



CENTRAL ELECTRICITY SUPPLY UTILITY OF ORISSA

Head Office : IDCO Towers, 2nd Floor, Janapath, Bhubaneswar – 451022

Phone : (0674) 2541727 / 2545681 / 2540349, Fax : (0674) 2543125

TENDER SPECIFICATION NO.CESU / 153 / 2008-09

FOR

PROCUREMENT OF LT XLPE AB CABLES

DATE OF OPENING OF TENDER: 12.11.2008, TIME 4.00 P.M. ONWARDS

Ref. Tender Notice No. CESU H.Qrs./PUR/287/35345 / Dt.01.10.2008.

For item No. 1 (LT XLPE AB CABLES)

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LT XLPE AB CABLES**

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SECTION-I

INVITATION FOR BIDS

GENERAL INFORMATION TO BIDDERS

SPECIFICATION No.CESU/153/2008-09

1. Schedule of Requirement

Sl. No.	Sizes of LT XLPE AB Cables	Qty. in Km
1	1 x 35 + 1 x 25 mm ²	33
2	3 x 35 + 1 x 25 mm ²	177
3	3 x 95 + 1 x 70 + 1X16 mm ²	50

- | | | |
|---|--|---|
| 2 | EMD | Rs.3,00,000/- drawn from any nationalized or scheduled Bank in shape of Bank Draft/ Pay order in favour of CESU, BBSR / B.G with 240 days validity & encashable at Bhubaneswar as per prescribed format enclosed. |
| 3 | Cost of Tender Specification | Rs.8320.00 inclusive of VAT |
| 4 | Date/Time of beginning of sale of Tender Documents | Dt. 20.10.2008/11.00hrs onwards |
| 5 | Date/Time of closing of sale of Tender Documents | Up to Dt. 11.11.2008/17.00hrs |
| 6 | Last Date/Time of receipt of Tender Documents | Up to Dt.12.11.2008/13.30hrs |
| 7 | Date/Time of Opening of Tender Documents | Dt. 12.11.2008/16.00hrs onwards |

N.B. – The Tender Papers can be had from the undersigned from Dt. 20.10.2008 on payment of Rs.8320.00 inclusive of VAT by Cash / Bank Draft drawn on a Nationalised Bank / Scheduled Bank in favour of CESU, Bhubaneswar payable at Bhubaneswar. Alternately the Tender Document can be downloaded from our website www.cescoorissa.com within period stipulated above and submitted enclosing the Original Bank Draft towards cost of Tender Document. The bids submitted without paying the Tender Cost shall be rejected.

All the intending bidders should satisfy the following minimum qualifying criteria.

1. The bidder should be a manufacturer of type tested ISI marked LT XLPE INSULATED AB Cables (Aluminium) of the offered sizes or higher. The required type tests must have been carried out not more than 5 years before the date of opening of bids. The bids shall accompany self attested copies of such type test reports conducted at Central Power Research Institute / Government approved laboratory.
2. The bidders should possess valid License from Bureau Of Standards, to use ISI Marks for the products offered. The bids should accompany a self attested copy of valid ISI License.
3. All bids should accompany bid security (EMD) for an amount Rs.3,00,000.00 (Rupees Three Lakhs.) in the form of crossed Bank Draft / Pay order drawn from a Nationalised / Scheduled Bank in favour of CESU, Bhubaneswar or in the form of a Bank Guarantee with validity of at least 240 days from the date of opening of the Tender and encashable at Bhubaneswar as per prescribed Format enclosed in the Tender Document. Bids without EMD shall be rejected outright.
4. The bidders must have delivered similar quantity of LT XLPE AB Cables tendered during last three financial years. Details of previous P.Os executed by the bidder in last three years with quantity and cost of materials delivered and detail address and telephone numbers of buyers must be furnished as per the format enclosed in the Tender Document.
5. The bid shall be accompanied by user certificates / Successful contract completion / certificates from any Distribution Company / State Govt./ Central Govt or their undertaking (s) in support of satisfactory performance of their supplied cables for at least 1 year from the date of commissioning within a period of last 5 years.
6. The bidders should give offer for the full quantity of items in which they participate. Offers for reduced quantity or covering a portion of the items would be out rightly rejected. However the offers with item/items with full quantities only shall be considered.

Financial :-

7. The minimum average annual Turn over of the intending bidder during last three financial year should not be less than **Rs.3.0Crores.**
- N.B 1) CESU at its discretion may relax the minimum qualifying criteria for bidder(s), in consideration of certain items like outstanding performance of their conductors supplied by him / them to various utilities in the past, timely delivery, trouble – free service, after sales service and proven integrity of the bidder (s) etc.

Intending bidders not complying to the above said criteria need not participate in the bidding process.

CESU reserves the right to accept or reject any or all bids without assigning any reasons if the situation so warrants.

All correspondence with regards to the above shall be made to the following address;

CGM(APDRP & Contracts)
APDRP CELL, CESU H Qrs Office
IDCO TOWER (2nd Floor)
Janpath, Bhubaneswar-751022

SECTION-II

GENERAL TERMS & CONDITIONS OF CONTRACTS (GTCC)

CENTRAL ELECTRICITY SUPPLY UTILITY OF ORISSA

IDCO TOWERS (II nd Floor) , Janapath ,Bhubaneswar-751022
Phone : 0674-3545681 /2543721/ 2541727 Fax : 0674- 2543125

SPECIFICATION No.CESU/153/2008-09 **GENERAL TERMS AND CONDITIONS**

(For supply of LT XLPE AB Cables)

1.0 General Instruction

Prospective bidders are expected to adhere to all the stipulated terms and conditions of this bid specification document during preparation and submission of their bids both in letter and spirit.

2.0 Scope of Proposal :

The scope of this specification calls for supply in accordance with the technical specifications covering design, engineering, manufacturing and supply of ISI Marked LT XLPE AB Cables of different sizes mentioned in the schedule of requirements, at Store Sub-division, Bhubaneswar / Choudwar of CESU.

The bidders are free to tender for the full quantity for any or all sizes of AB Cables. Offers for reduced quantity for any size of AB cable would be rejected outright.

3.0 Definition of Terms

- 3.1 The 'Contract 'means the agreement entered into between the Owner and the Contractor as per the Contract Agreement signed by the parties, including all attachments and appendices there to and all documents incorporated by reference therein.
- 3.2 ' Owner' shall mean the Central Electricity Supply Utility of Orissa , BBSR and shall include its legal representatives, successors and assigns.
- 3.3 ' Contractor' or ' Manufacturer' shall mean the Bidder whose bid will be accepted by the Owner for the award of the Works and shall include such successful Bidder's legal representatives, successors and permitted assigns.
- 3.4 ' Sub-Contractor' shall mean the person named in the Contract for any part of the works or any person to whom any part of the Contract has been sublet by the contractor with the consent in writing of the Engineer and will include the legal representatives, successors and permitted assigns of such person.
- 3.5 ' Engineer' shall mean the officer appointed in writing by the Owner to act as Engineer from time to time for the purpose of the Contract.
- 3.6 ' Consulting Engineer' /' Consultant' shall mean any firm or person duly appointed as such from time to time by the Owner.

- 3.7 The terms 'Equipment', 'Stores' and 'Materials' shall mean and include equipment, stores and materials to be provided by the Contractor under the Contract.
- 3.8 'Works' shall mean and include the furnishing of equipment, labour and services, as per the Specifications and complete erection, testing and putting into satisfactory operation including all transportation, handling, unloading and storage at the Site as defined in the Contract.
- 3.9 'Specifications' shall mean the specifications and Bidding Document forming a part of the Contract and such other schedules and drawings as may be mutually agreed upon.
- 3.10 'Site' shall mean and include the land and other places on, into or through which the works and the related facilities are to be erected or installed and any adjacent land, paths, street or reservoir which may be allocated or used by the Owner or Contractor in the performance of the Contract.
- 3.11 The term 'Contract Price' shall mean the lump-sum price quoted by the Contractor in his bid with additions and/or deletions as may be agreed and incorporated in the Letter of Award, for the entire scope of the works on FOR CESU's stores basis for supply items. For turn key (supply & erection) this shall mean the total cost payable by the owner under the contract till the entire system is handed over to the owner.
- 3.12 The term 'Equipment Portion' of the Contract Price shall mean the ex-works value of the equipment.
- 3.13 The term 'Erection Portion' of the Contract price shall mean the value of field activities of the works including erection, testing and putting into satisfactory operation including successful completion of performance and guarantee tests to be performed at Site by the Contractor including cost of insurances.
- 3.14 'Manufacturer's Works' or Contractor's Works', shall mean the place of work used by the manufacturer, the Contractor, their collaborators/ associates or sub-Contractors for the performance of the Contract.
- 3.15 'Inspector' shall mean the Owner or any person nominated by the Owner from time to time, to inspect the equipment; stores or Works under the Contract and/or the duly authorized representative of the Owner.
- 3.16 'Notice of Award of Contract' / 'Letter of Award' / 'Telex of Award' shall mean the official notice issued by the Owner notifying the Contractor that his bid has been accepted.
- 3.17 Date of Contract shall mean the date on which notice of Award of Contract/ Letter of Award has been issued.
- 3.18 'Month' shall mean the calendar month. 'Day' unless herein otherwise expressly defined shall mean calendar day or days of 24 hours each.
- 3.19 'Writing' shall include any manuscript, type written or printed statement, under or over signature and/or seal as the case may be.
- 3.20 When the 'Approved' , 'Subject to Approval', 'Satisfactory', 'Equal to', 'Proper', 'Requested', 'As directed', 'Where Directed', 'When Directed', 'Determined by',

Accepted', ' Permitted', or words and phrase of like importance are used the approval, judgment, direction etc. is understood to be a function of the Owner/Engineer.

