

PRASAR BHARATI
(BROADCASTING CORPORATION OF INDIA)
OFFICE OF THE ADDL.DIRECTOR GENERAL(E)(SOUTH ZONE)
ALL INDIA RADIO & DOORDRSHAN
SWAMI SIVANANDA SALAI,CHENNAI-600 005.

NO. ADG (E)(SZ)/PUR/NIT-20/SRMST/2011-12/

Date:- 08.12.2011.

CORRIGENDUM

Sub:- Erection of 120 mtr Medium Wave 4 level Guyed Mast at AIR, Port Blair - Reg.

Ref:- 1. This office enquiry letter No. NO. ADG(E)(SZ)/PUR/NIT-20/SRMST/2011-12/ dated.28.10.2011 for the Erection of 120 mtr Medium Wave 4 level Guyed Mast at AIR, Port Blair(**All India Radio, Transmitting centre, Brookshabad, Brijgung, Port Blair, Andaman & Nicobar Islands, Pin code- 744 103**) - Reg.

2. Pre-bid meeting held at **All India Radio, Transmitting centre, Brookshabad, Port Blair, on 18.11.2011 & 05.12.11.**

Sir,

With reference to the above enquiry, and subsequent pre-bid meeting held on 18.11.11, the following **amendments** in the Technical Specifications of Tender Document, may kindly be noted.

Sl.No.	As in the Tender Document - Section I	Amended and may be read as:
1	Section-I - Clause-V11-Foundations- The foundations will be 750mm (min) above the natural ground level.	The mast base foundation is to be raised above ground level by 1200mm as per the latest practice in AIR.
2	Section-I - Clause-III-3-Design Data - (a)- Wind and Ice Loading - "Wind speed to be considered as that of coastal area in India (50M per second)". Drawing - "44 M per second corresponding to Port Blair Region"	The Structure have to be designed for a wind load of 200Kmph (which corresponds to basic wind speed of 55.5M per second) and meet local weather conditions & requirements at Port Blair in A&N Islands.
3	Section - I- Clause-III-3-Design Data - (d) - Galvanizing - The limit of Galvanizing thickness to the design members and pipes is from 75 to 100 microns.	The limit of Galvanizing thickness to the design members and pipes is from 150 to 200 microns.
4	Section - I -Clause-III-3-Design Data - (e) - Guys -The guys shall be of stainless steel / galvanized steel wire of appropriate size and grade and shall be chosen with adequate factor of safety.	The guys shall be of stainless steel wire of appropriate size and grade and shall be chosen with adequate factor of safety.
5	----	Items like AOL, Isolation Transformer & RF Chokes may be procured from the Local Indian Market. Also Imported items

		may be imported directly to Port Blair, & Inspection for the same may be arranged at Port Blair itself.
6	Section-IV - Part -II - Schedule of Requirements. - (B) Point 5 - Removal of old base & disposal outside.	Removal of the old masts (both active & passive masts) & removal of the 120 M passive mast base (where new mast is to be erected) & shifting the materials to a nearby place in the aerial field.
7	Section - I Clause - IX. Guarantee - The Structure design details of the mast shall Be approved by any of Govt. Of India Structural Institute / IIT / IISc.	Necessary design consultation for the structural design details of the mast may be made and got approved from IIT, Chennai / IISc, Bangalore. The Technical specs. under reference may be followed.

(T.Shanmugaraju)
Dy.Director(Engg)
for ADG(E)(SZ)

PRASAR BHARATI

(BROADCASTING CORPORATION OF INDIA)
OFFICE OF THE ADDL.DIRECTOR GENERAL(E)(SOUTH ZONE)
ALL INDIA RADIO & DOORDRSHAN
SWAMI SIVANANDA SALAI,CHENNAI-600 005.

NO. ADG(E)(SZ)/PUR/NIT-20/SRMST/2011-12/

Date:- 25.11.2011.

CORRIGENDUM

Sub:- Extension of Due Date and 2nd Pre-bid meeting – Reg.

Ref:- This office enquiry letter No. NO. ADG(E)(SZ)/PUR/NIT-20/SRMST/2011-12/
dated.28.10.2011 for the Erection of 120 mtr Medium Wave 4 level Guyed Mast at AIR, Port Blair(**All India Radio,
Transmitting centre, Brookshabad, Brijgung, Port Blair ,
Andaman & Nicobar Islands, Pin code-744 103**) - Reg.

Sir,

With reference to the above enquiry, the following corrigendum may kindly be noted.

1. The tender opening is extended up to : **19.12.2011**
2. 2nd Pre- bid meeting on : **5.12.2011 at 11.00 hrs**
3. Place of Pre-bid meeting : **All India Radio, Transmitting centre,
Brookshabad, Brijgung, Port Blair ,
Andaman & Nicobar Islands,
Pin code-744 103.**

Those firms who wish to participate in the bid must attend the pre-bid meeting which is scheduled again on **5.12.2011**.

Attending pre-bid meeting is mandatory, failing which the tender may be liable to rejection.

The firms who have already attended the pre-bid meeting on 18-11-2011 need not attend the second meeting .
However if they wish they can attend.

(T.Shanmugaraju)
Dy.Director(Engg)
for ADG(E)(SZ)

PRASAR BHARATI
(Broadcasting Corporation of India)
OFFICE OF THE ADG(E)(SOUTH ZONE)
ALL INDIA RADIO & DOORDARSHAN
Swamy Sivananda Salai, Chennai - 600 005

NO. ADG(E)(SZ)/PUR/NIT-20/SRMST/2011-12/

Date:- 28.10.2011

SUB: TENDER FOR Erection of 120 mtr Medium Wave 4 level Guyed Mast at AIR, Port Blair(**All India Radio, Transmitting centre, Brookshabad, Brijgung, Port Blair, Andaman & Nicobar Islands, Pin code-744 103**) - Reg.

Sir,

Kindly find enclosed NIT for the erection of 120 mtr Medium Wave 4 level Guyed Mast at AIR, Port Blair(**All India Radio, Transmitting centre, Brookshabad, Brijgung, Port Blair, Andaman & Nicobar Islands, Pin code-744 103**)

Tender documents can be collected from this office from 28.10.2011 to 30.11.2011 on all working days on payment of Rs. 530/- as tender cost in the form of Cash / Demand Draft in favour of THE ADG(E) (South Zone), AIR & TV, Chennai-5, against each tender. Prebid meeting is arranged at **All India Radio, Transmitting centre, Brookshabad, Brijgung, Port Blair, Andaman & Nicobar Islands, Pin code-744 103** on 18.11.2011 at 11oohrs. Attending pre bid meeting is mandatory. Only the firm attending the pre-bid meeting can participate in the tender.

Tender documents can also be downloaded from the web sites
www.cesairdd.org.in/tenders.html
www.allindiaradio.org/tender.html.
www.tenders.gov.in

If the tender documents are downloaded, Demand Draft for Rs. 530/- in favour of THE ADG(E)(South Zone), AIR & DD, Chennai-5, against each tender shall be enclosed in separate cover along with the tender otherwise the tender shall be rejected.

The tenders will be received at the Office of The Addl. Director General (E)(SZ), AIR & DD, Swamy Sivananda Salai, Chennai-5, up to 1230 Hrs on **05.12.11**. The technical bid and E.M.D. will be opened on the same day at 1500 Hrs. The commercial bid will be notified after recommendation of technical committee.

