RT/ZHLS, A-2Y(L)2Y External Telephone Cables to NR/PS/TEL/00015

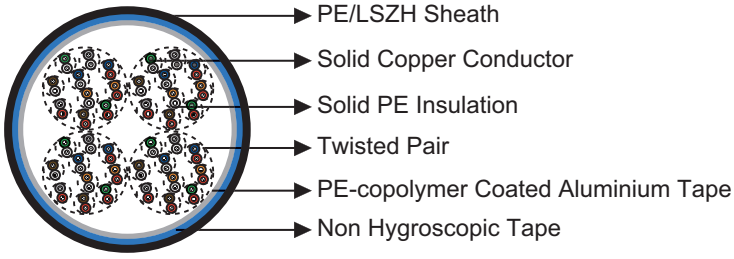
Applications

The cables are designed primarily for trackside railway installation in non electrified area. For direct burial application, brass tape armoured or Zetabon type corrugated steel tape armoured can be offered against rodent attack.

Standards

- NR/PS/TEL/00015 (formerly RT/E/PS/00015 or GK/RT 0315)
- TS0886/BR1822
- BR892

Construction



- Conductors: Solid plain copper conductor, 0.63 or 0.9 mm nominal diameter.
- Insulation: Solid polyethylene to BS 6234.
- Cabling Element: Two insulated conductors are twisted together to form a pair.
- Stranding: Pairs are helically stranded in 10 pair units.
- Core Wrapping: Plastic tape(s) with overlapping.
- Moisture Barrier: One laminated sheath made of aluminium tape (0.15mm) coated with PE-Copolymer on at least one side is applied with longitudinally overlap.
- Outer Sheath: Polyethylene to BS 6234. LSZH compound option can be offered upon request.

Optional

Jelly Filled Cables: The cable core interstices are filled with petroleum jelly to avoid longitudinal water penetration within the cable. The water resistant filling compound is applied to the air space between non-hygroscopic tape and shield, shield and sheath within the cable core.

Armoured Cables: Corrugated steel tape armour coated on both sides with copolymer can be applied over an intermediate sheath. The steel tape thickness is 0.145mm. Brass tape armour can be offered as an option.

Electrical Characteristics at 20℃

Nominal Conductor Diameter	mm	0.63	0.9
Maximum Conductor Resistance	Ω/km	60.0	30.0
Minimum Insulation Resistance @500 V DC (1min)	MΩ.km	1500	1500
Maximum Conductor Capacitance @1000Hz (AC)			

Maximum Average Value			
For 20 pairs or less	nF/km	70	79
More than 20 pairs	nF/km	67	75
Maximum Individual Value 99% of pairs			
Up to 20 pairs	nF/km	79.0	85.0
More than 20 pairs	nF/km	75.0	81.0
Maximum Capacitance Unbalance @1000Hz pair to pair (99% of pairs)			
For 2 pairs (1 quad)	pF/500m	800	800
All other sizes	pF/500m	275	275
Dielectric Strength, conductor to screen (DC voltage 2mins)	V	2000	2000
Maximum Average Attenuation			
@1.0KHz	dB/km	1.40	0.95
@2.4KHz	dB/km	2.15	1.46
@1.024MHz	dB/km	18.70	14.6
Minimum Average Near-end Crosstalk			
@1.0KHz	dB/km	70	70
@2.4KHz	dB/km	65	65
@1.024MHz			
Within Units	dB/km	40	40
Between Units	dB/km	47	47
High Voltage Breakdown Test			
DC for 2mins	V	2000	2000
AC for 2mins	V	1333	1333

↘ Mechanical and Thermal Properties

- Minimum Bending Radius: 7.5×OD (unarmoured); 10×OD (armoured)
- Temperature Range: -40℃ to +70℃ (during operation); -10℃ +60℃ (during installation)

↘ Core Identification

Colour scheme, unit binder colour and cable make-up according to NR/PS/TEL/00015

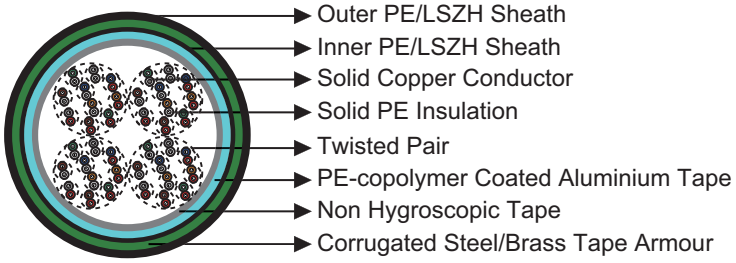
Pair Number	A Wire	B Wire	Unit Number	Binder Colour	Cable Size	Number and Pair Size of Unit	
						Centre	1st Layer
1	WHITE	BLUE	1	BLUE	2	1x2	-
2	WHITE	ORANGE	2	ORANGE	5	1x5	-
3	WHITE	GREEN	3	GREEN	10	1x10	-
4	WHITE	BROWN	4	BROWN	20	4x5	-
5	WHITE	GREY	5	GREY	20	2x10	-
6	RED	BLUE	6	WHITE	30	6x5	-
7	RED	ORANGE	7	RED	30	3x10	-
8	RED	GREEN	8	BLACK	50	5x10	-
9	RED	BROWN	9	YELLOW	50	1x10	4x10
10	RED	GREY	10	VIOLET	75	3x5	6x10
					100	2x10	8x10
					100	3x10	7x10
					100	4x5	8x10

↘ Dimensions and Weight

A–2Y(L)2Y n × 2 × 0.63/0.9

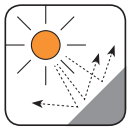
Cable Code	Number of Pairs (n)	Nominal Sheath Thickness mm	Maximum Overall Diameter mm	Nominal Weight kg/km
0.63mm Conductor, 1.15mm Insulated Wire				
RS/RT/ZHLS-2Y(L)2Y-2P0.63	2	2.7	12.3	103
RS/RT/ZHLS-2Y(L)2Y-5P0.63	5	2.7	13.8	155

