

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

NO.CESZ/PUR/10 / PSEA /2011-12/

Date: - 23.08.2011.

SUB: SITC OF LT Switch gear for ALL INDIA RADIO Avadi, Chennai.

Sir,

Kindly find enclosed the tender enquiry for the Supply, Installation, Testing and Commissioning (SITC) SITC OF LT Switch gear for ALL INDIA RADIO Avadi, Chennai.

Tender documents can be downloaded from the following web sites on free of cost:

www.ceszairdd.org.in/tenders.html

www.allindiaradio.org/tender.html

www.tenders.gov.in

The tenders will be received at the Office of The Chief Engineer (SZ), AIR & DD, Swamy Sivananda Salai, Chennai-5, up to **1230 Hrs** on **09.09.2011**. The technical bid and E.M.D. will be opened on the same day at **1500 Hrs**. The commercial bid will be notified after recommendation of technical committee.

Yours faithfully,

(M.SUJATHA)
Assistant Engineer
for Chief Engineer (SZ)

PRASAR BHARATI
(BROADCASTING CORPORATION OF INDIA)
OFFICE OF THE CHIEF ENGINEER (SOUTH ZONE)
ALL INDIA RADIO & DOORDARSHAN
SWAMI SIVANANDA SALAI, CHENNAI-600 005.

NO.CESZ/PUR/10/PSEA/2011-12/

Date: - 23.08.2011.

SUB.: Enquiry for SITC OF LT Switch gear for ALL INDIA RADIO Avadi, Chennai.

1. DESCRIPTION:-

SEALED TENDERS ARE HEREBY INVITED FOR AND ON BEHALF OF THE PRESIDENT OF INDIA, FROM REPUTED FIRMS FOR THE SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF **LT Switch gear for ALL INDIA RADIO Avadi, Chennai.**

2. The tender shall consists of three parts (bids) namely:

(a) **EMD:-** Earnest Money amounting **Rs.12,000/-** (Rupees Twelve Thousand Only) in the form of Demand Draft on Nationalized Bank drawn in favor of Chief Engineer(SZ), AIR & DD, Chennai-5 should accompany the tender'. EMD by means of Bank guarantee or any other mode of payment other than DD shall not be accepted. Tenders without EMD shall be summarily rejected and their technical cum commercial bid will not be opened at the time of tender opening. (No exemption for payment of EMD is accepted by this office.)

(b) **TECHNICAL BID:**

Technical bid should contain the confirmation to the enclosed technical specifications. This should be submitted in a separate sealed envelope **with "TECHNICAL BID"** written on it.

(c) **COMMERCIAL BID:**

The commercial bid should contain the price bid and acceptance of the commercial terms and conditions of this tender document. The price should be quoted for free delivery of materials at respective destinations. This should be submitted in a separate sealed envelope with **"COMMERCIAL BID"** written on the envelope.

The tenders will be submitted in sealed envelopes with the **name of work**, date of opening and the bid enclosed written on the envelopes.

The above mentioned envelopes should be enclosed and submitted in another large size envelope duly sealed and superscribed with "SITC for **LT Switch gear for ALL INDIA RADIO Avadi, Chennai.** and date of opening. The envelope will be received at this office of The Chief Engineer (SZ), AIR & TV, Swamy Sivananda Salai, Chennai-5 up to 1230 hrs. on **09.09.2011. The technical bid and E.M.D. will be opened on the same day at 1500 hrs. The commercial bid will be notified after recommendation of technical committee.**

In case tender opening date falls on a holiday, the bids will be received and opened at the same specified time on next working day. Bids received late or submitted after the scheduled specified time on scheduled date will not be entertained and will be returned back unopened.

3.Tenderer should quote for all the required items. Partial tenders will be rejected.

4. **VALIDITY:-** The tender shall be kept valid for three months (**90 days**) from the date of opening.

5. **PRICES:-** The prices quoted should be firm and for free delivery at site inclusive of transit insurance, excise duty and entry tax and other tax if any should be quoted separately. Tenderers should quote in figures as well as in words the amounts tendered by them. In the

case of illiterates, the rates or the amounts tendered should be attested by a witness. Breakup of prices for individual/ whole units should be specified wherever possible instead of bunching all units together. Similarly supply price and works price (Like installation, testing, Commissioning) should be quoted separately.

6. DUTIES AND TAXES:-

(a) EXCISE DUTY:- The prices should contain an element of Excise Duty which should be indicated separately. Any statutory variation in the Excise Duty taking place after acceptance of tender within the delivery date will be adjusted by the purchaser on Production of documentary proof.

(b) SALES TAX / VAT:- The prices should be exclusive of ST/CST/VAT. The prevailing rate of ST/CST/VAT should be clearly mentioned in the tender.. The following certificates are to be submitted by the supplier along with the bills.

"Certified that the goods on which the sales tax has been charged have not been exempted under central sales tax act of the rules made thereunder. The amount charged on account of Sales Tax/VAT on these goods is not more than what is payable under provision of the relevant act or the rules made thereunder".

"Certified that we are registered as dealers in the State under registration No. for the purpose of Sales Tax. Any Statutory variation in ST/VAT taking place after acceptance of tender within the delivery date will be adjusted by the purchaser. For this purpose, Government order should be produced".

(c) WORKS CONTRACT:- If work contract tax is leviable by the concerned State Government on works contracts, the same shall be clearly mentioned in the Tender. The contractor should furnish the service tax number in the quotation.

