BHARAT SANCHAR NIGAM LIMITED

(A Govt of India Enterprise)

(Electrical Wing)

O/o The Executive Engineer (E)

BSNL Electrical Division-III

No.22, Kellys Road,

Chennai - 600010.

Office: 044-26474545 Fax: 044-2647 6292

E-mail: eeedn3@gmail.com

E-TENDER DOCUMENT

Name of work: - Providing Electrical Infra structure works for Cable Landing Stations in Chennai ; SW: SITC of (2+1)7TR HPAC and 16nos x 1.5TR inverter split ac units with AMC for 84Months(i/c 24 Months warranty)

NIT No : 43 / EEE/ED-III/CH/2019-20

This tender document contains 55 **(Fifty five** pages only.)

For E Tender Helpdesk Pls Contact M/s ITI LTD :Ph:91-80-40482000 &

Mail Id :twhelpdesk399@gmail.com, bsnltwhelpdesk@gmail.com

INDEX

INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR E-TENDERING FORMING PART OF NIT AND TO BE POSTED ON WEBSITE

The Executive Engineer (Elect), BSNL, **Electrical Division-III, Chennai** on behalf of the CMD, Bharat Sanchar Nigam Limited, invites online Item rate bids from eligible bidders in Single bid system for the following work:

1	Name of work	Providing Electrical Infra structure works for Cable Landing Stations in Chennai; SW: SITC of (2+1)7TR HPAC and 16nos x 1.5TR inverter split ac units with AMC for 84Months (i/c 24 Months warranty)
2	Estimated cost put to tender	**Rs. 28,54,812/-(Excluding GST)**
3	Earnest Money	**Rs.57,096/-**
4	Period of completion	86 months(SITC-2months,AMC-84 months after completion of SITC)
5	Last date & time for online submission of tender	Up to 11:00 Hrs. on 20 - 08 -2019
6	Last date & time for submission of original Tender cost and EMD	Up to 11:00 Hrs. on 20 – 08 -2019
7	Date and time for opening of tender	11:30 Hrs. on 20 - 08 -2019
8	Tender cost (Non refundable)	Rs.500/- (+) GST 18%
9	E-tender Processing fee (Non-refundable)	0.05% of estimate cost subject to the minimum of Rs.500/- and Maximum of Rs. 5000/- plus GST as applicable.

ELIGIBILITY CRITERIA

1. Financial Norms:
   Average annual turnover during the last 3 years, ending 31st March of the previous financial year, should be at least 30% of the estimated cost put to tender.

   AND

2. BSNL Corporate Office (Electrical) approved Package AC Manufacturer.

   (OR)

3. The dealer authorized by BSNL Corporate office (Electrical) approved Package AC Manufacturers. The letter of Authorization in Original from the manufacturer will have to be produced by the dealers.

   (OR)

4. Experience of having successfully completed similar works in Central Government/State Government /Central Autonomous Body/Central Public sector Undertaking during last 7 years ending last day of month previous to the one in which applications are invited should be either of the following :-

a. Three similar successfully completed works costing not less than the amount equal to 40% of the estimated cost put to tender with Central/Package AC Plant with equipment Module not less than 80% of individual capacity of the Central/Package AC Plant Proposed in the NIT.

(OR)

b. Two similar successfully completed works costing not less than the amount equal to 60% of the estimated cost put to tender with Central/Package AC Plant with equipment Module not less than 80% of individual capacity of the Central/Package AC Plant Proposed in the NIT.

(OR)

c. One similar successfully completed work costing not less than the amount equal to 80% of the estimated cost put to tender with Central/Package AC Plant with equipment Module not less than 80% of individual capacity of the Central/Package AC Plant proposed in the NIT.

Similar work means Supply, Installation, Testing and commissioning of Microprocessor based High precision AC unit.

Note : The Agency shall produce authorization certificate in original from BSNL approved High precision AC Manufacturer for supply of spare parts, technical support etc during currency of comprehensive AMC Contract

IMPORTANT NOTE:

1. The self-attested copies of the following documents shall be scanned and uploaded to the e-tendering website within the period of tender submission. Online bid documents submitted by intending bidders shall be opened only of those bidders, who have scanned and uploaded the following documents (and whose uploaded documents are found to be in order), otherwise the bid will not be opened and shall lead to disqualification.
   a. Tender Fee in the prescribed format
   b. EMD in the prescribed format
   c. Certificate of Financial Turnover from Chartered Accountant if applicable
   d. Documents fulfilling Eligibility criteria (Please note that in case the bidder is authorized by the manufacturer, the original authorization letter is to be scanned and uploaded)
   ~~e. Enlistment certificate issued by BSNL (for BSNL enlisted contractors)~~
   ~~f. Valid Electrical license. if applicable.(Required in case of BSNL enlisted contractors)~~
   g. GST Registration Number details.
   h. PAN Card
   i. EPF and ESI Registration certificate (if applicable)
   j. Undertaking to abide by EW-6 and EW-8 (Form 'A')
   k. Undertaking regarding EPF and ESI provisions (Form 'B')
   l. Certificate of work experience issued by client department (Form 'C') if applicable
   m. Undertaking regarding No Near relative working certificate (Form 'D')

Not uploading the above documents, (even if the documents are submitted physically) shall lead to disqualification.

2. The Physical Tender Fee, EMD and the original authorization letter by the manufacturer (if applicable), which were scanned and uploaded, **shall be deposited in the tender box available in the office of tender opening authority**, by all the bidders before 11:00 AM on the tender opening date, **failing which the tender shall not be opened.**

BSNL EW-6
Bharat Sanchar Nigam Limited
Electrical Wing

Electrical Division: **ED-III, Chennai** Sub Division: **CANI Project, Chennai**

Item rate tenders on single bid system are invited on behalf of CMD, BSNL for the work "Providing Electrical Infra structure works for Cable Landing Stations in Chennai; SW: SITC of (2+1)7TR HPAC and 16nos x 1.5TR inverter split ac units with AMC for 84Months (i/c 24 Months warranty)" from the eligible bidders as per NIT notification. The enlistment of the bidders should be valid on the opening date of tender. In case the date of opening of tender is extended, the enlistment of bidder should be valid on the original date of opening of tender.

1. Intending bidder is eligible to submit the bid provided that he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority as per the eligibility conditions mentioned in the NIT notification page.

2. The work is estimated to cost **Rs. 28,54,812/-(Excluding GST)**

3. Agreement shall be drawn with the successful bidder on prescribed form as amended up to the date of opening of tender. Bidder shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.

4. The time allowed for carrying out the work will be 86 months (SITC-2months, AMC-84 months after completion of SITC) from the 10 th day after the date of written order to commence the work.

5. The site for the work is available / or the site for the works shall be made available in parts. The successful bidder shall execute the work in coordination with other agencies working in the campus.

6. The bid documents consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website **www.tenderwizard.com/BSNL** at free of cost. The BSNL EW-8 document can be seen from the web site **www.chennai.bsnl.co.in** at free of cost.

7. After submission of the bid, the bidder can re-submit revised bid any number of times but before last time and date of submission of tender as notified. While submitting the revised bid, bidder can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of tender as notified.

8. The Tender Fee as applicable in the form of Demand Draft issued by the Nationalized / Scheduled bank authorized by the Reserve Bank of India, drawn in favour **of ACCOUNTS OFFICER(Cash), BSNL, STP, CHENNAI-28** payable at **CHENNAI** shall be scanned & uploaded in the e-tendering website within the period of tender submission. The validity of the tender cost in the form of DD shall be **60 days** from the date of opening.

9. The Earnest money deposit (EMD) in the form of Demand Draft / FDR / BG (BG is only for Air Conditioning, Diesel Engine Alternator, Lifts, and Sub Station works wherever the amount of EMD is more than Rs.20,000)/ CDR of a nationalized / scheduled bank authorized by the Reserve Bank of India, drawn in favour of **ACCOUNTS OFFICER(Cash), BSNL, STP, CHENNAI-28** payable at **CHENNAI** shall be scanned & uploaded in the e-tendering website within the period of tender submission. The validity of the EMD in the form of DD shall be **60 days** from the date of opening.

If the EMD is in the form of CDR/FDR/BG, the validity shall be **180 days** from the date of opening. In case of L1 bidder, the validity of CDR/FDR/BG is to be extended up to the observation period as that of the Performance guarantee / Security deposit. Exemption from payment of Tender Fee, Earnest Money and Security Deposit by any other unit/ department shall not hold good for BSNL.

10. Interested bidder who wishes to participate in the bid shall pay the e-tender processing fee to M/s. ITI Limited through their e-gateway by credit/debit card/ internet banking/ RTGS/NEFT facility.

11. All the documents as specified in the tender document shall be scanned and uploaded to the e-Tendering website within the period of bid submission.

12. The last date for online submission of bid is **20 . 08 .2019** up to 11:00 AM and the bid submitted shall be opened at 11:30 AM on the same day. If a holiday is declared on the tender opening day, the tender will be opened on the next working day.

13. The e-Tender processing fee and tender cost are non-refundable

14. **Performance Guarantee**: The bidder is required to furnish Performance guarantee for an amount equal to 5% of the contract value in the form of bank guarantee/CDR/FDR/DD (of a Nationalized/ Scheduled Bank in a standard format) within two weeks from the date of issue of acceptance letter. This period can be further extended by the Engineer-in-charge up to a maximum period of two weeks on written request of Bidder. The validity period of the performance security in the form of performance bank guarantee shall be three Months from the date of actual completion of work. Date of Actual completion of work will be completion of AMC period. **In case the bidder fails to deposit the said performance guarantee within the stipulated period, including the extended period if any, the Earnest Money deposited by the bidder shall be forfeited automatically without any notice to the bidder and the bidder will not be allowed to participate in the re tendering for the same work.**

15. **Security Deposit**: In addition to Performance guarantee stated above, a sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum will be deducted with the sum already deposited as earnest money, will amount to security deposit of 5% of the contract value of the work. **The security deposit shall be released after an observation period as follows: Three Months from the date of actual completion of work.**

16. In case any discrepancy is noticed in the documents as uploaded at the time of submission of the bid online, then the bid submitted shall become invalid and the BSNL shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further, the bidder shall not be allowed to participate in the retendering process of the work.

17. Intending bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders, the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidder shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be

done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the BSNL and local conditions and other factors having a bearing on the execution of the work.

18. The competent authority on behalf of the CMD does not bind himself to accept the lowest or any other tender and reserves to himself the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidder shall be summarily rejected. The competent authority on behalf of CMD reserves to himself the right of accepting the whole or any part of the tender and the bidder shall be bound to perform the same at the rate quoted.

19. Canvassing whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the bidders who resort to canvassing will be liable to rejection.

20. Agreement shall be drawn with the successful bidder on prescribed form. Bidder shall quote his rates as per various terms and conditions of the said form, which will form part of the agreement.

21. The bidder should give a certificate as per the following that none of his/her relative is employed in BSNL units as per **Form 'D'**. In case of proprietorship firm, certificate will be given by the proprietor and for partnership firm certificate will be given by all the Directors of the company.
    a. Near relatives of all BSNL employees either directly recruited or on deputation are prohibited from participation in tenders and execution of works in the different units of BSNL. The near relatives for this purpose are defined as:
        i. Members of a Hindu Undivided family.
        ii. They are husband and wife.
        iii. The one is related to the other in the manner as father, mother, son(s) & son's wife(daughter-in-law), Daughter(s) & daughter's husband(son-in-law), brother(s) & brother's wife, sister(s) & sister's husband(brother -in-law).
    b. The company or firm or any other person is not permitted to tender for works in BSNL unit in which his near relative(s) is(are) posted. The unit is defined as SSA/Circle/Chief Engineer/Chief Archt./Corporate office for non-executive employees and all SSA in a circle including circle office/Chief Eng./Chief Archt./Corporate office for executive employees (including those called as Gazetted officers at present). The bidder should give a certificate that none of his/her such near relative is working in the units as defined above where he is going to apply for tender/work, for proprietorship, partnership firms and limited company certificate shall be given by the authorized signatory of the firm. Any breach of these conditions by the company or firm or any other person, the tender/work will be cancelled and earnest money/performance guarantee will be forfeited at any stage whenever it is so noticed. BSNL will not pay any damages to the company or firm or the concerned person. The company or firm or the person will also be debarred for further participation in the concerned unit.

    c. No employee in BSNL/ Govt. of India is allowed to work as a contractor for a period of two years of his retirement from service without the prior permission. The contract is liable to be cancelled if either the bidder or any of his employees is found at any time to be such a person who had not obtained the permission as aforesaid before submission of tender and engagement in the bidders service.

