

1.0 Reference and Address			
Report Number	220913059SZN-001	Original Issued: 15-Nov-2022	Revised: None
Standard(s)	Self-Ballasted Lamps and Lamp Adapters [UL 1993:2017 Ed.5+R:26Mar2021] Self-Ballasted Lamps and Lamp Adapters [CSA C22.2#1993:2017 Ed.3+U1;U2;U3] Light-Emitting Diode (LED) Retrofit Luminaire Conversion Kits [UL 1598C:2014 Ed.1+R:12Jul2017] Retrofit Kits For Luminaire Conversion [CSA C22.2#250.1:2016 Ed.1]		
Applicant	Dongguan Qixin Lighting Co., LTD.	Manufacturer	<b>Dongguan Qixin Lighting Co., LTD.</b>
Address	Room 101, Building 1, No. 76 Dasha Road, Da Lingshan Town, DONGGUAN CITY, Guangdong Province	Address	Room 101, Building 1, No. 76 Dasha Road, Da Lingshan Town, DONGGUAN CITY, Guangdong Province
Country	CHINA	Country	CHINA
Contact	Qiu Jin	Contact	Qiu Jin
Phone	18575588152	Phone	18575588152
FAX	NA	FAX	NA
Email	sw@sw-light.com	Email	sw@sw-light.com

2.0 Product Description					
Product	LED Tube				
Brand name	NA				
Description	The products covered by this report are self-ballasted type B non-dimmable LED tubes for damp location use.				
Models	SWT80012A2060, SWT81218A2090, SWT81824A2120, SWT82436A4120, SWT83650A2240, SWT85072A3240.				
Model Similarity	All models have similar mechanical and electrical construction, differences among them are lengths, lamp base, LED driver, electrical rating.				
	<u>Model No.</u>	<u>Lamp Base</u>	<u>Number of LED(pcs)</u>	<u>Dimension (D x H)mm</u>	<u>Weight(kg)</u>
	SWT80012A2060	G13	85	Ø33 x 590	0.14
	SWT81218A2090	G13	120	Ø33 x 895	0.19
	SWT81824A2120	G13	168	Ø33 x 1199	0.20
	SWT82436A4120	G13	288	Ø33 x 1199	0.35
	SWT83650A2240	FA8	336	Ø33 x 2368	0.44
SWT85072A3240	R17D	384	Ø33 x 2370	0.61	
Ratings	<u>Model No.</u>	<u>LED Tube (For each LED tube)</u>			<u>Max. No. of tube in luminaire</u>
		<u>Voltage, Frequency</u>	<u>Current</u>	<u>Wattage</u>	
	SWT80012A2060	120VAC, 50/60Hz	0.12A	12W	4
	SWT81218A2090	120VAC, 50/60Hz	0.18A	18W	4
	SWT81824A2120	120VAC, 50/60Hz	0.24A	24W	4
	SWT82436A4120	120VAC, 50/60Hz	0.36A	36W	4
	SWT83650A2240	120VAC, 50/60Hz	0.5A	50W	2
SWT85072A3240	120VAC, 50/60Hz	0.72A	72W	2	
Other Ratings	The products covered by this report shall only be used with existing listed lighting fixture.				
	<u>Model No.</u>	<u>Distance between tubes centre (cm)</u>	<u>Type of recessed unenclosed luminaire used</u>	<u>Min. housing compartment dimensions (L x W x H)mm</u>	
	SWT80012A2060	13.75	IC or Non-IC	600 x 600 x80	
	SWT81218A2090	13.75	IC or Non-IC	900 x 600 x80	
	SWT81824A2120	13.75	IC or Non-IC	1200 x 600 x80	
	SWT82436A4120	13.75	IC or Non-IC	1200 x 600 x80	
	SWT83650A2240	13.75	IC or Non-IC	2400 x 300 x80	
SWT85072A3240	13.75	IC or Non-IC	2400 x 300 x80		

### 3.0 Product Photographs

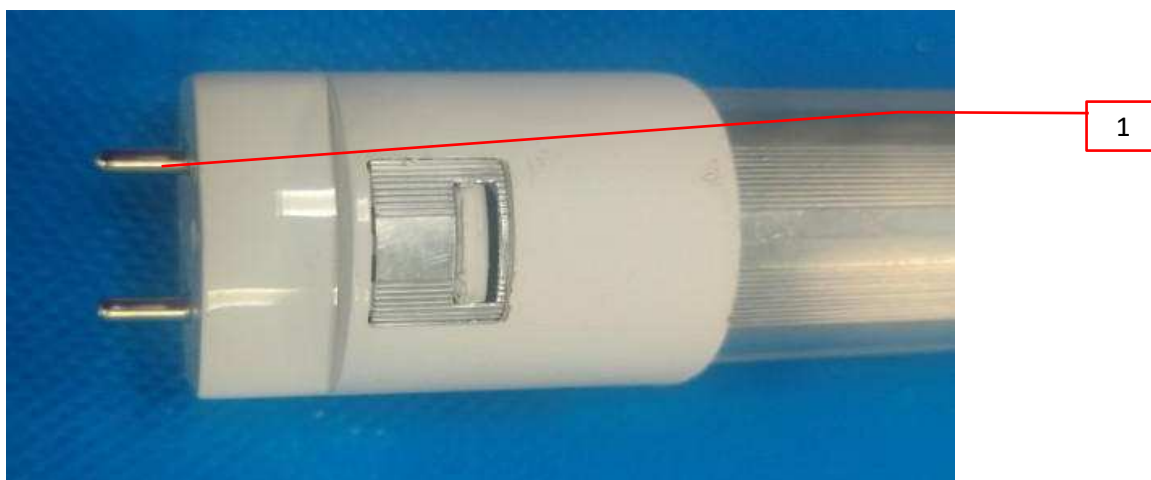
**Photo 1** - External view of models SWT80012A2060, SWT81218A2090, SWT81824A2120, SWT82436A4120



**Photo 2** - Bottom view of models SWT80012A2060, it also represents models SWT81218A2090, SWT81824A2120, SWT82436A4120

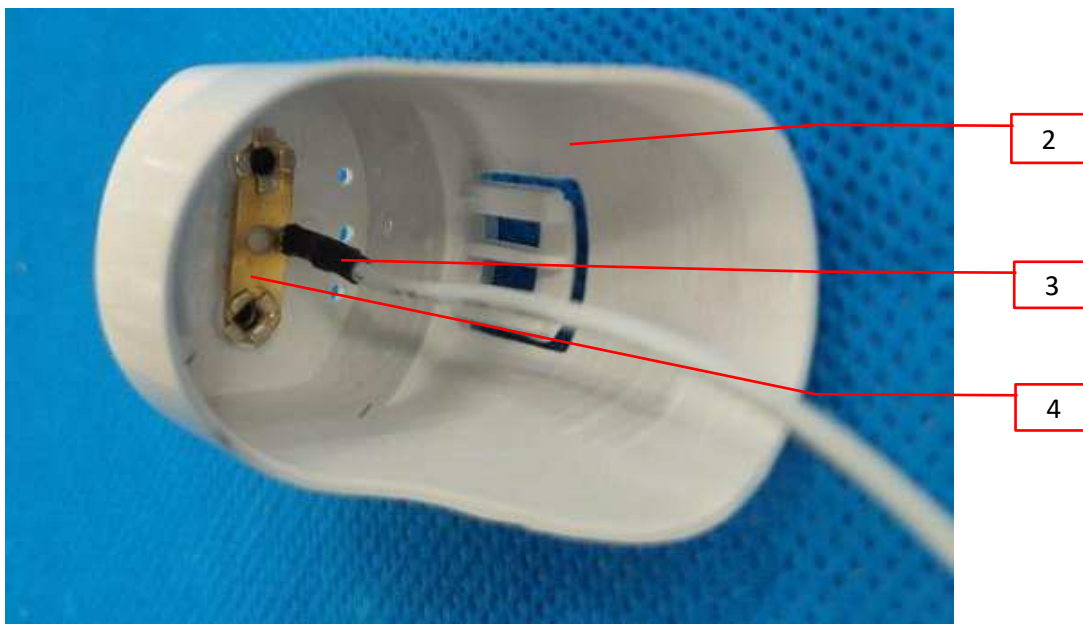


**Photo 3** - External view 1 of models SWT80012A2060, SWT81218A2090, SWT81824A2120, SWT82436A4120



**3.0 Product Photographs**

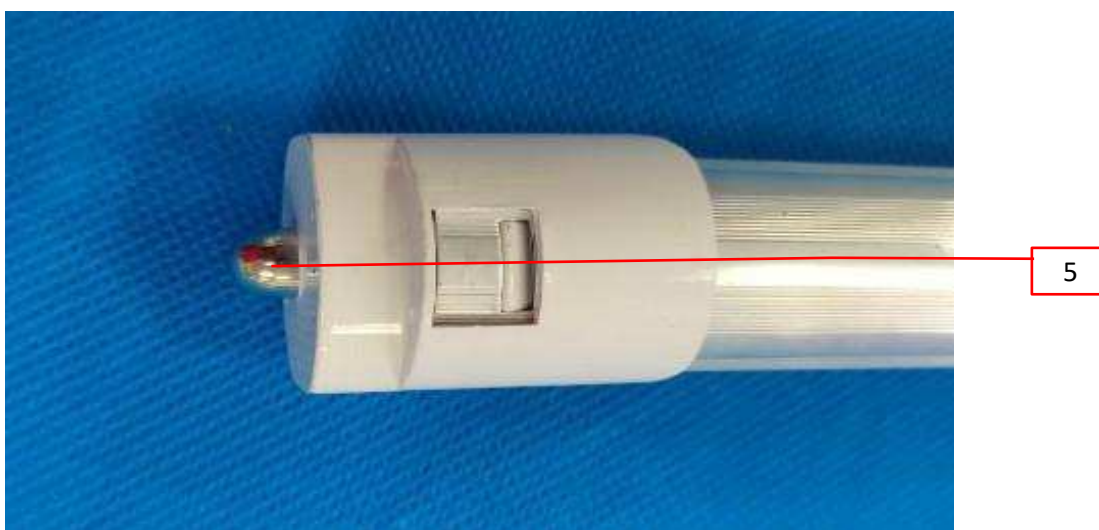
**Photo 4** - Internal view of models SWT80012A2060, SWT81218A2090, SWT81824A2120, SWT82436A4120