Yours faithfully,

(T. Shanmugaraju)
Dy. Director (Engg)
for Addl. Director General(E)(SZ)

सार भारती/PRASAR BHARATI
भारतीय प्रसारण निगम/BROADCASTING CORPORATION OF INDIA
अपर महानिदेशक (अभि.)(द.क्षे) का कार्यालय
O/O THE ADDITIONAL DIRECTOR GENERAL (ENGG.)(SZ)
आकाशवाणी एवं दूरदर्शन/ALL INDIA RADIO & DOORDARSHAN
स्वामी शिवानंदा शाले,चेन्नै/SWAMI SIVANANDA SALAI,CHENNAI-5
COST OF TENDER Rs.530

NO. ADG(E)(SZ)/PUR/NIT-20/SRMST/2011-12/

Date:- 28.10.2011

NOTICE INVITING TENDER

1. **DESCRIPTION:**

Sealed tenders are hereby invited for and on behalf of the President of India, from reputed Engineering Contractors for the erection of 120 mtr Medium Wave 4 level Guyed Mast at AIR, Port Blair(**All India Radio, Transmitting centre, Brookshabad, Brijgung, Port Blair, Andaman & Nicobar Islands, Pin code-744 103**)

2 **Scope of work:**

The tenderers are to manufacture / fabricate the materials required for erecting the mast, erect the mast, with guy ropes on regular intervals, providing concrete foundation for mast base and guy anchors, supply and install electrical accessories such as Aviation Lights, power supply cables, earthing of the Mast etc. and paint the mast with one coat of etch primer, one coat of zinc chromate primer and two coats of alternating band international orange and white as per civil aviation norms (including supply of paint). Detailed scope of work is given in **Annexure - I.**

- 2a **PRE BID MEETING (MANDATORY)** This work involves a combination of fabrication of new materials and erection, Providing foundation for mast base and guy anchors as per specification and erecting the mast on the foundation at Site.
Hence a pre bid meeting is mandatory component of tender, Pre Bid meeting will be held at All India Radio, Transmitting centre, Brookshabad, Brijgung, port Blair, Andaman & Nicobar Islands, Pin clde-744 103) on 18.11.2011 at 11oohrs. Attending pre bid meeting is mandatory. Only the firm attending the pre bid meeting can participate in the tender. One of the main points to be discussed in meeting is whether existing mast base foundation can be used or to cast new mast base foundation

3. The tender shall consist of three parts (bids) namely:

- i) **EMD:** As per clause 28 of this tender document E.M.D. should be enclosed in a separate sealed envelope. Technical bids of those only tenderers will be opened who have submitted the required E.M.D.
- ii) **TECHNICAL BID:** Technical bid should contain the proof of past experience in the supply and execution of similar works and confirmation to the technical specifications / schedule as given in Annexure - I. This should be submitted in a separate sealed envelope with 'TECHNICAL BID FOR ERECTING 120 METER 4 LEVEL MW GUYED MAST AT AIR, PORT BLAIR DUE TO OPEN ON 05/12/11' written on it. The technical bid should also contain the bill of materials without price.
- iii) **COMMERCIAL BID:** The commercial bid should contain the price bid and acceptance of the commercial terms & conditions of the tender documents. **The price should be quoted item wise** as given in Annexure- I. This should be submitted in a separate sealed envelope. The envelope should be superscripted with 'COMMERCIAL BID FOR ERECTING 120 METER 4 LEVEL MW GUYED MAST AT AIR, PORT BLAIR' written on it.

4. The tenders shall be submitted in sealed envelopes with the name of the work, date of opening and the bid enclosed written on the envelopes.
5. The above mentioned envelopes (3 Nos.) should be enclosed and submitted in another large size envelope duly sealed and marked with the name of the work and date of opening. The envelope will be received at the office of the Additional Director General (E) (SZ), AIR and **Technical bid** will be opened on the **05/12/11 at 1500 hrs**. The date of opening of the **commercial bid of the technically qualified tenders** will be intimated. In case the tender opening date becomes holiday, the bids will be received and opened at the same specified time on the next working day. Bids received late or submitted after the scheduled submission time on scheduled date will not be entertained and will be returned back unopened.

6. DELIVERY PERIOD:-

All the works as per the schedule should be completed in all respects and handed over within **8 months** from the **date of awarding work order**. The tenderer shall furnish within three week of the award of work, the detailed time schedule and estimated completion time for various parts of work. The firm has to ensure schedule is firm and final and work should be executed strictly as per schedule.

7. SECURITY DEPOSIT:-

The tenderer shall furnish the security deposit within 2 weeks of placement of order at the rate of 10% of the contract value subject to a maximum of Rs.5 lakhs at the time of signing the contract. The security deposit shall be furnished in favour of the ADDITIONAL DIRECTOR GENERAL (SZ), AIR & TV, CHENNAI in any one of the forms mentioned below :-
a) Cash in full. b) DD payable at Chennai c) Post office / National Savings Certificates d) Term deposits in any Nationalized bank e) Bank Guarantee from any Nationalized bank valid up to the end of warranty period as per contract. The EMD received along with the bid will be returned after receipt of Security Deposit.

8. PAYMENT TERMS AND BILLS:-

- a) 90% of the amount (Sl. No. 6 of section B of commercial bid) will be released after removal of damaged old mast base & disposal.
- b) 90% of the amount (Sl. No. 1 of section B of commercial bid) will be released after foundation work is over.
- c) The total charges quoted for supply and erection of tower will be released in stages as follows (**total of the section A & S. No.2 of Section B of Commercial bid**):-
- ❖ 25% on Supply and erection of Mast up to first guy level
 - ❖ 25% on Supply and erection of Mast up to second guy level
 - ❖ 25% on Supply and erection of Mast up to third guy level
 - ❖ 15% on Supply and erection of Mast up to 120 metres height including other works like Platform, ladder, cable tray (Vertical and Horizontal) etc
- d) 90% of the amount (Sl. No. 3 of section B of commercial bid) will be released after all the electrical works like AOL, Austin Transformer etc., is over
- e) 90% of the amount (Sl. No. 4 of section B of commercial bid) will be released after the painting of mast is over
- f) All the remaining 10% of amount will be released after taking verticality measurements and guy tension measurements and handing over of the mast.

The bills shall be submitted by the Contractor in triplicate to the consignee for verification and onward dispatch to the paying authority.

9. TERMS OF DELIVERY:-

Free delivery at the site. The Firm will arrange to receive the materials at site. The purchaser however will provide storage space to the firm for storing the material with the clear understanding that storage is being arranged at the risk of the firm.

10. DUTIES & TAXES:

- a) **Excise Duty:** The prices should contain an element of Excise Duty which should be indicted separately. Any statutory variation in the Excise Duty taking place after acceptance of tender within the delivery date will be adjusted by the purchaser on production of documentary proof.
- b) **Sales Tax:** The prices should be exclusive of ST/CST. The prevailing rate of ST/CST should be clearly mentioned in the tender. The following certificates are to be submitted by the supplier along with the bills :
“Certified that the goods on which the sales tax has been charged have not been exempted under central sales tax act of the rules made thereunder. The amount charged on account of sales tax on these goods is not more than what is payable under provision of the relevant act or the rules made thereunder”.
“Certified that we are registered as dealers in the State under registration number for the purpose of Sales Tax”. Any statutory variation in the ST/CST taking place after acceptance of tender within the delivery date will be adjusted by the purchaser.
- c) Octroi/Entry tax and other taxes imposed by Government/Local authorities should be borne by Tenderer
- d) **Works Contract:** If work contract tax is leviable by the concerned State Govt. on works contracts, the same shall be clearly mentioned in the tender.

11. GUARANTEE TERMS:-

As mentioned in the Annexure-I of the tender document

12. PENALTY FOR DELAY:-

If the contractor is unable to complete the entire job within the time limit, the purchaser at his option allow such additional time as he may consider justified with / without altering the terms and conditions of the order. In the event of failure of the contractor to complete the work within the stipulated time or the extended time the purchaser has the right to impose a penalty of Rs.350/- per week or part thereof for every Rs.1,00,000/- of the contract price. The contractors liability for delay however shall not exceed 5% of the total contract price.

13. INSPECTION:-

The stores to be supplied shall be offered for inspection as soon as it is ready to be dispatched to the site. The stores supplied shall be offered for inspection as soon as it is delivered at the site. Materials used for erection and workmanship will further be subjected to inspection at all the stage until the entire job is completed.

- a) Inspecting authority:
THE ADDITIONAL DIRECTOR GENERAL (E) (SZ),
AIR & TV,
Swamy Sivananda Salai,
Chennai – 600 005.

- b) Inspecting Officer: Authorised Representative of ADDITIONAL DIRECTOR GENERAL (E) (SZ) AIR and TV Swamy sivananda salai Chennai for Initial and final inspection .

14. DESPATCH INSTRUCTIONS:

The packing and marking of goods shall be as laid down in clause-12 of general conditions of contract DGS & D69 (revised).

- a) The contractor shall arrange to dispatch the goods duly insured direct to the consignee after prior intimation for delivery at site by whichever mode of transport he may choose, to ensure safe delivery of goods at site. Unloading shall be done at site at the contractor's expense. Only storage space will be provided by the consignee. The contractor will provide his own security like locking etc. and store the materials at his own risk.
- b) The contractor must submit his challans in triplicate to the consignee sufficiently in advance of the actual arrival of the stores at the destination failing which he will be held responsible for any subsequent discrepancies between the actual receipt and the material detailed in the challan received later. The challans must also contain the following information.
1. Brief description of stores
 2. Railway/Lorry/ship receipt No. & Date
 3. Order No. & Date
 4. Inspection note No. & date
- c) The consignment received at site shall be opened and checked for shortages/damages by the contractor himself. He shall show all the materials received at site to the consignee to enable him to certify receipt of stores in good condition. However, in exceptional circumstances, the contractor may request the consignee to check the consignment on his behalf. In such cases the consignee shall notify the contractor of the shortage/damages immediately on receipt of consignment at site. Expenses incurred, if any, in checking the consignments shall be debitable to the contractor's account.

