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# TEST REPORT

**SCOPE OF WORK**
ERP Report

**REPORT NUMBER**
180817060GZU-001

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Single test report _a_ May 2017

Intertek Legal Entity: Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Block E, No.7-2 Guang Dong Software Science Park, Caipin Road,
Guangzhou Science City, GETDD, Guangzhou, China
Telephone/Fax: 86-20-8213 9688/86-20-3205 7538

Report No.: 180817060GZU-001
Modification 1: 14 Jan., 2020

# TEST REPORT

| | | |
|---|---|---|
| Applicant | : | |
| Address | : | |
| | | |
| **Sample Description** | | |
| Name of Sample | : | POWER ADAPTER (EXTERNAL POWER SUPPLY) |
| Model Number | : | LY05-***-*****A(output power 5.04W) |
| Brand Name | : | |
| Rating | | Input :100-240V~, 50/60Hz, 0.2A Max<br>Output: 2.0-36.0Vdc, 0.05-1.2A, 5.04W max. |
| Sample Development Level | : | Prototype |
| Quantity of Sample (s) | : | 2 |
| Date of Receival | : | 28 Sep., 2018 |
| Date of test Conducted | : | 08 Oct., 2018 |
| Report Issue Date | : | 02 Nov., 2018 |
| | | |
| **Test** | | |
| Test Requested | : | COMMISSION REGULATION (EU) 2019/1782 of 1 October 2019 laying down ecodesign requirements for external power supplies pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulation (EC) No 278/2009. |
| Standard | : | EN 50563:2011+A1:2013, EN 50564:2011 |
| Test Conclusion: | : | From the results of the testing on the submitted sample(s), we are of the opinion that the submitted sample(s) COMPLY WITH COMMISSION REGULATION (EU) 2019/1782 of 1 October 2019, laying down ecodesign requirements for external power supplies pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulation (EC) No 278/2009 and level **VI** requirements of International Efficiency Marking Protocol. |

Tested by:

Todd

Todd Liang

Approved by:

Spark

Spark He

# TEST REPORT



The testing of this report is type tests. The requirements and tolerances permitted by this report are related to testing of a type-test sample submitted by the manufacturer for that purpose. Compliance of the type-test sample does not ensure compliance of the whole production of a manufacturer.

# TEST REPORT

**Summary of test results**

The no-load condition electric power consumption is 0.049W max. and average active efficiency is 73.95% min.

**General remark:**
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 Issuing testing laboratory.
Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.



The test report only allows to be revised only within the report defined retention period unless standard or regulation was withdrawn or invalid.

**Modification 1:**
-Update standard from " Code of Conduct on Energy Efficiency of External Power Supplies Version 5, 29 October 2013 REQUIREMENTS FOR NO-LOAD CONDITION ELECTRIC POWER CONSUMPTION AND AVERAGE ACTIVE EFFICIENCY OF EXTERNAL POWER SUPPLIES ACCORDING TO THE EC REGULATION 278/2009;
Part of underlying framework Directive 2009/125/EC, (replacing 2005/32/EC), of the European Parliament and of the Council with regard to ecodesign requirements for no-load condition electric power consumption and average active efficiency of external power supplies " to " COMMISSION REGULATION (EU) 2019/1782 of 1 October 2019 laying down ecodesign requirements for external power supplies pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulation (EC) No 278/2009.".

-Update test conclusion from "From the results of the testing on the submitted sample(s), we are of the opinion that the submitted sample(s) COMPLY WITH the 1st and 2nd stage requirements of the COMMISSION REGULATION (EC) No 278/2009, the requirements of Directive 2009/125/EC, the Tier 1 and Tier 2 of the EUROPEAN COMMISSION (EC) Code of Conduct on Energy Efficiency of External Power Supplies Version 5, 29 October 2013 and level **VI** requirements of International Efficiency Marking Protocol" to "From the results of the testing on the submitted sample(s), we are of the opinion that the submitted sample(s) COMPLY WITH COMMISSION REGULATION (EU) 2019/1782 of 1 October 2019, laying down ecodesign requirements for external power supplies pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulation (EC) No 278/2009 and level **VI** requirements of International Efficiency Marking Protocol."

Per evaluating, no additional test is necessary.

