REPORT OF PERFORMANCE TIC 1378-13

OBJECT	A 6 triple-core instrumentation cable
TYPE	0,3/0,5 kV, 6x3x1,5 mm^2 CU/XLPE/Screen(I&O)/LSLH/SWA/LSLH
MANUFACTURER	KEI Industries Ltd., Bhiwadi, Rajasthan, India
CLIENT	KEI Industries Ltd., Mumbai, India
TESTED BY	KEMA HIGH-VOLTAGE LABORATORY Arnhem, The Netherlands
DATE OF TESTS	12 April 2013 until 15 April 2013
TEST PROGRAMME	Cold impact test and cold elongation test on oversheath as per client's instruction based on IEC 60811 (2012)
SUMMARY AND CONCLUSION	The object passed the tests.

This Report of Performance applies only to the object tested. The responsibility for conformity of any object having the same designations with that tested rests with the Manufacturer.

This report consists of 11 pages in total.

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KEMA Nederland B.V.

S.A.M. Verhoeven
Director Testing, Inspections & Certification The Netherlands

Arnhem, 6 August 2013

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1 IDENTIFICATION OF THE TEST OBJECT

1.1 Description of the test object

Manufacturer	KEI Industires Ltd., Bhiwadi, Rajasthan, India
Type	0,3/0,5 kV, 6x3x1,5 mm^2 CU/XLPE/Screen(I&O)/LSLH/SWA/LSLH
Year of manufacture	2013
Sampling procedure	by the manufacturer
Rated voltage, U_0/U (U_m)	0,3/0,5 kV
No. of cores	18 (6x3)
Marking on the cable	KEI INSTRUMENTATION CABLE 6T x 1.5 SQ.MM 2013 LSLH

Conductor

- material	copper
- cross-section	1,5 mm^2
- approx. diameter	1,6 mm
- type/shape of conductor	stranded circular
- maximum conductor temperature in normal operation	90 °C

Insulation

- material	XLPE
- nominal thickness	0,60 mm
- material designation	KI-XL-03
- material supplier	Kalpena Industries
- core identification	white, black and red

Inner covering/Separation sheath

- type	extruded
- material	LSLH PVC, type ST_2
- nominal thickness	1,3 mm
- material supplier	KEI Industries Ltd.

Binder tape

- approx. dimensions	80 x 0,05 mm

Metallic screen

- material	aluminium
- dimensions	80x0,05 mm (overlap of 50%)
- nominal diameter (drain wire of core)	0,3 mm
- nominal diameter (drain wire in between fillers)	7 mm

Metallic armour

- material	galvanized steel wires
- number and nominal diameter of wires	48 wires of Ø 1.25 mm
- cross-sectional area	58,9 mm^2
- material supplier	Balaji Wires

Oversheath

- material	LSLH PVC, type ST_2
- nominal thickness	1,7 mm
- outer diameter of cable	29,8 mm
- material designation	KEI (-60)
- material supplier	KEI Industries Ltd.
- colour	black

Fire retardant yes

Manufacturing details

- location of manufacturing	Bhiwadi, Rajasthan, India
- factory identification of extrusion line	100 mm extrusion line-II
- manufacturer of the extrusion line	Supermac
- identification of the production batch	W-13/sample-002
- manufacturing length (where cable sample for testing has been taken from)	500 m
- length markings on cable sample sent to Kema	no length marking applied on cable

1.2 List of documents

The manufacturer has guaranteed that the object submitted for tests has been manufactured in accordance with the following document.
KEMA has verified that this document adequately represents the object tested.

The following document is included in this report:

drawing no./ document no.	revision	date	title
KEI/DWG/6T x 1.5	-	-	6T x 1.5 Sq.mm individual & Overall Screened Flame Retardant Instrument Cables as per Enquiry Spec & BS EN : 50288 (P-7)

2 GENERAL INFORMATION

2.1 The tests were witnessed by

The tests were not witnessed.

2.2 The tests were carried out by

Name	Company
Mr T. Ariaans	KEMA Nederland B.V., Arnhem, The Netherlands

2.3 Subcontracting

All tests were subcontracted to DEKRA Certification B.V.

2.4 Purpose of the test

Purpose of the test was to verify whether the material complies with the specified requirements.

