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**CFP 100 Gigabit Pluggable Host Connector and  
Transceiver Plug Connector System**

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**1. SCOPE**

## 1.1. Content

This specification covers performance, tests and quality requirements for the Tyco Electronics CFP 100 Gigabit Pluggable Host Connector and Transceiver Plug Connector System.

## 1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

## 1.3. Successful qualification testing on the subject product line was completed on 18Nov10. The Qualification Test Report number for this testing is 501-737. This documentation is on file at and available from Engineering Practices and Standards (EPS).

**2. APPLICABLE DOCUMENTS**

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

## 2.1. Tyco Electronics Document

501-737: Qualification Test Report (CFP 100 Gigabit Pluggable Host Connector and Transceiver Plug Connector System)

## 2.2. Industry Document

EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications

## 2.3. Reference Document

109-197: Test Specification (Tyco Electronics Test Specifications vs EIA and IEC Test Methods)

**3. REQUIREMENTS**

## 3.1. Design and Construction

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

## 3.2. Materials

Materials used in the construction of this product shall be as specified on the applicable product drawing.

## 3.3. Ratings

- Voltage: 120 volts AC
- Current: Signal application only
- Temperature: -55 to 85°C

## 3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

## 3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Initial examination of product.	Meets requirements of product drawing.	EIA-364-18. Visual and dimensional (C of C) inspection per product drawing.
Final examination of product.	Meets visual requirements.	EIA-364-18. Visual inspection.
ELECTRICAL		
Low Level Contact Resistance (LLCR).	$\Delta R$ 10 milliohms maximum for shield and signal contacts.	EIA-364-23. Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.
Insulation resistance.	100 megohms.	EIA-364-21. 300 volts DC, 2 minute hold. Test between adjacent contacts of mated and unmounted specimens.
Withstanding voltage.	One minute hold with no breakdown or flashover.	EIA-364-20, Condition I. 300 volts AC at sea level. Test between adjacent contacts of mated and unmounted specimens.
MECHANICAL		
Random vibration.	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-28, Test Condition VII, Condition Letter D. Subject mated specimens to 3.10 G's rms between 20 to 500 Hz. Fifteen minutes in each of 3 mutually perpendicular planes.
Mechanical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-27, Method A. Subject mated specimens to 30 G's half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.
Durability.	See Note.	EIA-364-9. Mate and unmate specimens for 200 cycles at a maximum rate of 500 cycles per hour.

Figure 1 (continued)

Test Description	Requirement	Procedure
Plug/receptacle insertion force.	37 N [8.3 lbf] maximum.	EIA-364-13. Measure force necessary to mate specimens at a maximum rate of 12.7 mm [.5 in] per minute.
Plug/receptacle extraction force.	10 N [2.2 lbf] maximum.	EIA-364-13. Measure force necessary to unmate specimens at a maximum rate of 12.7 mm [.5 in] per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	EIA-364-32, Test Condition VII. Subject mated specimens to 5 cycles between -55 and 105°C with 30 minute dwells at temperature extremes and 1 minute transition between temperatures.
Thermal cycling.	See Note.	EIA-364-110, Condition A. Subject mated specimens to 10 cycles between 15 and 85°C with 30 minute dwells at temperature extremes and a transition rate of 5°C per minute between temperatures.
Humidity/temperature cycling.	See Note.	EIA-364-31, Method III. Subject mated specimens to 10 cycles (10 days) between 25 and 65°C at 80 to 100% RH.
Temperature life.	See Note.	EIA-364-17, Method A. Subject mated specimens to 90°C for 840 hours.
Temperature life, pre-conditioning.	See Note.	EIA-364-17, Method A. Subject mated specimens to 90°C for 360 hours.
Mixed flowing gas.	See Note.	EIA-364-65, Class IIA (4 gas). Subject 2 specimens to 7 days of unmated exposure followed by 7 days of mated exposure. Subject 2 mated specimens to 14 days exposure.
Dust.	See Note.	EIA-364-91. Subject both unmated connector halves to benign dust composition #1 for 1 hour.
Minute disturbance.	See Note.	Manually unmate and remate the specimen 1 time.

**NOTE**

*Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 2.*

Figure 1 (end)

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Initial examination of product	1	1	1	1	1
LLCR	3,5,8	2,4,6,8	2,4,7		2,4,6,8
Insulation resistance				2,6	
Withstanding voltage				3,7	
Random vibration	6				
Mechanical shock	7				
Durability	4				
Plug/receptacle insertion force	2				
Plug/receptacle extraction force	9				
Thermal shock				4	
Thermal cycling					5
Humidity/temperature cycling		7		5	
Temperature life		3(c)			
Temperature life, pre-conditioning			3(c)		
Mixed flowing gas			5		
Dust					3(c)
Minute disturbance		5	6		7
Final examination of product	10	9	8	8	9

- NOTE**
- (a) See paragraph 4.1.A.
  - (b) Numbers indicate sequence in which tests are performed.
  - (c) Precondition specimens with 20 durability cycles.

Figure 2

#### 4. QUALITY ASSURANCE PROVISIONS

##### 4.1. Qualification Testing

###### A. Specimen Selection

Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Each test group shall consist of 4 specimens.

###### B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in Figure 2.

##### 4.2. Requalification Testing

If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

##### 4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

##### 4.4. Quality Conformance Inspection

The applicable quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.