Cable Code	Number of Pairs (n)	Nominal Sheath Thickness mm	Maximum Overall Diameter mm	Nominal Weight kg/km
RS/RT/ZHLS-2Y(L)2Y-10P0.63	10	2.7	15.6	212
RS/RT/ZHLS-2Y(L)2Y-20P0.63	20	2.7	18.1	309
RS/RT/ZHLS-2Y(L)2Y-30P0.63	30	2.7	20.4	403
RS/RT/ZHLS-2Y(L)2Y-50P0.63	50	2.7	24.2	574
RS/RT/ZHLS-2Y(L)2Y-75P0.63	75	2.7	28.2	779
RS/RT/ZHLS-2Y(L)2Y-100P0.63	100	2.7	31.0	974
0.9mm Conductor, 1.5mm Insulated Wire				
RS/RT/ZHLS-2Y(L)2Y-2P0.9	2	2.7	13.3	131
RS/RT/ZHLS-2Y(L)2Y-5P0.9	5	2.7	15.6	208
RS/RT/ZHLS-2Y(L)2Y-10P0.9	10	2.7	18.1	305
RS/RT/ZHLS-2Y(L)2Y-20P0.9	20	2.7	21.9	477
RS/RT/ZHLS-2Y(L)2Y-30P0.9	30	2.7	25.2	639
RS/RT/ZHLS-2Y(L)2Y-50P0.9	50	2.7	30.0	951
RS/RT/ZHLS-2Y(L)2Y-75P0.9	75	2.7	35.8	1325
RS/RT/ZHLS-2Y(L)2Y-100P0.9	100	2.7	39.1	1688



A–2Y(F)(L)2YB2Y n × 2 × 0.63/0.9 Jelly Filled & Armoured Cables

Cable Code	Number of Pairs (n)	Nominal Sheath Thickness mm		Maximum Overall Diameter mm	Nominal Weight kg/km
		Inner	Outer		
0.63mm Conductor, 1.15mm Insulated Wire					
RS/RT/ZHLS-2Y(F)(L)2YB2Y-2P0.63	2	1.6	1.6	18.0	222
RS/RT/ZHLS-2Y(F)(L)2YB2Y-5P0.63	5	1.6	1.6	19.5	296
RS/RT/ZHLS-2Y(F)(L)2YB2Y-10P0.63	10	1.6	1.6	20.3	383
RS/RT/ZHLS-2Y(F)(L)2YB2Y-20P0.63	20	1.6	1.6	23.8	504
RS/RT/ZHLS-2Y(F)(L)2YB2Y-30P0.63	30	1.6	1.6	26.1	606
RS/RT/ZHLS-2Y(F)(L)2YB2Y-50P0.63	50	1.6	1.6	29.9	903
RS/RT/ZHLS-2Y(F)(L)2YB2Y-75P0.63	75	1.6	1.6	33.9	1202
RS/RT/ZHLS-2Y(F)(L)2YB2Y-100P0.63	100	1.6	1.6	36.7	1463
0.9mm Conductor, 1.5mm Insulated Wire					
RS/RT/ZHLS-2Y(F)(L)2YB2Y-2P0.9	2	1.6	1.6	19.0	250
RS/RT/ZHLS-2Y(F)(L)2YB2Y-5P0.9	5	1.6	1.6	21.3	370
RS/RT/ZHLS-2Y(F)(L)2YB2Y-10P0.9	10	1.6	1.6	23.8	508
RS/RT/ZHLS-2Y(F)(L)2YB2Y-20P0.9	20	1.6	1.6	27.6	782
RS/RT/ZHLS-2Y(F)(L)2YB2Y-30P0.9	30	1.6	1.6	30.9	1000
RS/RT/ZHLS-2Y(F)(L)2YB2Y-50P0.9	50	1.6	1.6	35.7	1402
RS/RT/ZHLS-2Y(F)(L)2YB2Y-75P0.9	75	1.6	1.6	41.5	2055
RS/RT/ZHLS-2Y(F)(L)2YB2Y-100P0.9	100	1.6	1.6	44.8	2550


UV Resistant


Water Resistant

Rated Voltage


Laid In Ducts


Buried in Ciround

Zero Halogen
IEC 60754-1/NF C20-454
EN 50267-2-1

Scada/Pilot Cables NR/PS/ELP/27220

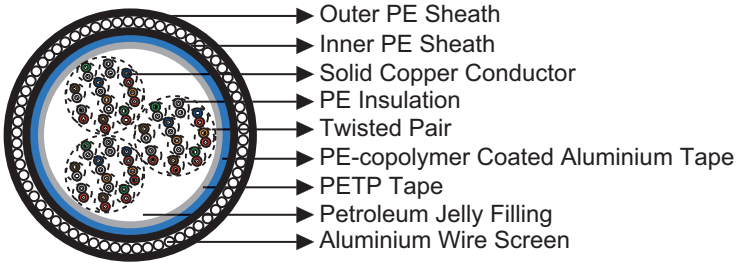
Applications

The telecom cables are suitable for modem based supervisory system operating in the VF range from 300 to 3000Hz.

Standards

- NR/PS/ELP/27220 (formerly RT/E/PS/0034)

Construction



- Conductors: Class 1 solid plain copper conductor 0.9 mm nominal diameter to BS 6360, complies with BS 3573.
- Insulation: Solid polyethylene type 03 to BS 6234.
- Cabling Element: Two insulated conductors are twisted together to form a pair.
- Filling: Petroleum jelly filled.
- Core Wrapping: PETP (Polyethylene Terephthalate) tape.
- Moisture Barrier: One laminated sheath made of aluminium tape coated with PE-Copolymer on at least one side is applied with longitudinally overlap.
- Inner Sheath: Low density polyethylene type 03C to BS 6234.
- Screen: Aluminium wire screen.
- Core Wrapping: Water blocking tape.
- Sheath: Low density polyethylene type 03C to BS 6234.

Electrical Characteristics at 20℃

Nominal Conductor Diameter	mm	0.9
Maximum Conductor Resistance	Ω/km	30.0
Maximum Average Mutual Capacitance @1000Hz (AC)	nF/km	71
Maximum Capacitance Unbalance @1000Hz pair to pair	pF/500m	275

Mechanical and Thermal Properties

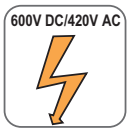
- Minimum Bending Radius: 10×OD
- Temperature Range: -25℃ to +85℃ (during operation); -10℃ to +70℃ (during installation)

Dimensions and Weight

Cable Code	Number of Pairs	Nominal Sheath Thickness mm	Maximum Overall Diameter mm	Nominal Weight kg/km
0.9mm Conductor, 1.5mm Insulated Wire				
RS27220-2Y(F)(L)2YB2Y-10P0.9	10	1.8	25.8	755
RS27220-2Y(F)(L)2YB2Y-20P0.9	20	1.8	27.8	946
RS27220-2Y(F)(L)2YB2Y-30P0.9	30	2.0	31.8	1225
RS27220-2Y(F)(L)2YB2Y-50P0.9	50	2.0	35.8	1643
RS27220-2Y(F)(L)2YB2Y-75P0.9	75	2.2	41.6	2240
RS27220-2Y(F)(L)2YB2Y-100P0.9	100	2.2	46.6	2780


