



DELHI TEST HOUSE[®]

A-62/3, G.T. Karnal Road, Industrial Area, Opp. Hans Cinema, Azadpur, Delhi-110 033 (INDIA)
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Issued to:- The Director
Diamond Power Infrastructure Ltd.
Phase-II, Village Vadadala, Tal. Savli,
Dist. Vadodara.

QR-0302
Report No.2001100626ELE35001
Date: 12.07.2010
Date of Recp: 26.06.2010
Party Ref. No. Nil

Sample Description: 3 Core X 50mm² + 1 core x 25mm² + 1 core x 35mm² crosslinked polyethylene insulated Aerial bunched cable with stranded (Class-2) circular compacted Aluminium conductor twisted over a central Bare Aluminium alloy messenger wire, Grade-1100V.
Reference Specification:- Party Requirement.

TEST REPORT

S. No	Test Name	Test Method	Party Requirement	Result
1.	Test on Phase/Street Light Conductor			
a)	Tensile Strength (Cl.6.2.1 of IS:8130-1984)	IS:10810 (Pt-2)-1984	-	NA
b)	Wrapping Test (Cl.6.2.2 of IS:8130-1984)	IS:10810 (Pt-3)-1984	-	NA
c)	Conductor Resistance test at 20°C (Cl.6.3 & Table-2 of IS:8130-1984) Phase-1 Phase-2 Phase-3 Street light conductor	IS:10810 (Pt-5)-1984	0.641 ohm/km, Max 1.20 ohm/km, Max	0.5877 ohm/km 0.5801 ohm/km 0.5763 ohm/km 1.18 ohm/km
2.	Tests on Messenger Conductor			
a)	Breaking Load (Cl. 6.5 & Table-3 of IS:14255-1995)	IS:10810 (Pt-2)-1984	9.8 kN, Min	11.0kN
b)	Elongation Test (Cl.11.3 of IS:14255-1995)	IS:14255 (Cl.11.3)-1995	-	NA
c)	Conductor Resistance Test (Cl. 6.5 & Table-3 of IS:14255-1995)	IS:10810 (Pt-5)-1984	0.986 ohm/km, Min	0.8958 ohm/km
3.	Physical Test for XLPE Insulation			
i)	a) Tensile Strength of Insulation (before ageing) (Cl.5.1, Table No-1 of IS: 14255-1995) Phase-1 Phase-2 Phase-3 Street light conductor	IS:10810 (Pt-7)-1984	12.5 N/mm ² , Min	18.34 N/mm ² 18.87 N/mm ² 17.95 N/mm ² 18.27 N/mm ²

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S. No	Test Name	Test Method	Party Requirement	Result
	b) Elongation at break of Insulation (Before ageing) (Cl.5.1, Table No.-1 of IS:14255-1995) Phase-1 Phase-2 Phase-3 Street light conductor	IS:10810 (Pt-7)-1984	200 %, Min	625% 600% 615% 610%
	c) Tensile Strength of Insulation (after ageing) (Cl.5.1, Table No.-1 of IS:14255-1995) Phase-1 Phase-2 Phase-3 Street light conductor	IS:10810 (Pt-11)-1984		19.56N/mm ² 20.05 N/mm ² 19.16 N/mm ² 19.87 N/mm ²
	d) Elongation at break of Insulation (after ageing) (Cl. 5.1, Table No.-1 of IS:14255-1995) Phase-1 Phase-2 Phase-3 Street light conductor	IS:10810 (Pt.-11)-1984		575 % 560 % 570 % 575 %
ii)	Ageing in air Oven (Cl. 5.1, Table No.-I of IS: 14255-1995)			
	a) Tensile Strength Variation Phase-1 Phase-2 Phase-3 Street light conductor	IS:10810 (Pt-11)-1984	±25%, Max	(-)6.65 % (-)6.25 % (-)6.74 % (-)8.76 %
	b) Elongation at break Variation Phase-1 Phase-2 Phase-3 Street light conductor	IS:10810 (Pt-11)-1984	±25%, Max	(+)8.0 % (+)6.67 % (+)7.32 % (+)5.74 %
iii)	Hot Set Test (Cl. 5.1 Table No.-1 of IS:14255-1995)	IS:10810 (Pt-30)-1984		

