



**BHARAT HEAVY ELECTRICALS LIMITED**  
**Centralized Stamping Unit & Fabrication Plant, Jagdishpur**  
**District- CSM Nagar (U.P.)**

**CORRIGENDUM-V**

Date: 02/01/2013

**SUBJECT:** Change in BOQ & Extension of due date for submission of tender document in tender enquiry for procurement of EPBAX System at CSU & FP Jagdishpur.

**Ref:** (1) TE No: TE-FP-EPBAX-12-04 for EPBX System Dt.: 02.11.2012.

With reference to our TE No : TE-FP-EPBAX-12-04, published in Indian Express national daily on 02.11.2012 and on our websites [www.bhelcsufp.in](http://www.bhelcsufp.in) & [www.bhel.com](http://www.bhel.com) , following corrections/clarifications are being incorporated and published on our website only as mentioned in our tender enquiry.

1. Last Due date for submission of Tender Enquiry has been further extended from 05.01.2013 to 23.01.2013.
2. Earlier issued Tender Enquiry is being replaced with a **REVISED** Tender Enquiry as attached with this corrigendum and bidders are required to submit their proposal as per revised tender enquiry only.

  
(S.K. Verma)  
Engineer (CS &IT/CSU& FP)



**BHARAT HEAVY ELECTRICALS LIMITED**  
**FABRICATION PLANT, JAGDISHPUR INDUSTRIAL AREA, DISTT.**  
**AMETHI-227817 (U.P.), INDIA**  
**Phone: +91-5361-271 378; Fax: +91-5361-271 382**

### TENDER ENQUIRY (Revised)

<b>Tender Enquiry No:</b> TE-FP-EPBAX-12-04	<b>Tender Enquiry Date:</b> 02/01/2013	<b>Due Date and Time for Submission of Bid through email: on or before</b> 23/01/2013 (2:30 PM)	<b>Due Date and Time for Opening of Bid:</b> 23/01/2013 (3:00 PM)
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To,

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**KIND ATTN.:**

Dear Sir,

Earlier published all tender documents of Tender Enquiry No: TE-FP-EPBAX-12-04 Dated: 02.11.2012 shall be replaced by this revised tender enquiry. We are pleased to invite most competitive quotations in three part bid system, strictly in line with given Terms & conditions. Please submit your lowest quotation in the format prescribed in **Annexure-A** by the due date and time.

#### **Terms and Conditions:**

- 1. Scope of Supply:** Supply, inspection at Vendor's works, packing, forwarding, insurance of EPBAX System and its Cabling work as per Technical specification for Fabrication Plant, BHEL, Jagdishpur as per following details:

**TABLE-1**

<b>Sr. No.</b>	<b>Description</b>	<b>Equipment Guarantee</b>	<b>AMC</b>	<b>Delivery Schedule</b>	<b>I&amp;C Schedule</b>
1	Supply, installation, testing, commissioning of EPBAX Communication server with BOQ as per Part-A of attached Annexure-A & specification as per Annexure-E	1 year from date of acceptance and successful installation at BHEL, Jagdishpur	4 years after 1 year of Guarantee period	Within 4 weeks from PO/LOI	Within 6 weeks from supply
2.	Supply, installation, testing, commissioning of Cabling work for EPBAX System with BOQ as per Part-B of attached Annexure-A	1 year from date of acceptance and successful installation at BHEL, Jagdishpur	NIL	Within 4 weeks from PO/LOI	Within 8 weeks from supply

- 2. Prices:**

Prices: The prices shall be firm on FOR BHEL, Fabrication Plant basis. **Prices shall be quoted by vendors as per price bid schedule at Annexure-A.** If the prices are quoted in any other format then the bid is liable to be rejected.

**3. Delivery Period:**

Complete set of items with its auxiliaries and spare parts shall be supplied on FOR BHEL Jagdishpur basis within 4 weeks from date of PO/LOI.

**4. Installation & Commissioning Period:**

Complete set of items with its auxiliaries and spare parts shall be Installed and Commissioned at BHEL Jagdishpur within 6 weeks for Sr. No. 1 and 8 weeks for Sr. No. 2 of above TABLE-1 from date of supply of complete set of items.

**5. Liquidated Damages (LD)/Penalty For Delay:**

The delivery of Equipment shall be made within the time prescribed. Failure to dispatch the Equipment in time as per the delivery specified above would make the Vendor liable to an un-conditional penalty at the rate of one half percent (1/2%) of the Order value for delay of each week (or part thereof) subject to a maximum of ten percent (10%) of the Order Value. The Installation & Commissioning of Equipment shall be completed within the time prescribed. Failure to commission the items as per schedule specified would make the Vendor liable to an un-conditional penalty at the rate of one half percent (1/2%) of the Order value for delay of each week (or part thereof) subject to a maximum of ten percent (10%) of the Order Value.

**6. Terms of Payment:**

90% payment (alongwith 100% of taxes and duties) of supply portion against dispatch documents and balance 10% payment after acceptance of the Equipment at BHEL works and after submission of letter of Acceptance of Equipment and Performance Bank Guarantee. Freight charges shall be payable separately after receipt of material at site.

Installation and commissioning charges shall be payable after acceptance of the Equipment at BHEL works and after submission of letter of Acceptance of Equipment.

**7. Equipment Guarantee:**

As per above TABLE-1.

**8. Annual Maintenance Contract (AMC):**

As per above TABLE-1.

**9. Performance Bank guarantee:**

Vendor shall furnish a Performance Bank Guarantee (PBG) of 10% of the Contract Price confirming that necessary service and maintenance support and guarantee replacements will be provided during the guarantee period. The PBG shall be valid up to end of the guarantee period with additional claim period of 2 months. The PBG shall be issued as per attached Format at **Annexure-C** and from BHEL Consortium bank as per **Annexure-D** only.

**10. Arbitration:**

GM-CSU&FP (or any official appointed by him) shall be the sole arbitrating authority for this contract.

**11. Contract Law and Jurisdiction:**

This Contract shall be governed by the laws of India. No court shall entertain or try any suit or legal proceedings to enforce any claim arising out of the Contract except in a court of law having jurisdiction at **Amethi**.

**12. Insurance:**

Transit Insurance of complete items shall be done by vendors.

**13. General:**

- a) Lowest bidder for each part (Part-A and Par-B) shall be treated as L1 vendor for each part separately. Normally, order shall be placed on the L1 tenderer for Part-A and Part-B separately (refer Price Bid Format at **Annexure-A**)
- b) Offer validity shall be 3 Month from the date of opening of Bid.
- c) The items should be only brand new & as per applicable Indian/International standards.
- d) BHEL reserves the right to accept or reject any of the bid / all bids with or without deviation or cancel / withdraw the invitation for bid without assigning any reason whatsoever and in such case no tenderer shall have any claim arising out of such action by BHEL.
- e) BHEL may decide to process the case through Reverse Auction. Vendors to give their confirmation for participation in Reverse Auction process. Offer of vendors not confirming to Reverse Auction shall be liable to be rejected.
- f) Failure in satisfactory performance of the contract shall lead to forfeiture of the PBG.
- g) BHEL reserves the right to increase or decrease the quantity.
- h) The offers received late after due date and time, shall not be considered by BHEL.
- i) Offers with deviations from terms and conditions of the tender shall attract Loading or may not be considered.