7. TERMS OF DELIVERY:- F.O.R. Destination.

8. DELIVERY PERIOD:- Tenderer may note that the entire work shall be completed within **3 months** from the date of the work order. The lay out wirings and other drawings wherever applicable shall be got approved within 10 days from the date of Work order.

EMD of all but the last three tenderer will be returned back within 10 days opening of tenders. EMD of the remaining two tenderer other than that of the successful tenderer will be returned after finalising the contract. EMD of the successful tenderer will be returned after expiry of Guarantee period.

9. IT CLEARANCE CERTIFICATE:- Income tax clearance certificate shall be submitted along with the tender, without which the tender is liable to be rejected.

10. EXPERIENCE: The tenderer should give documentary proof for having successfully designed. Fabricated, installed and commissioned similar type of equipment/work. They should also submit list of works which are in hand at the time of submission of tender. The list shall contain the name of work, cost of work and present position of work.

11. AFTER SALES SERVICE:- The Tenderer should give full details of after sales service capability. The locations of service centers across the country shall be indicated. If there is no service centers at/ near the location of the site the tender is likely to be rejected.

12. TECHNICAL SPECIFICATION AND GENERAL TERMS AND CONDITIONS:-

For technical specification for other general terms and conditions see the Annexures. **The tenderer should submit necessary pamphlets description of items being offered along with technical bid and also the firms to which similar items were supplied in the near past and completion report.**

13. ACCEPTANCE/REJECTION OF TENDER:- The acceptance of a tender will rest with the Chief Engineer(South Zone), AIR & TV, Chennai-5 who does not bind himself to accept the lowest tender and reserves to himself the authority to reject any or all of the tenders received without assigning any reason.

14. GENERAL:- Canvassing in connection with tender is strictly prohibited and the tenders submitted by tenderness who resort to canvassing will be rejected.

(M.SUJATHA)
Assistant Engineer
for Chief Engineer (SZ)

PARSAR BHARTI
DIRECTORATE GENERAL: ALL INDIA RADIO
(PLANNING & DEVELOPMENT UNIT)

XPS- 38/2011

**SPECIFICATIONS DOCUMENT FOR SITC OF 415V, 3 PHASE,
LT SWITCHGEAR FOR TRANSMITTERS OF
ALL INDIA RADIO AT AVADI CHENNAI**

SPECIFICATION NO : XPS-38/ 2011
DATE OF APPROVAL : 09.06.11
DATE OF ISSUE : 20.06.11
NO OF PAGES : 14
APPROVAL FILE No. : 14(12) /2010-D (TD/MW) 20KW

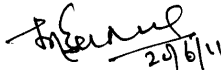
SUMMARY OF CONTENTS:

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2. SECTION II : Design Features of the equipment – Page No. 5-9
3. SECTION III : Technical Specifications of equipment - Page No.10-12
4. SECTION IV : Schedule of requirements - Page No. 13-14

NB: 1. The tenderer should go through all the Sections of these Specifications carefully and should submit clause by clause compliance of all the Sections clearly.

2. **Tenders without clause by clause compliance are liable to be rejected.**

3. The tenderer should also indicate the list of items offered as per schedule of requirements (Section-IV) without cost details in technical bid to assess the completeness of the offer against AIR's requirements.


(TRISHPAL)

Dy Director Engineering (TD)

GENERAL CONDITIONS OF TENDER/CONTRACT**1. SCOPE :**

1.1 This section covers the general conditions governing the design, manufacture, PDI/Factory testing, transportation to site, Installation, Testing, and Commissioning for satisfactory operation of **415V, 3 PHASE, 50 Hz, LT SWITCHGEAR** at the sites as specified in Schedule of requirements.

1.2 LOCATION :

The LT switchgear shall be installed indoor in a room over side a trench in floor in technical area of the building having natural air circulation

1.3 GENERAL CONDITIONS :

1.3.1 The LT switchgear shall generally conform to the technical specifications in Section– II& III. Should a tenderer, however, desire to depart in any respect from the given specifications either on account of manufacturing practice or for any other reasons, he must specifically point out the deviation /modifications explaining in detail each and every departure he proposes to make.

1.3.2 The LT switchgear shall be designed for efficient and trouble free service for Continuous operation (24x7Hrs). All materials used in the manufacturing shall be of high quality and conform to the relevant IS amended to date.

1.3.3 All work shall be carried out in accordance with standard mechanical & electrical practice. The units shall be designed for ease in operation, maintenance and complete safety to operating personnel.

1.3.4 Only easily available standard components should be used as far as possible. **The tenderer shall submit an undertaking to make available spares and replacement parts for a period of ten years.**

1.4 COMPLETENESS OF CONTRACT

1.4.1 All fittings and accessories which may not have been specifically mentioned or which the tenderer may not explicitly mention in his tender but are necessary and essential for the satisfactory operation of the LT Switchgear shall be deemed to be included in the contract and is to be provided by the contractor without any extra charge. **An undertaking in this regard is to be submitted with offer by tenderer.**

1.5 DOCUMENTS TO BE SUBMITTED (WITH TENDER):

1.5.1 Printed original leaflets detailing technical parameters with illustrations of LT Switchgear in section, elevation & plan.

1.5.2 Experience certificate in manufacturing/ assembling of LT Switchgear in their own capacity during the last five years. A list of such works giving details of capacity & date of supply along with the satisfactory completion certificates issued by the client.