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	a) Elongation under load Phase-1 Phase-2 Phase-3 Street light conductor		175%, Max		107.5%	105.0%
				107.5%	110.0%	
	b) Permanent Elongation (Set) after cooling Phase-1 Phase-2 Phase-3 Street light conductor		15%, Max		2.5%	5.0%
				5.0%	5.0%	
iv)	Shrinkage Test (Cl.5.1, Table No-1 of IS:14255-1995) Phase-1 Phase-2 Phase-3 Street light conductor	IS:10810 (Pt-12)-1984	4%, Max		0.5 %	0.5 %
				1.0 %	1.0 %	
v)	Water Absorption (Gravimetric) (Cl.5.1, Table No.-1 of IS:14255-1995) Phase-1 Phase-2 Phase-3 Street light conductor	IS:10810 (Pt-33)-1984	1mg/cm ² , Max		<0.5 mg/cm ²	<0.5 mg/cm ²
				<0.5 mg/cm ²	<0.5 mg/cm ²	
4.	Test for Thickness of Insulation (Cl.7.2 Table No.-4 of IS:14255-1995) Phase-1 Phase-2 Phase-3 Street light conductor	IS:10810 (Pt-8)-1984	Nominal 1.5 mm	Minimum 1.25 mm	Nominal 1.78 mm	Minimum 1.66 mm
					1.87 mm	1.66 mm
					1.94 mm	1.60 mm
			1.20 mm	0.98 mm	1.54 mm	1.22 mm
5.	Volume Resistivity Test (Cl.5.1 of Table No-1 of IS:14255-1995) a) 27°C Phase-1 Phase-2 Phase-3 Street light conductor	IS:10810 (Pt-43)-1984	1X10 ¹³ ohm-cm, Min		1.31 X 10 ¹⁵ ohm-cm	1.75 X 10 ¹⁵ ohm-cm
				1.04 X 10 ¹⁵ ohm-cm	2.20 X 10 ¹⁵ ohm-cm	

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	b) at 70°C Phase-1 Phase-2 Phase-3 Street light conductor		1×10^{11} ohm-cm, Min	1.22×10^{13} ohm-cm 1.57×10^{13} ohm-cm 1.04×10^{13} ohm-cm 1.74×10^{13} ohm-cm
6.	High Voltage Test at Room Temp. (Cl.11.2 of IS:14255-1995) Phase-1 Phase-2 Phase-3 Street light conductor	IS:10810 (Pt-45)-1984	The Cable shall withstand a voltage of 3kV ac (rms) or a dc voltage of 7.2 kv between conductor for 5 minutes.	Withstood the test Withstood the test Withstood the test Withstood the test
7.	Conductor (Cl.6. of IS:14255-1995)	Visual Examination	<p>i) The Power/outer insulated neutral street lighting conductor shall conform to flexibility class-2 of IS:8130-1984.</p> <p>ii) The messenger (Neutral Conductor) or otherwise shall be either stranded circular or compacted circular type and shall have minimum 7 strands. The surface of the conductor shall be smooth.</p> <p>iii) A protective barrier may be applied between the conductor and insulation, if required such barrier when used, shall be compatible with insulating material and suitable for the operating temperature of the cable.</p> <p>iv) There shall be no joints in any wire of the messenger conductor for except those made in the base rod or wire before final drawing. The direction of outer layer of wires in messenger conductor shall be right hand</p>	<p>Satisfactory</p> <p>Satisfactory</p> <p>NA</p> <p>Satisfactory</p>

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8.	Insulation (Cl.7 of IS:14255-1995)	Visual Examination	i) The conductor (with protective barrier, wherever applied) shall be provided with cross linked polyethylene or polyethylene insulation applied by extrusion. ii) The insulation shall be so applied that it fits closely on the conductor for barrier (if any) and it shall be possible to remove it without damaging the conductor. iii) The colour of insulation shall be Black.	Satisfactory Satisfactory Black
9.	Core Identification (Cl.8 of IS:14255-1995)	Visual Examination	i) The phase conductor shall be provided with one 'ridges' and outer neutral insulated conductor if provided, shall have four 'ridges'. The street lighting conductor and messenger conductor (If insulated) shall not have any identification mark. ii) Identification by other means, as agreed between the supplier and purchases, is also permissible.	Satisfactory Satisfactory
10.	Assembly (Laying up) (Cl.9. of IS: 14255-1995)	Visual Examination	i) Three insulated phase conductors, one insulated neutral conductor (if required) and a street light conductor (if required) shall be twisted around the bare (or insulated) as required messenger conductor without fillers with a lay not exceeding 35 times the diameter of the insulated phase conductor. ii) The direction of lay shall be right hand.	Satisfactory Satisfactory
11.	Bending test on the completed cable (Cl.11.4 of IS:14255-1995.)	IS:14255-1995	No cracks visible to the naked eye.	Passes the test

Remarks: The sample conforms to Party Requirement.

Note: - Any Deviation from the standard Test Method /Specification - Nil

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