….. ……..) for arranging disbursal to claimant.

2.Passed for Payment of ₹ ……..(₹ …….. ……..) to claimant(s) Shri/Smt./Ms……. …….. against personal deposit account administered by me.

DDO(NCS)
For Director National Centre for Seismology
In case of endorsement of above

For use in Pay & Account office incase of endorsement of 1 above

Passed for payment of Rs. ……..Payment by Cheque

Annexure-V

MODEL BANK GUARANTEE FORMAT FOR FURNISHING EMD

(tentative format only)

Whereas …… (hereinafter called the "tenderer") has submitted their offer dated……for offering the VSAT services of "**Upgradation of VSAT terminals, Comprehensive Annual Maintenance Contract (CAMC) of VSAT terminals (152 nos.) and it's accessories, VSAT satellite bandwidth, Backhaul connectivity etc. for a period of ONE year and extendable"** (hereinafter called the "tender") against the purchaser's tender enquiry No. …… KNOW ALL MEN by these presents that WE ……of …… having our registered office at……. Are bound unto ……. (hereinafter called the "Purchaser") in the sum of …… for which payment will and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this…… day of ……..20…….

THE CONDITIONS OF THIS OBLIGATION ARE:

(1) If the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.

(2) If the tenderer having been notified of the acceptance of his tender by the Purchaser during the period of its validity: -

a) If the tenderer fails to furnish the Performance Security for the due performance of the contract.

b) Fails or refuses to accept/execute the contract.

WE undertake to pay the "Director, National Centre for Seismology", up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force upto and including 60 days after the period of tender validity and any demand in respect thereof should reach the Bank not later than the above date.

Bank Guarantee issued with the tender enquiry reference No. NCS/……. Dated……

…….

(Signature of the authorized officer of the Bank) …….

Name and designation of the office …….

Seal, name & address of the Bank and address of the Branch

Annexure-VI

COMPLIANCE STATEMENT

S.No.	Tender Clause No.	Compliance
1	Undertaking for the compliance of each and every term and conditions mentioned under Section-1 and Section-II of Tender document.	Yes/No

STATEMENT OF DEVIATIONS FROM TECHNICAL CONDITIONS

CLAUSE NUMBER OF TENDER DOCUMENT	DESCRIPTION OF ITEM SPECIFICATION WHERE DEVIATING	DEVIATION IN THE OFFER	BRIEF REASON FOR THE DEVIATION

Note: Deviations on the lower side of technical specs/services will not be accepted

Signature of the Bidder:
Name & Designation:
Date
Place
Company Seal
Email ID:

Annexure-VII

PRICE BID FORMAT FOR NCS COMPONENT

Table: A One Time Charges for upgradation

S.No.	Item Description	Quantity	Unit Cost (₹)	GST (₹) per unit cost	Total (₹)
A	B	C	D	E	F=Cx(D+E)
1	**Upgradation** of field sites to new technology (Clause 2.3.1)	110			
2	Installation and commissioning of 4 Mbps MPLS link from **service provider-1** (Name of the firm to be mentioned**)**; with all required accessories between VSAT HUB of Bidder to NCS, New Delhi	1			
3	Installation and commissioning of **4 Mbps** MPLS link from **service provider-2** (Name of the firm to be mentioned); with all required accessories between VSAT HUB of Bidder to NCS, New Delhi	1			
4	**Total (₹)**				

(Amount in Words)

Table: B Charges for VSAT Bandwidth; CAMC of VSAT Equipment and MPLS Link

S.No.	Item Description	Quantity	Unit Cost (per annum) (₹)	GST (₹) per unit cost	Total (₹)
A	B	C	D	E	F=Cx(D+E)
1	VSAT Satellite total **bandwidth** (both INBOUND and OUTBOUND) (ext-C band) per annum for all 110 sites	2200Kbps	Per Kbps per annum		
2	Dedicated Project Manager as a single point of contact for managing the technical and administrative issues of VSAT services under this contract (for NCS component) (per annum)	1			
3	**Comprehensive AMC** (including traffic charges) of **MPLS link** of **4Mbps** connectivity from **Service Provider-1** (Name of the firm is to be mentioned) with all network components and accessories between VSAT HUB of Service Provider to NCS, New Delhi	1			
4	**Comprehensive AMC** (including traffic charges) of **MPLS link** of **4Mbps** connectivity from **Service Provider-2** (Name of the firm is to be mentioned) with all network components and accessories between VSAT HUB of Service Provider to NCS, New Delhi.	1			

5	**Comprehensive AMC** of **VSAT** Field Terminals (including IFL cables, electrical earthing) as per RFP (per annum)	M	84			
		HNE	24			
		AN	2			
		LD	0			
6	**Comprehensive AMC** of Solar panels, Solar Charge controller, and its accessories; battery replacement, and battery charger for VSAT Field Terminals as per RFP (Rate is Per site per annum)	M	84			
		HNE	24			
		AN	2			
		LD	0			
7	Any other charges to meet the RFP requirements (break-up expenditure to be mentioned); if any (per annum)		-			
8	**Total (₹)**					

(Amount in Words)

Table: C Rate Contract - Rates for different services as and when required

S.No.	Item Description		Quantity	Unit Cost (₹)	GST (₹) per unit cost	Total (₹)
A	B		C	D	E	F=Cx(D+E)
1	Shifting of VSAT terminal to **anywhere in India excluding Island regions** (Andaman Nicobar and Lakshadweep): **Dismantling, Packing, Reinstallation and Commissioning**		1			
2	Shifting of VSAT terminal to **anywhere in Island regions** (Andaman Nicobar and Lakshadweep): **Dismantling, Packing, Reinstallation and Commissioning**		1			
3	Shifting of VSAT terminal **within office** campus **Dismantling, Packing, Reinstallation and Commissioning**		1			
4	**Transportation** Charges for SN 1 above as per RFP (Per site Per 50Km)		1			
5	**Transportation** Charges for SN 2 above as per RFP (Per site Per 50Km) a.	Through ship	1			
		By Road	1			
6	Supply of Ethernet Data Isolator Make:AndaTelecom,Model ATG-45		1			
7	Charges for making **new chemical – electrical earthing**	M	1			
		HNE	1			
		AN	1			
		LD	1			
8	Installation charges of **Iron cage** around VSAT antenna and solar panels. (Per site)	M	1			
		HNE	1			
		AN	1			
		LD	1			
9	Charges for supply, installation	M	1			

	and commissioning of a new 1.8m VSAT terminal, its Solar system (**480W** solar panel with mounting structure, solar charge controller) and one battery charger.	HNE	1			
		AN	1			
		LD	1			
10	Bush cleaning and tree-branch cutting (per annum)	M	1			
		HNE	1			
		AN	1			
		LD	1			
11	**Total (₹)**					

(Amount in Words)

Table: D Dismantling and BUY-Back Prices

S.No.	ITEM DESCRIPTION	Quantity	Unit price (₹)	GST (₹)	Total (₹)
A	B	C	D	E	F=Cx(D+E)
1	Buy-back price of VSAT Hub; including antenna and associated system at NCMRWF, Noida	1			
2	Buy-back price of VSAT Hub; including antenna and associated system at INCOIS, Hyderabad	1			
3	Buy-back price of VSAT IDU , ODU, at field site	152			
4	Buy-back price of spare items as per RFP clause 2.4.1, lying at PortBlair, Srinagar and Gulmarg	1			
	Total (₹)				

(Amount in Words)

Table: E Total Price of the NCS contract per annum

S.No.	Details	Cost(₹)
1	Total from Table A (one-time charges)	
2	Total from Table B (Recurring charges)	
3	Total from Table C (rate contract)	
4	Total from Table D (buy-back component)	
5	**Final Contract value (A + B+ C - D)**	

(Total quoted price in Rs. in words)

Note:

1. The Buy-back price will be deducted from the total quoted price in deciding L1
2. Total quoted price will be calculated for the entire duration of the contract to decide L1
3. Above rates shall remain fixed during the contract period.
4. Unpriced Bill of Materials (BoM) should be submitted with the technical bid.
5. NCS will have right to increase or decrease the bandwidth upto 50% at any time during the contract period.
6. NCS reserves the right to change the network design as per the requirement in future.
7. The above 5 and 6 should be configured/modified by the Bidder with no extra cost.