**Photo 5** - External view of models SWT83650A2240



**Photo 6** - Close up view of model SWT83650A2240



**3.0 Product Photographs**

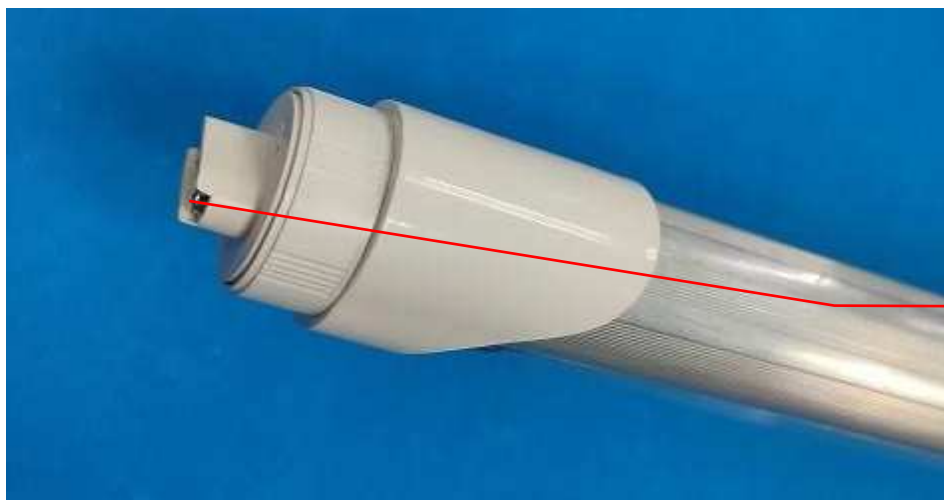
**Photo 7** - Lamp base view of model SWT83650A2240



**Photo 8** - External view of model SWT85072A3240



**Photo 9** - Close up view of model SWT85072A3240



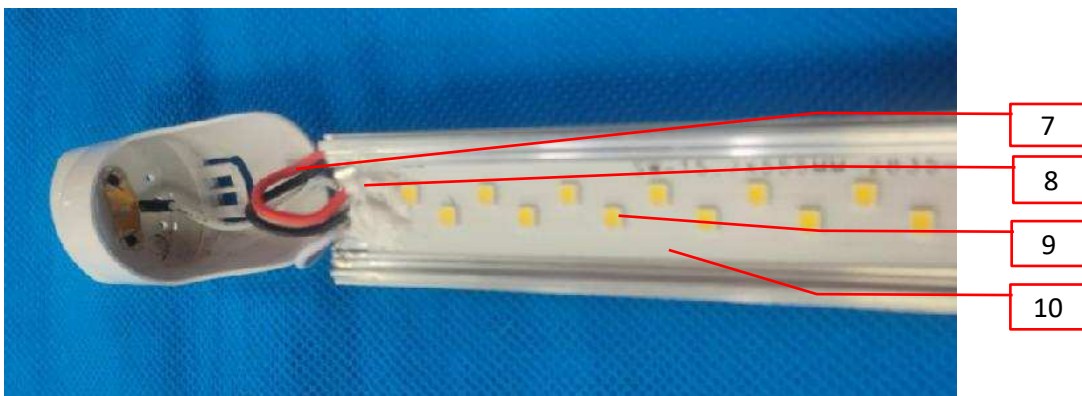
6

**3.0 Product Photographs**

**Photo 10** - Lamp base view of model SWT85072A3240



**Photo 11** - Internal view of model SWT80012A2060, it also represents models SWT81218A2090, SWT81824A2120, SWT83650A2240



### 3.0 Product Photographs

**Photo 12** - Internal view 1 of model SWT80012A2060, it also represents models SWT81218A2090, SWT81824A2120, SWT83650A2240



**Photo 13** - Internal view of model SWT82436A4120



**Photo 14** - Internal view of model SWT85072A3240

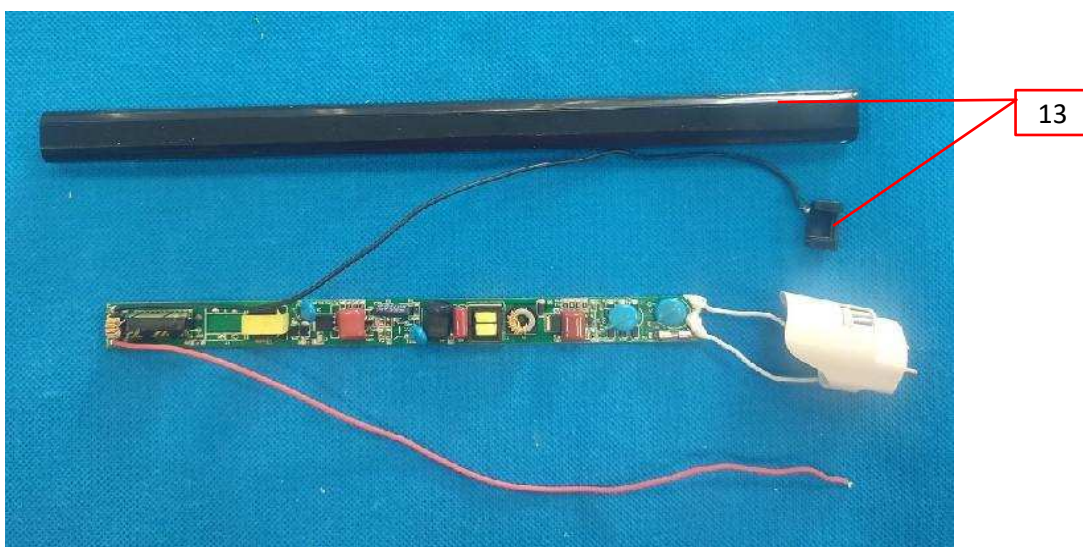


**3.0 Product Photographs**

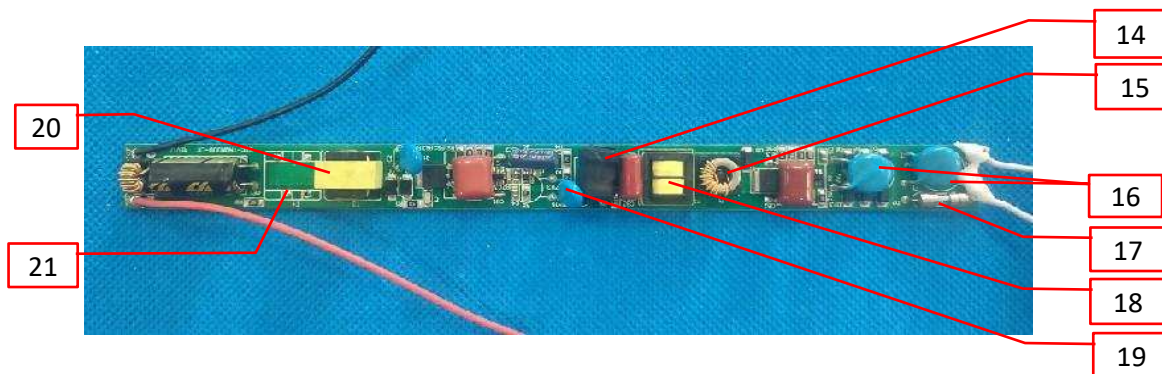
**Photo 15** - Internal view of model SWT80012A2060, it also represents models SWT81218A2090, SWT81824A2120, SWT82436A4120, SWT83650A2240, SWT85072A3240



**Photo 16** - Internal view of model SWT80012A2060, it also represents models SWT81218A2090, SWT81824A2120, SWT82436A4120, SWT83650A2240, SWT85072A3240



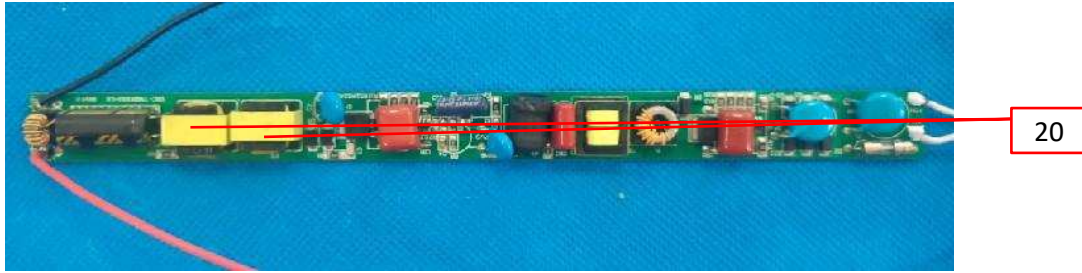
**Photo 17** - LED driver front view of model SWT80012A2060, it also represents models SWT81218A2090



