PLUGGABLE BUS BAR RIGHT ANGLE CONNECTOR

1. INTRODUCTION

1.1. Purpose

Testing was performed on Pluggable bus bar right angle connector to determine its conformance to the requirements of product specification 108-128012.

1.2. Scope

This report covers the electrical, mechanical, and environmental performance of Pluggable bus bar right angle connector. Testing was performed at TE Connectivity Shanghai Electrical Test Laboratory. The test file number for this testing is TP-14-02597, this documentation is on file at and available from the TE Connectivity Shanghai Electrical Testing Laboratory.

1.3. Conclusion

The Pluggable bus bar right angle connector conformed to the electrical, mechanical, and environmental performance requirements of Product Specification 108-128012.

1.4. Test Specimens

Test specimens were representative of normal production lots.

1.5. Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature: 15℃ to 35℃

Relative Humidity: 25% to 75%

1.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)
	1
	Test sequence (b)
Initial examination of product	1
Low level contact resistance	3,7,9,11
Contact resistance at rated current	13
Temperature rise vs. Current	4,12
Vibration	10
Durability	5
Mating force	2
Un-mating force	14
Temperature life	8
Mixed flowing gas	6
Final examination of product	15

NOTE

(a) See para 1.4.
(b) Numbers indicate sequence in which tests are performed.

Figure 1

2. SUMMARY OF TESTING

2.1. Initial Examination of Product

All specimens submitted for testing were representative of normal production lots. A Certificate of Conformance (C of C) was issued by Product Assurance. Specimens were visually examined and no evidence of physical damage detrimental to product performance was observed.

2.2. Low Level Contact Resistance

The LLCR measurements were less than 0.1 milliohms initially and after testing.

Test Group	Number of Data points	Condition	LLCR (milliohms)		
			Minimum	Maximum	Average
1	5	Initial	0.07	0.07	0.07
	5	After Durability and Mixed Flowing Gas	0.069	0.0077	0.072
	5	After Temperature Life	0.063	0.096	0.085
	5	After Vibration	0.069	0.082	0.075

Figure 2

2.3. Contact Resistance at Rated Current

The contact resistance at rated current measurements were less than 0.1 milliohms after testing.

Test Group	Number of Data points	Contact Resistance (milliohms)		
		Minimum	Maximum	Average
1	5	0.055	0.063	0.060

Figure 3

2.4. Temperature Rise vs Current

All assemblies had a temperature rise of less than 30℃ above ambient when a specified current of 150 amperes current was applied.

2.5. Vibration

No discontinuities were detected during vibration testing. Following vibration testing, no cracks, breaks, or loose parts on the specimens were visible.

2.6. Mating force

All mating force measurements were less than 30N for entire connectors.

2.7. Unmating force

All unmating force measurements were less than 30N for entire connectors

2.8. Durability

No physical damage occurred as a result of mating and unmating the specimens 50 cycles.

2.9. Mixed Flowing Gas

No evidence of physical damage was visible as a result of exposure to the pollutants of mixed flowing gas.

2.10. Temperature Life

No evidence of physical damage was visible as a result of temperature life testing.

2.11. Final Examination of Product

Specimens were visually examined and no evidence of physical damage detrimental to product performance was observed.

3. TEST METHODS

3.1. Initial Examination of Product

A C of C was issued stating that all specimens in the test package were produced, inspected, and accepted as conforming to product drawing requirements, and manufactured using the same core manufacturing processes and technologies as production parts.

3.2. Low Level Contact Resistance

LLCR measurements at low level current were made using a four terminal measuring technique. The test current was maintained at 100 milliamperes maximum with a 20 millivolt maximum open circuit voltage.

3.3. Contact Resistance at Rated Current

Specimens were subjected to contact resistance testing in accordance with EIA –364-06.

3.4. Temperature Rise vs. Current

Specimens were subjected to temperature rise vs. current test in accordance with EIA-364-70, Method II. Assembly temperature was measured, while energized at the specified current. Thermocouples were attached to the connectors to measure their temperatures. This temperature was when subtracted from the ambient temperature to find the temperature rise. When three readings at five minute intervals were within 1℃, the reading were recorded.

3.5. Vibration

Specimens were subjected to vibration test in accordance with EIA-364-28, Test Condition V, letter C. Subject mated specimens to 9.26G's rms. 120 minutes in each of 3 mutually perpendicular planes.

3.6. Mating force

The force required to mate assemblies to a bus bar was measured, using a free floating fixture with the rate of travel of 12.7 mm per minute. Specimens were subjected to mating force test in accordance with EIA–364-13.

3.7. Unmating force

The force required to unmate assemblies from a bus bar was measured, using a free floating fixture with the rate of travel of 12.7 mm per minute. Specimens were subjected to unmating force test in accordance with EIA–364-13.

3.8. Durability

Specimens were mated and unmated 50 times at a maximum rate of 500 cycles per hour. In accordance with EIA–364-09.

3.9. Mixed Flowing Gas

Mated specimens were exposed for 20 days to a mixed flowing gas Class IIA exposure. Class IIA exposure is defined as a temperature of 30℃ and a relative humidity of 70%RH with the pollutants of Cl_2

at 10 ppb, NO_2 at 200 ppb, H_2S at 10 ppb and SO_2 at 100 ppb. In accordance with EIA–364-65 Class IIA.

3.10. Temperature Life

Mated specimens were exposed to a temperature of 105℃ for 500 hours (21 days). In accordance with EIA–364-17 Method A Condition 4.

3.11. Final Examination of Product

Specimens were visually examined for evidence of physical damage detrimental to product performance.