8. The Inbound and outbound bandwidth may vary as per the field requirement; hence the Bidder should flexible to modify the Inbound and outbound configuration with simple e-mail communication/request from NCS.
9. Price bid (in pdf format **excluding note/instructions**) shall be uploaded on www.eprocure.gov.in
10. HNE: Himalayan region and North East part of the country
11. AN: Andaman & Nicobar Islands
12. M: Mainland.
13. LD: Lakshadweep

Signature of the Bidder:_____
Name & Designation: _____
Date_____
Place_____
Company Seal: _____
Email ID: _____

Annexure-VIII

PRICE BID FORMAT FOR INCOIS COMPONENT

Table: A One Time Charges for upgradation

S.No.	Item Description	Quantity	Unit Cost (₹)	GST (₹)	Total (₹)
A	B	C	D	E	F=Cx(D+E)
1	**Upgradation** of field sites to new technology (Clause 2.3.1).	42			
2	Installation and commissioning of 4 Mbps MPLS link from **service provider-1** (Name of the firm to be mentioned); with all required accessories between VSAT HUB of Bidder to INCOIS, Hyderabad.	1			
3	Installation and commissioning of 4 Mbps MPLS link from **service provider-2** (Name of the firm to be mentioned); with all required accessories between VSAT HUB of Bidder to INCOIS, Hyderabad.	1			
4	**Total (in ₹)**				

(Amount in Words)

Table: B Charges for VSAT Bandwidth; CAMC of VSAT Equipment and MPLS Link

S.No.	Item Description	Quantity	Unit Cost (per annum) (₹)	GST (₹)	Total (₹)
A	B	C	D	E	F=Cx(D+E)
1	VSAT Satellite total **bandwidth** (both INBOUND and OUTBOUND) (ext-C band) per annum for all 42 sites	1300Kbps	Per Kbps per annum		
2	**Comprehensive AMC** (including traffic charges) of **MPLS link** of 4Mbps connectivity from Service Provider-**1** (Name of the firm is to be mentioned) with all network components and accessories between VSAT HUB of Service Provider to INCOIS, Hyderabad.	2	Per annum		
3	**Comprehensive AMC** (including traffic charges) of **MPLS link** of 4Mbps connectivity from Service Provider-**2** (Name of the firm is to be mentioned) with all network components and accessories between VSAT HUB of Service Provider to INCOIS, Hyderabad.		Per annum		
4	**Comprehensive AMC** of **VSAT** Field Terminals in **Andaman & Nicobar Island** region (including electrical earthing) as per RFP (per annum).	42	(Rate is Per site per annum)		
5	**Comprehensive AMC** of Solar panels, Solar Charge controller, and its	42	(Rate is Per site per annum)		

	accessories; battery replacement, and battery charger for VSAT Field Terminals in **Andaman & Nicobar Island** region as per RFP.				
6	License fee, WPC charges etc. for VSAT services, if any (per annum).	-			
7	Any other charges to meet the RFP requirements (break-up expenditure to be mentioned); if any (per annum).	-			
8	NMS Tool for monitoring the sattelte bandwidth network/traffic				
9	**Total (in ₹)**				

(Amount in Words)

Table: C Rate Contract - Rates for different services as and when required

(Amount in Words)

S.No.	**Details**	**Cost (₹)**
1	Total from Table A (one-time charges)	
2	Total from Table B (recurring charges)	
3	**Final Contract value (A + B + C) (in ₹)**	

(Total quoted price in Rs. in words)

Note:

1. The prices quoted for NCS under "Table: C Rate Contract - Rates for different services as and when required" should be valid for INCOIS also.
2. Clause no. 2.3.22 should be considered while quoting the price for s.no.4. of INCOIS Price bid.
3. Total quoted price will be calculated for the entire duration of the contract to decide L1
4. Above rates shall remain fixed during the contract period.
5. Unpriced Bill of Materials (BoM) should be submitted with the technical bid.
6. INCOIS will have right to increase or decrease the bandwidth upto 50% at any time during the contract period.
7. INCOIS reserves the right to change the network design as per the requirement in future.
8. The above s.no. 4 and 5 should be configured/modified by the Bidder with no extra cost.
9. The Inbound and outbound bandwidth may vary as per the field requirement; hence the Bidder should flexible to modify the Inbound and outbound configuration with simple e-mail communication/request from INCOIS.
10. Price bid (in pdf format **excluding note/instructions**) shall be uploaded on www.eprocure.gov.in.
11. AN: Andaman & Nicobar Islands

Signature of the Bidder:_____
Name & Designation: _____
Date_____
Place_____
Company Seal: _____
Email ID: _____

Annexure-IX

DETAILS OF EQUIPMENTS INSTALLED AT VSAT HUB INCOIS, HYDERABAD (Address: Indian National Centre for Ocean Information Services (INCOIS), "Ocean Valley", Pragathi Nagar (BO), Nizampet (SO), Hyderabad-500 090)

SNo.	Description	Make	Model
1	QOS Server (Nx Server)	Gilat	Gilat
2	HRU (Hub Receiver Unit) with 12 cards	Gilat	18 slots
3	Sync Module 1	Gilat	Sky Edge
4	Sync Module 2	Gilat	Sky Edge
5	Terminal Switch (Gilat)	Gilat	Gilat
6	CPCI Cage (with 3 cards)	Gilat	6 slots
7	NMS 1	Gilat	Gilat
8	NMS 2	Gilat	Gilat
9	Remote PC	Gilat	Gilat
10	NMS Client PC	Gilat	Gilat
11	Low Fly Simulator	Gilat	Gilat
12	Allot Net Enforcer Box 1	Allot	AC-402
13	Allot Net Enforcer Box 2	Allot	AC-402
14	IPE 1 (Source Media Router)	Skystream Networks	SMR24
15	IPE 2 (Source Media Router)	Skystream Networks	SMR24
16	RF Switch	Newtec	AZ200
17	DVB Modulator 1	Newtec	AZ110
18	DVB Modulator 2	Newtec	AZ110
19	9m Cassegrain Antenna System with 4-port feed assembly (Ext-C band)	Vertex	9m Cassegrain Antenna with 4 port Linearly Polirized feed
20	ACU (Antenna Controller Unit)	Vertex	7200
21	DTR1 (Digital Tracking Receiver)	Vertex	Digital Tracking Receiver
22	DTR2 (Digital Tracking Receiver)	Vertex	Digital Tracking Receiver
23	LNA Controller (Comtech)	Comtech	RC1160
24	Down Converter – Primary	Comtech	DT-4503
25	Down Converter – Backup	Comtech	DT-4503
26	UP Converter – Primary	Comtech	UT-4505
27	UP Converter – Backup	Comtech	UT-4505
28	SSPA 1 (125w (P1), 150w (sat))	Comtech	SPOD PS2
29	SSPA 1 (125w (P1), 150w (sat))	Comtech	SPOD PS2
30	LNA 1	Comtech	REDXLNA
31	LNA 2	Comtech	REDXLNA
32	Monitors (Gilat)	LG	FlatronW2243T
33	Monitors (Gilat)	LG	FlatronW2243T
34	IP To Serial Converter	Lantronix	EDS32PR

S. No.	Description	Make	Model
1	9m Cassegrain Antenna System with 4-port feed assembly (Ext-C band), King post pedestal, Jack screws, Reflector panels with back-up structure, Lightning arrestor down conductors. Ladder and Platforms for 9m extended travel pedestal, Az/El verniers, Front Rain shield and Rear hub cover-Aluminum, Utility light, Vent fan	Vertex	Model 9.0 m kpc Cassegrain with 4-port feed
2	Antenna Control System with three axis control (consisting Antenna Control Unit, Motor and motor control unit, Hand held Portable Maintenance Unit) with extension cable (Control & Resolver), Motor power cable	Vertex	Model 7200
3	Digital Tracking Receiver in redundant mode	Vertex	DTR C-band digital tracking receiver
4	Integration materials (wave guides, cables, connectors etc.) include Tx-axis cross over wave guide.		

