

# TEST REPORT

**KERI**



KERI



**한국전기연구원**  
**KOREA ELECTROTECHNOLOGY**  
**RESEARCH INSTITUTE**

## INFORMATION SHEET

KERI(Korea Electrotechnology Research Institute) issues a Type Test Certificate and a Test Report as below.

### 1. Type Test Certificate

A Certificate contains a record of a series of type tests carried out strictly in accordance with IEC, and/or regional standard and national standard that are identical to IEC standard. The equipment tested has fulfilled the requirements of this standard and the relevant ratings assigned by the manufacturer are endorsed by KERI. The Certificate is applicable only to the equipment tested. KERI is responsible for the validity and the contents of the Certificate. The responsibility for conformity of any apparatus having the same designation as the one tested rests with the manufacturer. The certificate contains the essential drawings and a description of the equipment tested. Detailed rules are given in KERI's Type Test Certification Procedure.

### 2. Test Report

#### 2.1 Type Test Report

A Type Test Report contains a record of a series of type tests carried out strictly in accordance with a standard recognized by KERI. The equipment tested has fulfilled the requirements of this standard and the relevant ratings assigned by the manufacturer are endorsed by KERI. The Type Test Report is applicable only to the equipment tested. KERI is responsible for the validity and the contents of the Type Test Report. The responsibility for conformity of any apparatus having the same designation as the one tested rests with the manufacturer. The Type Test Report contains the essential drawings and a description of the equipment tested. Detailed rules are given in KERI's Test Procedure.

#### 2.2 Performance Test Report

A Performance Test Report contains a record of one or more tests which have been carried out according to the client's instructions. These tests are not necessarily in accordance with a recognized standard. The test results do not verify ratings of the test object. Detailed rules are given in KERI's Test Procedure.

KERI issues three types of Performance Test Report.

2.2.1 The tests have been carried out strictly in accordance with a recognized standard. The apparatus has complied with the relevant requirements.

This sentence will appear on the front page of Performance Test Report if the tests have been performed in accordance with a recognized standard, but the series of tests does not completely fulfil the requirements for a Certificate of Compliance (for example, if the number of test series is not a complete series of type tests). The Report contains verified drawings and a description of the equipment tested. The condition of the test object after the tests is assessed and recorded in the Report.

2.2.2 The tests have been carried out in accordance with the client's instructions. Test procedure and test parameters were based on a recognized standard.

This sentence will appear on the front page of Performance Test Report if the number of test duties, the test procedure and the test parameters are based on a recognized standard and related to the ratings assigned by the manufacturer. Verification of the drawings (if submitted) and assessment of the condition after the tests is only done on the client's request.

2.2.3 The tests have been carried out according to the client's instructions.

This sentence will appear on the front page of Performance Test Report if the test shots, test procedure and/or test parameters are not in accordance with a recognized standard.

3 KERI is a member of STL(Short-circuit Testing Liaison) and the accredited testing laboratory under Clause 2 of Article 2 in "Guidelines on certified testing criteria and methods for electrical equipment" (Public Notice No. 2008-120, Ministry of Knowledge Economy, Korea).



# TEST REPORT

2013TS02481

1/15

CLASSIFICATION      Type Test

APPARATUS            Heat shrinkable cable joint

DESIGNATION         JHSY-1/4.0  
0.6/1.0(1.2) kV 10 mm<sup>2</sup> 4C Type II

RECEIPT No.         TRD13S00640 (February 18, 2013 )

APPLICANT           Shanghai Jiameng International Trading Co., Ltd.  
No.346 Qinwan Road, Jinshanwei Town, Jinshan District, Shanghai, China

MANUFACTURER      Jiangsu Jiameng Electrical Equipment Co., Ltd.  
No.5 Zhongli Road, Binhai Industrial Zone, Qidong City, Jiangsu Province, China

DATE OF TESTS        May 09, 2013 ~ July 03, 2013

DATE OF ISSUE        August 09, 2013

The test object, constructed in accordance with the description, essential drawings and photographs incorporated in this Type Test Report has been subjected to the series of proving tests in accordance with

BS EN 50393:2006

This Type Test Report has been issued by KERI.

The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and general performances are considered to comply with the above Standard and to justify the ratings assigned by manufacturer as listed on page No. 3.

The Type Test Report applies only to the test object. The responsibility for conformity of any apparatus having the same designations with that tested rests with the Manufacturer.