15. INSURANCE: The contractor shall arrange for the insurance covering the risk during transit_storage. All the charges for such insurance shall be borne by the contractor.

16. ADDITIONAL QUANTITIES The purchaser reserves the right to place order for additional quantity up to 100% of the ordered quantity at the same rates and terms and condition during the currency of the contract.

17. GUARANTEE/WARRANTY: The contractor shall accept clause 18 of the Form No. DGS & D-71 with exception that his obligation shall be limited for a period as in Annexure-I clause IX. During the guarantee period, the contractor shall repair or replace free of charge any parts that will become defective due to faulty material design or workmanship.

18. CONDITIONS OF CONTRACT DGS & D-68 (Revised) and DGS & D-71 as amended up to date. However, such of these conditions stipulated on this tender shall supersede corresponding conditions in DGS & D-71. The contractor shall sign a contract agreement form in triplicate in the prescribed proforma and submit the same along with Security Deposit within two weeks. The complete form with the purchaser's signature shall be sent back to the contractor. No supplies will be made and no work shall start unless the agreement is signed by the contractor and the purchaser.

19 . SPECIAL CONDITIONS: In addition to the terms and conditions contained in the general conditions of contract DGS & D-68 (Revised) and DGS & D-71, the contract would also be governed by the following special conditions.

i) In case where only a portion of the stores ordered is tendered for inspection at the fag end of the delivery period the purchaser reserves the right to cancel the balance quantity not found acceptable after carrying out the inspection at the risk and expense of the contractor. If however, the stores tendered for inspection are found acceptable the purchaser may grant an extension of the delivery period subject to the following conditions:-

- a) That no increase in price on account of any statutory increase in or fresh imposition of customs duty, excise duty, sales tax or on account of any other tax or duty levy able in respect of the stores specified in the acceptance of tender shall be admissible on such of the stores as are delivered after the expiry of the delivery period stipulated in the A/T.
 - b) That notwithstanding any stipulation in the contract for increase in price or any other grounds no such increase which takes place after the date of delivery stipulated in the A/T shall be admissible on such of the stores as are ordered after the expiry of the delivery period stipulated in the A/T.
 - c) But, nevertheless the purchaser shall be entitled to the benefit of any decrease in price on account of reduction in or remission of customs duty, excise duty, sales tax on account of any other ground stipulated in the price variation clause which takes place after the expiry of the date of delivery stipulated in the A/T.
 - d) The contractor shall not dispatch the stores till such time extension in delivery period is granted by the purchaser and accepted by the supplier before and extension letter as aforesaid is issued by the purchaser, the same are deemed to be subject to the conditions set out in preceding paragraph.
- ii) In case where the entire quantity has not been tendered for inspection within the delivery period stipulated in the A/T and the purchaser chooses to grant an extension of delivery period, the same would be subject to conditions mentioned in (i) above.
- iii) The contractor shall refund any advance / part payment issued to him in respect of the rejected stores within 14 days of the receipt of intimation from the consignee about the rejection of such prices this is strictly without prejudice and in addition to the rights provided in the clause-17 (8) of from DGS & D-67.

iv) The contractor is required to replace the rejected stores forthwith but in any event not later than a period of 14 days from the date of rejection and the contractor shall bear all the costs of such replacement including freight, if any, but without being entitled to any extra payment or any other account.

v) Where under the contract, price payable is fixed F.O.R. dispatching station, the contractor shall, if the stores are rejected at destination by the consignee, be able to, in addition to his other liabilities (including refund of price recoverable in respect of the stores rejected) to re-imburse to the purchaser the freight and all other expenses incurred by the purchaser in this regard.

20. ENFORCEMENT OF LABOUR LAWS: While engaging labour for carrying out obligations under the contract the contractor shall satisfy the conditions laid down under contract labour (Regulation and Audition) Act 1970 and (Central) Rules 1971 as amended from time to time and observe all formalities required as per the said Act/Rules. The supplier shall also observe the provision under minimum wages act 1948(Central) Rules 1950 amended from time to time while engaging labour.

21. FORCE MAJURE : If any time during the continuance of the contract the performance in whole or in part by the contractor shall be prevented or delayed by reason of any war, hostility acts of the public enemy, Civil commotion, sabotage, fires, floods, explosions, epidemics, guarantee restrictions, strikes, lock-outs or acts of God (herein after restrictions refer to as events) and provided notice of happenings of any such eventuality is given by the contractor within 21 days from the date of occurrence thereof, the purchaser shall by reason of such event neither be entitled to cancel this order nor shall have any claim for damages against the contractor in respect of such non-performance or delay in performance and delivery shall be resumed as soon as practicable after such events have come to an end or ceased to exist.

Provided further that if the performance in whole or part or any obligation under this order is prevented or delayed by reasons of any such event for a period exceeding 180 days, the purchaser and the contractor shall meet to find a natural agreement to any effect resulting the reform or the purchaser may at his option cancel order provided also that if the order is cancelled under this clause, the purchaser shall be at liberty to take over from the contractor at order prices all unused, un-damaged and acceptable material bought out components and stores in course of manufacture in the possession of the supplier at the time of such cancellation or such portion thereof as the purchaser may deem fit accepting such material, bought out components and stores as the supplier may with the concurrence of the purchaser elect to retain.

22. ARBITRATION OF CONTRACTUAL DISPUTES: If a dispute arises out of or in connection with the contract, or in respect of any defined legal relationship associated therewith or derived there from, the parties agree to submit that dispute to arbitration under ICADR Arbitration Rules, 1996. The Authority to appoint the arbitrator(s) shall be the International Centre for Alternative dispute resolution.

The International centre for Alternative Dispute Resolution will provide administrative services in accordance with the ICADR Arbitration Rules, 1996.

- a) The number of arbitrator(s) shall be one. who has legal as well as technical background.
- b) The language of the arbitration proceedings shall be English.
- c) The place of arbitration proceedings shall be Chennai.

The arbitrator shall preferably be a Structural Engineer.

23. PRICE & STATUTORY DUTIES: - Prices should be firm and for free delivery at site inclusive of transit insurance and excise duty. Octroi/Entry tax and other taxes imposed by Government/Local authorities should be borne by Tenderer

24. INCOME TAX: - PAN number obtained from Income Tax may be submitted along with the tender.

25. VALIDITY OF TENDER: - The tendered prices and the total cost of tender shall be valid for **90 DAYS** from the date of opening.

26. TRANSIT INSURANCE: - The Contractor shall arrange for the insurance covering the risk during transit, storage and installation till commissioning. All the charges for such insurance shall be borne by the contractor.

27. Printed terms and conditions of firms will not be considered as forming parts of their tender.

28. E.M.D. :- The Earnest Money Deposit of Rs.5,00,000/- (Rupees Five Lakh only) should accompany along with the tender in the form of crossed demand draft in favour of the Additional Director General (E) (SZ), AIR & TV, Chennai 600 005 from any nationalized bank, without which the tender will not be considered. **The EMD should be submitted in a separate sealed cover. The quotations of those tenderers who have not submitted the requisite EMD will not be opened.**

29. Tenders which do not fulfil any of the above conditions or which are incomplete in any respect are liable for summary rejection.

30. Canvassing in connection with the tender is strictly prohibited and tenders submitted by the tenderers who resort to canvassing will be rejected.

31. EXPERIENCE: - The tenderer is required to submit the details of his previous experience in similar type of work i.e design, fabrication, supply of guyed mast or any other towers not less than 90 M height, capacity of their plant and their organisational set up for undertaking such works. Tenderer must have erected at least one tower similar capacity in past. The name and address of the purchaser for whom towers have been erected, necessary completion certificate for the work and other supporting document must be provided. This is a mandatory requirement for acceptance of tender.

31. The successful tenderer will be required to remit security **deposit as specified in clause 7 of tender document.** The EMD amount already paid will be adjusted against the Security Deposit.

32. The acceptance of tender is subjected to tenderer's total compliance of schedule of work as per the enclosed specifications. The acceptance of a tender will rest with the Additional Director General (E) (SZ), AIR & TV, Chennai 5, who does not bind himself to accept the lowest tender and reserves to himself the authority to reject any or all of the tenders received without assigning any reason. **Work can be awarded in part or in full by the competent authority depending upon the nature and urgency of work to a single or multiple bidders.**

32. CANCELLATION: The purchaser reserves the right to cancel the order in full or part in the event of non-performance or unsatisfactory performance by the contractor and recover payment already made if any, along with losses / damages incurred.

