

Procedure to Participate in Tender

Tender Enquiry No- TPNODL/OT/2021-22/198

Tender Enquiry No.	Work Description	EMD (Rs.)*	Tender Fee (Rs.)**	Last Date and Time for payment of Tender Fee
TPNODL/OT/2021-22/198	232 sqmm All Alloy Aluminium Conductor AAAC	2,00,000.00/-	5,000	02.03.2022, 15:00 Hrs
	200 sqmm All Alloy Aluminium Conductor AAAC			
	148 sqmm All Alloy Aluminium Conductor AAAC			
	100 sqmm All Alloy Aluminium Conductor AAAC			
	80 sqmm All Alloy Aluminium Conductor AAAC			
	55 sqmm All Alloy Aluminium Conductor AAAC			

* EMD is exempted for MSMEs registered in the State of Odisha.

** MSMEs registered in the State of Odisha shall pay tender fee of Rs. 1,000/- including GST.

For details of MSME norms, pls refer "Annexure VIIa"

Please note that corresponding details mentioned in this document will supersede any other details mentioned anywhere else in the Tender Document.

Procedure to Participate in Tender.

Following steps to be done before "Last date and time for Payment of Tender Fee" as mentioned above:

1. Eligible and Interested Bidders to submit duly signed and stamped letter on Bidder's letter head indicating
 - a. Tender Enquiry number
 - b. Description of materials / Works Tendered
 - c. Name of the bidding company
 - d. Place & Detail Address of the Company
 - e. Postal Code (PIN Code)
 - f. Name of authorized person
 - g. Contact number
 - h. E-mail id

- i. Details of submission of Tender Fee (Bank Name / Amount / NEFT-RTGS UTR No / Date)
(E Receipt also to be furnished)
- j. GST Registration No

Non-Refundable Tender Fee, as indicated in table above, to be submitted in the form of Direct Deposit in the following bank account and submit the receipt along with a covering letter clearly indicating the Tender Reference/ Enquiry Number –

Beneficiary Name – TP Northern Odisha Distribution Limited
Bank Name – Union Bank of India
Branch Name – Balasore Branch
Account No – 500601010280332
IFSC Code – UBIN0550060

E-mail with necessary attachment to be sent to jitendra.mishra@tpnodl.com with copy to vipin.Chauhan@tpnodl.com before last date and time for payment of Tender Fee.

Interested bidders to submit Tender Fee and Authorization Letter before Last date and time as indicated above, after which link from TPNODL E-Tender system (Ariba) will be shared for further communication and bid submission.

Please note all future correspondence regarding the tender, bid submission, bid submission date extension, Pre-bid query etc will happen only through TPNODL E-Tender system (Ariba). User manual to guide the bidders to submit the bid through E-Tender system (Ariba) is also enclosed.

No e-mail or verbal correspondence will be responded. All communication will be done strictly with the bidders who have done the above step to participate in the Tender.

Also it may be strictly noted that once date of “Last date and time for Payment of Tender Participation Fee” is lapsed no Bidder will be sent link from TPNODL E-Tender System (Ariba). Without this link vendor will not be able to participate in the tender. Any last moment request to participate in tender will not be entertained.

Any payment of Tender Fee / EMD by Bidder who have not done the prerequisite will not be refunded.

Also all future corrigendum to the said tender will be informed on Tender section on website <https://www.tpnodl.com>

OPEN TENDER NOTIFICATION

FOR

RATE CONTRACT FOR SUPPLY OF AAAC CONDUCTORS

Tender Enquiry No.: TPNODL/OT/2021-22/198
Dtd.25.02.2022

Due Date for Bid Submission: 07.03.2022 [15.00 Hrs.]

TP NORTHERN ODISHA DISTRIBUTION LIMITED
(A Tata Power and Odisha Government Joint Venture)

Contracts & Material Management Department
Corporate office: Januganj, Balasore, Odisha-756019

CONTENTS OF THE ENQUIRY

S. NO.	PARTICULARS
1.	Event Information
2.	Evaluation Criteria
3.	Submission of Bid Documents
4.	Bid Opening & Evaluation process
5.	Award Decision
6.	Order of Preference/Contradiction
7.	Post Award Contract Administration
8.	Specifications and Standards
9.	General Conditions of Contract
10.	Safety
Annexures	
I.	Annexure I – Schedule of Items
II.	Annexure II – Technical Specifications
III.	Annexure III – Schedule of Deviations
IV.	Annexure IV – Schedule of Commercial Specifications
V.	Annexure V – Document Check List
VI.	Annexure VI – Acceptance Form for Participation in Reverse Auction Event
VII.	Annexure VII – General Condition of Contract
VIIa.	Annexure VIIa - Preferential Procurement norms for Local MSMEs

1.0 Event Information

1.1 Scope of work

Open Tenders are invited in through e-tender bidding process from interested Bidders for entering into a **Rate Contracts valid for a period of 1 Year** as defined below:

Sr. No.	Item Description	EMD Amount (Rs.)*	Tender Fee (Rs.)**
1	232 sqmm All Alloy Aluminium Conductor AAAC	2,00,000	5,000
2	200 sqmm All Alloy Aluminium Conductor AAAC		
3	148 sqmm All Alloy Aluminium Conductor AAAC		
4	100 sqmm All Alloy Aluminium Conductor AAAC		
5	80 sqmm All Alloy Aluminium Conductor AAAC		
6	55 sqmm All Alloy Aluminium Conductor AAAC		

* EMD is exempted for MSMEs registered in the State of Odisha.

** MSMEs registered in the State of Odisha shall pay tender fee of Rs. 1,000/- including GST.

1.2 Availability of Tender Documents

Please refer "Procedure to participate in the e-tender".

1.3 Calendar of Events

(a)	Last Date of receipt of Tender Fee	02.03.2022 ; 15.00 Hrs
(b)	Last date and time of receipt of Bids	07.03.2022 ; 15.00 Hrs
(c)	Date & Time of opening technical bids & EMD	07.03.2022 ; 15.30 Hrs
(d)	Date & Time of opening of Price of qualified bids	Will be notified to the successful bidders through our website / e-mail.

Note :- In the event of last date specified for submission of bids and date of opening of bids is declared as a closed holiday for TPNODL, the last date of submission of bids and date of opening of bids will be the following working day at appointed times.

1.4 Mandatory documents required along with the Bid

- 1.4.1 EMD of requisite value and validity
- 1.4.2 Tender Fee in case the tender is downloaded from website
- 1.4.3 Requisite Documents for compliance to Qualification Criteria mentioned in Clause 1.7.
- 1.4.4 Drawing, Type Test details along with a sample of each item as specified at Annexure I (as applicable)
- 1.4.5 Duly signed and stamped 'Schedule of Deviations' as per Annexure III on bidder's letter head.
- 1.4.6 Duly signed and stamped 'Schedule of Commercial Specifications' as per Annexure IV on bidder's letter head.
- 1.4.7 Proper authorization letter/ Power of Attorney to sign the tender on the behalf of bidder.

1.4.8 Copy of PAN & GST (In case any of these documents is not available with the bidder, same to be explicitly mentioned in the 'Schedule of Deviations')

1.4.9 Sample Submission/Demonstration: TPNODL Reserves the right to seek samples and/or demonstration of offered items during Technical Evaluation. Samples/demonstration will be sought by Technical team doing Technical Evaluation. The same may have to submitted/arranged on urgent basis at Central Store, TPNODL, Sovarampur, Balasore, Odisha-756001. Bidder not able to submit sample/perform demonstration in time, may get Technically rejected.

Please note that in absence of any of the above documents, the bid submitted by a bidder shall be liable for rejection.

1.5 Deviation from Tender

Normally, the deviations to tender terms are not admissible and the bids with deviation are liable for rejection. Hence, the bidders are advised to refrain from taking any deviations on this Tender. Still in case of any deviations, all such deviations shall be set out by the Bidders, clause by clause in the 'Annexure III - Schedule of Deviations' and same shall be submitted as a part of the Technical Bid.

1.6 Right of Acceptance/ Rejection

Bids are liable for rejection in absence of following documents:-

- 1.6.1 EMD of requisite value and validity
- 1.6.2 Tender fee of requisite value
- 1.6.3 Price Bid as per the Price Schedule mentioned in Annexure-I
- 1.6.4 Necessary documents against compliance to Qualification Requirements mentioned at Clause 1.7 of this Tender Document.
- 1.6.5 Filled in Schedule of Deviations as per Annexure III
- 1.6.6 Filled in Schedule of Commercial Specifications as per Annexure IV
- 1.6.7 Receipt of Bid within the due date and time

TPNODL reserves the right to accept/reject any or all the bids without assigning any reason thereof.

1.7 Qualification Criteria

- a) *The bidder should have an average annual turnover of Rs.10 Crores in last three financial years. Copy of audited Balance Sheet and P&L Account to be submitted in this regard.*
- b) *The bidder should have own manufacturing facility to manufacture AAAC conductors of similar sizes and should have in-house facilities for acceptance tests as per technical specifications. Bidder must submit undertaking in this regard.*
- c) *The bidder should have supplied the conductor of 500km quantity of similar or higher rating during last 3 years. Copy of work order / completion certificate to be submitted in this regard*
- d) *The bidder should have performance certificates from at least 2 reputed companies for similar or higher rating of work. The work against these issued certificates should be completed in last seven years from the date of bid submission. In case the bidder has a previous association with TPNODL/ NESCO for similar products and services, the performance feedback for that bidder by TPNODL User Group shall only be considered irrespective of performance certificates issued by any third organization*

e) The bidder shall have In-house testing facilities as per TPNODL specifications. Bidder must submit undertaking in this regard.

Guide Lines for MSMEs Registered in the state of Odisha

1) Tender Fees:

To participate in the tender, MSMEs registered in the State of Odisha shall pay Rs.1,000/- including GST towards cost of tender paper.

2) Earnest Money Deposit (EMD):

EMD shall be exempted for MSME registered in the State of Odisha. However, Bidder shall be barred to participate in the tendering process for a period of 2 years in case it backs out post award of the contract.

3) Qualification Requirement for Open Tenders:

Qualification Requirement of Financial Turnover for MSME registered in the State of Odisha shall be reduced to 20% of the existing criteria.

For Technical Qualification, instead of relying on the volumes / value of earlier Supplies / Projects, assessment of the Bidder shall be done on the basis of feedback from Customers. Past performance experience at Tata Power and its Group Companies shall supersede feedback from other Customers.

4) Reservation for MSME:

It shall be mandatory, wherever applicable, to procure at least 20% of the total volume of the procurement from MSME registered in the State of Odisha, subject to matching L1 discovered prices and meeting technical specifications including quality requirements.

5) Performance Bank Guarantees:

Performance Bank Guarantee for MSME registered in the State of Odisha shall be 25% of the value normally prescribed.

1.8 Marketing Integrity

We have a fair and competitive marketplace. The rules for bidders are outlined in the General Condition of Contracts. Bidders must agree to these rules prior to participating. In addition to other remedies available, TPNODL reserves the right to exclude a bidder from participating in future markets due to the bidder's violation of any of the rules or obligations contained in the General Condition of Contracts. A bidder who violates the market place rules or engages in behavior that disrupts the fair execution of the marketplace, may result in restriction of a bidder from further participation in the marketplace for a length of time, depending upon the seriousness of the violation. Examples of violations include, but are not limited to:

- Failure to honor prices submitted to the marketplace
- Breach of terms as published in TENDER/NIT

1.9 Supplier Confidentiality

All information contained in this tender is confidential and shall not be disclosed, published or advertised in any manner without written authorization from TPNODL. This includes all bidding information submitted to TPNODL. All tender documents remain the property of TPNODL and all suppliers are required to return these documents to TPNODL upon request. Suppliers who do not honor these confidentiality provisions will be excluded from participating in future bidding events.

2.0 Evaluation Criteria

- The bids will be evaluated technically on the compliance to tender terms and conditions.
- The bids will be evaluated commercially on the overall all-inclusive lowest cost for the **individual line items** as defined in tender BOQ as calculated in Schedule of Items [Annexure I]. TPNODL reserves the right to split the order line item wise and / or quantity wise among more than one Bidder. Hence all bidders are advised to quote their most competitive rates against each line item.
- Bidder has to mandatorily quote of each line item as per schedule of item [Annexure-I]. Failing to do so TPNODL may reject the bid.

NOTE: In case of a new bidder not registered, factory inspection and evaluation shall be carried out to ascertain bidder's manufacturing capability and quality procedures. However TPNODL reserves the right to carry out factory inspection and evaluation for any bidder prior to technical qualification. In case a bidder is found as Disqualified in the factory evaluation, their bid shall not be evaluated any further and shall be summarily rejected. The decision of TPNODL shall be final and binding on the bidder in this regard.

2.1 Price Variation Clause: The prices shall remain **firm** during the entire contract period.

3.0 Submission of Bid Documents

3.1 Bid Submission

Bidders are requested to submit their offer in line with this Tender document. TPNODL shall respond to the clarification raised by various bidders and the replies will be sent to all participating bidders through e-mail.

Bids shall be submitted in 2 (Two) parts:

FIRST PART: "EMD" of Rs. 2,00,000/- (Rupees Two Lakhs only) shall be submitted. The EMD shall be valid for 210 days from the due date of bid submission in the form of BG / Bankers Pay Order favoring 'TP NORTHERN ODISHA DISTRIBUTION LIMITED', payable at Balasore only. The EMD has to be strictly in the format as mentioned in General Condition of Contract, failing which it shall not be accepted and the bid as submitted shall be liable for rejection. A separate non-refundable tender fee of stipulated amount also needs to be transferred online through NEFT/ RTGS in case the tender document is downloaded from our website.

TPNODL Bank Details for transferring Tender Fee and EMD is as below:

Beneficiary Name – TP Northern Odisha Distribution Limited
Bank Name – Union Bank of India
Branch Name – Balasore Branch
Account No – 500601010280332
IFSC Code – UBIN0550060

SECOND PART: "TECHNICAL BID" shall contain the following documents:

- a) Documentary evidence in support of qualifying criteria
- b) Technical literature/GTP/Type test report etc. *(if applicable)*
- c) Qualified manpower (if available)

- d) Testing facilities (*if applicable*)
- e) No Deviation Certificate as per the Annexure III – Schedule of Deviations
- f) Acceptance to Commercial Terms and Conditions viz. Delivery schedule/period, payment terms etc. as per the Annexure IV – Schedule of Commercial Specifications.
- g) Quality Assurance Plan/Inspection Test Plan for supply items (*if applicable*)

The technical bid shall be properly indexed and is to be submitted through TPNODL E-tender platform (Ariba) only. Hard Copy of Technical Bids need not be submitted.

THIRD PART: “PRICE BID” shall contain only the price details and strictly in format as mentioned in Annexure I with explicit break up of basic prices, Taxes & duties, Freight etc. In case any discrepancy is observed between the item description stated in Schedule of Items mentioned in the tender and the price bid submitted by the bidder, the item description as mentioned in the tender document (to the extent modified through Corrigendum issued if any) shall prevail.

FOR BIDS INVITED THROUGH E-PROCUREMENT PORTAL:

The interested bidders are requested to obtain user name and password for purpose of bid submission through e-procurement portal of TPNODL.

Bids have to be mandatorily submitted only through e-procurement portal of TPNODL. Bids submitted through any other form/ route shall not be admissible

The EMD in the form of BG shall be submitted in original hard copy and then placed in sealed envelope which shall be clearly marked as below:

EMD

“Rate Contract for Supply of AAAC Conductor”

Please mention our Enquiry Number:- TPNODL/OT/2021-22/198 Dtd.25.02.2022 on the Tender and drop the same at **TP NORTHERN ODISHA DISTRIBUTION LIMITED, (A Tata Power and Odisha Government Joint Venture), HOD (Contracts), Corporate office: Januganj, Balasore, Odisha-756019.**

The envelope shall be addressed to:

**HOD (Contracts)
TP NORTHERN ODISHA DISTRIBUTION LIMITED
(A Tata Power and Odisha Government Joint Venture)
Corporate office: Januganj, Balasore, Odisha-756019**

The envelope shall also bear the Name and Address of the Bidder along with our Tender No. and subject.

SIGNING OF BID DOCUMENTS:

The bid must contain the name, residence and place of business of the person or persons making the bid and must be signed and sealed by the Bidder with his usual signature. The names of all persons signing should also be typed or printed below the signature.

The Bid being submitted must be signed by a person holding a Power of Attorney authorizing him to do so, certified copies of which shall be enclosed.

The Bid submitted on behalf of companies registered with the Indian Companies Act, for the time being in force, shall be signed by persons duly authorized to submit the Bid on behalf of the Company and shall be accompanied by certified true copies of the resolutions, extracts of Articles of

Association, special or general Power of Attorney etc. to show clearly the title, authority and designation of persons signing the Bid on behalf of the Company. Satisfactory evidence of authority of the person signing on behalf of the Bidder shall be furnished with the bid.

A bid by a person who affixes to his signature the word 'President', 'Managing Director', 'Secretary', 'Agent' or other designation without disclosing his principal will be rejected.

The Bidder's name stated on the Proposal shall be the exact legal name of the firm.

3.2 Contact Information

All the bidders are requested to send their pre-bid queries (if any) against this tender through e-mail within the stipulated timelines. The consolidated reply to all the queries received shall be posted on TPNODL website by the stipulated timelines as detailed in calendar of events.

Communication Details:

Package Owner: Contracts & Material Management

Name: Mr. Jitendra Kumar Mishra

Contact No: 9451391583

E-Mail ID: jitendra.mishra@tpnodl.com

HOD: Contracts

Name: Mr. Vipin Chauhan

Contact No: 9717393121

E-Mail ID: vipin.chauhan@tpnodl.com

3.3 Bid Prices

Bidders shall quote for the entire Scope of Supply / work with a break up of prices for individual items and Taxes & duties. The bidder shall complete the appropriate Price Schedules included herein, stating the Unit Price for each item & total price with taxes, duties & freight up to destination at various sites of TPNODL. The all-inclusive prices offered shall be inclusive of all costs as well as Duties, Taxes and Levies paid or payable during the execution of the supply work, breakup of price constituents.

The quantity break up shown else-where other than Price Schedule is tentative. The bidder shall ascertain himself regarding material required for completeness of the entire work. Any items not indicated in the price schedule but which are required to complete the job as per the Technical Specifications / Scope of Work mentioned in the tender, shall be deemed to be included in prices quoted.

3.4 Bid Currencies

Prices shall be quoted in Indian Rupees Only.

3.5 Period of Validity of Bids

Bids shall remain valid for 180 days from the due date of submission of the bid.

Not with standing clause above, the TPNODL may solicit the Bidder's consent to an extension of the Period of Bid Validity. The request and responses thereto shall be made in writing.

RC Validity:- The validity of this rate contract shall be one year from the date of issuance.

3.6 Alternative Bids

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Bidders shall submit Bids, which comply with the Bidding documents. Alternative bids will not be considered. The attention of Bidders is drawn to the provisions regarding the rejection of Bids in the terms and conditions, which are not substantially responsive to the requirements of the bidding documents.

3.7 Modifications and Withdrawal of Bids

The bidder is not allowed to modify or withdraw its bid after the Bid's submission. The EMD as submitted along with the bid shall be liable for forfeiture in such event.

3.8 Earnest Money Deposit (EMD)

The bidder shall furnish, as part of its bid, an EMD amounting as specified in the tender. The EMD is required to protect the TPNODL against the risk of bidder's conduct which would warrant forfeiture. The EMD shall be denominated in any of the following form:

- Banker's Cheque/ Demand Draft/ Pay order drawn in favour of 'TP NORTHERN ODISHA DISTRIBUTION LIMITED', payable at Balasore only
- Online transfer of requisite amount through NEFT/ RTGS.
- Bank Guarantee valid for 210 days after due date of submission.

The EMD shall be forfeited in case of:

- a) The bidder withdraws its bid during the period of specified bid validity.
- Or**
- b) The case of a successful bidder, if the Bidder does not
 - i) accept the purchase order, or
 - ii) furnish the required performance security BG

3.9 Type Tests (if applicable)

The type tests specified in TPNODL specifications should have been carried out within five years prior to the date of opening of technical bids and test reports are to be submitted along with the bids. If type tests carried out are not within the five years prior to the date of bidding, the bidder will arrange to carry out type tests specified, at his cost. The decision to accept/ reject such bids rests with TPNODL.

4.0 Bid Opening & Evaluation process

4.1 Process to be confidential

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process. Any effort by a Bidder to influence the TPNODL's processing of Bids or award decisions may result in the rejection of the Bidder's Bid.

4.2 Technical Bid Opening

Bids shall be opened as per the schedule mentioned in Calendar of Events. In case of limited tenders, the bids shall be opened internally by TPNODL. Owing to COVID Scenario, in case of Open Tenders also, the bids shall be opened internally by TPNODL. Technical bid must not contain any cost information whatsoever.

First the "EMD" will be checked. Bids without EMD/ cost of tender (if applicable) of required Amount / validity in prescribed format, shall be rejected.

Next, the technical bid of the bidders who have furnished the requisite EMD will be opened, one

by one. The salient particulars of the techno commercial bid will be read out at the sole discretion of TPNODL

4.3 Preliminary Examination of Bids/ Responsiveness

TPNODL will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order. TPNODL may ask for submission of original documents in order to verify the documents submitted in support of qualification criteria.

Arithmetical errors will be rectified on the following basis: If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected.

Prior to the detailed evaluation, TPNODL will determine the substantial responsiveness of each Bid to the Bidding Documents including production capability and acceptable quality of the Goods offered. A substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.

Bid determined as not substantially responsive will be rejected by the TPNODL and/or the TPNODL and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

4.4 Techno Commercial Clarifications

Bidders need to ensure that the bids submitted by them are complete in all respects. To assist in the examination, evaluation and comparison of Bids, TPNODL may, at its discretion, ask the Bidder for a clarification on its Bid for any deviations with respect to the TPNODL specifications and attempt will be made to bring all bids on a common footing. All responses to requests for clarification shall be in writing and no change in the price or substance of the Bid shall be sought, offered, or permitted owing to any clarifications sought by TPNODL. After all techno commercial issues are clarified, the date of price bid opening will be intimated to the technically accepted bidders and same shall also be notified at TPNODL website.

4.5 Price Bid Opening

Price bids will be opened at the stipulated date and time. The EMD of the bidder withdrawing or substantially altering his offer at any stage after the technical bid opening will be forfeited at the sole discretion of TPNODL without any further correspondence in this regard.

4.7 Reverse Auctions

TPNODL reserves the right to conduct the reverse auction (instead of public opening of price bids) for the products/ services being asked for in the tender and reserves the rights to conduct the manual negotiation with the BA who is declared L1 after Reverse Auction. The terms and conditions for such reverse auction events shall be as per the Acceptance Form attached as Annexure VI of this document. The bidders along with the tender document shall mandatorily submit a duly signed copy of the Acceptance Form attached as Annexure VI as a token of acceptance for the same.

5.0 Award Decision

TPNODL will award the contract to the successful bidder whose bid has been determined to be the lowest-evaluated responsive bid as per the Evaluation Criterion mentioned at Clause 2.0. The Cost

for the said calculation shall be taken as the all-inclusive cost quoted by bidder in Annexure I (Schedule of Items) subject to any corrections required in line with Clause 4.3 above. The decision to place rate contract / purchase order / LOI solely depends on TPNODL on the cost competitiveness across multiple lots, quality, delivery and bidder's capacity, in addition to other factors that TPNODL may deem relevant.

TPNODL reserves all the rights to award the contract to one or more bidders so as to meet the delivery requirement or nullify the award decision without assigning any reason thereof.

In case any supplier's services or quality of material is / are found unsatisfactory during the delivery process, the award will be cancelled and TPNODL reserves the right to award other suppliers who are found fit.

6.0 Order of Preference/Contradiction:

In case of contradiction in any part of various documents in tender, following shall prevail in order of preference:

1. Schedule of Items (Annexure I)
2. Post Award Contract Administration (Clause 7.0)
3. Submission of Bid Documents (Clause 3.0)
4. Scope of Work and SLA (if any)
5. Technical Specifications (Annexure II)
6. Inspection Test Plan (if any)
7. Acceptance Form for Participation in Reverse Auction (Annexure VI)
8. General Conditions of Contract (Annexure VII)

7.0 Post Award Contract Administration

7.1 Special Conditions of Contract

- Rate contract shall be valid for a period of 1 years from the placement of Contract. Release Order (RO) shall be placed as per the requirement of TPNODL. Rate shall remain FIRM till the validity of Rate Contract.
- Business Associate (BA) shall submit applicable Performance Bank Guarantee as per GCC within 21 days of issuance of order. PBG applicable shall be 5% of Order Value. PBG submitted, shall be released after completion of applicable guarantee period plus one month.
- BA shall submit GTP / Drawing within 1 weeks from issuance of rate contract. In case BA does not get necessary approvals for issuance of CAT-A within mentioned / mutually agreed timelines, then TPNODL reserve the right to cancel issued rate contract / release order and also reserve the right to forfeit EMD / PBG.
- Any change in statutory taxes, duties and levies during the contract period shall be borne by TPNODL. However, in case of delay in work execution owing to reasons not attributable to TPNODL, any increase in total liability shall be passed on the Bidder, whereas any benefits arising owing to such statutory variation in taxes and duties shall be passed on TPNODL.
- Statutory Variations: Any changes in existing taxes/ Duties and levies, Introduction of new taxes and duties etc. during the period of the contract shall be paid at actuals to BA subject to BA shall submit the tax break up in details, however, where BA has quoted the all-inclusive prices and not shown the tax break-up, this clause will not be applicable. The date of issue of MDCC shall be used for this purpose.

- Quotation in all BOM items is mandatory, and bid shall be rejected if any line of found blank in un price bid.
- Delivery period shall be 60 + 7 days (considering the approval of CAT-A / drawing / GTP) from date of receipt of release order for the first lot however for remaining lots the delivery period will be 60 days from RO date.
- Guarantee applicable shall be as per technical specifications
- TPNODL shall short close the issued Release Order / Rate contract, in case of any quality issues
- All other terms and conditions of TPNODL General Conditions of Contract shall be applicable.

7.2 Drawing Submission & Approval

The relevant drawings and GTPs need to be submitted as per special condition of contract mentioned in point no. 7.1 and also as per technical specification attached separately with this tender (Annexure-IX).

7.3 Delivery Terms

The delivery of material shall be made as per special condition of contract mentioned in point 7.1.

7.4 Warranty Period

Guarantee/Warranty Period of the supplied material shall be as per technical specification attached separately with this tender.

7.5 Payment Terms

On delivery of the materials in good condition and certification of acceptance by certified official, Associate shall submit the Bills/ Invoices in original in the name of TP NORTHERN ODISHA DISTRIBUTION LIMITED to AGM (Elect.) / Executive Engineer (Elect.), ESD, TPNODL, Balasore. The payment shall be released within 45 days from the date of submission of certified bills/ invoices.

7.6 Climate Change

Significant quantities of waste are generated during the execution of project and an integrated approach for effective handling, storage, transportation and disposal of the same shall be adopted. This would ensure the minimization of environmental and social impact in order to combat the climate change.

7.7 Ethics

- TPNODL is an ethical organization and as a policy TPNODL lays emphasis on ethical practices across its entire domain. Bidder should ensure that they should abide by all the ethical norms and in no form either directly or indirectly be involved in unethical practice.
- TPNODL work practices are governed by the Tata Code of Conduct which emphasizes on the following:
 - We shall select our suppliers and service providers fairly and transparently.
 - We seek to work with suppliers and service providers who can demonstrate that they share similar values. We expect them to adopt ethical standards comparable to our own.
 - Our suppliers and service providers shall represent our company only with duly authorized written permission from our company. They are expected to abide by the Code in their interactions with, and on behalf of us, including respecting the confidentiality of information shared with them.

