SPECIFICATION

ADPV60 series AC/DC Adapter

HGPOWER

ADDRESS：Banshang, Cahngzhou , Jiangsu , China Post code : 213165

TEL：86-519-86732495，86735139 FAX：86-519-86731270

1. SCOPE

This is the engineering specification of 3～12Watt power wall plug-in AC/DC adapter, with wide voltage 100～240V AC input, single DC output, packed into a molded plastic case . Models covered:

ADPV60A-HGP08A12 (12V@1.0A)
ADPV60B- HGP08A09 (9V@1.0A)
ADPV60C- HGP08A06 (6V@1.5A)
ADPV60D- HGP08A05 (5V@1.5A)
ADPV60E-HGP10A05 (5V@2.0A)
ADPV60F- HGP16A16 (16V@1.0A)
ADPV60H- HGP16A24 (24V@0.65A)
ADPV60K- HGP11A14 (14.2V@0.75A)
ADPV60P- HGP08A75 (7.5V@1.0A)

2. CONNECTOR

The following specifies the input and output connection requirement of the power supply.

INPUT CONNECTOR

Two sheet copper socket connector or two wire

OUTPUT CABLE/CONNECTOR

A two wire cable with standard DC connector .

PIN ASSIGNMENTS

INPUT: Pin1～Line(L) OUTPUT: Outside ～GND
Pin1～Neutral(N) Inside～+Vout

3. ELECTRICAL REQUIREMENTS

(Unless specified otherwise, all specifications are at nominal input voltage, full load, 25℃, PSU at warmed up condition.)

INPUT

The operating conditions with respect to the AC input voltage are described in this section.

3.1.1 INPUT VOLTAGE

The operating voltage range is 100V to 240VAC.

3.1.2 INPUT CURRENT

When the input voltage is 100VA at 12W, then the max input current shall be less then0.3A at 15W, then the max input current shall be less then0.4A

3.1.3 INPUT FREQUENCY

Input frequency range shall be 47～63Hz.

3.1.4 INRUSH CURRENT

Maximum inrush shall be less then 20A at 240VAC.

3.1.5 EFFICIENCY

The efficiency of the power supply is 70% nominal, Measured at Full Load and nominal AC Input voltage of 240VAC ,25℃ with the PSU warmed up, at output. O/P Cable drop of 0.15V typical is removed for this calculation.

3.1.6 POWER FACTOR

Input AC voltage connects to internal diode bridge rectifier and Filter,12W output load is >0.50

OUTPUT POWER

The operating conditions for the regulated DC output are described in this section.

OUTPUT POWER

Depends on models, possible Max. Output power is 12W with O/P voltage of 12V and above, 3W for O/P volt below 12V and down to 5V, It is 8 Watt below 9V, and below 6V、5V it is 10W. Max rated power for a specific model ADPV60(A、B、C、D、E、F、H、K、P)-HGPxxAyy , " xx " is Watt.

OUTPUT VOLTAGE

Initial point voltage is measured at Min. Load/Half Load/Max. Load, at nominal input AC voltage, The nominal output voltage of a specific model ADPV60(A、B、C、D、E、F、H、K、P)-HGPxxAyy , " yy " is volt. This voltage change is indicative of change due to process variation and change due to load variation. The set point tolerance is measured with reference to the respective nominal Voltage and expressed as percentage of nominal output voltage.

Model	Output	Nominal voltage	Set point tolerance	User adjust
ADPV60A-HGP08A12	+V out	+12V	<4%	NA
ADPV60B-HGP08A09	+V out	+9V	<4%	NA
ADPV60C-HGP08A06	+V out	+6V	<4%	NA
ADPV60D-HGP08A05	+V out	+5V	<4%	NA
ADPV60E-HGP10A05	+V out	+5V	<4%	NA
ADPV60F- HGP16A16	+V out	+16V	<4%	NA
ADPV60H- HGP16A24	+V out	+24V	<4%	NA
ADPV60K- HGP11A14	+V out	+14.2V	<4%	NA
ADPV60P- HGP08A75	+V out	+7.5 V	<4%	NA