33. GENERAL TERMS AND CONDITIONS:-

The tools and equipments required for carrying out the entire job will not be supplied by purchaser. The contractor shall provide all the necessary erection tools and erection gang within the tendered price and shall use such method and appliances for the performance of all operations connected with the work envisaged under the contract as well as ensure satisfactory quality of work and rate of progress.

The contractor shall fully discharge all obligations under Indian Workmen Compensation Act in so far as it affects the workmen in his employ.

Any loss to the contractor on account of stoppage of work for reasons given above have to be borne by him / her and any damage to the work shall be made good to the Additional Director General(E) (SZ) / Dy. Director General(E)Materials to be supplied by the contractor are to be approved by the Additional Director General (E) (SZ) / Dy. Director General (E) before utilization.

In the event of loss or damage to Government property or materials directly handed over to the contractor or other existing in the premises where work is being executed by the contractor at any stage of the progress of the work, the Additional Director General (E) (SZ) / Dy. Director General (E) shall have the option to decide on primary available evidence, the likely liability of the contractor towards the damages as contemplated in this clause, if in his / her opinion it is necessary to do so to protect Government interest. The Additional Director General (E) (SZ) / Dy. Director General (E) shall in cases where it is decided that the contractor has incurred liability, communicate to the contractor the extent of his / her liability and call upon him / her to pay the same within a specified date on the inspection and the supervision of the Additional Director General (E) (SZ) / Dy. Director General (E) and his / her subordinates. The Contractor(s) shall at all times during the usual working hours, and at all other times of which reasonable notice of the intention of the Additional Director General (E) (SZ) / Dy. Director General (E), or his / her subordinate to visit the works shall have been given to the contractor(s) either himself / themselves be present to receive orders or instructions or have a responsible agent duly credited in writing present for that purpose. Orders given to the contractor(s) agent shall be considered to have the same force as if they had been given to the contractor(s) himself / themselves. The Additional Director General (E) (SZ) / Dy. Director General (E) may require the contractor(s) to dismiss any person in the contractor(s) employ upon the works who may be incompetent or misconducts himself and the contractor(s) is / are forthwith to comply with such requirement.

The Contractor(s) is / are not to vary or deviate from the drawings, specifications or instructions or execute any extra work of any kind what-so-ever unless upon the authority of the Additional Director General (E) (SZ) / Dy. Director General (E) to be sufficiently shown by an order in writing or by any plan or drawing expressly given and signed by him as an extra or variation or by any subsequent written approval signed by him. If compliance with the Additional General (E) (SZ) / Dy. Director General (E) aforesaid order, plan or expense beyond involved the execution of the contract works, then unless the same were issued in consequence of some breach of this contract on the part of the Contractor(s), the latter shall be entitled to be paid price of the said work (to be valued as here-in-after provided) and / or the expense aforesaid.

The works comprised in this tender are to be commenced immediately on receipt of written orders from the Additional Director General (E) (SZ) / Dy. Director General (E) to commence work. The time allowed for carrying out the work entered in the tender shall be strictly observed by the Contractor(s) and shall be reckoned from the date on which the order to commence the work is given to the contractor(s).

The work shall throughout the stipulated period of the contract be proceeded with all due diligence (time being deemed to be the essence of the contract on the part of the Contractor(s) and the contractor(s) shall pay as compensation an amount equal to one percent or such similar amount as The Additional Director General (E) (SZ) / Dy. Director General (E) whose decision in writing shall be final may decide, on the amount of the contract for everyday that the work remains uncommenced or unfinished, after the proper dates. And further to ensure good progress during the execution of the work the contractor(s) shall be bound, to complete one fourth of such time has elapsed, and three fourths of the work before three fourths of such time has elapsed. In the event of the contractor(s) to pay as compensation an amount of equal to one percent of such smaller amount as these (whose decision in writing shall be final) may decide on the said amount of the contract for every day that the due quantity of work remains incomplete provided always that the entire amount of compensation to be paid under the provision the clause shall not exceed 10% on the amount of the contract.

The Additional Director General (SZ) (E) / Dy. Director General(E) shall have power to make any alterations in, omission from, additional to or substitutions for the original specifications, drawings and instructions, that could not be envisaged earlier that become a necessary for technical or other reasons and the contractor(s) shall be bound to carry out the work in accordance with any instructions which may be given to him / them in writing signed by the Additional Director General (SZ) (E) / Dy. Director General (E) . Such additions, omissions, alterations or substitutions shall not vitiate the contract but shall be measured and certified by the Additional Director General (SZ) (E) / Dy. Director General (E) and the rate of such additional items of work will be the same as for similar items of work in the contract. In the case of lump sum contracts such rates will be determined on a proportionate basis, via, value by total work. If, however, it is not possible to fix the rates in this fashion a rate mutually agreed to by the Contractor(s) and the Additional Director General (E) (SZ) / Dy. Director General (E) will apply.

The Additional Director General (E) (SZ) / Dy. Director General(E) shall have full power to ask the contractor to stop the work for a total period of (1) seven days per mast (applicable to mast erection) or (2) fourteen days (applicable to other lump sum contractors), either at a time or intermittently without any compensation what-so-ever being paid to the contractor and the contractor shall stop the work as and when asked by the Additional Director General(E) (SZ) / Dy. Director General(E) The period shall not include the days in which the contractor may stop work of his own accord and at his own responsibility or as a result of damage to any part of the equipment owing to accidents during the execution of work.

The Additional Director General (E) (SZ) / Dy. Director General (E) has full power to require the removal, from the premises of all materials which in his opinion are not in accordance with specifications and in case of default, the Additional Director General (E) (SZ) / Dy. Director General(E) to be at liberty to employ other persons or remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials. The Additional Director General (E) (SZ) / Dy. Director General (E) is also to have the full power to require other proper materials to be substituted there of and in case of default the Additional Director General (E) (SZ) /Dy. Director General (E) (Engg) may cause the same to be supplied and all costs which may attend such removal and substitution are to be borne by the contractor(s).

If in the opinion of the Additional Director General (E) (SZ) / Dy. Director General(E) any of the works have been executed with improper materials or defective workmanship, the contractor(s) is / are when required by the Additional Director General (E) (SZ) / Dy. Director General(E) forthwith to re-execute the same and to substitute proper materials and workmanship and in case of default of the contractor(s) in so doing within a week, the Additional General (E) (SZ) / Dy. Director General(E) is to have full power to employ other persons to re-execute the work and the cost thereof shall be borne by the contractor(s).

Any defects, shrinkage or other faults which may appear within two years of the completion of the work, out of defective workmanship are to be amended and made good by the contractor(s) at his / their own cost.

After completion of the work, the contractor(s) should obtain the necessary certificates from the Additional Director General (E)(SZ) / Dy. Director General(E) , or his representative and shall handover the same to the Additional Director General (E) (SZ) / Dy. Director General(E) . Final adjustment of bills will not be made if the certificate is not handed over.

The complete job should be carried out during the normal working hours from 0900 hours to 1700 hours as laid down by factory rules.

प्रसार भारती/PRASAR BHARATI
भारतीय प्रसारण निगम/BROADCASTING CORPORATION OF INDIA
अपर महानिदेशक (अभि.)(द.क्षे) का कार्यालय
O/O THE ADDITIONAL DIRECTOR GENERAL (ENGG.)(SZ)
आकाशवाणी एवं दूरदर्शन/ALL INDIA RADIO & DOORDARSHAN
स्वामी शिवानंदा शाले,चेन्नै/SWAMI SIVANANDA SALAI,CHENNAI-5

SPECIFICATION DOCUMENT FOR MEDIUM FREQUENCY ANTENNA

SUMMARY OF CONTENTS

1. SECTION I : Detailed technical and general specifications (Page 12-17)
2. SECTION II : Technical data to be submitted by tenderer (Page 18)
3. SECTION III : Specification for painting of mast (Page 19)
4. SECTION IV : Schedule of Requirements (Page 20-22)
5. SECTION V : Technical bid and commercial bid (Page 23-26)
- 5 Annexure drawing Page 27

SUUMMARY:

These specifications give details of various technical parameters, accessories and spares required for a Self Radiating Triangular Lattice Structure MF Band Mast.

Section I,II & III are generic specifications whereas Section-IV is for a particular place wherein the frequency of operation, height, power and other special technical requirements along with spares as well as optional items required for self radiating mast have been indicated for a particular place (**All India Radio, Transmitting centre, Brookshabad, Brijgung, Port Blair, Andaman & Nicobar Islands, Pin clde-744 103**).