Annexure-X

DETAILS OF EQUIPMENTS INSTALLED AT VSAT HUB NCMRWF, NOIDA
(Address: National Center for Medium Range Weather Forecasting (NCMRWF), Ministry of Earth Sciences, A-50, Sector-62, NOIDA, Uttar Pradesh, Pin: 201 309).

S. No.	Description	Make	Model
1	QOS Server (Nx Server)	Gilat	Gilat
2	HRU (Hub Receiver Unit) with 12 cards	Gilat	18 slots
3	Sync Module 1	Gilat	Sky Edge
4	Sync Module 2	Gilat	Sky Edge
5	Terminal Switch (Gilat)	Gilat	Gilat
6	CPCI Cage (with 3 cards)	Gilat	6 slots
7	NMS 1	Gilat	Gilat
8	NMS 2	Gilat	Gilat
9	Remote PC	Gilat	Gilat
10	NMS Client PC	Gilat	Gilat
11	Allot Box 1	Allot	AC-402
12	Allot Box 2	Allot	AC-402
13	IPE 1 (Source Media Router)	Skystream Networks	SMR24
14	IPE 2 (Source Media Router)	Skystream Networks	SMR24
15	DVB Modulator 1	Sencore	ASN988A
16	DVB Modulator 2	Sencore	ASN988A
17	9m Cassegrain Antenna System with 4-port feed assembly (Ext-C band)	Vertex	9m Cassegrain Antenna with 4 port Linearly Polirized feed
18	ACU (Antenna Controller Unit)	Vertex	7200
19	DTR1 (Digital Tracking Receiver)	Vertex	Digital Tracking Receiver
20	DTR2 (Digital Tracking Receiver)	Vertex	Digital Tracking Receiver
21	LNA Controller (Comtech)	Comtech	RC1160
22	Down Converter – Primary	Comtech	DT-4503
23	Down Converter – Backup	Comtech	DT-4503
24	UP Converter – Primary	Comtech	UT-4505
25	UP Converter – Backup	Comtech	UT-4505
26	SSPA 1 (125w (P1), 150w (sat))	Comtech	SPOD PS2
27	LNA 1	Comtech	REDXLNA
28	LNA 2	Comtech	REDXLNA
29	RF Switch	Newtec	AZ200
30	Monitors (Gilat)	LG	FlatronW2243T
31	Monitors (Gilat)	LG	FlatronW2243T

S.No.	Description	Make	Model
1.	9m Cassegrain Antenna System with 4-port feed assembly (Ext-C band), King post pedestal, Jack screws, Reflector panels with back-up structure, Lightning arrestor down conductors. Ladder and Platforms for 9m extended travel pedestal, Az/El verniers, Front Rain shield and Rear hub cover-Aluminium, Utility light, Vent fan	Vertex	Model 9.0 m kpc Cassegrain with 4-port feed
2.	Antenna Control System with three axis control (consisting Antenna Control Unit, Motor and motor control unit, Hand held Portable Maintenance Unit) with extension cable (Control & Resolver), Motor power cable	Vertex	Model 7200
3.	Digital Tracking Receiver in redundant mode	Vertex	DTR C-band digital tracking receiver
4.	Integration materials (wave guides, cables, connectors etc.) include Tx-axis cross over wave guide.		

LIST OF APPLICATION SOFTWARE INSTALLED AT EACH HUB

S.No.	Description of Software	Make	Version
1	NMS Tool and NMS Bowser Application	Gilat	Sky Edge NMS version 15.1.17.4

Annexure-XI

LIST OF VSAT TERMINAL EQUIPMENT AT FIELD STATIONS

S. No.	Description	Make	Model
1	Antenna 1.2 / 1.8 Mtr	Prodelin	XC, 1.2/1.8, PM/NPM
2	9 U Rack	Wallrack	9 U
3	Armadillo IDU	Gilat	Armadillo
4	BUC (2W)	Gilat	XC
5	LNBC	NJR	NJS8488S
6	5-port switch	ICP-DAS/CTC Union	NS-205/IFS-500
7	Solar System 480 / 640 pw	Tata Solar / Vistar	TBP1280 / 12V80W
8	Solar Charge Regulator	Tata Solar / Vistar	SSR1530 / 24V-20Amp
9	AC Charger	Tata Solar / Vistar	RSP 300 BC / 24V 10A
10	Load Interface Unit	Tata Solar / Vistar	NA
11	24 V / 200 Ah Battery-bank (derived from 4 numbers of 12V 100AH batteries, each of rating 12V 100AH)	HBL / Exide	T-200 HP / EP 100-12
12	Integration materials (IFL cables, Connectors, metal conduits etc.)	Installed as per requirement at the site	Installed as per requirement at the site

LIST OF VSAT TERMINAL EQUIPMENT AT INCOIS FIELD STATIONS

S. No.	Description	Make	Model
1	Antenna 2.4 / 1.8 Mtr	Prodelin	XC, 1.8/2.4m, PM
2	9 U Rack	Alfa Enterprise	ELIXIR
3	Skyedge IP IDU	Gilat	Skyedge IP
4	BUC (2W)	Gilat	XC
5	LNBC	NJR	NJS8488S
6	5-port switch	ICPDAS/CTC Union	NS-205CR/IFS-500
7	Ethernet data isolator	AndaTelecom	ATG45
8	Lightening arrestor	Electrogrip	Franklyn multigrip
9	IFL cable and Connector	Finolex	RG11F
10	Solar System 640 pw	TATA Power Solar	Gold Series 80W
11	Chemical Earthing	SNAGA	
12	Battery/AC Charger	APLAB	IBC2410
13	Solar charge controller	Morningstar	TS-MPPT-25
14	24 V / 200 Ah Battery-bank (derived from 4 numbers of 12V 100AH batteries, each of rating 12V 100AH)	Exide	6SGL100

Annexure-XII

MONKEY CAGING

1. Dimensions of the Caging for antenna
    - Length =15 feet
    - Breadth = 10 feet
    - Height = 11 feet
2. Provision of a Gate with lock and key arrangement. The gate dimensions are 7feet X 3feet.
3. A good quality Lock (Make: Godrej) with key should be provided for the gate.
4. A wire mesh of thickness about 3-4mm should be provided all-around the cage.
5. Iron Angle – gauge 40 X 60 mm
6. Black color painting to the Iron Cage.
7. Similarly, caging should be provided for Solar Panels.

Annexure-XIII

List of stations under NCS (110 nos.)