OUTPUT CURRENT

Model	Output	Min.Load current	Max.Load current	Limit Current
ADPV60A-HGP08A12	+Vout=12V	0A	1.00A	2.0A
ADPV60B-HGP08A09	+Vout=9V	0A	1.00A	2.0A
ADPV60C-HGP08A06	+Vout=6	0A	1.50A	2.5A
ADPV60D-HGP08A05	+Vout=5	0A	1.50A	2.5A
ADPV60E-HGP10A05	+Vout=5	0A	2.00A	3.0A
ADPV60F- HGP16A16	+Vout= 16V	0 A	1.00A	1.5A
ADPV60H- HGP16A24	+Vout=24V	0 A	0.65A	1.2A
ADPV60K- HGP11A14	+Vout=14.2V	0 A	0.75A	1.3A
ADPV60P- HGP08A75	+Vout=7.5V	0 A	1.00A	2.0A

LINE REGULATION

Regulation is measured by varying the line voltage from 85～264VAC,at full load.

Model	Output	Tolerance
All	+ Vout	<4%

LOAD REGULATION

Measured by varying the load current from MIN Load to FULL load at nominal AC input voltage. Measured at O/P power cord end. This measures output voltage variation of a

unit due to load change and is indicative of design capability. The tolerance is measured with reference to the respective nominal voltage and expressed as percentage of nominal output voltage.

Model	Output	Tolerance
All	+ Vout	<3%

CROSS REGULATION

Measured at 50% load on output while any other output load changed by 50%.

ALL Models

OUTPUT RIPPLE AND NOISE VOLTAGE(PAPD)

Measured at full load, 20MHz bandwidth, with a 0.1uF Ceramic Cap and a 47uF Tent. Cap/E-Cap. Connected at the measurement point. The maximum PARD PK-PK ripple and noise is indicated below.

Model	Output	Max pk-pk
ADPV60A-HGP08A12	+Vout=12V	<150 mV
ADPV60B-HGP08A09	+Vout=9V	<120 mV
ADPV60C-HGP08A06	+Vout=6V	<100mV
ADPV60D-HGP08A05	+Vout=5V	<100mV
ADPV60E-HGP08A05	+Vout=5V	<100mV
ADPV60F- HGP16A16	+Vout= 16V	<150 mV
ADPV60H- HGP16A24	+Vout=24V	<200 mV
ADPV60K- HGP11A14	+Vout=14.2V	<150 mV
ADPV60P- HGP08A75	+Vout=7.5V	<100mV

OUTPUT TRANSLENT RESPONSE

The load current of measured output is changed between 10% to 100% max load for all models, at 0.1A/sec slew rate, at 100/120Hz, 50% duty cycle. The recovery time and excursion is measured when the output voltage has recovered to within 1% of the load regulation band. Expressed as percentage of the nominal voltage,

The recovery time to regulation<1ms and Max. excursion from regulation<3% when the all models nominal output voltage.

OUTPUT TRANSLENT RESPONSE

Long-term output voltage drift over 1000 hours of operation, at Volt is typically less then 0.5%.

OUTPUT OVERSHOOT

The overshoot voltage as a percentage of nominal output voltage at initial power up of the PSU, at 8W full load condition is indicated below. Measured with ref, to the O/P regulation band.

The output overshoot <5% when the all models nominal output voltage.

OUTPUT PROTECTION

The power supply load shall be protected against a fault condition described below.

3.2.11-1 OVERVOLTAGE

N/A

3.2.11-2 OUTPUT SHORT CIRCUIT / OVERLOAD PROTECTION

The PSU shall be protected against overload as per section 3.2.3. The power supply will be protected against output short circuit. Short circuit current shall be less than 0A. Under all conditions. Output voltage of less than 50% Vout constitutes a short. The PSU will self recover within a max. of 30 sec. After removal of the fault.

OUTPUT RISE TIME

The time taken by the output to rise from 10% to 90% of the final steady state value, should be as below.