22. The tender for the work shall remain open for acceptance for a period of **Ninety (90)** days from the date of opening of tenders. If any bidder withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the BSNL, then the BSNL shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as

aforesaid. Further the tenderer shall not be allowed to participate in the retendering process of the work.

23. The agency has to comply with the provisions of EPF and miscellaneous provisions Act-1952 and employees provident fund scheme-1952 as amended up to date in respect of labours/employees engaged by them for this work. Any consequence arising due to non-complying of provisions as specified above shall be the sole responsibility of the firm only. The agency shall give an undertaking to this effect as per **Form 'B'**.

24. **Extension of Validity of tender:** In case, where the letter of award of work cannot be placed within the validity period of the tender, the BSNL can request the bidder to extend the validity of their respective tenders and the Earnest Money deposit by a reasonable period. In such cases, extension of validity of Earnest Money deposit by 30 days beyond the extended validity date of tender should also be asked for. While BSNL can make the request for extension, the tenderer is free to either extend the validity or refuse the request to extend the validity.

25. Rates quoted by the contractor shall be firm and shall be valid for the currency of contract. No cost escalation shall be permitted during the currency of contract.

26. This notice inviting tender shall form a part of the contract document. The successful bidder, on acceptance of his tender by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-

    a. The Notice Inviting Tender, all the documents including additional conditions, specifications and drawings, if any, forming part of the tender as uploaded at the time of invitation of tender, subsequent amendments issued and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.

    b. Standard BSNL EW-8 form

General Instructions to the Bidders

1. The intending bidder must read the terms and conditions of BSNL-EW 6 carefully. He should only submit his bid, if he considers himself eligible and he is in possession of all the documents required.

2. Information and instructions for bidders posted on website shall form part of bid document.
3. Applicants are advised to keep visiting the above mentioned website from time to time (till the deadline for bid submission) for any updates in respect of the tender documents, if any. Failure to do so shall not absolve the applicant of his liabilities to submit the applications complete in all respect including updates thereof, if any. An incomplete application may be liable for rejection.

4. Those bidders not registered on the website mentioned above, are required to get registered themselves beforehand. The intending bidder must have valid class-III digital signature to submit the bid.

5. On opening date, the bidder can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
6. Bidder can upload documents in the form of JPG format or / and PDF format.

7. Bidder must ensure to quote rate of each item. The column meant for quoting rate in figures appears in yellow colour. In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as "0".Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as "0" (ZERO)

8. Even though any bidder may satisfy the above requirements, he would be liable to disqualification if he has:
    a. Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the eligibility criteria document.
    b. Record of poor performance such as abandoning work, not properly completing the contract, or financial failures / weaknesses etc.

9. If any information furnished by the bidder is found incorrect at a later stage, he shall be liable to be debarred from tendering/taking up of works in BSNL. The BSNL reserves the right to verify the particulars furnished by the applicant independently.

10. GST and any other tax applicable in respect of this contract shall be borne by the bidder himself. The bidder shall quote his rates considering all such taxes. The TDS as per the Govt. regulations will be recovered from the contractor.

11. **Tender Evaluation** :

(a) The evaluation and comparison of responsive bids shall be done on the basis of Nett cost to BSNL on the prices offered inclusive of packing, forwarding, freight and insurance charges etc., but excluding GST. The bid with lowest net cost as elaborated above will be the L1 bidder.

(b) Vendors should furnish the correct GST Rate in the price schedule. If the Input Tax Credit is found to be not admissible at any stage subsequently owing to wrong furnishing of GST Rate, then the vendors will be liable to refund such non-admissible amount, if already paid, along with penalty if charged by the concerned authority.

12. However, pursuant to the constitution (Forty-sixth amendment) act, 1982, if any further tax or

levy is imposed by statute, after the last date of receipt of tenders, and the contractors there upon necessarily and properly pays such taxes/ levies, the contractor shall be reimbursed the amount so paid, provided such payment, if any, is not in the opinion of Superintending engineer (whose decision shall be final and binding) be attributable to delay in execution of work within the control of contractor.

13. The Contractor shall, within a period of 30 days of imposition of any further tax or levy in pursuant to the constitution of (Forty sixth amendment) act 1982 give a written notice thereof to the Engineer-in-charge that the same is given pursuant to this condition, together with all necessary information relating thereto.

14. **Bye laws Indemnity against liabilities:**
    a. The bidder shall comply with all bylaws and regulations of the local and statutory authorities having jurisdiction over the works and shall be responsible for payment of all fees and other charges and giving and receiving all necessary notices and keep the Engineer –in-charge informed about the notices issued and received.
    b. The bidder shall indemnify the department against all claims in respect of patent rights design, trademark or name of other protected rights in respect of any plant, machine, work or materials used for or in connection with the works or temporary works and from and against all claims demands, proceedings, costs, charges and expenses whatsoever in respect of or in relation thereto.
    c. The bidder shall defend all actions arising from such claims and shall himself pay all royalties, License fees, damages, costs and charges of all and every sort that may be legally incurred in respect hereof shall be borne by the bidder.
    d. All liabilities / penal recoveries on matters arising out of tax /levies such as incorrect deductions, discrepancies in the filing of returns, revised assessments by the concerned authorities etc., shall be borne by the bidder.
15. **Termination of contract on death of contractor :**
    Without prejudice of any of the rights or remedies under this contract, if the contractor dies, the Engineer in charge on behalf of the BSNL shall have the option of terminating the contract without compensation to the contractor.

16. **Indulging of contractor in criminal /antisocial activities and cases under investigation/charge sheeted by CBI or any other government agencies etc. :**
    If the CBI/Independent External Monitor (IEM) /Income tax/ Sales Tax /GST/ Central Excise/Custom Departments recommend such a course - Action will be taken as per the directions of CBI or concerned department.

17. As a general notion, the terms and conditions/instructions contained in various pages of this document are addressed assuming the bidder as 'Male'. However, the same shall remain and assumed to be addressed in case of 'Female' bidder also, except for the gender centric words, which shall be 'female' centric at appropriate places.

FORM 'A'

Undertaking to abide by EW 6 & EW 8

"I…… …… …… …… ……Son/Daughter of …… …… …… …… …… ……Resident of …… …… …… …… …… …… …… hereby give an undertaking that I have read the complete bid document and I am aware of all the clauses and sub clauses of BSNL EW 6 & 8 forms and I confirm that I will abide by all the terms and conditions available in BSNL EW 6 & 8 forms.

(Seal of the firm) (Signature of Bidder)

FORM 'B'

Undertaking regarding EPF provisions

"I..... Son/daughter of ....Resident of .... hereby give an undertaking that

* I/We have employed only ---------- persons in our establishment and hence the EPF and Miscellaneous provisions Act, 1952are not applicable to my / our establishment.

* I/ We have registered as per the EPF and Miscellaneous provisions Act, 1952 and our registration no.** is ----------. We undertake to keep it valid during the currency of contract.

In case at any stage, it is found that the information given by me is false / incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me".

* Strike out whichever is not applicable

**Attach a self-attested photo copy of the above said EPF registration certificate.

(Seal of the firm) (Signature of Bidder)

Undertaking regarding ESI provisions

"I..... Son of ....Resident of .... hereby give an undertaking that

* I/We have employed only ---------- persons in our establishment and hence the ESI and Miscellaneous provisions Act, 1948 are not applicable to my / our establishment.

* I/ We have registered as per the ESI and Miscellaneous provisions Act, 1948 and our registration no. ** is ----------. We undertake to keep it valid during the currency of contract.

In case at any stage, it is found that the information given by me is false / incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me".

* Strike out whichever is not applicable

**Attach a self-attested photo copy of the above said ESI registration certificate.

(Seal of the firm) (Signature of Bidder)

FORM 'C'

Performance report of works

1. Name of Agency
2. Name of work
3. Agreement no.
4. Final Value of Work Done
5. Date of start of work
6.
7. Actual date of completion
8. Performance: Satisfactory / Not Satisfactory

Dated: Executive Engineer or Equivalent

FORM 'D'

No Near relative working certificate

I…… Son /daughter of Shri/ Smt.……Resident of…….. hereby certify that none of my relative(s) as defined in the tender document is/are employed in BSNL unit as per details given in tender document. In case at any stage, it is found that the information given by me is false/incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me.

(Seal of the firm) (Signature of Bidder)

Annexure I
MODEL FORM OF BANK GUARANTEE FOR EMD
(For submitting EMD for Air Conditioning, Diesel Engine Alternator, Lifts, and Sub Station Works wherever the amount of EMD is more than Rs.20,000/-)

Whereas_____ (hereinafter called "the bidder(s)") has submitted its Tender dated_____for the work _____ _____KNOW ALL MEN by these presents that WE _____ OF _____ having our registered office at_____ (hereinafter called "the Bank") are bound unto _____ (hereinafter called "the BSNL") in the sum of _____ for which payment will and truly to be made of the said BSNL, the Bank binds itself, its successors and assigns by these presents.

THE CONDITIONS of the obligation are:

1. If the Bidder(s) withdraws its Tender during the period of Tender validity specified on the Tender Form: or
2. If the Bidder(s) having been notified of the acceptance of its Tender by the BSNL during the period of Tender validity.
   (a) Fails or refuses to execute the Contract.
   (b) Fails or refuses to furnish security Deposit in accordance with the conditions of Tender document.

We undertake to pay to the BSNL up to the above amount upon receipt of its first written demand, without the BSNL having to substantiate its demand, provided that in its demand, the BSNL will note that the amount claimed by it is due to it owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force as specified in the Tender Document up to and including Thirty (30) days after the period of the Tender validity and any demand in respect thereof should reach the Bank not later than the specified date/dates.

Signature of the Bank

Signature of the Witness
Name of Witness

Address of Witness:

ANNEXURE II
PERFORMANCE SECURITY GUARANTEE BOND

In consideration of the CMD, BSNL (hereinafter called 'BSNL') having agreed to exempt _____ (hereinafter called 'the said bidder(s)') from the demand under the terms and conditions of an agreement/Advance Purchase Order No _____ dated _____ made between _____ and _____ for the supply of _____ (hereinafter called "the said agreement "), of security deposit for the due fulfilment by the said bidder (s) of the terms and conditions contained in the said Agreement, on production of the bank guarantee for _____we, (name of the bank) _____ (hereinafter refer to as "the bank") at the request of _____ (bidder(s)) do hereby undertake to pay to the BSNL an amount not exceeding _____ against any loss or damage caused to or suffered or would be caused to or suffered by BSNL by reason of any breach by the said Bidder(s) of any of the terms or conditions contained in the said Agreement.

2. We (name of the bank) _____ do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the BSNL by reason of breach by the said bidder(s)' of any of the terms or conditions contained in the said Agreement or by reason of the bidders(s)' failure to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee where the decision of BSNL in these counts shall be final and binding on the bank. However, our liability under this guarantee shall be restricted to an amount not exceeding _____.

3. We undertake to pay to the BSNL any money so demanded notwithstanding any dispute or disputes raised by the bidder(s)/supplier(s) in any suit or proceeding pending before any court or tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the bidder(s)/supplier(s) shall have no claim against us for making such payment.

