



RJ45 JACK WITHOUT MAGNET

1. INTRODUCTION

1.1. Purpose

Testing was performed on the TE Connectivity (TE) RJ45 Connector (Based on TE part#, see Table1) to determine its conformance to the requirements of Product Specification 108-161621 Revision.

1.2. Scope

This report covers the electrical, mechanical, and environmental performance of RJ45 Connector (Based on TE part#, see Table1). Testing was performed at the TE. This documentation is on file at and available in TE.com.

1.3. Conclusion

All part numbers listed in paragraph 0 conformed to the electrical, mechanical, and environmental performance requirements of Product Specification 108-161621 Revision

1.4. Product Description

The RJ45 Connector (Based on TE part#, see Table1) are mainly used in network communication devices and servers, etc. The product complies with FCC and IEEE specifications.

1.5. Test Specimens

The test specimens were representative of normal production lots, and the following part numbers were used for testing (see Table1).

Test Group	Quantity	TE Part#	Description	Rated Current	POE / non POE
A-E	25	2496699	RJ45 W/O MAGNET 1X1 LED	1.5A Max	Non POE
A-E	25	2496701	RJ45 W/O MAGNET 1X2 LED	1.5A Max	Non POE
A-E	25	2496702	RJ45 W/O MAGNET 1X4 LED	1.5A Max	Non POE
A-E	25	2497308	RJ45 W/O MAGNET 1X4 LED	1.5A Max	Non POE
A-E	25	2496703	RJ45 W/O MAGNET 1X8 LED	1.5A Max	Non POE
A-E	25	2496704	RJ45 W/O MAGNET 2X1 LED	1.5A Max	Non POE
A-E	25	2496705	RJ45 W/O MAGNET 2X2 LED	1.5A Max	Non POE
A-E	25	2496706	RJ45 W/O MAGNET 2X4 LED	1.5A Max	Non POE
A-E	25	2497307	RJ45 W/O MAGNET 2X6 LED	1.5A Max	Non POE
A-E	25	2496715	RJ45 W/O MAGNET 2X8 LED	1.5A Max	Non POE

Table 1: TE Part# list and Description

1.6. Qualification Test Sequence

Test or Examination		Test Group				
		A	B	C	D	E
1	Visual examination	1, 7(a)	1, 5	1, 7	1, 7	1, 4
2	Contact Resistance	2, 6	2, 4	2, 6	2, 6	
3	Dielectric Withstanding Voltage			3, 5		
4	Insulation Resistance				3, 5	
5	Contact Normal Force					2
6	Durability	4				
7	Mating Force	3, 5				
8	Humidity Test		3			
9	Temperature Life			4		
10	Salt Spray				4	
11	Solderability Test					3

Table 2: Test Items&Groups

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

1.7. Environmental Conditions

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

Temperature: 15°C to 35°C

Relative Humidity: 45% to 75%

2. SUMMARY OF TESTING

2.1. TEST RESULTS:

Group A									
Sep.	TEST ITEM	Unit	REQUIREMENTS	Sample#1	Sample#2	Sample#3	Sample#4	Sample#5	RESULTS
A.01	Visual examination	--	Meet requirements of mechanical structure	Normal					PASS
A.02	Contact Resistance	MΩ	Initial: 20mΩ Max	10.06	10.14	10.21	11.49	10.54	PASS
A.03	Mating Force	Kgf	2.3Kgf max	1.75	1.68	1.72	1.63	1.59	PASS

A.04	Durability	--	No damage.	Normal					PASS
A.05	Mating Force	kgf	2.3Kgf max	1.52	1.55	1.43	1.49	1.36	PASS
A.06	Contact Resistance	MΩ	Finalt: 30mΩ Max	11.80	11.53	11.96	12.28	12.27	PASS
A.07	Visual examination	--	Meet requirements of mechanical structure	Normal					PASS

Group B									
Sep.	TEST ITEM	Unit	REQUIREMENTS	Sample#1	Sample#2	Sample#3	Sample#4	Sample#5	RESULTS
B.01	Visual examination	--	Meet requirements of mechanical structure	Normal					PASS
B.02	Contact Resistance	MΩ	Initial: 20mΩ Max	10.59	10.76	10.27	10.87	11.40	PASS
B.03	Humidity test	--	No damage.	OK	OK	OK	OK	OK	PASS
B.04	Contact Resistance	MΩ	Finalt: 30mΩ Max	12.44	11.75	11.80	12.21	11.51	PASS
B.05	Visual examination	--	Meet requirements of mechanical structure	Normal					PASS

Group C									
Sep.	TEST ITEM	Unit	REQUIREMENTS	Sample#1	Sample#2	Sample#3	Sample#4	Sample#5	RESULTS
C.01	Visual examination	--	Meet requirements of mechanical structure	Normal					PASS
C.02	Contact Resistance	MΩ	Initial: 20mΩ Max	10.16	10.39	10.99	10.87	10.47	PASS
C.03	Dielectric Withstanding Voltage	--	No breakdown Current leakage < 0.5 mA	Normal					PASS
C.04	Temperature Life	--	No damage.	Normal					PASS
C.05	Dielectric Withstanding Voltage	--	No breakdown Current leakage < 0.5 mA	Normal					PASS
C.06	Contact resistance	MΩ	Finalt: 30mΩ Max	11.44	11.91	11.26	11.97	11.02	PASS
C.07	Visual examination	--	Meet requirements of mechanical structure	Normal					PASS