The Max rise time<10ms, when the all models nominal output voltage.

TURN-ON DELAY

The run-on delay time, from the time AC power is applied to the PSU till the O/P voltage is within the regulation band. Shall be less than 2 seconds at 100VAC. Cold start.

OUTPUT HOLD-UP- TIME

The power supply shall maintain the output within it`s voltage/current specification for more than 10ms. After any loss of AC input voltage. Measured at nominal input voltage of 100-240VAC and at point when output is crossing regulation band.

REMOTE SENSE

N/A

POWER FALL / POWER GOOD SIGNAL

N/A

TEMPERA TURE COEFFICLENT

Temperature coefficient over the entire operating temperature range of 0℃ to 40℃ after one hour warm-up will be as follows.

The temperature coefficient <2.4mV/℃ when the all models nominal output voltage.

4. ENVIRONMENTAL REQUIREMENTS

TEMPERATURE

Operating temperature range is –10℃ to 40℃ at the respective rated output power, with free air convection. Surface temperature shall be less than 60℃ at 25℃ operating temperature. Non-operating range: -40℃ to 85℃.

ALTITUDE

Maximum operating altitude: 10,000 feet. Maximum Non-operating altitude: 40,000 feet.

HUMIDITY

Non-condensing relative humidity range: 5% to 95%.

4.4.1 VIBRATION

The power supply shall meet operating, non-operating and package vibration,

Vibration	frequency	acceleration	tow time	cycle
Operating	5-500Hz	0.5G	15min,xyz all 15min	2
Non-operating	5-500Hz	1G	15min,xyz all 15min	2
Package	5-500Hz	1.5G	15min,xyz all 30min	2

4.4.2 SHOCK

The power supply shall meet operating and non operating shock. On floorboards thick for 10mm wood block.

Shock	height	direction	cycles
Operating	0.3m	xyz all 3 times	6
Non-operating	1.0m	xyz all 3 times	6

4.5 INPUT TRANSLENT SUSCEPTIBLLITY

The unit shall comply with requirements of IEC 1000-4-2, IEC 1000-4-4 and IEC 1000-4-5, will withstand ESD of 8K. Contact Discharge, will withstand ESD of 12K Air Discharge, 10 strides, both +ve and –ve, as per IEC 1000-4-2.

4.6 AC-LINE INPUT INRUSH NOISE

Minimum dielectric AC-line inrush voltage noise: Between AC input L to N:

Inrush noise	Tr /Td	Voltage	Phase	time	cycles
Operating	1.2us/50us	2.0KV	0 °	1min	10
			90 °		10
			270 °		10
			360 °		10

4.7 THERMAL SHUTDOWN

N/A

5 SAFETY REQUIREMENTS

5.1 DIELECTRIC WITHSTAND VOLTAGE

Minimum dielectric voltage: Between input to output: 3000VAC/1 minute. Leakage current shall be 5mA maximum.

5.2 LEAKAGE CURRENT

Maximum leakage current form primary to secondary shall be 0.25mA. Minimum voltage 240VAC

5.3 INSULATION RESISTANCE

Minimum insulation resistor from primary to secondary shall be 100MΩ. Voltage DC 500V.

5.4 SAFETY SPACINGS

6.4mm minimum between primary and secondary.

5.5 SAFETY STANDARDS APPROVAL

The power supply will meet Class Ⅱ, SELV of the following safety agency requirements

5.5 UL STANDARDS

5.5.1	1. UL1492-2 edition	The standard for audio-video products and accessories.
	2. UL6500 edition	The standard for products and accessories.
	C-UL	
	1. CSA C22.2 No.1	Safety of radio, television and electrical equipment.
	2. CSA C13.2 No.1	Safety of radio, television and electrical equipment.
	3. CSA C22.2 No.950	Safety of information technology equipment, including electrical business equipment.
	4. CSA-E65	The standard for information technology equipment, including electrical business equipment and associated equipment.

5.5.2 MARKING

With the following marking: UL,C-UL, CE

5.6 REI.IABILITY

MTBF@ 25℃ shall be 20,000 hours min.

