LUMAWISE Endurance N Tool-less Rotatable Dimming Receptacle

1. SCOPE

1.1. Content

This specification defines performance, tests and quality requirements for the sealing and mechanical mounting interface of the LUMAWISE Endurance N Tool-less Rotatable Dimming Receptacle used in dimmable roadway and area lighting applications. For most test purposes, the TE Connectivity ANSI C136.41-2013 Dimming Light Controller Base will be mated to Lumawise Endurance N Tool-less Rotatable Dimming Receptacle

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 not been completed. The Qualification Test Report number for this testing is 501-TBD.

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.

2.1. TE Documents

- 114-133144: Application Specification: LUMAWISE Endurance N Tool-less Rotatable Dimming Receptacle
- 501-134086: Qualification Test Report: LUMAWISE Endurance N Tool-less Dimming Receptacle
- 108-32059: Product Specification: ANSI C136.41-2013 Dimming Receptacles
- 114-32159: Application Specification: ANSI C136.41-2013 Dimming Light Controller Base Assembly and Cover
- 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 Photo Control 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 Photo Control and Ballast
- UL 773: Plug-In Locking Type Photo Controls for Use with Area Lighting
- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications

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 *(from 108-32059)*

- Power Contact Voltage: 600 volts AC/DC
- Power Contact Current: 15 amperes maximum per circuit at 25ºC ambient temperature

- Signal Dimming Contact Voltage: 30 volts DC
- Signal Dimming Contact Current: 1.5 amperes maximum per circuit at 25ºC ambient temperature
- Operating Temperature: -40 to +85ºC

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 and Application Specification	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.
ELECTRICAL		
Low Level Contact Resistance (LLCR).	ΔR of 30 milliohms maximum	EIA-364-23. Subject mated receptacle and Light Controller to 20 millivolts open circuit at 100 milliamperes maximum. See Figure 4 and 5.
Insulation resistance.	500 megaohms minimum.	EIA-364-21. Test unmated dimming receptacle only. Test at 500VDC level. 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 dimming receptacle only. Test between power contacts; between signal contacts; between power and signal contacts; and between power contacts and grounded mounting plate.
MECHANICAL		
Vibration	No discontinuities of 1 microsecond or longer duration. See Note (a).	Mated 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 76.2mm from rear of connector. See Figure 6.

Test Description	Requirement	Procedure
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 6.
Durability.	See Note (a)	EIA-364-9. Subject Light Controller Base and receptacle to 25 mating and un-mating cycles maximum at the rate of 120 cycles per hour.
ENVIRONMENTAL		
Salt Spray	See Note.	IEC 60512-11-6 Exposure time is 240 hours. Test mated specimens.
Thermal shock.	See Note.	EIA-364-32, Method A. 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 unmated mated specimens to 96% non-condensing humidity for 168 hours at a temperature of 50ºC.
Temperature Life – IP	Conditioning only - Must meet subsequent test requirements	EIA-364-17, Method A. Subject mated specimens to 65°C for 240 hours.
Immersion Protection 5X (dust)	No dust shall be present within the sealed area of the connection.	IEC 60529, IP5X (dust).
Immersion Protection X5 (jet spray)	No water shall be present within the sealed area of the connection.	IEC 60529, IPX5 (jet spray).

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)				
	A	B	C	D	E
	Test Sequence(b)				
Initial examination of product	1	1	1	1	1
LLCR	2,6		2, 4		
Insulation resistance		2,7			
Dielectric withstanding voltage		3,6			
Vibration	4				
Mechanical shock	5				
Durability	3				
Salt Spray			3		
Thermal shock		4			
Humidity		5			
Temperature Life - IP				2	2
Immersion Protection 5X(dust)				3	
Immersion Protection X5(jet spray)					3
Final examination of product	7	8	5	4	4

NOTE

(a) Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Reference Figure 3 for test group quantities of part numbers to be tested.

For Test Group A, the Dimming Receptacle shall be mated to Enhanced Photo Control Base, 2314786-X(any dash number with 4 dimming contacts). The Photo Control base shall have an appropriate dome assembled to it for the duration of the sequence.

For Test Groups C, D, and E, the Dimming Receptacle shall be mated to Photo Control Base, 2213871-X or 2213730-X(any dash number with 4 dimming contacts). The Photo Control base shall have an appropriate dome assembled to it for the duration of the sequence.

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

Figure 2 end

		Test Group				
		A	B	C	D	E
P/N	**Description**	Quantity(minimum)				
2332966-4	Receptacle, 7 pos.	6	6	3	3	3
2213871-2	81mmø Base, 7 pos.		6	3	3	3
2314786-1	81mmø Enhanced Base, 7 pos.	6				
1-2306130-1	81mmø Cover, Medium	6	6	3	3	3

