

REQUEST FOR PROPOSAL (RFP) FOR SUPPLY OF COPPER CABLES

1. INTRODUCTION

The ‘Request for Proposal’ (RFP) is for the “Supply of Control and Communications grade Copper Cables” as per the specifications mentioned in the document.

1.1.PREPARATION AND SUBMISSION OF BIDS

1. Proposals are invited from the interested bidders for the supply of Copper Cables in two part bid in GeM, i.e
 - Part-1: It consists of Technical and commercial/ unpriced details and
 - Part-2: It consists of Price details only.
2. This RFP is being issued with no financial commitment and the Buyer reserves the right to change or vary any part thereof at any stage. Buyer also reserves the right to withdraw the RFP, should it become necessary at any stage.
3. The Tenders submitted online on or before the tender submission due date and time only be considered as valid tenders. Physical copy of the tender will not be considered, even received before the bid submission date. Bids shall be submitted in GeM portal only.

Part-I The techno-commercial bid should contain the following:

- (a) Party has to submit Annexure –I and Annexure-II formats i.e compliance of specifications and acceptance of terms and conditions by the vendor and Checklist forms, duly signed and stamped as token of acceptance of the scope, terms and conditions of the RFP.
- (b) A Technical compliance statement along with technical data sheet/ literature highlighting the compliance to specifications. Deviations, if any, shall be brought out clearly.
- (c) Tenders are invited from the Original Equipment Manufacturers (OEM) only, other bids submitted will be not be considered for evaluation.
- (d) Any bids/ offers with price details in Techno-Commercial Offer (Part -I) shall be rejected.**

Part – II: Price Bid format

The Party should upload the detailed price bid as per the format given in Table-A.

Price details should not be mentioned in Part-I: Technical and Commercial bid.

PART-I: TECHNO-COMMERCIAL DETAILS

1.2.GENERAL INFORMATION & STANDARD CONDITIONS

S. No	Description	Vendor Compliance
1.	Prices quoted should be on the basis of F.O.R. SDSC SHAR, Sriharikota, the purchaser will not pay separately for transit insurance. All risks in transit shall be exclusively of the contractor and the purchaser shall pay only for such stores as are actually received in good condition in accordance with the contract.	
2.	Offer Validity: Bid shall remain valid for acceptance for a period of 120 days from the date of opening of tenders. The Bidder shall not be entitled during the said period to revoke or revise his Bid or to vary the Bid except and to the extent required by SDSC SHAR in writing. Bid shall be revalidated for extended period as required by SDSC SHAR in writing. In such cases, unless otherwise specified, it is understood that validity is sought and provided without varying either the quoted price or any other terms and conditions of Bid finalized till that time.	
3.	<p>Declaration of Vendor classification / Local content: For this procurement, bids from Class-I & class-II Local Suppliers are admissible. hence provisions contained in Public Procurement (Preference to Make in India), Order 2017 issued by Department for Promotion of Industry and Internal Trade (DIPP), Ministry of Commerce & Industries vide letter No. P-45021/2/2017-PP(BE-II) dated 04.06.2020 and subsequent amendment & directives shall be followed. Accordingly, offer will be evaluated & processed in conformation with above referred GOI order (Specially mentioned below). The bidder shall provide compliance and undertaking as per order and hereafter amendments:</p> <p>(a) Order no: F.No.6/18/2019 PPD dated 23.07.2020 of Department of Expenditure), Ministry of Finance Under Public procurement division for the General Financial rule (GFRs).</p> <p>(b) Class-I local supplier means a supplier or service provider, whose goods, service or works offered for procurement, has local content equal to or more than 50%, as defined under order.</p> <p>(c) Class-II local supplier means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%, as defined under this Order</p>	

