



**NTPC LTD**  
**CPG-1/VDC Raipur**

**Qualifying Requirement (QR) for Vendor Enlistment for Supply of LT Power/Control Trailing Cables**

A)	<b>MEG DETAILS</b>	
	1	MEG No <b>81MEG-06</b>
	2	MEG DESCRIPTION <b>LT Power/Control Trailing Cables</b>
	3	MEG RESPONSEBILITY VDC
	4	ENLISTMENT CATEGORY Category-1
B)	<p><b>Technical Criteria of QR:</b></p> <p>a) Bidder should be a manufacturer of Trailing Cables</p> <p>b) Should have supplied at least one (1) km of copper conductor, Elastomer (EPR) insulated Trailing cable of 1.1 KV or higher grade in single/multiple orders during last five years from the date of application.</p>	
C)	<p><b>Documents required in support of meeting QR :</b></p> <p>1. Latest annual report OR NSIC / SSI / MSME registration certificate / BIS license / ISO certificate / Certificate of registration from the concerned excise department / any other statutory document as a proof of being manufacturer of the LT Trailing cables. Brief details of manufacturing facilities or Standard published catalogue for LT Trailing cables also to be given.</p> <p>2. The PO in support of award and completion certificate/copies of invoice to establish successful execution of the supply of LT Trailing cables as per QR.</p>	
D)	<p><b>Documents to be submitted to find executed value of orders:</b></p> <p>In addition to the documents required in support of meeting technical requirements as stated above, following documents are required to be submitted by the Applicants applying for enlistment: -</p> <p>1. Three (3) POs of the highest executed values of similar work (see definition at point E:Note- 1 below) during previous five (5) years from the date of application. Copy of Invoice / Completion certificate from the concerned buyer/s in support of successful execution of supply against the POs to be submitted. These will be required for calculation of execution capability.</p> <p>2. Audited balance sheet including Profit &amp; Loss statement for the previous three (3) completed financial year's reckoned from the date of application. In case where the audited results for the last financial years as on the date of application are not available, the financial result certified by a practicing Chartered accountant shall be considered acceptable.</p> <p>3. GSTIN certificate, PAN, Power of attorney, Letter of undertaking, works information etc. as mentioned in enlistment application pages of website <a href="http://www.vendor.ntpc.co.in">www.vendor.ntpc.co.in</a></p> <p>4. NTPC can request for other documents as necessary during the course of evaluation.</p>	
E)	<b>NOTE-1</b>	Similar works means: "Supply of LT/HT Trailing cable.
	<b>NOTE-2</b>	The executed value means Basic value of quantity of similar works executed/supplied against thereference PO (also applicable to partly executed POs as on date of application). Where PO value is composite (i.e. including Taxes etc.), the applicant to give item-wise break-up of Composite PO value mentioning Basic Value, Taxes etc.