4. We(name of the bank)_____ further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the BSNL under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till _____ (office/BSNL) BSNL certifies that the terms and conditions of the said Agreement have been fully or properly carried out by the said bidder(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the expiry of TWO/TWO AND HALF/THREE YEARS (as specified in P.O) from the date hereof, we shall be discharged from all liabilities under this guarantee thereafter.

5. We (name of the bank)_____ further agree with the BSNL that the BSNL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said bidder(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the BSNL against the said Bidder(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Bidder(s) or for any forbearance, act or omission on the part of the BSNL or any indulgence by the BSNL to the said Bidder(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Bidder(s)/supplier(s).

7. We (name of the bank) _____ lastly undertake not to revoke this guarantee during its currency except with the previous consent of the BSNL in writing.

Dated the _____ day of _____

for_____ (indicate the name of bank)

SCHEDULE OF QUANTITIES

Name of Work:-Providing Electrical Infra structure works for Cable Landing Stations in Chennai ; SW: SITC of 3X7TR HPAC and 16nos X1.5TR split ac units with AMC for 84Months(i/c 24 Months warranty)

Sl. No	Description of Item	Qty	unit	Rate per unit excluding GST	CGST		SGST		IGST		Rate per unit including GST	Total Amount excluding GST (Net cost)	Total Amount i/c GST	HSN Code
					%	Rate	%	Rate	%	Rate				
	SH-I HPAC UNITS-Part-A (SITC)													
1	Supply of factory assembled factory tested micro processor controlled 7 TR sensible cooling capacity precision package AC unit along with all accessories and motorized Volume Control Damper with actuator as per the detailed specifications attached. Note:-1). The unit shall be Top / bottom discharge type. 2). Humidification package & its controls are excluded in the unit. Hence the rates may be quoted without humidification package. 3). The price quoted is inclusive of all control cables and suitable MS frame work for the indoor unit. 4) Make: Any BSNL approved make [Emerson / Sidwal / Stulz / Schneider (or) any subsequent approval by BSNL Corporate Office till the date of sale of tender shall be accepted.(Warranty for 24 months)	1 No	Each											
2	Installation, testing and commissioning of above 7 TR precision AC package units including mounting indoor unit with suitable arrangement and outdoor units on the existing frame work, pressure testing, vaccumisation, refrigerant charging to the required level etc including acceptance testing as per the specification attached.	1 job	Job											

UNPRICED SCHEDULE

3	Providing and Laying of refrigerant pipe lines of size for hot and cold circuits, leak and pressure testing of refrigerant lines, vaccumising, insulation of refrigerant piping arrangement and first charge of refrigerant for the AC system, complete as per specifications.													
a)	Hot Gas Line, 7/8" dia. (NB: If higher size of Cu piping applicable, the same has to be supplied at same cost as 7/8")	10 mts	Mtr											
b)	Liquid Line, 5/8" dia. (NB: If higher size of Cu piping applicable, the same has to be supplied at same cost as 5/8")	10 mts	Mtr											
c)	4 core 2.5 Sq,mm PVC insulated PVC sheathed copper conductor armoured UG cable including cable gland end termination etc.	10 mts	Mtr											
	Sub Total for Part-A For 1 Unit													
	Sub Total for Part-A For 3 Units													
	SH-I HPAC UNITS-PART B AMC													
1	Comprehensive Maintenance of 1No 7TR HPAC micro process based high precision package AC units including all item covered under item 1 to 3 of part-II as per specifications /conditions of contract& as per the details given in the relevant section by deploying the required staff including specialized man power and by supplying & fixing required spares, refrigerant gas, tools and plants etc to keep the AC unit & connected equipments operational up to the required standards complete as required. (post Warranty Period)													
a	First Year (Under warranty)	12 Months	Month											
b	Second Year (Under warranty)	12 Months	Month											

UNPRICED SCHEDULE

c	Third Year	12 Months	Month											
d	Fourth Year	12 Months	Month											
e	Fifth Year	12 Months	Month											
f	Sixth Year	12 Months	Month											
g	Seventh Year	12 Months	Month											
	Sub Total of PART B AMC for 1unit													
	Sub Total of PART B AMC for 3units													
	SH-II 1.5TR Inverter AC unit Part-A (SITC)													
1	Supply of 1.5 TR inverter type split AC unit 5 star as per BEE star rating having nominal cooling capacity of 4500 Kcal/hr (5.2 KW), minimum room air flow of 700 cub.mtr/hr and minimum Indian Seasonal Energy Efficiency Ratio (ISEER) of 4.5 along with the copper pipe, suitable size of PVC insulated chord wire and PVC drain pipe up to the length of 3 mtrs including transportation etc., complete as per specifications, terms and conditions attached as required. (Make: Panasonic / Universal comfort (Voltas) /Hitachi / LG / Carrier / Daikin / Mitsubishi / O-General/ Blue star)	1 No	Each											

UNPRICED SCHEDULE

2	Installation, Testing and commissioning of 1.5 TR Inverter type AC unit along with the copper piping, PVC drain pipe and wiring up to the standard length of 3 mtrs (supplied as under Item.1) including gas charging, insulation and making opening in wall and making good the damages etc., as required.	1 Job	Job											
3	Providing and fixing the following additional items suitable for the above AC units, over and above 3 mtrs length where ever required .													
a)	Suitable size of Copper pipes (hot gas and liquid line) including insulation etc., as required.	4 Mts	Mtr											
b)	Suitable size of PVC insulated chord wire.	4 Mts	Mtr											
c)	Suitable size of PVC drain pipe.	6 Mts	Mtr											
4	Providing and fixing of Readymade Condensor stand suitable for outdoor unit, etc as required.	1 No	Each											
	SH II -Sub Total Part-A For 1Unit													
	SH II -Sub Total Part-A For 16Units													
	SH-II 1.5TR Inverter AC unit Part-B (AMC)													
1	Comprehensive Maintenance of 1 No 1.5TR inverter type split ac unit etc as required . (post Warranty Period)													
a	First Year (Under warranty)	12 Months	Month											
b	Second Year (Under warranty)	12 Months	Month											
c	Third Year	12 Months	Month											
d	Fourth Year	12 Months	Month											

UNPRICED SCHEDULE

e	Fifth Year	12 Months	Month											
f	Sixth Year	12 Months	Month											
g	Seventh Year	12 Months	Month											
	SH II -Sub Total Part-B For 1Unit													
	SH II -Sub Total Part-B For 16Units													

Abstract Of Cost

	SH-I HPAC UNITS		
	Part-A (SITC of 7TR HPAC unit)		
	Part-B (AMC of 7TR HPAC unit)		
	SH-II 1.5TR Inverter AC unit		
	Part-A (SITC of 1.5TR Inverter AC unit)		
	Part-B (AMC of 1.5TR Inverter AC unit)		
	Grand Total amount excluding GST (Net Cost)		
	Grand Total amount including GST		

UNPRICED SCHEDULE

Important Note:
The firm shall be responsible to ensure that GST shown in the above columns is correct & Input Tax Credit for the amount shown above is admissible as per GST Act as amended up to date.
Tax Invoice /Bill of supply should be pre-printed with all the details as per the requirement under GST Act.
The evaluation and comparison of responsive bids shall be done on the basis **of Net cost to BSNL** on the prices offered inclusive of packing, forwarding, freight and insurance charges etc., **but excluding GST**.
The rates for all items of work shall, unless clearly specified otherwise, include cost of all labour, materials and other inputs involved in the execution of the terms as specified in the scope of work.
No advance payments can be made. Stipulations like levy of interest if payment is not made in a specified time are also not acceptable and the payment is governed by the normal BSNL practice.
Bidder must mandatorily quote for all GST components (CGST,SGST,IGST) as applicable.
Bidder must mandatorily mention correct HSN/SAC codes.
Circuit length of liquid line and hot gas line in respect of SH-I ,Part-B, item no:3 (a) & (b) is defined as under a)Circuit length for liquid line -Length of run measured in Mtrs from liquid out let connection of air cooled condenser to thermostatic expansion valve This includes horizontal and vertical runs in case of multiple run of liquid line (for each package unit) for the purpose of circuit length measurement ,only single linear measurement on average basis shall apply. b)Circuit length for Hot gas line -Length of run measured in Mtrs from compressor discharge head to air cooled condenser hot gas line This includes horizontal and vertical runs in case of multiple run of hot line (for each package unit) for the purpose of circuit length measurement ,only single linear measurement on average basis shall apply.
Hot gas line shall be insulated inside the conditioned area with high quality insulating material
Terms and condition of AMC shall be applicable during warranty period i/c imposition of penalties

UNPRICED SCHEDULE

Contractor **Executive Engineer(E)**

TECHNICAL DATA TO BE SUBMITTED BY THE FIRM

[To be downloaded, filled up, scanned & uploaded along with Technical Bid]

[Items covered under schedule of work]

AIR CONDITIONING

1.HPAC unit

BSNL approved make 7TR HPAC unit	offered by the firm
Stulz /Schneider / Sidwal	

Note: For the above item, the make mentioned above and any subsequent approval by the Corporate office of BSNL till the last date of sale of tender shall be accepted. If approval for the above offered model is not available on date of tender opening, the same model will not be accepted.

2. 1.5TR Split Aircondotioners

S.No.	Details	Unit	1.5TR
	TYPE		**INVERTER**
1	Name of the Manufacturer		
1.1	Model No.		
1.2	Nominal cooling capacity	Kcal/hr (KW)	
1.3	Type of Refrigerant		
1.4	Rated Power Supply	Volts/ Phase/ Hz	
2.0	ISEER Star Rating		
3.0	**COMPRESSOR**		
3.1	Type of Compressor		
3.2	Name of the Compressor Manufacturer		
3.3	Rating of Compressor Motor	KW	
3.4	Guarantee period of compressor	Years	
4	**INDOOR UNIT**		
4.1	Overall Dimensions of Indoor Unit	(LxWxD) mm	
4.2	Tube Material, Outer diameter	mm	
4.3	External surface area of Evaporative coil	Sq.m	
4.4	Max input of Fan Motor (Indoor unit)	Amp/Watt	
5	**OUTDOOR UNIT**		
5.1	Overall Dimensions of Outdoor Unit	(LxWxD) mm	
5.2	Face Area of Condenser	Sq.m	
5.3	Tube Material of condenser/ Outer diameter	mm	
5.4	Max input of Fan Motor (Condenser)	Amp/Watt	
6	**FILTER**		
6.1	Material of Filter		
7	Drip Tray	Yes / No	
8	Electrical Wiring Required	No. of cores/ Sq.mm	

TECHNICAL SPECIFICATIONS FOR PRECISION AC UNIT

INTRODUCTION

SCOPE/ (EXPLANATORY NOTE):

The scope of the contract viz. the supply, installation, testing and commissioning of Precision Air Conditioning plant consists of the following:

The Precision package AC units which will have to work in a group upto max of 6 units and shall be interconnected to work in a single zone providing sequence changeover, standby duties and cascade facility for extra load with single point access for alarm reporting and system connectivity.

1 CONFORMITY TO INDIAN STANDARDS:

The air conditioning plant equipment and installation shall conform to various IS standards amended up to date wherever applicable.

2 GENERAL REQUIREMENTS AND SAFETY STANDARDS:

2.1 The air conditioning plant shall be designed for Precision Air Conditioning with a higher coefficient of performance with overall low power consumption and continuous operation for the normal life of the plant.

2.2 The components shall be suitable for operation under tropical conditions. The design and installation of the plant shall generally conform to the safety standards

2.3 The plant room and air-conditioned space shall be free from objectionable noise and / or vibrations due to the working of the plant. The air-conditioned space shall also be free from any objectionable odour.

