

Declaration of Test Results

BSI Product Services hereby declares that the item described below has been tested by BSI to the requirements of CEI IEC 60502-1:2004 and the customer Specification SCECO 5/7

The complete detail of the tests performed and the results are recorded in BSI Test Report No: 243/4610966 Issue 2 Dated: 25 October 2004

Description of item tested:

*One sample of Electric Cable as follows;
24x2.5 mm² Black sheath
CU/XLPE/SWA/PVC*

Submitted by:

Middle East Specialized Cables
P O Box 585
Riyadh-11383
Kingdom of Saudi Arabia

Declaration authorised by:



Mr. Mick Gower

Title

Business Sector Manager Testing

Date

25 October 2004



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	243/4610966 Issue 2	This Report consists of 6 pages
Client	Middle East Specialized Cables P O Box 585 Riyadh-11383 Kingdom of Saudi Arabia	
Authority & date	Clients order dated 17 August 2004	
Items tested	1 sample of Electric Cable	
Specification	CEI IEC 60502-1:2004 & Customer Specification SCECO 5/7	
Results	The sample submitted complied with the requirements of both Specifications This issue supersedes all previous issues	
Prepared by	P Mullins	 Technician
Authorized by	C Yogaratnam	 Technical Engineer
Issue Date	25 October 2004	
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 Middle East Specialized Cables, Kingdom of Saudi Arabia.

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;

CU/XLPE/SWA/PVC - 24x2.5 mm² , Black sheathed cable

3) Testing

The sample submitted was subjected to the tests specified in CEI IEC 60502-1:2004 and customer specification SCECO 5/7.

4) Results

The results of the tests carried out are detailed on the following pages of this Report.

Note 1:- 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.

5) Conclusion

Marking was not assessed.

All remaining tests complied with the Specifications IEC 60502-1:2004 and SCECO 5/7

TESTING OF CABLE MANUFACTURED TO CEI IEC 60502-1:2004 and SCECO 5/7

24 core

Conductor size: 2.5 sq.mm

ASSESSMENT

Marking

Embossed on sheath
CONTROL CABLE 600/1000 VOLT 24x2.5 SQMM MESC 2004 N/A*

Clauses 5, 7, 12 and 13:- Construction

Sheath colour Black			PASS
Extruded bedding			PASS
Conductor:-Circular stranded plain annealed Cu			
Core lay up ALT	Outer lay	R/H	PASS
Armoured Galvanised steel wire	LH Lay	Size: 2.00 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 2.4 mm	Minimum 2.08 mm	PASS
Thickness of extruded bedding	Mean 1.44 mm		PASS

*Note 2:- "The IEC provides no marking procedure to indicate its approval. Therefore no assessment required for marking".

Date samples received:- 07/09/04	Testing commenced:- 10/09/04	Tested by:- P.Mullins
Date job raised:- 17/08/04	Testing completed:- 06/10/04	Checked by:- C.Yogarathnam
N/A = Not Applicable	N/R = Not Requested	N/T = Not Tested
		N/A* = Not Assess

TESTING OF CABLE MANUFACTURED TO CEI IEC 60502-1:2004 and SCECO 5/7

24 core

Conductor size: 2.5 sq.mm

ASSESSMENT

Tests on individual cores

Clauses 5 and 15.2

Conductor	Black 1	Black 6	Black 12	Black 18	Black 24	PASS
Distance between Core numbers (mm)	20	20	20	20	20	PASS
Class of conductor	2	2	2	2	2	PASS
No. of Wires	7	7	7	7	7	PASS
Wire diameter (mm)	0.68	0.68	0.69	0.69	0.68	PASS
Conductor resistance @ 20°C (ohms/km)	6.72	6.69	6.76	6.80	6.72	PASS

Clauses 6.2:- Insulation Thickness

Mean (mm)	0.9	0.9	0.9	0.9	1.0	PASS
Min (mm)	0.82	0.85	0.83	0.85	0.88	PASS

Overall assessment:- PASS

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TESTING OF CABLE MANUFACTURED TO CEI IEC 60502-1:2004 and SCECO 5/7

24 core

Conductor size: 2.5 sq.mm

ASSESSMENT**Clause 18.14:-**

Flame Test on complete cable (CEI IEC 60332-1:1993)

PASS

Clauses 6.1, 13.2, 18.3, 18.4 and 18.5 :-**Tensile tests on Sheath**

Compound	ST2
Tensile strength unaged (N/mm ²)	22.6
Elongation at Break-unaged (%)	297
Tensile strength aged 7 days Air @ 100° C	21.9
% Var Tensile strength aged 7 days in air @ 100° C	-3
Elongation @ break aged 7 days Air @ 100° C	314
% Var.Elongation aged 7 days Air @ 100° C	5
Compatibility Tensile Strength after ageing	21.8
Compatibility Elongation @ break after ageing	329
Compatibility % Var Tensile Strength	-3
Compatibility % Var Elongation at break	11
Assessment of tensile tests on sheath	PASS

Tensile tests on Cores

Compound	XLPE				
	Black 1	Black 6	Black 12	Black 18	Black 24
Tensile strength unaged (N/mm ²)	17.0	16.8	16.9	17.2	16.4
Elongation at Break-unaged (%)	438	435	452	458	440
% Var Tensile strength aged 7 days in air @ 135° C	-7	-6	-5	-9	-5
% Var.Elongation aged 7 days Air @ 135° C	-11	-12	-15	-17	-8
Compatibility Tensile Strength after ageing	16.4	16.6	16.2	16.4	16.0
Compatibility Elongation @ break after ageing	423	426	426	411	415
Compatibility % Var Tensile Strength	-4	-1	-4	-4	-2
Compatibility % Var Elongation at break	-4	-2	-6	-10	-6
Bending test, aged with CU conductor 10 days @ 150° C air	P	P	P	P	P

Assessment of tensile tests on cores

PASS

Overall assessment :- PASS

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TESTING OF CABLE MANUFACTURED TO CEI IEC 60502-1:2004 and SCECO 5/7

24 core

Conductor size: 2.5 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 ²	0.53	PASS
Hot pressure (%)	29	PASS
Heat shock test	PASS	PASS

Tests on individual cores

Clauses 6.1, 17.2, 17.3, 16.9/18.11, 18.3, and 18.16:-

Compound	XLPE					
CORE COLOURS	Black1	Black 6	Black 12	Black 18	Black 24	
Hot set test Max Elongation %	15	13	15	15	10	PASS
Hot set test Permanent Elongation	0	0	0	0	0	PASS
Water absorption (Gravimetric) mg/cm ²	0.40	0.38	0.42	0.30	0.38	PASS
Volume resistivity @ 90° C ohms.cm	1.4x10 ¹⁴	1.4x10 ¹⁴	1.5x10 ¹⁴	1.6x10 ¹⁴	1.5x10 ¹⁴	PASS
Insulation resistance constant @ 90° C Mohms.km	496	522	540	588	563	PASS
Voltage test for 4 hours	Pass	Pass	Pass	Pass	Pass	PASS
% Shrinkage of cores after test 1hr @ 130° C	0	0	0	0	0	PASS

Overall assessment:- PASS

The sample complied with the requirements of the standard

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