UV Resistant


Water Resistant



Rated Voltage


Laid In Ducts

Zero Halogen
IEC 60754-1/NF C20-454
EN 50267-2-1

Outdoor Single Mode Trackside Fiber Cables
NR/PS/TEL/00014

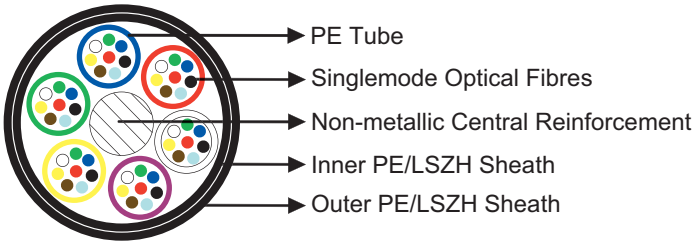
Applications

The cables are fibre communications cable designed for use in high traffic and data rate requirements.

Standards

- NR/PS/TEL/00014 (formerly RT/E/PS/00014)

Construction



- Fibre: Step Index Singlemode Fibres in accordance with ITU-T recommendation G.652.9/125 μm Fibre @ 1310nm &1550nm.
- Fibre Carrier: PE.
- Central Strength Member: Single continuous non-metallic.
- Binding Tape: Polymeric loose tubes filled with water blocking material.
- Inner Sheath: PE (Polyethylene) Type 03C to BS 6234 or LSZH Sheath.
- Sheath: PE (Polyethylene) Type 03C to BS 6234 or LSZH sheath.

Optional

Armoured Cables: Corrugated steel tape armoured cables can be offered as an option.

Electrical Characteristics at 20℃

Maximum Attenuation		G652
@1310nm	dB/km	0.35
@1550nm	dB/km	0.22
Maximum Chromatic Dispersion		
Between 1260 and 1360nm	ps/(nm/km)	3.5
Between 1530 and 1565nm	ps/(nm/km)	19
Zero Dispersion Wavelength	nm	1310±11
Zero Dispersion Slope	ps/(nm^2.km)	0.09
Numerical Aperture		0.14
Point discontinuity	dB	0.1
PMD (individual fiber)	ps/km	0.2
Maximum Cutoff Wavelength	nm	1260
Cladding Diameter	um	125±1
Core/Cladding Concentricity Error	um	≤0.5

Cladding Non Circularity	%	≤1
Coating Non Circularity	%	≤6
Proof Test Level	Kpsi (GN/m^2)	100 (0.7)
Crush Resistance	N/cm	300
Maximum Laying Tension	N	From 12 to 72 FO: 2500;144 FO: 3000

Mechanical and Thermal Properties

- Minimum Bending Radius: 12×OD .
- Temperature Range: -20℃ to +60℃ (during operation); -10℃ to +60℃ (during installation)

Dimensions and Weight

Unarmoured Single Mode Trackside Fiber Cables

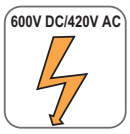
Cable Code	No. of fibres	Nominal Cladding Thickness μm	Nominal Sheath Thickness mm		Nominal Overall Diameter mm	Nominal Weight kg/km
			Inner	Outer		
RO14-ML-B-9-2×4-F-2Y2Y	8	125	1.6	2.0	12.0	110
RO14-ML-B-9-2×6-F-2Y2Y	12	125	1.6	2.0	12.0	110
RO14-ML-B-9-4×5-F-2Y2Y	20	125	1.6	2.0	12.0	110
RO14-ML-B-9-8×6-F-2Y2Y	48	125	1.6	2.0	12.6	120
RO14-ML-B-9-16×6-F-2Y2Y	96	125	1.6	2.0	14.0	150

Steel Tape Armoured Single Mode Trackside Fiber Cables

Cable Code	No. of fibres	Nominal Cladding Thickness μm	Nominal Sheath Thickness mm		Nominal Overall Diameter mm	Nominal Weight kg/km
			Inner	Outer		
RO14-ML-B-9-2×4-F-2Y(STA)2Y	8	125	1.6	2.0	15.0	210
RO14-ML-B-9-2×6-F-2Y(STA)2Y	12	125	1.6	2.0	15.0	210
RO14-ML-B-9-4×5-F-2Y(STA)2Y	20	125	1.6	2.0	15.0	210
RO14-ML-B-9-8×6-F-2Y(STA)2Y	48	125	1.6	2.0	15.5	230
RO14-ML-B-9-16×6-F-2Y(STA)2Y	96	125	1.6	2.0	17.0	270


UV Resistant


Water Resistant



Rated Voltage


Laid In Ducts

PE Sheath

Zero Halogen
IEC 60754-1/NF C20-454
EN 50267-2-1

LSZH Sheath


Flame Retardant
NF C32-070-2.1(C2)
IEC 60332-1/EN 50265-2-1


Fire Retardant
NF C32-070-2.2(C1)
IEC 60332-3/EN50266

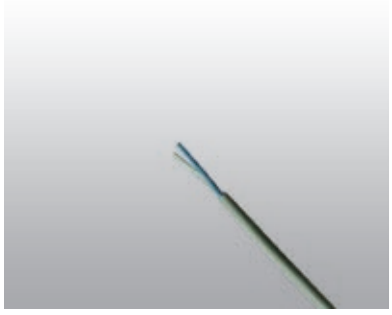
Zero Halogen
IEC 60754-1/NF C20-454
EN 50267-2-1


Low Smoke Emission
IEC 61034/NFC20-902
EN 50268/NF C32-073


Low Corrosivity
EN 50267-2-2/NF C32-074
IEC 60754-2/NF C20-453


Low Toxicity

G7621 Trackside Communications Cables

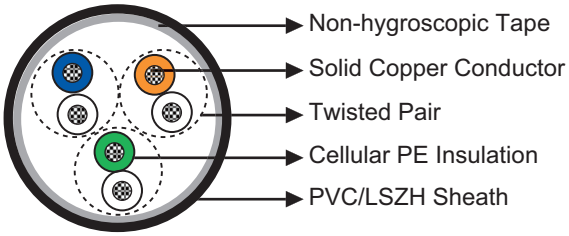


Applications

The cables are designed for installation in trackside bracket runs and for use in open locations (type1) or in tunnels or underground locations (type2).

