

**PRASAR BHARATHI
(BROADCASTING CORPORATION OF INDIA)
ADDL.DIRECTOR(G)(ENGG)(SOUTH ZONE)
ALL INDIA RADIO & DOORDARSAN
SWAMI SIVANANDA SALAI:CHENNAI-5.**

No. ADG(E)(SZ)PUR/ 74 /PSEA/2011-12

Dated: 05-01-2012

SUB: SITC of LT Panel for Doordarshan, HPT Visakhapatnam-
Reg.

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 PANEL FOR DOORDARSHAN, HPT Visakhapatnam.

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

(a) **EMD:-** Earnest Money amounting **Rs.14000** /- (Rupees Fourteen thousand Only) in the form of Demand Draft on Nationalized Bank drawn in favor of ADG(E) (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.). However Exemption of EMD will be considered for the firms on submission of proof of registration with NSIC.

(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 super scribed with "SITC for LT Panel for Doordarshan, HPT Visakhapatnam" and date of opening. The envelope will be received at this office of The ADG(E) (SZ), AIR & TV, Swamy Sivananda Salai, Chennai-5 up to 1230 hrs. on **20.01.2012**. 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 **180 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) **Service Tax/VAT:** The effect of building and other construction worker's welfare cess act 1996, Service Tax including education cess as applicable at the time of submission of preliminary estimate also to be added. The effect of building and other construction worker's welfare cess act 1996, VAT etc, wherever applicable and other factors which actually contributes towards the cost, but are not covered in analysis of Rate also can be added in arriving at the justified amount. But nothing shall be added in analysis of rates for service Tax since being reimbursed to the contractor separately.

(d) **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 **2 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 center 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. All the pages of the Tender document should be duly signed, stamped and serially numbered on submission, falling which the tender may not be considered as qualified tender.

(JOTHI VIJAYAKUMAR)
ASSISTANT ENGINEER (PUR)
for ADG(E) (SZ)

Encl:- 1. Instruction to bidders page 2-4
2. Specification Page 5-15
3. General terms & conditions Page 16-21

SECTION.II

TECHNICAL SPECIFICATIONS FOR MAIN LT PANEL AT VISHKHAPATTAM

	GENERAL :
1.1.1	All switchboards shall comply with the requirements of IS 8623 applicable for Factory Built Assemblies (FBA).
1.1.2	Refer to attached drawings & schedules for ratings of individual components and equipment.
1.1.3	The FBA shall consist of vertical sections, joined together to form a rigid, free standing, completely enclosed assembly.
1.1.4	The FBA shall have adequate strength to withstand all stress imposed by shipping, handling, installation and operation, without distortion or damages.
1.1.5	The switchgears shall be fabricated using suitable mild steel structural sections or pressed and shaped cold rolled sheet steel of thickness of 2 mm for load bearing members, 1.6 mm for non-load bearing members and 3 mm for base channel . The base frame shall be integral to the switchboard and shall be suitable for tack welding to the purchaser's floor embedded channels.
1.1.6	FBA shall be of single/double front construction as indicated in the drawings.
1.1.7	The FBA shall be as completely assembled as possible within shipping and handling limitations, wired and ready for installation in accordance with this specification
1.1.8	The switchboards shall be of folded sheet steel construction, fully compartmentalized, floor mounted, free standing type and dust, damp & vermin proof. The degrees of protection shall be as IP 54 as per IS 2147 standards. Vertical units shall be assembled to form a continuous line up of uniform height and front line up.
1.1.9	Door openings shall be provided with neoprene gaskets. All hardware shall be corrosion resistant. All joints and connections of the panel members shall be made by cadmium plated high quality steel bolts, nuts & washers, secured against loosening using spring washers, wherever essential. Star washers shall be used to ensure effective continuity.
1.1.10	All doors shall be hinged at one end and shall be bolted (knob type) on the other end. All hinges shall be of concealed design for elegant appearance
1.1.11	Adequate lifting facilities shall be provided on each section. Lifting eyes may be for removable/foldable design. When removed these shall not leave any opening on the boards. All barriers used shall be manufactured from fire retardant non-inflammable and non-hygroscopic materials, such as FBRR/FR-2 only. HYLAM IS NOT ACCEPTABLE The switchgear shall be easily extendable on both sides by the addition of vertical sections after removing the end covers.
1.1.12	The switchgear shall be provided with indelibly marked metallic labels on the front and rear indicating the switchgear designation.
1.1.13	The equipment shall be designed to ensure complete safety during operation, inspection & connection of cables, relocation of out going circuits and maintenance, even with the bus bar system energized. Features which prevent shorting of power and/or control terminals due to accidental dropping of maintenance tools, etc., inside the switchboard shall be provided. All auxiliary equipment/components shall be easily accessible.
1.1.14	All exposed live terminals in the cable alley and incomer terminals inside modules shall be covered or shrouded to prevent accident contact. The incoming power connection to the switchboard shall be through bus trunking or cables as specified in the drawing. Ample space for connection of these cables/bus trunking shall

