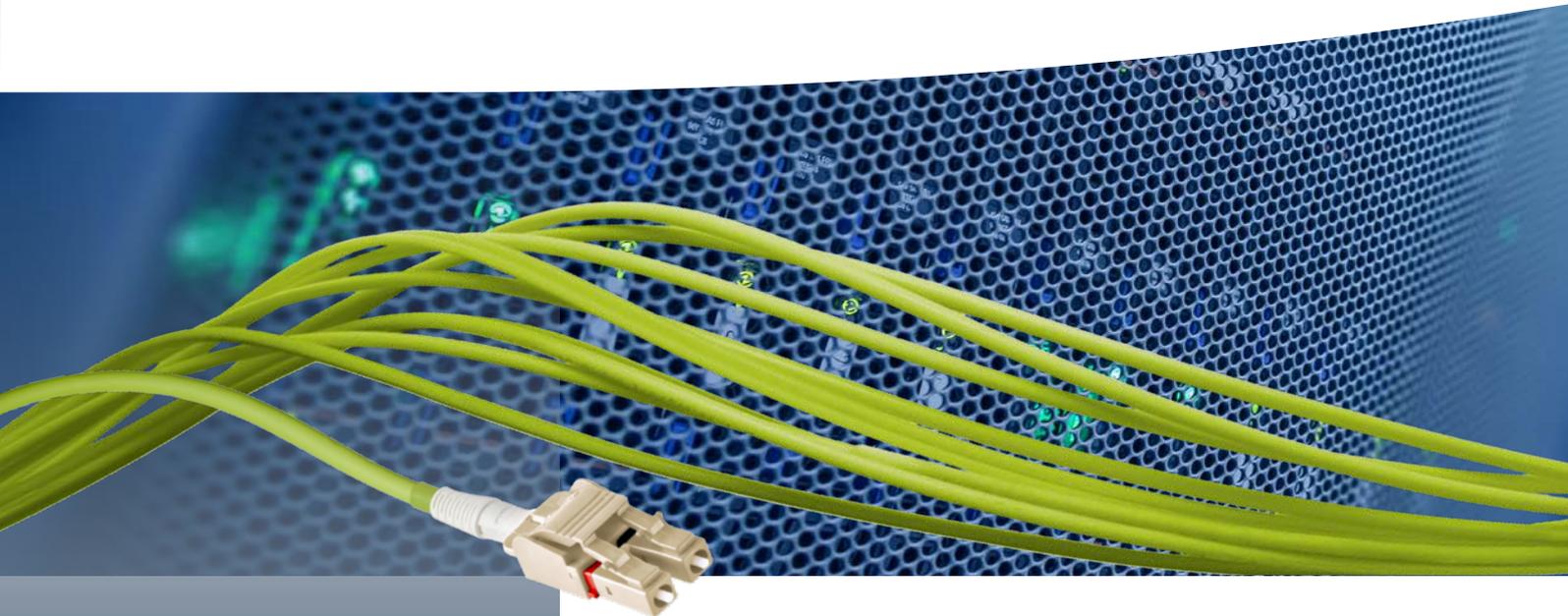


# LEONI *technicalreport*

Data communication technology 07/2018



» With the new multimode fiber OM5 opens up a whole new range of possibilities to increase data rates.