S. No	Description	Vendor Compliance
	<p>(d) Verification of local content:</p> <p>(i) The Class I local supplier/ Class- II local supplier at the time to tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for Class-I local supplier / Class II local supplier as the case may be. They shall also give details of the location(s) at which the local value addition is made.</p> <p>(ii) In case bid value is in excess of Rs. 10 Cr., Class-I local supplier / Class-II local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.</p> <p>(iii) False declarations will be in breach of the code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules (GFR) for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the general Financial Rules along with such other actions as may be permissible under Law.</p> <p>(iv) A supplier who has been debarred by any procuring entity for violation of this order shall not be eligible for preference under this order for procurement by any other procuring entity for the duration of the debarment.</p> <p>(e) The percentage of local content should be specifically mentioned in the offer, without which it will be summarily rejected.</p> <p>(f) Preference will be given to Class-I Local supplier and in their absence, Class-II Local supplier will be considered.</p>	
4.	<p>GST: Bidders has to provide applicable GST rate/s as well as HSN/SAC Code for the item/s quoted, for evaluation of the offer.</p>	

S. No	Description	Vendor Compliance
5.	<p>Delivery Schedule:</p> <p>Supply of the items shall be completed within 4 MONTHS from the date of placement of the order. Part supply of Items in two to three lots may be scheduled and accordingly pro-rata payment will be processed.</p> <p>The date of delivery of the stores stipulated in the purchase order shall be deemed to be the essence of the contract and must be completed no later than the date(s) specified therein.</p>	
6.	<p>Liquidated Damages: In the event of the vendor failing to complete scope of the work within the delivery period specified in the contract agreement or in extension agreed thereto, the Department shall reserve the right to recover from the vendor as liquidated damages, a sum of 0.5 percentage per week or part thereof of the undelivered portion of the contract price of equipment. The Total liquidated damages shall not exceed the 10.0 percentage of the total Contract.</p>	
7.	<p>Packing and Forwarding:</p> <p>The bidder shall arrange to have all the material suitably packed as per the standards & statutes and as specified in the contract. Unless otherwise provided for in the contract, all containers (including packing cases, boxes, tins, drums, and wrappings) used by the bidder shall be non-returnable. All packing and transport charges, transit handling costs, transit risk coverage and transport fees of agents employed at the place of delivery or elsewhere, shall be deemed included in the price to be paid to the bidder.</p>	
8.	<p>Warranty: The cables supplied shall be guaranteed against any defects in workmanship for a period of 12 months from the date of installation or 18 months from the date of dispatch, whichever is earlier.</p>	
9.	<p>Acceptance Test Plan (ATP):</p> <p>The successful bidder shall conduct Electrical and Mechanical tests for the Cables to be supplied at your site, as a part of Pre-Delivery Inspection, as per the Acceptance Test Plan. The Party has to submit the ATP report and other factory test reports to the Department, along with the supply of Cables.</p>	
10.	<p>Security Deposit: The supplier, whose tender is accepted, shall be required to furnish by way of Security Deposit for the due fulfillment of the contract such a sum as shall amount to 3 % of the contract price of the work awarded.</p> <p>The security deposit (bearing no interest) shall be held by the</p>	