- We shall ensure that any gifts or hospitality received from, or given to, our suppliers or service providers comply with our company's gifts and hospitality policy.
- We respect our obligations on the use of third party intellectual property and data.

Bidder is advised to refer GCC attached at Annexure IX for more information.

Any ethical concerns with respect to this tender can be reported to the following e-mail ID: ceoffice@tpnodl.com

8.0 Specification and standards:

Attached separately with tender.

9.0 General Condition of Contract

Any condition not mentioned above shall be applicable as per GCC for Supply attached along with this tender.

10.0 Safety

Safety related requirements as mentioned in our safety Manual is put in the Company's website and same shall be strictly followed.

<http://www.tpnodl.com>

All Associates shall strictly abide by the guidelines provided in the safety manual at all relevant stages during the contract period.

ANNEXURE I
Schedule for Items

S. No.	Item Description	Quantity	Unit	HSN /SAC Code	Unit Ex-Work Price (Rs./ Unit)	GST (Rs/ Unit)	All Inclusive Unit Rate (Rs.)	Total All Inclusive Value (Rs.)
1	2	3	4	5	6	7	8=6+7	9
1	232 sqmm All Alloy Aluminium Conductor AAAC	150	Km					
2	200 sqmm All Alloy Aluminium Conductor AAAC	700	Km					
3	148 sqmm All Alloy Aluminium Conductor AAAC	500	Km					
4	100 sqmm All Alloy Aluminium Conductor AAAC	1900	Km					
5	80 sqmm All Alloy Aluminium Conductor AAAC	600	Km					
6	55 sqmm All Alloy Aluminium Conductor AAAC	100	Km					

Signature & Seal of the Bidder

NOTE:

- The quantity mentioned above is for evaluation purpose only and may vary during the execution. Release Orders against this Rate Contract shall be issued by TPNODL as per actual requirement.
- The overall period of **01 year** and price shall be firm till the validity of contract.
- The unit price with GST in column no. 8, is landed price FOR TPNODL Odisha Locations. Exact delivery location shall be specified in the Release Order.
- The bidders are advised to quote prices strictly in the above format. Failing to do so, bids are liable for rejection.
- The bidder must fill each and every column of the above format. ***Mentioning "extra/inclusive" in any of the column may lead for rejection of the price bid.***
- No cutting/ overwriting in the prices is permissible.

ANNEXURE II

Technical Specifications attached separately with the tender.

ANNEXURE III

Schedule of Deviations

*Bidders are advised to refrain from taking any deviations on this TENDER. Still in case of any deviations, all such deviations from this tender document shall be set out by the Bidders, Clause by Clause in this schedule and submit the same as a part of the **Technical Bid**.*

Unless specifically mentioned in this schedule, the tender shall be deemed to confirm the TPNODL's specifications:

S. No.	Clause No.	Tender Clause Details	Details of deviation with justifications

By signing this document we hereby withdraw all the deviations whatsoever taken anywhere in this bid document and comply to all the terms and conditions, technical specifications, scope of work etc. as mentioned in the standard document except those as mentioned above.

Seal of the Bidder:

Signature:

Name:

ANNEXURE IV

Schedule of Commercial Specifications

(The bidders shall mandatorily fill in this schedule and enclose it with the offer Part I: Technical Bid. In the absence of all these details, the offer may not be acceptable.)

S. No.	Particulars	Remarks
1.	Prices firm or subject to variation (If variable indicate the price variation clause with the ceiling if applicable)	Firm / Variable
1a.	If variable price variation on clause given	Yes / No
1b.	Ceiling	----- %
1c.	Inclusive of Excise Duty	Yes / No (If Yes, indicate % rate)
1d.	Sales tax applicable at concessional rate	Yes / No (If Yes, indicate % rate)
1e.	Octroi payable extra	Yes / No (If Yes, indicate % rate)
1f.	Inclusive of transit insurance	Yes / No
2.	Delivery	Weeks / months
3.	Guarantee clause acceptable	Yes / No
4.	Terms of payment acceptable	Yes / No
5.	Performance Bank Guarantee acceptable	Yes / No
6.	Liquidated damages clause acceptable	Yes / No
7.	Validity (180 days) (From the date of opening of technical bid)	Yes / No
8.	Inspection during stage of manufacture	Yes / No
9.	Rebate for increased quantity	Yes / No (If Yes, indicate value)
10.	Change in price for reduced quantity	Yes / No (If Yes, indicate value)
11.	Covered under Small Scale and Ancillary Industrial Undertaking Act 1992	Yes / No (If Yes, indicate, SSI Reg'n No.)

ANNEXURE V

Checklist of all the documents to be submitted with the Bid

Bidder has to mandatorily fill in the checklist mentioned below:-

S. No.	Documents attached	Yes / No / Not Applicable
1	EMD of required value	
2	Tender Fee as mentioned in this RFQ	
3	Company profile/ organogram	
4	Signed copy of this RFQ as an unconditional acceptance	
5	Duly filled schedule of commercial specifications (Annexure IV)	
6	Sheet of commercial/ technical deviation if any (Annexure III)	
7	Balance sheet for the last completed three financial years; mandatorily enclosing Profit & loss account statement	
8	Acknowledgement for Testing facilities if available (duly mentioned on bidder letter head)	
9	List of Machine/ tools with updated calibration certificates if applicable	
10	Details of order copy (duly mentioned on bidder letter head)	
11	Order copies as a proof of quantity executed	
12	Details of Type Tests if applicable (duly mentioned on bidder letter head)	
13	All the relevant Type test certificates as per relevant IS/ IEC (CPRI/ ERDA/ other certified agency) if applicable	
14	Project/ Supply Completion certificates	
15	Performance certificates	
16	Client Testimonial/ Performance Certificates	
17	Credit rating/ Solvency certificate	
18	Undertaking regarding non blacklisting (On company letter head)	
19	List of trained/ Untrained Manpower	

Annexure VI

Acceptance Form for Participation In Reverse Auction Event

(To be signed and stamped by the bidder)

In a bid to make our entire procurement process more fair and transparent, TPNODL intends to use the reverse auctions as an integral part of the entire tendering process. All the bidders who are found as technically qualified based on the tender requirements shall be eligible to participate in the reverse auction event.

The following terms and conditions are deemed as accepted by the bidder on participation in the bid event:

1. TPNODL shall provide the user id and password to the authorized representative of the bidder. *(Authorization Letter in lieu of the same shall be submitted along with the signed and stamped Acceptance Form).*
2. TPNODL will make every effort to make the bid process transparent. However, the award decision by TPNODL would be final and binding on the supplier.
3. The bidder agrees to non-disclosure of trade information regarding the purchase, identity of TPNODL, bid process, bid technology, bid documentation and bid details.
4. The bidder is advised to understand the auto bid process to safeguard themselves against any possibility of non-participation in the auction event.
5. In case of bidding through Internet medium, bidders are further advised to ensure availability of the entire infrastructure as required at their end to participate in the auction event. Inability to bid due to telephone line glitch, internet response issues, software or hardware hangs, power failure or any other reason shall not be the responsibility of TPNODL.
6. In case of intranet medium, TPNODL shall provide the infrastructure to bidders. Further, TPNODL has sole discretion to extend or restart the auction event in case of any glitches in infrastructure observed which has restricted the bidders to submit the bids to ensure fair & transparent competitive bidding. In case of an auction event is restarted, the best bid as already available in the system shall become the start price for the new auction.
7. In case the bidder fails to participate in the auction event due any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid as submitted by the bidder as a part of the tender shall be considered as the bidder's final no regret offer. Any offline price bids received from a bidder in lieu of non-participation in the auction event shall be out-rightly rejected by TPNODL.
8. The bidder shall be prepared with competitive price quotes on the day of the bidding event.
9. The prices as quoted by the bidder during the auction event shall be inclusive of all the applicable taxes, duties and levies and shall be FOR at TPNODL site.
10. The prices submitted by a bidder during the auction event shall be binding on the bidder.
11. No requests for time extension of the auction event shall be considered by TPNODL.
12. The original price bids of the bidders shall be reduced on pro-rata basis against each line item based on the final all inclusive prices offered during conclusion of the auction event for arriving at Contract amount.

Signature & Seal of the Bidder



TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES (Panther/Coyote/Dog/Rabbit)		
Document No.	EN	Eff. Date: 05th July 2021	
Revision No.	00	Page 1 of 20	
Prepared By:	Reviewed By:	Approved By:	Issued By :

CONTENTS

1. SCOPE
2. APPLICABLE STANDARDS
3. GENERAL TECHNICAL REQUIREMENTS
4. GENERAL CONSTRUCTION
5. PHYSICAL CONSTANTS FOR ALUMINUM ALLOY WIRES
6. STANDARD SIZES
7. JOINTS IN WIRES
8. STRANDING
9. LENGTHS & VARIATION IN LENGTHS
10. TESTS
11. REJECTIONS & RETESTS
12. TYPE TEST CERTIFICATES
13. PRE DESPATCH INSPECTION
14. INSPECTION AFTER RECEIPT AT STORES
15. GUARANTEE
16. PACKING
17. TENDER SAMPLE
18. QUALITY CONTROL
19. MINIMUM TESTING FACILITIES
20. MANUFACTURING ACTIVITIES
21. SPARES, ACCESSORIES & TOOLS
22. DRAWINGS & DOCUMENTS
23. GUARANTEED TECHNICAL PARAMETERS
24. SCHEDULE OF DEVIATIONS

	TP NORTHERN ODISHA DISTRIBUTION LIMITED		
	TECHNICAL SPECIFICATION		
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 2 of 20	
Prepared By	Reviewed By	Approved By	Issued By

1.0	Scope	<p>This specification covers design, Engineering, Manufacture, Testing, Inspection before dispatch, forwarding, packing, transportation to sites, Insurance (both during transit & storage), storage, erection, supervision testing & commissioning of all sizes of All Aluminum Alloy Conductors of the Aluminum–Magnesium-Silicon type for use in the distribution overhead power lines.</p> <p>The conductor offered shall be procured from short listed vendor and shall have been successfully Type Tested during last five years on the date of bid opening. The Type Test reports shall be submitted along with the bid.</p> <p>The AAA Conductor shall conform in all respects to highest standards of engineering, design, workmanship complying 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 materials, which, in his judgment, is not in full accordance therewith.</p>
2.0	Applicable Standards	<p>Except where modified by the specification, the Aluminum Alloy Conductor shall be designed, manufactured and tested in accordance with latest editions of the following standards:</p> <p>:</p>

	TP NORTHERN ODISHA DISTRIBUTION LIMITED		
	TECHNICAL SPECIFICATION		
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 3 of 20	
Prepared By	Reviewed By	Approved By	Issued By

Sl. No	International Standard	IS	Description
1	IEC :1089		Round wire concentric lay overhead electrical standard Conductor
2		IS 398	Aluminum Alloy Stranded Conductors
3		IS 9997	Aluminum Alloy redraw rods for electrical purposes
4	IEC 502 : 1994		Extruded solid dielectric insulated power cables for rated voltages 1.0 kV up to 30 kV
5	IEC 104		Aluminum Magnesium Silicon alloy wire for overhead line conductors
6		IS 1778	Reels and drums of bare conductor.
7	BS : 6485-1971		PVC covered conductors for overhead power lines.

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 4 of 20	
Prepared By	Reviewed By	Approved By	Issued By

3.0	General Technical Requirements	<u>GUARANTEED TECHNICAL PARTICULAR FOR SUPPLY OF AAAC CONDUCTOR</u>						
		Sr. No.	PARTICULARS		AAAC Panther Conductor	AAAC Coyote Conductor	AAAC Dog (up) Conductor	AAAC Rabbit Conductor
		(A)	Conductor					
		1	Code Name		AAAC Panther Conductor	AAAC Coyote Conductor	AAAC Dog (up) Conductor	AAAC Rabbit Conductor
		2	Makers Name					
		3	Size and Stranding (Alloy)		19/3.94	19/3.15	19/2.89	7/3.15
		4	Nominal Alloy area	Sqmm	232	148	125	55
		5	Sectional area of Alloy	Sqmm	231.7	148.1	124.6	54.5
		6	Approx. Calculated Breaking Load (KN)	KN	68.05	43.5	36.64	16.03
		7	Diameter of complete conductor	mm	Approx. 19.7	Approx. 15.75	Approx. 14.45	Approx. 9.45
		8	Particulars of Raw material					
		a)	Si	%	0.50 - 0.90	0.50 - 0.90	0.50 - 0.90	0.50 - 0.90
		b)	Mg	%	0.60 0.90	0.60 0.90	0.60 0.90	0.60 0.90
		c)	FE	%	0.50 max	0.50 max	0.50 max	0.50 max
		d)	Cu	%	0.10 max	0.10 max	0.10 max	0.10 max
		e)	Mn	%	0.03 max	0.03 max	0.03 max	0.03 max
		f)	Cr.	%	0.03 max	0.03 max	0.03 max	0.03 max
		g)	Zn	%	0.10 max	0.10 max	0.10 max	0.10 max

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 5 of 20	
Prepared By	Reviewed By	Approved By	Issued By

		h)	B	%	0.06 max	0.06 max	0.06 max	0.06 max
		i)	Other Elements (Each)	%	0.03 max	0.03 max	0.03 max	0.03 max
		j)	Other Elements (Total)	%	0.10 max	0.10 max	0.10 max	0.10 max
		k)	Alluminium	%	Remainder	Remainder	Remainder	Remainder
		9	Calculated Max. resistance of conductor at 20° C	Ohm/ Km.	0.1471	0.2290	0.2735	0.621
		10	Final modulus of Elasticity	Kg./ Cm2	0.612x10 ⁶	0.612x10 ⁶	0.612x10 ⁶	0.6324x10 ⁶
		11	Co-efficient of linear expansion per Degree C	°C	23.0x10 ⁻⁶	23.0x10 ⁻⁶	23.0x10 ⁻⁶	23.0x10 ⁻⁶
		12	Lay Ratio					
		a)	Alloy Layer					
		i)	6 Wire Layer					
			Max.		16	16	16	14
			Min.		10	10	10	10
		(B)	12 Wire Layer					
		i)	Max.		14	14	14	-
		ii)	Min.		10	10	10	-
		a)	18 Wire Layer					
		b)	Max.		-	-	-	-
		c)	Min.		-	-	-	-
		(C)	Direction of lay for outside layer		Right Hand			
		13	STRANDS					
		13.1	No. of Strands		19/3.94	19/3.15	19/2.89	7/3.15
		13.2	Diameter of each strands (mm)					
		13.2.1	Normal	mm	3.94	3.15	2.89	3.15
		13.2.2	Maximum	mm	3.98	3.18	2.92	3.18

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 6 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

	13.2.3	Minimum	mm	3.90	3.12	2.86	3.12	
	13.3	Sectional Area	Sq.m m	12.19	7.793	6.56	7.793	
	14	Current carrying capacity (65°C) Amp	A	387	295	266	160	
	15	Approximate Wt. of the Conductor	Kg./k m	636.67	406.91	342.51	149.2	
	16	Tolerance on standard length of Conductor (%)	%	±5				
	17	PACKING						
	i)	Drum Material		Wooden				
	ii)	IS to which Reel Conforms		IS : 1778				
	iii)	IS According to which the conductor will be manufactured and tested		IS:398(Part-IV)				
	(D)	Other Particulars , if any		NIL				
	(E)	Joints- There shall be no joints in any wire of a stranded conductor containing continuation.						

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 7 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

4.0	General Construction																																													
4.1	General	<p>The wires shall be of heat treated aluminum, magnesium silicon alloy containing approximately silicon-0.5 to 0.9 %, magnesium-0.6 % to 0.9%, Fe- 0.5% (maximum) , Copper- 0.1% (max) , Mn- 0.03%, Cr- 0.03%, Zn- 0.1%, B- 0.06%, and having the mechanical and electrical properties specified in the table and be smooth and free from all imperfections, such as, spills, splits and scratches.</p> <p>Neutral grease shall be applied between the layers of wires. The drop point temperature of the grease shall not be less than 120⁰C.</p> <p>Mechanical and Electrical Characteristics of Aluminum Alloy Wires used in the Construction of Stranded Aluminum Alloy Conductors</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Nominal Diameter</th> <th rowspan="2">Minimum Diameter</th> <th rowspan="2">Max. Diameter</th> <th rowspan="2">Cross Sectional Area</th> <th rowspan="2">Mass</th> <th colspan="2">Minimum Breaking Load</th> <th rowspan="2">Maximum Resistance at 20⁰C</th> </tr> <tr> <th>Before stranding</th> <th>After stranding</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> </tr> <tr> <th>mm</th> <th>mm</th> <th>mm</th> <th>mm²</th> <th>Kg/km</th> <th>KN</th> <th>KN</th> <th>ohms/km</th> </tr> </thead> <tbody> <tr> <td>3.15 *</td> <td>3.12</td> <td>3.18</td> <td>7.793</td> <td>21.04</td> <td>2.41</td> <td>2.29</td> <td>4.290</td> </tr> <tr> <td>4.26 *</td> <td>4.22</td> <td>4.30</td> <td>14.25</td> <td>38.48</td> <td>4.40</td> <td>4.18</td> <td>2.345</td> </tr> </tbody> </table> <p>Maximum resistance values given in column 8 have been calculated from the maximum values of the resistivity as specified and the cross sectional area based on the minimum diameter.</p> <p>The minimum breaking load is calculated on nominal diameter at ultimate tensile strength of 0.3 09 KN / mm²for wire before stranding and 95% of the ultimate tensile strength after stranding.</p>			Nominal Diameter	Minimum Diameter	Max. Diameter	Cross Sectional Area	Mass	Minimum Breaking Load		Maximum Resistance at 20 ⁰ C	Before stranding	After stranding	1	2	3	4	5	6	7	8	mm	mm	mm	mm ²	Kg/km	KN	KN	ohms/km	3.15 *	3.12	3.18	7.793	21.04	2.41	2.29	4.290	4.26 *	4.22	4.30	14.25	38.48	4.40	4.18	2.345
Nominal Diameter	Minimum Diameter	Max. Diameter	Cross Sectional Area	Mass						Minimum Breaking Load			Maximum Resistance at 20 ⁰ C																																	
					Before stranding	After stranding																																								
1	2	3	4	5	6	7	8																																							
mm	mm	mm	mm ²	Kg/km	KN	KN	ohms/km																																							
3.15 *	3.12	3.18	7.793	21.04	2.41	2.29	4.290																																							
4.26 *	4.22	4.30	14.25	38.48	4.40	4.18	2.345																																							
5	PHYSICAL CONSTANTS FOR ALUMINIUM	<p>5.1 Resistivity:</p> <p>For the purpose of this specification, the standard value of resistivity of aluminum alloy wire which shall be used for calculation is to</p>																																												

	TP NORTHERN ODISHA DISTRIBUTION LIMITED		
	TECHNICAL SPECIFICATION		
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 8 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

UM ALLO Y WIRE S	<p>be taken as 0.0325 ohm-mm²/m at 20⁰ C. the maximum value of resistivity of any single wire shall not, however, exceed 0.0328 ohm- mm²/m at 20⁰C.</p> <p>5.2 Density:</p> <p>At a temperature of 20⁰ C, the density of aluminum alloy wire is to be taken as 2700 kg/m³.</p> <p>5.3 Temperature Coefficient of Linear Expansion</p> <p>The temperature coefficient of linear expansion of aluminum alloy wire is to be taken as 23 x 10⁻⁶/⁰C.</p> <p>5.4 Constant – Mass Temperature Coefficient</p> <p>At a Temperature of 20⁰ C, the constant – mass temperature coefficient of resistance of aluminum alloy wires, measured between two potential points rigidly fixed to the wire, is taken as 0.00360/⁰C.</p>
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TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 9 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

6	STANDARD SIZES	<p>Nominal Sizes of Wires</p> <p>The aluminum alloy wires for standard constructions covered by this specification shall have the diameters as specified in the table and a tolerance of $\pm 1\%$ shall be permitted on the nominal diameter.</p> <p>6.2 Standard Conductors</p> <p>The sizes, resistance and masses (excluding the mass of grease) of stranded aluminum alloy conductors shall be as given in table. The preferred sizes are highlighted in the table.</p> <p>6.3 Mechanical and Electrical Characteristics of Aluminum Alloy Stranded Conductors</p> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Actual Area</th> <th>Stranding and Wire Dia</th> <th>Approx. Overall Dia</th> <th>Approx. Mass</th> <th>Calculated Maximum Resistance at 20⁰ C</th> <th>Approx Calculated Breaking</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> </tr> <tr> <th></th> <th>Mm²</th> <th>mm</th> <th>mm</th> <th>kg/km</th> <th>ohms/km</th> <th>KN</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>100</td> <td>7/4.26</td> <td>12.78</td> <td>272.86</td> <td>0.3390</td> <td>29.26</td> </tr> <tr> <td>3</td> <td>148</td> <td>19/3.15</td> <td>15.75</td> <td>406.91</td> <td>0.2290</td> <td>43.50</td> </tr> </tbody> </table> <p>6.3.1 Increase in Length due to Stranding</p> <p>When straightened out, each wire in any particular layer of a stranded conductor, except the center wire, is longer than the stranded conductor by an amount depending on the lay ratio of that layer.</p> <p>6.3.2 Resistance and Mass of Conductor</p> <p>The resistance of any length of stranded conductor is the resistance of the same length of any one wire multiplied by a constant as set out in the table below.</p> <p>The mass of each wire in any particular layer of the stranded conductor, except the center wire, will be greater than that of an equal length of straight wire by an amount depending on the lay ratio of that layer.</p>	Sl. No.	Actual Area	Stranding and Wire Dia	Approx. Overall Dia	Approx. Mass	Calculated Maximum Resistance at 20 ⁰ C	Approx Calculated Breaking	1	2	3	4	5	6	7		Mm ²	mm	mm	kg/km	ohms/km	KN	2	100	7/4.26	12.78	272.86	0.3390	29.26	3	148	19/3.15	15.75	406.91	0.2290	43.50
Sl. No.	Actual Area	Stranding and Wire Dia	Approx. Overall Dia	Approx. Mass	Calculated Maximum Resistance at 20 ⁰ C	Approx Calculated Breaking																															
1	2	3	4	5	6	7																															
	Mm ²	mm	mm	kg/km	ohms/km	KN																															
2	100	7/4.26	12.78	272.86	0.3390	29.26																															
3	148	19/3.15	15.75	406.91	0.2290	43.50																															

TP NORTHERN ODISHA DISTRIBUTION LIMITED		
TECHNICAL SPECIFICATION		
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES	
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021
Revision No.	00	Page 10 of 20
Prepared By Rajeeva Tripathy	Reviewed By	Approved By Issued By

The total mass of any length of an aluminum stranded conductor is, therefore, obtained by multiplying the mass of an equal length of straight wire by an appropriate constant as mentioned below.

In calculating the stranding constants as mentioned in the table below, the mean lay ratio, that is the arithmetic mean of the relevant minimum and maximum values in table for lay ratio has been assumed for each layer.

6.3.3 Calculated Breaking Load of Conductor

For a conductor containing **not more than** 37 wires, 95% of the sum of strength of the individual wires calculated from the values of the minimum breaking load given in this specification.

For a conductor containing **more than** 37 wires, 90% of the sum of the strengths of the individual wire calculated from the values of the minimum breaking load given in this specification.

6.3.4 Calculated Area and Maximum Resistance of Conductor

The actual area of a stranded conductor has been taken as the sum of the cross-sectional areas of the individual wires of nominal diameter.

Maximum resistance values of stranded conductor have been calculated on the basis of maximum resistivity and the cross-sectional area based on the minimum diameter of wires.

