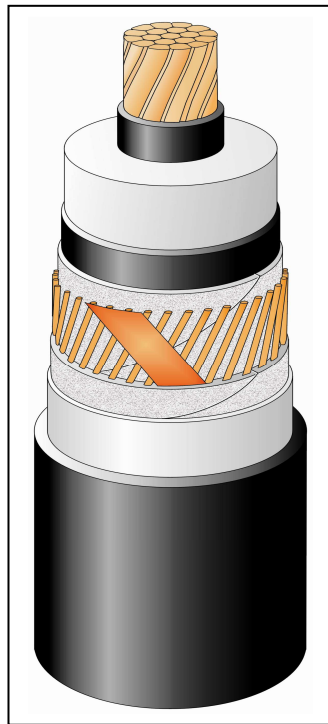


TECHNICAL SPECIFICATION

2XS(FL)2Y 1x300RM/65 40/69kV IEC 60840

CONSTRUCTION ^(x)

- Round, stranded and compressed copper conductor. Class 2.
- Extruded semi-conducting conductor screen
- Insulation XLPE – dry cured
- Extruded semi-conducting insulation screen
- Semi-conducting swelling tapes
- Metallic screen:
 - copper wires screen and
 - copper equalizing tapes
- Semi-conducting swelling tapes
- Longitudinal aluminum foil
- Sheath – Black HDPE



The picture is informative only
– not in scale

APPLICATION

- Laying in ground (wet or dry locations)
- Laying in air
- Laying in ducts

Highest permissible conductor temperature

- Continuous operation 90 °C
- Overload 105 °C
- Short circuit 250 °C (duration max 5 s)

Laying is possible without any special measures at natural cable temperatures and ambient temperature not lower than -5°C, with Tele-Fonika supervising

MARKING

TF KABLE, product name, date of manufacture, standard, meter marking

DESCRIPTION	UNIT	DETAILS
CONSTRUCTION DATA	U_o/U/U_m	40/69 (72,5)kV
Conductor		
<input type="checkbox"/> material		Copper
<input type="checkbox"/> number of wires	No	60
Nominal cross sectional area	mm ²	300
Conductor diameter and tolerance	mm	20,5 ^{+0.2}
Min. / Nom. thickness semi-conducting XLPE on conductor	mm	0.3 / 0.6
Nominal insulation thickness XLPE	mm	11.0
Insulation thickness: minimum at a point	mm	9.9
Diameter over insulation – nominal	mm	43.7
Min. / Nom. thickness semi-conducting XLPE on insulation	mm	0.3 / 0.6
Thickness of semi-conducting swelling tape	No x mm	1 x ~ 0.35
Metallic screen	mm ²	65
<input type="checkbox"/> Copper wires	No x mm	78 x 1.04
<input type="checkbox"/> Copper equalizing tape	No x mm x mm	2 x 10 x 0.10
Mean diameter over metallic screen	mm	47.2
Thickness of semi-conducting swelling tape	No x mm	1 x ~ 0.35
Thickness of aluminum foil	mm	0.2
Diameter over aluminum foil	mm	48.3
Nominal outer sheath thickness / min.	mm	2.7 / 2.19
Approximate overall diameter completed cable (D _e)	mm	54.2
Weight of complete cable (approx.)	kg/km	5112
DELIVERY DATA		
Diameter of steel drum	m	2.8
<input type="checkbox"/> type		28
Maximum length per drum	m	1000
Weight of heaviest reel, including cable	kg	6450