S. No	Description	Vendor Compliance
	<p>Department as security till supply of all the items and for the due performance of all suppliers' obligations under the contract as per delivery period or extension granted thereof by the Department.</p> <p>The supplier immediately after release of Purchase Order or signing of Contract, deposit with the Accounts officer, Satish Dhawan Space Centre SHAR, Sriharikota as detailed above by any one or more of the following modes namely.</p> <p>By a crossed demand draft in favour of Accounts Officer, Satish Dhawan Space Centre SHAR drawn on SBI and payable at Sriharikota.</p> <p>By an acceptable bank guarantee. The bank guarantee shall be from a nationalized bank & shall be valid for 60 days beyond completion period.</p> <p>In case of breach of contract, the Security deposit shall be forfeited in addition to other relief available to the Department under this contract.</p>	
11.	<p>Performance Bank Guarantee (PBG):</p> <ul style="list-style-type: none"> a) The supplier shall guarantee for the performance of the contract by providing bank guarantee in favour of the Department for an amount equivalent to 3 % (<i>three percent of the total value</i>) of this contract valid till the 3-year warranty period with a claim period of 2 months. b) The performance bank guarantee shall be submitted by the supplier along with supply of the Items with in fifteen days from the date of accepting the equipment/material as per the Contract. The format for the performance bank guarantee shall be obtained from the Department. <p>Department reserves right to forfeit the PBG during the case of non-performance of the equipment/ material supplied.</p> <p>Combined BG Clause</p> <p>In case, if parties are unable to provide two separate BGs, i.e., one for SD & one for PBG, they can submit a combined BG for SD & PBG for 3% of the Order value valid till the completion of total contractual obligation (i.e., Supply period + 3-year warranty period + 60 days).</p>	
12.	<p>Mode of Payment: Bidders can submit the banker details and payments can be made through NEFT/RTGS/ECS through PFMS.</p>	
13.	<p>Terms of Payment: The payment term shall be 100% of supply cost including taxes within 30 days after receipt and acceptance of the Items at SDSC SHAR, subject to the submission of Performance Bank</p>	

S. No	Description	Vendor Compliance
	Guarantee.	
14.	Bidder shall note that the conditional discounts would not have edge in the evaluation process of tenders.	
15.	Non-acceptance of any conditions where ever called for related to warrantee, security deposit, performance bank guarantee, liquidate damages are liable for disqualification of bids.	
16.	Arbitration: In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Order, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre – Bengaluru (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be “English” only. Work under the Order shall be continued by you during the pendency of arbitration proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the DEPARTMENT or unless the matter is such that the works cannot be possibly continued until the decision (whether final or interim) of the Arbitrator is obtained.	
17.	Applicable Law and Jurisdiction: The laws of India shall govern this purchase order for the time being in force. The Courts of Andhra Pradesh, India only shall have jurisdiction to be with and decide any legal matters or disputes what so ever arising out of the purchase order.	
18.	Force Majeure: Should a part or whole work covered under this purchase order be delayed due to reasons of Force Majeure which shall include legal lockouts, strikes, riots, civil commotion, fire accident,	

S. No	Description	Vendor Compliance
	quarantines, epidemic, natural calamities and embargoes the completion period for work/ equipment referred to in this agreement shall be extended by a period not in excess of the duration of such Force Majeure. The occurrence shall be notified within reasonable time.	
19.	OEM Authorisation: Tenders are invited from the Original Equipment Manufacturers (OEM) only, other than OEM bids submitted will be not be considered for evaluation. OEM self-certification shall be submitted along with supporting documents.	
20.	The following information/ documents are to be furnished online wherever applicable. (a) Product literature (b) Core banking account number (c) PAN details GSTIN etc., and Any other relevant details.	

1.3. BIDDER EVALUATION

SDSC SHAR seeks response to the following questionnaire for assimilating data which would be used for evaluation of the capability for the supply of the Copper Cables. Hence, the Bidder is requested to provide only genuine data and any discrepancy found at a later point of time may result in rejection of the Bidder from purchase process. Furnishing of data cannot be construed as automatic qualification for participation in the tender. Questionnaire should be signed by a responsible and authorized person of the Company / Agency.

S. No	Description	Vendor Response
1.	Name of the Organization :	
2.	Type of the Organization : (Proprietary/Pvt. Ltd/Public Ltd/Joint Venture/Consortium)	
3.	Registration Number :	
4.	Year of Inception of the Organization :	
5.	Registered address :	
6.	Name & Address of the Office of the :	

S. No	Description	Vendor Response		
	Chief Executive of the Organization			
7.	Contact person for this tender with name : & address, email and contact number			
8.	Locations of the Branches of Organization : (if any)			
9.	Current Annual turn-over of the Organization			
10.	IT returns for the last 3 years (ending with : 31.03.2023)			
11.	Turnover			
12.	In Rs. Lakhs only	2020-21	2021-22	2022-23
	Total assets (i)			
	Current assets (ii)			
	Total liabilities (iii)			
	Current liabilities (iv)			
	Net Worth (i-iii)			
	Working capital (ii-iv)			
	Turnover			
	Profit/Loss			
13.	Major customers of Copper Cables : (Enclose copies of the Purchase Orders)			
14.	Any customers feedback. which is in : writing (Pl. enclose copies)			
15.	Please submit the Manufacturer's : authorization certificate for supply and warranty.			