S.No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	IP address	Bandwidth	Address
01	Jammu	1.8 M	NPM	Skyedge IP	640 W	HNE	10.10.20.89	10kbps site	Seismological Observatory, Met. Office Jammu, Phase-I, Field maintenance Hub, Rajindernagar, Phase-I, Bantalab, Jammu-180007
02	Srinagar	1.8 M	PM	Skyedge IP (on UPS)	640 W	HNE	NA		Seismological Observatory Met.Centre, Rambagh Srinagar – 190 015, J&K
03	Kalpa	1.2 M	PM	Skyedge Armadillo	480 W	HNE	10.10.100.201		Seismological Observatory, House of Shri J.K.Negi, Village Dhuni, Kalpa (Post)-172108, Kinnaur District, (H.P.)
04	Bhubaneswar	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.1		Seismological Observatory Meteorological Centre, India Meteorological Department, Biju patnaik Airport, Bhubaneswar-751 020
05	Allahabad	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.9	10kbps site	Seismological Observatory, India Meteorological Department, Garha Road, Ghoorpur Allahabad-211 003(U.P.)
06	Jharsuguda	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.17		Seismological Observatory, PanchayatSamiti Office, (BDO Office), Tehsil: - Lakhanput, Distt: Jarsuguda, Pincode-768219
07	Rayagada	1.2 M	NPM	Skyedge	480	M	10.10.20.33		Seismological Observatory,

S.No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	IP address	Bandwidth	Address
				Armadillo	W				PanchayatSamiti Office, (BDO Office), Tehsil: - Kolnara, District Rayagada, Pincode-765017
08	Mangalore	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.9		Seismological Observatory India Meteorological Department Panambur (P.O) Mangalore-575 010 Karnataka
09	Vijayawada	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.17		Seismological Observatory House No. 32-30-15 1st Mayor Street Maruthi Nagar Vijayawada-520 004
10	Pithoragarh	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.25		Seismological Observatory GIC Road Near Pandey Gaon Bazaar Pithoragarh-262 501, Uttarakhand
11	Karad	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.41		Seismological Observatory I.T.I compound, Vidya Nagar, Karad-415 124 Maharashtra
12	Varanasi	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.25	10kbps site	Seismological Observatory India Meteorological Department Department of Geophysics Banaras Hindu University (B.H.U), Varanasi-221 005
13	Mumbai	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.49		Seismology Observatory Regional Meteorological Centre India Meteorological Department Near R. C. church, Colaba(Post),

S.No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	IP address	Bandwidth	Address
									Mumbai-400005
14	Bisrakh	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.57		Block Development Officer Village - Bisrakh Distt. – Gautam Budh Nagar (U.P)201301
15	Akola	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.185		Seismological Observatory India Meteorological Department Piple Nagar, Behind Govt. Milk Scheme, Nagpur Road, Akola-444 101
16	Latur	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.57		Seismological Observatory India Meteorological Department D-13 & D-14, Govt. colony Barsi Road, Latur-413531 Maharashtra
17	Lohaghat	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.41		Seismological Observatory India Meteorological Department Bageecha Ward Near Hanuman Mandir Lohaghat-262 524 Distt. Champavat, Uttaranchal
18	New Delhi	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.9	10kbps site	Seismological Observatory India Meteorological Department Flag Staff Road, Kamala Nehru Ridge, Delhi-110007
19	Kurukshetra	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.17		Seismological Observatory, Department of Geophics, Kurukshetra university, Distt. - Kurukshetra, Haryana, Pincode-136119

S.No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	IP address	Bandwidth	Address
20	Ausora	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.25		Seismological Observatory, Gram Panchayat Village - Ausora Tahsil - Hapur Distt. - Ghaziabad (U.P.)245101
21	Jhansi	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.33		Seismological Observatory, India Meteorological Department, Bundelkhand University, Jhansi-284003 (U.P.)
22	Bilaspur	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.41		Seismological Observatory India Meteorological Department Near Gitanjali City Bahatrai Road, Bilaspur-495 009 Chhattisgarh State
23	Bhakra	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.89		Seismological Observatory India Meteorological Department 16 LVR Bungalow Nangal Town Ship Nangal-140124 (Punjab)
24	Ajmer	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.57	10kbps site	Seismological Observatory India Meteorological Department Chandravardai Nagar,Taragarh Road, opp. Ramganj Thana, AJMER-305 003, Rajasthan
25	Jalpaiguri	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.105		Seismological Observatory, Flood Meteorological Office, SJDA Composite Complex Phase II, Near Goshala More, P.O. Denguajhar, Jalpaiguri, West Bengal-735121

S.No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	IP address	Bandwidth	Address
26	Bikaner	1.2 M	NPM	Skyedge IP	480 W	M	10.10.100.97		Seismological Observatory, India Meteorological Department, Sector-2, Murlidhar Vyas Colony, Bikaner (Rajasthan)-334001
27	Thein Dam	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.81		Seismological Observatory, Village Uparlathala Dharkala (P.O) Thein Dham-145021, Distt. Pathankot (Punjab)
28	Jaisalmer	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.113		Seismological Observatory, Weather Radar Station /pilot Ballon Observatory, Jaisalmer, Distt. Jaisalmer, Rajasthan. PIN-345001
29	Beharaich	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.121		Seismological Observatory India Meteorological Department House No. 390(A) Raipur Raja Colony, Jail Road Baharaich (U.P.)-271 801
30	Salem	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.105		Seismological Observatory, Officer-In-Charge Met Observatory India Meteorological Dept. Room No.9, Ground Floor, Collectorate Building, Salem-636 001, Tamilnadu
31	Bahadurgarh	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.113	10kbps site	Seismological Observatory, Old Mini-Secretariat, Main Delhi-Rohtak Road, Bahadurgarh-124 507, District Jhajjar, Haryana
32	Valmikinagar	1.2 M	NPM	Skyedge	480	M	10.10.20.121		Seismological Observatory

S.No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	IP address	Bandwidth	Address
				Armadillo	W				India Meteorological Department Valmikinagar-845 107 West Champaran(Distt.), Bihar
33	Bhavnagar	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.129		Seismological Observatory Government Guest House Waghawadi Road Bhavnagar-364 002 Gujarat
34	Kolkata	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.145		Seismological Observatory India Meteorological Department Regional Meteorological Centre 4, Duel Avenue, Body Guard lane, Alipore, Kolkata-700 027
35	Rewari	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.153		Seismological Observatory, Smt. Seo Bai w/o Sh. Puran Singh, Village – Kundal, Distt. – Rewari, Haryana)123101
36	Sohna	1.2 M	NPM	Skyedge IP	480 W	M	10.10.20.185	10kbps site	Seismological Observatory, Smt. Ram Murti, Ward No. 11, Village – Thakurwada, Distt. – Gurgaon (Haryana), PIN-122103.
37	Ayanagar	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.137		Seismological Observatory, MausamVibhag, Ayanagar, Mehrauli Gurgaon Road, (M. G. Road), New Delhi Pincode-110047
38	Meerut	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.9		Seismological Observatory, Chaudhary Charan Singh University Campus, Meerut-250004
39	Nagpur	1.2 M	NPM	Skyedge	480	M	10.10.100.17		Seismological Observatory,

S.No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	IP address	Bandwidth	Address
				Armadillo	W				Geological Survey of India Seminary Hills Nagpur-400 006
40	Sahibganj	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.25		Seismological Observatory India Meteorological Department Shirdukanhu Stadium Compound Sahibganj-816109, Jharkhand
41	Kodaikanal	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.33		Officer-In-Charge (Seismic Unit), Seismological Observatory, Met Unit, Indian Institute of Astrophysics, Observatory, Kodaikanal-624103, Dindigul District, Tamilnadu
42	Narmadanagar	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.41		Seismological Observatory, Indira Sagar Power Station, NHDC, Narmada Nagar, District Khandwa-450119
43	Guna	1.2 M	PM	Skyedge IP	480 W	M	10.10.100.57		Seismological Observatory, Mausam Office, Meteorological office, Near Lal Parade Ground Guna-473001
44	Banda	1.2 M	PM	Skyedge IP	480 W	M	10.10.100.65	10kbps site	Seismological Observatory, Collectorate building, room no:1, (Old Khanij office room, behind old meeting hall), District H. Q. Banda (Uttar Pradesh) - 210001
45	Farukkhabad	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.73		Seismological Observatory, Ladies Jail, Tehsil Farukkahabad Sadar, Dist. Fatehgarh- 209625, U.P

