

Tender Details		11-05-2023 06:22:59
Tender Code	MMD/T-NSC-12/0523	
Tender Type	Procurement Tender	
Type Of Bid	Two Bid	
Description	Procurement of various types of Portable Electronic Reference Standard Sub (ERSS) Meter for testing of LT and HT consumers	
Estimated Cost (In Lakhs)	310	
Basis of prices	Firm Price Basis	
Tender Validity	120	
Delivery Requirement (In Months)	3	
Tender on rate contract basis	NO	
Tender Fee (In INR)	5000	
GST In INR (@18% on Tender Fee: SAC No.	900	
Total Tender Fee Amount including GST in INR.	5900	
Contact	Mr Girish Gaikwad , 7506990821 ,cemmcsedcl@gmail.com	
Pre-Qualifying Req	As per QR clase of Tender Document	
Budget Type	Capex	
Scheme Code	Capital	
Scheme Name	Capital	
Department	Material Management Cell	
Office Type	HO	
Location Type	Corporate Office	
Designation	Executive Engineer(Distribution)	
Pre-Bid Meeting Address	Through Video Conferencing	
Bid Opening Address	OFFICE OF THE CHIEF ENGINEER, Maharashtra State Electricity Distribution Co. Ltd. Material Management Department, Plot No. G-9, "Prakashgad" First floor, Prof. A.K. Marg, Bandra (E), Mumbai – 400 051.	
Version No	1	
Call for Deviation	YES	
Is Annexure C1 Applicable	YES	
Is Manufacturer Applicable	YES	
Is Trader Applicable	NO	
Minimum % of Offered Quantity	20	
Is Power Supplier Applicable	NO	
Tender Sale Start Date	11-05-2023 19:00	
Tender Sale End Date	01-06-2023 12:00	
Bid Start Date	11-05-2023 19:05	
Bid End Date	01-06-2023 15:00	

Pre-Bid Meeting Date	17-05-2023 17:00
Techno-Commercial Bid opening on	01-06-2023 15:30
Price Bid opening on	Will be declared later
Annexure C1 Opening Date	Will be declared later
Winner Selection Date	Will be declared later
Can Bidder Opt EMD Exemption	Y



MATERIAL MANAGEMENT DEPARTMENT
 MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO. LTD.
 Tender No. MMD/T-NSC-12/0523

BID NOTICE

The Chief Engineer, Material Management Department (MMD), on behalf of Maharashtra State Electricity Distribution Company Limited (the Purchaser), hereby invites sealed bids from eligible bidders for procurement of various types of Portable Electronic Reference Standard Sub (ERSS) Meter for testing of LT and HT consumers. Entire bidding document is available online on <https://etender.mahadiscom.in/eatApp/> as per date indicated below. Any changes in the Bid Schedule, corrigendum etc. shall also be notified via MSEDCL's website. Prospective bidders are therefore requested to regularly check the website for any updates.

Tender No. MMD/T-NSC-12/0523

Estimated Tender Cost: Rs. 3.01 Crores (inclusive of GST)

Tender Fee: Rs. 5,000.00 + 18% GST

The bidder should submit non-refundable Bid Fee of Rs. 5,000.00 + 18% GST paid through online payment only, prior to the dead line for submission of bids as per the procedure led by the MSEDCL.

Earnest Money Deposit: The bid must be accompanied with EMD @ 0.50% (Half Percent) value of the offered quantity of the tender in the form of BG as per the Annexure-M enclosed with tender documents having validity of 120 days from opening of tender. Interest shall not be allowed on EMD.

The scanned copy of the online payment receipt / Demand Drafts / BG should be uploaded (in e-tendering) and the Demand Drafts should be submitted to this office on or before submission date and time.

Calendar of Events Event	Date and Time
Begin Sale of Bid Document	11-05-2023
Date and time of submission of Bids	01-06-2023 at 15:00 hrs.
Date and time of Bid Opening	01-06-2023 at 15:30 hrs.

THE CHIEF ENGINEER
Maharashtra State Electricity Distribution Co. Ltd.
Material Management Department,
Plot No. G-9, "Prakashgad" First floor, Prof. A.K. Marg,
Bandra (E), Mumbai - 400 051.
E-mail- cemmcmsedcl@gmail.com

MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO. LTD.

TENDER FOR

**Procurement of various types of Portable Electronic
Reference Standard Sub (ERSS) Meter for testing of LT and
HT consumers**

Tender No: MMD/T-NSC-12/0523



**OFFICE OF THE CHIEF ENGINEER,
Maharashtra State Electricity Distribution Co. Ltd.
Material Management Department,
Plot No. G-9, "Prakashgad" First floor, Prof. A.K. Marg,
Bandra (E), Mumbai - 400 051.
E-mail- cemmcmsedcl@gmail.com**

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SECTION-I

INVITATION TO TENDER AND INSTRUCTION TO BIDDERS

TENDER FORM (NOT TRANSFERABLE)

(TO BE SUBMITTED ONLINE DULY FILLED IN AND DIGITALLY SIGNED)

To be submitted online not later than the date mentioned in the tender details. For participating in tender opening, the bidder can login at the specified time and date of opening of the tender, if he desires so.

The bidder is requested to quote his lowest rates F.O.R. destination for the supply of materials. The material is required at various places in the State of Maharashtra. The tender documents duly filled-in and digitally signed, are to be submitted online before due time & date of the submission of tender in prescribed form.

The modifications made to the terms & conditions shall applicable to this tender only.

FOR CHIEF ENGINEER (M.M.DEPARTMENT)

INSTRUCTIONS TO THE BIDDERS**I SCOPE OF WORK:**

The scope of work under this tender is for design, engineering (wherever applicable), manufacture, inspection & testing before dispatch, packing and supply of various types of Portable Electronic Reference Standard Sub Meter for testing of LT and HT consumers as specified in Annexure-D / Technical Specifications, at various destination sites / stores centers of the Purchaser in Maharashtra.

The quantity for procurement is as below:

Sr. No.	Description of ERSS Meter	Quantity in Nos.
1	LT Single Phase	48
2	LT Three Phase	46
3	HT Three Phase	42
Total		136

The Actual Quantity of meters that will be procured may vary depending upon the site requirement. The Quantity mentioned as above against various capacities can undergo change. However, the Minimum Assured Quantity for procurement shall be 50% of the total tendered quantity as mentioned above.

The list of various destination sites / stores centers of the purchaser is enclosed as Annexure K.

II QUALIFYING REQUIREMENTS :

1. Average Annual Turnover – The Average annual turnover of last three financial years of the bidder shall be 30% of the offered value. The bidder has to submit the annual turnover certificate of the company of last three financial years.
2. The clause No. 2 of respective technical specifications of Portable Electronic Reference Standard Sub Meter for Testing of Energy Meters of LT & HT Consumers regarding technical qualifying requirements is applicable.
3. Following Documents should be submitted by the bidder along with the bid.
 - The quantity offered for the supply of ERSS Meters in the prescribed format as per schedule 'C'.
 - Documentary evidence showing annual turnover of last 3 years, certified by Chartered Accountant for preceding three financial years.
 - Copies of orders executed by the bidder, and the Certificate from the purchaser with regards to successful execution of the order for preceding five financial years.
 - List of orders in hand.
 - Documentary evidence (for e.g. SSI/NSIC Certificate) for manufacturing capacity to cover the quantity offered by the bidder and considering orders in hand.
 - List of in house manufacturing and testing facilities as well as quality control set up.
 - Certificate from Chartered Accountant for not having controlling stake in more than one entity.
 - Type test certificates from NABL accredited lab such as CPRI/ERDA valid for a period of five years.

FOR FOREIGN BIDDERS / MANUFACTURERS :

In case of foreign bidders/manufacturers, they shall fulfill Qualifying Criteria as per Clause II[1] and II[2].

III PRICES :

- (i) Prices are acceptable only on F.O.R. destination basis inclusive of Goods and Service Tax (GST for brevity) i.e. Integrated GST (IGST) for outside State / Central GST+ State GST (CGST+SGST) for within State, risk in transit, freight showing the break-up as desired in the Annexure 'B'. It shall be noted that quotations not conforming to F.O.R. destination basis inclusive of IGST/(CGST+SGST) etc. and to the unit as specified in Annexure 'B', shall be rejected even though the bidder's offer may be lowest. The bidder shall quote Ex-Works Price and element of freight and insurance along with applicable rate of IGST/(CGST+SGST). The F.O.R. destination price i.e. up to site or the Store Centre of the purchaser as the case may be inclusive of IGST/(CGST+SGST), risk in transit and freight will be programmatically calculated. While raising the invoices, however, IGST/(CGST+SGST) should be shown separately in the invoice raised.
- (ii) For each of the items quoted, bidder shall specify offered quantity. However, the offered quantity shall not be less than 20% of the advertised quantity (Advertised quantity means the quantity required as indicated in Annexure 'B' / Price Bid) so as to deliver the said quantity within the delivery requirement of the Purchaser as indicated in the tender documents.

IV TAXES:

- (i) The Purchaser shall be registered under Goods and Service Tax Act and should comply with all the statutory compliance requirements of GST Law diligently.
- (ii) It is imperative for the bidder to indicate the amount of IGST/(CGST+SGST) included in their price while giving the break-up of F.O.R. destination price in Annexure 'B', failing which, the offer will be treated as ambiguous and will be rejected as per the provisions of clause X of tender form.
- (iii) After awarding the contract, the supplier shall not charge any additional amount towards GST; during the currency of contract except statutory variation by Central / State Government in normal (full) rate of integrated GST. In case the GST is decreased than the rate indicated in the price bid, the benefits of the reduction in the GST shall be passed on to the purchaser. The increase in the GST rate due to increase in turnover during the contractual delivery period shall not be charged to the purchaser.
- (iv) Necessary documentary evidence for the GST claimed shall be submitted along with the bills.

V BASIS OF PRICES:

The bidder shall quote the prices on firm price basis, as has been specifically brought out in the Tender Details. For any deviation in this regard, the offer shall be summarily rejected.

VI SAMPLE SUBMISSION:

The clause No. 16 of respective technical specifications of Portable Electronic Reference Standard Sub Meter for Testing of Energy Meters of LT & HT Consumers regarding Sample Submission & Demonstration is applicable.

VII DELIVERY:

- (i) The scheduled delivery period is 3 months from the letter of award.
- (ii) Bidder is requested to quote delivery F.O.R. DESTINATION only & only in the unit of the item specified in Annexure 'B' i.e. if the quantity is in sets or in tones or in numbers or in kilometers or in coils, the rate of delivery shall only be in the same unit.
- (iii) It is mandatory on the part of the tenderer to quote the delivery on monthly basis. If the offered delivery is indicated on quarterly basis, then the delivery would be counted proportionately in three equal installments per month for liabilities of the contract including payment of price variation and levy of liquidated damages.
- (iv) Size mix for the purpose of delivery, when delivery is quoted in assorted items, shall be determined by the Purchaser while issuing the A/T or dispatch instructions and will be binding on the bidder. The Purchaser will also have the liberty of modifying the size mix for the purpose of delivery, even after the A/T is issued.
- (v) Offer shall be rejected if the equated monthly delivery schedule and rate of delivery per month is not indicated.
- (vi) The delivery period to be submitted by the bidder for the offered quantity shall be in equated monthly lots from the date of LoA.
- (vii) Bidder to submit the equated monthly lot schedule in format as per below clause (x)
- (viii) MSEDCL may issue dispatch instructions as per requirement. The quantity demanded per consignee could be less than or equal to monthly lot specified in contract. Wherever as per demands, the quantity to be supplied to a consignee in a particular month is less than monthly lot quantity; the said quantity will be treated as lot quantity for the purpose of delivery and payment.
- (ix) MSEDCL may instruct the supplier to withhold entire or part of monthly supply of material for a specified period by giving two months advance instruction.
- (x) Time being the essence of contract, the supplier shall strictly maintain monthly delivery schedule.

Material description	Offered qty.	1 st month qty.	n th month qty.

The bidder is advised to get their type tests & drawing approval immediately after placement of LoA so that the material is received by the purchaser well within the committed delivery period. If there is any delay in delivery of material as per schedule, the undelivered quantity as per schedule can be diverted to other good performing bidder.

POOR PERFORMANCE :

If the participating firm/ supplier delays the supply beyond 3 (three) months of their schedule for immediate earlier two consecutive orders for the similar item then, although the liquidated damages for delayed supply are applicable as per tender condition, the firm may not be considered for placement of order against the subject tender.

For ERSS meter tender, performance in delivery of earlier ERSS meter orders will be consider.

VIII OFFERING THE MATERIAL:

- (A) The bidder may offer the material as per MSEDCL standard technical specifications as per Annexure-D. In case the material is being offered as per MSEDCL Standard Technical Specifications, the bidder does not have to fill the entire guaranteed technical particular (GTP). The bidder shall only submit the consent in this regard as given in Annexure-E and submit the type test reports & drawings for approval of MSEDCL. However; the bidders, who do not want to offer the material as per MSEDCL Standard Technical Specifications and have deviations in lieu of Indian Standards, will have to fill the entire GTP.
- (B) The person / entity should not have controlling stake in more than one entity applied for the tender / bid. **Necessary certificate duly certified by Chartered Accountant to this effect shall be submitted along with the tender documents.**
- (C) Factory address, from which the bidder intends to supply the material against the tender, shall be as indicated in the latest approved on line vendor registration form on e-tendering through which the vendor is submitting the offer.
- (D) The bidder shall offer the rates, taxes as applicable for the factory location indicated in his latest approved on line vendor registration form on e-tendering through which he is submitting his offer.
- (E) If the bidder intends to supply the materials from approved multiple factory locations in addition to the factory from which the bidder has submitted the offer; the bidder has to indicate the location and quantity offered from each location in the format "A"
The F.O.R.D. rate shall remain same for all the multiple locations. The bidder shall indemnify MSEDCL for any consequences arising due to supply from approved multiple locations.

Sr. No.	Name of approved factory location	Address of factory location	Quantity offered
(1)			
(2)			
Further, I/we hereby indemnify MSEDCL for any consequences arising due to supply of offered material from approved multiple locations.			
Seal & signature of bidder			

IX CONFLICT OF INTEREST

A bidder may be considered to have a conflict of interest with one or more parties in a bidding process if they:

- (a) Have controlling shareholders in common; or
- (b) Receive or have received any direct or indirect subsidy from any of them; or
- (c) Have the same legal representative for purposes of a bid; or
- (d) Have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on a bid of another bidder, or influence the decisions of the purchaser regarding the bidding process.

Bidders found to be in conflict of interest, shall be disqualified.

X QUOTATION:

- (i) Bidder shall quote his rate per unit specified in Annexure 'B' / Price Bid in figures.
- (ii) Bidder's printed terms and conditions will not be considered as forming part of the tender.

XI AMBIGUITY IN QUOTATION:

The bidder is requested to please make a note that in case of ambiguous terms in respect of offered quantity in Annexure- B and schedule 'C', F.O.R. condition, GST, basis of price (i.e. firm / variable) or if the blanks are left out in the offer, the item / tender shall be rejected.

XII FILLING IN OF ANNEXURE:

The bidder is requested to ensure that the comments against each and every item / clause of Annexure shall be clearly filled in and answered. Any item/clause shall not be left blank or unanswered. If any item /clause is not applicable, the "Not Applicable (N.A.)" checkbox shall be selected.

XIII ADDITIONS/ALTERATIONS PROHIBITED:

The bidder shall not make any additions, alterations or changes in the Tender Form and the Conditions of Tender & Supply (Annexure 'A') including the description of material mentioned in Annexure 'B'. They should quote rate for the material described or click the checkbox 'Not quoted' against each of the item in Annexure 'B' / Price Bid.

XIV B.I.S. LICENCE CERTIFICATE :

A scanned copy of valid BIS License (full Copy) certifications for offered items ratings duly sealed & signed must be uploaded and submitted along with offer, failing which, the offer shall be rejected.

In case the validity of the BIS license is expiring before date of submission of tender, necessary documentary proof of having applied for renewal of validity of the BIS license must be uploaded while submitting the bid. The renewed copy of the BIS License shall be submitted before commencement of supply.

However, valid BIS license scan copy of offered material must be submitted by the qualifying bidders before commencement of supply, failing which their order will be cancelled with financial liability on supplier.

XV MANDATORY REQUIREMENT OF SUBMISSION OF OFFER:

The offer shall be submitted online duly filled in; attaching all the required documents, completed in all respects and should be digitally signed.

XVI SUBMISSION OF DRAWING & BILL OF MATERIAL: (wherever applicable)

The bidder shall submit the drawings and bill of material conforming to the tender specification wherever applicable. In such cases, the offer without the drawings and bill of material shall not be evaluated and considered. The drawings and bill of material submitted along with the bid shall not be considered for evaluation of the offer but the drawings and bill of material of the successful bidder shall be scrutinized when the Purchaser decides to accept such bid. It may, however, be noted that Purchaser's action of evaluation of the tendered bid would not mean approval of the drawings and bill of material submitted along with the tender bid.

The bidder shall depute his authorized representative for discussion on the drawings, either immediately on hearing from the Purchaser or after receipt of Letter of Award. The formalities like submission of drawings, bill of material etc. and getting the same approved by the Purchaser shall be completed by the successful bidder within TEN DAYS from the date of Letter of Award of the contract. The approval to drawings complete in all respects mentioned in technical specifications (Annexure-D) will be accorded within SEVEN working days thereafter. Any delay in this regard shall lead to cancellation of the Letter of Award at the risk and cost of the bidder. The supplies against the contract shall conform to the approved detailed drawings / bill of material and the detailed technical specifications.

XVII NAME OF AUTHORIZED REPRESENTATIVE:

The digital certificate shall be in the name of person authorized by the firm. In case, the digital certificate is compromised or the person holding the digital certificate is no longer authorized to digitally sign the tender, it is the responsibility of the bidder to revoke this certificate and obtain the fresh certificate. While submitting the bids online only valid digital certificate shall be used. The vendors are requested to check the validity of digital signature and prior to the expiry date & they are requested to get their Digital signature key validated before expiry of the same. MSEDCL shall not be responsible for Non-submission of any of the Bids (Techno Commercial Bid, Deviation Bid, Price Bid, Annexure - C-1) by vendors due to expired/Invalid Digital signature.

The bidder is responsible for all the contractual liabilities and responsibilities thereof.

In case the bidder authorizes the representative to deal on behalf of the bidder, the name and address of such person should be informed to the purchaser. The bidder shall submit the power of Attorney in favor of representative duly executed before the Notary. In the absence of the Power of Attorney, the purchaser shall not deal with the representative.

(A) OFFER OF MICRO and SMALL ENTERPRISES AND OTHER UNITS:

The bidder registered with Directorate of Industries of Government of Maharashtra for manufacturing the items tendered/offered and those who have attached valid certificate at the time of vendor registration shall be considered for concessions applicable and procurement of reserved items as per GoM G. R. dtd. 30-10-2015 amended up to date. These benefits shall be available only to those items approved

during the registration process and subsequent updates in registration up to the submission of this tender.

Based on concession of Central Government's Micro and Small Enterprises office order dtd. 23-03-2012, 241 items are being kept reserved. As per above reservation of items 100 % reserved items to be purchased from Micro and Small Enterprises out of which 20 % reserved items to be purchased from S.C./S.T. enterprises. Reservation is applicable for a limited period unless and until re-examined. If Micro and Small Enterprises participated in the tender and the tendered item is not reserved, then 20 % order with L-1 rate to be given to Micro and Small Enterprises and out of this 20 %, 4 % to be given to S.C. /S.T. enterprises.

If there are any specific Government Directives such as reservation of items for units in Maharashtra, non-eligibility of preference to SSI units etc. for particular items, price and purchase preference etc. the same would be applicable irrespective of the fact that it has not been specifically incorporated in the tender notice and/or tender documents.

(B) PREFERENCE TO INDUSTRIAL UNITS LOCATED IN MAHARASHTRA AND OFFERS BY MATCHING RATES WITH LOWEST ACCEPTABLE BIDDER

The lowest acceptable rate will be the unit rate worked out without considering IGST/(CGST+SGST) as applicable and the same rate will be considered as applicable to the respective bidder who has agreed to accept order at lowest acceptable rate.

(C) Matching of Rates

The confirmation for acceptance of the order at the lowest acceptable rate shall be given in the format as per Annexure -'C-1' of the tender documents by the bidder other than L-1. The same should be submitted online on or before the due time and date of submission of Annexure- 'C-1'. The confirmation shall be opened online on due time and date of opening of Annexure-'C-1'. Schedule for submission and opening of Annexure-'C-1' shall be communicated separately by e-mail and on the website. Though confirmation in Annexure-'C-1' as above is called from all the qualified bidders, the bidders, who quoted rates within the range of 5 % in comparison with the lowest acceptable rates, shall only be considered and their Annexure `C-1' will be opened on the date and time intimated subsequently in the presence of bidders who chose to be present. Provided, however, that the Annexure 'C-1' of the bidders, who have quoted above the range of 5 % in comparison with the lowest acceptable rates, shall also be considered in case the aforesaid bidders within the range of 5 % are unable to fulfill the quantity requirement. In that case also, the date of opening of Annexure- `C-1' will be intimated to the bidders

In the above confirmation, if the bidder indicates any rate, then the confirmation given by the bidder will not be considered as valid.

Above confirmation for the quantity less than as indicated in Clause X (iii) (offered quantity shall not be less than 20 %) of Instructions to the bidder shall not be acceptable.

The prices indicated in the original offer shall not be considered as valid once offer for acceptance of order by matching rates is given. In the event of withdrawal of offer by matching rates within the validity period, the entire offer against the tender shall become invalid and shall be summarily rejected and the earnest money paid by the bidder shall be forfeited.

The lowest acceptable tenderer would be considered for awarding order for quantity subject to his capacity and capability as under.

Trial Order: Minimum 10 % but limited up to 20 % of tendered quantity.

Wherein

Trial order means the firm who have not supplied tender item to any Government / Semi-Government Electricity Dist. Utility / SEB or MSEDCL during preceding five years.

(D) Quantity Allocation:

- 1) If L-1 bidder is within Maharashtra State and if total tender quantity for quoted item is offered by L-1 then 100 % quantity will be awarded to L-1 bidder for quoted item.
- 2) If L-1 bidder is within Maharashtra State and offered quantity is less than the tender quantity for quoted item then,
 - a) Quantity allotted to L-1 bidder will be equal to quantity offered by him.
 - b) Balance quantity after allotment as (a) above, will be distributed among Maharashtra State bidders as per their price ranking (if ready to match with L-1 rate) subject to maximum 50 % of total tender quantity for quoted item to Maharashtra State bidders including L-1 bidder.
 - c) Any balance quantity after allotment as (a) & (b) above, will be distributed as per their price ranking (if ready to match with L-1 rate) irrespective of bidder is Maharashtra or out of Maharashtra state bidder including partial allotment if any to Maharashtra bidder in (b) above.
- 3) If L-1 bidder is outside Maharashtra State then,
 - a) If the L-1 bidder offered more than 50 % of tendered quantity for quoted item then maximum of 50 % of tender quantity for quoted item will be allotted to L-1 bidder.
 - b) If the L-1 bidder offered less than 50 % of tendered quantity for quoted item then quantity equal to offered quantity for quoted item will be allotted to L-1 bidder.
 - c) Balance quantity after allotment as (a) or (b) above, will be distributed among Maharashtra State bidders as per their price ranking for maximum 50 % of required quantity. (if ready to match with L-1 rate).
 - d) Any balance quantity after allotment as (a), (b) & (c) above, will be distributed as per their price ranking (if ready to match with L-1 rate) irrespective of bidder is Maharashtra or out of Maharashtra state bidder including partial allotment if any.
 - e) If all bidders including L-1 bidder are from outside Maharashtra state and if the offered quantity of L-1 bidder is 100 % then entire quantity will be allotted to L-1 bidder. If quantity offered by L-1 bidder is less than 100 %, then after allotting to L-1 bidder balance quantity will be allocated to remaining bidder who matched the L-1 rates as per price ranking & quantity quoted.
 - f) In spite of above the quantity allocation will be at the sole discretion of MSEDCL.

- 4) If new suppliers are allowed then maximum 20% of tender quantity will be allotted for new supplier as per their price ranking.

XVIII EARNEST MONEY DEPOSIT (EMD):

The bidder should pay the Earnest Money @ 0.50% (Half Percent) value of the offered quantity of Tender in the form of BG as per the Annexure-M enclosed with tender documents having validity of 120 days from opening of tender. Interest shall not be allowed on EMD. EMD shall be forfeited (i) in case the bidder withdraws the tender / offer during the validity period (ii) in case the bidder fails to pay the performance deposit if the contract is awarded.

However, bidders from the following categories are exempted from payment of earnest money deposit.

- 1) All Government and semi Government institutions under Govt. of Maharashtra and Zilla Parishad in Maharashtra and fully owned undertaking of any State Govt. and Govt. of India only for the items manufactured by such institutions.
- 2) Micro and Small Enterprises registered under Micro, Small and Medium Enterprises Development Act-2006 only for the items mentioned in their permanent registration certificate at the time of vendor registration.
- 3) The bidder registered with N.S.I.C. and those who have attached valid N.S.I.C. Registration Certificate for the items mentioned in their permanent registration certificate at the time of vendor registration.

The benefits mentioned in (1) to (3) above shall be available only to those items approved during the registration process and subsequent updates in registration up to the date of submission of this tender.

Exempted bidders should upload a latest valid certificate issued by any approved body of 'Ministry of Small & Medium Enterprises' (MSME) such as 'National Small Industries Corporation' (NSIC) or 'District Industries Centre' (DIC) for EMD exemption.

XIX SIGNING OF THE TENDER DOCUMENTS:

Offer shall be submitted along with the tender documents and duly filled in with all Sections / Annexures / Appendixes / Schedules etc. The offer shall be signed with valid digital signature.

XX SUBMISSION / SUPERSCRIBING OF THE TENDER DOCUMENTS:

The offer is to be submitted as follows.

(a) Online Submission:

- (i) Techno-Commercial Bid (Part-I): This part shall contain all technical and commercial aspects of the bid and documents supporting the same except the Price Bid.

The bidder is requested to please make a note that in case of the Price Bid (Part-II) is submitted instead of Techno-Commercial Bid in Part-I or submitted Price Bid (Part-II) along with Techno-Commercial Bid in Part-I, the offer shall be rejected.

- (ii) Price Bid (Part-II)

This part shall contain only the Price Bid strictly in the prescribed format, i.e. Annexure 'B'.

(b) Offline Submission:

Physical submission of documents (Part-III)

Envelope for this part shall contain documents like Type Test Reports, Drawings, Bill of Material, Catalogues etc. wherever applicable as per technical specification and they shall be scanned and these scanned documents to be taken into PDF format on CD media (2 sets) and are to be submitted to EE (NSC) in the office of Chief Engineer, Material Management Dept. in sealed envelope on or before due date & time of submission.

METHOD OF SUBMISSION OF PART-III AND THEIR OPENING:

This envelope shall be individually sealed and shall be super scribed with the name and address of bidders and the following information before posting or delivering the same:

- i. Tender No.
- ii. Due date and time of submission.
- iii. Due date and time of opening.

Envelope as above shall be submitted on or before the prescribed due date and time of submission and shall be opened on due date and time of opening as prescribed.

In case of bidders whose techno-commercial bid is acceptable, their Price Bids will be opened at a later date. This date shall be intimated to such bidders separately.

XXI TIMELY SUBMISSION OF OFFER:

- (a) The bid is to be submitted online on or before due date and time of submission to the Purchaser at website.
- (b) It is advisable to submit the digitally signed offer sufficiently in advance of due date and time so as to avoid last minute congestion of network / server.
- (c) Offer received after the due date and time of submission shall not be accepted.
- (d) In case, the due date of opening of tender happens to be holiday, the offer shall be opened on the next working day at the same time.

XXII PURCHASERS RIGHT:

The Purchaser reserves the right to reject any offer without assigning any reason whatsoever.

The Purchaser reserves the right to make any changes in terms & condition at any stage of the process without assigning any reason whatsoever.

If any type of legal litigation against MSEDCL is pending in any court/Forum against/by the bidder or its sister concern/Director/Partner/Proprietor, then purchaser reserves the right to reject partly or fully their bid without assigning any reasons thereof.

Bidder has to submit the declaration regarding no any type of legal litigation against MSEDCL is pending in any court/Forum against/by the bidder or its sister concern/Director/Partner/Proprietor.

XXIII DISREGARD OF TENDER CONDITIONS:

Tender containing any deviations / additions / alterations / changes in the conditions of the tender and supply as stated in Annexure 'A', 'B', 'C-I', 'D', 'E', 'F', 'G' and schedule 'C' shall not be acceptable.

The bidder having digitally signed all the tender documents indicates any deviations / additions / alterations / changes in the covering letter, unrelated annexures and schedules of the offer or elsewhere, the same shall be ignored and the offer shall be treated as meeting with all specified tender conditions.

XXIV PROHIBITION FOR POST TENDER CORRESPONDENCE:

The Bidder should note that no correspondence shall be entertained or considered after the due date and time of submission of tender unless otherwise sought by the Purchaser.

XXV RIGHT TO ORDER OUT QUANTITY IN VARIANCE TO OFFERED QUANTITY:

The Purchaser reserves the right to order out / procure any quantity in excess of the offered quantity with mutual consent. The quantity specified may be for dispatch to one destination or several places.

XXVI ACCEPTANCE OF TENDER:

The Purchaser does not bind itself to accept the lowest or any tender; neither will any reasons be assigned for the rejection of any tender or part of tender. It is also not binding on the Purchaser to disclose any analysis report on tender/samples. The bidder on his part binds himself to supply any item or items selected from his offer in part or whole at the option of the Purchaser.

XXVII NOTIFICATION OF AWARD:

Notification of Award of contract will be made by a letter of Award, to be sent by registered post or given by hand, to the successful bidder by the Purchaser. It could also be made by e-mail or by Fax to be confirmed in writing by registered post to the successful bidder by the Purchaser.

Acceptance of the same to be conveyed within 3 working days by the supplier.

XXVIII REFUND OF EARNEST MONEY DEPOSIT OF UNSUCCESSFUL / SUCCESSFUL BIDDER:

Earnest money deposit shall be returned to the unsuccessful bidder by RTGS within 7 (seven) working days after the tender has been decided and on submission of receipt of E.M.D. payment to the G.M. (F&A-SB), MSEDCL, Prakashgad, Prof. A.K. Marg, Bandra (East), Mumbai -400051. Earnest money deposit in the form of BG will be returned to the unsuccessful bidder within 7 (seven) working days by Chief Engineer, Material management Dept. after the tender has been decided. Further, the Earnest money deposit shall be returned to the successful bidder after submission of acceptance letter regarding 2.5% of Contract Performance Deposit in terms of A/T.

XXIX VALIDITY OF OFFERS:

The bidder shall keep the offer valid for acceptance up to and including last date of calendar month, covering the date of completion of 120 days (one hundred and Twenty days) from the date of opening of the tender and shall also agree to extend the period of validity required by the Purchaser. The bidder shall not be allowed to modify or change the conditions of the tender while extending the period of validity.

XXX DECLARATION FROM BIDDER:

In order to ensure participation of reliable and honest bidders / contractors / vendors, etc. the bidder shall submit the declaration along with the bid in Annexure-I

XXXI CORRUPT OR FRAUDULENT PRACTICES:

The Maharashtra State Electricity Distribution Company Ltd. and the State require that bidders / suppliers / contractors observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, MSEDCL:

(a) defines for the purposes of this provision, the terms set forth below as follows:

- (i) "corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and
- (ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition.

(b) will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

XXXII will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded an MSEDCL contract if at any time it determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, an MSEDCL contract.

XXXIII INFLUENCE:

Any efforts by the bidders to influence the owner during evaluation process before order placement will be rejected. Similarly deviation in the term of payments, penalty, performance deposit, delivery period will be treated as non-responsive quotation / offer and will not be considered for evaluation /order placement.

Bidder shall submit the undertaking certifying that they have not approached any one for undue influence.

XXXIV TENDER FEES EXEMPTION:

Tender fee to be paid at the time of uploading / online submission of the tender. Bidders from the following categories are exempted from payment of Tender fees:

- 1) All Government and semi Government institutions under Govt. of Maharashtra and Zilla Parishad in Maharashtra and fully owned undertaking of any State Govt. and Govt. of India only for the items manufactured by such institutions.
- 2) Micro and Small Enterprises registered under Micro, Small and Medium Enterprises Development Act-2006 only for the items mentioned in their permanent registration certificate at the time of vendor registration.

- 3) The bidder registered with N.S.I.C. and those who have attached valid N.S.I.C. Registration Certificate at the time of vendor registration.

The benefits mentioned in (1) to (3) above shall be available only to those items approved during the registration process and subsequent updates in registration up to the date of submission of this tender.

The tender fee paid against the particular tender shall not be refunded / transferred /adjusted at all.

XXXV PRE-BID MEETING:

- 1) The bidder or its official representative is invited to attend pre-bid meeting(s) which will take place at the place, date and time designated in the Bidding Data.
 - 2) The purpose of the pre-bid meeting(s) will be to present the salient features of the bidding documents to the bidders, including the bid submittal requirements, the Conditions of Contract (including payment terms and conditions), the technical features of the project, and to clarify issues and to answer questions on any matter that may be raised by the bidders.
 - 3) The bidder is advised to visit the Site and study the bid document thoroughly, and is requested to submit any questions in writing or by fax, to reach the Employer not later than one week before the pre-bid meeting.
- A. Minutes of the meetings, including the text of the questions raised and the responses given will be transmitted without delay to all the prospective bidders through the website <https://etender.mahadiscom.in/eatApp/>. Any modification of the bidding documents listed which may become necessary as a result of the pre-bid meetings shall be made by the Purchaser exclusively through the issue of an Addendum pursuant to Clause and not through the minutes of the pre-bid meetings.
- 4) Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder. Nevertheless, senior representatives of the bidders are strongly encouraged to participate in the pre-bid meeting to help ensure that they fully understand the key concerns of the Employer and the Employer's requirements.

XXXVI CLARIFICATION ON DEVIATIONS:

The purchaser, if necessary, shall obtain clarifications on deviations within 2 working days by requesting for such information from any or all the bidders in writing, as may be necessary.

The same should be submitted online on or before the due time and date of submission of Deviation Bid. The clarification shall be opened online on due time and date of opening of Deviation Bid.

The Schedule for submission and opening of Deviation Bid shall be communicated by auto generated e-mail of the e-tender website.

CERTIFICATE:

I/We agree to supply the materials at the rates herein tendered by me / us subject to the conditions of tender and supply in Annexure 'A' of this tender which I/We have carefully read and which I/we have thoroughly understood and to which I/we agree. I/we hereby agree to keep this offer open up to the date mentioned in tender details and shall be bound by communication of acceptance dispatched within the validity period.

Seal & Signature of bidder

(SECTION II)**ANNEXURE 'A'****CONDITIONS OF TENDER AND SUPPLY****1) EFFECT OF CONTRACT:**

The contract shall be considered as having come in to force and shall be in operation for a period of 3 months from the date of Notification of Award. The bidder whose offer is accepted is hereinafter called "the supplier".