	be provided.
1.1.15	The switchgear shall be provided with gaskets all around the perimeter of covers, gland plates, removable covers and doors.
1.1.16	Operating devices shall be located only in the front side of the switchgear. No equipment shall be located below 250 mm and above 1900 mm.
1.1.17	The bottom/top (as specified) of each panel shall be fitted with removable sheet steel plates for use as a gland plate for cable entry.
1.1.18	All modules shall have cable termination facility in cable alley without duplicated terminals and it should be possible to terminate/disconnect cables without removing the modules.
1.1.19	The switchboards shall be divided into distinct vertical sections each comprising : a) A completely metal enclosed bus bar compartment running horizontally. b) Individual feeder modules arranged in multi-tier formation. c) Enclosed vertical bus bars serving all modules in the vertical sections. d) A vertical cable alley covering the entire height. e) Horizontal wires way for inter panel control wiring. f) Separate auxiliary bus bar chamber running throughout the length of the switchboard.
1.1.20	Metal sheets shall be provided between the adjacent vertical sections for running to the full height of the switch gear except for the horizontal bus bar compartment.
1.1.21	In the main LT panels, withdraw able chassis shall be provided with a plate cover on the side corresponding to the cable alley of the compartment. The front of the compartments shall be provided with a door. The rear of the compartment shall be covered by a metal or insulated sheet with slots to permit connections to the bus bars. All other covers shall be of sheet steel.
1.1.22	Suitable barriers shall be provided between circuit breakers and all control, protective and indication circuit equipment. External cable connection shall be carried out in a separate cable compartment.
1.1.23	Rear of single front switchgear shall be provided with removable covers. The covers shall be fixed in position by captive screws.
1.2	VERTICAL SECTIONS:
1.2.1.	The vertical sections shall be front accessible and shall be divided into functional units for housing motor feeders, distribution feeders & other power control units.
1.2.2	The vertical sections shall be provided with an independent, fully enclosed horizontal wire way. It shall be readily accessible by removal of cover plates and shall form a convenient wiring space and to house auxiliary bus bars running throughout the length of the switchgear.
1.2.3	Each panel shall contain an isolated, full height cable chamber of at least 250 mm width for the Main LT Panel, covered by a hinged door.
1.3	BUSBARS:
1.3.1	Power shall be distributed by main bus bars of uniform cross section, provided across the switchgear, with vertical bus bars (droppers) extending into each section to supply power to each individual function unit in the Main LT Panel. The supply of neutral shall be through a neutral bus bar and stab-in-contact in all the units wherever required. External looping through a separate contact is not permitted.
1.3.2	Bus bars shall be high conductivity copper (E 91 E grade) supported on insulators made of non-hygroscopic, non-inflammable material with tracking index equal to or more than 600 as per IEC 112. Hylam Sheet is not acceptable. Horizontal busbars shall be of uniform cross section throughout the length of the switchboards and upto the incoming terminals of the incoming feeder circuit breaker/switch. Vertical busbars of all vertical panels of the switchboard shall be of uniform cross section. The neutral of the bus system shall be at least half the size of that of the phase bus bars. All bus bars shall be insulated with heat shrunk PVC sleeves of 1100 V grade red, yellow and blue colour shall be used for phase