^(x) Diameters are calculated values and subject to manufacturing tolerances

ELECTRICAL DATA at 50Hz		
Maximum D.C. conductor resistance at 20 °C	Ω/km	0.0601
Maximum A.C. conductor resistance at 90 °C	Ω/km	0.0778
Maximum D.C. metallic screen resistance at 20 °C	Ω/km	0.278
Maximum D.C. aluminum foil resistance at 20 °C	Ω/km	0.808
Operating inductance		
<input type="checkbox"/> trefoil formation	mH/km	0.385
<input type="checkbox"/> flat formation (*)	mH/km	0.570
Induction reactance		
<input type="checkbox"/> trefoil formation	Ω/km	0.121
<input type="checkbox"/> flat formation (*)	Ω/km	0.179
Capacitance	μF/km	0.190 (+ 8 %)
Capacitance reactance	kΩ/km	16.71
Impedance		
<input type="checkbox"/> trefoil formation	Ω/km	0.144
<input type="checkbox"/> flat formation (*)	Ω/km	0.195
Zero sequence reactance	Ω/km	0.069
Max. electric stress at conductor screen / (at insulation)	kV/mm	4.74 / 2.35
Dielectric losses (tg δ = 0.001) – per phase	W/m	0.078
Partial discharge test – at 1.5U ₀	pC	≤ 5
Charging current – per phase	A/km	2.15
Charging power	kVA/km	78
Earth fault current – per phase	A/km	6.46
MECHANICAL DATA		
Recommended min. bending radius for laying	m	1.36
Recommended permissible bending radius at final installation	m	0.81
Maximum permissible pulling force:	kN	15.0
SHORT CIRCUIT CURRENTS		
Maximum permissible thermal short-circuit (IEC 60949) <i>Current for 1.0 sec.</i>		
Phase conductor 90 → 250 °C	kA	43.4
Metallic screen 80 → 350 °C	kA	13.9
AMPACITY (**) – Bonding of the metallic screens		Single-point / Both-ends
in earth		
<input type="checkbox"/> flat formation (*)	A	651 / 541
<input type="checkbox"/> trefoil formation	A	617 / 590
in air		
<input type="checkbox"/> flat formation (*)	A	840 / 723
<input type="checkbox"/> trefoil formation	A	729 / 704
TESTS		
AC Test voltage – (2.5U ₀ ; 30min)	kV	90
Impulse test	kV	325
Partial discharge test (1.5U ₀)	kV	54