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TOTAL No. OF PAGES(15) : records (9), photographs (1), circuit diagrams (0), drawings & descriptions (1), attachments(2), oscillograms (2)



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**Tested by :**

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KERI

**Witnessed by :**

Zhangjie Tang

SHANGHAI JIAMENG INTERNATIONAL TRADING Co., Ltd

Kristall Liu

JIANGSU JIAMENG ELECTRICAL EQUIPMENT Co., Ltd.

**Drawings :**

The manufacturer guarantees that the test object submitted is manufactured in accordance with the following drawings. KERI verified that these drawings adequately represented the test object.

The following drawing is included in this test report.

Reference No.	Drawing No.	Revision No.	Date
001	GTY-1-10	B1	2013.05.14

**Heat shrinkable cable joint**

Applied standard	BS EN 50393:2006
Manufacturer	JIANGSU JIAMENG ELECTRICAL EQUIPMENT Co., Ltd.
Designation	JHSY-1/4.0
Date of manufacture	May 1, 2013

**Ratings of the test object assigned by manufacturer and proved by tests :**

Rated voltage $U_0/U(U_m)$	0.6/1.0(1.2) kV
Nominal cross-sectional area	10 mm <sup>2</sup>
Number of cores	4
Type of joints	II

**Ratings of the test object assigned by manufacturer :**

Cable used for testing	
Conductor	Stranded circular copper
Insulation	XLPE
Rated voltage $U_0/U(U_m)$	0.6/1.0(1.2) kV
Nominal cross-sectional area	10 mm <sup>2</sup>
Number of cores	4

## List of the tests

Test items	Standard and clauses	Test date	Sheet No.
1 AC voltage withstand test in air	BS EN 50393 8.3	May 9, 2013	5/15
2 Insulation resistance test in air	BS EN 50393 8.4	May 9, 2013	5/15
3 Impact at ambient temperature	BS EN 50393 8.5	May 9, 2013	5/15
4 AC voltage withstand test in water	BS EN 50393 8.3	May 10, 2013	6/16
5 Insulation resistance test in water	BS EN 50393 8.4	May 10, 2013	6/15
6 Heating cycle test in air	BS EN 50393 8.6	May 15, 2013 ~ June 5, 2013	7/15
7 Heating cycle test in water	BS EN 50393 8.6	June 7, 2013 ~ June 28, 2013	7/15
8 AC voltage withstand test in water	BS EN 50393 8.3	July 1, 2013	8/15
9 Insulation resistance test in water	BS EN 50393 8.4	July 1, 2013	8/15
10 Examination (for information only)	BS EN 50393 8.8	July 3, 2013	8/15
11 Description of tests	-	-	9/15

### 1 AC voltage withstand test in air

Test voltage	Test frequency	Test duration	Requirement	Voltage applied to	Earth connected to	Test result
4 kV	60 Hz	1 min	No failure	R Y G B	Metallic sheath	No failure
				R	Y G B Metallic sheath	No failure
				Y	R G B Metallic sheath	No failure
				G	R Y B Metallic sheath	No failure
				B	R Y G Metallic sheath	No failure
* Atmospheric condition : 22.3 °C, 59 % RH, 1 012 hPa * Phase conductor : R, Y, G * Neutral conductor : B						

### 2 Insulation resistance test in air

Test voltage	Test duration	Requirement	Measuring points		Test result
DC 1 kV	1 min	$\geq 50 \text{ M}\Omega$	R Y G B	Metallic sheath	$\geq 99.9 \text{ G}\Omega$
			R	Y G B Metallic sheath	$\geq 99.9 \text{ G}\Omega$
			Y	R G B Metallic sheath	$\geq 99.9 \text{ G}\Omega$
			G	R Y B Metallic sheath	$\geq 99.9 \text{ G}\Omega$
			B	R Y G Metallic sheath	$\geq 99.9 \text{ G}\Omega$
* Atmospheric condition : 22.3 °C, 59 % RH, 1 012 hPa * Phase conductor : R, Y, G * Neutral conductor : B					

