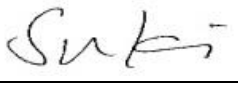
Test Report issued under the responsibility of:

TEST REPORT
IEC 60950-1
Information technology equipment - Safety - Part 1: General requirements

Report Reference No ..... :	E186249-A120-CB-2
Date of issue ..... :	2012-10-31
Total number of pages ..... :	24
CB Testing Laboratory ..... :	UL International Limited
Address ..... :	18/F Delta House, 3 On Yiu Street, Shatin, NT, Hong Kong
Applicant's name ..... :	ASTEC INTERNATIONAL LIMITED - PHILIPPINE BRANCH
Address ..... :	3RD & 4TH FLR. TECHNO PLAZA ONE BLDG., #18 ORCHARD ROAD, EASTWOOD CITY CYBERPARK, BAGUMBAYAN, QUEZON CITY 1110 PHILIPPINES
Test specification:	
Standard ..... :	IEC 60950-1:2005 (2nd Edition); Am 1:2009
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC60950_1B
Test Report Form originator ..... :	SGS Fimko Ltd
Master TRF ..... :	2010-04

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description ..... :	Switching Power Supply for building-in
Trade Mark ..... :	EMERSON NETWORK POWER
Manufacturer ..... :	ASTEC INTERNATIONAL LIMITED - PHILIPPINE BRANCH 3RD & 4TH FLR. TECHNO PLAZA ONE BLDG., #18 ORCHARD ROAD, EASTWOOD CITY CYBERPARK, BAGUMBAYAN, QUEZON CITY 1110 PHILIPPINES
Model/Type reference ..... :	LPQ200A-M, LPQ201-M, LPQ200C-M and LPQ202-M
Ratings ..... :	INPUT: AC 100-250 V, 50/60 Hz, 3.5 A DC 120 V (min.) - 300 V (max.), 3.0 A OUTPUT: LPQ200A-M, LPQ201-M: V1: +2.97 - 16.5 Vdc, 18 A max V2: +2.97 - 16.5 Vdc, 18 A max V3 :+2.97 - 16.5 Vdc, 9 A max V4: -7.2 - -16.5 Vdc, 2 A max LPQ200C-M, LPQ202-M: V1: +2.97 - 16.5 Vdc, 18 A max V2: +2.97 - 16.5 Vdc, 18 A max V3: +21.6 - 28.8 Vdc, 3 A max V4: -7.2 - -16.5 Vdc, 2 A max MAXIMUM OUTPUT POWER: 200 VA with 30CFM Forced Air Cooling at 50 degree C maximum ambient 100 VA with Convection Cooling at 50 degree C maximum ambient For Convection cooling: If V1 and V2 are set to 5 V and 3 V combination and vise versa, maximum V1 and V2 combined load should not exceed 75 VA. For Convection cooling: If V1 and V2 are set to 3 V or below combination, maximum V1 and V2 combined load should not exceed 70 VA. Output power derates at 2.5% per degree C from 50 degree C to 70 degree C ambient temperature

Testing procedure and testing location:			
[x]	**CB Testing Laboratory**		
	Testing location / address..... :	UL International Limited 18/F Delta House, 3 On Yiu Street, Shatin, NT, Hong Kong	
[ ]	**Associated CB Test Laboratory**		
	Testing location / address..... :		
	Tested by (name + signature) ..... :	Suki Kwong	
	Approved by (name + signature) ... :	Brian Wong	
[ ]	**Testing Procedure: TMP**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Testing location / address..... :		
[ ]	**Testing Procedure: WMT**		
	Tested by (name + signature) ..... :		
	Witnessed by (+ signature)..... :		
	Approved by (+ signature) ..... :		
	Testing location / address..... :		
[ ]	**Testing Procedure: SMT**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Supervised by (+ signature) ..... :		
	Testing location / address..... :		
[ ]	**Testing Procedure: RMT**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Supervised by (+ signature) ..... :		
	Testing location / address..... :		

List of Attachments

National Differences (0 pages)

Enclosures (10 pages)

Summary of Testing:

No tests were conducted

Summary of Compliance with National Differences:

Countries outside the CB Scheme membership may also accept this report.