Marking: TF-KABLE 5 2XS(FL)2Y 1x300RM/65 40/69kV IEC 60840 2016

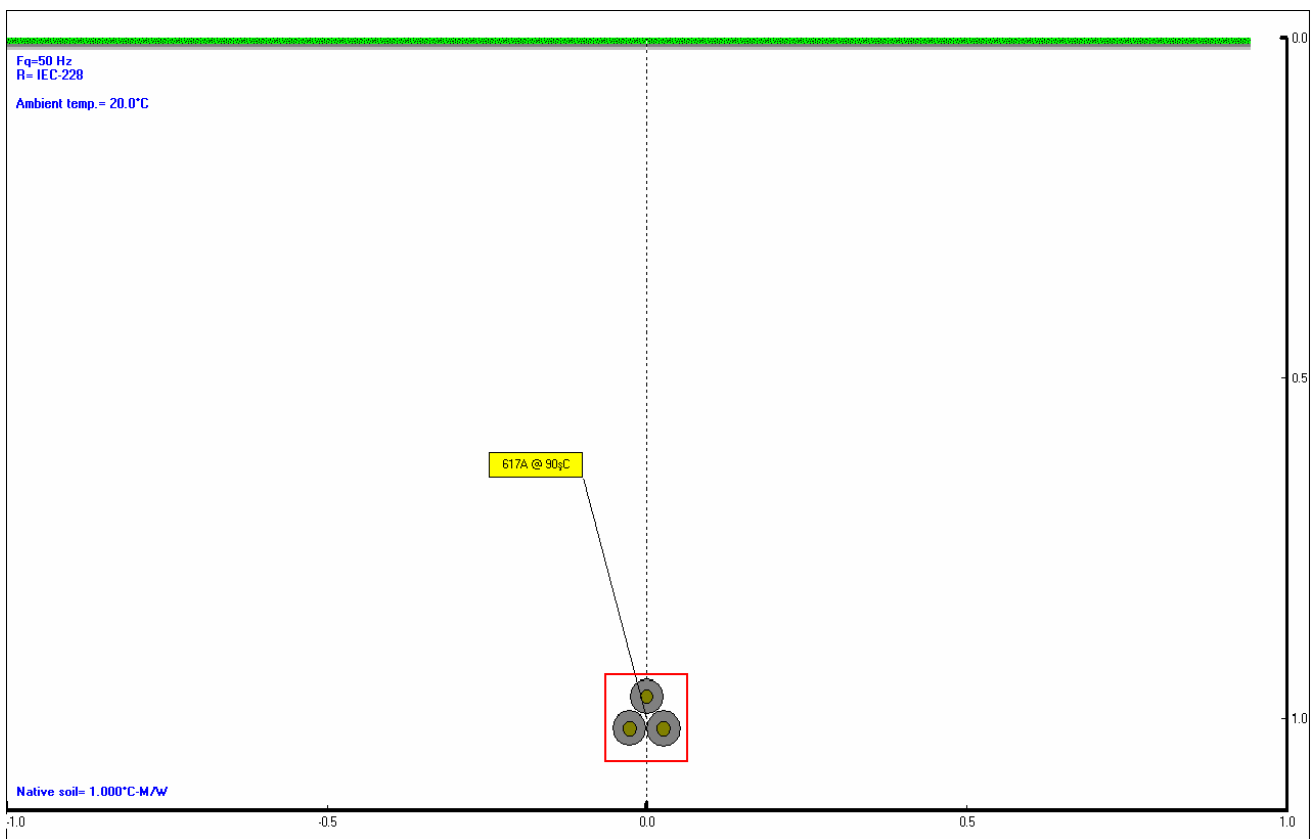
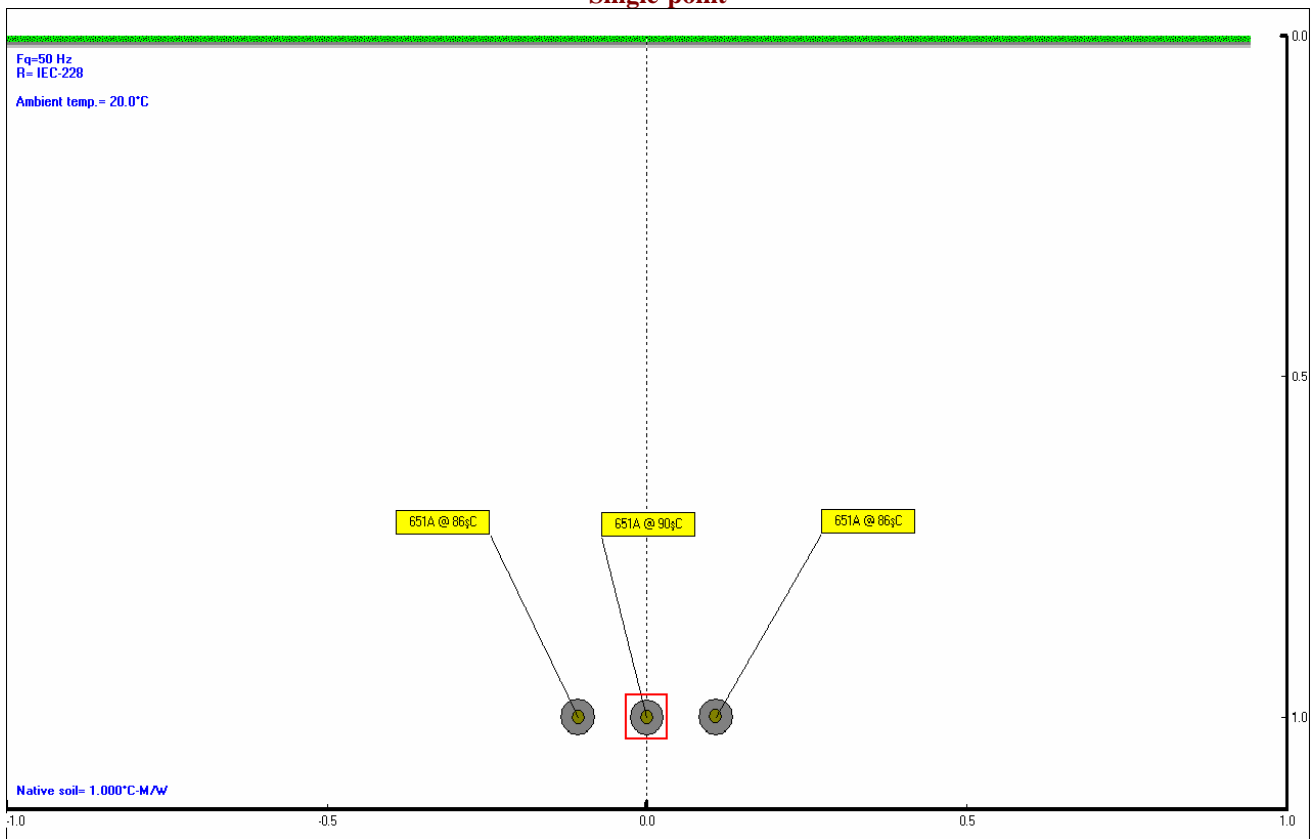
(*) Distance between cable axes laid in flat formation D_e+D_e mm

(**) Current rating guideline (Calculated with Cymcap 5.3 based on IEC Pub. 60287 and the following conditions)

- Air temperature 35°C
- Ground temperature 20°C
- Laying depth 1.0 m
- Ground thermal resistivity 1.0 K · m/W
- LF 1.0

^(s) Diameters are calculated values and subject to manufacturing tolerances

Single-point



Date: 2016-01-07; MM14154
 Prepared by: Michał Mallach

^(s) Diameters are calculated values and subject to manufacturing tolerances