6 EMI REQUIREMNTS

EMI STANDARD: EN55022 CLASS B, EN6100-3-2.3, FCC CLASS B

6.1 CONDUCTION

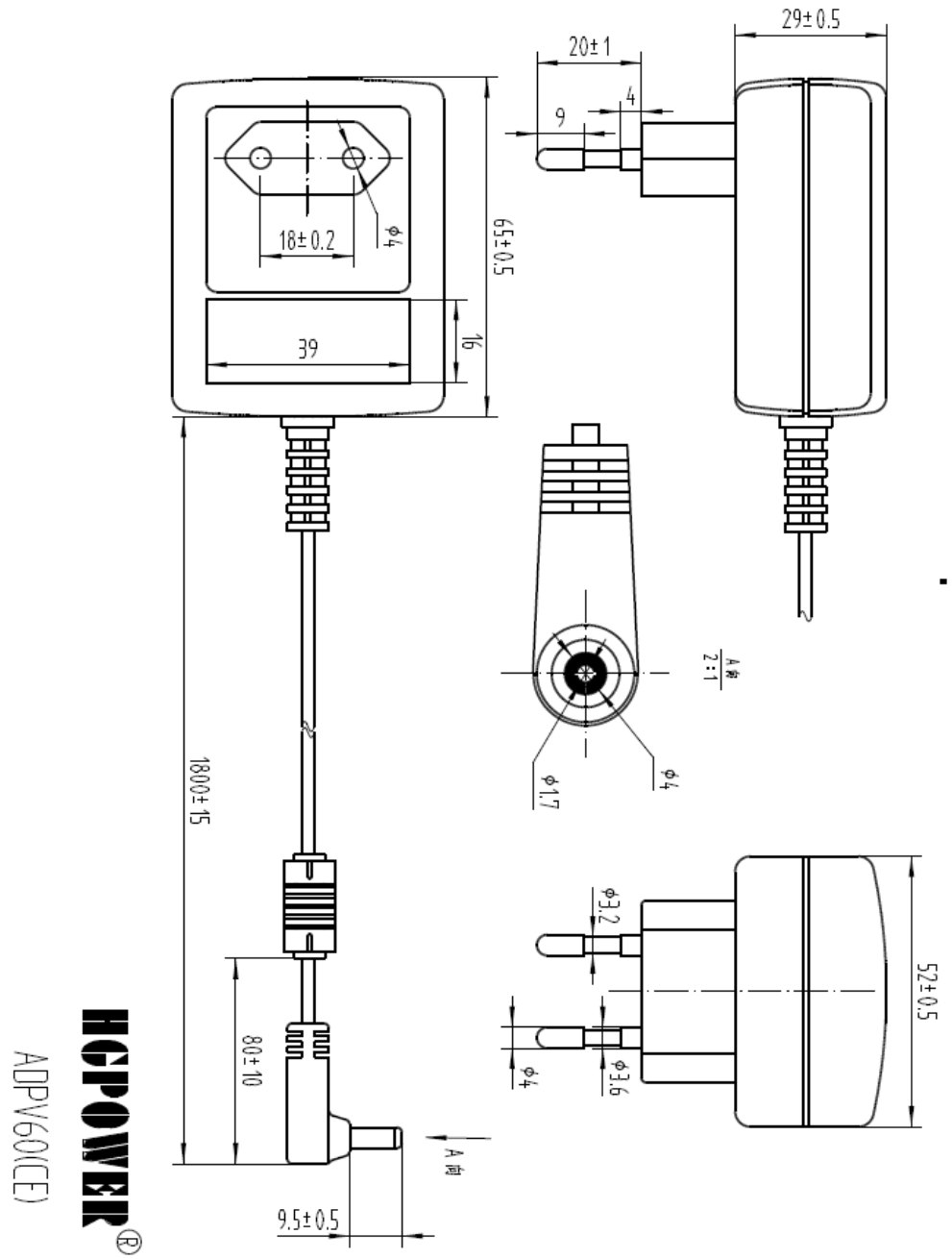
The adapter will conform to FCC PART15 Class B, VICC Class B, and CISPR Pub.13 Class B.

