

CLAUSE NO.	TECHNICAL SPECIFICATIONS																	एनटीपीसी NTPC	
	8) MV (3.3 KV / 6.6. KV / 11 KV / 33 KV) CABLES																		
	Attributes / Characteristics	Item / Components / Sub System Assembly	Make, Type & T.C as per relevant standard	Dimension/surface finish	Mechanical properties	Chemical Composition	Spark Test(as applicable)	Electrical properties	Hot Set Test/ Eccentricity & Ovality	Lay length & Sequence	Armour coverage, cross over, looseness, gap between two wires	Sequential marking/ Batch marking/ surface finish/ cable length	T.S & elongation before & after going on outer sheath &	Thermal stability on outer sheath	Metallic (Cu) Screening If applicable)	Anti termite coating on wooden drums	Constructional requirements feature as per NTPC specification	Routine & Acceptance Test as per relevant standard & NTPC specification	FRLS Test
			Aluminum (IS-8130)	Y	Y	Y	Y		Y										
		Semiconducting Compound	Y		Y			Y											
		XLPE Compound (IS-7098 Part-II)	Y		Y			Y					Y						
		FRLS PVC Compound (IS-5831, ASTM-D2843, IS10810(Part 58) ,IEC-60754 Part-1)	Y		Y								Y	Y					Y
		Triple Extrusion & curing /Manufacturing of Core		Y			Y		Y										
		Copper Tape	Y	Y	Y			Y											
		Polyster tape	Y	Y						Y									
		Core Laying									Y								
		Armour wire/strip	Y	Y	Y														
		Copper tapping	Y	Y											Y				
		Inner sheath	Y	Y															
		Armouring		Y							Y								
		Outer Sheathing		Y								Y	Y	Y					
		Power Cable (Finished)								Y	Y	Y	Y	Y			Y	Y	Y
		Wooden drum(IS-10418) /Steel Drum		Y												Y	Y		
	Notes: 1. This is an indicative list of tests / checks. The manufacturer is to furnish a detailed Quality Plan indicating the practice and procedure along with relevant supporting documents.																		
DEVELOPMENT OF 25 MW FLOATING SOLAR PV PROJECT AT NTPC SIMHADRI IN ANDHRA PRADESH			TECHNICAL SPECIFICATION BID DOC. NO:RE-CS-5746-004-9									F-1			PAGE 16				

CLAUSE NO.	TECHNICAL SPECIFICATIONS		
	2. Make of all major Bought out items will be subject to NTPC approval.		
	ROUTINE TESTS	Following routine tests shall be carried out on each drum of finished cables for all types & sizes.	
	1)	Conductor Resistance test	
	2)	High voltage test	
	3)	Partial discharge test (for Screened cables only)	
	ACCEPTANCE TESTS	Following Acceptance tests shall be carried out on each size of each type (voltage rating) of cables, in the offered lot.	
	A) For Conductor (as per sampling plan mentioned in IS: 7098 Part II)		
		1)	Annealing test (Copper)
		2)	Tensile Test (Aluminum)
		3)	Wrapping Test (Aluminum)
		4)	Resistance test
	B) For copper tape / Wires (as per sampling plan mentioned in IS: 7098 Part II)		
		1)	Measurement of Dimensions
		2)	Conductivity check
	B) For Armour Wires / Formed Wires (If applicable) (as per sampling plan mentioned in IS: 7098 Part II)		
		1.	Measurement of Dimensions
		2.	Tensile Tests
		3.	Elongation Test
		4.	Torsion Test For Round wires only
		5.	Wrapping Test
		6.	Resistance Test
		7.	Mass of Zinc coating test For G S wires / Formed wires only
		8.	Uniformity of Zinc coating For G S wires / Formed wires only
		9.	Adhesion test For G S wires / Formed wires only
		10.	Freedom from surface defects
	C) For XLPE insulation & PVC Sheath (as per sampling plan mentioned in IS: 7098 Part II)		
		1)	Test for thickness
	2)	Tensile strength & Elongation before ageing (for tests after ageing see "D")	
	3)	Hot set test (For XLPE insulation)	
DEVELOPMENT OF 25 MW FLOATING SOLAR PV PROJECT AT NTPC SIMHADRI IN ANDHRA PRADESH			
TECHNICAL SPECIFICATION BID DOC. NO:RE-CS-5746-004-9		F-1	PAGE 17

CLAUSE NO.	TECHNICAL SPECIFICATIONS				
	D) Ageing test:				
		Criteria	Condition	Test Requirements	Remarks
	PVC outer sheath :	Samples as per relevant IS, from each size of each type (voltage rating) of cables in the offered lot, shall be tested for tensile strength & elongation (before ageing). Tensile & elongation testing shall preferably be done with a computerized machine. The values will be compared with corresponding values mentioned in the Type Test report accepted by NTPC. These values of Tensile Strength & Elongation (before ageing) should be within + / - 15% of the corresponding values of Type Test report. (Please note that test values should be more than the minimum values indicated in relevant standard).	All sizes which meet the criteria	For PVC: The size which has maximum negative deviation from type test report values will be put on accelerated ageing test. The samples shall be aged in air oven at temperature of 130°C+/- 2°C for 5 hours and tested for TS & elongation. Acceptance norms shall be as per IS.	In case the size does not meet the requirement in accelerated ageing test then all sizes (which had met the criteria) will be put on ageing test as per IS.
			Sizes which do not meet the criteria	Every size will be put on ageing test as per IS.	----
	XLPE Insulation	Samples as per relevant IS, from each size of each type (voltage rating) of cables in the offered lot, will be put on ageing test as per IS.			
	E) Following tests will be carried out on completed cables as per IS on each size of each type				
		1)	Insulation resistance test (Volume resistivity method)		
		2)	High voltage test		
		3)	Partial discharge test (for Screened cables only)		
	F) Following tests shall be carried out on only one size of offered lot (comprising of all sizes & types)				
		1)	Thermal stability test on outer sheath		
		2)	Oxygen index test on outer sheath		
		3)	Smoke density rating test on outer sheath		
		4)	Acid gas generation test on outer sheath		
		5)	Flammability test as per IEC 60332 - Part- 3 (Category- B) on completed cable		
	G) Following tests shall be carried on one length of each size of each type of offered lot:				
		1)	Constructional / dimensional check, surface finish, length measurement, sequence of cores, armour coverage, Gap between two consecutive armour wires / formed wires, Sequential marking, marking of drum no. / Batch number of outer sheath extrusion		
		2)	Measurement of Eccentricity & Ovality		
DEVELOPMENT OF 25 MW FLOATING SOLAR PV PROJECT AT NTPC SIMHADRI IN ANDHRA PRADESH		TECHNICAL SPECIFICATION BID DOC. NO:RE-CS-5746-004-9		F-1	PAGE 18