- 3.21 Test on completion shall mean such tests as prescribed in the Contract to be performed by the Contractor before the work is taken over by the Owner.
- 3.22 'Start up' shall mean the time period required to bring the equipment covered under the Contract from an inactive condition, when construction is essentially complete, to the state ready for trial operation. The start-up-period shall include preliminary inspection and check-out of equipment and supporting sub-system, initial operation of the complete equipment covered under the Contract to obtain necessary pre-trial operation date, perform calibration and corrective action, shut-down, inspection and adjustment prior to the trial operation period.
- 3.23 ' Initial Operation' shall mean the first integral operation of the complete equipment covered under the contract with the sub-system and supporting equipment in service or available for service.
- 3.24 ' Trial Operation', Reliability Test' , Trial Run 'Completion Test', shall mean the extended period of time after the start-up- period. During this trial operation period the unit shall be operated over the full load range. The length of trial operation shall be as determined by the Engineer, unless otherwise specified elsewhere in the Contract.
- 3.25 'Performance and Guarantee Tests', shall mean all operational checks and tests required to determine and demonstrate capacity, efficiency, and operating characteristics as specified in the Contract Documents
- 3.26 The term ' Final Acceptance'/ ' Taking Over' shall mean the Owner's written acceptance of the works performed under the Contract, after successful commissioning/ completion of Performance and Guarantee Tests, as specified in the accompanying Technical Specifications or otherwise agreed in the contract.
- 3.27 'Commercial Operation' shall mean the condition of operation in which the complete equipment covered under the Contract is officially declared by the Owner to be available for continuous operation at different loads up to and including rated capacity. Such declaration by the Owner, however, shall not relieve or prejudice the Contractor of any of his obligations under the Contract.
- 3.28 ' Guarantee Period' / ' Maintenance Period' shall mean the period during which the Contractor shall remain liable for repair or replacement of any defective part of the works performed under the contract.
- 3.29 ' Latent Defects' shall mean such defects caused by faulty designs, material or work-man-ship which cannot be detected during inspection, testing etc, based on the technology available for carrying out such tests.
- 3.30 ' Drawing', ' Plans, shall mean all:
- a. Drawings furnished by the Owner/Consultant as a basis of Bid/Proposals.
 - b. Supplementary drawings furnished by the Owner/Consultant to clarify and to define in greater detail the intent of the Contract.

- c. Drawings submitted by the Contractor which his bid provided such drawings are acceptable to the Owner/Consultant
- d. Drawings furnished by the Owner/Consultant to the Contractor during the progress of the work; and
- E Engineering data and drawings submitted by the Contractor during the progress of the work provided such drawings are acceptable to the Engineer/Owner.

3.31 'Codes' shall mean the following including the latest amendments and/or replacements, if any:

- a) Indian Electricity Act, 1905 and Rules and Regulations made there under.
- b) Indian Factory Act, 1948 and Rules and Regulations made there under.
- c) Indian Explosives Act, 1984 and Rules and Regulations made there under.
- d) Indian Petroleum Act, 1934 and Rules and Regulations made there under.
- e) A.S.M.E. Test Codes
- f) A.I.E.E. Test Codes
- g) American Society of Materials Testing Codes
- h) Standards of the Indian Standards Institution
- i) Other Internationally approved standards and/ or rules and regulations touching the subject matter of the Contract.

3.32 Words imparting the singular only shall also include the plural and vice-versa where the context so requires

3.33 Words imparting 'Person' shall include firms, companies, corporations and associations or bodies of individuals, whether incorporated or not.

3.34 Terms and expressions not herein defined shall have the same meaning as are assigned to them in the Indian Sale of goods Act (1930), failing that in the Indian Contract Act (1872) and failing that in the General Clauses Act (1897) including amendments thereof, if any.

The various Acts and Regulations are normally available for sale from the following address:

- i) Deputy controller
Publication Department
Government of India
Civil Lines
DELHI- 110 006
Deptt. Of Publication

- ii) (Government of India)
Kitab Mahal
Unit No-21,Emporia Building
Baba Kharak Singh Marg,
NEW DELHI- 110 001

OR

With leading authorized Government of India Book-Sellers.

3.35 In addition to the above the following definition shall also apply

- a) ' All equipment and materials' to be supplied shall also mean ' Goods'
b) 'Constructed' shall also mean erected and installed.
c) ' Contract Performance Guarantee' shall also mean ' Contract Performance Security'.

4.0 Qualifying Criteria for Bidders:-

1. The bidder should be a manufacturer of type tested ISI marked LT XLPE INSULATED AB Cables (Aluminium) of the offered sizes or higher. The required type tests must have been carried out not later than 5 years before the date of opening of bids. The bids shall accompany self attested copies of such type test reports conducted at Central Power Research Institute / Government approved laboratory.
2. The bidders should possess valid License from Bureau Of Standards, to use ISI Marks for the products offered. The bids should accompany a self-attested copy of valid ISI License.
3. All bids should accompany bid security (EMD) for an amount Rs.3,00,000.00 (Rupees Three Lakhs.) in the form of crossed Bank Draft / Pay order drawn from a Nationalised / Scheduled Bank in favour of CESU, Bhubaneswar or in the form of a Bank Guarantee with validity of at least 240 days from the date of opening of the Tender and encashable at Bhubaneswar as per prescribed Format enclosed in the Tender Document. Bids without EMD shall be rejected outright.
4. The bidders must have delivered similar quantity of LT XLPE AB Cables tendered during last three financial years. Details of previous P.Os executed by the bidder in last five years with quantity and cost of materials delivered and detail address and telephone numbers of buyers must be furnished as per the format enclosed in the Tender Document.
5. The bid shall be accompanied by user certificates / Successful contract completion / certificates from any Distribution Company / State Govt./ Central Govt or their undertaking (s) in support of satisfactory performance of their supplied conductors for at least 1 year from the date of commissioning within a period of last 5 years.
6. The bidders should give offer for the full quantity of items in which they participate. Offers for reduced quantity or covering a portion of the items would be outrightly rejected. However the offers with item/items with full quantities only shall be considered.
7. The minimum average annual Turn over of the intending bidder during last three financial year should not be less than **Rs.3.0Crores.**

5.0 Earnest Money Deposit (EMD) :-

The Tender must be accompanied by Earnest Money Deposit of Rs. 3,00,000.00 /- (Rupees Three lakhs only) in shape of Demand Draft drawn from any Nationalised / Scheduled Bank in favour of CESU, Bhubaneswar / Bank Guarantee with atleast 240 days validity encashable at Bhubaneswar as per EMD BG Format enclosed. Bids without EMD will be rejected out right. No adjustment of any previous deposit will be entertained. The EMD shall be forfeited in case of refusal to accept L.OA or non execution of supply orders.

6.0. Submission of Bid(s)

6.1 Bidders are required to submit their bids in duplicate on two part bidding basis i.e **Part I Bid Document for Techno Commercial Bid & Part II Bid Document for Price Bid.**

6.1.1 (a) **The Part I bid document set shall comprise of the following**

- (i) Guaranteed Technical Particulars (as per annexure-III) is to be filled in & signed in each page by the bidder.
- (ii) Abstract of General Terms & Condition (as per annexure-I) ,Declaration Form (as per annexure-ii) & Non-Compliance Schedule (as per annexure-VI) is to be filled in & signed in each page by the bidder.
- (iii) Copy of this bid document duly signed by the bidder in each page.
- (iv) Details of previous P.O executed by the bidder during the last 5 (five) years in the format duly signed in ink as in Annexure-VIII.(Copies of P.O need not be furnished.)
- (v) Self attested copies of users letters / certificate on performance of AB Cable used in their system.
- (vi) Self attested copies of type test reports of goods tendered carried out within 5 (five) years
- (vii) Self attested copy of presently valid license for use of ISI mark on the manufactured products .
- (viii) Brief details of quality assurance procedures followed for manufacture of tendered products.
- (ix) Bid Security strictly in the prescribed format shall be kept in a separate sealed envelope duly superscribed “ Bid security for Tender Specification No.”CESU/153/2008-09 (AB Cable)” to be opened on Dt.12.11.2008
- (x) Self attested copies of audited accounts for last five years or any other self attested copy of document to substantiate the claim of the bidder in his favour is to be furnished.
- (xi) Self attested copies of Valid ITCC & ST(VAT)CC are to be furnished.
- (xii) Original Money Receipt for the payment made at our Office Counter / Original Bank draft amounting Rs.8320.00 towards the cost of Tender Documents.

The documents as in (i) to (xii) above shall be kept in an envelope superscribed there on “ Original Part – I Bid (i.e Techno-Commercial Bid document with EMD inside) for Bid specification No .CESU/ 153 /2008-09 (AB Cable) to be opened on Dt.12..11.2008”

b) Self attested copies of all the documents as contained under clause (a) above shall be placed in another sealed envelope super scribed as “ Duplicate Part – I Bid documents (Techno-commercial and EMD) for Bid Specification No. CESU/ 53 /2008-09(AB Cable)

(b) **Part II Bid (Price Bid)**

Price bid in duplicate in separate sealed envelope with superscription “ price bid against bid specification No.CESU/153/2008-09 (AB Cable) NOT TO BE OPENED on Dt.12 .11.2008”

6.1.2 One copy of original bid as above but excluding price bid, bid security shall be placed in another envelope duly sealed and superscribed there on “ Duplicate copy of Bid ” .