6.4 Stranding Constants

Number of Wires in Conductor	Stranding Constants	
	Mass	Electrical Resistance
(1)	(2)	(3)
7	7.091	0.1447
19	19.34	0.05357

7	JOINTS IN WIRES	<p>7.1 Conductor containing seven wires</p> <p>There shall be no joint in any wire of a stranded conductor containing seven wires, except those made in the base rod or wire before final drawing.</p>
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TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 11 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

		<p>7.2 Conductors containing more than seven wires</p> <p>In stranded conductors containing more than seven wires, joints in individual wires are permitted in any layer except the outermost layer (in addition to those made in the base rod or wire before final drawing) but no two such joints shall be less than 15 m apart in the complete stranded conductor. Such joints shall be made by cold pressure butt welding. They are not required to fulfill the mechanical requirements for un-jointed wires.</p>																																											
8	STRAN DING	<p>The wire used in the construction of a stranded conductor shall, before and after stranding, satisfy all the relevant requirements of this standard.</p> <p>The lay ratio of the different layers shall be within the limits given in the table for lay ratio.</p> <p>In all constructions, the successive layers shall have opposite directions of lay, the outermost layer being right-handed. The wires in each layer shall be evenly and closely stranded.</p> <p>In aluminum alloy stranded conductors having multiple layers of wires, the lay ratio of any layer shall not be greater than the lay ratio of the layer immediately beneath it.</p> <p>9.1</p> <p>Lay Ratios for Aluminum Alloy Stranded Conductors</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="3" style="text-align: center;">Number of Wires in Conductor</th> <th colspan="8" style="text-align: center;">LAY RATIOS</th> </tr> <tr> <th colspan="2" style="text-align: center;">3/6 Wire Layer</th> <th colspan="2" style="text-align: center;">12 Wire Layer</th> <th colspan="2" style="text-align: center;">18 Wire Layer</th> <th colspan="2" style="text-align: center;">24 Wire Layer</th> </tr> <tr> <th style="text-align: center;">Min</th> <th style="text-align: center;">Max</th> <th style="text-align: center;">Min</th> <th style="text-align: center;">Max</th> <th style="text-align: center;">Min</th> <th style="text-align: center;">Max</th> <th style="text-align: center;">Min</th> <th style="text-align: center;">Max</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">7</td> <td style="text-align: center;">10</td> <td style="text-align: center;">14</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> </tr> <tr> <td style="text-align: center;">19</td> <td style="text-align: center;">10</td> <td style="text-align: center;">16</td> <td style="text-align: center;">10</td> <td style="text-align: center;">14</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> <td style="text-align: center;">---</td> </tr> </tbody> </table>	Number of Wires in Conductor	LAY RATIOS								3/6 Wire Layer		12 Wire Layer		18 Wire Layer		24 Wire Layer		Min	Max	Min	Max	Min	Max	Min	Max	7	10	14	---	---	---	---	---	---	19	10	16	10	14	---	---	---	---
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TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 12 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

		<p>NOTE: For the purpose of calculation the mean lay ratio shall be taken as the arithmetic mean of the relevant minimum and maximum values given in this table</p>
9	LENGTH S & VARIATION IN LENGTH S	<p>Unless otherwise agreed between the Owner and the Contractor, stranded aluminum alloy conductors shall be supplied in the manufacturer's usual production lengths to be indicated in the bid Schedule. The Owner reserves the right to specify particular lengths of conductor such that certain drum lengths will be shorter than others. There will in both cases be a permitted variation of -0 + 5% in the length of any one conductor length.</p>
10	TESTS	<p>10.1 Type Tests</p> <p>The following tests should have been carried out as per relevant ISS.</p> <p>10.1.1 Ultimate Tensile Strength Test</p> <p>This test is intended to confirm not only the breaking strength of the finished conductor but also that the conductor has been uniformly stranded.</p> <p>A conductor sample of minimum 5mtr. length fitted with compression dead end clamps at either end shall be mounted in a suitable tensile test machine. Circles perpendicular to the axis of the conductor shall be marked at two places on its surface. Tension on the conductor sample shall be increased at a steady rate upto 50% of the minimum UTS specified and held for one minute. The circles drawn shall not be distorted due to relative movement of the individual strands. Thereafter the load shall be increased at a steady rate to the specified minimum UTS and held at that load for one minute. The conductor sample shall not fail during this period. The applied load shall then be increased until the failing load is reached and the value recorded.</p> <p>10.1.2 D.C Resistance Test</p> <p>On a conductor sample of minimum 5mtr. length two contact clamps shall be fitted with a predetermined bolt torque. The resistance between the clamps shall be measured using a Kelvin double bridge by initially placing the clamps at zero separation and subsequently one meter apart. The test shall be repeated at least five times and the average value recorded. The value obtained shall be corrected to the value at 20⁰ C, which shall conform to the</p>

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 13 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

		<p>requirements of this specification.</p> <p>10.2 Routine Tests</p> <p>10.2.1 Measurement of Physical Dimensions:</p> <p>The samples should meet the desired dimensional requirements before conducting following Routine Tests as per relevant ISS.</p> <p>10.2.2 Selection of Test Samples</p> <p>Samples for the tests specified in this specification shall be taken by the manufacturer before stranding, from not less than 10% of the individual lengths of aluminum alloy wire included in any one final heat-treatment batch and which will be included in any one consignment of the stranded conductors to be supplied.</p> <p>Samples shall then be obtained by cutting 1.2 meters from the outer end of the finished conductor from not more than 10% of the finished reels or drums.</p> <p>Tests for electrical and mechanical properties of aluminum alloy wire shall ordinarily be made before stranding since wires unlaidd from conductors may have different physical properties from those of the wire prior to stranding because of the deformation brought about by stranding and by straightening for test.</p> <p>Spools offered for inspection shall be divided into equal lots, the number of lots being equal to the number of samples to be selected, a fraction of a lot being counted as a complete lot. One sample spool shall be selected at random from each lot.</p> <p>The following test shall be carried out once on samples of completed line conductor during each production run of up to 500 kms of the conductor from each manufacturing facility .</p> <p>10.3 Breaking Load Test</p> <p>The breaking load of one specimen, cut from each of the samples taken shall be determined by means of a suitable tensile testing machine. The load shall be applied gradually and the rate of separation of the jaws of the testing machine shall be not less than 25 mm / min and not greater than 100mm/min.</p> <p>10.4 Elongation Test</p> <p>The elongation of one specimen cut from each of the samples taken shall be determined as follows :</p>
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TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 14 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

		<p>The specimen shall be straightened by hand and an original gauge length of 200 mm shall be marked on the wire. A tensile load shall be applied as described above and the elongation shall be measured after the fractured ends have been fitted together. If the fracture occurs outside the gauge marks, or within 25 mm of either mark, and the required elongation is not obtained, the test shall be disregarded and another test should be made.</p> <p>When tested before and after stranding, the elongation shall not be less than 4% on a gauge length of 200 mm.</p> <p>10.5 D.C Resistance Test</p> <p>The electrical resistance test of one specimen cut from each of the samples taken shall be measured at ambient temperature. The measured resistance shall be corrected to the value at 20°C by means of the formula</p> $R_{20} = R_T [1 / (1 + \alpha(T - 20))]$ <p>Where R_{20} = Resistance corrected at 20°C R_T = Resistance measured at T°C</p> <p>A = Constant – Mass temperature coefficient of resistance, 0.0036, and T = ambient temperature during measurement</p> <p>The resistance corrected at 20°C shall not be more than the maximum values specified .</p> <p>10.6 Chemical Analysis of Aluminum Alloy</p> <p>Samples taken from the alloy coils / strands shall be chemically / spectrographically analysed. The results shall conform to the requirements stated in this specification. The Contractor shall make available material analyses, control documents and certificates from each batch as and when required by the TPNODL.</p> <p>Test should be conducted at the independent test house by the purchaser in the case of absence of facility at manufacturer. However the cost of such testing shall be borne by the manufacturer/Contractor.</p> <p>10.7 Dimensional and Lay Length Check</p> <p>The individual strands of the conductors shall be dimensionally</p>
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TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 15 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

		<p>checked and the lay lengths checked to ensure that they conform to the requirements of this specification.</p> <p>Ten percent drums from each lot shall be rewound in the presence of the purchaser or his representative to allow visual checking of the conductor for joints, scratches or other surface imperfections and to ensure that the conductor generally conforms to the requirements this specification. The length of conductor would on the drum shall be re-measured by means of an approved counter / meter during the rewinding process.</p> <p>10.8 Visual and dimensional Checks on the Conductor Drums.</p> <p>10.8.1 The drums shall be visually and dimensionally checked to ensure that they conform to the requirements of this specification and of IS 1778: Specification for reels and drums of bare conductors. For wooden drums, a suitable barrel batten strength test procedure is required . The Bidder shall state in his bid the tests to be carried out on the drums and shall include those tests in the Quality Assurance Program.</p> <p>10.8.2 Acceptance Tests :</p> <p>The following acceptance tests as per IS-398 (PartIV)/1994 with latest amendments if any, shall be carried out on all samples</p> <ul style="list-style-type: none"> i. Measurement of lay ratio ii. Measurement of diameters of individual wire iii. iii. Mean of resistance of individual wire iv. Breaking load test of individual wire v. Elongation test of individual wire vi. Torsional test of individual wire
11	REJECTION AND RETESTS	<p>11.1 Type Tests</p> <p>Should the conductor fail any of the type tests specified above, the purchaser will not accept any conductor manufactured from the</p>

TP NORTHERN ODISHA DISTRIBUTION LIMITED		
TECHNICAL SPECIFICATION		
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES	
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021
Revision No.	00	Page 16 of 20
Prepared By Rajeeva Tripathy	Reviewed By	Approved By Issued By

		<p>material, nor conductor made by the manufacturing methods used for the conductor which failed the test.</p> <p>The manufacturer shall propose suitable modifications to his materials and techniques in order that he can produce conductor which will</p> <p>11.2 Routine Tests Should any one of the test pieces first selected fail the requirements of the satisfactorily pass the type test requirements.</p> <p>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 that length has been withdrawn by the manufacturer.</p> <p>Should the test pieces from both 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 not to comply with the standard.</p> <p>If checked on individual strand diameters, conductor lay lengths and conductor surface condition indicate non-compliance with the requirements of the specification, the particular drum will be rejected. Inspection will then be carried out on two further drums within the same batch. If the conductor on either of the drums is non-complaint, the complete batch will be rejected</p> <p>11.3 Delivery Extension due to Rejection of Conductor</p> <p>The rejection of conductor due to its failure to pass either type or routine tests shall not permit the Contractor to apply for any extension to the time period within which he has contracted to complete the Project.</p>
12	TYPE TEST CERTIFICATES	<p>The Bidder shall furnish the Test Certificates of the Conductors for the tests as mentioned as above as per the corresponding standards. All the Tests shall be conducted by CPRI/ERDA as per the relevant standards. Type Tests should have been conducted in Certified Test Laboratories during the period not exceeding 5Years from the date of opening of the Bid. In the event of any discrepancies in the test Reports i.e any Test Report not acceptable or any/all Type Tests (including any Type Tests if any) not carried out ; same shall be carried out any cost</p>

Document Title	TP NORTHERN ODISHA DISTRIBUTION LIMITED		
	TECHNICAL SPECIFICATION		
	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 17 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

		implications to TPNODL.
13	PRE DESPA T C H INSPEC T I O N	<p>The Material shall be subjected to inspection by a duly Authorised Representative of TPNODL. The inspection shall be carried out as per TPNODL specification & relevant IS standards. Inspection may be made at any stage of manufacture at the discretion of the purchaser and the equivalent, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the places of manufacture to TPNODL's representative at all times when the work is in progress. Inspection the TPNODL or its authorised representatives shall not relieve the Bidder of its obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPNODL.</p> <p>Following documents shall be sent along with material</p> <p>a) Test reports</p> <p>b) MDCC issued by TPNODL</p> <p>c) Invoice in Duplicate</p> <p>d) Packing List</p> <p>e) Drawings & catalogue</p> <p>f) Delivery Challan</p> <p>g) Other Documents(as applicable)</p> <p>.</p>
14	INSPECTI ON AFTER	The material received at TPNODL store will be inspected for acceptance & shall

**RECEIPT
AT
STORES**

be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to Project Engineering Department.

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 18 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

15	GUARANT EE	<p>Bidder shall stand guarantee towards design, materials, workmanship & quality of process I am manufacturing of items under this contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Purchaser up to a period of at least 12 months from the date of commissioning or 24 months from the date of last supplies made under the contract undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of the Purchaser, failing which the Purchaser will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the Purchaser's own charges (@ 20% of expenses incurred), from the Bidder or from the "Security cum Performance Deposit" as the case may be.</p> <p>Bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Purchaser.</p>
16	PACKING	<p>The conductor shall be supplied in the standard length of 2.00km. Not less than 95% of the conductor shall be supplied in standard lengths and the remaining 5% required to be supplied in pieces shall not be less than 500 meters. The number of pieces if in the drum shall be indicated on the conductor drum</p>
17	TENDER SAMPLE	<p>The Bidder shall submit the sample of material with the offer(In case of first supply to TPNODL)</p>
18	QUALITY CONTROL	<p>The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer's/sub-</p>

		supplier's works to carry out inspections.
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TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 19 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

		<p>Rejection and Retest</p> <p>During inspection if any one of the test pieces first selected fail to pass the tests, three further samples from the same batch shall be selected as per IS, one of which shall be from the length from which the original test sample was taken, unless that length has been withdrawn by the supplier.</p> <p>If all of the three test pieces from these additional samples satisfy the requirements of the tests, the batch represented by these samples shall be deemed to comply with the standard. In case, the test pieces from any of the three additional samples fail, the batch represented shall be deemed not to comply with the standard.</p>
19	MINIMUM TESTING FACILITIES	Bidder shall have adequate inhouse testing facilities for carrying out all routine tests & acceptance tests as per relevant International/Indian standards
20	MANUFACTURING ACTIVITIES	The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer. This bar chart will have to be submitted within 15 days from the release of the order.
21	SPARES, ACCESSORIES & TOOLS	The bidder shall provide a list of complete set of accessories and tools required for erection and maintenance of conductors along with the installation procedure
22	DRAWINGS & DOCUMENTS	Following documents shall be prepared based on TPNODL specifications & Statutory with complete BOM & shall be submitted with the bid.

	TP NORTHERN ODISHA DISTRIBUTION LIMITED		
Document Title	TECHNICAL SPECIFICATION		
	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 20 of 20	
Prepared By Rajeeva Tripathy	Reviewed By	Approved By	Issued By

NTS	<p>a) Completely filled in Technical Particulars.</p> <p>b) General description of the equipment and all components including brochures.</p> <p>c) Type test Certificates</p> <p>d) Experience List</p> <p>After the after of the contract, four (4) copies of the drawings, drawn to scale, describing the equipment in detail shall be forwarded for approval and shall subsequently provide four (4) complete sets of final drawings, one of which shall be auto positive suitable for reproduction, before the dispatch of the equipment. Soft copy (Compact Disk CD) of all the drawing, GTP, test certificates shall be submitted after the final approval of the same to the purchaser.</p> <p>Following Drawings/Documents shall be submitted after the award of the contract</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">S. No</th> <th style="width: 40%;">Description</th> <th style="width: 15%;">For Approval</th> <th style="width: 15%;">For Review Information</th> <th style="width: 15%;">Final Submission</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Technical Parameters</td> <td style="text-align: center;">√</td> <td></td> <td style="text-align: center;">√</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Manual/Catalogues/drawings for all components.</td> <td></td> <td style="text-align: center;">√</td> <td></td> </tr> <tr> <td style="text-align: center;">3</td> <td>Technical details and test certificates of the conductor.</td> <td></td> <td style="text-align: center;">√</td> <td style="text-align: center;">√</td> </tr> <tr> <td style="text-align: center;">4</td> <td>Cross sectional area of the conductor.</td> <td></td> <td style="text-align: center;">√</td> <td style="text-align: center;">√</td> </tr> <tr> <td style="text-align: center;">5</td> <td>Installation Instructions</td> <td></td> <td style="text-align: center;">√</td> <td style="text-align: center;">√</td> </tr> <tr> <td style="text-align: center;">6</td> <td>Instructions for use</td> <td></td> <td style="text-align: center;">√</td> <td style="text-align: center;">√</td> </tr> <tr> <td style="text-align: center;">7</td> <td>Transport/shipping dimension drawing</td> <td></td> <td style="text-align: center;">√</td> <td style="text-align: center;">√</td> </tr> <tr> <td style="text-align: center;">8</td> <td>QA & QC Plan</td> <td style="text-align: center;">√</td> <td style="text-align: center;">√</td> <td style="text-align: center;">√</td> </tr> <tr> <td style="text-align: center;">9</td> <td>Routine, Acceptance and Type test Certificates</td> <td style="text-align: center;">√</td> <td style="text-align: center;">√</td> <td style="text-align: center;">√</td> </tr> </tbody> </table> <p>All the Documents and Drawings shall be in English Language.</p> <p>Instruction Manuals: Bidder shall furnish two (2) soft copies (CD) and four (4) hard copies of nicely bound manual (in English Language) covering erection and maintenance instructions and all relevant information pertaining to the main equipment as well as auxiliary devices.</p>	S. No	Description	For Approval	For Review Information	Final Submission	1	Technical Parameters	√		√	2	Manual/Catalogues/drawings for all components.		√		3	Technical details and test certificates of the conductor.		√	√	4	Cross sectional area of the conductor.		√	√	5	Installation Instructions		√	√	6	Instructions for use		√	√	7	Transport/shipping dimension drawing		√	√	8	QA & QC Plan	√	√	√	9	Routine, Acceptance and Type test Certificates	√	√	√
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TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATION	
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES
Document No.	(Panther/Coyote/Dog/Rabbit) Eff. Date: 05th July 2021
Revision No.	00 Page 21 of 20
Prepared By	Reviewed By Approved By Issued By

23	GURANTEED TECHNICAL PARAMETERS	Description	Units	To be Furnished by Bidder			
		AAAC Conductors		AAAC Panther Conductor	AAAC Coyote Conductor	AAAC Dog (up) Conductor	AAAC Rabbit Conductor
		Total Cross Sectional Area	SQMM	232	148	125	55
		Current carrying Capacity	Amp				
		Particulars of Raw material					
		Si	%				
		Mg	%				
		FE	%				
		Cu	%				
		Mn	%				
		Cr.	%				
		Zn	%				
		B	%				
		Other Elements (Each)	%				
		Other Elements (Total)	%				
		Alluminium	%				
		Alluminium Strands after stranding					
		Diameter (mm)					
		Normal	mm				
		Maximum	mm				
		Minimum	mm				
		Cross Section Area of Nominal dia wire	Sq. mm				
		Minumum Breaking Load of Each Strand After Stranding	KN				
		Minimum elongation % on gauge length of 200 mm(After Strand)	%				
		Maximum DC Resistance of 1 m length (Ohm) at 20° C	Ohm				
		Approx. Total Wt. of Each Strand.	Kg./km				
AAAC Stranded conductor							
Nominal Sectional Area	sq.mm						
Overall Diameter	mm						

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 22 of 20	
Prepared By	Reviewed By	Approved By	Issued By

	Approximate Wt. of the Conductor	Kg./km					
	Minimum Ultimate Breaking Load of Conductor	KN					
	Lay ratio of conductor ((Min. / Max.))						
	Calculated Max. resistance of conductor at 20° C	Ohm/ Km.					
	Standard length of conductor (meter)	Mtr.					
	Continuous max. current carrying capacity in still air at 40° Cambient temperature	Amp					
	Temperature rise for above current						
	Tolerance on standard length of Conductor (%)	%					
	Direction of lay for outside layer						
	Modulus of Elasticity	Kg./ Cm²					
	Applicable Standard						
	Other particulars , if any						
	Joints- There shall be no joints in any wire of a stranded conductor containing continuation.						
	Co-efficient of liner expansion per deg. C	°C					
	Density	Kg/ dm³					
	Resistivity of Wire	Ohm mm²/ m					

	TP NORTHERN ODISHA DISTRIBUTION LIMITED		
	TECHNICAL SPECIFICATION		
Document Title	TECHNICAL SPECIFICATIONS OF AAAC CONDUCTORS OF DIFFERENT SIZES		
Document No.	(Panther/Coyote/Dog/Rabbit)	Eff. Date: 05th July 2021	
Revision No.	00	Page 23 of 20	
Prepared By	Reviewed By	Approved By	Issued By

Schedule of Deviations

(TO BE ENCLOSED WITH THE BID)

All deviations from this specification shall be set out by the Bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications:

S. No.	Clause No.	Details of deviation with justifications

We confirm that there are no deviations apart from those detailed above.

Seal of the Company:

Designation

Signature

	TP NORTHERN ODISHA DISTRIBUTION LIMITED		
	TECHNICAL SPECIFICATION		
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 1 of 17	
Prepared by:	Reviewed By: Niranjan Khuntia	Approved By: Khajan C. Bhardwaj	Issued By: Pourush Garg

CONTENTS

1. SCOPE
2. APPLICABLE STANDARDS
3. GENERAL CLIMATIC CONDITION
4. PHYSICAL CONSTANTS FOR ALUMINIUM ALLOY WIRES
5. STANDARD SIZES
6. JOINTS IN WIRES
7. STRANDING
8. LENGTHS AND VARIATIONS IN LENGTHS
9. TESTS
10. PACKING
11. MARKING
12. VERIFICATION CONDUCTOR LENGTH
13. REJECTION AND RETESTS
14. GURANTEE
15. QUALITY CONTROL
16. MINIMUM TESTING FACILITIES
17. MANUFACTURING ACTIVITIES
18. PREDISPATCH INSPECTION
19. INSPECTION RECIEPT AT STORE
20. GUARANTEED TECHNICAL PARTICULARS
21. SCHEDULE OF DEVIATIONS

Initiator		HOG (Engineering)	
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TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 2 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

1. SCOPE

This specification covers design, Engineering, Manufacture, Testing, Inspection before dispatch, forwarding, packing, transportation to sites, Insurance (both during transit & storage), storage, erection, supervision testing & commissioning of all sizes of All Aluminium Alloy Conductors of the aluminium – magnesium- silicon type for use in the distribution overhead power lines in TPNODL.

The equipment offered shall have been successfully type testes and the design shall have been satisfactory operation for a period 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
- (ii) Performance certificates from the users.

The scope of supply includes the provision of type test, Rates of type tests shall be given in the appropriate price schedule of the bidding document and will 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 the specification.

The Aluminium Alloy Conductor 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 materials, which, in his judgment, is not in full accordance therewith.

2. APPLICABLE STANDARDS

Except where modified by the specification, the Aluminium Alloy Conductor shall be designed, manufactured and tested in accordance with latest editions of the following standards.

Sl. No.	IEC/ISO/Other International Standard	Ref. IS	Description
1.	IEC :1089		Round wire concentric lay overhead electrical standard conductors
2.		IS: 398	Aluminium Alloy Stranded Conductors
3.		IS 9997	Aluminium Alloy redraw rods for electrical purposes
4.	IEC 502: 1994		Extruded solid dielectric insulated power cables for rated voltages 1.0 KV up to 30 KV
5.	IEC 104		Aluminium Magnesium Silicon alloy wire for overhead line conductors
6.		IS 1778	Reels and drums of bare conductor
7.		BS: 6485	PVC covered conductors for overhead power lines

This list is not to be considered exhaustive and reference to a particular standard or recommendation in this specification does not relieve the Bidder of the necessity of providing the goods complying with other relevant standards or recommendations.

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 3 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

- | | |
|------------------------------------|------------|
| a) Max. Ambient Temperature | : 50 deg.C |
| b) Max. Daily average ambient temp | : 40 deg.C |
| c) Min Ambient Temp | : 0 deg.C |
| d) Maximum Humidity | : 90% |
| e) Minimum Humidity | : 10% |
| f) Average Annual Rainfall | : 1458 mm |

The atmosphere across coastal divisions of TPNODL is very Saline, laden with salt, acid and dust suspended during dry months and subjected to fog in cold months.

3.1 MECHANICAL AND ELECTRICAL CHARACTERISTICS OF ALUMINIUM ALLOY WIRES USED IN THE CONSTRUCTION OF STRANDED ALUMINIUM ALLOY CONDUCTORS.

The wires shall be of heat-treated Aluminum, magnesium silicon alloy containing approximately Silicon-0.5 to 0.9 %, Magnesium-0.6 % to 0.9%, Fe-0.5% (maximum), Copper- 0.1% (max), Mn- 0.03%, Cr- 0.03%, Zn-0.1%, B-0.06% and having the mechanical and electrical properties specified in the table and be smooth and free from all imperfections, such as, spills, splits and scratches.

Neutral grease shall be applied between the layers of wires. The drop point temperature of the grease shall not be less than 120⁰ C.

Nominal Diameter	Minimum Diameter	Maximum Diameter	Cross Sectional Area	Mass	Minimum Breaking Load		Maximum Resistance at 20 °C
					Before stranding	After stranding	
1	2	3	4	5	6	7	8
mm	Mm	mm	mm ²	Kg/km	KN	KN	ohms/ km
3.15	3.12	3.18	7.793	21.04	2.37	2.29	4.290
3.81	3.77	3.85	11.40	30.78	3.52	3.34	2.938
3.94	3.90	3.98	12.19	32.92	3.77	3.58	2.746
4.26	4.22	4.30	14.25	38.48	4.40	4.18	2.345

Maximum resistance values given in column 8 have been calculated from the maximum values of the resistivity as specified and the cross-sectional area based on the minimum diameter.

The minimum breaking load is calculated on nominal diameter at ultimate tensile strength of 0.309 KN /mm² for wire before stranding and 95% of the ultimate tensile strength after stranding.

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 4 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

3.2 Raw Material

The materials offered shall be of best quality and workmanship. The conductors shall be constructed of heat treated Aluminum-Magnesium Silicon alloy wires with chemical composition as per IS 9997:1991 and having the mechanical and electrical properties specified in appendix –I enclosed. The wires shall be smooth and free from all imperfections such as spills and splits. The surface of conductor shall be free from points, sharp edges, abrasions or other departures from smoothness or uniformity of surface contour that would increase radio interference and corona losses. When subject to tension up to 50% of the ultimate strength of the conductor. The surface shall not be depart from the cylindrical form nor any part of the component parts or standards relative to each other in such a way as to get out of place and disturb the longitudinal smoothness of the conductor. b) Raw materials: The supplier shall make their own arrangement to procure the necessary raw materials required for the manufacture of the conductors ordered. The Aluminum Alloy rod used for manufacture of conductor shall be bought from the following primary producers.

- 1) M/s.Vedanta
- 2) M/s.Hindustan Aluminum Corporation Ltd.,
- 3) M/s. Madras Aluminum Company,
- 4) M/s. Nalco,
- 5) M/s.Indal

The EC grade Aluminum Metal Ingots used for the manufacture of conductor shall be bought from the following primary producers viz., M/s.Nalco, M/s.Malco, M/s.Hindalco, M/s.Indal and M/s.Vedanta. Invoices for the procurement of raw materials from the above primary producers shall be furnished for each consignment of conductor to be supplied along with the manufacturers test report for verification. Aluminium Alloy Rod/EC Grade Aluminium Metal Ingots procured from open market or consignee agents shall not be used for manufacture of AAA Conductors

4. PHYSICAL CONSTANTS FOR ALUMINIUM ALLOY WIRES

4.1 RESISTIVELY

For the purpose of this specification, the standard value of resistively for Aluminium alloy wire which shall be used for calculation is to be taken as $0.0325 \text{ ohm} \times \text{mm}^2/\text{m}$ at 20°C . The maximum value of resistively of any single wire shall not, however, exceed $0.0328 \text{ ohm} \times \text{mm}^2/\text{m}$ at 20°C .

4.2 DENSITY

At a temperature of 20°C , the density of Aluminium alloy wire is to be taken as 2700 kg/m^3 .

4.3 TEMPERATURE COEFFICIENT OF LINEAR EXPANSION

The temperature coefficient of linear expansion of Aluminium alloy wire is to be taken as $23 \times 10^{-6} / ^\circ \text{C}$

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 5 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

4.4 CONSTANT-MASS TEMPERATURE COEFFICIENT

At a Temperature of 20° C, the constant – mass temperature coefficient of resistance of Aluminium alloy wires, measured between two potential points rigidly fixed to the wire, is taken as 0.00360/ ° C.

5. STANDARD SIZES

5.1 NOMINAL SIZES OF WIRES

The Aluminium alloy wires for standard constructions covered by this specification shall have the diameters as specified in the table and a tolerance of ±1% shall be permitted on the nominal diameter.

5.2 STANDARD CONDUCTORS

The sizes, resistance and masses (excluding the mass of grease) of stranded Aluminium alloy conductors shall be as given in table.

5.3 MECHANICAL AND ELECTRICAL CHARACTERISTICS OF ALUMINIUM ALLOY STRANDED CONDUCTORS

Sl. No.	Actual Area	Stranding and Wire Diameter	Approx. Overall Diameter	Approx. Mass	Calculated Maximum Resistance at 20°C	Approx. Calculated Breaking Load
1	2	3	4	5	6	7
	mm ²	mm	mm	kg/km	ohms/km	KN
1	55	7/3.15	9.45	149.20	0.621	16.044
2	80	7/3.81	11.43	218.26	0.4250	23.41
3	100	7/4.26	12.78	272.86	0.339	29.344

5.3.1 INCREASE IN LENGTH DUE TO STRANDING

When straightened out, each wire in any particular layer of a stranded conductor, except the central wire, is longer than the stranded conductor by an amount depending on the lay ratio of that layer.

5.3.2 RESISTANCE AND MASS OF CONDUCTOR

The resistance of any length of stranded conductor is the resistance of the same length of any one wire multiplied by a constant as set out in the table below.

The mass of each wire in any particular layer of the stranded conductor, except the central wire, will be greater than that of an equal length of straight wire by an amount depending on the lay ratio of that layer. The total mass of any length of an Aluminium stranded conductor is, therefore, obtained by multiplying the mass of an equal length of straight wire by an appropriate constant as mentioned below. In calculating the stranding

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 6 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

constants as mentioned in the table below, the mean lay ratio, that is the arithmetic mean of the relevant minimum and maximum values in table for lay ratio has been assumed for each layer.

5.3.3 CALCULATED BREAKING LOAD OF CONDUCTOR

- For a conductor containing not more than 37 wires, 95% of the sum of strength of the individual wires calculated from the values of the minimum breaking load given in this specification.
- For a conductor containing more than 37 wires, 90% of the sum of the strengths of the individual wire calculated from the values of the minimum breaking load given in this specification.

5.3.4 CALCULATED AREA AND MAXIMUM RESISTANCE OF CONDUCTOR

The actual area of a stranded conductor has been taken as the sum of the cross-sectional areas of the individual wires of nominal diameter.

Maximum resistance values of stranded conductor have been calculated on the basis of maximum resistivity and the cross-sectional area based on the minimum diameter of wires.

5.4 STRANDING CONSTANTS

Number of Wires in Conductor	Stranding Constants	
	Mass	Electrical Resistance
(1)	(2)	(3)
7	7.091	0.1447
19	19.34	0.05357
37	37.34	0.02757
61	62.35	0.01676

6. JOINTS IN WIRES

6.1 CONDUCTOR CONTAINING SEVEN WIRES

There shall be no joint in any wire of a stranded conductor containing seven wires, except those made in the base rod or wire before final drawing.

6.2 CONDUCTOR CONTAINING MORE THAN SEVEN WIRES

In stranded conductors containing more than seven wires, joints in individual wires are permitted in any layer except the outermost layer (in addition to those made in the base rod or wire before final drawing) but no two such joints shall be less than 15 m apart in the complete stranded conductor. Such joints shall be made by cold pressure butt welding. They are not required to fulfill the mechanical requirements for unjointed wires.