S.No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	IP address	Bandwidth	Address
46	Thakurdwara	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.81		Seismological Observatory, Principal, JawaharNavodayaVidyalaya, Kalewala, Thakurdwara, Moradabad District, Pincode:244 601 UP
47	IMD, New Delhi	1.2 M	NPM	Skyedge IP (on UPS)	480 W	M	10.10.100.89		Seismological Observatory, R.No. 303, SatMet Building, MausamBhavanComplex, Pincode-110003
48	Jamia Univ. New Delhi	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.97		Seismological Observatory, Department of Geography, Faculty of Natural Science, JamiaMilliaIslamia, Jamia Nagar, New Delhi - 110025
49	Ganaur	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.105		Seismological Observatory, SDM office, Ganaur(Post), Ganaur Sonipat, pincode-131101
50	Rohtak	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.113	10kbps site	Seismological Observatory, Sh. KhushabiLalMaggu, S/o Sh. Ram LalMaggu, Village & P.O.– Bansi, Tehsil-Maham, District – Rohtak (Haryana), Pin-124111
51	Shri Ganganagar	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.121		Seismological Observatory, MausamVibhag, Ashoknagar A, Near MeeraChowk, Sriganganagar, Rajasthan-335001
52	Joshimath	1.2 M	NPM	Skyedge Armadillo	480 W	HNE	10.10.100.153		Seismological Observatory, Sub Divisional Magistrate, Compound

S.No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	IP address	Bandwidth	Address
									Joshimath, Distt. – Chamoli, (Uttarakhand), Pincode-246443
53	Khunti, Jharkhand	1.2 M	PM	Skyedge Armadillo	480 W	M	10.10.100.193		Seismological Observatory, District Transport Office, District Court Complex, Khunti District-835210
54	Lucknow (U.P)	1.2 M	NPM	Skyedge IP (on UPS)	480 W	M	10.10.100.185		Seismological observatory, India Meteorological Department Meteorological Center, Chaudhary Charan Singh Airport, Amausi, Lucknow-226023.
55	Unchagaon	1.8 M	PM	Skyedge Armadillo	480 W	M	10.10.100.49		Seismological Observatory, Block Development Officer, Village – Unchagaon, District – Bulandshahar (U.P.) Pin-202398
56	Ujwa	1.8 M	NPM	Skyedge Armadillo	640 W	M	10.10.100.181		Seismological Observatory, PHC (Primary Health Centre) Ujwa, Dr.Charan Singh Director, Rural Health Training Centre, Najafgarh, New Delhi-110036
57	Jhajjar	1.2M	NPM	Skyedge Armadillo	480 W	M	10.10.100.229	10kbps site	Seismological Observatory, PWD Office (Building & Road Branch), Near BaghJohra Stadium Jhajjar-124013 Haryana
58	Narela	1.2 M	PM	Skyedge Armadillo	480 W	M	10.10.20.245		Seismological Observatory, SDM office, MPCC building, Naya Bans, New Delhi -110082
59	Talwara	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.237		Seismological Observatory, BBMB Seismological Observatory, Village Ghamroor, Tehsil Jaswan, District Kangra (H.P)-176 502

S.No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	IP address	Bandwidth	Address
60	Gaya	1.8 M	PM	Skyedge Armadillo	640 W	M	10.10.100.157		Seismological Observatory, ManregaBhawan, Block Office Complex, Wazirganj (Gaya)-805131, District Gaya (Bihar)
61	Tissa	1.8 M	PM	Skyedge Armadillo	640 W	HNE	10.10.100.205		Seismological Observatory, PanchayatSamiti Hall, Office of the Block Development Officer, Development Block Tissa at BhanjraruTissa, Churah, District of Chamba, Himachal Pradesh-176316
62	Sundernagar	1.8 M	PM	Skyedge Armadillo	640 W	HNE	10.10.100.149		Seismological Observatory, India Meteorological Department, LAB Building, Opposite Arya SamajMandir,BBMB Colony, Sundernagar Township (Post)- 174 402
63.	Kanker	1.8 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.197		Seismological Observatory, Room No.: -28, Near Collectorate Building, Kanker, North Baster, Chattisgarh-494334
64.	Uttarkashi	1.8 M	NPM	Skyedge Armadillo	480 W	HNE	10.10.100.189	10kbps site	Seismological Observatory, Disaster Management Office, DM office campus, Uttarkashi, Uttarkashi - 249193
65	Gorakhpur	1.8 M	PM	Skyedge Armadillo	640 W	M	10.10.100.253		Seismological Observatory, Officer In charge, RSRW Observatory, India Meteorological Department, Deoria Road, Sinhariya, KunaraGhat, Gorakhpur -273008

S.No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	IP address	Bandwidth	Address
66	Jamui	1.2 M	PM	Skyedge Armadillo	480 W	M	10.10.20.41	10kbps site	Seismological Observatory, Sub divisional Office Complex, Near Collectorate, Jamui, JAMUI (BIHAR)-811307
67	Palwal	1.8 M	NPM	Skyedge Armadillo	480 W	M	10.10.100.1		Seismological Observatory, Mini Secretariat, Room No. 20, Palwal-121102, Haryana
68	Basti	1.8 M	NPM	Skyedge Armadillo	640 W	M	10.10.100.53		Seismological Observatory, Harraiya Tehsil, Block Devlopment Officer, Harraiya (Post), District Basti, Pin code– 272 155, Uttar Pradesh
69	Chandigarh	1.2 M	PM	Skyedge IP (on UPS)	480 W	M	10.10.100.249		Seismological Observatory, Meteorological Centre, Sector 39-C, Chandigarh, Union Territory - 160036
70	Coochbehar	1.8 M	NPM	Skyedge Armadillo	640 W	M	10.10.20.249		Seismological Observatory,Govt Engineering college,VILL-Harinchawra, Post-Ghughumari, Coochbehar, West Bengal-736170
71	Araria	1.8 M	NPM	Skyedge Armadillo	640 W	M	10.10.100.5	10kbps site	Seismological Observatory, Premises of Old Sub-Divisional Office, Near Office Of UtpadVibhag, Campus of Collectorate, Araria, District-Arariya(Bihar)-854311
72	Sitamarhi	1.8 M	PM	Skyedge Armadillo	480 W	M	10.10.100.221		Seismological Observatory, E-KishanBhawan, Block Office Premises, CO Office Campus, Bairganiya, District-Sitamarhi

S.No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	IP address	Bandwidth	Address
									(Bihar)-854311
73	Agra	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.20.233		Seismological Observatory, India Meteorological Department, Hydrogen Factory, BunduKatra (near army base workshop 509) Gwalior Road, Agra-282001
74	Udaipur (Co-located with GPS)	1.2 M	PM	Skyedge IP (on UPS)	480 W	M	10.10.20.225		Seismological Observatory, Dept. of Geology, M L Sukhadia University,51, Saraswati Marg, Udaipur-313001
75	Hanley	1.8 M	PM	Skyedge Armadillo	640 W	HNE	10.10.20.209		Seismological Observatory, Indian Institute of Astrophysics, Hanley Pincode-194101
76	Alchi(Leh)	1.8 M	PM	Skyedge Armadillo	640 W	HNE	10.10.20.217	10kbps site	Seismological Observatory, Nimmo-bazgo Hydroelectric Power Plant (NHPC) ltd., Lower Skara, Leho, Near Dam Site, Alchi, District Leh Ladakh-194 106, Union territory
77	NPL-Pusa	1.8 M	PM	Skyedge IP	480 W	M	10.10.100.241		Seismological Observatory, Room No-206, CSIR-NPL Pusa, K.S. Krishnan Marg, New Delhi -110012
78	Pataudi (installation pending due to site issue)	1.8 M	PM	Skyedge Armadillo	480 W	M	10.10.2.17	10kbps site	Seismological Observatory, Community Health Center, In Front of Municipal Corporation, Pataudi, Gurugram, Haryana-122051