6.1.3 The original and duplicate bids may be placed in another envelope and submitted to the designated officer of CESU.

6.1 Bid Validity: -

The offer shall be valid for a period not less than 90 days from the date of opening.

Telegraphic tenders will not be accepted.

6.2 Receipt and opening of the Tender:

Tenders in duplicate as described under Clause – 3 shall be received in the office of the CGM (APDRP & Contracts), Central Electricity Supply Utility of Orissa, Head Office - IDCO Towers (IInd Floor) , Bhubaneswar and shall be opened on the scheduled date and time as specified in presence of bidders on their authorized representatives who may wish to be present

7.0 Price :-

The price quoted shall be firm and shall be on FOR destination Bhubaneswar / Choudwar Stores of CESU basis. Quoted price shall be indicated both in words and figures. No over writing will be allowed. In case of any discrepancy the price written in words shall be treated as final. The break up Price such as Basic Price , E.D., Sales Tax, Transit Insurance, Freight , Entry tax made shall be clearly mentioned in the bid as per the **Prescribed Price Schedule as at Annexure- IV** . Another copy of original bid as described above but excluding Bid security and price bid shall be placed in another sealed envelope with appropriate superscription . Both the original and copy of bid as described above shall be furnished to the designated officer keeping the two envelopes inside another envelope.

8.0 Evaluation Process:-

After opening of part-I bids responsive bidders will be identified considering bidder's compliance to the qualification criteria besides assessing their capability to manufacture and deliver the required good. Price bids of only responsive bidders will be opened and price comparison will be carried out item wise i.e. against each size of AB Cable. Final vendor selection will be done on the basis of lowest competitive price of each size or a combination of sizes of AB Cables most be economical to the purchaser. For price comparison purpose rebates/ discounts offered for a group of different sizes of AB Cables offered shall not be taken into account. But while placing orders the purchaser will avail this offered facility if any.

9.0 Submission of Contract Performance Bank Guarantee :-

A Contractor Performance Bank Guarantee (CPBG) drawn in favour of CESU and encashable at Bhubaneswar / Cuttack as per the Performa enclosed for 10% (Ten percent) of the total FOR Destination cost of purchase orders should be furnished, from a Nationalised / Scheduled Bank, in favour of Central Electricity Supply Utility of Orissa , Bhubaneswar, within 30 days of issue of the Purchase Order. The Bank Guarantee furnished shall be executed on Non-judicial Stamp paper worth of Rs 50/- (Rupees Fifty) as per the prevalent rules valid for a period of 24 months from the date of issue of the Purchase Order towards security and acceptance there of , failing which the supply orders will be liable for cancellation and forfeiture of EMD. No interest shall be allowed on CPBG.

10.0 Manner of Execution :-

The materials offered shall be manufactured in the manner set out in the specification or where not set out, to the reasonable satisfaction of the Purchaser / Purchaser's representative in accordance with latest edition of relevant IS, International Standards and accepted practice complying to the technical particulars/ description in this specification.

10.1 Inspection and Testing :-

All the materials shall be inspected & tested by our authorised inspectors at your factory premises before dispatch of materials. The purchaser may also engage a third party for the above inspection. The supplier shall give the purchaser fifteen days advance notice for deputing the authorized inspectors for the above purpose.

Random samples from each size of cables shall be collected for testing in presence of your representative and our authorized inspectors for testing. The samples shall be first physically verified for dimensional and embossing requirements as per the Technical particulars enclosed. The materials found unsuitable during physical verification stage shall be rejected. The samples from the qualified lot only shall be tested for Acceptance Tests as per relevant ISS. The physical verification report as well as the test results shall be submitted to the undersigned. After receipt of successful inspection reports only the dispatch instruction shall be issued by the undersigned.

The materials shall be dispatched by the supplier to the consignee after receipt of the dispatch instruction. The consignment of the dispatched materials shall be accepted at the designated CESU Stores after due physical verification observing departmental formalities.

However in case of any future discrepancy regarding the quality of materials delivered during guarantee period, the purchaser reserves the right to test the samples of the cables supplied, at CPRI or any Govt. testing Laboratory. In such case the results of the testing laboratory shall be binding to both the parties.

10.2 Delivery :-

Delivery of the materials ordered shall commence within 45 days and shall be completed within 90 days from the date of issue of Purchase Order. @ 25% quantity per month pre-ponement of delivery would be welcome.

11.0 Rejection of materials :-

In the event of the materials supplied by the supplier are found defective in quality and the workmanship is poor or otherwise not in conformity with the requirements of the contract specification, the Purchaser shall either reject the materials or advise the suppliers in writing to rectify the defects where possible. The suppliers on receipt of such notification shall either rectify or replace the defective materials free of cost to the purchaser. If the suppliers fail to comply purchaser may at his option.

- A) Replace or rectify such defective materials and recover the extra cost so involved plus 15% from the suppliers.
- B) Terminate the contract for balance supply with enforcement of penalty as per contract.
- C) Accept the defective materials at reduced prices to be fixed exclusively by the purchaser.
- D) The supplier shall take back rejected good at his own cost and responsibility when asked upon by the purchaser within the stipulated period .

12.0 Guarantee Period :-

The material covered by this specification should be guaranteed for satisfactory operation against defects in design and workmanship for a period of at least 18 months from the date of supply or 12 months from the date of use/operation which ever is earlier.

The above guarantee certificate shall be furnished in triplicate to the Purchaser for his approval. Any defects noticed during the above period should be rectified by the supplier free of cost to the purchaser provided such defects are due to faulty design, bad workmanship or bad materials used on receipt of written notice from the Purchaser . The term date of supply used in this case shall mean the date of receipt and verification there to by the consignee of the owner.

13.0 Penalty for delay in completion of Delivery :-

If the supplier shall fail to deliver the materials within the delivery schedule specified in the contract or any extension granted thereby, the supplier shall be liable for payment of penalty amounting to 0.5 % (half percent) of the contract price of undelivered good per week subject to the maximum of 5 % (five percentage) of the total contract price and subject to force majeure conditions .

14.0 Terms of Payment :-(a) 100% payment shall be released within 30 days of receipt / and verification of goods at the designated stores for the accepted goods. Submission and approval of Contract Performance Bank Guarantee, Guarantee Certificate for the goods shall be pre-requisite for making 100% payment .(b) In case of Non-submission / Non-acceptance of the Contract Performance Bank Guarantee(CPBG) amounting 10 % of Contract Value as per clause-9 of this GTCC, an equivalent amount shall be deducted from your bill and the same amount shall be released after submission and acceptance of CPBG or expiry of Guarantee Period whichever is earlier.

15.0 Purchaser's Rights :-

The purchaser reserves the right to accept any bid or reject any or all bids or cancel / withdraw invitation of bid without assigning any reason to such decision. Such decision by the purchaser shall bear no liability.

16.0 FORCE MAJEURE

- (i) Force majeure is herein defined as any cause which is beyond the control of the Contractor or the Owner as the may be, which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affects the performance of the contract, such as:
 - a. Natural phenomena, including but not limited to floods, droughts, earthquakes and epidemics;
 - b. Acts of any Government, domestic or foreign, including but not limited to war, declared or undeclared, priorities, guarantees, embargoes.
Provided either party shall within fifteen (15) days from the occurrence of such a cause notify the other in writing of such causes.
- (ii) The Contractor or the Owner shall not be liable for delays in performing his obligations resulting from any force majeure cause as referred to and/or defined above. The date of completion will, subject to hereinafter provided, be extended by a reasonable time even though such cause may occur after Contractor's performance of obligation has been delayed due to other causes.

17.0 Jurisdiction of Court :

Suits, if any , arising out of this contract shall be filed by either party in a Court of Law to which the jurisdiction of High Court of Orissa Extends .

SECTION-III

TECHNICAL SPECIFICATION

CENTRAL ELECTRICITY SUPPLY UTILITY OF ORISSA

IDCO TOWERS (II nd Floor) , Janapath ,Bhubaneswar-751022
Phone : 0674-2545681 / 2543721 / 2541727 Fax : 0674- 2543125

SPECIFICATION No.CESU/153/2008-09

TECHNICAL SPECIFICATION

(For supply of LT XLPE AB Cables)

Part-1:

1. SCOPE:

This specification covers the design, manufacturing, testing, supply, delivery and performance requirements of LV overhead ISI marked Aerial Bunched Cable (ABC) of different sizes indicated in our Schedule of Requirements for use in the LV network of Central Electricity Supply Company of Orissa Limited.

The materials offered shall have been successfully type tested and the design shall have been in satisfactory operation for a period of not less than two years on the date of bid opening. Compliance shall be demonstrated by submitting with the bid (i) authenticated copies of the type test reports and (ii) performance certificates from the users.

However where the bidder offers similar but not identical material but higher size to that which has been type tested, the difference shall be stated in Test Certificate Schedule. The purchaser shall adjudge whether to accept or reject the offered material and type test data presented.