CLAUSE NO.	TECHNICAL REQUIREMENTS																													
<p>1.01.00</p>	<p><b>CODES &amp; STANDARDS</b></p> <p>All standards, specifications and codes of practice referred to herein shall be the latest editions including all applicable official amendments and revisions as on date of opening of bid. In case of conflict between this specification and those (IS : codes, standards, etc.) referred to herein, the former shall prevail. All the cables shall conform to the requirements of the following standards and codes:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 30%;">IS 9968 (Pt 1): 1988.</td> <td>Elastomer insulated cables for working voltages up to and including 1100 V</td> </tr> <tr> <td>IS 14494: 2019</td> <td>Elastomer Insulated Flexible Cables for use in mines</td> </tr> <tr> <td>IS 8130 (1984)</td> <td>Conductors for insulated electric cables and flexible cords [ETD 9: Power Cables]</td> </tr> <tr> <td>IS 6380 : 1984</td> <td>Specification for elastomeric insulation and sheath of electric cables (First Revision)</td> </tr> <tr> <td>IS 14494: 2019</td> <td>Elastomer Insulated Flexible Cables for use in mines</td> </tr> <tr> <td>IS 9968 (Pt 2): 2002</td> <td>Elastomer insulated cables for working voltages from 3.3. kV up to and including 33kV</td> </tr> <tr> <td>IS : 3961</td> <td>Recommended current ratings for cables</td> </tr> <tr> <td>IS : 8130</td> <td>Conductors for insulated electrical cables and flexible cords.</td> </tr> <tr> <td>IS : 10418</td> <td>Specification for drums for electric cables.</td> </tr> <tr> <td>IS : 10810</td> <td>Methods of tests for cables.</td> </tr> <tr> <td>ASTM-D –2843</td> <td>Standard test method for density of smoke from the burning or decomposition of plastics.</td> </tr> <tr> <td>ASTMD 2863</td> <td>method to determine the minimum concentration of oxygen in an oxygen/nitrogen mixture that will support a flaming burn in a plastic specimen.</td> </tr> <tr> <td>IEC-754 (Part-I)</td> <td>Tests on gases evolved during combustion of electric cables.</td> </tr> <tr> <td>IEC-332-1 &amp;3</td> <td>Tests on electric cables under fire conditions. Part-3: Tests on bunched wires or cables (Category-B).</td> </tr> </table>		IS 9968 (Pt 1): 1988.	Elastomer insulated cables for working voltages up to and including 1100 V	IS 14494: 2019	Elastomer Insulated Flexible Cables for use in mines	IS 8130 (1984)	Conductors for insulated electric cables and flexible cords [ETD 9: Power Cables]	IS 6380 : 1984	Specification for elastomeric insulation and sheath of electric cables (First Revision)	IS 14494: 2019	Elastomer Insulated Flexible Cables for use in mines	IS 9968 (Pt 2): 2002	Elastomer insulated cables for working voltages from 3.3. kV up to and including 33kV	IS : 3961	Recommended current ratings for cables	IS : 8130	Conductors for insulated electrical cables and flexible cords.	IS : 10418	Specification for drums for electric cables.	IS : 10810	Methods of tests for cables.	ASTM-D –2843	Standard test method for density of smoke from the burning or decomposition of plastics.	ASTMD 2863	method to determine the minimum concentration of oxygen in an oxygen/nitrogen mixture that will support a flaming burn in a plastic specimen.	IEC-754 (Part-I)	Tests on gases evolved during combustion of electric cables.	IEC-332-1 &3	Tests on electric cables under fire conditions. Part-3: Tests on bunched wires or cables (Category-B).
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<p>2.00.00</p>	<p><b>TECHNICAL REQUIREMENTS</b></p>																													
<p>2.01.00</p>	<p>The Supplied cable should be suitable for using with control cable reeling drum.</p>																													
<p>2.02.00</p>	<p>Trailing cables shall have tinned copper (class 5) conductor, insulated with heat resistant elastomeric compound based on Ethylene Propylene Rubber (EPR) suitable for withstanding 90 deg.C continuous conductor temperature and 250deg C during short circuit, inner-sheathed with heat resistant elastomeric compound, nylon cord reinforced,</p>																													
		<p>TECHNICAL SPECIFICATION HT/LT/CONTROL TRAILING CABLES</p>	<p>PAGE 1 OF 4</p>																											

CLAUSE NO.	TECHNICAL REQUIREMENTS											
2.03.00	outer-sheathed with heat resistant, oil resistant and flame retardant heavy duty elastomeric compound conforming to IS 9968.											
2.04.00	Conductor of HT/LT/Control cables shall be made of tinned copper.											
2.05.00	<p>In addition to meeting all the requirements of Indian Standards referred to, outer sheath of all the cables shall have the following FRLS properties.</p> <p>(a.) Oxygen index of min. 29. (As per IS 10810 Part-58/ASTM-D-2863)</p> <p>(b.) Acid gas emission of max. 20% (As per IEC-60754-I)</p> <p>(c.) Smoke density rating shall not be more than 60% during Smoke Density Test as per ASTMD-2843.</p> <p>(d) Flammability test on finished cable as per IEC: 60332-part 3 cat B</p>											
2.06.00	<p>In addition to manufacturer's identification on cables as per IS, following marking shall also be provided over outer sheath:</p> <p>(a.) Cable size and voltage grade - To be embossed</p> <p>(b.) Word 'FRLS' at every 5 meter - To be embossed</p> <p>(c.) Sequential marking of length of the cable in meters at every one meter - To be embossed / printed.</p> <p>(d) Manufacturer Name/Trade Name as well HR-90</p> <p>The embossing / printing shall be progressive, automatic, in line and marking shall be legible and indelible. For EPR cables identification shall be printed on outer sheath.</p>											
2.07.00	All cables shall meet the fire resistance requirement as per Category-B of IEC-332 Part-3.											
2.08.00	Allowable tolerances on the overall diameter of the cables shall be $\pm 2$ mm maximum over the declared value in the technical data sheets.											
2.09.00	In plant repairs to the cables shall not be accepted. Pimples, fisheye, blow holes etc. are not acceptable.											
2.10.00	<p>Cable selection &amp; sizing</p> <p>Control cables shall be sized based on the following considerations:</p> <p>(a) The minimum conductor cross-section shall be 1.5 sq.mm.</p> <p>(b) The minimum number of spare cores in control cables shall be as follows:</p> <table border="1" data-bbox="375 1161 1284 1304"> <thead> <tr> <th>No. of cores in cable</th> <th>Min. No. of spare cores</th> </tr> </thead> <tbody> <tr> <td>2C, 3C</td> <td>NIL</td> </tr> <tr> <td>5C</td> <td>1</td> </tr> <tr> <td>7C-12C</td> <td>2</td> </tr> <tr> <td>14C &amp; above</td> <td>3</td> </tr> </tbody> </table>	No. of cores in cable	Min. No. of spare cores	2C, 3C	NIL	5C	1	7C-12C	2	14C & above	3	
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2C, 3C	NIL											
5C	1											
7C-12C	2											
14C & above	3											
2.11.00	Cable lengths shall be considered in such a way that straight through cable joints are avoided.											
2.11.00	Cable shall be suitable for reeling and unreeling duty.											
	<p>TECHNICAL SPECIFICATION HT/LT/CONTROL TRAILING CABLES</p>	<p>PAGE 2 OF 4</p>										



