



ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION

(Accredited by the National Accreditation Board for Testing and Calibration Laboratories, Govt. of India)
 P. B. 760, ERDA Road, Makarpura Industrial Estate, Vadodara-390 010, India. Gram : ELECSEARCH
 EPABX : +91 (0265) 2642942, 2642964, 2642377, 3043133, 3043128, 3043129, 3043130, 3043131.
 Fax : +91 (0265) 2638382.
 E-mail : erda@erda.org , dir@erda.org , phv@erda.org, ins@erda.org, plv@erda.org, mtd@erda.org
 tdc@erda.org, ene@erda.org



TEST REPORT

SHEET 1 of 7

NAME & ADDRESS OF CUSTOMER M/s Diamond Cables Limited Essen House, 5/12, B IDC, Gorwa, Baroda-390 016.	REPORT NO. :	ICWRWO0052938-3
	DATE :	16-09-2007
	CUSTOMER REF NO :	Nil
	DATED :	25-07-2007
	DATE OF SAMPLE RECEIPT 27-07-2007	DATES OF TESTING 29-07-07 to 12-09-07

SAMPLE DESCRIPTION

SAMPLE IDENTIFICATION

3.5 Core x 70 Sq.mm PVC insulated & Yellow coloured PVC outer sheathed unarmoured Cable
 Type of Insulation : A
 Type of outer sheath : ST1
 Class of shaped Aluminium conductor: 2,
 Inner sheath- Black colour.

Embossing: DICABS^R ELECTRIC 1100 VOLTS
 IS:1554 PART 1/1988

TEST DETAILS

TEST SPECIFICATION

As per sheet 2 of 7

IS: 1554 (Part 1)-1988

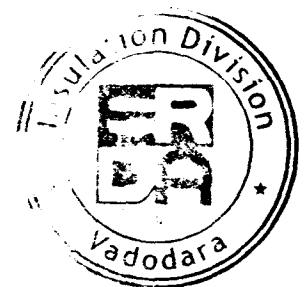
REMARK : The sample conforms to the requirements for all the mentioned tests.

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APPROVED BY

- NOTE: 1. This report relates only to the particular sample received for testing in good condition at ERDA.
 2. This report cannot be reproduced in part under any circumstances.
 3. Publication of this report requires prior permission in writing from Director, ERDA.
 4. Only the tests asked for by the customer have been carried out.



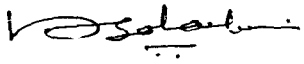
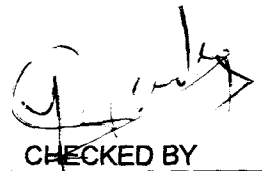
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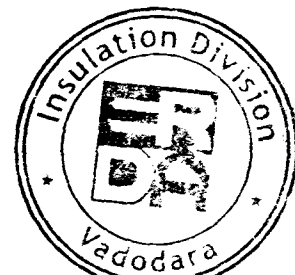


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REPORT NO. : ICWRWO0052938-3		SHEET 2 of 7
DATE : 16-09-2007		
TEST DETAILS:		
Test Specification: IS:1554 (Pt.1)-1988		
Sr. No.	Cl.No.	Test Particulars
1.	15.1.a (1)	Annealing test
	15.1.a (2)	Tensile test
	15.1.a (3)	Wrapping test
	15.1.a (4)	Conductor Resistance test
2.	15.1.b	Tests for Armouring
3.	15.1.c	Test for thickness of Insulation and Sheath
4.	15.1.d	Physical tests for Insulation and Sheath
	(1)	Tensile Strength and Elongation at break
	(2)	Ageing in Air Oven
	(3)	Shrinkage test
	(4)	Hot Deformation test
	(5)	Loss of mass test
	(6)	Heat Shock test
	(7)	Thermal Stability test
5.	15.1.e	Insulation Resistance test
6.	15.1.f	High Voltage test (Water immersion)
7.	15.1.g	High Voltage at Room Temperature
8.	15.1.h	Flammability test
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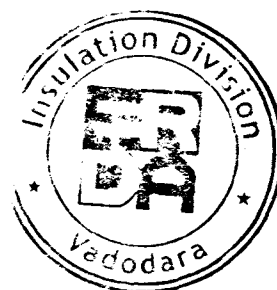
SHEET 3 of 7

