



## ANSI C136.41 Dimming Receptacle with Integrated Gasket

### 1.1. Content

This specification covers performance, tests, and quality requirements for the TE Connectivity ANSI C136.41 Dimming Receptacle with integrated gasket used in dimmable roadway and area lighting applications. For test purposes, the TE Connectivity ANSI C136.41 Dimming Receptacle with integrated gasket will be mated to ANSI C136.10 compliant Shorting Caps.

### 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 has been completed. The Qualification Test Report number for this testing is 501-134150.

## 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 Connectivity (TE) Documents

- [114-160166](#): (Application Specification) ANSI C136.41 Dimming Receptacles with integrated gasket.
- [501-134150](#): (Qualification Test Report) ANSI C136.41 Dimming Receptacles with integrated gasket

### 2.2. Industry Documents

- ANSI C136.10-2010: American National Standard for Roadway and Area Lighting Equipment Locking-Type Photocontrol Devices and Mating Receptacles – Physical and Electrical Interchangeability and Testing
- ANSI C136.41-2013: American National Standard for Roadway and Area Lighting Equipment – Dimming Control between an External Locking Type Photocontrol and Ballast
- UL 773: Plug-In Locking Type Photocontrols for Use with Areal Lighting
- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications
- IEC-60529: Degrees of Protection Provided by Enclosures (IP Code)
- IEC-60512-11-6: Connectors for Electronic Equipment – Corrosion, salt mist

### 3. REQUIREMENTS

#### 3.1. Design and Construction

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

#### 3.2. Ratings

- Voltage: 600 volts AC/DC
- Current: 15 amperes maximum per circuit @ 25°C ambient temperature
- Operating Temperature: -40 to +85°C

#### 3.3. Test Requirements and Procedures Summary

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

Test Description	Requirements	Procedures
Initial examination of product.	Meets requirements of product drawing and Application Specification 114-160166.	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).	$\Delta R$ of 30 milliohms maximum	EIA-364-23. Subject mated receptacle and shorting cap 20 millivolts open circuit at 100 milliamperes maximum. See Figure 4.
Insulation resistance.	500 megohms minimum.	EIA-364-21. Test unmated receptacle only. Test between adjacent power contacts; between power and signal contacts; and between all contacts and grounded mounting plate.
Dielectric Withstanding Voltage	One minute hold with no breakdown or flashover.	UL 773, Section 32 2500 volts AC (rms) at sea level. Test unmated receptacle only. Test between power contacts; between signal contacts; between power and signal contacts; and between power contacts and grounded mounting plate.
Current Cycling (Heating Test) Power Contacts Only	30°C T-rise maximum during the "ON" period of the cycle.	ANSI C136.10-2010, Section 11.1. Apply 15 amperes to line and load contacts of test receptacle for 15 cycles, each consisting of 20 hours "ON" and 4 hours "OFF". Precondition receptacle by mating and un-mating to a shorting cap 5 times.
Temperature Rise vs Current	30°C maximum temperature rise at 15.0 amperes	EIA-364-70, Method 1 Stabilize at a single current level until 3 readings at 5-minute intervals are within 1°C. Line and load circuits shall both be energized and monitored during testing.
Contact Retention in housing Power Contacts Only	45N minimum	EIA-364-29B Apply force by pulling at a rate of 25.4mm/min. on wire of power contacts installed in housing.

Figure 1 Cont.