1.5.3 Certificate of Original Equipment Manufacturer(OEM)/Original Equipment Assembler (OEA) of the offered make/model.

1.5.4 A valid copy of ISO 9001: 2000 Certificate of OEM/OEA of the offered equipment.

1.5.5 Test certificates on similar type and capacity of LT Switchgear done earlier.

1.6 DOCUMENTS TO BE SUBMITTED (AFTER ACCEPTANCE OF TENDER):

1.6.1 Six copies of the drawings in plan, elevation & section showing the dimensional details, location, accessories etc. of the LT Switchgear should be sent to Indenter within two weeks of acceptance of the tender for approval before taking up manufacturing. Two sets will be returned after approval.

1.6.2 Two copies of installation, assembly at site, operation, maintenance and troubleshooting manual having details of routine, preventive/ corrective and periodical maintenance for approval by the indenter to enable the contractor to supply of final copy.

1.6.3 Following documents/details will have to be supplied to the consignee along with the LT Switchgear at the time of delivery:

a) Two copies of the book of instructions for the Installation, Testing, Commissioning, Operation and Maintenance of LT Switchgear.

b) Factory Test Certificates showing the results of tests actually conducted on the LT Switchgear Accessories.

c) Two sets of finalized drawings showing dimensions and other fixtures on the LT Switchgear Including wiring of panel.

1.6.4 Two sets of drawing and instruction booklet of LT switchgear should be sent directly to Director Engg.(TD) P&D unit DG: air Akashwani Bhavan New Delhi as soon as the same are approved by the indenter.

1.7 DELIVERY PERIOD AND COMPLETION OF WORKS:

Delivery, Installation, Testing, Commissioning & handing over of the LT Switchgear shall be completed within **03 months** from the date of firm order. This period shall be effective from the date of acceptance of the tender and shall be independent of any other factors.

1.8 GUARANTEE:

The LT Switchgear should be guaranteed in all respects for satisfactory operation under full load condition for one year from the date of taking it into service.

1.9 MISCELLANEOUS:

(I) Inter connecting control cabling including cables between different components of LT switchgear, incoming & outgoing cable termination including lugs etc, consumable hardware required to make the LT Switchgear fully functional shall be the part of the contract.

(ii) The supplier shall make good/repair the damage to AIR property during installation, testing etc.

(iii) The supplier shall hold AIR or it's representative harmless for any liability/ compensation by his employee or third party for any damage/ loss of life or property to them during the execution of project.

(iv) Supplier/his erection crew will make their own arrangement for stay during installation of LT Switchgear.

(N.B.: All incoming & Outgoing cables shall be supplied by AIR.)

1.10 SPARES:

The Tenderer shall also quote separately for recommended spares for five years operation of LT Switchgear along with list.. The list of recommended spares should be based upon field reports and should be sufficient enough for trouble free operation of the LT Switchgear even at remote locality.

1.11 INSURANCE/TRANSPORTATION:

1.12.1 Supplier will comprehensively insure entire material for loss/theft during transportation from factory to site till installation is completed and handed over to AIR. A copy of Policy in this regard shall be submitted along with initial consignment.

1.12. PRE- DESPATCH INSPECTION:

The successful tenderer will have to get the LT Switchgear inspected by a person authorized by indenter in his workshop/factory before dispatch as per mutually accepted ATP according to guidelines of BIS for such jobs& procedure defined.

1.13. TESTING/ACCEPTANCE AT SITE:

1.14.1 The supplier shall show all the required tests at site (tests mentioned in Section II) as per mutually agreed ATP according to relevant standard of BIS for such jobs.

1.14.2 The consumable items if any required during this testing shall be arranged by the supplier.

1.14 CEA CLEARANCE:

The supplier shall have to arrange and get CEA clearance for the LT Switchgear before the same is offered for acceptance to AIR after installation for testing & commissioning at AIR site.

SECTION –II
DESIGN FEATURES OF THE EQUIPMENT

XPS- 38/2011

2.1 SCOPE:

This section covers design, manufacturing, supply installation, testing & commissioning of LT switchgear.

2.2. GENERAL:

2.2.1 The LT switch gear shall generally confirm to all provision of IS:13947 amended to date. The low tension switch board shall be suitable for working on 415 V, 3 phase, 4 wire 50 Hz earthed neutral supply system. General requirement shall be covered by IS-4237, amended up to date.

2.2.2 The cubicle type LT switchgear shall have a fault withstand capability of 6.25 MVA at 415 V or fault current withstand capacity of 9 KA for 1 Second.

2.2.3 The switch board shall be indoor type, floor mounting, compact, constructed out of sheet metal, totally enclosed and shall be vermin and dust proof and complete in all respect as SITC .The markings and arrangement for switchgear and control gear shall conform to IS-375 as amended to date.

2.2.4 A schematic of the L.T. Switchgear is given in enclosed drawing. The schematic and the Technical specifications are indicative of the needs of AIR and are meant to help the tenderers to quote for their standard equipment which would meet these specifications.

2.3 CONSTRUCTIONAL FEATURES:

2.3.1 The switch board shall be designed for mounting over 30" wide cable trench in the floor. All cables will enter the switch board vertically from the trench below. Outlets from ACBs/MCCBs that are above the bus-bars shall be through reverse entry cable boxes. The switch board shall be provided with removable bottom plates fitted with cable glands of appropriate size for aluminium cables. Aluminium crimping type lugs shall be provided.

2.3.2 The switch board shall be of single front construction and equipments shall be mounted only on the front. The switch board shall have a uniform height and depth throughout its length.

2.3.3 The switch board shall present a flush appearance and shall be made of 2 mm thick M.S. sheet and shall be free from rust, scales, grease and other foreign matters.