List of countries addressed: AT, BE, CA, CH, CZ, DE, DK, EU, FI, FR, GB, GR, HU, IT, JP, KR, NL, NO, PL, SE, SI, SK, US

Copy of Marking Plate - Refer to Enclosure titled Marking Plate for copy.

Test item particulars :	
Equipment mobility ..... :	for building-in
Connection to the mains ..... :	To be considered in the end system.
Operating condition ..... :	continuous
Access location ..... :	operator accessible
Over voltage category (OVC) ..... :	OVC II
Mains supply tolerance (%) or absolute mains supply values ..... :	+10%, -10%
Tested for IT power systems ..... :	No
IT testing, phase-phase voltage (V) ..... :	-
Class of equipment ..... :	Class I (earthed)
Considered current rating of protective device as part of the building installation (A) ..... :	Max. 3.5 A
Pollution degree (PD) ..... :	PD 2
IP protection class ..... :	IP X0
Altitude of operation (m) ..... :	up to 4000 m
Altitude of test laboratory (m) ..... :	less than 2000 meters
Mass of equipment (kg) ..... :	<1.0
Possible test case verdicts:	
- test case does not apply to the test object ..... :	N / A
- test object does meet the requirement ..... :	P(Pass)
- test object does not meet the requirement ..... :	F(Fail)
Testing:	
Date(s) of receipt of test item ..... :	N/A
Date(s) of Performance of tests ..... :	N/A

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the testing laboratory.

"(see Enclosure #)" refers to additional information 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.

Manufacturer's Declaration per Sub Clause 6.25 of IECEE 02: Yes

The application for obtaining a CB Test Certificate includes more than one factory and a declaration form the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....

When differences exist, they shall be identified in the General Product Information section.

Name and address of Factory(ies): 1) ASTEC POWER PHILIPPINES INC
104 LAGUNA BLVD, LAGUNA TECHNOPARK, STA ROSA
LAGUNA 4026 PHILIPPINES

2) ASTEC POWER PHILS INC,
MAIN ROAD CORNER ROAD "J", CAVITE EXPORT
PROCESSING ZONE, ROSARIO CAVITE 4106 PHILIPPINES

GENERAL PRODUCT INFORMATION:

Report Summary

The original report was modified on 2013-01-18 to include the following changes/additions:
This test report should be read in conjunction with the original report number:
- E186249-A120-CB-2, issued 2012-10-31, with CB Certificate No. (DK-28939-UL), issued 2012-10-31.

This report has been amended, due to:
1. Additional add two alternate models LPQ201-M and LPQ202-M.

Product Description

This equipment has been evaluated for use in Class I .

Model Differences

LPQ200C-M is the same as Model LPQ200A-M except for model designation and V3 output voltage and V3 secondary output module circuitry.

LPQ201-M is the same as Model LPQ200A-M except for model designation.

LPQ202-M is the same as Model LPQ200C-M except for model designation.

Additional Information

LPQ200A-M, LPQ201-M Loading Conditions:
Loading Condition 1: (200VA with 30 CFM forced air cooling)
V1: +6.0V, 18.0A; V2: +2.97V, 18.0A; V3: +2.97V, 9.0A; V4: -7.2, 1.65A

Loading Condition 2: (200VA with 30 CFM forced air cooling)
V1: +2.97V, 18.0A; V2: +6.0V, 18.0A; V3: +2.97V, 3.55A; V4: -14.0, 2.0A

Loading Condition 3: (200VA with 30 CFM forced air cooling)
V1: +3.0V, 13.0A; V2: +3.0V, 13.0A; V3: +12.0V, 9.0A; V4: -7.2, 2.0A

Loading Condition 4: 200VA with 30 CFM forced air cooling)
V1: +16.5V, 3.71A; V2: +16.5V, 3.71A; V3: +16.5V, 5.0A; V4: -16.5V, 1.0A

Loading Condition 5: (100VA at natural convection cooling)
V1: +5.4V, 13.0A; V2: +3.0V, 1.67A; V3: +3.0V, 5.0A; V4: -10.0, 1.0A