**Instruction/procedure for submission of bids**

- a. This Tender shall be issued by hand/email/fax only.
- b. The offer is to be submitted by the vendors in three parts in sealed envelopes.
- c. **Envelop-1: Tender Cost (Rs. 2000/-) in form of Demand Draft (DD).** Payment to be made through Demand Draft in favour of "Bharat Heavy Electricals Limited" payable at State Bank of India, IGFCC Branch, Jagdishpur Industrial Area, U.P., Distt. Sultanpur-271817, INDIA (Branch Code: 9072). Vendor to write Demand Draft (DD), Tender Enquiry No. & Date, Due date of opening and complete address of the Vendor on the envelop.
- d. **Envelop-2: Techno-Commercial Offer shall be sealed in Envelop-2.**  
On the envelop, vendor to write Part-I, Tender Enquiry No. & Date, Due date of opening and complete address of the Vendor. This envelop should contain following documents:
  - i. Tender Enquiry duly signed with stamp on each page as a token of acceptance of all terms and conditions.
  - ii. Declaration as per attached Annexure-E of NIT.
  - iii. Technical details/brochures of the offered models, if applicable.
  - iv. Duly signed with stamp on each page of Technical Specification as a token of acceptance.
  - v. Un-priced copy of Price bid format (as per Annexure-A). Un-priced means that vendor to write "QUOTED" in place of the prices offered in Original Price Bid.
  - vi. Covering Letter giving index interlinking all the documents with all the pages signed and stamped.
- e. Envelop-3: Price Bid shall be sealed in Envelop-3.  
On the envelop, vendor to write Part-II, Tender Enquiry No. & Date, Due date of opening and complete address of the Vendor. This envelop should contain following documents:
  - i. Priced copy of Price bid format (as per Annexure-A). To terms or conditions should be written in Price Bid Format, else offer of the vendor is liable to be rejected.

**ENVELOP-1, ENVELOP-2 & ENVELOP-3 shall be sealed in BIG ENVELOP. On this envelop, vendor to write Tender Enquiry No. & Date, Due date of opening and complete address of the Vendor.**

- f. Address for submission and opening of Tender Document :  
**Office of the AGM (MM)**  
CSU&FP, Jagdishpur Industrial Area,  
Distt. Amethi- 227817 (U.P.) INDIA  
Tel: +91 5361 271 378  
Fax: +91 5361 271 382  
Email: upender@bhelcsufp.in  
The tender(s) should reach the above mentioned address on or before the due date mentioned above. BHEL will not be responsible for delay in receipt of tender(s).
- g. BHEL reserves the right to accept or reject any of the bid / all bids with or without deviation, or cancel / withdraw the invitation for bid without assigning any reason whatsoever and in such case no bidder shall have any claim arising out of such action by BHEL.

Yours Faithfully,

For Bharat Heavy Electricals Limited

Upender Kumar  
Engineer-MM (CSU & FP)

**PRICE BID FORMAT**  
**(Section-III)**

**PART-A**

Tender No. & Date : **TE-FP-EPBAX-12-04 dated 02/01/2013 DUE ON 23/01/2013**  
Bidder's Offer No. & Date : .....

All Values in INR

Sr. No.	Item Description	Unit	Qty.	Unit Rate	Total Price	Excise Duty @__%	Sales tax @__%	Any Other Taxes/Charges	Freight	FOR BHEL Price
			1	2	3 = 1 X 2	4 (on 3)	5 (on 3+4)	6	7	8 = 3+4+5+6+7
<b>PART-A</b>										
1	Sr. No. of 1 of Table-2 of Annexure-B	No.	1							
2	Sr. No. of 2 of Table-2 of Annexure-B	Nos.	15							
3	Sr. No. of 3 of Table-2 of Annexure-B	No.	1							
4	Sr. No. of 4 of Table-2 of Annexure-B (Wall Mountable)	Nos.	50							
	Sr. No. of 4 of Table-2 of Annexure-B (Floor Mountable)	Nos.	80							
5	Sr. No. of 5 of Table-2 of Annexure-B	Nos.	120							
6	Sr. No. of 6 of Table-2 of Annexure-B	Nos.	1							
7	Sr. No. of 7 of Table-2 of Annexure-B	Nos.	2							
	<b>SUB-TOTAL (SR. NO. 1 to 7)</b>									
8	I&C Charges of Sr. No. 1 to 7									
	<b>TOTAL WITH I&amp;C CHARGES</b>									
9	Sr. No. of 1 of Table-3 of Annexure-B	Yrs.	4							
	<b>GRAND TOTAL OF PART-A</b>									

Note: Vendor to quote for all the items.

Un-priced copy of this price-bid to be submitted with Part-I, Techno-Commercial Offer as per NIT.

Name of the Firm  
Signature of Prop./Partner with Seal

**PRICE BID FORMAT****(Section-III)****PART-B**Tender No. & Date : **TE-FP-EPBAX-12-04 dated 02/01/2013 DUE ON 23/01/2013**

Bidder's Offer No. &amp; Date : .....

All Values in INR

Sr. No.	Item Description	Unit	Qty.	Unit Rate	Total Price	Excise Duty @___%	Sales tax @___%	Any Other Taxes/ Charges	Freight	FOR BHEL Price
			1	2	3 = 1 X 2	4 (on 3)	5 (on 3+4)	6	7	8 = 3+4+5+6+7
<b>PART-B</b>										
1	Sr. No. of 1 of Table-4 of Annexure-B	Mtrs.	1500							
2	Sr. No. of 2 of Table-4 of Annexure-B	Mtrs.	700							
3	Sr. No. of 3 of Table-4 of Annexure-B	Mtrs	700							
4	Sr. No. of 4 of Table-4 of Annexure-B	Mtrs	700							
5	Sr. No. of 5 of Table-4 of Annexure-B	Mtrs.	10000							
6	Sr. No. of 6 of Table-4 of Annexure-B	No.	1							
7	Sr. No. of 7 of Table-4 of Annexure-B	Nos.	2							
8	Sr. No. of 8 of Table-4 of Annexure-B	Nos	8							
9	Sr. No. of 9 of Table-4 of Annexure-B	Nos	7							
10	Sr. No. of 10 of Table-4 of Annexure-B	Nos	10							
11	Sr. No. of 11 of Table-4 of Annexure-B	Mtrs.	2500							
12	Sr. No. of 12 of Table-4 of Annexure-B	Nos.	100							
13	Sr. No. of 13 of Table-4 of Annexure-B	Mtrs.	10000							
14	Sr. No. of 14 of Table-4 of Annexure-B	Mtrs	2000							
15	Sr. No. of 15 of Table-4 of Annexure-B	Mtrs	1200							
16	Sr. No. of 16 of Table-4 of Annexure-B	Mtrs	1200							
17	Sr. No. of 17 of Table-4 of Annexure-B	Nos.	2							
18	Sr. No. of 18 of Table-4 of Annexure-B	Nos.	2							
	<b>GRAND TOTAL OF PART-B</b>									

Note: Vendor to quote for all the items.

