



A Furukawa Company

Erbium-Doped

Product Description

OFS offers the R37003X and R37004X erbium-doped fibers from a line of C-Band amplifier products. These fibers feature excellent spectral reproducibility and batch-to-batch uniformity, drawing on more than 15 years of production experience for these products at OFS.

Spectral Uniformity and Reproducibility.

For EDFA manufacturers designing DWDM amplifiers, an important EDF parameter is the uniformity of the spectral shape from one coil of EDF to the next. More than 15 years of experience with EDF production at OFS has brought our EDF uniformity to an unprecedented level. This world class manufacturing is supported by precision characterisation of the EDF in a DWDM amplifier setup. Combined with our latest patented improvements in splice performance, this means that our customers have the most reliable, efficient and cost-effective EDFA manufacturing.

Hydrogen Immunity. The Erbium-doped fibers aluminum show negligible loss increase in the presence of hydrogen, even at elevated temperatures. The change in background loss is predicted to be less than 0.1 dB in the signal band over the lifetime of an amplifier at 70°C and 1% hydrogen (based on accelerated aging tests and models for temperature and H₂ pressure dependence).

OASiX Software Package. Accurate prediction of EDF performance is essential to applications design. To meet this need, OFS offers the OASiX Optical Amplifier Simulation System software to design and predict EDFA performance. This specialized software package allows you to accurately predict the performance at all pump powers. OASiX includes modeling parameters specific to the lot of EDF you purchase. OASiX is also available in a DLL version to combine with external optimization tools.

Typical Applications

- Optical amplifiers
- CATV and DWDM systems
- Pump power @ 980 nm:
 - 25 mW - 100 mW, use R37003X
 - 100 mW - 300 mW, use R37003X or R37004X
 - >300 mW, use R37004X
- 1480 nm pump applications

Features and Benefits

- High efficiency
- Low gain ripple
- Excellent batch-to-batch fiber uniformity
- H₂ insensitive
- High reliability with extensive track record
- High strength
- Low and consistent splice loss
- Dual-layer acrylate coating for excellent micro-bending, abrasion resistance, and mechanical strength.
- OASiX modeling support

Related Products & Capabilities

- R37103 and R37102-80 for L-Band
- See our full line of erbium-doped fibers for high-power C-Band, including HP980X and MP980

Ask us about other options available:

- Colored or Natural Buffers
- Tighter Optical Property Specifications
- Coils
- Custom Designs

To order items on this spec sheet, please contact our facility in:

- Broendby, Denmark
+45 4345 8888
- or by email inquiry to:
Info@SpecialtyPhotonics.com

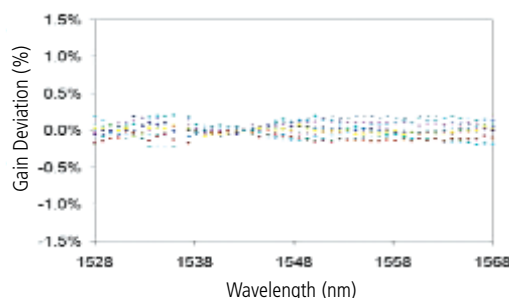


OFS Specialty Photonics Division

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25 Schoolhouse Road, Somerset, NJ 08873
Priorparken 680 DK-2605 Broendby, Denmark

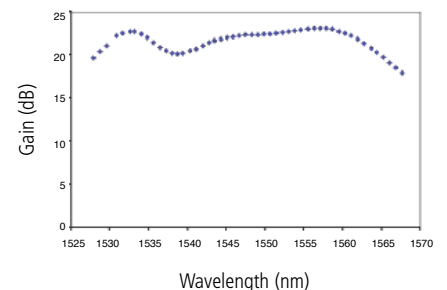
www.SpecialtyPhotonics.com

Gain Consistency for R37003X



The graph shows gain consistency as deviation from reference. Representing 700 km EDF.

Gain Spectrum for R37003X and R37004X



Fiber Specifications

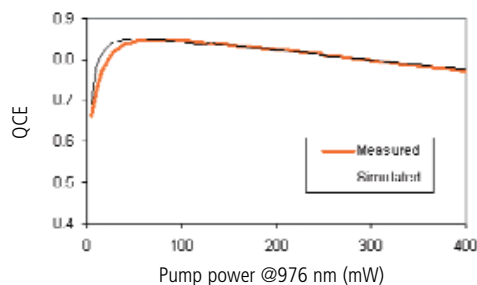
Optical Properties	R37003X	R37004X
Peak absorption @ 1530 nm	7.0 ± 1.0 dB/m	7.0 ± 1.0 dB/m
Peak absorption @ 980 nm (typical)	4.5 dB/m	4.5 dB/m
Absorption variation over 1000 m reel	≤2%	≤2%
Spectral variation*	≤0.75%	≤0.75%
Cutoff wavelength	840 - 960 nm	850 - 960 nm
Mode field diameter	4.9 ± 0.5 μm	5.9 ± 0.7 μm
Loss at 1200 nm	<10 dB/km	<5 dB/km
Numerical aperture	0.27 ± 0.01	0.22 ± 0.01
PMD (typical)	2 fs/m	2 fs/m
QCE (typical)	>0.8	>0.8
Physical Properties		
Core diameter (typical)	2.9 μm	3.3 μm
Cladding diameter	125 ± 0.7 μm	125 ± 0.7 μm
Cladding non-circularity	<1%	<1%
Core concentricity error	<0.3 μm	<0.3 μm
Coating diameter	245 ± 15 μm	245 ± 15 μm
Coating non-circularity	<2.5%	<2.5%
Coating/cladding concentricity error	<16 μm	<16 μm
Mechanical and Testing Data		
Proof test level	2% (200 kpsi)	2% (200 kpsi)
Order by Part Number	R37003X	R37004X

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* Max deviation in gain spectrum over the C-band from a reference fiber.

Quantum Conversion Efficiency

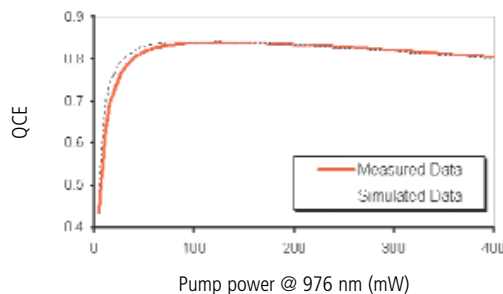
For R37003X



Quantum conversion efficiency (QCE) shows the number of signal photons at the EDF output for each launched pump photon. Measured with 0 dB/m signal at 1550 nm and 976 nm copropagating pump. Please note that this parameter depends on the measurement conditions.

Quantum Conversion Efficiency

For R37004X



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