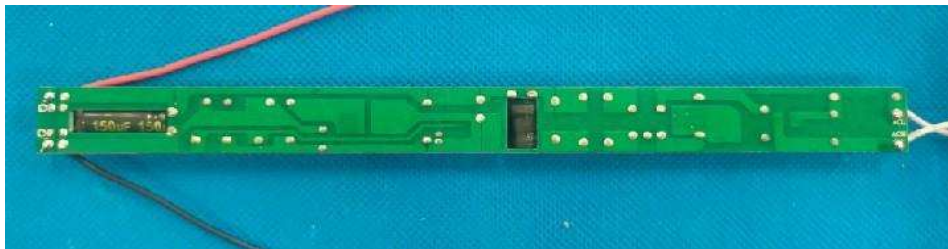


### 3.0 Product Photographs

**Photo 18** - LED driver front view of model SWT81824A2120, it also represents models SWT82436A4120, SWT83650A2240, SWT85072A3240



**Photo 19** - LED driver back view of model SWT80012A2060, it also represents models SWT81218A2090, SWT81824A2120, SWT82436A4120, SWT83650A2240, SWT85072A3240



4.0 Critical Components						
Photo #	Item no. <sup>1</sup>	Name	Manufacturer/ trademark <sup>2</sup>	Type / model <sup>2</sup>	Technical data and securement means	Mark(s) of conformity <sup>3</sup>
3	1	G13 Pins	Various	Various	Copper material with diameter: 2.29-2.67mm.	NR
4	2	Lamp Caps	SABIC INNOVATIVE PLASTICS US L L C	945(GG)	PC, rated V-0, 120°C, HWI=3, HAI=3, CTI=2. min. 1.0 mm thick.	cURus
4	3	Heat shrinkable tube	Various	Various	Rated min. 300V, 125°C, VW-1.	cURus
4	4	Sheet copper	Various	Various	Copper, min 0.26 mm thick.	NR
6	5	Contact of Fa8 lamp cap	Various	Various	Copper material with min thickness 0.2mm.	NR
9	6	Contact of R17d lamp cap	Various	Various	Copper material with min thickness 0.2mm.	NR
11	7	Internal wires	Various	Various	AWM, min. 24 AWG, rated min. 300V, 105°C.	UR
11	8	Glue	Various	Various	Silicone (RTV), rated 105°C. Used to secure the wire soldering connections on PCB.	cURus
11	9	LED	Various	Various	Vf=2.9-3.1V, If: 60mA Size: 2.8 x 3.5 x 0.8mm.	NR
11	10	LED PCB	Various	Various	Single layer printed wiring board. V-0, 130°C, min. 1.1mm thick.	UR
15	11	Lamp diffuser	SABIC INNOVATIVE PLASTICS US L L C	945(GG)	PC, rated V-0, 120°C, HWI=3, HAI=3, CTI=2. min. 1.0 mm thick.	cURus
15	12	Metal enclosures	Various	Various	Aluminum, min 0.81 mm thick.	NR
16	13	Insulation sheet	SABIC INNOVATIVE PLASTICS B V	FR60	PC, rated V-0, 125°C, HWI=1, HAI=0, CTI=3, min. 0.23 mm thick.	cURus
17	14	Inductor-1	Various	Various	2.0mH.	NR
17	15	Inductor-2	Various	Various	Min. 25uH.	NR
17	16	Varistor-1	Various	Various	Type 5, Rated 320V, 125°C minimum. Include ZV1, ZV2.	cURus
17	17	Fuse	Various	Various	300V, 2A.	cULus
17	18	Inductor-3	Various	Various	40mH.	NR
17	19	Varistor-2	Various	Various	Type 5, Rated 460V, 125°C minimum.	cURus
17, 18	20	Inductor-4	Various	Various	650uH.	NR
17	21	Driver PWB	Various	Various	Multiple layer printed wiring boards, Rated min.V-1, 130°C, CTI≤4, min.1.0mm thick. Complied with UL 796.	UR
1	22	Marking Label (Not shown)	Various	Various	Rated min. 90°C when attached on plastic or metal surface. Complied with UL 969.	cURus

NOTES:

- 1) Not all item numbers are indicated (called out) in the photos, as their location is obvious.
- 2) "Various" means any type, from any manufacturer that complies with the "Technical data and securement means" and meets the "Mark(s) of conformity" can be used.
- 3) Indicates specific marks to be verified, which assures the agreed level of surveillance for the component. "NR" - indicates Unlisted and only visual examination is necessary. "See 5.0" indicates Unlisted components or assemblies to be evaluated periodically refer to section 5.0 for details.

## **5.0 Critical Unlisted CEC Components**

No Unlisted CEC components are used in this report.

## 6.0 Critical Features

**Recognized Component** - A component part, which has been previously evaluated by an accredited certification body with restrictions and must be evaluated as part of the basic product considering the restrictions as specified by the Conditions of Acceptability.

**Listed Component** - A component part, which has been previously Listed or Certified by an accredited Certification Organization with no restrictions and is used in the intended application within its ratings.

**Unlisted Component** - A part that has not been previously evaluated to the appropriate designated component standard. It may also be a Listed or Recognized component that is being used outside of its evaluated Listing or component recognition.

**Critical Features/Components** - An essential part, material, subassembly, system, software, or accessory of a product that has a direct bearing on the product's conformance to applicable requirements of the product standard.

**Construction Details** - For specific construction details, reference should be made to the photographs and descriptions. All dimensions are approximate unless specified as exact or within a tolerance. In addition to the specific construction details described in this Report, the following general requirements also apply.

1. **Spacing** - In primary circuits, 1.2 mm minimum spacing are maintained through air and over surfaces of insulating material between current-carrying parts of opposite polarity, 1.2 mm minimum spacing are maintained through air and over surfaces of insulating material between such current-carrying parts and dead-metal parts.  
In driver PCB, 0.5 mm minimum spacing are maintained through air and 1.6 mm minimum spacing maintained over surfaces of insulating material between diferent polarity.
2. **Mechanical Assembly** - Components such as switches, fuseholders, connectors, wiring terminals and display lamps are mounted and prevented from shifting or rotating by the use of lockwashers, starwashers, or other mounting format that prevents turning of the component.
3. **Corrosion Protection** - All ferrous metal parts are protected against corrosion by painting, plating or the equivalent.
4. **Accessibility of Live Parts** - All uninsulated live parts in primary circuitry are housed within a non-metallic enclosure constructed with no openings other than those specifically described in Sections 4 and 5.
5. **Grounding** - This product is not provided with a means of grounding as it is not required in standard.
6. **Polarized Connection** - This product is provided with a polarized power supply connection. All fuses are connected only to the ungrounded supply circuit conductor.
7. **Internal Wiring** - Internal wiring is routed away from sharp or moving parts. Internal wiring leads terminating in soldered connections are made mechanically secure prior to soldering. Recognized Component separable (quick disconnect) connectors of the positive detent type, closed loop connectors, or other types specifically described in the text of this report are also acceptable as internal wiring terminals. At points where internal wiring passes through metal walls or partitions, the wiring insulation is protected against abrasion or damage by plastic bushings or grommets. All internal wires refer to sec. 4.0.
8. **Schematics** - Refer to Illustration No(s). 2~15 for schematics requiring verification during Field Representative Inspection Audits.
  1. Illustration No. 2, 4, 6, 8, 10, 12, 14 - Verify whether the circuit diagram are identical as the products.
  2. Illustration No. 3, 5, 7, 9, 11, 13, 15 - Verify whether the position of critical components which specified at sec. 4.0. are identical as the products.
9. **Markings** - The product is marked on a labeling system as described in item no. 22 of Section 4.0 as follows:
  - applicant's name
  - model number
  - date of manufacture
  - electrical ratings (volts, amperes & frequency)
10. **Cautionary Markings** - The following are required:  
Refer to illustrations 1 and 1a for required text and format.

