

## 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 5/8*

*The complete detail of the tests performed and the results are recorded in BSI Test Report No: 243/4610967 Dated: 05 October 2004*

*Description of item tested:* One sample of Electric Cable as follows;  
2x10 mm<sup>2</sup> Black sheath  
CU/PVC/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 05 October 2004*

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

- 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.*
- This Declaration applied only to the particular sample tested and to the specific tests carried out as detailed in the Report referred to above.*
- 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	243/4610967	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 5/8	
Results	As detailed within the report	
Prepared by	P Mullins	 Technician
Authorized by	C Yogaratham	 Technical Engineer
Issue Date	05 October 2004	
Conditions of issue	<p>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.</p>	

## 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/PVC/SWA/PVC - 2x10 mm<sup>2</sup> , Black sheathed cable

## 3) Testing

The sample submitted was subjected to the tests specified in CEI IEC 60502-1:2004 with the exception of armour wire diameter and customer specification SCECO 5/8.

## 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

- a) Marking was not assessed.
  - b) Armour wire diameter met the requirement of SCECO 5/8 and but not IEC 60502-1:2004
- All remaining tests complied with the Specifications IEC 60502-1:2004 and SCECO 5/8

**TESTING OF CABLE MANUFACTURED TO CEI IEC 60502-1:2004 and SCECO 5/8**

2 core

Conductor size: 10 sq.mm

**ASSESSMENT**

**Marking**

Embossed on sheath  
 CABLE 600/1000 VOLT 2x10 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 RH	PASS
Armoured Galvanised steel wire	LH Lay	Size: 0.82+ mm	+

**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 2.3 mm	Minimum 2.04 mm	PASS
Thickness of extruded bedding	Mean 1.31 mm		PASS

\*Note 1:- "The IEC provides no marking procedure to indicate its approval. Therefore no assessment required for marking".

+Note 2:- Armour wire diameter met the requirement of SCECO 5/8 but not IEC 60502-1:2004

Date samples received:- 07/09/04	Testing commenced:- 10/09/04	Tested by:- P.Mullins
Date job raised:- 17/08/04	Testing completed:- 05/10/04	Checked by:- C.Yogaratnam

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 5/8****2 core****Conductor size: 10 sq.mm****ASSESSMENT****Tests on individual cores****Clauses 5 and 15.2**

Conductor	RED	BLACK	PASS
Class of conductor	2	2	PASS
No. of Wires	7	7	PASS
Wire diameter (mm)	1.35	1.37	PASS
Conductor resistance @ 20°C (ohms/km)	1.77	1.70	PASS

**Clauses 6.2:- Insulation Thickness**

Mean (mm)	1.13	1.12	PASS
Min (mm)	0.94	0.86	PASS

**Overall assessment:- PASS**

Date samples received:- 07/09/04	Testing commenced:- 10/09/04	Tested by:- P.Mullins
Date job raised:- 17/08/04	Testing completed:- 05/10/04	Checked by:- C.Yogaratnam

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 5/8**

2 core

Conductor size: 10 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	ST1
Tensile strength unaged (N/mm <sup>2</sup> )	22.7
Elongation at Break-unaged (%)	336
Tensile strength aged 7 days Air @ 100° C	23.3
% Var Tensile strength aged 7 days in air @ 100° C	3
Elongation @ break aged 7 days Air @ 100° C	324
% Var.Elongation aged 7 days Air @ 100° C	-4
Compatibility Tensile Strength after ageing	23.0
Compatibility Elongation @ break after ageing	321
Compatibility % Var Tensile Strength	1
Compatibility % Var Elongation at break	-4

Assessment of tensile tests on sheath

PASS

**Tensile tests on Cores**

Compound	PVC/A	
	Red	Black
Tensile strength unaged (N/mm <sup>2</sup> )	19.4	20.4
Elongation at Break-unaged (%)	203	201
Tensile strength aged 7 days Air @ 100° C	19.4	20.5
% Var Tensile strength aged 7 days in air @ 100° C	0	1
Elongation @ break aged 7 days Air @ 100° C	200	206
% Var.Elongation aged 7 days Air @ 100° C	-2	2
Compatibility Tensile Strength after ageing	19.9	21.0
Compatibility Elongation @ break after ageing	188	181
Compatibility % Var Tensile Strength	3	3
Compatibility % Var Elongation at break	-8	-10

Assessment of tensile tests on cores

PASS

**Overall assessment :- PASS**

Date samples received:- 07/09/04	Testing commenced:- 10/09/04	Tested by:- P.Mullins
Date job raised:- 17/08/04	Testing completed:- 05/10/04	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 5/8****2 core****Conductor size: 10 sq.mm****ASSESSMENT****Tests on Sheath or complete cable****Clauses 18.7, 18.8 and 18.9:-**

Compound	ST1	
Cold elongation @ -15° C		PASS
Cold Impact @ -15° C		PASS
Hot pressure (%)	17	PASS
Heat shock test	PASS	PASS

**Tests on individual cores****Clauses 6.1, 17.2, 17.3, 18.8, and 18.9:-**

Compound	PVC/A		
CORE COLOURS	Red	Black	
Cold elongation @ -15° C	Pass	Pass	PASS
Cold Impact @ -15° C	Pass	Pass	PASS
Hot pressure	16	8	PASS
Heat shock test	Pass	Pass	PASS
Volume resistivity @ 20° C ohms.cm	30.5 x10 <sup>13</sup>	28.4 x10 <sup>13</sup>	PASS
Insulation resistance constant @ 20° C (Mohms.km)	1118	1044	PASS
Volume resistivity @ 70° C ohms.cm	1.09 x10 <sup>11</sup>	3.42 x10 <sup>11</sup>	PASS
Insulation resistance constant @ 70° C Mohms.km	0.399	1.256	PASS
Voltage test for 4 hours	Pass	Pass	PASS
Water absorption (Gravimetric) mg/cm <sup>2</sup>	0.23	0.23	PASS

**Overall assessment:- PASS****The sample complied with the requirements of the standard**

Date samples received:- 07/09/04	Testing commenced:- 10/09/04	Tested by:- P.Mullins
Date job raised:- 17/08/04	Testing completed:- 05/10/04	Checked by:- C.Yogarathnam

N/A = Not Applicable

N/R = Not Requested

N/T = Not Tested

N/A\* = Not Assess