2.3.4 The frame work shall be rigid and with modular arrangement. The frame work shall house the ACBs, MCCBs etc. in multi-tier formation. The equipments shall be mounted independent of the back plate and not on the rear surface of the housing.

2.3.5 Each module shall be fitted with individual doors with concealed hinges. All doors shall be held securely against sponge rubber gaskets to make the dust free and vermin proof.

2.3.6 The compartment doors shall be interlocked so that it shall not be possible to open the door with the switch in closed (ON) position. Provision may also be made for pad locking the switches in off position wherever required.

2.3.7 All steel work shall undergo a process of degreasing, pickling in acid, cold

rinsing, phosphatising, passivating and then be sprayed with a high corrosion-resistant primer. The finishing treatment shall be by application of two coats of heat resistant synthetic Enamel of approved shade (generally Siemens' Grey) as per 63106 IS 5 staving process will be preferred.

2.3.8 A base channel, painted black shall be provided to prevent corrosion of sheet cubicles and to facilitate cleaning of floors.

2.3.9 All hinged doors shall be earthed through flexible braided copper wire.

2.3.10 The Enclosure shall provide a degree of protection covered by type IP-5 of IS-2147 amended to date.

2.3.11 The LT switchgear shall be provided with necessary ACB/ Moulded Case Circuit Breakers with Thermal overload and magnetic release.

2.3.12 The sub- distribution board shall be provided with MCCB & Miniature Circuit Breakers.

2.4 BUS BARS AND CONNECTORS:

2.4.1 Single piece, air insulated bus-bars of hard drawn high conductivity electrolytic copper rated for the current indicated in the enclosed schematic drawing and corrected for an ambient temperature of 50 degree C and conforming to Grade E91E of IS 5082 as amended to date shall be provided.

2.4.2 Bus bars shall be supported on unbreakable, non-hygroscopic non combustible high resistive polyesters fiber moulded glass insulators supports rigidly held to the frame work of the chamber so as to withstand the dynamic forces during worst fault conditions. They may be insulated individually with an approved non-deteriorating insulating material such as empire tape or sleeved with heat shrinking PVC sleeves to make it dust proof. Phase identification with colour tape also is to be provided.

2.4.3 The neutral bus bars should be insulated with provision for earthing at one point. Required clearances of bus bars shall be maintained.(Between phase-to-phase - at least 30 mm and between phase and neutral at least 20 mm

2.4.4 The bus bars shall have uniform cross-section throughout the length of the switchgear board. The neutral bus bar shall have a rating of at least 50% of the phase bus bar.

2.4.5 Red, Yellow & Blue indicating lamps on front panel with protective fuses or suitable to MCBs shall be provided on the bus bar chamber to indicate the presence of phase voltages.

2.5. AIR CIRCUIT BREAKERS (ACB):

2.5.1 Air circuit Breakers both incoming and outgoing shall be four pole, manually operated trip free, draw out type, mounted on telescopic rails, air break and having a rupturing capacity and ratings as specified in the relevant drawing.

2.5.2 Each circuit breaker shall be provided with over current releases on all the three phases. These releasers may be of direct operated or current transformer type with inverse time current characteristics and shall conform to relevant BIS amended to date.

2.5.3 The over current protection shall be from 60-100% of the normal rated current and provision shall be available for setting the over current release at any point in the

above range independently for each phase. The supply on all the three phases shall be cut-off even if there is a current overload on one/two phases.

2.5.4 In addition to the above, each circuit breaker shall be provided with an instantaneous release for short circuit current. However a built in time delay of 25 millisecond on short circuit release may be provided to avoid tripping under transients/faults. The typically operating time of ACB shall be less than 100 milliseconds.

2.5.5 The Air circuit breakers shall be provided with state of the art microprocessor based numerical release to offer intelligent protections against O/L,S/C &ground fault .It shall have independent manual closing/tripping mechanism to ensure the safety of operating personnel.

2.5.6 The main contacts of the A.C.B. shall be made of high conductivity silver alloy and the arcing contacts shall be made of materials of anti-welding properties. These contacts shall be housed in arc chutes capable of containing the arc within itself and quenching it efficiently & effectively. The secondary isolating contacts should be rated for not less than 15 A.

2.5.7ACB is not to be provided with under voltage trip however shunt trip is to be provided for remote tripping.

2.5.8 The breaker shall be provided with Lockable Trip Push Button (LPTB).

2.5.9 The draw out portion of ACB should be effectively connected to the earth through sliding contact. There shall be different positions available for the ACB for service, test, isolate and for maintenance.

2.5.10 ACBs should have high electrical & mechanical life of at least 20,000 operations. They shall conform to duty cycle P2 category B-3' - MB-3' -MB as per IS-13947 amended to date. They should have service SC breaking capacity of 50 KVA at 415 V and making capacity should be at least two times the breaking capacity.

2.5.11 Test certificates from competent authorities shall be obtained and produced at the time of inspection.

2.5.12 The ACBs shall be of reputed make having valid ISO certificate such as L&T, Siemens', English Electric ,Control Switchgear etc.

2.6 MOULDED CASE CIRCUIT BREAKERS:

2.6.1 All the live parts of MCCBs shall be enclosed in a moulded insulated housing. The operating mechanism should be quick make, quick break and trip free. It should be independent of manual operation and conform to relevant sections of IS-13947.

2.6.2 The housing should be made of heat resistant and flame retardant thermo insulating material. The operating handle should clearly indicate ON, OFF and TRIP positions.