As per enclosed specification requirement is for a **120 metre** high, vertical, passive, MF band at **AIR Port Blair**, the details of which has been indicated in Section-IV.

However, mast should be capable of radiating 100 KW carrier Power in MF band.

N.B:

1. **The tenderer should go through all the sections of the specifications carefully and confirm clause by clause compliance to all sections clearly. Tenders without clause by clause compliance shall be rejected outrightly.**
2. **The tenderer should also indicate the list of items offered as per schedule of requirements of Section-IV in the technical bid without cost to assess the completeness of requirements.**
3. **The tenderer may visit the site (All India Radio, Transmitting centre, Brookshabad, Brijgung, Port Blair, Andaman & Nicobar Islands, Pin clde-744 103)before submitting the tender for realistic offer.**

उपनिदेशक (अभि.) / Dy. Director (E)
कृते अपर महानिदेशक (अभि.)(द.क्षे)/For Additional Director General(E)(SZ)

SECTION – I

DETAILED TECHNICAL SPECIFICATIONS FOR MEDIUM FREQUENCY ANTENNA

I. INTRODUCTION:

This specification covers the design, fabrication, supply and erection of medium frequency antenna for use as passive mast used in the frequency range 531-1605 KHz.

II. ELECTRICAL CHARACTERISTICS:

- i) Frequency Range : 531 - 1605 KHz.
- ii) Polarisation : vertical
- iii) Height of Antenna : As given in the schedule of requirements.
- iv) Power handling capacity : As given in the schedule of requirements.
- v) Feeding arrangement : No feeding. **However, a provision is to be made for feeding at base if needed in future.**

- vi) Input Impedance : The input impedance at the feeding point should have flat characteristic within 10 KHz at any operating frequency in the range specified in (i) above. (An impedance curve for the entire frequency range will be supplied by tenderer.

V) Active guyed mast of 115 M height feeding 100KW at operating frequency of 684KHZ is located at the distance of 110.25 M from the 120 M passive mast which is to be erected as mentioned above.

III. MECHANICAL DESIGN:

1. General:

The structure shall be designed to withstand the mechanical / electrical stresses encountered in the Transportation, installation, operation and maintenance of the mast even under the worst wind and Ice loading conditions detailed in this specification. The antenna shall be provided with ladders to enable persons to go up in complete safety, rest platforms at the top and intermediate levels and Aviation obstruction lights as required under the regulations.

2. Type of structure:

The antenna structure shall be a guyed, lattice faced, steel structure of uniform triangular cross section throughout its height.

A typical antenna of this type is shown in the attached drawing- Drawing No.-SX1- 2088

3. DESIGN DATA:

(a) Wind and Ice Loading:

The antenna structure shall be designed taking into account wind loading as below:

i) Basic wind pressure may be taken as per IS:875-1987 with latest amendments, taking into consideration the importance of structure as it is to provide uninterrupted broadcast during all season and will be designed for use in AIR Port Blair. For the purpose of design calculations, therefore, basic wind pressure has to be taken as that of coastal areas in India. For heights more than 150 metres, the basic wind pressure shall vary with respect to the height as per formula : $P \propto H^{0.2}$

ii) The overall wind forces may be computed using the coefficient as given in BIS= CP-3, Chapter V, Para 2 with latest amendments.

iii) Port Blair is a Cyclone prone area, all design factors should be taken into consideration.

(b) Material and type of construction:

Tower members shall be of standard structural steel (open hearth) conforming to IS-226-1969 (with latest amendments).

(c) Design

Design, fabrication and other details shall be in accordance with IS-806-1962 (with its latest amendments).

(d) Galvanizing:

To prevent corrosion, all steel members, accessories and hardware shall be galvanized after fabrication by the "Hot Dip Method" and shall conform to IS-4759-1968 with latest amendments. The fastener shall be galvanized as per IS-5388-69. The galvanizing shall be tested as per test procedure laid down in the relevant specification with latest amendments.

(e) Guys:

The triangular antenna structure shall be guyed in three planes, 120 degrees apart and at suitable levels. The top most guy level shall be one or two sections below the top of the mast. The mast must have minimum four guy level points.

The guys shall be of stainless steel/galvanized steel wire of appropriate size and grade and shall be chosen with adequate factor of safety. The guy ropes shall conform to IS-2266/1970 and IS-3326/1966 (with latest amendments). The guys shall be designed in such a way so that the initial tension in the guys should not be more than 15 percent of the breaking strength of the guys under still air conditions. 1st Insulator / Insulators of adequate rating should be connected as near as possible to the point of attachment of each guy to the tower. The guys shall be broken up (electrically) by the inserting slip in type of insulators of sufficient electrical and mechanical strength for sectional length of less than one tenth of operating wave length to avoid parastic radiation. The next insulator on each guy section shall not be more

than 15 mtrs. away and the spacing between the succeeding insulators shall not be more than 24 mtrs. Both these conditions should be full filled.

The guys shall be prefabricated to enable easy assembly at site. Provision shall be available to adjust at site, the total length of each guy to take care of relative variations in the ground level at the mast base and guy anchor points to the extent of 3 meters.

Provision shall be made for adjustment of the tension of each guy. The tensioning device shall form an integral part of the guy attachment assembly at the anchor end. The guy attachment at the anchor block shall also include arrangements for easy and accurate measurements of the guy tensions.

(f) Cable connection:

Ferruling/sleeving or socketing used in each guy section including the straining screw should be designed to withstand atleast 80% breaking load strength of main guy rope. Suitable locking arrangement also is to be made to avoid the slipping of sleeving/socketing and guy straining screw under storm conditions by providing U- clamps as backup measures in addition to ferruling/ socketing. If felt necessary, a sample breaking load test for a guy section may be taken in the presence of AIR inspector.

(g) Ladder and Rest Platform:

There shall be an interior ladder surrounded by a cage of about 70 cms diameter for the personnel to climb the structure with safety. Rungs of ladder shall be clear of any obstruction to the climber's toe etc and shall be equally spaced not more than 22.5 cms apart. However, in the case of masts having heights upto 60 M, an outside ladder can be accepted provided a fool proof safety climbing system is incorporated. The rest platform with hand-rails of sufficient size & 750mm high shall be provided at the top of the mast and at other intermediate levels at suitable heights.

IV. INSULATOR RATING:

As required under clause II(v) of this specification, the antenna is to be fed at the base. For this purpose, the base of antenna is to be suitably insulated from the ground. This is to be achieved by interposing an insulator of adequate electrical as well as mechanical strength between the antenna base and its foundation block. The base insulator or insulators shall be capable of withstanding the electrical stresses as given in the schedule of requirements. In addition, it shall also withstand voltage stress that may be built up due to lightning and other static charges. The electrical rating of the base insulator / insulators shall be chosen to have a margin of safety of 2.5. Not withstanding the rating imposed by the above conditions, the base insulator shall have a wet flash over rating of not less than 90KV at 50 Hz. The insulators shall also have as low capacitance as possible and low loss ratings at 1 MHz.

A carbon spark ball gap arrangement shall be provided across the base insulator for it's safety in the event of lightning/ thunder storms etc.

Mechanically the base insulator shall be strong enough to withstand the loadings imposed by the antenna structure under worst conditions. A margin of safety of 3 may be taken while choosing mechanical rating of insulator.

Guy Insulators shall be rated - electrically and mechanically with factors of safety as 2.5 and 3 respectively. Damage to guy insulators due to lightning and other electrical disturbances and consequent interruption in transmitter operation are to be prevented by means of suitable devices such as RF chokes connected across the insulators. These devices should be so designed as to offer an easy leakage path for the unwanted electrical disturbances but at the same time not impairing the efficiency of insulators at the operating frequency of the transmitter. These devices shall be provided in the top two guys. For masts up to 60 mtr height, these will be provided only for top most guy.

V. AVIATION OBSTRUCTION LIGHTING:

The antenna structure shall be provided with beacon lights, aviation obstruction light fittings at the top of the mast and at intermediate levels respectively as per latest civil aviation rules. The lights shall be of solid state devices in conformity with international standards.

The intermediate lights should be spaced as equally as practicable between the top obstruction light and the mast base level. In no case the spacing shall be more than 45 metres. The first intermediate light may be provided at the height of 45 metres from the ground. The obstruction lights shall be fixed lights, red in colour, having an intensity sufficient to ensure that it is conspicuous, considering the intensity of the adjacent lights and the general level of illumination against which they would normally be viewed. In no case shall the intensity be less than 10 candles of red light.

Rest platforms with hand rails shall be provided at the levels where aviation obstruction lights are fixed to have easy access to these lights. The supply should include all necessary cables, water tight conduits of appropriate size from the bottom of the tower to the lights and other accessories.

