
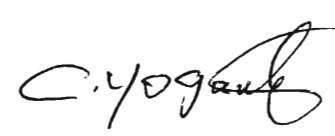


# Test Report

Report No	243/4461990	This Report consists of 6 pages
Client	National Cables Industry P.O.Box 27472 Sharjah U.A.E	
Authority & date	Clients order dated 23 April 2003	
Items tested	1 sample of Electric Cable	
Specification	CEI IEC 60502-1:1997 Including AMD 1	
Results	The sample submitted complied with the requirements of the Specification For the tests which were requested	
Prepared by	C R Mead 	Technician
Authorized by	C Yogaratnam 	Technical Engineer
Issue Date	24 July 2003	
Conditions of issue	This Test Report is issued subject to the conditions stated in current issue of <i>PS082</i> 'General conditions relating to acceptance of testing'. The results contained herein apply only to the particular sample/s tested and to the specific tests carried out, as detailed in this Test Report. The issuing of this Test Report does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by BSI of any product. No extract, abridgement or abstraction from a Test Report may be published or used to advertise a product without the written consent of the General Manager, BSI Product Services, who reserves the absolute right to agree or reject all or any of the details of any items or publicity for which consent may be sought.	

**1. Introduction**

This Report relates to tests conducted on a sample of electric cable submitted by National Cables Industry, Sharjah, U.A.E.

This Report applies only to the particular sample tested and to the specific tests carried out and detailed within the Report. It does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by BSI of this or any related products.

**2. Samples**

The client submitted one sample of Electric Cable described as follows;  
4x240mm<sup>2</sup>

**3. Testing**

The sample submitted was subjected to the tests specified in CEI IEC 60502-1: 1997

**4. Results**

Note 1:- The test results were taken from the original test report 243/4454928

Note 2:- The potential variability in, both the items tested and the method of measurement used, means that for measurements close to a specified limit, the level of confidence in a compliance statement may or may not be reduced.

Further advice on the specific measurements in this report that may be affected can be obtained from the report authoriser shown on the front cover.

The results of the tests carried out are detailed in the following report

**5. Conclusion**

The sample submitted complied with the requirements of the Specification for the tests which were requested

**TESTING OF CABLE MANUFACTURED TO CEI IEC 60502-1:1997**

**4 core**

**Conductor size: 240 sq.mm**

**ASSESSMENT**

**Marking**

Embossed on sheath  
ELECTRIC CABLE 600/1000V BS 5467 NATIONAL CABLES UAE  
4x240MM<sup>2</sup> CU/XLPE/SWA/PVC 2003

Marking on 2 line(s) Character size 10 mm. Repeat intervals:-482 mm N/A\*

**Clauses 5, 7, 12 and 13:- Construction**

Sheath colour Black		PASS
Filler Textile fibres		PASS
Extruded bedding		PASS
Conductor:-Shaped stranded plain annealed Cu	Core lay up RH	PASS
Armoured Galvanised steel wire LH Lay	Size: 2.46 mm	PASS

**Clause 15.3:- Voltage Tests:-**

Complete Cable @ 3.5 kV PASS

**Clauses 7.1.3 and 13.3:- Bedding thickness and Oversheath thickness**

Thickness of oversheath	Mean 2.80 mm	PASS
Thickness of extruded bedding	Mean 1.91 mm	PASS

\*Note :- "The IEC provides no marking procedure to indicate its approval. Therefore no assessment required for marking".

Date samples received:- 02/05/03	Testing commenced:- 22/05/03	Tested by:- C.R.Mead
Date job raised:- 07/07/03	Testing completed:- 24/07/03	Checked by:- C.Yogaratham

N/A = Not Applicable

N/R = Not Requested

N/T = Not Tested

**TESTING OF CABLE MANUFACTURED TO CEI IEC 60502-1:1997**

**4 core**

**Conductor size: 240 sq.mm**

**ASSESSMENT**

**Tests on individual cores**

**Clauses 5 and 15.2**

	Red	Yellow	Blue	Black	
Core I.D and sequence	Red	Yellow	Blue	Black	PASS
Indelibility	P	P	P	P	PASS
Class of conductor	2	2	2	2	PASS
No. of Wires	7	7	7	7	PASS
Conductor resistance @ 20°C (ohms/km)	0.0726	0.0719	0.0723	0.0725	PASS