**General Product Information:**
The UUT is non user selectable single output Switching Adapter.
Model description: LY05-***-*****A
1st to 3rd symbols"***" indicate output voltage from 020 to 360(2.0Vdc to 36.0Vdc, step 0.1V)

# TEST REPORT

4th to 7th symbols "****" indicate output current from 0050 to 1200 (50mA to 1200mA, step 50mA)
8th symbol "*" indicates plug type, can be E or B, E represents EU plug complied with EN50075, B represents BS plug complied with BS 1363.
All models are identical to each other except for type designation, plug type, output rating, secondary winding of T1 and some small components of secondary side.
Output power of the product covered by the report is 5.04W series.

Manufacturing Site:
Address:

# TEST REPORT

**Standard and environmental condition**

| | | | |
|---|---|---|---|
| Standard applied | : | EN 50563:2011+A1:2013 External a.c. — d.c. and a.c. — a.c. power supplies – Determination of no-load power and average efficiency of active modes.<br>EN 50564:2011 Electrical and electronic household and office equipment - Measurement of low power consumption | |
| Tested at | | 115Vac/60Hz and 230Vac/50Hz | |
| Ambient temp. | | 24.7°C | |
| $THD_V$ | | 0.11%-0.50% | |
| Measuring device | : | WT310E, WT210 Power Meter | Inventory number: SA011-173, SA011-135 |
| Set-up and circuits used for electrical testing | | See Following Testing circuit | |

. The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
. The services are provided subject to the terms and condition of the company, which can be furnished upon request.

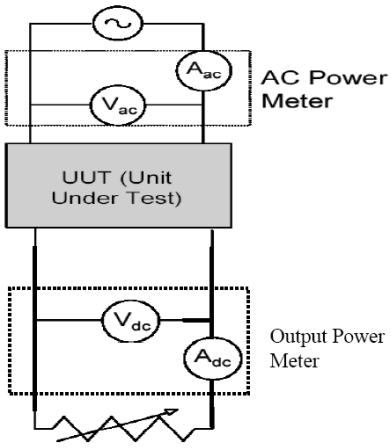
**Measurement conditions**

The UUT is operated at 100% of nameplate current output for 60 minutes immediately prior to conducting efficiency measurements.

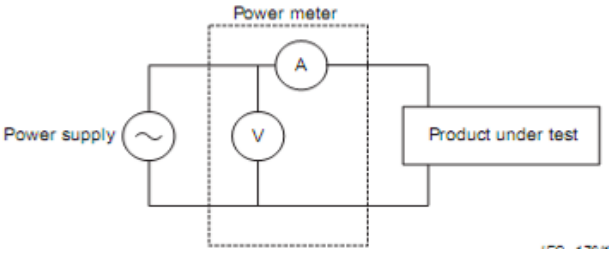
After this warm-up period, the ac input power is monitored for a period of 5 minutes to assess the stability of the UUT.

The power level has not drifted by more than 10% from the maximum value observed. The UUT is considered stable and the measurements have been recorded at the end of the 5 minute period.

Measurements of power of 0,50 W or greater are made with an uncertainty of less than or equal to 2 % at the 95 % confidence level. Measurements of power of less than 0,50 W are made with an uncertainty of less than or equal to 0,01 W at the 95 % confidence level.




For Higher power loads




For lower power loads

# TEST REPORT

**Test and verification results at 115Vac 60Hz of model LY05-042-1200EA**

| Item | Load condition | | | | |
|---|---|---|---|---|---|
| Percent of nameplate current | 0% | 25% | 50% | 75% | 100% |
| Rms output current (mA) | | 300 | 600 | 900 | 1200 |
| Rms output voltage (V) | 4.371 | 4.344 | 4.317 | 4.289 | 4.259 |
| Active output power (W) | | 1.303 | 2.591 | 3.860 | 5.112 |
| Rms input voltage (V) | 115 | 115 | 115 | 115 | 115 |
| Rms input power (W) | 0.034 | 1.690 | 3.382 | 5.104 | 6.894 |
| Total harmonic distortion (THD) V% | 0.510 | 0.498 | 0.510 | 0.495 | 0.503 |
| True power factor | 0.366 | 0.540 | 0.571 | 0.596 | 0.617 |
| Power consumed (W) | 0.034 | 0.387 | 0.792 | 1.244 | 1.783 |
| Efficiency | | 77.12% | 76.58% | 75.63% | 74.14% |
| Average active efficiency * | | 75.66% | | | |

*) Arithmetic average of efficiency at load conditions 2-5.

