

JUST THE TECHNICAL FACTS

GR-326 Test Report Summary – Corning Cable Systems Single-Mode SC Connectors

Summary

This document serves to reinforce the outside plant capability and reliability of Corning Cable Systems SC optical fiber connectors for use in Access networks. Corning Cable Systems has conducted testing with Telcordia Technologies as an independent, third-party auditor to ensure the highest quality and performance of these connectors and cable assemblies.

Corning Cable Systems SC connectors and cable assemblies have been assessed to the Service Life criteria specified in Section 6 of GR-326-CORE, Generic Requirements for Single-mode Optical Fiber Connectors and Jumper Assemblies, Issue 3, September 1999. These criteria simulate the rigorous conditions encountered by optical connector assemblies over their lifetime of service in either indoor or outdoor applications. By meeting the Service Life criteria of GR-326, Issue 3, assurance is provided that a connector assembly is a robust design and will provide reliable service over its design lifetime.

The Service Life tests represent a set of tests that validate the design of the connector assembly and simulate stresses that connector assemblies may be subjected to while in service. Throughout the testing, the optical performance of the product is monitored. Per GR-326-CORE, Issue 3, a set of fifteen (15) pigtail assemblies and five (5) jumper cable assemblies is subjected to the sequence of tests and measurement procedures as outlined in Table 1. These tests are conducted in the order presented in Table 1.

Table 1 – GR-326-CORE, Issue 3, Service Life Tests

Test Number	Service Life Test	GR-326-CORE Section
1	Ferrule Endface Geometry	4.4.5
2	New Product Measurements	4.4.1
3	Thermal Age Test	4.4.2.1
4	Thermal Cycle Test	4.4.2.2
5	Humidity Age Test	4.4.2.3
6	Humidity/Condensation Cycling Test	4.4.2.4
7	Dry-Out Step (no criteria applied)	4.4.2.5
8	Post-Condensation Thermal Cycle Test	4.4.2.6
9	Vibration Test	4.4.3.1
10	Flex Test	4.4.3.2
11	Twist Test	4.4.3.3
12	Proof Test	4.4.3.4
13	Transmission with Applied Tensile Load	4.4.3.5
14	Impact Test	4.4.3.7
15	Durability Test	4.4.3.8
16	End of Test Criteria (Optical, Ferrule Geometry, Damage)	4.4.3.9, 4.4.5

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Table 2 summarizes the criteria used to assess the optical performance of the connector assemblies for each of the Service Life tests in Table 1.

Table 2 – GR-326, Issue 3, Optical Performance Criteria

Test	Loss (dB)			Reflectance (dB)	
	Max	Mean	Change	Max	Increase
New Product	0.40	0.20	–	-40	–
During Test, not under load	0.50	0.30	0.30	-40	-5
During Test, under load	–	–	0.50	–	-5
End of Life	0.50	0.30	–	-40	-5

The optical requirements listed in Table 2 are categorized in GR-326, Issue 3, as a Requirement [R]. GR-326, Issue 3, introduces additional, more stringent levels of criteria that are labeled as Conditional Requirement [CR], Objective [O] and Conditional Objective [CO]. It is important to note that GR-326, Issue 3, emphasizes that a criterion labeled as an Objective [O] rather than a Requirement [R] should be seen as useful, but not necessary. For clarity, brief descriptions of the requirements terminology that appear in GR-326, Issue 3, are listed below:

- **Requirement** – Feature or function that, in the view of Telcordia, is necessary to satisfy the needs of a typical telecommunications service provider.
- **Conditional Requirement** – Feature or function that, in the view of Telcordia, is necessary in specific customer applications.
- **Objective** – Feature or function that, in the view of Telcordia, is desirable and may be required by a typical telecommunications service provider. An Objective represents a goal to be achieved.
- **Conditional Objective** – Feature or function that, in the view of Telcordia, is desirable in specific telecommunications service provider applications and may be required by a customer.

As a result of the testing conducted, **Telcordia Technologies concluded that the Corning Cable Systems SC connector assembly fully conformed to all of the requirements listed as part of the Service Life test plan of GR-326-CORE, Issue 3.** Furthermore, the samples tested met greater than 90% of the Conditional Requirements [CR] and Objectives [O] as specified in GR-326, Issue 3, thus exceeding the performance requirements established by this standard. The results of this testing validate the lifetime performance and durability of Corning Cable Systems SC connectors in the outside plant environment



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