	bus bars and black colour shall be used for neutral bus bars. If the insulating sleeve is not coloured, bus bars shall be colour coded with bands at suitable intervals. Joints shall be shrouded suitably. Stepped bus bars shall not be acceptable. Interconnections between the main bus bars and individual units shall be made by using vertical aluminum bus bars of adequate rating. These interconnections and the vertical bus bars shall be compartmentalized and fully shrouded. Vertical bus bars for circuit breaker panels shall be sized depending upon the rating and number of breakers per vertical panel. Vertical bus bars for LT panels shall be of uniform cross section. Size of vertical bus bars for LT panels should be incorporated suitable to the load (copper bus bar) as per the drawing enclosed. e. All joint surfaces at aluminum to copper joints shall be silver/tin plated alternatively cup-al washers (bimetallic washers) may be used.
1.3.3	The main and vertical bus bars (droppers) shall be a TPN system. The main and vertical bus bars shall be housed in separate, fully enclosed chambers to prevent direct contact with the buses being energized when FBA is under operation. All phase and neutral bars shall be housed in a common chamber. The bus bars, droppers and incoming links shall further be insulated by heat shrunk PVC sleeves to provide additional protection against accidental contact and to prevent failure in the presence of foreign matter. The sleeves used shall be capable of withstanding the temperatures attained by bus bars during normal operation & short circuits. Use of paint as insulation for bus bars is not acceptable.
1.3.4	Bus bars shall be supported on arc resistant, flame retardant supports moulded from thermosetting glass, reinforced plastic having high insulation resistance, high rigidity at elevated temperatures and very high tracking resistance. Comparative tracking index value for the material shall be at least 1000 V as per IS 2824 .The support design shall be such that creepage distance between phases shall be higher than those specified in IS 4237. Necessary anti tracking barriers shall be built-in in the design of the support. The clearance shall be at least 35 mm between phases and phase to earth in the main bus bar zone and 28 mm in vertical bus bar (droppers) zone.
1.3.5	Both TPN horizontal and vertical bus bars, bus joints and supports shall be capable of withstanding dynamic and thermal stresses of the specified short circuit currents for 1 sec only. Zinc passivated or cadmium plated high tensile strength steel bolts, nuts and washers shall be used for all joints and supports. The short circuit capacity of the neutral bus bars shall be in line with IS:13497. The supplier should have standard design for 50 KVA for 1 sec faults withstand capability and should offer this option whenever specified.
1.3.6	Provision of control supply in the test position of draw out modules (feeders, which require control, supply) shall be available. In draw out switchboards with module control supply, required test control supply feeder, associated test supply bus/wiring, etc., shall be provided.
1.3.7	No wiring shall be to the door. Only the actuators of the push buttons and switches, lenses for the indicating lamps as per specs. Cover for meters shall be mounted on the door.
1.4	WIRING :
1.4.1	The switchgear shall be supplied completely wired internally upto terminal blocks for the purchaser's external cable connections at the terminal blocks. Inter panel wiring between cubicles of the same switchgear shall be routed inside by the vendor.
1.4.2	All auxiliary wiring shall be carried out with 650 V grade, single core stranded copper conductor with PVC insulation. The sizes of wire shall not be less than 2.5 sqmm per head of CT circuits and 1.5 sqmm per lead of other circuits. The wire shall conform to IS 1554.
1.4.3	Each control wire shall be identified at both ends with wire designation in accordance with the relevant Indian Standards. All wire terminals shall be with compression or clamp type connectors. All power & control wiring terminations shall be done through lugs. Ring type lugs is to be used for power connections.
1.4.4	Power & control wires shall be neatly bunched separately and adequately supported so as to prevent sagging.
1.4.5	Not more than two wires shall be connected to one terminal block.