Un-priced copy of this price-bid to be submitted with Part-I, Techno-Commercial Offer as per NIT.

Name of the Firm  
Signature of Prop./Partner with Seal

**PRICE BID FORMAT (For Cards used in Item No 1 of Table-2, Annexure-B)**

**(Section-III)**

**PART-C**

Tender No. & Date : **TE-FP-EPBAX-12-04 dated 02/01/2013 DUE ON 23/01/2013**

Bidder's Offer No. & Date : .....

All Values in INR

<b>Sr. No.</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty.</b>	<b>Unit Rate</b>	<b>No of Ports in one card</b>	<b>FOR BHEL Price (Excluding Taxes)</b>
			1	2	3	8 = 3+4+5+6+7
1	Trunk Interface Card used in Sr. No.1 of Table-2 of Annexure-B	No.				
2	Digital Extension Interface card used in Sr. No 1 of Table-2 of Annexure-B	Nos.				
3	Analog Extension Interface Card Used in Sr. No. 1 of Table-2 of Annexure-B	No.				
4	PRI Interface Card used in Sr. No. of 1 of Table-2 of Annexure-B	Nos.				
5	VOIP Interface Card used in Sr. No. of 1 of Table-2 of Annexure-B	Nos.				

**Note:** This table is required for Information Purpose Only.

Name of the Firm  
Signature of Prop./Partner with Seal

1.1 Communication Server :TABLE-2

SI No	Description of Work	Qty Req. (No's)	Make Quoted
1	<p>Supply of fully Non-blocking IP Telephony server, Rack Mountable, with minimum 32 bit processor &amp; 266 MHz CPU, having minimum flash memory of 2GB &amp; 160 GB Hard Disk along with all required hardware &amp; software for seamless connectivity, QSIG compliant, Equipped with all types of common control cards, power supply cards, Fully wired for following requirements and expandability as mentioned below just by addition of chassis without any networking. Must be TEC approved.</p> <p>Note: Item No.1 will be installed at two different places at a distance of 900 meters approximately, in a distributed architecture and will be networked using Optical Fiber with requirements as below. Total system should be expandable up to Minimum 800 ports as per requirement at two different locations.</p> <p><b>At CSU &amp; FP Admin Building:</b></p> <ol style="list-style-type: none"> <li>24 Ports Trunk interface card with CLI</li> <li>24 Ports Digital Extensions interface card</li> <li>128 nos. Analog Extension interfaces</li> <li>01 no. PRI interface Card (Min 30 Channel )</li> <li>01 no. Auto attendant Card (Min 4 Channel)</li> <li>32 Channels VoIP Gateway card</li> <li>08 ports Voice Mail enabled for all extensions</li> <li>CTI for minimum 50 users</li> <li>Inbuilt LAN Port</li> <li>Expandable up to Min 230 Ports</li> </ol> <p><b>At CSU &amp; FP Township:</b></p> <ol style="list-style-type: none"> <li>256 nos. Analog Extension interfaces</li> <li>32 Channels VoIP Gateway card</li> <li>08 ports Voice Mail enabled for all extensions</li> <li>Inbuilt LAN Port</li> <li>Expandable up to Min 500 Ports</li> </ol>	1	
2	Supply of min 10 key Digital/IP phone Suitable for item No.1 (Of Same make of Communication Server)	15	
3	Supply Of PC Based operator console suitable for item no.1	1	
4	Supply of push button basic Phone sets with line cord & rosette box suitable for item no.1 of (Make Siemens/Panasonic/BPL/BEETEL) (Wall Mountable :50 NO's, Floor Mountable : 80 No's)	130	
5	Supply of push button CLI Phone sets With line cord & rosette box suitable for item no.1 of (Make Siemens/Panasonic/BPL/BEETEL)	120	
6	Supply of 1 KVA online UPS/FCBC for power backup Suitable for item No. 1 (Make APC/ Numeric/ Emerson )	1	
7	Supply of 21U Floor Mountable Rack with Fan & all Accessories suitable for item No.1 (Make HCL, DELL, HP )	2	
8	Installation, testing & commissioning of IP communication server (Sr. no 1 to 7) in plant & township as per technical specification attached as annexure -3.		
9	<b>Approved Make of Communication server:</b> Avaya, Ericsson Aastra, NEC, Siemens, Cisco, Nortel, Alcatel, Tadiran or Equivalent Indian Manufacturer		

**Note:** - If a digital/analog, subscriber/CO line card does not have 16/16/8 ports, required no. of cards to fulfill the requirement shall be supplied by the bidder. Each item to be supplied as per the technical specification of BHEL.

## 1.2 AMC Charges:

**TABLE-3**

SI No	Description of Work under AMC	Unit Qty.
1	AMC charges for Complete IP Telephony system complete with all control, power Card, UPS, Analog, Digital, PRI & IP subscriber cards, Phones, CO line cards etc. (Onsite, Labour & Spares)	4 Years (After warranty period of 1 year)

**Note:** During warranty period of one year, one spare of CPU & Power supply card shall be maintained on site at CSU & FP Jagdishpur.

### **(PART-B)**

## 2. BOQ for Cabling Work at BHEL CSU FP Plant office & Township:

**TABLE-4**

SI No	Description of Work	Qty required	Make Quoted/NA
01	Supply of 50 Pair .5 MM Armored JFTC cable (Make Delton/ Finolex).	1500 Mtr.	
02	Supply of 20 Pair 0.5 MM Armored JFTC cable (Make Delton/ Finolex).	700 Mtr.	
03	Supply of 10 Pair .5 MM Armored JFTC Cable (Make Delton/ Finolex).	700 Mtr	
04	Supply of 10 Pair 0.5 MM PVC wire (Make Delton/ Finolex).	700 Mtr.	
05	Supply of 02 Pair PVC Wire (Make Delton/ Finolex).	10,000 Mtr.	
06	Supply of wall mountable Krone MDF 500 Pair.	1 Nos.	
07	Supply of wall mountable Krone MDF 200 Pair.	2 Nos.	
08	Supply of wall mountable Krone MDF 100 Pair.	8 Nos.	
09	Supply Of wall mountable Krone MDF 50 Pair.	7 Nos.	
10	Supply Of wall mountable Krone MDF 10 Pair.	10 Nos.	
11	Supply of 1 inch Casing & Capping (Make AKG/Cap/Daphin/Seiko/G plus)	2500 Mtr.	
12	Supply & Fixing of RJ-11 Input & Output Box (Rosette box).	100 Nos.	
13	Fixing & Laying of 2 pair cable with accessories in casing & capping/conduit.	10000 Mtr.	
14	Trenching with sand and brick and laying of Cables.	2000 Mtr.	
15	Supply of 12 core Optical Fiber cable. ( Krone/Tyco / ADC /D-Link/Panduit)	1200 Mtr.	
16	Supply of HDPE for fiber optic cable. (ISI Mark)	1200 Mtr.	
17	Supply of 1000 Mbps media converter (D-link, Cisco, Moxa)	2 Nos.	
18	Supply of 12 way LIU/ Fiber distribution box	2 Nos.	