GENERAL DESCRIPTION OF WORK

1. Station : Chennai
2. Name of Building : Cable Landing station
3. Drawings: The Executive Engineer (E) shall give necessary drawings & details regarding the areas to be air conditioned, location of precision air - conditioning plant, proposed routes and location of condenser, pipes and other relevant particulars.

4. Design Data:

The salient design and other relevant data is given below:

1. Particulars of temperature and relative humidity.

(i) Outside design conditions:

	DB ^{0}C	WB ^{0}C	RH (%)
Summer:			
Monsoon:			
Winter:			

ii) Inside design conditions:

Summer :	Temp. 23 ± 3 ^{0}C, RH 45 % ± 15 %
Monsoon:	
Winter:	

1. Areas to be air-conditioned …....Sq. mtr
2. Plant operation: 24 hours continuously.
3. Peak heat load: ------kcal/Hr
4. Features of A/C Plant : As per schedule of work attached
5. Roof Insulation : Not applicable

REVISION –II
(12.11.14)

SPECIFICATIONS FOR 7TR CAPACITY HIGH PRECISION AIR CONDITIONERS (HPACs)

If there is any difference between the following specification / Bill of material and that of the proto type approved one, then specification / Bill of material of the proto type approved will prevail.

1.0 SCOPE :

1.1 These specifications describe the specific requirements of microprocessor based High Precision Air conditioners (HPACs). The HPAC unit shall consist of indoor and outdoor unit.

1.2 The indoor unit shall be floor mounted type comprising of hermetic sealed scroll compressor(s), filter section, controller, electrical power system , multi-rows deep copper cooling coil with aluminium fins, dehumidification cycle, modular panel cabinet construction, cabinet insulation, statically & dynamically balanced blower section, humidifier, refrigeration controls etc. The unit shall be suitable for Top/Bottom discharge.

1.3 The outdoor unit shall comprise of air-cooled condenser with fans.

1.4 These specifications set out the basis of design of self contained HPACs to meet the environmental needs of telecom equipments.

1.5 The firms willing to supply such units, shall get their prototype unit approved from BSNL.

2.0 DESIGN :

The unit shall be designed to meet the following conditions:

1	Rated capacity	7TR / 14 TR (sensible cooling capacity)
2	Flow direction	Upward / Downward flow
3	Return Air inlet Temp.	25 ºC (DB) & 50% RH.
4	Saturated Suction Temp.	Between 9 ºC and 10 ºC
5	Minimum Super heat	2 ºC
6	Saturated Discharge Temperature	Maximum 53 ºC (at 43 ºC ambient)
7	Ambient air design temperature (Entering condenser)	43 ºC. However, the unit shall be able to work for ambient up to 50 ºC)
8	Air Quantity	Not less than 550 CFM/TR
9	Filters	Having 95% efficiency down to 5 microns.
10	Face velocity across the cooling coil.	Not exceeding 2.5m/sec
11	Type of load	The load shall be High sensible type having Sensible Heat factor not less than 0.90
12	EER of the unit	Not less than 2.90 Watt/watt

3.0 CABINET :

3.1 The Cabinet shall be constructed from best quality GI sheet steel /CRCA sheet of thickness not less than 1.6mm for top, bottom and side panels & 0.9mm for front and back panels suitably treated for weather protection, corrosion and shall be powder coated. Alternatively, double skin panels with overall thickness not less than the thickness specified herein above, can also be provided .

3.2 Coil and blower sections shall be insulated internally for both acoustics and thermal purposes. The insulation material shall be polyurethane foam of thickness not less than 15 mm complying to the class-B according to DIN 4102 with self extinguishing and sound absorbing properties.

4.0 COMPRESSOR :

4.1 The compressor(s) shall be of scroll hermetic sealed type of COPELAND–ZR108C/DANFOSS make having independent refrigerant circuit.

4.2 Compressor(s) shall be suitable for R-22/R407C/R410A refrigerants.

4.3 Compressor(s) shall be suitable for operation on 3-phase, 415± 10% volts, 50 Hz, AC supply.

4.4 The compressors shall be located in such a way that removal of one compressor shall not affect the operation of the other compressor.

4.5 Compressors shall be mounted on vibration isolation pads or any other mounting approved by manufacturer.

4.6 The compressor(s) shall be provided with built in overload protection.

4.7 The Compressor(s) shall be fitted with electrically operated oil heaters. The heaters shall be "ON" when compressor is in "OFF" position and vice-versa. It shall be possible to disconnect power supply to the heater during extended periods of shut down.

5.0 EVAPORATOR SECTION :

5.1 The Evaporator Coil shall be provided separately for each refrigerant circuit.

5.2 Evaporator coil shall be constructed out of copper tubes not less than 0.28 mm thickness with expanded aluminium fins to give a good mechanical bond for maximum heat transfer. The number of fins shall not be less than 12 fins per inch. Fins thickness shall not be less than 0.1 mm and provided with hydrophilic treatment.

5.3 Face area of coil shall be selected corresponding to air velocity not exceeding 2.5 m/sec.

5.4 The condensate drain tray shall be of stainless steel of thickness not less than 1.2mm shall be provided to cover full projected area of cooling coil to collect all the condensed water. The PVC threaded water pipe shall be provided to drain the condensed water.

5.5 The Blower fans shall be statically and dynamically balanced.

5.6 Backward curved fan directly driven by electronically Commutated (EC) motor with integrated electronics suitable for operation on 3-phase AC supply. The fan speed shall be controlled by sensing return air temperature/pressure/controller logic for energy saving.

5.7 Energy efficient motors of EBMPAPST/ROSSENBERG/ZEIHLABEGG make shall be used.

6.0 REFRIGERANT PIPING :

6.1 Separate piping shall be provided for each refrigerant circuit.

6.2 Each refrigerant circuit shall be suitable for operation on R-22/R-407C/R 410A and shall consist of the following items :-

i) Electronic Expansion Valve (EEV) controlled by the microprocessor with special software to enable the adjustment of flow of refrigerant fluid through the evaporator. At the same time, it should not allow liquid flood back into compressor.
ii) Removable liquid line filter drier with hand shut off valves.
iii) Liquid Line sight Glass with Moisture indicator.
iv) Charging valves.
v) Liquid receiver with safety plug. However, the provision of liquid receiver may not be required if the oversized condenser is provided to cater the function of liquid receiver.

6.3 Serviceable/removable components for easy removal & assembling.

6.4 The piping shall be carried with refrigerant quality copper tubes of thickness not less than 18 SWG (1.2mm). The proper bending tool shall be used for bending of the pipes. Heavy gauge radius fittings shall be provided wherever, bending of pipes is not feasible.

7.0 ELECTRICAL SYSTEM :

The electrical system shall confirm to relevant I.S. standard. The panel shall be accessible from front. The main incomer MCCB of suitable rating and having a rupturing capacity of not less than 25 kA shall be provided along with Single Phasing Preventer (SPP), Electronic overload protection, phase loss and reverse phase sequence and sensing negative sequence current to meet the total power requirements.

7.1 The load shall be distributed equally on 3-phase, 4-wire supply.

7.2 All control wires shall be provided with not less than 1.5 sq. mm. Multi-strand copper conductor. The control wiring shall be properly colour coded and shall be numbered/ ferruled at their point of termination to facilitate servicing/identification.

7.3 The power and control wiring shall be provided in separate casing capping/conduit.

7.4 Heaters shall be provided with insulators, with safety thermostats and contactors of suitable ratings.

7.5 Isolator of suitable rating having rupturing capacity of not less than 10 kA shall be provided for each equipment/ motor/ heater etc. However, the isolation arrangement for condenser fan motor shall be achieved through suitable rating MCB mounted on condenser unit.

7.6 Contactor of suitable rating shall be provided with over load protection for motors and compressors.

7.7 The laminated power and control wiring diagram shall be provided on HPAC unit.

8.0 AIR COOLED CONDENSER :

8.1 Separate condenser unit shall be provided for each refrigerant circuit.

8.2 A heat rejecting coil block shall be constructed out of copper tubes not less than 0.28 mm thickness with expanded aluminium fins to give a good mechanical bond for maximum heat transfer. The number of fins shall not be less than 12 fins per inch.

8.3 Fins thickness shall not be less than 0.1 mm and shall be provided with epoxy /suitable weather proof coating.

8.4 A minimum of two numbers axial flow fan directly driven by variable speed drive shall be provided for each condenser unit.

8.5 The condenser unit shall suitably design for noise level ≤ 75 dB at a distance of 1 meter away from outdoor unit.

8.6 The Condenser unit shall be suitable for round-the-clock operation.

8.7 The body of the condenser unit shall be made out of 16 SWG (1.6 mm) corrosion resistant G.I. Sheet. The entire assembly shall be supported by epoxy coated frame.

9.0 CONTROLS :

9.1 High pressure trip – Manual/Auto reset (for each compressor)

9.2 Low pressure trip – Auto reset (for each compressor)

The unit shall trip in the event of 03(Three) consecutive HP/LP trip.

10.0 SAFETY INTERLOCKS :

10.1 Normally the compressor shall start with condenser fan in “ON" condition. However, the

compressor may start/run without condenser fan in operation in case of low ambient.

10.2 Provision shall also be made to operate the evaporator fan without operation of condenser and compressor.

11.0 CONTROLLER :

11.1 SCOPE :

Each unit shall have individual controller as per the manufacturer's design to maintain the desired temperature and humidity. The controller shall be intelligent type with microprocessor capable of communicating with other units in same room and control the desired condition with group action. The controller shall operate the units in Master-Slave configuration, However, each controller shall act as Master, if required, in emergency situations.

The controller shall be provided with a backlit LCD/LED screen and control keys for user inputs mounted in an ergonomic, aesthetically pleasing housing. The controls shall be menu driven. The display & housing shall be viewable while the unit panels are open or closed.

The controller shall fully compliant with EEC directives for electromagnetic compatibility possessing following broad features:

i) Operates and monitors so that the temperature and humidity in the conditioned are kept at 23±3 ^{0}C&40±20%RH respectively. However, the parameters shall be site settable.

ii) The controller shall be password protected for preventing un-authorized access.

iii) The display shall be organized into following three main sections:

User Menu	Service Menu	Advanced Menu
Active alarms, event log, numeric/ graphic data, unit view/ status overview (including the monitoring of room conditions, operational status in % of each function, date and time) , total run hours, various sensors etc.	Set points, standby settings (lead/lag), timers/ sleep mode, alarm setup, sensor calibration, maintenance/ wellness settings, and repair /service mode etc.	Factory Settings, Configuration settings shall be factory-set based on the pre-defined component operation etc.

11.2 USER MENU :

The user menu shall be defined as follows:

i) Active Alarms :
Unit memory shall hold the 100 most recent alarms with time and date stamp for each alarm.

ii) Event Log :
Unit memory shall hold minimum of 100 most recent events with id number, time and date stamp for each event. The conditioned area temperature, humidity etc. are saved at regular intervals.

iii) Numeric/Graphic Data View :
The numeric/ graphic records shall be available for supply air temperature, return air temperature and return air humidity.

iv) Unit View - Status Overview :
Numeric or Graphical unit view summary displays shall include temperature, humidity, active functions and any alarms of the units.

v) Total Run Hours : Menu shall display accumulative component operating hours for Unit and compressors.

11.3 SERVICE MENU :

The service menu shall be defined as follows: -

i) Set Points :

The controller shall allow programming of the following conditions:

a)	Temperature Set Point	-	18-29ºC
b)	Adjustable Temperature Hysteresis	-	0.5-5ºC
c)	Humidity Set Point	-	20-80% RH
d)	Adjustable Humidity Hysteresis	-	1-10% RH
e)	Low/High Temperature Alarm	-	2-32ºC
f)	Low/High Humidity Alarm	-	15-85% RH
g)	High Pressure Alarm	-	320-340 psi

The controller may be set within these ranges, however, the unit may not be able to control to extreme combinations of temperature and humidity. Factory set HP Alarm at fixed point within the specified range herein above, can also be provided.

