VERSIV™
Cabling Certification System

Overview of DSX Copper and Fiber certification and inspection value bundles.

Up to Class F_A Copper Certification

Up to Cat.8 Copper Certification

Model	Modules	Product Code (SKU)
 **DSX2-5000 CableAnalyzer™**	 Multimode and Singlemode CertiFiber™ Pro Optical Loss Test Set (CFP-Q-ADD) +  FiberInspector™ Pro (FI-1000-KIT)	**DSX2-5000Qi**
	 Multimode CertiFiber™ Pro Optical Loss Test Set (CFP-MM-ADD) +  FiberInspector™ Pro (FI-1000-KIT)	**DSX2-8000Mi**
 **DSX2-8000 CableAnalyzer™**	 Multimode and Singlemode CertiFiber™ Pro Optical Loss Test Set (CFP-Q-ADD) +  FiberInspector™ Pro (FI-1000-KIT)	**DSX2-8000Qi**
	 Multimode and Singlemode CertiFiber™ Pro Optical Loss Test Set (CFP-Q-ADD) +  OptiFiber™ Pro Quad OTDR (OFP-Q-ADD) +  FiberInspector™ Pro (FI-1000-KIT)	**DSX2-8000QOi**
 **Quad CertiFiber™ Pro Optical Loss Test Set with dual Main Units (CFP2-100-Qi)**	 DSX-8000 CableAnalyzer™ (DSX-8000-ADD) +  OptiFiber™ Pro Quad OTDR (OFP-Q-ADD) +  2x FiberInspector™ Pro (2x FI-1000-KIT) + 	**DSX2-8000PRO**

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FLUKE networks

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2.5/5GBASE-T Application Features

How It Works

About 80% of existing networks are based on Cat 5E (up to 100 MHz) and Cat 6 (up to 250 MHz) cables and connecting hardware. Such cabling systems generally support up to 1000 Mbps speeds, which is enough for most customers.

Since Wi-Fi IEEE 802.11ac Wave 2 Standard appeared, Access Points require more then 1G throughput. As a result, a higher throughput is required than the 1000 Mbps possible with Cat 5E and 6 systems.

The IEEE 802.3bz Standard can extend the Cat 5E and 6 cabling lifecycle. It is based on 10GBASE-T technology but offers a reduced speed of 5GBASE-T on Cat 6 cabling and 2.5GBASE-T on Cat 5E cabling. In addition, IEEE 802.3bz supports PoE+ and PoE++ technology to provide power for Access Points.

Risk Assessment

In general all Cat 5E and Cat 6 unshielded cabling systems are not Alien CrossTalk (AXT) resistant. Because AXT can seriously affect both 2.5GBASE-T and 5GBASE-T operation, TIA TSB-5021 and ISO/IEC TR 11801-9904 provide addtional guidelines specifying tighter limits and additional requirements for internal parameters such as insertion loss, return loss, and crosstalk.

To determine if a channel has adequate SNR for supporting 2.5/5GBASE-T applications the Alien Limited Signal to Noise Ratio (ALSNR) parameter, a calculation that combines insertion loss, alien NEXT and alien FEXT, is used.

Cabling length from 0 m to 50 m	Cat 5E	Cat 6	Cat 6A
2.5GBASE-T			Operation guaranteed
5GBASE-T			Operation guaranteed

Cabling length from 50 m to 75 m	Cat 5E	Cat 6	Cat 6A
2.5GBASE-T			Operation guaranteed
5GBASE-T			Operation guaranteed

Cabling length from 75 m to 100 m	Cat 5E	Cat 6	Cat 6A
2.5GBASE-T			Operation guaranteed
5GBASE-T			Operation guaranteed

ALSNR Risks	High	Medium	Low

Fiber Link Testing

Why ANSI/TIA-568.3-D testing may not guarantee your fiber application works.

ANSI/TIA-568.3-D only guarantees the workmanship of the installation. At the same time some applications can work incorrectly due to their specific requirements to cabling channels. ANSI/TIA-568.0-D Section 1 cautions the user to consult application standards. In section 5.10.1 it states: “Cabling lengths are dependent upon the application and upon the specific media chosen (see Annex C). The length includes the cords and jumpers used for cross-connections, interconnections, and connections at the equipment outlet.”

For example, 10GBASE-SR is limited to 26 m on 62.5/125 µm OM1 fiber, while ANSI/TIA-568-C permits up to 2 000 m for it. For 10GBASE-SR using 50/125 µm OM3 fiber, the supported distance is increased to 300 m. See Tables below for most popular application requirements.

Multimode			
Application	Fiber type	IL @850 nm, dB	Length, m
100GBASE-SR10	OM3	1,9	100
	OM4, OM5	1,5	150
100GBASE-SR4	OM3	1,8	70
	OM4, OM5	1,9	100
10GBASE-SR	OM3	2,6	300
	OM4, OM5	2,9	400
40GBASE-SR4	OM3	1,9	100
	OM4, OM5	1,5	150

Singlemode			
Application	Fiber type	IL @1310 nm, dB	Length, m
100GBASE-LR4	OS1, OS2	6,3	10,000
40GBASE-LR4	OS1, OS2	6,6	10,000
10GBASE-L	OS1, OS2	6,2	10,000

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