DATE : 16-09-2007

Sr. No.	Cl.No.	Tests	Requirement as per Specification	Obtained Value	Remarks
1.	15.1.a	Tests on conductor			
	1	Annealing test	Not applicable	-	-
	2.	Tensile test	Not applicable	-	-
	3.	Wrapping test	Not applicable	-	-
	4.	Conductor Resistance (Corrected at 20°C), ohm/km			
		- Main Conductor	Max. 0.443	Red 0.413 Yellow 0.415 Blue 0.414	Conforms
		-Neutral Conductor	Max. 0.868	Black 0.809	
2.	15.1.b	Tests for Armouring	Not applicable	-	-
3.	15.1.c	Test for thickness of Insulation and Sheath.			
		-Thickness, mm			
	A]	Insulation			
		-Main Conductor	Nom./Min. 1.4/1.16	Red 1.8/1.62 Yellow 1.7/1.48 Blue 1.7/1.58	Conforms
		-Neutral Conductor	1.2/0.98	Black 1.7/1.60	
	B]	Inner sheath	Min. 0.4	0.6	Conforms
	C]	Outer sheath	Nom./Min. 2.2/1.56	2.7/2.35	Conforms

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DATE : 16-09-2007

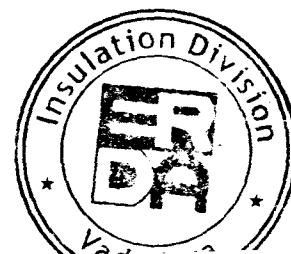
Sr. No.	Cl.No.	Tests	Requirement as per Specification	Obtained Value	Remarks
4.	15.1.d	Physical tests for Insulation and Sheath Insulation			
	1.	Tensile Strength and Elongation before ageing			
	-	Tensile Strength, N/mm ²	Min. 12.5	Red 20.0 Yellow 19.7 Blue 19.4 Black 19.9	Conforms
	-	Elongation at break, %	Min. 150	Red 300 Yellow 295 Blue 295 Black 305	Conforms
	2.	After ageing in Air Oven (at 80 ± 2° C for 168 hrs.)			
	-	Tensile Strength, N/mm ²	Min. 12.5	Red 17.6 Yellow 20.0 Blue 17.3 Black 16.5	Conforms
	-	Elongation at break, %	Min. 150	Red 278 Yellow 273 Blue 273 Black 280	Conforms
	-	Variation, %			
	-	Tensile Strength	Max. ± 20	Red -12 Yellow +2 Blue -11 Black -17	Conforms
	-	Elongation at break	Max. ± 20	Red -7 Yellow -7 Blue -7 Black -8	Conforms

