ANGLED ENTRY JACK FOR CATEGORY 6 APPLICATIONS

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the TE Connectivity (TE) Angled Entry Jacks for Category 6 Applications.

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. Qualification Test Results

Successful qualification testing on the subject product line was completed on 19May89. The Qualification Test Report number for this testing is 501-128803. 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. TE Documents

- 109-197: TE Test Specifications vs EIA and IEC Test Methods
- 114-22021 Application Specification (PCB Modular Jacks for Cat. 6 applications).
- 501-128803 Qualification Test Report

2.2. Commercial Standard

EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications
FCC Part 68 : Connection of Terminal Equipment to the Telephone, Connector Specification
TIA 568-B.2.: Commercial Building Telecommunications Cabling Standard

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.

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3.3. Ratings

- Voltage: 150 volts AC
- Current: 1.5 A
- Temperature: -40 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 per EIA-364.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Initial examination of product.	Meets requirements of product drawing.	EIA-364. Visual and dimensional inspection per product drawing.
Final examination of product.	Meets visual requirements.	EIA-364-18. Visual inspection.
ELECTRICAL		
Contact resistance	Rinitial = 30 m Ω Max. Δ R = 30 m Ω Max.	EIA-364-23. Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.
Shield Contact Resistance	Rinitial = 30 m Ω . Δ = 30 m Ω	EIA-364-23. Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.
Insulation resistance	500 Mohm minimum	EIA-364-21. 500 volts DC, 2 minute hold. Test between adjacent contacts of unmated specimens not electrically connected.
Surge Test	Test 1 and 2: Withstand clause 7, criterion A per ITU-T K.20 Test 3: No fire hazard per ITU-T K.20, clause 7 criterion B.	Contact / contact. Mated connectors Unexposed environments. ITU-T K.20 Tests 1, 2 and 3. IEC 60603-7-1.
Withstanding voltage	One minute hold with no breakdown or flashover.	EIA-364-20, Condition I. 1500 volts AC at sea level. Test between the shield and contact 1000 volts AC at sea level all Test between contact and contact.
MECHANICAL		
Solderability.	Solderable areas shall have a minimum of 95% solder coverage.	Inspect surface of soldering legs visually, after soldering samples mounted on a printed circuit board.

Test Description	Requirement	Procedure
		Solder bath: 235ºC Duration: 2 seconds Ageing: 4 hours at 155ºC IEC 60068-2-20 test Ta method 1.
Resistance to soldering heat	No functional damage	Inspect jack visually after soldering Samples on a printed circuit board. Solder bath: 260 ºC Duration: 5 seconds IEC 60068-2-20, test Tb method 1ª.
Vibration, random	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.
Durability.	See Note.	EIA-364-9. Mate and unmate specimens with the plug locking tab inoperable for 750 cycles at a maximum rate of 600 cycles per hour.
Mating force.	20.02 N [4.5 lbf] maximum. See Note.	EIA-364-13. Measure force necessary to mate specimens at a maximum rate of 12.7 mm [.5 in] per minute.
Unmating force.	20.02 N [4.5 lbf] maximum. See Note.	EIA-364-13. Measure force necessary to unmate specimens at a maximum rate of 12.7 mm [.5in] per minute.
Plug retention in jack.	3.62 kgf [8 lbf] minimum. Show no evidence of physical damage to the jack. Plug shall not disengage from the jack.	EIA-364-98. Subject specimens to specified load applied for 1 minute in 2 directions with plug mated in jack and latch engaged, plus axial pull.
	ENVIRONMENTAL	
Thermal shock.	See Note.	IEC 60068-2-14 Test Method Nb. Subject mated samples to 100 Cycles between -40 and 70ºC with 30 minutes at each temperature extreme. Min. Average Rate of Temperature change 3ºC/min.
Humidity/temperature cycling.	See Note.	IEC 60068-2-38 Test Method Z/AD with cold sub-cycle -40ºC. Subject mated samples to 21

Test Description	Requirement	Procedure
		cycles between 25 and 65ºC at (93±3) % RH. Cycle time 24 hours.
Temperature life.	See Note.	EIA-364-1000.01, Table 9. Subject mated specimens to 85℃ for 500 hours.
Corrosion Testing	See Note.	IEC 60068-2-60 Test Method C. Test Conditions: SO 2 0,5 ppm (Volume) H 2 S 0,1 ppm (Volume) T= (25 ± 2)ºC HR= (75 ± 3) % Test time 4 days.

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	6	7	8	9	
	Test Sequence (b)									
Initial examination of product	1	1	1	1	1	1	1	1	1	
Solderability							2			
Resistance to soldering heat						2				
Contact resistance	2,6	2,6	2,9		2,6					
Shield Contact Resistance	3,5	3,5	3,8		3,5					
Insulation resistance				2,5						
Surge Test									2	
Withstanding voltage								2		
Vibration, random	4									
Durability			4,7(c)							
Mating force.						3				
Unmating force.						4				
Plug retention in jack.						5				
Thermal shock.			5(c)	3						
Humidity/temperature cycling.			6(c)	4						
Temperature life.		4								
Corrosion Testing					4					
Final examination of product	7	7	10	6	7	6	3	3	3	

NOTE

(a) See paragraph 4.1.A.

(b) Numbers indicate sequence in which tests are performed.

(c) 1.-Perform 650 mating-unmating cycles before thermal shock and measure Contact Resistance.

2.-Perform 50 cycles of thermal shock and measure Contact Resistance.

3.-Perform another 50 cycles of thermal shock and measure Contact Resistance.

4.- Perform 33 mating-unmating cycles followed by 7 days of Humidity-temperature cycling.

5.- Perform another 33 mating-unmating cycles followed by 14 days of Humidity-temperature cycling.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Specimen Selection

Samples shall be prepared in accordance with applicable Application Spec. and shall be selected at random from current production.

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.