### **NOTE:**

1. The amount & measurement of all above items are tentative and will be charged on actual basis of work done, with any other item required for the system.
2. Quoted System must be installed in the distributed Network architecture at two separate locations in BHEL CSU & FP Jagdishpur Premises.
3. System installed in township will be connected to System installed at CSU FP Admin building through Optical Fiber Cable for communication.
4. Warranty of 12 months is to be provided on complete system after the date of commissioning.
5. Bidders are required to specify the original manufacturer of each item.
6. AMC charges shall be paid quarterly and downtime shall be calculated for each quarter as per attached annexure-x and the same will be deducted from the AMC charges of the period.
7. Bidder can bid for Part-A OR for Part-B OR for both parts independently and L-1 will be decided for both parts separately. L-1 for part-A and part-B shall co-ordinate with each other to complete the full scope of work as desired by BHEL.

### **SCOPE OF WORK:**

Supply of material, trenching and laying of all cables in plant and township, Installation of Communication Servers, testing, commissioning and training to BHEL representative shall be provided by the bidder. Bidders can visit the installation site as per their requirement before quoting against the enquiry. AMC shall also include preventive maintenance of the complete system at least once in three months or as and when required.

## Pre Qualification criteria

1. The bidder must be an original manufacturer of the model offered or a dealer authorized by the OEM or authorized by Indian Channel Partner of OEM.
2. The model offered must be in operation with any other Government organization/PSU/MNC/Reputed private organization and performance should be satisfactory, documentary evidence to be enclosed.
3. The model must have working interconnection with other exchanges over digital E1/ PRI.
4. The bidder must produce valid TEC Approval certificate at least 512 Lines for the particular model quoted.
5. Must be Q SIG compliant, documentary evidence to be enclosed.
6. Not ever black listed by any PSU/ Govt. organization.
7. Provide spare material and services and technical support for next 10 years. The bidder must enclose a letter from OEM assuring support for the above said period.
8. At least three years of experience in installation and commissioning of IP based communication server working in Government / PSU/ Private Organization.
9. The Bidder should attach manufacturer's detailed technical specification in original (or photo copy) of the model quoted, indicating all the technical specification mentioned in the tender document.
10. For Part-A, bidder must have executed One job of value Rs 11,00,000.00 or above, OR Two jobs of value Rs 9,00,000.00 or above OR Three jobs of value Rs 6,00,000.00 or above & For Part-B, bidder must have executed One job of value Rs 8,00,000.00 or above, OR Two jobs of value Rs 6,00,000.00 or above OR Three jobs of value Rs 4,00,000.00 or above in last seven years ending December 31, 2012.
11. **Local Service Support:** The firm shall have complete infrastructure with warehouse located at Lucknow, to provide timely support in terms of manpower, spares and accessories.

### DOWNTIME CALCULATION FOR EPABX SYSTEM

Bidder shall be responsible for maintaining a minimum uptime of 97% for the entire system on monthly basis. Any down downtime above 3% will be subject to deduction of AMC charges on following basis. The downtime will be calculated as shown below:

Example:

- a) AMC amount per quarter: Rs. A
- b) Total available hours per Month: 24H X 30D = 720H
- c) No Down time (T) calculation is 3% = 22Hrs.
- d) Deduction Factor (F) will be calculated as below:

Downtime in a Month	Deduction Factor (F)
<3%	1.0
3%-5%	1.5
5%-8%	2.0
>8%	3.0

e) Downtime deduction (D) =  $T \times A / 3 \times F / 720$

i.e. If per quarter AMC charge is Rs. 30000/- & the system is down for 50 Hrs in a month, deduction will be  
= Rs.  $50 \times 30000 / 3 \times 2.0 / 720$   
= Rs.

Note:

If the uptime for equipment falls below 95% continuously for 1 month, the equipment shall have to be replaced by the Bidder, without any extra charge. Down time Hours will be calculated for any item failure in the system like Server, Cards, connectors, Cables etc.

## ANNEXURE-C

### PROFORMA FOR PERFORMANCE BANK GUARANTEE

(To be issued on appropriate valid non-judicial stamp paper)

This Deed of Guarantee made this ..... Day of 200 by ..... Bank Ltd (hereinafter called the 'Bank', in favour of Bharat Heavy Electricals Limited, having its Registered Office at BHEL House, Siri Fort, New Delhi – 110 049 (hereinafter called the 'Purchaser') through .....unit.

Whereas M/s ..... (hereinafter called the Vendor) has entered into a Contract arising out of the Purchase Order No ..... addressed by the Purchaser to the Vendor, for.....(scope of supply & services) (hereinafter called the 'Agreement').

And whereas the said Agreement provides that the Vendor shall submit a Bank Guarantee for a sum of Rs..... (Rupees..... only) towards Performance Guarantee to be made in the form and manner therein specified.

And whereas the Vendor ..... have approached ..... (Bank) and at their request and in consideration of the arrangement arrived at between the said Vendor and the said Bank, the said Bank has agreed to give such guarantee as hereinafter mentioned to the aforesaid Purchaser.

Now, therefore, these presents witness that we ..... (Bank) by the hand of Shri..... its lawfully and duly constituted attorney do hereby undertake to pay the aforesaid Purchaser a sum of Rs..... (Rupees .....) by virtue of this Guarantee without any demur, merely on a demand from the Purchaser and to keep the company indemnified to the extent of Rs....., by virtue of this guarantee against any loss or damage caused to or would be caused to or suffered by the Purchaser by reason of breach by the said Vendor of any of the terms or conditions contained in the said Agreement or by reason of the Vendor's failure to perform the said Agreement and for the payment of any money payable by the said Vendor to the Purchaser under the terms and conditions of the said Agreement (the decision regarding the breach, loss, damage or payment due being solely at the discretion of the Purchaser).

We further undertake to pay the Purchaser any money so demanded notwithstanding any dispute or disputes raised by the Vendor, any suit or proceeding pending before any court or Tribunal relating thereto, our liability under these presents being absolute and unequivocal. The aforesaid guarantee will remain in force and we shall be liable under the same, irrespective of any concession for the time being granted by the said Purchaser to the Vendor in or for fulfilling the said Agreement and the guarantee will remain in full force irrespective of any change of terms, conditions or stipulations or any variation in the terms of the said Agreement irrespective of whether notice of such change and/or variation is given to us or not and claim to receive such notice of any change and or/variation is given to us or not.