**Test and verification results at 230Vac 50Hz of model LY05-042-1200EA**

| Item | Load condition | | | | |
|---|---|---|---|---|---|
| Percent of nameplate current | 0% | 25% | 50% | 75% | 100% |
| Rms output current (mA) | | 300 | 600 | 900 | 1200 |
| Rms output voltage (V) | 4.369 | 4.339 | 4.314 | 4.285 | 4.255 |
| Active output power (W) | | 1.302 | 2.588 | 3.857 | 5.106 |
| Rms input voltage (V) | 230 | 230 | 230 | 230 | 230 |
| Rms input power (W) | 0.049 | 1.765 | 3.419 | 5.168 | 6.811 |
| Total harmonic distortion (THD) V% | 0.762 | 0.769 | 0.763 | 0.757 | 0.751 |
| True power factor | 0.332 | 0.458 | 0.491 | 0.507 | 0.519 |
| Power consumed (W) | 0.049 | 0.463 | 0.831 | 1.311 | 1.705 |
| Efficiency | | 73.75% | 75.69% | 74.63% | 74.97% |
| Average active efficiency * | | 73.95% | | | |

*) Arithmetic average of efficiency at load conditions 2-5.

# TEST REPORT

**Test and verification results at 115Vac 60Hz of model LY05-360-0140EA**

| Item | Load condition | | | | |
|---|---|---|---|---|---|
| Percent of nameplate current | 0% | 25% | 50% | 75% | 100% |
| Rms output current (mA) | | 35 | 70 | 105 | 140 |
| Rms output voltage (V) | 34.72 | 34.70 | 34.90 | 35.08 | 35.51 |
| Active output power (W) | | 1.214 | 2.443 | 3.683 | 4.971 |
| Rms input voltage (V) | 115 | 115 | 115 | 115 | 115 |
| Rms input power (W) | 0.034 | 1.395 | 3.036 | 4.316 | 5.855 |
| Total harmonic distortion (THD) V% | 0.507 | 0.521 | 0.481 | 0.495 | 0.510 |
| True power factor | 0.370 | 0.534 | 0.563 | 0.587 | 0.607 |
| Power consumed (W) | 0.034 | 0.181 | 0.593 | 0.633 | 0.884 |
| Efficiency | | 87.04% | 80.47% | 85.34% | 84.91% |
| Average active efficiency * | | 84.44% | | | |

*) Arithmetic average of efficiency at load conditions 2-5.

**Test and verification results at 230Vac 50Hz of model LY05-360-0140EA**

| Item | Load condition | | | | |
|---|---|---|---|---|---|
| Percent of nameplate current | 0% | 25% | 50% | 75% | 100% |
| Rms output current (mA) | | 35 | 70 | 105 | 140 |
| Rms output voltage (V) | 35.044 | 34.412 | 34.832 | 35.047 | 35.332 |
| Active output power (W) | | 1.204 | 2.438 | 3.680 | 4.946 |
| Rms input voltage (V) | 230 | 230 | 230 | 230 | 230 |
| Rms input power (W) | 0.047 | 1.473 | 2.876 | 4.295 | 5.793 |
| Total harmonic distortion (THD) V% | 0.755 | 0.772 | 0.764 | 0.746 | 0.752 |
| True power factor | 0.340 | 0.444 | 0.487 | 0.501 | 0.512 |
| Power consumed (W) | 0.047 | 0.268 | 0.438 | 0.615 | 0.847 |
| Efficiency | | 81.79% | 84.78% | 85.68% | 85.39% |
| Average active efficiency * | | 84.41% | | | |

*) Arithmetic average of efficiency at load conditions 2-5.

