

**Ministry of Industry and Minerals**  
**State Company for Inspection and Engineering Rehabilitation (SIER)**  
**Engineering Insp. & lab Department**

Client: محافظة بغداد / قسم الهندسة / شعبة الخدمات / مشروع تاهيل شبكة كهرباء الكرادة محلة (909).  
Order No: 471/2023  
Tested Item: L.V Cables (3×150+70) mm<sup>2</sup> CU/XLPE/STA/PVC (0.6/1) KV  
Compacted MED CABLES  
Address: Baghdad- Iraq  
Date of Test: 9/5/2023  
Type of Test: Electrician & Physical

**Test Report**

Requirements Of Test	Unit	Specification Limit	Test Result
<b>1- DIMENSION TEST :</b>			
APPROXIMATE OUTSIDE DIAMETER	mm	-----	48.2
DIAMETER OF CONDUCTOR FOR 150	mm	13.7 – 15.0	14.2
DIAMETER OF CONDUCTOR FOR 70	mm	9.3 – 10.2	9.9
NOMINAL THICKNESS OF ARMOUR TAPES	mm	0.5	0.45
MIN. THICKNESS OF SHEATH	mm	1.24	2.2
CORE IDENTIFICATION	Color	-----	BLUE, RED, YELLOW
MIN. THICKNESS OF INSULATION FOR 150	mm	1.16	1.5
CORE IDENTIFICATION	Color	-----	GREEN
MIN. THICKNESS OF INSULATION FOR 70	mm	0.89	0.98
MIN. NUMBER OF WIRES FOR 150	-----	18	19
MIN. NUMBER OF WIRES FOR 70	-----	12	19
<b>2- MECHANICAL TEST :</b>			
MIN. INSULATION TENSILE STRENGTH	N / mm <sup>2</sup>	12.5	15.1
MIN. INSULATION ELONGATION AT BREAK	%	200	267
MIN. TENSILE STRENGTH OF SHEATH	N / mm <sup>2</sup>	12.5	17.1
MIN. ELONGATION OF SHEATH	%	150	254
<b>3 – ELECTRICAL TEST :</b>			
MAX. CONDUCTOR D.C RESISTANCE AT 20 C° FOR 150	Ω/K m	0.124	1.14
MAX. CONDUCTOR D.C RESISTANCE AT 20 C° FOR 70	Ω/K m	0.208	0.216
D.C VOLTAGE TEST	KV	8.5 FOR 3 min	O.K

**RESULTS:** The sample is Acceptable.

**NOTES:** - The test is according to the standard specification of IEC 60502-1 & 30-28.  
- This report is for the tested sample only.

مدير قسم الفحص الهندسي والمختبرات

م. الهادي خواجه

المراجعة

م. الهادي خواجه

الفاحص  
م. موزين

Head office: Baghdad –Iraq /Baghdad –Hilla Highway .E-mail: mahed@siei.gov.iq, lab.sier@sier.gov.iq  
DG Office:+9647810484016.Planning Dep.Head: +9647706084844IP: 91.106.34.21 – SIER@engineering Comp

Doc. No. : S.I.E.R/QWI/27/01

Issue No.: 01

Date Oct. 2022

**Ministry of Industry and Minerals**  
**State Company for Inspection and Engineering Rehabilitation (SIER)**  
**Engineering Insp. & lab Department**

Client: محافظة بغداد / قسم الهندسة / شعبة الخدمات / مشروع تاهيل شبكة كهرباء الكرادة محلة (911).