6.2 RADIATION

The adapter will conform to FCC PART15 Class B, VICC Class B, and CISPR Pub.13 Class B.

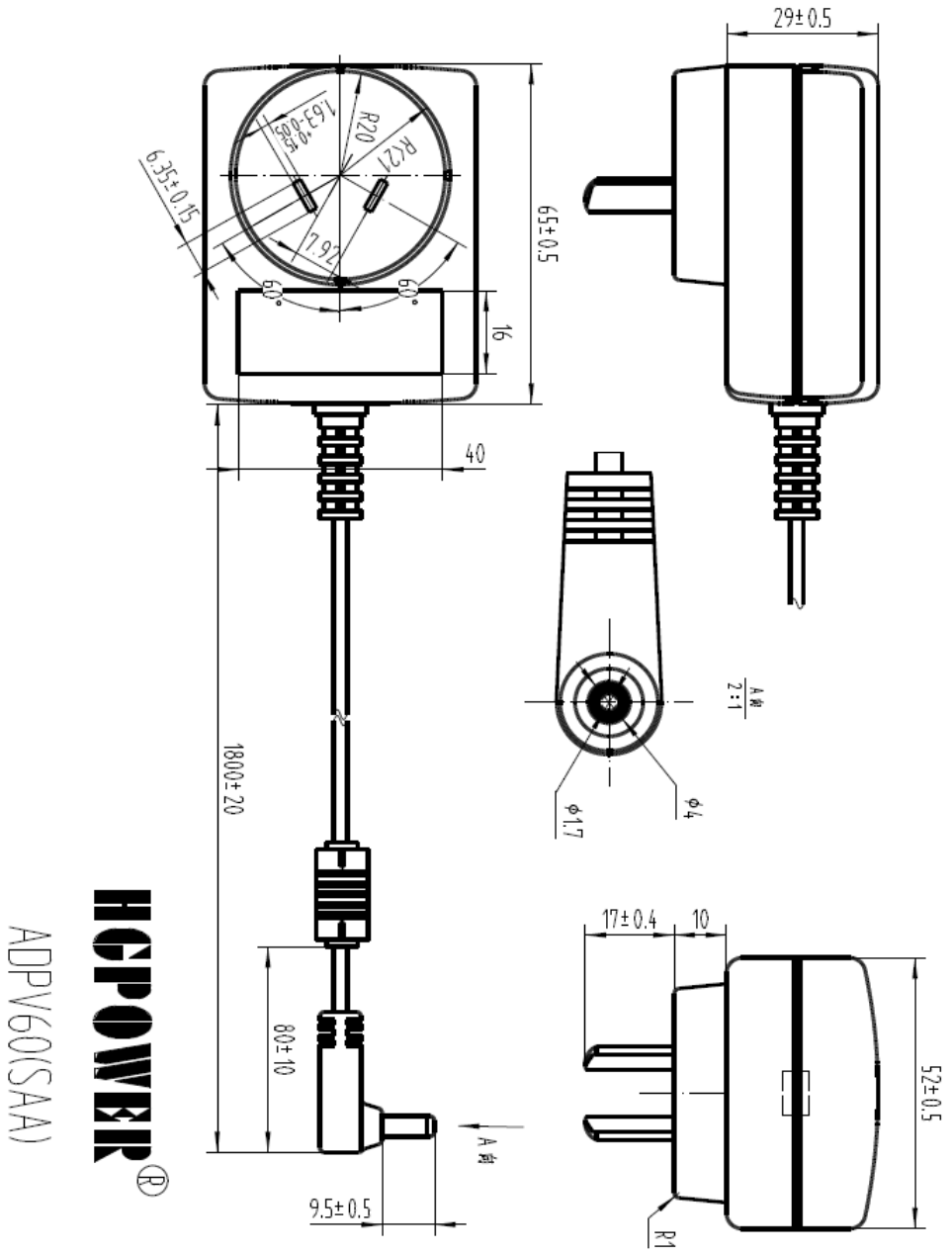