1.5	CABLE TERMINATIONS :
1.5.1	The Main LT Panel shall be designed to facilitate cable entry from the top/bottom. Removable gland plates of 2 mm thick sheet steel or 3 mm thick aluminum gland plates shall be furnished for cable entry, which will be drilled at the site to fit in the cable glands.
1.5.2	Sufficient space shall be provided to avoid sharp bending and the construction shall facilitate easy connection.
1.5.3	Multi-way terminal blocks complete with screws, nut, washers, shall be furnished for terminating the control and power cables.
1.5.4	Power terminals for cables shall be complete with ring type crimping lugs. Screw type terminals with screw directly impinging on the conductor are not acceptable.
1.5.5	For incoming feeders where the aluminum power cable sizes are expected to be large the cable, termination arrangement shall be clearly defined. Where such large cable sizes cannot be terminated directly on standard outgoing power terminals or equipment terminals, a suitable cabling bus shall be provided for adequate and proper termination of cables. The clearances & creepage distances in such a section shall be the same as those in the busbar zones of the standard section.
1.5.6	Shorting links shall be provided for CT terminals to facilitate testing.
1.5.7	Bolted type terminals with crimping type lugs shall be provided for all cable connections greater than 10 sqmm.
2	SWITCH BOARD COMPONENTS :
2.1	ON LOAD CHANGE OVER SWITCH : 1 No
2.1.1	Conforming to specification IS : 13947 – IS
2.1.2	It shall have contacts made from electrolytic copper and are silver-plated.
2.1.3	The body material shall be having excellent thermal mechanical and electrical properties.
2.1.4	It shall have robust level gear mechanism for smooth change over.
2.1.5	Mechanical position indicator shall be provided on the front of the change over switch to give an indication of the status of the contact made.
2.1.6	Test certificates from competent authorities shall be obtained and produced at the time of inspection.
2.1.7	The change over switch shall be of reputed make such as L&T, English Electric Control Switchgear, Schneider Electricals, Crompton Greaves, etc.,
2.2	MOULDED CASE CIRCUIT BREAKERS :
2.2.1	No. of poles - 4 Rated Voltage - 415 volts (AC 50 Hz)Rated Insulated Voltage - 800 Volt Rated impulse withstand voltage - 8 KV
2.2.2	The moulded case circuit breaker shall be of reputed make such as L&T, English Electric Control Switchgear, Schneider Electricals, Crompton Greaves, etc.,
2.3	CURRENT TRANSFORMER :
2.3.1	Current transformers (CTs) shall conform to IS 2705. CTs shall be of cast
2.3.2	Resin insulated type. Primarily suitable CTs should be used.
2.3.3	CTs shall shall have a short time withstand rating equal to the short time withstand rating of the associated switchgear for 1 sec. for breaker feeder. For other feeders with fuses/MCCB CTs shall have withstand capacity equal to let through current.
2.3.4	Separate CTs shall be used for metering and protection.
2.3.5	CTs shall be provided with polarity markings adjacent to terminals both for primary and secondary.
2.4	INSTRUMENTS AND METERS : multifunction meter should be provided.
2.5	INDICATING LAMPS:
2.5.1	Indicating lamps shall be of LED type as called for in these specifications.
2.5.2	All indicating lamps shall be clear type with appropriate coloured lenses ensuring clarity of colour.
2.5.3	Necessary protective fuses shall be provided for the lamp circuit in the breaker feeders.
2.6	CABLE GLANDS:

	Double compression nickel-plated brass cable glands suitable for all outgoing/incoming power and control cables, as per sizes indicated in section II.
2.7	NAME PLATES:
	<ul style="list-style-type: none"> a. All nameplates shall be of anodized aluminum with black background and white engraved type letters, which shall be fixed with screws: b. Letter size – 6 mm c. Nameplates for individual feeders shall indicate feeder no., description, rating in KW/A d. Panel nos. are to be provided on both front and rear sides e. Main nameplate of board with letter 25mm shall be provided at the end of the board in bold letters. Besides, manufacturer’s name, address, board no. etc., shall be provided f. Designation for all components, viz., switches, fuses, relays, etc., mounted in the cubicle shall also be done.
2.8	EARTHING:
2.8.1	A continuous earth bus as specified in the data sheet shall be provided for the entire length of the switchboard. A minimum of two terminals shall be provided on the bus for external connection to earth grid.
2.8.2	All panels shall be effectively bounded to a switchgear earth bus of galvanized steel. Positive earthing shall also be maintained in all positions of chassis and breaker frame.
2.8.3	All non-current carrying metallic parts of the equipment shall be earthed.
2.8.4	All hinged doors and covers shall be provided with suitable flexible earthing connections.
2.8.5	The size of the earth bus chosen shall be to withstand full fault current.
2.8.6	Earth bus bars shall be supported at suitable intervals.
2.8.7	All withdraw able chassis shall be earthed through spring loaded silver plated copper scrapping earth contact which make-before & break-after the power contacts are engaged/disengaged. A suitable vertical earth bus shall be provided for each front of the panel for this purpose.
2.9	PAINTING:
2.9.1	All metal surfaces shall be thoroughly cleaned and de-greased to remove mill scale, rust, grease, dirt, etc., Fabricated structure shall be pickled and then rinsed to remove any trace of acid. The under surface shall be prepared by applying a coat of phosphate paint and coat of yellow zinc chromate primer. The under surface shall be made free from all imperfections before undertaking the finishing coat.
2.9.2	The phosphate coating shall be sealed by the application of two coats of ready mixed zinc chromate primer.
2.9.3	After application of the primer, two coats of finishing synthetic enamel paint shall be applied or shall be powder coated epoxy based (second coat to be applied after completion of tests).
2.9.4	The finished panels shall be dried in staving ovens in dust free atmosphere. Panels finish shall be free from imperfections like pinholes, orange peels, runoff paint, etc.,
2.9.5	All unpainted steel parts shall be cadmium plated or suitable treated to prevent rust formation. If these parts are moving elements, then they shall be greased.
2.9.6	A small quantity of finishing paint shall be supplied for minor touch up required at the site after the installation of the switchgear.
2.9.7	Whenever called for in particular projects, the completed switchboards shall be painted with peel-able paint.
2.9.8	Vendor shall furnish detailed painting procedure proposed along with the bid.
2.10	PACKING :
2.10.1	The switchboard shall be shipped to site packed in full wooden packing cases. They shall be wrapped in polyethylene sheets before being placed in cases to prevent damages to the finish. Cases shall have skid bottoms for handling.
2.10.2	The board shall be properly packed before dispatch to avoid damage during transport,

	storage and handling to all site anywhere in India.
2.10.3	The packing box shall contain a copy of the installation, operation and maintenance manual.
