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ZENITH INTERNATIONAL COMPLIANCES SERVICES CO LTD

TEST REPORT

Client Name: SHENZHEN ZHONGYUAN TECHNOLOGY CO LTD

Report No.: 2467071-1

Issued on: 2024-04-29

Address: No. 25 Xianxing Road,
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GENERAL INFORMATION AND CONCLUSION PAGE

CLIENT INFORMATION	
Applicant Name	SHENZHEN ZHONGYUAN TECHNOLOGY CO LTD
Address	2TH FLOOR,BUILDING 4,TONGGAO PLANT,SANLIAN INDUSTRIAL ZONE, SONGBAI ROAD, TANGTOU COMMUNITY,SHIYAN STREET,BAO'AN DISTRIT, SHENZHEN, GUANGDONG SHENG 518108 CHINA
Manufacturer Name	Same as above
Address	Same as above

PROJECT INFORMATION	
Product Name	Receptacle
Model(s)	ZYS-03B, ZYS-05B, ZYS-07B
Additional Description	Rated 480Vac, 15A for load control; 0-30Vdc, max 250mA for dimming signal control; Receptacles assembled with leads of size 16 or 14 AWG for line/ load and neutral, size 18 AWG for dimming signal.
Standard/Edition	ANSI C136.10-2017 ANSI C136.41-2013
Tested Period	2024-02-21 ~ 2024-03-20
Requested Service	☐ Full or partial pretest for the following certification: **[ ]** UL **[ ]** GS **[ ]** CE-LVD **[ ]** CE-EMC **[ ]** others:_____ ☒ Other commercial inspection and testing service: _____

SAMPLE RECORDS			
Sampling Information	**[X]** Submitted by the client **[ ]** Selected by ZICS		
Sample	Quantity	Description	Date Received
ZYS-07B	12	Complete, well for testing	2024-02-04
ZYS-05B	1	Complete, well for testing	2024-02-04
ZYS-03B	2	Complete, well for testing	2024-02-04

ONLY FOR SELECTION SAMPLING			
Selected by	N/A	Signature	---
Location	N/A	Date	---

CONCLUSION:

The submitted sample(s) were tested according to the standard(s) specified above and found in **COMPLIANCE WITH** the applicable requirements.

Issued on: 2024-04-29

Approved by:	Reviewed by:	Handled by:
Shawn Fei	Shawn Fei	Kelvin Xu
(Printed Name)	*(Printed Name)*	*(Printed Name)*
(Signature)	*(Signature)*	*(Signature)*

IMPORTANT DECLARATION PAGE

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Test item particulars:	
Type of Unit ..... :	Receptacle
Trade Mark ..... :	ZYS
Electrical Rating ..... :	480Vac, 15A (Load Control); 0-30Vdc, max 250mA (Dimming Signal Control)
Possible test case verdicts:	
- test case does not apply to the test object..... :	N (N/A)
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
Testing:	
Date of receipt of test item..... :	2024-02-04
Date (s) of performance of tests ..... :	2024-02-21 ~ 2024-03-20

General remarks:

This report shall not be reproduced, except in full, without the written approval of the testing laboratory.

The test results presented in this report relate only to the item(s) tested.

" (see Annex #)" refers to an annex appended to the report.

" (see appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

General product information:

Models ZYS-03B, ZYS-05B and ZYS-07B are receptacles to receive insertion by a plug of photocontrol or shorting cap. They have identical construction except for the following difference.

Model Number	Dimming Contacts
ZYS-07B	Four
ZYS-05B	Two
ZYS-03B	None

Samples of Model ZYS-07B assembled with 16AWG Line/Load and Neutral leads and 18AWG dimming leads were selected for testing purpose and considered representative of all models.

Copy of marking (representative for all models of receptacle):

Annex 1: List of critical components

Annex 2: Photos

ANSI C136.10-2017			
Clause	Requirement + Test	Result - Remark	Verdict
4	**Mechanical Requirements**		**P**
4.1	**Receptacle Type**		**P**
	The receptacle shall be of the 3 conductor or multi-conductor locking type.		P
	For 3 conductor varieties, its configuration, contacts, and limiting dimensions shall be in accordance with Figure 1.		N
	For configuration, contacts, and limiting dimensions of multi-conductor receptacles refer to ANSI C136.41.	See table 4.1	P
4.2	**Receptacle Dimensions**		**P**
	The receptacle shall be so designed that, when installed on a luminaire or other equipment, its configuration and limiting dimensions will be in accordance with Figure 2(b).	See table 4.2	P
4.3	**Receptacle Orientation**		**P**
	When mounted on a luminaire, the receptacle shall be designed and mounted so that it can be turned 350 degrees, but no more than 360 degrees, and securely positioned at an angular adjustment with ±15 degrees.		P
	The means for adjusting orientation shall be externally accessible.		P
	Upward sensing controls do not require rotating receptacles.		P
4.4	**Receptacle Mounting**		**P**
	With the luminaire mounted as intended, the seat between the receptacle and the photocontrol shall be mounted as close to horizontal as possible.		P
	Maximum deviation from the horizontal is 45 degrees.		P
4.5	**Plug Type**		**N**
	The plug used in the photocontrol, shorting cap, or open cap shall be of the 3 conductor or multi-conductor, locking type.		P
	For 3 conductor varieties, its configuration, blades, and limiting dimensions shall be in accordance with Figure 3.		N
	Blades shall be within ±5 degrees from vertical.		N
	For configuration, contacts, and limiting dimensions of multi-conductor receptacles refer to ANSI C136.41.	See table 4.5	N
4.6	**Sealing**		**P**
	A sealing means shall be provided as part of the photocontrol, shorting cap, or open cap to form a rain tight seal on the “required seat” of the receptacle. The “required seat” of the receptacle, shown in Figure 2(b), shall be a smooth flat surface.		P
	With the photocontrol, shorting cap, or open cap		