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 7 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

7. STRANDING

The wire used in the construction of a stranded conductor shall, before and after stranding, satisfy all the relevant requirements of this standard.

The lay ratio of the different layers shall be within the limits given in the table for lay ratio.

In all constructions, the successive layers shall have opposite directions of lay, the outermost layer being right-handed. The wires in each layer shall be evenly and closely stranded.

In Aluminium alloy stranded conductors having multiple layers of wires, the lay ratio of any layer shall not be greater than the lay ratio of the layer immediately beneath it.

7.1 LAY RATIOS FOR ALUMINIUM ALLOY STRANDED CONDUCTORS

Number of Wires in Conductor	LAY RATIOS							
	3/6 Wire Layer		12 Wire Layer		18 Wire Layer		24 Wire Layer	
	Min	Max	Min	Max	Min	Max	Min	Max
7	10	14	---	---	---	---	---	---
19	10	16	10	14	---	---	---	---
37	10	17	10	16	10	14		
61	10	17	10	16	10	15	10	14

NOTE: For the purpose of calculation the mean lay ratio shall be taken as the arithmetic mean of the relevant minimum and maximum values given in this table

8. LENGTHS AND VARIATIONS IN LENGTHS:

Unless otherwise agreed between the Employer and the Bidder, stranded Aluminium alloy conductors shall be supplied in the manufacturer's usual production lengths to be indicated in the bid Schedule. The Employer reserves the right to specify particular lengths of conductor such that certain drum lengths will be shorter than others. There will in both cases be a permitted variation of $-0 + 5\%$ in the length of any one conductor length.

9. TESTS

All routine, acceptance & type tests shall be carried out in accordance with the relevant IS/IEC. All routine/acceptance tests shall be witnessed by TPNODL authorized representative. All the components should also be type tested as per the relevant standards. Following tests shall be necessarily conducted on the Conductors in additions to others specified in IS/IEC standards.

The Bidder shall furnish the type test certificates of the 55sqmm/80sqmm/100sqmm conductor for the tests as mentioned above as per the corresponding standards. All the type tests shall be conducted at certified test laboratories like CPRI / ERDA / KEMA / NABL Accredited Lab as per the relevant standards. **Type test should have been conducted in certified Test Laboratories during the period not exceeding 5 years**

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 8 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

from the date of opening the bid. In the event of any discrepancy in the test reports i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPNODL. Additional certification should be provided stating that: The conductor produced is expected to meet long duration performance criteria based on quality and consistency of manufacturing.

9.1 TYPE TESTS

The following tests shall be carried out as per relevant ISS once on samples of completed line conductor during each production run of up to 500 kms of the conductor from each manufacturing facility.

9.1.1 ULTIMATE TENSILE STRENGTH TEST

This test is intended to confirm not only the breaking strength of the finished conductor but also that the conductor has been uniformly stranded.

A conductor sample of minimum 5 m length fitted with compression dead end clamps at either end shall be mounted in a suitable tensile test machine. Circles perpendicular to the axis of the conductor shall be marked at two places on its surface. Tension on the conductor sample shall be increased at a steady rate up to 50% of the minimum UTS specified and held for one minute. The circles drawn shall not be distorted due to relative movement of the individual strands. Thereafter the load shall be increased at a steady rate to the specified minimum UTS and held at that load for one minute. The conductor sample shall not fail during this period. The applied load shall then be increased until the failing load is reached and the value recorded.

9.1.2 D.C RESISTANCE TEST

On a conductor sample of minimum 5 m length, two contact clamps shall be fitted with a pre-determined bolt torque. The resistance between the clamps shall be measured using a Kelvin double bridge by initially placing the clamps at zero separation and subsequently one meter apart. The test shall be repeated at least five times and the average value recorded. The value obtained shall be corrected to the value at 20°C, which shall conform to the requirements of this specification.

9.2 ROUTINE TESTS

MEASUREMENT OF PHYSICAL DIMENSIONS: The samples should meet the desired dimensional requirements before conducting following Routine Tests as per relevant ISS.

9.2.1 SELECTION OF TEST SAMPLES

Samples for the tests specified in this specification shall be taken by the manufacturer before stranding, from not less than 10% of the individual lengths of Aluminium alloy wire included in any one final heat-treatment batch and which will be included in any one consignment of the stranded conductors to be supplied.

Alternatively, if desired by TPNODL at the time of placing an order, that the tests be made in the presence of his representative, samples of wire shall be taken from length of stranded conductor.

Samples shall then be obtained by cutting 1.2 meters from the outer end of the finished conductor from not more than 10% of the finished reels or drums.

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_ 80 sq.mm_ 100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 9 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

Tests for electrical and mechanical properties of Aluminium alloy wire shall ordinarily be made before stranding since wires unlaidd from conductors may have different physical properties from those of the wire prior to stranding because of the deformation brought about by stranding and by straightening for test.

Spools offered for inspection shall be divided into equal lots, the number of lots being equal to the number of samples to be selected, a fraction of a lot being counted as s complete lot. One sample spool shall be selected at a random from each lot.

The following test shall be carried out once on samples of completed line conductor during each production run of up to 500 kms of the conductor from each manufacturing facility.

9.2.2 BREAKING LOAD TEST

The breaking load of one specimen, cut from each of the samples taken shall be determined by means of a suitable tensile testing machine. The load shall be applied gradually and the rate of separation of the jaws of the testing machine shall be not less than 25 mm / min and not greater than 100mm /min.

9.2.3 ELONGATION TEST

The elongation of one specimen cut from each of the samples taken shall be determined as follows:

The specimen shall be straightened by hand and an original gauge length of 200 mm shall be marked on the wire. A tensile load shall be applied as described above and the elongation shall be measured after the fractured ends have been fitted together. If the fracture occurs outside the gauge marks, or within 25 mm of either mark, and the required elongation is not obtained, the test shall be disregarded and another test should be made.

When tested before and after stranding, the elongation shall not be less than 4% on a gauge length of 200 mm.

9.2.4 D.C RESISTANCE TEST

The electrical resistance test of one specimen cut from each of the samples taken shall be measured at ambient temperature. The measured resistance shall be corrected to the value at 20 °C by means of the formula:

$$R_{20} = RT \frac{1}{1 + \alpha(T - 20)}$$

where,

R₂₀ = resistance corrected at 20°C

R_T = resistance measured at T°C

α = constant – mass temperature coefficient of resistance, 0.0036, and

T = ambient temperature during measurement.

The resistance corrected at 20 °C shall not be more than the maximum values specified.

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 10 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

9.2.5 CHEMICAL ANALYSIS OF ALUMINIUM ALLOY

Samples taken from the alloy coils / strands shall be chemically / spectrographically analyzed. The results shall conform to the requirements stated in this specification. The Bidder shall make available material analysis, control documents and certificates from each batch as and when required by the **Purchaser**.

Test should be conducted at the independent test house by the Purchaser in the case of absence of facility at manufacturer. However, the cost of such testing shall be borne by the manufacturer.

9.2.6 DIMENSIONAL AND LAY LENGTH CHECK

The individual strands of the conductors shall be dimensionally checked and the lay lengths also be checked to ensure that they conform to the requirements of this specification.

Ten percent drums from each lot shall be rewound in the presence of the Purchaser or his representative to allow visual checking of the conductor for joints, scratches or other surface imperfections and to ensure that the conductor generally conforms to the requirements this specification. The length of conductor wound on the drum shall be re-measured by means of an approved counter / meter during the rewinding process.

9.2.7 VISUAL AND DIMENSIONAL CHECKS ON THE CONDUCTOR DRUMS

The drums shall be visually and dimensionally checked to ensure that they conform to the requirements of this specification and of IS 1778: Specification for reels and drums of bare conductors. For wooden drums, a suitable barrel batten strength test procedure is required. The Bidder shall state in his bid that the tests are to be carried out on the drums and shall include those tests in the Quality Assurance Programme.

9.2.8 ACCEPTANCE TESTS

All tests required to confirm enclosed Guaranteed Technical Particulars (GTP) requirements of this specification needs to be conducted as Acceptance Tests.

9.3 TEST REPORTS.

- ✓ Copies of type test reports shall be furnished in at least six copies along with one original. One copy will be returned duly certified by the Owner only after which the commercial production of the material shall start.
- ✓ Record of routine test reports shall be maintained by the Supplier at his works for periodic inspection by the Owner's representative.
- ✓ Test certificate of tests during manufacture shall be maintained by the Bidder. These shall be produced for verification as and when desired by the Owner.

10. PACKING

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 11 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

- ✓ The conductor shall be supplied in returnable, strong, wooden drums provided with lagging of adequate strength, constructed to protect the conductor against any damage and displacement during transit, storage and subsequent handling and stringing operations in the field. The Bidder shall be responsible for any loss or damage during transportation handling and storage due to improper packing. The drums shall generally conform to IS: 1778-1980, except as otherwise specified hereinafter.
- ✓ The drums shall be suitable for wheel mounting and for letting off the conductor under a minimum controlled tension of the order of 5 KN.
- ✓ The Bidder should submit their proposed drum drawings along with the bid.
- ✓ The Bidder may offer more than one length of the conductor in a single drum.
- ✓ All wooden components shall be manufactured out of seasoned soft wood free from defects that may materially weaken the component parts of the drums. Preservative treatment shall be applied to the entire drum with preservatives of a quality, which is not harmful to the conductor.
- ✓ The flanges shall be of two-ply construction with a total thickness of 64 mm with each ply at right angles to the adjacent ply and nailed together. The nails shall be driven from the inside face flange, punched and then clenched on the outer face. Flange boards shall not be less than the nominal thickness by more than 2mm. There shall not be less than 2 nails per board in each circle. Where a slot is cut in the flange to receive the inner end of the conductor, the entrance shall be in line with the periphery of the barrel.
- ✓ The wooden battens used for making the barrel of the conductor shall be of segmental type. These shall be nailed to the barrel supports with at least two nails. The batten shall be closely butted and shall provide a round barrel with smooth external surface. The edges of the battens shall be rounded or chamfered to avoid damage to the conductor.
- ✓ Barrel studs shall be used for the construction of drums. The flanges shall be holed and the barrel supports slotted to receive them. The barrel studs shall be treaded over a length on either end, sufficient to accommodate washers, spindle plates and nuts for fixing flanges at the required spacing.
- ✓ Normally, the nuts on the studs shall stand protruded of the flanges. All the nails used on the inner surface of the flanges and the drum barrel shall be counter sunk. The ends of barrel shall generally be flushed with the top of the nuts.
- ✓ The inner cheek of the flanges and drum barrel surface shall be painted with bitumen-based paint.
- ✓ Before reeling, card board or double corrugated or thick bituminous water proof bamboo paper shall be secured to the drum barrel and inside of flanges of the drum by means of a suitable commercial adhesive material. The paper should be dried before use. After reeling the conductor, the exposed surface of the outer layer of conductor shall be wrapped with water proof thick bituminous bamboo paper to preserve the conductor from dirt, grit and damage during transport and handling.
- ✓ A minimum space of 75 mm for conductor shall be provided between the inner surface of the external protective lagging and outer layer of the conductor. Outside the protective lagging, there shall be

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 12 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

minimum of two binders consisting of hoop iron/galvanized steel wire. Each protective lagging shall have two recesses to accommodate the binders.

- ✓ Each batten shall be securely nailed across grains as far as possible to the flange, edges with at least 2 nails per end. The length of the nails shall not be less than twice the thickness of the battens. The nails shall not protrude above the general surface and shall not have exposed sharp edges or allow the battens to be released due to corrosion.
- ✓ The nuts on the barrel studs shall be tack welded on the one side in order to fully secure them. On the second end, a spring washer shall be used.
- ✓ A steel collar shall be used to secure all barrel studs. This collar shall be located between the washers and the steel drum and secured to the central steel plate by welding.
- ✓ Outside the protective lagging, there shall be minimum of two binders consisting of hoop iron/galvanized steel wire. Each protective lagging shall have two recesses to accommodate the binders.
- ✓ The conductor ends shall be properly sealed and secured with the help of U-nail on the side of one of the flanges to avoid loosening of the conductor layers during transit and handling.
- ✓ As an alternative to wooden drum Bidder may also supply the conductors in non- returnable painted steel drums. After preparation of steel surface according to IS: 9954, synthetic enamel paint shall be applied after application of one coat of primer. Wooden/Steel drum will be treated at par for evaluation purpose and accordingly the Bidder should quote in the package.

11. MARKING

Each drum shall have the following information stenciled on it in indelible ink along with other essential data:

- i. TPNODL Name
- ii. RO number with Date
- iii. Name and address of consignee.
- iv. Manufacture's name and address.
- v. Drum and lot number
- vi. Size and type of conductor
- vii. Length of conductor in meters
- viii. Arrow marking for unwinding
- ix. Position of the conductor ends
- x. Number of turns in the outer most layer.
- xi. Gross weight of the drum after putting lagging.
- xii. Average weight of the drum without lagging.
- xiii. Net weight of the conductor in the drum
- xiv. Month and year of manufacture of conductor

The above should be indicated in the packing list also.

Initiator		HOG (Engineering)	
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TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 13 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

12. VERIFICATION CONDUCTOR LENGTH

The Owner reserves the right to verify the length of conductor after unreeling at least 5% of the drums in a lot offered for inspection. For the balance drums, length verification shall be done by the owner based on report/certification from Manufacturer/ Bidder.

13. REJECTION AND RETESTS

13.1 TYPE TESTS

Should the conductor fail any of the type tests specified above, the Purchaser will not accept any conductor manufactured from the material, nor conductor made by the manufacturing methods used for the conductor which failed the test.

The manufacturer shall propose suitable modifications to his materials and techniques in order that he can produce conductor which will satisfactorily pass the type test requirements.

13.2 ROUTINE TESTS

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

Should the test pieces from both 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 not to comply with the standard.

If checks on individual strand diameters, conductor lay lengths and conductor surface condition indicate non-compliance with the requirements of the specification, the particular drum will be rejected. Inspection will then be carried out on two further drums within the same batch. If the conductor on either of the drums is non-complaint, the complete batch will be rejected.

14. Gurantee

Bidder shall stand guarantee towards design, materials, workmanship & quality of process / manufacturing of items under this contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by TPNODL up to a period of at least 12 months from the date of commissioning or 24 months from the date of last supplies made under the contract whichever is later, (the time scale of 12/24 months could be enhanced subject to mutual agreements). Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of TPNODL failing which TPNODL will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the TPNODL's own charges (@ 20% of expenses incurred), from the Bidder or from the "Security cum Performance Deposit" as the case may be.

Bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by TPNODL.

15. Quality Control

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 14 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. TPNODL reserves the sole rights for the type test of random sample from the lot and in case of any discrepancy or deviation from the Type test certificates submitted along with the bid, the complete Lot shall be rejected.

TPNODL engineer or its nominated representative shall have free access to the bidder's works to carry out inspections.

16. Minimum Testing Facilities

Bidder shall have adequate in house testing facilities for carrying out all routine and acceptance tests as per relevant International / Indian standards.

17. MANUFACTURING ACTIVITIES

The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer. This bar chart will have to be submitted within 15 days from the release of the order.

18. Pre-dispatch Inspection

The Material shall be subject to inspection by a duly authorized representative of the TPNODL. Inspection may be made at any stage of manufacture at the discretion of TPNODL and the equipment, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the places of manufacture to TPNODL representatives at all times when the work is in progress. Inspection by TPNODL or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specifications. The inspection of cable during manufacturing will be done especially while copper tape screening and forming of laid up cores for new vendors. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPNODL.

Following documents shall be sent along with material

- a) Test reports
- b) MDCC issued by TPNODL
- c) Invoice in duplicate
- d) Packing list
- e) Drawings & catalogue
- f) Guarantee / Warrantee card
- g) Delivery Challan
- h) Other Documents (as applicable).

19. INSPECTION AFTER RECEIPT AT STORES

The material received at TPNODL shall be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to Contracts & Engineering department

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 15 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

20. GUARANTEED TECHNICAL PARTICULARS FOR ALL ALUMINIUM ALLOY CONDUCTOR

Sl. No.	Particulars	Specified Requirement		Details furnished by the bidder size wise
1	Nominal Aluminium Alloy area of conductor in Sq.mm	55	80	100
2	No. of strands	7	7	7
3	Wire dia. in mm			
	a) Nominal	3.15	3.81	4.26
	b) Minimum	3.12	3.77	4.22
	c) Maximum	3.18	3.85	4.3
4	Approximate over all diameter of conductor in mm	9.45	11.43	12.78
5	Cross sectional area in Sq.mm			
	i) Individual wire	7.793	11.4	14.25
	ii) Standard Conductor	55	80	99.81
6	Minimum breaking load in KN			
	i) Individual wire	2.29	3.34	4.18
	ii) Standard Conductor (U.T.S)	16.03	23.41	29.26
7	Approximate mass in Kg. Per KM of Aluminium Alloy conductor			
	i) Individual wire	21.04	30.78	38.48
	ii) Standard Conductor	149.2	218.26	272.86
8	Calculated maximum DC resistance at 200°C in Ohm/Km			
	i) Individual wire	4.29	2.938	2.345
	ii) Standard Conductor	0.621	0.425	0.339
9	Standard Weight of the Conductor in Meter	5000	2000	2000
10	Modulus of Elasticity of Aluminium Alloy conductor Kg/Sq.mm	0.6324X10 ⁶		
11	Co-efficient of linear expansion per degree centigrade for			
	a) Individual /0C	23X10 ⁻⁶		
	b) Standard conductor/0C	23X10 ⁻⁶		
12	Standard length (Mtr.)	2000 ± 5%		

Initiator		HOG (Engineering)	
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TP NORTHERN ODISHA DISTRIBUTION LIMITED			
TECHNICAL SPECIFICATION			
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 16 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

13	Lay ratio for 7 wire conductors	Min	Max	
		10	14	
14	Direction of Lay	Right hand		
15	Standard according to which the conductor will be manufactured and tested	IS: 398 (Part-4) – 1994		
16	Size of the drum in mm (as per IS-1778/80 with Amendment I /1989	To be offered by the Bidder	To be offered by the Bidder	To be offered by the Bidder
17	Length of conductor in each drum in Km	To be offered by the Bidder	To be offered by the Bidder	To be offered by the Bidder

21. SCHEDULE OF DEVIATIONS

(TO BE ENCLOSED WITH TECHNICAL BID)

All deviations from this specification shall be set out by the Bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications:

S. No	Clause No.	Details of deviation with justifications

We confirm that there are no deviations apart from those detailed above.

Initiator		HOG (Engineering)	
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	TP NORTHERN ODISHA DISTRIBUTION LIMITED		
	TECHNICAL SPECIFICATION		
Doc. Title	Specifications for 55 sq. mm_80 sq.mm_100 sq.mm AAAC		
Doc. No	ENG-HV-046	Eff. Date: 08.05.2021	
Rev. No	00	Page 17 of 17	
Prepared by:	Reviewed By:	Approved By:	Issued By:

Seal of the Company:

Signature

Designation

Initiator		HOG (Engineering)	
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TPNODL TP NORTHERN ODISHA DISTRIBUTION LIMITED <small>(A Tata Power and Odisha Government Joint Venture)</small>	TP NORTHERN ODISHA DISTRIBUTION LIMITED		
	TECHNICAL SPECIFICATIONS		
Doc. Title	SPECIFICATION FOR 200 MM² AAA CONDUCTOR		
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 1 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

CONTENTS

1. SCOPE
2. APPLICABLE STANDARDS
3. CLIMATIC CONDITIONS
4. GENERAL TECHNICAL REQUIREMENTS
5. GENERAL CONSTRUCTION
6. MARKING
7. TESTS
8. PRE-DISPATCH INSPECTION
9. INSPECTION AFTER RECEIPT AT STORES
10. GUARANTEE
11. PACKING AND TRANSPORT
12. TENDER SAMPLE
13. QUALITY CONTROL
14. MINIMUM TESTING FACILITIES
15. Verification Conductor Length
16. DRAWINGS AND DOCUMENTS
17. GUARANTEED TECHNICAL PARTICULARS
18. SCHEDULE OF DEVIATIONS

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TPNODL TP NORTHERN ODISHA DISTRIBUTION LIMITED <small>(A Tata Power and Odisha Government Joint Venture)</small>	TP NORTHERN ODISHA DISTRIBUTION LIMITED		
	TECHNICAL SPECIFICATIONS		
Doc. Title	SPECIFICATION FOR 200 MM² AAA CONDUCTOR		
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 2 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

1. SCOPE

This specification covers design, Engineering, Manufacture, Testing, Inspection before dispatch, forwarding, packing, transportation to sites, Insurance (both during transit & storage), storage, erection, supervision testing & commissioning of 200 sqmm All Aluminum Alloy Conductors of the aluminum – magnesium- silicon type for use in the distribution overhead power lines of TPNODL

The equipment offered shall have been successfully type testes and the design shall have been satisfactory operation for a period not less than five 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.

The scope of supply includes the provision of type test, Rates of type tests shall be given in the appropriate price schedule of the bidding document and will 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 the specification.

The Aluminum Alloy Conductor 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 materials, which, in his judgment, is not in full accordance therewith.

2. APPLICABLE STANDARDS:

Except where modified by the specification, the Aluminum Alloy Conductor shall be designed, manufactured and tested in accordance with latest editions of the following standards

IES/ISO/OTHER INTERNATIONAL STANDARD	IS	SUBJECT
IEC :1089		Round wire concentric lay overhead electrical standard Conductors
	IS 398	Aluminum Alloy Stranded Conductors
	IS 9997	Aluminum Alloy redraw rods for electrical purposes
IEC 502 : 1994		Extruded solid dielectric insulated power cables for rated voltages 1.0 KV up to 30 KV
IEC 104		Aluminum Magnesium Silicon alloy wire for overhead
	IS 1778	line conductors Reels and drums of bare

Initiator		HOG (Engineering)	
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TPNODL <small>TP NORTHERN ODISHA DISTRIBUTION LIMITED</small> <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATIONS			
Doc. Title		SPECIFICATION FOR 200 MM² AAA CONDUCTOR	
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 3 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

		conductor.
BS : 6485-1971		PVC covered conductors for overhead power lines.

This list is not to be considered exhaustive and reference to a particular standard or recommendation in this specification does not relieve the contractor of the necessity of providing the goods complying with other relevant standards or recommendations.

3. CLIMATIC CONDITIONS:		
a)	Maximum Ambient Temperature	50 °C
b)	Maximum Daily Average Ambient Temperature	40 °C
c)	Minimum Ambient Temperature	2 °C
d)	Maximum Humidity	99.7 %
e)	Minimum Humidity	15 %
f)	Average Annual Rainfall	1800 mm
g)	Average Wind Speed prevailing in the area	200 km/hr.
h)	Average Thunderstorms prevailing in the area	70 days per annum
i)	Average dust storms prevailing in the area	20 days per annum
j)	Average number of rainy days per annum	160
k)	Maximum Altitude above sea level	1200 m
l)	Seismic Level	0.24g to 0.48g

Note: The atmosphere across coastal divisions of TPNODL is very saline, laden with salt, acid and dust suspended during dry months and subjected to fog in cold months.

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TPNODL <small>TP NORTHERN ODISHA DISTRIBUTION LIMITED</small> <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
		TECHNICAL SPECIFICATIONS	
Doc. Title		SPECIFICATION FOR 200 MM² AAA CONDUCTOR	
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 4 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

4. GENERAL TECHNICAL REQUIREMENTS

GURANTEED TECHNICAL PARTICULARS FOR 200 MM² ALL ALUMINIUM ALLOY CONDUCTOR

Sl. No.	Particulars	:	Specified Requirement
1.	Nominal Aluminium Alloy area of conductor in Sq.mm	:	200
2.	No. of stands	:	19
3.	Wire dia. in mm		
	a) Nominal	:	3.66
	b) Minimum	:	3.62
	c) Maximum	:	3.68
4.	Approximate Over all diameter of conductor in mm	:	18.30
5.	Cross sectional area in Sq.mm		
	i) Individual wire	:	10.52
	ii) Standard Conductor	:	200
6.	Minimum breaking load in KN		
	i) Individual wire	:	3.09
	ii) Standard Conductor (U.T.S)	:	58.66
7.	Approximate mass in Kg. Per KM of Aluminium Alloy conductor		
	i) Individual wire	:	28.41
	ii) Standard Conductor	:	549.40
8.	Calculated maximum DC resistance at 20 ^o C in Ohm/Km		
	i) Individual wire	:	3.187
	ii) Standard Conductor	:	0.1710
13.	Modulus of Elasticity of Aluminium Alloy conductor Kg/Sq.mm	:	
16.	Co-efficient of linear expansion per		

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TPNODL TP NORTHERN ODISHA DISTRIBUTION LIMITED <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATIONS			
Doc. Title		SPECIFICATION FOR 200 MM² AAA CONDUCTOR	
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 5 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

	degree centigrade for	:	
	a) Individual /OC		
	b) Standard conductor/OC		23×10^{-6}
17.	Standard length (Mtr.)	:	200±5%
18.	Lay ratio for 7 wire conductor	:	Min Max To be specified by bidder
19.	Direction of Lay	:	Right hand
20.	Standard according to which the conductor will be manufactured and tested	:	IS : 398 (Part-4)– 1994
21.	Size of the drum in mm (as per IS- 1778/80 with Amendment I/1989	:	To be offered by the Bidder
22.	Length of conductor in each drum in Km	:	To be offered by the Bidder

5.GENERAL CONSTRUCTION

The wires shall be of heat treated aluminum, magnesium silicon alloy containing approximately silicon-0.5 to 0.9 %, magnesium-0.6 % to 0.9%, Fe-0.5% (maximum) , Copper- 0.1% (max) , mn- 0.03% , Cr-0.03%, Zn-0.1%, B- 0.06%, and having the mechanical and electrical properties specified in the table and be smooth and free from all imperfections, such as, spills, splits and scratches.

Neutral grease shall be applied between the layers of wires. The drop point temperature of the grease shall not be less than 120° C.

5.1 Mechanical and Electrical Characteristics of Aluminium Alloy Wires used in the Construction of Stranded Aluminium Alloy Conductors.

Nominal Diameter	Minimum Diameter	Max. Diameter	Cross Sectional Area	Mass	Minimum Breaking Load		Maximum Resistance at 20 ⁰ C
					Before stranding	After stranding	
1	2	3	4	5	6	7	8

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TPNODL TP NORTHERN ODISHA DISTRIBUTION LIMITED <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATIONS			
SPECIFICATION FOR 200 MM² AAA CONDUCTOR			
Doc. Title			
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 6 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

Mm	Mm	Mm	mm ²	Kg/km	KN	KN	ohms/ km
3.66	3.62	3.70	10.52	28.41	3.25	3.09	3.187

Maximum resistance values given in column 8 have been calculated from the maximum values of the resistivity as specified and the cross sectional area based on the minimum diameter.

The minimum breaking load is calculated on nominal diameter at ultimate tensile strength of 0.309 KN / mm² for wire before stranding and 95% of the ultimate tensile strength after stranding.

5.2 PHYSICAL CONSTANTS FOR ALUMINIUM ALLOY WIRES

5.2.1 Resistivity:

For the purpose of this specification, the standard value of resistivity of aluminum alloy wire which shall be used for calculation is to be taken as 0.0325 ohm mm² /m at 200 C. the maximum value of resistivity of any single wire shall not , however, exceed 0.0328 ohm. mm²/m at 200 C.

5.2.2 Density :

At a temperature of 200 C, the density of aluminum alloy wire is to be taken as 2700 kg/m³.