The controller shall include the following settable features:

a) Unit identification number.
b) Start-up delay, cold start delay and Fan run on timers
c) Remote shutdown & general alarm management
d) Compressor sequencing.
e) Return temperature control.

ii) Repair/Service Mode :

Control input and output values and status shall be displayed to aid in unit diagnostics and troubleshooting. Control inputs shall indicate on or off at the front display and shall be able to turn on or off from the front display without using jumpers or a service terminal. Each control output shall be indicated by an LED on a circuit board.

11.4 ADVANCED MENU :

Factory Settings:
Configuration settings shall be factory-set based on the pre-defined component operation.

11.5 The Controller shall also have following features:

i) Allow adjustment of temperature, humidity set points, range of control, alarm set points etc.
ii) Arrow/control buttons for navigation and value adjustment.
iii) Status indicators like Power, Cool, humidity etc.
iv) The controller shall be provided with power backup unit to operate during mains power failure.
v) Programming of unit shall be based on :
(a) Equal run hours per 24 hours in a day and
(b)Turn on next unit in case the designated unit is unhealthy.

11.6 GROUP OPERATION :

The optimum number of units shall be made operational in order to maintain the necessary temperature and humidity in the conditioned area. All units can work as a single system and shall communicate with each other to maintain desired values in the conditioned area.

11.7 CASCADING EFFECTS:

If the values exceeds beyond the set points, the standby units will operate to maintain the desired condition and after maintaining the set points, unit will return back to standby mode. In case, the standby unit(s) are not in a position to maintain the set values, all the units shall operate collectively to maintain the desired condition.

The Controller shall have the feature of grouping/ zoning of units, if required.

11.8 SYSTEM AUTO RESTART :

The controller shall have auto restart facility to start unit sequentially after restoration of power supply with suitable programmable time delay to minimize total inrush current.

11.9 PREDICTIVE HUMIDITY CONTROL :

The controller shall calculate the moisture content in the room and prevents unnecessary humidification and dehumidification cycles by responding to changes in dew point temperature.

11.10 **ALARM MANAGEMENT :**

Display Status Indication :

The unit shall display the following :

a. Temperature .
b. Blower fan-working status.
c. Compressor working status.
d. Electric heaters working status.
e. Temperature set point.
f. Working hours of main component i.e. Compressor, fan, heater.
g. Unit working hours.
h. Real time and date.
i. Type of alarm.

i) Audio-Visual alarms:

a. High Temperature
b. Low Temperature
c. Compressor Overload (Provisional)
d. Evaporator Fan Overload/Air loss/ No air
e. High Pressure
f. Low Pressure
g. Clogged Filter
h. Condenser Fan overload (Provisional)
i. Unit OFF

11.11 The controller shall be suitable to be integrated with fire system and should switch off the unit in event of receiving signal from the fire panel.

11.12 The Controller shall be equipped with Modbus/BACnet/LonWorks/open protocols connectivity facility for enabling data transfer to an IBMS system, wherever IBMS is available.

11.13 The log data shall be downloadable printable in sequence of date & time. The necessary provision shall be available to connect the laptop /flash drive through TCP/IP protocols, wherever IBMS is not available.

11.14 The firm shall provide one software free of cost.

12.0 MICRO INVENTORY :

Sl. No.	Description of Items	7 TR HPAC
1.0	**COMPRESSOR:**	
1.1	Make	COPELAND–ZR108C/ ZR108 KCE-TFD-52E/ DANFOSS
1.2	Type	Hermetic scroll
1.3	No of Compressor	1
1.4	Power supply V / Ph / Hz	415±10%/3/50
1.5	Oil Heater	Yes
2.0	**EVAPORATOR COIL:**	
2.1	Tube	not less than 0.28 mm Cu
2.2	Fins	not less than 0.1 mm Al.
2.3	Fins per Inch nos.	not less than 12
2.4	Coating	Hydrophilic
3.0	**EVAPORATOR FAN:**	
3.1	Make	EBMPAPST/ROSSENBERG/ZEIHLABEGG
3.2	Type of Fan	Electronically Commutated with backward Curved
3.3	Type of Drive	Direct driven
3.4	Speed control	Variable
3.5	No of Fan	1
3.6	Power supply V / Ph / Hz	415±10%/3/50
4.0	**EXPANSION VALVE:**	
4.1	Type	Electronic
4.2	Number	1
5.0	**FILTERS:**	
5.1	efficiency	95% down to 5 microns
6.0	**HUMIDIFIER:**	
6.1	Type	Immersed electrode/ Infra Red
6.2	Power supply V / Ph / Hz	415±10%/3/50
7.0	**ELECTRICAL HEATER:**	
7.1	Type	steel fin tubular
7.2	ON/OFF/ Safety arrangement	Contactor, Thermostat
7.3	KW	6 KW
7.4	Power supply V / Ph / Hz	415±10%/3/50
8.0	**CONDENSER:**	
8.1	Type	Air cooled
8.2	Number of Units	1
8.3	Tube	not less than 0.28 mm Cu

8.4	Fins	not less than 0.1 mm Al.
8.5	Fins per Inch nos.	not less than 12
8.6	Number of fans	not less than 2
9.0	**CONDENSER FAN:**	
9.1	Type of Fan	Axial Flow
9.2	Type of Drive	Direct driven
9.3	Power supply V / Ph / Hz	230±10%/1/50
9.4	Speed control	Variable
10.0	**NUMBER OF CIRCUITS**	1
11.0	**ELECTRICAL SYSTEM:**	
11.1	MAIN INCOMER:	1
i)	Type	4-pole MCCB
ii)	Rating	63A
iii)	Breaking Capacity	not less than 25 kA
iv)	SPP	1 No.
11.2	**ISOLATOR**	5 Nos.
11.3	**MCB**	1 No.
11.3	**CONTROL WIRING**	1.5 Sq. mm. multi strand Cu. Wire

AMC OF AIR CONDITIONING PACKAGE UNITS

Part – I : Scope of Maintenance.

1. The Contractor shall keep all the AC units (Package/ Split) complete along with their accessories and electrical connections/ switchgears in healthy working condition
2. The contractor shall attend minor faults promptly so as to bring the units to satisfactory working condition and service report shall be submitted.

Part – II : Maintenance schedule to be followed.

1. Cleaning of filters and condensers – every month
2. Monthly check of controls, electrical contacts and tightening them.
3. Checking of electrical connections – quarterly.
4. Lubrication of all bearings etc. every quarter
5. Package/ Split AC shall be got serviced before the onset of summer (i/c change of compressor oil, cleaning of valves and condensers.)

Part – III : Materials

1. All materials such as refrigerant piping, refrigerant, condenser, cooling coil, evaporator coil, fan motors, fan blades, capacitors, relays, connectors, wires, thermostats, starters, indicating lamps, HRC fuses, MCBs, metal clad plug and sockets, etc., required shall be arranged by the contractor at his own cost **except** replacement of Package/ split AC unit as a whole including main electrical panel of AC plant.
2. Wherever capacitors are replaced, it shall be of metal body type only.
3. Refrigerant lost during the operation, oil, fan belt, & filter shall be firm's responsibility.
4. The compressor replacement wherever carried out, it should be from original manufacturers with initial filling of gas and oil. The firm should furnish the original invoice & guarantee card of the new compressor replaced.
5. Proper working of thermostat of the AC units may be ensured to reduce Power consumption

Maintenance Schedule of PAC to be followed

Sl No	Description of Item	Monthly	Quarterly	Yearly
1	Keep the plant room, units and all the ancillary items clean	X		
2	Check crank case heaters are in good working condition, if not rectify.	X		
3	Check oil level in the compressor. This should be 3/4 to ½ of the oil sight glass	X		
4	Check for overheating of any part of the plant and Electrical Switches	X		
5	Check thoroughly for any refrigerant leakage in the system Breakage/leakage. Thorough leak testing for refrigerant leaks by hailed leak detector	X		
6	Record reading of the condition space on hourly basis as per the log book	X		
7	Look for/Observe unusual noise/vibration than normal	X		
8	Check voltage, current pressure, return air temperature and take hourly reading	X		
9	Check fire dampers, volume control dampers, guide vain's and their normal position	X		
10	Record current and voltage reading of all equipments and the total current	X		
11	Check Discharge pressure Suction pressure Air quantity Current consumption	X		
12	Check for abnormal noise& abnormal vibration noise	X		
13	Analyze the pressure temperature reading s to ensure satisfactory working of the plant	X		
14	Check proper working of Annunciation system	X		
15	Ensure all the pressure gauges, thermometers, thermostat, HP/LP cut outs are indicating correct readings. Low operating Suction/discharge pressure HP/LP cut out should be investigated promptly and rectified	X		
16	Check Fire Alarm inter-locking with Control panel and its proper functioning.	X		
17	Ensure that refrigerant return is proper	X		
18	Check crank case heater for proper operation wherever applicable	X		
19	Check the drains for free flow and Flush the drain system	X		
20	Cleaning of the air filters, fine filters and pre-filters. If found necessary replace it	X		
21	Water Cleaning of Condenser and fans and ensure that no thick layer of dust on them.	X		
22	Cleaning of Evaporator coil and fans and ensure that no thick layer of dust on them. Clean the cooling fins with water	X		
23	Inspection and checking of safety circuits and controls	X		
24	Tighten and grease all the grouting bolts of various equipments	X		
25	Check the temperature, current drawn by motors and compressors.	X		
26	Check all bearing surfaces for abnormal heating, grease it	X		
27	Check the earth continuity	X		
28	Check electrical contacts of starters relays etc. and clean it, replace it if found necessary.	X		
29	Check operation of all safety controls	X		

30	Check tightness of all fastening bolts	X		
31	Check all pre-heaters and re-heaters and the terminal controls for the proper functioning.	X		
32	Check the condition of compressor refrigerant lines/pipes and to be changed if necessary	X		
33	Lubricate the bearings of all machinery items such as pump, motor, fans		X	
34	Adjust the belt tension, alignment, if necessary Check fan belt and tighten if slack, change worn out or torn belts		X	
35	Check& Clean and paint all the rusted machinery items like refrigerant lines condenser tray, condenser, condenser plat form/stand and fans i/c painting all the external parts listed as above Preferably before monsoon.			X

Capacity Test-Yearly

Evaporator & Compressor

S.NO.	Parameter	Results	Remarks
1.	Area of the PAC air inlet Grill of the evaporate in SFT		
2.	Air Velocity in FPM		
3.	Air Quantity in CFM		
4.	Required Air Quantity as per Agreement		
5.	Inlet Air Temp DB^{o}F		
	WB ^{o}F		
6.	Canvas Air Temp DB^{o}F		
	WB^{o}F		
7.	Inlet Enthalpy		
8.	Canvas Enthalpy		
9.	Enthalpy difference		
10.	Specific Volume		
11.	Total Capacity Cfm X Enthalpy diff 200 X Sp.Volume		
12.	**Observed Tonnage**		
	a) Sensible Cooling Capacity 1.08 X Cfm X Temp Diff 12000		
	b) Latent Cooling capacity (Total capacity – sensible cooling)		
13.	**Evaluated tonnage at design conditions**		To be evaluated by the Engineer-in-Charge.
	a) Sensible Cooling capacity		
	b) Latent Cooling capacity		

Inside Conditions during the Tonnage test

Switch Room Temperature DB F :

WB F :

RH % :

HP of the PAC unit being tested :

LP of the PAC unit being tested :

Signature of AC Mechanic

Signature of JTO (E) **Signature of SDE (E)**

SPECIFICATIONS FOR 1.5 TR INVERTER TYPE AC UNITS

Technology	Variable speed compressor motor
Cooling capacity	4500 Kcal/hr (5.2 KW) as per IS 1391 (part 2)
Minimum Room air Flow	Not less than 700 m3/hr
Energy Efficiency as per ISEER	Not less than 4.5
Star Rating Plan – Mandatory Phase	5 Star
Compressor	Rotary
Refrigerant	R 410A / R32

1 CONSTRUCTION

1.1 General:

1.1.1 The Air conditioner and its parts shall be constructed with the strength and rigidity adequate for normal conditions of handling, transport and usage.