ANSI C136.10-2017			
Clause	Requirement + Test	Result - Remark	Verdict
	installed in its locking position, the sealing means shall not encroach on the area within the limiting profile of the mounting shown in Figure 2(b).		P
	No obstructions or projections other than the electrical contacts and sealing means shall project below the limiting profile shown in Figure 2(a).		P
	The configuration and limiting dimensions of the device shall be in accordance with Figure 2(a).	See table 4.6	P
	A rain tight seal is determined by compliance with test specified in Clause 6.3		N
4.7	**Shorting and Open Caps**		**N**
	The contour of the shorting or open cap housing shall be as shown in Figure 4.		N
	If the overall dimension “A” is equal to or less than 1.0 in. (25.4 mm), then the upper portion of the housing may be eliminated. Thus, dimension “B” will be the overall height.		N
4.8	**Flammability**		**P**
	A polymeric enclosure of a photocontrol, shorting cap or open cap shall have a minimum flammability rating of UL 94 HB.	See Annex 1	**P**
4.9	**Ingress Protection**		**N**
	The enclosure of a photocontrol, shorting cap, or open cap shall have an ingress protection rating of IP 53 per ANSI C136.25 that should be maintained for the rated life of the product.		N
4.10	**Plug-Receptacle Interface Temperature**		**P**
	The photocontrol, shorting cap, or open cap shall not deform when the maximum plug-receptacle interface temperature is 90°C for four hours.	See table 4.10	P
4.11	**Low-Temperature Impact**		**N**
	A polymeric enclosure of a photocontrol, shorting cap, or open cap shall be capable of withstanding exposure to low temperature.		N
	This capability is tested by exposing a complete device to the conditioning described in 4.11.1 and the impact test described in 4.11.2.		N
4.11.1	**Conditioning**		**N**
	The test sample shall be acclimated to an ambient temperature of −29.0°C ±1.0°C for 24 hours minimum.		N
	Within 10 seconds of removal from the cold chamber, the device is to be mounted into a receptacle and subjected to the impact test of 4.11.2.		N
4.11.2	**Impact Test**		**N**
	An impact of a minimum of 1 ft.-lb. (1.36 N-m) shall be applied to external surfaces, excluding the vertically mounted window, by means of a		N

ANSI C136.10-2017			
Clause	Requirement + Test	Result - Remark	Verdict
	solid, smooth, steel sphere, weighing 1.2 lbs. (0.54 kg), 2 in. (50.8 mm) in diameter, dropped from 10 in. (0.254 m).		N
	The photocontrol, shorting cap, or open cap shall meet all the requirements of this document after being subjected to the impact test.		N
5	**Electrical Requirements**		**P**
5.1	Insulation Voltage Classification		—
	Insulating materials of the receptacle and plug shall be rated 600 volts, as defined in ANSI C136.2.		P
5.2	**Receptacle Heat-Cycle Test**		**P**
5.2.1	**Setup**		—
	The temperature on the line or load receptacle contact shall be measured by means of a thermocouple attached to the outside surface of the inner blade opposite the detent of the receptacle contact.		P
	The receptacle shall be securely mounted in a horizontal position on an aluminum plate that has a minimum area of 6 in.2(38.7 cm2), 1/8 in. (0.317 cm) thick.		P
	The test shall be performed at an ambient temperature of 25°C ±5°C.		P
5.2.2	**Conditioning**		—
	A shorting cap with brass blades shall be inserted, locked, and removed five times before starting the test.		P
5.2.3	**Procedure**		—
	The same shorting cap that was used in clause 5.2.2 shall be inserted and locked into the test receptacle.		P
	A minimum current of 15 A shall be applied to the line and load contacts of the test receptacle.		P
	The current shall be applied for 15 cycles, each consisting of a 20-hour “on” period and a 4-hour “off” period.		P
5.2.4	**Pass/Fail Criteria**		—
	The receptacle shall be considered to have failed if the temperature rise on the receptacle contacts at the end of any 20-hour period is greater than 30°C.	See table 5.2	P
5.3	**Dielectric Withstand**		**N**
	Photocontrols, shorting caps, or open caps shall meet the dielectric withstand requirements of C136.2.		N

ANSI C136.10-2017			
Clause	Requirement + Test	Result - Remark	Verdict
	For multi-conductor photocontrols of the C136.41 variety, all electrical connections shall be considered “current carrying.		N
6	**Environmental Requirements**		**N**
6.1	**Ambient Temperature Range**		**N**
	Photocontrols, shorting caps, or open caps and receptacles shall operate over the ambient temperature range of −40°C to 65°C.		N
6.2	**Temperature Test**		**N**
	With receptacle mounted to a test plate as defined in Clause 5.2.1, in a draft free room set at the highest rated ambient temperature.		N
	The photocontrol, shorting cap, or open cap, is to be operated at its rated load, voltage and frequency until steady state temperatures are attained.		N
	The temperature rise of any component shall not alter or render inoperative any material or component part.		N
6.3	**Environmental Tests**		**N**
	The photocontrol, shorting cap, or open cap, when properly installed in its receptacle mounting, shall pass the environmental tests as described in clauses 6.3.1, 6.3.2, 6.3.3, and6.3.4.		N
6.3.1	**Humidity Test**		**N**
	The assembly of the photocontrol, shorting cap, or open cap and receptacle shall be exposed to 96% ±2% relative humidity at 50°C ±2°C for 168 hours when operating at rated voltage and load.		N
	The photocontrol shall be cycled on for 12 hours and off for 12 hours for the duration of the test.		N
	Within 1 minute of its removal from the humidity chamber, the assembly shall be subjected to the dielectric voltage withstand requirements described in clause 5.3		N
	Within 10 minutes after the removal from the humidity chamber, the photocontrol shall meet the light level requirements of clause 10.1.		N
6.3.2	**Rain Test**		**N**
	The assembly of the photocontrol, shorting cap, or open cap and receptacle shall be subjected to the rain tightness test described in UL 773.		N
	Within 5 minutes after completion of the rain test, the device shall be tested and shall meet the dielectric voltage withstand requirements of clauses 5.3 and the operational requirements of section 10.		N
	Furthermore, the sealing requirements of clause 4.6 shall be validated.		N
6.3.3	**Weathering Test**		**N**
	All components of the housing assembly of the		N