7. RoHS Complaint

8. Size : 65x52x29mm , as following drawing .



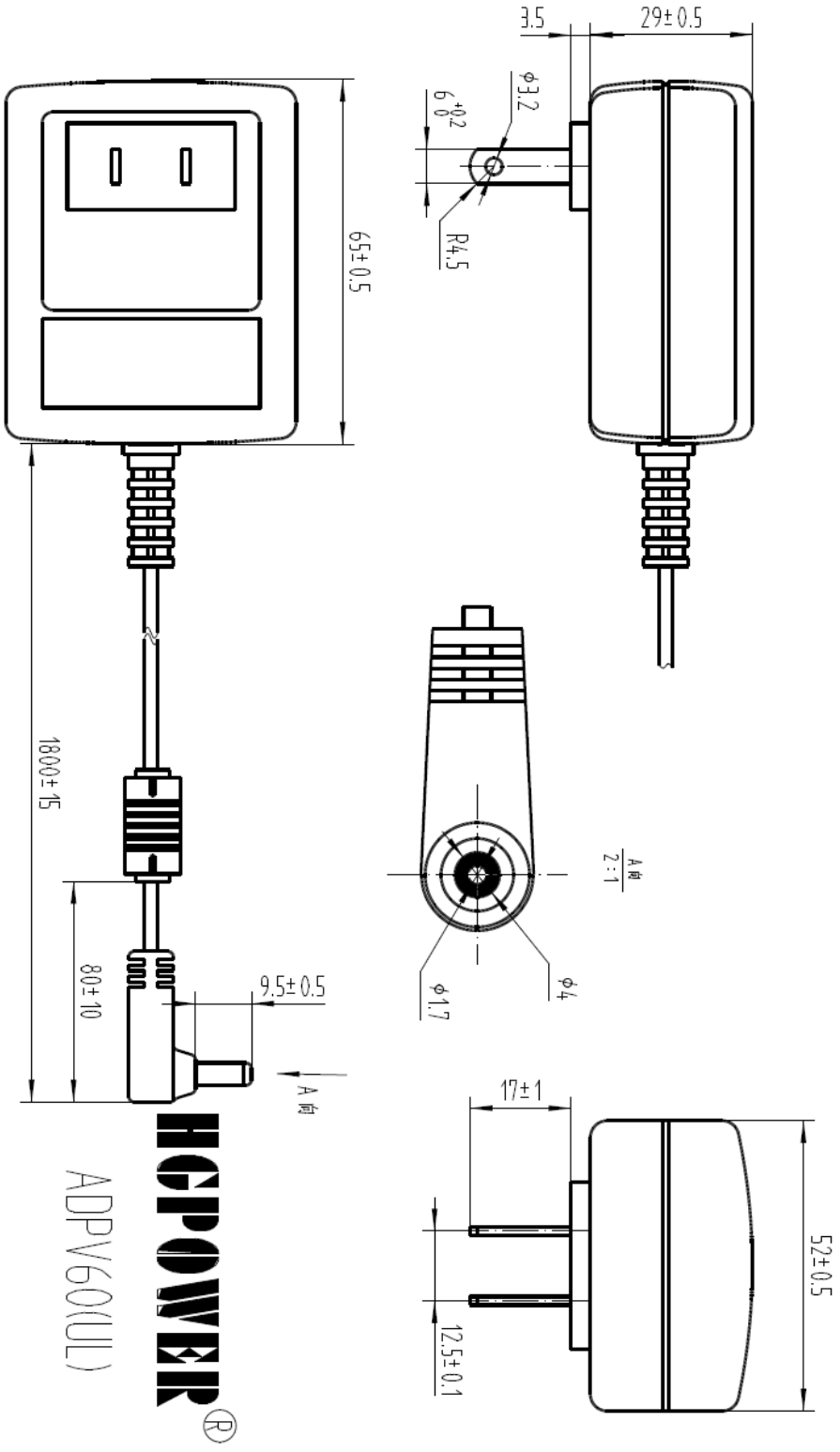
HGPOWER®

ADPV60(CE)