The scope of supply includes the provision of type tests. Rates for type tests shall be given in the appropriate price schedule of the bidding document and shall be considered for evaluation. The purchaser reserves the right to waive type tests as indicated in the section on Quality Assurance, Inspection and Testing in this specification.

The Aerial Bunched Cable shall conform in all respects to highest standards of engineering, design, workmanship, this specification and the latest revisions of relevant standards at the time of offer and the Purchaser shall have the power to reject any work or material, which, in his judgment is not in full accordance therewith.

2. STANDARDS:

Except where modified by this specification, the Aerial Bunched Cable shall be designed, manufactured and tested in accordance with the latest editions of the following standards.

<u>IES/ISO</u>	<u>Indian Standard</u>	<u>Material</u>
IEC: 1089	IS:398/1994	Round wire concentric lay Overhead electrical Stranded Conductors.
	IS:398(Part-4)/1994	All Aluminum Alloy Conductors, Quality Management Systems.
ISO:9000	IS:8130/1984	Conductors for insulated Electric cables.
	IS:10810/1984	Method of Tests for cables.
IEC:502	IS:7098/1998	XLPE Insulated PVC. Sheathed power cables.
	IS:14255/1995	Aerial Bunched Cables for working voltage up to and including 1100 volts.

The Bidder may propose alternative standards, provided it is demonstrated that they give a degree of quality and performance equivalent to or better than the referenced standards. The purchaser shall adjudge whether to accept or reject any standards.

The Bidder shall furnish a copy of the alternative standard proposed along with his bid. If the alternative standard is in a language other than English, an English translation shall be submitted with the standard.

In case of conflict the order of the precedence shall be (1) IEC or ISO standards, (2) Indian Standards, (3) Other alternative standards. This list is not to be considered exhaustive and reference to a particular standard or recommendation in this specification does not relieve the Contractor or the necessity of providing the goods complying with other relevant standards or recommendation.

3.0 SERVICE CONDITIONS:

The service conditions shall be as follows:

- Maximum altitude above sea level 500m
- Maximum ambient air temperature 50°C
- Maximum daily average ambient air temperature 35°C
- Maximum ambient air temperature 5°C
- Maximum temperature attainable by an object exposed to sun 60°C
- Maximum yearly weighted average ambient temperature 32°C
- Maximum relative humidity 100%
- Average number of thunderstorm days per annum 70
- Average number of rainy days per annum 120
- Average annual rainfall 150cm
- Wind pressure as per IS:5613(Part-I/Sec.I) 1985

Wind Zones IS:5613 Part-I/Sec-I	Light	Medium	Heavy
Terrain Category	100 Kg/m ²	150 Kg/m ²	200 Kg/m ²

Environmentally, the region where the work will take place includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators.

Therefore, outdoor material shall be designed and protected for use in exposed, heavily polluted salty corrosive and humid coastal atmosphere.

4. SYSTEM CONDITIONS:

The materials shall be suitable for installation in supply systems of the following characteristics.

- Frequency 50Hz
- Nominal System Voltage 400/230V
- Maximum System Voltage LV System 440/250 V
- Minimum LV Voltage 370 V
- Power frequency one minute withstand (set & dry) 2KV
- Neutral Earthing arrangement LV System Solidly earthed

Part-2: TECHNICAL

5.0 GENERAL/ TECHNICAL

The design of Aerial Bunched Cable offered shall comprise a compacted, standard, hard drawn H2 / H4 grade aluminum phase conductor as applicable under IS-8130 / 84 with dry cured cross linked polyethylene (XLPE) insulation 0.65 to 1.1. KV class, having not less than 3% of carbon black.

The sizes and number of cores required are:

- $3 \times 95 \text{mm}^2 + 1 \times 70 \text{mm}^2 + 1 \times 16 \text{mm}^2$ (catenaries type, will be called $3 \times 95 \text{mm}^2 + 1 \times 70 \text{mm}^2$)
- $3 \times 50 \text{mm}^2 + 1 \times 35 \text{mm}^2 + 1 \times 16 \text{mm}^2$ (catenaries type, will be called $3 \times 50 \text{mm}^2 + 1 \times 35 \text{mm}^2$)
- $3 \times 35 \text{mm}^2 + 1 \times 25 \text{mm}^2 + 1 \times 16 \text{mm}^2$ (catenaries type, will be called $3 \times 35 \text{mm}^2 + 1 \times 35 \text{mm}^2$)
- $3 \times 25 \text{mm}^2 + 1 \times 16 \text{mm}^2 + 1 \times 16 \text{mm}^2$
- $3 \times 50 \text{mm}^2 + 1 \times 35 \text{mm}^2$
- $3 \times 35 \text{mm}^2 + 1 \times 25 \text{mm}^2$
- $3 \times 25 \text{mm}^2 + 1 \times 16 \text{mm}^2$
- $2 \times 35 \text{mm}^2 + 1 \times 25 \text{mm}^2$
- $2 \times 25 \text{mm}^2 + 1 \times 16 \text{mm}^2$
- $1 \times 25 \text{mm}^2 + 1 \times 25 \text{mm}^2$

The type of Bunched Cables shall be three phase and street lighting insulated bundled. All Aluminum Conductors combined with a neutral and catenaries which shall be of heat treated aluminum magnesium silicon alloy wires containing approximately 0.5% each of magnesium and silicon respectively. Alternatively an insulated neutral of 70mm^2 for $3 \times 95 \text{mm}^2$, 35mm^2 for $3 \times 50 \text{mm}^2$ ABC may be offered with a separate AAAC catenaries. The catenaries must have an ultimate tensile stress of not less than that specified in the table of technical requirements.

The Bidder shall specify the standard to which this bundle shall be manufactured.

The conductor bundle offered shall be designed to meet the requirements set out in this specification taking note of safety factors pertaining to conductor or catenary

tensioning and CESU specification: General Technical Requirements for LV overhead lines.

However, a bid of Aerial Bunched Cables shall not be considered, unless it is accompanied by a list of all special tools and equipments necessary to complete the installation.

6.0 CONDUCTORS:

(a) The phase & street light conductors shall be of multi-stranded aluminium of compacted circular cross section. The aluminum shall comply with IS 8130:1984. The messenger conductor shall be of multi-stranded Aluminum Alloy conforming to IS 398 (Part 4) – 1994. In addition to meeting all requirement of relevant ISS the LT XLPE AB Cables supplied shall satisfy following general requirements.

FOR PHASE AND STREET LIGHT CONDUCTORS

Sl. No.	Specified Cross Sectional Area (mm ²)	No. of Strands	Nominal Dia Of each strand in mm	Appx. Over all dia. Of conducting part of the compacted conductor. (mm)	Maxm. D.C Registance at 20 degree centigrade.(Ohm / Km)	Nominal Insulation thickness (mm)
1	16	7	1.7	4.5	1.91	1.2
2	25	7	2.14	5.6	1.2	1.2
3	35	7	2.55	6.7	0.868	1.2
4	50	7	3.05	8.1	0.641	1.5
5	70	7	3.6	9.5	0.443	1.5
6	95	19	2.55	11	0.32	1.5

FOR MESSENGER CONDUCTOR

Sl. No.	Specified Cros Sectional Area (mm ²)	No. of Strands	Nominal dia Of each strand	Appx. Over all dia. Of conducting part of the compacted conductor. (mm)	Maxm. D.C Registance at 20 degree centigrade.(Ohm / Km)	Appx. Mass (Kg / Km.)
1	16	7	1.7	4.5	1.91	43.8
2	25	7	2.14	5.6	1.2	65
3	35	7	2.55	6.7	0.868	95
4	50	7	3.05	8	0.641	136
5	70	7	3.6	9.5	0.443	191.8

6.0 (b) The bidder must take required precaution to ensure that the average diameter of each strand of conductor shall be ascertained through physical measurement of dimensions of finished cables at ambient temperature during pre-dispatch inspection or / and verification at CESU Store by consignee and the value so obtained shall have a tolerance limit with reference to the nominal diameter of each strand of conductor as stated in the tables above.

7.0 TOLERANCES:

The measurement of strand diameter of the finished AB Cable shall not be less 0.03mm for strands up to and including 3.00mm diameter. For strands above that size, measurement of strand diameter shall not be less than 1% of the nominal strand diameter .

For the purpose of checking compliance with the above requirement, the diameter shall be determined by two measurements at right angles taken at the same cross section.

8.0 SPLICES IN WIRES:

Splices in Wires shall generally comply with requirements of IEC 1089.

The aluminum alloy rods may be spliced by cold pressure but welding before drawing provided the manufacturer can guarantee that the splice can develop 90% of the tensile strength of the un sliced rod. Wires which break during stranding, may be sliced by cold pressure butt-welding provided that:

No two splices in the completed conductor occur within 15m of each other and no two splices in any individual wire are less than 150m apart.

The splice shall be done with high skilled workmanship. The finished splice shall be smooth and at no point shall the cross sectional area be less than that of the un sliced wire.

Splicing of the alloy wires on the stranding machine in order to utilize lengths of wires on reels shall not be permitted.

9.0 STRANDING AND CORE LAY:

The conductor cores shall be stranded and the direction of lay must be as defined in IEC:1089.

10.0 INSULATION:

The insulation shall be of the dry cured cross-linked polyethylene type (XLPE) and shall comply with IEC:502:1994 and Table-1 (Clause-5.1) of IS:14255/1995.

The Aerial Bunched Cables shall be insulated for a voltage class of 0.65/1.1 KV and shall be capable of operating permanently at 1.2KV.