2.6.3 The MCCBs should have thermal overload protection adjustable over a specified range of 60% to 100% of rated current with inverse time - current characteristics, and instantaneous short circuit protection adjustable over 300% to 800% of the thermal overload setting. The overload and short circuit releases shall be adjustable for each phase independently, direct acting and should operate on a common trip bar so that all the phases are disconnected even when a fault occurs on only one/two phases.

2.6.4 Earth leakage protection is to be provided with MCCBs for safety of operating personnel. All parts of the circuit breaker shall be enclosed in the moulded housing with only the terminals accessible for external connections.

2.6.5 Terminals shall be so designed such that it can accept links or cable lugs. Adequate separation between adjacent terminals with insulation barriers shall be provided.

2.6.6 The circuit breakers shall be provided with suitable arcs chute enveloping the contacts so that arcs are quenched quickly and the life of the contacts is enhanced. The contacts shall be made of silver alloy.

The MCCBs shall be of reputed make such as L&T, Siemens, English Electric, Crompton Greaves, Control Switchgear, Schneider electrical etc.

2.6.7 MCCBs shall be tested as per IS-13947. Test certificates for short circuit breaking and making capacity, Mechanical life etc. shall be obtained from standard test house and shall be produced at the time of inspection.

2.7 MINIATURE CIRCUIT BREAKER(MCB)

2.7.1. The MCB should have inverse time-current tripping characteristics against overload and instantaneous trip against short circuits. It shall have a high breaking capacity typically 10 KA.

2.7.2 The MCB shall have silver layered contacts to reduce arcing time. It shall operate on the current limiting principle and the time of interruption shall not exceed typically 5 milli-seconds.

2.7.3 The MCB shall be housed in a non-ignitable, high impact precision moulded reinforced plastic material to ensure high electrical and mechanical properties.

2.7.4 The MCB shall be fast acting and free from bouncing of contacts and should ensure long contact life and proper contact pressure.

2.7.5 The MCB shall be trip free and should conform to specification IS 8828 amended to date. The MCBs shall be of reputed make such as Morarji Dorman (MDS), Standard, Crompton Greaves

2.8 CABLE BOXES:

2.8.1 The cable boxes on the circuit Breakers shall be provided with suitable glands to take up XLPE insulated unarmoured single core cable (two per phase & one for neutral) for incoming mains ACBs outgoing ACBs for AC Plants XLPE insulated 3 1/2 core armoured/unarmoured Aluminium cable for outgoing ACBs & MCCBs, as indicated in the concerned drawing.

2.8.2. The outgoing circuit breakers shall have facility for termination of cables as indicated in the schematic. The switch board shall include suitable cable boxes cable glands lugs, sealing compound and all accessories necessary for installation and putting into service

2.8.3 For connection to the sub distribution board only PVC copper cable shall be used. All control wiring for metering shall be done by PVC insulated stranded copper conductor of minimum 1.5 sq mm. Wiring of CTs shall be done with 2.5 sq mm copper conductors. All control wirings shall be fitted with identification ferrule at each end. The wires shall be arranged and supported in such a manner that there shall be no strain on the terminations.

2.8.4 Suitable heavy duty terminal blocks should be provided at the bottom of the cubicle housing the sub-distribution board. Power terminals should be pressure clamp type suitable for aluminium wires. For connection above 63A, 35 Sq. mm. cable copper lugs shall be used.

2.9 INDICATING INSTRUMENTS:

Metering shall be provided as per schematic diagram. The meters shall be of a reputed make conforming to relevant ISI specifications. The instruments shall be flush mounting, digital read out type of Grade A accuracy as per relevant IS specification. Instrument transformers shall be provided wherever necessary. Protective current transformers shall conform to IS 2705 (Part III) as amended to date having rated burden of 15 VA and class I accuracy).

2.10 EARTHING:

Earth bars shall be of copper, minimum size 5mmx50mm. The terminals will be provided on both ends (sides) of the board for connecting the board to external earth through 25mm wide 4mm thick copper or G.I. strips as per Indian Electricity Rules.

2.11 TESTING:

The switchgear shall be tested at factory & site in accordance with IS 8623 amended to date and shall comprise of:

- a) Inspection of the switch gear including inspection of wiring and electrical operational tests where necessary.
- b) Dielectric tests.
- c) Checking of protective measures and electric continuity of the protective circuits.
- d) All type and routine test reports shall be got approved from the purchaser before despatch of equipment test

2.12 NAME PLATE AND DIAGRAM PLATES:

2.12.1 All equipment shall have weather proof and non corrosive metal plates fixed in suitable position with full particulars engraved, printed / written in indelible ink thereon with white letters against black background.

2.13 PAINTING:

All metallic surface {except enameled and bright parts} exposed to weather shall be given suitable primer coat and two coats of first quality paints of approved color. The supplier shall also supply adequate quantities of paints, Varnish etc. for use of furnished cost and for use of patching up any scratches received during transport handling, erection testing and commissioning.

SECTION-III

XPS-38/2011

TECHNICAL SPECIFICATION**3.0 GENERAL:**

The LT Switchgear shall generally conform to all provisions of IS-13947 part IV amended to date.