HGPOWER®

ADPV60(SAA)


3.5
29±0.5
φ3.2
6 +0.2 0
R4.5
65±0.5
1800±15
80±10
9.5±0.5
A 向
A 向
2:1
φ1.7
φ4
17±1
52±0.5
12.5±0.1
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ADPV60(UL)

9. Certificate

ONLINE CERTIFICATIONS DIRECTORY

AZSQ.E233549
Audio/Video Apparatus

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Audio/Video Apparatus

See General Information for Audio/Video Apparatus

WUJIN HONGGUANG RADIO FACTORY E233549
TIANWANG
BASHANG
WUJIN, JIANGSU 213165 CHINA

AC adaptors, Model(s) 62A07-1, 62A07-11, ADPV08, ADPV09, ADPV10, ADPV100, ADPV10F, ADPV16, ADPV18A, ADPV18B, ADPV20, ADPV200, ADPV25A, ADPV25B, ADPV25C, ADPV26A, ADPV26B, ADPV30, ADPV300, ADPV32, ADPV400, ADPV500, ADPV58A, ADPV58A, ADPV58B, ADPV58C, ADPV58D, ADPV58E, PS30V40W, ADPV58B, ADPV58C, ADPV58D, ADPV58E, ADPV60A, ADPV60B, ADPV60C, ADPV60D, ADPV60E, ADPV88A, ADPV88A1, ADPV88C, ADPV88C1, ADPV88F, ADPV88F1, ADPV88H, ADPV88H1, ADPV88I, ADPV88I1, AY4112/37, AY4130/37, PS30V40W, PS30V90W, PS30V90W1.

Last Updated on 2006-12-13

Questions? Notice of Disclaimer Page Top

CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION

No.: 2005010807159667

NAME AND ADDRESS OF THE APPLICANT

changzhou wujin hongguang radio factory
tianwang, banshang, lijia, wujin district changzhou, jiangsu

TRADE MARK: HGPOWER

NAME AND ADDRESS OF THE MANUFACTURER

changzhou wujin hongguang radio factory
tianwang, banshang, lijia, wujin district changzhou, jiangsu

NAME AND ADDRESS OF THE FACTORY

changzhou wujin hongguang radio factory
tianwang, banshang, lijia, wujin district changzhou, jiangsu

NAME, MODEL AND SPECIFICATION

AC adaptor

ADPV60A 输入:100-240VAC 15VA 50/60Hz 0.4A 输出:12VDC 1A; ADPV60B 输入:100-240VAC 15VA 50/60Hz 0.4A 输出:9VDC 1A; ADPV60C 输入:100-240VAC 15VA 50/60Hz 0.4A 输出:6VDC 1.5A; ADPV60D 输入:100-240VAC 15VA 50/60Hz 0.4A 输出:5VDC 1.5A

THE STANDARDS AND TECHNICAL REQUIREMENTS FOR THE PRODUCTS

GB8898-2001 GB13837-2003 GB17625.1-2003

THIS IS TO CERTIFY THAT THE ABOVE MENTIONED PRODUCTS HAVE QUALIFIED FOR THE REQUIREMENTS OF IMPLEMENTATION RULES FOR COMPULSORY CERTIFICATION

