1.0 SCOPE

The scope of this document outlines the optical and mechanical quality criteria met by an Ortronics fiber optic cable assembly. Each Ortronics fiber optic cable assembly is certified to meet or exceed the conditions specified herein. Detailed product specifications may supercede this document.

2.0 DOCUMENTS REFERENCED

This document makes specific reference to the following:

TIA/EIA-455-21	Mating Durability For Fiber Optic Interconnecting Devices
TIA/EIA-455-107	Fiber Optic Test Procedure: Return Loss
TIA/EIA-455-171	Fiber Optic Test Procedure: Insertion Loss; Method D1 And D3
TIA/EIA-568-B.3	Optical Fiber Cabling Components Standard
TIA/EIA-604-2	Optical Fiber Connector Intermateability Standard
TIA/EIA-604-3	Optical Fiber Connector Intermateability Standard
TIA/EIA-604-4	Optical Fiber Connector Intermateability Standard
TIA/EIA-604-5	Optical Fiber Connector Intermateability Standard
TIA/EIA-604-10	Optical Fiber Connector Intermateability Standard
TIA/EIA-604-12	Optical Fiber Connector Intermateability Standard

3.0 DEFINITIONS

3.1 Pigtail assembly: a fiber cable assembly that is 3 meters or less in length, having the connector termination on only one end of the fiber(s), and having the connector(s) at only one end of the cable assembly.

3.2 Patchcord assembly: a fiber cable assembly having one or two fibers, and with connectors at both ends of each fiber.

3.3 Trunk assembly: a fiber cable assembly having three or more fibers, and with connectors at both ends of each fiber.

4.0 CABLE REQUIREMENTS

4.1 OPTICAL PERFORMANCE CHARACTERISTICS:

Performance tier levels are defined in Tables 1a, 1b, and 1c for singlemode assemblies (by endface polish style) and in Table 2 for multimode assemblies. In cases where multiple tier levels are defined, the assembly shall be in accordance with Tier 1 unless explicitly indicated otherwise in the detail specification.

4.1.1 Singlemode Cables

4.1.1.1 Tests are performed at wavelengths of 1310±30nm and 1550±30nm.

4.1.1.2 Acceptable Insertion Loss for a singlemode fiber shall not exceed the value specified in the appropriate table (Table 1a, 1b, or 1c). Tests are performed in accordance with TIA/EIA-455-171 Method D3. A data card for a pigtail assembly or patchcord assembly reports the test results for 1310nm. A data card for a trunk cable assembly reports test results for both wavelengths.

4.1.1.3 Acceptable Return Loss for a singlemode fiber shall be in accordance with the appropriate table (Table 1a, 1b, or 1c). Tests are performed in accordance with TIA/EIA-455-107.

4.1.2 Multimode Cables

4.1.2.1 Tests are performed at wavelengths of 850±30nm and 1300±30nm.

4.1.2.2 Acceptable Insertion Loss for a multimode fiber shall not exceed the value specified in Table 2. Tests are performed in accordance with TIA/EIA-455-171 Method D1. A data card for a pigtail assembly or patchcord assembly reports the test results for 850nm. A data card for a trunk cable assembly reports the test results for both wavelengths.

4.1.2.3 Acceptable Return Loss for a multimode fiber shall be in accordance with Table 2. Tests are performed in accordance with TIA/EIA-455-107.

	Tier 1		
	IL (typical dB)	IL (max dB)	RL (min dB)
LC	0.30	0.50	40
SC	0.30	0.50	40
ST	0.30	0.50	40
FC	0.30	0.50	40
MTRJ	0.30	0.50	40

Table 1a Singlemode Optical Performance, "PC" Endface Polish Style

	Tier 1		
	IL (typical dB)	IL (max dB)	RL (min dB)
LC	0.10	0.40	65
SC	0.10	0.40	65
ST	0.10	0.40	65
FC	0.10	0.40	65
MTP®[†]/MPO	0.30	0.75	55

Table 1b Singlemode Optical Performance, "APC" Endface Polish Style

	Tier 1		
	IL (typical dB)	IL (max dB)	RL (min dB)
LC	0.10	0.30	55
SC	0.10	0.30	55
ST	0.10	0.30	55
FC	0.10	0.30	55

Table 1c Singlemode Optical Performance, "UPC" Endface Polish Style

[†]MTP is a registered trademark of US Conec Ltd.

	Tier 1		Tier 2		Tier 3		RL (min dB)
	IL (typical dB)	IL (max dB)	IL (typical dB)	IL (max dB)	IL (typical dB)	IL (max dB)	
LC	0.10	0.50	0.20	0.25	0.10	0.15	20
SC	0.25	0.50	0.20	0.25	0.10	0.15	20
ST	0.25	0.50	0.20	0.25	0.10	0.15	20
FC	0.25	0.50	0.20	0.25	0.10	0.15	20
MTRJ	0.30	0.50	0.20	0.25	0.10	0.15	20
MTP®/MPO	0.30	0.75	0.30	0.50	0.30	0.35	20

Table 2 Multimode Optical Performance

4.1.3 General Performance Characteristics

4.1.3.1 Reference quality launch cables and connectors are optional.

4.1.3.2 A loss value (dB) attributed to cable length is added to the insertion loss values reported per Section 4.1.1 and Section 4.1.2. The added loss value due to cable length is equal to the fiber attenuation value in dB/m multiplied by the cable length in meters as measured from ferrule tip to ferrule tip. The fiber attenuation value applied is dependent on cable structure since glass type, core/cladding diameter, cable construction, and test wavelength can contribute to the value.

4.1.3.2.1 Typical 9μm/125μm diameter fiber within a loose tube buffer exhibits 0.0005 dB/m at a test wavelength of 1310nm and 1550nm.

4.1.3.2.2 Typical 9μm/125μm diameter fiber within a tight tube buffer exhibits 0.0010 dB/m at a test wavelength of 1310nm and 1550nm.

4.1.3.2.3 Typical 50μm/125μm diameter fiber exhibits 0.0030 dB/m at a test wavelength of 850nm and 0.0010 dB/m at a test wavelength of 1300nm.

4.1.3.2.4 Typical 62.5μm/125μm diameter fiber exhibits 0.0035 dB/m at a test wavelength of 850nm and 0.0015 dB/m at a test wavelength of 1300nm.

4.2 MECHANICAL CHARACTERISTICS

4.2.1 All fiber connectors in a fiber optic assembly shall conform to TIA/EIA-568-B.3

4.2.2 Connector durability shall conform to TIA/EIA-455-21. Maximum insertion loss change shall not exceed 0.3dB after 200 insertions.

4.2.3 Fiber connectors shall meet applicable TIA/EIA intermateability standard as listed below:

- ST; TIA/EIA-604-2
- FC; TIA/EIA-604-4
- LC; TIA/EIA-604-10
- SC; TIA/EIA-604-3
- MPO; TIA/EIA-604-5
- MTRJ; TIA/EIA-604-12

4.2.4 A protective dust cap shall cover every fiber connector ferrule upon satisfactory completion of testing.

4.2.5 Test results for the fiber optic assembly are reported on a data card enclosed with the product.