

# KEMA TYPE TEST CERTIFICATE OF COMPLETE TYPE TESTS

**Test object** Single-core power cable

Designation Cu/PVC/PVC

Rated voltage, U<sub>0</sub>/U (U<sub>m</sub>) Conductor cross-section Conductor material Insulation material 0,6/1 kV 1 x 300 mm<sup>2</sup> Cu PVC



Certificate No.

Manufacturer	Indus Cables (Pvt) Limited
	Plot F 36 Sector 50 C
	Korangi Karachi, Karachi City, Pakistan 🦳 🔨 🔨
	(Location as declared by the manufacturer)
Client	Indus Cables
/	Plot F 36 Sector 50 C
	Korangi Karachi, Karachi City, Pakistan
Data(a) of tasta	November 10 to December 10 2021 and
Date(s) of tests	November 19 to becember 19, 2024
Tested by	KEMABV ("KEMA labs")
lested by	
	Klingelbeekseweg 195, Arnhem, The Netherlands

The test object, constructed in accordance with the description, drawings and photographs incorporated in the documents forming part of this Certificate, has been subjected to the series of proving tests in accordance with

# IEC 60502-1:2021

The STL Guides and Procedures do not cover the tests reported in this Certificate.

The results are shown in the record of proving tests Report of performance 102775201-25 Rev. 0 and the oscillograms (if any) attached hereto. The values obtained and the general performance are considered to comply with the above standard(s) and to justify the ratings assigned by the manufacturer as listed in chapter 1.

This Certificate applies only to the individual object tested. KEMA Labs makes no representations or warranties with respect to any device other than the object tested. It is the responsibility of the applicable device manufacturer to ensure that any other devices or units having the same name and descriptions as the test object are identical.

This Certificate comprises 7 pages in total.

Issued by KEMA B.V

Bas Verhoeven Director, High Voltage Labs

Arnhem, February 4, 2025

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### **INFORMATION SHEET**

The type of documents presented below can be issued by test laboratories which are part of KEMA Labs. Details of these and all other types of certificates and reports issued by KEMA Labs are given on the website, which can be accessed through the QR code on the front sheet. The title on the front sheet of the document indicates which type of document is under review. All documents comprise a record of the (type) tests carried out. Mandatory requirements for items 1, 2, 3, 4 and 5 are that the object tested is clearly identified and verified by technical description, drawings and/or additional specifications. The condition of the object after testing is assessed and recorded, if applicable.

#### 1 Certificate

A Certificate is issued when the object tested has fulfilled the requirements of (the named (sub)clauses of) a recognized standard. The relevant ratings assigned by the manufacturer are endorsed by KEMA Labs. All relevant test results and observations are given in the records of proving tests (items 3, 4, 5 and 6) which form the basis of a Certificate and are referred to in this Certificate.

#### 2 Calibration Certificate

A Calibration Certificate is issued when a calibration program has been successfully executed. The calibration program refers to an accredited calibration procedure that is according to recognized standards, manufacturer's specifications or validated internal methods.

#### Type Test Report

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A Type Test Report is issued for products in the segments of low voltage, railway applications, automotive, metering and protection & substation automation when the object tested has successfully passed the requested type tests (of the named (sub)clauses) in accordance with a recognized standard. The tests required in these (sub)clauses could cover a complete or partial set of type tests.

The sentence on the front sheet of a Type Test Report will state that the tests have been carried out in accordance with ...... The object has complied with the relevant requirements of the standard and justify the relevant ratings assigned by the manufacturer as listed in chapter 1.

#### 4 Design Verification Report

A Design Verification Report is issued when the object tested has successfully passed the requested design verification tests of the named (sub)clauses in accordance with IEC 61439. The tests series required in these (sub)clauses could cover a complete or selected set of design verification tests.

The sentence on the front sheet of a Design Verification Report will state that the tests have been carried out in accordance with IEC 61439. The object has complied with the relevant requirements of the standard and justify the relevant ratings assigned by the manufacturer as listed in chapter 1.

#### Report of Performance or Type Test Report

A Report of Performance or Type Test Report is issued for products in the segments of MV and HV transmission and distribution when the object tested has successfully passed the requested (type) tests of the named (sub)clauses in accordance with a recognized standard. The tests required in these (sub)clauses could cover a complete or partial set of (type) tests. The sentence on the front sheet of a Report of Performance or Type Test Report will state that the tests have been carried out in accordance with ...... The object has complied with the relevant requirements of the standard. However, a Report of Performance or Type Test Report does not confirm any assigned rating.

#### 6 Test Report

A Test Report is issued in all other cases.

#### Identification of official test documents

The official test documents of KEMA Labs are issued in digital form through .pdf files. Only integral reproduction of this document is permitted without written permission from KEMA Labs. A sealed and bound version of the test document may be available for the convenience of the client and has the status 'for information only'. The copyright must be respected. Items 1 and 2 are identified by a gold watermark and a gold seal with red ribbon on its front sheet. Items 3, 4 and 5 are identified by a silver watermark and a silver seal with green ribbon on its front sheet. Item 6 is identified by a blue watermark on its front sheet.