2) QUALITY OF SUPPLIES:

All materials supplied shall be strictly as per specification laid down by MSEDCL and in accordance with the approved standard Guaranteed Technical Particulars (GTP), drawings and type test reports.

ORDER QUANTITY, DELIVERY SCHEDULE AND QUALITY TESTING:

- a. The L.O.A. will be issued for entire ordered quantity and same shall be considered as release order for entire quantity.
- b. The firm should offer the delivery as under:
Minimum 10% of ordered quantity within 2 months from date of order & balance quantity in subsequent month.
- c. The sample meters drawn from first lot and subsequent lot shall be sent for type test to NABL lab for Quality Testing.

In case of failure of sample meters drawn from supplied lot at NABL lab the action attracts as per following conditions:

I. Failure of sample in 1st lot in type tests (Quality Testing).

- i. Supplier shall have to replace the full quantity of the respective inspected lot supplied to various Stores and lying unused at Stores.
- ii. For the quantity already accepted against the order and used, deduction in price of 15% of the value of material supplied shall be made.
- iii. The balance ordered quantity shall stand cancelled.

II. Failure of sample in any of the Subsequent lot in type tests (Quality Testing).

- i. The quantity lying unused at various Stores shall be rejected.
- ii. For the quantity already accepted against the order and used, deduction in price of 15% of the value of material supplied shall be made.
- iii. Balance quantity against the order including the rejected quantity shall be cancelled.

3) MATERIAL AND COMPONENTS:

The material and components not specifically stated in this specification but which are necessary for satisfactory operation of the equipment / items specified, shall be deemed to be included unless specifically excluded and shall be supplied without any extra cost.

4) ACCEPTANCE OF SUPPLIES / INSPECTION:

- i) The supplier shall normally offer at a time, the entire quantity required to be delivered every month as per the delivery schedule indicated at Annexure 'B' of A/T for the purpose of inspection by the Purchaser.

Time being the essence of contract; the supplier shall strictly maintain the monthly delivery schedule.

- ii) Materials shall be inspected by the Purchaser's Executive Engineer / or the representative authorized by the Purchaser before dispatch. An intimation in the prescribed Proforma about the date on which materials shall be ready for inspection, indicating quantity, shall have to be given to the Executive Engineer / or the representative authorized by the Purchaser before dispatch so as to reach him 10 working days in advance, failing which, the supplier shall be responsible for delay in delivery on account of inspection.

The intimation in the prescribed proforma (Inspection call) shall be forwarded through online inspection portal (<https://mip.mahadiscom.in/InspectionPortal/>) and on e-mail id cemmcmsedcl@gmail.com. Inspection calls sent on any other e-mail id than specified above not furnished through online inspection portal, shall not be entertained and the supplier shall be responsible for delay in delivery on account of inspection.

On receipt of such intimation, the materials shall be inspected within 10 working days. The materials shall be dispatched only after inspection and approval of same by the Inspector. The inspection approval letter shall be valid for a period of 30 days from the date of issue of letter to enable the supplier pack the material and arrange transportation thereof so that material should be reached at the respective consignee within scheduled delivery period.

After this period of 30 days, the validity of this inspection approval letter will lapse. If the material is not reached within scheduled delivery period to respective consignees, the approval of purchaser is to be sought by the supplier for revalidation of inspection approval letter at the sole discretion of MSEDCL.

For quantity supplied beyond contractual delivery period, negative price variation and statutory variations shall be applicable. However, the positive price variation and statutory variations for quantity supplied beyond contractual delivery period shall not be allowed unless the delayed delivery is attributed to MSEDCL.

- iii) The supplier shall notify the names of the consignees as per DI, to whom the inspected lot would be dispatched. The supplier shall get the copies of inspection approval letter together with witness certificate duly signed by the concerned Inspecting Officer IN BLUE INK only and also mention reference or inspection approval letter on the challan / invoice, failing which any delay occurred in getting the S.R. Notes from the consignees would be solely to supplier's account. The inspection report shall be filled in online on the same day by the Inspector from the site on MSEDCL web portal after the inspection.
- iv) Factory address, from which the bidder has to supply the material, shall be as indicated in the latest approved on line vendor registration form on e-tendering through which the bidder has submitted the offer.
- v) The supplier shall offer inspection call intimation of readiness of material as per the monthly schedule only. In the event, during the inspection by the Purchaser's Inspecting Officer, if it is observed that the quantity actually offered for inspection is less than the quantity indicated for inspection in the inspection call, the Purchaser shall be entitled to recover from the supplier, the actual expenses incurred for

arranging the inspection, and the supplier shall not dispute the amount to be recovered.

- vi) The supplier shall submit the test certificates / reports from any NABL approved laboratory or the laboratory of his own for the respective quantity of material, before dispatch. The material shall not be dispatched unless and until the test certificates are approved by the Purchaser.
- vii) All the necessary help shall be extended by the supplier to the authorized representative of the Purchaser to carry out testing of equipment / materials.
- viii) MSEDCL may issue the dispatch instructions (DI) to deliver the ordered quantity to the bidders in Maharashtra within same districts of factory location of the supplier. However, it will not be binding on the MSEDCL; supplier has to deliver the material in other districts as per MSEDCL requirement. Further outside Maharashtra bidders have to deliver the material as per MSEDCL requirement to the designated consignee.
- ix) MSEDCL on its sole discretion may get material inspected and tested by third party NABL lab.

B) RANDOM SAMPLE TESTING:

As per technical specifications of Portable Electronic Reference Standard Sub (ERSS) Meter for testing of LT and HT consumers.

5) RIGHT TO CARRY OUT INSPECTION DURING MANUFACTURING:

The Purchaser at its option, will inspect the material ordered during its process of manufacturing including the inspection of raw materials and will request the supplier to carry out such tests as may be necessary to ensure proper quality of the material. The samples of components of the material shall be subject to quality check by the inspecting officer during manufacturing.

6) RIGHT TO REVISE DESPATCH INSTRUCTIONS, DELIVERY SCHEDULE AND TO DEFER SUPPLIES:

- i) The Purchaser reserves its right to revise the dispatch instructions issued along with the order, at the time of giving final clearance for dispatch after inspection of the material. If such change in destination is not intimated at the time of inspection approval or waiver of inspection, The supplier shall dispatch the material as per the dispatch instruction in accordance with A/T. indicated by him in the inspection call letter.
- ii) The Purchaser reserves its right to change the delivery schedule of the contract either by reducing the monthly lot up to 60% of the agreed lot or by increasing the same up to 120% of the agreed lot with prior two months' notice and the Purchaser shall not be liable to pay any compensation/damages on account of such change in delivery schedule.
- iii) The Purchaser reserves its right to defer the balance supply to be received against the order by giving two months' notice for a maximum period of 6 months. In such an event, the delivery period for the deferred material shall be deemed to be extended proportionate to the period of deferment and the Purchaser shall not be liable to pay any compensation/ damages on account of such deferment of deliveries.

7) WAGON LOADS / TRUCK LOADS:

Quantity to be dispatched to consignee should be minimum in two full truck loads and may be part load as per the Purchaser's requirements may not necessarily be in full wagon load / truck load and may be part load as per the Purchaser's requirement.

8) ROAD TRANSPORT:

In case the supplier prefers to dispatch the materials by road transport at his risk and cost and without any extra cost to the Purchaser, the materials shall be accepted only during office hours on working days. The supplier should ensure that the goods reach the stores in first half so as to arrange their unloading during office hours, failing which, the Purchaser shall not be liable for delay in unloading and for inconvenience caused to the transport contractor in the form of detention etc. Unloading at stores shall be arranged by the consignee.

9) DESPATCH INTIMATION:

The supplier shall inform by e-mail to the consignee details of dispatch along with e-way bill receipt in hard & soft format giving RR / LR No., Wagon / Truck No., Type of wagon, craneable consignment or otherwise, total value of consignment, etc. to facilitate the consignee to arrange for clearance of goods on cemmcmstedcl@gmail.com.

10) BILL OF MATERIALS:

The supplier shall furnish bill of materials for each type of equipment / material offered which should be consistent with the drawing, specification and guaranteed technical particulars. The copies of the bill of materials should always be enclosed along with the bill submitted by the supplier for payment wherein he should specifically mention the materials / components dispatched out of the bill of materials, if the equipment is not sent in totality. Where the equipment / material to be supplied consist of more than one component, the supplier claiming payment for equipment / materials shall certify that all components of the equipment / material have been supplied in full for the quantity indicated in the invoice. Part payment shall not be allowed.

11) PACKING LIST:

Each package shall contain, in waterproof cover, the detailed list indicating the order reference, date, list of content and reference to the approved bill of materials. Each item contained in the package shall be described sufficiently to enable identification of the quantity, weight etc. There should not be any alteration in the packing list incorporated in the order, soft copy of the packing list should be sent to all the consignees and hard copy to G.M. (F&A-SB) should be enclosed with the bills along with other documents.

12) REPLACEMENT OF GOODS LOST, BROKEN OR DAMAGED:

Notwithstanding anything herein contained, the supplier undertakes to be responsible for the safe arrival of the materials in good condition and without any loss or damage at the final destination and until the same be actually delivered to and received by the Purchaser at its stores or other place of final destination and for this purpose, materials carried by railways or other carrier shall be deemed to be so carried at the risk of the supplier. In case of transit damage / shortages, the payment shall be made only for the quantity received in good and working condition and the consignee shall lodge claims with carriers and transfer the same to the supplier with all necessary documents for settlement of the same with carriers at the supplier's end. The transit damages / shortages / losses reported by the

consignee shall be repaired / replaced by the supplier duly inspected, free of cost, within one month from the date of such intimation of breakages / shortages / losses without waiting for settlement of the claims from carrier or insurance co. etc.

13) REPLACEMENT OF REJECTED MATERIALS:

If, on inspection at the final destination, the Purchaser discovers any loss in the materials supplied or that they are received in damaged condition or that in the opinion of the Purchaser, they are not of the contracted quality or specification, the Purchaser shall be entitled (notwithstanding that the property in the materials shall have passed on to the Purchaser) to refuse to accept or reject the materials altogether and claim damages or cancel the contract and buy its requirements from any of its suppliers stipulating earliest possible delivery and in accordance with its tender system against the supplier and recover the damages if any, from the supplier from any outstanding sums that may be due to the supplier from the Purchaser against this contract or against any of the contract entered into with the supplier, without prejudice to other rights and remedies available to it in law and reserving always to itself the right to forfeit the performance deposit placed by the supplier for the due fulfillment of the contract.

In case the stores / materials are found not in accordance with the prescribed specifications and / or the approved sample, the same will be rejected and the supplier shall replace the rejected stores / materials free of cost within one month from the date of intimation. The replacement of goods shall also have to be got inspected as per inspection clause. Further if the stores / equipment supplied becomes incomplete on account of either rejection or short supply of its components, the complete cost of the stores / equipment shall be recovered from supplier's bills without notice.

14) MATERIAL DESPATCHED AND PROGRAMME:

A statement as under indicating dispatches effected during every month shall be furnished to this office along with the programme of manufacturing / dispatches during the following two months. In the event of no dispatch, the statement shall contain nil information.

MONTHLY STATEMENT:

- I. Name of Supplier:
- II. Reporting Month:

Sr. No.	A/T No.	Material	Item No. as Per A/T	Consignee	RR/LR Delivery Challan No. With date	Date of Actual Receipt of Material	Qty. Dispatched Between 26 th of Preceding month and 25 th of the Reporting month	Programme of supply during the next 2 months
1	2	3	4	5	6	7	8	9

Consolidated details of the above information shall be furnished to office of the Chief Engineer (M.M. Dept.) after completing the supplies of a particular order. The copy of this consolidated information shall invariably be forwarded to the respective consignees, failing which; security deposit paid against the contract shall not be released.

15) MATERIAL RECEIPT & SUBMISSION OF BILLS AT CONSIGNEE:

On receipt of material at destination of consignee as per DI, Additional Executive Engineer (MM Dept.) of respective store should ensure the receipt of material in good & healthy condition. While receiving the material, store in charge should ensure the receipt of material as per Dispatch Instructions issued by MM Dept. Further, the store in charge should ensure the receipt of original & scan copies of following documents:

- a) Tax invoice.
- b) Detailed packing list.
- c) Bill of Material.
- d) Delivery challan.
- e) E-way bill receipt.
- f) Dispatch document (RR/LR).

On confirmation & validity of above documents, store in charge will generate Provisional SR Note through ERP system immediately for receipt of material at stores thereof.

Where required by the Purchaser, the successful bidder must send the operation and maintenance manuals, test certificates, drawings etc. for the material ordered. These should be sent immediately after dispatch of material and a statement to that effect should be made in the invoice.

After successful RST of supplied each lot, store in charge will generate final SR note through ERP system within 7 working days from receipt of material at stores.

16) PAYMENT OF BILLS:**(a) Terms of payment:**

- a. The Bidder shall be paid 100% payment within 60 days from the date of receipt of material in good condition, against Stores Receipt Notes (S.R. Notes) issued by the concerned consignee, against delivered quantity (truck load) of meters instead of lot wise quantity.
- b. However, in respect of only those entities which qualify for 45 days payment period under the Micro, Small and Medium Enterprises Development Act, 2006, 100% payment of the Contract price will be paid within 45 days from the date of receipt of material at Consignee Store (truck load) in good condition, against Stores Receipt Notes (S.R. Notes) issued by the concerned consignee.
- c. In respect of Micro, Small and Medium Enterprises, best efforts will be made for payment within 45 days from date of submission of invoice along with requisite documents after the delivery of entire lot. However, no claim for interest will be entertained in case of delay in payment beyond 45 days. The Micro, Small and Medium Enterprises who are ready to accept this payment term may only quote. No dispute in this regard will be entertained. After completion of order, the claims of whatsoever nature lodged after 30 days from the last date of payment will not be entertained.
- d. The payment shall be effected by A/C payee cheques / RTGS. Following documents as required in terms of order, will have to be forwarded to the G.M. (F&A-SB), Maharashtra State Electricity Distribution Co. Ltd., Prakashgad, Station

Road, Bandra (East), Mumbai - 400 051 along with bills in triplicate to facilitate payment with a copy to the Chief Engineer of respective Zone.

- (i) Invoice (on the basis of rates accepted as per A/T) issued in accordance with the provisions of GST Invoice Rules.
- (ii) Supplementary Invoice / Bill for price variation claim if applicable with the relevant documents in support of P.V. claim.
- (iii) Inspection and Test Certificate approval.
- (iv) E Way Bill
- (v) Copy of Acceptance letter of Permanent Bank Guarantee / Security Deposit Certificate.
- (vi) Packing list.
- (vii) Approved Bill of Material.
- (viii) Certificate of having dispatched Operation & Maintenance Manual, copies of Test Certificates and approved drawings / Bill of Material to consignees wherever applicable.

The supplier shall forward the original R.R. / L.R. direct to the consignee along with relevant documents. The original bill shall be forwarded to The G.M. (F&A-SB), MSEDCL, Prakashgad, Bandra (E) and marked ORIGINAL. The bill should indicate the GST registration no. and date held by him under the GST Law. The Purchaser shall not be responsible for delay in payment of bills if the supplier fails to comply with any of the above requirements.

Supplier's copy of S.R. Note will be forwarded by the consignees through their respective Common Stores for supplier's record towards acknowledgement of receipt of material. Accounts copy of S.R. Note will be forwarded by the respective Common Stores to G.M. (F&A-SB) for payment.

Wherever the payment is to be effected against Material Receipt Intimation (MRI) and if the supplier fails to forward the documents such as inspection report, bill of materials, approved drawings, etc. wherever required along with the invoice to the respective consignees and no payment shall be made against the said MRI.

The whole of the first lot as well as monthly lot when delivered in installments, the date of delivery and due date of payment will be counted after the receipt of the entire lot.

Any amount more than Rs. One Lakh can be transferred to the bank Account of the supplier electronically. For this RTGS (Real Time Gross Settlement) provision, following information is to be furnished by the bidder in the required documents of the online offer.

1. Name of the Company
2. Name of the Bank & Branch with address where the amount is to be transferred.
3. Current Account Number (15 digits)
4. RTGS No. / (IFSC Code) (Indian Financial Security Code)
5. MICR Code of the Bank
6. Company's email ID
7. Contact Name & Telephone No.

17) TAXES:

- (A) Notwithstanding the fact that contract price is inclusive of GST:
- (i) GST shall be paid at actual on the basis of due date of delivery or actual date of supply whichever is lower against documentary evidence.
 - (ii) Variation in GST on bought out items shall not be entertained.
- (B) Structural changes in and due to 'Input Tax Credit' Scheme: -
- (i) In the event of any structural change occurred in the Input Tax Credit Scheme after the date of submission of the tender till the currency of the contract, the benefit out of such change shall be passed on to the purchaser.
 - (ii) In the event of 'Input Tax Credit' being extended by the GST Law which were otherwise ineligible for claiming Input tax credit thereof, the seller should advise the purchaser about the additional benefits accrued or any variation thereof, through a letter containing such details and computation within such time as may be agreed between both the parties i.e. Supplier & MSEDCL.

18) DEDUCTION:

Any amount or amounts which become payable by the supplier to the purchaser under a particular contract, shall be deducted by the purchaser from any amount/amounts due or becoming due to the supplier under the same or any other contract and shall be adjusted against dues to the Purchaser.

19) GUARANTEE:

Material offered shall be guaranteed for a period of 66 months from the date of receipt at the consignee's Stores Centre or 60 months from the date of commissioning, whichever is earlier. In case of failure of material within the above guarantee period, tenderer shall make available other new conditioned / repaired material, free of cost at stores for replacement within 45 days from the date of intimation from stores and lift the failed material for repair rejected material after replacement. For this purpose, bidder shall maintain spare stock in adequate quantity of ordered ratings of material. If the defective material is not replaced / repaired within the specified period as above, the Maharashtra State Electricity Distribution Company Ltd. shall retain an equivalent end cost of material plus 15% supervision charges from any of the bills of the supplier or encashing available performance bank guarantee submitted against guarantee period or through any available sources, till the return of the equipment. No interest will be paid on the amount so retained / recovered. In case of material / item not returned duly repaired within 45 days, penalty shall be imposed @ 0.5% per week or part thereof maximum up to 10% of the cost of undelivered material / equipment beyond specified time limit. In case of material / item not returned duly repaired within 5 months, total cost of the material / item along with penalty will be adjusted / recovered from the pending bills of the supplier or encashing available performance bank guarantee submitted against guarantee period or through any available sources with MSEDCL.

The clause itself shall be the notice to the supplier about encashment of PBG to adhere to the timelines.

The outage period, i.e. the period from the date of failure till unit is repaired / replaced shall not be counted for arriving at the guarantee period.

Further, in case of repeated failures of equipment's / material, the Purchaser reserves the right to debar / disqualify the supplier for future tenders / orders irrespective of grounds for debarring in MSEDCL debar policy.

20) LIFTING OF REJECTED/DAMAGED MATERIALS FROM STORES:

- (a) On failure to replace or repair the transit damaged or rejected material within one month from the date of intimation as required under tender, it shall be deemed to have concluded that such material is finally rejected. The damaged / rejected material shall be lifted by the supplier within 30 days from the date of receipt of notice to that effect from the concerned consignee on reimbursement to the Purchaser of the cost of the material / equipment, if any, already paid in terms of payment clause in the contract and actual expenses incurred by the consignee towards handling, demurrage / wharfage / undercharges, freight, insurance premium etc. The Purchaser shall not be responsible in any case for the loss, destruction, damage, deterioration of the material after expiry of the said 30 days period.
- (b) If the supplier fails to lift the material within this period, the material will remain with the Purchaser at the cost and risk of the supplier. Supplier shall, therefore, be liable to pay ground rent @ 0.1% (Plus GST as may be applicable) per day of purchase cost of the material to be lifted from the date of intimation of rejection till the actual date of lifting.
- (c) The Purchaser will give 7 days notice for lifting of rejected material and if not lifted, will be also free to Scrap / dispose of such material, after the period of said 37 days, by Public auction /Tender notice/ Destruction as may be deemed fit and storage charges @ 0.1 % (Plus GST as may be applicable) per day of purchase cost will be recovered from the date of intimation of rejection of materials till the date of realization of the sale amount/physical removal of the material besides the actual expenses incurred as referred to at (a) above. The amount received from the sale of scrap/rejected material will be adjusted in the penalty.

Notwithstanding what is contended in the foregoing clauses, the supplier shall be liable to pay the Purchaser the cost and expenses incurred by the Purchaser, if any, including ground rent and the same shall be appropriated and recovered from the sale proceeds.

21) LIQUIDATED DAMAGES FOR LATE DELIVERY:

In case the materials are not delivered within the period stipulated in the order, the supplier shall be liable to pay at the discretion of the competent authority of the Purchaser, the liquidated damages to the Purchaser @ 1% per week or part of week on the value of delayed material / unexecuted quantity plus taxes as applicable, if any on the price subject to a maximum of cumulative ceiling of 10% reckoned on the contract value of such complete portion or section of the plant, equipment or material delayed and also the portion supplied which could not be brought into commission due to any part thereof not having been delivered in time. In addition to above if bidder fails to supply the material within contractual delivery period continuously for 3 lots, then the order shall be liable for cancellation.

Due consideration may be given in the levy of liquidated damages for reasons absolutely beyond the control of the supplier, for which documentary evidence shall be produced to the satisfaction of the competent authority of the Purchaser.

The Purchaser shall be entitled to deduct/recover the amount of liquidated damages from the current bill payable to the supplier or any other amount due or payable to him against this or any other contract.

For computing the liquidated damages for delayed supplies, the date of railway receipt or the date of receipt of materials at stores in case of road transport, shall be the date of delivery.

In case the Purchaser does not arrange for inspection of material within 10 days from the date of receipt of inspection call in its office wherever applicable, the period of more than 10 days will not be considered for levy of liquidated damages. For computing the period taken for inspection in such cases, the relevant date mentioned in the inspection certificate issued by the inspecting officer would be considered.

22) ORDER PLACED ON TIME PREFERENCE BASIS (WHEREVER APPLICABLE):

In case of order on time preference basis (i.e. orders given at higher rate on delivery period considerations only) if order is given at higher rate of L-2 (or L-3 etc.), then the payment at higher rates will be made provided the firm makes supplies within the stipulated time period. In case of delay in supplies, the payment will be made at the rates offered by L-1. In addition, Clause No. 21 above for Liquidated Damages for late delivery will also be applicable. However, the quantity allocation for order under this clause shall be at the sole discretion of MSEDCL & the specified quantity allocation for this tender will not be applicable in this case.

23) FORCE MAJEURE CLAUSE:

If, at any time, during the continuance of this contract the performance in whole or in part by either party of any obligation under this contract shall be prevented or delayed by reason of any war, hostility, acts of the public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restriction, strikes, lock-outs or acts of God (hereinafter referred to as "events"), provided notice of happening of any such eventuality is given by either party to the other within 21 days from the date of occurrence thereof, neither party shall by reason of such event, be entitled to terminate this contract nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance; and deliveries under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, and the decision of the purchasing officer as to whether the deliveries have been so resumed or not, shall be final and conclusive, provided further that if the performance in whole or part of any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 60 days, either party may at its option terminate the contract PROVIDED ALSO that if the contract is terminated under this clause, the purchaser shall be at liberty to take over from the contractor at a price to be fixed by the purchasing Officer which shall be final all unused, undamaged and acceptable materials, bought out components and stores in course of manufacture in the possession of the contractor at the time of such termination or such portion thereof as the purchaser may deem fit accepting such material, bought out components and stores as the contractor may with the concurrence of the purchaser elect to retain.

24) ACCEPTANCE OF LOWER FORD RATE OFFERED IN SUBSEQUENT TENDER :

During contractual delivery period of supply , the quoted rates with PV / without PV shall remain the same , however for same specification of material if the rates will receive lower in another subsequent tender in extended period of contract then it is binding on the supplier to supply the same material at lower rate for balance quantity of material i.e. in case if price bid of next subsequent tender of similar technical specification is opened and FORD rate found lower

than the ongoing contracts this FORD rate shall be made applicable for the balance quantity beyond contractual delivery period. Further the purchaser reserves the right to allow the supplier to deliver the quantity or otherwise beyond the contractual delivery period.

However other stipulations of clause No. 23 of Section-II i.e. Annexure-A will remain unchanged.

25) PERFORMANCE OF CONTRACT:

The Purchaser will not be in any way liable for non-performance either in whole or in part of any contract or for any delay in performance thereof in consequence of strikes, shortage, non-availability of raw materials, combination of labour or workmen or lockout, breakdown or accident to machinery or accidents of whatever nature, failure on the part of the railways to supply sufficient wagons to carry essential raw materials etc. and finished products from the stores, subject to the provision and stipulation made in condition No. 21 as stated above i.e. Liquidated damages for late delivery.

26) CONTRACT PERFORMANCE DEPOSIT:

26.1 The supplier will have to furnish contract performance deposit as per Annexure - N in the form of unconditional & irrevocable BG within 15 days from the date of issue of LoA, as mentioned in Clause 26.2.

26.2 The contract performance deposit shall be an amount equal to 5% of the contract value in two installments.

First performance deposit shall be equal to 2.5% of the contract value in the form of unconditional & irrevocable BG within 15 days from the date of issue of LoA & second performance deposit shall be equal to 2.5% of the contract value in the form of unconditional & irrevocable BG within 15 days after 6 months from the date of issue of LoA.

In case contract period is less than or 6 months, the supplier will have to furnish 1st installment equal to 2.5% of the contract value in the form of unconditional & irrevocable BG within 15 days from the date of issue of LoA & second performance deposit equal to 2.5% of the contract value in the form of unconditional & irrevocable BG before 2 months from the expiry of contract period.

26.3 The contract performance deposit shall be refunded within 90 days from the date of expiry of the guarantee period of the equipment supplied. The purchaser shall not be liable to pay any interest or compensation to the contractor for retaining the deposit after the end of the said period.

26.4 The contract performance deposit is intended to secure the performance of the contract for guarantee period of the equipment supplied. However, it is not to be construed as limiting the damages stipulated in other clauses of the contract.

27) POWER OF ATTORNEY:

It will be obligatory on the supplier to communicate the revocation of Power of Attorney, if any, after submission of offer till the execution of contract failing which the act/s & action done by the agent/representative shall be deemed to be the valid act/s & action of the bidder/supplier.

28) SETTLEMENT OF DISPUTE:

Permanent Dispute Resolution Committee (PDRC) comprises of Chief Engineer (MM Dept.), one member of Accounts Department and representative of supplier will resolve the dispute arise if any.

29) JURISDICTION:

Any disputes or difference arising under, out of or in connection with this tender or contract if concluded, shall be subject to the exclusive jurisdiction of the “Courts” in Mumbai.

30) TERMINATION OF CONTRACT

- 1) The decision of the Purchaser shall be final as regards the acceptability of the stores supplied by the supplier and the Purchaser shall not be required to give any reason in writing or otherwise at any time for the rejection of the stores/materials.
- 2) In case the contractor/supplier fails to deliver the stores/material or any consignment thereof within the contracted period of delivery or in case the stores/materials are found not in accordance with the prescribed specification and the performance of the supplied material is not found satisfactory, the Purchaser shall exercise in discretionary power either,
 - a) to purchase from elsewhere, after giving 15 days due notice to the contractor, at the risk of contractor, such stores/material not so delivered or other of similar description, without cancelling the contract in respect of consignment not yet due for delivery,
 - OR
 - b) to cancel the contract reserving Purchaser’s right to recover damages Plus GST as may be applicable.
 - c) notwithstanding that the powers under (a) and (b) referred above are in addition to the rights and remedy available to the Purchaser under the General Law of India relating to contract.
 - d) Purchaser reserves right to recover damages against risk purchase or 10% value of non-supplied material plus applicable taxes, if any whichever is higher.

In the event of risk purchase of stores of similar description, the option of the Purchaser shall be final. In the event of action taken under (a) or (b) above, the supplier shall be liable for any loss which the Purchaser may sustain on that account but the supplier shall not be entitled to any saving on such purchases made against default.

- 3) Further contract can be terminated in case of sub-standard /poor quality material.

31) DEBAR OF MANUFACTURER FROM PARTICIPATION IN TENDERS OF MSEDCL:

The Policy & Procedure for Debarring of Agency from Business Dealings with MSEDCL is provided on MSEDCL website link (<https://www.mahadiscom.in/supplier/wp-content/uploads/2018/06/Final-Booklet-Single-Page.pdf>) and forms the parts of tender document.

In case of failure on part of successful Bidder at any stage of tendering and execution, the Bidder may be debarred as per MSEDCL debar policy.

32) TAX DEDUCTED AT SOURCE:

The purchaser shall deduct tax at source in accordance with the provisions of the laws as and when the same is notified.

33) ADDITIONAL TERMS AND CONDITIONS FOR FOREIGN BIDDERS / MANUFACTURERS:-

Other terms and conditions applicable to the foreign bidders/ manufacturers are as under:

a) Offer:

The offer shall be submitted by foreign bidder/manufacturer directly or through their authorized Assignee/Nominee. However the order shall be placed on the said foreign bidder/manufacturer. In case offer is from Authorized Assignee/Nominee in India, the undertaking as per Annexure F-II for appointment of Authorized Assignee/Nominee shall be submitted by foreign bidder/manufacturer.

b) Taxes and Duties:

The foreign supplier shall be solely responsible for payments of all expenses incurred outside India and payments of charges incurred in India up to the destination store of MSEDCL including any or all taxes, fees or other charges and related expenditure for Assessable Custom Duty, Transport cost from port of entry to Destination Stores, inland insurance, other incidental charges, service tax, wharfage, demurrages, warehousing charges and so on imposed by any statutory and/or Governmental Authority for importing meters.

c) Custom Clearance:

The supplier shall be solely responsible for custom clearance either by its own or through its authorized Assignee/Nominee. The supplier shall ensure the availability of required documents for speedy custom clearance. If the cargo clearance gets delayed on account of non availability of required documents or any other reason the damages if any shall be borne by the supplier. MSEDCL will provide necessary documents for custom clearance in accordance with prevailing rules as and when requested by successful bidder.

d) The quantity to be delivered to the consignee i.e. store destination may not be necessarily in full wagon load/ truck load/container load and it may be part load as per purchasers requirement.

e) Terms of Payment:

Standard payment clause no. 16 of Section-II (Annexure-A) shall be applicable. However cheques may be drawn in favour of Assignee/Nominee if desired by the foreign supplier.

f) Pre dispatch inspections of the material at the Factory shall at the discretion of the Purchaser.

g) Earnest Money Deposit (EMD):

Earnest Money Deposit as per Clause No. XIX of invitation to tender and instruction to Bidders (Section-I) shall be paid by foreign bidders/ manufacturers or their authorized Assignee/Nominee.

h) Contract Performance Deposit :

Contract Performance Deposit clause is applicable as per Clause (26) of Section-II (Annexure-'A') for foreign bidders/ manufacturers.

All other terms and conditions, technical specifications of tender document shall be applicable. Wherever above conditions overlap with conditions of tender document then conditions modified to the extent above shall prevail.

ANNEXURE - "B"

QUANTITY, PRICE AND DELIVERY PERIOD

ANNEXURE - "B" to be submitted online against commercial bid; attached separately

ANNEXURE 'C-I'

[To be submitted later on as per as per Clause XVIII(B) of Instructions]
CONFIRMATION FOR ACCEPTING ORDER BY MATCHING RATES WITH LOWEST
ACCEPTABLE BIDDER

APPLICABLE FOR INDUSTRIAL UNITS FROM MAHARASHTRA ONLY Marketing Assistance and Purchase Preference to the units from Maharashtra (refer Clause XVIII of Instructions to Bidders):-

1. In case your unit is located in Maharashtra and the
(a) lowest acceptable rate received against the tender is from the unit outside Maharashtra, please confirm whether you are agreeable to accept order at that lowest acceptable rate limited to 50% (fifty percent) of our requirement.

APPLICABLE FOR ALL BIDDERS INCLUDING THOSE
ELIGIBLE UNDER THE ABOVE CLAUSES:

1. Please confirm whether you are agreeable to accept
(b) order at the lowest acceptable rate received against the tender.

[Industrial units from Maharashtra can give option under 1(b) above for balance quantity]

Note:-

1. If the bidder gives the above confirmation for the quantity less than as indicated in Clause X(iii) of the Instructions to the Bidders, then the above confirmation shall not be acceptable.
2. Bidders may confirm matching for one or more items originally tendered.
3. Any withdrawal of confirmation for order by matching rate within validity of offer will render the entire offer invalid and shall be summarily rejected and Earnest Money Deposit shall stand forfeited.
4. A bidder will not be entitled to the benefit of offers by matching rates and will not be considered for orders if his original offer is rejected on the ground of ambiguity or because of not accepting/noncompliance of the terms & conditions of the tender.
5. In the above confirmation, if the bidder indicates any rate, then the above confirmation given by the bidder will not be considered as valid.

ANNEXURE- 'D'

TECHNICAL SPECIFICATION FOR
As indicated in E-Tendering website

ANNEXURE-E
(On bidders' letter head)

CONSENT FOR SUPPLYING THE MATERIAL AS PER MSEDCL STANDARD TECHNICAL SPECIFICATIONS.

I/We, have understood and checked the tender documents for supply of various types of Portable Electronic Reference Standard Sub (ERSS) Meter for testing of LT and HT consumers and have not found any errors in them.

We have submitted price bids for Tender No. MMD/T-NSC-12/0523 for supply of various types of Portable Electronic Reference Standard Sub (ERSS) Meter for testing of LT and HT consumers.

We hereby declare and confirm that we accept the MSEDCL STANDARD TECHNICAL SPECIFICATIONS and agree to supply the material as per these STANDARD TECHNICAL SPECIFICATIONS if we are awarded the supply order.

In view of above, I/we have not filled the online GTP.

I/we am/ are enclosing the Type Test Report details covering all the type tests as per relevant IS as below.

Sr. No.	Details of Tests as per IS:.....	Type Test Report No. & Date
(1)		
(2)		

Yours faithfully,

Signature & Seal of company,

In the capacity of duly authorized to sign bids for and on behalf of

Address:

ANNEXURE – ‘F-1’

“INDEMNITY BOND”

UNDERTAKING TO BE SUBMITTED BY THE PARENT COMPANY SITUATED ABROAD IN
CASE OF THE PARTICIPANT BIDDER WHO IS AN INDIAN BASED SUBSIDIARY ON
GENERAL STAMP OF RUPEES 200/-

The Chief Engineer (MMD),
Maharashtra State Electricity Distribution Co. Ltd.,
Prakashgad,
Bandra (E),
Mumbai – 400 051.

Sub: Undertaking against Tender ____ for procurement of _____.

Dear Sir:

We, M/s. _____ having registered office at _____ are the Parent Company of M/s. _____ who have participated against your tender no. _____ for procurement of _____.

