



Technical Report No. 68.230.0.014.02

Dated 2011-12-07

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Test subject.....: Product: Switch Mode Power Supply for Building-in
Type: LPQ200A-M, LPQ200C-M

Test specification: EN 60950-1:2006+A11:2009+A1:2010+A12:2011
EN 60601-1: 2006
IEC 60601-1: 2005

Purpose of examination.....: Test according to the above test specification.

Test result: The test results show that the presented product is in compliance with
the specified requirement.

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1 Description of the test subject

1.1 Function

AC-DC Switch Mode Power Supply for Building-in

1.2 Consideration of the foreseeable misuse

- Not applicable
- Covered through the applied standard
- Covered by the following comment
- Covered by attached risk analysis

1.3 Technical Data

- Protection Class Class I
- Operation mode Continuous
- Degree of protection IPX0

- Construction Built-in
- Rated AC input 100-250V, 50/60Hz, 3.5A (MAX)
- Rated DC input 120-300V, 3A
- Rated output Maximum output power:
100VA with convection cooling,
200VA with 30CFM forced-air.
(see detail output ratings in attachment)

2 Order

2.1 Date of Purchase Order, Customer's Reference

2011-08-16

2.2 Receipt of Test Sample, Location

N/A

2.3 Date of Testing

From 2011-08-16 to 2011-12-07

2.4 Location of Testing

TEC Department, Shenzhen

3 Test results

Positive Test Results

The following test specifications are met:

- Electrical safety
 - EN 60950-1:2006+A11:2009+A1:2010+A12:2011
 - EN 60601-1: 2006
 - IEC 60601-1: 2005

4 Remark

- 4.1 When installing these equipments, all requirements of the mentioned standard must be fulfilled.
- 4.2 Clearance distance was evaluated for operating altitude up to 4000m above sea level.
- 4.3 Refer to the safety instructions for details of loading conditions and operating ambient conditions.
- 4.4 These power supplies are designed to be protectively earthed. Earthing connection and continuity test shall be checked in end product.
- 4.5 This power supply also evaluated according to EN 60601-1:2006 and IEC 60601-1:2005 with following condition:
 - The output was not evaluated as patient connected circuits.
 - Compliance with the requirements for EMC shall be evaluated for the end use product.
 - This product has been investigated only as a component part for use in equipment where the suitability of the combination is subject to end product investigation.
 - This power supply must be installed in accordance with the instruction manual.
 - Risk management has been considered for the relevant clause in this power supply. When using this power supply for a medical device, compliance with the relevant requirements of the risk management for the complete system has to be considered.
 - The leakage current test shall be checked in end product.
 - These power supplies are intended to be built into an end use equipment.
 - Clearance / creepage distance and dielectric strength were evaluated and fulfilled the requirements for MOPP
- 4.6 LPQ200A-M is identical with LPQ200C-M, except for secondary output V3 rating and V3 circuitry.
- 4.7 CB report no. 211-300594-000 for IEC 60601-1: 2005 was also issued for these subject products.
- 4.8 Trademark: EMERSON, ASTEC
- 4.9 It is an update based on the previous positive project 68.230.0.014.01 to include following changes:
Upgrade standard from EN 60601-1:/A2:1995 & IEC 60601-1/A2: 1995 to EN 60601-1: 2006 & IEC 60601-1: 2005.
- 4.10 Remark to Factory

The assembly of the product has to comply with the documentation (CDF). Before the implementation of safety relevant modifications to the product into the ongoing production the product must be retested for assessment. The results must be implemented to the documentation and if necessary the certificate must be updated.

The final inspections in the production are described in the EN50514.



5 Documentation

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6 Summary

The test specifications are met.

**Jiangsu TÜV Product Service Ltd. Shenzhen Branch
TÜV SÜD Group**

Tested by:

**Jack Liu
Project Engineer**

Reviewed by:

**Yager Bi
Project Manager**



Attachment

Detail Output Ratings

LPQ200A	V OUTPUT	I LOAD MAX (FORCED AIR)	I LOAD MAX (NATURAL CONVECTION)	P MAX CONT. POWER (FORCED AIR)	P MAX CONT. POWER (NATURAL CONVECTION)
V1 MODULE	2.97 V - 6.5 V	18A	13A	108W	70W
	6.6 V - 13.2 V	9A	6A	108W	70W
	13.3 V - 16.5 V	7.2A	5A	108W	70W
V2 MODULE	2.97 V - 6.5 V	18A	13A	108W	70W
	6.6 V - 13.2 V	9A	6A	108W	70W
	13.3 V - 16.5 V	7.2A	5A	108W	70W
V3 MODULE	2.97 V - 6.5 V	9A	5A	108W	60W
	6.6 V - 13.2 V	9A	5A	108W	60W
	13.3 V - 16.5 V	7.2A	4A	108W	60W
V4 MODULE	(-)7.2V(-)13.2V	2A	1A	28W	15W
	(-)13.3V(-)16.5V	1.5A	1A	28W	15W

LPQ200C	V OUTPUT	I LOAD MAX (FORCED AIR)	I LOAD MAX (NATURAL CONVECTION)	P MAX CONT. POWER (FORCED AIR)	P MAX CONT. POWER (NATURAL CONVECTION)
V1 MODULE	2.97 V - 6.5 V	18A	13A	108W	70W
	6.6 V - 13.2 V	9A	6A	108W	70W
	13.3 V - 16.5 V	7.2A	5A	108W	70W
V2 MODULE	2.97 V - 6.5 V	18A	13A	108W	70W
	6.6 V - 13.2 V	9A	6A	108W	70W
	13.3 V - 16.5 V	7.2A	5A	108W	70W
V3 MODULE	21.6 V - 28.8V	3A	1.5A	72W	36W
V4 MODULE	(-)7.2V(-)13.2V	2A	1A	28W	15W
	(-)13.3V(-)16.5V	1.5A	1A	28W	15W

Notes:

Total power shall not exceed 200VA with 30CFM forced-air cooling.

Total power shall not exceed 100VA with natural convection cooling.

For Natural convection cooling:

a. If V1 & V2 outputs are set to 5V and 3V combination and vice versa, combined power shall not exceed 75VA.

b. If V1 & V2 outputs are set to 3V or below combination, combined power shall not exceed 70VA.