Standards

- LUL Spec G7621 A2 type 1 (for PVC sheath)
- LUL Spec G7621 A2 type 2 (for LSZH sheath)



Construction

- Conductors: Solid plain copper, 0.63/0.9 mm nominal diameter.
- Insulation: Cellular polyethylene.
- Cabling Element: Two insulated conductors are twisted together to form a pair.
- Core Wrapping: Non-hygroscopic plastic tape with overlapping.
- Outer Sheath: PVC/LSZH sheath, coloured violet.

Core Identification

1 Pair Cable: Blue/White

3 Pair Cable: Blue/White Orange/White Green/White

Electrical Characteristics at 20℃

Nominal Conductor Diameter	mm	0.63	0.9
Maximum Conductor Resistance			
Average Value	Ω/km	57.5	28
Individual Value	Ω/km	59	29
Minimum Insulation Resistance @500 V DC	MΩ.km	1500	1500
Maximum Average Mutual Capacitance	nF/km	59	59
Maximum Average Capacitance Unbalance			
Pair to Pair	pF/460m	100	100
Pair to Earth	pF/460m	1200	1200

Mechanical and Thermal Properties

- Minimum Bending Radius: 7.5×OD
- Temperature Range: -30℃ to +70℃ (during operation); -10℃ +55℃ (during installation)

Dimensions and Weight

Cable Code	No. of pairs	Nominal Thickness of Sheath mm	Nominal Overall Diameter mm	Nominal Weight kg/km
0.63mm Conductor, 1.15mm Insulated Wire				
RS7621A2/T1-02YY-1P0.63	1	2.5	7.0	60
RS7621A2/T1-02YY-3P0.63	3	2.5	9.0	90
0.9mm Conductor, 1.5mm Insulated Wire				
RS7621A2/T1-02YY-1P0.9	1	2.5	8.0	70
RS7621A2/T1-02YY-3P0.9	3	2.5	10.0	120


Mineral Oil Resistant

Rated voltage


Buried in Ciround


Laid In Ducts

PVC Sheath


Flame Retardant
NF C32-070-2.1(C2)
IEC 60332-1/EN 50265-2-1

LSZH Sheath


Flame Retardant
NF C32-070-2.1(C2)
IEC 60332-1/EN 50265-2-1


Fire Retardant
NF C32-070-2.2(C1)
IEC 60332-3/EN50266

Zero Halogen
IEC 60754-1/NF C20-454
EN 50267-2-1


Low Smoke Emission
IEC 61034/NFC20-902
EN 50268/NF C32-073


Low Corrosivity
EN 50267-2-2/NF C32-074
IEC 60754-2/NF C20-453


Low Toxicity

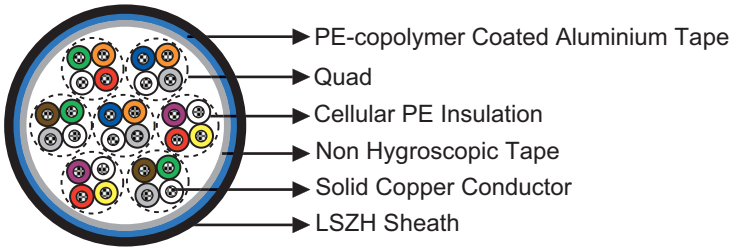
G7622 Trackside Communications Cables

↘ Applications

The cables are designed for installation in trackside bracket runs and for use within railway equipment rooms within open locations (type 1) or in subsurface tunnels and underground locations (type 2).

↘ Standards

- LUL Spec G7622 A1 type 1 (for PVC sheath)
- LUL Spec G7622 A1 type 2 (for LSZH sheath)



↘ Construction

- Conductors: Solid plain copper, 0.63/0.9 mm nominal diameter.
- Insulation: Cellular polyethylene.
- Cabling Element: Four insulated conductors are twisted together to form a quad.
- Stranding: Conductors are helically stranded in concentric layers.
- Core Wrapping: Plastic tape (s) with overlapping.
- Moisture Barrier: One laminated sheath made of aluminium tape (0.15mm thick) coated with PE-Copolymer on at least one side is applied with longitudinally overlap.
- Outer Sheath: LSZH sheath, coloured violet.

↘ Optional

Type 1 Cables: For type 1 cables, additional foil (at least one polyester tape) and PVC sheath are applied over the LSZH sheath. (VDE Code: A-02Y(L)HY)

Armoured Cables: Corrugated steel tape armour is applied with an overlap over LSZH sheath. An outer LSZH sheath is applied over the armour. (VDE Code: A-02Y(L)H(SR)H)

↘ Electrical Characteristics at 20℃

Nominal Conductor Diameter	mm	0.63	0.9
Maximum Conductor Resistance			
Average Value	Ω/km	57.5	28
Individual Value	Ω/km	59	29
Minimum Insulation Resistance @500 V DC	MΩ.km	1500	1500
Maximum Average Mutual Capacitance	nF/km	59	59
Maximum Average Capacitance Unbalance			
Between pairs in same quad	pF/460m	50	50

Between pairs (centre or in any layer)	pF/460m	30	30
Between any pairs and earth	pF/460m	200	200
Between phantom and pairs in same quad	pF/460m	300	300

Mechanical and Thermal Properties

- Minimum Bending Radius: 7.5×OD (unarmoured); 10×OD (armoured)
- Temperature Range: -40℃ to +70℃ (during operation); -10℃ to +50℃ (during installation)

Core Identification

Quad colours in centre and even layers

Position of Quad in Layer	Centre and Even Layers				Quad Whipping Colours
	A Wire	B Wire	C Wire	D Wire	
1st Quad (Marker)	ORANGE	WHITE	BLUE	GREY	WHITE/ORANGE
Even Quads	RED	WHITE	VIOLET	YELLOW	WHITE
Odd Quads	BROWN	WHITE	GREEN	GREY	WHITE
Last Quad	ORANGE	WHITE	RED	GREEN	WHITE/ORANGE

Quad colours in odd layers

Position of Quad in Layer	Odd Layers				Quad Whipping Colours
	A Wire	B Wire	C Wire	D Wire	
1st Quad (Marker)	ORANGE	BLACK	BLUE	GREY	WHITE/ORANGE
Even Quads	RED	BLACK	VIOLET	YELLOW	WHITE
Odd Quads	BROWN	BLACK	GREEN	GREY	WHITE
Last Quad	ORANGE	BLACK	RED	GREEN	WHITE/ORANGE

