



## Specification for Service Drop Cable 600 Volt

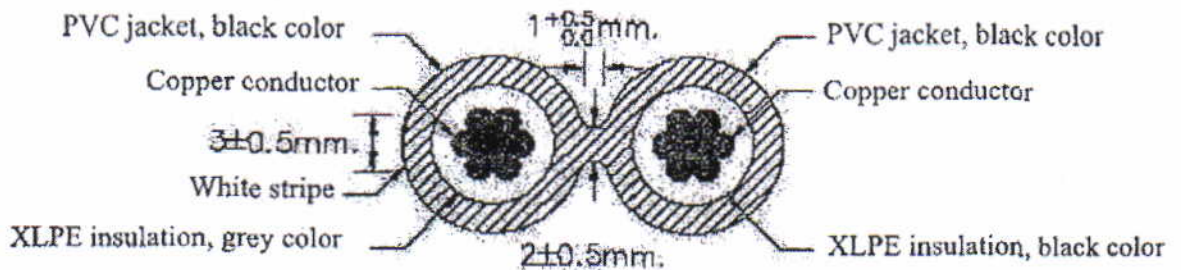
### A. SCOPE :

These specifications cover LV. two-core cable, flat type cable with copper conductor, cross-linked polyethylene (XLPE) insulation and polyvinyl chloride (PVC.) jacket, for outdoor installation as service drop cable in open-air on concrete poles.

### B. MANUFACTURING STANDARD :

The XLPE insulated and PVC jacketed copper cable shall be manufactured and tested conforming to all the requirements of ICEA pub. No. S-95-658 (Rev. 1999) standard specification and PEA specification No. RCBL-032/2554.

#### Illustration of Cable



### C. CONSTRUCTION

#### 1. Conductor

The conductor shall be plain annealed uncoated copper and round concentric lay stranded.

#### 2. Insulation

The insulation of the cables shall be XLPE and shall have characteristics as shown in table.

The insulation of two-core conductors shall have the following colours :

One-grey colour

One-black colour

Grey insulation shall be unfilled cross-linked polyethylene and black insulation shall be filled cross-linked polyethylene.



The average thickness of the insulation shall not be less than the nominal value specified in table and minimum thickness of insulation shall not be less than 90 per cent of the nominal value specified in table.

### 3. Jacket

The jacket of cables shall be black polyvinyl chloride (PVC) and applied cover the insulation of each conductor which laid adjacently but separate by PVC groove width of  $1(+0.5,-0)$  mm thickness of  $2 (\pm 0.5)$  mm to provide for easy tearing. The PVC groove shall be strong enough withstand separation due to bending and sunlight.

The average thickness of the jacket shall not be less than the nominal value specified in table and minimum thickness of jacket shall not be less than 80 per cent of the nominal value specified in table.

## D. TEST, INSPECTION AND REPORT :

Test on samples and electrical tests on completed cables shall be made in accordance with ICEA Pub.No.S-95-658 or equal. Tests shall consist of the following items :

- (1) Conductor tests.
- (2) Test samples and specimens for physical and ageing test.
- (3) Tests for thermoplastic jackets.
- (4) Electrical tests on completed cables.
  - a) The insulated conductor shall withstand the alternating-current test voltage of 4.5 kV for 5 minutes, unless the direct-current test in b) is performed.
  - b) The insulated conductor shall withstand the direct-current test voltage of 13 kV for 5 minutes, unless the alternating-current test in a) is performed.
- (5) Insulation resistance test.

The insulated conductor shall have an insulation resistance value not less than that corresponding to a constant value of 10,000 at  $15.6^{\circ}\text{C}$ .

The costs of all tests and test reports shall be borne by the contractor.



**E. PACKING :**

The standard length of cable packed on the reel will be shown in the attached tables and will be subject to the manufacturing tolerance of  $\pm 10\%$  of the standard length.

1. An amount not exceeding 10% of the total length may be delivered in random lengths, said length shall not be less 50% of standard length on one reel.
2. The cable shall be packed on non-returnable wooden reels, which the wooden parts of reels shall be treated with water-borne wood preservatives. Chromated Copper Arsenate (CCA), according to Group 3, Type 2 of the latest TIS. 515, "Active Ingredients of CCA", to a dry net salt retention of 12.0 Kg/m<sup>3</sup>.
3. After properly packed and lagged the galvanized steel wire shall be fitted to the battens over each flange of the reel.
4. Bolt terminals of cable in each reel will be permanently marked with manufacturer's symbol, for checking the original length.

