

IXF-RAD-MMSI-L-105-125-022-PI

Radiation Hardened Multimode Fiber

Radiation hardened optical fibers are designed to mitigate the effects of Radiation Induced Attenuation (RIA) and extend the fiber's lifetime when used in radiative environments. Leveraging a decade of investments in R&D and research collaborations, Exail offers singlemode and multimode radiation hardened fibers for use in harsh environments with high radiation levels and/or extreme temperatures.

Step-index multimode fibers are available with low-OH, mid-OH and high-OH content depending on the operating wavelength range. Other coatings and geometries are available upon request.



Benefits & Features

- Ø105 µm pure silica core, F-doped cladding
- Radiation hardened fiber
- 0.22 numerical aperture, step-index profile
- Low-OH content
- Polyimide coating
- Operating temperature up to +300 °C

Applications

- Diode pigtailing for space applications
- High power delivery
- Opto pyrotechnics
- Spectroscopy in nuclear or fusion facilities
- Plasma diagnostics and monitoring

Related Products

- IXF-RAD-MMSI-L-105-125-022-HT

Related Publications

- [Campanella, C.; De Michele, V.; Morana, A.; Mélin, G.; Robin, T.; Marin, E.; Ouerdane, Y.; Boukenter, A.; Girard, S. Radiation Effects on Pure-Silica Multimode Optical Fibers in the Visible and Near-Infrared Domains: Influence of OH Groups. Appl. Sci. 2021, 11, 2991. https://doi.org/10.3390/app11072991](https://doi.org/10.3390/app11072991)

Parameters

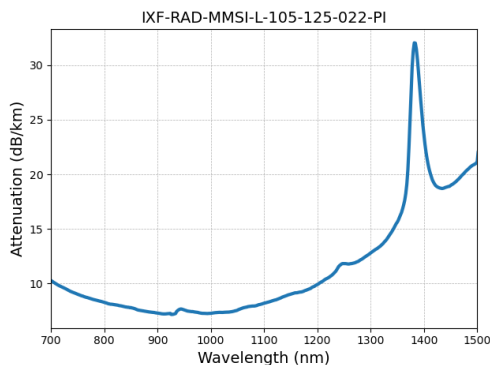
Core diameter (µm)	105 ± 3
Cladding diameter (µm)	125 ± 2
Numerical aperture	0.22 ± 0.02
Attenuation @940 nm (dB/km)	≤ 9
Attenuation @1310 nm (dB/km)	≤ 15
Attenuation over 800-1500 nm (dB/km) *	≤ 25
Core/Clad concentricity (µm)	≤ 1
Coating diameter (µm)	155 ± 5
Proof test level (kpsi)	100
RIA (dB/m) over 900 - 1000 nm ** 100 kRad, Gamma-rays, 300 Rad/h, room temperature	≤ 0.2

* except 1380 nm OH peak

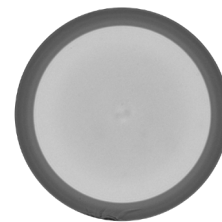
** RIA = Radiation Induced Attenuation

Design parameters

Core material	Pure silica core
OH content	Low-OH
Coating material	Polyimide
Operating temperature range (°C)	-60 to +300



Typical attenuation spectrum of the IXF-RAD-MMSI-L-105-125-022-PI fiber.



Cleave of a 105-125 multimode fiber.

Exail reserves the right to change, at any time and without notice, the specifications, design, function or form of its products described herein.

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