### 3 Impact at ambient temperature

Test method	Test result
<p>The joint shall be placed on a hard surface.</p> <p>The impacting tool shall be a wedge-shaped steel block of 4 kg having 90 ° angle with a 2 mm radius impacting edge of minimum width 50 mm.</p> <p>The block shall be dropped on to the joint from a height of 1 000 mm so that the impacting edge is horizontal, at right angles to the axis of the accessory, and centered on the point of impact.</p> <p>The impact shall be made at each cable entry within 10 mm of the edge of the oversheath on the joint side.</p> <p>In addition one impact shall be made over the connector.</p>	Refer to the test results of 4, 5, 6, 7, 8 and 9

#### 4 AC voltage withstand test in water

Test voltage	Test frequency	Test duration	Requirement	Voltage applied to	Earth connected to	Test result
4 kV	60 Hz	1 min	No failure	R Y G B	Metallic sheath & Water	No failure
				R	Y G B Metallic sheath & Water	No failure
				Y	R G B Metallic sheath & Water	No failure
				G	R Y B Metallic sheath & Water	No failure
				B	R Y G Metallic sheath & Water	No failure
<ul style="list-style-type: none"> <li>* Atmospheric condition : 23.4 °C, 68 % RH, 1 001 hPa</li> <li>* Phase conductor : R, Y, G</li> <li>* Neutral conductor : B</li> </ul>						

#### 5 Insulation resistance test in water

Test voltage	Test duration	Requirement	Measuring points		Test result
DC 1 kV	1 min	$\geq 50 \text{ M}\Omega$	R Y G B	Metallic sheath & Water	$\geq 99.9 \text{ G}\Omega$
			R	Y G B Metallic sheath & Water	$\geq 99.9 \text{ G}\Omega$
			Y	R G B Metallic sheath & Water	$\geq 99.9 \text{ G}\Omega$
			G	R Y B Metallic sheath & Water	$\geq 99.9 \text{ G}\Omega$
			B	R Y G Metallic sheath & Water	$\geq 99.9 \text{ G}\Omega$
<ul style="list-style-type: none"> <li>* Atmospheric condition : 23.4 °C, 68 % RH, 1 001 hPa</li> <li>* Phase conductor : R, Y, G</li> <li>* Neutral conductor : B</li> </ul>					

## 6 Heating cycle in air

Test method and requirement	Test result
<p>The temperature of the phase conductor shall be raised to (95 ~ 100) °C by heating the assembly, by passing current through the cables.</p> <p>A steady conductor temperature shall be maintained for not less than 2 h. After the 2 h minimum steady temperature period the current shall be switched off and the cable allowed to cool naturally to within 10 K of ambient within a period not less than 3 h.</p> <p>The test assembly shall be subjected to 63 cycles in air.</p>	<p>Refer to the test results of 8 and 9</p>
<p>* Refer to the Osc. ET01</p>	

## 7 Heating cycle in water

Test method	Test result
<p>The cable cores shall be exposed at the entry to the joint by removing an oversheath together with any bedding or filling material of at least 50 mm length and between 50 mm and 150 mm from the exterior of the accessory. The exposure of cores shall be made on the side with the shorter sealing length between the sheath cut back and connectors.</p> <p>The assembly shall be placed in a water bath with a water height of 1 000 mm.</p> <p>During the heating cycle temperature of the water shall be (20 ± 15) °C.</p> <p>The temperature of the phase conductor shall be raised to (95 ~ 100) °C by heating the assembly, by passing current through the cables.</p> <p>A steady conductor temperature shall be maintained for not less than 2 h. After the 2 h minimum steady temperature period the current shall be switched off and the cable allowed to cool naturally to within 10 K of ambient within a period not less than 3 h.</p> <p>The test assembly shall be subjected to 63 cycles in water.</p>	<p>Refer to the test results of 8 and 9</p>
<p>* Refer to the Osc. ET02</p>	

**8 AC voltage withstand test in water**

Test voltage	Test frequency	Test duration	Requirement	Voltage applied to	Earth connected to	Test result
4 kV	60 Hz	1 min	No failure	R Y G B	Metallic sheath & Water	No failure
				R	Y G B Metallic sheath & Water	No failure
				Y	R G B Metallic sheath & Water	No failure
				G	R Y B Metallic sheath & Water	No failure
				B	R Y G Metallic sheath & Water	No failure
<ul style="list-style-type: none"> <li>* Atmospheric condition : 27.8 °C, 58 % RH, 1 008 hPa</li> <li>* Phase conductor : R, Y, G</li> <li>* Neutral conductor : B</li> </ul>						