# TEST REPORT

| Clause | COMMISSION REGULATION (EU) 2019/1782 of 1 October 2019<br>laying down ecodesign requirements for external power supplies pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulation (EC) No 278/2009 | Result - Remark | Verdict |
|---|---|---|---|
| | For AC-AC external power supplies, except low voltage and multiple voltage output external power supplies.<br>The no-load condition power consumption shall not exceed 0.210 W | | N/A |
| | For AC-DC external power supplies, except low voltage and multiple voltage output external power supplies with Po ≤ 49W.<br>The no-load condition power consumption shall not exceed 0.100 W | For model: LY05-360-0140EA<br>0.034W at 115V 60Hz<br>0.047W at 230V 50Hz | Pass |
| | For AC-DC external power supplies, except low voltage and multiple voltage output external power supplies with Po > 49W.<br>The no-load condition power consumption shall not exceed 0.210 W | | N/A |
| | For Low voltage external power supplies with Po ≤ 49W.<br>The no-load condition power consumption shall not exceed 0.100 W | For model: LY05-042-1200EA<br>0.034W at 115V 60Hz<br>0.049W at 230V 50Hz | Pass |
| | For Low voltage external power supplies with Po > 49W.<br>The no-load condition power consumption shall not exceed 0.210 W | | N/A |
| | For Multiple voltage output external power supplies.<br>The no-load condition power consumption shall not exceed 0.3 W | | N/A |
| | Minimum Four Point Average Efficiency in Active Mode of AC-AC and AC-DC external power supplies except low voltage external power supplies, the average active efficiency shall be not less than: | | -- |
| | 0.5*Po + 0.16, for Po ≤ 1.0 W | | N/A |
| | 0.071*ln(Po) − 0.0014*Po + 0.67,<br>for 1.0 W < Po ≤ 49 W | For model: LY05-360-0140EA<br>84.44% at 115V 60Hz<br>84.41% at 230V 50Hz<br>Limited: 77.78% | Pass |
| | 0.880, for Po > 49W | | N/A |

| | | | |
|---|---|---|---|
| | Energy-Efficiency Criteria for Active Mode for Low Voltage external power Supplies<br>Minimum Four Point Average Efficiency in Active Mode shall be not less than: | | -- |
| | 0.517*Po + 0.087, for Po ≤ 1.0 W | | N/A |
| | 0.0834*ln(Po) − 0.0014*Po + 0.609,<br>for 1.0 W < Po ≤ 49 W | For model: LY05-042-1200EA<br>75.66% at 115V 60Hz<br>73.95% at 230V 50Hz<br>Limited: 73.68 % | Pass |
| | 0.870, for Po > 49W | | N/A |
| | Energy-Efficiency Criteria for Multiple voltage output external power supplies<br>Minimum Four Point Average Efficiency in Active Mode shall be not less than: | | -- |
| | 0.497*Po + 0.067, for Po ≤ 1.0 W | | N/A |
| | 0.075*ln(Po) + 0.561,<br>for 1.0 W < Po ≤ 49 W | | N/A |
| | 0.860, for Po > 49W | | N/A |
| | 10% Average Efficiency in Active Mode of AC-AC and AC-DC external power supplies except low voltage external power supplies, the average active efficiency shall be not less than: | | -- |
| | External power supplies with a nameplate output power of 10 W or less shall be exempted from this requirement. | 5.04W | N/A |
| | In cases where multiple average active efficiencies are declared for multiple output voltages available at load condition 1, the value published shall be the value declared for the lowest output voltage. | | N/A |
| Information requirements: | | | -- |
| | the nameplate shall include the following information: | | P |
| | Output power | | P |
| | Output voltage | | P |
| | Output current | | P |
| | instruction manuals for end-users (where applicable), and free access websites of manufacturers, importers or authorised representatives shall include the following information, in the order as set out below: | | P |
| | Manufacturer’s name or trade mark, commercial registration number and address | | P |
| | Model identifier | | P |
| | Input voltage | | P |
| | Input AC frequency | | P |
| | Output voltage | | P |
| | Output current | | P |

TEST REPORT

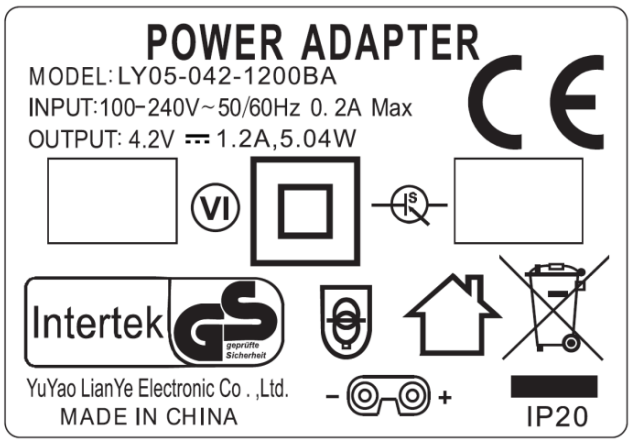
| | | | |
|---|---|---|---|
| | Output power | | P |
| | Average active efficiency | | P |
| | Efficiency at low load (10 %) | | N/A |
| | No-load power consumption | | P |
| | | | |