**Clauses 6.2:- Insulation Thickness**

Mean (mm)	2.21	2.28	2.23	2.22	PASS
Min (mm)	1.82	1.84	1.90	1.84	PASS

**Overall assessment:- PASS**

Date samples received:- 02/05/03	Testing commenced:- 22/05/03	Tested by:- C.R.Mead
Date job raised:- 07/07/03	Testing completed:- 24/07/03	Checked by:- C.Yogarathnam

N/A = Not Applicable

N/R = Not Requested

N/T = Not Tested

**TESTING OF CABLE MANUFACTURED TO CEI IEC 60502-1:1997****4 core****Conductor size: 240 sq.mm****ASSESSMENT****Clause 18.14:-**

Flame Test on complete cable

**PASS****Clauses 6.1, 13.2, 18.3 and 18.5 :-****Tensile tests on Sheath**

Compound	ST2
Tensile strength unaged (N/mm <sup>2</sup> )	17.5
Elongation at Break-unaged (%)	255
Tensile strength aged 7 days Air @ 100° C	17.4
% Var Tensile strength aged 7 days in air @ 100° C	-1
Elongation @ break aged 7 days Air @ 100° C	246
% Var. Elongation aged 7 days Air @ 100° C	-4
Compatibility Tensile Strength after ageing	18.3
Compatibility Elongation @ break after ageing	273
Compatibility % Var Tensile Strength	5
Compatibility % Var Elongation at break	7

Assessment of tensile tests on sheath

**PASS****Tensile tests on Cores**

Compound	XLPE			
	Red	Yellow	Blue	Black
Tensile strength unaged (N/mm <sup>2</sup> )	28.4	26.4	29.7	29.6
Elongation at Break-unaged (%)	638	631	662	657
% Var Tensile strength, aged 7 days @ 135° C air	4	8	-1	-3
% Var. Elongation at break, aged 7 days @ 135° C air	-4	-6	-5	-10
% Var Tensile strength, aged with CU conductor 7 days @ 150° C air	5	9	-14	-6
% Var. Elongation at break, aged with CU conductor 7 days @ 150° C air	-8	-9	-17	-7
Compatibility Tensile Strength after ageing	27.1	27.8	28.8	27.5
Compatibility Elongation @ break after ageing	585	612	624	602
Compatibility % Var Tensile Strength	-5	5	-3	-7
Compatibility % Var Elongation at break	-8	-3	-6	-8

Assessment of tensile tests on cores

**PASS****Overall assessment :- PASS**

Date samples received:- 02/05/03	Testing commenced:- 22/05/03	Tested by:- C.R.Mead
Date job raised:- 07/07/03	Testing completed:- 24/07/03	Checked by:- C.Yogarathnam

N/A = Not Applicable

N/R = Not Requested

N/T = Not Tested

**TESTING OF CABLE MANUFACTURED TO CEI IEC 60502-1:1997**

**4 core**

**Conductor size: 240 sq.mm**

**ASSESSMENT**

**Tests on Sheath or complete cable**

**Clauses 18.6, 18.7, 18.8 and 18.9:-**

Compound	ST2	
Cold elongation @ -15° C		PASS
Cold Impact @ -15° C		PASS
Loss of mass mg/cm <sup>2</sup>	0.25	PASS
Hot pressure (%)	34	PASS
Heat shock test	PASS	PASS

**Tests on individual cores**

**Clauses 6.1, 16.9, 17.2, 18.13 and 18.16:-**

Compound	XLPE				
CORE COLOURS	Red	Yellow	Blue	Black	
Hot set test Max Elongation %	68	68	65	63	PASS
Hot set test Permanent Elongation	5	5	5	0	PASS
Water absorption (Gravimetric) mg/cm <sup>2</sup>	0.05	0.04	0.02	0.005	PASS
Volume resistivity @ 90° C ohms.cm	2.3x10 <sup>12</sup>	2.4x10 <sup>12</sup>	1.7x10 <sup>12</sup>	8.2x10 <sup>12</sup>	PASS
Insulation resistance constant @ 90° C Mohms.km	8.53	8.90	6.20	30.18	PASS
Voltage test for 4 hours	PASS	PASS	PASS	PASS	PASS
% Shrinkage of cores after test 1hr @ 130° C	2	2	2.5	2	PASS

**Overall assessment:- PASS**

**The sample complied with the requirements of the standard**

Date samples received:- 02/05/03	Testing commenced:- 22/05/03	Tested by:- C.R.Mead
Date job raised:- 07/07/03	Testing completed:- 24/07/03	Checked by:- C.Yogarathnam

N/A = Not Applicable

N/R = Not Requested

N/T = Not Tested