**F. MARKING**

The surface of jacket shall be marked legibly and durably in Thai language, at the interval of about 50 cm, as follow :

“การไฟฟ้าส่วนภูมิภาค สายทองแดงเข้ามีเตอร์พิกัดแรงดัน 600 โวลต์ ขนาด 2 x A ตร.มม.,  
 สัญญาเลขที่ B\_\_\_, C\_\_\_, D\_\_\_, E\_\_\_, F\_\_\_ ”

**Where :**

- A : The nominal cross-sectional area of conductor
- B : The purchase contract number
- C : Manufacturer's name and / or trade-mark
- D : PEA trade-mark, as the figure below.



- E : Year of manufacturer
- F : Other according to manufacturer's design

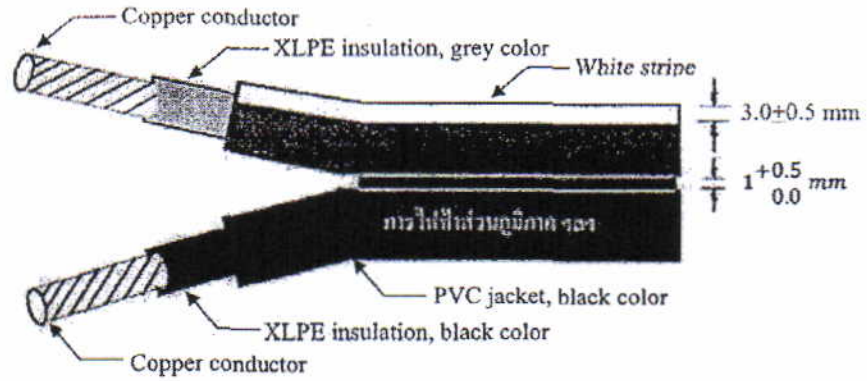


Figure 1 Construction and marking of XLPE insulated and PVC jacketed cable

The cable length markings shall be made on the cable jacket through whole length started from "0" with 1 meter increment.

For core identification propose, a white stripe shall be made on the surface of jacket along the length on grey colour side of cable. The white stripe shall be width of  $3.0 \pm 0.5$  mm. (See

Figure 1)



CHAROONG THAI WIRE & CABLE PUBLIC COMPANY LIMITED

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Specification No. CTW-SP-C007

Eff. Date 1 April 2011 Rev. 00



CHAROONG THAI  
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<b>G. PHYSICAL AND ELECTRICAL PROPERTIES :</b>			
Cable Core x Nominal cross-section, Sq.mm.	<b>2 x 6</b>	<b>2 x 10</b>	<b>2 x 35</b>
Rated Voltage, kV.	0.6	0.6	0.6
Letter-number code according to ICEA :	อก 0703/15095		
Standard reference	ICEA Pub. No. S-95-658		
<b>1. CONDUCTOR :</b>			
1.1 – Actual cross-section area, mm <sup>2</sup> .	5.95	10.02	34.93
1.2 – Number of wire.	7	7	19
1.3 – Diameter of wire, mm. (± 2%)	1.04	1.35	1.53
1.4 – Nominal diameter conductor, mm.	3.12	4.05	7.65
1.5 – Max. DC. Resistance of conductor at 20 °C, Ω/Km.	3.08	1.83	0.524
1.6 – Max. continuous current rating in open-air, A.	57	77	165
1.7 – Maximum operating temperature of conductor in °C	90	90	90
1.8 – Approx. weight of conductor, kg./km.	110	185	645
<b>2. INSULATION :</b>			
2.1 – Material	XLPE	XLPE	XLPE
2.2 – Nominal thickness, mm.	0.9	1.1	1.3
- Min. thickness, mm.	0.81	0.99	1.17
2.3 – Min. insulation resistance at 15.6 C, MΩ – Km.	602.9	574.3	387.3
2.4 - Dielectric testing voltage (a.c r.m.s.), kV., 5 minutes	4.5	4.5	4.5
<b>3. JACKET :</b>			
3.1 – Material	PVC	PVC	PVC
3.2 – Nominal thickness, mm.	1.4	1.5	1.7
- Min. thickness, mm.	1.12	1.20	1.36
3.3 – Weight of cable, kg/km.	215	330	940
<b>4. COMPLETE CABLE :</b>			
4.1 – Overall dimension, (mm. x mm.)			
4.1.1 – Min.	7.8 – 16.5	9.2 x 19.4	13.4 – 27.8
4.1.2 – Max.	9.4 – 19.9	11.3 – 24.0	16.2 – 33.6
4.2 – Standard uncut length per reel, M.	2,000	1,000	500
4.3 – Approximate net weight of cable per reel, kgs.	460	350	470
4.4 – Nominal flange diameter of reel, mm.	1,020	1,020	1,020
4.5 – Approximate gross weight of cable per reel, kgs.	575	465	585