We have carefully read and have thoroughly understood and agree to the terms and conditions of the subject tender.

We hereby undertake that in case of placement of order against the subject tender on our subsidiary company, M/s. _____, in the event of we accept all the responsibilities and liabilities for supply of quality meters as per specification of the tender and execution of the contract. We further hereby undertake that we shall be responsible for any liability arising out of the contract placed on M/s. _____ and to pay MSEDCL on demand the sum of rupees as per agreement in the event of any breach of condition of the purchase order, loss and damage of the material till expiry of guarantee period as stipulated in the order. Our liability here under shall not be impaired or discharged by extension of time or variation or alteration made with or without our knowledge or consent by or between the parties to the said contract. This undertaking shall be valid and binding on us upto and including the execution and guarantee period of the order and shall not be terminable by notice or change in the constitution of any of the companies. In case of any dispute arising out of or in connection with this tender or contract, if concluded, the same shall be subject to the exclusive jurisdiction of the “Court in Mumbai (India).”

Yours faithfully,

(Authorised Signatory)

For _____

ANNEXURE - 'F-2'

FORM OF AUTHORISED NOMINEE/ASSIGNEE

(To be submitted on the letter head of the foreign Bidder/Manufacturer)

Date:

To,
The Chief Engineer (MMD),
Maharashtra State Electricity Distribution Co. Ltd.
1st Floor, Prakashgad, Plot No. G-9,
Bandra (East) Mumbai - 400 051.
India

Subject:- Notification of invitation of bids against Tender No. -----
For supply of Static Energy Meters of foreign origin.

Dear Sir,

This has reference to the Tender No. ----- for supply of various types of Portable Electronic Reference Standard Sub (ERSS) Meter for testing of LT and HT consumers. We M/s. ----- (foreign Bidder/Manufacturer) authorize our Assignee/Nominee in India M/s. ----- to participate against Tender No. -----. We M/s. ----- (foreign Bidder/Manufacturer) hereby agree, confirm, adopt unconditionally to abide by the offer of M/s. ----- (Assignee/Nominee) for supply of Static Energy Meters.

Thanking you,

Your's Faithfully,

(Signature of the Authorized Signatory of foreign Bidder/Manufacturer)

(Name)

(Designation)

ANNEXURE – G

UNDERTAKING CUM INDEMNITY BOND FOR POLYCARBONATE ENCLOSURE

----- NOT APPLICABLE -----

Annexure - H

GUARANTEED TECHNICAL PARTICULARS

As indicated in E-Tendering GTP Parameter

Annexure- I

(On supplier's Letter Head)

I, certify that,

- a. The business dealings with our firm / agency M/s..... have not been debarred by any Ministry of GoI / GoM / state owned electricity distribution utility and still in force.

- b. The Directors, Proprietors, Partners, Employee(s) or owner of our firm / agency M/s..... have not been either jointly or severally guilty of malpractices in relation to its business dealings with the Government or MSEDCL during the last five years.

I hereby certify that I am duly authorized representative of M/s.----- whose name appears above my signature.

Bidders Name:

Authorized representative's signature:

Authorized representative's Name:

Seal of the company

Name and address of the Bidder

Date:

Annexure- J

(On MSEDCL Letter Head)

Dispatch Instructions

BY R. P. A. D. / ORD. POST /E-MAIL

(SAP CONTRACT No: -----)

To,

M/s. -----

Email: -----

Sub: Supply of ----- against A/T No. ----- dt. -----

Ref: Final Inspection Call letter No. ----- dt. -----.

(I.W. Regn. No. ----- dt. -----)

Your readiness of material letter no. dtd.....

Dear Sir,

With reference to the above, you are requested to dispatch as given below:

Sr. No.	Consigned to	Meant for Circle	Meant for Zone	Qty. in Nos.

Further, you are requested to contact concerned S.E. (O&M) Circle / E.E. (O&M) Division / Addl. E.E. (MM Section) before dispatching / unloading the above material.

This is issued without prejudice to all other terms and conditions of the order.

Yours faithfully,

Chief Engineer (M M Dept.)

Copy f.w.cs. to: The C.E., MSEDCL, -----.

Copy to:

The G.M. (F & A – SB), MSEDCL, Mumbai.

The E.E. (IW), MSEDCL, Mumbai.

The E.E. (O & M Division), MSEDCL, -----

The Addl.E.E. (MM Section), MSEDCL, -----

Annexure- K**List of Stores**

Sr. No.	Name of Stores	Address
1	Common Stores Ahmednagar	Nagar-Pune Road, Opp. Arti Hotel, Kedgaon, Ahmednagar.
2	Common Stores Airoli	Power House, Thane-Belapur Road, Airoli, Navi Mumbai.
3	Common Stores Akola	Major Store Babhulgaon NH No 6 Akola.
4	Common Stores Amravati	Major Store MSEDCL Power House, Mulshi Road, Amravati.
5	Common Stores Aurangabad	MIDC Plot No. J-13, Opp. Garware Stadium, Naregaon Phata, Chikhalthana, Aurangabad.
6	Common Stores Beed	Near 132 kV Sub-station, Idgah Nagar, Nalvandi Naka, Beed.
7	Common Stores Chandrapur	Near Vidyut Bhavan, Bagala Chaowk, Babu Peth, Chandrapur.
8	Common Stores Jalgaon	Old MIDC Area, Behind Ajanta Lawns, Ajanta Road, Aurangabad Highway, Jalgaon.
9	Common Stores Kalyan (Netivali)	MIDC Phase 1, Near Tata Power House, Kalyan - Dombivali Road
10	Common Stores Kamptee	Maldhakka Godown, Behind Railway Station Kamatee, Nagpur.
11	Common Stores Khamgaon	Manav Dharm Bld. Near 132 kV Sub-Station, Shegaon Road, Khamgaon, Dist. Buldhana.
12	Common Stores Kolhapur	Kaneri Math Road, A/P Gokulshirgaon, Tal. Karveer, Dist. Kolhapur.
13	Common Stores Kudal	Malwan Road, MIDC Pinguli-Nerur, Kudal, Sidhudurg.
14	Common Stores Latur	MIDC Plot No. P-21/P, In Front of Kirti Gold Oil Mill, Latur.
15	Common Stores Mulshi	Phursungi-Saswad Road, Near Overhead Bridge, Mulshi/ Phursungi, Dist. Pune.
16	Common Stores Nanded	Taroda Naka Main Road, Nanded.
17	Common Stores Nashik	Aringale Plot, Hanuman Nagar, Jail Road, Juna Saykheda Road, Panchak, Nasik.
18	Common Stores Osmanabad	Near MSEDCL Rest House, Tuljapur Road, Osmanabad.
19	Common Stores Palghar	Near 33/11 kV Sub-Station, MSEB Coloney, Boisar Road, Palghar.
20	Common Stores Parabhani	Old Power House Jintur Road, Parbhani.
21	Common Stores Ratnagiri	MIDC Area Mirjole, Kuwarbav, Ratnagiri.
22	Common Stores Sangli	Near Walchand Engineering College, Vishram Baug, Sangli.
23	Common Stores Satara	A/P Satara, Tal. Koregaon, Dist. Satara.
24	Common Stores Solapur	Plot No P-4, MIDC Chincholi, Behind Post Office, Solapur
25	Common Stores Tumsar	Near Power House, Nakaq Dongari Road, Old Bus Stop, Tumsar, Bhandara.
26	Common Stores Yavatmal	MIDC Lohara, Yavatmal.

ANNEXURE – M**BANK GUARANTEE FORMAT****EARNEST MONEY DEPOSIT BANK GUARANTEE AGAINST TENDER**

B.G. No. & DATE:

The Bank of _____(full address of Branch) hereby agree unequivocally and unconditionally to pay, at Mumbai within 48 hours, on demand in writing from the MAHARASHTRA STATE ELECTRICITY DISTRIBUTUION CO. LTD. (name of the company formerly known as M.S.E.B.) on behalf of M/s _____(Address as per MSEDCL REGISTRATION) who have tendered and/or contracted or may tender or contract hereafter for supply of materials. Equipments or services to the MAHARASHTRA STATE ELECTRICITY DISTRIBUTUION CO. LTD. against Tender No. ----- dated ----- total value of Tender is Rs. -----

This agreement shall be valid and binding on this Bank up to and including validity (date) and shall not be terminable by notice or any change in the constitution of the Bank or the firm of contractors or any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made given conceded or agreed with or without our knowledge or consent by or between parties to the said within written contract. The validity of this Bank Guarantee will be extended by us for the further period of six months, one month prior to its present validity period at the request of MAHARASHTRA STATE ELECTRICITY DISTRIBUTUION CO. LTD.(name of the company-formerly known as M.S.E.B.).

In case of any dispute arising out or it connection with the extension or encashment of Bank Guarantee, the Courts in Mumbai will have jurisdiction.

Our liability under this Guarantee is restricted to Rs.-----/- (Rupees----- only). Our Guarantee shall remain in force until (date). Unless a suit or action to enforce a claim under the guarantee is filed against us within six months from the aforesaid date, all your rights under the said guarantee shall be forfeited and we shall be relieved and discharged from all liability there under.

Place:

Date:

Sign-----

For-----

(Banker's Rubber Seal & Bank Code No. of signatory)

Please note that:

1. The value of non-judicial stamp paper for this Bank Guarantee is Rs.200/- should be purchased in the name of Guarantor Bank.
2. The Bank Guarantee should be furnished from any Scheduled Bank/Nationalized Bank.
3. Please state the full and complete postal address of the Bank undertaken the guarantee.
4. The Bank Guarantee may be valid as per terms and condition of A.T.
5. B.G. should be submitted along with covering letter of Bank.

ANNEXURE – N

BANK GUARANTEE FORMAT

FORM OF BANK GUARANTEE FOR THE PERFORMANCE OF THE EQUIPMENT

B.G. No. & Date:

This deed of Guarantee is made thisday of.....
By.....branch having at H.O. at..... (here in after called “the Surety” which expression shall where the context so admits include its permitted assign) in favour of MAHARASHTRA STATE ELECTRICITY DISTRIBUTUION COMPANY LTD. (name of the company formerly known as M.S.E.B.) being a government company formed as per the provisions of the Maharashtra Electricity Reforms Transfer Scheme. 2005 having its registration no. U40109 MH 2005 SGC 153645 (here in after called the “Creditor” which expression shall include its permitted assigns). WHERE AS M/s. (Name of Party)..... (Postal address as per A/T) have entered into a contract to supply (Name of Material) to the MAHARASHTRA STATE ELECTRICITY DISTRIBUTUION COMPANY LTD. (Name of the Company formerly known as M.S.E.B.). vide contract No.dtd.....on the terms and conditions in the said contract. (here in after for brevity sake called “the said contract”).

In accordance with terms of the said contract, the creditor has agreed to pay to M/s.....(Name of Party)..... the said sum representing the 5% of the total contract price for the Rs...../- and WHEREAS M/s. (Name of Party).....is required under the terms of contract to furnish a Bank Guarantee for Rs...../- (Rupees:.....Only) the said sum representing the 5 %price as given in the said contract.

The surety as he requests of M/s.(Name of Party).... has agreed to give this guarantee.

NOW THEREFORE THIS DEED WITNESS AS FOLLOWS:

1. In consideration of the creditor agreeing to make to the debtor at Mumbai the payment of Rs..... (Rupees.....only) being the value of 5% of the total contractprice as given in the said contract on supplying the complete material as per the contract by the debtor failing which the surety does undertake to pay to the creditor on demand such amount of amounts as the surety may be called upon to pay not exceeding in the aggregate sum of Rs./- (Rupees.....only).
2. The surety hereby guarantee to the creditor the due performance and observance by the debtor of the terms and conditions of the contract.
3. The surety also agrees that it shall not during the currency of the guarantee herein given or during the period of its execution revoke the same even by giving notice to the creditor.
4. On account of the non-fulfillment of the contractual obligation by the debtor or in case the surety or contractor do not renew this guarantee bond as herein provided, the surety will on simple demand from the creditor, pay at Mumbai the creditor, the sum of Rs.....(Rupeesonly) as indicated under clause -1 above, without demure and without the creditor to invoke any legal remedy that may be available to them to compel the surety to pay the same even if the debtor consider such demand of the creditor unjustified.
5. The surety agrees and declares that notwithstanding anything contained in Section 133 to 135 of the Indian Contract Act 1872 (IX of 1972) or any other rule of law or equity in the view of any variance in the terms of the said contract shall not operate as a discharge of

his obligations hereunder or shall any composition made by the creditor with debtor in respect of any breach of the terms and conditions of the said contract operate as a discharge of the surety's obligation and surety further expressly agrees and declares that though as between the creditor and surety, the surety shall be liable for sum payable or falling due hereunder equally with the debtor and the surety save as otherwise herein provided hereby waives all his rights which he might as guarantor be entitled to claim and enforce.

- 6. The decision of the creditor that any sum has become payable shall be final and binding on the surety.
- 7. The guarantee shall come into force on supply of material shall remain in force till the end of(date)The surety, at the request of the creditor shall extend the validity of the Bank Guarantee for a further period of 12 months, one month prior to its present validity period.
- 8. In case of any dispute arising out of or in connection with the extension or encashment of the Bank Guarantee, the courts in Mumbai will have the jurisdiction.
- 9. The guarantee herein contained shall not be effected, by the change in the constitution of the surety or the debtor.
- 10. Our liability under this guarantee is restricted to Rs.(Rupees.....only) and our guarantee shall remain in force until (Date....) unless a claim under this guarantee is lodged with us within six months from the date of expiry of guarantee i.e. on or before ..(date)...all your rights under this guarantee shall be forfeited and we shall be relieved and discharged from all our liabilities there under.

IN WITNESS WHERE OF THE surety has executed this deed in presence of

Place: Signature.....

Date: for.....

(Banker's Rubber Seal & Code No. of signatory)

Witnessed (2 witness is required from bank only)

1) Name & Address

Signature

2) Name & Address

Signature

Please Note:

- 1. The value of non-judicial stamp paper for this bank guarantee is Rs. 200/- should be purchased in the name of Guaranteed Bank.
- 2. The bank guarantee should be furnished from any Scheduled bank
- 3. Please state the full and complete postal address of the bank undertaking the guarantee.
- 4. B.G. may be valid as per terms of A/T including guarantee period of material.
- 5. B.G. should be submitted along with covering letter of Bank.

SCHEDULE C

Quantity Offered at Column No. 7 of Annexure-'B' (Price Schedule):

Sr. No.	Item Code	Material Description	Quantity Tended in Nos.	Quantity Offered at Column No. 7 of Annex-'B' (Price Schedule) in Nos.
1	2	3	4	5
1	77008004444	Single Phase Portable Electronic Reference Standard Sub Meter of Accuracy Class 0.5s for Testing of Energy Meters of LT Consumers	48	
2	77008802194	Three Phase Portable Electronic Reference Standard Sub Meter of Accuracy Class 0.5s (0.5s for Active & 0.5s for Reactive Energy) for Testing of Energy Meters of LT Consumers	46	
3	77354250004	Three Phase Portable Electronic Reference Standard Sub Meter of Accuracy Class 0.1s for Testing of Energy Meters of HT Consumers	42	

Seal & Signature of Supplier

Format for Inspection Call-Readiness of Material**Ref. No.****Date:**

To,
The CE (MMD),
Prakashgad, Bandra (E),
Mumbai - 400051.

Sub: Inspection Readiness of material against A/T No. ----- dated. ----- for
Supply of -----.

1. Brief description of the material Offered for inspection:
2. Reference of drawing Approval :
3. a) Reference of approval of type test:
b) Reference of approval of balance type test (If applicable):
4. Whether it is a joint inspection with Testing SE (TQA) etc. (if applicable):
5. a) Whether EMD has been paid against the order:
b) if paid, please give details:
6. Sr. No. of the items as per A/T:
7. Total Quantity of the items Ordered:
8. Total quantity of the items inspected so far:
9. a) Quantity monthly committed in delivery schedule:
b) Lot No. for which the Quantity is offered for inspection now:
c) Due date of delivery as per A/T for offered quantity:
10. Date of readiness of Material:
11. Complete address of the factory where materials is to be inspected:
12. Name of the person to be contacted in connection with inspection & his
Office/Factory/Residence Tel. No.:
13. Stagging holiday of Factory/Office at the place of inspection:
14. a) Whether Dispatch Instructions are available (Say Yes or No):
b) Quote Letter No.:
c) Brief destination & Qty. per consignee of this present lot offered:
15. Last visit of our Inspecting Officer:
16. a) Whether the entire material is dispatched against last inspection. (Our EE[IW]
will ensure before inspection of this lot that the earlier inspected lot is already
dispatched)
b) Quantity dispatched
17. Further programme of production Quantity likely to be offered & by what date:

Authorized Signature

For (Name of the Firm).

Annexure 'B'(Price Schedule)

Sr.No	Item Code	Material Description	Unit	Quantity Required	HSN	Quantity Offered	Unit ExWorks including packaging charges but excluding duties & taxes etc (In Rupees)	Freight Charges Per Unit (In Rupees)	Transit Insurance Charges Per Unit (In Rupees)	Integrated GST for outside State Transaction on (Ex-Works Price+Freight Charges + Transit Insurance Charges)(In Rupees)	Central GST for within State Transaction on (Ex-Works Price + Freight Charges + Transit Insurance Charges)(In Rupees)	State GST for within State Transaction on (Ex-Works Price + Freight Charges + Transit Insurance Charges)(In Rupees)	Free Door Delivery Price Per Unit by Road upto Destination/Stores/Sub Station (In Rupees)
1	2	3	4	5	6	7	8	9	10	11	12	13	14=(8+9+10+11+12+13)
1	77354250004	3 PHASE HT PORTABLE ERS	NO	42	90318000								
2	77008004444	1 PH PORTABLE ERS SUBMET OF ACCU CLA	NO	48	90318000								
3	77008802194	3 PH PORTABLE ERS SUBMET OF ACCU CLA	NO	46	90318000								

Delivery Details

[Delivery must in the units specified for the items as per Price Schedule]

First lot of ____ in assorted sizes will be delivered within 2 Months from the date of LOA Award. After this period supply will be completed at the rate of ____ in assorted sized per month

Confirmation Details

We Confirm The Following :

I) Goods and Services Tax(GST) i.e Integrated GST / (Central GST+ State GST):

The GST is included in our prices quoted in price bid (Central GST+ State GST) for within Maharashtra State/Integrated GST for outside State and we shall not charge any additional amount towards Integrated GST / (Central GST+ State GST), during currency of contract except statutory variation by Central / State Government in normal (full) rate of Integrated GST / (Central GST+ State GST), in case of Integrated GST / (Central GST+ State GST) Rate is increased. In case the Integrated GST / (Central GST+ State GST) is decreased than the rate indicated in the price bid, the benefits of the reduction in the Integrated GST / (Central GST+ State GST) shall be passed on to the Purchaser. The increase in the Integrated GST / (Central GST+ State GST) rate due to increase in turnover during the contractual delivery period shall not be charged to the Purchaser. If the Integrated GST / (Central GST+ State GST) is not payable at present, we shall not charge the same, if it becomes applicable during the currency of contract due to expiry / withdrawal of tax concessions and incentives during the currency of contract except for statutory variation by Central / State Government.

(i) Necessary documentary evidence for the GST claimed by us shall be submitted along with the bills.

(ii) We here by declare that while quoting the price in the Price Bid, we have taken into account the entire credit on inputs available under the GST Act.

Technical Specification Item: 1 PH PORTABLE ERS SUBMET OF ACCU CLA 0.5



Maharashtra State Electricity Distribution Company Limited

SPECIFICATION NO.MMC: MSC/DB/01 /2018

TECHNICAL SPECIFICATION

For

1 PH PORTABLE ERS SUBMET OF ACCU CLA

For

DISTRIBUTION SYSTEM

IN

MSEDCL

MATERIAL SPECIFICATIONS CELL

TECHNICAL SPECIFICATION

OF

SINGLE PHASE PORTABLE ELECTRONIC
REFERENCE STANDARD SUB METER OF ACCURACY
CLASS 0.5S FOR TESTING OF ENERGY METERS

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**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

1.00 SCOPE

This specification covers the general and standard requirement, technical data design, engineering, manufacturing, assembly, inspection & testing at manufacture's works, supply & delivery at stores of Single phase portable reference standard sub meter of class 0.5S with clamp on CT mode with complete accessories, operation and maintenance manual & training on operation for working in the range of 250 mA to maximum 60 Amps at site.

The ERSS meter must have micro-processor unit with software support suitable for on-line testing of all types of single phase energy meters at site. Computer software shall be such that final data shall be converted for further processing to generate inputs & reports.

The Single Phase ERSS meter shall be capable of testing electronic meters / electro mechanical energy meters of any latest version

The ERSS meter shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation, in a manner acceptable to purchaser, who will interpret the meaning of drawings and specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered material shall be complete with all components necessary for their effective and trouble free operation. Such components shall be deemed to be within the scope of Bidder's supply irrespective of whether those are specifically brought out in these specifications and / or the commercial order or not.

2.00 QUALIFYING REQUIREMENTS.

- 2.01** The bidder shall be an original manufacturer for the tendered item. Traders, Dealers & distributors bidding will not be considered.
- 2.02** The operating experience of the bidder shall be minimum one year for supplying and providing after sales support of similar or better equipment to NABL accredited laboratories / power utilities in India only. The bidder shall enclose necessary purchase order and relevant documents along with their bid to prove the same.
- 2.03** The manufacturer must have experience of minimum one year for supply of similar or better equipments to National / International accredited laboratories or power utilities in India. The manufacturer shall enclose necessary purchase order copies along with their bid to prove the same.
- 2.04** The bidder shall submit satisfactorily performance report copies of supplied similar tender equipment from other power utilities.

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

- 2.05** The bidder shall declare that the bidder or their principals have not ever been black listed / defaulter by any utility / ESCOMs / Distribution Company / Laboratories / Any department of State Government or Central Government on record of poor performance such as not properly completing the contract, inordinate delays in supply completion, not supplying the items as per commitment of contract etc.
- 2.06** Bidder or their principals shall have fully equipped technical support office / laboratory for facilities of testing, calibration, adjustment, diagnosis and repair of equipments in India itself. Bidder or their principals shall have technical support staff posted in India for technical support after sale.
- 2.07** The Bidder or their principals shall have their own service centers and trained engineers dedicated for trouble shooting and technical support permanently posted in India. The bidder shall enclose necessary proof that the firm / the manufacturer / the principal the bidder is participating for, has necessary facility to adjust and calibrate the offered measuring units within the country. The list of Plant and Machinery, tools and tackles to carry out services shall be submitted along with the offer.
- 2.08** The offers of Indian subsidiary company, whose parent company is located abroad fulfilling the qualifying requirements as above, shall be considered provided the Indian participant subsidiary company fulfils the minimum experience of one year of supply or manufacturing of similar or better equipments to National / International accredited laboratories or power utilities of India. However, the conditions of turnover and manufacturing of similar or better equipments to National / International accredited laboratories or power utilities as brought out elsewhere in tender documents can be fulfilled by the parent company located abroad on behalf of their Indian subsidiary company. The parent company shall furnish undertaking for accepting responsibility for supplying quality equipments as per specifications and execution of the contract on behalf of its India based subsidiary unit who has participated in the tender in Annexure U-I.

3.00 APPLICATION

The universal ERSS meter shall be suitable for use with phantom load at Meter Lab / site, even at consumer's load and loading conditions for testing of LT single phase two wire and shall be capable to measure the system parameters and to verify the accuracy of the energy meters in the laboratory and at site without disconnecting consumer's supply.

4.00 SERVICE CONDITIONS

The ERSS to be supplied against this specification shall be suitable for satisfactory continuous operation under the following tropical conditions:

Environmental Conditions

- | | |
|--|-----------------------|
| a) Maximum ambient temperature | 55° C |
| b) Maximum ambient temperature in shade | 45° C |
| c) Minimum temperature of air in shade | 35° C |
| d) Maximum daily average temperature | 40° C |
| e) Maximum yearly weighted average temperature | 32° C |
| f) Relative Humidity | 10 to 95 % |
| g) Maximum Annual rainfall | 1450 mm |
| h) Maximum wind pressure | 150 Kg/m ² |
| i) Maximum altitude above mean sea level | 1000 meters |
| j) Isoceraunic level | 50 days/year |
| k) Seismic level (Horizontal acceleration) | 0.3 g |
| l) Climate: Moderately hot and humid tropical climate conducive to rust and fungus growth. | |

5.00 APPLICABLE STANDARDS

The ERSS meter shall conform in all respects including performance and testing thereof to the latest relevant and applicable Indian / International Standards to be read with up to date and latest amendments / revisions thereof but not limited to

IEC: 60736 / 1982 - Testing equipment for electrical energy meters.

IS: 14697 / 1999 – AC Static Transformer operated watt-hour and VAR-hour meters, class 0.5S – specification.

IS: 12346 / 1999 – Testing, Evaluation, Installation and Maintenance of AC electricity meters – Code of Practice.

IS: 9000 – Basic Environmental testing procedures for electronic & electrical items.

IS: 15707 / 2006 Specification for Testing, evaluation, installation & maintenance of AC Electricity Meters - Code of Practice;

The equipment meeting with the requirements of other authoritative standards, which ensures equal or better quality than the standard mentioned above, also shall be considered.

In case the bidder wishes to offer material conforming to the other authoritative standards, salient points of difference between the standards adopted and the specific standards shall be clearly brought out in relevant schedule. Copy of such standards with authentic English Translations, shall be furnished along with the offer.

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

In case of conflict related with other parts of the specification, the order of priority shall be – (i) this technical specification, (ii) IS: 12346 amended upto date & IS15707. (iii) IEC 60736, (iv) other authoritative standards.

In case of any difference between provisions of these standards, the provisions of this specification shall prevail.

6.00 GENERAL TECHNICAL REQUIREMENT

The portable Electronic Reference Standard Sub meter shall comply with the following requirement.

6.01 Class of Accuracy

The accuracy of the ERSS shall be sufficient in any condition for testing kWh part of the single phase energy meters of class 1 confirming to IS: 13779 / 1999 (amended upto date). The accuracy of the portable Single Phase ERSS meter for power / energy measurement shall be 0.5S with clamp on CT for the current range of 250 mA to maximum 60 Amps.

6.02 Voltage & Current rating

- a) The voltage rating shall be 240 volts. The voltage range shall be $\pm 30\%$.
- b) The current measurement range shall be 250 mA to maximum 60 Amps.

6.03 Temperature

The specified operation range shall be -10°C to $+55^{\circ}\text{C}$

Limit range of operation shall be -25°C to $+60^{\circ}\text{C}$

Limit range for storage and transport -25°C to $+70^{\circ}\text{C}$

6.04 Power consumption

The power consumption of the ERSS meter at a reference voltage, frequency, temperature and rated current shall not be more than 1 VA in current circuit including clamp on CT & shall not be more than 10 VA in voltage circuit.

6.05 Frequency

The rated frequency shall be 50 Hz with a tolerance of $\pm 5\%$.

6.06 Power Factor

The meter shall work for Zero to unity PF (All lag or lead).

6.07 Measuring mode

Single Phase Two wire active.

6.08 Global Positioning System (GPS) and General Packet Radio Service GPRS feature:

ERSS meter should have GPS feature to give GPS co-ordinates of location. Also the meter should be GPRS enabled to submit test results online.

7.00 CONSTRUCTIONAL AND GENERAL REQUIREMENTS

- 7.01** The ERSS meter shall be designed and constructed in such a way as to avoid introducing any danger in normal use and under normal conditions, so as to ensure especially:
- (a) personal safety against electric shock;
 - (b) personal safety against effects of excessive temperature;
 - (c) protection against spread of fire;
 - (d) protection against penetration of solid objects, dust & water in meter.
- 7.02** All parts that are likely to develop corrosion under normal working condition shall be effectively protected against corrosion by suitable method to achieve durable results. Any protective coating shall not be liable to damage by ordinary handling nor damage due to exposure to air, under normal working conditions.
- 7.03** The ERSS shall be manufactured using SMT (Surface Mount Technology)
- 7.04** The ERSS meter shall have Alpha – numeric keyboard to operate the equipment for software programme and to enter basic details like Consumer number, Meter number, Meter constant etc.
- 7.05** The ERSS meter shall have scanner or optical sensor head along with detachable lead to be used to count revolutions of the disc in Ferraris Wheel meters and LED pulses in static meters as well as for LCD pulses in static meters.
- 7.06** The ERSS meter shall be provided with a sensor head clamp to hold the scanner properly in front of the LED / LCD output or revolving disc.
- 7.07** The ERSS meter shall also have a snap switch along with detachable lead to be used as an alternative to scanner / sensor head.
- 7.08** The ERSS meter shall be provided with electronic compensated clamp-on CTs which enable the testing without isolating or interrupting the supply of the consumer.
- 7.09** The voltage leads with injection type crocodile clips / any other suitable clamping arrangement with insulated leads shall be provided on ERSS meter.
- 7.10** All the cords / accessories supplied along with the instrument must conform to the international standards of safety. Adequate built in features to protect the instrument itself from over-voltage shall be provided.
- 7.11** While in use, indication that ERSS meter is in correct active mode shall be provided on ERSS by means of LED / LCD screen or otherwise.

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

- 7.12** ERSS meter shall have facility to store total energy including harmonics .
- 7.13** All the display parameters indicated in clause no. 8.00 shall be obtained by pressing the push -button.
- 7.14** The ERSS meter shall have a facility to store minimum 300 test results along with following instantaneous parameters. The ERSS meter shall have memory to record the test data. The error data up to at least 300 test shall be stored in ERSS memory and these can be downloaded to computer using communication cord/port(RS232) so that print out can be taken out with software. The test data stored in the memory of ERS shall not be lost by roll over mode but after the memory is exhausted it should flash a message on LCD display or it has some other arrangement for such indication. ERSS meter Shall have capacity to store minimum 300 test results with following data:
- a. Serial no of meter under test.
 - b. Consumer Identification
 - c. Meter Constant of MUT
 - d. No of revolution /pulses for which test is being carried out.
 - e. Instantaneous voltage, line current & active current.
 - f. Energy Logged/ Recorded by ERS during test.
 - g. Test duration in hour, minute, & seconds.(With time of commencement & completion) and all parameters shown in clause no. 8.00.
- 7.15** ERSS meter shall be capable of indicating the display for the following conditions by instantaneous values or warning message.
- Missing current
 - Reverse current, if any current is reverse.
 - Over current(*for current more than 120%*)
 - Over Voltage(*for voltage more than 130%*)
 - Low Voltage(*for voltage less than 70%*)
- 7.16** Mains power supply input shall be internally/externally connected to the test voltage.
- 7.17** The ERSS meter shall have a test output in the form of frequency on BNC/ Suitable socket/LED pulse for its own calibration. (General arrangement drawing of Equipment shall be submitted along with bid which indicates the above mention outputs)
- 7.18** ERSS meter shall be made functional by giving supply of 240 Volts $\pm 30\%$ AC through an adopter between phase to neutral for down loading the data to PC etc.

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

- 7.19** The ERSS meter shall measure and display a comprehensive analysis of single phase system showing instantaneous and integrated values of
- True RMS value for each phase voltage & current input.
 - Analysis of DC component and Harmonics contents
- 7.20** Auto range of Current and Voltage inputs shall be provided.
- 7.21** The ERSS meter shall display the error(s) of the meter under test automatically.
- 7.22** The ERSS meter shall have interface to an external printer through PC software.
- 7.23** The ERSS meter shall be manufactured as per latest state of the art technology for obtaining sustained accuracy, flawless long lasting service. It shall be rugged enough to undergo handling in field conditions while being carried from place to place. It shall therefore be convenient to carry and immune to vibrations or shocks due to transportation or handling. It shall also be immune to external electrical and magnetic fields.
- 7.24** There shall be a provision for input of scanning head and start / stop button on the ERSS unit. Also Snap Switch shall be acceptable in the form of extended cord.
- 7.25** The ERSS meter shall be of low weight, compact and of small size
- 7.26** The meter body shall be type tested for IP51 degree of protection as per IS/IEC 60529:2001 against ingress of dust, moisture & vermin. The type test certificate shall be submitted along with the offer.
- 7.27** ERSS meter shall have capability to indicate display for the following condition:
- Reverse current if any current is reverse.
- 7.28** Self diagnose feature LCD/LED test is required to be provided on meter's display to indicate the healthiness of all segments of LCD display.
- 7.29** Auto range of current and voltage input should be provided.
- 7.30** The meter shall capable for accuracy test of kWh register of Energy Meter and display the % error as well as energy logged/recorded by ERSS meter automatically on ERSS display.
- 7.31** The meter shall be packed in an ergonomically and aesthetically designed instrument case which can with stand the usual handling of field personnel and normal transportation.
- 7.32** All the cords/ connectors/ accessories supplies along with ERSS must confirm IEC -1010-2-031 and international standards of safety. Adequate built in features to protect the instrument itself from over voltage shall be provided.
- 7.33 REAL TIME INTERNAL CLOCK (RTC)**

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

The real time quartz clock shall be used in the ERSS meter for maintaining time (IST) and calendar. The RTC shall be non - rechargeable and shall be pre-programmed for 30 years calendar of date and time without any necessity for correction. The time accuracy shall be as per provisions of CBIP-Tech-Report-325. The RTC shall have Non rechargeable battery with long life (10 Years). Time synchronization should be possible with GPS

- 7.34** The ERSS shall have the facility to record and store minimum 300 test results along with various instantaneous parameters in Non Volatile memory (NVM) memory. The error data up to at least 300 tests shall be stored in meter memory and give flashing alarm when 90% of memory is used and these can be down loaded to computer using communication cord / port (RS-232) so that print outs of test results can be taken out with compatible software. The test data stored in the memory of the ERSS meter shall not be lost by roll over mode; but after the memory is exhausted, it shall flash the message on the LCD display or it shall have some other arrangement for such indication.
- 7.35** RS - 232/RJ 45 Ethernet port communication port shall be provided to download the data to the computer through the BCS, for portable printer connected to laptop for printing the test results at site.
- 7.36** The unit shall have LCD display of min 3” diagonally.
- 7.37** The unit shall be provided with 2 voltage inputs (one for phase and one for neutral) for 1 phase 2 wire voltage measurement and one socket for current clamps
- 7.38** Mains power supply input shall be internally connected to the test voltage.
- 7.39** There shall be a provision for input of scanning head and start / stop button on the ERSS unit.

7.40 SHOCK AND VIBRATION PROTECTION

The equipment must be immune to Vibration and dumping due to transport. Suitable ergonomically and aesthetically designed transportation instrument case shall be provided along with the equipment. The equipment shall be immune to impact, vibration and bumping due to transport. It shall be within the limits specified in IS 14697:1999.