5.01.00

**TYPE TESTS**

5.01.01

The reports for the following applicable type tests shall be submitted for one size of HT/LT/Control cables. Size shall be decided by the employer during detailed engineering.

S. No.	Type Test	Remarks
<b>For Conductor</b>		
1.	Resistance test	
<b>For Armour Wires / Formed Wires (If applicable)</b>		
2.	Measurement of Dimensions	
3.	Tensile Test	
4.	Elongation test	
5.	Torsion test	For round wire only
6.	Wrapping test	For aluminium wires / formed wires only.
7.	Resistance test	
8(a).	Mass of zinc Coating test	For GS wires/formed wires only
8(b).	Uniformity of zinc coating	For GS wires/formed wires only
9.	Adhesion test	For GS wires/formed wires only
<b>For PVC insulation &amp; PVC Sheath</b>		
10.	Test for thickness	
11.	Tensile strength and elongation test	before ageing and after ageing
12.	Ageing in air oven	
13.	Loss of mass test	For PVC insulation and sheath only
14.	Hot deformation test	For PVC insulation and sheath only
15.	Heat shock test	For PVC insulation and sheath only
16.	Shrinkage test	
17.	Thermal stability test	For PVC insulation and sheath only







ITEM (MATERIAL, CLASS, GRADE, RATING, RANGE, SIZE ETC.):  
TRAILING CABLE (POWER / CONTROL)  
LT & HT ( UPTO 6.6 KV) FRLS

**STANDARD QUALITY PALN**  
**CONFORMING TO CODE:**  
**IS 9968- PART I,II AND NTPC**  
**TECHNICAL SPECIFICATIONS**

QP NO.: 0000-999-QOE-S- 046  
REV. NO: 00  
PAGE 1 OF 6

REVIEWED BY  
S H Malani  
Rajeev Garg  
PK Basu

APPROVED BY

*(Signature)*  
**APPROVED**  
(AK GARG)

Sl.No	Component & Operation	Characteristics	Class	Type of Check	Quantum of Check	Reference document	Acceptance Norms	Format of Record	M	C	N	Remarks
1	2	3	4	5	6	7	8	9	D*	10**	11	
					M	C / N						