5.2.3 Temperature Coefficient of Linear Expansion :

The temperature coefficient of linear expansion of aluminum alloy wire is to be taken as $23 \times 10^{-6} / ^\circ\text{C}$

5.2.4 Constant – Mass Temperature Coefficient

At a Temperature of 200 C, the constant – mass temperature coefficient of resistance of aluminum alloy wires, measured between two potential points rigidly fixed to the wire, is taken as 0.00360/0 C

5.3 STANDARD SIZES

5.3.1 Nominal Sizes of Wires

The aluminum alloy wires for standard constructions covered by this specification shall have the diameters as specified in the table and a tolerance of $\pm 1\%$ shall be permitted on the nominal diameter.

5.3.2 Standard Conductors

The sizes, resistance and masses (excluding the mass of grease) of stranded aluminum alloy conductors shall be as given in table.

5.3.3 Mechanical and Electrical Characteristics of Aluminum Alloy Stranded Conductors

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TPNODL <small>TP NORTHERN ODISHA DISTRIBUTION LIMITED</small> <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATIONS			
Doc. Title		SPECIFICATION FOR 200 MM² AAA CONDUCTOR	
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 7 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

Sl. No.	Actual Area	Stranding and Wire Dia	Approx. Overall Dia	Approx. Mass	Calculated Maximum Resistance at 20 ⁰ C	Approx Calculated Breaking Load
1	2	3	4	5	6	7
	mm ²	Mm	mm	kg/km	ohms/km	KN
1	200	19/3.66	18.30	549.40	0.1710	58.66

5.3.3.1 Increase in Length due to Stranding

When straightened out, each wire in any particular layer of a stranded conductor, except the central wire, is longer than the stranded conductor by an amount depending on the lay ratio of that layer.

5.3.3.2 Resistance and Mass of Conductor

The resistance of any length of stranded conductor is the resistance of the same length of any one wire multiplied by a constant as set out in the table below.

The mass of each wire in any particular layer of the stranded conductor, except the central wire, will be greater than that of an equal length of straight wire by an amount depending on the lay ratio of that layer. The total mass of any length of an aluminum stranded conductor is, therefore, obtained by multiplying the mass of an equal length of straight wire by an appropriate constant as mentioned below. In calculating the stranding constants as mentioned in the table below, the mean lay ratio, that is the arithmetic mean of the relevant minimum and maximum values in table for lay ratio has been assumed for each layer.

5.3.3.3 Calculated Breaking Load of Conductor

- For a conductor containing not more than 37 wires, 95% of the sum of strength of the individual wires calculated from the values of the minimum breaking load given in this specification.
- For a conductor containing more than 37 wires, 90% of the sum of the strengths of the individual wire calculated from the values of the minimum breaking load given in this specification

5.3.3.4 Calculated Area and Maximum Resistance of Conductor

The actual area of a stranded conductor has been taken as the sum of the cross-sectional areas of the individual wires of nominal diameter.

Maximum resistance values of stranded conductor have been calculated on the basis of maximum resistivity and the cross-sectional area based on the minimum diameter of wires.

5.3.3.5 Stranding Constant

Initiator		HOG (Engineering)	
-----------	--	-------------------	--

TPNODL TP NORTHERN ODISHA DISTRIBUTION LIMITED <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATIONS			
SPECIFICATION FOR 200 MM² AAA CONDUCTOR			
Doc. Title			
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 8 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

Number of Wires in Conductor	Stranding Constants	
	Mass	Electrical Resistance
(1)	(2)	(3)
19	19.34	0.05357

5.4 JOINTS IN WIRE

5.4.1 Conductor containing seven wires

There shall be no joint in any wire of a stranded conductor containing seven wires, except those made in the base rod or wire before final drawing.

5.4.2 Conductors containing more than seven wires

In stranded conductors containing more than seven wires, joints in individual wires are permitted in any layer except the outermost layer (in addition to those made in the base rod or wire before final drawing) but no two such joints shall be less than 15 m apart in the complete stranded conductor. Such joints shall be made by cold pressure butt welding. They are not required to fulfill the mechanical requirements for unjointed wires.

5.5 STRANDING

The wire used in the construction of a stranded conductor shall, before and after stranding, satisfy all the relevant requirements of this standard.

The lay ratio of the different layers shall be within the limits given in the table for lay ratio.

In all constructions, the successive layers shall have opposite directions of lay, the outermost layer being right-handed. The wires in each layer shall be evenly and closely stranded.

Unless otherwise agreed between the Employer and the Contractor, stranded aluminum alloy conductors shall be supplied in the manufacturer's usual production lengths to be indicated in the bid Schedule. The Employer reserves the right to specify particular lengths of conductor such that certain drum lengths will be shorter than others. There will in both cases be a permitted variation of $-0 + 5\%$ in the length of any one conductor length.

5.6 LENGTHS AND VARIATIONS IN LENGTHS :

Unless otherwise agreed

6. MARKING

Each drum shall have the following information stenciled on it in indelible ink along with other essential data:

- (a) Contract/Award letter number
- (b) PROPERTY OF TPNODL
- (c) Manufacture's name and address.

Initiator		HOG (Engineering)	
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TPNODL TP NORTHERN ODISHA DISTRIBUTION LIMITED <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATIONS			
Doc. Title		SPECIFICATION FOR 200 MM² AAA CONDUCTOR	
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 9 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

- (d) Drum and lot number
- (e) Size and type of conductor
- (f) Length of conductor in meters
- (g) Arrow marking for unwinding
- (h) Position of the conductor
- (i) Number of turns in the outer most layer.
- (j) Gross weight of the drum after putting lagging.
- (k) Average weight of the drum without lagging.
- (l) Net weight of the conductor in the drum
- (m) Month and year of manufacture of conductor The above should be indicated in the packing list also.

7. TESTS :

7.1 TYPE TESTS :

The following tests shall be carried out as per relevant ISS once on samples of completed line conductor during each production run of up to 500 kms of the conductor from each manufacturing facility.

7.1.1 Ultimate Tensile Strength Test

This test is intended to confirm not only the breaking strength of the finished conductor but also that the conductor has been uniformly stranded.

A conductor sample of minimum 5 m length fitted with compression dead end clamps at either end shall be mounted in a suitable tensile test machine. Circles perpendicular to the axis of the conductor shall be marked at two places on its surface. Tension on the conductor sample shall be increased at a steady rate upto 50% of the minimum UTS specified and held for one minute. The circles drawn shall not be distorted due to relative movement of the individual strands. Thereafter the load shall be increased at a steady rate to the specified minimum UTS and held at that load for one minute. The conductor sample shall not fail during this period. The applied load shall then be increased until the failing load is reached and the value recorded.

7.1.2 D.C Resistance Test On a conductor sample of minimum 5 m length two contact clamps shall be fitted with a pre-determined bolt torque. The resistance between the clamps shall be measured using a Kelvin double bridge by initially placing the clamps at zero separation and subsequently one meter apart. The test shall be repeated at least five times and the average value recorded. The value obtained shall be corrected to the value at 20°C, which shall conform to the requirements of this specification.

7.2 Routine Tests

Measurement of Physical Dimensions: The samples should meet the desired dimensional requirements before conducting following Routine Tests as per relevant ISS.

7.2.1 Selection of Test Samples

Samples for the tests specified in this specification shall be taken by the manufacturer before stranding, from not less than 10% of the individual lengths of aluminium alloy wire included in any one final heat-treatment batch and which will be included in any one consignment of the stranded conductors to be supplied.

Alternatively, if desired by TPNODL at the time of placing an order, that the tests be made in the presence of his

Initiator		HOG (Engineering)	
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TPNODL <small>TP NORTHERN ODISHA DISTRIBUTION LIMITED</small> <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
		TECHNICAL SPECIFICATIONS	
Doc. Title		SPECIFICATION FOR 200 MM² AAA CONDUCTOR	
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 10 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

representative, samples of wire shall be taken from length of stranded conductor.

Samples shall then be obtained by cutting 1.2 meters from the outer end of the finished conductor from not more than 10% of the finished reels or drums.

Tests for electrical and mechanical properties of aluminum alloy wire shall ordinarily be made before stranding since wires un-laid from conductors may have different physical properties from those of the wire prior to stranding because of the deformation brought about by stranding and by straightening for test.

Spools offered for inspection shall be divided into equal lots, the number of lots being equal to the number of samples to be selected, a fraction of a lot being counted as a complete lot. One sample spool shall be selected at random from each lot.

The following test shall be carried out once on samples of completed line conductor during each production run of up to 500 kms of the conductor from each manufacturing facility.

7.2.2 Breaking Load Test

The breaking load of one specimen, cut from each of the samples taken shall be determined by means of a suitable tensile testing machine. The load shall be applied gradually and the rate of separation of the jaws of the testing machine shall be not less than 25 mm / min and not greater than 100mm /min.

7.2.3 Elongation Test

The elongation of one specimen cut from each of the samples taken shall be determined as follows:

The specimen shall be straightened by hand and an original gauge length of 200 mm shall be marked on the wire. A tensile load shall be applied as described above and the elongation shall be measured after the fractured ends have been fitted together. If the fracture occurs outside the gauge marks, or within 25 mm of either mark, or the required elongation is not obtained, the test shall be disregarded and another test should be made.

When tested before and after stranding, the elongation shall not be less than 4% on a gauge length of 200 mm

7.2.4 D.C Resistance Test

The electrical resistance test of one specimen cut from each of the samples taken shall be measured at ambient temperature. The measured resistance shall be corrected to the value at 20° C by means of the formula :

$$R_{20} = R_T \frac{1}{1 + \alpha (T - 20)}$$

where ,

R₂₀ = resistance corrected at 20° C

R_T = resistance measured T°C

α = constant – mass temperature coefficient of resistance, 0.0036, and

Initiator		HOG (Engineering)	
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TPNODL <small>TP NORTHERN ODISHA DISTRIBUTION LIMITED</small> <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATIONS			
SPECIFICATION FOR 200 MM² AAA CONDUCTOR			
Doc. Title			
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 11 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

T = ambient temperature during measurement.

The resistance corrected at 20° C shall not be more than the maximum values specified.

7.2.5 Chemical Analysis of Aluminum Alloy

Samples taken from the alloy coils/strands shall be chemically/spectrographically analyzed. The results shall conform to the requirements stated in this specification. The contractor shall make available material analyses, control documents and certificates from each batch as and when required by the Purchaser.

Test should be conducted at the independent test house by the purchaser in the case of absence Of facility at manufacturer. However the cost of such testing shall be borne by the manufacturer.

7.2.6 Dimensional and Lay Length Check

The individual strands of the conductors shall be dimensionally checked and the lay lengths checked to ensure that they conform to the requirements of this specification.

Ten percent drums from each lot shall be rewound in the presence of the Purchaser or his representative to allow visual checking of the conductor for joints, scratches or other surface imperfections and to ensure that the conductor generally conforms to the requirements this specification. The length of conductor wound on the drum shall be re-measured by means of an approved counter / meter during the rewinding process.

7.2.7 Visual and dimensional Checks on the Conductor Drums.

The drums shall be visually and dimensionally checked to ensure that they conform to the requirements of this specification and of IS 1778: Specification for reels and drums of bare conductors. For wooden drums, a suitable barrel batten strength test procedure is required. The Bidder shall state in his bid the tests to be carried out on the drums and shall include those tests in the Quality Assurance Programme.

7.2.8 Acceptance Tests :

All tests required to confirm enclosed Guaranteed Technical Particulars (GTP) requirements of this specification needs to be conducted as Acceptance Tests.

7.3 Test Reports.

The bidder shall furnish the type test certificates of the cable for the tests as mentioned as above as per the corresponding standards. All the tests shall be conducted by CPRI/ERDA as per the relevant standards. Type test should have been conducted in certified Test Laboratories during the period not exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports i.e., any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPNODL

Initiator		HOG (Engineering)	
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TPNODL <small>TP NORTHERN ODISHA DISTRIBUTION LIMITED</small> <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATIONS			
SPECIFICATION FOR 200 MM² AAA CONDUCTOR			
Doc. Title			
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 12 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

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8. PRE-DISPATCH INSPECTION:

- The Material shall be subject to inspection by a duly authorized representative of the TPNODL. Inspection may be made at any stage of manufacture at the discretion of the purchaser and the equipment, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the places of manufacture to TPNODL's representatives at all times when the work is in progress. Inspection by the TPNODL or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPNODL.

Following documents shall be sent along with material

- Test reports
- MDCC issued by TPNODL
- Invoice in duplicate
- Packing list
- Drawings & catalogue
- Guarantee / Warrantee card
- Delivery Challan
- h) Other Documents (as applicable).

9. INSPECTION AFTER RECEIPT AT STORE:

The material received at TPNODL store will be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to Engineering & Contracts department.

10. GUARANTEE:

Bidder shall stand guarantee towards design, materials, workmanship & quality of process/ manufacturing of items under this contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Purchaser up to a period of at least 48 months from the date of commissioning or 60 months from the date of last supplies made under the contract whichever is later. Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of the Purchaser, failing which the Purchaser will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the Purchaser's own charges (@ 20% of expenses incurred), from the Bidder or from the "Security cum Performance Deposit" as the case may be. Bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Purchaser.

Initiator		HOG (Engineering)	
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TPNODL TP NORTHERN ODISHA DISTRIBUTION LIMITED <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATIONS			
Doc. Title		SPECIFICATION FOR 200 MM² AAA CONDUCTOR	
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 13 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

11. PACKING AND TRANSPORT:

- a) The conductor shall be supplied in returnable, strong, wooden drums provided with lagging of adequate strength, constructed to protect the conductor against any damage and displacement during transit, storage and subsequent handling and stringing operations in the field. The Contractor shall be responsible for any loss or damage during transportation handling and storage due to improper packing. The drums shall generally conform to IS: 1778-1980, except as otherwise specified hereinafter.
- b) The drums shall be suitable for wheel mounting and for letting off the conductor under a minimum controlled tension of the order of 5 KN.
- c) The Contractor should submit their proposed drum drawings along with the bid.
- d) The Contractor may offer more than one length of the conductor in a single drum.
- e) All wooden components shall be manufactured out of seasoned soft wood free from defects that may materially weaken the component parts of the drums. Preservative treatment shall be applied to the entire drum with preservatives of a quality, which is not harmful to the conductor.
- f) The flanges shall be of two ply construction with a total thickness of 64 mm with each ply at right angles to the adjacent ply and nailed together. The nails shall be driven from the inside face flange, punched and then clenched on the outer face. Flange boards shall not be less than the nominal thickness by more than 2mm. There shall not be less than 2 nails per board in each circle. Where a slot is cut in the flange to receive the inner end of the conductor the entrance shall be in line with the periphery of the barrel
- g) The wooden battens used for making the barrel of the conductor shall be of segmental type. These shall be nailed to the barrel supports with at least two nails. The batten shall be closely butted and shall provide a round barrel with smooth external surface. The edges of the battens shall be rounded or chamfered to avoid damage to the conductor.
- h) Barrel studs shall be used for the construction of drums. The flanges shall be holed and the barrel supports slotted to receive them. The barrel studs shall be treaded over a length on either end, sufficient to accommodate washers, spindle plates and nuts for fixing flanges at the required spacing.
- i) Normally, the nuts on the studs shall stand protruded of the flanges. All the nails used on the inner surface of the flanges and the drum barrel shall be counter sunk. The ends of barrel shall generally be flushed with the top of the nuts.
- j) The inner cheek of the flanges and drum barrel surface shall be painted with bitumen based paint.
- k) Before reeling, card board or double corrugated or thick bituminous water proof bamboo paper shall be secured to the drum barrel and inside of flanges of the drum by means of a suitable commercial adhesive material. The paper should be dried before use. After reeling the conductor, the exposed surface of the outer layer of conductor shall be wrapped with water proof thick bituminous bamboo paper to preserve the conductor from dirt, grit and damage during transport and handling.
- l) A minimum space of 75 mm for conductor shall be provided between the inner surface of the external protective lagging and outer layer of the conductor. Outside the protective lagging, there shall be minimum of two binders consisting of hoop

Initiator		HOG (Engineering)	
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TPNODL <small>TP NORTHERN ODISHA DISTRIBUTION LIMITED</small> <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATIONS			
Doc. Title		SPECIFICATION FOR 200 MM² AAA CONDUCTOR	
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 14 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

	<p>iron/galvanized steel wire. Each protective lagging shall have two recesses to accommodate the binders.</p> <p>m) Each batten shall be securely nailed across grains as far as possible to the flange, edges with at least 2 nails per end. The length of the nails shall not be less than twice the thickness of the battens. The nails shall not protrude above the general surface and shall not have exposed sharp edges or allow the battens to be released due to corrosion.</p> <p>n) The nuts on the barrel studs shall be tack welded on the one side in order to fully secure them. On the second end, a spring washer shall be used.</p> <p>o) A steel collar shall be used to secure all barrel studs. This collar shall be located between the washers and the steel drum and secured to the central steel plate by welding.</p> <p>p) Outside the protective lagging, there shall be a minimum of two binders consisting of iron/ galvanized steel wire. Each protective lagging shall have two recesses to accommodate the binders.</p> <p>q) The conductor ends shall be properly sealed and secured with the help of U-nail on the side of one of the flanges to avoid loosening of the conductor layers during transit and handling.</p> <p>r) As an alternative to wooden drum Contractor may also supply the conductors in non- returnable painted steel drums. After preparation of steel surface according to IS: 9954, synthetic enamel paint shall be applied after application of one coat of primer. Wooden/Steel drum will be treated at par for evaluation purpose and accordingly the Contractor should quote in the package.</p>
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12. TENDER SAMPLE:
Bidder shall submit the sample of material with the offer (in case of first supply to TPNODL).

13. QUALITY CONTROL:
The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections.

14. TESTING FACILITIES:
Bidder shall have adequate in-house testing facilities for carrying out all routine tests & acceptance tests as per relevant International / Indian standards. The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer. This bar chart will have to be submitted within 15 days from the

Initiator		HOG (Engineering)	
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TPNODL <small>TP NORTHERN ODISHA DISTRIBUTION LIMITED</small> <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATIONS			
SPECIFICATION FOR 200 MM² AAA CONDUCTOR			
Doc. Title			
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 15 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

release of the order.

15.Verification Conductor Length

The Owner reserves the right to verify the length of conductor after unreeling at least five (5) percent of the drums in a lot offered for inspection. For the balance drums, length verification shall be done by the owner based on report/certification from Manufacturer/ Contractor.

16.DRAWINGS AND DOCUMENTS:

Following drawings and documents shall be prepared based on TPNODL specifications and statutory requirements with complete BOM and shall be submitted with the bid:

- a) Completely filled in Technical Particulars
- b) General description of the equipment and all components including brochures.
- c) Experience List
- d) Type test certificates.

After the contract, four (4) copies of the drawings, drawn to scale, describing the equipment in detail shall be forwarded for approval and shall subsequently provide four (4) complete sets of final drawings, one of which shall be auto positive suitable for reproduction, before the dispatch of the equipment. Soft copy (Compact Disk CD) of all the drawing, GTP, test certificates shall be submitted after the final approval of the same to the purchaser. All the Documents and Drawings shall be in English Language.

17.GUARANTEED TECHNICAL PARTICULARS

Bidder shall submit guaranteed technical particulars in the attached format:

GURANTEED TECHNICAL PARTICULARS FOR 200 MM² ALL ALUMINIUM ALLOY CONDUCTOR

Sl. No.	Particulars		Specified Requirement
1.	Nominal Aluminium Alloy area of conductor in Sq.mm	:	200
2.	No. of stands	:	19
3.	Wire dia. in mm		
	a) Nominal	:	3.66
	b) Minimum	:	3.62
	c) Maximum	:	3.68

Initiator		HOG (Engineering)	
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TPNODL TP NORTHERN ODISHA DISTRIBUTION LIMITED <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
		TECHNICAL SPECIFICATIONS	
Doc. Title		SPECIFICATION FOR 200 MM² AAA CONDUCTOR	
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 16 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

4.	Approximate Over all diameter of conductor in mm	:	18.30
5.	Cross sectional area in Sq.mm		
	i) Individual wire	:	10.52
	ii) Standard Conductor	:	200
6.	Minimum breaking load in KN		
	i) Individual wire	:	3.09
	ii) Standard Conductor (U.T.S)	:	58.66
7.	Approximate mass in Kg. Per KM of Aluminium Alloy conductor		
	i) Individual wire	:	28.41
	ii) Standard Conductor	:	549.40
8.	Calculated maximum DC resistance at 20°C in Ohm/Km		
	i) Individual wire	:	3.187
	ii) Standard Conductor	:	0.1710
13.	Modulus of Elasticity of Aluminium Alloy conductor Kg/Sq.mm	:	
16.	Co-efficient of linear expansion per degree centigrade for	:	23×10^{-6}
	a) Individual /0C		
	b) Standard conductor/0C		
17.	Standard length (Mtr.)	:	200±5%
18.	Lay ratio for 7 wire conductor	:	Min Max To be specified by bidder
19.	Direction of Lay	:	Right hand
20.	Standard according to which the conductor will be manufactured and tested	:	IS : 398 (Part-4)–1994
21.	Size of the drum in mm (as per IS- 1778/80 with Amendment I /1989	:	To be offered by the Bidder

Initiator		HOG (Engineering)	
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TPNODL <small>TP NORTHERN ODISHA DISTRIBUTION LIMITED</small> <small>(A Tata Power and Odisha Government Joint Venture)</small>		TP NORTHERN ODISHA DISTRIBUTION LIMITED	
TECHNICAL SPECIFICATIONS			
Doc. Title		SPECIFICATION FOR 200 MM² AAA CONDUCTOR	
Doc. No	ENG-HV-007	Eff. Date:	
Rev No.	00	Page 17 of 17	
Prepared by: Engineering Department	Reviewed by:	Approved by:	Issued by:

22.	Length of conductor in each drum in Km	:	To be offered by the Bidder
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18. <u>SCHEDULE OF DEVIATIONS</u>		
<u>(TO BE ENCLOSED WITH TECHNICAL BID)</u>		
All deviations from this specification shall be set out by the Bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the Purchaser's specifications:		
Sl. No.	Clause No.	Details of deviation with justifications
We confirm that there are no deviations apart from those mentioned above.		
Seal of the Company	Designation Signature	

Initiator		HOG (Engineering)	
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Doc. Title

GENERAL CONDITIONS OF CONTRACT –SUPPLY ORDERS

Rev. No

01 (01.12.2021)

Page 1 of 47

Prepared By

Imran Ahmad/ Swetaraj Parida

Reviewed By

Vipin Chauhan

VIPIN CHAUHAN

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Approved By

Sunil Bhattar

SUNIL

BHATTAR

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CONTENTS

CLAUSE NO.	DESCRIPTION
1.0	ORGANIZATIONAL VALUES
2.0	ETHICS
2.1	Tata Code of Conduct
3.0	CONTRACT PARAMETERS
3.1	Issue/Award of Contract
3.2	Contract Commencement Date
3.3	Contract Completion Date
3.4	Contract Period/ Time
3.5	Contract Execution Completion Date
3.6	Contract Price /Value
3.7	Contract Document
3.8	Contract Language
3.9	Reverse Auction
4.0	SCOPE OF WORK
4.1	Bid Evaluation- Commercial & Technical
5.0	PRICES/RATES/TAXES
5.1	Changes in statutory Tax Structure
6.0	TERMS OF PAYMENT
6.1	Quantity Variation
6.2	Full and Final Payment
7.0	MODE OF PAYMENT
8.0	SECURITY CUM PERFORMANCE DEPOSIT
9.0	STATUTORY COMPLIANCE
9.1	Compliance to Various Acts
9.2	SA 8000
9.3	Affirmative Action
9.4	MSME Development Act 2006
9.5	ISO 14001
10.0	QUALITY
10.1	Knowledge of Requirements
10.2	Material/Equipment/Works Quality
10.3	Adherence to Rules & Regulations
10.4	Specifications and Standards
11.0	INSPECTION/PARTICIPATION

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 2 of 47

CONTENTS	
CLAUSE NO.	DESCRIPTION
11.1	Right to Carry Out Inspection
11.2	Facilitating Inspection
11.3	Third Party Nomination
11.4	Waiver of Inspections
11.5	Incorrect Inspection Call
12.0	MDCC & DELIVERY OF MATERIALS
12.1	Material Dispatch Clearance Certificate
12.2	Right to Rejection on Receipt
12.3	Consignee
12.4	Submission of Mandatory Documents on Delivery
12.5	Dispatch and Delivery Instructions
13.0	GUARANTEE
13.1	Guarantee of Performance
13.2	Guarantee period
13.3	Failure in Guarantee period (GP)
13.4	Cost of repairs on failure in GP
13.5	Guarantee Period for Goods Outsourced
13.6	Latent Defect
13.7	Support beyond the Guarantee Period
14.0	LIQUIDATED DAMAGES
14.1	LD Waiver Request
15.0	UNLAWFUL ACTIVITIES
16.0	CONFIDENTIALITY
16.1	Documents
16.2	Geographical Data
16.3	Associate's Processes
16.4	Exclusions
16.5	Violation
17.0	INTELLECTUAL PROPERTY RIGHTS
18.0	INDEMNITY
19.0	LIABILITY & LIMITATIONS
19.1	Liability
19.2	Limitation of Liability
20.0	FORCE MAJEURE
21.0	SUSPENSION OF CONTRACT
21.1	Suspension for Convenience

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 3 of 47

CONTENTS	
CLAUSE NO.	DESCRIPTION
21.2	Suspension for Breach of Contract Conditions
21.3	Compensation in lieu of Suspension
22.0	TERMINATION OF CONTRACT
22.1	Termination for Default/Breach of Contract
22.2	Termination for Convenience of Associate
22.3	Termination for Convenience of TPNODL
23.0	DISPUTE RESOLUTION AND ARBITRATION
23.1	Governing Laws and jurisdiction
24.0	ATTRIBUTES OF GCC
24.1	Cancellation
24.2	Severability
24.3	Order of Priority
25.0	ERRORS AND OMISSIONS
26.0	TRANSFER OF TITLES
27.0	INSURANCE
28.0	SUGGESTIONS & FEEDBACK
29.0	CONTACT POINTS
30.0	LIST OF ANNEXURES

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 4 of 47

1.0 ORGANIZATIONAL VALUES

The Tata Group has always been a value driven organization. These values continue to direct the Group's growth and businesses. The six core Tata Values underpinning the way we do business are:

Integrity - We must conduct our business fairly, with honesty and transparency. Everything we do must stand the test of public scrutiny.

Understanding - We must be caring, respectful, compassionate and humanitarian towards our colleagues and customers around the world and always work for the benefit of India.

Excellence - We must constantly strive to achieve the highest possible standards in our day to day work and in the quality of goods and services we provide.

Unity - We must work cohesively with our colleagues across the group and with our customers and partners around the world to build strong relationships based on tolerance, understanding and mutual co-operation.

Responsibility - We must continue to be responsible and sensitive to the countries, communities and environments in which we work, always ensuring that what comes from the people goes back to the people many times over.

Agility - We must work in a speedy and responsive manner and be proactive and innovative in our approach.

2.0 Tata Code of Conduct

The Business Associate and TPNODL shall be bound by the provisions/ clauses mentioned in Tata Code of Conduct (TCoC) in all their dealings with stakeholders. The Associate is advised to go through the TCoC document available as Annexure-J.

3.0 CONTRACT PARAMETERS

3.1 Issue/Award of Contract

TPNODL awards the contract to the Associate in writing in the form of Purchase Order (PO) or Rate Contract (RC), hereafter referred as Contract, through in any or all of following modes physical handover / post / e-mail / web document / fax with all the attachments/enclosures which shall be part of the contract document.

On receipt of the contract, the associate shall return to TPNODL copy of the contract document duly signed by legally authorized representative of associate, within two days of Effective Date of Contract for contracts having contract execution time less than 30 days and within five days for all other contracts.

