

THE TRUTH ABOUT OS1 AND OS2

There is a great deal of confusion about the purpose and meaning of the **cabled** Single Mode optical fibre Categories OS1 and OS2.

This confusion exists at all levels of the industry and affects, in equal measure, the suppliers of optical fibre and optical fibre cable, distributors, installers, customer and their consultants.

This Application Note explains the differences between the specifications of OS1 and OS2

Guidance

- OS1 and OS2 are **cabled** Single Mode optical fibre specifications
- Category OS1 is appropriate to **Indoor and Universal tight buffered** cable constructions
- Category OS2 is appropriate to **Outdoor and Universal loose tube** solutions (where the cabling process applies no stress to the optical fibres)
- Cables with either OS1 or OS2 performance are constructed from B1.3 optical fibres (also known as ITU specification **G.652D**) or B6_a fibres (a less bend sensitive singlemode optical fibre which is similar to, and compatible with, B1.3. Also known as ITU specification **G.657**)
- OS1 or OS2 performance is not related to Single Mode optical fibres according to ITU specification **G.655** (Non Zero Dispersion Shifted fiber)

European standards and ISO/IEC

- The European Standard **EN 50173-1:2007** states that both **OS1 and OS2** cabled optical fibres can **only** be constructed from **B1.3 (or ITU G.652D)** and **B6.a (or ITU G.657)** optical fibre according to **EN 60793-2-50**.

Unfortunately, ISO/IEC have not made this logical leap - even in the latest proposed amendment of ISO/IEC 11801 (which now features both OS1 and OS2). This is summarised in Table 1:

Table 1: Cabled singlemode optical fibre specifications

Cabled optical fibre Category	Optical fibre of EN/IEC 60793-2-50	Maximum attenuation (dB/km)		
		1 300 nm	1 383 nm	1 550 nm
OS1 (EN 50173-1:Ed.2:2010)	B1.3, B6_a	1,0	1,0	1,0
OS2 (EN 50173-1:Ed.2:2010)	B1.3, B6_a	0,4	0,4	0,4
OS1 (ISO/IEC 11801 Ed.2.2:2010)	B1.1, B1.3, B6_a	1,0	-	1,0
OS2 (ISO/IEC 11801 Ed.2.2:2010)	B1.1, B1.3, B6_a	0,4	0,4	0,4
OS2 (ISO/IEC 24702: 2006)	B1.3	0,4	0,4	0,4

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