

**Manufacture: Power Cables, General Wiring Cables & All Kinds of Wire & Cables.**

**Ref. No. \_\_\_\_\_**

**Dated: \_\_\_\_\_**

### **PROJECT ELECTRIFIED BY "MADNI CABLES"**

1. Metro Bus Islamabad
2. Metro Bus Multan
3. Beijing under Pass Canal Side Lahore
4. Development of construction of Road in PKLI and Research Center Lahore
5. Kahana Kasha Flyover Lahore
6. Development of Picnic Area Jallo, Lahore
7. LDA Avenue Raiwind Road, Lahore

### **SUPPLY TO:-**

1. Lahore Electric Supply Company. (LESCO)	
2. Faisalabad Electric Supply Company. (FESCO)	
3. Islamabad Electric Supply Company. (IESCO)	70mm <sup>2</sup> , 120mm <sup>2</sup> , 185mm <sup>2</sup> Single Core
4. Gujranwala Electric Power Company. (GEPCO)	10mm <sup>2</sup> Two Core.
5. Multan Electric Power Company. (MEPCO)	25mm <sup>2</sup> 70mm <sup>2</sup> , 120m m <sup>2</sup> Four Core
6. Sui Northern Gas Pipeline Ltd. (SNGPL)	

### **Head Office:**

42-Madina Market, Shahallam  
Lahore Pakistan, 54000  
Web: [www.madnicables.com](http://www.madnicables.com)  
Email: [info@madnicables.com](mailto:info@madnicables.com)

Ph: +92-42-37631119  
+92-42-37639313  
+92-42-37635469

Fax: +92-42-37635469

### **Factory:**

Plot# 08, Street#01  
Mian Wazir Park Sheikhupura  
Road Shahdra, Lahore

**MADNI  
CABLES**

**MADNI CABLES (PVT) Ltd.**

**Manufacture: Power Cables, General Wiring Cables & All Kinds of Wire & Cables.**

Ref. No. \_\_\_\_\_

Dated: \_\_\_\_\_

### **LOW VOLTAGE PVC CABLES RANGE**

**According to British Standard Specifications BSS & International Electro  
Technical Commission IEC.**

1. Single Core
2. Two Core
3. Three Core
4. Four Core

0.50 mm<sup>2</sup> to 1000 mm<sup>2</sup>  
Copper and Aluminum  
Un Armoured and Armoured  
(SWA, AWA)

**Head Office:**

42-Madina Market, Shahallam  
Lahore Pakistan, 54000  
Web: [www.madnicables.com](http://www.madnicables.com)  
Email: [info@madnicables.com](mailto:info@madnicables.com)

Ph: +92-42-37631119  
+92-42-37639313  
+92-42-37635469  
Fax: +92-42-37635469

**Factory:**

Plot# 08, Street#01  
Mian Wazir Park Sheikhupura  
Road Shahdra, Lahore



PSQCA/TSC/TEC/OPM2			
Issue	01	Rev	00
Date	August 07, 2019		

Sr. # 14342



PSQCA

## Government of Pakistan Ministry of Science & Technology

Pakistan Standards & Quality Control Authority (PSQCA)

Technical Services Centre (TSC)

TSC-PSQCA, 125-A, Quaid-e-Azam Industrial Estate, Township, Lahore - 54770, Pakistan

Report No. PSQCA/TSC/DOC/J-69805

Dated: 07.05.2019

Your Ref. # 323/19/PSQCA/01, dated: 03.05.2019, Date of opening of Job. 03.05.2019

### TEST REPORT

Name & Address of Client: M/s. Madni Cables (Pvt.) Ltd, Lahore.

Description of Sample(s): Copper Cable  
(As provided by client)

No. of Sample: 01

Method used/Specs. Wet Chemistry

No. of Sheet: 01

Statement of Non-Compliance: N.A

Temp: N.A, & Humidity: <80%

Uncertainty of Measurement: ---

#### Chemical Test Results:

Job No.	Sample ID (As provided by client)	Cu%
69805	Copper Cable 35mm <sup>2</sup> (19/1.53mm)	99.95

(END OF REPORT)

Head  
Services Division

Head  
Documentation Division

For terms and conditions please see overleaf



**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY**  
**LAHORE-54890, PAKISTAN**

Madni Cables, Lahore.

No.Univ./EED/0067/21

Dated: 26.04.2021

**Subject: Testing of Electrical Cables.**

The following cables samples were tested on 23.04.2021 in the High Voltage Engineering Laboratory. In lieu of this testing fee Rs. 16,000/- was deposited in the Habib Bank Limited, Engineering University Branch, Lahore via Bank Challan No. 0060639 on 21.04.2021. The testing results are reported below:

**TEST REPORT:**

1-Cable Specimen: 3/0.029 Single Core PVC Insulated Solid Copper Conductor Cable

Make: Madni Cables

Colour: Red

Room Temperature: 26 °C

Specifications: BS-6360, 6346, 6004, 60228

Sr. #	Test Carried Out	Units	Requirements	Results	Remarks
1.	No. of Wires		3	3	Pass
2.	Strand Diameter	Inch	0.029	0.029	Pass
3.	Overall Diameter	Inch	0.137	0.138	Pass
4.	Insulation Thickness	Inch	0.035	0.036	Pass
5.	D.C. Resistance at 20°C	Ω/Yard	12.58	12.27	Pass
6.	Insulation Resistance at 20°C	M-Ω/Yard	20	Above 20	Pass
7.	High Voltage Test at 3.5 kV for 5 Minutes		No Breakdown of Insulation Recorded		
8.	Copper Purity		99.98 %		

2-Cable Specimen: 6 mm<sup>2</sup> Single Core PVC Insulated Copper Conductor Cable

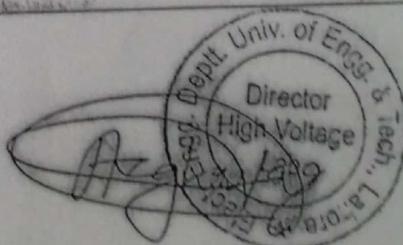
Make: Madni Cables

Colour: Red

Room Temperature: 26 °C

Specifications: BS-6360, 6346, 6004, 60228

Sr. #	Test Carried Out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	Pass
2.	Strand Diameter	mm	1.05	1.05	Pass
3.	Overall Diameter	mm	4.10 - 5.00	4.80	Pass
4.	Insulation Thickness	mm	0.80	0.88	Pass
5.	D.C. Resistance at 20°C	Ω/km	3.08	2.58	Pass
6.	Insulation Resistance at 20°C	M-Ω/km	0.0075	Above 0.0075	Pass
7.	High Voltage Test at 3.5 kV for 5 Minutes		No Breakdown of Insulation Recorded		
8.	Copper Purity		99.98 %		





# HIGH VOLTAGE ENGINEERING LABORATORY

## DEPARTMENT OF ELECTRICAL ENGINEERING

### UNIVERSITY OF ENGINEERING AND TECHNOLOGY

LAHORE-54890, PAKISTAN

Remarks: The above cables samples withstood the tests satisfactorily.

Note The results are valid only for the samples tested on 23.04.2021.