3.1 AMBIENT CONDITION:

The LT Switchgear covered by these specification shall be required to work at AIR Sites under the ambient conditions as follows

- a) Ambient Temperature : **35° c**
- b) Humidity : 95% Non condensing
- c) Altitude : 28 M

3.2 TECHNICAL PARAMETER:**3.2.1 LT switchgear:**

Sl.No	Item	AIR s Requirements	Tenderer s offer
(a)	Type	Indoor	
(b)	Nos. of Panel	As per enclosed drawing	
(c)	Nominal Operating Voltage	415 Volts ±10%	
(d)	Rated Current	1000A	
(e)	Rated Insulation Voltage	1.1 KV	
(f)	Thickness of M.S. Sheet used for the Board.	2.0 mm pressed shaped mild steel rolled	
(g)	Overall and detailed dimensions of the (i) complete switchboard (ii) Individual panel	To be mentioned by tenderer	a. Width b. Depth c. Height
(h)	Minimum clearance required from the walls	To be submitted by tenderer	a. Front b. Side c. Back
(i)	Minimum clearance required in front of the switchgear for drawing out of the circuit breaker	To be submitted by tenderer	a.Normal Operation b.Maintenance c.Servicing

3.2.2 Air Circuit Breakers:

The ACB shall be of repute manufacturer having valid ISO certificate like L&T, Siemens, English Electric, control switchgear etc.

Sl.No	Item	AIRs Requirements	Tenderers offer
(a)	Number of poles	3	

(b)	Rated Voltage	415 Volts ±10%	
(c)	Make and type of Air circuit breakers used	To be submitted by tenderer	
(d)	Rated current	400A,	
(e)	Rated service short circuit breaking Capacity	45KVA	
(f)	Rated Frequency	50Hz	
(g)	Rated Insulation voltage	1000V	
(h)	Rated short time with stand, capacity(1sec)	50 KA peak	
(i)	Rated making capacity	105 KA peak	
(j)	Rated impulse with stand voltage	8KV	
(k)	Type of main contacts	Silver Alloy	
(l)	Type of arcing contacts and/or arc control devices	To be submitted by tenderer	
(m)	Method of closing	Manual wound spring loaded operation	
(n)	Weight of Circuit breaker complete with arc extinguishing medium and mechanism	To be furnished by tenderer	

3.2.3 Moulded Case Circuit Breaker:

The MCCB shall be of repute manufacturer having valid ISO certificate like L&T, Siemens English Electric ,control switchgear etc.

Sl	Item	AIRs Requirements	Tenderers offer
(a)	Number of poles	3	
(b)	Rated Voltage	415 Volts ±10%	
(c)	Make and type of Moulded Case circuit breakers used	To be submitted by tenderer	
(d)	Rated current	200A, 100A,32A	
(e)	Rated service short circuit breaking Capacity at 415 V	25KA	
(f)	Rated Frequency	50Hz	
(g)	Rated Insulation voltage	750 V	
(h)	Rated impulse with stand voltage	8KV	
(i)	Type of main contacts	Silver Alloy	
(j)	Method of closing	Manual wound spring loaded operation	
(k)	Weight of Moulded Case	To be furnished by	

	Circuit breaker complete with arc extinguishing medium and mechanism	tenderer	
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3.2.4 Miniature Circuit Breaker:

The MCB shall be of repute manufacturer like Crompton Greaves, Morarji, MDS, Standard etc.

Sl.No	Item	AIRs Requirements	Tenderers offer
(a)	Number of poles	4 & 2	
(b)	Rated Voltage	415 Volts/230volts	
(c)	Make and type of miniature circuit breakers used	To be submitted by tenderer	
(d)	Rated current	32A,16A, 10A,6A	
(e)	Rated short circuit capacity	15KA,10 KA	

3.2.5 Bus Bar:

Sl.No.	Item	AIRs Requirements	Tenderers offer
	Main bus bar- Size (i) phase (ii)Neutral a) Material b) Rated short time current for 3 seconds	i.100 mm x 10mm ii.100mmx5mm Copper 20 KA	
a)	Applicable Standard	IS-375 amended to date	

3.2.6 Indicating Instruments:

The indicating and integrating instruments must be of repute manufacturer having valid ISO certificate.

Sl.No	Item	AIRs Requirements	Tenderers offer
(a)	Digital Voltmeter (i) Range (ii) Class/ Accuracy	i.0-500V ii 0.5	
(b)	Digital Ampere meter (i)Range (ii)Class/Accuracy	i.0-1500 A, 0-1000A ii 0.5	
(c)	Indicating lamp (i)Type designation (ii)Operating Voltage (iii) Wattage	LED Type To be furnished by tenderer --do-- --do--	

SECTION IV

XPS-38/2010

SCHEDULE OF REQUIREMENTS

AIR requires the following equipments/ services as per technical specifications detailed under section I, II, & III. The present requirement is for **CHENNAI-C**. The tenderer shall quote prices of each item separately with necessary break up details keeping in view the following.

- i. Make and model of each item, to be indicated.
- ii. Indenter reserves the right to choose & decide the quantity of equipments at the time of finalization of tender.

MAIN ITEM:

SNO	DESCRIPTION	QTY.	Price
4.1	Supply of 415V, 3 PHASE, LT Switchgear consisting of: (a) Air Circuit Breakers-- 400 A -2 Nos (b) Moulded Case Circuit Breakers 200 A- 2 Nos (c) Moulded Case Circuit Breakers 100 A- 11 Nos (d) Moulded Case Circuit Breakers 32 A- 1 No (e) Miniature circuit breakers—16Nos (f) Bus Bars as per Drg.no. TE-16151 (g) TPN C/O Switch (300 A) -2 nos. (h) Assorted Meters & Indicators (i) Assorted Cable Glands As per AIR specification No.XPS-38/2011 & P&D Unit Drawing No.: TE-16151	01 set	
4.2	Insurance, Transportation and unloading at site of the above switchgear.	1 job	
4.3.	(a) Installations, including consumable hardware, inter connecting control cabling with cables, input & output supply cable termination with lugs to and from LT panel and extension of earth from client's earth bus etc. (b) Testing & Commissioning, of the above LT Switchgear. (c) Complete Installation material for the above switch gear. NB: LT Cable for input & output shall be supplied by AIR.	1 job 1 job 1 lot	
4.4.	Charges for getting CEA / State Electricity Board clearance for complete switchgear Installation.	1 job	
4.5	Special tools if any required for field maintenance and repair of of ACBs & MCCBs (List of Tools to be enclosed).	1 set	
4.6	Book of Instructions for Installation, operations Testing Commissioning and maintenance including finalized drawings.	4 sets	