2.10.4	A sign to indicate the upright position of the panels to be placed during transport and storage shall be clearly marked. Also proper arrangements shall be provided to handle the equipment.
2.11	TESTS & INSPECTIONS :
2.11.1	Switchgear shall be subject to routine tests as per IS 8623
2.11.2	All meters and other reference devices used for testing shall have valid calibration from reputed national laboratories/institutes. Inspection by purchases will not be carried out unless the vendor confirms that equipment are ready for proceeding with the tests.
2.11.3	Shop test shall be witnessed by our inspector or owner or an agency authorized by us.
2.11.3	Acceptance tests on completed switchboards shall be as follows : <ul style="list-style-type: none"> a) A general visual check shall be carried out. This shall cover measurement of overall dimension, location, number and type of devices, terminal boxed, location and connection of terminals, etc., b) Checking of bill of materials as per approved drawing c) Checking of operation of various feeders as per approved schematic drawings d) Operation check shall be carried out for every control function as per schematic drawings by manually simulating fault conditions and operation of control switches/relay, etc. e) Checking of interchangeability of identical feeders. f) Insulation resistance test and value measurement on power and control circuits before and after high voltage withstand test g) For equipment bought from other suppliers, certified test reports of test carried out at the manufacturer's works shall be submitted. h) Functional check of all Instruments / Indicators. i) Calibration of protective relays for circuit current value.
2.12	DOCUMENTATION :
	Following documents shall be submitted along with the bid : <ul style="list-style-type: none"> a) General arrangement and foundation details of the Main LT Panel b) Bus bar sizing calculation for various bus bar rating of the Main LT Panel c) Quality assurance plan for the switchboards.
2.13	DRAWINGS & INSTRUCTIONS MANUALS :
2.13.1	All drawings submitted by the vendor shall be in sufficient detail to indicate the type size, arrangement, weight, breakdown for packing and shipment, the external connections, fixing arrangements required, the dimensions required for installation and interconnections with other equipment and materials, clearances and spaces required between various portions of equipment and any other information specifically requested. Bolted joints shall be as per DIN standard bolting schedule. Visual indicator shall be provided to inspect tightness of all bus bar/dropper bolted joints. All drawout tap-offs on Main LT Panel droppers shall be properly designed silver plated contacts. A contact plate arrangement for dropper tap-off to avoid wear & tear off droppers is essential.
2.13.2	Appropriate coloured bands shall be provided on main bus bars and vertical bus bars for providing phase identification in line with requirement of IS-375.
2.13.3	Provision shall exist in a separate chamber for mounting adequate insulated auxiliary bus bars,, supported on moulded supports for control/interlocking/ annunciation purposes as required. The wiring shall be directly tapped from auxiliary bus bars to the withdrawable units. Unit to unit looping shall not be permitted. The material of control power supply buses shall be electrolytic copper. The material for space heater power supply buses shall be same as that for the main power buses.
2.13.4	The clearance and creepage distances shall not be lower than the values specified below : <ul style="list-style-type: none"> a) Minimum clearance between two live conductors – 20 mm