1.1.2 There shall be no sharp edges or corners liable to cause injury under normal conditions of use and all moving parts which constitute accident hazards shall be effectively guarded.

1.1.3 Parts which require periodic servicing shall be readily accessible.

1.2 Material:

1.2.1 Materials used in the construction of cabinet, front panel etc. shall comply with the corresponding Indian Standards wherever applicable except where such requirements are modified.

1.2.2 The material shall be free from defects which are liable to cause undue deterioration or failure.

1.2.3 Under normal conditions of use and maintenance, the materials used shall not shrink, deteriorate, warp or cause mould or odours and shall be resistant to attack of vermin and destructive pests.

1.2.4 Sealing and insulating material shall not lose their essential properties such as adhesion, moisture and heat resistance.

1.2.5 Internal and external finishes shall be capable of being cleaned effectively without undue deterioration and shall be such as to afford protection against climatic action in all seasons under normal use. All metal parts which are exposed to moisture or ambient conditions shall be corrosion resistant or adequately protected against corrosion.

2.0 REFRIGERANT CIRCUIT:

2.1 The refrigerant pipes and fittings shall be of approved quality and shall withstand normal working pressure of air conditioners and should conform to IS 10773:1983 or equivalent national /international standard.

2.2 The refrigerant uses shall be chemically pure, free from moisture or any other chemical contamination.

3.0 Electrical Ratings

3.1 Ratings in watts for the air conditioners shall be based on standard voltage which shall be 230V, single phase, 50 Hz (OR) 415V, three phase, 50Hz. The units, however, shall be capable of working at any voltage within ± 10 percent of the standard voltage.

4. **Rating and Test Conditions**

4.1 Capacity and test conditions:

The split air conditioner shall have name plate rating determined by tests conducted as per the standard procedures prescribed for the purpose.

Notes:

1. If rated frequency is not available, the capacity measured shall be corrected by a correction factor depending upon frequency actually measured during the testing.
2. Percentage drop in frequency shall be applied as percentage drop in voltage for power consumption.

4.2 Maximum Operating Test conditions

The maximum Operating test conditions shall be as specified below:

Room air temperature

a) Dry bulb - 35º C
b) Wet bulb - 24º C

Outside air temperature
a) Dry bulb - 46º C
b) Wet bulb - 27º C

Test voltage - Rated Voltage.
Test frequency - 90 percent and 110 percent of name plate rating.

5. Air conditioners shall be capable of performing the functions as cooling, dehumidifying, air circulating and filtering. The Air conditioners shall be provided with adjustable step less type electronic thermostat.

6. Outdoor unit of the air conditioners shall be fitted with the following discharge cooled type compressor with overload protection and shall be mounted on resilient mountings for quiet operation. The compressor shall be of Matsushita/ Hitachi/Toshiba/ GMCC / Emerson /LG/ Tecumseh/ Danfoss/ Panasonic/Yark/Carrier make and shall be covered by manufacturers test certificate and Type Test Certificate according to JIS or ASHRAE.
Rotary compressor operating at RFC refrigerant 410A / R-32 with suitably rated variable speed motor for 1.5TR Inverter AC unit.

7. 1.5 TR Inverter Air conditioners shall be provided with standard 3mtrs refrigerant Copper pipe, electrical wire and drain pipe.

8. Remote cordless control with LCD/LED Display shall be provided with On/Off timer, selecting fan speed (three speed) and setting up of temperature. Display shall be provided on indoor unit or on handset or on both.

9. Type Test Certificate for two samples of each type/ model of air conditioners from any NABL/ILAC Accredited lab shall be submitted by the firm. The type test results shall include capacity test at standard rating test conditions and maximum operating test as specified in IS:1391(Part-2)-1992.

10. **Servicing:** Free servicing shall be provided for 24 months from the date of installation of air conditioner. Firm is also required to send service engineer every month/ whenever required during the warranty period.

11. **Manufacturer's Guarantee**: Compressor shall have minimum 7 years warranty for 1.5 TR Inverter AC unit from the date of commissioning. However the bidder has to maintain the AC unit including compressor for a period of 7 years.

The manufacturer shall give a guarantee for the soundness of construction and performance of the air conditioner and shall be responsible for setting right any manufacturing defects free of charge for a period of 24 months from the date of installation testing and commissioning of air conditioner.

12. Installation: The installation charges shall include the following work: -
i) Mounting/Fitting indoor and outdoor units at the respective locations.
ii) Laying refrigerant piping of required length and connecting both the units after drilling hole/holes in the wall, if required, and making them good.
iii) Leak testing of the entire system.
iv) Charging Refrigerant gas in the unit.
v) Suitable electric wiring between indoors and outdoors units of required length up to switch at location of indoor unit. Switches/Sockets/Plugs are not included in the scope of supply.

13. Inspection:
Quality inspection certificate/Routine test certificate of the AC units shall be submitted at the time of supply.

14. Factory Testing: BSNL reserves the right to ask for the inspection / testing the proto type unit at factory within 10 days of award of work.

Annual Maintenance 1.5 TR Inverter AC units

PART-I: SCOPE OF MAINTENANCE:

Ensure no loose cable/wire connection in the system. Check and rectify all loose connection in every month.

1. The contractor shall keep all the units in clean and healthy working condition.

2. The contractor shall attend day-to-day faults promptly and within 24 hours of reporting so as to bring back the units to satisfactory working condition(Minor defects)

3. All major defects involving replacement of compressor/fan motor etc shall be attended with in 6 days.

4. Service report as per Performa enclosed shall be submitted along with every bill.

5. Carrying out maintenance tasks as mentioned in Part III..

6. Cleaning of room units filters etc in every month

7. Water washing & combing of out door once in every month

8. Checking of thermostat and controls every month

9. Checking of compressor and blower units every month.

10. Replacement of any defective compressor/fan motor/capacitor will be done at contractor's cost. The compressor replacement wherever carried out, it should be from original manufacturers on buy back scheme with initial filling of gas and oil. Co-ordination with the manufacturer for the same shall be done by the agency with out any extra cost.

11. Charging of refrigerants shall be done at agency's cost in the presence of JTO./SDE

12. Replacement of faulty evaporator and condenser fan motor etc shall carried out with new one. Rewound motors are not allowed.

13.The A/C units shall be handed over in satisfactory working condition on the completion of the comprehensive maintenance.

Part II: Maintenance schedule to be followed

Frequency:- Monthly

Floor		
Location		
Unit type		
Capacity		
Description		
Electrical System		
Plug & socket condition (OK/N ok)		
Current (amps)		
Condition of starting relay (OK)		
Condition of starting capacitor(Ok)		
Tightness of connections(OK)		
Earthing (Tight)		
Condition of starter & stabilizer (working/ Not)		
Condition of remote (Available/ Not Available)(Working/Not Working)		
Control system		
Thermostat(working		
temperature set(degrees)		
Refrigeration System		
Compressor (Working, Any noise)		
Condenser/cooling coil		
Capillary tube(OK/Not Ok)		
Gas leakage (observation)		
Air Circulation System		
Evaporator Fan (Ok/Not)		
Condenser fan(Ok/Not)		
Ventilation & Exhaust		
Filter/condition(Cleaned)		
Drain pipe (any loose connection/ leakage)		
Damper Louvers condition(Firm)		
Overall Condition of the unit(satisfactory/ Not satisfactory)		

Sign of AC mechanic

Part – III : Materials

All the materials required for carrying out maintenance shall be arranged by the contractor at his own cost .

HPAC/SPLIT AC UNITS MAINTENANCE CARD FORMAT

FRONT SIDE OF CARD

EQUIPMENT:- FIRM'S PH NO:-

CAPACITY:- JTO (E)'S PH NO:-

MAKE & SL NO:- SDE(E)'S PH NO:-

DATE	TYPE OF MAINTENANCE DONE	SIGN OF MECHANIC / ELECTRICIAN	SIGN OF USER/EXGE STAFF	REMARKS

BACK SIDE OF CARD

DATE	NATURE OF FAULT	REPORTED TO	SIGN OF USER/ XGE INCHARGE	ATTENDED ON	SIGN OF ELECTRICIAN/ MECHANIC	SIGN OF USER/ XGE STAFF

SPECIAL CONDITIONS OF THE TENDER

[In case of any difference between any clause of any section of NIT and that of the "special conditions of contract," then the "special conditions of contract" shall prevail]

The firm shall read carefully the following conditions and shall quote accordingly confirming all the points in their offer.

GENERAL CONDITIONS

Please note that the offers, which do not comply with the following, will not be considered and will be totally rejected. These instructions supersede the BSNL / EW6 and EW 8 clauses, or any other clauses/conditions appearing elsewhere in the tender, in case of any Disparity.

1) Tenders with any condition including that of conditional rebates shall be rejected forthwith summarily.
2) Insurance, loading, unloading, transportation etc. should be included on works contract basis. The rates shall be firm and final.
3) The price shall be firm and fixed during the currency of the contract. No cost escalation is permitted. Clause10CC is not applicable.
4) The Extension of time for completion of the works is governed by clause 2 of EW8.
5) No advance payments can be made. The payment is governed by the normal department practice and stipulations like levy of interest if payment is not made in a specified time are not acceptable.
6) The firm should deposit EMD before submission of their offer. The EMD of other works returnable to them cannot be adjusted against this work. The firm's offer shall be liable for rejection without fresh EMD for this particular work.

1. DRAWING TO BE SUBMITTED FOR APPROVAL:

The contractor shall get following drawings approved before the start of the work.

(a) A dimensional drawing giving complete details of the erection of the equipment in plant room (including condensers, electrical panels and refrigerant piping & details of foundations). While deciding layout, future expansion, if any, has to be taken in to consideration.
(b) Electric wiring diagrams for all Electrical equipment including controls showing cable sizes and equipment capacities.
(c) Layout drawing for HPAC / Inverter AC / and all associated systems.

2.Terms of Payment:

Payment to the Contractors is regulated as below:

For Supply (SPLIT AC / HPAC)

a) 95% of the price shall be paid on the receipt of goods at site by the consignee. For claiming this payment the following documents are to be submitted to the paying authority:

i) Invoice or equivalent document

ii) Delivery Challan, Consignee receipt etc as applicable

b) The balance 5% payment shall be released after satisfactory commissioning in case of split type AC & satisfactory acceptance testing in case of HPAC.

c) In cases where shortages/ damages are intimated to the supplier in writing, the balance payment shall be released only after the cases are settled in accordance with the provision of the P.O.

d) No payment will be made for goods rejected at the site on testing. Payment, if made, for such items shall be recovered from subsequent bills or other bills.

For ITC items (HPAC)

The payment terms will be as under:

(i) 50% on Installation and Trail Testing

(ii) 50% on successful completion of Acceptance final testing

For ITC items (Split AC)

The payment terms will be as under:

(i) 100% on successful completion of ITC

For AMC (HPAC/ Split AC)

i) Payments shall be made once in three month subjected to submission of maintenance report signed by concerned in charge.

3(i) INCREASE /DECREASE OF TENDERED QUANTITY

a) BSNL will have the right to increase or decrease up to 50% of the quantity of goods and services specified in the schedule of items without any change in the unit price or other terms and conditions at the time of award of contract.

b) In exceptional and unavoidable cases BSNL can increase the quantity of goods and services beyond 50% of the tendered quantity without any change in tendered and accepted unit price and also other terms and conditions as applicable at the time of award of contract.

3(ii) CURTAILMENT OF QUANTITY:-

BSNL reserves the right to enforce curtailment in the assigned quantum of work for any contractor on the grounds of defaults/delay in regard to execution of the individual work assigned.