16. Details of last five years' experience of Tenderer in executing similar supply of cables which are completed

Sl.No	Full postal address of the client with Contact Person	Description of the work	Value of the work (Rs. in Lakhs)	Completion Time as per PO	Actual period of completion	Reasons for delay
1						
2						
3						
4						
5						

Note: In order to consider as valid experience, all the experience has to be supported with the purchase order, completion certificate and TDS certificate, if any.

Signature of Authorized Person with Seal

1.4. MINIMUM EVALUATION CRITERIA

S.No	Qualification Criteria	Vendor Remarks (with supporting documents)
1.1.	<p>The bidder should have prior experience in supply of Copper Cables to any private/ public organizations in the last five years ending with 31-03-2023.</p> <p>The documentary evidence(s) like Purchase Order copies, acceptance/ completion report/ user satisfaction certificate(s) with user contact details should be submitted along with the technical proposal.</p>	
1.2.	<p>The Bidder shall submit similar purchase orders executed in the past five years ending with 31-03-2023, as below.</p> <ul style="list-style-type: none"> • One purchase order not less than Rs. 150 L (or) • Two purchase orders each not less than Rs. 75 L (or) • Three purchase orders each not less than Rs. 50 L. 	
1.3.	The bidder/ firm should have an average annual turn-over of not less than Rs.175 Lakhs during the last three financial years, ending 31-03-2023.	
1.4.	The bidder must be in existence for a minimum of Three years prior to date of issue of this tender, with experience as mentioned above.	
1.5.	Technical proposal of the bidder, which is not able to substantiate/ satisfy the claims made by it with respect to the technical requirements laid down in this RFP, is liable to be rejected	
1.6.	The firm must provide a self-declaration that they have not been debarred/ black listed by any Govt. Department/ PSU.	

(Authorized Signatory of Company)

General Terms & Conditions:

S. No	Parameter	Specification	Vendor Compliance
1	Compliance Statement	The Vendor has to submit a separate compliance statement for each line wise specifications for the cables or shall submit the detailed Technical data sheets preferably, covering all the specifications without any ambiguity.	
2	Pre-Delivery Inspection	Pre-delivery inspection will be carried out at the factory site by our representative for whom the factory should extend required Test facilities and other relevant support.	
3	Warranty	The cables supplied shall be guaranteed against any defects in workmanship for a period of 12 months from the date of installation or 18 months from the date of dispatch, whichever is earlier.	
4	Quantity Tolerance	Quantity tolerance @ + or - 5% will be allowed on the total order quantity. Payment shall be made for the actual quantities supplied, if less than or equal to, as indicated in the PO. Payment for the additional quantity supplied shall be made after issue of formal order amendment.	
5	General	Department absorbs Saturday and Sunday as Holidays, accordingly Delivery of the consignment shall be planned. Unloading of the consignment at SDSC SHAR is the Department responsibility, and not in Party's scope.	
		In respect of Two part-Bid system, the technical Bids forwarded by the Bidders will be evaluated by the Department with reference to the technical Specifications of the cables as mentioned in the RFP. The compliance of Technical Bids would be determined on the basis of the parameters specified in the RFP. The Price Bids of only those Bidders will be opened, whose Technical Bids would clear the technical evaluation.	
		During evaluation, SDSC SHAR may request Bidder for any clarification on the bid, additional documents etc. If required department will visit the manufacturing site of the Copper cables for assessment.	
		SDSC SHAR reserves the right to reject any bid if technically/commercially not meeting the requirement/ terms & conditions. Such decisions by the SDSC SHAR shall bear no liability whatsoever consequent upon such decision.	
		Split purchase order will be issued based on L1 offer for individual cable types.	