Group D									
Sep.	TEST ITEM	Unit	REQUIREMENTS	Sample#1	Sample#2	Sample#3	Sample#4	Sample#5	RESULTS
D.01	Visual examination	--	Meet requirements of mechanical structure	Normal					PASS
D.02	Contact Resistance	MΩ	Initial: 20mΩ Max	10.11	10.50	10.05	10.34	10.31	PASS
D.03	Insulation resistance test	MΩ	Initial: 500 MΩ Min	Normal					PASS
D.04	Salt Spray	--	No damage.	Normal					PASS

D.05	Insulation resistance test	MΩ	Finalt: 200 MΩ Min	Normal					PASS
D.06	Contact resistance	MΩ	Finalt: 30mΩ Max	12.28	12.43	12.12	11.67	12.10	PASS
D.07	Visual examination	--	Meet requirements of mechanical structure	Normal					PASS

Group E									
Sep.	TEST ITEM	Unit	REQUIREMENTS	Sample#1	Sample#2	Sample#3	Sample#4	Sample#5	RESULTS
E.01	Visual examination	--	Meet requirements of mechanical structure	Normal					PASS
E.02	Contact Normal Force	kgf	Individually pin(s) of contact area 0.1kgf min	OK	OK	OK	OK	OK	PASS
E.03	Solderability Test	--	95% of immersed area must show no voids, pin holes	OK	OK	OK	OK	OK	PASS
E.04	Visual examination	--	Meet requirements of mechanical structure	Normal					PASS

**Table 3:** Test Result

### 3. TEST METHODS

#### 3.1 Visual examination

Requirement: Meet requirements of mechanical structure, appearance, specifications and product drawing

#### 3.2 Contact Resistance

Conduct contact testing on the sample according to EIA-364-23B.

Test conditions: Subject mated contacts assembled housing to 20 mV maximum 100mA .

Measured from plug side to PCB side.

Requirement: 20 mΩ Max(Initial), 30 mΩ Max (Final).

#### 3.3 Dielectric Withstanding Voltage

Conduct contact testing on the sample according to EIA-364-20B.,

Test conditions: Test between adjacent circuits of unmated connector.

1 , 1 KVms at 60Hz, 1 minute between adjacent contacts.

2 , 1.5 KVms at 60Hz, 1 minute between shield and contacts.

Requirement: Without damaged such as arcing or breakdown etc.

#### 3.4 Insulation Resistance

Conduct Insulation Resistance testing on the sample according to EIA-364-21C.

Test conditions: Mated connectors with 500±10% VDC between adjacent contacts or ground

Requirement: 500 MΩ min(initial), 200 MΩ min (final).

#### 3.5 Contact Normal Force

Conduct Contact Normal Force testing on the sample according to EIA-364-04A.

Test conditions: Terminal at maximum rate  $25 \pm 3$ mm Per minute and measure the normal force.  
Requirement: Individually pin(s) of contact area 0.1kgf min.

### 3.6 Durability

Conduct durability testing on samples according to EIA-364-09C.  
Test conditions: Operation speed: 25mm/min, Durability Cycles: 750 Cycles  
Requirement: Shall meet visual requirements, show no physical damage.

### 3.7 Mating Force

Conduct Mating Force testing on samples according to EIA-364-13B  
Test conditions: Mating connectors at maximum rate 25mm Per minute and measure the force.  
Requirement: 2.3Kgf max.

### 3.8 Humidity Test

Conduct Humidity Test testing on samples according to EIA-364-31B  
Test conditions: At a temperature of  $40^{\circ} \text{C} \pm 2^{\circ} \text{C}$ , and relative humidity of 90% to 95% for 96 hours.  
Requirement: Shall meet visual requirements, show no physical damage.

### 3.9 Temperature Life

Conduct Temperature Life testing on samples according to EIA-364-17B.  
Test conditions: Exposing in a heat chamber at a temperature of  $65^{\circ} \text{C} \pm 2^{\circ} \text{C}$  for 96 hours.  
Requirement: Shall meet visual requirements, show no physical damage.

### 3.10 Salt Spray

Conduct Salt Spray testing on samples according to EIA-364-26B  
Test conditions: Place the sample under the following conditions  
temperature:  $(35 \pm 2)^{\circ} \text{C}$ , humidity: (95—98)%, PH value: 6.5—7.2, concentration:  $5 \pm 1\%$ .  
Test time: 48h  
After test, rinse the sample with water and recondition the room temperature for 1 hour.  
Requirement: No detrimental corrosion allowed in contact area and base material exposed.

### 3.11 Solderability test

Conduct solderability testing on the sample according to JESD22-B102D.  
Test conditions : Immerse the solder pin of the connector in the solder bath at  $260^{\circ} \text{C} \pm 5^{\circ} \text{C}$  for  
 $10 \pm 2$  seconds.  
Requirement : More than 95% of the dipped surface shall be wet with solder.

## 4. APPENDIX

### 4.1. Table List

Table 1: TE Part# list and Description.....	1
Table 2: Test Items&Groups .....	2
Table 3: Test Result .....	4