MECHANICAL		
Test Description	Requirements	Procedures
Vibration	No discontinuities of 1 microsecond or longer duration. See Note (a).	The specimens shall be subjected to a simple harmonic motion having an amplitude of either 0.250 in double amplitude (maximum total excursion) or 3.5 g peak, whichever is less. The vibration frequency shall be varied logarithmically between the approximate limits of 5 Hz and 55 Hz. The entire frequency range of 5 Hz to 55 Hz and return to 5 Hz shall be traversed at a rate of one octave/minute. This cycle shall be repeated for one hour in each of three mutually perpendicular directions, so that the motion shall be applied for a total period of 3 hours. Lead wires shall be secured to vibration table 6 inches from rear of connector. See Figure 5
Mechanical shock.	No discontinuities of 1 microsecond or longer duration. See Note (a).	EIA-364-27, Condition H. 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. See Figure 4.
Durability.	See Note (a)	EIA-364-9. Subject receptacle and shorting cap to 25 mating and un-mating cycles at the rate of 120 cycles per hour.
ENVIRONMENTAL		
Salt Spray	See Note (a).	IEC 60512-11-6 Exposure time is 240 hours. Test receptacle mated to a shorting cap.
Thermal shock.	See Note (a).	EIA-364-32, Test Condition I. Subject unmated specimens to 25 cycles between -40 and 65°C with 30-minute dwells at temperature extremes and 1 minute transition between temperatures.
Humidity	Must be subjected to DWV within 10 minutes from removal of humidity test chamber.	UL 773, Section 23. Subject mated receptacle and shorting cap to 96% non-condensing humidity for 168 hours at a temperature of 50°C.
Temperature life.	See Note (a).	EIA-364-17, Method A, Test Condition 4, Test Time Condition B. Subject mated specimens to 100°C for 500 hours.
Temperature Life – IP Dust	See Note (a).	EIA-364-17, Method A, Test Condition 4, Test Time Condition B. Subject mated specimens to 65°C for 240 hours.
Temperature Life – IP Spray	See Note (a)	EIA-364-17, Method A, Test Condition 4, Test Time Condition B. Subject mated specimens to 65°C for 240 hours. Parts immediately transferred to next step of testing.
Ingress Protection 6X (dust)	Must meet IP6X. No dust shall be present inside sealing area.	IEC 60529. Subject mated specimens to the IP6X (dust) requirements.
Ingress Protection X6 (jet spray)	Must meet IPX6. No water shall be present within sealing area.	IEC 60529. Subject mated specimens to the IPX6 (jet spray) requirements.


**NOTE**

- (a) 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)

### 3.4. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)							
	A	B	C	D	E	F	G1	G2
	Test Sequence (b)							
Initial examination of product	1	1	1	1	1	1	1	1
LLCR	2,6	2,5,7,9		2,4				
Insulation resistance			2,7					
Dielectric withstanding voltage			3,6					
Current Cycling (Heating Test)					2(c)			
Temperature Rise vs. Current		3,10						
Contact retention in housing						2		
Vibration	4	8(d)						
Mechanical shock	5							
Durability	3							
Salt Spray				3				
Thermal shock			4					
Humidity		4(c)	5					
Temperature life		6						
Temperature life – IP Dust							2	
Temperature life – IP Spray								2
Ingress Protection 6X (dust)							3	
Ingress Protection X6 (jet spray)								3
Final examination of product	7	11	8	5	3	3	4	4



#### NOTE

- (a) See 4.1.A
- (b) Numbers indicate sequence in which tests are performed.
- (c) Precondition with 5 durability cycles.
- (d) During vibration, the mated receptacle and shorting cap shall be energized at an 18°C temperature rise level and 100% connector current loading.

**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. Minimum specimen quantities are shown in Figure 3.

		Test Group								
		A	B	C	D	E	F	G1	G2	
Specimen P/N	Description	Quantity (minimum)								Total Qty
2376865-2	Receptacle Assembly	6	6	6	3(f)	5	3	5(f)	3(f)	37
2359482-2	7P Base W/O Vent	6	6	3					3	18
2361116-1	Shorting Cap			3	3	5		5		16
2359615-5	Cover	6	6	3					3	18



##### NOTE:

(f) Receptacle to be mounted to suitable sealed enclosure for test group as indicated

