UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2014-10-14 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment - Safety - Part 1: General Requirements)
Certification Type:	Component Recognition
CCN:	NWGQ2, NWGQ8 (Information Technology Equipment Including Electrical Business Equipment)
Product:	LED Display Screen
Model:	IM10
Rating:	Input: AC100-120V/ 200-240V, 50/60Hz, 18/ 12A. Output: AC100-120V/ 200-240V, 50/60Hz, 16.5/ 11.2A
Applicant Name and Address:	SHENZHEN CHIP OPTECH CO LTD TOWER C, BAOSHI TECHNOLOGICAL PARK BAOSHI RD SHIYAN ST, BAO'AN DISTRICT SHENZHEN GUANGDONG 518108 CHINA

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

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Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.

ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.

iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

This is individual LED display Module for indoor application, it includes several LED tiles, R/C power supplies, and communication board, enclosed by metal housing.

Model Differences

N/A

Technical Considerations

- Equipment mobility : stationary, for building-in
- Connection to the mains : To be determined in end product
- Operating condition : continuous
- Access location : operator accessible
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10% (Declared by the manufacturer)
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Class I (earthed)
- Considered current rating of protective device as part of the building installation (A) : 20A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : 2000 m
- Altitude of test laboratory (m) : less than 2000 meters
- Mass of equipment (kg) : 4.672Kg
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer’s specification of: 50 degree C
- The means of connection to the mains supply is: To be determined in end product
- The product is intended for use on the following power systems: TN

- The equipment disconnect device is considered to be: To be determined in end product.
- The product was investigated to the following additional standards: IEC 62471: 2006
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The following Production-Line tests are conducted for this product: Electric Strength, Earthing Continuity
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 258Vrms, 464Vpk, Primary-Secondary: 268Vrms, 488 Vpk,
- The following secondary output circuits are SELV: All data/communication ports, except for AC output connector
- The following secondary output circuits are at hazardous energy levels: AC output connector,
- The following secondary output circuits are at non-hazardous energy levels: All data/communication ports
- The power supply terminals and/or connectors are: Not investigated for field wiring
- The maximum investigated branch circuit rating is: 20 A
- The investigated Pollution Degree is: 2
- Proper bonding to the end-product main protective earthing termination is: Required
- An investigation of the protective bonding terminals has: Been conducted between AC Input connector "G" Pin to metal enclosure, investigation for the path form AC Input connector "G" Pin to AC output "G" Pin did not conducted. Additional evaluation shall considered in end system.
- The following end-product enclosures are required: Mechanical, Electrical, Fire
- The equipment is suitable for direct connection to: AC mains supply
- The following LEDs operate within the exempt group per IEC 62471: Yes
- Those units are intended to be fastened in place before servicing, the mounting means shall be considered during end system evaluation.
- Interconnection of AC mains power supply between different units was not investigated as part of this report and should be considered in end system.
- The AC connector was investigated to 4.3.5 - CONNECTOR CURRENT INTERRUPTION TEST for 50 cycles.

Additional Information

N/A

Additional Standards

The product fulfills the requirements of: N/A

Markings and instructions

Clause Title	Marking or Instruction Details
Power rating - Ratings	Ratings (voltage, frequency/dc, current)

Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
Power outlet	Rated voltage, rated current
The visible radiation symbol	IEC 60417-6041:2010-08 for retinal blue light hazard and Retinal thermal hazard
LED 1	CAUTION: Possibly hazardous optical radiation emitted from this product(or equivalent text)
LED 2	Do not stare at operating lamp. May be harmful to the eyes.

Special Instructions to UL Representative

N/A

Production-Line Testing Requirements

Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.

Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
N/A						

Earthing Continuity Test Exemptions - This test is not required for the following models:

Electric Strength Test Exemptions - This test is not required for the following models:

Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:

Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
N/A					

1.5.1	**TABLE: list of critical components**					Pass
Object/part or Description	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Supplement ID
01. Label	Interchangeable	Interchangeable	Minimum 90 degree C. Suitable for application for plastic surface.	PGDQ2 or PGJI2	UL	
02. Metal enclosure	--	--	Frame Painted or powder coated metal, min. 0.66 mm thick	--	--	
03. Printed Wiring Board	Interchangeable	Interchangeable	Rated V-1 or better, minimum 130 degree C,	ZPMV2	UL	
04.Primary connection wire	Interchangeable	Interchangeable	Rated min. AC 300V, 105 degree C, VW-1, 14AWG	AVLV2	UL	
05.Heat shrinkable tube	Interchangeable	Interchangeable	Rated VW-1, 600V, 125 degree C	YDPU2	UL	
06.Earthing wire	Interchangeable	Interchangeable	Rated min. AC 300V, 105 degree C, VW-1, 14AWG, colored in yellow-and-green	AVLV2	UL	
07. Internal secondary Wiring	Interchangeable	Interchangeable	Rated min. AC 300V, 80 degree C, VW-1, min.24AWG	AVLV2	UL	
08. Power cordset	Interchangeable	Interchangeable	Detachable power cordset, SVT, 18AWGx3C, min. 75 degree C, min. length 1.5m, VW-1	ZJCZ	UL	
09. Built-in power supply module	Powerld Enterprises Co., Ltd.	VAT-UP200-4.2-G	Input 1:100- 109Vac,50/60Hz, 3.5Amax. Input 2:110- 240Vac,50/60Hz, 3.5Amax. Output 1: 4.2Vd.c.,30A(50degreeC) Output 2: 4.2Vd.c.,40A(50degreeC) Output 1:	QQGQ	UL	

			4.2Vd.c.,26.3A(65degreeC) Output 2: 4.2Vd.c.,35A(65degreeC)			
10. LED	MLS Co., Ltd.	3.6AB6SF05	3.9degree3.2x6.1mm 3.2V, 10mA, Blue	--	--	
11. Appliance Inlet	SHENZHEN LILUTONG ELECTRONIC TECHNOLOGY CO LTD (E470166)	LLT-M25-35309M1061	Rated 25A, 400V, 85 degree C, IP67	ECBT2	UL	
12. Appliance outlet	SHENZHEN LILUTONG ELECTRONIC TECHNOLOGY CO LTD (E470166)	LLT-M25-35309F1051	Rated 25A, 400V, 85 degree C, IP67	ECBT2	UL	
13. Gasket	Interchangeable	Interchangeable	polyurethane foam, 100 degree C	JMST2	UL	
14. Power supply input connector (J4)	SHENZHEN MEDLON HARDWARE PRODUCTS CO LTD (E358633)	JYP-F0003D-VT01R	Rated 25A, 300V, 85 degree C,	ECBT2	UL	
15. Power supply output connector (J3)	SHENZHEN MEDLON HARDWARE PRODUCTS CO LTD (E358633)	JYP-F0004D-VT01R	Rated 25A, 300V, 85 degree C,	ECBT2	UL	
Plastic enclosure near LED	SABIC INNOVATIVE PLASTICS US L LC (E121562)	RF-1005 Z270(f1)	Rated 5VA, 110degreeC, Min. thickness 1.1mm min.	QMFZ2	UL	
Mylar sheet	SABIC JAPAN L L C (E207780)	FR500	Rated V-0, 80degreeC, Min. thickness 0.2mm min.	QMFZ2	UL	

Enclosures

Type	Supplement Id	Description
Photographs	3-01	Overall view 1
Photographs	3-02	Overall view 2
Photographs	3-03	Internal view 1
Photographs	3-04	Internal view 2
Photographs	3-05	Internal view 3
Photographs	3-06	Internal view 4
Photographs	3-07	Power supply view 1
Photographs	3-08	Power supply view 2
Schematics + PWB	5-01	HUB PCB layout
Schematics + PWB	5-02	LED PCB layout
Miscellaneous	7-01	Metal housing drawing