



HES Cabling Systems

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Technical Specification

Nx9/125μ ITU-T G.652.D MLT CSA SJ Outdoor FO Cable + Messenger

Part Number: U94-xxx83-xx7

Revision 01/21 Date: 16 February 2021



Color coded 9/125μ ITU-T G.652.D Singlemode optical fibers are buffered in gel-filled loose tubes. The tubes are cabled around a dielectric strength member with fillers. A corrugated steel tape bonded to an outer heavy-duty, black PE jacket and a stranded steel messenger extruded in parallel render the cable suitable for outdoor aerial installations in harsh environments.

Fiber geometric characteristics	
Optical fibers	9/125μm Single mode conforming to ITU-T G.652.D
Core diameter (MFD)	9.2±0.4 μm @ 1310nm
Clad diameter	125±1.0 μm
Core concentricity error	≤0.6 μm
Cladding non-circularity	≤1.0%
Cutoff wavelength for cable (λ _{cc})	≤1260 nm
Cutoff wavelength for fiber (λ _c)	1180 nm ~ 1330 nm
Primary coating diameter (not including color layer)	245±10 μm
Coating/Cladding concentricity error	≤12.5 μm
Fiber curl radius	≥4m
Fiber transmission characteristics	
Attenuation @ 1310nm: ≤0.36 dB/km	Attenuation @ 1550nm: ≤0.22 dB/km
Macro bending loss	≤ 0.1 dB (Φ=60mm, 100turns @ 1550nm)
Chromatic dispersion	≤3.5ps/nm.km (Within 1288~1339nm), ≤18ps/nm.km @ 1550 nm
Zero dispersion wavelength	1300~1324nm
Zero dispersion slope	≤0.092ps/nm ² .km
Loose Tube Construction	
Number of optical fibers per tube	6
Fibers color code	Blue, Orange, Green, Brown, Grey, White
Buffer coating	PBT Loose tube filled with Thixotropic gel
Loose tube OD	1.7/2.4 mm nom.
Cable Construction	
Central strength element	Dielectric, coated or uncoated
Core construction	Loose tubes are cabled around the central strength member with or without fillers
Tubes color code	Blue, Orange, Green, Brown
Core filling	Water blocking compound
Strength members	Aramid yarns if needed
Rip-cord	Polyester rope, 14 kgf min. laid in parallel for easy jacket and armor removal
Steel armor	150 micron corrugated steel tape laid longitudinally, bonded to the outer jacket. Overlap: 6mm min.
Outer jacket	UV resistant MDPE
Outer jacket thickness	1.6±0.2 mm.
Messenger construction	Galvanized steel stranded rope, 7x0.90±0.1 mm.
Jacket color	Black, RAL 9005
Surface marking	HCS U94-0xx83 MLT Nx9/125μ ITU-T G.652.D AERIAL FO CABLE CSA SJ CE 2011/65/EU (RoHS-2) [Month, Year] [Meter Mark] METER

Optional Constructions						
Cable P/N	Fiber count	Number of tubes	Number of fillers	Number of fibers per tube	Cable nom. OD. (mm)	Cable nom. weight (kg/km)
U94-01281-xx7	12	2	4	6	12.0x19.0	225
U94-02481-xx7	24	4	2	6	12.0x19.0	226

Physical Properties	Value	Test Method
Tensile strength - short term	2700 N max. 0.1dB max. IL increase@1550 nm, no sheath damage	IEC-60794-1-21 E1
Tensile strength - long term	1600 N max. 0.1dB max. IL increase@1550 nm, no sheath damage	IEC-60794-1-21 E1
Compressive load (crush resistance)	2000 N/100mm min., time - 1m, length - 100 mm, 0.1dB max. IL increase@1550 nm, no sheath damage	IEC-60794-1-21 E3
Impact resistance	3 Impacts, impact weight - 450g, points of impact - 3, impact per point - 1, No fiber break, no sheath damage	IEC-60794-1-21 E4
Repeated bending	25 cycles, 25xD, load - 150N, flexing rate - 2sec/cycle, No fiber break, no sheath damage	IEC-60794-1-21 E6
Torsion	10 cycles, cable length 1m, load - 150N, twist angle - 90°, twist rate - 1min/cycle min., No fiber break, no sheath damage	IEC-60794-1-21 E7
Temperature cycling	2 cycles, temp. steps - +20°C→+40°C→+70°C→+20°C, time per step - 12H, 0.15dB max. IL increase@1550 nm (during test), 0.05dB max. IL increase@1550 nm (after test), no sheath damage	IEC-60794-1-21 F1
Water penetration	3m cable, 1m water, 24H min. no drip through the cable core assembly	IEC-60794-1-22 F5
Storage Temperature range	-40 to +80°C	-
Installation Temperature range	-30 to +60°C	-
Operating Temperature range	-40 to +70°C	-
Bend radius during installation	25xD min.	IEC-60794-1-21 E11
Bend radius - long term	12.5xD min.	IEC-60794-1-21 E11

This cable fully conforms to EU Directive 2011/65/EU (RoHS-2)