(Authorized Signatory of Company)

2. SPECIFICATIONS OF COPPER CABLES:

2.1 SPECIFICATIONS OF 25 CORE ARMOURED CONTROL CABLE:

S. No.	Description	Specification	Vendor Compliance
1.	Preferred Make Cables	Polycab, CMI, Delton, Paramount, APAR/ Uniflex/ equivalent make	
2.	Number of Cores	25	
3.	Core dimensions	48/ 0.2 mm standard ATC with quality of Copper confirming to IS 8130 or equivalent standard	
4.	Core Insulation	Extruded HDPE insulation with nominal thickness of 1 mm over the core to form a flexible insulated core confirming to BS 6234 or equivalent standard.	
5.	Core screen	10/ 0.254mm dia standard ATC with Poly Aluminum Mylar tape wrapping of nominal thickness 0.018 mm.	
6.	Core Sheathing	Extruded HR PVC type ST-2 of IS5831/84. Nominal Thickness 0.3mm, Black colour.	
7.	Overall screen	10/ 0.254mm dia standard ATC with Aluminum Mylar tape wrapping of nominal thickness 0.018 mm.	
8.	Core identification	By Numbering Scheme at regular intervals of 50 cm on each core overall sheath.	
9.	Outer sheath	Extruded HR PVC type ST-2 of IS5831/84, along with Anti-termite and Anti-Rodent treatment. Nominal Thickness 2.5mm, Black colour.	
10.	Armoring	Galvanized Steel flat flexible strip armour confirming to IS 3975 or equivalent standard	
11.	Cable Preparation	48 strands of 0.2mm dia high conductivity ATC conductors are formed and twisted to form a single core and each core is insulated with HDPE with 1mm wall insulation	

		thickness, and screened with Aluminum Mylar tape to give 100% coverage along with inclusion of drain wire, polyester taped and sheathed with 0.3mm HR PVC black. Such 25 cores are suitably laid up, bunched together polyester taped, overall shielded with Poly aluminum tape to give 100% coverage with drain wire included. Finally, overall sheathed with 2.5mm black PVC to present smooth round surface.	
12.	Conductor Resistance	13.4 Ω/Km nominal at 20 degree Celsius	
13.	Insulation Resistance (IR)	> 10,000 MΩ/Km at 500 V DC	
14.	H.V. Test	(1) Between Core to Core to withstand 2KV RMS for 1 min. (2) Between Core to Shield to withstand 700V RMS for 1 min.	
15.	Packing length per drum and tolerance	1000 m ± 5%	
16.	Cable Identification	“25 CORE CABLE, EIS/ RO”, cumulated cable length, name of the Manufacturer, and year of manufacturing are to be embossed on the cable outer sheath at regular intervals of 1 meter. Cable core numbers to be marked on individual core sheathing at regular intervals of 50cm (approximately) is preferable.	
<i>Mechanical Specifications</i>			
17.	Core Insulation Tensile Strength	Min. 18 N/ Sq. mm	
18.	Core Insulation elongation	Min. 300 %	
19.	Cable Outer Sheath Insulation Tensile Strength	Min. 12.5 N/ Sq. mm	
20.	Cable Outer Sheath elongation	Min. 150 %	
21.	Quantity	11 Km ± 5 %	

19.	Warranty	12 months from the date of commission, or 18 months from the date of dispatch, whichever is earlier, against any Manufacturing defects.	
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2.2 SPECIFICATIONS OF 12 PAIR ARMORED COPPER CABLE:

S. No.	Description	Specification	Vendor Compliance
1.	Preferred Make Cables	Polycab, CMI, Delton, Paramount, APAR/ Uniflex/ equivalent make	
2.	No pairs	12	
3.	Core	7/0.27 mm dia ATC. The quality of copper shall confirm to IEC 60228.	
4.	Core Insulation	Each conductor is insulated with solid medium density polyethylene of nominal thickness 0.4mm, and colored (as per Standard Color Coding) for ready identification.	
5.	Twisting	The insulated conductors are twisted in uniform lay to form a pair. Number of twists per meter should be approximately 30.	
6.	Cable formation	Two such cores are twisted to form a pair. 12 such pairs are suitably laid up so as to result in minimum cross talk and overall 100% shielded with Poly Aluminum Foil enclosing 10/0.254 mm ATC Drain Wire inside making electrical contact with aluminum surface of the foil. The entire formation is overall sheathed with minimum 2 mm thick FRLS/ HR PVC, black color as per IS 5831.	
7.	Cable cores color code Scheme	As per Telecommunications Standard: White – Blue, White – Orange, White – Green, White – Brown, White – Grey, Red – Blue, Red – Orange, Red – Green, Red – Brown Red – Grey, Black – Blue, Black – Orange	
8.	Armoring	Galvanized Steel round wire/ flat strip confirming to IS 3975	
9.	Loop resistance / km of the pair	Max 110 Ω at 30 deg c.	
10.	Insulation resistance	Min. 5000 MΩ / Km	

11.	High voltage test	<ol style="list-style-type: none"> 1. The insulated conductor should be subjected to spark test at 3 KV rms ac during production. 2. The cable should withstand 700 V rms supplied between any two conductors for a period of 2 minutes continuously. 	
12.	Packing length per drum and tolerance	1000 m ± 5%.	
13.	Cable Identification	Manufacturing identification, Cable Identification such as type of cable, no. of pairs, Cumulated Cable length, name of the supplier, and year of manufacturing are to be embossed on the cable outer sheath at regular intervals of 1 m.	
<i>Mechanical Specifications</i>			
14.	Core Insulation Tensile Strength	Min. 12.5 N/ Sq. mm	
15.	Core Insulation elongation	Min. 300 %	
16.	Cable Outer Sheath Insulation Tensile Strength	Min. 10 N/ Sq. mm and 150 %	
17.	Cable Outer Sheath elongation	Min. 150 %	
18.	Quantity	3 Km ± 5 %	
19.	Warranty	12 months from the date of commission, or 18 months from the date of dispatch, whichever is earlier, against any Manufacturing defects.	

2.3 SPECIFICATIONS OF 12 PAIR (UNARMORED) COPPER CABLE:

S. No.	Description	Specification	Vendor Compliance
1.	Preferred Make Cables	Polycab, CMI, Delton, Paramount, APAR/ Uniflex/ equivalent make	
2.	Specifications	Specifications same as above table, except Sl. No.: 8 i.e Unarmored cable to be supplied.	
3.	Quantity	5 Km ± 5 %	
4.	Warranty	12 months from the date of commission, or 18 months from the date of dispatch, whichever is earlier, against any Manufacturing defects.	