VI. ANTENNA LIGHTING TRANSFORMERS:

The antenna lighting circuit shall be connected to 230 V, 50 Hz mains supply through a well designed isolation circuit which shall provide perfect isolation of the power mains circuit from the Radio Frequency voltages of the antenna. The isolation circuit may take the form of toroidal transformers with low coupling or filter circuits with chokes and capacitors of adequate rating. The supply against this tender should include either of these and in the case of the transformer, it shall be water proof, outdoor type, complete with mounting brackets, insulators if any. The transformer primary shall have tappings for 5 percent and 10 % voltage variations from the normal 230 volts and the transformer and its fittings shall add negligible capacitance between the antenna base and the earth.

VII. FOUNDATIONS:

The casting of concrete foundations for the Antenna structure, guy anchors and isolation transformer will be done by the tenderer to suit the site requirements at each place. These foundations will be 750 mm (minimum) above the natural ground level. The supplies will include galvanised guy anchor assemblies, foundations bolts, re-enforcement etc., and the necessary material including cement etc. for casting of the foundations.

The tenderer shall conduct the necessary soil testing for designing the foundations for erection of the tower and guy anchors at each place. However, for the purpose of quote the following typical values of the soil bearing parameters may be considered:

Bearing Pressure: 8.2 metric tons/Sq.m

Earth Weight: 1450 Kg/cubic meter Angle of repose of soil : 30 degrees

Concrete : 2200 Kg/cubic meter

N.B : For a variation of 0.5 mt/sq.m in soil bearing capacity, additional amount required will be quoted.

The mast base and the isolation transformer foundations will be covered with 1.6mm thick copper sheets of electrical grade on the top and all sides of the foundation upto a depth of 1 foot below the natural ground level.

These sheets will be securely fastened to the foundation. The joints will be over lapping upto at least 1 inch and brazed continuously. The copper sheets, fixing and brazing material required for this work will be supplied by the tenderer.

VIII. ERECTION:

The complete erection of the antenna structure will be done by the tenderer. The tenderer shall, however, supply complete instructions with drawings for the assembly, erection procedure, adjustments of the antenna structure.

IX. GUARANTEE

(a) The tenderer shall certify and guarantee that the design, material used and fabrication of the antenna structure and accessories has been done to ensure the capacity of the antenna to withstand the electrical and mechanical stresses with margin of safety specified in this specification encountered under the conditions detailed in the specifications. The structure design details of the mast shall be approved by any of Govt of India structural Institute/IIT/IISc. For this purpose, a dynamic analysis is required to be performed against actual or standardized wind spectra and the successful tenderer shall provide the structural fitness certificate of the mast design within 1 month from the date of the acceptance of the tender. The payment for the approval for structural design from any of Govt of India structural Institute/IIT/IISc. has to be borne by the tenderer only.

(b) The tenderer shall ensure that the fabrication of the members of the antenna is done with such precision so that the main leg members of the antenna structure shall

remain vertical within two minutes of the arc subtended at the base of structure. The twist of the mast members will not exceed 1/2 degree.

(c) The tenderer shall guarantee the safety of the antenna structure under the specified conditions of electrical operation and wind pressure for a period of **one** year from the date of the taking over, of the antenna system.

(d) In the event of structural or electrical failure of any component / part of the antenna structure within the guarantee period specified above, on account of manufacturing defects, the tenderer shall undertake to replace the component / parts which have failed and those which were damaged as a result thereof, free of cost and bear the expenditure to be incurred for re-erection of the tower.

X. DRAWING AND TECHNICAL INFORMATION:

(a) A drawing showing the general arrangement of the antenna offered alongwith the technical information shall be submitted alongwith the tender in the proforma given in Appendix. This will include the leaflet showing technical and physical details of base and guy insulators.

(b) The successful tenderer shall submit 4 sets of the following within one month of the date of acceptance of his tender.

1. Layout plan along with action plan erection bar chart
2. Foundation design data and drawings for the antenna base and guy anchor foundations based on soil data given in Para - VII above.
3. Complete instructions with General drawings for the assembly erection and adjustments of the antenna structure.

XI. SPARES:

(a) The tenderer should quote unit cost separately for the spares such as mast base insulator, guy insulators, RF chokes, light fittings and Austin transformer etc.

(b) The tenderer should quote separately for the kit comprising of Jig and fixture, Hydraulic Jacks etc required for the replacement of mast base insulator.

XII. DELIVERY PERIOD:

All the erection works including measurements and handing over shall be completed with in 8 months of acceptance of tender.

XIII. PRE- DISPATCH INSPECTION:

Pre dispatch inspection of stores by giving an advance notice of three weeks shall have to be got done by representative of O/o ADG:AIR , DD, Chennai Unit or resident inspector if any assigned for such purpose at the premises of manufacturer.

XIV: PAYMENT TERMS:

As per commercial terms.

XV: INSURANCE

The entire store will be comprehensively insured including during transit, for free delivery at site, till the mast is erected and handed over to the consignee.

SECTION-II

TECHNICAL INFORMATION TO BE SUPPLIED ALONG WITH THE TENDER

1. ANTENNA STRUCTURE :

- a. A drawing showing the general arrangement of the antenna structure offered.
- b. Dimension of the Cross-section of the antenna structure.
- c. Wind load adopted for the mast.

2. Guy ropes:

- (a) Type and specification reference. (b) Sizes of various guy ropes.
- (c) Maximum calculated working stress for each guy at the design load.
- (d) Calculated ultimate breaking strength of each guy rope (as modified by a factor depending on the type of connections).
- (e) Proof test load for each guy wire

3. Base Insulator:

- (a) Make/Manufacturer's name
- (b) Type number with sketch
- (c) Working load (as per design of antenna structure) (d) Proof test load
- (e) Breaking load
- (f) Wet flash over voltage at 50 Hz.(without & with rain shield)
- (g) Wet flash over voltage at 1 MHz.(without & with rain shield)
- (h) Capacitance. of base insulator with & without Austin transformer
- (i) Calculated Base and characteristic Impedance of mast.
- (j) Calculated Base Voltage across insulator under normal working condition.

4. Guy break up insulators:

- (a) No. and type of insulators in the chain near the tower attachment point.
- (b) Spacing of the insulators in each guy.
- (c) Type and make of guy insulators.
- (d) Breaking load
- (e) Wet flash over voltage of each insulator at 50 Hz.
- (f) Wet flash over voltage of each insulator at 1 MHz.
- (g) Capacitance of Insulator.
- (h) Distribution of voltage across guy insulators for each guy length.

5. Guy insulator protective device type proposed to be used & if RF chokes then its details & inductance including the antiresonance impedance at carrier frequency.
6. Antenna lighting transformer/filter circuit details with KVA ratings and it's capacitance/inductance values.
7. Details of aviation lights.
8. Wiring diagram of mast lighting.
9. Details of mast climbing arrangement including the safety arrangements with drawings.
10. Details of kit for replacement of mast base insulator.

Section III

Specification for painting of a Galvanized mast

Painting is a accepted method of protection against corrosion, wear, decay and other factors which affect the durability of the structures. In addition, painting of the masts according to a specific colour scheme is obligatory as per "International Civil Aviation Regulations", which are reproduced as follows:

" The mast shall be painted in alternate bands of International Orange and White paints. The bands shall be perpendicular to the longest dimension and have a width of approximately 1/7 th of the longest dimension for towers of height upto 210 meters and 1/9th of the longest dimension for towers of height between 210 meters and 270 meters OR 30 meters (100 ft.) whichever is less. The Orange and White paints shall be of equal width terminating with Orange bands at both top and bottom."

The painting shall be done in the following sequence.

A) Preparation of Surface:

All dust, dirt, grease, rust add scale, if any, should be thoroughly removed. Degreasing is an essential preliminary for removing dirt and grease. Solutions of soap, or other detergents should be used. After the dirt has been removed, the work should be thoroughly rinsed off with plenty of clean water.

B) Pre-treatment by Etching:

After degreasing and cleaning, when the work is absolutely dried, the surface is to be prepared for receiving the paint by etching. For this purpose, a priming coat of wash/etch primer should be given. The etch primer shall be of a reputed make and of a composition specifically used for zinc surfaces.

C) Priming under Coat:

After the above coat is dried, but without too much delay, a coat of zinc chromate primer should be applied. The priming coat should be allowed to dry for a minimum period of 72 hours before application of the next coat.

D) Final coats of paints:

The finishing coats of high quality exterior class paint shall be applied. The first coat shall be allowed to dry for at least 48 hours before the second coat is applied. The paints, primers and thinner used must be of best quality and shall conform to the following specifications.