100 Gbit/s can be transmitted using the well-established LC connector technology over one fiber, for example.

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## OM5

### The new multimode fiber generation

100 Gbit/s via one fiber or a fiber pair with SWDM

#### What is OM5?

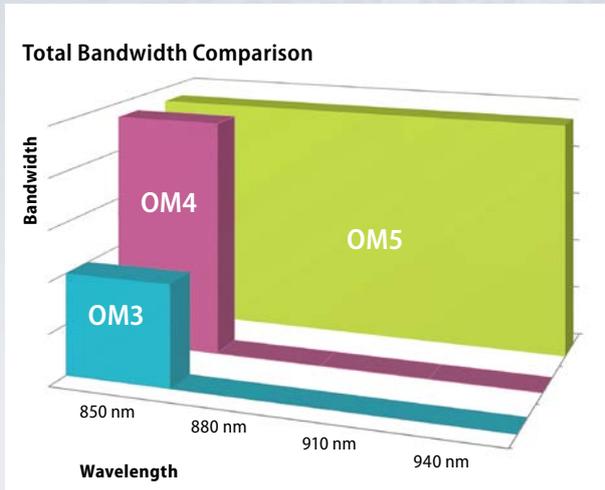
OM5 is not only the better OM4, it is a wide-band multi-mode fiber with characteristic properties up to 953 nm.

The optical and mechanical specifications are equivalent to OM4. The effective modal bandwidth (EMB) and attenuation at 953 nm are specified. OM5 fibers are intended for operation with VCSEL transmitters in the entire wavelength range from 846 nm to 953 nm.

#### What is the difference between OM5 and OM4?

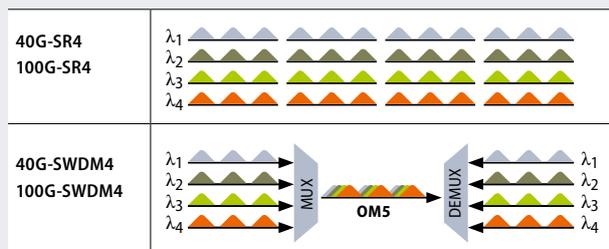
- Geometrically and mechanically similar to OM4
- Attenuation and bandwidth at 850nm and 1300 nm, additional specified at 953 nm
- EMB @ 850 nm, additionally specified @ 953 nm
- Stricter values for chromatic dispersion
- Fully backwards compatible with OM3 and OM4

# All the benefits of OM4 and comparable properties at even higher wavelength



## What are the advantages of OM5?

OM5 is usable for SWDM (Shortwave wavelength division multiplexing) systems. This technology is based on cost-effective VCSEL transmitters. Four wavelengths of up to 25 Gbit/s can be transmitted via one OM5 fiber. Hence the transmission of 100 Gbit/s is possible via one fiber pair instead of eight (2x 4) fibers.



## What color are OM5 cables?

In February 2017 TIA TR-42 determined lime green for OM5 cable jackets.

## Which applications are possible in the future?

SWDM and OM5 technology offers unprecedented possibilities and enables already widespread 12/8 fiber MPO technology systems up to 400 Gbit/s. And the road to the next generation is already being paved with capabilities such as 1.6 Tbit/s with 2 x 16 fibers.

## Technical data at a glance

OM5 fiber, bend-resistant G50/125 2.5B3500/0.7F500 j-BendAble In conformity with IEC 60793-2-10 type A1a.4b and ITU G651.1		
Construction	Optical fiber G50/125 μm	
	Fiber core	Ø 50 μm ± 2.5 μm
	Optical cladding	Ø 125 μm ± 1 μm
Attenuation	Primary coating	Ø 242 μm ± 7 μm
	@ 850 nm	2.3 dB/km (cabled fiber) 2.5 dB/km (cabled fiber)
	@ 953 nm	1.7 dB/km (cabled fiber) 1.8 dB/km (cabled fiber)
Bandwidth	@ 1300 nm	0.6 dB/km (cabled fiber) 0.7 dB/km (cabled fiber)
	@ 850 nm	min. 3500 MHz x km
	@ 953 nm	min. 1850 MHz x km
Effective modal bandwidth	@ 1300 nm	min. 500 MHz x km
	@ 850 nm	min. 4700 MHz x km
	@ 953 nm	min. 2470 MHz x km
Refractive index	@ 850 nm	1.483
	@ 953 nm	1.478

## Conclusion

- Designed for SWDM4
- 100 Gbit/s via one fiber or fiber pair
- Backward compatible with OM4 and OM3
- LEONI OM5 is bend-resistant
- Cable color: lime green