## 6.0 Critical Features

11. Installation, Operating and Safety Instructions - Instructions for installation and use of this product are provided by the manufacturer.  
The instruction manual shall include the below information:
1. Proper installation and wiring method.
  2. The following warnings: (S24-L5)
    - 2a. **"USE ONLY LUMINAIRE WITH LAMP COMPARTMENT DIMENSIONS \_\_\_mm LENGTH, \_\_\_mm WIDTH, \_\_\_mm DEPTH"** and **"UTILISEZ UNIQUEMENT LUMINAIRE AVEC DIMENSIONS DE COMPARTIMENT DE LAMPE \_\_\_mm LONGUEUR, \_\_\_mm LARGEUR, \_\_\_mm PROFONDEUR"**
    - 2b. **"WARNING – RISK OF FIRE OR ELECTRIC SHOCK. INSTALLATION OF THIS RETROFIT KIT REQUIRES A PERSON FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE LUMINAIRE'S ELECTRICAL SYSTEM AND THE HAZARD INVOLVED. IF NOT QUALIFIED, DO NOT ATTEMPT INSTALLATION. CONTACT A QUALIFIED ELECTRICIAN."** & **"AVERTISSEMENT – RISQUE D'INCENDIE OU DE CHOC ÉLECTRIQUE. L'INSTALLATION DE CE NÉCESSAIRE DE MODERNISATION EXIGE UNE PERSONNE FAMILIÈRE AVEC LA CONSTRUCTION ET LE FONCTIONNEMENT DU SYSTÈME ÉLECTRIQUE DU LUMINAIRE ET DES RISQUES ASSOCIÉS. TOUTE PERSONNE QUI N'EST PAS QUALIFIÉE NE DOIT FAIRE AUCUNE TENTATIVE D'INSTALLATION ET DOIT CONTACTER UN ÉLECTRICIEN QUALIFIÉ."**
    - 2c. **"WARNING – RISK OF FIRE OR ELECTRIC SHOCK. INSTALL THIS KIT ONLY IN THE LUMINAIRE THAT HAS THE CONSTRUCTION FEATURES AND DIMENSIONS SHOWN IN THE PHOTOGRAPHS AND/OR DRAWINGS AND WHERE THE INPUT RATING OF THE RETROFIT KIT DOES NOT EXCEED THE INPUT RATING OF THE LUMINAIRE."** & **"AVERTISSEMENT – RISQUE D'INCENDIE OU DE CHOC ÉLECTRIQUE. N'INSTALLER CE NÉCESSAIRE QUE DANS LE LUMINAIRE DONT LES CARACTÉRISTIQUES DE CONSTRUCTION ET LES DIMENSIONS SONT CONFORME À CELLES ILLUSTRÉES DANS LES PHOTOS ET/OU LES DESSINS ET DONT LA PUISSANCE D'ENTRÉE NOMINALE DU NÉCESSAIRE DE MODERNISATION NE DÉPASSE PAS CELLE DU LUMINAIRE."**
    - 2d. **"DO NOT MAKE OR ALTER ANY OPEN HOLES IN AN ENCLOSURE OF WIRING OR ELECTRICAL COMPONENTS DURING KIT INSTALLATION."** and **"IL EST INTERDIT DE FAIRE OU DE MODIFIER UNE OUVERTURE DANS UN BOÎTIER DE CÂBLAGE OU DE COMPOSANTS ÉLECTRIQUES AU COURS DE L'INSTALLATION DU NÉCESSAIRE."**
    - 2e. **"WARNING – TO PREVENT WIRING DAMAGE OR ABRASION, DO NOT EXPOSE WIRING TO EDGES OF SHEET METAL OR OTHER SHARP OBJECTS."** & **"AVERTISSEMENT – AFIN DE PRÉVENIR L'ENDOMMAGEMENT OU L'ABRASION DES CÂBLES, ÉVITER TOUT CONTACT ENTRE CES DERNIERS ET LE BORD D'UN OBJET TRANCHANT TEL QU'UNE TÔLE."**
    - 2f. **"THIS RETROFIT KIT IS ACCEPTED AS A COMPONENT OF A LUMINAIRE WHERE THE SUITABILITY OF THE COMBINATION SHALL BE DETERMINED BY AUTHORITIES HAVING JURISDICTION."**, **"PRODUCT MUST BE INSTALLED BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH THE APPLICABLE AND APPROPRIATE ELECTRICAL CODES. THE INSTALLATION GUIDE DOES NOT SUPERSEDE LOCAL OR NATIONAL REGULATIONS FOR ELECTRICAL INSTALLATIONS."**, **"LE NÉCESSAIRE DE MODERNISATION EST ACCEPTÉ À TITRE DE COMPOSANT D'UN LUMINAIRE LORSQUE LA PERTINENCE DE LA COMBINAISON DOIT ÊTRE DÉTERMINÉE PAR LES AUTORITÉS COMPÉTENTES."** & **"CE PRODUIT DOIT ÊTRE MIS EN PLACE PAR UN ÉLECTRICIEN QUALIFIÉ CONFORMÉMENT AUX CODES ÉLECTRIQUES APPROPRIÉS APPLICABLES. LE GUIDE D'INSTALLATION NE SUPPLANTE PAS LES RÈGLEMENTS LOCAUX OU NATIONAUX EN MATIÈRE D'INSTALLATIONS ÉLECTRIQUES."**
    - 2g. **"INSTALLERS SHOULD NOT DISCONNECT EXISTING WIRES FROM LAMPHOLDER TERMINALS TO MAKE NEW CONNECTIONS AT LAMPHOLDER TERMINALS. INSTEAD, INSTALLERS SHOULD CUT EXISTING LAMPHOLDER LEADS AWAY FROM THE LAMPHOLDER AND MAKE NEW ELECTRICAL CONNECTIONS TO LAMPHOLDER LEAD WIRES BY EMPLOYING CONNECTORS SUITABLE FOR THE APPLICATION."** & **"LES INSTALLATEURS NE DEVRAIENT PAS DÉBRANCHER LE CÂBLAGE EXISTANT DES BORNES DE DOUILLES DE LAMPES EN VUE D'ÉTABLIR D'AUTRES CONNEXIONS À CES BORNES. LES INSTALLATEURS DEVRAIENT PLUTÔT COUPER LES FILS DE RACCORDEMENT DES DOUILLES DE LAMPES EXISTANTS À DISTANCE DE LA DOUILLE ET ÉTABLIR DE NOUVEAUX BRANCHEMENTS ÉLECTRIQUES AUX FILS DE RACCORDEMENT DE LA DOUILLE EN UTILISANT DES RACCORDS CONVENANT À CETTE UTILISATION."**
    - 2h. **"THIS DEVICE IS NOT INTENDED FOR USE WITH EMERGENCY EXITS"** and **"NE CONVIENT PAS AUX SORTIES DE SECOURS"**

**7.0 Illustrations**

**Illustration 1 - Cautionary Markings**

Item	Marking	Text / Format
1	___ VAC ___ A ___ W ___ Hz	S13L1
	___ VAC ___ A ___ W ___ Hz	
2	SUITABLE FOR DAMP LOCATIONS	S13L1
	CONVIENT AUX EMPLACEMENTS HUMIDES	
3	DO NOT USE WITH DIMMERS	S13L1
	NE PAS UTILISER AVEC DES GRADATEURS	
4	THIS LUMINAIRE HAS BEEN MODIFIED AND CAN NO LONGER OPERATE THE ORIGINALLY INTENDED LAMP	S24L1 (marked on the retrofit luminaire)
	CE LUMINAIRE A ÉTÉ MODIFIÉ ET NE PEUT PAS FONCTIONNER LA	
5	LED Lamp Replacement Marking - Identification of the replacement LED lamp type/model to be used along with manufacturer and ordering information.	S24L1 (marked on the retrofit luminaire)
	Marquage de remplacement de la lampe LED - Identification du type / modèle de la lampe LED de remplacement à utiliser avec le fabricant et les informations de commande.	
6	USE ONLY LUMINAIRE WITH LAMP COMPARTMENT DIMENSIONS ___mm LENGTH, ___mm WIDTH, ___mm DEPTH	S24-L1
	UTILISEZ UNIQUEMENT LUMINAIRE AVEC DIMENSIONS DE COMPARTIMENT DE LAMPE ___ mm LONGUEUR, ___ mm LARGEUR, ___ mm PROFONDEUR	

**Illustration 1a - Cautionary Markings Format**

Format minimum size designations for marking height and type face

Size designation	Letter height mm (in)	Font size	Font type face uppercase
S13	1.3 (0.051)	5	Universal bold Arial bold Helvetica bold Zurich BT bold Sans Serif
S20	2.0 (0.079)	7.5	
S24	2.4 (0.094)	10	
S28	2.8 (0.110)	11	

Format location designation for marking

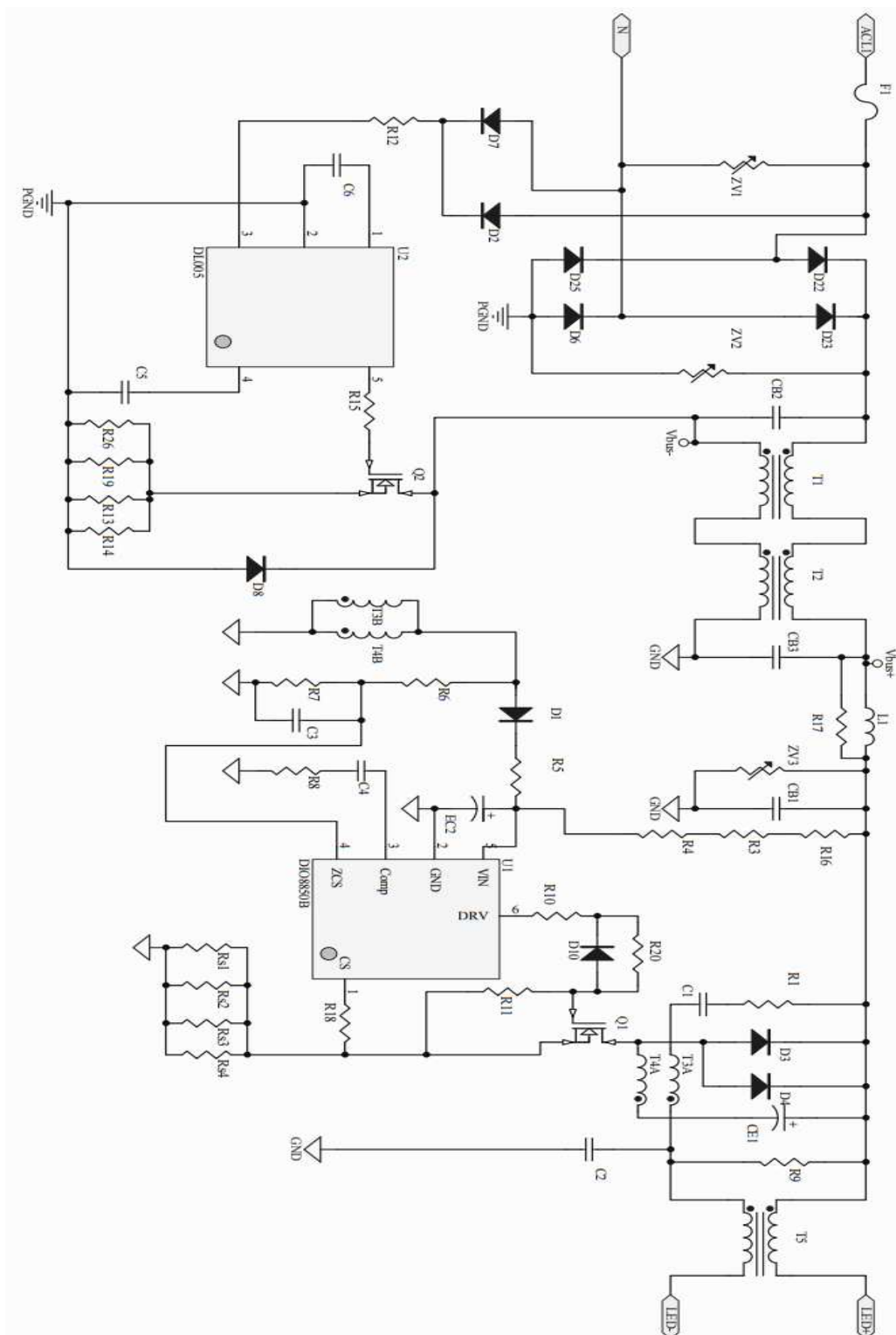
Location designation	Description	Marking
L1	On the product	Type P
L2	On smallest unit packaging, point-of-sale package, carton, or instruction sheet	Type T