2.4 SPECIFICATIONS OF 4 PAIR (UNARMORED) COPPER CABLE:

S. No.	Description	Specification	Vendor Compliance
1.	Preferred Make Cables	Polycab, CMI, Delton, Paramount, APAR/ Uniflex/ equivalent make	
2.	No pairs	4	
3.	Core	7/0.32 mm dia ATC. The quality of copper shall confirm to IEC 60228.	
4.	Core Insulation	Each conductor is insulated with solid medium density polyethylene of nominal thickness 0.4mm, and colored (as per Standard Color Coding) for ready identification.	
5.	Twisting	The insulated conductors are twisted in uniform lay to form a pair. Number of twists per meter should be 15 to 20.	
6.	Cable formation	Two such cores are twisted to form a pair. Four such pairs are suitably laid up so as to result in minimum cross talk and overall 100% shielded with Poly Aluminum Foil enclosing 10/0.254 mm ATC Drain Wire inside making electrical contact with aluminum surface of the foil. The entire formation is overall sheathed with minimum 1 mm thick FRLS/ HR PVC, black color as per IS 5831.	
7.	Cable cores color code Scheme	White – Blue, White – Orange, White – Green, White – Brown,	
8.	Armoring	Galvanized Steel round wire/ flat strip confirming to IS 3975	
9.	Nominal Conductor resistance / km of the pair	$37.1 \pm 2 \Omega$ at 20 deg c.	
10.	Insulation resistance	Min. 2000 MΩ / Km	
11.	High voltage test	<ol style="list-style-type: none"> The insulated conductor should be subjected to spark test at 3 KV rms ac during production. The cable should withstand 700 V rms supplied between any two conductors for a period of 2 minutes continuously. 	
<i>Mechanical Specifications</i>			
12.	Copper Conductor Annealing	Min. 18%	

13.	Insulation tensile strength	Min. 100 Kg/ Sq. cm	
14.	Insulation Elongation	Min 300 %	
15.	Sheath tensile strength	Min. 70 Kg/ Sq. cm	
16.	Sheath Elongation	Min 300 %	
17.	Packing length per drum and tolerance	1000± 5%.	
18.	Quantity	5 Km ± 5 %	
19.	Warranty	12 months from the date of commission, or 18 months from the date of dispatch, whichever is earlier, against any Manufacturing defects.	

2.5 SPECIFICATIONS OF 18 PAIR ARMORED COPPER CABLE:

S. No.	Description	Specification	Vendor Compliance
1.	Preferred Make Cables	Polycab, CMI, Delton, Paramount, APAR/ Uniflex/ / equivalent make	
2.	No pairs	18	
3.	Core	7/0.27 mm dia ATC. The quality of copper shall confirm to IEC 60228.	
4.	Core Insulation	Each conductor is insulated with solid medium density polyethylene colored (as per Standard Color Coding) for ready identification. The thickness of the insulation shall be 0.4 mm nominal.	
5.	Twisting	The insulated conductors are twisted in uniform lay to form a pair. Number of twists per meter should be approximately 20.	
6.	Cable formation	Two such cores are twisted to form a pair. 18 such pairs are suitably laid up so as to result in minimum cross talk and overall 100% shielded with Poly Aluminum Foil enclosing 10/0.254 mm ATC Drain Wire inside making electrical contact with aluminum surface of the foil. The entire formation is overall sheathed with minimum 2 mm thick FRLS/ HR PVC, black color as per IS 5831.	

7.	Cable cores color code Scheme	As per Telecommunications Standard: White – Blue, White – Orange, White – Green, White – Brown, White – Grey, Red – Blue, Red – Orange, Red – Green, Red – Brown Red – Grey, Black – Blue, Black – Orange, Black – Green, Black – Brown, Black – Grey, Yellow – Blue, Yellow – Orange, Yellow – Green	
8.	Armoring	GI flat strip 4.0 x 0.80 mm , 95% coverage	
9.	Conductor resistance / km of the pair	Nominal 40 Ω at 20 deg c.	
10.	Insulation resistance	Min. 5000 MΩ / Km	
11.	High voltage test	<ol style="list-style-type: none"> The insulated conductor should be subjected to spark test at 3 KV rms ac during production. The cable should withstand 700 V rms supplied between any two conductors for a period of 2 minutes continuously. 	
12.	Packing length per drum and tolerance	1000 m ± 5%.	
13.	Cable Identification	Type of cable, no. of pairs, Cumulated Cable length, name of the supplier, and year of manufacturing are to be embossed on the cable outer sheath at regular intervals of 1 m.	
<i>Mechanical Specifications</i>			
14.	Copper Conductor Annealing	Min. 18%	
15.	Insulation tensile strength	Min. 100 Kg/ Sq. cm	
16.	Insulation Elongation	Min 300 %	
17.	Sheath tensile strength	Min. 70 Kg/ Sq. cm	
18.	Sheath Elongation	Min 300 %	
19.	Quantity	3 Km ± 5 %	
20.	Warranty	12 months from the date of commission, or 18 months from the date of dispatch, whichever is earlier, against any Manufacturing defects.	