IS : 2074 - 1962 (Revised up to date) - Ready mixed paint ,redoxide zinc chrome priming.

IS : 2932 - 1964 (Revised up to date) - Enamel synthetic, exterior type.

IS : 1745 -1961 (Revised up to date) – Petroleum Hydrocarbon solvents (thinner). The correct shade for International Orange corresponds to "592 - International Orange" as per IS : 5 - 1961 (Revised up to date).

SECTION-IV

SCHEDULE OF REQUIREMENTS FOR VERTICAL PASSIVE MAST AT AIR PORTBLAIR

PART-1 : DETAILS & SPECIAL CONDITIONS

(A) Design, fabrication, supply, erection, painting ,measurements of twist, verticality & functioning of aviation lights including handing over of 120 M. High vertical mast (on ready-to-use basis) capable of radiating R.F. Carrier Power of 100 KW in medium wave band as per the following details:

Item	Particulars	No.
1.	<i>Power</i> <u>100 KW (Plus modulation upto 150%) if required in future.</u>	
2.	Mast Height	120 M
3.	Height above mean sea level	15M
4.	Site coordinates	11Degree -36'-15" N 92Degree-45'-41" E

The supplies will be complete including the Mast superstructure with climbing arrangement, Guys with break-up insulators and RF Chokes, Mast-Base Insulator, Aviation-Obstruction lights with Isolation Transformer circuit and all necessary foundations for the Mast-Base, Guy-Anchors, Isolation Transformer etc including the copper-sheet covering for earthing of the Mast Base foundation and Isolation Transformer foundation etc alongwith paints, primers etc.

B. Special Conditions:

- (i) The mast will be a triangular lattice structure having an equivalent cross sectional area equal to that of old 0.9m. dia circular/cylindrical structure for having an approximate base impedance of $66.6+j98.4\Omega$ at 684 KHz (old 120 m fallen passive mast at Port blair) since it will be part of a 2 antenna DA system.
- (ii) The new mast will be erected at existing location, by removing the old base and guy anchor foundation blocks, as it is part of existing DA system and physical separation w.r.t active mast is to be strictly maintained as per design for obtaining required radiation pattern.
- (iii) The location of foundation and erection activities shall be carried out in co-ordination with Zonal & station authorities.

PART-II ; SHEDULE OF REQUIREMENTS :

- Note:-**
- 1. The tenderer shall furnish the cost details of each of the items separately under the commercial Bid.**
 - 2. The tenderer may visit the site before submitting the tender realistic offer.**

S.	Item Description	Qty.
(SUPPLY PORTION material/stores	
1	a) Design, Fabrication, Galvanizing, Supply of mast structure with Climbing arrangement, b) Guy ropes including fasteners, thimbles, Pin washer etc. c) Isolation transformer, AOL (Solid State), Cables, Conduit pipes, Junction boxes, Sunswitch,. d) RF Chokes (Nos. to he indicated by tender) e) 1.6mm copper sheet covering for mast and isolation transformer foundation for RF Earthing of radials.	1 Lot 1 Lot 1 Lot 1 Lot 1 Lot
2	Design, Supply, Integration of base insulators & Guy insulators	1 Lot
3	Manuals incorporating all the drawings giving description, erection procedure & maintenance of mast including procedure for measuring twist, verticality & guy tension	4 sets
	NOTE:- The Supply shall include all the items which might have not been specifically mentioned above but are requisite & essential for mast on ready to use basis	
(B	SERVICES/WORKS	
1	Design & casting of concrete foundation for Mast base, Guy anchor and Austin transformer including all raw materials, labour, site clearance etc and covering of base and Austin transformer foundation block with 1.6mm copper sheet.	1 job
2	Erection of Mast including fixing of Guy strain Insulators, Egg Insulators, Checking of vertically, Guy tension etc.	1 job
3	Painting of triangular mast including supply of paints and other materials	1 job
4	Additional charges for reduction of every 0.5 MT/sqm in soil bearing capacity of casting of Mast base, guy anchor, Isolation transformer foundation	1 job
5	Removal of damaged old mast base & disposal outside	1 job (LS)

(C)	OPTIONAL ITEMS	
	1. RF Chokes	2 Nos.
	2. AOL (Solid state lamps)	1 set
	3. Guy Insulator	2 Nos.
	4. Base insulator	1 No.
	5. Jig for replacement of Mast-Base insulator .	1 set
	6. Safety-kit for Mast climbing.	1 set
	7. Shunt type tension dynmometer	1 No.

Drawing No.-SX1- 2088- General arrangement of 120 M height Mast at AIR, Port Blair is attached herewith.

TECHNICAL BID

S. No.	Item Description	Qty.	Remarks
(A) SUPPLY PORTION material/stores			
1	a) Design, Fabrication, Galvanizing, Supply of mast structure with Climbing arrangement, b) Guy ropes including fasteners, thimbles, Pin washer etc. c) Isolation transformer, AOL (Solid State), Cables, Conduit pipes, Junction boxes, Sun switch,. d) RF Chokes (Nos. to be indicated by tender) e) 1.6mm copper sheet covering for mast and isolation transformer foundation for RF Earthing of radials.	1 Lot 1 Lot 1 Lot 1 Lot 1 Lot	
2	Design, Supply, Integration of base insulators & Guy insulators	1 Lot	
3	Manuals incorporating all the drawings giving description, erection procedure & maintenance of mast including procedure for measuring twist, verticality & guy tension	4 sets	
	NOTE:- The Supply shall include all the items which might have not been specifically mentioned above but are requisite & essential for mast on ready to use basis		
(B) SERVICES/WORKS			
1	Design & casting of concrete foundation for Mast base, Guy anchor and isolation transformer including all raw materials, labour, site clearance etc and covering of base and Austin transformer foundation block with 1.6mm copper sheet.	1 job	
2	Erection of Mast including fixing of Guy strain Insulators, Egg Insulators, Checking of vertically, Guy tension etc.	1 job	
3	Installation of isolation transformer, AOL (Solid State), Cables, Conduit pipes, Junction boxes, Sun switch etc.,		
4	Painting of triangular mast including supply of paints and other materials	1 job	
5	Additional charges for reduction of every 0.5 MT/sqm in soil bearing capacity of casting of Mast base, guy anchor, Isolation transformer foundation	1 job	
6	Removal of damaged old mast base & disposal outside	1 job (LS)	

(C)	OPTIONAL ITEMS		
	1. RF Chokes	2 Nos.	
	2. AOL (Solid state lamps)	1 set	
	3. Guy Insulator	2 Nos.	
	4. Base insulator	1 No.	
	5. Jig for replacement of Mast-Base insulator .	1 set	
	6. Safety-kit for Mast climbing.	1 set	
	7. Shunt type tension dynmometer	1 No.	

NOTE:

All the informations sought under Section-II should be replied.

COMMERCIAL BID

S. No.	Item Description	Qty.	Rate	Amount
(A)	SUPPLY PORTION material/stores			
1	a) Design, Fabrication, Galvanizing, Supply of mast structure with Climbing arrangement, b) Guy ropes including fasteners, thimbles, Pin washer etc. c) Isolation transformer, AOL (Solid State), Cables, Conduit pipes, Junction boxes, Sun switch,. d) RF Chokes (Nos. to be indicated by tender) e) 1.6mm copper sheet covering for mast and isolation transformer foundation for RF Earthing of radials.	1 Lot 1 Lot 1 Lot 1 Lot 1 Lot		
2	Design, Supply, Integration of base insulators & Guy insulators	1 Lot		
3	Manuals incorporating all the drawings giving description, erection procedure & maintenance of mast including procedure for measuring twist, verticality & guy tension	4 sets		
	NOTE:- The Supply shall include all the items which might have not been specifically mentioned above but are requisite & essential for mast on ready to use basis			
(B)	SERVICES/WORKS			
1	Design & casting of concrete foundation for Mast base, Guy anchor and isolation transformer including all raw materials, labour, site clearance etc and covering of base and Austin transformer foundation block with 1.6mm copper sheet.	1 job		
2	Erection of Mast including fixing of Guy strain Insulators, Egg Insulators, Checking of vertically, Guy tension etc.	1 job		
3	Installation of isolation transformer, AOL (Solid State), Cables, Conduit pipes, Junction boxes, Sun switch etc.,			
4	Painting of triangular mast including supply of paints and other materials	1 job		
5	Additional charges for reduction of every 0.5 MT/sqm in soil bearing capacity of casting of Mast base, guy anchor, Isolation transformer foundation	1 job		
6	Removal of damaged old mast base & disposal outside	1 job (LS)		

(C)	OPTIONAL ITEMS	
	1. RF Chokes	2 Nos.
	2. AOL (Solid state lamps)	1 set
	3. Guy Insulator	2 Nos.
	4. Base insulator	1 No.
	5. Jig for replacement of Mast-Base insulator .	1 set
	6. Safety-kit for Mast climbing.	1 set
	7. Shunt type tension dynmometer	1 No.