	<p>b) Minimum clearance between live part & accidentally dangerous part– 20mm</p> <p>c) Minimum creepage distance – 28 mm</p>
2.13.5	Unless specified otherwise in particular project, temperature rise bus bars when carrying rated current shall be limited to 35 deg C above ambient temperature of 50 deg C.
2.13.6	Location of bus bars shall be at the top for panels with bottom cable entry and at the bottom for panels with top cable entry.
2.13.7	Bus bar material shall be either copper or aluminum as per specifications.
2.13.8	Room dimensions are provided in the drawing for reference.
2.14	TOOLS AND APPLIANCES
2.14.1	The vendor shall supply without any extra cost one set of special tools and appliances that may be required for carrying out the maintenance, special inspection, etc., of the equipment offered.
2.14.2	Vendor shall also furnish list tools and appliances required for different equipment.
2.15	GUARANTEE:
	Equipment shall be guaranteed for a period of 12 months from the date of commissioning.

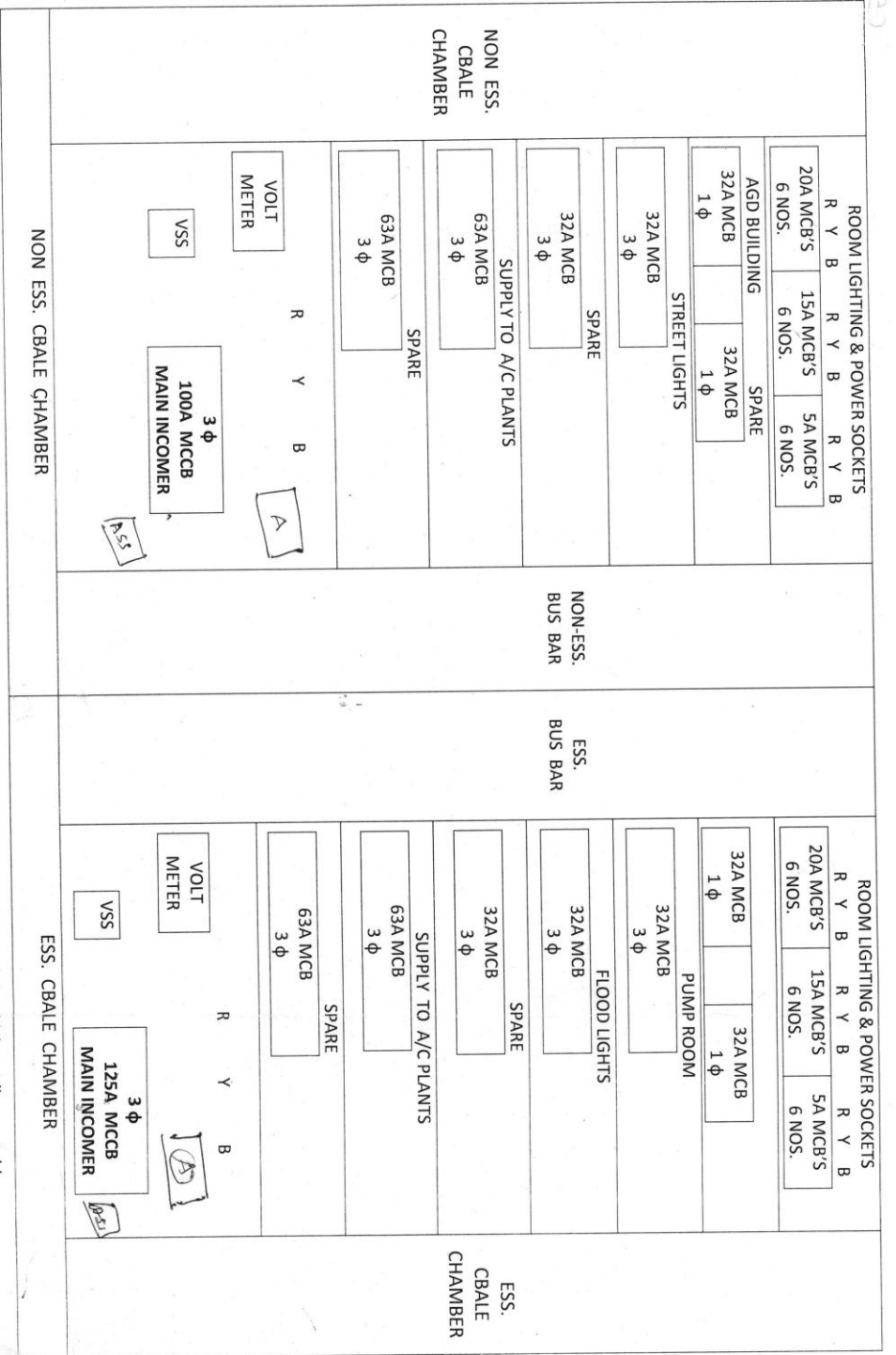
Requirement of LT Panel ,VISHAKAPATNAM

S.No	DETAILS OF THE ITEM	RATING	QTY	REMARKS
Essential				
1	Incomer MCCB	125A , 415V 3Φ	1 No	
2	MCB	63 A, 3Φ	2 Nos	
3	MCB	32A, 3Φ	3 Nos	
4	MCB	32A, 1Φ	2 Nos	
5	MCB	20A,1Φ	6 Nos	
6	MCB	15A, 1Φ	6 Nos	
7	MCB	5A, 1Φ	6 Nos	
8	Copper Bus Bar	415 V,3Φ		
9	Multi function meter	0-500V, 3Φ	1No	
10	RYB LED Indication lamp		1Set	