#### 8 Disclaimers

No certificate or other report issued by KEMA Labs for the purpose of confirming the performance of a test object in relation to the testing requirements of a national or international standard, or in relation to any other testing specification, shall constitute a warranty as to the adequacy or quality of the design or construction of the test object. No other document issued by KEMA Labs for the purpose of reporting, explaining or describing any engineering or consulting services performed by KEMA Labs shall constitute a warranty as to the adequacy or quality of the design or construction of any apparatus or system that is the subject of the document. Information provided by the client or manufacturer can affect the validity of results. KEMA Labs is not responsible for the consequences in such cases.



## **REVISION OVERVIEW**

The edition with the highest revision number always replaces the earlier issued editions.

Rev. No.	Date of issue	Page no. and changes
0	February 4, 2025	First issue



# **1** IDENTIFICATION OF THE OBJECT TESTED

# **1.1** Ratings/characteristics assigned by the manufacturer

Rated voltage, $U_0/U$ ( $U_m$ )	0,6/1 kV
Rated maximum conductor temperature in normal operation	70 °C
Rated conductor cross-section	300 mm <sup>2</sup>

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# **1.2** Description of the object tested

Standard	IEC 60502-1:2021, Clauses 5 to 14		
Manufacturer	Indus Cables (Pvt) Limited		
	Plot F 36 Sector 50 C		
	Korangi Karachi, Karachi City, Pakistan		
Туре	0,6/1 kV 1x300 mm <sup>2</sup> PVC Cable		
Manufacturing year	2024		
Quantity submitted	41 m		
Rated voltage, U0/U (Um)	0,6/1 kV		
No. of cores	1		
Core identification	Red		
Overall diameter	31,0 mm (approx.)		
Marking on the oversheath	Power Cable 0.6/1 kV CU/PVC/PVC 1x300mm <sup>2</sup>		
	IEC- 60502-1: 2021 Indus Cables (Pvt). Ltd Karachi		
	Pakistan		
Construction	see List of drawings		
Conductor			
material	Annealed copper		
cross-section	300 mm²		
nominal diameter	22,7 mm		
• type	class 2, stranded, round		
• maximum conductor temperature in	70 °C		
normal operation			
Insulation			
material	PVC/A		
<ul> <li>nominal thickness</li> </ul>	2,4 mm		
<ul> <li>material designation</li> </ul>	known in KEMA Labs' files		
<ul> <li>manufacturer of the material</li> </ul>	known in KEMA Labs' files		

Red

• insulation colour



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Oversheath	
material	PVC type ST2
<ul> <li>nominal thickness</li> </ul>	1,9 mm
<ul> <li>nominal overall diameter of the cable</li> <li>(D)</li> </ul>	31,0 mm (approx.)
<ul> <li>material designation</li> </ul>	known in KEMA Labs' files
<ul> <li>manufacturer of the material</li> </ul>	known in KEMA Labs' files
• colour	black
Fire ret Fire retardant (according to IEC 60332-1)	yes
Manufacturing details insulation system	
<ul> <li>location of manufacturing</li> </ul>	Karachi, Pakistan
type of extrusion line	-
type of extrusion	-
• factory identification of extrusion line	-
<ul> <li>manufacturer of the extrusion line</li> </ul>	Indus Cables (Pvt) Ltd. Karachi
<ul> <li>identification of production batch</li> </ul>	2024
curing means	-
<ul> <li>cooling means</li> </ul>	-
<ul> <li>manufacturing length (where cable sample for testing has been taken from)</li> </ul>	57 m
<ul> <li>length markings on cable sample sent to KEMA Labs</li> </ul>	-

# 1.3 List of drawings

The manufacturer has guaranteed that the object submitted for tests has been manufactured in accordance with the following drawings and/or documents, supplied by them. KEMA Labs has verified that these drawings and/or documents adequately represent the object tested. The manufacturer is responsible for the correctness of these drawings and/or documents and the technical data presented. KEMA Labs makes no representations or warranties regarding the accuracy of the drawings or that the drawings meet any applicable industry standards or legal or regulatory requirements. The drawings and/or documents have been included in this report.

Drawing no./document no.

CU/PVC/PVC (Single Core) 300mm<sup>2</sup> x 1

Revision -



# 2 RECORDS OF PROVING TESTS

This Certificate is issued based on the following records of proving tests, demonstrating the conformity of the apparatus to the standard(s) mentioned on the front sheet. These following documents form an integral part of this Certificate.

Report of102775202-25Tested by KEMA B.V., Arhem, the Netherlands, accredited laboratory<br/>according to ISO/IEC 17025

# 2.1 Tests carried out

A brief description of all the tests carried out is given in the tables below.

#### Report of Performance 102775202-25

Tests carried out	Specification	(Sub)clause
Tests on conductor	IEC 60502-1:2021	clause 5
Electrical tests	IEC 60502-1:2021	clause 17
Non-electrical tests	IEC 60502-1:2021	clause 18
Check of cable construction	IEC 60502-1:2021	clause 5 - 13



# END OF DOCUMENT

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The laboratories of KEMA Labs are:

- CESI S.p.A., Milan, Italy.
- FGH Engineering & Test GmbH, Mannheim, Germany.
- IPH Institut "Prüffeld für elektrische Hochleistungstechnik" GmbH, Berlin, Germany.
- KEMA B.V., Arnhem, The Netherlands.
- KEMA Labs, Zkušebnictví, a.s., Prague, the Czech Republic.
- KEMA-Powertest, LLC, Chalfont, United States.

