SUMITOMO ELECTRIC
Connect with Innovation

G.654.E

PureAdvance™-110

Advanced Pure Silica Core Single Mode Optical Fiber

- **Ultra-low attenuation of ≤ 0.16 dB/km and optimally enlarged effective area of 110 μm²**
- **For terrestrial long-haul 100 Gbit/s, 200 Gbit/s, 400 Gbit/s and beyond digital coherent transmission systems**
- **Applicable for high-density terrestrial cables**

General

Effective Area

Typical effective area at 1550 nm	110 μm²

Attenuation

Typical attenuation at 1550 nm	0.156 dB/km

Core Glass

	Pure Silica

Optical Characteristics

Attenuation

Attenuation at 1550 nm	≤ 0.16 dB/km
Attenuation at 1625 nm	≤ 0.19 dB/km
Point discontinuity at 1550 nm	≤ 0.05 dB

Mode Field Diameter (MFD)

MFD at 1550nm	11.7 ± 0.7 μm

Chromatic Dispersion

Chromatic dispersion at 1550 nm	17–23 ps/nm/km
Chromatic dispersion slope at 1550 nm	0.050-0.070 ps/nm²/km

Cable Cutoff Wavelength (λcc)

λcc	≤ 1520 nm

Polarization Mode Dispersion (PMD)

Individual fiber PMD*1)	≤ 0.1 ps/r-km
Fiber PMD link design value*2)	≤ 0.06 ps/r-km

Geometrical Characteristics

Glass Geometry

Core-cladding concentricity error	≤ 0.8 μm
Cladding diameter	125.0 ± 1.0 μm
Cladding non-circularity	≤ 1.0 %
Fiber curl radius	≥ 4 m

Coating Geometry

Coating diameter (Natural)	245 ± 10 μm
Coating diameter (Colored)	250 ± 15 μm
Coating-cladding concentricity error	≤ 12 μm

Mechanical Characteristics

Proof Test

Proof stress level	1.2% (0.86GPa)

Macrobending Loss

Bending radius	Number of turns	Wavelength	Induced Attenuation
30 mm	100	1550 nm	≤ 0.1 dB
30 mm	100	1625 nm	≤ 0.1 dB

Dynamic Fatigue (Nd)

Nd	20

Environmental Tests

Condition	Induced Attenuation Change at 1550 nm and 1625 nm
-60 to +85ºC temperature cycling (IEC60793-1-52)	≤ 0.05 dB/km
-10 to +85ºC/98%RH temperature humidity cycling	≤ 0.05 dB/km
+23ºC water immersion (IEC60793-1-53)	≤ 0.05 dB/km
+85ºC heat aging (IEC60793-1-51)	≤ 0.05 dB/km
+85ºC/85%RH damp heat (IEC60793-1-50)	≤ 0.05 dB/km

Packaging

Delivery Length

	6.3 – 50.4 km

Performance Characteristics

Effective Group Index of Refraction

Effective group index of refraction at 1550 nm	1.462

*1) Measured on fiber with free tension.

*2) Since PMD value may change when fiber is cabled, actual PMD link design value in a cable shall be confirmed by cable manufacturer. Under appropriate cable design, PureAdvance-110 specification supports network design requirements for a 0.20 ps/r-km of maximum cable PMD link design value recommended by ITU-T G.654.E.

This document states a standard specification. Upon request, alternative value offerings will be available.

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