* PM Penetrating Mount
NPM Non-Penetrating Mount

*Solar Panel 480W = 80Wx6
640W = 80Wx8

S. No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	VSAT IP address	Address	Bandwidth	Remarks	PI / Orgn
1	Ukhrul	1.8 M	PM	Skyedge Armadillo	640 W	HNE	10.10.2.9	Deptt. Of Earth Sciences C/oMr. Piter Headman, Vill- Hung Pung, Pin-795142, Dist-Ukhrul, Manipur	10kbps site	Seismic	Dr. Arun Kumar / Manipur University (NCS)
2	Chalunka	1.8 M	PM	Skyedge Armadillo	640 W	HNE	10.10.1.161	Post-9, Chalunka, Ladakh, Pin-908002		Seismic	SASE (NCS)
3	Toli	1.8 M	NPM	Skyedge Armadillo	480 W	HNE	10.10.1.225	Village-Toli, Dist-Pithoragarh, Pin-262544, Uttarakhand (State)		Seismic	CP Pant / Kumaun Univ. (NCS)
4	Munsiari	1.8 M	NPM	Skyedge Armadillo	480 W	HNE	10.10.1.233	VPO- Munsayari, Near Nanda Devi Mandir, Dist- Pithoragarh, Uttarakhand (State) Pin-262501		Seismic	CP Pant / Kumaun Univ. (NCS)

S. No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	VSAT IP address	Address	Bandwidth	Remarks	PI / Orgn
5	Bhararisain	1.8 M	NPM	Skyedge Armadillo	480 W	HNE	10.10.2.73	In-campus of Dairy farm, Bhararisian, Gairsen Dist. Chamoli Uttrakhand, Pin-246428	10kbps	Seismic	CP Pant / Kumaun Univ. (NCS)
6	Tamenglong	1.8 M	PM	Skyedge Armadillo	640 W	HNE	10.10.3.9	Jawahar Navodaya Vidyalaya, Tamenglong, Duigailong Village, Tamenglong Manipur- Pin-795141		Seismic	Dr. Arun Kumar / Manipur University (NCS)
7	Jammu	1.2 M	PM	Skyedge IP	640 W	HNE	10.10.20.89	Jammu University, Geology Department. Jammu, Pin- 180001		Seismic	Dr. GM Bhat / Jammu University (NCS)
8	Duru	1.8 M	NPM	Skyedge Armadillo	640 W	HNE	10.10.3.49	Geology Department, Village Duru Dist- Anantnag, J & K- 192211		Seismic	Dr. GM Bhat / Jammu University (NCS)
9	Tangdhar	1.8 M	NPM	Skyedge Armadillo	640 W	HNE	10.10.3.57	Geology Department, Tangdhar, Dist- Kupwara J&K, 193225	10kbps	Seismic	Dr. GM Bhat / Jammu University (NCS)

S. No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	VSAT IP address	Address	Bandwidth	Remarks	PI / Orgn
10	Moreh	1.8 M	NPM	Skyedge Armadillo	480 W	HNE	10.10.3.73	Saint John's High School Moreh, Ward No: 8, Chandel Dist, Pin:795131, Manipur	10kbps	Seismic	Dr. Arun Kumar / Manipur University (NCS)
11	Base Camp	1.8 M	PM	Skyedge Armadillo	640 W	HNE	10.10.1.137	SASE Base Camp Siachen, Pin-908615,Leh	10kbps	Seismic	SASE (NCS)
12	Aizwal	1.8 M	PM	Skyedge Armadillo	640 W	HNE	10.10.2.105	GPS Station Aizwal, Department of Geology, Mizoram University, Tanhril, Aizwal, Mizoram, Pin-796004	10kbps each site	GPS	Mizoram University (NCS)
13	Saiha	1.8 M	PM	Skyedge Armadillo	640 W	HNE	10.10.3.41	Near DC Bungalow, Saiha, Mizoram, Pin-796901		GPS	Mizoram University (NCS)
14	Imphal	1.8 M	PM	Skyedge Armadillo	480 W	HNE	10.10.3.65	Multi-Parameter Geophysical Observatory Langthabal Khoupum Dist-Imphal West, Imphal, Pin 795001		GPS	Dr. Arun Kumar / Manipur University (NCS)
15	Guttu	1.8 M	PM	Skyedge Armadillo	480 W	HNE	10.10.3.81	Seismology Observatory, Koperdhar Post. Bhathaon, Dist Tihari Garhwal, Uttarkhand. 245591		GPS	WIHG (NCS)
16	Bharudia	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.1.49	Talakhi Office, Bharudia, Taluka-Bachau, Dist-Kutch, Gujarat	10kbps site	Seismic	Dr. Santosh Kumar / ISR (NCS)

S. No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	VSAT IP address	Address	Bandwidth	Remarks	PI / Orgn
17	Nalia	1.2 M	PM	Skyedge Armadillo	480 W	M	10.10.1.65	Institute of Seismological Research, Mitti Dam, Rampur Village, Nalia, Kutchh-Dist, Gujarat – 370 655	10kbps site	Seismic	Dr. Santosh Kumar / ISR (NCS)
18	Dholavira	1.2 M	PM	Skyedge IP	480 W	M	10.10.1.89	Institute of Seismological Research, C/O Murar Bai Gadavi, Opp Bus-stand, Dholavira-370 165, Bhachau – Taluka, Kutch-Dist. Gujarat		Seismic	Dr. Santosh Kumar / ISR (NCS)
19	Kharagpur	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.2.137	Department of Geology & Geophysics, IIT Kharagpur, Midnapori, West Bengal-721302	10kbps site	Seismic	IIT Kharagpur (NCS)
20	IISc Bangalore	1.2 M	PM	Skyedge Armadillo	480 W	M	10.10.3.121	Civil Dept. Indian Institute of Science, Bangalore		Seismic	Prof. Sitaram / IISc (NCS)
21	Sipu	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.2.145	Atal Gam, Sipu, Dhadiwada, Dist-Banas Kada, Pin-385505	10kbps each site	GPS	Dr. Rakesh Dumka / ISR (NCS)
22	Kanpur	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.2.233	WLE-115, Geo-Information Lab Civil Engg. IIT Kanpur, Uttar Pradesh- 208016		GPS	IIT Kanpur (NCS)
23	Tirunelveli	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.2.249	Equatorial, Geophysical Research Center, Vittalapuram, Vilakku, Krishnapuram, Maharaja nagar, Tirunelveli, 627011. Tamil-Nadu		GPS	IIG (NCS)

S. No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	VSAT IP address	Address	Bandwidth	Remarks	PI / Orgn
24	Bikaner	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.3.129	Jaisalmer Road, Bikaner, Qanja Singh University, Rajashan.	10kbps	GPS+Seismic	Prof. Harsh Bhu / Sukhadia University (NCS)
25	Dharoi	1.2 M	NPM	Skyedge IP	480 W	M	10.10.1.33	Assistant Research Officer, Quality Sub-Division, No. A, Taluk-Satlasana, Taluk-Satlasana, Dist-Mahsana Dharoi – 384360,	10kbps each site	GPS	Dr. Rakesh Dumka / ISR (NCS)
26	Kolhapur	1.2 M	NPM	Skyedge Armadillo	480 W	M	10.10.2.177	Indian Institute of Geomagnetism, Physics Dept, Shivaji University, Kolhapur- 416004		GPS	IIG, Mumbai (NCS)
27	NCMRWF, **Noida Hub**, co-located	1.2 M	NPM	Skyedge IP (on UPS)	NA	M	10.10.200.1	NCMRWF, Sector 62, Noida, UP.	10kbps	Testing VSAT terminal at Hub	(NCS)
28	INCOIS Remote (GPS)	1.2M	NPM	Skyedge Armadillo	480 W	M	10.10.1.1	INCOIS Pragati Nagar, Hyderabad-500090	10kbps	-	INCOIS
29	INCOIS Hub Co-located	1.2 M	NPM	Skyedge IP (on UPS)	NA	M	10.10.1.9	INCOIS Pragati Nagar, Hyderabad-500090	10kbps	Test VSAT	INCOIS
30	CarNicobar	1.8 M	NPM	Skyedge Armadillo	480 W	AN	10.10.1.249	Car Nicobar, Arong Village, South Andaman, Andaman & Nicobar Islands-744301	10kbps site	GPS	Dr. Vineet / NGRI (NCS)
31	Hutbay	1.8 M	PM	Skyedge Armadillo	480 W	AN	10.10.2.33	GPS Station Punchu Tekry Hutbay little Andaman, Andaman & Nicobar Islands		GPS	Dr. Vineet / NGRI(NCS)

S. No.	Location	Antenna Size	Antenna Type	IDU Type	Solar	Region	VSAT IP address	Address	Bandwidth	Remarks	PI / Orgn
32	Ongole	1.8 M	NPM	Skyedge Armadillo	480 W	M	10.10.2.113	In the campus of CSR Sharma College, Ongole, Prakasam Dist, Andhra Pradesh Pin-523001	10kbps	GPS	Dr. Vineet / NGRI (NCS)

Note: There are total 110 (=78+32) VSATs under NCS

List of stations under INCOIS (42 nos.)