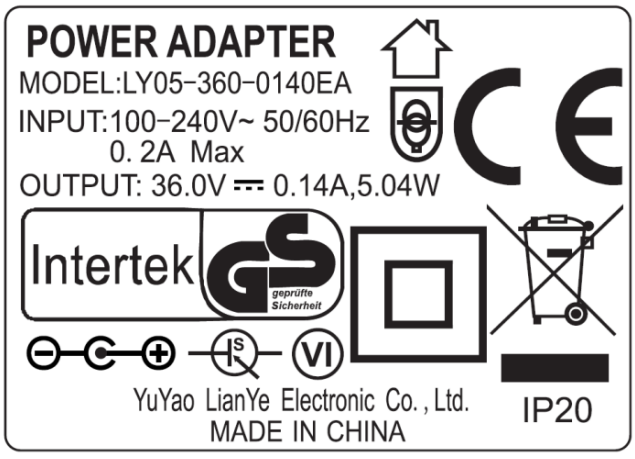
# TEST REPORT

| Clause | Single-Voltage External power supply, level **VI** requirements of International Efficiency Marking Protocol. | Result - Remark | Verdict |
|---|---|---|---|
| | For AC to DC External power supplies with Pno ≤ 49W.<br>The no-load condition power consumption shall not exceed ≤0.100 W | For model: LY05-360-0140EA<br>0.034W at 115V 60Hz<br>0.047W at 230V 50Hz<br>For model: LY05-042-1200EA<br>0.034W at 115V 60Hz<br>0.049W at 230V 50Hz | Pass |
| | For AC to AC External power supplies with Pno ≤ 49W.<br>The no-load condition power consumption shall not exceed ≤0.210 W | | N/A |
| | External power supplies with 49W < Pno ≤ 250W.<br>The no-load condition power consumption shall not exceed 0.210 W | | N/A |
| | External power supplies with 250W < Pno.<br>The no-load condition power consumption shall not exceed 0.5 W | | N/A |
| | Minimum Four Point Average Efficiency in Active Mode of AC-AC and AC-DC external power supplies except low voltage external power supplies, the average active efficiency shall be not less than: | | -- |
| | 0.5*Pno + 0.16, for 0 < Po ≤ 1.0 W | | N/A |
| | 0.071*ln(Pno) − 0.0014*Pno + 0.67,<br>for 1.0 W < Po ≤ 49 W | For model: LY05-360-0140EA<br>84.44% at 115V 60Hz<br>84.41% at 230V 50Hz<br>Limited: 77.78% | Pass |
| | 0.880, for 49< Pno ≤250 W | | N/A |
| | 0.875, for 250 W < Pno | | N/A |
| | Energy-Efficiency Criteria for Active Mode for Low Voltage external power Supplies<br>Minimum Four Point Average Efficiency in Active Mode shall be not less than: | | -- |
| | 0.517*Pno + 0.087, for 0 < Po ≤ 1.0 W | | N/A |
| | 0.0834*ln(Pno) − 0.0014*Pno + 0.609,<br>for 1.0 W < Po ≤ 49 W | For model: LY05-042-1200EA<br>75.66% at 115V 60Hz<br>73.95% at 230V 50Hz<br>Limited: 73.68 % | N/A |
| | 0.870, for 49< Pno ≤250 W | | N/A |
| | 0.875, for 250 W < Pno | | N/A |