ANSI C136.10-2017			
Clause	Requirement + Test	Result - Remark	Verdict
	photocontrol, shorting cap, or open cap shall be subjected to a closed environmental UVB chamber in accordance to ASTM G154-12a.		
	The test specimens shall be positioned on the platform so that they are exposed directly to the arc tube of the lamp.		N
	The specimens shall be located between 4 inches and 8 inches away from the lamp.		N
	A typical exposure cycle includes 8 hours of UV exposure at 50°C ±2°C followed by a 4 hour condensation period at 40°C ±2°C.		N
	Exposure periods shall be 504 hours (21 days) for a standard life photocontrol and 1,008 hours (42 days) for a long life photocontrol.		N
	Following exposure, the samples shall meet the requirements of the impact test described in 4.11.2 (at 25°C ±2°C) and the light level requirements of clause 10.1.		N
6.3.4	**Salt Spray (Fog) Test**		N
	The assembly of the photocontrol, shorting cap, or open cap and receptacle shall be subjected to a fine mist of salt solution, per ASTM B117-11 standard.		N
	The test chamber shall be held at 35°C for the duration of the test.		N
	The specimens shall be supported or suspended between 15 and 30 degrees from the vertical and preferable parallel to the principal direction of horizontal flow of fog through the chamber.		N
	Exposure periods are 240 hours (10 days) for a standard life photocontrol and 480 hours (20 days) for a long life photocontrol.		N
	Following the exposure, external surfaces may be cleaned per ASTM B117-11 and then allowed to dry in a 40% ±5% relative humidity at 25°C ±5°C environment for no more than 2 hours.		N
	Immediately following the dry time, test specimens shall be tested for operation and shall meet the requirements of clauses 5.3 and 10.1.		N
7	**Surge Performance Requirements**		**N**
7.1	**Photocontrol, Shorting Cap, and Open Cap**		**N**
	When surge protection is provided, the photocontrol, shorting cap, or open cap shall withstand the combination wave test as outlined in ANSI C136.2 with the clarifications noted in Table 1 of this standard.		N
	The device shall be tested according to the design life classification of the device per section 9.2.		N
	Unless otherwise specified, surge protection for shorting and open caps shall be designed to operate at 120V, 208V, 240V, 277V, and 480V line voltages.		N

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Clause	Requirement + Test	Result - Remark	Verdict
7.2	**Pass/Fail Criteria**		—
	Damage that results in a photocontrol, shorting cap, or open cap not meeting the test requirements specified in clauses 5.3 and 6.3.2 shall indicate a failure of the device.		N
	Additionally, damage that results in a photocontrol not meeting the operating requirements specified in clause 10 shall indicate a failure of the device.		N
8	**Marking and Color Coding**		**P**
8.1	**Marking**		N
	The photocontrol enclosure should be color coded in accordance with clause 8.3 and shall be clearly and permanently marked with its voltage rating, load ratings, north orientation, rotation of installation and removal, the name of the manufacturer, and the model number.		N
	The color coding of the photocontrol enclosure shall be permanent for the life of the control.		N
	North orientation marking is not required on upward sensing type photocontrols.		N
8.2	**Receptacle Marking**		**P**
	The rotatable receptacle or adjustment assembly shall be permanently marked with a north reference mark indicated by an arrow and “N” or “NORTH” in the position as shown in Figure 2.	See copy of marking	P
8.3	**Photocontrol Color Coding**		**N**
	Table 2 includes photocontrol color coding by voltage rating and operating voltage and represents recommended color coding designations.		N
	This table is supplied for historic reference.		N
	Alternate photocontrol cover colors may be specified by the end user		N
8.4	**Shorting and Open Cap Color coding**		**N**
	Shorting caps shall be color coded black.		N
	Open caps shall be color coded red.		N
9	**Ratings**		**N**
9.1	**Load Ratings**		**N**
	The photocontrol shall have a minimum load rating of both 1,000 watts incandescent lamp load and 1,800 VA magnetic ballasted load.		N
	Photocontrols rated for electronic loads do not have a minimum required electronic load rating but shall be tested according to the procedure described in section 11.7 to validate the claimed rating (in Amperes).		N

ANSI C136.10-2017			
Clause	Requirement + Test	Result - Remark	Verdict
9.2	**Design Life Classification**		**N**
	Photocontrols, shorting caps, or open caps shall be classified based on their ability to pass the performance requirements of this document.		N
	Literature shall include the design life classification “Standard Life” or “Long Life.”		N
	Long Life photocontrols, shorting caps, and open caps shall meet the Long Life requirements specified in clauses 6.3.3, 6.3.4, and 7.1.		N
	Long life photocontrols shall also meet the Long Life requirements in clauses 11.4, 11.5, 11.6.		N
	For electronic load rated devices, clause 11.7 applies.		N
9.3	**Luminaire System Protection**		**N**
	Photocontrols, shorting caps, or open caps designated for luminaire system protection shall limit the maximum surge voltage to 3000 V_{PEAK} when tested at the rated surge level.		N
10	**Operating Requirements**		**N**
10.1	**Photocontrol Calibration**		**N**
	The photocontrol shall turn on within the limits of +100% (twice) and −50% (half) of its calibrated light level setting at rated voltage and frequency:		N
	Over a range of input voltages as indicated in clause 8.3 and an ambient temperature of 25°C ±5°C.		N
	Photocontrols designed to operate over several voltages shall operate within the above limits when operated at the upper voltage rating.		N
	Over a range of ambient temperatures from −40°C to 65°C with relative humidity up through 96% when operated at nominal voltage.		N
	Photocontrols designed to operate at 120/240 V, 208/240/277 V, or 120/208/240/277V shall operate within the above limits when operated at the upper voltage rating.		N
10.2	**Light Levels**		**N**
	Measurements and calibration for operating light levels shall be in accordance with the following clauses.		N
10.2.1	**Mounting**		**N**
	All measurements of operating light levels shall be based on the performance of photocontrols mounted fully exposed to the sky to within 5° of true horizon and shielded from artificial light.		N
	Photocontrols requiring north orientation shall be oriented to within 15° of true north.		N
	Operating light levels are defined in foot-candles of daylight illuminations as determined by		