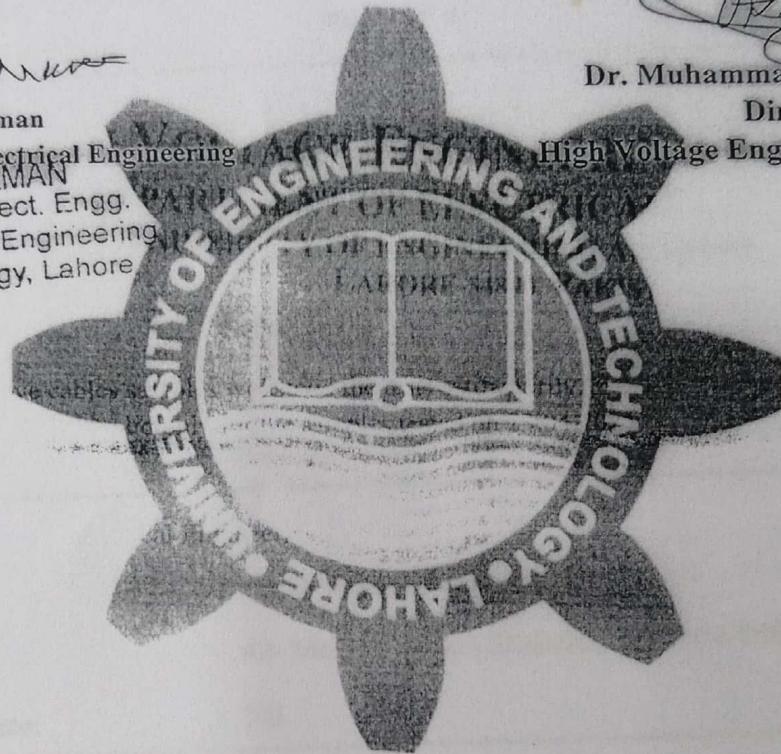
Test(s) Witnessed by:

Dr. Muhammad Asghar Saqib,  
Professor, Department of Electrical Engineering,  
UET, Lahore.

*Asghar Saqib*  
Dr. Muhammad Asghar Saqib,  
Director, High Voltage Engineering Laboratory

High Voltage Engineering Laboratory  
Director, High Voltage Engineering Laboratory  
Dr. Muhammad Asghar Saqib, Director, High Voltage Engineering Laboratory

*Chairman*  
Chairman  
Department of Electrical Engineering  
CHAIRMAN  
Dept. of Elect. Engg.  
University of Engineering  
& Technology, Lahore





Sr. No. PCSIR-LLC 161595

**Pakistan Council of Scientific & Industrial Research**  
LABORATORIES COMPLEX, FEROZEPUR ROAD, LAHORE-54600

Doc.# EMTL/A - 12/01 | Issue # 02 | Issue Date. 1<sup>st</sup> July 2011 | Rev. # 00



Report No. EMTL / 826

Dated: 28<sup>th</sup> April, 2021

## TEST REPORT

Page 1 of 4

### Testing Laboratory

Name: Electrical Measurement & Test Laboratory  
Address: PCSIR Laboratories Complex,  
Ferozepur Road, Lahore – 54600, Pakistan  
Testing Location: Same as above  
Job Code #: 826  
ILO Log # & Date: 910 / 26-04-2021

### Customer

Name: Madni Cables (Pvt.) Ltd.  
Address: 42- Madina Market Shahallam, Lahore-54000  
Request Ref. & Date: Nil Dated: 25-04-2021

### Test Specification

Standard: BS 6004  
Test Procedure: N.A.  
Procedure Deviation: N.A.  
Non-standard Test Method: N.A.

### Test Item Description

Single Core, 4.0 mm<sup>2</sup> CU/PVC Insulated Electric Cable  
Rated Voltage: 450/750 V  
Color of Core: Red  
Samples Length: Approx. 5 Meters

### Copy of Marking Plate / Label

MADNI CABLES 4MM<sup>2</sup> 450/750 VOLTS BS 6004



# Pakistan Council of Scientific & Industrial Research

LABORATORIES COMPLEX, FEROZEPUR ROAD, LAHORE-54600

Sr. No. PCSIR-LLC 161596



Doc.# EMTL/A - 12/01 | Issue # 02 | Issue Date, 1<sup>st</sup> July 2011 | Rev. # 00

Report No. EMTL / 826

Dated: 28<sup>th</sup> April, 2021

Page 2 of 4

## Test Case Verdicts

Test case does not apply to the test object: N.(A.)

Test item does meet the requirement: P(ass)

Test item does not meet the requirement: F(ail)

## Testing

Date of Receipt of Test Item: 26-04-2021

Date (s) of Performance of Test: 27-04-2021

## General Remarks

The results of the Electrical Resistance of Conductor and Dimensional Tests carried out on the supplied test sample of Single Core 4.0 mm<sup>2</sup> CU/PVC Insulated Electric Cable conform the standard requirements.

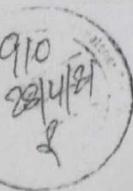
## Report:

Prepared by: Malik Allah Yar  
Senior Experimental Officer

28-04-2021  
(Signature)

Reviewed by: Muhammad Azhar  
Head, Electrical Measurement & Test Laboratory

28/4/2021  
(Signature)



Approved by: Dr. Quratulain Syed  
Director General

28-04-21  
(Signature)



## Pakistan Council of Scientific &amp; Industrial Research

LABORATORIES COMPLEX, FEROZEPUR ROAD, LAHORE - 54600

Annexure-12 | Doc.# EMTL/A-12/01 | Issue # 02 | Issue Date: 1<sup>st</sup> July, 2011 | Rev. # 00LAB 041  
17025

Report No. EMTL / 826

Dated: 28<sup>th</sup> April, 2021

Page 3 of 4

Single Core, 4.0 mm<sup>2</sup> PVC Insulated Electric Cable (Red)

BS 6004		
Prescribed	Observed	Verdict

## PRODUCT IDENTIFICATION

Identification of Manufacturer	Shall be provided throughout the sample length of cables.	Compliance observed	P
Colour of insulation for single core Cable	Green/Yellow, Blue or other colour	Red	P
Voltage Designation	450 / 750 V	450 / 750 V	P

## CONDUCTOR

Material	Copper	Copper	-
No of Strands (mm)	0.7 mm	0.7	P
Individual Strand Dia. (mm)		0.868 mm	P
Approx. Conductor Area	(4.0 mm <sup>2</sup> )	4.0 mm <sup>2</sup>	P
Radial Thickness of Insulation	(0.8 mm Minimum Value)	0.93 mm	P
Smallest value of Insulation Thickness (mm)	0.62 mm	0.832 mm	P
Overall Cable Diameter (mm)	Upper Limit: 4.6 mm Lower Limit: 3.8 mm	4.20 mm	P

## ELECTRICAL TESTS

Conductor Resistance at 20°C	(4.61 Ω/km. Max. Value)	4.20 Ω/km.	P
------------------------------	-------------------------	------------	---

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT) LIMITED

MEMORANDUM

From:

To:

Chief Distribution  
P&M Division

Project Manager  
Job No 3652  
H&TE Division

Ref: 3652/161/FA/02/9529

January 06, 2015

RAWALPINDI-ISLAMABAD METRO BUS PROJECT (PACKAGE-ISP-I)  
(LV Cables Inspection at M/s Madni Cables Manufacturing Works)

References:

- [1] M/s Madni Cable letter number HB/1142/114 dated December 12, 2014.
- [2] Project Director , RDA, letter No. RDA/ED/MBS/PD/503 dated September 04, 2014.
- [3] NESPAK letter number SA-281/161/FA/01/8281 dated August 08, 2014.
- [4] Project Director , RDA, letter No. RDA/ED/MBS/PD/346 dated July 22, 2014.
- [5] Contractor Habib Construction Services letter No. MBS/HCS/RDA/176 dated July 21, 2014. 2014.

This is with reference to letter ref [1] vide which the inspection of said cables has been requested. Inspection of the referred LV cables has been carried out on January 05, 2015 at the manufacturing works M/s Madni Cables Shakhpura Road Lahore.

The table showing single/multicore LV Cables have been randomly checked as per relevant specified standards IEC 60502 & 60228 and BS 6360, 6004 & 6348

Sr. No	Cable Size	* Cable Length (Meters)
1	4 core 10mm <sup>2</sup> Cu PVC/PVC 600/1000 V (Black)	950
2	1 core 10mm <sup>2</sup> Cu PVC/INS 450/750 V (Green/Yellow)	950
3	4 core 16mm <sup>2</sup> Cu PVC/PVC 600/1000 V (Black)	7200
4	1 core 16mm <sup>2</sup> Cu PVC/INS 450/750 V (Green/Yellow)	9000
5	4 core 25mm <sup>2</sup> Cu PVC/PVC 600/1000 V (Black)	4800
6	1 core 25mm <sup>2</sup> Cu PVC/INS 450/750 V (Green/Yellow)	500

Note: \* Cable length as per tags/plates fixed on the drum.