Figure 3: Test Sample Selection

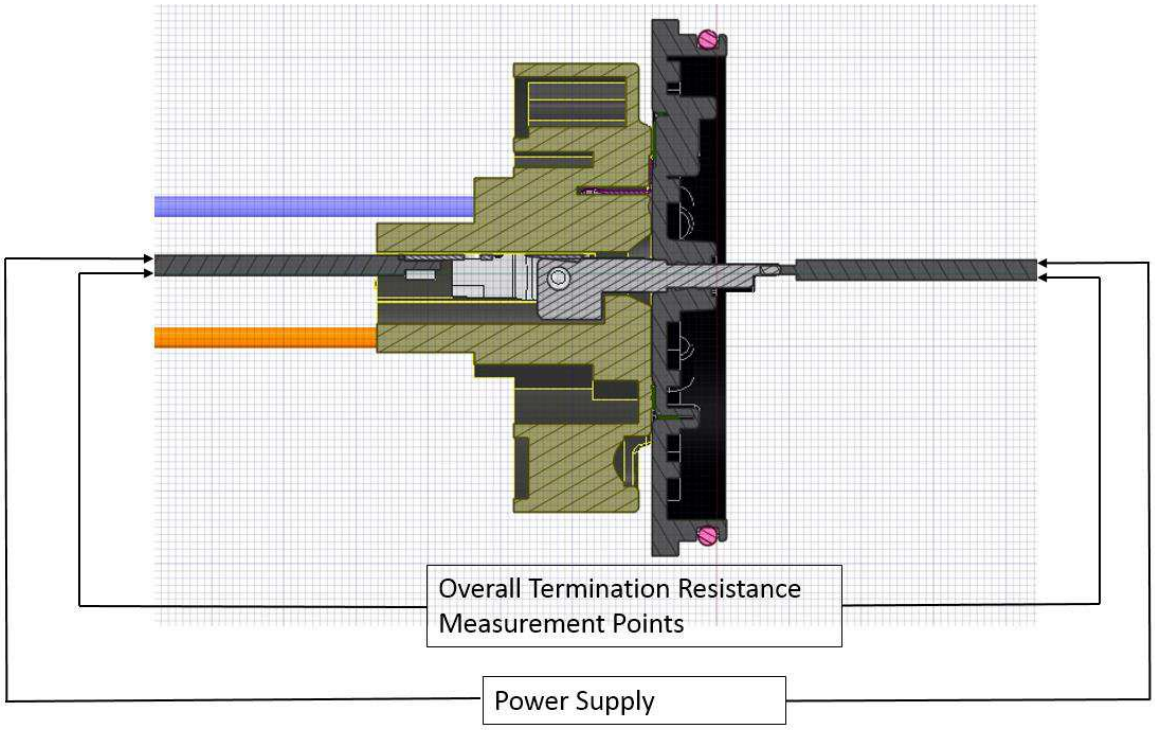

Figure 4

(LLCR Measurement Points – Power Contacts)

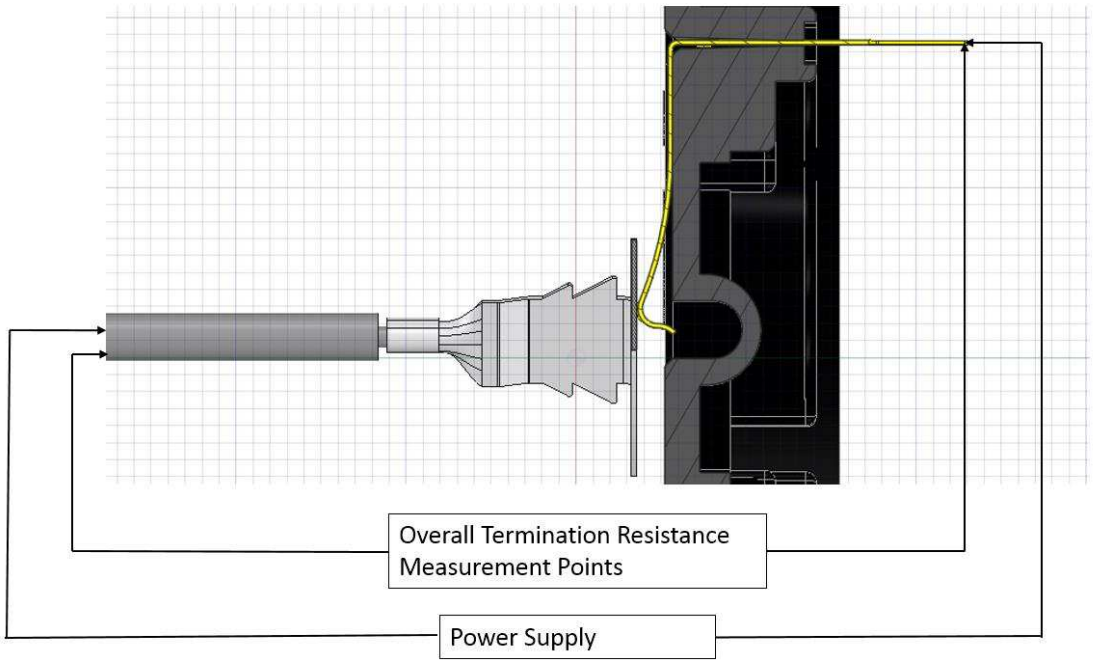

Figure 5

(LLCR Measurement Points – Signal Dimming Contacts)

(Receptacle housing removed for clarity.)

UPDATED PICTURE REQUIRED

Figure 6

(Vibration and Mechanical Shock Mounting Fixture)