2.6 SPECIFICATION OF ARMORED CAT6 STP CABLE:

S. No	Parameter	Technical Specification	Vendor Compliance
1.	Preferred Make Cables	Polycab, CMI, Delton, Paramount, APAR/ Uniflex/ equivalent make	
2.	Conductors	23 AWG solid bare copper or better	
3.	Insulation	High Density Polyethylene or better	
4.	Shield	Aluminum/ Polyester Foil Tinned copper Braiding or better	
5.	Armor	Corrugated ECCS Tape or better	
6.	Sheath	FR-PVC/ LSZH or better	
7.	Cable Diameter	9 mm (Nominal)	
8.	Operating temperature	-20 Deg. C to +70 Deg. C	
9.	Frequency tested up to	Minimum 100 MHz	
10.	Delay Skew	35ns Max.	
11.	Impedance	100 Ohm + / - 6 Ohm, 1 to 250 MHz.	
12.	DC Resistance	95 Ohm/Km (Max)	
13.	Nominal Velocity of Propagation	70 % or better	
14.	Packing length per drum	Min. 305 mtr	
15.	Quantity	6 Km ± 5 %	
16.	Warranty	12 months from the date of commission, or 18 months from the date of dispatch, whichever is earlier, against any Manufacturing defects.	

2.7 SPECIFICATIONS OF PTFE INSULATED EQUIPMENT WIRE

S. No	Parameter	Technical Specification	Vendor Compliance
1.	Preferred Make Cables	Polycab, CMI, Delton, Paramount, APAR/ Uniflex/ Flu-Tef/ equivalent make	

2.	Conductors	High Strength Copper alloy or Silver or Nickle Plated Copper	
3.	Insulation	Extruded or Tape wrapped PTFE	
4.	Insulation colours	Black, Brown, Red, Orange, Yellow, Green, Blue, Violet, Grey, White	
5.	No. of Strands/ Diameter of Strands	AWG 16, 19/ 0.29 mm	
		AWG 20, 19/ 0.20 mm	
		AWG 24, 19/ 0.13 mm	
6.	Cable Type	ET, 250V AC	
7.	Packing length per drum	Each colour and Gauge wise 4 rolls, each roll 100 mtr	
8.	Quantity	Each Gauge with 10 Colours: 4000 mtrs ± 5 %	

Part-II

Price Bid format

S. No	Item Description	Qty (meters)	Unit Cost (Rs)	Amount (Rs)
1.	25 Core Armoured Control Cable	11000		
2.	12 Pair Armored Copper Cable	3000		
3.	12 Pair (Unarmored) Copper Cable	5000		
4.	4 Pair (Unarmored) Copper Cable	5000		
5.	18 Pair Armored Copper Cable	3000		
6.	Armored Cat6 STP Cable	6000		
7.	PTFE Insulated Equipment Wire with Ten Electronic of 16 AWG cable rolls (Each roll with 100 meters, each color, each colour 4 rolls)	4000		
8.	PTFE Insulated Equipment Wire with Ten Electronic of 20 AWG cable rolls (Each roll with 100 meters, each color, each colour 4 rolls)	4000		
9.	PTFE Insulated Equipment Wire with Ten Electronic of 24 AWG cable rolls (Each roll with 100 meters, each color, each colour 4 rolls)	4000		
Sub-total				
GST				
Grand Total				

Note: Price breakup details should not be uploaded in Part-1 of technical and commercial bid document.

Signature of Authorised Person with Seal