**9 Insulation resistance test in water**

Test voltage	Test duration	Requirement	Measuring points		Test result
DC 1 kV	1 min	$\geq 50 \text{ M}\Omega$	R Y G B	Metallic sheath & Water	$\geq 99.9 \text{ G}\Omega$
			R	Y G B Metallic sheath & Water	$\geq 99.9 \text{ G}\Omega$
			Y	R G B Metallic sheath & Water	$\geq 99.9 \text{ G}\Omega$
			G	R Y B Metallic sheath & Water	$\geq 99.9 \text{ G}\Omega$
			B	R Y G Metallic sheath & Water	$\geq 99.9 \text{ G}\Omega$
<ul style="list-style-type: none"> <li>* Atmospheric condition : 27.8 °C, 58 % RH, 1 008 hPa</li> <li>* Phase conductor : R, Y, G</li> <li>* Neutral conductor : B</li> </ul>					

**10 Examination (for information only)**

Test method	Test result
<p>After completing the test, the assembly shall be dismantled.</p> <p>Examine the joint for the effectiveness of the moisture seals and corrosion of the armour bonds and other metalwork exposed within the joint.</p>	<p>No ingress of water No corrosion</p>

## 11 Description of tests

- 11.1 The above tests were carried out on the test objects submitted by the applicant in accordance with BS EN 50393:2006 (Test methods and requirements for accessories for use on distribution cables of rated voltage 0.6/1.0 (1.2) kV).
- 11.2 The above tests were carried out on one test sample in sequence. The end.



## Photographs



&lt;Before assembling&gt;



&lt;After assembling&gt;