Order No: 470/2023

Tested Item: L.V Cables (4×16) mm<sup>2</sup> CU/XLPE/STA/PVC (0.6/1) KV Circular  
MED CABLES

Address: Baghdad- Iraq

Date of Test: 9/5/2023

Type of Test: Electrician & Physical

**Test Report**

Requirements Of Test	Unit	Specification Limit	Test Result
<b>1- DIMENSION TEST :</b>			
APPROXIMATE OUTSIDE DIAMETER	mm	-----	24.4
MAX. DIAMETER OF CONDUCTOR	mm	5.3	4.9
MIN. THICKNESS OF SHEATH	mm	1.24	2.1
CORE IDENTIFICATION	Color	BLUE, RED, YELLOW & GREEN	
MIN. THICKNESS OF INSULATION	mm	0.53	0.98
NOMINAL THICKNESS OF ARMOUR TAPES	mm	0.2	0.24
THICKNESS OF BEDDING	mm	-----	1.1
MIN. NUMBER OF WIRES	-----	7	7
<b>2- MECHANICAL TEST :</b>			
MIN. INSULATION TENSILE STRENGTH	N / mm <sup>2</sup>	12.5	13.1
MIN. INSULATION ELONGATION AT BREAK	%	200	444
MIN. TENSILE STRENGTH OF SHEATH	N / mm <sup>2</sup>	12.5	12.5
MIN. ELONGATION OF SHEATH	%	150	275
<b>3 - ELECTRICAL TEST :</b>			
MAX. CONDUCTOR D.C RESISTANCE AT 20 C°	Ω/K m	1.15	1.1
D.C VOLTAGE TEST	KV	8.5 FOR 5 min	O.K

**RESULTS:** The sample is **Acceptable**.

**NOTES:** - The test is according to the standard specification of IEC 60502-1 & 60226  
- This report is for the tested sample only

مدير قسم الفحص الهندسي و المختبرات  
م. الحمداني



Head office: Baghdad -Iraq /Baghdad -Hilla Highway .E-mail: mahed@sier.gov.iq. lab.sier@sier.gov.iq  
DG Office:+9647810484016.Planning Dep.Head: +9647706084844IP: 91.106.34.21 - SIER@engineering Comp

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Client: محافظة بغداد / قسم الهندسة / شعبة الخدمات / مشروع تاهيل شبكة كهرباء الكرادة محلة (909).  
Order No: 471/2023  
Tested Item: L.V Cables (4×25) mm<sup>2</sup> CU/XLPE/STA/PVC (0.6/1) KV Compacted  
MED CABLES  
Address: Baghdad- Iraq  
Date of Test: 9/5/2023  
Type of Test: Electrician & Physical

**Test Report**

Requirements Of Test	Unit	Specification Limit	Test Result
<b>1- DIMENSION TEST :</b>			
APPROXIMATE OUTSIDE DIAMETER	mm	-----	25.1
DIAMETER OF CONDUCTOR	mm	5.6 – 6.5	6.1
MIN. THICKNESS OF SHEATH	mm	1.24	1.49
CORE IDENTIFICATION	Color	BLUE, RED ,YELLOW & GREEN	
MIN. THICKNESS OF INSULATION	mm	0.71	0.97
THICKNESS OF BEDDING	mm	-----	0.86
MIN. NUMBER OF WIRES	-----	6	7
<b>2- MECHANICAL TEST :</b>			
MIN. INSULATION TENSILE STRENGTH	N / mm <sup>2</sup>	12.5	15.2
MIN. INSULATION ELONGATION AT BREAK	%	200	316
MIN. TENSILE STRENGTH OF SHEATH	N / mm <sup>2</sup>	12.5	14.2
MIN. ELONGATION OF SHEATH	%	150	285
<b>3 - ELECTRICAL TEST :</b>			
MAX. CONDUCTOR D.C RESISTANCE AT 20 C°	Ω/K m		0.702
D.C VOLTAGE TEST	KV	8.5	O.K

**RESULTS:** The sample is Acceptable.

**NOTES:** - The test is according to the standard specification of IEC 60502-1 & 60228.  
- This report is for the tested sample only

**SIER**  
ENGINEERING  
INSPECTION & LABORATORIES

المراجع  
م. الحمد رافع  
م. الحمد رافع  
م. الحمد رافع

الفاحص  
م. الحمد رافع

Head office: Baghdad –Iraq /Baghdad –Hilla Highway .E-mail: mahed@sier.gov.iq, lab.sier@sier.gov.iq  
DG Office:+9647810484016.Planning Dep.Head: +9647706084844IP: 91.106.34.21 – SIER@engineering Comp