ANSI C136.10-2017			
Clause	Requirement + Test	Result - Remark	Verdict
	measurements with a conventional color corrected photometer held in a vertical plane, facing within		N
	15° of true north and within 5° of true horizon, and located within 1 ft. (0.305 m) vertically and 15 ft. (4.572 m) laterally of the photocontrol under test.		N
	All measurements shall be made to a precision of ±15%.		N
	Instrument accuracy shall be maintained by proper calibration against filament lamp candlepower standards, traceable to the National Institute of Standards and Technology (NIST).		N
10.2.2	**Measurements**		**N**
	The nominal or rated operating light levels shall be determined by the average of measurements taken in accordance with 10.2.1 on at least three clear, cloudless days.		N
	The photocontrol shall be operated at rated voltage and frequency.		N
10.2.3	**Illumination**		**N**
	Measurement and/or adjustment of the photocontrol operating light levels under illumination shall be correlated to average performance under daylight illumination in accordance with 10.2.1 and 10.2.2.		N
10.3	**Specifications**		**N**
	Light levels shall be measured according to the procedure outlined in clause 10.2.1. Standard light levels commonly used are the following:		N
	The photocontrol is to be adjusted to turn on at 1.5 fc ±0.5 fc (16.1 lux ±5.4 lux) and a maximum turn-off at 6 fc (65 lux), as measured in accordance with clause 10.2.3; or		N
	For areas with average night pavement illumination greater than 1.0 fc (10.8 lux), a north facing photocontrol should turn on at 1.6 times the average design pavement illumination with the turn-off not to exceed three times the turn-on light level; or		N
	As specified by the user.		N
11	**Load Test Procedures**		**N**
11.1	**Load Test Supply**		**N**
	The load test supply shall be capable of providing an instantaneous inrush current per Table 3.		**N**
	If the electronic load test of clause 11.7 is required, the source shall also provide minimum inrush currents per Table 5.		N
	Note: The supply voltage may dip during the inrush current pulse provided that the minimum inrush levels are still met.		**N**
11.2	**Test Cycle**		**N**

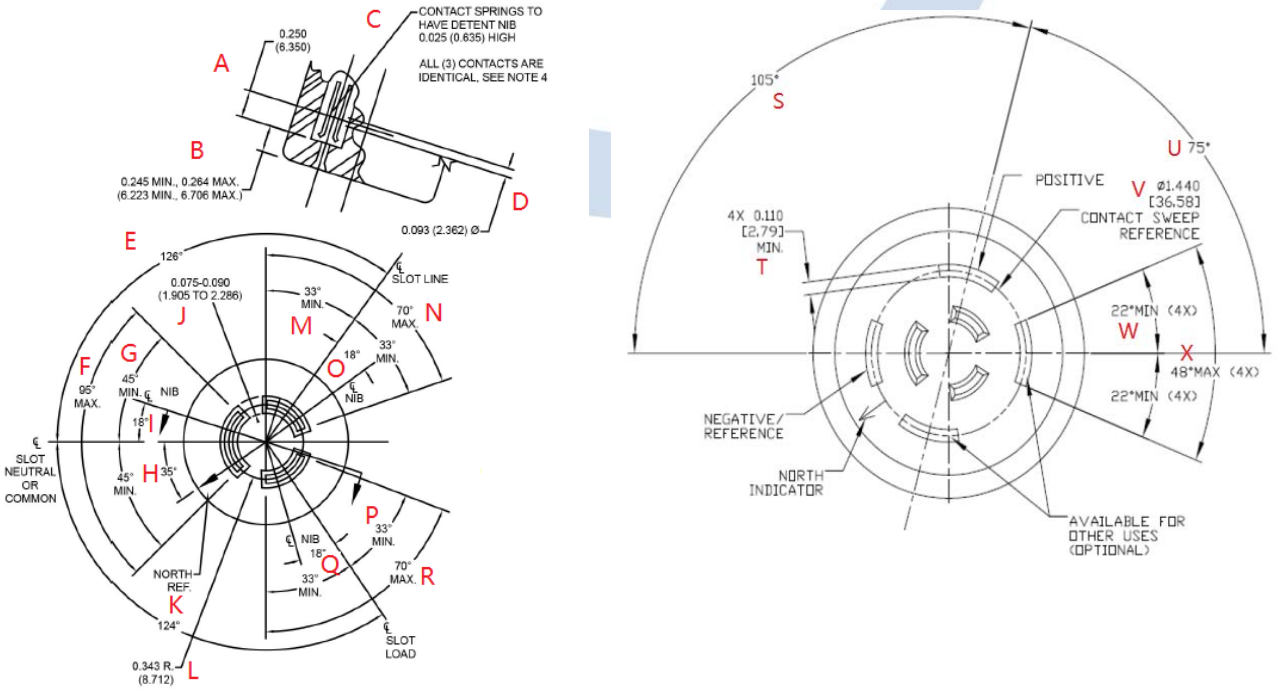
ANSI C136.10-2017			
Clause	Requirement + Test	Result - Remark	Verdict
	The photocontrol shall be cycled at a rate no faster than 1 cycle in 4 minutes, as described, with the following time period: dark for 1.5 min., then maintained at 20 fc (215 lux) minimum for		
11.3	**Continuous Current Load Test**		**N**
	The photocontrol shall be tested for 4 hours with a continuous current load of 15 amps for devices rated from 120–277 volts and 5 amps for devices rated from 347–480 volts.		N
	The photocontrol shall be tested at an ambient temperature of 25°C ±5°C and a plug-receptacle interface temperature of 90°C ±5°C.		N
	This test shall be performed in a draft free environment.		N
	After the test, the control shall meet the requirements of clauses 6.3.1, 6.3.2, 7.1, 10.3, 11.4, 11.5, 11.6, and for electronic load rated devices, 11.7.		N
11.4	**Incandescent Lamp Load Test**		**N**
	The photocontrol shall be connected to a supply as described in clause 11.1.		N
	The lamp load shall be a single 1,000 watt, 120 volt tungsten filament lamp for photocontrols rated at 120 volts.		N
	For photocontrols rated at 208 volts, 240 volts, 277 volts, 347 volts, and/or 480 volts, a suitable series/parallel combination of tungsten filament lamps shall be used that provide a 1,000 watt load.		N
	Photocontrols rated for multiple voltages need only to be tested at the lowest and highest voltage rating.		N
	The photocontrol shall complete a minimum of 3,650 cycles as per clause 11.2 with no failure to transfer the load.		N
	Photocontrols classified as Long Life shall complete a minimum of 7,300 cycles as per clause 11.2 with no failure to transfer the load.		N
11.5	**AC Capacitor Load**		**N**
	The photocontrol shall be connected to a supply as described in clause 11.1.		N
	The AC capacitor load shall be in accordance with Table 4.		N
	The load capacitor shall be an oil-filled, film type with a parallel bleeding resistor sufficient to fully discharge the capacitor during the off cycle described in 11.2.		N
	Photocontrols rated for multiple voltages need only to be tested at the lowest and highest voltage rating.		N
	The photocontrol shall complete a minimum of 3,650 cycles as per clause 11.2 with no failure to		N