OPTIONAL

4.7	Spares (list to be endorsed)	1set	
4.8	Charges for comprehensive AMC for 2 nd , 3 rd , 4 th , 5 th year after guarantee period (Detailed items covered under AMC for Repair/ Replacement/Routine test Checking/ Adjustment/ Measurement and Periodical Maintenance Schedule intended to be adopted by the Tenderer shall be enclosed with technical bid)	1 job	

GENERAL TERMS AND CONDITIONS FOR WORK ORDER

1. NAME OF PURCHASER : The President of India

2. PAYING AUTHORITY : The Chief Engineer(SZ)
All India Radio & Television
Swami Sivananda Salai,
Chennai-600 005.

3. PAYMENT TERMS:

- (i) 80 % of the contract price for the equipments/materials inclusive of excise duty and Sales tax shall be paid on initial inspection and delivery of equipments at site in good condition.
- (ii) 20 % of the contract price for equipments and 100 % of installation charges on satisfactory completion of installation, commissioning and handing over.

4. BILLS:

All the supplies and works shall be in conformity with the order and all the part bill shall be prepared in quadruplicate in the same format as that of the order. All those part bills shall be submitted to the consignee for necessary certificates and onward transmission to the paying authority.

5. SECURITY DEPOSIT:

The contractor shall furnish the security deposit within 2 weeks of placement of order at the rate of 10 % of the contract value subject to a maximum of Rs. 5 Lakhs at the time of signing the contract.

The security deposit shall be furnished in favour of "The Chief Engineer (South Zone) AIR & TV, Chennai-5" in any one of the forms mentioned below.

- a) Cash in full (b) DD Payable at Chennai (c) Bank Guarantee from any Nationalized Bank valid upto the end of warranty period as per contract. The warranty period starts from the date after completion of the SITC work and taking over. (Not from the date of supply of DG and Standard Control Panel set).

The EMD received will be returned after receipt of S.D. The security Deposit shall be refunded in full on completion of successful guarantee/Warranty.

6. DESPATCH INSTRUCTIONS:

The packing and marking of goods shall be as laid down in clause-12 of general conditions of contract DGS & D 69 (Revised).

- a) The contractor shall arrange to dispatch the goods duly insured direct to the consignee after prior intimation for delivery at site by whichever mode of transport he may choose, to ensure safe delivery of goods at site. Unloading shall be done at site at the contractor's Expense. Only storage space will be provided by the consignee. The contractor will provide his own security like locking etc and store the materials at his own risk.
- b) The contractor must submit his challans in triplicate to the consignee sufficiently in advance of the actual arrival of the stores at the destination failing which he will be held responsible for any subsequent discrepancies between the actual receipt and the material detailed in the challan received later. The challan must also contain the following informations:
1. Brief description of stores.
 2. Railway/ Lorry Receipt No. & Date.
 3. Supply order No. & Date.
 4. Inspection note No. & Date

- c) The consignment received at site shall be opened and checked for Shortages/damages by the contractor himself. He shall show all the Materials received at site to the consignee to enable him to certify Receipt of stores in good condition. However, in exceptional circumstances, the contractor may request the consignee to check the consignment on his behalf. In such cases the consignee shall notify the contractor of the shortage/damages immediately on receipt of consignment at site. Expenses incurred, if any, in any, in checking the consignments shall be debitable to the contractor's account.

7. INSPECTION:

a) SCOPE OF INSPECTION:

i) PRE INSPECTION:

Manufacturers / Contractors must satisfy themselves that the stores are in accordance with the terms of the contract and fully conform to the required specification by carrying out thorough pre-inspection of each lot before actually tendering the same for inspection to the inspecting officer nominated under the terms of the contract. A declaration by the contractor the necessary pre-inspection has been carried out on the stores tendered shall be submitting along with the challan. The declaration will also indicate the method followed in carrying out pre-inspection showing the features checked, tested and will have the certificates attached to the challan/declaration. If the Inspecting officer finds that pre-inspection of the consignment as required above has not been carried out the consignment is liable for rejection.

ii) INITIAL INSPECTION:

All the supplies including fabricated items and bought out items shall be inspected before actual inspection. The place of inspection shall be as at below. Also the installation at the site shall be inspected periodically during installation. If the inspecting officer finds initial inspection that the supplies are not according to specification, the suppliers are liable for rejection. The purchaser may at his discretion waive initial inspection in respect of those supplies which bear ISI certificates or manufacturer's test certificates. The contract shall approach the inspecting officer for inspection at least two weeks in advance of the actual date of inspection. All arrangements for inspection shall be made by the contractor. Any deviation in stores after initial acceptance by the Inspector and their receipt by the consignee shall be to the account of the contractor. The contractor shall forward the relevant copies of the inspection certificates of the stores to the consignee along with delivery challan.

iii) FINAL INSPECTION:

The entire installation shall be inspected by the inspecting officer on completion of **Installation, commissioning and Complete work at the project.**

INSPECTING OFFICER: Consignee or Nominees of the Chief Engineers (SZ)/I.O. at Site.