Make–up of cable

Number of Pairs	Number of Quads in centre and successive layers						
	Centre	1st Layer	2ndLayer	3th Layer	4th Layer	5th Layer	6th Layer
8	4	-	-	-	-	-	-
14	1	6	-	-	-	-	-
20	2	8	-	-	-	-	-
28	4	10	-	-	-	-	-
38	1	6	12	-	-	-	-
54	3	9	15	-	-	-	-
74	1	6	12	18	-	-	-
104	4	10	16	22	-	-	-
160	4	10	16	22	28	-	-
228	4	10	16	22	28	34	-
308	4	10	16	22	28	34	40

Dimensions and Weight

G7622 A1 Type 2 Cables

Cable Code	No. of pairs	Minimum Sheath Thickness mm	Nominal Overall Diameter mm	Nominal Weight kg/km
0.63mm Conductor, 1.0mm Insulated Wire				
RS7622A1/T2-02Y(L)H-8P0.63	8	2.5	14.5	190
RS7622A1/T2-02Y(L)H-14P0.63	14	2.5	16.0	240
RS7622A1/T2-02Y(L)H-20P0.63	20	2.5	17.5	310
RS7622A1/T2-02Y(L)H-28P0.63	28	2.5	19.5	380
RS7622A1/T2-02Y(L)H-38P0.63	38	2.5	21.5	470
RS7622A1/T2-02Y(L)H-54P0.63	54	2.5	23.5	610
RS7622A1/T2-02Y(L)H-74P0.63	74	2.5	25.5	780
RS7622A1/T2-02Y(L)H-104P0.63	104	2.5	29.0	1020
RS7622A1/T2-02Y(L)H-160P0.63	160	2.5	34.0	1498
RS7622A1/T2-02Y(L)H-228P0.63	228	2.5	39.0	1993

Cable Code	No. of pairs	Minimum Sheath Thickness mm	Nominal Overall Diameter mm	Nominal Weight kg/km
RS7622A1/T2-02Y(L)H-308P0.63	308	2.5	43.5	2670
0.9mm Conductor, 1.5mm Insulated Wire				
RS7622A1/T2-02Y(L)H-8P0.9	8	2.5	17.5	280
RS7622A1/T2-02Y(L)H-14P0.9	14	2.5	20.0	380
RS7622A1/T2-02Y(L)H-20P0.9	20	2.5	22.5	500
RS7622A1/T2-02Y(L)H-28P0.9	28	2.5	24.5	630
RS7622A1/T2-02Y(L)H-38P0.9	38	2.5	25.5	790
RS7622A1/T2-02Y(L)H-54P0.9	54	2.5	29.0	1060
RS7622A1/T2-02Y(L)H-74P0.9	74	2.5	32.5	1370
RS7622A1/T2-02Y(L)H-108P0.9	108	2.5	37.5	1830

G7622 A1 Type 1 Cables

Cable Code	No. of pairs	Minimum Sheath Thickness mm		Nominal Overall Diameter mm	Nominal Weight kg/km
		Inner	Outer		
0.63mm Conductor, 1.0mm Insulated Wire					
RS7622A1/T1-02Y(L)HY-8P0.63	8	2.5	3.0	20.5	330
RS7622A1/T1-02Y(L)HY-14P0.63	14	2.5	3.0	22.0	390
RS7622A1/T1-02Y(L)HY-20P0.63	20	2.5	3.0	23.5	480
RS7622A1/T1-02Y(L)HY-28P0.63	28	2.5	3.0	25.5	560
RS7622A1/T1-02Y(L)HY-38P0.63	38	2.5	3.0	27.5	660
RS7622A1/T1-02Y(L)HY-54P0.63	54	2.5	3.0	29.5	830
RS7622A1/T1-02Y(L)HY-74P0.63	74	2.5	3.0	31.5	1010
RS7622A1/T1-02Y(L)HY-104P0.63	104	2.5	3.0	35.0	1290
0.9mm Conductor, 1.5mm Insulated Wire					
RS7622A1/T1-02Y(L)HY-8P0.9	8	2.5	3.0	23.5	440
RS7622A1/T1-02Y(L)HY-14P0.9	14	2.5	3.0	26.0	550
RS7622A1/T1-02Y(L)HY-20P0.9	20	2.5	3.0	28.5	700
RS7622A1/T1-02Y(L)HY-28P0.9	28	2.5	3.0	30.5	840
RS7622A1/T1-02Y(L)HY-38P0.9	38	2.5	3.0	31.5	1020
RS7622A1/T1-02Y(L)HY-54P0.9	54	2.5	3.0	35.0	1310
RS7622A1/T1-02Y(L)HY-74P0.9	74	2.5	3.0	38.5	1650
RS7622A1/T1-02Y(L)HY-104P0.9	104	2.5	3.0	43.5	2160

Armoured G7622 A1 Type 2 Cables

Cable Code	No. of pairs	Minimum Sheath Thickness mm		Nominal Overall Diameter mm	Nominal Weight kg/km
		Inner	Outer		
0.63mm Conductor, 1.0mm Insulated Wire					
RS7622A1/T2-02Y(L)H(SR)H-8P0.63	8	1.2	2.5	18.2	430
RS7622A1/T2-02Y(L)H(SR)H-14P0.63	14	1.2	2.5	19.0	500
RS7622A1/T2-02Y(L)H(SR)H-20P0.63	20	1.2	2.5	21.2	600
RS7622A1/T2-02Y(L)H(SR)H-28P0.63	28	1.2	2.5	22.6	690
RS7622A1/T2-02Y(L)H(SR)H-38P0.63	38	1.2	2.5	24.2	810
RS7622A1/T2-02Y(L)H(SR)H-54P0.63	54	1.2	2.5	26.7	980
RS7622A1/T2-02Y(L)H(SR)H-74P0.63	74	1.2	2.5	29.2	1190
RS7622A1/T2-02Y(L)H(SR)H-104P0.63	104	1.2	2.5	32.6	1480