Notes:

Type P designates a permanent marking that is intended to remain in the applied position for the lifetime of the device under conditions of normal use. It provides information required for the user maintenance over the expected life of the device. If a label is used, it must be made of material that complies with Clause 10.1.6. Type T designates a temporary label, instruction sheet, or tag that provides installation instruction and information not required after installation. It is made of printed matter with or without attachment to the device.

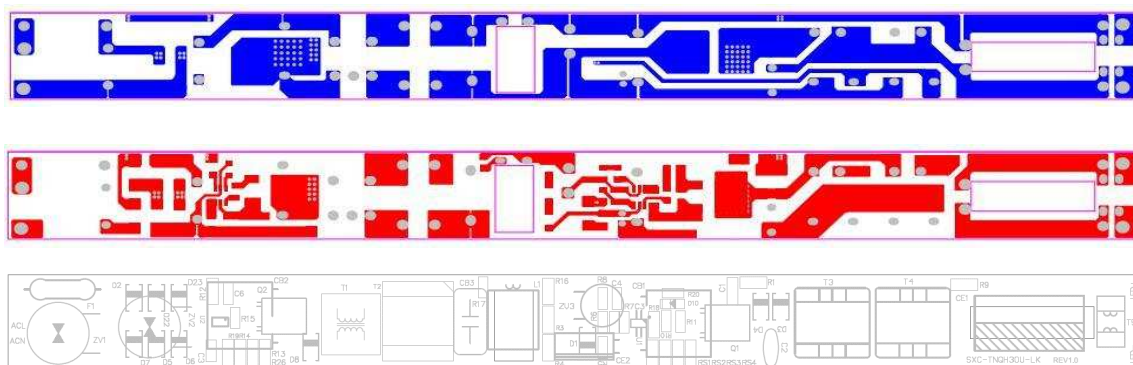
**7.0 Illustrations**

**Illustration 2** - Schematic Diagram of LED driver for models SWT80012A2060, SWT81218A2090, SWT81824A2120, SWT82436A4120, SWT83650A2240, SWT85072A3240

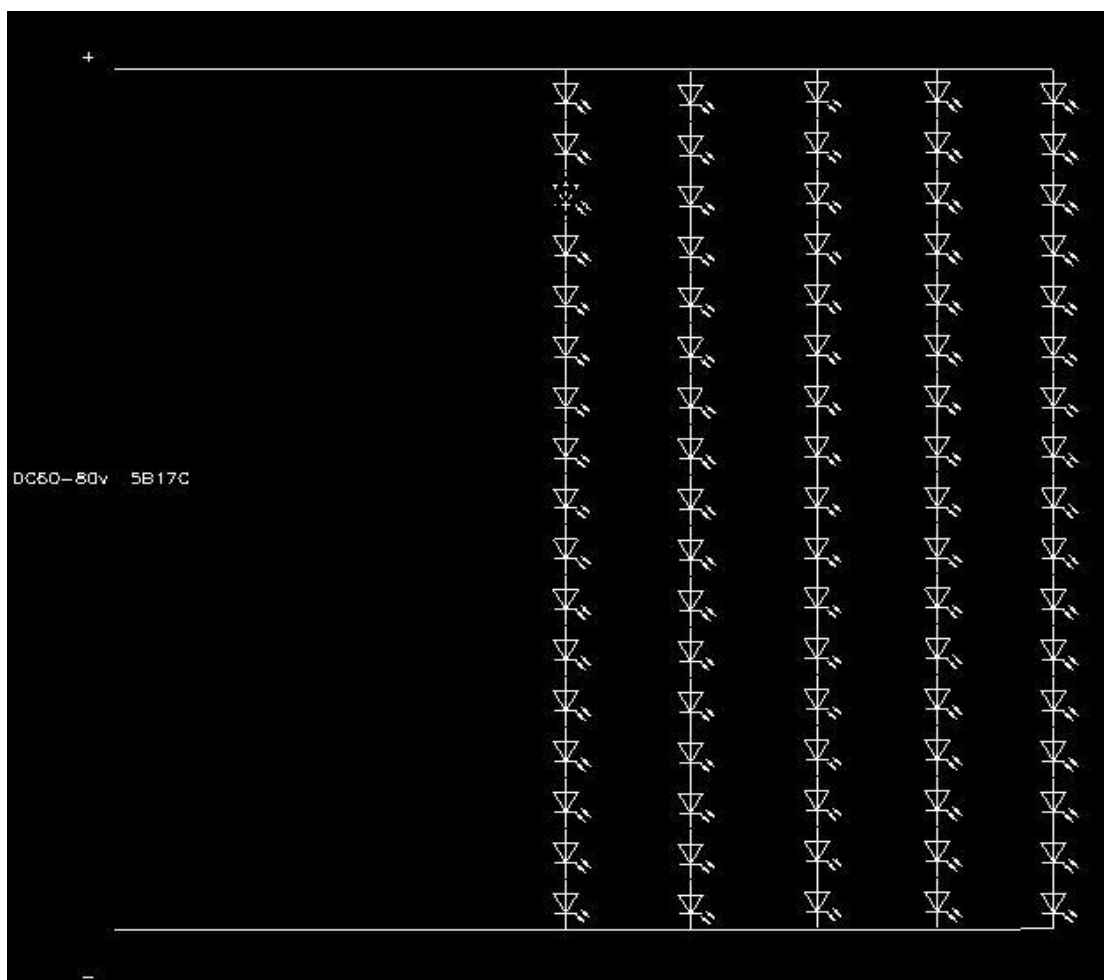


**7.0 Illustrations**

**Illustration 3** - PCB layout of LED driver for models SWT80012A2060, SWT81218A2090, SWT81824A2120, SWT82436A4120, SWT83650A2240, SWT85072A3240



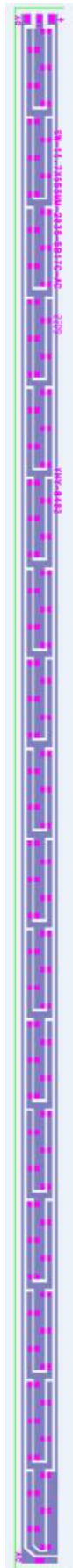
**Illustration 4** - Schematic Diagram of LED Module for model SWT80012A2060