However, Following are to be ensured prior to dispatch of the same:

- 1) Installation of end caps at both end of cables are to be provided
- 2) Cable identification tags/plates on each drum are to be provided.
- 3) Cable manufacturing capability/workmanship and High Voltage testing includes needs to be further improvement,
- 4) Copper purity shall be tested from one of the testing facilities in the presence of Client/Consultants representatives.
  - a) UET, Lahore
  - b) PCSIR, Lahore
  - c) PSQCA, Lahore



**MULTAN DEVELOPMENT AUTHORITY**  
OFFICE OF THE DIRECTOR ENGINEERING-III  
METRO BUS SYSTEM, MULTAN  
No. C-22/ DE(MBS)/MDA  
26 September, 2016

To

The Electrical Engineering Department,  
UET, Lahore.

Subject

**CONSTRUCTION OF METRO BUS SYSTEM MULTAN**  
**(TESTING OF ELECTRICAL CABLES)**

Samples of Madni cables collected at random from site of work as detailed below are being forwarded/ submitted for laboratory testing.

1. 4 mm<sup>2</sup> 4 -Core
2. 10 mm<sup>2</sup> 4 -Core
3. 120 mm<sup>2</sup> 4 -Core (LT cable)
4. 1.5 mm<sup>2</sup> Single Core
5. 2.5 mm<sup>2</sup> Single Core
6. 4.00 mm<sup>2</sup> Single Core (Earthing Cable)
7. 6.00 mm<sup>2</sup> Single Core (Power & Earthing Cable)
8. 10.00 mm<sup>2</sup> Single Core (Earthing Cable)

You are requested to perform the necessary entire requisite/related tests results necessary to determine its quality for suitability of the subject noted project. Samples have been collected jointing by the Contractor and Consultants.

The duly testing charges will be paid by the Contractor.

*J. S. 26/9/2016*  
Director Engineering-III  
Metro Bus Project  
MDA, Multan

CC:

1. Chief Engineer/Technical Advisor, Metro Bus Project, Multan.
2. Resident Engineer (E&M), M/s Osmani & Company Metro Bus Project Multan.
3. M/s Habib Construction Services (Pvt) Ltd with reference to Madni Cables (Pvt) Ltd letter No. DE/MDA/MBS/1710/16, dated 30-07-2016 addressed to your firm



**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

No. Univ./EED/1154/16  
Dated: 04.10.2016

The Director Engineering-III  
Metro Bus Project,  
MDA, Multan.

Subject: **TESTING OF ELECTRICAL CABLES**  
**CONSTRUCTION OF METRO BUS SYSTEM MULTAN**

Reference your letter No. C-22/DE (MBS)/MDA, dated 26.09.2016.

The following cable samples were tested on 29.09.2016 in the High Voltage Engineering Laboratory. In lieu of this testing fee Rs. 50000/- was deposited in the Habib Bank Limited, Engineering University Branch, Lahore vide Bank Challan No. 0040238 dated 29-09-2016. The testing results are reproduced below:

1. Cable Specimen: 4 mm<sup>2</sup> Single-Core PVC Insulated Copper Conductor Cable

Colour: Green/Yellow  
Make: Madni Cables  
Specification: BSS: 6004, 60228:2005, 6346, IEC 60502  
Room Temperature: 32°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	0.853	0.86	OK
3.	Overall Diameter	mm	3.8-4.6	4.33	OK
4.	Insulation Thickness	mm	0.8	1.05	OK
5.	D.C. Resistance at 20°C	Ohm/Km	4.61	4.483	OK
6.	Insulation Resistance at 20°C	M-Ohm/Km	0.0087	Higher than 0.0087	OK
7.	High Voltage Test at 3.5 kV for 5 minutes			No breakdown of insulation recorded	

2. Cable Specimen: 6 mm<sup>2</sup> Single-Core PVC Insulated Copper Conductor Cable

Colour: Blue  
Make: Madni Cables  
Specification: BSS: 6004, 60228:2005, 6346, IEC 60502  
Room Temperature: 32°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No of Wires	-	7	7	OK
2.	Strand Diameter	mm	1.05	1.062	OK
3.	Overall Diameter	mm	4.160-5.0	4.92	OK
4.	Insulation Thickness	mm	0.8	1.16	OK
5.	D.C. Resistance at 20°C	Ohm/Km	3.08	3.034	OK
6.	Insulation Resistance at 60°C	M-Ohm/Km	0.0074	Higher than 0.0074	OK
7.	High Voltage Test at 3.5 kV for 5 minutes			No breakdown of insulation recorded	

Contd....P/2



**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

Page 2/4

3. Cable Specimen: 1.5 mm<sup>2</sup> Single-Core PVC Insulated Copper Conductor Cable

Colour: Red  
 Make: Madni Cables  
 Specification: BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 32°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No of Wires	-	7	7	OK
2.	Strand Diameter	mm	0.52	0.52	OK
3.	Overall Diameter	mm	2.60-3.20	3.20	OK
4.	Insulation Thickness	mm	0.7	1.08	OK
5.	D.C. Resistance at 20°C	Ohm/Km	12.10	11.31	OK
6.	Insulation Resistance at 60°C	M-Ohm/Km	0.011	Higher than 0.011	OK
7.	High Voltage Test at 3.5 kV for 5 minutes			No breakdown of insulation recorded	

4. Cable Specimen: 2.5 mm<sup>2</sup> Single-Core PVC Insulated Copper Conductor Cable

Colour: Red  
 Make: Madni Cables  
 Specification: BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 32°C

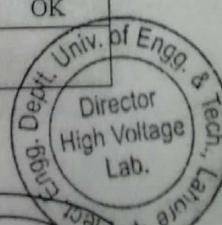
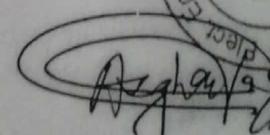
Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No of Wires	-	7	7	OK
2.	Strand Diameter	mm	0.67	0.67	OK
3.	Overall Diameter	mm	3.20-3.90	3.75	OK
4.	Insulation Thickness	mm	0.8	0.89	OK
5.	D.C. Resistance at 20°C	Ohm/Km	7.41	7.398	OK
6.	Insulation Resistance at 60°C	M-Ohm/Km	0.095	Higher than 0.095	OK
7.	High Voltage Test at 3.5 kV for 5 minutes			No breakdown of insulation recorded	

5. Cable Specimen: 10 mm<sup>2</sup> Single-Core PVC Insulated Copper Conductor Cable

Colour: Green/Yellow  
 Make: Madni Cables  
 Specification: BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 32°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No of Wires	-	7	7	OK
2.	Strand Diameter	mm	1.35	1.351	OK
3.	Overall Diameter	mm	5.6-6.7	6.25	OK
4.	Insulation Thickness	mm	1.0	1.37	OK
5.	D.C. Resistance at 20°C	Ohm/Km	1.795	1.795	OK
6.	Insulation Resistance at 60°C	M-Ohm/Km	0.0072	Higher than 0.0072	OK
7.	High Voltage Test at 3.5 kV for 5 minutes			No breakdown of insulation recorded	

Contd....P/3

  
 Director, High Voltage Lab.,  
 Deptt. of Engg. & Tech., UET Lahore
   


**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

Page 3/4

6. Cable Specimen: 10 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable

Colour: Black  
 Make: Madni Cables  
 Specification: BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 32°C

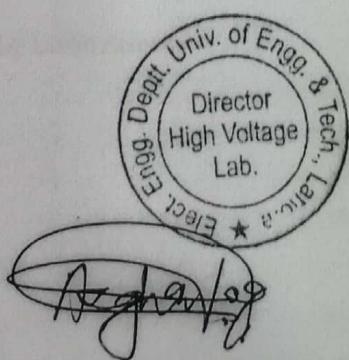
Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No of Wires	-	7	7	OK
2.	Strand Diameter	mm	1.35	1.35	OK
3.	Overall Diameter	mm	17-20.5	19.32	OK
4.	Insulation Thickness	mm	1.0	1.326	OK
5.	Sheath Thickness	mm	1.4	2.16	OK
6.	D.C. Resistance at 20°C	Ohm/Km	1.83	1.728	OK
7.	Insulation Resistance at 20°C	M-Ohm/Km	7	Higher than 7	OK
8.	High Voltage Test at 3.5 kV for 5 minutes			No breakdown of insulation recorded	