Apparatus : Heat shrinkable cable joint

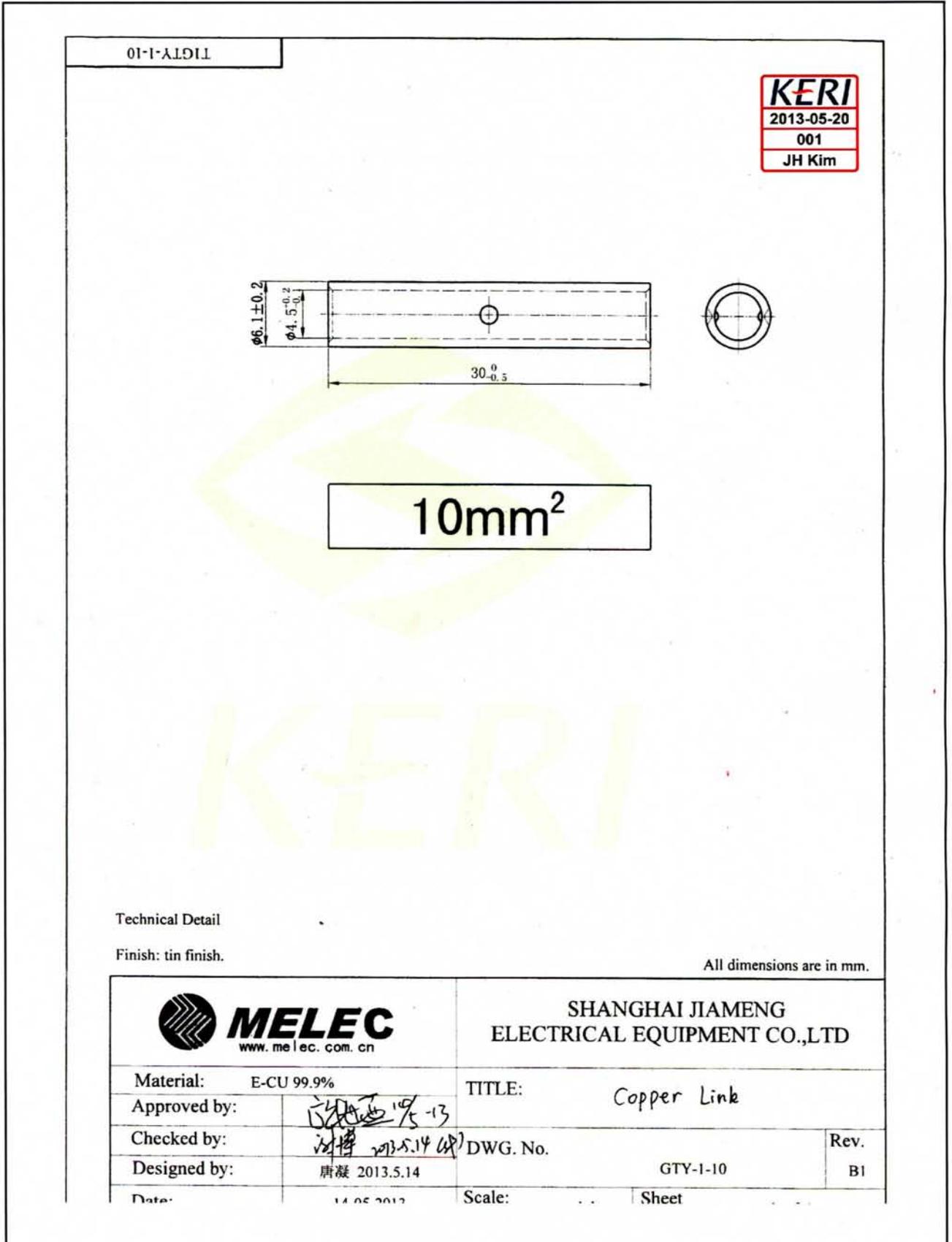
Designation : JHSY-1/4.0

Ratings : 0.6/1.0(1.2) kV 10 mm<sup>2</sup> 4C Type II

Manufacturer : JIANGSU JIAMENG ELECTRICAL EQUIPMENT Co., Ltd.

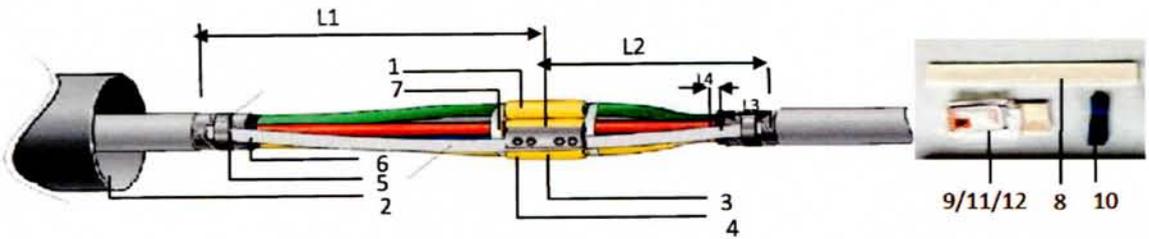
Photo. ET01 : Test object

Drawings



Attachments

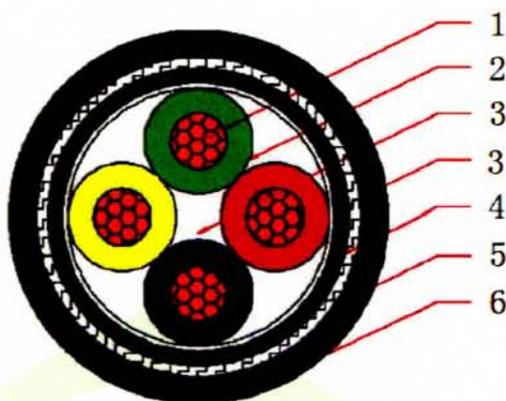
Diagram:



The Cable cross-sectional area		L1	L2	L3	L4
4*10mm <sup>2</sup>		350mm	200mm	30mm	10mm
No	Description	Item	Length ( mm )	Quantity ( pcs )	
1	Protective sleeve	MRA2	200	4	
2	Protective sleeve	MRA2	820	1	
3	connection terminal	GTY-1-10	10mm <sup>2</sup>	4	
4	Grounding terminal	KZB01	800	1	
5	Constant force spring ring	KZB02	Φ12	2	
6	Copper binding wire	KZB03	1000	2	
7	PVC insulation tape	KZB04	5000	1	
8	sealant	TAPE01	320	2	
9	Cleaning bag	QJB01	10ml	2	
10	Sand paper	QJB02	P80	2	
11	cleaning cloth	QJB03		1	
12	Glove	QJB04		1	
Date		Draw up	Auditing	Approve	
2013-3-22		Yunnan zhang	Zhangjie zhang	Zhile zhang	