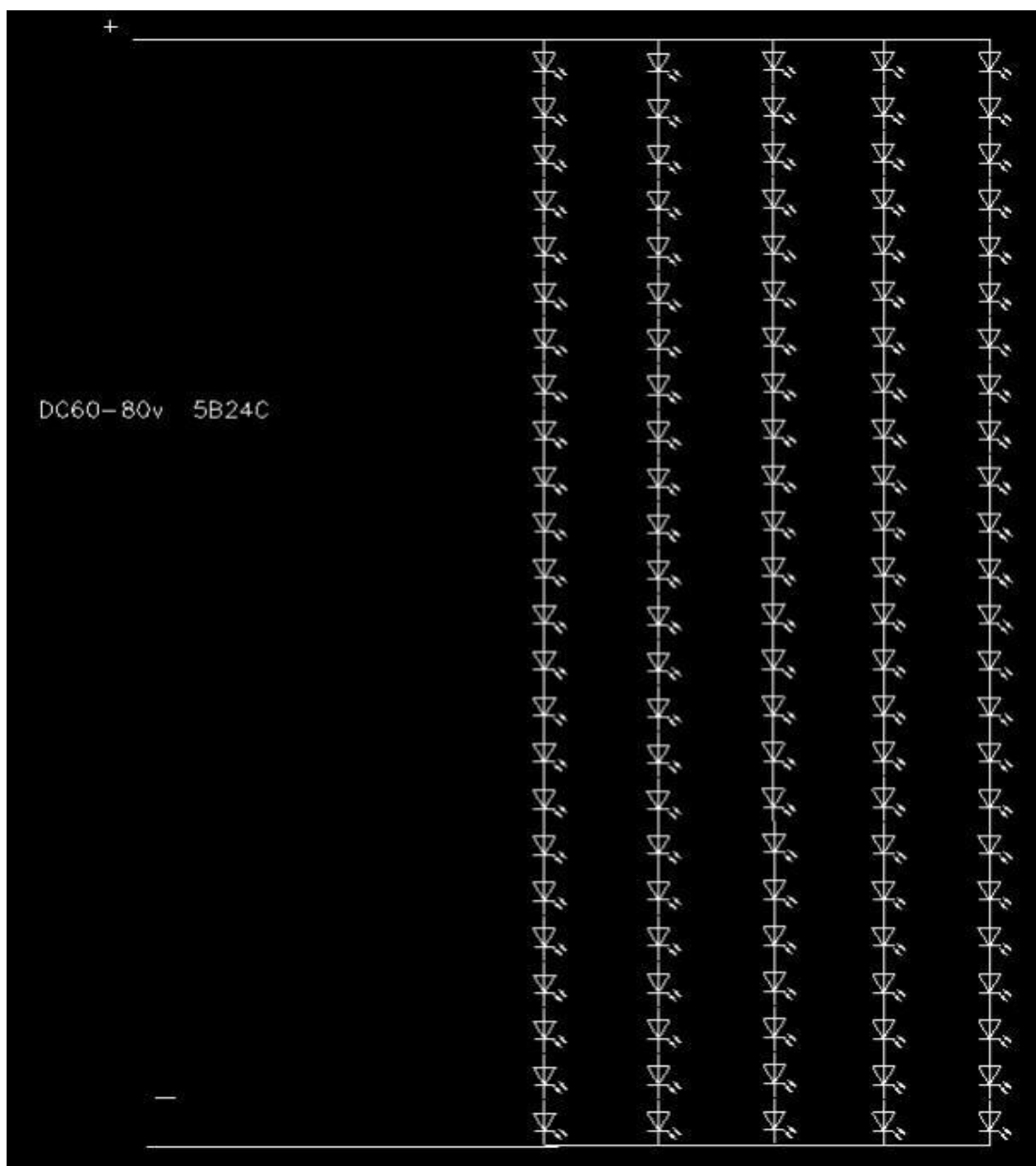
## 7.0 Illustrations

**Illustration 5** - Layout of LED Module for model SWT80012A2060



**7.0 Illustrations**

**Illustration 6** - Schematic Diagram of LED Module for model SWT81218A2090



## 7.0 Illustrations

**Illustration 7** - Layout of LED Module for model SWT81218A2090



**7.0 Illustrations**

**Illustration 8** - Schematic Diagram of LED Module for model SWT81824A2120



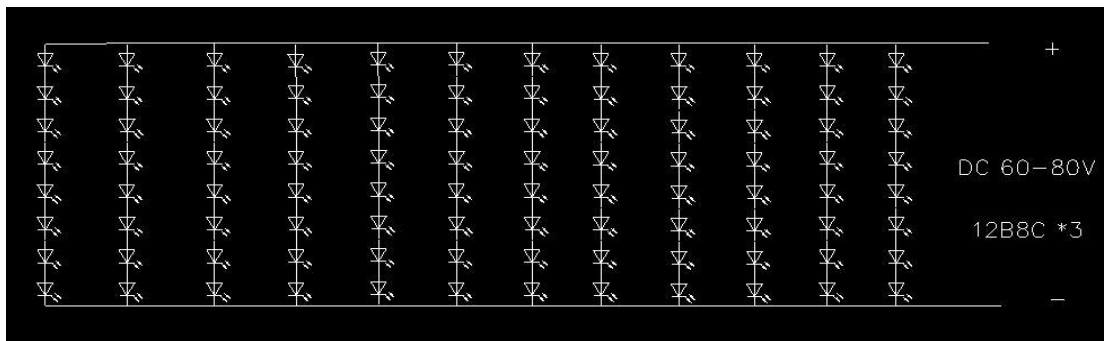
## 7.0 Illustrations

**Illustration 9** - Layout of LED Module for model SWT81824A2120



**7.0 Illustrations**

**Illustration 10** - Schematic Diagram of LED Module for model SWT82436A4120



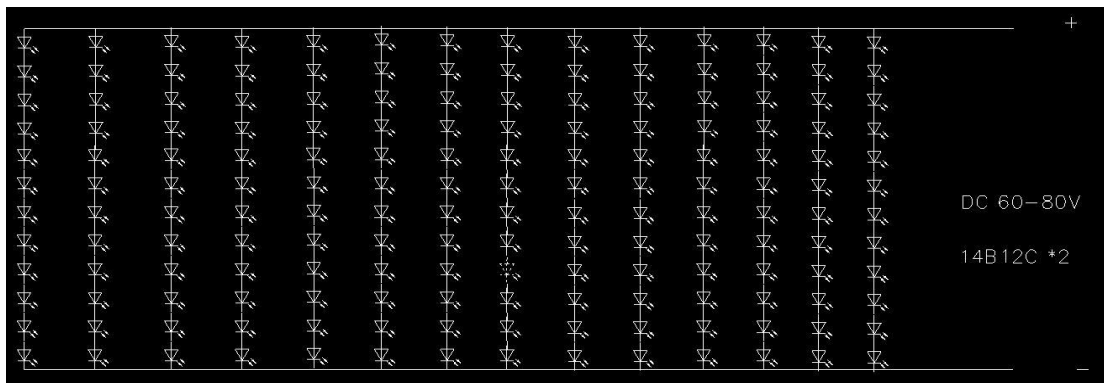
**7.0 Illustrations**

**Illustration 11** - Layout of LED Module for model SWT82436A4120



**7.0 Illustrations**

**Illustration 12** - Schematic Diagram of LED Module for model SWT83650A2240





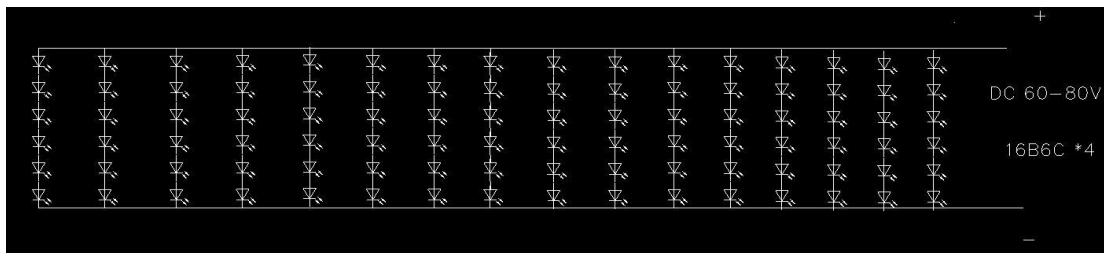
## 7.0 Illustrations

**Illustration 13** - Layout of LED Module for model SWT83650A2240



**7.0 Illustrations**

**Illustration 14** - Schematic Diagram of LED Module for model SWT85072A3240



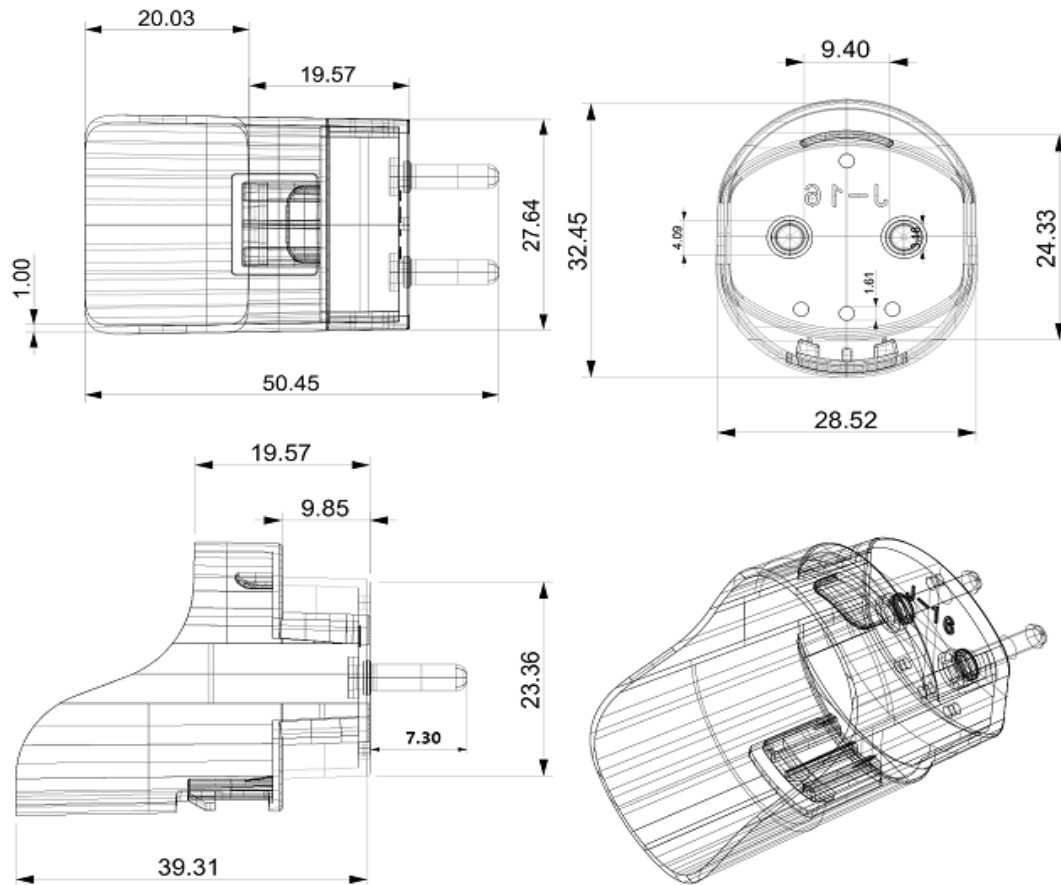
