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**ANSI C136.41-2013 Dimming Receptacle**

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**1. SCOPE**

## 1.1. Content

This specification covers performance, tests and quality requirements for the TE Connectivity ANSI C136.41-2013 Dimming Receptacle used in dimmable roadway and area lighting applications. For test purposes, the TE Connectivity ANSI C136.41-2013 Dimming Receptacle will be mated to ANSI C136.10 compliant Shorting Caps.

**NOTE**

*TE Connectivity does not manufacture the dimmable photocell, therefore, the receptacle's dimming contact will not be subjected to any testing within this Product Specification.*

## 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. Further Qualification

Successful qualification testing on the subject product line was completed on 04-feb-15. The Qualification Test Report number for this testing is 501-134036. After test validation, this documentation will be 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 Connectivity (TE) Documents

- [114-32115](#): (Application Specification) ANSI C136.41-2013 Dimming Receptacles
- [501-134036](#): (Qualification Test Report) ANSI C136.41-2013 Dimming Receptacles

## 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

## 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, 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 114-32115.	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 3.
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)	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 unmating 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.

Figure 1 Cont.

<b>MECHANICAL</b>		
<b>Test Description</b>	<b>Requirements</b>	<b>Procedures</b>
Contact Retention in housing	10 lbs. minimum	EIA-364-29B Apply force by pulling at a rate of 25.4mm/min. on wire of contacts installed in housing.
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 4
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 unmating cycles at the rate of 120 cycles per hour.
<b>ENVIRONMENTAL</b>		
Salt Spray	See Note.	IEC 60512-11-6 Exposure time is 240 hours. Test receptacle mated to a shorting cap.
Thermal shock.	See Note.	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.	EIA-364-17, Method A, Test Condition 4, Test Time Condition B. Subject mated specimens to 100°C for 500 hours.



**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)

3.4. Product Qualification and Requalification Test Sequence

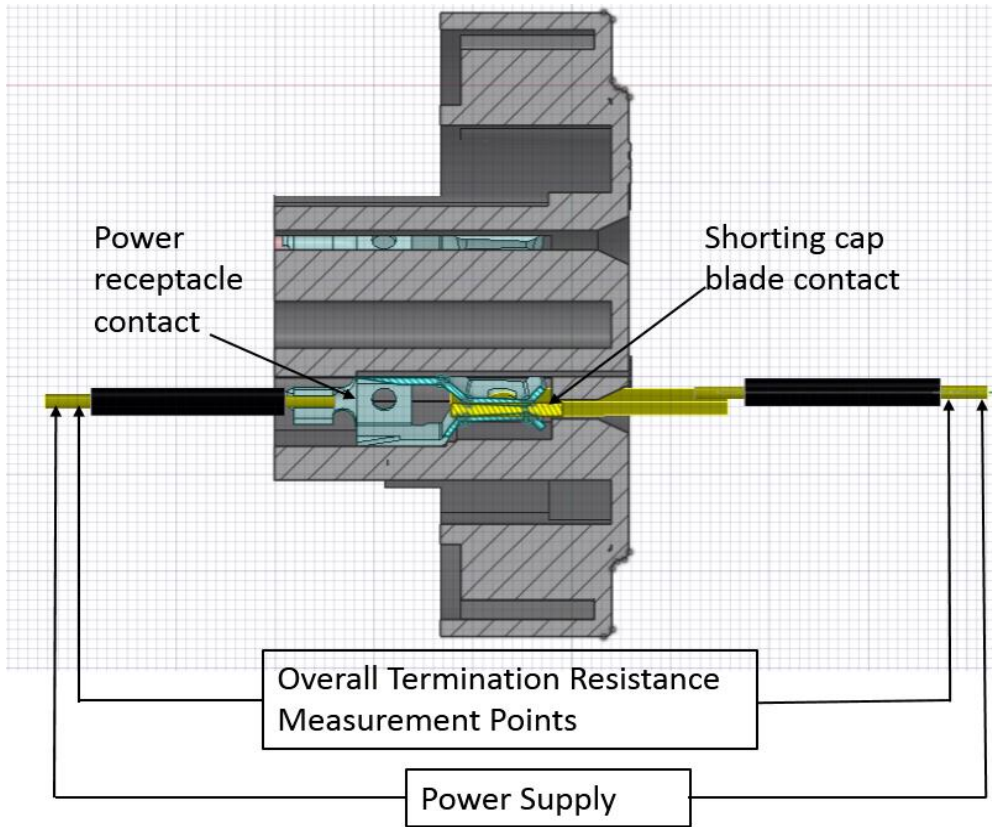
Test or Examination	Test Group (a)					
	1	2	3	4	5	6
	Test Sequence (b)					
Initial examination of product	1	1	1	1	1	1
LLCR	2,6	2,5,7,9		2,4		
Insulation resistance			2,7			
Dielectric withstanding voltage			3,6			
Current Cycling (Heating Test)					2(c)	
Temperature Rise vs. Current		3,10				
Contact 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				
Final examination of product	7	11	8	5	3	3



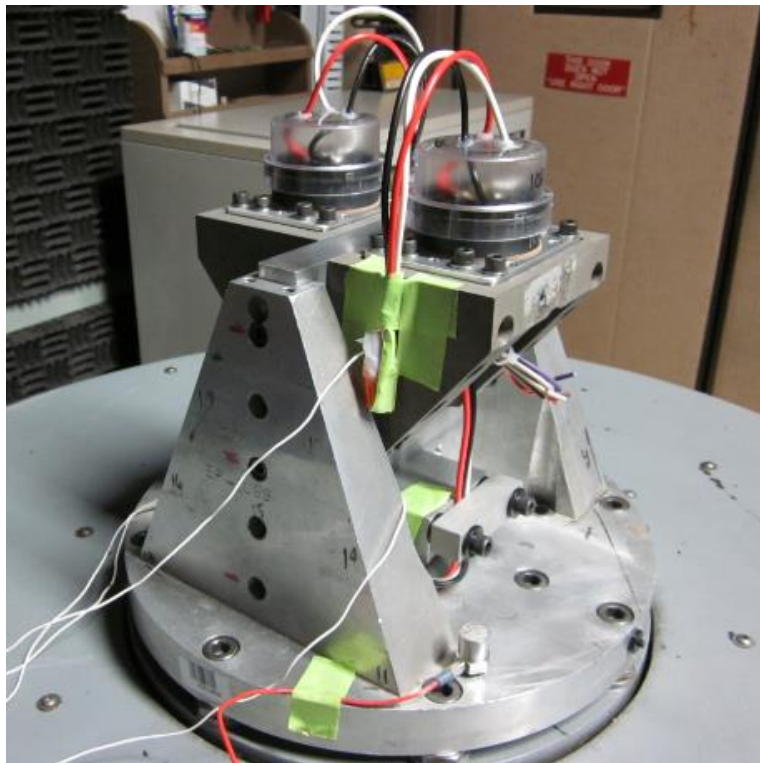
**NOTE**

- (a) Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test groups 1, 2, & 3 shall consist of a minimum of ten ANSI C136.41-2013 Dimming Receptacle. Test groups 4 through 6 consist of a minimum of three ANSI C136.41-2013 Dimming Receptacle. When testing the receptacle mated to a shorting cap, an ANSI C136.10 compliant Shorting Caps shall be used.
- (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**



**Figure 3**  
(LLCR Measurement Points)



**Figure 4**  
(Vibration and Mechanical Shock Mounting Fixture)