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Order No: 471/2023  
Tested Item: L.V Cables (4×16) mm<sup>2</sup> CU/XLPE/STA/PVC (0.6/1) KV Circular  
MED CABLES  
Address: Baghdad- Iraq  
Date of Test: 9/5/2023  
Type of Test: Electrician & Physical

**Test Report**

Requirements Of Test	Unit	Specification Limit	Test Result
<b>1- DIMENSION TEST :</b>			
APPROXIMATE OUTSIDE DIAMETER	mm	-----	24.3
MAX. DIAMETER OF CONDUCTOR	mm	5.3	4.85
MIN. THICKNESS OF SHEATH	mm	1.24	2.2
CORE IDENTIFICATION	Color	BLUE, RED, YELLOW & GREEN	
MIN. THICKNESS OF INSULATION	mm	0.53	0.83
NOMINAL THICKNESS OF ARMOUR TAPES	mm	0.2	0.24
THICKNESS OF BEDDING	mm	-----	0.98
MIN. NUMBER OF WIRES	-----	7	7
<b>2- MECHANICAL TEST :</b>			
MIN. INSULATION TENSILE STRENGTH	N / mm <sup>2</sup>	12.5	12.8
MIN. INSULATION ELONGATION AT BREAK	%	200	267
MIN. TENSILE STRENGTH OF SHEATH	N / mm <sup>2</sup>	12.5	13.1
MIN. ELONGATION OF SHEATH	%	150	301
<b>3 - ELECTRICAL TEST :</b>			
MAX. CONDUCTOR D.C RESISTANCE AT 20 C°	Ω/K m	1.15	1.02
D.C VOLTAGE TEST	KV	8.5 FOR 5 m	O.K

**RESULTS:** The sample is **Acceptable**.

**NOTES:** - The test is according to the standard specification of IEC 60502-1 & 60228  
- This report is for the tested sample only

SIER  
ENGINEERING INSPECTION & LABORATORIES

المراجع  
م. الحمداني

الفاحص  
محمد فوزي

مدير قسم الفحص الهندسي و المختبرات  
م. الحمداني

Head office: Baghdad -Iraq /Baghdad -Hilla Highway .E-mail: mahed@siei.gov.iq, lab.sier@sier.gov.iq  
DG Office:+9647810484016.Planning Dep.Head: +9647706084844IP: 91.106.34.21 - SIER@engineering Comp

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Order No: 470/2023

Tested Item: L.V Cables (3×95+50) mm<sup>2</sup> CU/XLPE/STA/PVC (0.6/1) KV  
Compacted MED CABLES

Address: Baghdad- Iraq

Date of Test: 9/5/2023

Type of Test: Electrician & Physical

**Test Report**

Requirements Of Test	Unit	Specification Limit	Test Result
<b>1- DIMENSION TEST :</b>			
APPROXIMATE OUTSIDE DIAMETER	mm	-----	40.5
DIAMETER OF CONDUCTOR FOR 95	mm	11.0 – 12.0	11.6
DIAMETER OF CONDUCTOR FOR 50	mm	7.7 – 8.6	8.15
NOMINAL THICKNESS OF ARMOUR TAPES	mm	0.5	0.46
MIN. THICKNESS OF SHEATH	mm	1.24	2.15
CORE IDENTIFICATION	Color	-----	BLUE, RED, YELLOW
MIN. THICKNESS OF INSULATION FOR 95	mm	-----	0.89
CORE IDENTIFICATION	Color	-----	GREEN
MIN. THICKNESS OF INSULATION FOR 50	mm	0.8	0.94
MIN. NUMBER OF WIRES FOR 95	-----	15	19
MIN. NUMBER OF WIRES FOR 50	-----	6	19
<b>2- MECHANICAL TEST :</b>			
MIN. INSULATION TENSILE STRENGTH	N / mm <sup>2</sup>	12.5	13.6
MIN. INSULATION ELONGATION AT BREAK	%	200	204
MIN. TENSILE STRENGTH OF SHEATH	N / mm <sup>2</sup>	12.5	12.9
MIN. ELONGATION OF SHEATH	%	150	171
<b>3 – ELECTRICAL TEST :</b>			
MAX. CONDUCTOR D.C RESISTANCE AT 20 C° FOR 95	Ω/K m	0.193	0.182
MAX. CONDUCTOR D.C RESISTANCE AT 20 C° FOR 50	Ω/K m	0.387	0.373
D.C VOLTAGE TEST	KV	8.5 FOR 5 min	OK