8. INSURANCE:-

The contractor shall arrange for the insurance covering the risk during transit, Storage and installation till commissioning. All the charges for such insurance shall be borne by the contractor.

9. ADDITIONAL QUANTITIES:-

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

10. PENALTY FOR DELAY:-

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

11. GUARANTEE / WARRANTY:-

The contractor shall accept clause-18 of the Form No. DGS & D-71 with exception that his obligation shall be limited for a period of 24 months from the date of taking over completion of the successful performance excluding down time during which

the equipment was not working satisfactorily due to defective parts, faulty material/design/workmanship or fault erection. During the guarantee period the contractor shall repair or replace free of charge any parts that will become defective due to faulty material design, workmanship or erection.

12. CONDITIONS OF CONTRACT:-

DGS & D-68 (Revised and DGS & D-71 as amended upto date. However, Such of these conditions stipulated on this tender shall supercede corresponding conditions in DGS & D-71. The contractor shall sign a contract agreement form in triplicate in the prescribed Proforma and submit the same alongwith Security Deposit within 15 days. The complete form with the purchaser's signature shall be sent back to the contractor. No supplies will be made and no work shall start unless the agreement is signed by the contractor and the purchaser.

13. SPECIAL CONDITIONS:-

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

- i) In case where only a portion of the stores ordered is tendered for inspection at the fag end of the delivery period the purchaser reserves the right to cancel the balance quantity not found acceptable after carrying out the inspection at the risk and expense of the contractor. If however, the stores tendered for inspection are found acceptable the purchaser may grant an extension of the delivery period subject to the following conditions:-
 - (a) That no increase in price on account of any statutory increase in or fresh imposition of customs duty, excise duty, sales tax or on account of any other tax or duty leviable in respect of the stores specified in the acceptance of tender shall be admissible on such of the stores as are delivered after the expiry of the delivery period stipulated in the A/T.
 - (b) That not withstanding any stipulation in the contract for increase in price or any other grounds no such increase which takes place after the date of delivery stipulated in the A/T. shall be admissible on such of the stores as are ordered after the expiry of the delivery period stipulated in the A/T.
 - (c) But, nevertheless the purchaser shall be entitled to the benefit of any decrease in price on account of reduction in or remission of customs duty, excise duty, sales tax on account of any other ground stipulated in the price of variation clause which takes place after the expiry of the date of delivery stipulated in the A/T.
 - (d) The contractor shall not dispatch the stores till such time extension in delivery period is granted by the purchaser and accepted by the supplier before and extension letter as aforesaid is issued by the purchaser, the same are deemed to the subject to the conditions set out in proceeding paragraph.
- ii) Incase where the entire quantity has not been tendered for inspection within the delivery period stipulated in the A/T and the purchaser chooses to grant and extension of delivery period, the same would be subject to conditions mentioned in (i) above.
- iii) The contractor shall refund any advance/part payment issued to him in respect of the rejected stores within 14 days of the receipt of intimation from the consignee about the rejection of such prices. This is strictly without prejudice and in addition to the rights provided in the clause-17 (8) of form DGS & D-67.
- iv) The contractor is required to replace the rejected stores forthwith but in any event not later than a period of 14 days from the date of rejection and the contractor shall bear all the costs of such replacement including freight, if any but without being entitled to any extra payment or any other account.
- v) Where under the contract, price payable is fixed F.O.R. dispatching station, the contractor shall, if the stores are rejected at destination by the Consignee, be able to, in addition to his other liabilities (including refund of price recoverable in respect of the stores rejected) to reimburse to the purchaser the freight and all other expenses.

14. ENFORCEMENT OF LABOUR LAWS:-

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

15. FORCE MAJURE:-

If any time during the continuance of the contract the performance in whole or in part by the contractor shall be prevented or delayed by reason of any war, hostility acts of the public enemy. Civil commotion, Sabotage, fires, floods, explosions, epidemics, Quarantine restrictions, strikes, lock-outs or acts of God (therein after restrictions refer to as events and provided notice of happenings of any such eventuality is given by the contractor within 21 days from the date of occurrence thereof, the purchaser shall by reason of such event, neither he entitled to cancel this order nor shall have any claim for damages against the contractor in respect of such non-performance or delay in performance and delivery shall be resumed as soon and practicable after such events have come to an end or ceased to exist. Provided further that if the performance in whole or part or any obligation under this order is prevented or delayed by reasons of any such event for a period exceeding 180 days, the purchaser and the contractor shall meet to find a natural agreement to any effect resulting the reform or the purchaser may at his option cancel order provided also that if the order is cancelled the order provided also that if the order is cancelled under this clause, the purchaser shall be at liberty to take over from the contractor at order prices all unused, un-damaged and acceptable material bought out components and stores in course of manufacture in the possession of the supplier at the time of such cancellation or such portion thereof as the purchaser may deem fit accepting such material, bought out components and stores as the supplier may with the concurrence of the purchaser elect to retain.

16. TECHNICAL MANUALS & DRAWINGS

Contractor shall furnish six copies of comprehensive technical manuals for use by the operation staff. Such manuals shall contain instructions from the preventive as well as routine maintenance of the switch Gear. The contractor shall also furnish copies of approved wiring diagrams, schematics, etc., for various items equipment.

17. CANCELLATION:

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

**(M.SUJATHA)
Assistant Engineer
for Chief Engineer (SZ)**