The insulation wall thickness shall be determined in accordance with Table-4 (Clause-7.2 and Clause 7.3) of IS:14255/1995.

The insulating material shall be black and suitable to resist ultra violet radiation, salt laden sprays, chemical pollution, ageing effects, abrasion and mechanical shocks and mechanical and electrical stress at temperature up to 900°C in normal operation and 250°C under short circuit conditions per IEC:502/1994.

The carbon black content in the XLPE insulation will be not less than 2%.

11.0 PHASE IDENTIFICATION:

The individual insulated conductors within a bundle shall be identified by means of longitudinal projections.

The three phase conductors shall be marked by one, two or three longitudinal projections, indicating the red, yellow and blue phases.

The projections shall have the following dimensions.

- The distance between the tips of two adjacent projections, where there is more than one, shall be between 1.0 and 1.5.
- The width of the projection at the base shall be 1.0mm; and
- The height of the projections shall be 0.5mm.

12.0 INSULATION MARKINGS:

Each individual conductor comprising a bundle shall have the range of non-erasable distinct markings listed below legibly printed on the insulation surface at one meter intervals.

- ISI Mark legibly embossed on the insulation.
- Employer's name or log. CESU
- Manufacturer's trademark identification for example "UCXLPE50"
- Year of manufacture: last two digits are sufficient:
- Designation of conductor type
- Bundle size: for example "3x50"
- Shape of conductor
- Type of core;
- Rated voltage class: 0.65/1.1KV & sequential marking of length.
- Back up conductor identification: conductors with one, two and three projections shall be marked R, Y and B respectively. The conductor with no projection shall be marked N and
- The height of the printed lettering shall be not less than 20% of the overall diameter of the conductor

The markings shall be made in the sequence indicated above. Thus if the manufacturer were XY, the aerial bunched cable had been manufactured in 1994, size $3 \times 50 \text{mm}^2 + 1 \times 35 \text{mm}^2 + 1 \times 16 \text{mm}^2$ with conductors of circular cross section and with a bundle of the self supporting type, manufactured to a recognized international standard then the core with two projections would be marked as follows:

XY-04-NFA4X50+1X16-r-m-0.65/1.1KV-Y

Where, N is the international standard, F indicates overhead cable, A is aluminum alloy conductor and 2X refers to XLPE insulation, 'r' means round core, 'm' self-supporting and 'y' the phase identification.

13.0 TWIST:

The direction of lay of the conductors comprising the bundle shall be left-handed and the lay ration shall comply with IEC:1089.

With a bare catenaries configuration the insulated phase cables together with the street lighting cores shall be twisted round the neutral catenaries to form the ABC. This cable bundle is then strung directly onto the distribution poles supported by the catenaries with standard approved hardware.

14.0 CATENARY OR NEUTRAL CONDUCTOR:

Where ABC design uses a bare aluminum alloy or a combined bare aluminum alloy catenaries and neutral conductor, then the aluminum alloy stranded conductor shall be compacted circular and conform to IEC:1089 or IS:398 (Part-IV)/1994. The size and breaking load of the neutral catenaries shall be capable of supporting in addition to it's own weight the following sizes of power and street lightning cables $3 \times 50 \text{mm}^2 + 3 \times 35 \text{mm}^2 + 1 \times 16 \text{mm}^2$ bundles at full line tension, for all wind loads acting on the conductors and for all line deviations. The line tension to be applied during stringing shall be not more than 25% of the breaking load of the catenaries. Under worst service conditions the tension on the neutral catenaries shall not be more than 40% of the ultimate tensile stress. The neutral catenaries shall have a cross sectional area and at least as large as that of the phase conductors and shall have an ultimate tensile strength area (UTs) of not less than 16KM for $3 \times 50 \text{mm}^2$ and not less than 10.1 Km for $3 \times 35 \text{mm}^2$ ABCs.

15.0 CABLE DRUM LENGTH:

The cable shall be supplied in 250m or 500m or 1000m Drum Lengths as the case may be for different sizes of LT XLPE AB Cable.

16.0 TESTS:

16.1 General

Where not specified, all tests and test results shall conform to the requirements of IEC 502/1994 or IS 7098 (Part-I) 1998, IS 10810/1984, IS : 398(Part-IV) and IS:14255/1955.

Unless expressly stated otherwise, the ambient temperature for routine tests as well as voltage tests shall be $20 \pm 15^{\circ}\text{C}$ and for all other tests be $20 \pm 15^{\circ}\text{C}$.

The frequency of the alternating test voltage shall be 49 Hz to 51Hz. The voltage wave form should be sinusoidal.

16.2 Type Tests

The test sample shall be 10m to 15m in length. All cores of the bundles shall be tested.

- Insulation resistance at ambient temperature.
- Insulation resistance at operating temperature.
- AC voltage test.

The insulation resistance test at ambient temperature shall be carried out in a water bath at ambient temperature.

The insulation resistance test at a operating temperature shall be conducted in a water bath at 90°C .

The longitudinal projections used for phase identification shall be ignored. The results of this test shall be used to calculate the volume receptivity and the results conform to the requirements of IEC:502/1994 or IS 10810 (Part-43).

The AC voltage test shall be carried out by applying 1.95KV ($3U_0$) for four hours to the sample, which shall be submerged in a water bath at ambient temperature, having been steeped for a period not less than one hour. The test shall only be deemed to have been passed if no breakdown occurs.

Furthermore, the following non-electrical type tests shall also be carried out:

- Insulation wall thickness: the longitudinal projections used for phase 1 identifications shall be ignored as per IS 10810 (Part-6);

- Ageing test, consisting of an evaluation of the retention of the mechanical properties of the insulation after ageing.
- Wrapping test: as per IS 10810 (Part-3);
- Tests for bleeding and blooming of pigment as per IS 10810 (Part-9)
- Thermal expansion of insulation.
- Measurement of carbon black content as per IS 10810 (Part-32).
- Water absorption by the XLPE insulation, shrinking of the XLPE insulation.
- Tensile test: adhesion between conductor and insulation.

The adhesion test requires a tensile testing machine. A sample of at least 300mm length shall be selected and straightened out. The insulation shall be removed for a length of 150mm. The insulated end shall be held in the upper grip head and the bare conductor on the lower grip head. Tension shall be applied at a speed of 500mm/ min until the conductor first begins to slide within the insulation. The test shall have been passed if the conductor and insulation combination can stand 75N/mm² without slippage occurring.

The neutral conductor/catenaries shall be type tested in accordance with the requirements of IS 398 (Part-IV) 1994.

16.3 Routine Tests

The following measurement or tests shall be carried out on all drums and coils of Bunched cable:

- Conductor resistance
- Voltage test.

The conductor to be tested for conductor resistance shall be stored for at least 12 hours in a room at particular constant temperature. If it cannot be established that the conductors have reached the room temperature, the test should be postponed for a period of further 12 hours. Alternatively, the test can be carried out on short sample after remaining one hour in a temperature controlled water bath. The test shall be carried out and the conversion factors used to convert the resistance value to a base of 200°C and one Km. The DC resistance of each conductor shall not exceed the appropriate maximum values specified in IEC:228/IS:6474.

The voltage test shall be conducted by applying to each core 3.5KV AC ($2.5 U_0$ plus 2 KV) or 8.4 KV DC for 5 minutes with the specimen lying in a water bath at ambient temperature. The conductor shall pass the test if no electrical breakdown occurs.

16.4 Acceptance Tests

The following sample check, measurements and test shall be carried out in addition to the Acceptance Tests as per IS 14255 – 1955, IS : 398 (Part – IV) 1994, IS 8130 / 1984

- Measurement of insulation wall thickness;
- Measurement of diameter of each strand, overall outside dia & Cross Sectional Area of the conducting Part out of the finished product during pre-dispatch inspection.
- Thermal expansion test;
- Check of physical characteristics
- Tensile strength of individual wires of conductor.

These test should be carried out on one length from each production batch of the same sample.

The thickness of the insulation wall shall be measured on a piece removed from each end of the sample length. If either mean or minimum values are not met, two further samples shall be removed at 0.5m from the end corresponding to the failed specimen. If these samples do not satisfy the mean and minimum thickness requirements, the test shall be deemed to have been failed.

The longitudinal projections used for phase identifications shall be ignored.
The thermal expansion test need only be carried out on one core.

In relation to the tensile test, the tensile strength of the aluminum wires before stranding and that of the finished conductor shall comply with IEC:1089.

16.5 Test on the Catenary Conductor

Breaking load, elongation and resistance tests shall be completed on the aluminum alloy catenaries conductor in accordance with the requirements of IS:398 (Part-IV)/1994 or IEC:1089.

16.6 Bending Test on a complete cable

This test shall be performed on a sample of completed cable. The sample shall be bent around a test mandrel at room temperature for at least one turn. It shall then be unwound and the process shall be repeated after turning the cable sample around its axis by 180°. This process shall be repeated twice more. There shall be no signs of breaking or cracking of the cable insulation during this test.

The diameter of the mandrel shall be:

$$10 (D+d)$$

Where D = Actual diameter of the cable (mm)

d = Actual diameter of the conductor (mm)

16.7 Rejection and Retests

Should any one of the test pieces first selected fail to pass the tests, two further samples from the same batch shall be selected for testing, one of which shall be from the length from which the original test sample was taken unless the length has been withdrawn by the supplier.