V. S. Salani

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SHEET 5 of 7

DATE : 16-09-2007

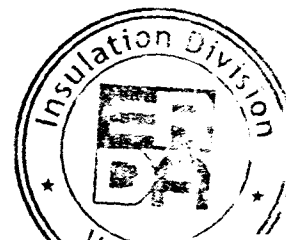
Sr. No.	Cl.No.	Tests	Requirement as per Specification	Obtained Value	Remarks
3.		Shrinkage test (at 150 ± 2°C for 15 min.)			
-		Shrinkage, %	Max. 4	Red <1 Yellow <1 Blue <1 Black <1	Conforms
4.		Hot deformation (at 80 ± 2°C for 6 hrs.)			
-		Depth of indentation, %	Max. 50	Red 25 Yellow 28 Blue 25 Black 26	Conforms
5.		Loss of mass test (at 80 ± 2°C for 168hrs.)			
-		Loss of mass, mg/cm ²	Max. 2	Red <1 Yellow <1 Blue <1 Black <1	Conforms
6.		Heat shock test (at 150 ± 2°C for 1 hr)	No sign of crack or scale shall be observed.	No sign of crack or scale was observed.	All cores Conforms
7.		Thermal Stability test at 200°C, minute	Min. 80	Red 173 Yellow 174 Blue 175 Black 174	Conforms
Outer sheath					
1.		Tensile Strength and Elongation before ageing			
-		Tensile Strength, N/mm ²	Min. 12.5	15.9	Conforms
-		Elongation at break, %	Min. 150	305	Conforms
2.		After ageing in Air Oven (at 80 ± 2°C for 168 hrs.)			
-		Tensile Strength, N/mm ²	Min. 12.5	14.0	Conforms
-		Elongation at break, %	Min. 150	285	Conforms
-		Variation, %			
-		Tensile Strength	Max. ± 20	-12	Conforms
-		Elongation at break	Max. ± 20	-7	Conforms

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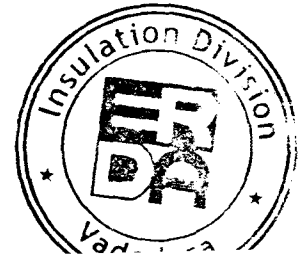
REPORT NO. : ICWRWO0052938-3
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Sr. No.	Cl.No.	Tests	Requirement as per Specification	Obtained Value	Remarks
	3.	Shrinkage test (at 150 ± 2°C for 15 min.)			
	-	Shrinkage, %	Max. 4	1	Conforms
	4.	Hot deformation (at 80 ± 2°C for 6 hrs.)			
	-	Depth of indentation, %	Max. 50	34	Conforms
	5.	Loss of mass test (at 80 ± 2°C for 168hrs.)			
	-	Loss of mass, mg/cm ²	Max. 2	1	Conforms
	6.	Heat shock test (at 150 ± 2°C for 1 hr)			
	-	Visual examination	No sign of crack or scale shall be observed.	No sign of crack or scale was observed.	Conforms
	7.	Thermal Stability test at 200°C, minute	Min. 40	94	Conforms
5.	15.1.e	Insulation resistance			
	A]	Volume resistivity, Ohm-cm			
	-	at 27 ± 2°C	Min. 1 x 10 ¹³	Red 1 x 10 ¹⁴ Yellow 1 x 10 ¹⁴ Blue 9 x 10 ¹³ Black 6 x 10 ¹³	Conforms
	-	at 70 ± 2°C	Min. 1 x 10 ¹⁰	Red 3 x 10 ¹¹ Yellow 4 x 10 ¹¹ Blue 4 x 10 ¹¹ Black 7 x 10 ¹¹	Conforms
	B]	Insulation Resistance constant, M-ohm km			
	-	at 27 ± 2°C	Min. 36.7	Red 539.2 Yellow 485.3 Blue 323.5 Black 234.3	Conforms
	-	at 70 ± 2°C	Min. 0.037	Red 1.078 Yellow 1.402 Blue 1.510 Black 2.734	Conforms

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Sr. No.	Cl.No.	Tests	Requirement as per Specification	Obtained Value	Remarks
6.	15.1.f	High Voltage test (Water immersion) - AC test	Insulation shall withstand 3 kV (rms) followed by 6 kV (rms) for 5 min. after 24 hrs water immersion at 60 ± 3°C.	All cores withstood	Conforms
		- DC test	Insulation shall withstand 1.2 kV DC for 240 hrs. at 60 ± 3°C.	All cores withstood	Conforms
7.	15.1.g	High Voltage test -at room temperature	To withstand 3 kV rms for 5 minutes for each test connection	All cores withstood	Conforms
8.	15.1.h	Flammability test			
		- Period of burning after removal of flame, seconds	Max. 60	Nil	Conforms
		- Unaffected portion from the lower edge of the top clamp, mm	Min. 50	340	Conforms

V. Solanki

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