Note- In case of RC though, further Release Orders (RO) shall be issued by TPNODL on RC rates and terms & Conditions as per the requirement of TPNODL.

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 5 of 47

3.2 Contract Commencement Date

The date of issue/award of contract shall be the Effective Date of Contract or Contract Commencement date.

3.3 Contract Completion Date

The date of expiry of Guarantee Period shall be deemed as the Contract Completion Date.

3.4 Contract Period/Time

The period from Contract Commencement Date to Contract Completion Date shall be deemed as the Contract Period/Time.

3.5 Contract Execution Completion Date

The stipulated date for completing the supply as per schedule of quantities shall be deemed as the Contract Execution Completion Date.

3.6 Contract Price /Value

The total all-inclusive price/value mentioned in the PO/RC is the Contract Price/Value and is based on the quantity, unit rates and prices quoted and awarded and shall be subject to adjustment based on actual quantities supplied and accepted and certified by the authorized representative of the company unless otherwise specified in schedule of quantities or in contract documents.

3.7 Contract Document

The Contract Document shall mean and include but not limited to the following:

- NIT/Tender Enquiry, QR, Instruction to Bidders, Special Condition of Contract (SCC) of tender, GCC, Technical & Commercial Specifications including relevant annexure and attachments).
- Bids & Proposals Received from Associate including relevant annexure/attachments.
- RC/PO with agreed deviations from the tender/bid documents.
- All the Inspection and Test reports, Detailed Engineering Drawings.
- Material Dispatch Clearance Certificate (MDCC).
- Minutes of Meeting (MoM)

3.8 Contract Language

All documents, instructions, catalogues, brochures, pamphlets, design data, norms and calculations, drawings, operation, maintenance and safety manuals, reports, labels, on deliveries and any other data shall be in English Language.

The Contract documents and all correspondence between the TPNODL, Third Parties associated with the contract, and the Associate shall be in English language.

However, all signboards required indicating "Danger" and/or security at site and otherwise statutory required shall be in English, Hindi, and local languages.

3.9 Reverse Auction

TPNODL reserves the right to conduct the reverse auction (instead of public opening of price bids) for the products / services being asked for in the tender. The terms and conditions for such reverse auction events shall be as per the Acceptance Form attached in Annexure F. The

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 6 of 47

bidders along with the tender document shall mandatorily submit a duly signed copy of the Acceptance Form as mentioned in the Annexure J as a token of acceptance for the same.

4.0 SCOPE OF WORK

All the activities that are to be undertaken by the Associate to realize the contractual deliverables in completeness form Scope of Work. Following clauses list, but not limited to, major requirements of the scope of work.

The associate shall satisfy himself and undertake fully the technical/commercial requirements of items to be supplied as listed in the Schedule of Quantities together with the tests to be performed /test reports to be furnished before dispatch, arrangement of stage and final inspections during manufacturing as per terms and conditions of contract, technical parameters & delivery terms and conditions including transit insurance to be met in order to fully meet TPNODL's requirements.

Completeness: Any supplies and services which might have not been specifically mentioned in the Contract but are necessary for the scope mentioned in Special Terms & Conditions and/or completeness of the works at the highest possible level, including any royalties, license fees & compensation to be paid, whether incurred by the associates or by a third party for the work covered in the scope, regardless of when incurred, shall be supplied/provided by the associate without any extra cost and within the time schedule for efficient, smooth and satisfactory operation and maintenance of the works at the highest possible level under Indian conditions (but according to international standards for facility of this type), unless expressly excluded from the scope of supplies and services in this Contract.

TPNODL have the right, during the performance of the Contract, to change the scope and/or technical character of the Project and/or of the supplies and services stipulated in the Contract by submitting a request in writing to the Associate. The Associate shall, within fifteen days of receipt of such request from the TPNODL, provide Purchaser with a reasonably detailed estimate of the cost of the change outlined in the request.

In the event, TPNODL requests a change, the Contract price and time shall be adjusted upwards or downwards, as the case may be and shall be mutually agreed to. The associate shall not be entitled to any extension of time unless such changes adversely affect the time schedule.

The Associate shall not proceed with the changes as requested till adjustment of contract price and time schedule where so applicable in terms of or otherwise directed by the TPNODL.

4.1 Bid Evaluation- Commercial & Technical

TPNODL reserves the right to evaluate the bid on below parameters as per the requirement:

Commercial Evaluation: The bid shall be evaluated on the basis of Qualifying Requirement parameters and other commercial parameters as mentioned in tender.

Technical Evaluation: The bid shall be evaluated on the parameters and not limited to Bidder Experience, Bidder Performance with other utility/company, internal performance feedback, Technical Specification, General Technical Parameters (GTP), Layout, Drawings etc.

TPNODL reserves the right to carry out Factory Evaluation of Manufacturer along with the Visit to executed Sites for further evaluation to ascertain bidder's manufacturing capability, quality procedures & Performance of executed works.

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 7 of 47

5.0 PRICES/RATES/TAXES

Unless specified elsewhere in the contract document, the prices/rates are inclusive of cost of finished product for which MDCC will be issued by TPNODL, packaging and forwarding charges, freight and transit insurance charges covering loading at Associate's works, transportation to TPNODL store/site & unloading & delivery at TPNODL stores/TPNODL site, cost of documentation including all the relevant test certificates and other supportive documents to be furnished.

The Prices/Rates are inclusive of all taxes, levies, cess and duties, particularly Goods and Services Tax as applicable. All government levy / taxes shall be paid only when the invoice is submitted according to the relevant act.

The prices/rates shall remain firm till actual completion of entire supply of goods/material/equipment as per contract is achieved and shall remain valid till the completion of the contract.

The prices shall remain unchanged irrespective of TPNODL making changes in quantum in all or any of the schedules of items of contract.

5.1 Changes in Statutory Tax Structure

If rate of any or all of the statutory taxes and duties applicable to the contract changes, such changes shall be incorporated by default if the changes occur within the contract execution time and shall be applicable if the contract is executed by the Associate within the Contract Execution Time.

For execution of contracts beyond contract execution time, where the delay is not attributable to TPNODL no upward revision in tax /duties shall be considered irrespective of changes in the statutory tax structure either within the contract execution time or beyond. However, in such cases, benefits due to any downward revisions in statutory tax rates shall be passed on to TPNODL.

6.0 TERMS OF PAYMENT

On delivery of the materials in good condition and certification of acceptance by TPNODL official, Associate shall submit the Bills/Invoices in original in the name of "TPNODL" to invoice desk, complete with all required documents as under:

- Test Reports (4 sets).
- MDCC issued by TPNODL.
- Packing List.
- Drawing and Catalogue.
- Guarantee/Warranty Card.
- Delivery Challan.
- O&M Manual.
- Copy of Order.
- Minutes of Meeting.

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 8 of 47

- E-Way challan (if applicable)

Bills/ invoices shall mention Supplier's GST Number. TPNODL will make 100% payment within 45 days of submission of the Bill/Invoice complete in all respects and along with all the requisite documents mentioned above, subject to condition that Associate has furnished the requisite Security-cum-Performance Guarantee as stipulated in the contract.

6.1 Quantity Variation

Payment will be made on the basis of actual quantity of supplies/actual measurement of works accepted by TPNODL and not on the basis of contract quantity.

6.2 Full and Final Payment

Full & Final Payment in all contracts shall be made subject to the associate submitting "No Demand Certificate" in the format as per Annexure-C.

7.0 MODE OF PAYMENT

Payment shall be made through crossed RTGS/ NEFT/ Online Net banking mode whichever of the two modes chosen by the Associate, in favour of Associate's Bank Account on TPNODL records, on whose name Contract has been issued. Those Associates opting for the RTGS mode shall submit the details of Bank Account and other details as per annexure G. Further, for any payments made, TPNODL is not responsible for any consequences/disputes Associate have among the owners channel partners, sub-Associates and all such dispute/concerns shall be settled solely by the Associate.

8.0 SECURITY CUM PERFORMANCE DEPOSIT

Associates shall submit within 21 days from the effective date of issue of PO/RC, Security Performance Bank Guarantee (SPBG) in the format as per Annexure B of this document from banks acceptable to TPNODL for:

- (a) 5% of the PO value if purchase order value is more than Rs 5 Crores.
- (b) 10% of the PO value if purchase order value is less than Rs 5 Crores.
- (c) 5% of the RC value in case of Rate Contract. This shall remain valid till the Guarantee period plus one month.

In case, PBG will not submitted by BA within 21 days post awarding the contract, TPNODL will reserve the right to take any appropriate action. However, in case of non-submission of PBG till the date of first bill submission, the amounts towards PBG shall be retained by TPNODL from Bills.

The validity of PBG shall be Guarantee Period of contract, plus one month.

- For PO/RC values less than Rs. 5 lacs, Associate may request for deduction of amount equivalent to SPBG value from their first invoice. Such amount shall be withheld by TPNODL while processing the invoice and shall be released after completion of Guarantee Period plus one month.
- For PO/RC values less than Rs. 3 lacs, the clause (8.0) for Security cum Performance Bank Guarantee (SPBG) shall not be applicable.

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 9 of 47

- In case of RC (Rate Contract) after the expiry of RC validity, Associate shall have to submit SPBG. However, the Associate has the option to re-submit the SPBG as per actual RO (Release Order) value issued against the RC, valid for Guarantee Period plus one month. The Guarantee Period shall be considered as per the last RO issued against the said RC. The original SPBG as submitted against the RC shall be released on submission of the new SPBG to TPNODL. Alternatively, Associate may extend the validity of original SPBG only till the requisite period, i.e. Guarantee Period plus one month.

9.0 STATUTORY COMPLIANCE

9.1 Compliance to Various Acts

Associate should ensure adherence to all applicable laws, rules and regulation applicable under this contract from time to time. In case of violation any risk, costs etc shall be in associates account and keep TDPPL indemnified always till completion of contracts.

9.2 SA 8000

As TPNODL/ Tata Power is SA 8000 compliant, it expects its Associates to follow guidelines of SA 8000:2014 on the following aspects

1. Child Labour
2. Forced or Compulsory Labour
3. Health & Safety
4. Freedom of Association & Right to Collective Bargaining
5. Discrimination
6. Disciplinary Practices
7. Working Hours
8. Remuneration
9. Management System

9.3 Affirmative Action

TPNODL appreciate and welcome the engagement/employment of persons from SC/ST community or any other deprived section of society by their business associates.

Relaxation in Contract Clauses under Affirmative Action for SC/ ST Business Associates**

TPNODL believes that inclusive growth is the key to sustainable development, and to promote the same Policy on Affirmative Action for Scheduled Caste & Scheduled Tribe Communities has been adopted across the company.

Under the same pre-text, and to promote entrepreneurship among SC/ST community TPNODL has taken initiative by proposing relaxations in contract clauses as per below:

S. No	Initiative	for SC/ ST BA's	Guideline Document
1	Tender Fees	100% waiver for SC/ST community	All Open Tenders

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 10 of 47

2	Earnest Money Deposit	50 % relaxation of estimated EMD value	All limited and Open Tenders
3	Performance Bank Guarantee	50% relaxation in PBG for order value above 50 lacs else 25% relaxation	All limited and Open tenders
4	Turnover	25% relaxation in company turnover under qualifying requirement criteria	All Open Tenders

****Classification of BAs under SC/ST shall be governed under following guidelines:**

- Proprietorship/ Single Ownership Firm: Proprietor of the firm should be from SC/ST community. Governing document shall be duly audited balance Sheet for the last FY bearing the name of proprietor.
- Partnership Firm: Only such firms shall qualify which have SC/ST partners holding equal to or more than 50% of the total ownership pattern of the firm. Governing document shall be Partnership Deed and audited balance sheet/ ITR for last FY.
- Private limited company: Only such firms shall qualify which have SC/ST directors holding equal to or more than 50% of the total ownership pattern of the firm. Governing document shall be Memorandum of Understanding (MoU) and/or Article of Association (AoA).

Governing document shall be Memorandum of Understanding (MoU) and/or Article of Association (AoA).

Note: Certification from SC/ST commission shall be required for deciding upon SC/ST status of a person.

9.4 MSME Development ACT 2006

Provisions for Firms falling in The Micro, Small and Medium Enterprise Development Act 2006:-

- Business Associate is requested to inform the TPNODL if they fall under provisions of The Micro, Small and Medium Enterprises Development Act, 2006 legislation, and provide necessary documents to TPNODL. The Associate also needs to mention the relevant details on their invoice/ bill.
- Business Associate shall submit the self-undertaking of registration in MSME category at the time of bidding as well as on an annual basis to TPNODL, enabling them to avail the consequent benefits, failing which TPNODL may take appropriate action against such defaults.
- Business Associates falling in MSME category can avail the following benefits-
 - a. **Tender Fees:** To participate in the tender, MSMEs registered in the State of Odisha shall pay Rs.1,000/- including GST towards cost of tender paper.
 - b. **Earnest Money Deposit (EMD):** EMD shall be exempted for MSME registered in the State of Odisha. However, Bidder shall be barred to participate in the tendering process for a period of 2 years in case it backs out post award of the contract.
 - c. **Qualification Requirement for Open Tenders:** Qualification Requirement of Financial Turnover for MSME registered in the State of Odisha shall be reduced to 20% of the existing criteria. For past experience, instead of relying on the volumes / value of earlier Supplies / Projects, assessment of the Bidder shall be done on the basis of feedback from Customers. Past performance experience at

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 11 of 47

Tata Power/ TPNODL and its Group Companies shall supersede feedback from other Customers.

- d. **Reservation for MSME:** TPNODL reserve the rights to procure at least 20% of the total volume of the procurement from MSME registered in the State of Odisha (however, it shall not apply where goods/services are not available with the MSME), subject to matching L1 discovered prices and meeting technical specifications including quality requirements.
- e. **Performance Bank Guarantees:** Performance Bank Guarantee for MSME registered in the State of Odisha shall be 25% of the value normally prescribed.

9.5 ISO 14001

The vendor to confirm whether their organization is ISO 14001 certified. If not, the Vendor must certify that the handling, use and disposal of their product/ by-products conform to practices consistent with sound environment management and local statues. The Vendor shall ensure that all the wastes are disposal in environmental friendly way with strict compliance to applicable laws including adherence to MoEF guidelines with respect to the disposal of batteries, lead waste, copper cables, ash, waste oil, e-waste etc. which shall be disposed through MoEF approved parties only. The vendor shall also dispose off the e-waste generated at the end of the product life cycle at its own costs and risk as per the MoEF guidelines/ Orders

10.0 QUALITY

10.1 Knowledge of Requirements

The Associate shall be deemed to have carefully examined and to have knowledge of the equipment, the general and other conditions, specifications, schedules, drawings, etc. forming part of the Contract and also to have satisfied himself as to the nature and character of the work to be executed and the type of the equipment and duties required including wherever necessary of the site conditions and relevant matters and details. Any information thus procured or otherwise obtained from TPNODL/Consultants shall not in any way relieve the Associate from his responsibility and executing the works in accordance with the terms of contract.

10.2 Material/Equipment/Works Quality

The items / works under the scope of the Associate shall be of the best quality and workmanship according to the latest engineering practice and shall be manufactured from materials of best quality considering strength and durability for their best performance and, in any case, in accordance with the specifications set forth in this Contract. All material shall be new. Substitution of specified material or variation from the process of fabrication/ construction/ manufacture may be permitted but only with the prior written approval of the TPNODL.

10.3 Adherence to Rules & Regulations

The Associate shall procure and/or fabricate/erect all materials and equipment in accordance with all requirements of Central and State enactment, rules and regulations governing such work in India and at site. This shall not be construed as relieving the Associate from complying with any requirement of TPNODL as enumerated in the Contract which may be more rigid than and not contrary to the above mentioned rules, nor providing such construction as may be required by the above mentioned rules and regulations. In case of variance of the Technical

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 12 of 47

Specification from the laws, ordinance, rules and regulations governing the work, the Associate shall immediately notify the same to the TPNODL. It is the sole responsibility of the Associate, however, to determine that such variance exists. Wherever required by rules and regulations, the Associate shall also obtain the statutory authorities' approval for the plant, machinery and equipment to be supplied by the Associate.

10.4 Specifications and Standards

The Associate shall follow all codes and standards referred in the Contract Document. Codes and standards of other may be followed by the Associate with the prior written approval of TPNODL, provided materials, supplies and equipment according to the standard are equal to or better than the corresponding standards specified in the Contract.

Brand names mentioned in the Contract documents are for the purpose of establishing the type and quality of products to be used. The Associate shall not change the brand name and qualities of the bought out items without the prior written approval of the TPNODL. All such products and equipment shall be used or installed in strict accordance with original manufacturer's recommendations, unless otherwise directed by the TPNODL. In any circumstances the codes, specimen and standards prescribed by any government agency should not be violated.

11.0 INSPECTION/PARTICIPATION

11.1 Right to Carry Out Inspection

TPNODL reserves the right to send its representatives for inspection or participation at various stages of contract execution listed below, applicable as per contract construction.

- During basic design and detail engineering of material/ Equipment carried out by Associate /Outsourced Agencies.
- During manufacturing stages of the product at Associate's/Associate's Outsourced Agency's Plant/Facility.
- During Pre-dispatch Inspection and Testing of finished/manufactured product at Associate's/Associate's outsourced Agency's Plant/Facility.
- During Installation & Commissioning Activities/Stages.
- Prior to Clearing of the completed installation for commissioning.
- Any other stage as find appropriate by TPNODL during contract execution time.

All inspections and participations shall be carried out by TPNODL giving written intimation to the Associate or receiving appropriate advance written inspection call from the Associate, unless otherwise specified elsewhere in the contract document.

MDCC request shall be submitted by BA to TPNODL at least 7 days before inspection date.

11.2 Facilitating Inspection

The Associate shall provide all opportunities and information to TPNODL's engineers to get acquainted with the technical know-how and the methods and practices adopted by the Associate in basic and detail engineering. The Associate shall provide documents, drawings, calculations etc. as may be required by TPNODL's Engineers.

The Associate shall provide free of charge office accommodation, office facilities, secretarial services, communication facilities, general and drawing office stationary, etc. as may be

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 13 of 47

reasonably required by the TPNODL's engineers. Similarly, facilities shall also be provided by Associate's outsource agencies/partners/authorized dealers (collectively termed as sub associates) if such basic and detail engineering activities are carried out in the design offices of sub-Associates.

The Associate shall be responsible for the safety of employees of TPNODL/Third Party Agency when they are at the Associate's /Associate's outsource agency's plant or facility for carrying out/witnessing inspection/testing. All statutory safety precautions as applicable shall be followed by the Associate during Inspection Testing. If TPNODL inspectors are not satisfied with the safety arrangements at the plant, TPNODL have the right to call off inspection till such time corrective action is taken by the Associate.

Before raising the call for pre-dispatch final inspection and testing, the Associate shall conduct all the tests—type tests, routine tests etc-as specified in the contract document and submit copies of the test certificates to TPNODL along with the inspection call, for scrutiny of TPNODL.

The Associate and TPNODL shall jointly document all the observations, comments and action points after completion of inspection and it shall be binding on the Associate to provide compliance on all the points requiring compliance and furnish the compliance report to the designated authority of TPNODL for receiving clearance for dispatch of materials

11.3 Third Party Nomination

TPNODL also may nominate a third party for the purpose of carrying out the inspection and such an agency shall be entitled to all the rights and privileges of TPNODL as far as conducting the inspection.

11.4 Waiver of Inspections

TPNODL on its own discretion shall chose to waive off any inspection and ask the Associate to submit all the test reports as applicable as per contract specifications, related to inspection and testing of the goods ordered for scrutiny and clearance for dispatch.

11.5 Incorrect Inspection Call

In case it is observed that the material offered for inspection is not ready at the time of TPNODL inspection visit rendering it as futile, all costs towards such inspection shall be recovered from the BA. Taxes as applicable on such recoveries shall be borne by the BA.

12.0 MDCC & DELIVERY OF MATERIALS

12.1 Material Dispatch Clearance Certificate

Associate shall deliver material/goods/equipment against Supply Contracts or Supply Part of Composite/Service Contracts only after receiving Material Dispatch Clearance Certificate (hereafter termed as MDCC) issued by designated authority of TPNODL. Material delivered at TPNODL stores or at project site without a valid MDCC issued by the designated official of TPNODL shall be rejected. MDCC shall be issued to associate furnishing compliance report on the action points documented during pre-dispatch inspection and testing at Associate's/ Sub Associate's plant/ facility. In case Pre-dispatch inspection is waived at the discretion of TPNODL, then, MDCC shall be issued on receiving all the test reports-routine& type-from the Associate and finding them in order.

The associate shall include and provide for securely protecting and packing the materials so as to avoid loss or damage during handling and transport by air, sea, rail and road or any other means.

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 14 of 47

All such packing shall allow to the extent possible for easy removal and checking at Site. The associate shall take special precautions to prevent rusting of steel and iron parts during transit by sea. Gas seals or other materials shall be utilized by the associate for protection against moisture during transit of all Plant and Equipment.

Each Equipment or parts of Equipment shall be tagged with reference to the assembly drawings and corresponding part numbers. Each bale or package shall contain a packing note quoting specifically the name of the associate, item description, quantity, item / package identification.

All packing cases, containers, packing and other similar materials shall be new and supplied free by the associate and it shall not be required to be returned to the associate.

Notwithstanding anything stated in this clause, the associate shall be entirely responsible for loss, damage or depreciation or deterioration to the materials and supplies due to faulty and/or insecure packing or otherwise during transportation to the Site until otherwise provided herein.

In case of the consignments dispatched by road, the associate shall ensure that it or its subcontractors:

- i) Identify and obtain the correct type of trucks/trailers, keeping in view the nature of consignments to be dispatched.
- ii) Take such actions as may be necessary to avoid all possible chances of damages during transit and to ensure that all packages are firmly secured.

Timelines for inspection and MDCC is as below:

S. No.	Inspection	MDCC issuance time including Inspection time (max.)
1	Outside Odisha	12 days
2	Within Odisha	5 days
3	Waiver*	3 working days

* Associate is expected to raise the inspection call assuming that Inspection shall be carried out by TPNODL. The decision for waiver of inspection shall be on sole discretion of TPNODL.

12.2 Right to Rejection on Receipt

Goods/Material/Equipment delivered in condition physically damaged & incomplete as a product ordered, or not packed and transported as per the terms and conditions of the contract is liable to be rejected. Such item shall be lifted back by Associates within 15 days from receipt of rejection note from TPNODL and have to supply back the material within next 30 days or within the timeframe mutually decided by Associate and TPNODL.

If delivery of the material is beyond the agreed time, Liquidated damage clause, mentioned in this GCC separately shall be applicable; but the period for levy of LD shall be considered as per the original delivery schedule and not from the agreed timelines for material rectification.

12.3 Consignee

Unless otherwise specified in the Contract Document, Materials/Goods/Equipment shall be consigned to "Stores-In-Charge", TPNODL, Balasore/ Jajpur/ others.

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 15 of 47

12.4 Submission of mandatory documents on Delivery

Following documents shall be mandatorily submitted by BA along with supply of material to TPNODL stores/site:

S. No.	Documents	Requisite
1	Invoice copy in original	With all consignments
2	LR copy	Wherever required
3	Packing list	With all consignments
4	MDCC	With all consignments
5	Purchase order / Release order	Signed copy
6	Test certificates	With all consignments
7	Inspection/JVR report	In case pre-dispatch inspection is conducted
8	Device data in CD as per template for metering items	Wherever applicable

12.5 Dispatch and Delivery Instructions

S. No.	Instructions
1	Purchase order/ Release order no. shall be mentioned on invoice and on material
2	TPNODL material code and material description shall be mentioned in invoice and on material.
3	"Property of TPNODL" shall be embossed on material.
4	The material shall be properly sealed and packed in standard packing as per purchase order terms & conditions.
5	The weight and quantity of material shall be mentioned wherever applicable
6	The material supplied shall be co-related with the packing list.
7	The name plate detail on equipment shall include Material code, Material description, specification detail of material [as applicable], Serial No. Year of manufacturing, PO/RO no. and date, "PROPERTY OF TPNODL", Guarantee period and Associate's name.
8	In case of manual unloading, supplier / transporter shall deploy sufficient Labour for unloading the material at TPNODL central store. For heavy item(s), crane shall be arrange by the BA. However, in case, BA is not able to arrange the Crane, then TPNODL reserve the rights to hire the crane from market/ within internal resources and all expenditure/ unloading shall be recovered from BA.
9	The driver should have valid License and one helper in truck. All the documents of truck like registration papers, PUC etc. should be available in Truck.
10	BA representative should accompany the material and get it unloaded / stacked in his presence wherever possible.

13.0 GUARANTEE

13.1 Guarantee of Performance

Associates shall stand guarantee that the equipment and material supplied under the contract is free from design, manufacturing, material, construction, erection & installation and workmanship & quality defects and is capable of its due, rated and intended quality

Approved Copy of GCC (TPNODL)-Rev01

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 16 of 47

performance, as an integrated product delivered under the contract, for a specific period termed as Guarantee Period(as elaborated elsewhere in this clause). The Associate should also guarantee that the equipment/material is new and unused except for the usage required for the tests and checks required as part of quality assurance.

13.2 Guarantee Period

The Guarantee Period will be equipment/service/work specific and shall be as specified in the Standard Specifications of TPNODL for the equipment/material/service/work and where standard specifications are not part of contract documents or guarantee period is not specified in the standard specifications,, the guarantee period shall be as per the Special Terms and Conditions of the Contract. In case of no mention of the guarantee period in standard specifications or SCC Guarantee Period will be 12 Months from the Date of Commissioning or 24 months from the date of delivery of final lot of supplies made, whichever is earlier.

13.3 Failure in Guarantee Period (GP)

If the equipment and material supplied under the contract fails to perform its due, rated & intended quality performance, during the Guarantee period, the associate is liable to undertake repair/rectify/replace the equipment and material supplied within time frame specified in the SCC or elsewhere in the contract documents at associate's cost to make the equipment and material supplied/service or work rendered under the contract of performing its due, rated and intended quality performance. If Associate fails to repair/rectify/replace the equipment or material supplied rendered under the contract, failed in Guarantee Period, TPNODL will be at liberty to get the same done at Associate's risks and costs and recover all such expenses plus the TPNODL's own charges (@ 20% of expenses incurred), from the Associate or from the "Security cum Performance Deposit" as the case may be.

If during the Warranty/ Guarantee period some parts of the supplies are replaced owing to the defects/ damages under the Warranty, the Warranty period for such replaced parts shall be until the expiry of twelve months from the date of such replacement or renewal or until the end of original Guarantee period, whichever is later.

Any repairs during the Guarantee Period shall be carried out by the Associate within 30 days of reporting the issue to Associate by TPNODL. However, if replacement of the Equipment is required, Associate shall notify the same to TPNODL within 7 days of reporting the issue by TPNODL. Thereafter, the total time for supply of new equipment/ material shall be equal to the original delivery period of that equipment/ material as specified in the Contract. In case the Associate is not able to rectify/ replace the faulty equipment/ material within the stipulated timelines as mentioned above, penalty shall be levied as per the Liquidated Damages clause mentioned in this document. The penalty amount shall be recovered from the payment due to the vendor or by encashment of the SPBG as the case may be.

13.4 Cost of repairs on failure in GP

The cost of repairs/rectification/replacement, required transportation, site inspection /mobilization/dismantling and re-installation costs as applicable, to be borne by Associate. The Associate has to ensure that the interruption in the usage of intended purpose of the equipment is minimized to the maximum extent In lieu of the time taken for repairs/rectification/replacement.

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 17 of 47

13.5 Guarantee period for Goods Outsourced

If the Associate outsources partly equipment/materials/services from third party as mutually agreed upon at the pre award stage of contract, TPNODL shall have the benefit of any additional guarantee period if provided by the third party for the part supplied/executed by them.

