FAQ

OFS LaserWave® Multimode Optical Fiber Specification Enhancements

ofs
A Furukawa Company

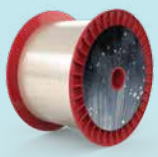
What is OFS doing to improve their LaserWave® multimode product specifications?

OFS is tightening the glass geometry for LaserWave clad diameter, core/clad concentricity, core non-circularity, and clad non-circularity specifications. Already with the tightest requirements in the industry, these improvements further differentiate LaserWave fiber from the competition. OFS continues to lead the way in demonstrating superior process and quality control through their continuous improvement process. See the table below for OFS specifications compared to industry standards.

	TIA 492 AAAF IEC 60792-2-10 (OM3/OM4/OM5)	LaserWave Fiber
Clad Diameter	125 ± 1µm	**125 ± 0.7µm**
Core Diameter	50 ± 2.5 µm	50 ± 2.5µm
Numerical Aperture (NA)	0.200 ± 0.015	**0.200 ± 0.010**
Core-Clad Concentricity	≤ 2 µm	**≤ 0.7 µm**
Clad Non-Circularity	≤ 1%	**≤ 0.7%**
Core Non-Circularity	≤ 6%	**≤ 2.5%**

When will these changes take place?

OFS implemented these tighter specifications on shipments effective March 1, 2021.



Why are these fiber specifications changes important?

As network speeds continue to increase, link loss budgets have decreased significantly. For example, Ethernet insertion loss budgets have gone from over 3dB for 1000BASE-SX (Gigabit Ethernet) to 2.9dB for 10GBASE-S (10Gigabit Ethernet) to 1.7dB for 400GBASE-SR4.2 (400 Gigabit Ethernet). IEC and TIA standards define maximum multimode connector loss at 0.75dB, so two connections can easily consume nearly the entire budget.

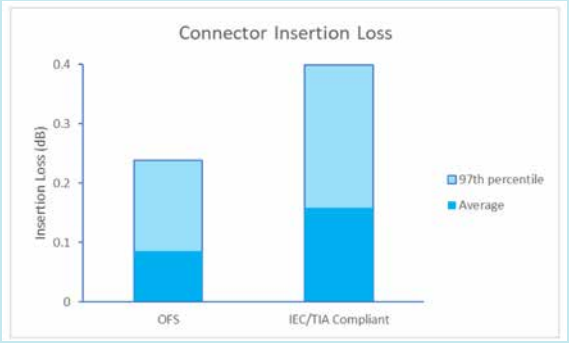
Tighter fiber geometry provides less core-to-core offset in fiber connectors, and lower connector insertion loss. It also allows assembly manufacturers to tighten connector ferrule specifications, further improving insertion loss performance. By carefully controlling their manufacturing process, OFS provides multimode fiber capable of far better performance.

What does this mean for end users (network owners/operators)?

End users will be able to better support the latest high-speed applications with the lowest possible link loss. By improving these key fiber parameters, OFS provides the tools to meet the low link loss budgets. It can also allow additional connections in a link, increasing network design flexibility.

What does this mean for cable, cable assembly manufacturers, and installers?

Improved geometry specifications mean lower average insertion loss, making it easier to reach targeted values. Connector insertion losses of mated fibers fall in a normal distribution, and tighter specifications mean lower average insertion loss and a lower standard deviation. A Monte Carlo modeling simulation shows the following improvement in connection loss:



Also, tighter control of clad diameter means that "fiber fit" problems should be minimized. Fibers at the high end of the outer diameter range can cause issues when trying to fit into today's tight tolerance, low loss ferrules.

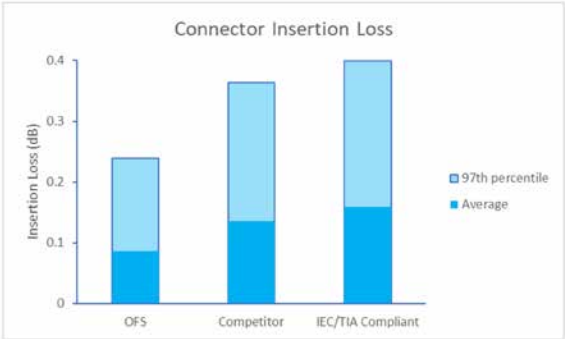
Maintaining a tight clad diameter distribution allows the assembly manufacturer to specify tighter tolerance ferrules, further improving insertion loss performance.

How does OFS LaserWave multimode fiber compare to other multimode fibers on the market?

The table below shows OFS' superior specifications compared to industry standards and the competition:

	ANSI/TIA 492 AAAF IEC 60793-2-10 (A1 OM3/OM4/OM5)	Competitor Fiber	LaserWave Fiber
Attenuation	2.5 dB/km	2.3 dB/km	**2.2 dB/km**
Core Diameter	50 ± 2.5 µm	50 ± 2.5 µm	50 ± 2.5µm
Numerical Aperture (NA)	0.200 ± 0.015	0.200 ± 0.015	**0.200 ± 0.010**
Clad Diameter	125 ± 1µm	125 ± 1.0µm	**125 ± 0.7µm**
Core-Clad Concentricity	≤ 2 µm	≤ 1.5 µm	**≤ 0.7 µm**
Clad Non-Circularity	≤ 2%	≤ 0.7%	**≤ 0.7%**
Core Non-Circularity	≤ 6%	≤ 5%	**≤ 2.5%**

And that means the following improvements in connector performance over the competition:



OFS leads the industry in providing high performance multimode fiber. With these improvements, end users can feel confident specifying OFS fiber for their increasingly demanding applications.

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For additional information please contact your sales representative.

You can also visit our website at www.ofsoptics.com or call 1-888-fiberhelp (1-888-342-3743) USA or 1-770-798-5555 outside the USA.

OFS Marketing Communications
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