7.41 ELECTROMAGNETIC COMPATIBILITY

The ERSS meter will be required to work accurately in the field so that stray Electromagnetic disturbances or Electrostatic discharge may not influence the ERSS meter. Similarly the field generated by ERSS meter may influence the MUT. The composition of the ERSS meter should, therefore such that it's functioning is immune to these forces of external origin and it does not create electromagnetic field, which affects the working or the meteorological functioning of meter under test. The equipment shall be

fully protected against electromagnetic interferences, introduced through the connection cables, through capacitive or inductive coupling or by radiated electromagnetic interference. ERSS shall comply all EMC condition and requirement within the limits specified in IS 14697:1999 & CBIP publication 325.

- Fast transient burst Test may be applied to ERSS. It should not show any change in register of more than values shown in the relevant test specification IEC 61000-4-4.
- The ERSS should not produce any Electromagnetic field which may affect working of MUT confirming to the IEC & IS as per mentioned in clause no. 5.00 of Specification.
- It should not produce any conducted or radiated noise, which can interfere with other equipment & MUT.

7.46 DIELECTRIC STRENGTH

The equipment shall be capable to withstand between circuits and between circuits and case 2 kV AC 50 HZ for one minute.

7.47 DLMS PROTOCOL

ERSS Meter shall be capable to interface with all types of Meters including meters having DLMS protocol as per IS 15959:2011 and smart meters as per IS 16444.

8.00 DISPLAY

8.01 The unit shall have LCD display of min 3” diagonally in rectangular size shall be preferred to display various electrical parameters.

8.02 The ERSS shall show the calibration date and calibration due date on initial screen.

8.03 DISPLAY OF PARAMETERS

The device shall be able to display the following instantaneous parameter:

SR.NO.	PARAMETERS	RESOLUTIONS
(1)	True RMS value of voltage	xxx.xx Volts
(2)	True RMS value of current	xx.xxx Amps
(3)	Power factor	x.xxx
(4)	Frequency	xx.xx Hz
(5)	Active power	xxx.xxx kW
(6)	Calibration date of equipment and calibration due date	Bidder should specify.

8.04 During the test duration, the resolution of instantaneous load and the percentage error shall have resolution as follows -

SR.NO.	PARAMETER	RESOLUTION
(1)	Instantaneous Active Energy	xxx.xxxx Wh
(2)	Percentage Active Energy Error	xx.xx %

9.00 MEASUREMENT MODE

The ERSS shall have the following measurement modes to test direct connected (whole current) meters.

9.01 CLAMP ON (SPLIT CORE CURRENT TRANSFORMERS) MODE

One number clamp on type current transformer (CT) shall be provided along with suitable connecting cable length to measure from 250 mA to a maximum current of 60 Amps. It shall be possible to use the clamp on CT with cables having overall diameter not more than 10 mm. The accuracy class shall be 0.5S or better at UPF in this range.

10.00 METER TESTING

10.01 The ERSS shall be able to test the meter under test by entering the MUT constant, number of test revolutions. The meter constant of MUT may also be imp / kWh. The device shall provide flexibility to enter meter constant upto 6 digits.

10.02 The testing of MUT shall be performed by using common scanning head, suitable for sensing of rotor mark of ferrari meter or LED / LCD blinking of electronic meters. The scanning head shall be supplied along with mounting arrangement and connection cable

10.03 The device shall allow to use start/ stop button integrated on device to start and stop the error test.

11.00 OPERATING MODES

11.01 MANUAL MODE

The equipment shall have facility to test in manual mode using snap switch along with detachable lead as well as inbuilt options to start and stop the test.

11.02 AUTO MODE

A scanner shall be provided along with the equipment to test electromechanical meter by sensing the rotor mark and static (electronic) meters by sensing the LED / LCD pulses. The scanner shall be provided with vacuum type fixing arrangement or any other arrangement suitable to

test the meter at site. Scanner shall be able to read correctly even in case of its alignment is deviating upto an angle of 15 degree of the axes of optical port.

12.00 NAME PLATE DATA AND MARKING

The equipment shall have a name plate clearly visible, effectively secured against removal and indelibly and distinctly marked with all essential particulars as per relevant standards.

Sr. No. of the equipment along with date of manufacturing as well as other technical details shall invariably be mentioned on the equipment as well as on the Hand bag. Serial number on sticker will not be allowed. Name plate data and marking shall be embossed.

In addition, following shall be marked on the name plate.

- Purchase order No & date
- Month and Year of manufacture
- Name of purchaser, i.e. MSEDCL
- Guarantee Five Years

13.00 SOFTWARE

13.01 Each ERSS meter shall be supplied along with base computer software (BCS). The software shall be suitable for downloading the test results into compatible PC / Laptop computer using serial interface data transfer (RS-232 port/RJ-45 Ethernet). The equipment shall be compatible to printer. The software shall have facility to generate the test report for individual testing and summary report of all test reports.

13.02 The software shall have facility to generate the test report and print the test report in the following format.

Date and Time of testing :

Sl. No. of Reference standard :

Consumer Details

Consumer No :

Consumer’s Name & Address :

MUT Details

Make :

Sr.No. :

Type :

Class :

MUT Constant :

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

Test revolutions / pulses per kWh :

Instantaneous Electrical parameters

Voltage :

Current :

Active power :

Frequency :

Average Power Factor :

Active Energy logged by ERSS & MUT :

%Error :

Test duration and test time :

Remarks :

13.03 The offered software shall have facility to convert all stored test results in ASCII file format or similar non-editable format as required. The offered software shall be user friendly & menu driven. The supplier shall impart necessary training regarding installation and use of the above software.

13.04 The ERSS meter shall have ASCII or similar support i.e. provision for converting data into ASCII or other popular and commonly available computer software programmes such that the data can be integrated with the meter management system of the utility for ensuring error test record and periodical meter testing.

14.00 TESTS

14.01 TYPE TESTS

The tenderer shall furnish detailed accuracy tests certificates (calibration certificate) of the offered instrument as per relevant Indian amended up to date / International standards.

For the equipments manufactured in India, all the type tests shall be carried out on complete one set of sample at laboratories which are accredited by the National Accreditation Board for Testing and Calibration Laboratories (NABL) of Government of India as per relevant Indian standards to prove that the instruments offered meet the requirements of this specification. Type Test Certificates conducted in manufacturers own laboratory and certified by testing institute shall not be acceptable.

For the equipments manufactured abroad and being imported, all the type tests shall be carried out on complete one set of sample at the concerned nation's government accredited laboratories as per relevant international standards. These type test certificates shall be submitted along with the offer. If some of the type test reports are not available with the manufacturer/supplier at the time of submitting offer, the same type test

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

reports shall be submitted before commencement of supply whereas the bidder has to submit confirmation regarding the same along with the offer.

However in the event of placement of supply order, at least one of the equipment to be supplied as per this technical specifications and shall be got calibrated from any National Accreditation Board for Testing and Calibration Laboratories (NABL) of Government of India as per relevant standards to prove that the instrument offered meets the requirements of this specification before commencement of supply. This calibration certificate shall be got approved from the Chief Engineer, MSEDCL, Testing & Quality Control Cell, 1st Floor, Prakashgad, Mumbai – 400051 prior to commencement of supply.

The Purchaser reserves the right to demand repetition of some or all the type tests in presence of purchaser's representative at purchaser's cost. For this purpose, the tenderer shall quote unit rates for carrying out each type test. However, such unit rates will not be considered for evaluation of the offer. In case the unit fails in type test, the complete supply shall be rejected & expenditure incurred shall be recovered from the tenderer from his deposit.

14.02 ACCEPTANC & ROUTINE TESTS

All acceptance tests as per IS: 12346 shall be carried out on the equipment. All acceptance tests certificates, routine test certificates, calibration certificate & operation manual must be provided along with each equipment in the form of CD (Compact Disc) as well as a hard copy.

14.03 CALIBRATION CERTIFICATES OF ERSS

The ERSS shall be supplied along with the calibration certificate as per relevant standards. The calibration certificate shall be issued by NABL labs / International Recognized Laboratories.

15.00 GUARANTEED TECHNICAL PARTICULARS

The tenderer shall furnish the particulars giving specific required details of meters in schedule 'A' attached. The offers without the details in Schedule 'A' stand rejected.

16.00 SAMPLE SUBMISSION & DEMONSTRATION :

One sample of Single phase ERSS meter along with operating manual ,BCS software & all necessary accessories as per technical specification shall be submitted free of cost to S.E.(TQA),Pune OFFICE & Demonstration shall be carried out within 10 days from the date of Tender opening. Those bidders who will failed to submit the sample & Live demonstration their offer shall be liable for rejection against the Tender.

17.00 ACCESSORIES

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

Each universal ERSS reference meter shall be supplied along with the following accessories:

- One common / separate optical sensor (scanning head) for automatic testing, which can be used to sense disc revolutions in electromechanical meter as well as indicating LED / LCD in static meter including clamp on device and connection cable and scanning head carriage.
- Mounting arrangement (clamp) for the optical sensor.
- A set of voltage and neutral leads with insulated crocodile clips.
- 1 no clamp on CT 60 Amps along with cable
- Serial communication cord with RS-232 connector/RJ-45 Ethernet port to retrieve stored data from the equipment and download the same on PC / laptop.
- Snap switch along with detachable lead as well as in built snap switch.
- Operating Manual in English.
- One standard calibration report.
- Data download software to read out the module for transfer and presentation of data.
- Spares:
 - One set of scanning head shall be supplied along with every 10 nos. of equipment.
- One carry bag.

This shall be ergonomically and aesthetically designed instrument case which can withstand the usual handling of field personnel and normal transportation.

18.00 TRAINING

The successful bidder shall depute their representative to educate Engineers of purchaser as and when they will be called for at no extra cost.

19.00 GUARANTEE

The ERSS shall be guaranteed for a period of 5 years from the date of commissioning or five and half years from the date of receipt whichever is earlier. The equipment found defective within above guarantee period shall be replaced / repaired / rectified by the supplier free of cost, within one month of receipt of intimation. After the replacement / repairs / rectification, the accuracy shall not be affected. Test certificate and calibration certificate shall invariably be submitted after rectification / repairs.

20.00 AFTER SALES SERVICE

The bidder has to indicate clearly the after sales service to be provided by the supplier within guarantee period and outside guarantee period and Addresses of Sales Service Centre, details of Engineers, etc. shall be submitted along with the offer.

21.00 PRE-DESPATCH INSPECTIONS

The successful bidder shall offer universal ERSS meters at their works for inspection before dispatch. For imported equipments, the supplier / tenderer shall offer the equipments at the authorized service center / works of the original manufacturer in India or at the supplier's works / testing center. The offered lot shall be tested for acceptance tests and any other test as per relevant IS / IEC as required by inspecting officers. During inspection, if the instrument does not meet the required specification & test results found not satisfactory then it shall be liable for rejection. Calibration Certificates of all associated equipments shall be furnished at the time of factory inspection.

The manufacturer shall offer to the inspector representing the purchaser all the reasonable facilities, free of charge, for inspection and testing, to satisfy him that the material is being supplied in accordance with this specification. The MSEDCL's representative / Engineer attending the above testing shall carry out testing as per relevant IS / IEC & as per this technical specification and issue test certificate approval to the manufacturer and give clearance for dispatch.

The ERSS meters shall be inspected jointly by the Executive Engineer, Testing Division & the Executive Engineer, Inspection Wing.

22.00 QUALITY CONTROL

The purchaser may send a team of experienced engineers for assessing the capability of the bidder or their principals for manufacturing of ERSS meters as per this specification. The team shall be given all assistance and co-operation for inspection and testing at the bidder's works.

Three tender samples shall be kept ready for assessing and testing. The tenderer has to give all facilities for carrying out the testing of these samples.

23.00 MINIMUM TESTING FACILITIES

The bidder or their principals / manufacturer shall have the necessary minimum testing facilities for carrying out various acceptance and routine tests. A list of machinery / equipment and testing facility available at their Works shall also be furnished along with the offer.

24.00 PACKING

24.01 The ERSS meter shall be suitably packed to avoid damage or disturbance during transit or handling. Each instrument may be suitably packed in the first instance to prevent ingress of moisture and dust and then placed in a cushioned carton of a suitable material to prevent damage due to shocks during transit. The lid of the cartoon may be suitably sealed. A suitable number of sealed cartons may be packed in a case of adequate strength with extra cushioning if considered necessary. The cases may then be properly sealed against accidental opening in transit. The packing cases may be marked to indicate the fragile nature of the contents.

24.02 The following information shall be furnished with the consignment :

- Name of consignee
- Details of consignment
- Destination
- Total Weight of consignment.
- Sign showing upper / lower side of the crate
- Sign showing fragility of the material.
- Handling and unpacking instructions.
- Bill of Materials indicating contents of each package and spare materials.

25.00 SCHEDULES

The tenderer shall fill in the following schedules which are part and parcel of the tender specification and offer. If the schedules are not submitted duly filled in with the offer, the offer shall be liable for rejection. The order copies of the order executed mentioned in the list of order shall be invariably enclosed along with the offer. Only those orders mentioned in the list shall be considered whose order copies shall be enclosed with the offer.

Schedule A – Guaranteed and technical particulars.

26.00 DOCUMENTATION

Two set of following documents shall be supplied along with each test system.

- Operating manual
- Service manual
- Calibration certificate of reference standard

ANNEXURE U-I

“INDEMNITY BOND”

UNDERTAKING TO BE SUBMITTED BY THE PARENT COMPANY SITUATED ABROAD IN CASE OF THE PARTICIPANT BIDDER WHO IS AN INDIAN BASED SUBSIDIARY ON GENERAL STAMP OF `200.00.

The Chief Engineer,
Maharashtra State Electricity Distribution Co. Ltd.,
Material Management Cell,
1st Floor, Prakashgad, Bandra (E),
Mumbai – 400 056.

Dear Sir:

Sub: Undertaking against Tender No. _____ for procurement of _____

We, M/s. _____ having registered office at _____ are the Parent Company of M/s. _____ who have participated against your tender no. _____ for procurement of _____.

We have carefully read and have thoroughly understood and agree to the terms and conditions of the subject tender.

We hereby undertake that in case of placement of order against the subject tender on our subsidiary company, M/s. _____, in the event of we accept all the responsibilities and liabilities for supply of quality equipments as per specification of the tender and execution of the contract. We further hereby undertake that we shall be responsible for any liability arising out of the contract placed on M/s. _____ and to pay MSEDCL on demand the sum of rupees as per agreement in the event of any breach of condition of the purchase order, loss and damage of the material till expiry of guarantee period as stipulated in the order.

Our liability here under shall not be impaired or discharged by extension of time or variation or alteration made with or without our knowledge or consent by or between the parties to the said contract. This undertaking shall be valid and binding on us upto and including the execution and guarantee period of the order and shall not be terminable by notice or change in the constitution of any of the companies. In case of any dispute arising out of or in connection with this tender or contract, if concluded, the same shall be subject to the exclusive jurisdiction of the **“Court in Mumbai (India).”**

Yours faithfully,
(Authorised Signatory)
For _____

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

SCHEDULE – “A”

GUARANTEED AND TECHNICAL PARTICULARS

ITEM NAME	SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD SUB (ERSS) METER OF ACCURACY CLASS 0.5S	
SR. NO.	PARTICULARS	GTP VALUES
(1)	MANUFACTURER NAME & ADDRESS	TO BE FILLED BY MANUFACTURER
(2)	COUNTRY OF MANUFACTURE	TO BE FILLED BY MANUFACTURER
(3)	TYPE / MODEL DETAILS OF EQUIPMENT	TO BE FILLED BY MANUFACTURER
(4)	OPERATING EXPERIENCE OF THE BIDDER	TO BE FILLED BY MANUFACTURER
(5)	MANUFACTURER HAS EXPERIENCE OF MINIMUM ONE YEAR FOR SUPPLY OF SIMILAR OR BETTER EQUIPMENTS TO NATIONAL / INTERNATIONAL ACCREDITED LABORATORIES OR POWER UTILITIES IN INDIA.	TO BE FILLED BY MANUFACTURER
(6)	NECESSARY PURCHASE ORDER COPIES ENCLOSED IN SUPPORT OF ABOVE (4) &(5)	YES
(7)	PURCHASE ORDER NOS. & DATES IN SUPPORT OF ABOVE (4) &(5)	TO BE FILLED BY MANUFACTURER
(8)	SATISFACTORILY PERFORMANCE REPORT SUBMITTED FROM NABL LABS/ POWER UTILITY ENCLOSED WITH OFFER	YES
(9)	DECLARATION AS PER CL NO 2.05 OF TECH SPECS ENCLOSED.	YES
(10)	NAME & ADDRESS OF BIDDERS TESTING FACILITIES IN INDIA ENCLOSED WITH OFFER	YES
(11)	NAME & ADDRESS OF BIDDERS OR THEIR PRINCIPALS OWN SERVICE CENTRE IN INDIA	YES

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

	ENCLOSED WITH OFFER	
(12)	LIST OF PLANT AND MACHINERY, TOOLS AND TACKLES TO CARRY OUT SERVICE ENCLOSED ALONG WITH OFFER.	YES
(13)	ACCURACY CLASS OF ERSS METER 0.5S WITH CLAMP ON CT FROM 250 mA TO MAXIMUM 60 A	YES
(14)	VOLTAGE RATING	240 VOLTS
(15)	VOLTAGE RANGE	240 V \pm 30%.
(16)	POWER CONSUMPTION IN CURRENT CIRCUIT	SHALL NOT BE MORE THAN 1 VA INCLUDING CLAMP ON CT
(17)	POWER CONSUMPTION IN VOLTAGE CIRCUIT	SHALL NOT BE MORE THAN 10 VA
(18)	FREQUENCY RANGE	50 Hz \pm 5%
(19)	PF RANGE	ZERO TO UNITY PF (ALL LAG OR LEAD).
(20)	ERSS HAS ALPHA - NUMERIC KEYBOARD WITH ARROW & ENTER KEYS	YES
(21)	ERSS HAS SCANNER OR OPTICAL SENSOR HEAD ALONG WITH DETACHABLE LEAD	YES
(22)	SENSOR HEAD CLAMP TO HOLD SCANNER PROPERLY IN FRONT OF LED / LCD OUTPUT OR REVOLVING DISC IS PROVIDED	YES
(23)	SNAP SWITCH ALONG WITH DETACHABLE LEAD PROVIDED	YES
(24)	ELECTRONIC COMPENSATED CLAMP-ON CTS TO ENABLE TESTING WITHOUT ISOLATING OR INTERRUPTING SUPPLY OF CONSUMER IS PROVIDED	YES
(25)	ERSS PROVIDED WITH ELECTRONIC COMPENSATED CLAMP-ON CT	YES

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

(26)	VOLTAGE LEADS WITH INJECTION TYPE CROCODILE CLIPS / ANY OTHER SUITABLE CLAMPING ARRANGEMENT WITH INSULATED LEADS ARE PROVIDED ON ERSS METER.	YES
(27)	ALL CORDS / ACCESSORIES SUPPLIED ALONG WITH ERSS CONFORM TO INTERNATIONAL STANDARDS OF SAFETY	YES
(28)	ADEQUATE BUILT IN FEATURES TO PROTECT THE ERSS ITSELF FROM OVER-VOLTAGE PROVIDED.	YES
(29)	ERSS DISPLAYS ERROR(S) OF METER UNDER TEST AUTOMATICALLY	YES
(30)	ERSS HAS FACILITY TO STORE TOTAL ENERGY INCLUDING HARMONICS	YES
(31)	ERSS HAS INTERFACE TO AN EXTERNAL PRINTER THROUGH BCS	YES
(32)	TYPE OF INDICATION PROVIDED TO DISPLAY CONDITIONS OF CL. 7.16 OF TECH SPECS	YES
(33)	ERSS TYPE TESTED FOR IP-51 DEGREE OF PROTECTION AS PER IS: 12063	YES
(34)	WHETHER IP-51 TYPE TEST CERTIFICATE ENCLOSED ALONG WITH THE OFFER	YES
(35)	IP-51 TYPE TEST CERTIFICATE NO. & DATE	TO BE FILLED BY MANUFACTURER
(36)	RTC IS USED IN ERSS FOR MAINTAINING TIME (IST) AND CALENDAR.	YES
(37)	RTC IS NON-RECHARGEABLE & IS PRE-PROGRAMMED FOR 30 YEARS DAY / DATE WITHOUT ANY NECESSITY FOR CORRECTION.	YES
(38)	TIME ACCURACY OF RTC AS PER PROVISIONS OF CBIP-TECH-REPORT-325.	YES
(39)	NON-RECHARGEABLE BATTERY OF RTC HAS LONG LIFE OF 10 YEARS	YES

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

(40)	ERSS HAS FACILITY TO RECORD AND STORE MINIMUM 300 TEST RESULTS IN NON VOLATILE MEMORY (NVM).	YES
(41)	MINIMUM LIFE OF NVM IN YEARS.	10 YEARS
(42)	ERSS GIVES FLASHING ALARM WHEN 90% OF MEMORY IS USED	YES
(43)	DATA IN ERSS CAN BE DOWN LOADED TO COMPUTER USING COMMUNICATION CORD / RS-232 PORT / /RJ-45 ETHERNET THROUGH COMPATIBLE SOFTWARE.	YES
(44)	PROVISION TO NOT LOOSE TEST DATA STORED IN MEMORY OF ERSS BY ROLL OVER MODE IS MADE	YES
(45)	RS - 232 COMMUNICATION//RJ-45 ETHERNET PORT PROVIDED TO DOWNLOAD DATA TO COMPUTER THROUGH BCS	YES
(46)	THE SIZE OF LCD DISPLAY DIAGONALLY.(In INCHES)	MIN 3"
(47)	ERSS IS PROVIDED WITH 2 VOLTAGE INPUTS (ONE FOR PHASE AND ONE FOR NEUTRAL)	YES
(48)	MAINS POWER SUPPLY INPUT IS INTERNALLY CONNECTED TO TEST VOLTAGE.	YES
(49)	PROVISION FOR INPUT OF SCANNING HEAD AND START / STOP BUTTON IS MADE	YES
(50)	ERSS IS IMMUNE TO VIBRATION AND DUMPING DUE TO TRANSPORT.	YES
(51)	ERGONOMICALLY AND AESTHETICALLY DESIGNED INSTRUMENT TRANSPORTATION CASE IS PROVIDED	YES
(52)	DISPLAY OF PARAMETERS AS PER TECHNICAL SPECIFICATION	YES
(53)	RESOLUTION OF INSTANTANEOUS LOAD AND PERCENTAGE ERROR AS PER TECHNICAL	YES

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

	SPECIFICATION	
(54)	ERSS SHOWS CALIBRATION DATE AND CALIBRATION DUE DATE ON INITIAL SCREEN.	YES
(55)	ONE NUMBER CLAMP ON TYPE CURRENT TRANSFORMER (CT) IS PROVIDED ALONG WITH SUITABLE CONNECTING CABLE LENGTH TO MEASURE FROM 250 MA TO A MAXIMUM CURRENT OF 60 AMPS.	YES
(56)	IT IS POSSIBLE TO USE CLAMP ON CT WITH CABLES HAVING OVERALL DIAMETER NOT MORE THAN 10 mm.	YES
(57)	FLEXIBILITY TO ENTER METER CONSTANT UPTO 6 DIGITS IS PROVIDED IN ERSS	YES
(58)	SCANNING HEAD IS SUPPLIED ALONG WITH MOUNTING ARRANGEMENT & CONNECTION CABLE	YES
(59)	START / STOP BUTTON INTEGRATED ON DEVICE TO START AND STOP ERROR TEST IS PROVIDED	YES
(60)	ERSS HAS FACILITY TO TEST IN MANUAL MODE USING SNAP SWITCH ALONG WITH DETACHABLE LEAD AS WELL AS INBUILT SNAP SWITCH TO START AND STOP THE TEST.	YES
(61)	SCANNER IS PROVIDED WITH VACUUM TYPE FIXING ARRANGEMENT OR ANY OTHER ARRANGEMENT SUITABLE TO TEST THE METER AT SITE.	YES
(62)	SCANNER IS ABLE TO READ CORRECTLY EVEN IN CASE OF ITS ALIGNMENT IS DEVIATING UPTO AN ANGLE OF 15 DEGREE OF AXES OF OPTICAL PORT.	YES
(63)	CLEARLY VISIBLE, EFFECTIVELY SECURED AGAINST REMOVAL & INDELIBLY AND DISTINCTLY MARKED WITH ALL ESSENTIAL PARTICULARS AS PER RELEVANT STANDARDS NAME PLATE IS PROVIDED	YES
(64)	EACH ERSS IS SUPPLIED ALONG WITH BASE	YES

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

	COMPUTER SOFTWARE (BCS).	
(65)	BCS IS SUITABLE FOR DOWNLOADING TEST RESULTS INTO COMPATIBLE PC / LAPTOP COMPUTER USING SERIAL INTERFACE DATA TRANSFER (RS-232 PORT//RJ-45 ETHERNET).	YES
(66)	ERSS IS COMPATIBLE TO EXTERNAL PRINTER.	YES
(67)	SOFTWARE HAS FACILITY TO GENERATE TEST REPORT FOR INDIVIDUAL TESTING AND SUMMARY REPORT OF ALL TEST REPORTS.	YES
(68)	ERSS HAS ASCII OR SIMILAR SUPPORT FOR CONVERTING DATA INTO ASCII OR OTHER POPULAR AND COMMONLY AVAILABLE NON-EDITABLE COMPUTER SOFTWARE PROGRAMMES TO BE INTEGRATED WITH METER MANAGEMENT SYSTEM OF UTILITY	YES
(69)	SUPPLIER AGREES TO IMPART NECESSARY TRAINING REGARDING INSTALLATION AND USE OF SOFTWARE.	YES
(70)	WHETHER ERSS IS TYPE TESTED	YES
(71)	TYPE TEST / CALIBRATION CERTIFICATE SUBMITTED ALONG WITH OFFER	YES
(72)	TYPE TEST / CALIBRATION CERTIFICATE NOS. & DATE	TO BE FILLED BY MANUFACTURER
(73)	SUPPLIER AGREES TO SUPPLY ERSS WITH ALL ACCESSORIES AS PER TECHNICAL SPECIFICATION	YES
(74)	SUPPLIER AGREES TO DEPUTE THEIR REPRESENTATIVE TO EDUCATE ENGINEERS OF PURCHASER AS AND WHEN THEY WILL BE CALLED FOR AT NO EXTRA COST	YES
(75)	GUARANTEE OF ERSS AS PER CLAUSE NO. 19.00 OF THIS SPECIFICATION	YES
(76)	DETAILS OF AFTER SALES SERVICE WITHIN GUARANTEE PERIOD ENCLOSED WITH OFFER	YES

**TECHNICAL SPECIFICATIONS OF SINGLE PHASE PORTABLE ELECTRONIC REFERENCE STANDARD
SUB METER OF ACCURACY CLASS 0.5S FOR TESTING OF ENERGY METERS.**

(77)	DETAILS OF AFTER SALES SERVICE OUTSIDE GUARANTEE PERIOD ENCLOSED WITH OFFER	YES
(78)	ADDRESSES OF SALES SERVICE CENTRE, DETAILS OF ENGINEERS ENCLOSED WITH OFFER	YES
(79)	DETAILS OF NECESSARY MINIMUM TESTING FACILITIES FOR CARRYING OUT VARIOUS ACCEPTANCE AND ROUTINE TESTS SUBMITTED ALONG WITH OFFER.	YES
(80)	LIST OF MACHINERY / EQUIPMENT AND TESTING FACILITY AVAILABLE AT SUPPLIER'S WORKS IS FURNISHED ALONG WITH OFFER.	YES

Technical Specification Item: 3 PH PORTABLE ERS SUBMET OF ACCU CLA 0.5



Maharashtra State Electricity Distribution Company Limited

SPECIFICATION NO.MMC: MSC/DB/01 /2018

TECHNICAL SPECIFICATION

For

3 PH PORTABLE ERS SUBMET OF ACCU CLA

For

DISTRIBUTION SYSTEM

IN

MSEDCL

MATERIAL SPECIFICATIONS CELL

TECHNICAL SPECIFICATION

OF

THREE PHASE PORTABLE ELECTRONIC
REFERENCE STANDARD SUB METER OF ACCURACY
CLASS 0.5S (0.5S FOR ACTIVE ENERGY AND 0.5S
FOR REACTIVE ENERGY) FOR TESTING OF
ENERGY METERS

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**TECHNICAL SPECIFICATION OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD
METER OF ACCURACY 0.5S OR TESTING OF ENERGY METERS**

1.00 SCOPE

This specification covers the general and standard requirements, technical data, design, engineering, manufacturing, assembly, inspection and testing at manufacturer's works, supply and delivery at stores of universal type portable light-weight Electronic Reference Standard Sub meter (ERSS) with complete accessories of accuracy class 0.5S from 500 mA to 240 Amps at site as well as in Laboratory both for active and reactive energy.

A portable, universal type, light-weight, electronic, precision portable energy meter testing equipment shall be capable of testing of all types of LT single phase two wire, three phase four wire whole current static as well as electromechanical energy meters and CT operated static as well as electromechanical energy meters via split core transformers (current circuits) in the range of 500 mA to 240 Amps at lab as well as at site.

The ERSS meter must have micro-processor unit with software support suitable for on line testing of all types of energy meters described above at site having memory and capability of communication with the base computer. Computer software shall be such that final data shall be converted for further processing to generate inputs & reports.

The scope of the ERSS meter is not limited to following type of meters but it shall be capable of testing electronic meters / electro mechanical energy meters of any latest version including but not limited to the following types:

- Ferraris (Induction) Meters with rotating disc.
- Static Meters with flashing pulse output of LCD / LED.
- Single Phase Active, Apparent and Reactive energy Meters.
- Three Phase Active, Apparent and Reactive energy Meters.

The ERSS meter shall also be capable of performing the following functions:

- Verification of meter circuit connections using instantaneous parameters.
- Selection of measurement mode for total four wire active, reactive and apparent power / energy shall be provided for.

The ERSS meter shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation, in a manner acceptable to purchaser, who will interpret the meaning of drawings and specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered material shall be complete with all components necessary for their effective and trouble free operation.

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Such components shall be deemed to be within the scope of Bidder's supply irrespective of whether those are specifically brought out in these specifications and / or the commercial order or not.

2.00 QUALIFYING REQUIREMENT

- 2.01 The bidder shall be an original manufacturer for the tendered item. Traders, Dealers & distributors bidding will not be considered.
- 2.02 The operating experience of the bidder shall be minimum one year for supplying and providing after sales support of similar or better equipment to NABL accredited laboratories / power utilities in India only. The bidder shall enclose necessary purchase order and relevant documents along with their bid to prove the same.
- 2.03 The manufacturer must have experience of minimum one year for supply of similar or better equipments to National / International accredited laboratories or power utilities in India. The manufacturer shall enclose necessary purchase order copies along with their bid to prove the same.
- 2.04 The bidder shall submit satisfactorily performance report copies of supplied similar tender equipment from other power utilities.
- 2.05 The bidder shall declare that the bidder or their principals have not ever been black listed / defaulter by any utility / ESCOMs / Distribution Company / Laboratories / Any department of State Government or Central Government on record of poor performance such as not properly completing the contract, inordinate delays in supply completion, not supplying the items as per commitment of contract etc.
- 2.06 Bidder or their principals shall have fully equipped technical support office / laboratory for facilities of testing, calibration, adjustment, diagnosis and repair of equipments in India itself. Bidder or their principals shall have technical support staff posted in India for technical support after sale.
- 2.07 The Bidder or their principals shall have their own service centers and trained engineers dedicated for trouble shooting and technical support permanently posted in India. The bidder shall enclose necessary proof that the firm / the manufacturer / the principal the bidder is participating for, has necessary facility to adjust and calibrate the offered measuring units within the country. The list of Plant and Machinery, tools and tackles to carry out services shall be submitted along with the offer.
- 2.08 The offers of Indian subsidiary company, whose parent company is located abroad fulfilling the qualifying requirements as above, shall be considered provided the Indian participant subsidiary company fulfils the minimum experience of one year of supply or manufacturing of similar or better equipments to National / International accredited laboratories or power utilities of India. However, the conditions of turnover and manufacturing

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of similar or better equipments to National / International accredited laboratories or power utilities as brought out elsewhere in tender documents can be fulfilled by the parent company located abroad on behalf of their Indian subsidiary company. The parent company shall furnish undertaking for accepting responsibility for supplying quality equipments as per specifications and execution of the contract on behalf of its India based subsidiary unit who has participated in the tender in Annexure U-I.

3.00 APPLICATION

Universal ERSS meter shall be suitable for use with phantom load at Meter Lab / site, even at consumer's load and loading conditions for testing of LT single phase two wire, LT three phase four wire static as well as electromechanical energy meters and CT operated static as well as electromechanical energy meters and shall be capable to measure the system parameters and to verify the accuracy of the energy meters in the laboratory and at site without disconnecting consumer's supply.

4.00 SERVICE CONDITIONS

The ERSS to be supplied against this specification shall be suitable for satisfactory continuous operation under the following tropical conditions:

Environmental Conditions

- | | |
|--|-----------------------|
| a) Maximum ambient temperature | 55 ⁰ C |
| b) Maximum ambient temperature in shade | 45 ⁰ C |
| c) Minimum temperature of air in shade | 35 ⁰ C |
| d) Maximum daily average temperature | 40 ⁰ C |
| e) Maximum yearly weighted average temperature | 32 ⁰ C |
| f) Relative Humidity | 10 to 95 % |
| g) Maximum Annual rainfall | 1450 mm |
| h) Maximum wind pressure | 150 Kg/m ² |
| i) Maximum altitude above mean sea level | 1000 meters |
| j) Isoceraunic level | 50 days/year |
| k) Seismic level (Horizontal acceleration) | 0.3 g |
| l) Climate: Moderately hot and humid tropical climate conducive to rust and fungus growth. | |

5.00 APPLICABLE STANDARDS

The ERSS meter shall conform in all respects including performance and testing thereof to the latest relevant and applicable Indian / International

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Standards to be read with up to date and latest amendments / revisions thereof but not limited to

IEC: 60736 / 1982 - Testing equipment for electrical energy meters.

IS: 14697 / 1999 – AC Static Transformer operated watt-hour and VAR-hour meters, class 0.5S – specification.

IS: 12346 / 1999 – Testing, Evaluation, Installation and Maintenance of AC electricity meters – Code of Practice.

IS: 9000 – Basic Environmental testing procedures for electronic & electrical items.

IS: 15707 / 2006 Specification for Testing, evaluation, installation & maintenance of AC Electricity Meters - Code of Practice;

The equipment meeting with the requirements of other authoritative standards, which ensures equal or better quality than the standards mentioned above, also shall be considered.

In case the bidder wishes to offer material conforming to the other authoritative standards, salient points of difference between the standards adopted and the specific standards shall be clearly brought out in relevant schedule. Copy of such standards with authentic English Translations, shall be furnished along with the offer.

In case of conflict related with other parts of the specification, the order of priority shall be – (i) this technical specification (ii) IS: 12346 amended upto date & IS: 15707. (iii) IEC 60736 IS: 14697 amended upto date (iii) other authoritative standards.

In case of any difference between provisions of these standards, the provisions of this specification shall prevail.

