

**Switching PCB RF Economy Connector**

**1. INTRODUCTION**

1.1. Purpose

Testing was performed on the Tyco Electronics Switching PCB RF Economy Connector to determine its conformance to the requirements of Product Specification 108-1929 Revision A.

1.2. Scope

This report covers the electrical, mechanical, and environmental performance of the Switching PCB RF Economy Connector. Testing was performed at the Engineering Assurance Product Test Laboratory between 26Jul02 and 11Feb03. The test file number for this testing is CTL 3331-015. This documentation is on file at and available from the Engineering Assurance Product Test Laboratory.

1.3. Conclusion

The Switching PCB RF Economy Connector listed in paragraph 1.5., conformed to the electrical, mechanical, and environmental performance requirements of Product Specification 108-1929 Revision A.

1.4. Test Specimens

Test specimens were representative of normal production lots. Specimens identified with the following part numbers were used for test:

Test Group	Quantity	Part Number	Description
1,2	5 each	1274314-1	BNC switching PCB jack
	5 each	2-221128-1	Commercial BNC plug

Figure 1

1.5. Environmental Conditions

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

- Temperature: 15 to 35°C
- Relative Humidity: 25 to 75%

1.6. Qualification Test Sequence

Test or Examination	Test Group (a)	
	1	2
	Test Sequence (b)	
Initial examination of product	1	1
Low level contact resistance	2,5	
Withstanding voltage		2
Vibration	4	
Durability	3	
Unmating force	6	
Coupling lug retention force	7	
Final examination of product	8	3

**NOTE** (a) See paragraph 1.4.  
 (b) Numbers indicate sequence in which tests are performed.

Figure 2

**2. SUMMARY OF TESTING**

2.1. Initial Examination of Product - All Test Groups

All specimens submitted for testing were representative of normal production lots. A Certificate of Conformance 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 - Test Group 1

All low level contact resistance measurements, taken at 100 milliamperes maximum and 20 millivolts maximum open circuit voltage were less than 20 milliohms initially and after testing.

2.3. Withstanding Voltage - Test Group 2

No dielectric breakdown or flashover occurred.

2.4. Vibration - Test Group 1

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

2.5. Durability - Test Group 1

No physical damage occurred as a result of manually mating and unmating the specimens 200 times.

2.6. Unmating Force - Test Group 1

All unmating force measurements were greater than 0.14 N [.5 ozf].

**2.7. Coupling Lug Retention Force - Test Group 1**

No evidence of physical damage was visible as a result of subjecting the specimens to a force of 266.9 N [60lbf].

**2.8. Final Examination of Product - All Test Groups**

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

**3.2. Low Level Contact Resistance**

Low level contact resistance measurements were made using a 4 terminal measuring technique. The test current was maintained at 100 milliamperes maximum with a 20 millivolt maximum open circuit voltage.

**3.3. Withstanding Voltage**

A test potential of 1500 volts AC was applied between the signal contact and shell of mated, unmounted specimens. This potential was applied for 1 minute and then returned to zero.

**3.4. Vibration, Random**

Mated specimens were subjected to a random vibration test, specified by a random vibration spectrum, with excitation frequency bounds of 20 and 500 Hz. The spectrum was flat at 0.005 G<sup>2</sup>/Hz from 20 to 500 Hz. The root-mean square amplitude of the excitation was 1.55 GRMS. This was performed for 15 minutes in each of 3 mutually perpendicular planes for a total vibration time of 45 minutes. Specimens were monitored for discontinuities of 1 microsecond or greater using a current of 100 milliamperes DC.

**3.5. Durability**

Specimens were manually mated and unmated 200 times at a maximum rate of 600 cycles per hour.

**3.6. Unmating Force**

The force required to unmate individual specimens was measured using a tensile/compression device with a free floating fixture and a rate of travel of 12.7 mm [.5 in] per minute.

**3.7. Coupling Lug Retention Force**

A force of 266.9 N [60 lbf] was applied to mated and locked specimens at a rate of 444.82 N [100 lbf] per minute and held for 1 minute. After specified load was achieved, an attempt was made to rotate the BNC plug coupling mechanism, but the BNC jacks pulled out of the printed circuit board before the required 2 full revolutions in each direction could be completed.

## 3.8. Final Examination of Product

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