Should the test pieces from both of these additional samples satisfy the requirements of the tests, the batch represented by these samples shall be deemed to comply with the standard. Should the test pieces from either of the two additional samples fail, the batch represented shall be deemed to have failed.

17.0 COMPLIANCE WITH SPECIFICATION:

The Aerial Bunched Cable shall comply in all respects with the requirements of this specification. However, any minor departure from the provisions of the specification shall be disclosed at the time of bidding in the Non-compliance Schedule of this document.

18.0 COMPLIANCE WITH REGULATIONS:

All the cables shall comply in all respects with the Indian Regulations and Acts in force. The cables and connections shall be designed and arranged to minimize the risk of fire and any damage, which might be caused in the event of fire.

19.0 Non-conforming Product

The Chief General Manager (APDRP & Contract) shall retain responsibility for decisions regarding acceptance, modification or rejection of non-conforming items.

20.0 Inspection and Testing

The Chief General Manager (APDRP & Contracts) has free entry at all times, while work on the contract is being performed, to all parts of the manufacturer's works which concerns the processing of the cables ordered. The manufacturer shall afford the Chief General Manager (APDRP & Contract) without charge, all reasonable facilities to ensure that the cable being furnished is in accordance with these specifications.

The cables shall successfully pass all the type tests, routine tests & acceptance Tests referred to in the section on tests and those listed in the most recent edition of the standards given in the specification.

The Chief General Manager (APDRP & Contracts) reserves the right to reject any of the cables if the test results do not comply with the values specified or with the date given in the Technical data schedule.

Type tests shall be carried out at an independent testing laboratory or at the manufacturer's works if such facilities are available and to be witnessed by the purchaser. The contractor, at no extra cost at the manufacturer's work shall carry out routine and Acceptance tests in presence of the Purchaser's representatives.

Type Test Certificates for the tests conducted earlier shall be submitted with the bid for evaluation. The requirements of additional type tests will be at the discretion of the Chief General Manager (APDRP & Contracts).

The Chief General Manager (APDRP & Contracts) may witness routine and type tests. In order to facilitate this, the contractor shall give the Chief General Manager (APDRP & Contracts) of 15days notice that the material is ready for inspection & testing. The supplier shall extend all assistance to the representative of the Purchaser during his inspection & testing of samples at his works. The materials shall be dispatched only after approval of such Test Reports and issue of Despatch clearance by the Purchaser. However the Purchaser reserves the right to retest the materials after delivery at any National / Accrediated Testing Laboratory in case of any disputes regarding size & quality of supplied materials at a later date during guarantee period. The cost of such retesting shall be borne by the supplier.

All costs in connection with the testing, including any necessary retesting shall be borne by the contractor, who shall provide the Chief General Manager (APDRP & Contracts) with all the test shall have the right to select the samples for test and shall also have the right to ensure that the testing apparatus is correct. Measuring apparatus for routine tests shall be calibrated at the expense of the contractor at an approved laboratory and shall be approved by the Chief General Manager (APDRP & Contracts) before testing.

The Contractor shall be responsible for the proper testing of the materials supplied by sub-contractors to the same extent as if the materials were completed or supplied by the contractor.

Any cost incurred by the Chief General Manager (APDRP & Contracts) in connection with inspection or retesting as a result of failure of the equipment under test or damaged during transport or off loading shall be to the account of the contractor.

The Contractor shall submit to the Chief General Manager (APDRP & Contracts) three signed copies of the test Certificates, giving the results of the tests as required. No materials shall be dispatched until the Chief General Manager (APDRP & Contracts) has received the test certificate and the contractor has been informed that they are acceptable.

The test certificate must show the actual values obtained from the tests, in the units used in this specification, and must merely confirm that the requirements have been met.

In the case of components for which specific type tests or routine tests are not given in this specification, the Contractor shall include a list of the tests normally required for these components. All materials used in the Contract shall withstand and shall be certified to have satisfactorily passed such tests.

No inspection or lack of inspection or passing by the Chief General Manager (APDRP & Contracts)'s representative of equipment or materials whether supplied by the Contractor or sub-contractor, shall relieve the contractor from his liability to complete the contract works in accordance with contract or exonerate him from any of his guarantees.

21.0 GUARANTEE:

The contractor shall guarantee the following:

- Quality and strength of materials used.
- Satisfactory operation during the guarantee period of one year from the date of commissioning or eighteen months from the date of receipt of the cables at CESU Stores which ever is earlier.
- Performance figures as supplied by the bidder in the technical data sheet.

22.0 SPARE PARTS AND SPECIAL TOOLS:

The bidder shall provide a list of recommended spare parts/ special erection and installation tools/ equipments together with their individual prices. The list shall identify all essential spares, items for any recommended maintenance for a period of five years after commissioning.

The Bidder shall offer a set of special tools. The set of special tools shall include the following:

- Stringing wheels appropriate for stringing
Aerial Bunched Cables 8 nos.
- Cum-a long vices suitable for use on
Aerial Bunched Cables 2 nos.
- Winches suitable for tensioning
Aerial Bunched Cables 2 nos.
- Set of spanners for fixing clamps, connectors
and other fittings One of each size
- Other tools necessary for installation of
Aerial Bunch Cables One of each tool

The Chief General Manager (APDRP & Contracts) may order all or any of the spare parts/ erection/installation tools listed at the time of contract award and the parts so ordered shall be supplies as part of the definite works. The Chief General Manager (APDRP & Contracts) may order additional spares at any time during the contract period at the rates stated in the contract document.

A spare parts catalogue with price list shall be provided and this shall form part of the drawings and literature to be supplied.

The Bidder shall give an assurance that spare parts and consumable items will continue to be available through the life of the cable, which shall be 25 years minimum. However, the contractor shall give a minimum of 12 months notice in the event that the contractor or any sub-contractors plan to discontinue manufacture of any component used in this equipment.

Any spare apparatus, parts or tools shall be subject to the same specification, tests and conditions as similar material supplied under the contract. They shall be strictly interchangeable and suitable for use in place of the corresponding parts supplied with the plant and must be suitably marked and numbered for identification.

Spare parts shall be delivered suitably packed and treated for long periods in storage. Each pack shall be clearly and indelibly marked with its contents, including a designation number corresponding to the spare parts list in the operation and maintenance instructions.

23.0 PACKING AND SHIPPING:

The cable shall be wound on strong drums or reels capable of withstanding all normal transportation and handling.

Each length of cable shall be durably sealed before shipment to prevent ingress of moisture. The drums reels or coils shall be lagged or covered with suitable material to provide physical protection for the cable during transit or during storage and handling operations.

In the case of steel drums adequate precautions shall be taken to prevent damage being caused by direct contact between the cable sheath and the steel. These precautions shall be subject to the approval of the Chief General Manager (APDRP & Contracts).

If wooden drums are used then the wood shall be treated to prevent deterioration from attack by termites and fungi.

Each drum or reel shall carry or be marked with following information:

- Individual serial name
- Employer's name
- Destination
- Contact Number
- Manufacturer's name
- Year of manufacture
- Cable size and type
- Length of conductor (meters)
- Net and Gross mass of conductor (Kg)
- All necessary slinging and stacking instructions
- Destination
- Contractor's name
- Name and address of contractor's agent in Orissa
- Country of origin

The direction of rolling as indicated by an arrow shall be marked on a flange.

24.0 STORAGE:

The site selected for the storage of cable drums shall be well drained and preferably have a concrete/ firm surface which will prevent the drums sinking into the ground or being subjected to excess water thus causing flange rot.

All drums shall stand on battens, in the upright position and in such a manner to allow sufficient space between them for adequate air circulation. During storage the drums shall be rotated 90⁰ every three months. In no instances shall be the drums be stored "flat" on their flanges or one on top of each other.

25.0 SHIPPING:

The Contractor shall be responsible for the shipping of all cables, drums and reels supplied from abroad to the ports of entry and for the transport of all goods to various specified destinations including customs clearance, off loading, warehousing and insurance.

The Contractor shall inform himself fully as to all relevant transport facilities and requirements and loading gauges and ensure that the equipment as packed for transport shall conform to these limitations. The contractor shall also be responsible for verifying the access facilities specified.

The contractor shall be responsible for transportation of all the loads associated with the contract and shall take all reasonable steps to prevent damage of any highway or bridges by his vehicles by selecting routes, choosing proper vehicles for use and restricting and distributing loads to avoid the risk of damage. The Contractor shall immediately report to the Chief General Manager (APDRP & Contracts) any claims made against the contractor arising out of alleged damage to a highway or bridge.

All items of equipments shall be securely clamped against movement to ensure safe transit from the manufacturer's facilities to the specified destinations.

26.0 HAZARDOUS SUBSTANCES:

The Contractor shall submit safety data sheets for all hazardous substance used with the equipment. The contractor shall give an assurance that there are no other substances classified as hazardous in the equipment supplied. He shall also take responsibility for the disposal of such hazardous substances, that may be found for any injuries resulting from those substance.

27.0 SUBMITTALS:

The following shall be required in duplicate along with the bid:

- Completed technical data sheets;
- Descriptive literature giving full technical details of equipment offered.

