



The product described in this document has not been fully tested to ensure conformance to the requirements outlined below. Therefore, TE Connectivity (TE) makes no representation or warranty, express or implied, that the product will comply with these requirements. Further, TE may change these requirements based on the results of additional testing and evaluation. Contact TE Engineering for further details.

## Octal Small Form-Factor Pluggable (OSFP) 56-Gbps Copper Module Direct Attach Cable Assembly

### 1. SCOPE

#### 1.1. Content

This specification defines performance, tests, and quality requirements for OSFP 56-Gbps copper module direct attach cable assembly.

#### 1.2. Qualification

When tests are performed on the subject product line, procedures specified in Table 2 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

#### 1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed on 23 MAY 2023. The Qualification Test Report number is 501-134094.

### 2. APPLICABLE DOCUMENTS AND FORMS

The following documents and forms constitute a part of this specification to the extent specified herein. Unless otherwise indicated, 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. TE Documents

108-130011 TE Connectivity Connector Design Objective  
501-134094 Qualification Test Report

#### 2.2. Industry Documents

IEEE Std 802.3cd-2018, "Media Access Control Parameters for 50 Gb/s and Physical Layers and Management Parameters for 50 Gb/s, 100 Gb/s, and 200 Gb/s Operation"

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

SFF-8417, "Multi Conductor Cable Flex Cycle Test Procedure"

#### 2.3. Reference Document

[109-197](#) Test Specification (TE Test Specification vs EIA and IEC Test Methods)

### 3. REQUIREMENTS

#### 3.1. Design and Construction

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

### 3.2. Ratings

Voltage	Current	Temperature
3.8 VDC (max)	Signal Application Only	-10 to 60 degrees Celsius

Table 1. Cable Assembly Ratings

### 3.3. Test Requirements and Procedures Summary

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

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.
<b>ELECTRICAL</b>		
Low Level Contact Resistance (LLCR)	$\Delta R$ 20 mohm maximum for signal and ground contacts for pigtails ( $\Delta R$ 30 mohm maximum for double ended cables)	EIA-364-23. Max. open voltage 20mV. Max current 100 mA DC. All contacts to be measured.
High Speed Test	Per IEEE Std 802.3cd-2018 Clause 136.11, IEEE Std 802.3cd-2018 Clause 136.11 with asymmetric host COM, or IEEE 802.3bj-2014 Clause 92.10	EIA-364-108
<b>MECHANICAL</b>		
Cable Flex	Passing Signal Integrity Testing See Note(a).	SFF-8417, Type C According to 6.2.2. Mandrel radius to be 7 times cable diameter. (no signal monitoring), 100 cycles with connector coincident with the plane of the arc, 100 cycles with connector orthogonal to the plane of the arc.
Axial Cable Retention	No evidence of damage or cable pull out from connector. Passing Signal Integrity Testing See Note (a).	Secure module and apply 125N of axial force, hold for 5 min
Module Retention	No module damage when 125 N extraction force is applied.	Apply force of 125N at a ramp rate of 25mm/min to cable module with latches enabled. Hold for 2 seconds
Durability	No evidence of module or latch damage after 50 mating cycles.	Engage and disengage the OSFP module from the receptacle and cage 50 times by pulling on the pull tab.
Random Vibration	No discontinuity $\geq 1$ microsecond See Note (a).	EIA-364-28, Test Condition VII, Test Condition Letter D. Subject mated specimens to 3.10 G RMS between 20 to 500 Hz. Fifteen minutes in

		each of 3 mutually perpendicular planes.
Mechanical Shock	No discontinuity $\geq$ 1 microsecond See Note (a).	EIA-364-27, Test Condition H. Subject mated specimens to 30 Gs half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.
<b>ENVIRONMENTAL</b>		
Humidity	Passing Signal Integrity Testing. SDD21 max IL Delta of 1dB. See Note (a)	Cable specimens are tested uncoiled for initial SI at 25°C then specimens coiled (9" coil for 32/30AWG and 15" coil for 28/26AWG) and are exposed to 30°C/90% relative humidity for 20 hours. Cable specimens are tested uncoiled for final SI at 25°C. Perform return to nominal SI testing within 4 hours after temperature/humidity soak.
Thermal Shock	Passing Signal Integrity Testing	EIA-364-32, Method A, Test Condition I. Subject unmated specimens to 5 cycles between -40°C and 70°C with 30-minute dwells at temperature extremes and 1-minute transition between temperatures.
Mixed Flowing Gas	See Note (a).	EIA-364-65, Class IIA (4 gas). Subject specimens to environmental Class IIA for 14 days. Three specimens (cable only) unmated for 7 days followed by 7 days mated. The remaining two specimens mated for 14 days.
Temperature Life	See Note (a).	EIA-364-17, Method A, Subject unmated specimens to 70°C for 500 hours.
Minute disturbance	See Note.	Manually unmate and mate the specimen 5 times.

Table 2. Test Requirements


**NOTE**

(a) Shall meet visual requirements, show no physical damage, and meet requirements if additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Table 3.

3.4. Product Qualification and Requalification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)						
	1	2	3	4	5	6	7
	TEST SEQUENCE (b)						
Initial Examination of Product	1	1	1	1	1	1	1
LLCR				2,4,6,8		2,5	
High-Speed Test	2, 4	2, 4			2,4,7		2,4,7
Cable Flex		3					
Humidity	3						
Axial Cable Retention					3,6		3,6
Module Retention			3				
Durability			2	3			
Random Vibration				5			
Mechanical Shock				7			
Thermal Shock					5		
Temperature Life							5
Mixed Flowing Gas						3	
Minute disturbance						4	
Final Examination of Product	5	5	4	9	8	6	8

Table 3. Qualification Test Sequence



**NOTE**

- (a) See paragraph 4.1.A
- (b) Numbers indicate sequence in which tests are performed.

## 4. QUALITY ASSURANCE PROVISIONS

### 4.1. Qualification Testing

#### A. Specimen Selection

Specimens shall be prepared in accordance with applicable instructions sheets and shall be selected at random from current production. Unless otherwise specified, all test groups shall consist of a minimum of 5 cables of which all contacts shall be tested.

#### B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in Paragraph 3.4

### 4.2 Re-Qualification Testing

If changes that significantly affecting form, fit, or functions are made to the product or manufacturing process, product assurance shall coordinate re-qualification 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 Paragraph 3.4. 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 re-submitted 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.