ANSI C136.10-2017			
Clause	Requirement + Test	Result - Remark	Verdict
	transfer the load.		
	Photocontrols classified as Long Life shall complete a minimum of 7,300 cycles as per clause 11.2 with no failure to transfer the load.		N
11.6	**Inductive Load**		**N**
	The photocontrol shall be connected to a supply as described in clause 11.1.		N
	The inductive load shall be configured to provide a power factor of 0.4 to 0.6 and current sufficient to create the VA rating of the control at the rated voltage.		N
	Photocontrols rated for multiple voltages need only be tested at the lowest and highest voltage rating.		N
	The photocontrol shall complete a minimum of 3,650 cycles as per clause 11.2 with no failure to transfer the load.		N
	Photocontrols classified as Long Life shall complete a minimum of 7,300 cycles as per clause 11.2 with no failure to transfer the load.		N
11.7	**Electronic Load**		**N**
	The following load test is only required for photocontrols rated for electronic loads.		N
	The electronic load test circuit (see Figure 5 as a reference circuit) shall produce the peak current levels and pulse width in Table 5 as illustrated in Figure 6.		N
	Impedance, Z, is used in conjunction with capacitance, C, to create the required peak inrush current and current pulse width in Table 5 when the photocontrol is switched at peak line voltage.		N
	Resistance, R, should be sized to fully discharge capacitor C during the off cycle.		N
	Switch S1 can optionally be replaced with a short circuit. Otherwise, it is closed when the photocontrol is electrically open.		N
	A steady state load is not required by the test.		N
	Photocontrols classified as Standard Life shall complete a minimum of 3,650 cycles as per clause 11.2 with no failure to transfer the load.		N
	Photocontrols classified as Long Life shall complete a minimum of 7,300 cycles as per clause 11.2 with no failure to transfer the load.		N
	The cycle rate defined in section 11.2 may be increased to no faster than one every ten seconds while maintaining minimum inrush current and capacitor discharge requirements.		N
	Photocontrols rated at multiple voltages need only to be tested at the highest rated voltage and specified current rating.		N

ANSI C136.41-2013			
Clause	Requirement + Test	Result - Remark	Verdict
6	**Mechanical Requirements**		**P**
6.1	**Plug Type**		—
	The plug used in a dimmable photocontrol (or more broadly, a locking-type dimmable control device) shall be configured with the standard 3 conductors as defined in ANSI C136.10-2010 (referenced in **Figure 2**),with the addition of two (optionally four) spring type conductors as shown in **Figure 6** with limiting dimensions per **Figure 1**.		N
	The type of conductor may be of spring pin type or a bent metal member with a spring quality.		N
	If using a bent metal member, it shall be formed with a low stress relaxation material (e.g.,beryllium copper alloy, copper nickel silicon alloy).		N
	The conductors shall have the appropriate mechanical strength and current-carrying capacity required for the dimmable photocontrol application.		N
	The material surface shall be gold plated with nickel under-plating to prevent galvanic corrosion and ensure compatibility with various producers of compliant receptacles. The gold plating should be Type II, Class 0.75 per ASTM B-488-11.		N
6.2	**Receptacle Type**		—
	The receptacle shall be configured with the standard 3 conductors as defined in ANSI C136.10-2010 (referenced in Figure 3 and Figure 4), with the addition of two (optionally four) conductive pads with limiting dimensions per **Figure 5**.		P
	The pad surfaces shall be gold plated with nickel under-plating to prevent galvanic corrosion and ensure compatibility with various producers of compliant controls. The gold plating should be Type II, Class 0.75 per ASTM B-488-11.		P
	If the dimming control connector or the receptacle is supplied with wire leads:		—
	The dimming control wire leads attached to this plug shall be 18 American Wire Gauge (AWG) or larger. Insulation shall be rated 105 °C, 600V minimum. The wire should also be outdoor rated and ROHS compliant.		P
	For polarity sensitive control circuits (e.g., 0-10V), the positive dimming conductor shall have insulation which is violet in color and the reference dimming conductor shall have insulation which is gray in color.		N
6.3	**Vibration Test**		**P**
	The plug used in a locking-type dimmable control device shall be installed in a compliant, dimmable receptacle, and subject to the vibration test specified in ANSI C136.31.		P