**A RAW MATERIAL**

1	Copper Rod	a) Make	Major	Verification	One sample per lot	One sample per lot	Refer Note 1	Refer Note 1	IR / Mfr's TC		P	--	--
		b) Grade	Major	Physical			NTPC ADS	NTPC ADS			P	V	V
		c) Surface Finish	Major	Physical			IS: 613	IS: 613			P	--	--
		d) Dimensions	Major	Physical			MFRR'S STD	MFRR'S STD			P	--	--
		e) Tensile Strength, Elongation, Bend Test, Hardness	Major	Physical	One sample per heat	One sample per heat	IS: 613 / IS: 1599	IS: 613 / IS: 1599			P	V	V
		f) Resistivity /Conductivity	Major	Electrical	One sample per lot	One sample per lot	NTPC ADS / IS 613	NTPC ADS / IS 613			P	V	V
2	Tin Ingot	Tin purity	Major	Chemical	One sample per lot	-	Mfr's Std / IS 26	IS 26	Mfr's TC / Lab TC		V	--	--
3	Tape / Braiding (As applicable)	a)Material	Major	Physical	One sample of each type per lot	-	NTPC ADS	NTPC ADS	IR		P	--	--
		b)Thickness	Major	Measurement			MFRR'S STD / IS 9968	MFRR'S STD / IS 9968			P	--	--
		c)Width	Major	Measurement			MFRR'S STD	MFRR'S STD			P	--	--
4	Elastomeric Compound (EPR) for Insulation, FRLS Inner Sheath & FRLS Outer Sheath	a) Make,	Major	Visual	One sample per lot	-	Refer Note 1	Refer Note 1	IR / Mfr's TC		P	--	--
		b) Grade, Colour,	Major	Verification			NTPC Specs /ADS	NTPC Specs /ADS			V	--	--
		c) Shelf Life of ingredients	Major	Verification			MFR STD	MFR STD			V	--	--
		b) Insulation characteristics check by Rheography / Spectrum Analysis	Major	Measurement			MFRR STD	MFRR STD			P	--	--
		c) TensileStrength, Elongation of Cured Samples	Major	Physical			IS 6380	IS 6380			P	--	--
		d) Volume Resistivity	Major	Measurement							P	--	--
e) Hot Set Test	Major	Measurement	P	--	--								

LEGEND: \* RECORDS, IDENTIFIED WITH "TICK" ( ✓ ) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

\*\* M: MANUFACTURER / SUB-SUPPLIER C: MAIN SUPPLIER, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W".

IS 9968 wherever indicated shall be read as IS 9968 Part I(1988) for LT (upto 1.1 kV) Cable and as IS 9968 Part 2 (2002) for HT Cable (upto 6.6 kV)





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					M	C / N								
		f) Oxygen Index, Temp. Index, Smoke Density, Acid Gas Generation	Major	Measurement	One sample per lot	-	NTPC ADS / IS 10810	NTPC ADS	IR		P	--	--	
5	Semiconducting Compound (Applicable for HT Cable only)	a) Make, b) Elect. Test c) Shelf Life of ingredients	Major	Visual Measurement Verification	One sample per lot	-	Refer Note 1 IS 9968 MFR STD	Refer Note 1 IS 9968 MFR STD	IR / Mfr's TC		P P V	-- -- --	-- -- --	
6	Wooden Drums	a) Dimension & Surface Finish b) Anti-termite treatment	Major	Visual	100%	100%	IS 10418/ Mfr's Std IS 10418	IS 10418/ Mfr's Std (free from sharp edges) IS 10418	IR / Mfr's TC		P V	V V	V V	CoC from drum MFRR.
7	Steel Drums	a) Dimension b) Surface Finish	Major	Visual	100%	100%	MFRR's Std MFRR's Std	MFRR's Std Smooth & without any sharp edges	IR / Mfr's TC IR / Mfr's TC		P	V	V	
<b>B IN PROCESS INSPECTION</b>														
1	Drawing ,Annealing & Tinning of Copper Strands	a) Surface Finish after Drawing ,Tinning b) Diameter of Strands c) Elongation d) Persulphate test e) Resistivity / Conductivity	Major	Physical Measurement Physical Chemical Electrical	One sample per setting One sample per lot	-	MFRR STD NTPC ADS / IS:8130 IS:8130 IS:8130 NTPC ADS /IS:8130	Smooth Surface , No burrs / sharp edges NTPC ADS / IS:8130 IS:8130 IS:8130 NTPC ADS /IS:8130	IR		P	--	--	( B.1.d -Only for tinned )