Mineral Oil Resistant

Rated voltage


Buried in Ciround


Laid In Ducts

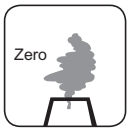
PVC Sheath


Flame Retardant
NF C32-070-2.1(C2)
IEC 60332-1/EN 50265-2-1

LSZH Sheath


Flame Retardant
NF C32-070-2.1(C2)
IEC 60332-1/EN 50265-2-1


Fire Retardant
NF C32-070-2.2(C1)
IEC 60332-3/EN50266



Zero Halogen
IEC 60754-1/NF C20-454
EN 50267-2-1


Low Smoke Emission
IEC 61034/NFC20-902
EN 50268/NF C32-073

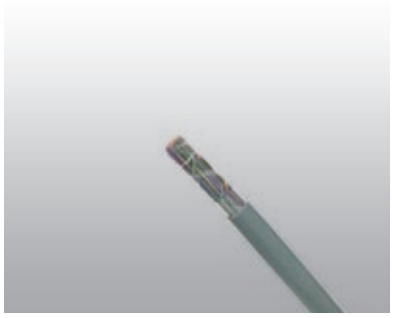

Low Corrosivity
EN 50267-2-2/NF C32-074
IEC 60754-2/NF C20-453


Low Toxicity

G7623 Trackside Communications Cables

Applications

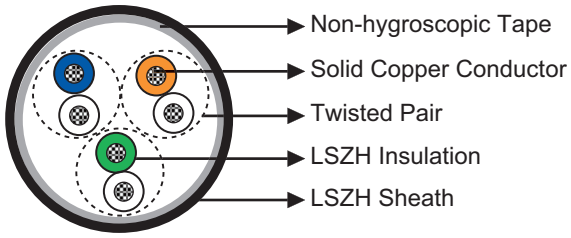
The cables are designed for limited fire hazard applications for internal use within stations, buildings and equipment rooms.



Standards

- LUL Spec G7623 A2

Construction



- Conductors: Tinned annealed solid copper, 0.5/0.6/0.63 mm nominal diameter.
- Insulation: LSZH Insulation.
- Cabling Element: Two insulated conductors are twisted together to form a pair.
- Stranding: Cables are composed of unit stranding.
- Core Wrapping: Non-hygroscopic plastic tape with overlapping.
- Outer Sheath: LSZH sheath.

Electrical Characteristics at 20℃

Nominal Conductor Diameter	mm	0.5	0.6	0.63
Maximum Conductor Resistance	Ω/km	98	68	58
Minimum Insulation Resistance @500 V DC	MΩ.km	120	120	120
Maximum Average Mutual Capacitance @1KHz	nF/km	80	80	80
Maximum Average Capacitance Unbalance @800Hz pair-to-pair		500	500	500
Test Voltage AC 1min	V	500	500	500

Mechanical and Thermal Properties

- Minimum Bending Radius: 7.5×OD
- Temperature Range: -30℃ to +70℃ (during operation); -10℃ +55℃ (during installation)

Core Identification

Colour scheme, unit binder colour and cable make-up according to G7623

Pair Number	A Wire	B Wire	Pair Size	20 Pair	40 Pair	80 Pair	100 Pair	160 Pair	320 Pair
				Number of Units					
			Center	1	2	1	3x1/2	2	1
			1st Layer			6x1/2*	7x1/2	6	5
			2nd Layer						10
1	WHITE	BLUE	1	ORANGE	ORANGE	ORANGE	BLUE	ORANGE	ORANGE
2	WHITE	ORANGE	2		GREEN	ORANGE	ORANGE	GREEN	ORANGE
3	WHITE	GREEN	3			NATURAL	GREEN	ORANGE	NATURAL
4	WHITE	BROWN	4			GREEN	BROWN	NATURAL	NATURAL
5	WHITE	GREY	5				GREY	NATURAL	NATURAL
6	RED	BLUE	6				WHITE	NATURAL	GREEN
7	RED	ORANGE	7				RED	NATURAL	ORANGE
8	RED	GREEN	8				BLACK	GREEN	NATURAL

9	RED	BROWN	9				YELLOW		NATURAL
10	RED	GREY	10				VIOLET		NATURAL
11	BLACK	BLUE	11						NATURAL
12	BLACK	ORANGE	12						NATURAL
13	BLACK	GREEN	13						NATURAL
14	BLACK	BROWN	14						NATURAL
15	BLACK	GREY	15						NATURAL
16	YELLOW	BLUE	16						GREEN
17	YELLOW	ORANGE							
18	YELLOW	GREEN							
19	YELLOW	BROWN							
20	YELLOW	GREY							

*1/2 refers to units of 10 Pairs

↘ Dimensions and Weight

Cable Code	No. of pairs	Minimum Sheath Thickness mm	Nominal Overall Diameter mm	Nominal Weight kg/km
0.5mm Conductor, 0.82mm Insulated Wire				
RS7623A2-HH-1P0.5	1	1.3	6.0	30
RS7623A2-HH-2P0.5	2	1.3	7.0	45
RS7623A2-HH-3P0.5	3	1.4	7.0	50
RS7623A2-HH-6P0.5	6	1.5	9.0	61
RS7623A2-HH-10P0.5	10	1.6	11.0	107
RS7623A2-HH-20P0.5	20	1.9	14.0	190
RS7623A2-HH-40P0.5	40	1.9	16.0	320
RS7623A2-HH-80P0.5	80	2.2	23.0	640
RS7623A2-HH-100P0.5	100	2.2	25.0	760
RS7623A2-HH-160P0.5	160	2.6	29.0	1150
0.6mm Conductor, 1.12mm Insulated Wire				
RS7623A2-HH-1P0.6	1	1.4	6.0	35
RS7623A2-HH-2P0.6	2	1.4	7.0	50
RS7623A2-HH-3P0.6	3	1.5	7.0	60
RS7623A2-HH-6P0.6	6	1.6	9.0	85
RS7623A2-HH-10P0.6	10	1.7	11.0	145
RS7623A2-HH-20P0.6	20	2.2	14.0	245
RS7623A2-HH-40P0.6	40	2.2	18.0	410
RS7623A2-HH-80P0.6	80	2.8	25.0	830
RS7623A2-HH-100P0.6	100	2.8	27.0	980
RS7623A2-HH-160P0.6	160	3.2	33.0	1450
0.63mm Conductor, 1.15mm Insulated Wire				
RS7623A2-HH-1P0.63	1	1.4	5.5	40
RS7623A2-HH-3P0.63	3	1.5	7.3	70
RS7623A2-HH-5P0.63	5	1.6	8.5	89
RS7623A2-HH-6P0.63	6	1.6	8.9	100
RS7623A2-HH-10P0.63	10	1.7	11.1	170
RS7623A2-HH-12P0.63	12	1.7	11.6	195
RS7623A2-HH-160P0.63	160	3.2	35.0	1595


