



# Test Report

British Approvals Service for Cables



Report No	243/7571151	This Report consists of 6 pages
Client	BASEC on behalf of National Cables Industry P.O. Box 27472 Al Dhaid Road, Al Sajja Ind. Area Sharjah United Arab Emirates	
BASEC Ref No	D1TTB558 dated 10 August 2010	
Items tested	1 sample of Electric Cable	
Specification	CEI IEC 60502-1: 2004 second edition including Amendment 1:2009	
Results	The sample submitted complied with the requirements of the specification for the tests which were requested.	
Tested by	S Daniell 	Technician
Authorized by	I McGuinness 	Laboratory Manager
Issue Date	12 September 2010	



Prepared for:  
British Approvals Service for Cables  
23 Presley Way  
Crownhill  
Milton Keynes MK8 OES  
Telephone No: 01908 267300  
Facsimile: 01908 267255

Prepared by:  
BSI  
Maylands Avenue  
Hemel Hempstead  
Hertfordshire HP2 4SQ  
Telephone: (08450) 765600  
Facsimile: (08450) 765601

**TESTING OF CABLE MANUFACTURED TO CEI IEC 60502-1:2004**

**4 core**

**Conductor size:** 300 sq.mm

**ASSESSMENT**

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

**Construction**

Sheath colour Black		PASS
Filler Synthetic		PASS
Extruded bedding		PASS
Conductor:-Shaped stranded Al	Core lay up RH	PASS
Armoured Galvanised steel wire	LH Lay Size: 2.49mm	PASS

**Clause 15.3:-**

**Voltage Tests:-**

Complete Cable @ 3.5 kV		PASS
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**Clauses 7.1.3, 13.3:- Extruded bedding and Oversheath thickness**

Thickness of oversheath	Mean 3.51mm	Minimum 3.15mm	PASS
Thickness of extruded bedding	Mean 1.70mm	Minimum 1.43 mm	PASS

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**ASSESSMENT**

**Tests on individual cores**

**Clauses 5 and 15.2**

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	61	61	61	61	PASS
Conductor resistance @ 20°C (ohms/km)	0.0890	0.0907	0.0868	0.0884	PASS

**Clauses 6.2:- Insulation Thickness**

Mean (mm)	2.76	2.41	2.48	2.49	PASS
Min (mm)	2.12	1.90	1.98	2.00	PASS

**Overall assessment:- PASS**

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**Clause 18.14:-**

Flame Test on complete cable

PASS

**Clauses 6.1, 13.2, 18.3, 18.4 and 18.5:-**

**Tensile tests on Sheath**

Compound	ST2	
Tensile strength unaged (N/mm <sup>2</sup> )	19.4	
Elongation at Break-unaged (%)	237	
Tensile strength aged 7 days Air @ 100° C	19.2	
% Var Tensile strength aged 7 days in air @ 100° C	-1	
Elongation @ break aged 7 days Air @ 100° C	238	
% Var.Elongation aged 7 days Air @ 100° C	1	
Compatibility Tensile Strength after ageing	18.6	
Compatibility Elongation @ break after ageing	241	
Compatibility % Var Tensile Strength	-4	
Compatibility % Var Elongation at break	2	
Assessment of tensile tests on sheath		PASS

**Tensile tests on Bedding**

Compound	ST2	
Tensile strength unaged (N/mm <sup>2</sup> )	19.4	
Elongation at Break-unaged (%)	227	
Tensile strength aged 7 days Air @ 100° C	18.8	
% Var Tensile strength aged 7 days in air @ 100° C	-3	
Elongation @ break aged 7 days Air @ 100° C	238	
% Var.Elongation aged 7 days Air @ 100° C	5	
Compatibility Tensile Strength after ageing	18.8	
Compatibility Elongation @ break after ageing	230	
Compatibility % Var Tensile Strength	-3	
Compatibility % Var Elongation at break	1	
Assessment of tensile tests on sheath		PASS

**Overall assessment: - PASS**

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**Tensile tests on Cores**

Compound	XLPE			
	Red	Yellow	Blue	Black
Tensile strength unaged (N/mm <sup>2</sup> )	25.4	24.3	27.5	26.0
Elongation at Break-unaged (%)	570	548	595	570
% Var Tensile strength, aged 7 days @ 135° C air	23.1	5	-15	0
% Var.Elongation at break, aged 7 days @ 135° C air	-6	-3	-14	-4
Tensile strength unaged (N/mm <sup>2</sup> )		29.6		
Elongation at Break-unaged (%)		615		
Compatibility Tensile Strength after ageing	22.0	25.4	24.8	23.1
Compatibility Elongation @ break after ageing	497	522	558	544
Compatibility % Var Tensile Strength	-14	-14	-10	-11
Compatibility % Var Elongation at break	-13	-15	-6	-5
Assessment of tensile tests on cores				PASS

**Overall assessment: - PASS**

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**ASSESSMENT**

**Tests on Sheath, Bedding or complete cable**

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

	Bedding ST2	Sheath ST2	
Compound			
Cold elongation @ -15° C			PASS
Cold Impact @ -15° C			PASS
Loss of mass mg/cm <sup>2</sup>	0.30	0.26	PASS
Hot pressure (%)	28	17	PASS
Heat shock test	PASS	PASS	PASS

**Tests on individual cores**

**Clauses 6.1, 16.9/18.11, 17.2, 17.3, 18.13 and 18.16:-**

Compound	XLPE				
CORE COLOURS	Red	Yellow	Blue	Black	
Hot set test Max Elongation %	80	80	85	85	PASS
Hot set test Permanent Elongation	5	5	5	5	PASS
Water absorption (Gravimetric) mg/cm <sup>2</sup>	0.11	0.09	0.07	0.04	PASS
Volume resistivity @ 90° C ohms.cm	1.81x10 <sup>12</sup>	2.59x10 <sup>12</sup>	1.82x10 <sup>12</sup>	1.71x10 <sup>12</sup>	PASS
Insulation resistance constant @ 90° C Mohms.km	6.64	9.51	6.68	6.28	PASS
Voltage test for 4 hours	Pass	Pass	Pass	Pass	PASS
% Shrinkage of cores after test 1hr @ 130° C	1.5	1.5	1.5	1.5	PASS

**Overall assessment:- PASS**

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

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