**Figure 3**

##### B. Test Sequence

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

##### 4.2. Requalification Testing

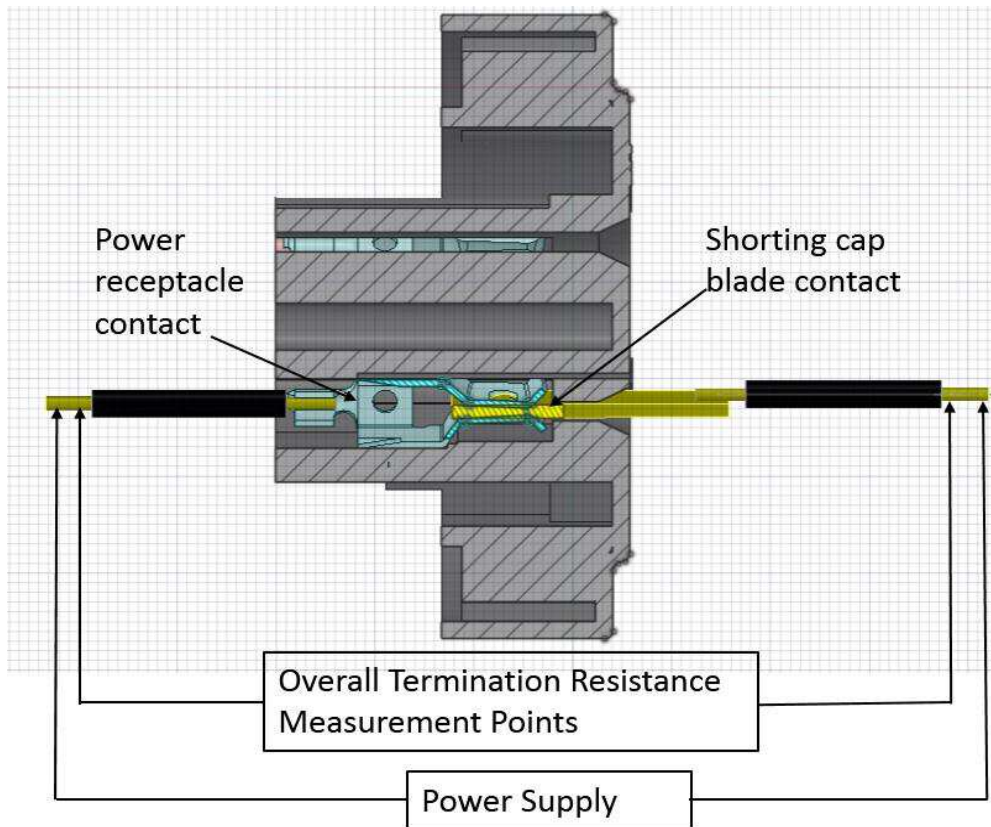
If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality, and reliability engineering.

##### 4.3. Acceptance

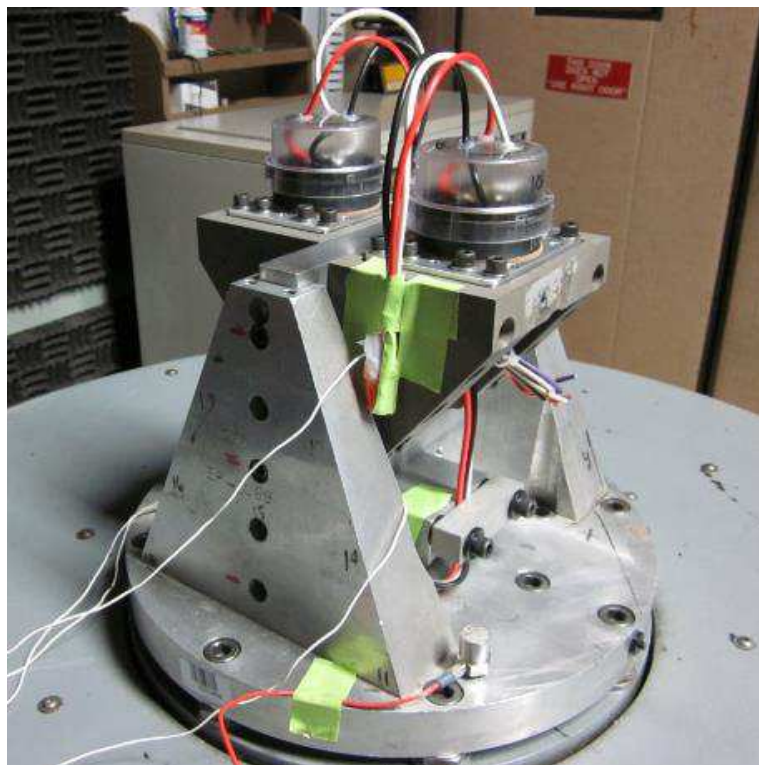
Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be implemented, and specimens resubmitted for qualification.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



**Figure 4**  
(LLCR Measurement Points)



**Figure 5**  
(Vibration and Mechanical Shock Mounting Fixture)