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ITEM (MATERIAL, CLASS, GRADE, RATING, RANGE, SIZE ETC.):  
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2	Conductor : Bunching / Rope-Cord Stranding and Taping	a) Diameter & No. of wires	Major	Physical	One sample per setting	-	NTPC ADS	NTPC ADS	IR	P	V	V
		b) Lay direction & Lay length	Major	Count			MFRR STD	MFRR STD				
		c) Area of Bunched conductor	Major	Measurement			NTPC ADS	NTPC ADS				
		e) Tap Overlap percentage	Major	Visual			MFRR STD	MFRR STD				
		d) Resistance	Critical	Electrical			NTPC ADS	NTPC ADS				
3	Insulation	a) Thickness	Major	Measurement	100%	-	IS 9968	NTPC ADS / IS:9968	IR	P	--	--
		b) Surface finish	Major	Visual	During m/c. setting		IS 9968 / MFRR'S STD	Smooth & free from defects.				
		d) Spark Test (not applicable for screened cores)	Critical	Electrical	100%		IS 9968	IS 9968				
		c) Tensile Strength & Elongation and Hot Set Test	Major	Physical	Each setting / Min 2 samples in running production		IS 9968	IS : 6380				
4	Semiconducting Screen on Conductor & Insulation (Applicable for HT Cable only)	a) Thickness ,Material	Major	Physical	once in a shift	-	MFRR'S STD	MFRR'S STD	IR	P	--	--
		b) Surface finish (over semi - conducting insulation screen)	Major	Visual	At every setting		MFRR'S STD	Smooth & free from defects.				
		c) HV Test on screened core	Critical	Electrical	100%		IS 9968	IS 9968				
5	Screening Tape & Braiding (wherever applicable)	a) No & Diameter of braid wires	Major	Count & Measurement	2 times in a shift	-	IS 9968	IS 9968	IR	P	--	--
		b) Surface finish	Minor	Visual	1 sample per lot		IS 9968 / MFRR'S STD	Smooth finish; Protruding ends etc. not allowed				
		c) Coverage density / filling factor	Major	Physical	At the time of setting		IS 9968	IS 9968				

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6	Laying up of Cores(Pair Formation)	a) Sequence of laying	Major	Visual	At the time of setting & at Standard length		NTPC ADS / MFRR'S STD	NTPC ADS / MFRR'S STD	IR	P	-	-	
		b) Core identification	Major	Visual			NTPC ADS /IS 9968	NTPC ADS /IS 9968					
		c) Lay Length and Lay direction	Major	Visual			IS 9968	IS 9968					
		d) Shape of laid up Assly	Major	Visual			IS 9968	NTPC ADS / IS 9968 / MFRR'S STD					
7	Inner & Outer Sheath	a) Thickness ,Colour	Major	Physical	Sample at the start of the process & at Standard length		NTPC ADS / IS 9968	NTPC ADS / IS 9968	IR	P	-	-	
		b) Overall diameter	Major	Physical			NTPC ADS / IS 9968	NTPC ADS / IS 9968					
		c) Surface finish	Minor	Visual			IS 9968 / MFRR'S STD	Smooth & free from defects.					
		d) Tensile Strength & Elongation before & after aging & Hot-set test	Major	Physical			IS 9968	IS 9968					
8	Vulcanization / Curing	a) Time of curing	Major	Physical	Each Length		MFRR'S STD	MFRR'S STD	IR	P	V	V	
		b) Temperature	Major	Physical			MFRR'S STD	MFRR'S STD					
		c) Surface finish & Identification printing	Major	Physical			NTPC ADS / IS 9968	NTPC ADS					

TYPE TEST : Type test clearance from NTPC- site as per tender /PO tech specs : shall be verified before final inspection.

**C FINAL INSPECTION OF FINISHED CABLE**

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a) Routine Tests	1. Conductor Resistance	Critical	Electrical		100%	100%	IS 9968	NTPC ADS / IS 9968	TC	√	P	W	W
	2. High Voltage	Critical	Electrical		100%	100%	IS 9968	NTPC ADS / IS 9968	TC	√	P	W	W
	3. Partial Discharge	Critical	Electrical		100%	100%	IS 9968	NTPC ADS / IS 9968	TC	√	P	W	W

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(AK GARG)

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1	2	3	4	5	6	7	8	9	10**			11	
					M	C / N							
b) Acceptance Tests	1. Dimensions (Overall dia, Thickness of Insulation, Inner sheath, Outer sheath, Tape, Braiding ,Conductor dia & strands), Colour of sheaths, Identification of cores	Major	Measurement / Physical	IS 9968	Same as Col 6	IS 9968	NTPC ADS / IS 9968	TC	√	P	W	W	
	2. Conductor Resistance	Major	Electrical	IS 9968		IS 9968	NTPC ADS / IS 9968	TC	√	P	W	W	
	3. Tensile Strength & Elongation on insulation & Sheath before aging	Major	Physical	IS 9968		IS 9968	NTPC ADS / IS 9968	TC	√	P	W	W	
	4. Hot set test for insulation & sheath	Major	Physical	IS 9968		IS 9968	NTPC ADS / IS 9968	TC	√	P	W	W	
	5. Insulation Resistance (Volume Resistivity) on insulation	Critical	Electrical	IS 9968		IS 9968	NTPC ADS / IS 9968	TC	√	P	W	W	
	6. High Voltage Test	Critical	Electrical	IS 9968		IS 9968	NTPC ADS / IS 9968	TC	√	P	W	W	Refer Note 4
	7. Partial Discharge Test (for cable of rating 3.3 kV & above only )	Critical	Electrical	IS 9968		IS 9968	NTPC ADS / IS 9968	TC	√	P	W	W	Refer Note 4
	8. Electrical test on Semiconducting non-metallic screen	Major	Electrical	IS 9968		IS 9968	NTPC ADS / IS 9968	TC	√	P	W	W	
	9. Length, Surface Finish , Printing, Sequential Marking,	Major	Physical	100%	One length of each size randomly selected from the offered lot	IS 9968	NTPC ADS / IS 9968	TC	√	P	W	W	Legible & indelible printing / marking