6.00 GENERAL TECHNICAL REQUIREMENTS

6.01 ACCURACY

The accuracy of the ERSS meter shall be sufficient in any condition for testing kWh and kVarh parts of the energy meters of class 1 confirming to IS: 13779 / 1999 (amended upto date) or IEC 61036 in case of LT whole current meters; class 0.5S conforming to IS: 14697 / 1999 (amended upto date) for Tri-vector energy meters.

The accuracy class of the ERSS meter shall be 0.5S with clamp on CT from 500 mA to 240 Amps for consumers under all conditions of testing at site / Lab with clamp on CT mode.

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6.02 SUPPLY SYSTEM

Sl. No.	Particulars	For LT application	
		Three Phase Meter	Single Phase Meter
1	Supply voltage	415V _{+30%} (phase to phase) three phase four wire	240V _{+30%} (Phase to neutral)
2	Frequency	50 Hz \pm 5%	50 Hz \pm 5%
3	Working range	500 mA to 240 Amps	500 mA to 240 Amps
4	PF range	0 Lag-Unity-0 lead	0 Lag-Unity-0 lead
5	Energy Recorded	Total Energy	Total Energy

6.03 POWER CONSUMPTION

The apparent power consumption of the ERSS meter at a reference voltage, frequency, temperature and rated current shall not be more than 1 VA in current circuit (with CT) and 10 VA in voltage circuit per phase. The auxiliary power consumption of the device shall be less than 25 VA when powered with auxiliary power supply.

6.04 Global Positioning System (GPS) and General Packet Radio Service (GPRS) feature:

ERSS meter should have GPS feature to give GPS co-ordinates of location. Also the meter should be GPRS enabled to submit test results online.

6.05 MEASUREMENT RANGES

Test Voltage Range	168 V to 312 V (Phase to Neutral)
Test Voltage resolution	0.01V
Test Voltage Accuracy	0.2 %
Test Current range	Working range: 500 mA to 240 Amps and measurement range: 500 mA to 240 Amps with clamp on CT.
Test Current resolution	0.001 A

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Test Current accuracy	< 0.2 % (500 mA ... 240 Amps)
Phase Angle measurement range	0 to 360 deg.
Power / energy measurement error (Same for Active, Reactive and Apparent)	0.5% (from 500 mA to 240 Amps)
Power / energy measurement temperature drift	< 100 PPM / deg C
Power / energy measurement stability	< 500 PPM
Error in phase angle measurement	0.2 deg or better
Frequency range	50 Hz \pm 5%
Frequency Resolution	0.01 Hz

7.00 CONSTRUCTIONAL FEATURES AND GENERAL REQUIREMENTS

- 7.01 The ERSS meter shall be designed and constructed in such a way as to avoid introducing any danger in normal use and under normal conditions, so as to ensure especially:
- (a) personal safety against electric shock;
 - (b) personal safety against effects of excessive temperature;
 - (c) protection against spread of fire;
 - (d) protection against penetration of solid objects, dust & water in meter.
- 7.02 All parts that are likely to develop corrosion under normal working condition shall be effectively protected against corrosion by suitable method to achieve durable results. Any protective coating shall not be liable to damage by ordinary handling nor damage due to exposure to air, under normal working conditions.
- 7.03 The ERSS shall be manufactured using SMT (Surface Mount Technology)
- 7.04 The ERSS meter shall have Alpha – numeric keyboard to operate the equipment for software programme and to enter basic details like Consumer number, Meter number, Meter constant etc.
- 7.05 The ERSS meter shall have scanner or optical sensor head along with detachable lead to be used to count revolutions of the disc in Ferraris Wheel meters and LED pulses in static meters as well as for LCD pulses in static meters.

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- 7.06 The ERSS meter shall be provided with a sensor head clamp to hold the scanner properly in front of the LED / LCD output or revolving disc.
- 7.07 The ERSS meter shall also have a snap switch along with detachable lead to be used as an alternative to scanner / sensor head.
- 7.08 The ERSS meter shall be provided with electronic compensated clamp-on set of CTs which enable the testing without isolating or interrupting the supply of the consumer. The equipment shall have facility to interchange the clamp on CTs without affecting the accuracy.
- 7.09 The voltage leads with injection type crocodile clips / any other suitable clamping arrangement with insulated leads shall be provided on ERSS meter.
- 7.10 All the cords / accessories supplied along with the instrument must conform to the international standards of safety. Adequate built in features to protect the instrument itself from over-voltage shall be provided.
- 7.11 While in use, indication that ERSS meter is in correct active mode shall be provided on ERSS by means of LED / LCD screen or otherwise.
- 7.12 ERSS meter shall have facility to display and store total active, reactive and apparent energy including harmonics.
- 7.13 ERSS meter shall have facility to display meter connections.
- 7.14 The ERSS meter shall have facility to select the calculation of apparent power geometrically for individual phases and for summation of all three phases.
- 7.15 All the display parameters indicated in clause no. 8.00 shall be obtained by pressing the push -button.
- 7.16 The ERSS meter shall have a facility to store minimum 300 test results along with following instantaneous parameters. The ERSS meter shall have memory to record the test data. The error data up to at least 300 test shall be stored in ERSS memory and these can be downloaded to computer using communication cord/port(RS232) so that print out can be taken out with software. The test data stored in the memory of ERS shall not be lost by roll over mode but after the memory is exhausted it should flash a message on LCD display or it has some other arrangement for such indication. ERSS meter Shall have capacity to store minimum 300 test results with following data:
 - a. Serial no of meter under test.
 - b. Consumer Identification
 - c. Meter Constant of MUT
 - d. No of revolution / pulses for which test is being carried out.

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- e. Instantaneous voltage, line current, active current & reactive current of each phase.
 - f. Energy Logged/ Recorded by ERSS during test.
 - g. Test duration in hour, minute, & seconds.(With time of commencement & completion) and all parameters shown in clause no. 8.00.
- 7.17 ERSS meter shall be capable of indicating the display for the following conditions by instantaneous values or warning message.
- Missing Potential
 - Missing current
 - Reverse current, if any current is reverse.
 - Phase sequence, if forward or reverse.
 - Over current (*for current more than 120%*)
 - Over Voltage (*for voltage more than 130%*)
 - Low Voltage (*for voltage less than 70%*)
 - Wiring / correct association of voltage and current.
 - Detection of circuit connection faults.
- 7.18 Mains power supply input shall be internally/externally connected to the test voltage.
- 7.19 The ERSS meter shall have a test output in the form of frequency on BNC/ Suitable socket/LED pulse for its own calibration. (General arrangement drawing of Equipment shall be submitted along with bid which indicates the above mention outputs)
- 7.20 The unit shall be powered up through adopter/mains supply which can get supply either from the measuring circuit or from auxiliary single phase supply. However, the ERSS meter shall be made functional by giving supply of 240 Volts $\pm 30\%$ AC through adopter/mains supply between phase to neutral for down loading the data to PC etc.
- 7.21 The ERSS meter shall measure and display a comprehensive analysis of three phase system showing instantaneous and integrated values of each Voltage and Current Input.
- 7.22 Auto range of Current and Voltage inputs shall be provided.
- 7.23 The ERSS meter shall display the error(s) of the meter under test automatically.
- 7.24 The ERSS meter shall have interface to an external printer through PC software.
- 7.25 All the cords / connectors / accessories supplied along with the instrument must conform to the international standards of safety.

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Adequate built in features to protect the instrument itself from over-voltage shall be provided.

- 7.26 The ERSS meter shall be manufactured as per latest state of the art technology for obtaining sustained accuracy, flawless long lasting service. It shall be rugged enough to undergo handling in field conditions while being carried from place to place. It shall therefore be convenient to carry and immune to vibrations or shocks due to transportation or handling. It shall also be immune to external electrical and magnetic fields.
- 7.27 There shall be a provision for input of scanning head and start / stop button on the ERSS unit.
- 7.28 The ERSS meter shall be of low weight, compact and of small size.
- 7.29 The ERSS meter shall be type tested for IP 51 degree of protection as per IS/IEC 60529:2001 against ingress of dust, moisture & vermin.
- 7.30 ERSS meter shall have capability to indicate display for the following conditions:
- Reverse current if any current is reverse.
 - Wrong/correct association of voltage & current.
- 7.31 Self diagnose feature LCD/LED test is required to be provided on meter's display to indicate the healthiness of all segments of LCD display.
- 7.32 The meter shall measure and display a comprehensive analysis of three phase system showing instantaneous and integrated values of
- True RMS value for each phase voltage & current input.
 - Analysis of DC component and Harmonics contents
- 7.33 The choice of following visual display to give a graphical analysis of the system under test shall be provided.
- Vectorial display of system parameters.
 - Wave form display of voltage, current and power.
 - Frequency / Time spectrum display in line, log or relation mode.
- 7.34 Auto range of current and voltage input should be provided.
- 7.35 The meter shall capable for accuracy test of kWh register of Energy Meter and display the % error as well as energy logged/recorded by ERSS meter automatically on ERSS display.
- 7.36 The meter shall be packed in an ergonomically and aesthetically designed instrument case which can with stand the usual handling of field personnel and normal transportation.
- 7.37 All the cords/ connectors/ accessories supplies along with ERS must confirm IEC -1010 and international standards of safety. Adequate built

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in features to protect the instrument itself from over voltage shall be provided.

7.38 REAL TIME INTERNAL CLOCK (RTC)

The real time quartz clock shall be used in the ERSS meter for maintaining time (IST) and calendar. The RTC shall be non - rechargeable and shall be pre-programmed for 30 years calendar of date and time without any necessity for correction. The time accuracy shall be as per provisions of CBIP-Tech-Report-325. The RTC shall have Non rechargeable battery with long life (10 Years).

7.39 The ERSS shall have the facility to record and store minimum 300 test results along with various instantaneous parameters in Non Volatile memory (NVM) memory. The life of NVM shall be minimum 10 years. The error data up to at least 300 tests shall be stored in meter memory and give flashing alarm when 90% of memory is used and these can be downloaded to computer using communication cord / port (RS-232) so that print-outs of test results can be taken out with compatible software. The test data stored in the memory of the ERSS meter shall not be lost by roll over mode; but after the memory is exhausted, it shall flash the message on the LCD display or it shall have some other arrangement for such indication.

7.40 RS - 232 /RJ-45 Ethernet communication port shall be provided to download the data to the computer through the BCS for printing the test results.

7.41 The equipment shall have facility to view / monitor system parameters during performing the Error testing, Dial testing without interrupting the on-going testing.

7.42 ADDITIONAL INDICATIONS

Provision shall be made for the following additional indications:

(a) The Energy flow direction.

(b) Warning for over load beyond the limits specified in the voltage & current circuits.

7.43 AUXILIARY POWER SOURCE

The unit can be powered either from the measuring circuit or from an auxiliary single phase supply with the help of dc power adopter/mains supply. In any case auxiliary power consumption of the device shall be less than 25 VA.

7.44 ELECTROMAGNETIC COMPATIBILITY

The ERSS meter will be required to work accurately in the field so that stray Electromagnetic disturbances or Electrostatic discharge may not

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influence the ERSS meter. Similarly the field generated by ERSS meter may influence the MUT. The composition of the ERSS meter should, therefore such that it's functioning is immune to these forces of external origin and it does not create electromagnetic field, which affects the working or the meteorological functioning of meter under test. The equipment shall be fully protected against electromagnetic interferences, introduced through the connection cables, through capacitive or inductive coupling or by radiated electromagnetic interference. ERSS shall comply all EMC condition and requirement within the limits specified in IS 14697 & CBIP publication 325.

- Fast transient burst Test may be applied to ERS. It should not show any change in register of more than values shown in the relevant test specification IEC 61000-4-4.
- The ERS should not produce any Electromagnetic field which may affect working of MUT confirming to the IEC & IS as per mentioned in clause no. 5.00 of Specification.
- It should not produce any conducted or radiated noise, which can interfere with other equipment & MUT.

7.45 SHOCK AND VIBRATION PROTECTION

The equipment must be immune to Vibration and dumping due to transport. Suitable ergonomically and aesthetically designed transportation instrument case shall be provided along with the equipment. The equipment shall be immune to impact, vibration and bumping due to transport. It shall be within the limits specified in IS 14697:1999

7.46 DIELECTRIC STRENGTH

The equipment shall be capable to withstand between circuits and between circuits and case 2 kV AC 50 HZ for one minute.

7.47 DLMS PROTOCOL

ERSS Meter shall be capable to interface with all types of Meters including meters having DLMS protocol as per IS 15959:2011 and smart meters as per IS 16444.

7.48 INTERCHANGEABLE ELECTRONIC COMPENSATED CLAMP ON CT

It is essential to have Interchangeable Electronic Compensated Clamp on CT in ERSS meter.

8.00 DISPLAY

- 8.01 The ERSS shall show the calibration date and calibration due date on initial screen.
- 8.02 The unit shall have the LCD display of min 3" diagonally in rectangular size shall be preferred to display various electrical parameters. The parameters

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to be displayed shall be selectable through front panel switch. However, the ERSS meter shall display the following parameters.

Sr.No.	Instantaneous Parameters
1.00	Real Time & Date (DD:MM:YYYY, HH:MM)
2.00	R phase Voltage (Vr)
3.00	Y phase Voltage (Vy)
4.00	B phase Voltage (Vb)
5.00	Phase to Phase voltage (V _{RY})
6.00	Phase to Phase voltage (V _{YB})
7.00	Phase to Phase voltage (V _{RB})
8.00	Line current R phase (Ir)
9.00	Line current Y phase (Iy)
10.00	Line current B phase (Ib)
11.00	Frequency
12.00	Three phase Active power
13.00	Three phase Reactive power
14.00	Three phase Apparent power
15.00	Active power R phase
16.00	Active power Y phase
17.00	Active power B phase
18.00	Reactive power R phase
19.00	Reactive power Y phase
20.00	Reactive power B phase
21.00	Apparent power R phase
22.00	Apparent power Y phase
23.00	Apparent power B phase

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24.00	Three phase average Power Factor
25.00	Power factor R phase
26.00	Power factor Y phase
27.00	Power factor B phase
28.00	Phase Sequence
29.00	Error in Percentage
30.00	Calibration date of equipment and calibration due date

8.03 Results of normal tests (results of active energy and reactive energy) shall be in following format.

- Date & Time of testing
- Sr. No. of ERSS
- **Consumer Details**
 Consumer Number
 Consumer's Name & Address
- **MUT details**
 - ✓ Serial Number
 - ✓ Make
 - ✓ Type
 - ✓ Class
 - ✓ Connected CT /PT ratio
 - ✓ Meter constant
 - ✓ No. of revolutions / pulses for which test is being carried out.
- **Instantaneous Electrical parameters**
 - ✓ Phase to Phase voltages and Phase to Neutral Voltages
 - ✓ Current of each phase
 - ✓ Phase angle between voltage
 - ✓ Phase angle between voltage and current
 - ✓ Continuous updating of energy as per selected measuring mode during error testing using scanner or snap switch
 - ✓ Energy logged / recorded by ERSS during test.
 - ✓ Power Factor of each phase
 - ✓ Average Power Factor

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- ✓ Active, Reactive and Apparent Power of each phase
- ✓ Total Active, Reactive and Apparent power
- ✓ Frequency
- ✓ Phase sequence
- ✓ % Error
- ✓ Test duration in hour, minute and seconds (with time of commencement of test and completion).
- ✓ Energy flow direction.

8.04 DISPLAY RESOLUTION

The Minimum Resolution for various parameters shall be as follows:

(1)	Voltage with resolution	0.00 Volts
(2)	Current with resolution	0.0000 Amps
(3)	Power Factor with resolution	0.000
(4)	Energy Measurement with resolution of (WH/VARH/VAH)	0.000 (minimum)
(5)	Frequency Measurement with resolution	0.00 Hz
(6)	Indication of utilization of the memory	To be provided
(7)	Instantaneous load (kW/kVAr/kVA)	0.000
(8)	Percentage error	00.00 %

9.00 MEASUREMENTS MODE

The ERSS shall have the following measurement modes to test LT CT operated meters and direct connected (whole current) meters.

9.01 CLAMP-ON (SPLIT CORE CURRENT TRANSFORMERS) MODE

Three Clamp-On type split core current transformers (CTs) for 500 mA to 240 Amps conforming to class 0.5S shall be provided along with equipment to test direct connected (whole current) meters in primary side and CT operated energy meters in primary as well as in secondary side without disconnecting them from the circuit.

The clamp on CTs shall be compensated for measurement in all four quadrants i.e. for Active, reactive and Apparent mode.

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10.00 METER TESTING

- 10.01 The ERSS shall be able to test the meter under test by entering the MUT constant, number of test revolutions. The meter constant of MUT may also be imp / kWh. The device shall provide flexibility to enter meter constant upto 6 digits.
- 10.02 The testing of MUT shall be performed by using common scanning head, suitable for sensing of rotor mark of ferrari meter or LED / LCD blinking of electronic meters. The scanning head shall be supplied along with mounting arrangement and connection cable.
- 10.03 The ERSS shall allow to use start / stop button integrated on ERSS to start and stop the error test.

11.00 OPERATING MODES

11.01 MANUAL MODE

The equipment shall have facility to test in manual mode using snap switch along with detachable lead as well as inbuilt snap switch to start and stop the test.

11.02 AUTO MODE

A scanner shall be provided along with the equipment to test electromechanical meters by sensing the rotor mark and static (electronic) meters by sensing the LED / LCD pulses. The scanner shall be provided with vacuum type fixing arrangement or any other arrangement suitable to test the meter in laboratory as well as at site. Scanner shall be able to read correctly even in case of its alignment is deviating upto an angle of 15 degree of the axes of optical port.

- 11.03 The equipment shall have facility to select measuring mode for total power / energy for three phase four wire active, reactive and apparent measurements.

12.00 NAME PLATE DATA AND MARKING

The equipment shall have a name plate clearly visible, effectively secured against removal and indelibly and distinctly marked with all essential particulars as per relevant standards. Sr.No. of the equipment along with date of manufacturing as well as other technical details shall invariably be mentioned on the equipment as well as on the Hand bag / carrying case. Serial number on sticker will not be allowed. Name plate data and marking shall be embossed. In addition, following shall be marked on the name plate.

- Purchase order No & date
- Month and Year of manufacture
- Name of purchaser, i.e. MSEDCL

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- Guarantee Five Years

13.00 SOFTWARE

13.01 Each ERSS meter shall be supplied along with base computer software (BCS). The software shall be suitable for downloading the test results into compatible PC / Laptop computer using serial interface data transfer (RS-232 port/RJ-45 Ethernet). The equipment shall be compatible to outside printer. The software shall have facility to generate the test report for individual testing and summary report of all test reports.

13.02 The software shall have facility to generate the test report and print the test report in the following format.

Date and Time of testing

Sr. No. of ERSS

Consumer Details

Consumer No.

Consumer's Name & Address

MUT Details

Make

Sr. No.

Type

Class

MUT Constant

CT / PT ratio

Test revolutions / pulses per kWh

Instantaneous Electrical parameters

Phase to phase Voltages

Phase to neutral voltages

Phase wise Currents

Phase wise Power Factor

Phase wise Active, reactive, apparent power / energy

Frequency

Average Power Factor

Phase wise Power Factor

Energy logged / recorded in ERSS & MUT during test

%Error

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Test duration and test time

Remarks

- 13.03 The offered software shall have facility to convert all stored test results in ASCII file format or similar non-editable format as required. The offered software shall be user friendly & menu driven. The supplier shall impart necessary training regarding installation and use of the above software.
- 13.04 The ERSS meter shall have ASCII or similar support i.e. provision for converting data into ASCII or other popular and commonly available computer software programmes such that the data can be integrated with the meter management system of the utility for ensuring error test record and periodical meter testing.

14.00 TESTS

14.01 TYPE TESTS

The tenderer shall furnish detailed accuracy tests certificates (calibration certificate) of the offered instrument as per relevant Indian amended up to date / International standards.

For the equipments manufactured in India, all the type tests shall be carried out on complete one set of sample at laboratories which are accredited by the National Accreditation Board for Testing and Calibration Laboratories (NABL) of Government of India as per relevant Indian standards to prove that the instruments offered meet the requirements of this specification. Type Test Certificates conducted in manufacturers own laboratory and certified by testing institute shall not be acceptable.

For the equipments manufactured abroad and being imported, all the type tests shall be carried out on complete one set of sample at the concerned nation's government accredited laboratories as per relevant international standards. These type test certificates shall be submitted along with the offer. If some of the type test reports are not available with the manufacturer/supplier at the time of submitting offer, the same type test reports shall be submitted before commencement of supply whereas the bidder has to submit confirmation regarding the same along with the offer.

However in the event of placement of supply order, at least one of the equipment to be supplied as per this technical specifications and shall be got calibrated from any National Accreditation Board for Testing and Calibration Laboratories (NABL) of Government of India as per relevant standards to prove that the instrument offered meets the requirements of this specification before commencement of supply.

This calibration certificate shall be got approved from the Chief Engineer, MSEDCL, Testing & Quality Control Cell, 1st Floor, Prakashgad, Mumbai – 400051 prior to commencement of supply.

**TECHNICAL SPECIFICATION OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD
METER OF ACCURACY 0.5S OR TESTING OF ENERGY METERS**

The Purchaser reserves the right to demand repetition of some or all the type tests in presence of purchaser's representative at purchaser's cost. For this purpose, the tenderer shall quote unit rates for carrying out each type test. However, such unit rates will not be considered for evaluation of the offer. In case the unit fails in type test, the complete supply shall be rejected & expenditure incurred shall be recovered from the tenderer from his deposit.

14.02 ACCEPTANCE & ROUTINE TEST CERTIFICATES

All acceptance tests as per IS: 12346 shall be carried out on the equipment. All acceptance test certificate, routine test certificate, calibration certificate & operation manual must be provided along with each equipment in the form of CD (Compact Disc) as well as a hard copy.

14.03 CALIBRATION CERTIFICATES OF ERSS

The ERSS shall be supplied along with the calibration certificate as per relevant standards. The calibration certificate shall be issued by NABL labs / International Recognized Laboratories.

15.00 GUARANTEED TECHNICAL PARTICULARS

The tenderer shall furnish the particulars giving specific required details of meters in schedule 'A' attached. The offers without the details in Schedule 'A' stand rejected.

16.00 SAMPLE SUBMISSION & DEMONSTRATION

One sample of Three phase ERSS meter along with operating manual, BCS software & all necessary accessories as per technical specification shall be submitted free of cost to S.E.(TQA),Pune OFFICE & Demonstration shall be carried out within 10 days from the date of Tender opening. Those bidders who will failed to submit the sample & Live demonstration their offer shall be liable for rejection against the tender.

17.00 ACCESSORIES

Each universal ERSS reference meter shall be supplied along with the following accessories:

- One common / separate optical sensor (scanning head) for automatic testing, which can be used to sense disc revolutions in electromechanical meter as well as indicating LED / LCD in static meter including clamp on device and connection cable and scanning head carriage.
- Mounting arrangement (clamp) for the optical sensor.
- A set of voltage leads with insulated clips.

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- Serial communication cord with RS-232 connector/RJ-45 Ethernet port to retrieve stored data from the equipment and download the same on PC / laptop.
- Snap switch along with detachable lead as well as in built snap switch.
- Operating Manual in English.
- One adopter set with omega clip.
- One Mains cable.
- One standard calibration report.
- Data download software to read out the module for transfer and presentation of data.
- One set of 3 pieces split core error compensated Clamp On current transformers (CT) of 240 Amps confirming to class 0.5S complete with connection cable for on-line testing.
- Any other accessories which may be required for complete and successful utilization of the equipment as per this specification shall also be supplied.
- Spares:
 - One set of scanning head shall be supplied along with every 10 nos. of equipment.
 - One set of clamp on current transformers (CT) of 240 Amps confirming to class 0.5S shall be supplied along with every 10 nos. of equipments. This spare clamp on CTs can be used with any of equipment without changing in the accuracy.

18.00 TRAINING

The successful bidder shall depute their representative to educate Engineers of purchaser as and when they will be called for at no extra cost.

19.00 GUARANTEE

The ERSS shall be guaranteed for a period of 5 years from the date of commissioning or five and half years from the date of receipt whichever is earlier. The equipment found defective within above guarantee period shall be replaced / repaired / rectified by the supplier free of cost, within one month of receipt of intimation. After the replacement / repairs / rectification, the accuracy shall not be affected. Test report and calibration certificate shall invariably be submitted after rectification / repairs. If defective equipment is not replaced / repaired / rectified within the specified period as above, the Company shall recover an equivalent amount plus 15% supervision charges from any of the bills of the supplier.

**TECHNICAL SPECIFICATION OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD
METER OF ACCURACY 0.5S OR TESTING OF ENERGY METERS**

20.00 AFTER SALES SERVICE

The bidder has to indicate clearly the after sales service to be provided by the supplier within guarantee period and outside guarantee period and Addresses of Sales Service Centre, details of Engineers, etc. shall be submitted along with the offer.

21.00 PRE-DESPATCH INSPECTIONS

The successful bidder shall offer universal ERSS meters at their works for inspection before dispatch. For imported equipments, the supplier / tenderer shall offer the equipments at the authorized service center / works of the original manufacturer in India or at the supplier's works / testing center. The offered lot shall be tested for acceptance tests and any other test as per relevant IS / IEC as required by inspecting officers.

During inspection, if the instrument does not meet the required specification & test results found not satisfactory then it shall be liable for rejection. Calibration Certificates of all associated equipments shall be furnished at the time of factory inspection.

The manufacturer shall offer to the inspector representing the purchaser all the reasonable facilities, free of charge, for inspection and testing, to satisfy him that the material is being supplied in accordance with this specification.

The MSEDCL's representative / Engineer attending the above testing shall carry out testing as per relevant IS / IEC & as per this technical specification and issue test certificate approval to the manufacturer and give clearance for dispatch.

The ERSS meters shall be inspected jointly by the Executive Engineer, Testing Division & the Executive Engineer, Inspection Wing.

22.00 QUALITY CONTROL

The purchaser may send a team of experienced engineers for assessing the capability of the bidder or their principals for manufacturing of ERSS meters as per this specification. The team shall be given all assistance and co-operation for inspection and testing at the bidder's works.

Three tender samples shall be kept ready for assessing and testing. The tenderer has to give all facilities for carrying out the testing of these samples.

23.00 MINIMUM TESTING FACILITIES

The bidder or their principals / manufacturer shall have the necessary minimum testing facilities for carrying out various acceptance and routine tests. A list of machinery / equipment and testing facility available at their Works shall also be furnished along with the offer.

**TECHNICAL SPECIFICATION OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD
METER OF ACCURACY 0.5S OR TESTING OF ENERGY METERS**

24.00 PACKING

24.01 The ERSS meter shall be suitably packed to avoid damage or disturbance during transit or handling. Each instrument may be suitably packed in the first instance to prevent ingress of moisture and dust and then placed in a cushioned carton of a suitable material to prevent damage due to shocks during transit. The lid of the cartoon may be suitably sealed.

A suitable number of sealed cartons may be packed in a case of adequate strength with extra cushioning if considered necessary. The cases may then be properly sealed against accidental opening in transit. The packing cases may be marked to indicate the fragile nature of the contents.

24.02 The following information shall be furnished with the consignment :

- Name of consignee
- Details of consignment
- Destination
- Total Weight of consignment.
- Sign showing upper / lower side of the crate
- Sign showing fragility of the material.
- Handling and unpacking instructions.
- Bill of Materials indicating contents of each package and spare materials.

25.00 SCHEDULES

The tenderer shall fill in the following schedules which are part and parcel of the tender specification and offer. If the schedules are not submitted duly filled in with the offer, the offer shall be liable for rejection. The order copies of the order executed mentioned in the list of order shall be invariably enclosed along with the offer. Only those orders mentioned in the list shall be considered whose order copies shall be enclosed with the offer.

Schedule A – Guaranteed and technical particulars.

26.00 DOCUMENTATION

Two sets of following documents shall be supplied along with each test system.

- Operating manual
- Service manual
- Calibration certificate of reference standard

ANNEXURE U-I

“INDEMNITY BOND”

UNDERTAKING TO BE SUBMITTED BY THE PARENT COMPANY SITUATED ABROAD IN CASE OF THE PARTICIPANT BIDDER WHO IS AN INDIAN BASED SUBSIDIARY ON GENERAL STAMP OF `200.00.

The Chief Engineer,
Maharashtra State Electricity Distribution Co. Ltd.,
Material Management Cell,
1st Floor, Prakashgad, Bandra (E),
Mumbai – 400 056.

Dear Sir:

Sub: Undertaking against Tender No. _____ for procurement of _____

We, M/s. _____ having registered office at _____ are the Parent Company of M/s. _____ who have participated against your tender no. _____ for procurement of _____.

We have carefully read and have thoroughly understood and agree to the terms and conditions of the subject tender.

We hereby undertake that in case of placement of order against the subject tender on our subsidiary company, M/s. _____, in the event of we accept all the responsibilities and liabilities for supply of quality equipments as per specification of the tender and execution of the contract. We further hereby undertake that we shall be responsible for any liability arising out of the contract placed on M/s. _____ and to pay MSEDCL on demand the sum of rupees as per agreement in the event of any breach of condition of the purchase order, loss and damage of the material till expiry of guarantee period as stipulated in the order.

Our liability here under shall not be impaired or discharged by extension of time or variation or alteration made with or without our knowledge or consent by or between the parties to the said contract. This undertaking shall be valid and binding on us upto and including the execution and guarantee period of the order and shall not be terminable by notice or change in the constitution of any of the companies. In case of any dispute arising out of or in connection with this tender or contract, if concluded, the same shall be subject to the exclusive jurisdiction of the **“Court in Mumbai (India).”**

Yours faithfully,
(Authorised Signatory)
For _____

**TECHNICAL SPECIFICATION OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD
 METER OF ACCURACY 0.5S OR TESTING OF ENERGY METERS**

SCHEDULE - "A"

GUARANTEED TECHNICAL PARTICULARS

ITEM NAME	PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD (ERSS) METER OF ACCURACY 0.5S WITH 240 Amps CLAMP ON CTs FOR TESTING OF ENERGY METERS	
SR. NO.	PARTICULARS	GTP VALUES
(1)	MANUFACTURER NAME & ADDRESS	TO BE FILLED BY MANUFACTURER
(2)	COUNTRY OF MANUFACTURE	TO BE FILLED BY MANUFACTURER
(3)	TYPE / MODEL DETAILS OF THE EQUIPMENT	TO BE FILLED BY MANUFACTURER
(4)	OPERATING EXPERIENCE OF THE BIDDER	TO BE FILLED BY MANUFACTURER
(5)	MANUFACTURER HAS EXPERIENCE OF MINIMUM ONE YEAR FOR SUPPLY OF SIMILAR OR BETTER EQUIPMENTS TO NATIONAL / INTERNATIONAL ACCREDITED LABORATORIES OR POWER UTILITIES IN INDIA.	YES
(6)	NECESSARY PURCHASE ORDER COPIES ENCLOSED IN SUPPORT OF ABOVE (4) & (5)	YES
(7)	PURCHASE ORDER NOS. & IN SUPPORT OF ABOVE (4) & (5)	TO BE FILLED BY MANUFACTURER
(8)	SATISFACTORILY PERFORMANCE REPORT FROM NABL LABS / POWER UTILITY IS ENCLOSED?	YES
(9)	DECLARATION AS PER CL NO 2.05 OF TECH SPECS ENCLOSED.	YES
(10)	NAME & ADDRESS OF BIDDERS OR THEIR PRINCIPALS TESTING FACILITIES IN INDIA ENCLOSED WITH OFFER	YES
(11)	NAME & ADDRESS OF BIDDERS OR THEIR PRINCIPALS OWN SERVICE CENTRE IN INDIA	TO BE FILLED BY

**TECHNICAL SPECIFICATION OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD
 METER OF ACCURACY 0.5S OR TESTING OF ENERGY METERS**

	ENCLOSED WITH OFFER	MANUFACTURER
(12)	LIST OF PLANT AND MACHINERY, TOOLS AND TACKLES TO CARRY OUT SERVICE ENCLOSED ALONG WITH OFFER.	YES
(13)	ACCURACY CLASS OF ERSS	0.5S FOR ACTIVE ENERGY AND 0.5S FOR REACTIVE ENERGY
(14)	SUPPLY SYSTEM FOR THREE PHASE METERS	415V \pm 30% (PHASE TO PHASE) THREE PHASE FOUR WIRE
(15)	SUPPLY SYSTEM FOR SINGLE PHASE METERS	240V \pm 30% (PHASE TO NEUTRAL)
(16)	FREQUENCY	50 Hz \pm 5%
(17)	WORKING RANGE FOR THREE PHASE METERS	500 mA TO 240 AMPS
(18)	WORKING RANGE FOR SINGLE PHASE METERS	500 mA TO 240 AMPS
(19)	PF RANGE	0 LAG-UNITY-0 LEAD
(20)	POWER CONSUMPTION IN CURRENT CIRCUIT	SHALL NOT BE MORE THAN 1 VA IN CURRENT CIRCUIT (WITH CT)
(21)	POWER CONSUMPTION IN VOLTAGE CIRCUIT	SHALL NOT BE MORE THAN 10 VA IN VOLTAGE CIRCUIT PER PHASE
(22)	AUXILIARY POWER CONSUMPTION	SHALL BE LESS THAN 25 VA
(23)	TEST VOLTAGE RANGE	168 V TO 312 V (PHASE TO NEUTRAL)
(24)	TEST VOLTAGE RESOLUTION	0.01V
(25)	TEST VOLTAGE ACCURACY	0.2 %
(26)	TEST CURRENT RANGE	WORKING RANGE: 500 MA TO 240 AMPS AND MEASUREMENT RANGE: 500 MA TO 240 AMPS WITH CLAMP ON

**TECHNICAL SPECIFICATION OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD
 METER OF ACCURACY 0.5S OR TESTING OF ENERGY METERS**

		CT.
(27)	TEST CURRENT RESOLUTION	0.001 A
(28)	TEST CURRENT ACCURACY	< 0.2 % (500 MA ... 240 AMPS)
(29)	PHASE ANGLE MEASUREMENT RANGE	0 TO 360 DEG.
(30)	POWER / ENERGY MEASUREMENT ERROR (SAME FOR ACTIVE, REACTIVE AND APPARENT)	0.5% (FROM 500 MA TO 240 AMPS)
(31)	POWER / ENERGY MEASUREMENT TEMPERATURE DRIFT	< 100 PPM / DEG C
(32)	POWER / ENERGY MEASUREMENT STABILITY	< 500 PPM
(33)	ERROR IN PHASE ANGLE MEASUREMENT	0.2 DEG OR BETTER
(34)	FREQUENCY RANGE	50 Hz \pm 5%
(35)	FREQUENCY RESOLUTION	0.01 Hz
(36)	METER HAS ALPHA – NUMERIC KEYBOARD WITH ARROW & ENTER KEYS	YES
(37)	METER HAS SCANNER OR OPTICAL SENSOR HEAD ALONG WITH DETACHABLE LEAD	YES
(38)	SENSOR HEAD CLAMP TO HOLD THE SCANNER PROPERLY IN FRONT OF THE LED / LCD OUTPUT OR REVOLVING DISC IS PROVIDED	YES
(39)	SNAP SWITCH ALONG WITH DETACHABLE LEAD PROVIDED	YES
(40)	ELECTRONIC COMPENSATED CLAMP-ON CTs TO ENABLE TESTING WITHOUT ISOLATING OR INTERRUPTING THE SUPPLY OF THE CONSUMER IS PROVIDED	YES
(41)	EQUIPMENT HAS FACILITY TO INTERCHANGE CLAMP ON CT WITHOUT AFFECTING ACCURACY	YES
(42)	RATING OF CT	500 MA TO 240 AMPS
(43)	ACCURACY OF CT	0.5S

