

## FIBER BRAGG GRATING

# IXC-FBG-RAD

## Radiation Hardened FBG for Sensing and Filtering Applications

Our radiation Hardened Fiber Bragg Gratings (FBG) are ideal for diagnostic or wavelength selection devices in harsh radiative environments. These FBGs are written on a specially designed radiation-hardened optical fiber minimizing end-of-life losses. Our specific FBG manufacturing process ensures spectral response stability against the effects of combined radiations (X-, gamma-rays, neutrons, protons) and high temperature.



Our technology is field proven up to MGy level and 350°C. These FBG are also suitable for space mission (63 MeV protons) and nuclear reactor (~5·10<sup>19</sup> n/cm<sup>2</sup>).

### Benefits & Features

- Based on proprietary iXblue low Radiation Induced Attenuation fiber: 150 dB/km up to 10 MGy (gamma-dose) at high dose rate
- Stabilized Optical response in harsh environment thanks to Dedicated FBG manufacturing process : suppression of radiation wavelength shift
- Field tested: temperature sensing with 1°C accuracy up to MGy level and up to 350°C obtained using IXC-FBG-RAD components

### Applications

- Discrete point sensing, FBG-based mirror
- Strain sensors and wavelength selective mirrors for harsh environments
- FBG suitable for Tokamak environment
- Nuclear environment
- High energy physics
- Space

### Parameters

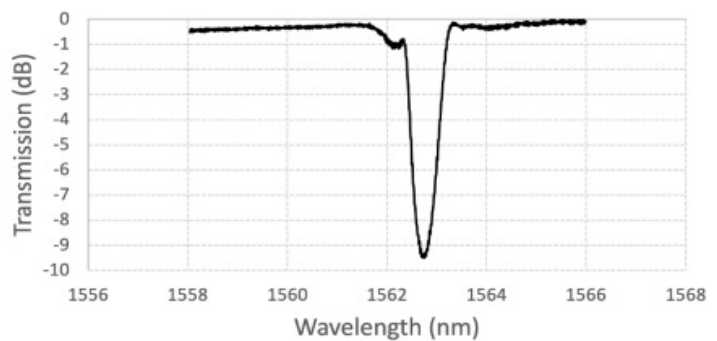
Fiber type <sup>1-2</sup>	IXF-RAD-SM-1550-0.14-PI
Wavelength range <sup>3</sup>	C-band
Peak reflectivity (%)	50 to 90
Reflection bandwidth (FWHM) (nm)	0.3 – 1
Grating protection <sup>4</sup>	Bare fiber
Fiber tail (m)	1, each side of FBG (typical)
Operating temperature range (°C) <sup>2</sup>	-120 to 400

<sup>1</sup> Pure silica core SM fiber, mode field diameter @ 1550 nm : 9 μm

<sup>2</sup> Standard polyimide coating up to 300°C. Other fiber coating are also available : aluminum for temperature up to 400°C or high temperature acrylate up to 150°C

<sup>3</sup> Other wavelengths available upon request

<sup>4</sup> Delivered under vacuumed and sealed packaged; other solutions available



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