Mineral Oil Resistant

Rated voltage


Buried in Ciround


Laid In Ducts


Flame Retardant
NF C32-070-2.1(C2)
IEC 60332-1/EN 50265-2-1


Fire Retardant
NF C32-070-2.2(C1)
IEC 60332-3/EN50266

Zero Halogen
IEC 60754-1/NF C20-454
EN 50267-2-1


Low Smoke Emission
IEC 61034/NFC20-902
EN 50268/NF C32-073


Low Corrosivity
EN 50267-2-2/NF C32-074
IEC 60754-2/NF C20-453


Low Toxicity

MD4 Medium Distance Trackside Telecom Cables

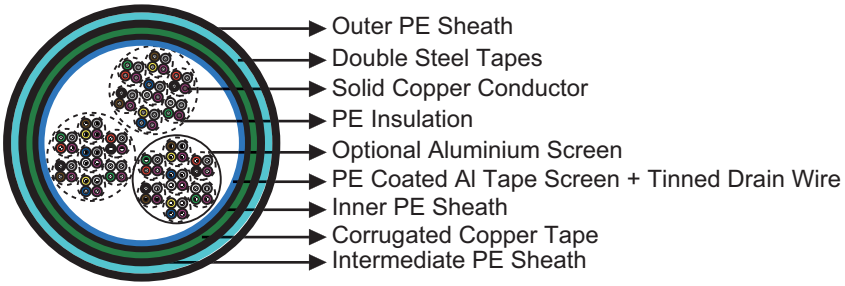
Applications

The cables are designed for long distance of over 10km telecommunications alongside railway lines.

Standards

- SNCF CT 2328 (Main cables) /SNCT CT 2329 (Branch cables)

Construction



CT2328 Type (Main Cables)

- Conductors: Solid copper, 0.8mm nominal diameter
- Insulation: Coloured solid polyethylene.
- Cabling Element: Four conductors are twisted together to form a quad.
- Possible Harness: Aluminium screen.
- Filling: Petroleum jelly.
- Screen: PE-copolymer coated aluminium tape.
- Drain Wire: Tinned drain wire.
- Inner Sheath: Low density polyethylene.
- Screen: One corrugated copper tape.
- Intermediate Sheath: Low density polyethylene.
- Armour: Two helically applied steel tapes.
- Outer Sheath: Low density polyethylene.

Optional

CT2329 Type (Branch Cables): For CT 2329 type, the cables have PE inner sheath, double corrugated steel tapes armour and PE outer sheath, without aluminium tape screen & copper tape.

Electrical Characteristics at 20℃

Nominal Conductor Diameter	mm	0.8
Maximum Conductor Resistance (DC)	Ω/km	73.4
Minimum Insulation Resistance @500 V DC (3mins)	MΩ.km	15000
Mutual Capacitance @800Hz	nF/km	51
Average Capacitance Unbalance		
Main Cables		
In quad	pF/1450 m	50
Between quads	pF/1450 m	30

Real-ground	pF/1450 m	200
Branch Cables		
In quad	pF/1450 m	100
Between quads	pF/1450 m	100
Real-ground	pF/1450 m	700
Maximum Attenuation @1MHz	dB/km	15.9
Maximum Reduction Factor for Main Cables @100V/km 50Hz		
14 quads		0.3
21 quads		0.2
28 quads		0.18
Dielectric Strength (DC voltage 1min)		
Conductor to Conductor	V	1500
Conductor to Screen	V	3000

➘ Mechanical and Thermal Properties

- Bending Radius: 10×OD
- Temperature Range: -40℃ to +60℃ (during operation); -10℃ +60℃ (during installation)

➘ Dimensions and Weight

CT2328 (Main cable)

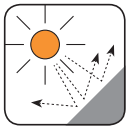
Cable Code	No. of Quads	Nominal Sheath Thickness mm			Nominal Overall Diameter mm	Nominal Weight kg/km
		Inner	Interm.	Outer		
0.8mm Conductor, 1.27mm Insulated Wire						
RS2328-2Y2Y(K)2YB2Y-14Q0.8	14	1.2	1.1	2.2	29.2	1332
RS2328-2Y2Y(K)2YB2Y-21Q0.8	21	1.3	1.3	2.5	31.3	1655
RS2328-2Y2Y(K)2YB2Y-28Q0.8	28	1.3	1.3	2.5	35.5	2013

CT2328 (Main cables with screened quads)

Cable Code	No. of Quads	Nominal Sheath Thickness mm			Nominal Overall Diameter mm	Nominal Weight kg/km
		Inner	Interm.	Outer		
0.8mm Conductor, 1.27mm Insulated Wire						
RS2328-2Y(L)2Y(K)2YB2Y-(14+7)Q0.8	14+7screen Quads	1.3	1.3	2.5	32.7	1765
RS2328-2Y(L)2Y(K)2YB2Y-(18+3)Q0.8	18+3screen Quads	1.3	1.3	2.5	32.9	1783

CT2329 (Branch cable)

Cable Code	No. of Quads	Nominal Sheath Thickness mm		Nominal Overall Diameter mm	Nominal Weight kg/km
		Inner	Outer		
0.8mm Conductor, 1.4mm Insulated Wire					
RS2329-2Y2YB2Y-4Q0.8	4	1.0	1.7	16.4	339
RS2329-2Y2YB2Y-8Q0.8	8	1.2	1.8	18.8	477
RS2329-2Y2YB2Y-14Q0.8	14	1.2	2.2	22.3	686

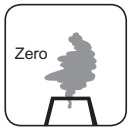

UV Resistant


Water Resistant

Rated voltage


Laid in Channe


Buried in Ciround



Zero Halogen
IEC 60754-1/NF C20-454
EN 50267-2-1

ST2513/CT2243 Outdoor Single Mode Unarmoured Trackside Optical Fiber Cables

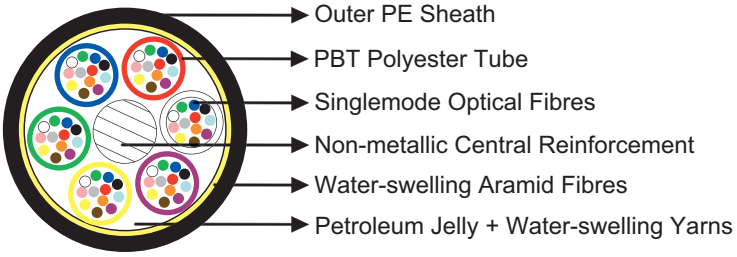
Applications

The cables are designed for long distance telecom links on optical fibres along railway tracks. The cables are suitable for pulled through ducts or laid in channels.