<b>LIST OF BHEL CONSORTIUM BANK</b>	
<b>1</b>	<b>State Bank of India</b>
<b>2</b>	<b>Canara Bank</b>
<b>3</b>	<b>Bank of Baroda</b>
<b>4</b>	<b>Punjab National Bank</b>
<b>5</b>	<b>State Bank of Hyderabad</b>
<b>6</b>	<b>State Bank of Travancore</b>
<b>7</b>	<b>Corporation bank</b>
<b>8</b>	<b>Syndicate Bank</b>
<b>9</b>	<b>Indian Bank</b>
<b>10</b>	<b>Oriental Bank of Commerce</b>
<b>11</b>	<b>UCO bank</b>
<b>12</b>	<b>Central bank of India</b>
<b>13</b>	<b>IDBI Ltd.</b>
<b>14</b>	<b>HDFC Bank Ltd.</b>
<b>15</b>	<b>ICICI Bank Ltd.</b>
<b>16</b>	<b>Kotak Mahindra Bank Ltd</b>
<b>17</b>	<b>The Federal bank Limited</b>
<b>18</b>	<b>ABN-AMRO Bank</b>
<b>19</b>	<b>Citi Bank</b>
<b>20</b>	<b>HSBC</b>
<b>21</b>	<b>Deutsche Bank</b>
<b>22</b>	<b>Standard Chartered Bank</b>
<b>23</b>	<b>United bank of India</b>
<b>24</b>	<b>Vijaya Bank</b>
<b>25</b>	<b>Union Bank of India</b>
<b>26</b>	<b>Bank of India</b>
<b>27</b>	<b>Andhra Bank</b>
<b>28</b>	<b>Punjab &amp; Sind Bank</b>
<b>29</b>	<b>Axis Bank</b>



**SPECIFICATIONS FOR IP COMMUNICATION SERVER**

The proposed EPABX is a pre-configured IP based server minimum 32 bit processor and 266 MHZ CPU, having minimum Flash Memory of 2 GB and optical Hard disk of minimum 160 GB along with all hardware and software for seamless connectivity & QSIG compliant. The Server should fully based on Universal Architecture and should be so designed that the same can easily upgradeable to higher configuration with minimum changes in hardware.

- An integrated, modular, state-of-the-art communication server that supports advanced TDM and IP business-class telephony.
- Complete, user-friendly voice communications including voicemail, personal assistant, automated attendant and integrated CTI server.
- Supports analog, digital, IP and mobile phones and PC soft phones.
- Pre-announcement: on-hold music and messages.
- Automated attendant: voice-activated management of incoming calls.
- Basic PC telephony.
- Call-forwarding: automatic transfer of incoming calls.
- Automatic call distribution: call-routing software.

**Specifications for EPABX:**

<b>System Features:</b>
1.1 The offered system should be the latest model of the vendor being supplied worldwide. Old models / releases will not be accepted.
1.2 The system should be state of the art and deployable over both packet and circuit switching infrastructure.
1.3 The system should provide advanced, embedded solutions without the need of any external hardware & software. It should have strong convergence solution for voice, Internet, e-mail applications including LAN services.
1.4 The system should support traditional telephony, VOIP features and Mobile telephone features in one single system through pluggable interface boards.
1.5 The system Moreover, should be fully extremely modular - meaning total adaptation easy migration, modular, scalable.
1.6 The system should be using latest Operating system with native Internet protocols
1.7 The system should be modular at every level; it should be rack able, stackable.
1.8 The system should have universal slots for the interface boards.
1.9 The system should provide the following features as part of the system without the need for any external hardware or software: Same features as a router with a firewall and Proxy cache server for internet access, An inbuilt e-mail server, CTI server
1.10 The system should be based standard protocols like CSTA(computer supported telecommunication applications), TAPI(Telephony application programmed interface), IP etc
1.11 The system should provide a single management interface window for all application management. The management software should be based on a standard web browser.
<b>Voice features:</b>
2.1 The system should support the following voice terminals: Analog telephones Digital telephones High - end IP hard phones High- end IP soft phones Client / server based CTI solutions
2.2 It should support the following telephone features:
Music on hold (up to 2min customizable)
Personal assistant
Voice mail with Auto attendant
Call forwarding
Call transfer

Call Back
Park / Retrieve
Minimum 3-way conference
Minimum 5 Party meet me conference
Dial by name
Directory (3000 names)
Company greeting
Hunting group (cyclical, sequential, parallel)
External loudspeaker broadcasting
Pick up (group, individual, supervised line...)
Manager / Secretary profile
The offered system must support the following services without any external/additional server to support them: Text mini-message between advanced sets Reception of absence mini-message from the called user Calling Line Identification Restriction (CLIR) for local / internal calls Communication timeout on outgoing call Barring for internal and external calls Call Waiting on: busy set, busy hunting group, busy voice mail, Intrusion on busy set. Set loudspeaker call: On no reply, On busy.
Call back to last caller: local / internal, external.
Automatic call back (activates / cancel) on: no reply, busy set, busy trunk group.
Call back request (activate / cancel) on: no reply, busy set.
Call back request notification by :
LED on the user's set
Icon on wireless phones
Voice guide for analog sets
Dial by name with central directory repository
Last number redial
Multiple redial
Abbreviated dialing
Automatic call set-up on unhook
Private call / Personal Identification Number (PIN)
Distinctive ringing for internal and external calls on all types of sets
Call Overflow: Overflow on either busy or no reply, Overflow on both busy and no reply, Overflow on out of order, Timed call overflow on no reply.
Call Pick up: Individual, On group, No Replied Calls Repertory: Local / internal calling numbers with caller name, date and time of calls, Enquiry call / enquiry call cancel.
Call transfer on: reply, no reply, busy.
Call transfer to : set, hunting group, attendant, voice mail, Trunk to trunk call transfer, Trunk to trunk timed transfer, Three Participants Conference, Meet-Me Conference, Announcement / Paging on Loudspeaker, Calling party name identification (CNID), Direct inward dial (DID), Direct outward dial (DOD), Direct inward system access (DISA), User set creation : user validation of his set created by attendant, User set creation : user validation of his set created by attendant, User moving : personal plug in / plug out by prefix, Call recording on voice mail, Voice guides indicating/helping users independent of type of set, Outgoing call with business account code (by prefix or suffix), DTMF / Pulse Transparency, Appointment Reminder, Call Hold, Automatic exclusive hold (in case of enquiry call or call waiting consultation), Manual exclusive hold (by Hold or line key or by prefix), Common hold (by Common hold key), Mutual hold (initial hold by Hold key).
Call Forwarding: unconditional, on no reply, on busy, on busy or on no reply, on ringing (call deflection)
Forwarding destination: set, voice mail, hunting group, attendant or attendant group, call center group, automated attendant, external number.
Substitution :

