Declaration of Test Results

BSI Product Services hereby declares that the item described below has been tested by BSI and complies with the requirements of
CEI IEC 60502-1:2004 with MDPE sheath as the client requirement

The complete detail of the tests performed and the results are recorded in BSI Test Report No: 243/4943714 Dated: 23 April 2007

Description of item tested: *1 sample of Electric Cable*
4x25 mm² CU/XLPE/SWA/MDPE Black sheath

Submitted by:
National Cables Industry
PO Box 27472
Sharjah
UAE

Declaration authorised by:

Mr. Ian McGuinness

Title *Head of Section*

Date *23 April 2007*

Attention is drawn to the conditions upon which this declaration is issued, namely:

1. *This declaration does not indicate provide or imply any measure of Approval, Certification, Supervision, Control or Surveillance by BSI to this or any related product.*
2. *This Declaration applied only to the particular sample tested and to the specific tests carried out as detailed in the Report referred to above.*
3. *The general and specific conditions of the BSI Product Services, PS082 apply in all respects. Copies of this leaflet are available on request.*

Test Report

Report No	243/4943714 This Report consists of 6 pages
Client	National Cables Industry PO Box 27472 Sharjah UAE
Authority & date	Client order dated 23 January 2007
Items tested	1 sample of Electric Cable
Specification	CEI IEC 60502-1:2004 with MDPE sheath as the client requirement
Results	The sample submitted complied with the requirements of the Specification For the tests which were requested
Prepared by	B Marsh Technician
Authorized by	C Yogaratnam Technical Engineer
Issue Date	23 April 2007
Conditions of issue	This Test Report is issued subject to the conditions stated in current issue of *PS082* '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 Managing Director, 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, UAE.

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 as detailed below;

4 x 25mm² CU/XLPE/SWA/MDPE Black sheath.

3) Testing

The sample submitted was subjected to the tests specified in CEI IEC 60502-1: 2004 with MDPE over sheath as the client requirement.
UV stability of MDPE sheath test was tested according to BS 6469-99:1992 and
Carbon black test of MDPE sheath was tested according to BS 2782: Part 8: Method 823A were sub-contracted.

4) Results

The results of the tests carried out are detailed on the following pages of this 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:** 25 sq.mm

ASSESSMENT

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

Sheath colour Black			PASS
Filler	Synthetic		PASS
Extruded bedding			PASS
Conductor:-Circular stranded plain annealed Cu		Core lay up RH	PASS
Armoured Galvanised steel wire	LH Lay	Size: 1.60 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 2.0 mm	Minimum 1.60 mm	PASS
Thickess of extruded bedding (approximate)		Mean 1.0 mm	PASS

Date samples received:- 22/01/07	Testing commenced:- 15/02/07	Tested by:- B.Marsh
Date job raised:- 24/01/07	Testing completed:- 23/04/07	Checked by:- C.Yogaratnam

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:** 25 sq.mm

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	7	7	7	7	PASS
Conductor resistance @ 20°C (ohms/km)	0.708	0.717	0.715	0.715	PASS

Clauses 6.2:- Insulation Thickness

Mean (mm)	1.1	1.1	1.1	1.1	PASS
Min (mm)	0.93	0.89	0.93	0.95	PASS

Overall assessment:- PASS

Date samples received:- 22/01/07	Testing commenced:- 15/02/07	Tested by:- B.Marsh
Date job raised:- 24/01/07	Testing completed:- 23/04/07	Checked by:- C.Yogaratnam

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

4 core **Conductor size:** 25 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	MDPE (TS2)*
Tensile strength unaged (N/mm²)	36.1
Elongation at Break-unaged (%)	921
Elongation @ break aged 14 days Air @ 110° C	777
Elongation @ break after UV test @ 500 hours	903
% Var Elongation at break after UV test @ 500 hours	-2

Assessment of tensile tests on sheath PASS

Tensile tests on Cores

Compound	XLPE			
	Red	Yellow	Blue	Black
Tensile strength unaged (N/mm²)	30.2	28.8	29.5	28.3
Elongation at Break-unaged (%)	749	772	681	663
% Var Tensile strength, aged 7 days @ 135° C air	-15	-6	-1	-1
% Var.Elongation at break, aged 7 days @ 135° C air	-9	-15	-1	-5
Compatibility Tensile Strength after ageing	28.9	28.7	29.4	28.4
Compatibility Elongation @ break after ageing	598	632	632	583
Compatibility % Var Tensile Strength	-5	-1	-1	1
Compatibility % Var Elongation at break	-20	-18	-7	-12

Assessment of tensile tests on cores PASS

Overall assessment :- PASS

*Note:- Refer to BS 7655-10.1:2000 specification

Date samples received:- 22/01/07	Testing commenced:- 15/02/07	Tested by:- B.Marsh
Date job raised:- 24/01/07	Testing completed:- 23/04/07	Checked by:- C.Yogaratnam

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:** 25 sq.mm

ASSESSMENT

Tests on Sheath or complete cable

Clauses 18.7:-

Compound	MDPE (TS2)	
Hot pressure (%)	4	PASS
Carbon black test (%)	2.22	PASS
Uniformity of appearance and carbon black dispersion (Rating)	2	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 %	85	100	100	90	PASS
Hot set test Permanent Elongation	5	5	5	5	PASS
Water absorption (Gravimetric) mg/cm²	0.06	0.49	0.36	0.09	PASS
Volume resistivity @ 90° C ohms.cm	$8.0x10^{15}$	$7.9x10^{15}$	$8.8x10^{15}$	$6.9x10^{15}$	PASS
Insulation resistance constant @ 90° C Mohms.km	29524	28870	32201	25276	PASS
Voltage test for 4 hours	Pass	Pass	Pass	Pass	PASS
% Shrinkage of cores after test 1hr @ 130° C	0.5	1	1	1	PASS

Overall assessment:- **PASS**

The sample complied with the requirements of the standard

Date samples received:- 22/01/07	Testing commenced:- 15/02/07	Tested by:- B.Marsh
Date job raised:- 24/01/07	Testing completed:- 23/04/07	Checked by:- C.Yogaratnam

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