**RESULTS:** The sample is **Acceptable**.

**NOTES:** - The test is according to the standard specification of IEC 60502-1 & 60228.  
- This report is for the tested sample only.

المختبرات  
قسم الفحص الهندسي و المختبرات  
م. الحمد رافع امير



المراجعة  
م. الحمد رافع امير



الفحص  
م. الحمد رافع امير

Head office: Baghdad –Iraq /Baghdad –Hilla Highway .E-mail: mahed@sier.gov.iq, lab.sier@sier.gov.iq  
DG Office:+9647810484016.Planning Dep.Head: +9647706084844IP: 91.106.34.21 – SIER@engineering Comp



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Order No: 470/2023

Tested Item: L.V Cables (3×150+70) mm<sup>2</sup> CU/XLPE/STA/PVC (0.6/1) KV  
Compacted MED CABLES

Address: Baghdad- Iraq

Date of Test: 9/5/2023

Type of Test: Electrician & Physical

**Test Report**

Requirements Of Test	Unit	Specification Limit	Test Result
<b>1- DIMENSION TEST :</b>			
APPROXIMATE OUTSIDE DIAMETER	mm	-----	48.5
DIAMETER OF CONDUCTOR FOR 150	mm	13.7 – 15.0	14.01
DIAMETER OF CONDUCTOR FOR 70	mm	9.3 – 10.2	9.8
NOMINAL THICKNESS OF ARMOUR TAPES	mm	0.5	0.43
MIN. THICKNESS OF SHEATH	mm	1.24	2.41
CORE IDENTIFICATION	Color	-----	BLUE, RED ,YELLOW
MIN.THICKNESS OF INSULATION FOR 150	mm	1.16	1.6
CORE IDENTIFICATION	Color	-----	GREEN
MIN.THICKNESS OF INSULATION FOR 70	mm	0.89	1.01
MIN. NUMBER OF WIRES FOR 150	-----	18	19
MIN. NUMBER OF WIRES FOR 70	-----	12	19
<b>2- MECHANICAL TEST :</b>			
MIN. INSULATION TENSILE STRENGTH	N / mm <sup>2</sup>	12.5	12.5
MIN. INSULATION ELONGATION AT BREAK	%	200	571
MIN. TENSILE STRENGTH OF SHEATH	N / mm <sup>2</sup>	12.5	12.5
MIN. ELONGATION OF SHEATH	%	150	262
<b>3 – ELECTRICAL TEST :</b>			
MAX. CONDUCTOR D.C RESISTANCE AT 20 C° FOR 150	Ω/K m	0.124	1.17
MAX. CONDUCTOR D.C RESISTANCE AT 20 C° FOR 70	Ω/K m	0.268	0.232
D.C VOLTAGE TEST	KV	8.5 FOR 5 min	O.K

**RESULTS:** The sample is **Acceptable**.

**NOTES:** The test is according to the standard specification of IEC 60302-1 & 50228.

This report is for the tested sample only.

قسم الفحص الهندسي والمختبرات

Dr. Al-Mutairi

المراجعة

Dr. Al-Mutairi

الفاحص

عمار عوزي

Head office: Baghdad –Iraq /Baghdad –Hilla Highway .E-mail: mahed@sier.gov.iq, lab.sier@sier.gov.iq  
DG Office:+9647810484016.Planning Dep.Head: +9647706084844IP: 91.106.34.21 – SIER@engineering Comp

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Order No: 470/2023

Tested Item: L.V Cables (4×25) mm<sup>2</sup> CU/XLPE/STA/PVC (0.6/1) KV Compacted  
MED CABLES