- Outline dimension drawing for each type of conductor, for each bundle showing the conductor strand, composition and the bundle twist;
- Type test certificates, where available, and sample routine test reports;
- Detailed reference list of customers already using equipment offered during the last five years with particular emphasis on units of similar design and rating;
- Performance reports from the customers for the supplied LT XLPE AB Cables.
- Details of manufacturer's quality assurance standards and programme and ISO 9000 series or equivalent national certificates;
- Deviations from this specification to be submitted as per Non-Compliance. Only deviations approved in writing before award of contract shall be accepted;
- List of recommended spare parts for five years of operation with prices and spare parts catalogue with price list for future requirements.
- Any other documents to establish qualifying & credibility requirements as specified in this Tender Document.

28.0 COMPLETENESS OF CONTRACT:

The Contractor without extra cost, although not specifically mentioned herein, but necessary or usual for similar equipment and their efficient performance shall provide all fittings and accessories. The Bid shall clearly indicate if any additional equipment or parts would be necessary to give complete offer and if so, the details and prices shall be included in the bids.

SECTION-IV

BANK GUARANTEE FORMATS

PROFORMA OF BANK GUARANTEE FOR EARNEST MONEY DEPOSIT

Bank Guarantee No Date

In accordance with invitation to Bid No Dtof Central Electricity Supply Utility of Orissa (hereinafter referred to as CESU) for the purpose of M/s
..... Address

..... wish/
wishes to participate in the said tender and as the Bank Guarantee for the sum of Rs.
..... (Rupees. only) valid for a period of days (in words) is required to
be submitted by the tenderer.

1. We the Bank (hereinafter referred to as the bank) at the request
of

M/s hereby unequivocally and unconditionally guarantee and
undertake to pay during the above said period or written request by the Central Electricity
Supply Utility of Orissa, an amount not exceeding Rs. (Rupees only)
to CESU without any reservation. The guarantee will remain valid up to 4.00 P.M. of
(date) and if any further extension is required the same will be extended on receiving
instruction from M/s on whose behalf this guarantee has been issued.

2. We the Bank (hereinafter referred to as the bank) do hereby
undertake

to pay the amounts due and payable under the guarantee without any demur, merely on a
demand from the CESU stating that the amount claimed is due by way of loss or damage
caused to or suffered by CESU by reason of any breach by the said contractor(s) of any of the
terms or conditions and failure to perform the said Bid. Any such demand made on the Bank
shall be conclusive as regards the amount due and payable by the Bank under this guarantee.
However, our liability under this guarantee shall be restricted to an amount not exceeding
Rs..... (in words).

3. We undertake to pay to the CESU any money so demanded notwithstanding any
dispute or dispute raised by the contractor(s) / Supplier(s) in any suit or proceeding instituted/
pending before any Court or Tribunal relating thereto our liability under this agreement being
absolute and univocal. The payment so made by us under this bond shall be a valid discharge
of our liability for payment there under and the contractor(s) / Supplier(s) shall have no claim
against us for making such payment.

4. We, the Bank or our local Branch at Bhubaneswar(detail
address & code No. of local branch to be specified) further agree that the guarantee herein
contain shall remain in full force and effect during the period of 240 days (Two hundred and
forty days) and it shall continue to do so enforceable till all the dues of the CESU under by the
virtue of the said Bid have been fully paid and its claims satisfied or discharged or till CESU
certifies that the terms and conditions of the said Bid have been fully and properly carried out
by the said contractor(s) and accordingly discharge this guarantee. Unless a demand or claim
under this guarantee is made on us in writing on or before the, we shall be
discharged from all liabilities under this guarantee thereafter.

5. We, the Bank or our local Branch at Bhubaneswar further agree that CESU

shall have the fullest liberty without our consent and without affecting in any manner our

obligations hereunder to vary any of the terms and conditions of the said Bid or to extend time

of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by CESU against the said contractor(s) and to forebear or enforce any of the terms and conditions relating to the said Bid and we shall not be relieved from our liability by reason of any such variation postponement or extension being granted by the contractor(s) or for any forbearance act of omission on part of CESU to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties should but for this provisions have effect of so relieving us.

6. The guarantee will not be discharged due to change in the name, style and constitution of the Bank and contractor(s).

7. We, the Bank or our local Branch at Bhubaneswar lastly undertake not to revoke this guarantee during its currency except with the previous consent of CESU in writing.

Dated Day of 200....

Witness:-

1.....

2.....

For
(indicate name of the Bank with seal)

PROFORMA FOR CONTRACT PERFORMANCE BANK GUARANTEE

This Guarantee Bond is executed this ____ day of _____ 2007 by us the _____ Bank at _____ P.O. _____ P.S. _____ Dist _____ State _____ (indicate designation of purchaser)

Whereas the CENTRAL ELECTRICITY SUPPLY UTILITY OF ORISSA , Head Office - IDCO Tower (II nd Floor) , Bhubaneswar – 751 022 a Body corporate , constituted under the Electricity Act, 2003 (here in after called “the CESU”) has placed Purchase Order No. _____ Dt. _____ (hereinafter called “the Agreement”) with M/s _____ (hereinafter called “the Contractor”) for supply of _____ (name of the material) and whereas CESU has agreed (1) to exempt the Contractor from making payment of security deposit, (2) to release 100% payment of the cost of materials as per the said agreement and (3) to exempt from performance guarantee on furnishing by the Contractor to the CESU a composite Bank Guarantee of the value of 10% (ten percent) of the Contract price of the said Agreement.

1. Now, therefore, in consideration of the CESU having agreed (1) to exempt the Contractor for making payment of security deposit, (2) to release 100% payment to the Contractor and (3) to exempt from furnishing performance guarantee in terms of the said Agreement as aforesaid, we the _____ Bank, Address _____ (code No. _____) (hereinafter referred to as “the Bank”) do hereby undertake to pay to the CESU an amount not exceeding Rs. _____ (Rupees _____) only against any loss or damage caused to or suffered by the CESU by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement.

2. We, the _____ Bank do hereby undertake to pay the amounts due and payable under the guarantee without any demur, merely on a demand from the CESU stating that the amount claimed is due by way of loss or damage caused to or suffered by CESU by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement or by the reason of any breach by the said Contractor’s failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____ (Rupees _____) only.

3. We, the _____ Bank also undertake to pay to the CESU any money so demanded notwithstanding any dispute or dispute raised by the Contractor(s) in any suit or proceeding instituted/ pending before any court or Tribunal relating thereto our liability under this Agreement being absolute and unrevocable.

The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the Contractor(s) shall have no claim against us for making such payment.

4. We, the _____ Bank further agree that the guarantee herein contain shall remain in full force and affect during the period that would be taken for the performance of the said Agreement and it shall continue to remain in force endorsable till all the dues of the CESU under by virtue of the said Agreement have been fully paid and its claim satisfied or discharged or till CENTRAL ELECTRICITY SUPPLY UTILITY OF ORISSA certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharge this guarantee and will not be revoked by us during the validity of the guarantee period. Unless a demand or claim under this guarantee is made on us or with _____

_____ (Local Bank Name, address and code No.) _____, Bhubaneswar / Cuttack in writing on or before _____ (date) we shall be discharged from all liability under this guarantee

thereafter.

5. We, the _____ Bank further agree that the CESU shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said Contractor(s) and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Contractor(s) or for any forbearance act or omission on part of the CESU or any indulgence by the CESU to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would but for this provisions have effect of so relieving us.

6. The Guarantee will not be discharged due to change in the name, style and constitution of the Bank and or Contractor(s).

7. We, the _____ Bank lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the CESU in writing.

Dated _____ the _____ day of Two thousand _____ .

Notwithstanding anything contained herein above.

Our liability under this Bank Guarantee shall not exceed Rs. _____ (Rupees _____) only.

The Bank Guarantee shall be valid up to _____ only.

We or our Bank at Bhubaneswar / Cuttack (Name & Address of the Local Bank) are liable to pay the guaranteed amount depending on the filing of claim and any part thereof under this Bank Guarantee only and only if you serve upon us or our local Bank at Bhubaneswar / Cuttack a written claim or demand and received by us or by Local Branch at Bhubaneswar / Cuttack on or before Dt. _____ otherwise bank shall be discharged of all liabilities under this guarantee thereafter.

For _____
(indicate the name of the Bank)

N.B.:

(1) Name of the Contractor:

(2) No. & date of the purchase order/ agreement:

(3) Amount of P.O. :

(4) Name of Materials :

(5) Name of the Bank:

(6) Amount of the Bank Guarantee:

(7) Name, Address and Code No. of the Local Branch:

(8) Validity period or date up to which the agreement is valid:

(9) Signature of the Constituent Authority of the Bank with seal:

(10) Name & addresses of the Witnesses with signature:

(11) The Bank Guarantee shall be accepted only after getting confirmation from the respective Banks.

