UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1-14, 2nd Ed (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	Dual Redundancy Module
Model:	DRM40xyyyyy, DRM40x/Eyyyyy, DRM40x/Fyyyyy where: x can be B or blank, y can be CO, CO2, blank or any alphanumeric character that is non safety related information.
Rating:	Input 1: 12-28 Vdc, 20A. Input 2: 12-28 Vdc, 20A. Output: 12-28 Vdc, 40A.
Applicant Name and Address:	TDK-LAMBDA SINGAPORE PTE LTD #06-01/08 1008 TOA PAYOH NORTH SINGAPORE 318996 SINGAPORE SINGAPORE

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.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared By: Chai Ming Yuo / Project Handler Reviewed By: Jim Kao / Reviewer

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

The equipment is a Dual Redundancy Module having 2 inputs and 1 output consists of electronic components mounted on PWB intended for building-in.

Model Differences

Models DRM40xyyyyy, DRM40x/Eyyyyy and DRM40x/Fyyyyy are similar except the following:

- DRM40xyyyyy using 4 pins terminal block and 2 pins terminal block for output;
- DRM40x/Eyyyyy using spring type terminal block for input and output;
- DRM40x/Fyyyyy using 4 pins terminal block for input and output;

Options:

B = No LED and no DC-OK signal

CO = Conformal coating apply on one side of the PCB

CO2 = Conformal coating apply on both sides of the PCB

Test Item Particulars

Classification of use by	Ordinary person
Supply Connection	External Circuit - not Mains connected ES1
Supply % Tolerance	None
Supply Connection – Type	mating connector
Considered current rating of protective device as part of building or equipment installation	20 A; building;
Equipment mobility	for building-in
Over voltage category (OVC)	OVC I
Class of equipment	Class III
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer’s specified maximum operating ambient	60 °C for 100% load at Mounting Position B and C; 70 °C for 100% load at Mounting Position A; 70 °C for 75% load at Mounting Position B and C; °C

IP protection class	IP N/A
Power Systems	N/A
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	approximately 0.3

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 70 °C for 100% load at Mounting Position A; 60 °C for 100% load at Mounting B, C; 70 °C for 75% load at Mounting B, C
- Mains supply tolerance (%) or absolute mains supply values : No direct connection
- The Risk Group of a lamp or lamp system (including LEDs) is : Exempt
- Heating test was performed at different mounting position. See Enclosure Id 7-02 for details.

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 investigated Pollution Degree is : 2
- The following end-product enclosures are required : Fire

Additional Information

Manufacturer requested to perform verification on end-product peak loading conditions as following:
Loading 1 - output loaded 60 A for 4 seconds and rest at 22.87 A for 7.4 seconds;
Loading 2 - output loaded 45 A for 4 seconds and rest at 17.14 A for 7.4 seconds.
See Enclosure ID 7-03 for details.

Additional Standards

The product fulfills the requirements of: The product fulfills the requirements of: EN 62368-1:2014 + A11:2017

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listees or Recognized companys name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	"Input Ratings (voltage, frequency/dc, current/power)", "Output Ratings (voltage, frequency/dc, current/power)"

Special Instructions to UL Representative

N/A