4. COMPLETION OF WORK:-

At the time of issuing NIT for a particular work, the time allowed for completion of work consistent with magnitude and urgency of work is specified. The time allowed for carrying out the work as entered in the contract is reckoned from the tenth day after the date on which the orders to commence the work are given to the Contractor. To ensure good progress of the work during the execution, the contractor is bound in all cases in which the time allowed for any work exceeds one month (except special jobs) to complete 1/8th of the whole of the work before 1/8th of the time allowed under the contract has elapsed, 3/8th of the work before half of the time has elapsed and 3/4th of the work before 3/4th of such time has elapsed. However, for special jobs, if a time schedule has been submitted by the Contractor and the same has been accepted by the Engineer-in-charge, the contractor shall comply with such time schedule.

The work shall be deemed to have been completed **(For SITC)** after the fulfillment of the following:

1. 1.5 TR ST AC unit

Physical completion of installation of AC units and successful testing and commissioning by the contractor in the presence of the Engineer-in-Charge or his authorized representative

2. 7TR HPAC

(a) Physical completion of installation of A.C. system including balancing of air and water circuits (wherever applicable) and successful trial run of the A.C. system by the contractor for a period of 7 days subject to a minimum of 120 hours of running during that period in the presence of representative of Engineer-in-Charge.

(b) **Successful completion of the initial Acceptance Testing** as per the departmental standards in the presence of representatives of Engineer-in –Charge, T & D circle and user.

.

5) EPF PROVISIONS:-

The agency has to comply with the provisions of EPF and miscellaneous provisions Act-1952 and employees provident fund scheme-1952 as amended up to date in respect of labours /employees engaged by them for this work. Any consequence arising due to non- complying of provisions as specified above shall be the sole responsibility of the firm only.

Agency has to observe all the labour rules & regulation in force. Agency shall be fully responsible for any violation observed at any time.

6) EARNEST MONEY DEPOSIT

The firm should deposit EMD in proper form. The EMD of other works refundable to them cannot be adjusted against this work. The firm's offer shall be liable for rejection without EMD for this particular work. Firm has option to deposit earnest money in the form of Bank guarantee in BSNL' s attached format and manner.

7) PROGRAMME FOR EXECUTION

The firm shall supply detailed programme to Engineer in charge for execution of contract within 15 days of award of work. The programme shall contain the details about submission of drawing, supply of materials etc., The tentative dates for installation, testing, commissioning shall also be submitted.

8) STORES AND SAFETY

a) All the stores and materials required for the satisfactory completion of the work shall be arranged at work site by the contractor from his own source. Space for storing the same materials may be provided on request from the contractor. However safe custody of the material stores at site will be responsibility of the contractor.

9) CO-ORDINATION AT SITE

At the site of work more than one agency may be working. Full cooperation shall be extended to other agencies during the progress of work. Further work shall be carried out in such a way so that it may not cause abnormal noise and hindrance to the officers of the BSNL engaged in erection as well as to normal routine work.

10). COMPLETION DRAWINGS

The contractor on completion of the work shall submit three sets of following drawings.

(b) Plant installation drawing giving complete details of the entire equipment including foundations.

(c) Electrical drawings showing cable sizes, equipment capacity, control components and control outlet.

(d) Schematic control drawing giving detailed sequence of operation and notes to explain the operation of the control circuit.

(e) Piping drawing showing all pipes size, valves and fittings.

(f) Three sets of service manuals of air conditioning plant including salient features of the plant.

.

11. GUARANTEE & DEFECT LIABILITY

(a) The Guarantee shall be valid for a period of **twenty four months** from the date of commissioning. However the bidder has to maintain the system for a period of 7 years. The contractor shall guarantee that all equipments shall be free from any defect due to the defective materials and bad workmanship and that equipment shall work satisfactory and that the performance and the efficiencies of the equipments shall be not less than guaranteed values. Any parts found defective during the guarantee period shall be replaced without any charge whatsoever. The services of the contractor's personnel, if requisitioned during this period for such work, shall be made available free of any cost to the department.

(b) The contractor shall depute his representative to the site within **24hrs** of notification of defects by the department.

(c) A joint inspection report will be made by the departmental representative and representative of the firm regarding the nature of defects and remedial action required in time schedule for the rectification/remedial action.

(d) In case the contractor fails to depute his representative within **24hrs** of notification of defect(s) or fails to cause remedial action within a reasonable time as decided in the joint inspection, the Department may proceed to do so at the contractors' risk and expenses without prejudice to any other rights.

(e) Supply of consumables like refrigerant gas due to leakage, oil etc., shall be the responsibility of the firm

(f) The following aspects are, however, not covered under the purview of guarantee:-

i) Consequential losses and damages.

.

12. CHANGES IN SPECIFICATIONS

The BSNL reserves the right to make changes in respect of specifications of work if in its opinion same is found necessary. However such alterations shall be made after mutual discussions and agreement between the BSNL and the contractor. Any price implications in this regard shall be mutually discussed and agreed up on in terms of clause 12 of EW 8 form. The BSNL as matter of principle will not permit modifications by the contractor in design /specifications of any document /material. However the same can be agreed upon by the BSNL under exceptional circumstances where

a) The same is necessitated due to non-availability of material / components of certain specifications / make.

Or

b) Such alterations constitute an improvement in the opinion of BSNL.

Prior approval is necessary before undertaking any alteration/modification in the specifications of the equipment.

13. Packing, Forwarding, Storage at site.

Before dispatch to the site, the equipment /components/materials shall be properly packed so as to afford protection against transit damages and damage against storage in open areas either at transporters premises or at work site. Special care shall be taken in respect of sensitive items. When storage in open areas is inevitable, proper water proof covering shall be provided to protect damages on account of rain water etc. However damaged items should be replaced as per the directions of the Engineer –in-charge.

14 Inspection Of Site & Contract Documents

For the purpose of inspection of site and relevant documents, the contractor is required to contact E.E.(Elect) concerned who shall give reasonable facilities for inspection of the same. The contractor shall inspect and examine the site and its surroundings and shall satisfy himself commencement of work as to the form and nature of the site, the quantities and nature of work, materials necessary for completion of the works, the means of access to the site, the accommodation he may require and in general shall himself obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect his work. No extra charges consequent on any misunderstanding or otherwise shall be allowed.

15) SUFFICIENCY OF TENDER

The contractor shall be deemed to have satisfied himself before entering into the contract as the correctness and sufficiency of his offer for the work and of the rates and prices quoted in the schedule of works and items/quantities or in bills of quantities for the contract period. These rates and prices shall except as otherwise provided, cover all his obligations under the contract and all matters and things necessary for proper completion of works.

No additional conditions shall be stipulated by the tenderer.

16. Testing of HPAC unit

(i) Routine tests certificate for package unit shall be furnished along with supply of equipment.
(ii) The units supplied should be the same as approved by BSNL, and the bill of material should be same as approved by BSNL.
(iii) For Micro-vee filters and motors etc only routine test certificate from manufacturers shall be furnished.
(iv) The contractor shall operate, test and adjust all air conditioning system units, fans, motors, all air handling appliances provided in connection with this installation and shall make all necessary adjustments of all regulating damper for the purpose of equalization of the flow of air to each and every outlet and inlet.
(v) A carefully recorded detailed record of the results of these adjustments shall be furnished by the contractor for approval of the Engineer-in-Charge.
(vi) Following tests at site shall be conducted after completion of the plant.

(A) **TRIAL RUN**

After installation is complete physically and all adjustments as listed above are carried out, the plant shall be subjected to trial run. The trial run is to be conducted for a period of **7days** subject to minimum running of **120hours** in the presence of representative of the Department. During this test performance, all the equipment and control system shall be checked. Inside conditions shall also be recorded in this trial run. A record of this test shall be submitted to the Engineer-in-Charge who shall arrange for capacity testing thereafter.

(B) **INITIAL ACCEPTANCE TESTING**

After completion of trial run, the plant shall be subjected to initial acceptance testing as per standards of the department. This testing shall be conducted jointly by the representative of the Engineer-in-Charge, T&D circle and user. A list of all defects and discrepancies shall be prepared during the test.

(C) FINAL PERFORMACE TEST CUM SEASONAL TESTS

This test shall be conducted jointly by the representative of the Engineer-in-Charge, T&D Circle and user as per standards of the Department. The test shall be conducted normally

between ***1st April to 30th September***.

(D) The Department shall have the right to operate all equipment in operating Condition whether or not such equipment has been accepted as complete and satisfactory. Repairs and alteration shall be made at such time as directed by the Engineer-in-charge.

(E) In special circumstances, the department may have to use the plant to air Condition some areas even before the completion of whole work. The firm shall cooperate fully under such circumstances.

(F) Wherever relaxations are required, these should be obtained from Superintending Engineer (Electrical) well before the final performance-cum-capacity test.

(G) All test equipment, the operating personnel, oil and refrigerant required for Testing shall be supplied by the contractor.

17. REJECTION OF DEFECTIVE PLANTS

If the completed plant or any portion thereof, before it is taken over, be found defective or fails to fulfill the intent of the specifications, the contractor shall on receipt of a written notice from the Engineer-in – Charge, forthwith make good the defective plant.

(a) Should the contractor fail to rectify the defects and or make good the defective plant within a stipulated time mentioned in the written notice or replace the plant at no extra cost, department may make good, reject and or replace at the risk and expenses of the contractor, the whole or any portion of the plant which is defective or fails to fulfill the requirements of the contract.

(b) All equipment shall be tested as per tender specifications. Where test results indicate capacity less than specified in the equipment schedule, the contractor shall pay to the Department pro-rata compensation against each item.

18. Set off clause:

Only those payments due to Government against a particular contract agreement shall be deducted from the bills of the same work and not deductible from other works.

19. Inspection at Contractor's Premises

The Department's authorized representative shall have full powers to inspect drawings of any portion of the work or examine the materials and workmanship of the plant at the contractor's works or at any other place from where material of equipment is obtained. Acceptance of any materials or equipment shall in no way, relieve the contractor of his responsibility for meeting the requirement of the specifications but shall have to be replaced free of cost by the contractor in case the equipment of work is found defective or of inferior quality.

20. The contractor shall arrange to impart the training to the BSNL/DOT personnel on the following aspects prior to provisional takeover:-

AC Plant:

(a) Operation of Plant.
(b) Gas charging and pumping down of the system.
(c) Adjustments of settings for microprocessor controls and protection devices.
(d) Preventive maintenance.

21. CURRENCY OF CONTRACT

21.1 The currency of contract shall be 86 months. (2+84) (Supply, installation, testing & commissioning + Comp. AMC.)

21.2 The BSNL reserves the right to terminate the contract by giving show cause notice of one-month duration at any time during the currency of the contract.

22. Penalty Clause:

22.1 Any accident or damage during maintenance /operation will be the responsibility of the agency & BSNL will not entertain any claim, compensation, penalty etc on this account or on account of non observance of law to his work

22.2 If the agency fails to rectify any fault within reasonable time, the BSNL reserves the right to carry out any work at the risk and cost of the agency. In case the fault is of emergency nature which may affect the normal functioning of services and the firm fails to take immediate necessary action, the work shall be carried out at the risk and cost of the firm without giving any notice. The decision of EE(E) shall be final.

22.3 The mechanic/ technician should attend the site immediately and minor faults may be cleared then and there.

22.4 However, in case of certain non-stocked spare parts not available locally or to be imported or for works beyond the control of the contractor, he can give technical justification and ask for extra time for approval of Engineer in charge who will have power to grant such extra time depending upon the correct technical justification and a reasonability of time scheduling for such extension.

In addition to the various penalty provisions mentioned, the following additional conditions shall also be applied.