<p>Monoline or multiline mode for advanced sets  Multiline key per directory number for advanced sets  Multidirectory number (DN) for advanced sets  Multidirectory numbers (DN) with supervision (indication of state) of :  set  trunk  trunk group (no overringing)</p>
<p>Manager / Secretary features:</p>
<p>Call Filtering with manager control</p>
<p>Manager/Secretary hot line</p>
<p>Private Line for Manager set</p>
<p>Absent secretary key</p>
<p>Secret listening of the secretary by the manager</p>
<p>Multiple Managers / Multiple Secretaries</p>
<p>Twinset: Two multiline sets with (same) Directory Number (TDN) and common voice mail and accounting</p>
<p>Personal password for :</p>
<p>set lock, override for DOD, set unlock, substitution and DISA, DND, general mini messaging consultation, programming individual repertory, key programming, follow-me, remote forwarding, private call, consultation of no replied calls repertory, Hunting Groups, Do Not Disturb.</p>
<p>2.3 Automatic Route Selection (ARS)</p>
<p>2.4 The should have rich set of telephony features like: The Digital phones should provide comprehensive step-by-step voice or display guidance, and these phones should have Soft keys that change according to the context of the call. The digital phones should be expandable with a full set of plug wares, including the 10/100 base T IP Enabler that gives access to VOIP, ISDN S0 interface, analog extensions, V24 ports for data communication.</p>
<p>2.5 The system should have in-skin voicemail expandable to 8 ports with 200 hrs of storage. The system should be offered with 8 ports voice mail, 24 hours of recording.</p>
<p>2.6 The voice mail should be Easy to use: User should be able to navigate through the voice mail features using voice prompts and the digital phones with soft keys should provide display for accessing the voice mailbox.</p>
<p>2.7 Following features should be supported:</p>
<p>Direct access to any message whatever its rank, Record online function, Screening function.</p>
<p>Notification by message LED</p>
<p>Remote consultation to mailbox</p>
<p>External notification (on mobile, phone pager, home set, ...)</p>
<p>Personal options: customized greeting, protection by password, resend with comments, dial by name, reply function key, Answer only mode</p>
<p>Unconditional / on busy / on no answer forward on voice mail with specific message.</p>
<p>2.8 The users should have Personal assistant function for all users</p>
<p>2.9 Up to five different options should be offered to the callers to reach different destinations like secretary, mobile phone, outside number, operator, voicemail.</p>
<p><b>2.10 VOIP</b></p>
<p>2.10.1 The system should support VOIP features through plug in cards. It should involve any external gateways.</p>
<p>2.10.2 It should support: IP Telephony, IP trunking SIP( H.323 protocols and SIP protocols)</p>
<p>2.10.3 The IP phone should have two Ethernet 10/100Base T ports, out of which one should be used to connect to the LAN switch port and other one for connecting PC, thus saving LAN ports.</p>
<p>2.10.4 QOS features should be supported. It should be able to tag the voice packets at the level 3 (IP) using TOS and DiffServ.</p>
<p>2.10.5 The system should support the following compression algorithm for VOIP:</p>
<p>G711 when packets will stay in the LAN,</p>
<p>G723.1 or G729.a when packets will be sent over the WAN</p>
<p><b>Networking:</b></p>
<p>3.1 Branch office and remote ext IP solutions</p>
<p>It should be possible to have Remote IP phones in the branches, managed by the call server in the</p>

headquarters. The IP phones at the remote site should have exactly the same features as they would at the headquarters.
3.2 The system should be compliant with QSIG standards.
3.3 The system should have networking features and it should allow to build the networks over the following physical interfaces:
ISDN
Leased lines, IP networks using H323 protocols,
3.4 The system should allow building feature transparent networks. It should support the following features when networked:
Basic call
Block dialing
Call forwarding indication on Cent. OP
Called party state indication on Display
Caller's repertory
CLIP/CLIR (Caller line identification presentation/restriction& COLP/COLR(connected line presentation & restriction)
Diversion / Dynamic Routing
DTMF transparency
I/C call processing as Int. or Ext. calls
Optimized path in case of Forwarding
Optimized path in case of Transfer
Private / public call differentiation
Sub/address
Transfer
<b>Data features:</b>
4.1 The LAN services offered by the system should have advanced features like: Powerful LAN: Switch 100 BT
The users should be able to move from one place to other and also it should be possible to add new users easily. For this the system should support embedded DHCP server
<b>Internet/ E-mail features: Optional</b>
5.1 The Internet access should be possible through ISDN or ADSL lines or through Leased Lines through separate interface
5.2 The system should support embedded Internet access solution. Following features should be supports:
Shared internet access through ISDN or DSL
Firewall, Proxy/cache server,
VPN features for the remote workers to access the emails or voice communication with the extensions of the system over internet.
5.3 The system should have standards based solution for Internet, email and VPN features. It should support the following industry standards:
Internet standard protocols support
E-mail protocol support (POP3, SMTP, MIME) with multi-vendor e-mail client support
VPN standard protocol support for secure remote access (PAP/CHAP, PPTP, IPSec).
5.4 The system should have following email features:
It should offer a fully featured internal and external mail application.
The system should offer features for combining with an existing e-mail solution from an ISP (Internet Service Provider) or from an existing e-mail server on the LAN.
The system should offer features for optimizing communication costs
Dial on demand function for internet access, as well as e-mail sending and retrieval which should be possible to set up at predefined intervals
Cache mechanism for information access with no connection
Time range definition, which should allow to control and limit Internet access usage during business hours in example.
<b>CTI features: (The offered CTI server should be proprietary of OEM. No third party solution will be considered).</b>

<p>6.1 The system should support high-end CTI (Computer Telephony Integration) features. It should allow users to access all the telephony features from their PC, irrespective of telephone type like Digital phones, Mobile DECT phone, Analog, without any physical phone. Digital phone, Analog Phone, Mobile DECT phones can be interfaced with the Computer by loading software and the same PC and when incoming calls comes, pop up should indicate at the screen. Following feature should be support for PC telephony:</p> <ol style="list-style-type: none"> <li>1. Multiple calls handling on Analog/Digital Extensions.</li> <li>2. Min 8 one touch dialing keys.</li> <li>3. 400 nos personal memory with dial by name.</li> <li>4. Last 30 days call details with filter option.</li> <li>5. Last 10 nos redial.</li> <li>6. Missed call lists with date and time-Internal by name and number and external number on PRI.</li> <li>7. Call back and dialing by click on mouse.</li> <li>8. Conversation Recording etc.</li> </ol>
6.2 PC telephony for 50 users should be included in the offer.
<b>DECT features/TDM Phones (Digital enhanced cordless telecommunication).The offered DECT system should be proprietary of OEM. No third party solution will be considered.</b>
<p>7.1 The system should offer mobility features inside the office It should be based on DECT technology. The DECT telephones should offer following features apart from the standard features like big display, icons based display etc :</p> <p>Built in loudspeaker, Built in vibrator, Headset connection, Large graphical display, Navigation key, Pop –up menus, Track point key, Directory Key, Menu access key etc.</p>
7.2 Wireless desktop digital telephones should be supported. It means standard digital telephones should be equipped with additional hardware, so that it can work with the DECT infrastructure and no cables should be used to connect the set with the system.
<p>7.3 The offered system should support IP wireless Phones. The offered IP wireless phones system should be proprietary of OEM. No third party solution will be considered.</p> <p>A). The IP Wireless Phones should support WiFi 802.11b 2,4 GHz radio.  B). The IP Wireless Phones should support WiFi 802.11b 5,150_5,825 GHz radio.  C). The IP Wireless solution must offer a QoS (Quality of Service) on the WiFi radio spectrum solution.</p> <p>The IP wireless phones should have at least following functions:  (1)128x64 pixels display (2) 4 dynamic keys having function according communication state(3) 1 Key to access the functions menu of the phone(4) 1 key to navigate on the menu(5) 1 function key to access a customization menu(6) Option to connect a corded headset.</p>
<b>System management and Call accounting application:</b>
8.1 GUI based software should be offered for the system management and call accounting. The software should have the following features:
Windows user interface, Access control by password, Multi-language, Time charging (VPN cost simulated, tie line...).
Masking of the last digits of the dialed numbers
Traffic analysis (incoming & outgoing calls)
Pre-defined reports
Total reports, hit-lists, cost thresholds
Detailed and analysis report (crossed sorting)
Account codes report
Customized report (layout, criteria...)
Graphical presentation (diagrams, sectors, histograms)
Recapitulative report (created from other reports)
Automatic operations (report edition, data saving)
Multi-carrier access
Customized reports with double currency
Call back capability for secured access.
<b>8.2 SYSTEM MANAGEMENT:</b> The IP PBX system should provide a suit of applications and tools to permanently evaluate and report the operational health of the system. It should provide the following functions:

Software licensing check
Automatic recognition of plugged sets
User moving
Monitoring of all the events on the system
Capture of performance and level of use of the resources
Register and log all calls and give accounting information
Monitor and register all users, attendants, trunks activity to generate traffic and level of use analysis
The IP PBX system must include the possibility to have remote maintenance access via dial-up having access to the system for configuring, diagnosis and monitoring. This access must be protected with security mechanism to prevent unauthorized intrusions.
The system must include a dedicated management server/platform that will be based on the latest technologies, such as JAVA/JEE. This server should support a minimum of five (5) clients having different access rights to the applications.
The management platform must provide a single graphical client (Graphical User Interface GUI) as well as a web based interface.
The Management platform must provide web access allowing the administrator to manage the system to use any PC with an internet browser
The management platform must use a client-server architecture allowing different administration clients to be connected to the system
The management platform must perform at least the following tasks:
Configuration and programming of services, users, categories and all system parameters and features. This module must provide centralized management in local or remote environments of a single system or a network. The network manager will be able to quickly and easily edit, create or delete any network object, by the use of import/export functions and multiple operations.
Accounting of all calls generated by the users including cost, date, hour. Must provide different options to group the billing of the calls (cost centre, extension number, trunk, user, city/area associated to dialled numbers). The accounting module must be able to:
Adapt to the financial organization of the company along the cost centres and the organization levels
Manage carriers' fees to apply specific costs. Must be able to manage multi-carrier schemes
Define thresholds for phone usage and Tracking/monitoring this activity, providing a graphical view of the accounting thresholds per user, cost centre or group
Generate reports and graphics classified by:
User, Cost Centre, Organization Level, Duration, PIN, Project code, Number dialled (destination), Carrier used.
<b>8.3 VOICE MAIL FEATURE:</b>
The offered Voice mail should have min 8 ports with 30 hours recording system capabilities. The Voice mail should be in screened and Proprietary, No PC based or third party Voice mail will be considered.
Voice Messaging system must be fully integrated to the call server and should not require external server to be hosted.
Voice Messaging system must be manageable from the system management platform
Answering or answering with date stamp - The system should provide voice mailbox holders the choice of two functions: answering the messages or answering them with a date stamp
When a call is forwarded to the voice messaging system, the box holder will be able to choose between two personalized announcements. If the personal announcement has not been recorded, the standard system announcement will be substituted automatically.
Recording of calls conversation - The holder of a voice mailbox must be able to take advantage of this service to record internal or external calls. Recorded calls will receive the same service as messages that have been left by callers.
Forwarding of voice mail messages - The box holder will be able to send a copy of previously received messages to other boxes (with or without requesting acknowledgement of receipt).
Call by name - To provide universal access, it must be possible to select a voice mailbox by its name by using the telephone dialing keypad. The caller will be guided in this operation by voice prompts.
Multiple languages - To ensure consistency with the system voice prompts, the proposed system should be multi-lingual, offering four different languages
The voice messaging system should be centralized or distributed to serve different sites
The notification of messages must be on:
LED/icon on the phone

Voice Guide
Out call to any telephone number
The voice messaging systems must provide silence detection to avoid recording of blanks at beginning or end of recording
The System should allow distribution lists for message broadcast
The System must allow the caller reaching a mailbox to choice forwarding destination
The System must provide External Info-Service / Audio text
Additionally the voice message system must provide the following features:
Record of standard Greeting
Record of alternate greeting
Record Name
Urgent delivery option
Voice mail navigation (rewind, pause, forward, play)
Skip Greeting
Confirmation to send recorded message
Visual user interface with sensitive keys on large screen phones
Auto play of unheard/new messages
Delete messages
Save messages

#### **8.4 Digital Terminal Set Physical Features**

- Adjustable graphical Display.
- Flashing LED for visual ringing or system alarm.
- Resolution 64x128 pixels or better.
- Min three line display, Navigator 4 directions.
- 2x3 contextual keys, up to 70 programmable keys, 2 personal keys/LED, Alarm LED Speaker key.
- Hands - free Key with LED, Message key + LED, Help Key, Redial Key, End Key.
- Integrated alphabetic keyboard to access to dial by name, text mail.
- Minimum 10 programmable fixed keys upgradable to 40 keys.
- The digital phone should have the capacity to store at least 70 numbers directory and it can be easily. scrolled with the navigated keys to search the number.
- Soft tone electronic ringer with adjustable high low ringing.
- Direct Access to text and Voice mail boxes with pressing single Key.
- Mute and Redial facility should be available.
- Hands free and group listening modes.
- Integrated full duplex speaker phone with adjustable volume control.
- Must have option to use wired Handset or wireless Handset with Dial pad.
- Multiple line appearances with LED indication.
- Integrated Full-Duplex speakerphone with adjustable volume control.
- Speakerphone should allow on-hook dialing.
- Soft tone electronic ringer with adjustable High-Low settings.
- Line powered (No external power or user installed batteries).
- Availability of HOLD button.
- Availability of Digital Multi-Line Station.
- For wall mounted version, comes with snap-in cable connectors.

#### **8.5 Digital Terminal Basic Call Features**

- Extension to extension dialing
- Call waiting
- Call hold
- Distinctive ringing
- Eight party conference
- Call forward on busy
- Call forward on no answer

- Call forward all calls
- Internal and external queuing
- Automatic Recall
- Automatic Line Preferences
- Remote Call Forwarding (External Call Forwarding)
- Do Not Disturb
- Busy Override
- Internal Paging Through Telephone
- Multiple Appearance/Bridged Station Lines
- Manual Signaling (Boss/Secretary Button/Buzzer)
- Boss/Secretary Intercom
- Trunk Queuing with Callback
- Station Queuing with Callback
- Multiple Call Forwarding options
- "Off Premise" call forwarding
- Support display/block caller ID for both incoming and outgoing call.
- Parallel phone feature, i.e. call can be transferred to a parallel phone of same no using a key. For example if someone calls CEO, first the call should go to secretary, then it can be forwarded to CEO if desirable using a key.