7. Cable Specimen: 4 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable

Colour: Black  
 Make: Madni Cables  
 Specification: BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 32°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No of Wires	-	7	7	OK
2.	Strand Diameter	mm	0.85	0.85	OK
3.	Overall Diameter	mm	12.5-15	15.02	OK
4.	Insulation Thickness	mm	0.8	1.078	OK
5.	Sheath Thickness	mm	1.4	2.97	OK
6.	D.C. Resistance at 20°C	Ohm/Km	4.61	4.482	OK
7.	Insulation Resistance at 60°C	M-Ohm/Km	8	Higher than 8	OK
8.	High Voltage Test at 3.5 kV for 5 minutes			No breakdown of insulation recorded	

Contd....P/4





**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

Page 4/4

8. Cable Specimen: 120 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable

Colour: Black  
Make: Madni Cables  
Specification: BSS: 6004, 60228:2005, 6346, IEC 60502  
Room Temperature: 32°C

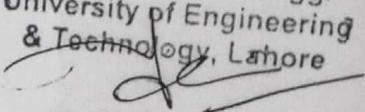
Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No of Wires	-	37	37	OK
2.	Strand Diameter	mm	-	-	OK
3.	Overall Diameter	mm	41.80	42.45	OK
4.	Insulation Thickness	mm	1.6	1.772	OK
5.	Sheath Thickness	mm	2.3	3.21	OK
6.	D.C. Resistance at 20°C	Ohm/Km	0.153	0.134	OK
7.	Insulation Resistance at 60°C	M-Ohm/Km	5	Higher than 5	OK
8.	High Voltage Test at 3.5 kV for 5 minutes		No breakdown of insulation recorded		

Remarks: The above cable samples withstood the tests satisfactorily.

Note: The result is valid only for the samples tested on 29.09.2016.

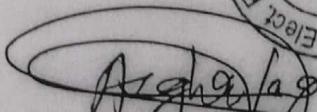
**Test(s) witnessed by:**

Dr. Syed Abdul Rahman Kashif,  
Assistant Professor, Department of Electrical Engineering.  
UET, Lahore.

CHAIRMAN,  
Dept. Of Elect. Engg,  
University of Engineering  
& Technology, Lahore  
  
Chairman  
Department of Electrical Engineering



Dr. Muhammad Asghar Saqib  
Director  
High Voltage Engineering Laboratory



Dr. Muhammad Asghar Saqib  
Director  
High Voltage Engineering Laboratory

# NATIONAL ENGINEERING SERVICES PAKISTAN (PVT) LIMITED

NEPAK HOUSE, 1-C, Block-N, Model Town Extension, Lahore -54700 Pakistan

HIGHWAYS AND TRANSPORTATION ENGINEERING DIVISION



Ref: 3772/CU-P3/103/MWA/04/472

Date: December 15, 2017

The Chairman

Electrical Engineering Department  
University of Engineering and Technology  
Lahore.

Subject: TESTING OF ELECTRICAL CABLES (M/S MADNI CABLE)  
(CONSTRUCTION OF CHAUBUCHA UNDERPASS (Package-03), LAHORE).

Dear Sir,

Please find enclosed herewith 14 Nos. samples (02 Nos. for each) for the following, jointly collected by the representatives of consultant and contractor. It is requested to arrange routine testing of Electrical Cables are as under:-

Sr. No.	Brand	Cables	Testing Standards
1	Madni Cables	4-Core 16mm <sup>2</sup>	
2	-do-	1-Core 16mm <sup>2</sup>	
3	-do-	3-Core 2.5mm <sup>2</sup>	
4	-do-	1-Core 240 mm <sup>2</sup>	
5	-do-	4-Core 35 mm <sup>2</sup>	
6	-do-	1-Core 70 mm <sup>2</sup>	
7	-do-	1-Core 120 mm <sup>2</sup>	<ul style="list-style-type: none"><li>Conductor (BS-6360/IEC 60228)</li><li>Insulation (BS-6746)</li><li>Sheath &amp; Bedding (BS-6746, 1984)</li><li>Testing on Complete wire (BS-6004, BS-6346/IEC 60502)</li></ul>

The payment for testing will be made by the Contractor M/s Habib Construction Services Ltd. The result may kindly be intimated to the undersigned at the earliest.

Thanks and Regards.

(Muhammad Waqas Anwar)

Resident Engineer-I

National Engineering Services Pakistan  
Lahore.



**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

No. Univ./EED/1561/17,  
Dated 26.12.2017

Mr. Muhammad Waqas Anwar,  
 Resident Engineer 1,  
 NESPAK, Lahore.

Subject: **TESTING OF ELECTRICAL CABLES  
 CONSTRUCTION OF CHAUBUCHA UNDERPASS (PACKAGE 03)  
 LAHORE**

Reference your letter No. 3772/CU-P/103/MWA/04/472, dated 15.12.2017.

The following cable samples were tested on 21.12.2017 in the High Voltage Engineering Laboratory. In lieu of this testing fee Rs. 45,000/- was deposited in the Habib Bank Limited, Engineering University Branch, Lahore vide Bank Challan No. 0020741 dated 20.12.2017. The testing results are reproduced below:

**TEST REPORT:**

1. Cable Specimen: 16 mm<sup>2</sup> Single-Core PVC Insulated Copper Conductor Cable

Make: Madni Cables  
 Colour: Green-Yellow  
 Specification: BS: 6360, 6746, 6346, 60228  
 Room Temperature: 18°C

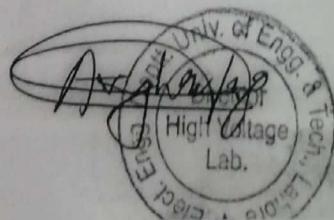
Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	6.4 - 7.80	7.36	OK
4.	Insulation Thickness	mm	1.00	1.06	OK
5.	D.C. Resistance at 20°C	Ohm/km	1.15	1.0121	OK
6.	Insulation Resistance at 70°C	M-Ohm/km	0.0056	Higher than 0.0056	OK
7.	High Voltage Test at 3.5 kV for 5 minutes		No breakdown of insulation recorded		

2. Cable Specimen: 70 mm<sup>2</sup> Single-Core PVC Insulated Copper Conductor Cable

Make: Madni Cables  
 Colour: Black  
 Specification: BS: 6360, 6746, 6346, 60228  
 Room Temperature: 18°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	19	19	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	12.1 - 14.6	14.57	OK
4.	Insulation Thickness	mm	1.4	1.77	OK
5.	D.C. Resistance at 20°C	Ohm/km	0.268	0.2289	OK
6.	Insulation Resistance at 70°C	M-Ohm/km	0.0040	Higher than 0.0040	OK
7.	High Voltage Test at 3.5 kV for 5 Minutes		No breakdown of insulation recorded		

Contd....P/2





**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

Page 2/3

3. Cable Specimen: 120 mm<sup>2</sup> Single-Core PVC Insulated Copper Conductor Cable

Make: Madni Cables  
 Colour: Green-Yellow  
 Specification: BS: 6360, 6746, 6346, 60228  
 Room Temperature: 18°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No of Wires	-	37	37	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	15.6-18.8	18.08	OK
4.	Insulation Thickness	mm	1.6	1.98	OK
5.	D.C. Resistance at 20°C	Ohm/ Km	0.153	0.1239	OK
6.	Insulation Resistance at 70°C	M-Ohm/Km	0.0035	Higher than 0.0035	OK
7.	High Voltage Test at 3.5 kV for 5 minutes		No breakdown of insulation recorded		

