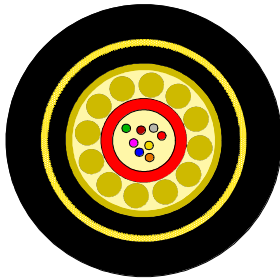


## SM-UJEREA 12: Metal-free Aerial/Ground Optical Cable

### Cable Design

### Infrabel Specification S68 Telecom



- not to scale -

- **Optical Fibre:** single mode fibres according to ITU-T G.652.D, consisting of a glass core and cladding.
- **Loose Tube:** thermoplastic material, containing optical fibres and filled with a suitable water tightness compound.
- **Longitudinal Water Tightness:** dry core with water swellable elements.
- **Reinforcement Layer (1<sup>st</sup>):** one layer of round FRP elements.
- **Protective Wrapping:** fibreglass reinforced tape.
- **Inner Sheath:** black high density polyethylene (HDPE).
- **Reinforcement Layer (2<sup>nd</sup>):** aramid yarns.
- **Auxiliary Materials:** e.g. tapes or binders, included to help production.
- **Outer Sheath:** black HDPE, two ripcords beneath.

This optical fibre cable is designed according to Infrabel Telecom Specification as a metal-free aerial/ground cable. The cable is suitable for aerial and underground installation, either in ducts or directly buried.

### Technical data

No. of Fibres		12
Design		1 x 12
Loose Tube Inner/Outer - Ø	mm	2.2 / 3.0
Reinforcement layer (1 <sup>st</sup> ) - Ø	mm	5.3
Protective Wrapping - Ø	mm	5.9
Inner Sheath Thickness (min.)	mm	0.8
Reinforcement layer (2 <sup>nd</sup> ) - Ø	mm	9.0
Outer Sheath Thickness (min.)	mm	1.4
Cable Diameter	mm	12.5 (max. 13.0)
Cable Weight	kg / km	125
Modulus of Elasticity (min.)	GPa	12
Thermal expansion coefficient	°C <sup>-1</sup>	7x10 <sup>-6</sup>
Temperature Range	°C	Installation -10 to +50
		Transport & Storage -30 to +70
		Operation -30 to +70

Please refer to our General Installation, Safety & Handling recommendations before handling.

### Main characteristics

Test	Test Standard	Specified Value	Acceptance Criteria <sup>1</sup>
Max. Tension in Operation	IEC 60794-1-2-E1	5000 N (at 15°C)	$\Delta\alpha \leq 0.05$ dB/km
Crush	IEC 60794-1-2-E3	5000 N / 100 mm, 1 min.	$\Delta\alpha$ reversible
Impact	IEC 60794-1-2-E4	3kg, h=150mm, 50 impacts, R=12.5mm	$\Delta\alpha$ reversible, no visible rips
Repeated Bending	IEC 60794-1-2-E11	R=12xD, 1000 cycles, 8.5 kg	$\Delta\alpha \leq 0.05$ dB after test $\Delta\alpha \leq 0.1$ dB during test
Temperature Cycling	IEC 60794-1-2-F1	-30°C to +70°C	$\Delta\alpha \leq 0.1$ dB/km, reversible
Water Penetration	IEC 60794-1-2-F5B	sample=3m, water column=1m	no water leakage after 10 days

<sup>1</sup> All optical measurements at 1310 nm.

### Optical Characteristics

See the attached cabled optical fibre data sheet.

## Identification

### Fibre and Module Colours

Module	Optical Fibres											
1	1	2	3	4	5	6	7	8	9	10	11	12
red	red <sup>3</sup>	orange	yellow	green	blue	violet	grey	white	red <sup>1</sup>	orange <sup>1</sup>	yellow <sup>1</sup>	green <sup>1</sup>

<colour>": "n" black ring marks every 150mm (max)

### Sheath Marking

The outer sheath is marked in 1 meter intervals as follows:

**INFRABEL - OPTICAL FIBER T / <year of manufacture> / 12xG.652.D**  
**- DRAKA(SR) - <cable ID no.> <length marking in meter>**

### Sag & Tension Table

Span (m)	Temperature (°C)	Without additional load		Wind 140 km/h	
		Sag (m)	Tension (kN)	Inclined sag (m)	Tension (kN)
49	15	0.18	2.0	0.99	3.55
56	15	0.24	2.0	1.21	3.77
63	15	0.30	2.0	1.45	4.00

## Logistic

### Packing

Wooden drums with protection and sealing caps on both cable ends.

### Delivery Length

Standard delivery length is 4 km with a tolerance of  $\pm 100$ m.

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