Sl. No	Location	Latitude (deg N)	Longitude (deg E)	Nearest Landmark	**Bandwidth**	**VSAT IP/SMA IP/GNSS IP/Siren IP**
Great Nicobar						
1	Great	7.18513	93.73576	Near Police Lookout Post	30kbps each site	10.10.7.1/7.2/7.3/**NA**
2	Little Nicobar North(Makachua)	7.4020	93.7116	Behind Rural Knowledge Center		10.10.7.9/7.10/7.11/7.12
Nancowry Group Of Islands						
3	Kamorta (Kakana)	8.1845	93.5084	Near to Police radio station and new	30kbps each site	10.10.7.17/7.18/7.19/7.20
4	Kamorta (AC office)	8.040	93.540	Dr Ravi Kumar's existing location at AC office		10.10.7.25/7.26/7.27/7.28
5	Teressa (Alurang)	8.30952	93.1073	Govt. Primary School,Alurang		10.10.7.33/7.34/7.34/7.35
6	Teressa (Chukmachi)	8.221737	93.167343	Govt. Primary School, Chukmachi		10.10.7.41/7.42/7.43/7.44
7	Chowra	8.45235	93.0475822	Govt. Middle School, Kuitasuk		10.10.7.49/7.50/7.51/7.52
8	Katchal (Mildera)	8.00073	93.37746	Office of Junior Engineer, Katchal Sub-division		10.10.7.57/7.58/7.59/7.60
9	Trinket	8.0535397	93.590697	Open grass land		10.10.7.65/7.66/7.67/**NA**
10.	Kamorta South	8.1043557	93.4917024	Behind data house		10.10.7.73/7.74/7.75/7.76
11	Katchal South	7.9374812	93.4477571	Uppper Katchal		10.10.7.81/7.82/7.83/7.84
Car Nicobar						
12	Arong	09.16237	92.74928	Near Office of Junior Engineer, Arong Section	30kbps	10.10.7.89/7.90/7.91/7.92
Little Andaman						
13	Hutbay (VK Pur)	10.74259	92.56461	Govt. Secondary School	30kbps	10.10.7.97/7.98/7.99/7.100

South Andaman						
14	Chidiatapu	11.50507	92.70287	Forest Guest House (near Quarters)	30kbps each site	10.10.7.105/7.106/7.107/7.108
15	Ferrargunj	11.72073	92.6543	Tehsil Office, Ferrargunj		10.10.7.113/7.114/7.115/7.116
16	Namunaghar	11.67212	92.68405	Govt. Primary School		10.10.7.121/7.122/7.123/7.124
17	Neil Island	11.83413	93.02931	Opposite to Police Station		10.10.7.129/7.130/7.131/7.132
18	Havelock (Kalapathar School)	11.96473	93.01438	Govt. Middle School, Kalapathar		10.10.7.137/7.138/7.139/7.140
19	Rutland	11.486416	92.6566905	Rut Land School		10.10.7.145/7.146/7.147/7.148
Middle Andaman						
20	Nimbutala	12.49042	92.96108	Electricity dept. quarters	30kbps each site	10.10.7.153/7.154/7.155/7.156
21	Long Island	12.377055	92.929444	Anganwadi Centre		10.10.7.161/7.162/7.163/7.164
North Andaman						
22	Radhanagar	13.36985	92.930383	Gram Panchayat Office (Nearby Revenue Land)	30kbps each site	10.10.7.169/7.170/7.171/7.172
23	Ramnagar	13.076083	93.014783	Govt. Primary School		10.10.7.177/7.178/7.179/7.180
24	Kishorinagar	13.18236	92.8744	APWD guest house Campus		10.10.7.185/7.186/7.187/7.188
Sl. No	**Location**	**Latitude (deg N)**	**Longitude (deg E)**	**Nearest Landmark**	**VSAT/PM /Solar and bandwidth**	**VSAT IP/BBS IP/SMA IP/GNSS IP/Siren IP**
25	Shoalbay	11.86302	92.73672	Govt Primary School, Shoalbay	1.8m/PM/480Wp 30kbps each site	10.10.1.177/1.178/1.179/1.180/1.181
26	Bakultala	12.50613	92.85657	Forest rest house		10.10.2.65/2.66/2.67/2.68/2.69
27	Kadamtala	12.37025	92.7808	Near Kali Temple		10.10.3.17/3.18/3.19/3.20/3.21
28	Betapur	12.61635	92.94745	Padmanabhapuram, near Govt. Middle School		10.10.3.25/3.26/3.27/3.28/3.29
29	Baratang	12.1678	92.76328	Mangrove forest Guest House (Nearby Revenue		10.10.2.81/2.82/2.83/2.84/2.85
30	Mohanpur	12.94252	92.83976	Govt. Secondary School No. 5		10.10.1.209/1.210/1.211/1.212/1.213

Sl. No	Location	**VSAT/PM-NPM /Solar**	Nearest Landmark	**Bandwidth**	**VSAT IP/ PC/EDB IP//VoIP/ATA/SirenIP**
***31.**	**State Control Room Portblair**	**1.8m/PM/480Wp**	**Directorate of Disaster Management Office, Middle point, Portblair, South Andaman-744301**	**128kbps for the 07 EOC's**	10.10.10.1/10.2/10.3/10.4/10.5/10.6
32.	DC Portblair	1.8m/PM/480Wp	District Control room, DC South, Andaman & Nicobar Islands, portblair-744103		10.10.10.9/10.10/10.11/10.12/10.13/10.14
33.	Campbellbay	1.8m/NPM/480Wp	EOC Campbellbay, great Nicobar, Campbellbay-744302		10.10.10.17/10.20/10.18/10.19/10.21/10.22
34.	Mayabunder	1.8m/PM/480Wp	EOC Headquarters Mayabunder-744204		10.10.10.25/10.26/10.27/10.28/10.29/10.30
35.	Kamorata AC Office	1.8m/PM/480Wp	EOC Kamorata Nancowry South Andamana 744303		10.10.10.49/10.50/10.51/10.52/10.53/10.54
36	EOC Hutbay	1.8m/PM/480Wp	Hutbay Tehsil Office Little Andaman-744207		10.10.10.33/10.34/10.35/10.36/10.37/10.38
37	EOC Carnicobar	1.8m/PM/480Wp	EOC Headquarters Carnicobar - 744301 Andaman Island		10.10.10.41/10.42/10.43/10.44/10.45/10.46