4. Cable Specimen: 240 mm<sup>2</sup> Single-Core PVC Insulated Copper Conductor Sheathed Cable

Make: Madni Cables  
 Colour: Black  
 Specification: BS: 6360, 6746, 6346, 60228  
 Room Temperature: 18°C

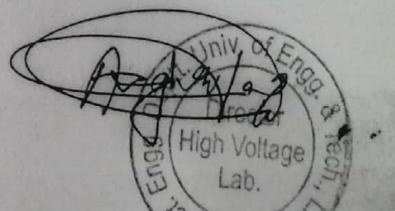
Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	37	37	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	29	29.77	OK
4.	Insulation Thickness	mm	2.2	2.25	OK
5.	Thickness of Sheath	mm	1.8	2.23	OK
6.	D.C. Resistance at 20°C	Ohm/km	0.0754	0.0624	OK
7.	Insulation Resistance at 20°C	M-Ohm/km	5	Higher than 5	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes		No breakdown of insulation recorded		

5. Cable Specimen: 2.5 mm<sup>2</sup> Two-Core PVC Insulated Copper Conductor Sheathed Cable

Make: Madni Cables  
 Colour: Black  
 Specification: BS: 6360, 6746, 6346, 60228  
 Room Temperature: 18°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires		7	7	OK
2.	Strand Diameter	mm	0.67	0.67	OK
3.	Insulation Thickness	mm	0.80	1.09	OK
4.	Overall Diameter	mm	11.5	13.19	OK
5.	Thickness of Sheath	mm	1.80	2.02	OK
6.	D.C. Resistance at 20°C	Ohm/km	7.41	7.125	OK
7.	Insulation Resistance at 20°C	M-Ohm/km	9	Higher than 9	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes		No breakdown of insulation recorded		

Contd....P/3





**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

Page 3/3

7. Cable Specimen:

16 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable

Make: Madni Cables

Colour: Black

Specification: BS: 6360, 6746, 6346, 60228

Room Temperature: 18°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	21.60	23.11	6
4.	Insulation Thickness	mm	1.00	1.15	OK
5.	Thickness of Sheath	mm	1.80	2.19	OK
6.	D.C. Resistance at 20°C	Ohm/km	1.15	1.078	OK
7.	Insulation Resistance at 20°C	M-ohm/km	6	Higher than 6	OK
8.	High Voltage Test at 3.5 kV for 15 minutes		No breakdown of insulation recorded		

4. Cable Specimen:

35 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable

Make: Madni Cables.

Colour: Black

Specification: BS: 6360, 6746, 6346, 60228

Room Temperature: 18°C

Sr. No.	Tests carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	19	19	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	28.9	29.12	OK
4.	Insulation Thickness	mm	1.2	1.49	OK
5.	Thickness of Sheath	mm	1.90	2.67	OK
6.	D.C. Resistance at 20°C	Ohm/km	0.524	0.5093	OK
7.	Insulation Resistance at 20°C	M-Ohm/km	5	Higher than 5	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes		No breakdown of insulation recorded		

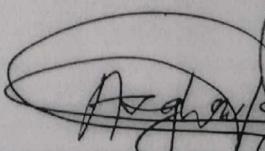
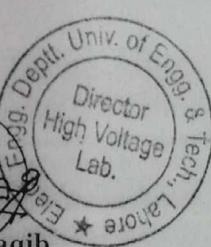
Remarks: The above samples withstood the tests satisfactorily.

Note: The results are valid only for the samples tested on 21.12.2017.

**Test(s) witnessed by:**

Dr. Khalid Mahmood Ul Hasan,  
 Professor, Department of Electrical Engineering.  
 UET, Lahore.

CHAIRMAN  
 Deptt. of Elect. Engg.  
 University of Engineering  
 & Technology, Lahore  
 Chairman  
 Department of Electrical Engineering

  
  
**Dr. Muhammad Asghar Saqib**  
**Director**  
**High Voltage Engineering Laboratory**

AsCE/PHA/RE/035  
06-February-2017

Chairman,  
Electrical Engineering Department,  
University of Engineering and technology,  
Lahore.

**Project: Development of Picnic / Recreational Area along Lahore Branch  
Canal from Harbanspura to Jallo, Lahore.**

**Subject: Electrical Cables – Quality Testing**

Asian Consulting Engineers (Pvt.) Ltd. are consultants for captioned project, administered by PHA Lahore.

Consultants, for quality monitoring, intend to test quality of electrical cables manufactured by M/S MADNI CABLES to be used in the subject project. Two number samples of Electrical Cables following sizes are submitted herewith for performing the tests;

1. 4-core 16 mm<sup>2</sup> PVC insulated overall sheathed 600/1000 volt grade unarmored copper cable (to be tested as per applicable BS standard)
2. 3-core 2.5 mm<sup>2</sup> PVC insulated Flexible Cables (to be tested as per applicable BS standard)

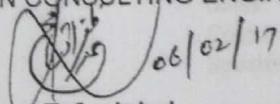
All the "Standard Tests" are to be performed including the following tests;

1. Number of wires.
2. Strand Diameter.
3. Overall Diameter.
4. Insulation Thickness.
5. DC Resistance at 20°C.
6. Insulation Resistance at 60°C.
7. High voltage at 3.5KV for 5 minutes;
8. Diameter of sheath
9. Screen Diameter.

The charges to this effect will be deposited by the carrier of the samples. The test report may please be provided at the earliest.

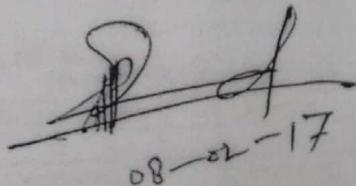
Thanking you,

For ASIAN CONSULTING ENGINEERS (Pvt.) Ltd.



06/02/17

**Muhammad Zafar Iqbal**  
Resident Engineer

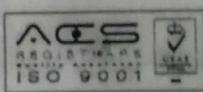


08-02-17

Attachment: As Above

**Head Office:**  
C-3, Jhelum Block, Green Forts-II, Lahore.  
Phone: +92 42 35450914-15,  
Fax: +92 42 35450916,  
Email: arslan@asiancon.com

**Islamabad Office:**  
House No. 1, Street No.7,  
Sector J, DHA Phase II, Islamabad.  
Phone: +92 321 5943808,  
+92 305 8269988.



**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

No. Univ./EED/1234/17,  
Dated 13.02.2017

Muhammad Zafar Iqbal,  
Resident Engineer,  
Asian Consulting Engineers.

Subject: **TESTING OF ELECTRICAL CABLES**  
**DEVELOPMENT OF PICNIC / RECREATIONAL AREA ALONG LAHORE**  
**BRANCH CANAL FROM HARBANSPURA TO JALLO, LAHORE.**

Reference your letter No. AsCE/PHA/RE/035, dated 06.02.2017.

The following cable samples were tested on 13.02.2017 in the High Voltage Engineering Laboratory. In lieu of this testing fee Rs. 16,000/- was deposited in the Habib Bank Limited, Engineering University Branch, Lahore vide Bank Challan No. 0049492 dated 10.02.2017. The testing results are reproduced below:

**TEST REPORT:**

1. Cable Specimen: 2.5 mm<sup>2</sup> Three-Core PVC Insulated Copper Conductor Sheathed Cable

Make: Madni Cables, Lahore

Colour: Black

Specification: BS: 6004, 60228, 6346, IEC 60502

Room Temperature: 18°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	0.67	0.67	OK
3.	Overall Diameter	mm	10-13	12.42	OK
4.	Insulation Thickness	mm	0.88	0.93	OK
4.	Thickness of Sheath	mm	1.80	2.14	OK
5.	D.C. Resistance at 20°C	Ohm/km	7.41	6.382	OK
6.	Insulation Resistance at 20°C	M-Ohm/km	9	Higher than 9	OK
7.	High Voltage Test at 3.5 kV for 5 Minutes		No breakdown of insulation recorded		

2. Cable Specimen: 16 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable

Make: Madni Cables, Lahore

Colour: Black

Specification: BS: 6004, 60228, 6346, IEC 60502

Room Temperature: 18°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	Mm	Compacted	Compacted	OK
3.	Overall Diameter	Mm	21.60	21.93	OK
4.	Insulation Thickness	Mm	1.00	1.11	OK
5.	Thickness of Sheath	Mm	1.80	1.87	OK
6.	D.C. Resistance at 20°C	Ohm/km	1.15	1.0463	OK
7.	Insulation Resistance at 20°C	M-ohm/km	6	Higher than 6	OK
8.	High Voltage Test at 3.5 kV for 15 minutes		No breakdown of insulation recorded		

Contd....P/2

Dept. Univ. of Eng.  
Director  
High Voltage



**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

Page 2/2

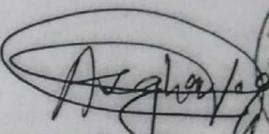
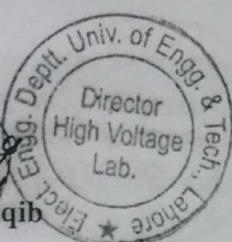
Remarks: The above cable samples withstood the tests satisfactorily.