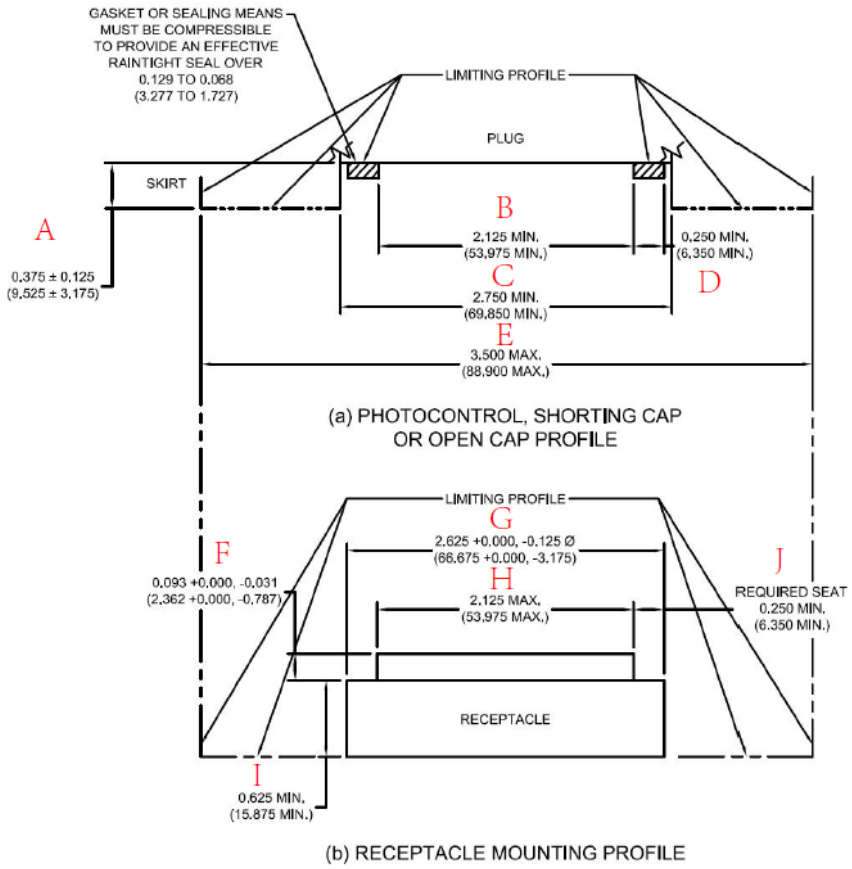
ANSI C136.41-2013			
Clause	Requirement + Test	Result - Remark	Verdict
	The plug and receptacle shall be mounted to the vibration table in a manner that is consistent with the way the receptacle is mounted in the		P
	The frequency range may be extended to 55 Hz to find a fundamental resonant frequency. If a fundamental resonant frequency is not found, a sweep from 2 Hz to 55 Hz at 1 octave/minute shall be run for one hour.		P
	The test shall be run with a displacement of 0.250 inches or an acceleration of 3. 0 G (29.4 m/s2) measured at the receptacle, whichever is less.		P
	Contact resistance of the dimming conductors shall not exceed 1.0 ohms after the vibration test (receptacle wires may be omitted from the measurement).	See table 6.3	P
7	**ELECTRICAL REQUIREMENTS**		**P**
7.1	**Plug Type**		**N**
	See the reference specification for the particular dimming method used for proper electrical requirements.		N
	In general, voltage and current limitations of the spring contact shall comply with the applicable dimming standard.		N
	Safety standards, such as UL 773 might involve additional electrical requirements and limitations.		—
	This standard does not address these requirements.		—
7.2	**Receptacle Type**		**P**
	The receptacle shall be capable of withstanding the voltage and current requirements of both the 0-10VDC dimming method and DALI.		P
	For the purposes of this standard, the conductive dimming pads shall be capable of carrying 250mA and shall be limited to 30VDC.		P
8	**MARKING REQUIREMENTS**		**N**
	In addition to the marking requirements of ANSI C136.10-2010, the photocontrol (control device) shall be clearly marked with the control method utilized, 0-10VDC, DALI, or other.		N
	If other, the label may be more descriptive to describe the method or simply “OTHER”.		N
	The luminaire shall be clearly marked (labeled), indicating the compatible control method as 0-10VDC, DALI, or other.		N
	This marking shall be located on the external surface such that it is visible during typical photocontrol installation.		N

4.1	TABLE: Locking Type Receptacle Dimensions			P
Location	1st sample	2nd sample	3rd sample	Limit
A	6.39	6.40	6.39	6.350 ± 0.127 mm
B	6.45	6.46	6.45	6.223 ~ 6.706 mm
C	0.68	0.69	0.68	0.635 ± 0.127 mm
D	2.47	2.45	2.47	Ø2.362 ± 0.127 mm
E	126.2	126.3	126.2	126 ± 0.5°
F	92.8	92.6	92.6	Max 95°
G	48.3	48.4	48.2	Min 45°
H	35.4	35.2	35.3	35 ± 0.5°
I	18.3	18.2	18.3	18 ± 0.5°
J	2.16	2.18	2.17	1.905 ~ 2.286 mm
K	124.3	124.2	124.3	124 ± 0.5°
L	8.64	8.65	8.63	8.712 ± 0.127 mm
M	34.8	34.9	34.8	Min 33°
N	67.9	68.1	68.1	Max 70°
O	18.2	18.1	18.2	18 ± 0.5°
P	35.1	35.2	35.1	Min 33°
Q	18.3	18.2	18.3	18 ± 0.5°
R	67.8	67.7	67.8	Max 70°
S	105.3	105.1	105.3	105 ± 0.5°
T	4.78	4.78	4.76	Min 2.79 mm
U	75.2	75.3	75.2	75 ± 0.5°
V	36.52	36.53	36.52	36.58 ± 0.127 mm
W	22.8	22.7	22.6	Min 22°
X	45.4	45.3	45.3	Max 48°