Loading Condition 6: (100VA at natural convection cooling)
V1: +3.0V, 1.67A; V2: +5.4V, 13.0A; V3: +3.0V, 5.0A; V4: -10.0, 1.0A

Loading Condition 7: (100VA at natural convection cooling)
V1: +3.0V, 4.2A; V2: +3.0V, 4.2A; V3: +12.0V, 5.0A; V4: -15.0, 1.0A

LPQ200C-M, LPQ202-M Loading Conditions:
Loading Condition 1: (200VA with 30 CFM forced air cooling)
V1: +6.0V, 18.0A; V2: +2.97V, 18.0A; V3: +21.6V, 1.12A; V4: -7.2, 2.0A

Loading Condition 2: (200VA with 30 CFM forced air cooling)
V1: +2.97V, 18.0A; V2: +6.0V, 18.0A; V3: +21.6V, 0.5A; V4: -14.0V, 2.0A

Loading Condition 3: (200VA with 30 CFM forced air cooling)
V1: +3.0V, 18.0A; V2: +3.0V, 18.0A; V3: +24.0V, 3.0A; V4: -10.0V, 2.0A

Loading Condition 4: (200VA with 30 CFM forced air cooling)
V1: +16.5V, 2.95A; V2: +16.5V, 2.95A; V3: +28.8V, 3.0A; V4: -16.5V, 1.0A

Loading Condition 5: (100VA at natural convection cooling)
V1: +5.4V, 13.0A; V2: +3.0V, 1.67A; V3: +22.0V, 0.8A; V4: -7.2V, 1.0A

Loading Condition 6: (100VA at natural convection cooling)
V1: +3.0V, 1.67A; V2: +5.4V, 13.0A; V3: +22.0V, 0.8A; V4: -7.2V, 1.0A

Loading Condition 7: (100VA at natural convection cooling)
V1: +3.0V, 8.2A; V2: +3.0V, 8.2A; V3: +24.0V, 1.5A; V4: -15.0V, 1.0A

Notes:
For Convection cooling: If V1 and V2 are set to 5V and 3V combination and vise versa, maximum V1 and V2 combined load should not exceed 75VA.

For Convection cooling: If V1 and V2 are set to 3V or below combination, maximum V1 and V2 combined load should not exceed 70VA.

Loading conditions are the output load settings of the power supply during test. Loading conditions at the end system may vary however it should not exceed the output ratings given (see cover page).

The label is a draft of an artwork for marking plate pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval.

Project (12CA47623):
UL Part: Upgrading Standard from UL 60950-1, 2nd Edition Date 2007-03-01 to 2nd Edition Revision Date 2011-12-19
CB Part: Reissue-1:

No tests were considered necessary due to the similarities of previously tested construction except for updating standard to IEC 60950-1:2005 (2nd Edition); Am 1:2009 and EN 60950-1:2006+A11:2009+A1:2010+A12:2011; CAN/CSA-C22.2 No. 60950-1-07, Second Edition, dated December, 2011 and UL 60950-1, Second Edition, dated December 19, 2011.

No tests conducted under this investigation due to reissue of CB Test Report Ref. No. E186249-A120-CB-1, issued 2010-02-08. All required tests were carried out under the original investigation.

This report is a reissue of CBTR Ref. No. E186249-A120-CB-1, issued 2010-02-08, CB Test Certificate Ref. No. DK-18034 issued 2010-02-08. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, has been determined that the product continues to comply with the standard.

Project 13CA03338 (for UL and CB: E186249-A120-CB-2-Amendment-1)
Additional add two alternate models LPQ201-M and LPQ202-M.