13.6 Latent Defect

Hidden defects in manufacturing or design of the product supplied and which could not be identified by the tests conducted but later manifested during operation of the equipment are termed as latent defects. Associates shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Company.

13.7 Support beyond the Guarantee Period

The Associate shall ensure availability of spares and necessary support for a period of atleast 10 years post completion of guarantee period of equipment supplied against the contract.

14.0 LIQUIDATED DAMAGES

- a) For supplies which are of standalone use, multiple in quantities and having a single final delivery schedule, Liquidated damages shall be levied without prejudice to any of the other contractual rights of TPNODL, as described below:

For delay of each week and part thereof from the delivery schedule specified in the contract, 1% of contract value corresponding to undelivered quantity, provided full quantity is supplied within 130% of the original contract time. If full contractual quantity is not delivered within 130% of contract time for delivery, TPNODL has the right to levy LD on the entire contract value, subject to a maximum of 10% of the total contract value.

- b) For Supplies having phased delivery schedule as per contract terms, standalone use and multiple in quantities, Liquidated damages shall be levied without prejudice to any of the other contractual rights of TPNODL, as described below:

For the purpose of calculating and applying LD, each delivery lot shall be considered separately. For delay of each week and part thereof, from the delivery schedule specified for the lot, 1% of the contract value corresponding to the undelivered quantity of the lot subject to a maximum of 10% of the total contract value of the subject lot. However, if full contractual quantity is not delivered within 130% of contract time for delivery, TPNODL has the right to levy LD on the entire contract value, subject to a maximum of 10% of the total contract value. Deduction of LD shall be on landed cost i.e contract value inclusive of taxes and in pursuant statutory compliance GST would be applicable at the stipulated rate and the same shall be borne by Business Associate. In case of LD deduction, a GST invoice shall be issued by TPNODL as a proof of deduction/ recovery.

14.1 LD Waiver Request

Any request of LD waiver shall be submitted within thirty (30) days of deducting LD. Request submitted beyond the timeline shall not be entertained.

15.0 UNLAWFUL ACTIVITIES

The Associate shall have to ensure that none of its employees are engaged in any unlawful activities (whether covered under the scope of the present GCC or not) subversive of the

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 18 of 47

TPNODL's interest failing which appropriate action (legal or otherwise) may be taken against the Associate by the TPNODL, in accordance with the terms of the present GCC.

16.0 CONFIDENTIALITY

Associate and its employees or representatives thereof shall strictly maintain the confidentiality of various information they come across while executing the contract as detailed below.

16.1 Documents

All maps, plans, drawings, specifications, schemes and other documents or information related to the Contract/Project and the subject matter contained therein and all other information given to the Associate by the TPNODL in connection with the performance of the contract shall be held confidential by the Associate and shall remain the property of the TPNODL and shall not be used or disclosed to third parties by the Associate for any purpose other than for which they have been supplied or prepared. The Associate may disclose to third parties, upon execution of confidentiality agreements, such part of the drawings, specifications or information if such disclosure is necessary for the performance of the Work provided such third parties agree in writing to keep such information confidential to the same extent and degree as provided herein, for the benefit of the TPNODL.

16.2 Geographical Data

Maps, layouts and photographs of the unit/plant including its surrounding regions showing vital installation for national security of country or those of TPNODL shall not be published or disclosed to the third parties or taken out of the country without prior written approval of the TPNODL and upon execution of confidentiality agreements satisfactory to the TPNODL with such third parties prior to disclosure.

16.3 Associate's Processes

Title to secret processes if any developed by the Associate on an exclusive basis and employed in the design of the equipment shall remain with the Associate. TPNODL shall hold in confidence such processes and shall not disclose such processes to the third parties without prior approval of the Associate and execution by such third parties of secrecy agreements satisfactory to the Associate prior to disclosure. Upon completion of contract, such processes shall become the property of the TPNODL. Title to technical specifications, drawings, flow sheets, norms, calculations, diagrams, interpretations of test results, schematics, layouts and such other information, which the Associate has supplied to the TPNODL under the Contract shall be passed on to the TPNODL. The TPNODL shall have the right to use these for construction, erection, start-up, Trial Run, operation, maintenance, modifications and/or expansion of the works including for the manufacture of spare parts.

16.4 Exclusions

The provision of Clauses 16.1 to 16.3 shall not apply to information:

- Which at the time of disclosure are in the public domain which later on become part of public domain through no fault of the party concerned, or
- Which were in the possession of the party concerned prior to disclosure to him by the other party, or
- Which were received by the party concerned after the time of disclosure without restriction on disclosure or use, from a third party who did not acquire such information

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 19 of 47

directly or indirectly from the other party or has no obligation of confidentiality for such information.

16.5 Violation

In case of violation of this clause, the Associate is liable to pay compensation and damages as may be determined by the competent authority of TPNODL.

17.0 INTELLECTUAL PROPERTY RIGHTS

If, in the course of performance of its functions and duties as envisaged by the scope of the present GCC, the Associate acquires or develops, any unique knowledge or information which would be covered, or, is likely to be covered within the definition of a trademark, copyright, patent, business secret, geographical indication or any other form of intellectual property right, it shall be obliged, under the terms of this present GCC, to share such knowledge or information with the TPNODL. All rights, with respect to, or arising from such intellectual property, as afore mentioned, shall solely vest in TPNODL.

Moreover, the Associate undertakes not to breach any intellectual property right vesting in a third party/parties, whether by breach of statutory provision, passing off, or otherwise. In the event of any such breach, the Associate shall be wholly liable to compensate, indemnify or make good any loss suffered by such third party/parties, or any compensation/damages arising from any legal proceeding/s, or otherwise. No liability of TPNODL shall arise in this respect, and any costs, damages, expenses, compensation payable by TPNODL in this regard to a third party/parties, arising from a legal proceeding/s or otherwise, shall be recoverable from the Associate.

18.0 INDEMNITY

The Associate shall at all times indemnify, keep indemnified and hold harmless the TPNODL and its officers, directors, employees, affiliates, agents, successors and assigns against all actions, claims, demands, costs, charges and expenses arising from or incurred by reason of any infringement of patent, trade mark, registered design, copy rights and/or industrial property rights by manufacture, sale or use of the equipment supplied by the Associate whether or not the TPNODL is held liable for by any court judgement. In this connection, the TPNODL shall pass on all claims made against him to the Associate for settlement.

The Associate assumes responsibility for and shall indemnify and save harmless the TPNODL from all liability, claims, costs, expenses, taxes and assessments including penalties, punitive damages, attorney's fees and court costs which are or may be required to be paid by the TPNODL and its officers, directors, employees, affiliates, agents, successors and assigns arising from any breach of the Associate's obligations under the Contract or for which the Associate has assumed responsibilities under the Contract including those imposed under any local or national law or laws, or in respect to all salaries, wages or other compensation for all persons employed by the Associate or his Sub-Associates or suppliers in connection with the performance of any work covered by the Contract. The Associate shall execute, deliver and shall cause his Sub-Associate and suppliers to execute and deliver, such other further instruments and to comply with all the requirements of such laws and regulation as may be necessary there under to conform and effectuate the Contract and to protect the TPNODL.

The TPNODL shall not be held responsible for any accident or damages incurred or claims arising, due to the Associate's error there from prior to completion of work. The Associate shall be liable for such accidents and after completion of work for such accidents as the case may be

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 20 of 47

due to negligence on his part to carry out Work in accordance with Indian laws and regulations and the specifications set forth herein.

19.0 LIABILITY & LIMITATIONS

19.1 Liability

Except for any specific liability which may be identified in the Contract and which may be payable hereunder, Associate shall not be liable for any special, incidental, indirect, or consequential Damages or any loss of business Contracts, revenues or other financial loss (or equivalents thereof no matter how claimed, computed or characterized) arising out of or in connection with the Performance of the Work or supply of Goods ***unless caused by Associate's negligence, willful misconduct or breach of contract.***

If the Associate is a joint venture or consortium, all concerned parties shall be jointly and severally bound to the TPNODL for the fulfillment of the provisions of the Contract. The consortium or the joint venture shall designate one party as their leader, who will be the coordinator between the parties and TPNODL. The constituents & leader of the consortium or joint venture shall not be changed without the prior consent of TPNODL.

TPNODL shall have no liability or any special, incidental, indirect or consequential Damages for any loss of Business Contracts, revenues or other financial loss arising out of this Contract.

19.2 Limitation of Liability

The total liability of Associate against any contract shall be limited to the Total All Inclusive Contract Value.

20.0 FORCE MAJEURE

Force Majeure applies if the performance by either Party ("the Affected Party") of its obligations under Contract is materially and adversely affected.

"Force Majeure" shall mean any event or circumstance or combination of events or circumstances referred below and their consequences that wholly or partly prevents or unavoidably delays any Party in the performance of its obligations under this Agreement, but only and to the extent that such events and circumstances are not within the reasonable control, directly or indirectly, of the Affected Party and could not have been avoided even if the Affected Party had taken reasonable care:

- Act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, embargo, blockade, revolution, riot, bombs, religious strife or civil commotion, etc. ▪ Politically motivated sabotage, or terrorism, etc.
- Action or Act of Government or Governmental agency for which remedy is beyond the control of the affected parties. ▪ Any act of God.

Note: Causes like power breakdown/ shortages/fire/strikes, accidents etc do not fall under Force Majeure.

Time being the essence of the Contract, if either party is prevented from the performance of its obligations in whole or in part due to an event of Force Majeure, then provided Notice of happening of any event by the Affected Party is given to the other party within seven (7) days from the date of occurrence of such event, which DIRECTLY has impact on works and submitted details and quantum of resulting effect, but at the same time had made all possible efforts to mitigate and overcome effects thereof, the Affected Party's performance under this

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 21 of 47

Contract shall be suspended until such event ceases and the Scheduled Completion shall be delayed accordingly.

If Force Majeure event(s) continue for a period of more than three months, the parties shall hold consultation to discuss the further course of action.

Neither party shall be considered to be in default or in breach of its obligation under the Contract to the extent that performance of such obligation by either party is prevented by any circumstances of Force Majeure which arise after effective date of Contract.

Neither party can claim any compensation from the other party on account of Force Majeure.

21.0 SUSPENSION OF CONTRACT

21.1 Suspension for Convenience

TPNODL may, at any time and at its sole option, suspend execution of all or any portions of the schedule of items of contract to be supplied/work to be executed by Associate under the contract by providing to the Associate at least two business days written notice for contracts having contract completion period less than sixty days and at least seven business days' notice for all other contracts.

Upon receipt of any such notice, the Associate shall respond as follows as applicable as per contract construction.

- Immediately discontinue further supply of material/goods specified in the suspension notice for supply contracts
- Immediately discontinue further service/work and supply of materials of those services/materials/work specified in the suspension notice for service /composite contract
- Promptly make every reasonable effort to obtain suspension, upon terms satisfactory to TPNODL, of all orders, outsourcing arrangements, and rental Contracts to the extent that they relate to performance of the portion of Work suspended by the notice.
- Protect and maintain the portion of the service/Work already completed, including the portion of the Work suspended hereunder, unless otherwise specifically stated in the notice.
- Continue delivering/carrying out the supply/service/work items as per contract conditions, which do not fall under purview of the suspension notice.

On receipt of resumption notice from TPNODL, the Associate shall resume execution of contract as specified in the resumption notice, within the time frame specified in the resumption notice.

21.2 Suspension for Breach of Contract conditions.

TPNODL shall suspend execution of whole/or part thereof the contract till such time Associate complies with the conditions stipulated under section clause 22.1 for breach/default of contract conditions.

21.3 Compensation in lieu of Suspension

If the suspension of the contract in whole or in part is for convenience of TPNODL and not due to any breach of contract conditions by the associate, TPNODL at its discretion shall consider compensating all reasonable additional costs incurred by Associate in lieu of suspension of

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 22 of 47

whole or part of contract, on representation of the Associate providing justified estimates of such additional costs and such estimates are found acceptable and approved by competent authority of TPNODL.

If the suspension of contract in whole or part thereof is due to breach of contract conditions (refer clause 22.1) by the Associate, Associate shall not be entitled for any compensation for any cost incurred in lieu of suspension of whole or part of contract and also shall be liable for compensating all the losses arising to TPNODL in lieu of suspension of contract. Resumption notice shall be subject to the Associate taking corrective action for the breach of contract conditions within the time frame and as per the terms specified in the suspension notice.

22 TERMINATION OF CONTRACT

22.1 Termination for Default/Breach of Contract

The contract / PO /RC shall be subject to termination by TPNODL in case of breach of the contract by the Associate which shall include but not be limited to the following:

- a. Withdrawal or intimation by the Associate of its intent to withdraw or surrender the execution / completion of the contracted work /PO or failure in ensuring adherence to any delivery schedules, in deviation of the contract/PO.
- b. Refusal or neglect on the part of the Associate to supply material/equipment of quantity or quality as specified by TPNODL and within the timeframe as specified in the contract document or refusal or neglect to execute the services/work in terms of the agreed standards of quantity or quality and/or within the timeframe specified in the contract/PO.
- c. Failure in any respect to perform any portion of the Work contracted with promptness, diligence, or in accordance with the terms of the contract.
- d. Failure to furnish guarantees as specified and /or failure to comply with the terms thereof.
- e. Failure to furnish such relevant documents or information within the time specified which may be necessary for due execution / completion of the works and documentation.
- f. Liquidation, bankruptcy either voluntary or involuntary OR entering into any composition or compromise with its creditors, or Insolvency.
- g. In case any reasonable information has been received by TPNODL that Associate has adopted/ or attempted to adopt any unethical conduct, action in award of the contract /PO or at any time thereafter.
- h. Failure to comply with applicable statutory provisions as contained in the contract or failure to comply with the applicable laws.
- i. Failure to comply with safety regulations/clauses stipulated in the contract or as may be generally instructed by TPNODL.

If the default or breach as specified under clause 22 (except sub clause g thereof) be committed by the associate for the first time, TPNODL shall issue, along the with notice of default or breach, a warning notice instructing the associate to take remedial/corrective action within the time frame stipulated in the warning notice and not to repeat the same in future. The timeframe for corrective action by the associate shall be specific to the nature of breach of contract and the same shall not be objected to by the Associate. If the Associate fails to comply with the instructions in the warning notice or in taking corrective action to the satisfaction of

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 23 of 47

TPNODL then TPNODL may terminate the entire or part of contract at its discretion by issuing termination notice without incurring any liability on this ground.

In case the contract is terminated for any breach of the nature specified in clause 22 g stated above, TPNODL shall have the right to terminate all the contracts TPNODL is having with the Associate by issuing termination notice which shall be without prejudice to the other rights of TPNODL available to it under law.

Without prejudice to its right to terminate for breach of contract, TPNODL may, without assigning any reason, terminate the Contract in whole or in part at any time at its discretion while the contract is in force by serving a written notice of two weeks to the Associate.

In the event of TPNODL having proceeded with termination of the contract the associate shall comply and proceed further in the following manner:

- a) Associate shall discontinue the supply, on the expiry of the said period of two weeks.
- b) Associate shall ensure that no further steps are being taken towards discharge of the obligations, terms and conditions as contained in the contract/PO. This shall include initiation of actions not limited to discontinuation of other allied and associated arrangements which the associate might have entered into with third parties for due discharge of its obligations under the contract with TPNODL.
- c) The Associate shall perform thereafter such tasks as may be necessary to preserve and protect the terminated portion of the material/service/work in progress and the materials and equipment at TPNODL sites or in transit thereto. However the associate shall continue to fulfill its contractual obligations with regard to the part of contract not terminated.
- d) It shall be open for TPNODL to conduct a joint assessment with the associate of the material, supplies, equipment, works or in general as to the subject matter of the contract in regard to which the associate claims having completed its obligations before or during such termination.
- e) It shall be open to TPNODL to seek invocation of the performance bank guarantee or any other guarantee or other security deposit by whatever name called submitted by the associate, which shall not be objected to or protested against by the associate.

In case of termination of the contract the parties agree to be governed inter alia by the following:

- a) In case TPNODL exercises its right of termination as stated above the associate shall not dispute or object to the same.
- b) The Associate shall be entitled to receive and claim only such payments OR sums of money from TPNODL as may be found payable to it in regard to works executed by it under the terms of the contract and no other claim of any nature whatsoever shall be made by the Associate.
- c) All such provisions which the parties have agreed to survive and prevail even after termination of the contract shall remain effective despite the termination.

In the event of such termination, TPNODL may finish the Work by whatever method it may deem expedient, including the hiring of services and /or purchase of material equipment from such third parties as TPNODL may deem fit or may itself provide any labor or materials and

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 24 of 47

perform any part of the Work. The associate undertakes to bear the incremental costs if any paid by TPNODL in such a case attributable to failure on the part of the associate. The Associate in such a case shall not be entitled to receive any further payments and any sums found payable to it may be adjusted by TPNODL against the amount recoverable from him on this ground. The same shall be without prejudice to other rights available to TPNODL under law against the associate.

Upon the termination of any of the contract due to occurrence of any circumstances provided in clauses stated above and constituting repeated breach or misconduct, TPNODL shall be entitled to bar the associates its agents, affiliates from undertaking any negotiation / tendering, bidding, participation activities concerning TPNODL for a period of two years from date of such termination. The same shall be without prejudice to other rights available to TPNODL.

22.2 Termination for Convenience of Associate

Associate at its convenience may request for termination of contract, clearly assigning the reason for such request. TPNODL has full right to accept, reject or partially accept such request. However, associate shall continue its supply as per contract till final approval is given to associates for such termination.

22.3 Termination for Convenience of TPNODL

TPNODL at its sole discretion may terminate the contract by giving 30 days prior notice in writing or through email to the Associate. TPNODL shall pay the Associate for all the supplies/ services rendered till the actual date of contract termination against submission of invoice by the Associate to that effect.

23.0 DISPUTE RESOLUTION & ARBITRATION

In case of any dispute or difference the parties shall endeavour to resolve the same through conciliatory and amicable measures within 15 Days failing which the matter may be referred by either party for resolution by the sole arbitrator to be appointed mutually by both the parties. The arbitral proceedings shall be conducted in accordance with Arbitration and Conciliation Act 1996 and the place of arbitration shall be Bhubaneswar. The language to be used at proceedings shall be English and the award of the arbitrator shall be final and binding on the parties. The parties shall bear their respective costs of arbitration. The associate shall continue to discharge its obligations towards due performance of the works as per the terms of the contract during the arbitration proceedings unless otherwise directed in writing by TPNODL or suspended by the arbitrator. Further, TPNODL shall continue making such payments as may be found due and payable to the associate for such works.

23.1 Governing Laws and Jurisdiction

The parties shall be subject to the jurisdiction of the courts of law in Bhubaneswar and any matter arising here from shall be subject to applicable law in force in India.

24.0 ATTRIBUTES OF GCC

24.1 Cancellation

The Company reserves the right to cancel, add, delete at its sole discretion, all or any terms of this GCC or any contract, order or terms agreed between the parties in pursuance without assigning any reasons and without any compensation to the Associates.

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 25 of 47

24.2 Severability

If any portion of this GCC is held to be void, invalid, or otherwise unenforceable, in whole or part, the remaining portions of this GCC shall remain in effect.

24.3 Order of Priority

In case of any discrepancies between the stipulations in General Conditions of the Contract (GCC) and Special Conditions of Contract (SCC), the GCC shall stand superseded by the SCC to the extent stipulated hereinabove while balance portion of respective clauses of GCC shall continue to be applicable.

25.0 ERRORS AND OMISSIONS

The Associate shall be responsible for all discrepancies, errors and omissions in the drawings, documents or other information submitted by him, irrespective of whether these have been approved, reviewed or otherwise accepted by the TPNODL or not. However any error in design/drawing arising out of any incorrect data/written information from TPNODL will not be considered as error and omissions on part of the Associate.

26.0 TRANSFER OF TITLES

The title of ownership and property to all equipment, materials, drawings & documents shall pass to the TPNODL on acceptance of material by store/site after Inspection.

However, such passing of title of ownership and property to the TPNODL shall not in any way absolve, dilute or diminish the responsibility and obligations of the Associate under this Contract including loss or damages and all risks, which shall vest with the Associate.

27.0 INSURANCE

The Contractor shall take out the Insurance Policies which shall cover all risks including the following, as applicable:-

- a) The value of the policy shall cover the total value of all the items till they are handed over to TPNODL.
- b) TPNODL shall be the principal holder of the policy. The Associate shall be the loss payee under the policy. Associate / Sub-contractor of the Associate shall not be holders or beneficiaries in the policy nor shall they be named in the policy. TPNODL reserves the exclusive right to assign the policy.
- c) While the payment of premium may be phased in agreement with the insurance company, at no time shall goods and services required to be provided by the associate shall remain uninsured in accordance with (a) above.
- d) A copy of the Insurance policy shall be made available to TPNODL prior to first dispatch lot of any Equipment and policy shall be kept alive and valid at all times up to the stage of final acceptance.
- e) TPNODL reserves the right to take out whatever policy that is deemed necessary by him if the associate fails to keep the said policy alive and valid at all times and/or causes lapses in payment of premium thereby jeopardizing the said policy. The cost of such policy(s) shall be recovered / deducted from the amount payable to the associate.

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 26 of 47

- f) The policy shall ensure that the TPNODL's decision regarding replacement of goods damaged, lost or rendered unusable shall be final.

In all cases, the associate shall lodge the claims with the underwriters and also settle the claims and shall also notify TPNODL of any filed claims. However, the associate shall proceed with the repairs and/or replacement of the equipment/components without waiting for the settlement of the claims. In case of seizure of materials by concerned authorities, the associate shall arrange prompt release against bond, security or cash as required. TPNODL, upon request by the associate, will extend all reasonable assistance to the associate in such a case.

All the insurance claims shall be processed and settled by the associate and the missing/damaged items shall be replaced/repared by them without any extra cost to TPNODL and without affecting the completion time.

28.0 SUGGESTIONS & FEEDBACK

We welcome all our Business Associates to write to us about their experience with TPNODL; be it our Company, our services or our people. Each and every concern, issue, query and suggestion from you will help us to become a better company to work with and shall help us develop a strong bonding of trust and a long term relationship with you.

You may send your feedback to HOD Contracts by filling up our Business Associate Feedback Form enclosed herewith as *Annexure-I*.

29.0 CONTACT POINTS

In case Business Associate needs information with respect to payments or has any grievances, he may contact to HoD-Contracts and Finance.

30.0 LIST OF ANNEXURES

S. No.	Subject	Annexure
1.	Performa for Bid Security Bank Guarantee	A
2.	Performa for Performance Bank Guarantee (CP cum EP)	B
3.	Performa for No Demand Certificate by Associate	C
4.	Performa For Application For Issuance of Consolidated TDS Certificate	D
5.	Business Associate Feedback Form	E
6.	Acceptance Form For Participation In Reverse Auction Event	F
7.	Form for RTGS Payment	G
8.	Vendor Appraisal Form	H
9.	Manufacturer Authorization Form	I
10.	Tata Code of Conduct	I

ANNEXURE-A

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 27 of 47

PROFORMA FOR BID SECURITY BANK GUARANTEE

**TP Northern Odisha Distribution Limited
Balasore**

WHEREAS, (Name of the Bidder) _____
(hereinafter called "the BIDDER") has submitted his bid dated _____ for the
(Tender No. & Name of Contract) _____ (hereinafter
called "the BID").

KNOW ALL men by these presents we (Name of the
Bank) _____ of (Name of the
Country) _____ having our registered
office at _____ (hereinafter called "the BANK) are bound unto
TPNODL in the sum of _____ for which payment well and truly to be
made to the TPNODL the Bank binds himself, his successors and assigns by these
presents.

SEALED with the Common Seal of the said Bank this _____ day of _____ 20_____.

The CONDITIONS of this obligation are:

- i) If the Bidder withdraws his Bid during the period of bid validity specified in the Proforma of Bid or
- ii) If the Bidder having been notified of the acceptance of his Bid by the TPNODL during the period of bid validity fails or refuses to furnish the Contract Performance Bank Guarantee, in accordance with the Instructions to Bidders.

We undertake to pay the TPNODL upto the above amount upon receipt of its first written demand, provided that in its demand the TPNODL will note that amount claimed by it is due to it owing to the occurrence of one or both conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force upto and including the date (No of days as mentioned in tender enquiry) days after the closing date of submission of bids as stated in the Invitation to Bid or as extended by you at any time prior to this date, notice of which extension to the Bank being hereby waived, and any demand in respect thereof should reach the Bank not later than the above date.

DATE	SIGNATURE OF THE BANK
WITNESS	SEAL

(Signature, Name & Address) (At least 2 witnesses)

ANNEXURE- B

PROFORMA FOR PERFORMANCE BANK GUARANTEE (CP cum EP)

(On Rs.100/- Stamp Paper) Note:

- a) Format shall be followed in toto
- b) Claim period of six months must be kept up

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	01 dtd 01.12.2021	Page 28 of 47

- c) The guarantee to be accompanied by the covering letter from the bank confirming the signature to the guarantee

TP Northern Odisha Distribution Ltd.

Balasore

CP cum EP BG No.....

Order/Contract No.....dated.....

1. You have entered into a Contract No _____ with M/s. _____ (hereinafter referred to as "the Vendor") for the supply cum erection / civil work of _____ (hereinafter referred to as "the said Equipment") for the price and on the terms and conditions contained in the said contract.
2. In accordance with the terms of the said contract, "the Vendor" agreed to furnish you with an irrevocable, unconditional and acceptable bank guarantee for 10% of the value of contract and to be valid till the end of Guarantee period plus one month towards "Contract cum Equipment performance". For this purpose you have agreed to accept the guarantee.
3. In consideration thereof, we, _____ hereby irrevocably and unconditionally guarantee to pay to you on demand but in any case before the end of five working days from the date of the claim and without demur and without reference to "the Vendor" such amount or amounts not exceeding the sum of Rs. _____ (Rupees _____ only) being _____% (_____ percent) of the total value of the contract on receipt of your intimating that "the Vendor" has not fulfilled his contractual obligations. You shall be the sole judge for such non-fulfillment and "the Vendor" shall have no right to question such judgment.
4. You shall have the right to file / make your claim on us under the guarantee for a **further period of one month** from the date of expiry.
5. This guarantee shall not be revoked without express consent and shall not be affected by your granting time or any other indulgence to "the Vendor", which shall include but not be limited to, postponement from time to time of the exercise the same in you or any right which you may have against "the Vendor" and to exercise the same in any covenant contained or implied in the said contract or any other course or remedy or security available to you, and our Bank shall not be released from its obligations under this guarantee by

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	0	Page 29 of 47

your exercising any of your rights with reference to matters aforesaid or any of them or by reasons of any other act or forbearance or other acts of omission or commission on your part or any other indulgence shown by you or by any other matter or thing whatsoever which under the law would, but for this provision have the effect of relieving our bank from its obligation under this guarantee.

6. We also agree that you shall be entitled at your option to enforce this guarantee against our bank as a principal debtor, in the first instance, notwithstanding any other security or guarantee that you may have in relation to "the Vendor's" liabilities in respect of the premises
7. This guarantee shall not be affected by any change in the constitution of our Bank or "the Vendor" or for any other reason whatsoever.
8. Any claim / extension under the guarantee can be lodge-able at outstation banks or at Balasore branch and claim will also be payable at Balasore Branch (to be confirmed by Balasore Branch by a letter to that effect in case BG is from the branch outside Balasore).
9. Notwithstanding anything herein contained, our liability under this guarantee is limited to Rs. _____ (Rupees _____) only and the guarantee will remain in force upto and including _____ (Date) and shall be extended from time to time for such period or period as may be desired by "the Vendor".
10. Unless a demand or claim under this guarantee is received by us in writing within six months from _____ (expiry date) i.e. on or before _____ (claim period end date), we shall be discharged from all liabilities under this guarantee thereafter.