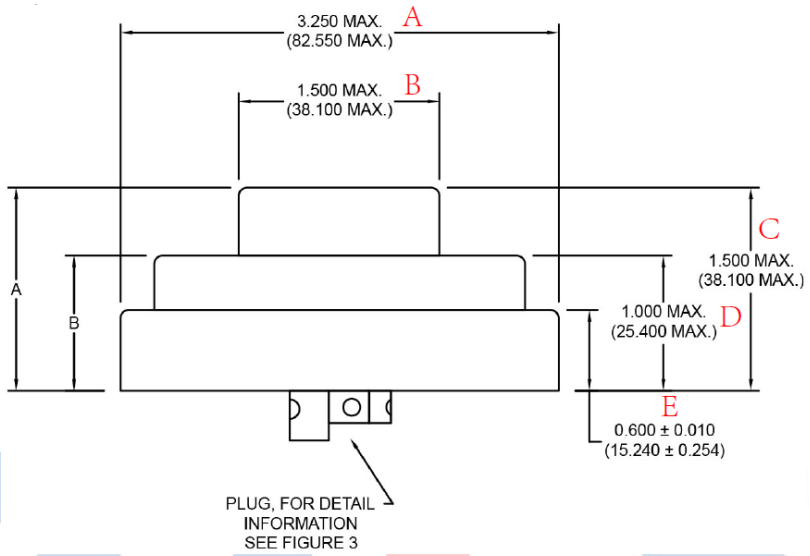
4.6	TABLE: Photocontrol Profile			N
Location	1st sample	2nd sample	3rd sample	Limit (mm)
A	—	—	—	9.525 +3.175/- 3.175
B	—	—	—	Min 53.975
C	—	—	—	69.850 ~ 88.900
D	—	—	—	Min 6.350
E	—	—	—	Max 88.900

4.2	TABLE: Receptacle Mounting Profile			P
Location	1st sample	2nd sample	3rd sample	Limit (mm)
F	1.80	1.79	1.80	2.362 +0.000/- 0.787
G	63.58	63.59	63.58	66.675 +0.000/- 3.175
H	47.62	47.64	47.62	Max 53.975
I	16.03	16.05	16.05	Min 15.875
J	7.98	7.98	7.98	Min 6.350



4.7	TABLE: Shorting and Open Caps Dimensions	N

Location	Measured	Limit (mm)
A	—	Max 82.550
B	—	Max 38.100
C	—	Max 38.100
D	—	Max 25.400
E	—	15.240 ± 0.254



4.10	Table: Plug-Receptacle Interface Temperature	P

Chamber Temperature, ºC	Duration, hours	Enclosure deformed (Yes/No)
90	4	No

5.2	Table: Receptacle Heat-Cycle Test				P
Test Model			ZYS-07B		—
Test Current			15 A		—
Cycle Rate			On: 20 hours, Off: 4 hours		—
Number of cycles			15 cycles		—
Test Duration			15 days		—
Thermocouple Location	Max Measured Temperature, °C	Measured Ambient, °C	Temperature Rise, °C	Temperature Rise Limit, ºC	
Receptacle Line Contact	50.6	25.1	25.5	30	
Receptacle Load Contact	51.1	24.9	26.2	30	

5.3	TABLE: Dielectric Withstand				N
Condition	Test voltage applied between:	Test Voltage (Vac)	Dwell Time (min)	Flashover / Breakdown (Yes/No)	
As received	between all poles connected together and the body	—	1	—	
After Humidity Test				—	
After Rain Test				—	
Salt Spray (Fog) Test				—	
After Surge Test				—	
After Continuous current load test, surge test and rain test				—	
After Continuous current load test and humidity test				—	

Test Voltage = 2 x V_{in} +1000

V_{in} refers to maximum allowed DUT input voltage

6.2	**TABLE: Temperature Test**			**N**
	Test Voltage		—	—
	Test Current		—	—
	Test Ambient		—	—
TC No	Thermocouple Location	Measured Temperature, °C		Limits, °C
1	—	—		—
2	—	—		—
3	—	—		—
4	—	—		—
5	—	—		—
6	—	—		—
7	—	—		—
8	—	—		—
9	—	—		—
10	—	—		—

10	**TABLE: Operating Requirements**				**N**
Ambient (°C)	Condition	Test voltage (Vac)	Turn on (Lux)	Turn off (Lux)	
25 ± 5	As received	—	—	—	
		—	—	—	
65 ± 5		—	—	—	
		—	—	—	
-40 ± 5		—	—	—	
		—	—	—	
25 ± 5	After Weathering Test	—	—	—	
		—	—	—	
65 ± 5		—	—	—	
		—	—	—	
-40 ± 5		—	—	—	
		—	—	—	
25 ± 5	After Salt Spray (Fog) Test	—	—	—	
		—	—	—	
65 ± 5		—	—	—	
		—	—	—	
-40 ± 5		—	—	—	
		—	—	—	
25 ± 5	After Continuous Current Load and Humidity Test	—	—	—	
		—	—	—	
65 ± 5		—	—	—	
		—	—	—	
-40 ± 5		—	—	—	
		—	—	—	
25 ± 5	After Continuous Current Load and Surge, Rain test	—	—	—	
		—	—	—	
65 ± 5		—	—	—	
		—	—	—	
-40 ± 5		—	—	—	
		—	—	—	
Supplementary information: When turn on mode, ambient luminance shall be between 16Lux±6 Lux, turn off mode ambient luminance shall <65Lux.					

11.4	TABLE: Incandescent Lamp Load				N
Life Classification			Failure to transfer the load after required number of operations（Yes/No）		
—			—		
	Rated	Actual	Rated	Actual	
Cat. No.	—		—		
Sample No.	—		—		
Wire size, AWG No	—	—	—	—	
Test based on rating of - Interrupting poles	—	—	—	—	
Relay Configuration NO/NC	—	—	—	—	
A (Tungsten Lamp Load)	—	—	—	—	
Phase	—	—	—	—	
Frequency, Hz	—	—	—	—	
Rated, V	—	—	—	—	
Open-circuit voltage	—	—	—	—	
Closed-circuit voltage	—	—	—	—	
Test Current, A	—	—	—	—	
Power factor, percent	—	—	—	—	
Number of test operations	—	—	—	—	
Ambient, °C	—	—	—	—	
Method of operation	—		—		
Time on, min	—	—	—	—	
Time off, min	—	—	—	—	

NO – Designates normally open contact.
NC – Designates normally closed contact.