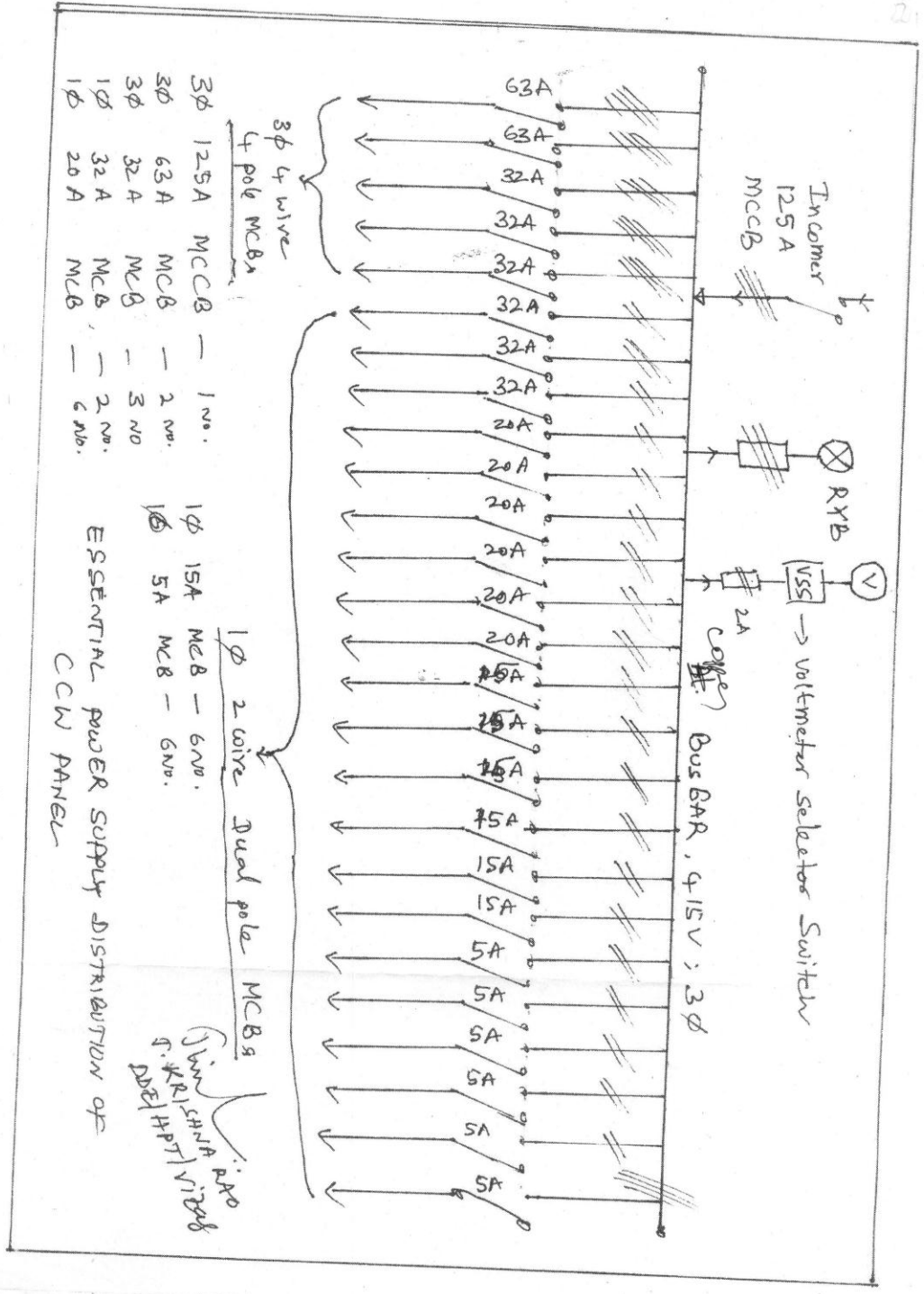
1. MCCB,MCB and change over switch should be Scheneider, L&T, Havels, Simens, ABB, and Legrand
2. Indicating meter should be of AE,MECO Make.

Non Essential				
1	Incomer MCCB	100A , 415V 3Φ	1 No	
2	MCB	63 A, 3Φ	2 Nos	
3	MCB	32A, 3Φ	2 Nos	
4	MCB	32A, 1Φ	2 Nos	
5	MCB	20A,1Φ	6 Nos	
6	MCB	15A, 1Φ	6 Nos	
7	MCB	5A, 1Φ	6 Nos	
8	Copper Bus Bar	415 V,3Φ		
9	Multi function meter	0-500V, 3Φ	1No	
10	RYB LED Indication lamp		1Set	

1. MCCB,MCB and change over switch should be Scheneider,L&T,Havels,Simens,ABB,and Legrand.
2. Indicating meter should be of AE,MECO Make.



TOTAL PANEL SIZE IS (72X22X96) Ft. (WDXH) i.e., NON ESS. PANEL (36X11X48) Ft. and ESS. PANEL (36X11X96) . Panel should be wall mountable.



GENERAL TERMS AND CONDITIONS FOR WORK ORDER

1. **NAME OF PURCHASER** : **The President of India**
2. **PAYING AUTHORITY** : **The ADG (E) (SZ)**
All India Radio & Doordarshan
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 with in 2 weeks of placement of order at the rate of 10 % of the contract value at the time of signing the contract.

The security deposit shall be furnished in favour of **The ADG (E) (SZ) 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 ADG(E) (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 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 along with 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 leviabale 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 be entitled to cancel this order nor shall have any claim for damages against the contractor in respect of such non-performance or delay in performance and delivery shall be resumed as soon 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 plant. 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.

**(JOTHI VIJAYAKUMAR)
ASSISTANT ENGINEER (PUR)
for ADG (E) (SZ)**