Standards

- SNCF ST 2513-99

Construction



- Fibres: Singlemode optical fibres G652 coloured (6 or 12 per tube).
- Tube: PBT polyester tubes From 12 to 72 OFs: 1 to 6 tubes; 144 OFs: 12 tubes.
- Central Strength Member: Non-metallic central reinforcement (FRP).
- Filling: Petroleum jelly + water-swelling yarns.
- Reinforcement: Water-swelling aramid fibres.
- Sheath: PE sheath.

Electrical Characteristics at 20℃

Maximum Attenuation		G652
@1310nm	dB/km	0.35
@1550nm	dB/km	0.22
Maximum Chromatic Dispersion		
Between 1260 and 1360nm	ps/(nm/km)	3.5
Between 1530 and 1565nm	ps/(nm/km)	19
Zero Dispersion Wavelength	nm	1310±11
Zero Dispersion Slope	ps/(nm^2.km)	0.09
Numerical Aperture		0.14
Point discontinuity	dB	0.1
PMD (individual fiber)	ps/km	0.2
Maximum Cutoff Wavelength	nm	1260
Cladding Diameter	um	125±1
Core/Cladding Concentricity Error	um	≤0.5
Cladding Non Circularity	%	≤1
Coating Non Circularity	%	≤6
Proof Test Level	Kpsi (GN/m^2)	100 (0.7)
Crush Resistance	N/cm	300
Maximum Laying Tension	N	From 12 to 72 FO: 2500;144 FO: 3000

Mechanical and Thermal Properties

- Minimum Bending Radius: from 12 to 72 FO: 230mm; 144 FO: 340mm.
- Temperature Range: -30℃ to +60℃ (during operation); -10℃ +60℃ (during installation)

Dimensions and Weight

Cable Code	No. of fibres	No of Tubes x No of Fibers/Tube	Nominal Sheath Thickness mm	Nominal Overall Diameter mm	Nominal Weight kg/km
RO2513-ML-B-9-1×12-F-2Y	12	1 tubes of 12 OF	1.5	11.6	112
RO2513-ML-B-9-3×12-F-2Y	36	3 tubes of 12 OF	1.5	11.6	112
RO2513-ML-B-9-6×6-F-2Y	36	6 tubes of 6 OF	1.5	11.6	112
RO2513-ML-B-9-6×12-F-2Y	72	6 tubes of 12 OF	1.5	11.6	112
RO2513-ML-B-9-12×12-F-2Y	144	12 tubes of 12 OF	1.5	17.0	225


UV Resistant


Water Resistant


Laid In Ducts

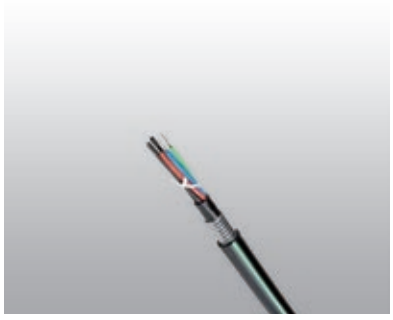

Laid in Channel

Zero Halogen
IEC 60754-1/NF C20-454
EN 50267-2-1

CT2242 Outdoor Single Mode Armoured Trackside Optical Fiber Cables

Applications

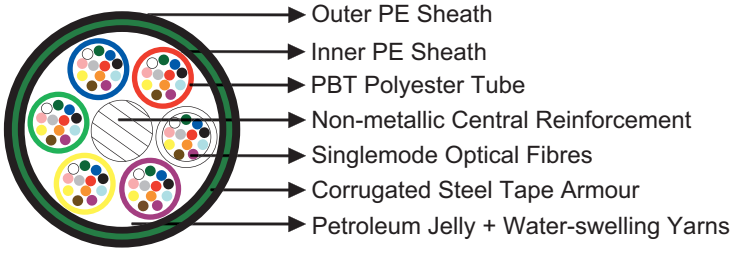
The cables are designed for long distance telecom links on optical fibres along railway tracks. The cables are suitable for installation directly in channels or buried.



Standards

- SNCF CT 2242.6.1

Construction



- Fibres: Singlemode optical fibres G652 coloured (6 or 12 per tube).
- Central Strength Member: Non-metallic central reinforcement (FRP).
- Tube: PBT polyester tubes containing fibres.
- Filling: Petroleum jelly with water-swelling yarns to provide longitudinal watertightness.
- Inner Sheath: Low density polyethylene.
- Armour: 0.25mm thick corrugated steel tape armour.
- Outer Sheath: Low density polyethylene.

Electrical Characteristics at 20℃

Maximum Attenuation		G652
@1310nm	dB/km	0.35
@1550nm	dB/km	0.22
Maximum Chromatic Dispersion		
Between 1260 and 1360nm	ps/(nm/km)	3.5
Between 1530 and 1565nm	ps/(nm/km)	19
Zero Dispersion Wavelength	nm	1310±11
Zero Dispersion Slope	ps/(nm^2.km)	0.09
Numerical Aperture		0.14
Point discontinuity	dB	0.1
PMD (individual fiber)	ps/km	0.2
Maximum Cutoff Wavelength	nm	1260
Cladding Diameter	um	125±1
Core/Cladding Concentricity Error	um	≤0.5
Cladding Non Circularity	%	≤1
Coating Non Circularity	%	≤6
Proof Test Level	Kpsi (GN/m^2)	100 (0.7)
Crush Resistance	N/cm	450
Maximum Laying Tension	N	3000

Mechanical and Thermal Properties

- Minimum Bending Radius: 310mm.
- Temperature Range: -40℃ to +70℃ (during operation); -10℃ +70℃ (during installation)

Dimensions and Weight

Cable Code	No. of fibres	Nominal Sheath Thickness mm	Nominal Overall Diameter mm	Nominal Weight kg/km
RO2242-ML-C-9-Tn×Fn-SR-2Y(STA)2Y	1-36	1.5	14.5	260
RO2242-ML-C-9-Tn×Fn-SR-2Y(STA)2Y	48-72	1.5	16.5	300
RO2242-ML-C-9-Tn×Fn-SR-2Y(STA)2Y	80-144	1.5	22.0	510

Tn: Number of tubes; Fn: Number of fibers in a tube


UV Resistant


Water Resistant


Laid in Channel


Buried in Ciround

Zero Halogen
IEC 60754-1/NF C20-454
EN 50267-2-1