SECTION-V

SCHEDULES / FORMATS

**(To be filled up, signed and submitted by the bidder
along with the Tender Document)**

ANNEXURE-I

CENTRAL ELECTRICITY SUPPLY UTILITY OF ORISSA

Head Office, IDCO TOWERS (II nd Floor) , Janapath ,Bhubaneswar-751022

Phone : 0674-2545681 / 2543721 /2541727 Fax : 0674- 543125

ABSTRACT OF GENERAL TERMS AND CONDITIONS

SPECIFICATION No.CESU/153/2008-09(AB Cable)

Sl. No.	Description.	
1.	E.M.D Details. D.d No & Dt/Ro to be indicated	
2.	Whether Manufacturer's Supply Experience (Details of P.Os executed) submitted.	Yes / No.
3	Whether User's Performance Certificate (copy) Submitted	Yes/No.
4	Whether Non-compliance schedule submitted	Yes / No.
5	Type Test Certificate from any National Testing Laboratory Submitted.	Yes / No.
6	Whether Guaranteed Technical Particulars Submitted (Technical Data Schedule)	Yes / No.
7	Delivery (Whether agreeable to CESU terms)	Yes / No.
8	Guarantee (Whether agreeable to CESU norms.)	Yes / No.
9	Terms of Payment (Whether agreeable to CESU norms.	Yes / No.
10	Whether Audited Annual Accounts for last 3 years furnished.	Yes / No.
11.	Whether agreeable to furnish 10 % Performance Bank Guarantee as per the format enclosed if the contract is awarded .	Yes / No.
12	Validity of Price Offered (to be indicated)	
13	Whether valid license to use ISI Marks submitted (if yes please mention Licence No/Dt.& its validity period)	Yes / No.
14	Whether price schedule submitted	Yes/No

Signature of the bidder with Company Seal

(This form is to be duly filled up by the bidder & submit along with the Tender)

DECLARATION FORM

Annexure - II

CENTRAL ELECTRICITY SUPPLY UTILITY OF ORISSA
IDCO TOWERS (II nd Floor) , Janapath ,Bhubaneswar-751022
Phone : 0674-2545681 / 2543721 /2541727 Fax : 0674- 2543125
Spn. No. CESU / 153/ 2008-09 (AB Cable)

To

The
C.G.M. (APDRP & Contract)
CESU, Orissa, IDCO Tower (IInd Floor)
Bhubaneswar

Sir ,

Having examined the above specifications together with the Tender terms and conditions referred to therein

- 1- I / We the undersigned do hereby offer to supply the materials covered there on in complete shape in all respects as per the rules entered in the attached contract schedule of prices in the tender.
- 2- I / We do hereby under take to have the materials delivered within the time specified in the tender.
- 3- I / We do hereby guarantee the technical particulars given in the tender supported with necessary reports from concerned authorities.
- 4- I / We do hereby certify to have purchased a copy of the tender specifications by remitting Cash / Demand draft & this has been duly acknowledged by you in your letter No.....Dt.....
- 5- I / We do hereby agree to furnish the contract Performance Bank Guarantee in the manner specified / acceptable by CESU & for the sum as applicable to me / us as per clause No.13 Annexure-V of this specification within fifteen days of issue of Letter of intent / Purchase Order , in the event of purchase order being decided in my / us favour , failing which I / We clearly understand that the said LOI / P.O. shall be liable to be withdrawn by the purchaser and bid security furnished by us shall be forfeited.

Signed this.....Day of.....200....

Yours faithfully

(Signature of Tenderer with Seal
of Company)

(This form should be duly filled up by the Tenderer & submitted along with the original copy of the Tender)

SPECIFICATION No.CESU/153/2008-09

Annexure-III

GUARANTEED TECHNICAL PARTICULARS FOR LT XLPE AB CABLES TENDERED.

SI No	Description	3X95 + 1X70 +1X16mm2		3X 35 + 1X25mm2		1X35 + 1X25mm2	
		Requirement	Bidder's Offer	Requirement	Bidder's Offer	Requirement	Bidder's Offer
1	Ref. ISS / IEC followed	IS 14255/95, IS 398 Part IV		IS 14255/95, IS 398 Part IV		IS 14255/95, IS 398 Part IV	
2	Phase Conductor material / Insulation type	H2 / H4 E.C grade aluminium as per IS 8130/84 / XLPE insulation (IS 14255/95)		H2 / H4 E.C grade aluminium as per IS 8130/84 / XLPE insulation (IS 14255/95)		H2 / H4 E.C grade aluminium as per IS 8130/84 / XLPE insulation (IS 14255/95)	
3	Material of Neutral Catenary	Aluminium alloy as per IS 398 Pt - IV		Aluminium alloy as per IS 398 Pt - IV		Aluminium alloy as per IS 398 Pt - IV	
4	Voltage Class	0.65/1.1 KV		0.65/1.1 KV		0.65/1.1 KV	
5	No. Of Strands / Strand Dia. In mm. (Phase conductor.)	19 / 2.5		7 / 2.5		7 / 2.5	
6	Over all Diameter of Phase conductor in compacted condition. in mm	11.5		7		7	
7	No. Of Strands / Strand Dia. In mm. (Neutral Catenary.)	7 / 3.5		7 / 2.12		7 / 2.12	
8	Over all Diameter of Neutral Catenary in compacted condition. in mm	10.1		6		6	
9	No. Of Strands / Nomunal cross sectional area In No / mm2. (St. Light Conductor)	7 / 16mm2		N.A		N.A	

SI No	Description	3X95 + 1X70 +1X16mm2		3X 35 + 1X25mm2		1X35 + 1X25mm2	
10	Minimum average thickness of insulation of phase Cond. (mm)	1.5		1.2		1.2	
11	Minimum thickness of insulation of Phase Cond. (mm)	1.25		0.98		0.98	
12	Minimum thickness of insulation at any point in street light conductor (mm)	0.98		N.A		N.A	
13	Maximum DC resistance of Phase conductor at 20 °C ohmn/ KM	0.32		0.87		0.87	
14	Maximum DC resistance of street light conductor Ω / Km	1.91		N.A		N.A	
15	Maximum DC resistance of neutral cond. Ω / Km	0.492		1.38		1.38	
16	Ultimate tensile strength of neutral conductor (KN)	19.7		7		7	
17	Maximum temperature (Continuous)	90°C for phase and 75 °C for neutral		90°C for phase and 75 °C for neutral		90°C for phase and 75 °C for neutral	
18	Embossing on insulation at each one meter interval	Distinct Non-erasable ISI Mark, CESU, Name of the manufacturer, Size of cable, voltage Grade along with sequential marking of length.		Distinct Non-erasable ISI Mark, CESU, Name of the manufacturer, Size of cable, voltage Grade along with sequential marking of length		Distinct Non-erasable ISI Mark, CESU, Name of the manufacturer, Size of cable, voltage Grade along with sequential marking of length	
19	Cable drum length	250 / 500 / 1000m		250 / 500 / 1000m		250 / 500 / 1000m	
20	Volume Resistivity of insulation at 27°C	1X10 ¹³ Ω - cm min.		1X10 ¹³ Ω - cm min.		1X10 ¹³ Ω - cm min.	
21	Volume Resistivity of insulation at 70°C	1X10 ¹¹ Ω - cm min.		1X10 ¹¹ Ω - cm min.		1X10 ¹¹ Ω - cm min.	

Signature of the bidder with Company Seal

(N.B : This form should be duly filled up by the Tenderer & submitted along with the original copy of the Tender)

Page2 of 2 Pages

SPECIFICATION No.CESU/153/2008-09(AB Cable)

Annexure-IV

PRICE SCHEDULE

Sl. No.	Size of LT XLPE AB Cable (mm ²)	Unit	Qty. Offered in Kms.	Unit Ex-Works Price Offered per Km.(Rs.)	Freight & insurance.	Excise Duty with ED Cess	VAT	Entry Tax	Total Unit Price to the point of Delivery in Rs./Km.	Total Price (Rs.)
1	2	3	4	5	6	7	8	9	10	(4X10) = 11
1	1 x 35 + 1 x 25 mm ²	Kms.								
2	3 x 35 + 1 x 25 mm ²	Kms.								
3	3 x 95 + 1 x 70 + 1X16 mm ²	Kms.								

Signature of the bidder with Company Seal

Annexure-V

Schedule Requirement
SPECIFICATION No.CESU/153/2008-09

Sl. No.	Sizes of LT XLPE AB Cables	Qty. in Km
1	1 x 35 + 1 x 25 m ²	33
2	3 x 35 + 1 x 25 mm ²	177
3	3 x 95 + 1 x 70 + 1X16 mm ²	50

Annexure-VI

NON COMPLAINE SCHEDULE:

SPECIFICATION No.CESU/153/2008-09(AB Cable)

On this schedule the bidder shall provide a list of non-compliance / deviations of offered materials with our Guaranteed Technical Particulars & other terms and conditions contained in our Tender Specification. Each non-compliance shall be referred to the relevant specification clause / sl no. of the Tender Specification. Any deviation not mentioned in this schedule shall not be considered as a valid deviation. In such cases the bidder shall be deemed to have agreed to our tender terms & Guaranteed Technical Particulars.

Page No. / Clause No. of Tender Specification.	Requirement as per Tender Specification	Non-Compliance / Deviation Offered.

Signature of the bidder with company Seal

Annexure-VII

**TEST CERTIFICATE SCHEDULE
SPECIFICATION No.CESU/153/2008-09(LT AB Cable)**

In this schedule a list of the type test certificates included with the bid shall be provided. This list should include type and routine test reports.

Clause No.	Type Test Certificate or Routine Test Report

Signature of the bidder with company Seal
(This form is to be duly filled up by the bidder & submit along with the Tender)

Annexure-VIII

**SCHEDULE OF PURCHASE ORDERS ALREADY EXECUTED IN THE LAST 5 YEARS
SPECIFICATION No.CESU/153/2008-09(LT AB Cable)**

In this schedule details of purchase orders executed for tendered items during last 5 years shall be provided.

Sl. No.	P.O. No./Dt.	Materials Supplied	Value of Materials Supplied	Name & Address of the Customer

Signature in ink of the bidder with company Seal
(This form is to be duly filled up by the bidder & submit along with the Tender)