Address: Baghdad- Iraq

Date of Test: 9/5/2023

Type of Test: Electrician & Physical

**Test Report**

Requirements Of Test	Unit	Specification Limit	Test Result
<b>1- DIMENSION TEST :</b>			
APPROXIMATE OUTSIDE DIAMETER	mm	-----	25.7
DIAMETER OF CONDUCTOR	mm	5.6 – 6.5	5.9
MIN. THICKNESS OF SHEATH	mm	1.24	1.84
CORE IDENTIFICATION	Color	BLUE, RED ,YELLOW & GREEN	
MIN.THICKNESS OF INSULATION	mm	0.71	1.1
THICKNESS OF BEDDING	mm	-----	0.9
MIN. NUMBER OF WIRES	-----	6	7
<b>2- MECHANICAL TEST :</b>			
MIN. INSULATION TENSILE STRENGTH	N / mm <sup>2</sup>	12.5	13.3
MIN. INSULATION ELONGATION AT BREAK	%	200	445
MIN. TENSILE STRENGTH OF SHEATH	N / mm <sup>2</sup>	12.5	14.02
MIN. ELONGATION OF SHEATH	%	150	287
<b>3 – ELECTRICAL TEST :</b>			
MAX. CONDUCTOR D.C RESISTANCE AT 20 C°	Ω/K m	0.727	0.684
D.C VOLTAGE TEST	KV	8.5 FOR 5 min	O.K

**RESULTS:** The sample is **Acceptable**.

**NOTES:** - The test is according to the standard specification of IEC 60502-1 & 60228.  
- This report is for the tested sample only




مدير قسم الفحص الهندسي و المختبرات  
 المراجعة  
 الفاحص  
 كما هو مرفق

Head office: Baghdad –Iraq /Baghdad –Hilla Highway .E-mail: mahed@siei.gov.iq, lab.sier@sier.gov.iq  
DG Office:+9647810484016.Planning Dep.Head: +9647706084844IP: 91.106.34.21 – SIER@engineering Comp

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Order No: 470/2023

Tested Item: H.V Cables (3×150) mm<sup>2</sup> CU/XLPE/STA/PVC (6/10) KV Compacted  
MED CABLES

Address: Baghdad- Iraq

Date of Test: 9/5/2023

Type of Test: Electrician & Physical

**Test Report**

Specification Requirement	Unit	Specification Limit	Test Result
<b>Sheathing</b>			
Outer Diameter	mm	-----	67.03
Min. Thickness	mm	1.8	2.7
Min. Tensile strength	N/mm <sup>2</sup>	12.5	14.2
Min. Elongation at break	%	150	205
<b>Armoring</b>			
Nominal Tape Thickness.	mm	0.5	0.51
<b>Bedding</b>			
Approx. Thickness	mm	-----	-----
<b>Metallic Screen</b>			
Nominal Thickness of Copper Tape	mm	-----	0.13
Nominal Diameter of Copper wire		-----	0.93
<b>Outer Semi-Conductor</b>			
Min. Thickness	mm	-----	0.5
<b>Insulation</b>			
Min. Thickness	mm	2.96	3.5
Min. Tensile strength	N/mm <sup>2</sup>	12.5	14.1
Min. Elongation at break	%	200	205
<b>Inner Semi-Conductor</b>			
Min. Thickness	mm	-----	0.5
<b>Conductors</b>			
Outer Diameter	mm	13.7 – 15.0	14.1
Min. No. of wires	----	18	37
Max. D.C. resistances of conductor at 20 C°	Ω/K m	0.124	0.123

**RESULTS:** The sample is **Acceptable**.

**NOTES:** - The test is according to the standard specification of IEC 60502-1 & 60228.  
- This report is for the tested sample only.

مدير قسم الفحص الهندسي و المختبرات  
م. الميرزا



المراجعة  
م. الميرزا



م. الفلاح  
م. موزن

Head office: Baghdad -Iraq /Baghdad -Hilla Highway .E-mail: mahed@sier.gov.iq, lab.sier@sier.gov.iq  
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