**7.0 Illustrations**

**Illustration 15** - Layout of LED Module for model SWT85072A3240



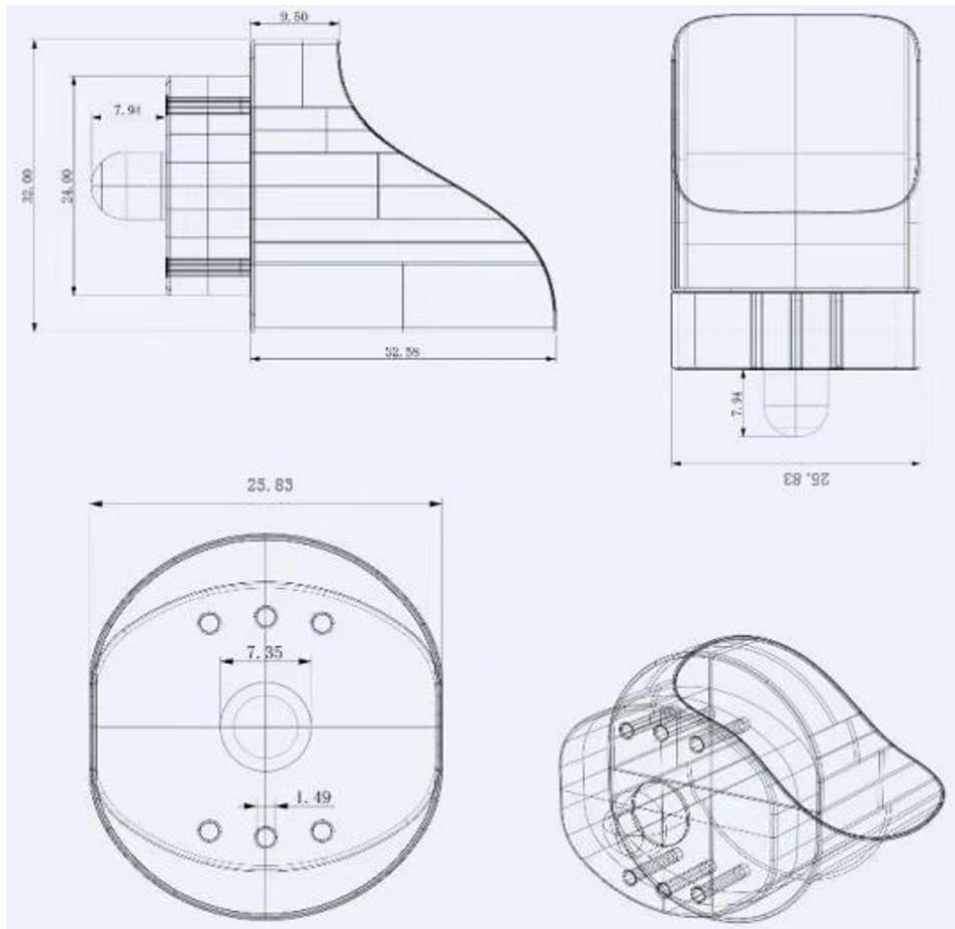
**7.0 Illustrations**

**Illustration 16** - Dimension of G13 Lamp Caps of models SWT80012A2060, SWT81218A2090, SWT81824A2120, SWT82436A4120



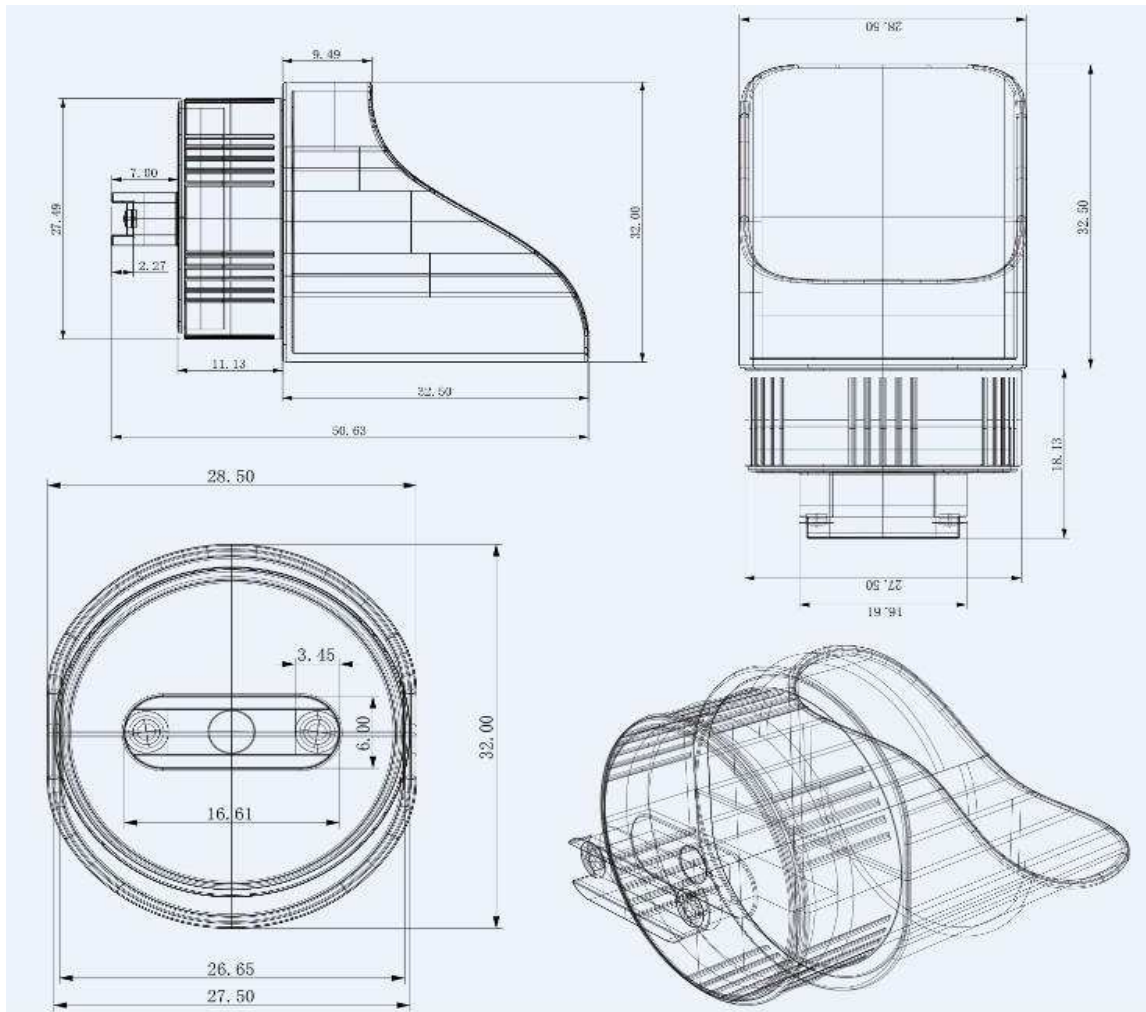
**7.0 Illustrations**

**Illustration 17 - Dimension of FA8 Lamp Caps of model SWT83650A2240**



**7.0 Illustrations**

**Illustration 18 - Dimension of R17D Lamp Caps of model SWT85072A3240**



8.0 Test Summary			
Evaluation Period	13-Sep-2022 to 4-Nov-2022		Project No. 220913059SZN
Sample Rec. Date	13-Sep-2022	Condition	Prototype
			Sample ID. Z220913059-001~018
Test Location	Intertek Testing Services Shenzhen Ltd. Longhua Branch 101, 102, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, Guanhu Subdistrict, Longhua District, Shenzhen, China		
Test Procedure	Testing Lab		


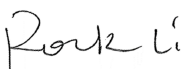
Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.