Dated at _____ this _____ day of _____ 20__

Bank's rubber stamp

1. Banks full address

Designation of Signatory

2. Bank official number

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	0	Page 30 of 47

ANNEXURE-C

PROFORMA FOR “NO DEMAND CERTIFICATE” BY ASSOCIATE

(On Company's Letter head or with Company Seal)

(To be submitted by the Associate to TPNODL Accounts Department at the time of receipt of full and final payment)

(Certificate No. CCP/002)

Name of the Project Order/

Contract No.

Dated

Name of the Associate Scheme

No. / Job No.

We, M/s. _____ (Associate) do hereby acknowledge and confirm that we have received the full and final payment due and payable to us from TPNODL, in respect of our aforesaid Order No _____ dated _____ including amendments, if any, issued by TPNODL to our entire satisfaction and we further confirm that we have no claim whatsoever pending with TPNODL under the said contract / W.O.

Notwithstanding any protest recorded by us in any correspondence, documents, measurement books and / or final bills etc., we waive all our rights to lodge any claim or protest in future under this contract.

We are issuing this “NO DEMAND CERTIFICATE” in favour of TPNODL, with full knowledge and with our free consent without any undue influence, misrepresentation, coercion etc.

Place

Name

(Company Seal)

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	0	Page 31 of 47

ANNEXURE-D

**PROFORMA FOR APPLICATION FOR ISSUANCE OF CONSOLIDATED TDS
CERTIFICATE**

To be printed on the letterhead

To,
TPNODL,
Balasore

Sub: Application for issuance of Consolidated TDS Certificate for the FY _____

Dear Sir,

I / we hereby request / authorize you to issue me / us a consolidate TDS Certificate for the financial year _____ against tax deducted at source by you from my / our payments / bills during the said year from time to time under Chapter XVII – B of the Income Tax Act, 1961. For and on behalf of

Signature

Name

Address

Contact No. (Land Line)
(Mobile)

PAN #

Assessing authority

ATTACH THE COPY OF PAN CARD

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	0	Page 32 of 47

ANNEXURE-E

BUSINESS ASSOCIATE FEEDBACK FORM

With an objective to improve our internal processes and systems, and serve you better, we solicit your valuable feedback & suggestions. It is estimated that it will take about 10 minutes to complete this survey. We assure you that your feedback shall be kept confidential. Please send the duly filled feedback form in the "TPNODL addressed - attached envelop"

You are associated with us as

- OEMs Service Contractor Material Suppliers Material & Manpower Supplier

You are associated with us for

- Less than 1 year More than 1 year but less than 3 years More than 3 years

Your office is located at

- Balsore Within 200 kms from Balsore More than 200 kms from Balsore

Your nearly turnover with TPNODL

- Less than 25 Lacs 25 Lacs to 1 Crore More than 1 Cr.

Additional Information

Your Name	
Your Designation	
Your Organization	
Contact Nos.	
Email	

We once again thank you for your participation in this survey. Please spare 10 minutes to give your feedback on following pages (Section A to E)

SECTION – A

(Please ✓ mark in the relevant box and give your remarks / suggestions / information for our improvement).

S. No.	Parameters	1	2	3	4	5	Remarks/ Suggestion
		Do Not Agree	Slightly in Agreement	In Fair Agreement	Mostly in Agreement	Fully Agree	
1	You receive all relevant queries / tenders from us in timely manner.						
2	We provide you enough lead time to respond to our queries / tenders.						
3	We provide you adequate support (drawings, documents, clarifications, briefing etc.) to enable you meet our requirements.						
4	All following elements of our contract / purchase order are rational :						
4.1	Scope of Work						
4.2	Delivery / Execution Schedule						
4.3	Payment Terms						
4.4	Liquidated Damages						
4.5	Performance Guarantee						
5	Our purchase orders / contracts are simple, specific & easy to understand						
6	TPNODL demonstrate willingness to be flexible in administration of Contract / Purchase Order						
7	We provide timely responses / clarifications to your queries						
8	TPNODL representative you interact / coordinate with is adequately empowered to support you in meeting contractual obligations						
9	TPNODL provide you all necessary infrastructure support for timely and quality completion of work (including AMC)						
10	TPNODL Engineer-in-Charge timely certifies the jobs executed/ material supplied						
11	TPNODL Engineer-in-Charge efficiently supervises the job execution for timely completion of job						
12	BIRD (Bill Inward Receipt Desk) initiative has improved payment disbursement process						

S. No.	Parameters	1	2	3	4	5	Remarks/ Suggestion
		Do Not Agree	Slightly in Agreement	In Fair Agreement	Mostly in Agreement	Fully Agree	
13	Our approach for Inspection and Quality Assurance effective to expedite project completion?						
14	TPNODL never defaults on contractual terms						
15	In TPNODL Contracts closure is done within set time limit						
16	Our material receiving procedures are well defined and efficiently deployed to reduce mutual inconvenience						
17	Bank Guarantees are released in time bound manner						
18	Our processes related to payment / account settlement are effective.						
19	You get payments on time						
20	TPNODL Employees follow Ethical behaviour						

GENERAL CONDITIONS OF CONTRACT

SECTION – B

SECTION – B (Please rate the following parameters on a scale of 1 to 5, where 1 - Minimum; 5 - Maximum)

S. No.	Parameters	1	2	3	4	5	Remarks/ Suggestion
1	How do you rate courtesy/ empathy/ attitude level and warmth of TPNODL employees you interact with from following team?						
1.1	Project Engineering						
1.2	District / Zones						
1.3	Projects/HOG (TS &P)						
1.4	Inspection & Quality Assurance						
1.5	Stores						
1.6	Metering & Billing						
1.7	Accounts / Finance						
1.8	Administration						
1.9	IT & Automation						
2	How would you rate TPNODL in comparison to your other clients in terms of fairness of treatment and transparency with its Business Associates?						
3	How would you rate TPNODL in comparison to your other clients in terms of processes and systems to manage partnership with its Business Associates						
4	How would you rate TPNODL in comparison to your other clients in terms of building long term & mutually relationship with its Business Associates						

SECTION – C

Please √ mark in the relevant box and give your remarks / suggestions / information for our improvement.

S. No.	Parameters	Certainly No	Probably No	Certainly Yes	Probably Yes	Remarks/ Suggestion
1	Based on your experience with TPNODL, would you like to continue your relationship with TPNODL?					
2	If someone asks you about TPNODL, would you talk “positively” about					

	TPNODL?					
3	Would you refer TPNODL name to others in your community, fraternity and society as a professional & dynamic organization?					

SECTION - D

If we ask you to rate us on a scale of 1 to 10, how will you rate TPNODL, that truly represents your overall satisfaction with us (please tick appropriate box) -

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

SECTION - E

Please ✓ mark in the relevant box and give your remarks / suggestions / information for our improvement.

Please spare your thoughts for TPNODL's improvement in particular areas of weaknesses, particularly relating to some great practices, attitudes that you have seen elsewhere in Indian and International Organizations, which you recommend TPNODL to adopt. Please give your valuable salient recommendations.

Please spare your thoughts for TPNODL's improvement in particular areas of major concerns for you. We also welcome your suggestions to adopt any best practices, attitudes that you

Recommendation	<i>Please tick (✓) your top 5 expectations out of the following 10 points listed below -</i>	
(Please list down improvement you expect from TPNODL)	<i>Timely payment</i>	
1	<i>Flexibility in Contracts/PO</i>	
	<i>Clarity in PO,s & Contracts</i>	
2	<i>Timely response to quarries</i>	
	<i>Timely certification of works executed</i>	
3	<i>Clarity in Specs, drawings, other docs etc.</i>	
	<i>Adequate information provided on website for tender notification, parties qualified etc.</i>	
4	<i>Timely receipt of material at site for execution</i>	
	<i>Performance Guarantee/EMD released in time</i>	

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No	0	Page 37 of 47

5	<i>Inspection & quality assurance support for timely job completion</i>
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We thank you for your time and courtesy!!

ANNEXURE-F

ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT

(To be signed and stamped by the bidder prior to participation in the auction event)

In a bid to make our entire procurement process more fair and transparent, TPNODL intends to use the reverse auctions through ARIBA tool as an integral part of the entire tendering process. All the bidders who are found as technically qualified based on the tender requirements shall be eligible to participate in the reverse auction event.

The following terms and conditions are deemed as accepted by the bidder on participation in the bid event:

1. TPNODL shall provide the user id and password to the authorized representative of the bidder. (Authorization Letter in lieu of the same shall be submitted along with the signed and stamped Acceptance Form).
2. TPNODL will make every effort to make the bid process transparent. However, the award decision by TPNODL would be final and binding on the supplier.
3. The bidder agrees to non-disclosure of trade information regarding the purchase, identity of TPNODL, bid process, bid technology, bid documentation and bid details.
4. The bidder is advised to understand the auto bid process to safeguard themselves against any possibility of non-participation in the auction event.
5. In case of bidding through Internet medium, bidders are further advised to ensure availability of the entire infrastructure as required at their end to participate in the auction event. Inability to bid due to telephone line glitch, internet response issues, software or hardware hangs, power failure or any other reason shall not be the responsibility of TPNODL.
6. In case of intranet medium, TPNODL shall provide the infrastructure to bidders. Further, TPNODL has sole discretion to extend or restart the auction event in case of any glitches in infrastructure observed which has restricted the bidders to submit the bids to ensure fair & transparent competitive bidding. In case an auction event is restarted, the best bid as already available in the system shall become the start price for the new auction.
7. In case the bidder fails to participate in the auction event due any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid as submitted by the bidder as a part of the tender shall be considered as the bidder's final no regret offer. Any offline price bids received from a bidder in lieu of non-participation in the auction event shall be out rightly rejected by TPNODL.
8. The bidder shall be prepared with competitive price quotes on the day of the bidding event.
9. The prices as quoted by the bidder during the auction event shall be inclusive of all the applicable taxes, duties and levies and shall be FOR at TPNODL site.
10. The prices submitted by a bidder during the auction event shall be binding on the bidder.
11. No requests for time extension of the auction event shall be considered by TPNODL.
12. The original price bids of the bidders shall be reduced on pro-rata basis against each line item based on the final all inclusive prices offered during conclusion of the auction event for arriving at Contract amount.

Signature & Seal of the Bidder

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No		Page 39 of 47

Name of the Authorized Signatory: _____ :

Contact Person's Name:

Official Correspondence Address:

We confirm that we will bear the charges, if any, levied by our bank for the credit of NEFT/RTGS amounts in our account. Any change in above furnished information shall be informed to TPNODL well in time at our own. Further, we kept TPNODL indemnified for any loss incurred due to wrong furnishing of above information.

Thanking you,

For _____

(Authorised Signatory)

(Signature with Rubber Stamp)

Certification from Bank:

We confirm that we are enabled for receiving NEFT/RTGS credits and we further confirm that the account number (specify Bank a/c no.) of (Please mention here name of the account holder), the signature of the authorised signatory and the MICR and IFSC Code of our branch mentioned above are correct.

This also is certified that the above information is correct as per Bank record

(Manager's/ Officers Signature under Bank Stamp)

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No		Page 40 of 47

ANNEXURE-H
VENDOR APPRAISAL FORM

TO BE SUBMITTED BY VENDOR (To be filled as applicable)			
Part A			
1.0	DETAILS OF THE FIRM		
	1.1	NAME (IN CAPITAL LETTERS)	
	1.2	TYPE OF CONCERN (PROPRIETARY) PARTNERSHIP PVT.LTD., PUBLIC LTD. ETC.	
	1.3	YEAR OF ESTABLISHMENT	
	1.4	LOCATION OF OFFICE POSTAL ADDRESS	
	1.5	CONTACT DETAIL OF BA's REPRESENTATIVE NAME E-MAIL ID CELL NO.	
	1.6	LOCATION OF MANUFACTURING UNITS	:
		i) UNITS 1	:
		ii) OTHER UNITS	:
2.0	PRODUCTS / SERVICES BEING OFFERED		
3.0	TURNOVER DURING THE LAST 3 YEARS (TO BE VERIFIED WITH THE LATEST PROFIT & LOSS STATEMENT).		
4.0	AVALABILITY OF STATUTORY DOCUMENTS I.E. COPY OF PAN CARD		
5.0	AVALABILITY OF STATUTORY DOCUMENTS I.E. COPY OF GST REGISTRATION		
6.0	APPLICABILITY UNDER MSME CERTIFICATION		
7.0	BA BELONGS TO AA COMMUNITY (SC/ST)		
8.0	DOCUMENTS VERIFYING ADDRESS PROOF (SUPPORTED BY ANY GOVT. ISSUED DOCUMENT)		

9.0	TECHNICAL		
	9.1	NO.OF DESIGN ENGINEERS (INDICATE NO.OF YEARS EXPERIENCE IN RELATED FIELDS)	:
	9.2	NO.OF DRAUGHTSMEN	:
	9.3	COLLABORATION DETAILS (IF ANY)	:
		9.3.1 DATE OF COLLABORATION	:
		9.3.2 NAME OF COLLABORATOR	:
		9.3.3 RBI APPROVAL DETAILS	:
		9.3.4 EXPERIENCE LIST OF COLLABORATOR	:
		9.3.5 DURATION OF AGREEMENT	:
	9.4	AVAILABILITY OF STANDARDS / DESIGN PROCEDURES / COLLABORATOR'S / DOCUMENTS (CHECK WHETHER THESE ARE LATEST/CURRENT)	:
	9.5	TECHNICAL SUPPORT, BACK-UP GUARANTEE, SUPERVISION, QUALITY CONTROL BY COLLABORATOR (WHEREVER ESSENTIAL). (THIS CLAUSE IS RELEVANT WHEN VENDOR'S EXPERIENCE IS INADEQUATE)	:
	9.6	QUALITY OF DRAWINGS	:
10.0	MANUFACTURE		
	10.1	SHOP SPACE, LAYOUT LIGHTING, VENTILATION, ETC.	:
	10.2	POWER (KVA)	:
		MAINS INSTALLED	:
		UTILISED	:
		STANDBY POWER SOURCE	:
	10.3	MANUFACTURING FACILITIES (ATTACH LIST OF EQUIPMENTS AS APPLICABLE)	:
		10.3.1 MATERIAL HANDLING	:
		10.3.2 MACHINING	:
		10.3.3 FABRICATION	:

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No		Page 42 of 47

		10.3.4 HEAT TREATMENT	:
		10.3.5 BALANCING FACILITY	:
		10.3.6 SURFACE TREATMENT PRIOR TO PAINTING/ COATING, POLISHING, PICKLING, PASSIVATION, PAINTING, ETC.	:
	10.4	SUPERVISORY STAFF	:
	10.5	ADEQUACY OF SKILLED LABOURS (MACHINISTS, WELDERS, ETC.)	:
	10.6	NO. OF SHIFTS	:
	10.7	TYPE OF MATERIAL HANDLED (SUCH AS CS, SS, ETC.)	:
	10.8	WORKMANSHIP	:
	10.9	MATERIAL IN STOCK AND VALUE	:
	10.10	TRANSPORT FACILITIES	:
	10.11	CARE IN HANDLING	:
11.0	INSPECTION / QC / QA / TESTING		
	11.1	NUMBER OF PERSONNEL (INDICATE NO.OF YEARS OF EXPERIENCE)	:
	11.2	INDEPENDENCE FROM PRODUCTION	:
	11.3	AVAILABILITY OF PROCEDURAL WRITE UP/QUALITY PLAN	:
	11.4	INCOMING MATERIAL CONTROL AND DOCUMENTATION	:
	11.5	RELIABILITY/REPUTATION OF SUPPLY SOURCES	:
	11.6	STAGE INSPECTION AND DOCUMENTATION	:
	11.7	SUB-ASSEMBLY & DOCUMENTATION	:
	11.8	FINAL INSPECTION AND DOCUMENTATION	:
	11.9	PREPARATION OF FINAL DOCUMENTATION PACKAGE	:
	11.10	TYPE TEST FACILITIES	:
	11.11	ACCEPTANCE TEST FACILITIES	:

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No		Page 43 of 47

	11.12	CALIBRATION OF INSTRUMENTS AND GAUGES (WITH TRACEABILITY TO NATIONAL STANDARDS) (ATTACH LIST)	:
	11.13	STATUTORY APPROVALS LIKE BIS, IBR, ETC.(AS APPLICABLE)	:
	11.14	SUB-VENDOR APPROVAL SYSTEM AND QUALITY CONTROL	:
	11.15	DETAILS OF TESTS CARRIED OUT AT INDEPENDENT RECOGNISED LABORATORIES	:
		i) FURNISH LIST OF TESTS CARRIED OUT AND THE NAME OF THE LABORATORY WHERE THE TESTS WERE CONDUCTED	:
		ii) CHECK AVAILABILITY OF CERTIFICATES AND REVIEW THESE WHEREVER POSSIBLE	:
12.0		EXPERIENCE (INCLUDING CONSTRUCTION / ERECTION / COMMISSIONING) TO BE FURNISHED IN THE FORMAT INDICATED IN APPENDIX)	:
13.0		SALES, SERVICE AND SITE ORGANISATIONAL DETAILS	:
14.0		CERTIFICATE FROM CUSTOMERS (ATTACH COPIES OF DOCUMENTS)	:
15.0		POWER SITUATION	:
16.0		LABOUR SITUATION	:
17.0		APPLICABILITY OF SC/ST RELAXATION (Y/N) IF YES, SUPPORTING DOCUMENTS TO BE ATTACHED	
Part C Supporting Documents			

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No		Page 44 of 47

18.0	<p>DOCUMENTS TO BE ENCLOSED:</p> <ol style="list-style-type: none"> 1. Factory License 2. ISO Certificate 3. Registration of Central Excise 4. Income Tax Clearance. 5. PF Registration 6. ESI Registration 7. Insurance for Workman Compensation Act No. 8. Electrical Contract LIC No. 9. PAN No. 10. GST Registration 11. MSME Certification 12. WC Tax Registration 13. Organogram of Co. having organogram of Design, safety, quality, production and other teams. 14. Details of subscription of BIS, IEC, IEE, ASTM or other. 15. Details of the team in Design, Quality, Safety, Production. 16. List of manufacturing equipment as per Part C. 17. List of calibrated equipment as per Part C. 18. List of clients and order executed in past two years. 19. Complaint escalation matrix. 20. Performance Certificates of same product from Minimum two utilities. 21. e-Payment Form as per enclosed Annexure-G 	
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*** Classification of BAs under SC/ST shall be governed under following guidelines:**

- **Proprietorship/ Single Ownership Firm:** Proprietor of the firm should be from SC/ST community. Governing document shall be Proprietorship Deed.
- **Partnership Firm:** Only such firms shall qualify which have SC/ST partners holding equal to or more than 50% of the total ownership pattern of the firm. Governing document shall be Partnership Deed.
- **Private Limited Company:** Only such firms shall qualify which have SC/ST directors holding equal to or more than 50% of the total ownership pattern of the firm. Governing document shall be Memorandum of Understanding (MoU) and/or Article of Association (AoA).
- The relaxation available for BAs under SC / STs shall be as per GCC for Tender Fees, EMD, PBG and Turnover criteria.

NOTE: Certification from SC/ST Commission shall be required for deciding upon SC/ST status of a person.

Annexure-G (e-Payment detail form) must be filled by Associate along with this form.

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No		Page 45 of 47

ANNEXURE-I
MANUFACTURER AUTHORIZATION FORM

(To be submitted on OEM's Letter Head)

Date:

Tender Enquiry No.:

To,
Chief (Contracts & MM)
TPNODL,
Balasore

Sir,

WHEREAS M/s. *[name of OEM]*, who are official manufacturers of having factories at *[address of OEM]* do hereby authorize M/s *[name of bidder]* to submit a Bid in relation to the Invitation for Bids indicated above, the purpose of which is to provide the following Goods, manufactured by us

.....and to subsequently negotiate and sign the Contract.

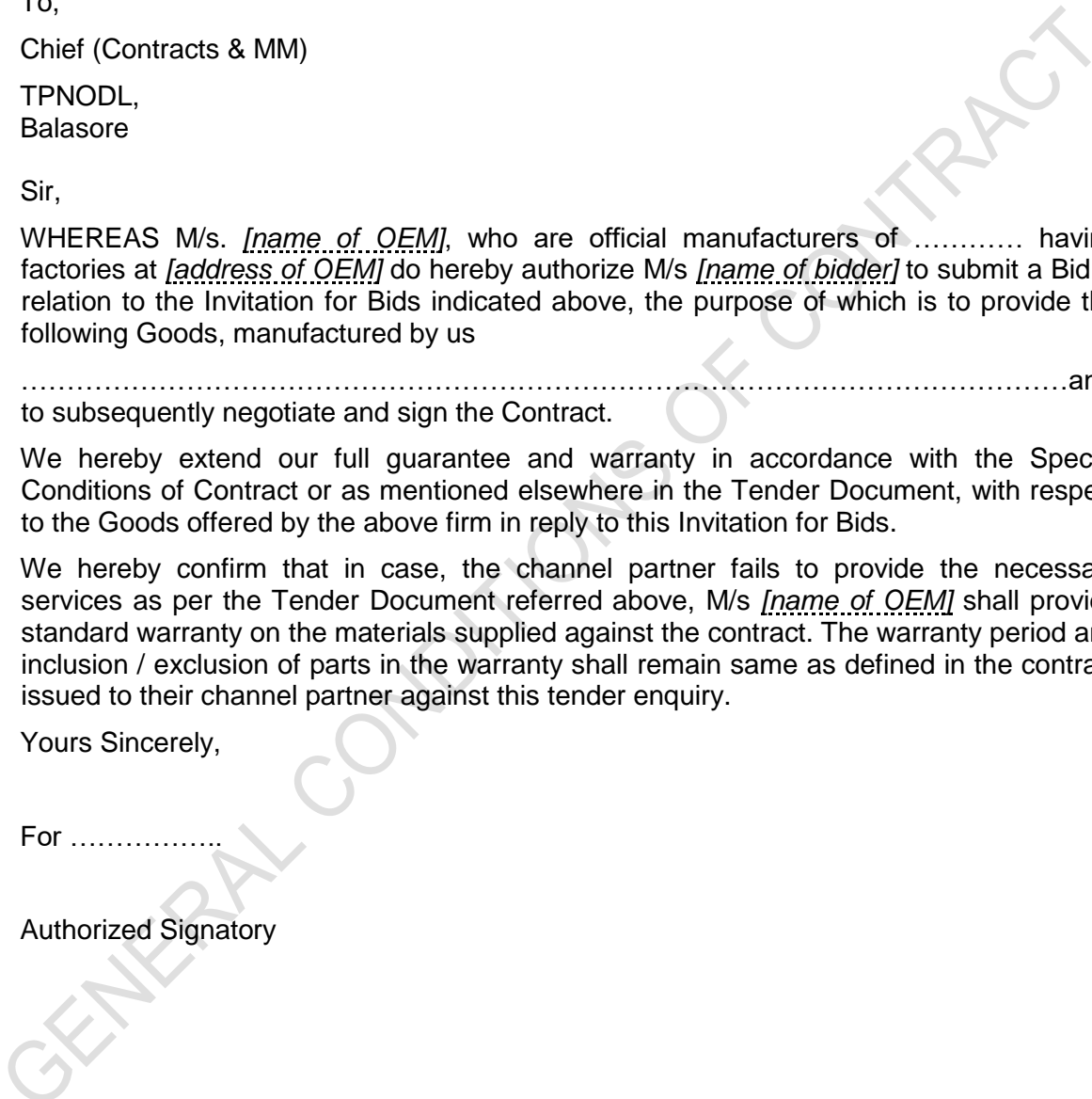
We hereby extend our full guarantee and warranty in accordance with the Special Conditions of Contract or as mentioned elsewhere in the Tender Document, with respect to the Goods offered by the above firm in reply to this Invitation for Bids.

We hereby confirm that in case, the channel partner fails to provide the necessary services as per the Tender Document referred above, M/s *[name of OEM]* shall provide standard warranty on the materials supplied against the contract. The warranty period and inclusion / exclusion of parts in the warranty shall remain same as defined in the contract issued to their channel partner against this tender enquiry.

Yours Sincerely,

For

Authorized Signatory



Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No		Page 46 of 47

Annexure-J

TATA CODE OF CONDUCT (TCoC)

Introducing Tata Code of Conduct (TCoC) in GCC, the following clause is proposed for inclusion as per suggestions from Chief Ethics Counsellor -

“TCoC is the overarching policy framework that applies to all TATA Group companies including TPNODL. TCoC provides for stakeholder-wise approach in each of the seven chapters.

The chapter “Our Value Chain Partners” states the policy as follows:

1. We shall select our suppliers and service providers fairly and transparently.
2. We seek to work with suppliers and service providers who can demonstrate that they share similar values. We expect them to adopt ethical standards comparable to our own.
3. Our suppliers and service providers shall represent our company only with duly authorized written permission from our company. They are expected to abide by the Code in their interactions with, and on behalf of us, including respecting the confidentiality of information shared with them.
4. We shall ensure that any gifts or hospitality received from, or given to, our suppliers or service providers comply with our company’s gifts and hospitality policy.
5. We respect our obligations on the use of third party intellectual property and data.

In case any Ethical Concern is faced during the course of your business dealings BA can write to Chief- Contracts & MM and CEO.

TPNODL is committed to follow Core Values and Core Principles mentioned in TCoC, cited below, in carrying out various activities as well as in discharge of bi-lateral and multi-lateral obligations involving other entities/organizations:

Core Values:

All six core values are already mentioned in GCC.

Core Principles:

1. **Zero tolerance to bribery or corruption** in any form.
2. Committed to **good corporate citizenship**
3. Contribute to the **economic development of the communities** of the countries & regions we operate in.
4. No compromise on **Safety**
5. Our conduct shall be **fair & transparent**
6. Respect the **human rights & dignity** of our stakeholders
7. **No unfair discrimination** of any kind
8. Statements made to stakeholders shall be **truthful & made in good faith**
9. Not engage in any restrictive or **unfair trade practice**
10. Provide avenues for our stakeholders to **raise concerns in good faith**
11. Environment **free from fear** of retribution to deal with concerns that are raised
12. Expect the leaders to be **role model**

Doc. Title	GENERAL CONDITIONS OF CONTRACT FOR SUPPLY ORDERS	
Rev. No		Page 47 of 47

13. **Comply with the laws** of the countries in which we operate

Gift Policy:

Principles for acceptance of gifts/benefits –

A gift or benefit may be accepted only if it complies with all of the following principles:

- ✓ it does not influence,
- ✓ does not have the potential to influence, an employee in such a way as to compromise or appear to compromise integrity and impartiality
- ✓ does not create a conflict of interest or perception of conflict of interest;

Principles for non-acceptance of gifts/benefits -

The gift or benefit may not be accepted or given if any of the following principles apply:

- ✓ causes the recipient or donor **to act in partial manner** in the course of duty
- ✓ apprehension of the recipient becoming **obligated to the donor**
- ✓ it is **not offered openly**
- ✓ if is an **offer of money** or something readily convertible to money (e.g. Shares)

Violation –

1. Not abiding with this policy would constitute violation of “Our Employees” Stakeholder group Clause “Gifts and Hospitality” of the Tata Code of Conduct (TCoC) 2015. Prompt action will be taken against violations.
 2. Any deviation from this policy must be supported by appropriate rationale and must be duly approved by CEO who is also the Principal Ethics Officer. In any case, in dealing with such deviations, the spirit of the TCoC should in no case be compromised.
2. If it is determined that an employee / associate has violated this policy, appropriate action including termination of the employee’s / associate’s employment or association with TPNODL may be decided upon.