LEGEND: \* RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.  
\*\* M: MANUFACTURER / SUB-SUPPLIER C: MAIN SUPPLIER, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION, AS APPROPRIATE,  
CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W".

IS 9968 wherever indicated shall be read as IS 9968 Part I(1988) for LT (upto 1.1 kV) Cable and as IS 9968 Part 2 (2002) for HT Cable (upto 6.6 kV)



		ITEM (MATERIAL, CLASS, GRADE, RATING, RANGE, SIZE ETC.): TRAILING CABLE (POWER / CONTROL) LT & HT ( UPTO 6.6 KV) FRLS			STANDARD QUALITY PALN CONFORMING TO CODE: IS 9968- PART I,II AND NTPC TECHNICAL SPECIFICATIONS		QP NO.: 0000-999-QOE-S- 046 REV. NO: 00 PAGE 6 OF 6		REVIEWED BY S H Malani Rajeev Garg PK Basu			APPROVED BY (AK GARG)	
Sl.No	Component & Operation	Characteristics	Class	Type of Check	Quantum of Check	Reference document	Acceptance Norms	Format of Record	M	C	N	Remarks	
1	2	3	4	5	6	7	8	9	D*	10**		11	
					M	C / N							
		10. TS & Elongation after aging in Air Bomb	Critical	Physical	IS 9968	One randomly selected Sample from the offered lot irrespective of the sizes	IS 9968	NTPC ADS / IS 9968	TC	✓	P	W	W
	c) FRLS Tests	1. Oxygen / Temperature Index 2. Acid Gas Generation 3. Smoke density 4. Flammability Test	Critical	Physical	ASTM D-2863 IEC 754-1 ASTM D-2843 IEC 332 Pt3 Cat B	One Sample from the offered lot irrespective of the sizes	ASTM D-2863 / IS 10810 IEC 754-1 / IS ASTM D-2843 / IS 10810 IEC 332 Pt3 Cat B	NTPC ADS NTPC ADS NTPC ADS NTPC ADS	TC	✓	P	W	W
D	Packing & Marking	a) End sealing b) Packing c) Stencilling & Marking	Major	Visual	100%	-	NTPC ADS /IS 9968 / MFRR'S STD NTPC SPECS /ADS /IS 9968 NTPC ADS /IS 9968 / MFRR'S STD	NTPC SPECS / MFRR STD NTPC SPECS / ADS NTPC SPECS / MFRR STD	IR		P	W	V
													Ref Note 2&3

- NOTES :
- Makes of Elastomeric Compound, semiconducting compound & copper shall be indicated in the QP submitted with the bid/application .
  - The surface of the drum and the outer most cable layer shall be protected with water proof cover.
  - Both the ends of cables shall be properly sealed with heat shrinkable PVC/ rubber caps secured by "U" nails.
  - In case , HV /PD tests have been witnessed on a cable by NTPC during routine test , it shall not be repeated on the same cable during acceptance tests

LEGEND: \* RECORDS, IDENTIFIED WITH "TICK" ( ✓ ) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.  
 \*\* M: MANUFACTURER / SUB-SUPPLIER C: MAIN SUPPLIER, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE,  
 CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W".  
 IS 9968 wherever indicated shall be read as IS 9968 Part I(1988) for LT (upto 1.1 kV) Cable and as IS 9968 Part 2 (2002) for HT Cable (upto 6.6 kV)

- Reference and Acceptance norms shall be derived from following in the same sequence-
  - NTPC Approved drawing / data sheet ; ii) NTPC tech specs ; iii) Purchase Order ; iv) Relevant national standard
  - Relevant International standard ; vi) Manufacturer's standard vii) Good Engineering practices
- Main Contractor Column may please be ignored.