SAFETY WORKSMANSHIP AND INSURANCE FOR THE WORKERS.

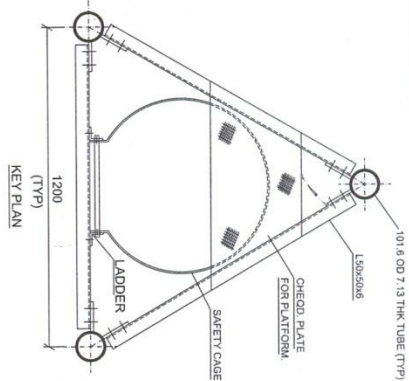
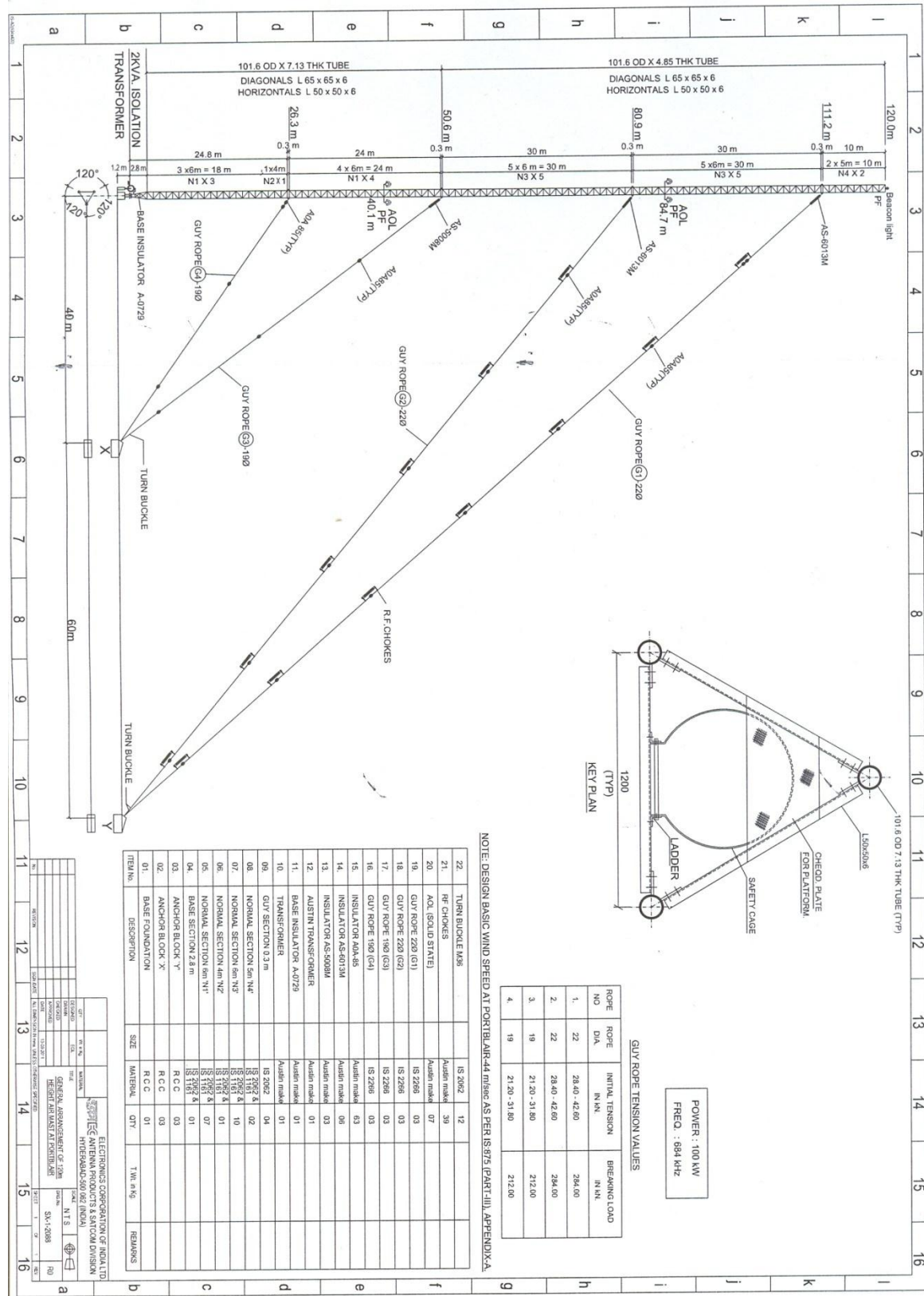
The successful tenderer had to ensure that all safety norms are followed during the erection of the mast and the work is executed in a professional manner. All the formalities for the insurance of the workers deployed for erection are completed and a copy of all documents in this regard is to be submitted to the installation officer before starting the erection work.

COMPLETION OF MAST:

1. The mast is to be inspected at site by the representatives of Zonal Office when it is completed in all respect including the works of painting, aviation light etc.,
2. The verticality of the mast is to be verified by the inspector at site during his inspection as per the specification. The arrangements of equipment for checking the verticality is to be arranged by the mast erector.
3. The earth resistance of the mast is also to be verified by the inspector at site.
4. All debris, extra materials and items etc., which are brought/created during construction work at site are to be removed/cleared by the mast tenderer
5. The aviation-lights on the mast should function as per civil Aviation specifications.
6. The 120 M mast is to be erected on the mast foundation

AGREEMENT OF CONTRACT:

It is mandatory that the contractor should sign on “**Agreement of Contract**” in a non-judicial stamp paper value of Rs.100/- and handover to this office before issuing the work order.



POWER : 100 MW
FREQ. : 60 HZ

GYU ROPE TENSION VALUES

ROPE NO	ROPE DIA	INITIAL TENSION IN KN	BREAKING LOAD IN KN
1.	22	28.40 - 42.60	284.00
2.	22	28.40 - 42.60	284.00
3.	19	21.20 - 31.80	212.00
4.	19	21.20 - 31.80	212.00

NOTE: DESIGN BASIC WIND SPEED AT PORTBLAIR-44 m/sec AS PER IS 875 (PART-III), APPENDIX-A.

22.	TURN BUCKLE M38	IS 2062	12	Austin make	39
21.	R.F. CHOKES	IS 2286	07	Austin make	07
20.	AOL (SOLID STATE)	IS 2286	03	Austin make	03
19.	GYU ROPE 220 (G1)	IS 2286	03	IS 2286	03
18.	GYU ROPE 220 (G2)	IS 2286	03	IS 2286	03
17.	GYU ROPE 190 (G3)	IS 2286	03	IS 2286	03
16.	GYU ROPE 190 (G4)	IS 2286	03	Austin make	03
15.	INSULATOR AD-48	IS 2286	05	Austin make	05
14.	INSULATOR AD-8013M	IS 2286	03	Austin make	03
13.	INSULATOR AS-5008M	IS 2286	03	Austin make	03
12.	AUSTIN TRANSFORMER	IS 2286	01	Austin make	01
11.	BASE INSULATOR A-0729	IS 2062	04	Austin make	04
10.	TRANSFORMER	IS 2062	01	IS 2062	01
09.	GYU SECTION 0.3 m	IS 2062	10	IS 2062	10
08.	NORMAL SECTION 5m N1	IS 1161	01	IS 1161	01
07.	NORMAL SECTION 5m N2	IS 1161	01	IS 1161	01
06.	NORMAL SECTION 5m N3	IS 1161	01	IS 1161	01
05.	NORMAL SECTION 5m N4	IS 1161	01	IS 1161	01
04.	BASE SECTION 2.8 m	IS 1161	01	R.C.C	01
03.	ANCHOR BLOCK 'Y'	IS 1161	03	R.C.C	03
02.	ANCHOR BLOCK 'X'	IS 1161	03	R.C.C	03
01.	BASE FOUNDATION	IS 1161	01	R.C.C	01

NO.	REV.	DATE	BY	CHKD.	DESCRIPTION
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2					
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16					

ELECTRONICS CORPORATION OF INDIA LTD.
 100, PLOT NO. 10, SECTOR 10, GATEWAY INDUSTRIAL ESTATE, NEW DELHI-110028
 GENERAL ARRANGEMENT OF 220KV TRANSFORMER TOWER AT PORTBLAIR
 DRAWING NO. SA-12088
 DATE: 10/11/2008