Attachment ET01 : Assembling diagram

Attachments



Type: YJV22      Voltage: 0.6/1kV      Standard: GB/T12706-2008

SN	STRUCTURE		UNIT	DATA
1	conductor	nominal area	mm <sup>2</sup>	4x10
		piece/single core diameter	NO./mm	7/1.35
		diameter	mm	4.00
		the max. resistance at 20℃	Ω/km	1.83
2	insulation	material	XLPE	
		nominal thickness	mm	0.7
		insulation diameter	mm	5.4
3	laying up	wrapping material	non-woven fabrics	
		layers/thickness	NO./mm/mm	1/0.2
		laying up thickness	mm	13.90
4	bedding	material		
		nominal thickness		1.20
5	armour	material	galvanized steel strip	
		layers/thickness	mm	2/0.2
6	sheath	material	PVC	
		nominal thickness	mm	1.8
		cable diameter	mm	21.7
		approximately weight	kg/km	787.0

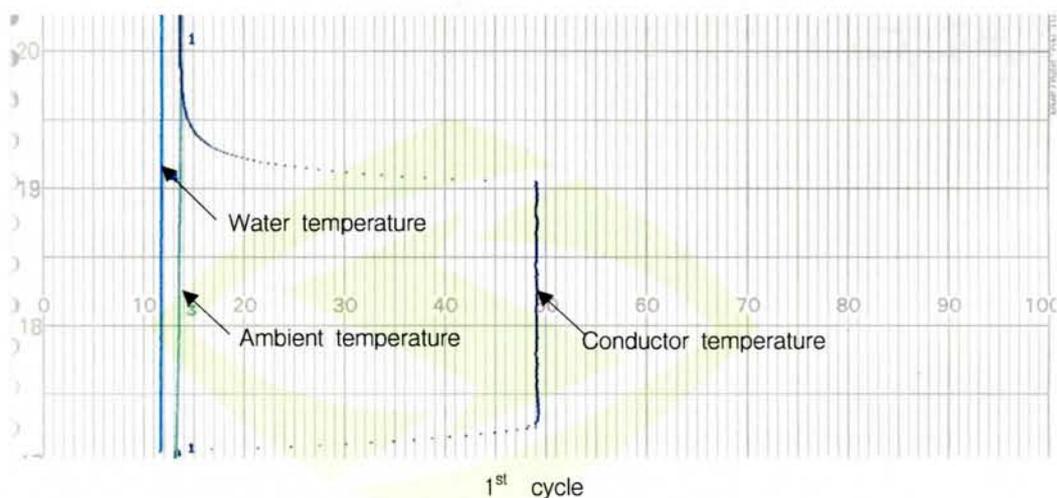
Attachment ET02 : Construction of cable used for testing



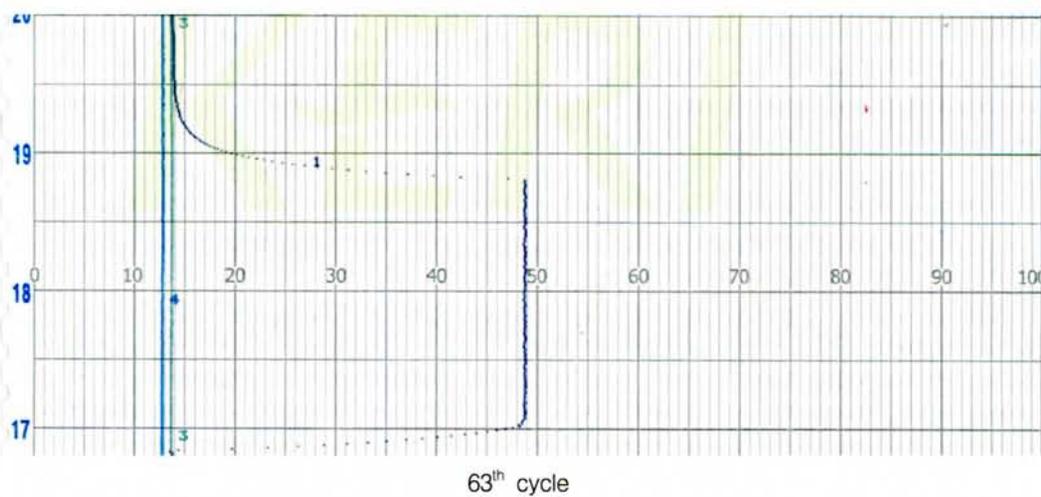
Oscillograms

Osc. ET02

Heating cycle in water



1<sup>st</sup> cycle



63<sup>th</sup> cycle