# TEST REPORT

**Label:**



# TEST REPORT

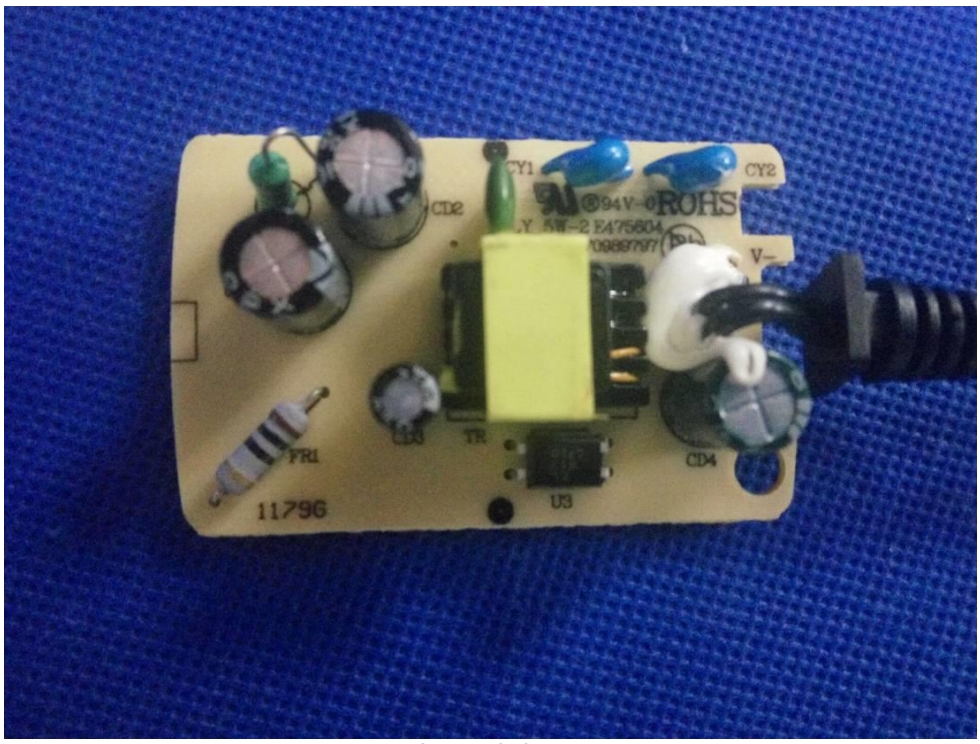
**Photos of the appliance:**

External view of unit with EU plug

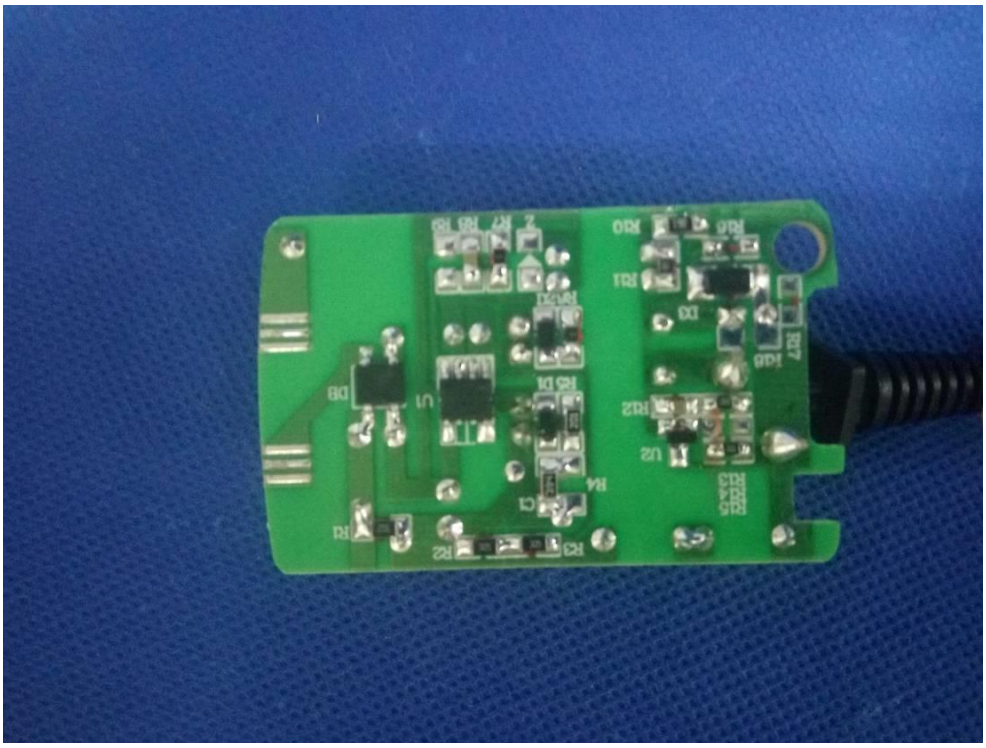
External view of unit with BS plug

# TEST REPORT

**Photos of the appliance:**




Internal view



Internal view

End of Test Report