2.5 Measurement uncertainty

A table with measurement uncertainties is enclosed in appendix A. Unless otherwise indicated in the report, the measurement uncertainties of the results presented are as indicated in this table.

2.6 Applicable standards

When reference is made to a standard and the date of issue is not stated, this applies to the latest issue, including amendments, which have been officially published prior to the date of the tests.

3 COLD IMPACT TEST AND COLD ELONGATION TEST ON OVERSHEATH

Standard and date

Standard IEC 60811-505 (2012) and IEC 60811-506 (2012)
Test period 12 until 15 April 2013

Characteristic test data

Temperature	-60	°C
Mass of hammer	750	g

Oversheath

item	unit	requirement	measured/determined
- cold elongation	%	≥ 20	150
- cold impact test	-	no cracks	no cracks

Result

The object passed the test.

4 OUTER DIAMATER OVERSHEATH AND MARKING

	observed/determined
marking on the cable	KEI INSTRUMENTATION CABLE 6T x 1,5 SQMM 2013 LSLH
outer diameter of the cable, average	29,9 mm

APPENDIX A MEASUREMENT UNCERTAINTIES

The measurement uncertainties in the results presented are as specified below unless otherwise indicated.

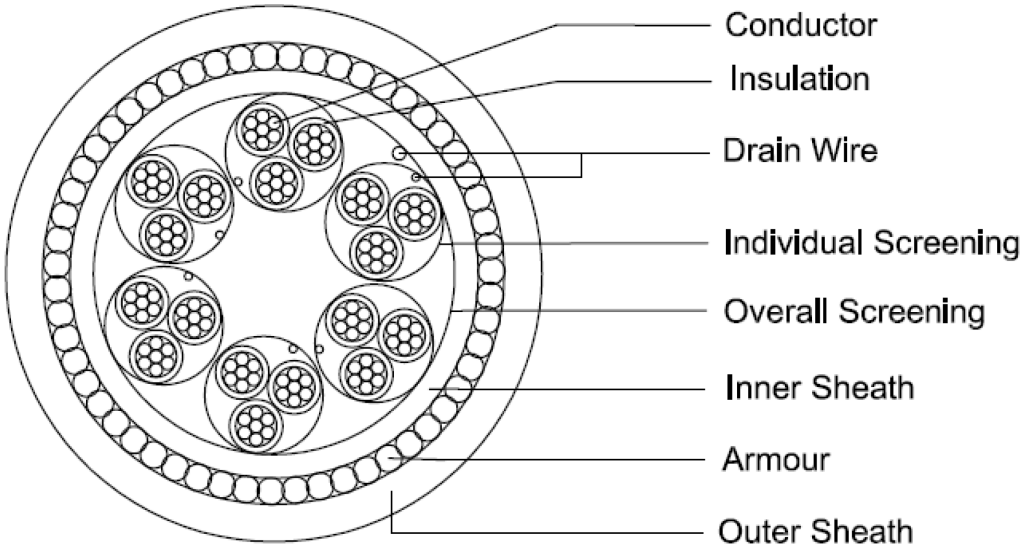
measurement	**measurement uncertainty**
tensile strength test	1%
measurement at low temperature	0,1 °C

APPENDIX B MANUFACTURER'S DRAWING(S)/DATA SHEET

2 pages (including this page)

drawing no./ document no.	revision	date	title
KEI/DWG/6T x 1.5	-	-	6T x 1.5 Sq.mm individual & Overall Screened Flame Retardant Instrument Cables as per Enquiry Spec & BS EN : 50288 (P-7)

6T x 1.5 Sq.mm individual & Overall Screened Flame Retardant Instrument Cable as per Enquiry Spec & BS EN : 50288 (P-7)



CABLE DETAILS

1. Conductor - Stranded Annealed Tinned Copper
2. Insulation - Extruded XLPE
3. Drain Wire
4. Individual Screen - Aluminium Mylar Tape
5. Fillers -Filler shall be provided wherever required to get circular shape to cable. else same shall be achieved inner sheath process
6. Drain Wire
7. Overall Screen - Aluminium Mylar Tape
8. Inner Sheath - Extruded **LSLH** PVC Type ST -2
9. Armour - Galvanised Steel Round Wire
10. Outer Sheath - Extruded **LSLH** PVC Type ST -2

KEI Industries Ltd, Mumbai, India

Drawing No. - KEI/DWG/6T x 1.5	Not to Scale