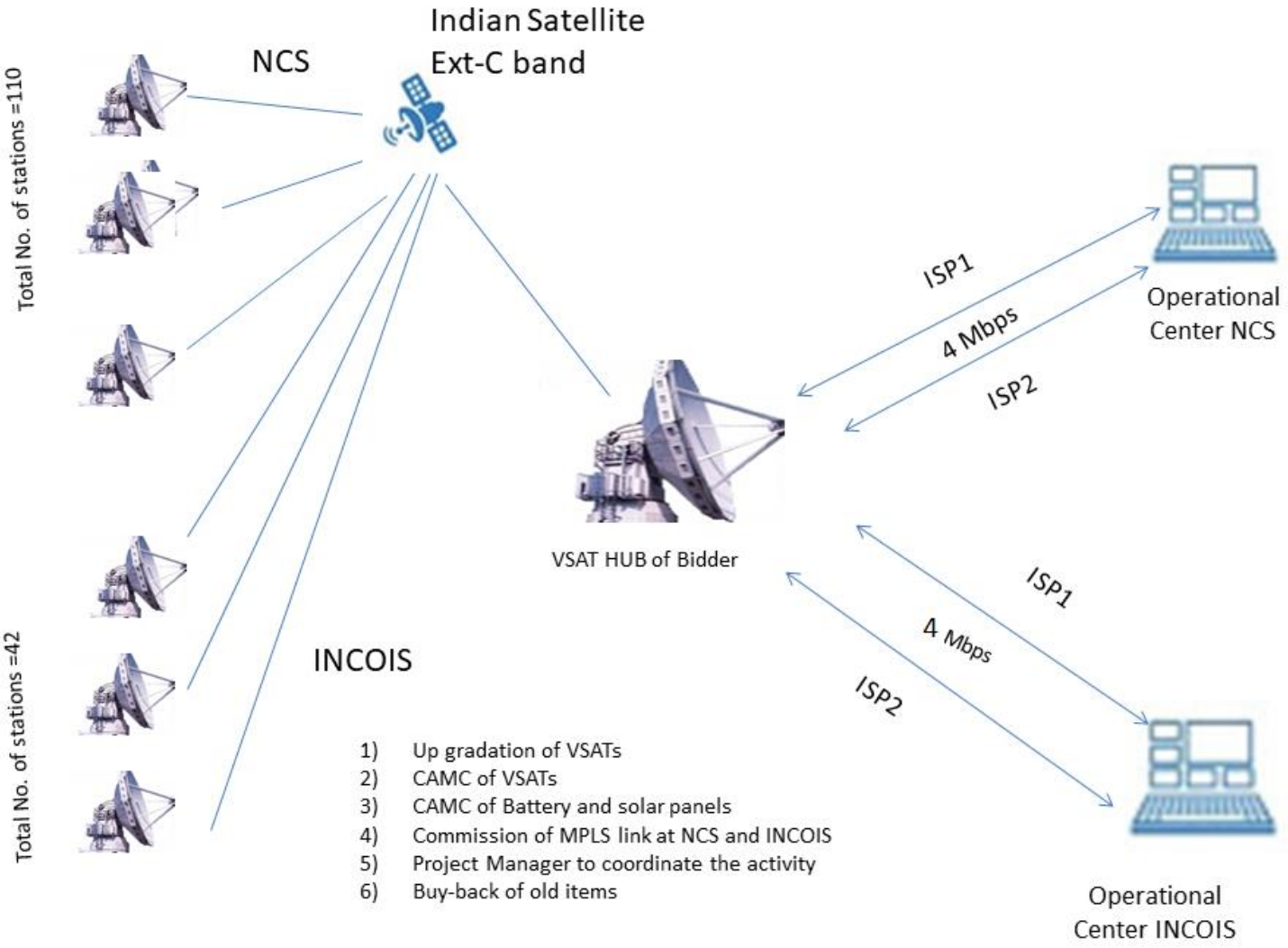
Note : 1). The VSAT at S.No.31 State Control Room (SCR) needs double hop Tx & Rx to connect to the VSATs at Andaman & Nicobar in future for Tsunami Siren network. (The central server will be available at State Control Room (SCR). Refer the clause no. 2.3.6 for more details.

2). S.No 1 to 24 VSATs Locations - All the VSATs are 1.8m PM mount except S.No 01 (2.4m Aprabay site PM mount) with 480Wp (80W*06 panels)

05 VSAT which needs to be relocated at 5 new VSAT locations of INCOIS with 480Wp (80W*06 panels)

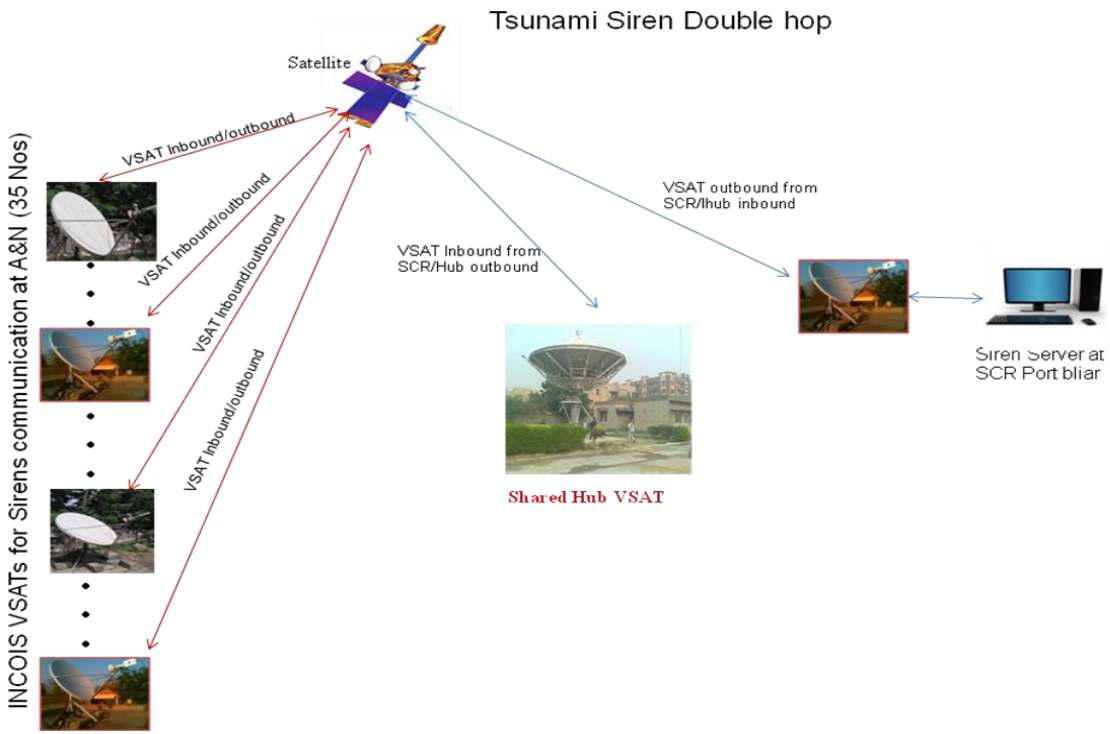
Sl. No	Old Location & address	New Location & landmark	Latitude (deg N)	Longitude (deg E)	**Bandwidth**	**Tentative assignment requirement of VSAT IP/SMA IP/GNSS IP**
1.	Campbell bay GPS CampBell Bay, B'Querry, CamBellBay, South Andaman-744302 / (Landmark: B.Pori Beach 1Km from town)	Shastri nagar Near Sub Centre Shastrinagar	6.807599	93.886728	30kbps	10.10.7.193/7.194/7.195
2.	Portbliar Near Pondicherry University, Burukshabad, PortBlair. Andaman Islands.	Wandoor Govt Middle school campus, wandoor, South Andaman.	11.598474	92.625365	30kbps	10.10.7.201/7.202/7.203
3.	Diglipur Navagram APWD office near, Mayabunder Road, Kalara Junction, Diglipur pin 744202	East Island Near light house (South of light house and south west corner of coast guard radar)	13.630837	93.04776	30kbps	10.10.7.209/7.210/7.211
4.	Havelock Vijay Nagar, Havelock Island-Andaman & Nicobar Island-744211	Narcondam Island Police outpost campus (abandoned solar power plant)	13.446912	94.2632961	30kbps	10.10.7.217/7.218/7.219
5.	Mayabunder, Churchtickery, North & Middle Andaman-744203	Interview Island Infront of forest inspection bungalow	12.918186	92.709756	30kbps	10.10.7.225/7.226/7.227

Annexure-XIV



Note: Each MPS link capacity is 4Mbps for NCS and 4Mbps for INCOIS.

Annexure-XV



Note: The siren project is yet to be implemented.