ACTIVITY	RECOVERY ON EACH DEFAULT	ACTION FOR RESTORATION BY CONTRACTOR/DEPTT.
1.Inverter AC unit. a)Minor repairs in case of HPAC	**Rs. 1000/- per day beyond 48hrs**	**Engineer-in-Charge shall rectify the defect at the risk and cost of agency without further notice.**
1) b) Replacement of compressor	**Rs. 1000/- per day beyond 6Days**	
2) a) Package AC units	**Rs. 2000/- per day beyond 48 hrs for standby AC unit. Rs. 5000/- per day beyond 48 hrs for subsequent AC unit.**	**In case of failure to attend fault and /or doesn't make alternative arrangements, the same shall be done by Engineer-in Charge at the risk & cost of contractor without further notice.**
2)b).Package AC units-Replacement of compressor	**Rs. 2000/- per day beyond 6Days**	

CERTIFICATE TO BE SUBMITTED FOR MONTHLY SCHEDULED ACTIVITIES

Name of contractor: _____.

Agreement No. : _____.

Site :

Certificated that Monthly/Quarterly/halfly/Yearly Maintenance for Month of ---------- ----------have been carried out properly as per Maintenance schedule (Annexure –IX) and as per terms and condition of the agreement and i/c testing/drills etc. required during the period has been performed. Except the following due to the reasons mentioned against the respective item:

Sl.No	ITEM/SERVICES	REASONS FOR NON OPERATION

Contractor's representative **Exchange In- Charge** **JTO(E)**

SDE(E)

CERTIFICATE TO BE SUBMITTED ALONG WITH EACH BILL

1. CERTIFIED THAT WE HAVE CARRIED OUT THE PREVENTIVE MTCE. OF ALL THE SERVICES COVERED IN THE ABOVE CONTRACT SATISFACTORILY AND ALL THE SERVICES HAVE BEEN UNDER SATISFACTORY WORKING CONDITION EXCEPT THE FOLLOWING DUE TO THE REASONS MENTIONED AGAINST THE RESPECTIVE ITEM:

Sl.No	ITEM/SERVICES	REASONS FOR NON OPERATION

2. CERTIFIED THAT THE EQUIPMENTS FOR WHICH THE ENERGY EFFICIENCY PARAMETERS HAVE BEEN PRESCRIBED WERE MAINTAINED WITHIN THE PRESCRIBED BENCHMARK.
3. CERTIFIED THAT REQUIRED INVENTORY HAS BEEN REPLENISHED BY US.
4. CERTIFIED THAT EPF FOR THE EMPLOYEES ARE REMITTED.

SIGNATURE OF CONTRACTOR

JTO (E) SDE (E)

LISTOFAPPROVED MAKES-BSNLELECTRICALWING
(AS ON 29.02.2016)

S. No.	Item	Makes
1	Engine	Ashok Leyland /Cummins/ Cater pillar /KOEL/ Volvo Penta / Mahindra & Mahindra (up to 200 KVA) /Escorts (up to 30 KVA)/ Eicher (up to 35 KVA)
2	Alternator(Brushless)	Crompton Greaves (AL. series) / KEC / Leroy Somer / Stamford/Jyoti Ltd
3	Battery (Lead Acid / Mntc. Free)	Amara Raja / AMCO / Farukawa / Hitachi / Exide/ Prestolite / Standard
4	HV Switchgear (Vacuum Circuit Breaker/SF6)	Biecco Lawrie / Crompton / Kirloskar / MEI / Jyoti Ltd
5	Transformer (Oil filled / Dry type) a) Above 400 KVA	ABB / Schneider Electric /Andrew Yule / Bharat Bijlee / Crompton / EMCO /Kirloskar / Siemens
	b) Up to 400 KVA	In addition to above makes, Uttam/ Patson /Rajasthan Transformer and Switchgear
6	Air Circuit Breaker	L&T/ Schneider Electric / Siemens
7	MCCB(Ics=Icu)	L&T/ Schneider Electric / Siemens
8	SDF units	L&T/ Schneider Electric / Siemens/HPL/Havells
9	Power Contactors	L&T/ Schneider Electric / Siemens/ Lakshmi(LECS)
10	Change Over Switch	HPL / Havells / H-H Elcon
11	Intelligent APFC Relay	L&T/EPCOS(Siemens)/ Schneider Electric / Neptune Ducati/Syntron/ABB
12	Bus Bar Trunking/ Sandwiched Bus Duct	Moeller/L&T/Schneider Electric/ABB/ Legrand /Zeta
13	Power Capacitors (MPP/APP)	L&T/EPCOS(Siemens)/ABB/Crompton/ Schneider Electric / Neptune Ducati
14	Digital/ KWHr meter	Schneider Electric/ AE/ Digitron / IMP/Meco / Rishabh /Universal/HPL/L&T/ABB/Yokins
15	Cold shrink HT/LT Cable Joint	Denson / 3M(M-Seal)/ Raychem
16	Rubber Matting	ISI mark
17	MCB/ lsolator /ELCB/RCCB/ Distribution Board	Crompton / Havells / lndokopp / MDS Legrand / L&T / Schneider Electric/ Siemens / Standard/ABB/HPL
18	MS/ PVC Conduit	ISI mark
19	Cable Tray	MEM/Bharti/Ratan/Slotco/Profab
20	HT/LT Cables	ISI mark
21	PVC insulated copper conductor wire	ISI mark
22	Centrifugal Pump	Amrut / BE / Beacon / Batliboi /Crompton / Jyoti / Kirloskar / KSB / Mather & platt / WASP/Grundfos
23	Submersible Pump	Crompton/Amrut / BE / Calama / Kirloskar / KSB
24	Motors	ABB/ Bharat Bijlee / Crompton Greaves / Schneider Electric / HBB / KEC / Siemens/Jyoti Ltd
25	Fresh Air Fans	GE / Khaitan/Almonard/Crompton
26	Starter	ABB / BCH / Schneider Electric / L&T / Siemens /
27	Single Phase Preventer	L&T / Minilec / Siemens / Zerotrip
28	GI/MS Pipe	ATC / ATL / BST / GSI / ITC / ITS / IIA / JST / Jindal /TTA / Tata/Zenith
29	Foot Valve	ISI mark

30	Gate Valve	Advance/Audco/Johnson Controls / Zoloto /Annapurna / Fountain /Kirloskar / Leader / Sant / Trishul
31	Compressors	Carrier/Emerson copeland/York/Danfoss (for chillers only)
32	Resin Bonded Glass wool	Fibre Glass / Pilkingston / UP Twiga
33	Expanded Polystyrene	BASF(India) Ltd.
34	Gauge	Feibig / H.Guru / Pricol
35	Controls	FLICA / Honeywell / Indfoss / Penn- Danfoss / Ranco / Ranutrol / Sporland
36	Fine Filters	Anfiltra Effluent / ARW / Athlete/ Airtake / Dyna / Kirsloskar/ Puromatic/ Purafill/ Purolator / Tenacity
37	GI Sheet	HSU Jindal / National / Nippon Denro / Sail / Tata
38	Heat Detector	Appollo / Chemtron/ Edward / Fenwal/ Hochiki / Nitton /System Sensor/ Wormald/Honeywell Essar/Notifier
39	Ionization Detector	Appollo / Cerebrus / Edward/ /Fenwal / Hochiki / Nitton / System Sensor /Wormald
40	Photo Electric Smoke Detector	Appollo / Cerebrus / Edward / Fenwal/ Hochiki / Nitton / Wormald /System Sensor
41	Fire Panel (Microprocessor based)	Agni Instruments / Agni Devices/ Aruna Agencies / Carmel Sensor / Ravel Elect. / Honeywell Essar / Notifier / Navin Systems
42	Sprinkler/ Hose Reel & Hose Pipe	ISI mark
43	Fire Extinguisher	ISI mark
44	Lift	OTIS, Kone, Mitsubishi , Schindler, Johnson, Thyssenkrupp Elevator(India)

NOTE:

1. In case of External / PMC works, the list of approved makes may be modified as per client's requirement.
2. The accessories such as CT/PT/measuring instrument/relays provided by approved make in respect of Transformer/HT Panel/DG /AC Package Units as supplied by approved manufacturer along with the equipments are also acceptable in addition.
3. Any additional makes may be approved by concerned PCEs/Sr CEs/CEs(Elect) for the work under his jurisdiction as already accorded vide letter no. 3-2-5/EW/VEP-1/2007 dated 05-07-2007.

4.1.5TR Compressor make: Matsushita/ Hitachi/Toshiba/ GMCC / LG/ Tecumseh/Danfoss/ Panasonic

PROFORMA OF SCHEDULES (Operative Schedules to be supplied separately to each intending tenderer)	
SCHEDULE 'A' Schedule of quantities :	Attached
SCHEDULE 'B' Schedule of materials to be issued to the bidder:	Nil
SCHEDULE 'C'	
Tools and plants to be hired to the bidder:	Nil
SCHEDULE 'D'	
Extra schedule for specific requirements/documents for the work, if any:	Nil
SCHEDULE 'E'	
Schedule of components of Materials, Labour etc. for escalation:	Nil
SCHEDULE 'F'	
Reference to General Conditions of contract :	
Name of work:	As per NIT notification page No 3
Estimated cost of work:	
Earnest money:	
Security Deposit and performance Guarantee	
General Rules & Directions: Officer inviting tender:	Executive Engineer (E) Electrical Division-III, Chennai
Definitions:	
2(v) Engineer-in-Charge	Executive Engineer (E) Electrical Division-III, Chennai
2(vi) Accepting Authority	Superintending Engineer(E), EC-II,Chennai
2(x) Percentage on cost of materials and labour to cover all over heads and profits	10% (TEN)
CLAUSE 5	
Time allowed for execution	86 months(SITC-2months, AMC-84 months after completion of SITC)
Authority to give fair and reasonable extension of time for completion of work:	SE(E),EC-II,Chennai
Competent Authority for deciding reduced rates:	SE(E),EC-II,Chennai
Clause 25	
Competent authority for conciliation:	SE (E) not in-charge of the work.

BSNL EW-8

Bharat Sanchar Nigam Limited
Electrical Wing

Electrical Division: **III, Chennai** Sub Division: CANI Project **, Chennai**

1. I/we have read and examined the notice inviting tender, schedule, specifications applicable, Drawings & Designs, General Rules and Direction

2. Conditions of Contract, clauses of contract, special conditions, Schedule of Rates and other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

3. I/We hereby tender for the execution of the work specified for BSNL within the time specified, schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions and other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

4. I/We agree to keep the tender open for **Ninety (90) days** from the due date of submission thereof and not to make any modifications in its terms and conditions.

5. If I/We, fail to commence the work specified, I/We agree that the said BSNL shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely and the same may at the option of the competent authority on behalf of BSNL be recovered without prejudice to any other right or remedy available in law out of the deposit in so far as the same may extend in terms of the said bond and in the event of deficiency out of any other money due to me/us under this contract or otherwise.

6. Should this tender be accepted, I/We agree to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered up to maximum of percentage mentioned in clause 12.3 of the tender form and those in excess of that limit at rates to be determined in accordance with provisions contained in clause 12.2.

7. I/we agree to furnish to BSNL, Deposit at Call receipt/FDR/ Bank guarantee of a Nationalized/ Scheduled Bank for an amount equal to 5% of the of the contract value in a standard format within two weeks from the date of issue of award letter. I/We agree to keep the performance bank guarantee valid as per the BSNL terms and conditions.

8. I/We hereby declare that I/We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived therefrom to any person other than to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety or interest of BSNL.

Signature of Witness (required in the case of bidder's thumb impression is given by the bidder in place of signature) Occupation of Witness :	(Signature of bidder) (Name & Postal address) Seal of Bidder Date:

Acceptance of Tender

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of BSNL for a sum of Rs. _____ (Rupees_____)

The letters referred to below shall form part of this contract Agreement

a)

b)

For & on behalf of BSNL

Dated

Signature :
Designation :