Note: The results are valid only for the samples tested on 13.02.2016.

**Test(s) witnessed by:**

Syed Abdul Rahman Kashif,  
Assistant Professor, Department of Electrical Engineering,  
UET, Lahore.

**CHAIRMAN,**  
Dept. Of Elect. Engg.  
University of Engg. & Technology, Lahore  
Chairman  
Electrical Engineering Department

  
  
**Dr. Muhammad Asghar Saqib**  
Director  
High Voltage Engineering Laboratory



**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

Page 2/2

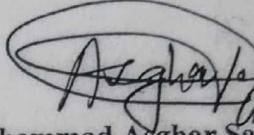
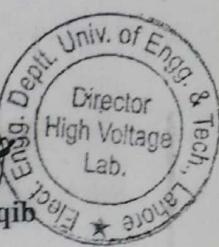
**Remarks:** The above cable samples withstood the tests satisfactorily.

**Note:** The results are valid only for the samples tested on 13.02.2016.

Test(s) witnessed by:

Syed Abdul Rahman Kashif,  
Assistant Professor, Department of Electrical Engineering,  
UET, Lahore.

CHAIRMAN,  
Dept. Of Elect. Engg.  
University of Engg. & Technology, Lahore  
Dr. Fahad Izhar  
Chairman  
Electrical Engineering Department

  
  
**Dr. Muhammad Asghar Saqib**  
Director  
High Voltage Engineering Laboratory



**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

No. Univ./EED/1107/16,  
Dated 26.05.2016

Muhammad Waqas Anwar,  
Resident Engineer,  
National Engineering Services Pakistan,  
Lahore.

Subject: **TESTING OF CABLE SAMPLES.**

The following cable samples were tested on 25.05.2016 in the High Voltage Engineering Laboratory. In lieu of this testing fee Rs. 86,000/- was deposited in the Habib Bank Limited, Engineering University Branch, Lahore vide Bank Challan No. 258940 dated 24.05.2016. The results are reproduced below:

**TEST REPORT:**

1. Cable Specimen: 35 mm<sup>2</sup> Four-Core Copper PVC insulated Conductor Armoured Cable  
Make: Madni Cables, Lahore  
Colour: Black  
Specification: BSS - 6004,60228-2005, 6346, IEC 60502  
Room Temperature: 31°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	30.3	33.10	OK
4.	Insulation Thickness	mm	1.20	1.33	OK
5.	Sheath Thickness	mm	1.90	2.11	OK
6.	Extruded Bending Thickness	mm	1.0	1.84	OK
7.	Steel Armour Wire Diameter	mm	1.6	1.61	OK
8.	D.C. Resistance at 20°C	Ohm/km	0.524	0.483	OK
9.	Insulation Resistance at 20°C	M-Ohm/km	5	Higher than 5	OK
10.	High Voltage Test at 3.5 kV for 5 minutes			No breakdown of insulation recorded	

2. Cable Specimen: 16 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable  
Make: Madni Cables, Lahore  
Colour: Black  
Specification: BSS: 6004, 60228:2005, 6346, IEC 60502  
Room Temperature: 31°C

Sr. No.	Tests carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	21.60	21.86	OK
4.	Insulation Thickness	mm	1.00	1.26	OK
5.	Thickness of Sheath	mm	1.80	2.04	OK
6.	D.C. Resistance at 20°C	Ohm/km	1.15	1.075	OK
7.	Insulation Resistance at 20°C	M-Ohm/km	6	Higher than 6	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes			No breakdown of insulation recorded	



**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

Page 2/4

3. Cable Specimen: 16 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable  
 Make: Madni Cables, Lahore  
 Colour: Black  
 Specification BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 31°C

Sr. No.	Tests carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	21.60	22.72	OK
4.	Insulation Thickness	mm	1.00	1.14	OK
5.	Thickness of Sheath	mm	1.80	2.24	OK
6.	D.C. Resistance at 20°C	Ohm/km	1.15	1.056	OK
7.	Insulation Resistance at 20°C	M-Ohm/km	6	Higher than 6	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes		No breakdown of insulation recorded		

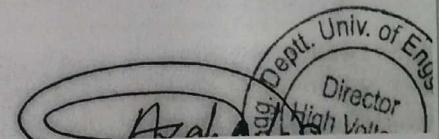
4. Cable Specimen: 16 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable  
 Make: Madni Cables, Lahore  
 Colour: Black  
 Specification BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 31°C

Sr. No.	Tests carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	21.60	22.08	OK
4.	Insulation Thickness	mm	1.00	1.10	OK
5.	Thickness of Sheath	mm	1.80	2.09	OK
6.	D.C. Resistance at 20°C	Ohm/km	1.15	1.054	OK
7.	Insulation Resistance at 20°C	M-Ohm/km	6	Higher than 6	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes		No breakdown of insulation recorded		

5. Cable Specimen: 16 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable  
 Make: Madni Cables, Lahore  
 Colour: Black  
 Specification BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 31°C

Sr. No.	Tests carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	21.60	22.49	OK
4.	Insulation Thickness	mm	1.00	1.15	OK
5.	Thickness of Sheath	mm	1.80	2.09	OK
6.	D.C. Resistance at 20°C	Ohm/km	1.15	1.078	OK
7.	Insulation Resistance at 20°C	M-Ohm/km	6	Higher than 6	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes		No breakdown of insulation recorded		

Contd....P/3





**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

Page 3/4

6. Cable Specimen: 16 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable  
 Make: Madni Cables, Lahore  
 Colour: Black  
 Specification BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 31°C

Sr. No.	Tests carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	21.60	21.95	OK
4.	Insulation Thickness	mm	1.00	1.21	OK
5.	Thickness of Sheath	mm	1.80	2.10	OK
6.	D.C. Resistance at 20°C	Ohm/km	1.15	1.065	OK
7.	Insulation Resistance at 20°C	M-Ohm/km	6	Higher than 6	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes			No breakdown of insulation recorded	

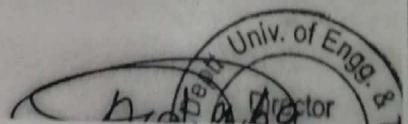
7. Cable Specimen: 16 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable  
 Make: Madni Cables, Lahore  
 Colour: Black  
 Specification BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 31°C

Sr. No.	Tests carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	21.60	21.95	OK
4.	Insulation Thickness	mm	1.00	1.21	OK
5.	Thickness of Sheath	mm	1.80	2.02	OK
6.	D.C. Resistance at 20°C	Ohm/km	1.15	1.075	OK
7.	Insulation Resistance at 20°C	M-Ohm/km	6	Higher than 6	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes			No breakdown of insulation recorded	

8. Cable Specimen: 16 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable  
 Make: Madni Cables, Lahore  
 Colour: Black  
 Specification BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 31°C

Sr. No.	Tests carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	21.60	21.90	OK
4.	Insulation Thickness	mm	1.00	1.14	OK
5.	Thickness of Sheath	mm	1.80	2.12	OK
6.	D.C. Resistance at 20°C	Ohm/km	1.15	1.070	OK
7.	Insulation Resistance at 20°C	M-Ohm/km	6	Higher than 6	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes			No breakdown of insulation recorded	