**TECHNICAL SPECIFICATION OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD
 METER OF ACCURACY 0.5S OR TESTING OF ENERGY METERS**

(44)	VOLTAGE LEADS WITH INJECTION TYPE CROCODILE CLIPS / ANY OTHER SUITABLE CLAMPING ARRANGEMENT WITH INSULATED LEADS ARE PROVIDED ON ERSS METER.	YES
(45)	ALL ACCESSORIES SUPPLIED CONFORM TO INTERNATIONAL SAFETY STANDARDS	YES
(46)	ADEQUATE BUILT IN FEATURES TO PROTECT INSTRUMENT ITSELF FROM OVER-VOLTAGE PROVIDED & COMPLIES WITH OVERVOLTAGE CATEGORY II (300V).	YES
(47)	TYPE OF INDICATION PROVIDED ON ERSS THAT ERSS METER IS IN CORRECT ACTIVE MODE	TO BE FILLED BY MANUFACTURER
(48)	ERSS HAS FACILITY TO SELECT THE CALCULATION OF APPARENT POWER GEOMETRICALLY FOR INDIVIDUAL PHASES AND FOR SUMMATION OF ALL THREE PHASES.	YES
(49)	INDICATION TO DISPLAY MISSING / REVERSE / OVER CURRENT / VOLTAGE BY INSTANTANEOUS VALUES OR WARNING MESSAGE IS PROVIDED	YES
(50)	AUTO RANGE OF CURRENT AND VOLTAGE INPUTS IS PROVIDED.	YES
(51)	ERSS DISPLAYS ERROR(S) OF THE METER UNDER TEST AUTOMATICALLY.	YES
(52)	ERSS METER HAS INTERFACE TO AN EXTERNAL PRINTER	YES
(53)	PROVISION FOR INPUT OF SCANNING HEAD AND START / STOP BUTTON ON ERSS	YES
(54)	METER TYPE TESTED FOR IP 51 DEGREE OF PROTECTION AS PER IS: 12063	YES
(55)	IP-51 TYPE TEST REPORT NO. & DATE	TO BE FILLED BY MANUFACTURER
(56)	WHETHER IP-51 TYPE TEST REPORT ENCLOSED ALONG WITH THE BID	YES

**TECHNICAL SPECIFICATION OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD
 METER OF ACCURACY 0.5S OR TESTING OF ENERGY METERS**

(57)	ERSS HAS FACILITY TO RECORD & STORE MINIMUM 300 TEST RESULTS WITH VARIOUS INSTANTANEOUS PARAMETERS IN NON VOLATILE MEMORY (NVM)	YES
(58)	LIFE OF NVM	MINIMUM 10 YEARS
(59)	ERSS GIVES FLASHING ALARM WHEN 90% OF MEMORY IS USED	YES
(60)	PROVISION TO NOT LOSE TEST DATA STORED IN MEMORY OF ERSS BY ROLL OVER MODE IS MADE	YES
(61)	DATA IN ERSS CAN BE DOWN LOADED TO COMPUTER USING COMMUNICATION CORD/ RS-232/RJ-45 ETHERNET PORT PROVIDED ON ERSS THROUGH COMPATIBLE SOFTWARE.	YES
(62)	INDICATION FOR ENERGY FLOW DIRECTION & WARNING FOR OVERLOAD IS MADE ON ERSS	YES
(63)	ERSS IS IMMUNE TO VIBRATION AND DUMPING DUE TO TRANSPORT.	YES
(64)	ERSS SHOWS CALIBRATION DATE AND CALIBRATION DUE DATE ON INITIAL SCREEN	YES
(65)	ERSS HAS LCD DISPLAY OF MIN 3" DIAGONALLY	YES
(66)	ANY SUITABLE RECTANGULAR SIZE WITH 3" DIAGONAL LENGTH SHALL BE PREFERED TO DISPLAY VARIOUS ELECTRICAL PARAMETERS	YES
(67)	PARAMETERS TO BE DISPLAYED ARE SELECTABLE THOUGH FRONT PANEL SWITCH	YES
(68)	DISPLAY OF PARAMETERS AS PER TECHNICAL SPECIFICATION	YES
(69)	MINIMUM RESOLUTION FOR VARIOUS PARAMETERS IS AS PER SPECIFICATION	YES
(70)	THREE CLAMP-ON TYPE SPLIT CORE CURRENT TRANSFORMERS (CTs) FOR 500 MA TO 240 AMPS CONFIRMING TO CLASS 0.5S PROVIDED	YES

**TECHNICAL SPECIFICATION OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD
 METER OF ACCURACY 0.5S OR TESTING OF ENERGY METERS**

(71)	CLAMP ON CTs COMPENSATED FOR MEASUREMENT IN ALL FOUR QUADRANTS	YES
(72)	ERSS HAS FLEXIBILITY TO ENTER METER CONSTANT UPTO 6 DIGITS.	YES
(73)	SCANNING HEAD IS SUPPLIED ALONG WITH MOUNTING ARRANGEMENT & CONNECTION CABLE	YES
(74)	START / STOP BUTTON INTEGRATED ON ERSS	YES
(75)	EQUIPMENT HAS FACILITY TO TEST IN MANUAL MODE	YES
(76)	EQUIPMENT HAS FACILITY TO TEST IN AUTO MODE	YES
(77)	EQUIPMENT HAS FACILITY TO SELECT MEASURING MODE FOR TOTAL POWER / ENERGY	YES
(78)	CLEARLY VISIBLE, EFFECTIVELY SECURED AGAINST REMOVAL & INDELIBLY AND DISTINCTLY MARKED WITH ALL ESSENTIAL PARTICULARS AS PER RELEVANT STANDARDS NAME PLATE IS PROVIDED	YES
(79)	ERSS IS SUPPLIED ALONG WITH BCS	YES
(80)	SOFTWARE IS SUITABLE FOR DOWNLOADING THE TEST RESULTS INTO COMPATIBLE PC / LAPTOP COMPUTER USING SERIAL INTERFACE DATA TRANSFER (RS-232 /RJ-45 ETHERNET PORT).	YES
(81)	ERSS IS COMPATIBLE TO EXTERNAL PRINTER.	YES
(82)	SOFTWARE HAS FACILITY TO GENERATE TEST REPORT FOR INDIVIDUAL TESTING AND SUMMARY REPORT OF ALL TEST REPORTS.	YES
(83)	ERSS HAS ASCII OR SIMILAR SUPPORT FOR CONVERTING DATA INTO ASCII OR OTHER POPULAR AND COMMONLY AVAILABLE NON-EDITABLE COMPUTER SOFTWARE PROGRAMMES	YES

**TECHNICAL SPECIFICATION OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD
 METER OF ACCURACY 0.5S OR TESTING OF ENERGY METERS**

(84)	MAINS POWER SUPPLY INPUT IS INTERNALLY CONNECTED TO TEST VOLTAGE.	YES
(85)	PROVISION FOR INPUT OF SCANNING HEAD AND START / STOP BUTTON IS MADE	YES
(86)	ERGONOMICALLY AND AESTHETICALLY DESIGNED INSTRUMENT TRANSPORTATION CASE IS PROVIDED ALONG WITH THE EQUIPMENT.	YES
(87)	SCANNER IS ABLE TO READ CORRECTLY EVEN IN CASE OF ITS ALIGNMENT IS DEVIATING UPTO AN ANGLE OF 15 DEGREE OF THE AXES OF OPTICAL PORT.	YES
(88)	WHETHER ERSS IS TYPE TESTED	YES
(89)	TYPE TEST / CALIBRATION REPORT SUBMITTED ALONG WITH OFFER	YES
(90)	TYPE TEST / CALIBRATION REPORT NOS. & DATE	TO BE FILLED BY THE MANUFACTURER
(91)	SUPPLIER AGREES TO IMPART NECESSARY TRAINING REGARDING INSTALLATION AND USE OF SOFTWARE.	YES
(92)	SUPPLIER AGREES TO SUPPLY ERSS WITH ALL ACCESSORIES AS PER TECHNICAL SPECIFICATION	YES
(93)	SUPPLIER AGREES TO DEPUTE THEIR REPRESENTATIVE TO EDUCATE ENGINEERS OF PURCHASER AS AND WHEN THEY WILL BE CALLED FOR AT NO EXTRA COST	YES
(94)	GUARANTEE OF ERSS AS PER CLAUSE NO. 19.00	YES
(95)	DETAILS OF AFTER SALES SERVICE TO BE PROVIDED BY SUPPLIER WITHIN GUARANTEE PERIOD	YES
(96)	DETAILS OF AFTER SALES SERVICE TO BE PROVIDED BY SUPPLIER OUTSIDE GUARANTEE PERIOD	YES

**TECHNICAL SPECIFICATION OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD
METER OF ACCURACY 0.5S OR TESTING OF ENERGY METERS**

(97)	ADDRESSES OF SALES SERVICE CENTRE, DETAILS OF ENGINEERS	TO BE FILLED BY MANUFACTURER
(98)	DETAILS OF NECESSARY MINIMUM TESTING FACILITIES FOR CARRYING OUT VARIOUS ACCEPTANCE AND ROUTINE TESTS SUBMITTED ALONG WITH OFFER.	TO BE FILLED BY MANUFACTURER
(99)	A LIST OF MACHINERY / EQUIPMENT AND TESTING FACILITY AVAILABLE AT THEIR WORKS IS FURNISHED ALONG WITH OFFER.	YES

Technical Specification Item: 3 PHASE HT PORTABLE ERS METERS



Maharashtra State Electricity Distribution Company Limited

SPECIFICATION NO.MMC: MSC/DB/01 /2018

TECHNICAL SPECIFICATION

For

3 PHASE HT PORTABLE ERS METERS

For

DISTRIBUTION SYSTEM

IN

MSEDCL

MATERIAL SPECIFICATIONS CELL

TECHNICAL SPECIFICATION

OF

THREE PHASE HT PORTABLE ELECTRONIC REFERENCE
STANDARD SUB METER OF ACCURACY CLASS 0.1S

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1.00 SCOPE

This specification covers the general and standard requirements, technical data, design, engineering, manufacturing, assembly, inspection and testing at manufacturer's works, supply and delivery at stores of universal type portable light-weight Electronic Reference Standard Sub meter (ERSS) with complete accessories of accuracy class 0.1S at site as well as in Laboratory both for active and reactive energy. HT ERSS shall have auto mode selection for current ranges from 10 mA to 10 Amp in direct mode for testing of HT 1 Amp & 5 Amp CT & PT operated Meters. Also HT ERSS should have two nos. of external set of Clamp On type CT of 100mA to 100A and 1A to 300A.

A portable, universal type, light-weight, electronic, precision portable energy meter testing equipment shall be capable of testing of all types of HT three phase four wire CT operated static as well as electromechanical energy meters via split core transformers (current circuits).

The ERSS meter must have micro-processor unit with software support suitable for on line testing of all types of energy meters described above at site having memory and capability of communication with the base computer. Computer software shall be such that final data shall be converted for further processing to generate inputs & reports.

The scope of the ERSS meter is not limited to following type of meters but it shall be capable of testing electronic meters / electro mechanical energy meters of any latest version including but not limited to the following types:

- Ferraris (Induction) Meters with rotating disc.
- Static Meters with flashing pulse output of LCD / LED.
- Three Phase Active, Apparent and Reactive energy Meters.

The ERSS meter shall also be capable of performing the following functions:

- Verification of meter circuit connections using instantaneous parameters.
- Selection of measurement mode for total four wire active, reactive and apparent power / energy shall be provided for.

The ERSS meter shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation, in a manner acceptable to purchaser, who will interpret the meaning of drawings

and specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered material shall be complete with all components necessary for their effective and trouble free operation. Such components shall be deemed to be within the scope of Bidder's supply irrespective of whether those are specifically brought out in these specifications and / or the commercial order or not.

2.00 QUALIFYING REQUIREMENT

- 2.01 The bidder shall be an original manufacturer for the tendered item. Traders, Dealers & distributors bidding will not be considered.
- 2.02 The operating experience of the bidder shall be minimum five years for supplying and providing after sales support of similar or better equipment to Government NABL accredited laboratories / power utilities in India only. The bidder shall enclose necessary purchase order and relevant documents along with their bid to prove the same.
- 2.03 The manufacturer must have experience of minimum five year for supply of similar or better equipments to National accredited laboratories/power utilities in India. The manufacturer shall enclose necessary purchase order copies along with their bid to prove the same.
- 2.04 The bidder shall submit satisfactorily performance report copies of supplied similar tender equipment from other power utilities in India.
- 2.05 The bidder shall declare that the bidder or their principals have not ever been black listed / defaulter by any utility / ESCOMs / Distribution Company / Laboratories / Any department of State Government or Central Government on record of poor performance such as not properly completing the contract, inordinate delays in supply completion, not supplying the items as per commitment of contract etc.
- 2.06 Bidder or their principals shall have fully equipped technical support office / laboratory for facilities of testing, calibration, adjustment, diagnosis and repair of equipments in India itself. Bidder or their principals shall have technical support staff posted in India for technical support after sale.
- 2.07 The Bidder or their principals shall have their own service centers and trained engineers dedicated for trouble shooting and technical support permanently posted in India. The bidder shall enclose necessary proof that the firm / the manufacturer / the principal the bidder is participating for, has necessary facility to adjust and calibrate the offered measuring units within the country. The list of Plant and

Machinery, tools and tackles to carry out services shall be submitted along with the offer.

- 2.08 The offers of Indian subsidiary company, whose parent company is located abroad fulfilling the qualifying requirements as above, shall be considered provided the Indian participant subsidiary company fulfils the minimum experience of one year of supply or manufacturing of similar or better equipments to National accredited laboratories or government power utilities of India. However, the conditions of turnover and manufacturing of similar or better equipments to National accredited laboratories or government power utilities as brought out elsewhere in tender documents can be fulfilled by the parent company located abroad on behalf of their Indian subsidiary company. The parent company shall furnish undertaking for accepting responsibility for supplying quality equipments as per specifications and execution of the contract on behalf of its India based subsidiary unit who has participated in the tender in Annexure U-I.

3.00 APPLICATION

Universal ERSS meter shall be suitable for use with phantom load at Meter Lab / site, even at consumer's load and loading conditions for testing of HT three phase four wire CT operated static having 0.5S/0.2S accuracy class as well as electromechanical energy meters and shall be capable to measure the system parameters and to verify the accuracy of the energy meters in the laboratory and at site without disconnecting consumer's supply.

4.00 SERVICE CONDITIONS

The ERSS to be supplied against this specification shall be suitable for satisfactory continuous operation under the following tropical conditions:

Environmental Conditions

- | | |
|--|-----------------------|
| a) Maximum ambient temperature | 55° C |
| b) Maximum ambient temperature in shade | 45° C |
| c) Minimum temperature of air in shade | 35° C |
| d) Maximum daily average temperature | 40° C |
| e) Maximum yearly weighted average temperature | 32° C |
| f) Relative Humidity | 10 to 95 % |
| g) Maximum Annual rainfall | 1450 mm |
| h) Maximum wind pressure | 150 Kg/m ² |

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- i) Maximum altitude above mean sea level 1000 meters
- j) Isoceraunic level 50 days/year
- k) Seismic level (Horizontal acceleration) 0.3 g
- l) Climate: Moderately hot and humid tropical climate conducive to rust and fungus growth.

5.00 APPLICABLE STANDARDS

The ERSS meter shall conform in all respects including performance and testing thereof to the latest relevant and applicable Indian / International Standards to be read with up to date and latest amendments / revisions thereof but not limited to

IEC: 60736 / 1982 - Testing equipment for electrical energy meters.

IS: 14697 / 1999 – AC Static Transformer operated watt-hour and VAR-hour meters, class 0.2S and class 0.5S – specification.

IS: 12346 / 1999 – Testing, Evaluation, Installation and Maintenance of AC electricity meters – Code of Practice.

IS: 9000 – Basic Environmental testing procedures for electronic & electrical items.

IS: 15707 / 2006 Specification for Testing, evaluation, installation & maintenance of AC Electricity Meters - Code of Practice;

The equipment meeting with the requirements of other authoritative standards, which ensures equal or better quality than the standards mentioned above, also shall be considered.

In case the bidder wishes to offer material conforming to the other authoritative standards, salient points of difference between the standards adopted and the specific standards shall be clearly brought out in relevant schedule. Copy of such standards with authentic English Translations, shall be furnished along with the offer.

In case of conflict related with other parts of the specification, the order of priority shall be – (i) this technical specification (ii) IS: 12346 amended upto date & IS: 15707. (iii) IEC 60736 IS: 14697 amended upto date (iii) other authoritative standards.

In case of any difference between provisions of these standards, the provisions of this specification shall prevail.

6.00 GENERAL TECHNICAL REQUIREMENTS

6.01 ACCURACY

The accuracy of the ERSS meter shall be sufficient in any condition for testing kWh, kVArh and kVAh parts of the energy meters of class

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0.2S and 0.5S conforming to IS: 14697 / 1999 (amended upto date) for Tri-vector energy meters.

The accuracy class of the ERSS meter shall be 0.1S with current range 10 mA to 10 Amps (Direct mode), 0.2S accuracy for 100 mA to 100 Amps (CT Mode) and for 1 Amps to 300 Amps (CT Mode) under all conditions of testing at site / Lab.

The equipment shall have facility to interchange the clamp on CT from one equipment to another equipment without affecting the overall accuracy.

6.02 SUPPLY SYSTEM

Sl. No.	Particulars	For HT application
		Three Phase Meter
1	Supply voltage	110V \pm 30% (phase to phase) three phase four wire
2	Frequency	50 Hz \pm 5%
3	Working range	10 mA to 10 Amps (Direct mode), 100mA to 100Amps (CT Mode) 1 Amp to 300 Amp (CT Mode)
4	PF range	0 Lag-Unity-0 lead
5	Energy Recorded	Total Energy

6.03 POWER CONSUMPTION

The apparent power consumption of the ERSS meter at a reference voltage, frequency, temperature and rated current shall not be more than 1 VA in current circuit (with CT) and 10 VA in voltage circuit per phase.

The auxiliary power consumption of the device shall be less than 25 VA when powered with auxiliary power supply.

6.04 Global Positioning System (GPS) and General Packet Radio Service (GPRS) feature:

ERSS meter should have GPS feature to give GPS co-ordinates of location. Also the meter should be GPRS enabled to submit test results online. Facility shall be provided to set Date and time as per GPS. MSEDCL URL should be used to transfer data in ERSS meter to MSEDCL server, in JSON format. It should be possible to configure MSEDCL URL in ERSS meter. Details of URL & JSON format will be informed to successful bidders.

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6.05 MEASUREMENT RANGES

Test Voltage Range	50 V to 300 V (Phase to Neutral) 86 V to 520V (Phase to Phase)
Test Voltage resolution	0.01V
Test Voltage Accuracy	<0.05 % (50 V to 300 V)
Test Current range	10 mA to 10 Amps (Direct mode), 100 mA to 100Amps (Clamp on CT Mode) 1 Amp to 300 Amp (CT Mode)
Test Current resolution	0.001 A to 0.01A (Direct mode), 0.1 A to 0.01 A (Clamp on CT Mode)
Test Current accuracy	< 0.05 % (10 mA to 10 A) < 0.15% (100 mA to 100 A) < 0.15% (1 A to 300 A)
Phase Angle measurement range	0 to 360 deg.
Power / energy measurement error (Same for Active, Reactive and Apparent)	0.1% (Direct mode) (10 mA to 10 A), 0.2% (Clamp on CT Mode) (100 mA to 100 A) 0.2% (Clamp on CT Mode) (1A to 300 A)
Power / energy measurement temperature drift	< 100 PPM / deg C
Power / energy measurement stability	< 500 PPM
Error in phase angle measurement	0.2 deg or better
Frequency range	50 Hz \pm 5%
Frequency Resolution	0.01 Hz
Harmonic Measurement	Up to 21st Harmonics in Voltage circuit & Current Circuit
POWER FACTOR	Power Factor range: Zero Lag to unity to Zero Lead $\text{Avg. P.F} = \frac{\text{Total (kWh)}}{\text{Total (kVAh)}}$ $\text{kVAh} = \sqrt{(\text{kWh})^2 + (\text{RkVAhlag} + \text{RkVAhlead})^2}$

7.00 CONSTRUCTIONAL FEATURES AND GENERAL REQUIREMENTS

- 7.01 The ERSS meter shall be designed and constructed in such a way as to avoid introducing any danger in normal use and under normal conditions, so as to ensure especially:
- (a) personal safety against electric shock;
 - (b) personal safety against effects of excessive temperature;
 - (c) protection against spread of fire;
 - (d) protection against penetration of solid objects, dust & water in meter.
- 7.02 All parts that are likely to develop corrosion under normal working condition shall be effectively protected against corrosion by suitable method to achieve durable results. Any protective coating shall not be liable to damage by ordinary handling nor damage due to exposure to air, under normal working conditions.
- 7.03 The ERSS shall be manufactured using SMT (Surface Mount Technology)
- 7.04 The ERSS meter shall have Alpha – numeric keyboard to operate the equipment for software programme and to enter basic details like Consumer number, Meter number, Meter constant etc.
- 7.05 The ERSS meter shall have scanner or optical sensor head along with detachable lead to be used to count revolutions of the disc in Ferraris Wheel meters and LED pulses in static meters.
- 7.06 The ERSS meter shall be provided with a sensor head clamp to hold the scanner properly in front of the LED / LCD output or revolving disc.
- 7.07 The ERSS meter shall also have a snap switch along with detachable lead to be used as an alternative to scanner / sensor head.
- 7.08 The ERSS meter shall be provided with electronic compensated clamp-on set of CTs which enable the testing without isolating or interrupting the supply of the consumer. The equipment shall have facility to interchange the clamp on CTs without affecting the accuracy.
- 7.09 The voltage leads with injection type crocodile clips / any other suitable clamping arrangement with insulated leads shall be provided on ERSS meter. Voltage measuring circuit should be inbuilt in the equipment. External type transducer won't be acceptable
- 7.10 All the cords / accessories supplied along with the instrument must conform to the international standards of safety. Adequate built in

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- features to protect the instrument itself from over-voltage shall be provided.
- 7.11 While in use, indication that ERSS meter is in correct active mode shall be provided on ERSS by means of LED screen or otherwise.
- 7.12 ERSS meter shall have facility to display and store total active, reactive and apparent energy including harmonics.
- 7.13 ERSS meter shall have facility to display meter connections.
- 7.14 The ERSS meter shall have facility to select the calculation of apparent power geometrically for individual phases and for summation of all three phases.
- 7.15 All the display parameters indicated in clause no. 8.00 shall be obtained by pressing the push-button. For external type of display, touch screen facility shall be allowed.
- 7.16 The ERSS meter shall have a facility to store upto 1000 test results along with following instantaneous parameters. The ERSS meter shall have memory to record the test data. The error data up to 1000 test results shall be stored in ERSS memory and these can be downloaded to computer using communication cord/port (RS232/USB) so that print out can be taken out with software. The test data stored in the memory of ERS shall not be lost by roll over mode but after the memory is exhausted it should flash a message on LCD display or it has some other arrangement for such indication. ERSS meter Shall have capacity to store upto 1000 test results with following data:
- Serial no of meter under test.
 - Consumer Identification
 - Meter Constant of MUT
 - No of revolution /pulses for which test is being carried out.
 - Instantaneous voltage, line current, active current & reactive current of each phase.
 - Energy Logged/ Recorded by ERSS during test.
 - Test duration in hour, minute, & seconds. (With time of commencement & completion) and all parameters shown in clause no. 8.00.
- 7.17 ERSS shall have also have facility to store the following.
- Harmonics in the tabular form of table with absolute value of harmonics and angle of harmonics.
 - Harmonics in the form of bar graph.
 - Equipment should have facility to store active, reactive and apparent powers due to harmonics along with sign (to show the

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- direction of flow of harmonics) and also should have facility to measure THD.
- Vector diagrams for selected voltage and current ranges and measuring mode.
- 7.18 ERSS meter shall be capable of indicating the display for the following conditions by instantaneous values or warning message.
- Missing Potential
 - Missing current
 - Reverse current, if any current is reverse.
 - Phase sequence, if forward or reverse.
 - Over current (*for current more than 120%*)
 - Over Voltage (*for voltage more than 120%*)
 - Low Voltage (*for voltage less than 70%*)
 - Wiring / correct association of voltage and current.
 - Detection of circuit connection faults.
- 7.19 Mains power supply input shall be internally/externally connected to the test voltage.
- 7.20 The ERSS meter shall have a test output in the form of frequency on BNC/ Suitable socket/LED pulse for its own calibration. (General arrangement drawing of Equipment shall be submitted along with bid which indicates the above mention outputs)
- 7.21 The unit shall be powered up through mains supply which can get supply either from the measuring circuit or from auxiliary single phase supply. However, the ERSS meter shall be made functional by giving supply of 50V-300V AC through mains supply between phase to neutral for down loading the data to PC etc.
- 7.22 The ERSS meter shall measure and display a comprehensive analysis of three phase system showing instantaneous and integrated values of each Voltage and Current Input.
- 7.23 Auto range of Current and Voltage inputs shall be provided.
- 7.24 The ERSS meter shall display the error(s) of the meter under test automatically.
- 7.25 The ERSS meter shall have interface to an external printer through PC software.
- 7.26 All the cords / connectors / accessories supplied along with the instrument must conform to the international standards of safety.

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- Adequate built in features to protect the instrument itself from over-voltage shall be provided.
- 7.27 The ERSS meter shall be manufactured as per latest state of the art technology for obtaining sustained accuracy, flawless long lasting service. It shall be rugged enough to undergo handling in field conditions while being carried from place to place. It shall therefore be convenient to carry and immune to vibrations or shocks due to transportation or handling. It shall also be immune to external electrical and magnetic fields.
- 7.28 There shall be a provision for input of scanning head and start / stop button on the ERSS unit.
- 7.29 The ERSS meter shall be of low weight, compact and of small size.
- 7.30 The ERSS meter shall be type tested for IP 51 degree of protection as per IS/IEC 60529:2001 against ingress of dust, moisture & vermin.
- 7.31 ERSS meter shall have capability to indicate display for the following conditions:
- Reverse current if any current is reverse.
 - Wrong/correct association of voltage & current.
- 7.32 Self diagnose feature LCD/LED test is required to be provided on meter's display to indicate the healthiness of all segments of LCD display.
- 7.33 The meter shall measure and display a comprehensive analysis of three phase system showing instantaneous and integrated values of
- True RMS value for each phase voltage & current input.
 - Analysis of DC component and Harmonics contents
- 7.34 The choice of following visual display to give a graphical analysis of the system under test shall be provided.
- Vectorial display of system parameters.
 - Wave form display of voltage, current and power.
 - Frequency / Time spectrum display in line, log or relation mode.
- 7.35 Auto range of current and voltage input should be provided.
- 7.36 The meter shall capable for accuracy test of kWh/RkVAh/kVAh register of Energy Meter and display the % error as well as energy logged/recorded by ERSS meter automatically on ERSS display.
- 7.37 The meter shall be packed in an ergonomically and aesthetically designed instrument case which can with stand the usual handling of field personnel and normal transportation.

7.38 All the cords/ connectors/ accessories supplies along with ERS must confirm IEC -1010 and international standards of safety. Adequate built in features to protect the instrument itself from over voltage shall be provided.

7.39 **REAL TIME INTERNAL CLOCK (RTC)**

The real time quartz clock shall be used in the ERSS meter for maintaining time (IST) and calendar. The RTC shall be non - rechargeable and shall be pre-programmed for 30 years calendar of date and time without any necessity for correction. The time accuracy shall be as per provisions of CBIP-Tech-Report-88. The RTC shall have Non rechargeable battery with long life (10 Years).

7.40 The ERSS shall have the facility to record and store minimum 1000 test results along with various instantaneous parameters in Non Volatile memory (NVM) memory. The life of NVM shall be minimum 10 years. The error data up to at least 1000 tests shall be stored in meter memory and give flashing alarm when 90% of memory is used and these can be down loaded to computer using communication cord/port (RS-232/USB))so that print-outs of test results can be taken out with compatible software. The test data stored in the memory of the ERSS meter shall not be lost by roll over mode; but after the memory is exhausted, it shall flash the message on the LCD display or it shall have some other arrangement for such indication.

7.41 RS-232/RJ-45 Ethernet communication port/USB port shall be provided to download the data to the computer through the BCS for printing the test results.

7.42 The equipment shall have facility to view / monitor system parameters during performing the Error testing, Dial testing without interrupting the on-going testing.

7.43 **ADDITIONAL INDICATIONS**

Provision shall be made for the following additional indications:

(a) The Energy flow direction.

(b) Warning for over load beyond the limits specified in the voltage & current circuits.

7.44 **AUXILIARY POWER SOURCE**

The unit can be powered either from the measuring circuit or from an auxiliary single phase supply with the help of mains supply. In any case auxiliary power consumption of the device shall be less than 25 VA.

7.45 **ELECTROMAGNETIC COMPATIBILITY**

The ERSS meter will be required to work accurately in the field so that stray Electromagnetic disturbances or Electrostatic discharge may not influence the ERSS meter. Similarly the field generated by ERSS meter may influence the MUT. The composition of the ERSS meter should, therefore such that it's functioning is immune to these forces of external origin and it does not create electromagnetic field, which affects the working or the meteorological functioning of meter under test. The equipment shall be fully protected against electromagnetic interferences, introduced through the connection cables, through capacitive or inductive coupling or by radiated electromagnetic interference. ERSS shall comply all EMC condition and requirement within the limits specified in IEC 61000-4-3.

- Fast transient burst Test may be applied to ERS. It should not show any change in register of more than values shown in the relevant test specification IEC 61000-4-4.
- The ERS should not produce any Electromagnetic field which may affect working of MUT confirming to the IEC & IS as per mentioned in clause no. 5.00 of Specification.
- It should not produce any conducted or radiated noise, which can interfere with other equipment & MUT.

7.46 **SHOCK AND VIBRATION PROTECTION**

The equipment must be immune to Vibration and dumping due to transport. Suitable ergonomically and aesthetically designed transportation instrument case shall be provided along with the equipment. The equipment shall be immune to impact, vibration and bumping due to transport. It shall be within the limits specified in IS 14697:1999

7.47 **DIELECTRIC STRENGTH**

The equipment shall be capable to withstand between circuits and between circuits and case 2 kV AC 50 Hz for one minute.

7.48 **DLMS PROTOCOL**

ERSS Meter shall be capable to interface with all types of Meters including meters having DLMS protocol as per IS 15959:2011.

7.49 **INTERCHANGEABLE ELECTRONIC COMPENSATED CLAMP ON CT**

It is essential to have Interchangeable Electronic Compensated Clamp on CT in ERSS meter.

7.50 A set of voltage & current leads with suitable connectors which enable the testing without isolating or interrupting the supply of the

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consumer shall be supplied along with the HT ERSS. A set of clamp on CT's consisting of three CT's of 100 Amps with minimum internal diameter of 12 mm and CT's of 300 Amps with minimum internal diameter of 50 mm shall be provided along with the equipment. The connecting cable length of clamp-on CT & voltage cables shall be minimum of 2.0 m.

- 7.51 An error calculator shall be incorporated in the Portable Three Phase Calibrator, which shall have facility to calculate error in percentage by feeding the meter constant and number of pulses through the inbuilt key board.
- 7.52 The equipment shall have adequate built in features to protect the instrument from over voltage.
- 7.53 The Unit shall be powered from the power supply of meter under test and also from the auxiliary supply in the range as indicated in clause 4.73 above, and should not require battery back up for its operation & data storage.
- 7.54 Equipment should have facility to measure active, reactive and apparent powers due to harmonics along with sign (to show the direction of flow of harmonics) and also should have facility to measure THD.
- 7.55 Facility to select measurement mode for fundamental power or total power for 4 wire Active, Reactive & Apparent measurement.

8.00 DISPLAY

- 8.01 The ERSS shall show the calibration date and calibration due date on initial screen. Indelible sticker shall also acceptable.
- 8.02 The unit shall have the inbuilt/external type (wireless) LCD display of min 5" diagonally in rectangular size shall be preferred to display various electrical parameters. The parameters to be displayed shall be selectable though front panel switch. However, the ERSS meter shall display the following parameters.

Sr.No.	Instantaneous Parameters
1.00	Real Time & Date (DD:MM:YYYY, HH:MM)
2.00	R phase Voltage (Vr)
3.00	Y phase Voltage (Vy)
4.00	B phase Voltage (Vb)

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5.00	Phase to Phase voltage (V_{RY})
6.00	Phase to Phase voltage (V_{YB})
7.00	Phase to Phase voltage (V_{RB})
8.00	Line current R phase (I_r)
9.00	Line current Y phase (I_y)
10.00	Line current B phase (I_b)
11.00	Frequency
12.00	Three phase Active power
13.00	Three phase Reactive power
14.00	Three phase Apparent power
15.00	Active power R phase
16.00	Active power Y phase
17.00	Active power B phase
18.00	Reactive power R phase
19.00	Reactive power Y phase
20.00	Reactive power B phase
21.00	Apparent power R phase
22.00	Apparent power Y phase
23.00	Apparent power B phase
24.00	Three phase average Power Factor
25.00	Power factor R phase
26.00	Power factor Y phase
27.00	Power factor B phase
28.00	Total Harmonic Distortion phase wise upto 21st harmonic

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29.00	Phase Sequence
30.00	Error in Percentage

8.03 Results of normal tests (results of active energy and reactive energy) shall have all parameters mentioned under Annexure I.

8.04 DISPLAY RESOLUTION

The Minimum Resolution for various parameters shall be as follows:

(1)	Voltage with resolution	0.00 Volts
(2)	Current with resolution	0.000 Amps
(3)	Power Factor with resolution	0.000
(4)	Energy Measurement with resolution of (WH/VARH/VAH)	0.000 (minimum)
(5)	Frequency Measurement with resolution	0.00 Hz
(6)	Indication of utilization of the memory	To be provided
(7)	Instantaneous load (kW/kVAr/kVA)	0.000
(8)	Percentage error	00.00 %

9.00 MEASUREMENTS MODE

The ERSS shall have the following measurement modes to test HT meters.

