



TOGETHER WE GROW

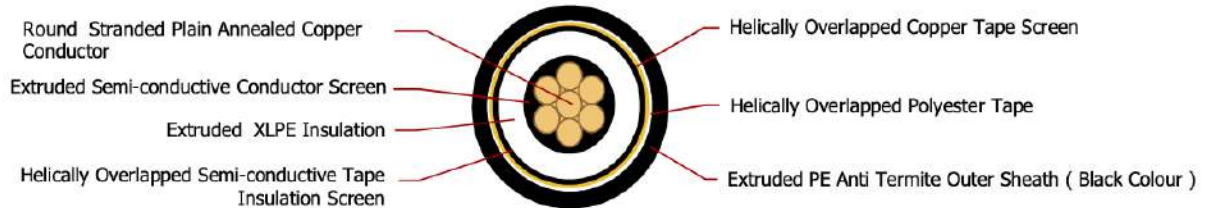
PT JEMBO CABLE COMPANY Tbk.

Schedule of Technical Data

I/N : DSXC7PE0001006MC

**AIRFIELD LIGHTING PRIMARY CABLE
SXC7PE 1 x 6 mm² 5 kV**

Ref. Spec : FAA Spec for L-824, AC 150/5345-7F



Cable Construction

| | | |
|----------------------------------|---|--|
| 1 Conductor | : | Round stranded Plain Annealed copper wire |
| Number of wire | : | 7 |
| Dia of wire | : | 1,02 |
| Appr. Outer Diameter | : | 3,06 mm |
| 2 Conductor Screen | : | Extruded Semi-conductive |
| Nom. thickness | : | 0,3 mm |
| 3 Insulation | : | Extruded XLPE |
| Min. Average Thickness | : | 2,3 mm |
| Min. Point Thickness | : | 1,97 mm |
| 4 Insulation Screen | : | Helicly Overlapped Semi-conductive Tape |
| Nom. thickness | : | 0,12 mm |
| Appr. Outer Diameter | : | 8,4 mm |
| 5 Metallic screen | : | Helicly Overlapped Copper Tape Screen |
| Nom. thickness | : | 0,1 mm |
| 6 Core Wrapping | : | Helicly Overlapped Polyester Tape |
| 7 Outer Sheath | : | Extruded PE Anti Termite (Black Colour) |
| Min. Average Thickness | : | 1,2 mm |
| Min. Point Thickness | : | 0,76 mm |
| Outer Diameter | : | 11,4 mm |
| 8 Cable Marking by Foil Printing | : | JEMBO CABLE SXC7Pe 1 x 6 mm ² 5 kV "Year" |
| Minimum bending radius | : | 136 mm |

Electrical Characteristic

| | | |
|--|---|---------------------------|
| 1 Max. DC Conductor Resistance at 20°C | : | 3,08 Ohm/km |
| 2 AC Dielectric Strength at 12,5 kV/ 5 min | : | No Break Down Shall Occur |
| 3 Min. Insulation resistance | : | 4000 Meg.Ohm.km |
| 4 Max. Current Rating in Ground at 40°C | : | 86 A |
| 5 Short Circuit Current at, | | |
| 1 sec. | : | 0,91 kA |
| 0.5 sec. | : | 1,29 kA |
| 0.3 sec | : | 1,67 kA |
| 0.1 sec | : | 2,88 kA |

Packing

| | | |
|---------------------|---|-----------------|
| 1 Type of Packing | : | Wooden Drum |
| 2 Standard Length | : | 1000 m |
| 3 Dimension of Drum | : | 960 mm x 570 mm |
| 4 Net Weight | : | 206 kg |
| 5 Gross Weight | : | 275 kg |

TYPE TEST CERTIFICATE

SERTIFIKAT PENGUJIAN JENIS

Certificate No.: QI-23/01/0186

Nomor Sertifikat

Issued date: 18 January 2023

Diterbitkan tanggal

TESTING OBJECT : Underground Electrical Cable for Airport Lighting Circuits
Objek pengujian

TYPE : AIRFIELD LIGHTING PRIMARY CABLE- Type C (SXC7Pe)
Jenis

SIZE : 1 x 6 mm²
Ukuran

RATED VOLTAGE : 5 kV
Tegangan

BRAND : JEMBO CABLE
Merek

TESTED FOR : PT JEMBO CABLE COMPANY, Tbk.
Diuji untuk

ADDRESS : Jl. Pajajaran Desa Gandasari , Kec. Jatiuwung, Tangerang 15137
Alamat

DATE OF TEST : 03 January 2023 – 17 January 2023
Tanggal uji


Test results on the object tested comply with the standard requirement:
Hasil pengujian pada objek yang diuji memenuhi persyaratan standar:

**FAA AC 150/5345-7F; Specification for L-824, Type C, NEMA WC 71/ICEA S-96-639;
AS/NZS1660**

Referring to test report no.: QI-23/01/0186
Berdasarkan laporan pengujian nomor : QI-23/01/0186

The certificate applies only to the object tested. The responsibility for conformity of any object having the same designations with that tested rests with manufacturer.
Sertifikat ini hanya berlaku untuk objek yang diuji. Tanggung jawab kesesuaian pada setiap objek yang diuji memiliki penunjukan yang sama dengan objek yang diuji dengan pabrikan.

Tangerang, 18 January 2023



Sugiyanto
Electric Manager
Qualis Lab.

Valid until : 18 January 2028
Berlaku hingga 18 January 2028

This certificate is good as long as the related standard is valid
Sertifikat ini berlaku sepanjang standar uji terkait masih berlaku

The results relate only to the items tested. This report shall not be reproduced except in full.
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Head Office & Laboratory

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TEST REPORT

LAPORAN HASIL UJI

| | | | |
|---|-----------------------------------|---|------------------|
| Test Category <i>Kategori uji</i> | TYPE TEST <i>Uji Jenis</i> | Test report no. <i>No. laporan uji</i> | QI-23/01/0186 |
| Work order no. <i>No. order kerja</i> | WO/2023010231 | Issue date <i>Tanggal penerbitan</i> | 18 February 2023 |
| Test performance date <i>Tanggal pengujian</i> | 03 January 2023 - 17 January 2023 | Valid until <i>Berlaku hingga</i> | 18 February 2028 |

| | |
|-----------------------------------|--|
| Client's name <i>Namaklien</i> | PT JEMBO CABLE COMPANY, Tbk. |
| Address <i>Alamat</i> | Jl. Pajajaran Desa Gandasari , Kec. Jatiuwung, Tangerang 15137 |

| | |
|--|--|
| Product under test <i>Produk uji</i> | Underground Electrical Cable for Airport Lighting Circuits |
| Type <i>Jenis</i> | AIRFIELD LIGHTING PRIMARY CABLE- Type C (SXC7Pe) |
| Size <i>Ukuran</i> | 1 x 6 mm ² |
| Rated voltage <i>Tegangan</i> | 5 kV |
| Brand <i>Merek</i> | JEMBO CABLE |
| Customer <i>Pelanggan</i> | PT JEMBO CABLE COMPANY, Tbk. |
| Sample submission date <i>Tanggal penerimaan sampel</i> | 02 January 2023 |
| Test method <i>Metode uji</i> | FAA AC 150/5345-7F; Specification for L-824, Type C, NEMA WC 71/ICEA S-96-639; AS/NZS1660 |
| Sample condition <i>Kondisi sampel</i> | The sample was submitted by customer, received in good condition and with no defect observed |
| Test laboratory <i>Laboratorium penguji</i> | PT. Qualis Indonesia |

Tested by
Diuji oleh



Suhartono
Technician

Reviewed by
Diperiksa oleh



Sugihartono
Supervisor

Approved by
Disahkan oleh



Sugiyanto
Laboratory Manager

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Description sample
Keterangan contoh uji

| Description sample Keterangan contoh uji | |
|---|-------------------------------------|
| Type Jenis | : SXC7Pe |
| Size Ukuran | : 1 x 6mm ² |
| Rated voltage Tegangan pengenal | : 5 k V |
| Total core Jumlah inti | : 1 |
| Cross sectional area Luas penampang area | : 6 mm ² |
| Conductor material Bahan konduktor | : Copper |
| Insulation material Bahan insulasi | : Crosslinked Polyethylene (XLPE) |
| Sheath material Bahan selubung | : Polyethylene Anti Termite (PE AT) |
| Color Warna | : Black/Hitam |
| Quantity of sample Jumlah sampel | : 40 m |

Summary of test result
Ringkasan laporan hasil uji

The type test results for this cable are comply to standard requirements FAA AC 150/5345-7F; Specification for L-824, Type C, NEMA WC 71/ICEA S-96-639; AS/NZS1660
 Hasil pengujian jenis untuk kabel tersebut memenuhi persyaratan standar FAA AC 150/5345-7F; Specification for L-824, Type C, NEMA WC 71/ICEA S-96-639; AS/NZS1660

Testing and measuring equipment:

Peralatan pengujian dan pengukuran

| No. | Equipment |
|-----|---|
| 1 | Precision Double Bridge |
| 2 | AC Withstand Voltage Tester |
| 3 | High Voltage Insulation Hi Tester |
| 4 | PD Tester |
| 5 | AC Dielectric Test Set |
| 6 | Profile Projector For Dimension Measurement |
| 7 | Micrometer |
| 8 | Vernier caliper |
| 9 | Thermohygrometer |
| 10 | Tensile Strength Machine |
| 11 | Analitical Balance |
| 12 | Heat deformation tester |
| 13 | Oven |
| 14 | Solvent extraction test set |
| 15 | ESCR Test set |

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APPENDIX DATA OF TEST RESULTS
LAMPIRAN DATA HASIL UJI

Qualis

1. Electrical Test.

1.1 Volume Resistivity of conductor shield

| Itemtest | Unit | Requirement | Measurement | Conformity |
|---|------------|-------------|-------------|------------|
| Conductor screen - Without ageing | $\Omega.m$ | Max.500 | 8.6 | Passed |
| -After ageing on complete cable for $121\pm 1^\circ C / 7 \times 24$ h | $\Omega.m$ | Max.500 | 10.2 | Passed |

1.2 Insulation Resistance test

| Itemtest | Unit | Requirement | Measurement | Conformity |
|---|------------------|-------------|-------------|------------|
| -Insulation Resistance at $15.5^\circ C$. | M. Ω ./km | Min. 20000 | 65000 | Passed |

1.3 Resistance of conductor at $20^\circ C$

| Itemtest | Unit | Requirement | Measurement | Conformity |
|--|------------------|-------------|-------------|------------|
| Resistance of conductor at $20^\circ C$ | M. Ω ./km | Max. 3.08 | 2.84 | Passed |
| Continuity of earth screen test | - | Passed | Passed | Passed |

1.4 Partial discharge test

| Itemtest | Unit | Requirement | Measurement | Conformity |
|-----------------------------|------|-------------|-------------|------------|
| - Background noise | pC | Max : 5 | 0.25 | Passed |
| - Partial Discharge at 9 kV | pC | Max : 5 | 0.60 | passed |

1.5 Bending test followed by partial discharge test

| Itemtest | Unit | Requirement | Measurement | Conformity |
|---|------|--------------|--------------|------------|
| - Bending test | - | No breakdown | No breakdown | Passed |
| - Partial Discharge after bending test | pC | Max : 5 | 0.70 | Passed |

1.6 Voltage test for 4 hours at $4U_0$

| Itemtest | Unit | Requirement | Measurement | Conformity |
|---|------|--------------|--------------|------------|
| - Voltage test for 4 hours at $4U_0(15)kV$ | - | No breakdown | No breakdown | Passed |

1.7 High voltage test at 17.5 kV

| Item test | Unit | Requirement | Measurement | Conformity |
|---|------|--------------|--------------|------------|
| High voltage test at 17.5 kV/ 5 minutes | - | No breakdown | No breakdown | Passed |

2 Construction&DimensionTest.

2.1 Conductor

| Item test | Unit | Requirement | Measurement | Conformity |
|------------------|------|----------------------------|-----------------|------------|
| - Number of wire | n/mm | Min. : 7/1.04 | 7/1.04 | Passed |
| - Outer diameter | mm | Apx.3.11 | 3.19 | Passed |
| - Material | - | Coated and uncoated copper | Uncoated copper | Passed |

2.2 XLPE Insulation

| Item test | Unit | Requirement | Measurement | Conformity |
|---------------------|------|-------------|-------------|------------|
| - Nominal thickness | mm | - | Avg. : 2.45 | - |
| - Minimum | mm | Min. : 2.3 | Min. : 2.21 | Passed |

2.3 Semi-conducting screen thickness

| Item test | Unit | Requirement | Measurement | Conformity |
|---|------|-------------|-------------|------------|
| - Conductor shield thickness | mm | Nom. 0.3 | Avg. : 0.66 | Passed |
| - Insulation screen thickness (Helically Overlapped Semi-ConductiveTape) | mm | Nom. 0.12 | Avg. : 0.12 | Passed |

2.4 Dimension of metallic screen (copper tape shield)

| Item test | Unit | Requirement | Measurement | Conformity |
|--------------------|------|-------------|--------------|------------|
| -Nominal thickness | mm | Nom. : 0.1 | Avg. : 0.118 | Passed |
| -Tape width | mm | Nom. : 15 | Avg. : 15.0 | Passed |
| - Percent overlap | % | Min : 20 | 24 | Passed |