Contd....P/4





**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

Page 4/4

9. Cable Specimen: 16 mm<sup>2</sup> Single-Core PVC insulated Copper Conductor Cable  
 Make: Madni Cables, Lahore  
 Colour: Green  
 Specification: BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 31°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	6.40 - 7.80	7.06	OK
4.	Insulation Thickness	mm	1.00	1.19	OK
5.	D.C. Resistance at 20°C	Ohm/km	1.15	1.070	OK
6.	Insulation Resistance at 70°C	M-Ohm/km	0.0056	Higher than 0.0056	OK
7.	High Voltage Test at 3.5 kV for 5 minutes			No breakdown of insulation recorded	

10. Cable Specimen: 2.5 mm<sup>2</sup> Three-Core PVC Insulated Copper Conductor Sheathed Cable  
 Make: Madni Cables, Lahore  
 Colour: Black  
 Specification: BSS: 6004, 60228:2005, 6346, IEC 60502  
 Room Temperature: 31°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	0.67	0.67	OK
3.	Overall Diameter	mm	11-13	12.02	OK
4.	Insulation Thickness	mm	0.80	1.01	OK
5.	Thickness of Sheath	mm	1.80	2.09	OK
6.	D.C. Resistance at 20°C	Ohm/km	7.41	6.904	OK
7.	Insulation Resistance at 20°C	M-Ohm/km	9	Higher than 9	OK
7.	High Voltage Test at 3.5 kV for 5 Minutes			No breakdown of insulation recorded	

**Remarks:** The above cable samples withstood the tests satisfactorily.

**NOTE:** The results are valid only for the samples tested on **25.05.2016**.

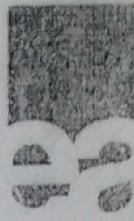
**Test(s) witnessed by:**

Dr. Syed Abdul Rahman Kashif,  
 Assistant Professor, Department of Electrical Engineering.  
 UET, Lahore.

Chairman  
 Department of Electrical Engineering  
 CHAIRMAN

Dr. Muhammad Asghar Saqib  
 Director  
 High Voltage Engineering Laboratory

Office of the Resident Engineer  
PKLI & RC



The Director,  
High Voltage Engineering Laboratory,  
University of Engineering & Technology,  
Lahore.

Ref. No. RE/EA/LHR/PKLI/97EA Consulting Pvt Ltd  
Dated: Feb. 01, 2017.

(Formerly Engineering Associates)

Subject: CONSTRUCTION OF ROAD IN PKLI & RESEARCH CENTER LAHORE  
Sub-Head: TESTING OF ELECTRIC CABLE (SOURCE MADNI CABLES)

ENGINEERING  
ARCHITECTURE  
PROJECT MANAGEMENT

Dear Sir,

Please manage to conduct testing on below mentioned electric Cables samples according to relevant clauses of BSS Specifications.

- a- 16mm<sup>2</sup> four core
- b- 16 mm<sup>2</sup> single core
- c- 2.5 mm<sup>2</sup> three core
- d- 50 mm<sup>2</sup> four core
- e- 25 mm<sup>2</sup> single core

DAACI  
ISLAMABAD  
Lahore  
Quetta  
D.G.Khan

It is requested to perform the following tests on these samples of Cables:

- 1) Dia. of wire in mm
- 2) Copper Test
- 3) Insulation Thickness
- 4) Resistance of Conductor
- 5) Spark Test
- 6) High voltage test on cable.

The testing result/reports should be delivered to undersigned site office address.  
The Charges of the tests will be paid by the Contractor  
Early compliance will be highly appreciated

Best Regards  
For EA Consulting (Pvt) Ltd

Engr. Hassan Mahmood

Resident Engineer

Copy to :

1. Deputy Director, LDA-Lahore
2. PM, EACL, Khi.
3. M/S Alam Khan Brothers, PKLI Site office, Lahore.

Head Office AL-9, 15th Lane, Khayaban-e-Hilal, Phase 7, DHA, Karachi 75500 Pakistan,  
Email: info@eaworld.com, Phone # 111-111-584

AL-9, 15th Lane  
DHA Phase 7, Khi.  
Karachi, Pakistan

T: 021 111 111 584  
F: 021 111 111 585

info@eaworld.com  
www.eaworld.com

**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (999029423)**

No. Univ./EED/1233/17,  
Dated 09.02.2017

Engr. Hassan Mahmood,  
 Resident Engineer,  
 EA Consulting (Pvt.) Ltd.,  
 PKLI & RC.

Subject: **TESTING OF ELECTRICAL CABLES**  
**CONSTRICKTION OF ROAD IN PKLI & RESEARCH CENTER LAHORE**

Reference your letter No. RE/EA/LHR/PKLI/97, dated 01.02.2017.

The following cable samples were tested on 08.02.2017 in the High Voltage Engineering Laboratory. In lieu of this testing fee Rs. 34,000/- was deposited in the Habib Bank Limited, Engineering University Branch, Lahore vide Bank Challan No. 0049488 dated 08.02.2017. The testing results are reproduced below:

**TEST REPORT:**

1. Cable Specimen: 16 mm<sup>2</sup> Single-Core PVC Insulated Copper Conductor Cable

Make: Madni Cables, Lahore

Colour: Green

Specification: BS: 6360, 6746, 6346, 60228

Room Temperature: 17°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	1.70	1.70	OK
3.	Overall Diameter	mm	6.4 - 7.80	7.17	OK
4.	Insulation Thickness	mm	1.00	1.19	OK
5.	D.C. Resistance at 20°C	Ohm/km	1.15	0.898	OK
6.	Insulation Resistance at 70°C	M-Ohm/km	0.0056	Higher than 0.0056	OK
7.	High Voltage Test at 3.5 kV for 5 minutes		No breakdown of insulation recorded		

2. Cable Specimen: 25 mm<sup>2</sup> Single-Core PVC Insulated Copper Conductor Cable

Make: Madni Cables, Lahore

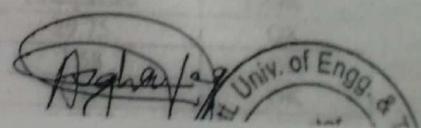
Colour: Green

Specification: BS: 6360, 6746, 6346, 60228

Room Temperature: 17°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	8.1 - 9.7	8.79	OK
4.	Insulation Thickness	mm	1.20	1.31	OK
5.	D.C. Resistance at 20°C	Ohm/km	0.727	0.653	OK
6.	Insulation Resistance at 70°C	M-ohm/km	0.0053	Higher than 0.0053	OK
7.	High Voltage Test at 3.5 kV for 5 minutes		No breakdown of insulation recorded		

Contd....P/2

  
 Agha Farid  
 Univ. of Engg. & Tech. Lahore



**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

Page 2/3

3. Cable Specimen:

2.5 mm<sup>2</sup> Three-Core PVC Insulated Copper Conductor Sheathed Cable

Make: Madni Cables, Lahore

Colour: Black

Specification: BS: 6004, 60228, 6346, IEC 60502

Room Temperature: 17°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	0.67	0.67	OK
3.	Overall Diameter	mm	10-13	10.25	OK
4.	Insulation Thickness	mm	0.88	1.01	OK
4.	Thickness of Sheath	mm	1.80	2.38	OK
5.	D.C. Resistance at 20°C	Ohm/km	7.41	7.012	OK
6.	Insulation Resistance at 20°C	M-Ohm/km	9	Higher than 9	OK
7.	High Voltage Test at 3.5 kV for 5 Minutes		No breakdown of insulation recorded		

4. Cable Specimen:

16 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable

Make: Madni Cables, Lahore

Colour: Black

Specification: BS: 6004, 60228, 6346, IEC 60502

Room Temperature: 17°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	1.70	1.70	OK
3.	Overall Diameter	mm	21.60	21.89	OK
4.	Insulation Thickness	mm	1.00	1.26	OK
5.	Thickness of Sheath	mm	1.80	1.93	OK
6.	D.C. Resistance at 20°C	Ohm/km	1.15	1.089	OK
7.	Insulation Resistance at 20°C	M-ohm/km	6	Higher than 6	OK
8.	High Voltage Test at 3.5 kV for 15 minutes		No breakdown of insulation recorded		

5. Cable Specimen:

50 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Cable

Make: Madni Cables, Lahore

Colour: Black

Specification: BS: 6004, 60228, 6346, IEC 60502

Room Temperature: 17°C

Sr. No.	Tests carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	19	19	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	29.02	29.75	OK
4.	Insulation Thickness	mm	1.40	1.58	OK
5.	Thickness of Sheath	mm	1.90	2.37	OK
6.	D.C. Resistance at 20°C	Ohm/km	0.387	0.3789	OK
7.	Insulation Resistance at 70°C	M-Ohm/km	5	Higher than 5	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes		No breakdown of insulation recorded		

Contd....P/3

  
 Univ. of Engg. & Tech., Lahore  
 Director  
 High Voltage  
 Lab.