## **8.6 IP Terminals**

- Terminal with Color LCD Touch Screen with COLOUR DISPLAY and xml supports With BACKLIT LCD AND KEY PAD
- Must have option to use wired Handset or wireless Handset via Bluetooth support.
- Same terminal must be upgradeable for blue tooth handset connectivity by just replacing wired handset to Blue tooth Handset
- Multiple line appearances with LED indication
- Integrated Full-Duplex speakerphone with adjustable volume control.
- Four-way Navigator with exit and validation keys to navigate Inside the Graphical interface.
- Context-sensitive and programmable keys to Access directly to functions.
- Comfort handset with enhanced audio quality.
- Hands free and group listening modes. Integrated alphabetic Keyboard to Access to dial by Name, text mail.
- Direct Access to text and Voice mail boxes thanks to an easy-Access Key with message signaling led.
- Mute, Redial.
- Interface to native IP Telephones (H.323 & SIP)
- Availability of PC Client soft phone
- Availability of wireless IP DECT Handset
- Easy programming of line/Feature Keys And Fixed Feature Keys
- Support all the features of the Digital terminal
- IP phone should equip with a build in mini switch for connectivity to a desktop/notebook computer
- A user should be able to plug in their IP phone anywhere in the organization and automatically receive calls without administrative intervention.
- The IP phone should be powered via external power adapter, power patch panel or in line power of the switch.
- Integrated Ethernet switch so that only one RJ45 port of LAN can be used to connect both PC & Phone.
- Supports failover resiliency for IP stations across discrete systems, i.e., an IP telephone can be configured behind more than one PBX.
- Bluetooth® wireless capability to connect a wireless Bluetooth handset or a Bluetooth wireless headset or Conferencing device.

## **8.7 Intelligent Attendant Console**

- Operator console should be IP based.
- Availability of PC based and desktop operator console
- Attendant administration with high operability
- Call ID of incoming trunk and station (Alpha Numeric)
- Trunk group busy indicators
- Support trunk group access
- Busy verification of station lines
- Privacy, line lock out
- Attendant controlled conference
- Transfer and extension of calls, both internal and external
- Direct access to paging including the generating of any required tones or pulses
- Release loop control with at least six loops per operator console
- Camp-on
- Intrusion support
- Class of service support
- Indication of the number of calls waiting
- The LCD changes with different call states and instructs the user which Multifunction keys are available for each state.
- Support Multi-function Keys to reduce the number of different buttons and greatly simplify operation. Keys such as Busy Verify, DND Override, etc. only appear when needed.

## **8.8 Technical Specification of CLI telephone**

- Make Panasonic, Beetel, BPL, Siemens, Alcatel etc
- Push button type key pad dialing with caller ID
- Last Number Redial, Mute, Flash and Pause.
- Ringer Volume Control
- Pulse/Tone Mode dialing
- The offered telephone set should be Compatible with DTMF and FSK.
- Memory of Incoming calls: 20 Minimum and at least 5 outgoing memory.
- way hands free conversation.
- Visual ring indication.

## **9.0 1 KVA Online UPS:**

- |  |   |
|--|---|
| • Output Power Capacity                              | 700 Watts / 1000 VA   |
| • Max Configurable Power                             | 700 Watts / 1000 VA   |
| • Output Voltage                                     | Configurable for 220V, 230V or 240V nominal output                                |
| • Efficiency at Full Load                            | 88.0%   |
| • Output Voltage Distortion                          | Less than 3%  |
| • Output Frequency (sync to mains)                   | 50/60 Hz +/- 3 Hz adjustable  |
| • Other Output Voltages                              | 220, 240  |
| • Waveform Type                                      | Sine wave   |
| • Bypass   | Built-in Bypass   |
| • Input  | Nominal Input Voltage 230V  |
| • Input Frequency                                    | 50/60 Hz +/- 5 Hz (auto sensing)  |
| • Input voltage adjustable range for mains operation | 100 - 280V  |
| • Battery Type                                       | Maintenance-free sealed battery   |
| • LED status display                                 | On Line, On Battery, Replace Battery (Optional)<br>Overload and Bypass Indicators |
| • Audible Alarm                                      | Alarm when on battery, low battery alarm,<br>overload alarm                       |
| • Operating Environment                              | 0 - 50 °C   |
| • Operating Humidity                                 | 0 - 95%   |
| • Battery Backup                                     | Minimum 60 Min of Battery Backup at 200W  |

**21 U RACK:**

Item Name		21U Rack
S.No.	Parameter / Feature	Detailed Specifications
1	Make & Model	HP, DELL, HCL
2	Mounting	Floor Standing
3	Height	21 U
5	Doors	Lockable front door of toughened tinted glass or perforated steel & lockable vented rear door of steel
6	Side Panels	Side Panels with Slam Latches and Key Locks
7	Top & Bottom Covers	Top & Bottom Covers with cable entry gland plates
8	Stationary Shelves	2 No. of Stationary Shelves
10	Equipment Mounting Angles	One pair of Equipment Mounting Angles to provide mounting positions
11	Cooling Fans	Min. 4 Nos. of Cooling Fans in top mounted Fan Housing Unit
12	Mounting Hardware Packet	Captive Mounting Hardware (10 Pkts )
13	PDU	Min. Two independent & redundant vertical or horizontal power strips each containing 10 Nos. of 5/15A sockets, a fuse, indicator lamp and 15A Switch
14	Cable Management accessories	Two horizontal , two vertical cable managers & two vertical Cable Channels with cabling loops
15	Castors	4 castors with foot operated brakes
16	Earthing Kit	Copper earthing kit (bars, straps, continuity kit, etc) to be Provided.
17	Color	Preferred Graphite black

**1000 Mbps Media Converter:**

Sr.No	Technical Specifications	Compliance
1	Single mode to Ethernet	
2	10/100/1000 Mbps copper to 1000 FX	
3	1 no. 10/100/1000T Ethernet port	
4	Single mode upto 15 Kms or better	
5	It should have auto negotiation of speeds and duplex modes	
6	It should have auto MDI/ MDIX, store & forward features	
7	It should conform to FCC, CE, VCCI emission norms. Operate Temp range within -10°C to 60°C	
8	Make (Cisco, Moxa, D-Link)	
9	Details of the System Submitted  Make: Model Number: Datasheet Submitted:	

**12 Core Optical Fiber Cable:**

<b>S. NO</b>	<b>FEATURE</b>	<b>REQUIRED PARAMETERS</b>	<b>VENDOR COMPLIANCE (Yes / No)</b>
1	Fiber type	Single mode (SM)	
2	Number of core	12	
3	Cable jacket characteristics	cable, water-tight	
4	Cable armoring	steel-armored	
5	Standards	<ul style="list-style-type: none"><li>• IEC 60793-2-50 Category B.1.3</li><li>• EN 60793-2-50: Class B1.3</li><li>• ITU Recommendation G.652.D</li></ul>	
6	Make	Krone/Tyco / ADC /D-Link/Panduit	
7	Details of the System Submitted  Make: Model Number: Datasheet Submitted:		