2.5 Thickness of Outer sheath

| Item test | Unit | Requirement | Measurement | Conformity |
|--------------------|------|-----------------------------------|-----------------------------------|------------|
| -Nominal thickness | mm | - | Avg. : 1.26 | - |
| -minimum thickness | mm | Min : 1.2 | Min : 1.05 | Passed |
| - material | - | Polyethylene Anti Termite (PE AT) | Polyethylene Anti Termite (PE AT) | Passed |

2.5 Outer sheath

| Item test | Unit | Requirement | Measurement | Conformity |
|--------------------------|------|-------------|-------------|------------|
| -Diameter of Outersheath | mm | Apx.: 11.4 | Avg. : 12.3 | Passed |

2.6 Cable Marking :

JEMBO CABLE SXC7Pe 1x6mm² 5 kV 2022

3 Non Electrical Test

| Item test | Unit | Requirement | Measurement | Conformity |
|--|------|-------------|-------------|------------|
| 3.1 Mechanical test of XLPE insulation | | | | |
| 3.1.1 Without ageing | | | | |
| a. Tensile strength | psi | Min. 1800 | 3194.2 | Passed |
| b. Elongati on atbreak | % | Min. 250 | 592.4 | Passed |
| 3.1.2 After ageing in air oven without conductor | | | | |
| a.Treatment | | | | |
| -Temperature | °C | 121 | 121 | |
| -Duration | H | 168 | 168 | |
| 3.1.3 Tensile Strength | | | | |
| a. Value after ageing | psi | N/A | 3087.4 | Passed |
| b. Percentage | % | Min. 75 | 96.6 | Passed |
| 3.1.4 Elongation at break | | | | |
| a. Value after ageing | % | N/A | 587.4 | Passed |
| b. Percentage | % | Min. 75 | 99.2 | Passed |
| 3.2 Mechanical test of PE outer sheath | | | | |
| 3.2.1 Without ageing | | | | |
| a. Tensile strength | Mpa | Min. 17.2 | 23.4 | Passed |
| b. Elongation at break | % | Min. 300 | 621.2 | Passed |
| 3.2.2 After ageing in air oven without conductor | | | | |
| a. Treatment | | | | |
| -Temperature | °C | 100 | 100 | |
| -Duration | H | 48 | 48 | |

| | | | | |
|-----------------------------------|-------------------|-----------|-------|--------|
| 3.2.3 Tensile Strength | Mpa | N/A | 22.4 | Passed |
| a. Value after ageing | % | Min. 75 | 95.7 | Passed |
| b. Percentage | | | | |
| 3.2.4 Elongation at break | % | N/A | 618.4 | Passed |
| a. Value after ageing | % | Min. 75 | 99.5 | Passed |
| b. Percentage | | | | |
| 3.3 Shrinkage test forXLPE | | | | |
| -DistanceL between marks | mm | 200 | 200 | |
| -Temperature | °C | 130±3 | 130±2 | |
| -Duration | h | 1 | 1 | |
| -Shrinkage | % | Max.4 | 1.3 | Passed |
| 3.4 Hottest for XLPE | | | | |
| Insulation | | | | |
| -Air temperature | °C | 150±2 | 150±2 | |
| -Time underload | Minutes | 15 | 15 | |
| -Mechanical stress | N/cm ² | 20 | 20 | |
| a. Elongation underload | % | Max.175 | 81.6 | Passed |
| b. Permanent elongation | % | Max.15 | 1.4 | Passed |
| 3.5 Hot creep test | | | | |
| - Temperature | °C | 150±2 | 150 | |
| - Elongation | % | Max : 175 | 84.2 | Passed |
| - Set | - | Max : 10 | 1.2 | Passed |

3.6 Solvent Extraction

| Itemtest | Unit | Requirement | Measurement | Conformity |
|---------------------|------|-------------|-------------|------------|
| -Solvent Extraction | % | Max : 30 | 23.2 | Passed |

3.7 ECSR

| Itemtest | Unit | Requirement | Measurement | Conformity |
|----------|------|-------------|-------------|------------|
| -ECSR | - | Passed | Passed | Passed |

3.8 Heat Distortion of HDPE

| Itemtest | Unit | Requirement | Measurement | Conformity |
|---------------------------|------|-------------|-------------|------------|
| -Heat Distortion at 110°C | % | Max : 30 | 11.4 | Passed |

--AKHIR LAPORAN HASIL UJI--
- END OF THE TEST REPORT -