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50 degree C and up to 70 degree C at derated power. ,
- The means of connection to the mains supply is: AC / DC Input Terminal
- The product is intended for use on the following power systems: TN
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 (which includes all European national differences, including those specified in this test report).
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: LPQ200A-M, LPQ201-M: V1:+2.97-16.5 Vdc output; V2:+2.97 - 16.5 Vdc output; V3 :+2.97 - 16.5 Vdc output;V4: -7.2 - -16.5 Vdc output LPQ200C-M, LPQ202-M: V1: +2.97 - 16.5 Vdc output; V2: +2.97 - 16.5 Vdc output; V3 :+21.6 - 28.8 Vdc output; V4: -7.2 - -16.5 Vdc output.,
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual,
- This power supply has been evaluated for use in 50 degree C maximum ambient temperature at 100 W load with natural convection cooling and 200 W load with 30 CFM Forced Air Cooling. Output power derates at 2.5% per degree C from 50 degree C to 70 degree C ambient temperature. --
- The Clearances and Creepage distances have additionally been assessed for suitability up to maximum 13,120 ft (4,000 m) elevation. Clearance distance are calculated according to IEC60661-1 table A-2 multiplier factor is 1.29. --
- This power supply is component level power supply intended for use in Class I application. --
- This equipment is not an electromedical equipment intended to be physically connected to a patient. --

Engineering Conditions of Acceptability

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
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 291.8 Vrms, 451 Vpk,
- The following secondary output circuits are SELV: LPQ200A-M, LPQ201-M: V1:+2.97-16.5 Vdc output; V2:+2.97 - 16.5 Vdc output; V3 :+2.97 - 16.5 Vdc output;V4: -7.2 - -16.5 Vdc output LPQ200C-M, LPQ202-M: V1: +2.97 - 16.5 Vdc output; V2: +2.97 - 16.5 Vdc output; V3 :+21.6 - 28.8 Vdc output; V4: -7.2 - -16.5 Vdc output.,
- The following secondary output circuits are at hazardous energy levels: V1:+2.97 - 16.5 Vdc output; V2:+2.97 - 16.5 Vdc output; ,
- The following secondary output circuits are at non-hazardous energy levels: LPQ200A-M, LPQ201-M: V3 :+2.97 - 16.5 Vdc output;V4: -7.2 - -16.5 Vdc output; , LPQ200C-M, LPQ202-M: V3 :+21.6 - 28.8 Vdc output; V4: -7.2 - -16.5 Vdc output.

- The following secondary output circuits are Limited Current Circuits: LPQ200A-M, LPQ201-M: V1:+2.97-16.5 Vdc output; V2:+2.97 - 16.5 Vdc output; V3 :+2.97 - 16.5 Vdc output;V4: -7.2 - -16.5 Vdc output LPQ200C-M, LPQ202-M: V1: +2.97 - 16.5 Vdc output; V2: +2.97 - 16.5 Vdc output; V3 :+21.6 - 28.8 Vdc output; V4: -7.2 - -16.5 Vdc output.,
- The clearances and creepage distances have been additionally assessed for suitability up to 4000m elevation. --
- Refer to General Product Information 2 (additional information) for the maximum allowable output power, voltage and current for the output. --
- This power supply has been evaluated for use in as defined in UL 60950-1 and CAN/CSA-C22.2 No. 60950-1, 2nd Edition. --
- The disconnection from the line must be considered in the end system. --
- This equipment is classified as Level 3 as defined by UL 60950-1 and CAN/CSA C22.2 No. 60950-1-07, Second Edition. --
- This equipment was not evaluated for system mounting. When installed in the end system, proper evaluation should be considered. --
- Earthing Continuity Test shall be considered. --
- Additional UL Recognized Fuse suitable for DC application must be provided in the end system for DC input. --
- See Enclosure ID7-01 for ventilation set up for Models LPQ200A-M and LPQ201-M, and Enclosure ID7-02 for ventilation set up for Models LPQ200C-M and LPQ202-M. --
- The unit is not suitable directly connected to DC main supply. --
- DC input voltage 300Vdc is rectified from AC main supply. Further evaluation must be considered if the unit is directly connected DC main supply. --
- 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: Not been conducted --
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C): T1 and T2 - (Class F) designated 155-10C --
- The following end-product enclosures are required: Mechanical , Fire , Electrical --
- The maximum continuous power supply output (Watts) relied on forced air cooling from: 30 CFM Forced air cooling at 200 W. --
- The equipment is suitable for direct connection to: AC mains supply --

Abbreviations used in the report:

- normal condition	N.C.	- single fault condition	S.F.C
- operational insulation	OP	- basic insulation	BI
- basic insulation between parts of opposite polarity:	BOP	- supplementary insulation	SI