9.01 Direct Mode

The ERSS shall be made for testing of HT Energy meters using phantom load at meter testing lab as well as at site (i.e. on consumer load) without use of clamp on CTs i.e. with direct mode in 10 mA to 10 Amp range confirming to class 0.1S. For Direct mode current measuring circuit shall be inbuilt in the ERSS. External type transducer won't be acceptable.

9.02 Clamp-On (Split Core Current Transformers) Mode

Three Clamp-On type split core current transformers (CTs) 100 mA to 100Amps confirming to class 0.2S and 1 A to 300 A confirming to class 0.2S shall be provided along with equipment to test CT operated energy meters in primary as well as in secondary side without disconnecting them from the circuit.

The clamp on CTs shall be compensated for measurement in all four quadrants i.e. for Active, reactive and Apparent mode

10.00 METER TESTING

10.01 The ERSS shall be able to test the meter under test by entering the MUT constant, number of test revolutions. The meter constant of MUT may also be imp / kWh & imp/rkVAh. The device shall provide flexibility to enter meter constant upto 6 digits.

10.02 The testing of MUT shall be performed by using common scanning head, suitable for sensing of rotor mark of ferrari meter or LED / LCD blinking of electronic meters. The scanning head shall be supplied along with mounting arrangement and connection cable.

10.03 The ERSS shall allow to use start/ stop button integrated on ERSS to start and stop the error test.

11.00 OPERATING MODES

11.01 MANUAL MODE

The equipment shall have facility to test in manual mode using snap switch along with detachable lead as well as inbuilt snap switch to start and stop the test.

11.02 AUTO MODE

A scanner shall be provided along with the equipment to test electromechanical meters by sensing the rotor mark and static (electronic) meters by sensing the LED / LCD pulses. The scanner shall be provided with vacuum type fixing arrangement or any other arrangement suitable to test the meter in laboratory as well as at site. Scanner shall be able to read correctly even in case of its alignment is deviating upto an angle of 15 degree of the axes of optical port.

11.03 The equipment shall have facility to select measuring mode for total power / energy for three phase four wire active, reactive and apparent measurements.

12.00 NAME PLATE DATA AND MARKING

The equipment shall have a name plate clearly visible, effectively secured against removal and indelibly and distinctly marked with all essential particulars as per relevant standards. Sr.No. of the equipment along with date of manufacturing as well as other technical details shall invariably be mentioned on the equipment as well as on the Hand bag / carrying case. Serial number on indelible sticker shall be allowed. Name plate data and marking shall be embossed/engraved. In addition, following shall be marked on the name plate.

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- Purchase order No & date
- Month and Year of manufacture
- Name of purchaser, i.e. MSEDCL
- Guarantee Five Years

13.00 SOFTWARE

13.01 Each ERSS meter shall be supplied along with base computer software (BCS). The software shall be suitable for downloading the test results into compatible PC / Laptop computer using serial interface data transfer (RS-232 port/RJ-45 Ethernet/USB port). The equipment shall be compatible to outside printer. The software shall have facility to generate the test report for individual testing and summary report of all test reports.

13.02 The software shall have facility to generate the test report and print the test report for all parameters mentioned under Annexure I.

13.03 The offered software shall have facility to convert all stored test results in ASCII file format or similar non-editable format as required. The offered software shall be user friendly & menu driven. The supplier shall impart necessary training regarding installation and use of the above software.

13.04 The ERSS meter shall have ASCII or similar support i.e. provision for converting data into ASCII or other popular and commonly available computer software programmes such that the data can be integrated with the meter management system of the utility for ensuring error test record and periodical meter testing.

14.00 TESTS

14.01 TYPE TESTS

The tenderer shall furnish detailed accuracy tests certificates (calibration certificate) of the offered instrument as per relevant Indian amended upto date / International standards.

For the equipments manufactured in India, all the accuracy tests (calibration) shall be carried out on complete one set of sample at laboratories which are accredited by the National Accreditation Board for Testing and Calibration Laboratories (NABL) of Government of India as per relevant Indian standards to prove that the instruments offered meet the requirements of this specification. Calibration Certificates conducted in manufacturers own laboratory and certified by testing institute shall not be acceptable.

For the equipments manufactured abroad and being imported, all the accuracy tests shall be carried out on complete one set of sample at the concerned nation's government accredited laboratories as per relevant international standards. These accuracy test calibration certificates shall be submitted along with the offer.

However in the event of placement of supply order, at least one of the equipment to be supplied as per this technical specifications and shall be got calibrated from any National Accreditation Board for Testing and Calibration Laboratories (NABL) of Government of India as per relevant standards to prove that the instrument offered meets the requirements of this specification before commencement of supply

This calibration certificate shall be got approved from the Chief Engineer, MSEDCL, Testing & Quality Control, 5th Floor, Prakashgad, Mumbai – 400051 prior to commencement of supply

The Purchaser reserves the right to demand repetition of some or all the type tests in presence of purchaser's representative at purchaser's cost. For this purpose, the tenderer shall quote unit rates for carrying out each type test. However, such unit rates will not be considered for evaluation of the offer. In case the unit fails in type test, the complete supply shall be rejected & expenditure incurred shall be recovered from the tenderer from his deposit.

14.02 ACCEPTANCE & ROUTINE TEST CERTIFICATES

All acceptance tests as per IS: 12346 shall be carried out on the equipment. All acceptance test certificate, routine test certificate, calibration certificate & operation manual must be provided along with each equipment in the form of CD (Compact Disc) as well as a hard copy.

14.03 CALIBRATION CERTIFICATES OF ERSS

The ERSS shall be supplied along with the calibration certificate as per relevant standards. The calibration certificate shall be issued by NABL labs / International Recognized Laboratories.

15.00 GUARANTEED TECHNICAL PARTICULARS

The tenderer shall furnish the particulars giving specific required details of meters in schedule 'A' attached. The offers without the details in Schedule 'A' stand rejected.

16.00 SAMPLE SUBMISSION & DEMONSTRATION

One sample of Three phase ERSS meter along with operating manual, BCS software & all necessary accessories as per technical specification shall be submitted free of cost to S.E.(TOA),Pune OFFICE

& Demonstration shall be carried out within 10 days from the date of Tender opening. Those bidders who will failed to submit the sample & Live demonstration their offer shall be liable for rejection against the tender.

17.00 ACCESSORIES

Each universal ERSS reference meter shall be supplied along with the following accessories:

- One common / separate optical sensor (scanning head) for automatic testing, which can be used to sense disc revolutions in electromechanical meter as well as indicating LED / LCD in static meter including clamp on device and connection cable and scanning head carriage.
- Mounting arrangement (clamp) for the optical sensor.
- A set of voltage leads with insulated clips.
- Serial communication cord with RS-232 connector/RJ-45 Ethernet port/USB to retrieve stored data from the equipment and download the same on PC / laptop.
- Snap switch along with detachable lead as well as in built snap switch.
- Operating Manual in English.
- One Mains cable.
- One standard calibration report.
- Data download software to read out the module for transfer and presentation of data.
- One set of 3 pieces split core error compensated Clamp On current transformers (CT) of 100 Amps confirming to class 0.2 complete with connection cable for on-line testing
- One set of 3 pieces split core error compensated Clamp On current transformers (CT) of 300 Amps confirming to class 0.2 complete with connection cable for on-line testing
- Any other accessories which may be required for complete and successful utilization of the equipment as per this specification shall also be supplied.
- Spares:
 - One set of scanning head shall be supplied along with every 10 nos. of equipment.

- One set of clamp on current transformers (CT) of 100 Amps confirming to class 0.2S shall be supplied along with every 10 nos. of equipments. This spare clamp on CTs can be used with any of equipment without changing in the accuracy.

18.00 TRAINING

The successful bidder shall depute their representative to educate Engineers of purchaser as and when they will be called for at no extra cost.

19.00 GUARANTEE

The ERSS shall be guaranteed for a period of 5 years from the date of commissioning or five and half years from the date of receipt whichever is earlier. The equipment found defective within above guarantee period shall be replaced / repaired / rectified by the supplier free of cost, within one month of receipt of intimation. After the replacement / repairs / rectification, the accuracy shall not be affected. Test report and calibration certificate shall invariably be submitted after rectification / repairs. If defective equipment is not replaced / repaired / rectified within the specified period as above, the Company shall recover an equivalent amount plus 15% supervision charges from any of the bills of the supplier.

20.00 AFTER SALES SERVICE

The bidder has to indicate clearly the after sales service to be provided by the supplier within guarantee period and outside guarantee period and Addresses of Sales Service Centre, details of Engineers, etc. shall be submitted along with the offer.

21.00 PRE-DESPATCH INSPECTIONS

The successful bidder shall offer universal ERSS meters at their works for inspection before dispatch. For imported equipments, the supplier / tenderer shall offer the equipments at the authorized service center / works of the original manufacturer in India or at the supplier's works / testing center. The offered lot shall be tested for acceptance tests and any other test as per relevant IS / IEC as required by inspecting officers.

During inspection, if the instrument does not meet the required specification & test results found not satisfactory then it shall be liable for rejection. Calibration Certificates of all associated equipments shall be furnished at the time of factory inspection.

The manufacturer shall offer to the inspector representing the purchaser all the reasonable facilities, free of charge, for inspection

and testing, to satisfy him that the material is being supplied in accordance with this specification.

The MSEDCL's representative / Engineer attending the above testing shall carry out testing as per relevant IS / IEC & as per this technical specification and issue test certificate approval to the manufacturer and give clearance for dispatch.

22.00 QUALITY CONTROL

The purchaser may send a team of experienced engineers for assessing the capability of the bidder or their principals for manufacturing of ERSS meters as per this specification. The team shall be given all assistance and co-operation for inspection and testing at the bidder's works.

Three tender samples shall be kept ready for assessing and testing. The tenderer has to give all facilities for carrying out the testing of these samples.

23.00 MINIMUM TESTING FACILITIES

The bidder or their principals / manufacturer shall have the necessary minimum testing facilities for carrying out various acceptance and routine tests. A list of machinery / equipment and testing facility available at their Works shall also be furnished along with the offer.

24.00 PACKING

24.01 The ERSS meter shall be suitably packed to avoid damage or disturbance during transit or handling. Each instrument may be suitably packed in the first instance to prevent ingress of moisture and dust and then placed in a cushioned carton of a suitable material to prevent damage due to shocks during transit. The lid of the carton may be suitably sealed.

A suitable number of sealed cartons may be packed in a case of adequate strength with extra cushioning if considered necessary. The cases may then be properly sealed against accidental opening in transit. The packing cases may be marked to indicate the fragile nature of the contents.

24.02 The following information shall be furnished with the consignment :

- Name of consignee
- Details of consignment
- Destination
- Total Weight of consignment.

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- Sign showing upper / lower side of the crate
- Sign showing fragility of the material.
- Handling and unpacking instructions.
- Bill of Materials indicating contents of each package and spare materials.

25.00 SCHEDULES

The tenderer shall fill in the following schedules which are part and parcel of the tender specification and offer. If the schedules are not submitted duly filled in with the offer, the offer shall be liable for rejection. The order copies of the order executed mentioned in the list of order shall be invariably enclosed along with the offer. Only those orders mentioned in the list shall be considered whose order copies shall be enclosed with the offer.

Schedule A – Guaranteed and technical particulars.

26.00 DOCUMENTATION

Two sets of following documents shall be supplied along with each test system.

- Operating manual
- Service manual
- Calibration certificate of reference standard

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IX. Details of seals and its condition (previous) & after testing seal details					
	(i) On Meter door				
	(ii) On meter body				
	(iii) On Meter terminal cover				
	(iv) On Optical Port				
	(v) C.T. Box/CT chamber seal if any				
	(vi) Other				
X.			R phase	Y phase	B phase
	Details of C.Ts if easy accessible				
	C.T. ratio as per records				
	Current and Volt Measurement		R phase	Y phase	B phase
	Current on ERSS		Amp	Amp	Amp
	Current on energy meter display		Amp	Amp	Amp
	Voltage on ERSS		Volt	Volt	Volt
	Voltage on meter display		Volt	Volt	Volt
XI. Load Test on reference Meter Meter Reading on ERSS		% Error calculation compared to reference meter $\frac{(\text{MUT reading} - \text{ERSS reading}) \times 100 \%}{\text{ERSS reading}}$			
	a. kWh			Reading on ERSS	
	b. kVAh			Difference in unit consumption	
	c. kVArh			Multiply MF if any	
	d. PF			Net consumption	
	If phase angle association is correct as per ERSS YES / NO			% Error	
XII	Vector group diagram				
XIII General Observations					
	a	Whether capacitor is installed		YES/NO	
	b	If yes whether capacity is adequate or not		Adequate/Not adequate	
		Details of connected load MDKW.....		If LTMD Service MDkVA.....	

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XV	Whether Meter/Service kept under observations	YES	NO	
If service kept under observation, justify reason				
XVI. Irregularities Observed and Remarks				
XVII. Action taken after inspection		(New seal provided/supply disconnected/ Not disconnected)		
<p>All details and irregularities written in this report have been checked in my/our presence and I/We unconditionally agreeing it. It is informed to me/us that in case of theft of energy, compounding is allowed to this service number for first instance only as per sec 152 of IE act 2003. I/We request for compounding this case. It is well known to me/us that it is the discretion of the assessing officer whether to allow compounding or not, depending on his judicial judgment in this case. Above all information's briefed to me/us in hindi/marathi and I/We agree to all the contents with the best of my/our knowledge.</p>				
Signature of consumer or His/Her representative Date:				
Name and Designation of inspecting officer & staff and signature				Head of Inspecting Unit of MSEDCL
1				
2				
3				
4				
5				

SCHEDULE - "A"

GUARANTEED TECHNICAL PARTICULARS

ITEM NAME	PORTABLE HT THREE PHASE ELECTRONIC REFERENCE STANDARD (ERSS) METER OF ACCURACY 0.1S FOR TESTING OF ENERGY METERS	
SR. NO.	PARTICULARS	GTP VALUES
(1)	MANUFACTURER NAME & ADDRESS	
(2)	COUNTRY OF MANUFACTURE	
(3)	TYPE / MODEL DETAILS OF THE EQUIPMENT	
(4)	OPERATING EXPERIENCE OF THE BIDDER	
(5)	MANUFACTURER HAS EXPERIENCE OF MINIMUM ONE YEAR FOR SUPPLY OF SIMILAR OR BETTER EQUIPMENTS TO NATIONAL / INTERNATIONAL ACCREDITED LABORATORIES OR POWER UTILITIES IN INDIA.	YES
(6)	NECESSARY PURCHASE ORDER COPIES ENCLOSED IN SUPPORT OF ABOVE (4) & (5)	YES
(7)	PURCHASE ORDER NOS. & IN SUPPORT OF ABOVE (4) & (5) SUBMITTED	YES
(8)	SATISFACTORILY PERFORMANCE REPORT FROM NABL LABS / POWER UTILITY IS ENCLOSED?	YES
(9)	DECLARATION AS PER CL NO 2.05 OF TECH SPECS ENCLOSED.	YES
(10)	NAME & ADDRESS OF BIDDERS OR THEIR PRINCIPALS TESTING FACILITIES IN INDIA ENCLOSED WITH OFFER	
(11)	NAME & ADDRESS OF BIDDERS OR THEIR PRINCIPALS OWN SERVICE CENTRE IN INDIA	

**TECHNICAL SPECIFICATION OF HT PORTABLE THREE PHASE ELECTRONIC REFERENCE
 STANDARD METER OF ACCURACY 0.1S**

	ENCLOSED WITH OFFER	
(12)	LIST OF PLANT AND MACHINERY, TOOLS AND TACKLES TO CARRY OUT SERVICE ENCLOSED ALONG WITH OFFER.	YES
(13)	ACCURACY CLASS OF ERSS	0.1S
(14)	SUPPLY SYSTEM FOR THREE PHASE METERS	110V _± 30% (PHASE TO PHASE)
(15)	FREQUENCY	50 Hz _± 5%
(16)	WORKING RANGE FOR THREE PHASE METERS	1) 10 MA TO 10 AMPS (DIRECT MODE) 2) 100MA TO 100AMPS (CT MODE) 3) 1 AMP TO 300 AMP (CT MODE)
(17)	PF RANGE	0 LAG-UNITY-0 LEAD
(18)	POWER CONSUMPTION IN CURRENT CIRCUIT	< 1 VA
(19)	POWER CONSUMPTION IN VOLTAGE CIRCUIT	< 10 VA
(20)	AUXILIARY POWER CONSUMPTION	< 25 VA
(21)	TEST VOLTAGE RANGE FOR THREE PHASE METERS	50 V-300V (PHASE TO NEUTRAL)
(22)	TEST VOLTAGE RESOLUTION	0.01V
(23)	TEST VOLTAGE ACCURACY	<0.05 % (50 V to 300 V)
(24)	TEST CURRENT RANGE	1) 10 MA TO 10 AMPS (DIRECT MODE) 2) 100 MA TO 100AMPS (CLAMP ON CT MODE)
(25)	TEST CURRENT RESOLUTION	1) 0.001A TO 0.01A (DIRECT MODE)

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		2) 0.1 A TO 0.01 A (CLAMP ON CT MODE)
(26)	TEST CURRENT ACCURACY	<0.05 % (FOR 10 MA TO 10 A) & < 0.15% (FOR 100 MA TO 100 A) < 0.15% (FOR 1 A TO 300 A)
(27)	PHASE ANGLE MEASUREMENT RANGE	0 TO 360 DEG.
(28)	POWER / ENERGY MEASUREMENT ERROR (SAME FOR ACTIVE, REACTIVE AND APPARENT)	1) 0.1% (DIRECT MODE) (10 MA TO 10 A) 2) 0.2% (CLAMP ON CT MODE) (100 MA TO 100 A) 3) 0.2% (CLAMP ON CT MODE) (1 A TO 300 A)
(29)	POWER / ENERGY MEASUREMENT TEMPERATURE DRIFT	< 100 PPM / DEG C
(30)	POWER / ENERGY MEASUREMENT STABILITY	< 500 PPM
(31)	ERROR IN PHASE ANGLE MEASUREMENT	0.2 DEG OR BETTER
(32)	FREQUENCY RESOLUTION	0.01 Hz
(33)	METER HAS ALPHA - NUMERIC KEYBOARD WITH ARROW & ENTER KEYS	YES
(34)	METER HAS SCANNER OR OPTICAL SENSOR HEAD ALONG WITH DETACHABLE LEAD	YES
(35)	SENSOR HEAD CLAMP TO HOLD THE SCANNER PROPERLY IN FRONT OF THE LED / LCD OUTPUT OR REVOLVING DISC IS PROVIDED	YES

**TECHNICAL SPECIFICATION OF HT PORTABLE THREE PHASE ELECTRONIC REFERENCE
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(36)	SNAP SWITCH ALONG WITH DETACHABLE LEAD PROVIDED	YES
(37)	ELECTRONIC COMPENSATED CLAMP-ON CTs TO ENABLE TESTING WITHOUT ISOLATING OR INTERRUPTING THE SUPPLY OF THE CONSUMER IS PROVIDED	YES
(38)	EQUIPMENT HAS FACILITY TO INTERCHANGE CLAMP ON CT WITHOUT AFFECTING ACCURACY	YES
(39)	RATING AND ACCURACY CLASS OF CT	1) 0.1S WITH CURRENT RANGE 10 MA TO 10 AMPS (DIRECT MODE) 2) 0.2S ACCURACY FOR 100 MA TO 100AMPS (CT MODE) 3) 0.2S ACCURACY FOR 1 A TO 300 A (CT MODE)
(40)	VOLTAGE LEADS WITH INJECTION TYPE CROCODILE CLIPS / ANY OTHER SUITABLE CLAMPING ARRANGEMENT WITH INSULATED LEADS ARE PROVIDED ON ERSS METER.	YES
(41)	ALL ACCESSORIES SUPPLIED CONFORM TO INTERNATIONAL SAFETY STANDARDS	YES
(42)	ADEQUATE BUILT IN FEATURES TO PROTECT INSTRUMENT ITSELF FROM OVER-VOLTAGE PROVIDED & COMPLIES WITH OVERVOLTAGE CATEGORY II (300V).	YES
(43)	INDICATION BY MEANS OF LED / LCD SCREEN OR OTHERWISE PROVIDED ON ERSS THAT ERSS METER IS IN CORRECT ACTIVE MODE	YES
(44)	ERSS HAS FACILITY TO SELECT THE CALCULATION OF APPARENT POWER	YES

**TECHNICAL SPECIFICATION OF HT PORTABLE THREE PHASE ELECTRONIC REFERENCE
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	GEOMETRICALLY FOR INDIVIDUAL PHASES AND FOR SUMMATION OF ALL THREE PHASES.	
(45)	INDICATION TO DISPLAY MISSING / REVERSE / OVER CURRENT / VOLTAGE BY INSTANTANEOUS VALUES OR WARNING MESSAGE IS PROVIDED	YES
(46)	AUTO RANGE OF CURRENT AND VOLTAGE INPUTS IS PROVIDED.	YES
(47)	ERSS DISPLAYS ERROR(S) OF THE METER UNDER TEST AUTOMATICALLY.	YES
(48)	ERSS METER HAS INTERFACE TO AN EXTERNAL PRINTER	YES
(49)	PROVISION FOR INPUT OF SCANNING HEAD AND START / STOP BUTTON ON ERSS	YES
(50)	METER TYPE TESTED FOR IP 51 DEGREE OF PROTECTION AS PER IS: 12063	YES
(51)	IP-51 TYPE TEST REPORT NO. & DATE	
(52)	WHETHER IP-51 TYPE TEST REPORT ENCLOSED ALONG WITH THE BID	YES
(53)	ERSS HAS FACILITY TO RECORD & STORE MINIMUM 1000 TEST RESULTS WITH VARIOUS INSTANTANEOUS PARAMETERS IN NON VOLATILE MEMORY (NVM)	YES
(54)	LIFE OF NVM SHALL BE MINIMUM 10 YEARS	YES
(55)	ERSS GIVES FLASHING ALARM WHEN 90% OF MEMORY IS USED	YES
(56)	PROVISION TO NOT LOSE TEST DATA STORED IN MEMORY OF ERSS BY ROLL OVER MODE IS MADE	YES
(57)	DATA IN ERSS CAN BE DOWN LOADED TO COMPUTER USING COMMUNICATION CORD/ RS-232/RJ-45 ETHERNET PORT/USB PORT	YES

**TECHNICAL SPECIFICATION OF HT PORTABLE THREE PHASE ELECTRONIC REFERENCE
 STANDARD METER OF ACCURACY 0.1S**

	PROVIDED ON ERSS THROUGH COMPATIBLE SOFTWARE.	
(58)	INDICATION FOR ENERGY FLOW DIRECTION & WARNING FOR OVERLOAD IS MADE ON ERSS	YES
(59)	ERSS IS IMMUNE TO VIBRATION AND DUMPING DUE TO TRANSPORT.	YES
(60)	ERSS SHOWS CALIBRATION DATE AND CALIBRATION DUE DATE ON INITIAL SCREEN	YES
(61)	ERSS HAS LCD DISPLAY OF MIN 5" DIAGONALLY	YES
(62)	ANY SUITABLE RECTANGULAR SIZE WITH 5" DIAGONAL LENGTH SHALL BE PREFERRED TO DISPLAY VARIOUS ELECTRICAL PARAMETERS	YES
(63)	PARAMETERS TO BE DISPLAYED ARE SELECTABLE THROUGH FRONT PANEL SWITCH	YES
(64)	DISPLAY OF PARAMETERS AS PER TECHNICAL SPECIFICATION	YES
(65)	MINIMUM RESOLUTION FOR VARIOUS PARAMETERS IS AS PER SPECIFICATION	YES
(66)	THREE CLAMP-ON TYPE SPLIT CORE CURRENT TRANSFORMERS (CTs) FOR 100 mA TO 100 AMPS CONFIRMING TO CLASS 0.2 PROVIDED	YES
(67)	THREE CLAMP-ON TYPE SPLIT CORE CURRENT TRANSFORMERS (CTs) FOR 1 A TO 300 AMPS CONFIRMING TO CLASS 0.2 PROVIDED	YES
(68)	CLAMP ON CTs COMPENSATED FOR MEASUREMENT IN ALL FOUR QUADRANTS	YES

**TECHNICAL SPECIFICATION OF HT PORTABLE THREE PHASE ELECTRONIC REFERENCE
 STANDARD METER OF ACCURACY 0.1S**

(69)	ERSS HAS FLEXIBILITY TO ENTER METER CONSTANT UPTO 6 DIGITS.	YES
(70)	SCANNING HEAD IS SUPPLIED ALONG WITH MOUNTING ARRANGEMENT & CONNECTION CABLE	YES
(71)	START / STOP BUTTON INTEGRATED ON ERSS IS PROVIDED	YES
(72)	EQUIPMENT HAS FACILITY TO TEST IN MANUAL MODE	YES
(73)	EQUIPMENT HAS FACILITY TO TEST IN AUTO MODE	YES
(74)	EQUIPMENT HAS FACILITY TO SELECT MEASURING MODE FOR TOTAL POWER / ENERGY	YES
(75)	CLEARLY VISIBLE, EFFECTIVELY SECURED AGAINST REMOVAL & INDELIBLY AND DISTINCTLY MARKED WITH ALL ESSENTIAL PARTICULARS AS PER RELEVANT STANDARDS NAME PLATE IS PROVIDED	YES
(76)	ERSS IS SUPPLIED ALONG WITH BCS	YES
(77)	SOFTWARE IS SUITABLE FOR DOWNLOADING THE TEST RESULTS INTO COMPATIBLE PC / LAPTOP COMPUTER USING SERIAL INTERFACE DATA TRANSFER (RS-232 /RJ-45 ETHERNET PORT/USB PORT).	YES
(78)	ERSS IS COMPATIBLE TO EXTERNAL PRINTER.	YES
(79)	SOFTWARE HAS FACILITY TO GENERATE TEST REPORT FOR INDIVIDUAL TESTING AND SUMMARY REPORT OF ALL TEST REPORTS.	YES
(80)	ERSS HAS ASCII OR SIMILAR SUPPORT FOR CONVERTING DATA INTO ASCII OR OTHER	YES

**TECHNICAL SPECIFICATION OF HT PORTABLE THREE PHASE ELECTRONIC REFERENCE
 STANDARD METER OF ACCURACY 0.1S**

	POPULAR AND COMMONLY AVAILABLE NON-EDITABLE COMPUTER SOFTWARE PROGRAMMES	
(81)	MAINS POWER SUPPLY INPUT IS INTERNALLY CONNECTED TO TEST VOLTAGE.	YES
(82)	PROVISION FOR INPUT OF SCANNING HEAD AND START / STOP BUTTON IS MADE	YES
(83)	ERGONOMICALLY AND AESTHETICALLY DESIGNED INSTRUMENT TRANSPORTATION CASE IS PROVIDED ALONG WITH THE EQUIPMENT.	YES
(84)	SCANNER IS ABLE TO READ CORRECTLY EVEN IN CASE OF ITS ALIGNMENT IS DEVIATING UPTO AN ANGLE OF 15 DEGREE OF THE AXES OF OPTICAL PORT.	YES
(85)	WHETHER ERSS IS TYPE TESTED	YES
(86)	TYPE TEST / CALIBRATION REPORT SUBMITTED ALONG WITH OFFER	YES
(87)	TYPE TEST / CALIBRATION REPORT NOS. & DATE	
(88)	SUPPLIER AGREES TO IMPART NECESSARY TRAINING REGARDING INSTALLATION AND USE OF SOFTWARE.	YES
(89)	SUPPLIER AGREES TO SUPPLY ERSS WITH ALL ACCESSORIES AS PER TECHNICAL SPECIFICATION	YES
(90)	SUPPLIER AGREES TO DEPUTE THEIR REPRESENTATIVE TO EDUCATE ENGINEERS OF PURCHASER AS AND WHEN THEY WILL BE CALLED FOR AT NO EXTRA COST	YES
(91)	GUARANTEE OF ERSS AS PER CLAUSE NO. 19.00	YES

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(92)	DETAILS OF AFTER SALES SERVICE TO BE PROVIDED BY SUPPLIER WITHIN GUARANTEE PERIOD	YES
(93)	DETAILS OF AFTER SALES SERVICE TO BE PROVIDED BY SUPPLIER OUTSIDE GUARANTEE PERIOD	YES
(94)	ADDRESSES OF SALES SERVICE CENTRE, DETAILS OF ENGINEERS	YES
(95)	DETAILS OF NECESSARY MINIMUM TESTING FACILITIES FOR CARRYING OUT VARIOUS ACCEPTANCE AND ROUTINE TESTS SUBMITTED ALONG WITH OFFER.	YES
(96)	A LIST OF MACHINERY / EQUIPMENT AND TESTING FACILITY AVAILABLE AT THEIR WORKS IS FURNISHED ALONG WITH OFFER.	YES

1 PH PORTABLE ERS SUBMET OF ACCU CLA 0.5

GTP Order Sequence	GTP Parameters	Date Type
1	MANUFACTURER NAME & ADDRESS	TEXT
2	COUNTRY OF MANUFACTURE	TEXT
3	TYPE / MODEL DETAILS OF EQUIPMENT	TEXT
4	OPERATING EXPERIENCE OF THE BIDDER	TEXT
5	MANUFACTURER HAS EXPERIENCE OF MINIMUM ONE YEAR FOR SUPPLY OF SIMILAR OR BETTER EQUIPMENTS TO NATIONAL / INTERNATIONAL ACCREDITED LABORATORIES OR POWER UTILITIES IN INDIA.	TEXT
6	NECESSARY PURCHASE ORDER COPIES ENCLOSED IN SUPPORT OF ABOVE (4) &(5)	BOOLEAN
7	PURCHASE ORDER NOS. & DATES IN SUPPORT OF ABOVE (4) &(5)	TEXT
8	SATISFACTORILY PERFORMANCE REPORT SUBMITTED FROM NABL LABS/ POWER UTILITY ENCLOSED WITH OFFER	BOOLEAN
9	DECLARATION AS PER CL NO 2.05 OF TECH SPECS ENCLOSED.	BOOLEAN
10	NAME & ADDRESS OF BIDDERS TESTING FACILITIES IN INDIA ENCLOSED WITH OFFER	BOOLEAN
11	NAME & ADDRESS OF BIDDERS OR THEIR PRINCIPALS OWN SERVICE CENTRE IN INDIA ENCLOSED WITH OFFER	BOOLEAN
12	LIST OF PLANT AND MACHINERY, TOOLS AND TACKLES TO CARRY OUT SERVICE ENCLOSED ALONG WITH OFFER.	BOOLEAN
13	ACCURACY CLASS OF ERSS METER 0.5S WITH CLAMP ON CT FROM 250 mA TO MAXIMUM 60 A	BOOLEAN
14	VOLTAGE RATING	TEXT
15	VOLTAGE RANGE	TEXT
16	POWER CONSUMPTION IN CURRENT CIRCUIT	TEXT
17	POWER CONSUMPTION IN VOLTAGE CIRCUIT	TEXT
18	FREQUENCY RANGE	TEXT
19	PF RANGE	TEXT
20	ERSS HAS ALPHA – NUMERIC KEYBOARD WITH ARROW & ENTER KEYS	BOOLEAN
21	ERSS HAS SCANNER OR OPTICAL SENSOR HEAD ALONG WITH DETACHABLE LEAD	BOOLEAN
22	SENSOR HEAD CLAMP TO HOLD SCANNER PROPERLY IN FRONT OF LED / LCD OUTPUT OR REVOLVING DISC IS PROVIDED	BOOLEAN
23	SNAP SWITCH ALONG WITH DETACHABLE LEAD PROVIDED	BOOLEAN
24	ELECTRONIC COMPENSATED CLAMP-ON CTS TO ENABLE TESTING WITHOUT ISOLATING OR INTERRUPTING SUPPLY OF CONSUMER IS	BOOLEAN
25	ERSS PROVIDED WITH ELECTRONIC COMPENSATED CLAMP-ON CT	BOOLEAN
26	VOLTAGE LEADS WITH INJECTION TYPE CROCODILE CLIPS / ANY OTHER SUITABLE CLAMPING ARRANGEMENT WITH INSULATED LEADS ARE PROVIDED ON ERSS METER.	BOOLEAN

27	ALL CORDS / ACCESSORIES SUPPLIED ALONG WITH ERSS CONFORM TO INTERNATIONAL STANDARDS OF SAFETY	BOOLEAN
28	ADEQUATE BUILT IN FEATURES TO PROTECT THE ERSS ITSELF FROM OVER-VOLTAGE PROVIDED.	BOOLEAN
29	ERSS DISPLAYS ERROR(S) OF METER UNDER TEST AUTOMATICALLY	BOOLEAN
30	ERSS HAS FACILITY TO STORE TOTAL ENERGY INCLUDING HARMONICS	BOOLEAN
31	ERSS HAS INTERFACE TO AN EXTERNAL PRINTER THROUGH BCS	BOOLEAN
32	TYPE OF INDICATION PROVIDED TO DISPLAY CONDITIONS OF CL. 7.16 OF TECH SPECS	BOOLEAN
33	ERSS TYPE TESTED FOR IP-51 DEGREE OF PROTECTION AS PER IS: 12063	BOOLEAN
34	WHETHER IP-51 TYPE TEST CERTIFICATE ENCLOSED ALONG WITH THE	BOOLEAN
35	IP-51 TYPE TEST CERTIFICATE NO. & DATE	TEXT
36	RTC IS USED IN ERSS FOR MAINTAINING TIME (IST) AND CALENDAR.	BOOLEAN
37	RTC IS NON-RECHARGEABLE & IS PRE-PROGRAMMED FOR 30 YEARS DAY / DATE WITHOUT ANY NECESSITY FOR CORRECTION.	BOOLEAN
38	TIME ACCURACY OF RTC AS PER PROVISIONS OF CBIP-TECH-REPORT-	BOOLEAN
39	NON-RECHARGEABLE BATTERY OF RTC HAS LONG LIFE OF 10 YEARS	BOOLEAN
40	ERSS HAS FACILITY TO RECORD AND STORE MINIMUM 300 TEST RESULTS IN NON VOLATILE MEMORY (NVM).	BOOLEAN
41	MINIMUM LIFE OF NVM IN YEARS.	TEXT
42	ERSS GIVES FLASHING ALARM WHEN 90% OF MEMORY IS USED	BOOLEAN
43	DATA IN ERSS CAN BE DOWN LOADED TO COMPUTER USING COMMUNICATION CORD / RS-232 PORT / RJ-45 ETHERNET THROUGH	BOOLEAN
44	PROVISION TO NOT LOOSE TEST DATA STORED IN MEMORY OF ERSS BY ROLL OVER MODE IS MADE	BOOLEAN
45	RS – 232 COMMUNICATION/RJ-45 ETHERNET PORT PROVIDED TO DOWNLOAD DATA TO COMPUTER THROUGH BCS	BOOLEAN
46	THE SIZE OF LCD DISPLAY DIAGONALLY.(In INCHES)	TEXT
47	ERSS IS PROVIDED WITH 2 VOLTAGE INPUTS (ONE FOR PHASE AND ONE FOR NEUTRAL)	BOOLEAN
48	MAINS POWER SUPPLY INPUT IS INTERNALLY CONNECTED TO TEST	BOOLEAN
49	PROVISION FOR INPUT OF SCANNING HEAD AND START / STOP BUTTON IS MADE	BOOLEAN
50	ERSS IS IMMUNE TO VIBRATION AND DUMPING DUE TO TRANSPORT.	BOOLEAN
51	ERGONOMICALLY AND AESTHETICALLY DESIGNED INSTRUMENT TRANSPORTATION CASE IS PROVIDED	BOOLEAN
52	DISPLAY OF PARAMETERS AS PER TECHNICAL SPECIFICATION	BOOLEAN
53	RESOLUTION OF INSTANTANEOUS LOAD AND PERCENTAGE ERROR AS PER TECHNICAL SPECIFICATION	BOOLEAN
54	ERSS SHOWS CALIBRATION DATE AND CALIBRATION DUE DATE ON INITIAL SCREEN.	BOOLEAN
55	ONE NUMBER CLAMP ON TYPE CURRENT TRANSFORMER (CT) IS PROVIDED ALONG WITH SUITABLE CONNECTING CABLE LENGTH TO MEASURE FROM 250 MA TO A MAXIMUM CURRENT OF 60 AMPS.	BOOLEAN