**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

No. Univ./EED/1098/16  
Dated: 10.05.2016

Team Leader/Structuraln Engineer,  
ACE Pvt.(Ltd.),  
Kahana Kasha Flyover Lahore.

Subject:- **TESTING OF CABLE.**

The following cable samples were tested on 09.05.2016 in the High Voltage Engineering Laboratory. In lieu of this testing fee Rs. 38000/- was deposited in the Habib Bank Limited, Engineering University Branch, Lahore vide Bank Challan No. 258917 dated 09.05.2016. The results are reproduced below:-

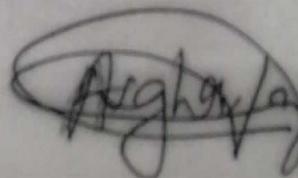
1. Cable Specimen: 16 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable  
Make: Madni Cables, Lahore  
Colour: Black  
Specification: BSS: 6004, 60228:2005, IEC 60502  
Room Temperature: 34°C

Sr. No.	Tests carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	21.60	21.75	OK
4.	Insulation Thickness	mm	1.00	1.15	OK
5.	Thickness of Sheath	mm	1.80	1.91	OK
6.	D.C. Resistance at 20°C	Ohm/km	1.15	1.036	OK
7.	Insulation Resistance at 70°C	M-Ohm/km	6	Higher than 6	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes		No breakdown of insulation recorded		

2. Cable Specimen: 25 mm<sup>2</sup> Four-Core PVC Insulated Copper Conductor Sheathed Cable  
Make: Madni Cables, Lahore  
Colour: Black  
Specification: BSS: 6004, 60228:2005, IEC 60502  
Room Temperature: 34°C

Sr. No.	Tests carried out	Units	Requirements	Results	Remarks
1.	No. of Wires	-	7	7	OK
2.	Strand Diameter	mm	Compacted	Compacted	OK
3.	Overall Diameter	mm	22.90	25.58	OK
4.	Insulation Thickness	mm	1.20	1.29	OK
5.	Thickness of Sheath	mm	1.80	2.01	OK
6.	D.C. Resistance at 20°C	Ohm/km	0.727	0.659	OK
7.	Insulation Resistance at 70°C	M-Ohm/km	5	Higher than 5	OK
8.	High Voltage Test at 3.5 kV for 5 Minutes		No breakdown of insulation recorded		

Contd...P/2

  
  
 Director  
High Voltage  
Lab.

**HIGH VOLTAGE ENGINEERING LABORATORY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (99029423)**

No. Univ./EED/971/15,  
Dated 01.06.2015

M/s MadniCable (Pvt) Ltd.,  
42-Madina Market, Shahalam,  
Lahore

Sub: **TESTING ON OF CABLE SAMPLES**

The following cable samples were tested on 26.05.2015 in the High Voltage Engineering Laboratory. In lieu of this testing fee Rs. 28,000/- was deposited in the Habib Bank Limited, Engineering University Branch, Lahore vide Bank Challan No.274671 dated 01.06.2015 The testing results are reproduced below:-

**TEST REPORT:**

1. Cable Specimen: 16 mm<sup>2</sup> Four-Core PVC insulated Copper Conductor Armoured Sheathed Cable  
Make: Madni Cables, Lahore  
Colour: Black  
Specification: BSS - 6004, 60228-2005, 6346  
Room Temperature: 36°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires		7	7	OK
2.	Overall Diameter	mm	26.90	28.66	OK
3.	Insulation Thickness	mm	1.00	1.285	OK
4.	Thickness of Sheath	mm	1.70	1.70	OK
5.	Screen Diameter	mm	1.60	1.60	OK
6.	Inner Cover	mm	1.00	1.45	OK
7.	D.C. Resistance at 20°C	Ohm/Km	1.15	0.924	OK
8.	Insulation Resistance at 70°C	M-ohm/Km	0.0056	Higher than 0.0056	OK

2. Cable Specimen: 50 mm<sup>2</sup> Four-Core PVC insulated Copper Conductor Armoured Sheathed Cable  
Make: Madni Cables, Lahore  
Colour: Black  
Specification: BSS: 6004, 60228; 2005, 6346  
Room Temperature: 36°C

Sr. No.	Test Carried out	Units	Requirements	Results	Remarks
1.	No. of Wires		19	19	OK
2.	Overall Diameter	mm	35.40	39.23	OK
3.	Insulation Thickness	mm	1.20	1.59	OK
4.	Thickness of Sheath	mm	2.20	2.55	OK
5.	Screen Diameter	mm	2.00	2.03	OK
6.	Inner Cover	mm	1.20	2.33	OK
7.	D.C. Resistance at 20°C	Ohm/Km	0.387	0.281	OK
8.	Insulation Resistance at Room temperature	M-ohm/Km	0.0046	Higher than 0.0046	OK

Contd P/2....

**PEPCO**

**PAKISTAN ELECTRIC POWER COMPANY**  
**CHIEF ENGINEER MATERIAL INSPECTION**

5th Floor 2nd Building Aiwan-E-Iqbal Egerton Road Lahore  
 PH. 042-99204561 FAX: 042-99204562 Email: comipepco@gmail.com

**INSPECTION CERTIFICATE**

Ref: No.CE(MI)PEPCO/DM-8/M-II/16714/90697-90703	I.C No. M-II 4844	Dated: 27/5/21
P.O. No.	7100001900 Dated 09-02-2021 issued by Director (Procurement) Dist. MEPCO Ltd., Multan.	
For Account of M/s:	M/S Madni Cable Pvt. Ltd., 42 Madina Market Shahalam, Lahore Pakistan.	
Inspection Call No.:	MI-NTDC/MEPCO/10126/21	Dated: 25-03-2021

We hereby certify that the following material has been inspected and is in accordance with specification and in our opinion based upon the visual inspection and laboratory tests, it has been accepted under the instructions provided in P.O.

Sr. No.	Store Description	Unit Rate (Rs.)	Quantity (Kilo Meters)					
			On Order	Already Accepted	Qty. Offered	Now Accepted	Now Rejected	Balance
1.	4/Core LT ALUMN. PVC Cable 19/0.83 (70mm <sup>2</sup> ) As per WAPDA/PEPCO Specification No. DDS-8:2007 (Amended to-date)	448500	20	NIL	10	10	NIL	10

(Item One Only)

ACCEPTED QUANTITY= 10-KM (Reels Sr. No. 1 ~ 51)

NOTE:-

An amount of Rs.22425/- was paid by the firm vide HBL WAPDA House Branch Lahore challan No. 2504 dated 13-04-2021 issued by B&AO (MI) as the inspection charges @ 0.5% of the cost of material of this inspection certificate.

*Idn*  
 (ENGR. WAHEED AHMED)  
 D.Y. MANAGER-01  
 (MATERIAL INSPECTION) PEPCO

*Tariq*  
 (ENGR. TARIQ MEHMOOD SIDDIQUI)  
 ADDL: CHIEF ENGINEER-I  
 (MATERIAL INSPECTION) PEPCO