11.5	TABLE: AC Capacitor Load				N
Life Classification			Failure to transfer the load after required number of operations（Yes/No）		
—			—		
	Rated	Actual	Rated	Actual	
Cat. No.	—		—		
Sample No.	—		—		
Wire size, AWG No	—	—	—	—	
Test based on rating of - Interrupting poles	—	—	—	—	
Relay Configuration NO/NC	—	—	—	—	
A (Capacitor Load)	—	—	—	—	
Phase	—	—	—	—	
Frequency, Hz	—	—	—	—	
Rated, V	—	—	—	—	
Open-circuit voltage	—	—	—	—	
Closed-circuit voltage	—	—	—	—	
Test Current, A	—	—	—	—	
Percent of rated current	—	—	—	—	
Power factor, percent	—	—	—	—	
Number of test operations	—	—	—	—	
Ambient, °C	—	—	—	—	
Method of operation	—		—		
Time on, s	—	—	—	—	
Time off, s	—	—	—	—	

NO – Designates normally open contact.
NC – Designates normally closed contact.

11.6	TABLE: Inductive Load				N
Life Classification			Failure to transfer the load after required number of operations（Yes/No）		
—			—		
	Rated	Actual	Rated	Actual	
Cat. No.	—		—		
Sample No.	—		—		
Wire size, AWG No	—	—	—	—	
Test based on rating of - Interrupting poles	—	—	—	—	
Relay Configuration NO/NC	—	—	—	—	
A (Inductive Load)	—	—	—	—	
Phase	—	—	—	—	
Frequency, Hz	—	—	—	—	
Rated, V	—	—	—	—	
Open-circuit voltage	—	—	—	—	
Closed-circuit voltage	—	—	—	—	
Test Current, A	—	—	—	—	
Power factor, percent	—	—	—	—	
Number of test operations	—	—	—	—	
Ambient, °C	—	—	—	—	
Method of operation	—		—		
Time on, min	—	—	—	—	
Time off, min	—	—	—	—	

NO – Designates normally open contact.
NC – Designates normally closed contact.

11.7	TABLE: Electronic Load				N
Life Classification			Failure to transfer the load after required number of operations（Yes/No）		
—			—		
	Rated	Actual	Rated	Actual	
Cat. No.	—		—		
Sample No.	—		—		
Wire size, AWG No	—	—	—	—	
Test based on rating of - Interrupting poles	—	—	—	—	
Relay Configuration NO/NC	—	—	—	—	
A (Inductive Load)	—	—	—	—	
Phase	—	—	—	—	
Frequency, Hz	—	—	—	—	
Rated, V	—	—	—	—	
Open-circuit voltage	—	—	—	—	
Closed-circuit voltage	—	—	—	—	
120Vac Peak Current, A	—	—	—	—	
277Vac Peak Current, A	—	—	—	—	
120Vac Pulse Width, ms	—	—	—	—	
277Vac Pulse Width, ms	—	—	—	—	
Power factor, percent	—	—	—	—	
Number of test operations	—	—	—	—	
Ambient, °C	—	—	—	—	
Method of operation	—		—		
Time on, s	—	—	—	—	
Time off, s	—	—	—	—	

NO – Designates normally open contact.
NC – Designates normally closed contact.

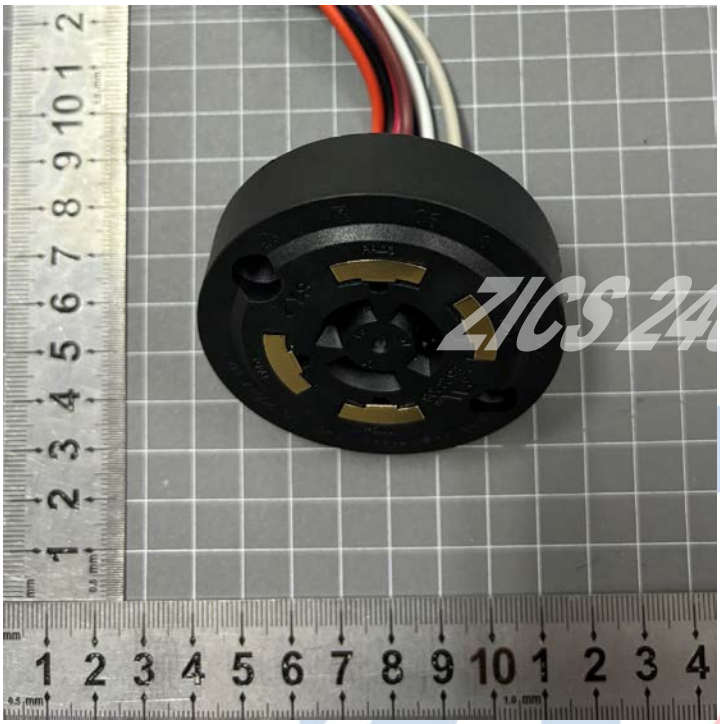
6.3	Table: Vibration Test					P
Condition of vibration:		Contact Resistance (mΩ) after vibration				
Frequency range:	2Hz to 55Hz	Dimming Pin	1#	2#	3#	4#
Acceleration:	3.0 G	1st sample	20.5	21.2	19.8	21.0
Duration per axes:	1 h	2nd sample	20.9	20.4	21.2	19.8
Total duration:	3 h	3rd sample	21.0	21.3	20.3	20.6
Note: Receptacle wires not omitted from the measurement						

Annex 1 – List of critical components

Object/Part No	Manufacturer/ Trademark	Type/Model	Technical Data	Standard	Mark(s) of Conformity
Receptacle Body	Covestro Deutschland AG [PC Resins]	6485 + (z)(f2)	V-0, RTI 115°C	UL94	UL file E41613
Contact Cover	Covestro Deutschland AG [PC Resins]	6485 + (z)(f2)	V-0, RTI 115°C	UL94	UL file E41613
Line/Load, Neutral Contact Terminals	Various	—	Copper alloy	—	Tested with appliance
Dimming Contacts	Various	—	Copper alloy, with gold plating and nickel under-plating	—	Tested with appliance
Gasket	Midgold Silicone Co Ltd	862	Silicone Rubber	—	Tested with appliance
Line/Load, Neutral Leads	Various	AWM style 1015	16, 14AWG, 600V,105°C	UL758	Any AVLV2 UL File
Dimming Leads	Various	AWM style 1015	18AWG, 600V,105°C	UL758	Any AVLV2 UL File

ANNEX 2 – Photos

Model ZYS-07B



ANNEX 2 (CONT'D) – Photos

Model ZYS-05B

Model ZYS-03B

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