56	IT IS POSSIBLE TO USE CLAMP ON CT WITH CABLES HAVING OVERALL DIAMETER NOT MORE THAN 10 mm.	BOOLEAN
57	FLEXIBILITY TO ENTER METER CONSTANT UPTO 6 DIGITS IS PROVIDED IN	BOOLEAN
58	SCANNING HEAD IS SUPPLIED ALONG WITH MOUNTING ARRANGEMENT & CONNECTION CABLE	BOOLEAN
59	START / STOP BUTTON INTEGRATED ON DEVICE TO START AND STOP ERROR TEST IS PROVIDED	BOOLEAN
60	ERSS HAS FACILITY TO TEST IN MANUAL MODE USING SNAP SWITCH ALONG WITH DETACHABLE LEAD AS WELL AS INBUILT SNAP SWITCH TO START AND STOP THE TEST.	BOOLEAN
61	SCANNER IS PROVIDED WITH VACUUM TYPE FIXING ARRANGEMENT OR ANY OTHER ARRANGEMENT SUITABLE TO TEST THE METER AT SITE.	BOOLEAN
62	SCANNER IS ABLE TO READ CORRECTLY EVEN IN CASE OF ITS ALIGNMENT IS DEVIATING UPTO AN ANGLE OF 15 DEGREE OF AXES OF	BOOLEAN
63	CLEARLY VISIBLE, EFFECTIVELY SECURED AGAINST REMOVAL & INDELIBLY AND DISTINCTLY MARKED WITH ALL ESSENTIAL PARTICULARS AS PER RELEVANT STANDARDS NAME PLATE IS PROVIDED	BOOLEAN
64	EACH ERSS IS SUPPLIED ALONG WITH BASE COMPUTER SOFTWARE	BOOLEAN
65	BCS IS SUITABLE FOR DOWNLOADING TEST RESULTS INTO COMPATIBLE PC / LAPTOP COMPUTER USING SERIAL INTERFACE DATA TRANSFER (RS-232 PORT//RJ-45 ETHERNET).	BOOLEAN
66	ERSS IS COMPATIBLE TO EXTERNAL PRINTER.	BOOLEAN
67	SOFTWARE HAS FACILITY TO GENERATE TEST REPORT FOR INDIVIDUAL TESTING AND SUMMARY REPORT OF ALL TEST REPORTS.	BOOLEAN
68	ERSS HAS ASCII OR SIMILAR SUPPORT FOR CONVERTING DATA INTO ASCII OR OTHER POPULAR AND COMMONLY AVAILABLE NON-EDITABLE COMPUTER SOFTWARE PROGRAMMES TO BE INTEGRATED WITH METER MANAGEMENT SYSTEM OF UTILITY	BOOLEAN
69	SUPPLIER AGREES TO IMPART NECESSARY TRAINING REGARDING INSTALLATION AND USE OF SOFTWARE.	BOOLEAN
70	WHETHER ERSS IS TYPE TESTED	BOOLEAN
71	TYPE TEST / CALIBRATION CERTIFICATE SUBMITTED ALONG WITH OFFER	BOOLEAN
72	TYPE TEST / CALIBRATION CERTIFICATE NOS. & DATE	TEXT
73	SUPPLIER AGREES TO SUPPLY ERSS WITH ALL ACCESSORIES AS PER TECHNICAL SPECIFICATION	BOOLEAN
74	SUPPLIER AGREES TO DEPUTE THEIR REPRESENTATIVE TO EDUCATE ENGINEERS OF PURCHASER AS AND WHEN THEY WILL BE CALLED FOR	BOOLEAN
75	GUARANTEE OF ERSS AS PER CLAUSE NO. 19.00 OF THIS SPECIFICATION	BOOLEAN
76	DETAILS OF AFTER SALES SERVICE WITHIN GUARANTEE PERIOD ENCLOSED WITH OFFER	BOOLEAN
77	DETAILS OF AFTER SALES SERVICE OUTSIDE GUARANTEE PERIOD ENCLOSED WITH OFFER	BOOLEAN
78	ADDRESSES OF SALES SERVICE CENTRE, DETAILS OF ENGINEERS ENCLOSED WITH OFFER	BOOLEAN
79	DETAILS OF NECESSARY MINIMUM TESTING FACILITIES FOR CARRYING OUT VARIOUS ACCEPTANCE AND ROUTINE TESTS SUBMITTED ALONG	BOOLEAN
80	LIST OF MACHINERY / EQUIPMENT AND TESTING FACILITY AVAILABLE AT SUPPLIER'S WORKS IS FURNISHED ALONG WITH OFFER.	BOOLEAN

3 PH PORTABLE ERS SUBMET OF ACCU CLA 0.5

GTP Order Sequence	GTP Parameters	Date Type
1	MANUFACTURER NAME & ADDRESS	TEXT
2	COUNTRY OF MANUFACTURE	TEXT
3	TYPE / MODEL DETAILS OF THE EQUIPMENT	TEXT
4	OPERATING EXPERIENCE OF THE BIDDER	TEXT
5	MANUFACTURER HAS EXPERIENCE OF MINIMUM ONE YEAR FOR SUPPLY OF SIMILAR OR BETTER EQUIPMENTS TO NATIONAL / INTERNATIONAL ACCREDITED LABORATORIES OR POWER UTILITIES IN INDIA.	BOOLEAN
6	NECESSARY PURCHASE ORDER COPIES ENCLOSED IN SUPPORT OF ABOVE (4) & (5)	BOOLEAN
7	PURCHASE ORDER NOS. & IN SUPPORT OF ABOVE (4) & (5)	TEXT
8	SATISFACTORILY PERFORMANCE REPORT FROM NABL LABS / POWER UTILITY IS ENCLOSED?	BOOLEAN
9	DECLARATION AS PER CL NO 2.05 OF TECH SPECS ENCLOSED.	BOOLEAN
10	NAME & ADDRESS OF BIDDERS OR THEIR PRINCIPALS TESTING FACILITIES IN INDIA ENCLOSED WITH OFFER	BOOLEAN
11	NAME & ADDRESS OF BIDDERS OR THEIR PRINCIPALS OWN SERVICE CENTRE IN INDIA ENCLOSED WITH OFFER	TEXT
12	LIST OF PLANT AND MACHINERY, TOOLS AND TACKLES TO CARRY OUT SERVICE ENCLOSED ALONG WITH OFFER.	BOOLEAN
13	ACCURACY CLASS OF ERSS	TEXT
14	SUPPLY SYSTEM FOR THREE PHASE METERS	TEXT
15	SUPPLY SYSTEM FOR SINGLE PHASE METERS	TEXT
16	FREQUENCY	TEXT
17	WORKING RANGE FOR THREE PHASE METERS	TEXT
18	WORKING RANGE FOR SINGLE PHASE METERS	TEXT
19	PF RANGE	TEXT
20	POWER CONSUMPTION IN CURRENT CIRCUIT	TEXT
21	POWER CONSUMPTION IN VOLTAGE CIRCUIT	TEXT
22	AUXILIARY POWER CONSUMPTION	TEXT
23	TEST VOLTAGE RANGE	TEXT
24	TEST VOLTAGE RESOLUTION	TEXT
25	TEST VOLTAGE ACCURACY	TEXT
26	TEST CURRENT RANGE	TEXT
27	TEST CURRENT RESOLUTION	TEXT
28	TEST CURRENT ACCURACY	TEXT

29	PHASE ANGLE MEASUREMENT RANGE	TEXT
30	POWER / ENERGY MEASUREMENT ERROR (SAME FOR ACTIVE, REACTIVE AND APPARENT)	TEXT
31	POWER / ENERGY MEASUREMENT TEMPERATURE DRIFT	TEXT
32	POWER / ENERGY MEASUREMENT STABILITY	TEXT
33	ERROR IN PHASE ANGLE MEASUREMENT	TEXT
34	FREQUENCY RANGE	TEXT
35	FREQUENCY RESOLUTION	TEXT
36	METER HAS ALPHA – NUMERIC KEYBOARD WITH ARROW & ENTER KEYS	BOOLEAN
37	METER HAS SCANNER OR OPTICAL SENSOR HEAD ALONG WITH DETACHABLE LEAD	BOOLEAN
38	SENSOR HEAD CLAMP TO HOLD THE SCANNER PROPERLY IN FRONT OF THE LED / LCD OUTPUT OR REVOLVING DISC IS PROVIDED	BOOLEAN
39	SNAP SWITCH ALONG WITH DETACHABLE LEAD PROVIDED	BOOLEAN
40	ELECTRONIC COMPENSATED CLAMP-ON CTs TO ENABLE TESTING WITHOUT ISOLATING OR INTERRUPTING THE SUPPLY OF THE CONSUMER	BOOLEAN
41	EQUIPMENT HAS FACILITY TO INTERCHANGE CLAMP ON CT WITHOUT AFFECTING ACCURACY	BOOLEAN
42	RATING OF CT	TEXT
43	ACCURACY OF CT	TEXT
44	VOLTAGE LEADS WITH INJECTION TYPE CROCODILE CLIPS / ANY OTHER SUITABLE CLAMPING ARRANGEMENT WITH INSULATED LEADS ARE PROVIDED ON ERSS METER.	BOOLEAN
45	ALL ACCESSORIES SUPPLIED CONFORM TO INTERNATIONAL SAFETY STANDARDS	BOOLEAN
46	ADEQUATE BUILT IN FEATURES TO PROTECT INSTRUMENT ITSELF FROM OVER-VOLTAGE PROVIDED & COMPLIES WITH OVERVOLTAGE CATEGORY	BOOLEAN
47	TYPE OF INDICATION PROVIDED ON ERSS THAT ERSS METER IS IN CORRECT ACTIVE MODE	TEXT
48	ERSS HAS FACILITY TO SELECT THE CALCULATION OF APPARENT POWER GEOMETRICALLY FOR INDIVIDUAL PHASES AND FOR SUMMATION OF ALL THREE PHASES.	BOOLEAN
49	INDICATION TO DISPLAY MISSING / REVERSE / OVER CURRENT / VOLTAGE BY INSTANTANEOUS VALUES OR WARNING MESSAGE IS PROVIDED	BOOLEAN
50	AUTO RANGE OF CURRENT AND VOLTAGE INPUTS IS PROVIDED.	BOOLEAN
51	ERSS DISPLAYS ERROR(S) OF THE METER UNDER TEST AUTOMATICALLY.	BOOLEAN
52	ERSS METER HAS INTERFACE TO AN EXTERNAL PRINTER	BOOLEAN
53	PROVISION FOR INPUT OF SCANNING HEAD AND START / STOP BUTTON ON ERSS	BOOLEAN
54	METER TYPE TESTED FOR IP 51 DEGREE OF PROTECTION AS PER IS:	BOOLEAN
55	IP-51 TYPE TEST REPORT NO. & DATE	TEXT
56	WHETHER IP-51 TYPE TEST REPORT ENCLOSED ALONG WITH THE BID	BOOLEAN
57	ERSS HAS FACILITY TO RECORD & STORE MINIMUM 300 TEST RESULTS WITH VARIOUS INSTANTANEOUS PARAMETERS IN NON VOLATILE	BOOLEAN

58	LIFE OF NVM	TEXT
59	ERSS GIVES FLASHING ALARM WHEN 90% OF MEMORY IS USED	BOOLEAN
60	PROVISION TO NOT LOSE TEST DATA STORED IN MEMORY OF ERSS BY ROLL OVER MODE IS MADE	BOOLEAN
61	DATA IN ERSS CAN BE DOWN LOADED TO COMPUTER USING COMMUNICATION CORD/ RS-232/RJ-45 ETHERNET PORT PROVIDED ON ERSS THROUGH COMPATIBLE SOFTWARE.	BOOLEAN
62	INDICATION FOR ENERGY FLOW DIRECTION & WARNING FOR OVERLOAD IS MADE ON ERSS	BOOLEAN
63	ERSS IS IMMUNE TO VIBRATION AND DUMPING DUE TO TRANSPORT.	BOOLEAN
64	ERSS SHOWS CALIBRATION DATE AND CALIBRATION DUE DATE ON INITIAL SCREEN	BOOLEAN
65	ERSS HAS LCD DISPLAY OF MIN 3" DIAGONALLY	BOOLEAN
66	ANY SUITABLE RECTANGULAR SIZE WITH 3" DIAGONAL LENGTH SHALL BE PREFERED TO DISPLAY VARIOUS ELECTRICAL PARAMETERS	BOOLEAN
67	PARAMETERS TO BE DISPLAYED ARE SELECTABLE THOUGH FRONT PANEL SWITCH	BOOLEAN
68	DISPLAY OF PARAMETERS AS PER TECHNICAL SPECIFICATION	BOOLEAN
69	MINIMUM RESOLUTION FOR VARIOUS PARAMETERS IS AS PER	BOOLEAN
70	THREE CLAMP-ON TYPE SPLIT CORE CURRENT TRANSFORMERS (CTs) FOR 500 MA TO 240 AMPS CONFIRMING TO CLASS 0.5S PROVIDED	BOOLEAN
71	CLAMP ON CTs COMPENSATED FOR MEASUREMENT IN ALL FOUR	BOOLEAN
72	ERSS HAS FLEXIBILITY TO ENTER METER CONSTANT UPTO 6 DIGITS	BOOLEAN
73	SCANNING HEAD IS SUPPLIED ALONG WITH MOUNTING ARRANGEMENT & CONNECTION CABLE	BOOLEAN
74	START / STOP BUTTON INTEGRATED ON ERSS	BOOLEAN
75	EQUIPMENT HAS FACILITY TO TEST IN MANUAL MODE	BOOLEAN
76	EQUIPMENT HAS FACILITY TO TEST IN AUTO MODE	BOOLEAN
77	EQUIPMENT HAS FACILITY TO SELECT MEASURING MODE FOR TOTAL POWER / ENERGY	BOOLEAN
78	CLEARLY VISIBLE, EFFECTIVELY SECURED AGAINST REMOVAL & INDELIBLY AND DISTINCTLY MARKED WITH ALL ESSENTIAL PARTICULARS AS PER RELEVANT STANDARDS NAME PLATE IS PROVIDED	BOOLEAN
79	ERSS IS SUPPLIED ALONG WITH BCS	BOOLEAN
80	SOFTWARE IS SUITABLE FOR DOWNLOADING THE TEST RESULTS INTO COMPATIBLE PC / LAPTOP COMPUTER USING SERIAL INTERFACE DATA TRANSFER (RS-232 /RJ-45 ETHERNET PORT).	BOOLEAN
81	ERSS IS COMPATIBLE TO EXTERNAL PRINTER.	BOOLEAN
82	SOFTWARE HAS FACILITY TO GENERATE TEST REPORT FOR INDIVIDUAL TESTING AND SUMMARY REPORT OF ALL TEST REPORTS.	BOOLEAN
83	ERSS HAS ASCII OR SIMILAR SUPPORT FOR CONVERTING DATA INTO ASCII OR OTHER POPULAR AND COMMONLY AVAILABLE NON-EDITABLE COMPUTER SOFTWARE PROGRAMMES	BOOLEAN
84	MAINS POWER SUPPLY INPUT IS INTERNALLY CONNECTED TO TEST	BOOLEAN
85	PROVISION FOR INPUT OF SCANNING HEAD AND START / STOP BUTTON IS MADE	BOOLEAN

86	ERGONOMICALLY AND AESTHETICALLY DESIGNED INSTRUMENT TRANSPORTATION CASE IS PROVIDED ALONG WITH THE EQUIPMENT.	BOOLEAN
87	SCANNER IS ABLE TO READ CORRECTLY EVEN IN CASE OF ITS ALIGNMENT IS DEVIATING UPTO AN ANGLE OF 15 DEGREE OF THE AXES	BOOLEAN
88	WHETHER ERSS IS TYPE TESTED	BOOLEAN
89	TYPE TEST / CALIBRATION REPORT SUBMITTED ALONG WITH OFFER	BOOLEAN
90	TYPE TEST / CALIBRATION REPORT NOS. & DATE	TEXT
91	SUPPLIER AGREES TO IMPART NECESSARY TRAINING REGARDING INSTALLATION AND USE OF SOFTWARE.	BOOLEAN
92	SUPPLIER AGREES TO SUPPLY ERSS WITH ALL ACCESSORIES AS PER TECHNICAL SPECIFICATION	BOOLEAN
93	SUPPLIER AGREES TO DEPUTE THEIR REPRESENTATIVE TO EDUCATE ENGINEERS OF PURCHASER AS AND WHEN THEY WILL BE CALLED FOR	BOOLEAN
94	GUARANTEE OF ERSS AS PER CLAUSE NO. 19.00	BOOLEAN
95	DETAILS OF AFTER SALES SERVICE TO BE PROVIDED BY SUPPLIER WITHIN GUARANTEE PERIOD	BOOLEAN
96	DETAILS OF AFTER SALES SERVICE TO BE PROVIDED BY SUPPLIER OUTSIDE GUARANTEE PERIOD	BOOLEAN
97	ADDRESSES OF SALES SERVICE CENTRE, DETAILS OF ENGINEERS	TEXT
98	DETAILS OF NECESSARY MINIMUM TESTING FACILITIES FOR CARRYING OUT VARIOUS ACCEPTANCE AND ROUTINE TESTS SUBMITTED ALONG	TEXT
99	A LIST OF MACHINERY / EQUIPMENT AND TESTING FACILITY AVAILABLE AT THEIR WORKS IS FURNISHED ALONG WITH OFFER.	BOOLEAN

3 PHASE HT PORTABLE ERS METERS

GTP Order Sequence	GTP Parameters	Date Type
1	MANUFACTURER NAME & ADDRESS	TEXT
2	COUNTRY OF MANUFACTURE	TEXT
3	TYPE / MODEL DETAILS OF THE EQUIPMENT	TEXT
4	OPERATING EXPERIENCE OF THE BIDDER	TEXT
5	MANUFACTURER HAS EXPERIENCE OF MINIMUM ONE YEAR FOR SUPPLY OF SIMILAR OR BETTER EQUIPMENTS TO NATIONAL / INTERNATIONAL ACCREDITED LABORATORIES OR POWER UTILITIES IN INDIA.	BOOLEAN
6	NECESSARY PURCHASE ORDER COPIES ENCLOSED IN SUPPORT OF ABOVE (4) & (5)	BOOLEAN
7	PURCHASE ORDER NOS. & IN SUPPORT OF ABOVE (4) & (5) SUBMITTED	BOOLEAN
8	SATISFACTORILY PERFORMANCE REPORT FROM NABL LABS / POWER UTILITY IS ENCLOSED?	BOOLEAN
9	DECLARATION AS PER CL NO 2.05 OF TECH SPECS ENCLOSED.	BOOLEAN
10	NAME & ADDRESS OF BIDDERS OR THEIR PRINCIPALS TESTING FACILITIES IN INDIA ENCLOSED WITH OFFER	TEXT
11	NAME & ADDRESS OF BIDDERS OR THEIR PRINCIPALS OWN SERVICE CENTRE IN INDIA ENCLOSED WITH OFFER	TEXT

12	LIST OF PLANT AND MACHINERY, TOOLS AND TACKLES TO CARRY OUT SERVICE ENCLOSED ALONG WITH OFFER.	BOOLEAN
13	ACCURACY CLASS OF ERSS	TEXT
14	SUPPLY SYSTEM FOR THREE PHASE METERS	TEXT
15	FREQUENCY	TEXT
16	WORKING RANGE FOR THREE PHASE METERS	TEXT
17	PF RANGE	TEXT
18	POWER CONSUMPTION IN CURRENT CIRCUIT	TEXT
19	POWER CONSUMPTION IN VOLTAGE CIRCUIT	TEXT
20	AUXILIARY POWER CONSUMPTION	TEXT
21	TEST VOLTAGE RANGE FOR THREE PHASE METERS	TEXT
22	TEST VOLTAGE RESOLUTION	TEXT
23	TEST VOLTAGE ACCURACY	TEXT
24	TEST CURRENT RANGE	TEXT
25	TEST CURRENT RESOLUTION	TEXT
26	TEST CURRENT ACCURACY	TEXT
27	PHASE ANGLE MEASUREMENT RANGE	TEXT
28	POWER / ENERGY MEASUREMENT ERROR (SAME FOR ACTIVE, REACTIVE AND APPARENT)	TEXT
29	POWER / ENERGY MEASUREMENT TEMPERATURE DRIFT	TEXT
30	POWER / ENERGY MEASUREMENT STABILITY	TEXT
31	ERROR IN PHASE ANGLE MEASUREMENT	TEXT
32	FREQUENCY RESOLUTION	TEXT
33	METER HAS ALPHA – NUMERIC KEYBOARD WITH ARROW & ENTER KEYS	BOOLEAN
34	METER HAS SCANNER OR OPTICAL SENSOR HEAD ALONG WITH DETACHABLE LEAD	BOOLEAN
35	SENSOR HEAD CLAMP TO HOLD THE SCANNER PROPERLY IN FRONT OF THE LED / LCD OUTPUT OR REVOLVING DISC IS PROVIDED	BOOLEAN
36	SNAP SWITCH ALONG WITH DETACHABLE LEAD PROVIDED	BOOLEAN
37	ELECTRONIC COMPENSATED CLAMP-ON CTs TO ENABLE TESTING WITHOUT ISOLATING OR INTERRUPTING THE SUPPLY OF THE CONSUMER	BOOLEAN
38	EQUIPMENT HAS FACILITY TO INTERCHANGE CLAMP ON CT WITHOUT AFFECTING ACCURACY	BOOLEAN
39	RATING AND ACCURACY CLASS OF CT	TEXT
40	VOLTAGE LEADS WITH INJECTION TYPE CROCODILE CLIPS / ANY OTHER SUITABLE CLAMPING ARRANGEMENT WITH INSULATED LEADS ARE PROVIDED ON ERSS METER.	BOOLEAN
41	ALL ACCESSORIES SUPPLIED CONFORM TO INTERNATIONAL SAFETY STANDARDS	BOOLEAN
42	ADEQUATE BUILT IN FEATURES TO PROTECT INSTRUMENT ITSELF FROM OVERVOLTAGE PROVIDED & COMPLIES WITH OVERVOLTAGE CATEGORY II (300V).	BOOLEAN

43	INDICATION BY MEANS OF LED / LCD SCREEN OR OTHERWISE PROVIDED ON ERSS THAT ERSS METER IS IN CORRECT ACTIVE MODE	BOOLEAN
44	ERSS HAS FACILITY TO SELECT THE CALCULATION OF APPARENT POWER GEOMETRICALLY FOR INDIVIDUAL PHASES AND FOR SUMMATION OF ALL THREE PHASES.	BOOLEAN
45	INDICATION TO DISPLAY MISSING / REVERSE / OVER CURRENT / VOLTAGE BY INSTANTANEOUS VALUES OR WARNING MESSAGE IS PROVIDED	BOOLEAN
46	AUTO RANGE OF CURRENT AND VOLTAGE INPUTS IS PROVIDED.	BOOLEAN
47	ERSS DISPLAYS ERROR(S) OF THE METER UNDER TEST AUTOMATICALLY	BOOLEAN
48	ERSS METER HAS INTERFACE TO AN EXTERNAL PRINTER	BOOLEAN
49	PROVISION FOR INPUT OF SCANNING HEAD AND START / STOP BUTTON ON ERSS	BOOLEAN
50	METER TYPE TESTED FOR IP 51 DEGREE OF PROTECTION AS PER IS:	BOOLEAN
51	IP-51 TYPE TEST REPORT NO. & DATE	TEXT
52	WHETHER IP-51 TYPE TEST REPORT ENCLOSED ALONG WITH THE BID	BOOLEAN
53	ERSS HAS FACILITY TO RECORD & STORE MINIMUM 1000 TEST RESULTS WITH VARIOUS INSTANTANEOUS PARAMETERS IN NON VOLATILE	BOOLEAN
54	LIFE OF NVM SHALL BE MINIMUM 10 YEARS	BOOLEAN
55	ERSS GIVES FLASHING ALARM WHEN 90% OF MEMORY IS USED	BOOLEAN
56	PROVISION TO NOT LOSE TEST DATA STORED IN MEMORY OF ERSS BY ROLL OVER MODE IS MADE	BOOLEAN
57	DATA IN ERSS CAN BE DOWN LOADED TO COMPUTER USING COMMUNICATION CORD/ RS-232/RJ-45 ETHERNET PORT/USB PORT PROVIDED ON ERSS THROUGH COMPATIBLE SOFTWARE.	BOOLEAN
58	INDICATION FOR ENERGY FLOW DIRECTION & WARNING FOR OVERLOAD IS MADE ON ERSS	BOOLEAN
59	ERSS IS IMMUNE TO VIBRATION AND DUMPING DUE TO TRANSPORT.	BOOLEAN
60	ERSS SHOWS CALIBRATION DATE AND CALIBRATION DUE DATE ON INITIAL SCREEN	BOOLEAN
61	ERSS HAS LCD DISPLAY OF MIN 5" DIAGONALLY	BOOLEAN
62	ANY SUITABLE RECTANGULAR SIZE WITH 5" DIAGONAL LENGTH SHALL BE PREFERED TO DISPLAY VARIOUS ELECTRICAL PARAMETERS	BOOLEAN
63	PARAMETERS TO BE DISPLAYED ARE SELECTABLE THOUGH FRONT PANEL SWITCH	BOOLEAN
64	DISPLAY OF PARAMETERS AS PER TECHNICAL SPECIFICATION	BOOLEAN
65	MINIMUM RESOLUTION FOR VARIOUS PARAMETERS IS AS PER	BOOLEAN
66	THREE CLAMP-ON TYPE SPLIT CORE CURRENT TRANSFORMERS (CTs) FOR 100 mA TO 100 AMPS CONFIRMING TO CLASS 0.2 PROVIDED	BOOLEAN
67	THREE CLAMP-ON TYPE SPLIT CORE CURRENT TRANSFORMERS (CTs) FOR 1 A TO 300 AMPS CONFIRMING TO CLASS 0.2 PROVIDED	BOOLEAN
68	CLAMP ON CTs COMPENSATED FOR MEASUREMENT IN ALL FOUR	BOOLEAN
69	ERSS HAS FLEXIBILITY TO ENTER METER CONSTANT UPTO 6 DIGITS.	BOOLEAN
70	SCANNING HEAD IS SUPPLIED ALONG WITH MOUNTING ARRANGEMENT & CONNECTION CABLE	BOOLEAN
71	START / STOP BUTTON INTEGRATED ON ERSS IS PROVIDED	BOOLEAN

72	EQUIPMENT HAS FACILITY TO TEST IN MANUAL MODE	BOOLEAN
73	EQUIPMENT HAS FACILITY TO TEST IN AUTO MODE	BOOLEAN
74	EQUIPMENT HAS FACILITY TO SELECT MEASURING MODE FOR TOTAL POWER / ENERGY	BOOLEAN
75	CLEARLY VISIBLE, EFFECTIVELY SECURED AGAINST REMOVAL & INDELIBLY AND DISTINCTLY MARKED WITH ALL ESSENTIAL PARTICULARS AS PER RELEVANT STANDARDS NAME PLATE IS PROVIDED	BOOLEAN
76	ERSS IS SUPPLIED ALONG WITH BCS	BOOLEAN
77	SOFTWARE IS SUITABLE FOR DOWNLOADING THE TEST RESULTS INTO COMPATIBLE PC / LAPTOP COMPUTER USING SERIAL INTERFACE DATA TRANSFER (RS-232 /RJ-45 ETHERNET PORT/USB PORT).	BOOLEAN
78	ERSS IS COMPATIBLE TO EXTERNAL PRINTER.	BOOLEAN
79	SOFTWARE HAS FACILITY TO GENERATE TEST REPORT FOR INDIVIDUAL TESTING AND SUMMARY REPORT OF ALL TEST REPORTS.	BOOLEAN
80	ERSS HAS ASCII OR SIMILAR SUPPORT FOR CONVERTING DATA INTO ASCII OR OTHER POPULAR AND COMMONLY AVAILABLE NONEDITABLE COMPUTER SOFTWARE PROGRAMMES	BOOLEAN
81	MAINS POWER SUPPLY INPUT IS INTERNALLY CONNECTED TO TEST	BOOLEAN
82	PROVISION FOR INPUT OF SCANNING HEAD AND START / STOP BUTTON IS MADE	BOOLEAN
83	ERGONOMICALLY AND AESTHETICALLY DESIGNED INSTRUMENT TRANSPORTATION CASE IS PROVIDED ALONG WITH THE EQUIPMENT.	BOOLEAN
84	SCANNER IS ABLE TO READ CORRECTLY EVEN IN CASE OF ITS ALIGNMENT IS DEVIATING UPTO AN ANGLE OF 15 DEGREE OF THE AXES	BOOLEAN
85	WHETHER ERSS IS TYPE TESTED	BOOLEAN
86	TYPE TEST / CALIBRATION REPORT SUBMITTED ALONG WITH OFFER	BOOLEAN
87	TYPE TEST / CALIBRATION REPORT NOS. & DATE	TEXT
88	SUPPLIER AGREES TO IMPART NECESSARY TRAINING REGARDING INSTALLATION AND USE OF SOFTWARE.	BOOLEAN
89	SUPPLIER AGREES TO SUPPLY ERSS WITH ALL ACCESSORIES AS PER TECHNICAL SPECIFICATION	BOOLEAN
90	SUPPLIER AGREES TO DEPUTE THEIR REPRESENTATIVE TO EDUCATE ENGINEERS OF PURCHASER AS AND WHEN THEY WILL BE CALLED FOR	BOOLEAN
91	GUARANTEE OF ERSS AS PER CLAUSE NO. 19.00	BOOLEAN
92	DETAILS OF AFTER SALES SERVICE TO BE PROVIDED BY SUPPLIER WITHIN GUARANTEE PERIOD	BOOLEAN
93	DETAILS OF AFTER SALES SERVICE TO BE PROVIDED BY SUPPLIER OUTSIDE GUARANTEE PERIOD	BOOLEAN
94	ADDRESSES OF SALES SERVICE CENTRE, DETAILS OF ENGINEERS	BOOLEAN
95	DETAILS OF NECESSARY MINIMUM TESTING FACILITIES FOR CARRYING OUT VARIOUS ACCEPTANCE AND ROUTINE TESTS SUBMITTED ALONG	BOOLEAN
96	A LIST OF MACHINERY / EQUIPMENT AND TESTING FACILITY AVAILABLE AT THEIR WORKS IS FURNISHED ALONG WITH OFFER.	BOOLEAN

Required Documents (To be uploaded online)

Sr. No.	NAME	SECTION	ITEM	DESCRIPTION
1	Annexure-E Consent for supplying the Material As Per MSEDCL Standard Technical Specifications	Technical Section	1 PH PORTABLE ERS SUBMET	Annexure-E Consent for supplying the Material As Per MSEDCL Standard Technical Specifications
2	Annexure-E Consent for supplying the Material As Per MSEDCL Standard Technical Specifications	Technical Section	3 PH PORTABLE ERS SUBMET	Annexure-E Consent for supplying the Material As Per MSEDCL Standard Technical Specifications
3	Documentary evidence for QAP of Technical Specification i.e. Annexure-D	Technical Section	3 PHASE HT PORTABLE ERS	Documentary evidence for QAP of Technical Specification i.e. Annexure-D
4	Annexure-E Consent for supplying the Material As Per MSEDCL Standard Technical Specifications	Technical Section	3 PHASE HT PORTABLE ERS	Annexure-E Consent for supplying the Material As Per MSEDCL Standard Technical Specifications
5	Certificate duly certified by C.E./C.A. that the person/entity does not have controlling stake in mo	Commercial Section		Certificate duly certified by C.E./C.A. that the person/entity does not have controlling stake in MO
6	The bidder shall submit the declaration Annexure-I.	Commercial Section		The bidder shall submit the declaration Annexure-I.
7	The bidder shall submit the undertaking certifying that you have not approached any one for undue in	Commercial Section		The bidder shall submit the undertaking certifying that you have not approached any one for undue in
8	Doc. Evidence as per Cl. 2 of Section I i.e. Q.R.	Commercial Section		Doc. Evidence as per Cl. 2 of Section I i.e. Q.R.
9	Undertaking U-I to be submitted by the parent company situated abroad in case of the participant bid	Commercial Section		Undertaking U-I to be submitted by the parent company situated abroad in case of the participant bid
10	Annexure U-II Form of Authorized Nominee / Assignee to be submitted on the letter head of the foreig	Commercial Section		Annexure U-II Form of Authorized Nominee / Assignee to be submitted on the letter head of the foreig
11	Doc. evid. from NSIC/DIC of not crossed prescribed monetary limit/limit for invest. in plant & m/c f	Commercial Section		Doc. evid. from NSIC/DIC of not crossed prescribed monetary limit/limit for invest. in plant & m/c f
12	Notarized power of attorney in favor of appointed agent/representative.	Commercial Section		Notarized power of attorney in favor of appointed agent/representative.
13	Copy of latest turnover certificate for the product offered for last 3 years duly certified by Chart	Commercial Section		Copy of latest turnover certificate for the product offered for last 3 years duly certified by Chart

Sr. No.	NAME	SECTION	ITEM	DESCRIPTION
14	List of year wise, item wise orders executed and under execution duly certified by C.A.	Commercial Section		List of year wise, item wise orders executed and under execution duly certified by C.A.
15	ISO Certificates	Commercial Section		ISO Certificates
16	Doc. Evid. in respect of classification of your unit as per Micro, Small and Medium Enterprises	Commercial Section		Doc. Evid. in respect of classification of your unit as per Micro, Small and Medium Enterprises Deve
17	SCHEDULE-C: Quantity Offered at Column No. 6 of Annexure-'B' (Price Schedule)	Commercial Section		SCHEDULE-C: Quantity Offered at Column No. 6 of Annexure-'B' (Price Schedule)