The following tests were performed:

Test Description	UL 1993:2017 Ed.5+R:26Mar202 1 / Clause	CSA C22.2#1993:20 17 Ed.3+U1;U2;U3 / Clause	--
Input Measurements Test	8.2 & SA8.2	8.2 & SA8.2	--
Leakage Current Test	8.4 & SA8.4	8.4 & SA8.4	--
Temperature Test	8.5 & SA8.5	8.5 & SA8.5	--
Dielectric Voltage-Withstand Test	8.6 & SA8.6	8.6 & SA8.6	--
Drop Test	8.8 & SA8.8	8.8 & SA8.8	--
Mold-Stress Relief Conditioning	8.9 & SA8.9	8.9 & SA8.9	--
Deflection Test	8.10 & SA8.10	8.10 & SA8.10	--
Tests of Dimmer Circuits - Abnormal test	8.12.3 & SA8.12.3	8.12.3 & SA8.12.3	--
Humidity Conditioning	8.13 & SA8.13	8.13 & SA8.13	--
Risk Of Electric Shock - Relamping	SA8.19	SA8.19	--
Misapplication Of Lamp Supply Connections	SA8.21	SA8.21	--
Test Description	UL 8750:2015 Ed.2+R:23Sep20 21 / Clause	[CCSA C22.2#250.13:2 020 Ed.4] / Clause	--
Input Test	8.2	9.2	--
Dielectric Voltage-Withstand Test	8.6	9.4	--
Abnormal Tests – Component Failure Test	8.7.2	9.5.2	--
Leakage Current Measurement Test	8.9	9.7	--
Environmental Test - Humidity Exposure Test	8.14.1	9.12.1	--
Test Description	UL 1598C:2014 Ed.1+R:12Jul201 7	CSA C22.2#250.1:20 16 Ed.1	--
Construction check only			--

### 8.1 Signatures

A representative sample of the product covered by this report has been evaluated and found to comply with the applicable requirements of the standards indicated in Section 1.0 with regard to the risks of fire, electric shock, flammability, mechanical hazards and suitability for use in flammable atmospheres, otherwise known as classified locations only. The risks associated with the other properties of this product have not been investigated. (Edit the list of risks investigated. Other risks can be added, where approved in writing by the Chief Engineer.)

Completed by:	Roy Yu	Reviewed by:	Rock Li
Title:	Project Engineer	Title:	Sr. Project Engineer
Signature:		Signature:	

**9.0 Correlation Page For Multiple Listings**

The following products, which are identical to those identified in this report except for model number and Listee name, are authorized to bear the ETL label under provisions of the Intertek Multiple Listing Program.

BASIC LISTEE	Dongguan Qixin Lighting Co., LTD.
Address	Room 101, Building 1, No. 76 Dasha Road, Da Lingshan Town, DONGGUAN CITY, Guangdong Province
Country	CHINA
Product	LED Tube

MULTIPLE LISTEE 1	None				
Address					
Country					
Brand Name					
ASSOCIATED MANUFACTURER					
Address					
Country					
<table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">MULTIPLE LISTEE 1 MODELS</td> <td style="width: 50%;">BASIC LISTEE MODELS</td> </tr> <tr> <td> </td> <td> </td> </tr> </table>		MULTIPLE LISTEE 1 MODELS	BASIC LISTEE MODELS		
MULTIPLE LISTEE 1 MODELS	BASIC LISTEE MODELS				

MULTIPLE LISTEE 2	None				
Address					
Country					
Brand Name					
ASSOCIATED MANUFACTURER					
Address					
Country					
<table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">MULTIPLE LISTEE 2 MODELS</td> <td style="width: 50%;">BASIC LISTEE MODELS</td> </tr> <tr> <td> </td> <td> </td> </tr> </table>		MULTIPLE LISTEE 2 MODELS	BASIC LISTEE MODELS		
MULTIPLE LISTEE 2 MODELS	BASIC LISTEE MODELS				

MULTIPLE LISTEE 3	None				
Address					
Country					
Brand Name					
ASSOCIATED MANUFACTURER					
Address					
Country					
<table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">MULTIPLE LISTEE 3 MODELS</td> <td style="width: 50%;">BASIC LISTEE MODELS</td> </tr> <tr> <td> </td> <td> </td> </tr> </table>		MULTIPLE LISTEE 3 MODELS	BASIC LISTEE MODELS		
MULTIPLE LISTEE 3 MODELS	BASIC LISTEE MODELS				



## 10.0 General Information

The Applicant and Manufacturer have agreed to produce, test and label ETL Listed products in accordance with the requirements of this Report. The Manufacturer has also agreed to notify Intertek and to request authorization prior to using alternate parts, components or materials.

### COMPONENTS

Components used shall be those itemized in this Intertek report covering the product, including any amendments and/or revisions.

### LISTING MARK

The ETL Listing mark applied to the products shall either be separable in form, such as labels purchased from Intertek, or on a product nameplate or other media only as specifically authorized by Intertek. Use of the mark is subject to the control of Intertek.

The mark must include the following four items:

- 1) applicable country identifiers "US" and/or "C" or "US", "C" and "EU"
- 2) the word "Listed" or "Classified" or "Recognized Component" (whichever is appropriate)
- 3) a control number issued by Intertek
- 4) a product descriptor that identifies the standards used for certification. Example:

**For US standards**, the words, "Conforms to" shall appear with the standard number along with the word, "Standard" or "Std." Example: "Conforms to ANSI/UL Std. XX."

**For Canadian standards**, the words "Certified to CAN/CSA Standard CXX No. XX." shall be used, or abbreviated, "Cert. to CAN/CSA Std. CXX No. XX."

Can be used together when both standards are used.

**If all standards on the ATM have the same standard title**, the shared title or its abbreviation may be used in place of the examples above. Example: "Medical Electrical Equipment" or "MEE"; "Information Technology Equipment" or "ITE"; "Audio/Video Information And Communication Technology Equipment" or "A/V ICTE".

**Note: A facsimile must be submitted to Intertek, Attn: Follow-up Services for approval prior to use.**

The facsimile need not have a control number. A control number will be issued **after signed Certification Agreements** have been received by the Follow-up Services office, approval of the facsimile of your proposed Listing Mark, satisfactory completion of the Listing Report, and scheduling of a factory assessment in your facility.

### MANUFACTURING AND PRODUCTION TESTS

Manufacturing and Production Tests shall be performed as required in this Report.

### FOLLOW-UP SERVICE

Periodic unannounced audits of the manufacturing facility (and any locations authorized to apply the mark) shall be scheduled by Intertek. An audit report shall be issued after each visit. Special attention will be given to the following:

1. Conformance of the manufactured product to the descriptions in this Report.
2. Conformance of the use of the ETL mark with the requirements of this Report and the Certification Agreement.
3. Manufacturing changes.
4. Performance of specified Manufacturing and Production Tests.

In the event that the Intertek representative identifies non-conformance(s) to any provision of this Report, the Applicant shall take one or more of the following actions:

1. Correct the non-conformance.
2. Remove the ETL Mark from non-conforming product.
3. Contact the issuing product safety evaluation center for instructions.

### **10.1 Evaluation of Unlisted Components**

Because Unlisted Components are uncontrolled, and they do not fall under a third party follow up program, Intertek may require these components to be tested and/or evaluated at least once annually, more often for certain components, as part of the independent certification process. The Unlisted Components in Section 5.0 require testing and/or evaluation as indicated.

**The Applicant will be notified, in writing, via the applicable contact methods, as defined in Section 1.0, when these components must be selected and sent to Component Evaluation Center (CEC) for re-evaluation.**

**Due to particular testing requirements, some components may be requested to be shipped to specific labs. Thus, specific shipment destination(s) for each sample will be provided in the written notification.**

Managing CEC Location:

Intertek Testing Services Shenzhen Ltd. Longhua Branch

ETL Component Evaluation Center

101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu

Subdistrict, LongHua District

Shenzhen, China

Attn: Joey Kuang

Sample Disposition: Due to the destructive nature of the testing, all samples will be discarded at the conclusion of testing unless, the manufacturer specifically requests the return of the samples. The request for return must accompany the initial component shipment.

**11.0 Manufacturing and Production Tests**

The manufacturer agrees to conduct the following Manufacturing and Production Tests as specified:

**Required Tests**

Dielectric Voltage Withstand Test

**11.1 Dielectric Voltage Withstand Test**

Method

The device may be in a heated or unheated condition for the test.

The test is to be conducted when the device is fully assembled. It is not intended that the product be unwired, modified, or disassembled for the test.

*Exception: The test may be performed before final assembly if the test represents that for the completed product.*

A device employing a solid-state component that is not relied upon to reduce a risk of electric shock and that can be damaged by the dielectric potential may be tested before the component is electrically connected provided that a random sampling of each day's production is tested. The circuitry may be rearranged for the purpose of the test to reduce the likelihood of solid-state-component damage while retaining representative dielectric stress of the circuit.

The test equipment shall include a transformer having an essentially sinusoidal output, a means of indicating the test potential, an audible or visual indicator of electrical breakdown, and either a manually reset device to restore the equipment after electrical breakdown or an automatic reject feature of any unacceptable unit.

Test Equipment:

If the output of the test equipment transformer is less than 500 volt-amperes, the equipment shall include a voltmeter in the output circuit to directly indicate the test potential.

If the output of the test equipment transformer is 500 volt-amperes or larger, the test potential may be indicated:

- a) By a voltmeter in the primary circuit or in a tertiary-winding circuit,
- b) By a selector switch marked to indicate the test potential, or
- c) For equipment having a single test-potential output, by a marking in a readily visible location to indicate the test potential. When marking is used without an indicating voltmeter, the equipment shall include a positive means, such as an indicator lamp, to indicate that the manually reset switch has been reset following a dielectric breakdown.

Test equipment other than that described above may be used if found to accomplish the intended factory control.

All test equipment shall be maintained in current calibration.

**Products Requiring Dielectric Voltage Withstand Test:**

Each device shall withstand without electrical breakdown, as a routine production-line test, the application a potential between current-carrying parts of the supply circuit and accessible dead metal as below:

Condition	Application time, seconds	Applied potential	
		40 – 70 hertz	DC
A	60	1240	1754
B	1	1488	2104

*Note: The test is to be in accordance with either condition A or B of Table.*