ISSUED DATE: Oct.21, 2005

THE VALIDITY OF THE CERTIFICATE DEPEND ON THE FOLLOW UP INSPECTION BY THE CERTIFICATION BODY AT REGULAR INTERVALS

President: 李怀林

Li Huailin

CHINA QUALITY CERTIFICATION CENTRE 中国质量认证中心

A 0221988

CERTIFICATE OF CONFORMITY

Certificate Number: CE-N-1104-05-38

CERTIFICATE OF CONFORMITY

NAME AND ADDRESS OF THE APPLICANT:	Changzhou Wujin Hongguang Radio Factory. Banshang Lijia Changzhou Jiangsu.
NAME AND ADDRESS OF THE MANUFACTURER:	Changzhou Wujin Hongguang Radio Factory Banshang Lijia Changzhou Jiangsu.
PRODUCT DESCRIPTION:	AC POWER SUPPLY
TYPE AND MODEL:	ADPV60A, ADPV60B, ADPV60C, ADPV60D
APPLICABLE STANDARDS:	EN 60065:2002, EN 55013:2001+A1:2003, EN 55020:2002+A1:2003, EN 61000-3-2:2000+A1:2001, EN 61000-3-3:1995+A1:2001.
APPLICABLE EC DIRECTIVES:	73/23/EEC 89/336/EEC
TECHNICAL FILE (TCF) REFERENCE NUMBER:	TF-HG-1104

Based on the voluntary assessment of the product sample and technical file, we certify that the above-mentioned product meets the requirements of the EC directives.

The manufacturer has the responsibility for ensuring that all serial manufacture of the product is in compliance with the specification of the sample submitted for assessment and detailed in the technical file.

CCQS UK Ltd
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56 Maybury Road
Woking Surrey GU21 5JD
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Email:euniceyang@ccqs-uk.com

APPROVED / SIGNED BY PRESIDENT
CCQS UK LTD

DATE OF ISSUE: 4th November, 2005

CE

HGPOWER®

CERTIFICATE OF CONFORMITY

Certificate Number: CE-N-0704-06-21

CERTIFICATE OF CONFORMITY

NAME AND ADDRESS OF THE APPLICANT:	Changzhou Wujin Hongguang Radio Factory Tianwang Banshang, Wujin District, Changzhou, Jiangsu, China
NAME AND ADDRESS OF THE MANUFACTURER:	*Changzhou Wujin Hongguang Radio Factory.* Tianwang Banshang, Wujin District, Changzhou, Jiangsu, China
PRODUCT DESCRIPTION:	AC Adaptor
TYPE AND MODEL:	ADPV60E
APPLICABLE STANDARDS:	EN 60065:2002, EN 55013:2001+A1:2003, EN 55020:2002, EN 61000-3-2:2000+A1:2001, EN 61000-3-3:1995+A1:2001
APPLICABLE EC DIRECTIVES:	73/23/EEC 89/336/EEC
TECHNICAL FILE (TCF) REFERENCE NUMBER:	TF-HG-0704

Based on the voluntary assessment of the product sample and technical file, we certify that the above-mentioned product meets the requirements of the EC directives.

The manufacturer has the responsibility for ensuring that all serial manufacture of the product is in compliance with the specification of the sample submitted for assessment and detailed in the technical file.

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APPROVED / SIGNED BY PRESIDENT
CCQS UK LTD

DATE OF ISSUE: 5th July, 2006

CE

IEC IECEE CB SCHEME

Ref. Certif. No.

CN8411

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE

Product Produit	AC Power Supply
Name and address of the applicant Nom et adresse du demandeur	Chang Zhou Wujin Hongguang Radio Factory Tianwang Banshang, Lijia, Wujin District Changzhou, Jiangsu, China.
Name and address of the manufacturer Nom et adresse du fabricant	Chang Zhou Wujin Hongguang Radio Factory Tianwang Banshang, Lijia, Wujin District Changzhou, Jiangsu, China.
Name and address of the factory Nome et adresse de l'usine Note: *When more than one factory, please report on page 2* Note: *Lorsqueily plus d'une usinem, veuillez utilliser la 2ème page*	Chang Zhou Wujin Hongguang Radio Factory Tianwang Banshang, Lijia, Wujin District Changzhou, Jiangsu, China.
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	Input:AC100-240V,50/60Hz,15W; ADPV60A Output:DC12V,1A;ADPV60B Output:DC9V,1A; Output:DC5V,1.5A; ADPV60E Output:DC5V,2A Class II
Trademark (if any) Marque de fabrique (si elle existe)	HG POWER
Model / Type Ref. Ref. De type	ADPV60A,ADPV60B,ADPV60C,ADPV60D,ADPV60E
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire, peuvent être indiqués sur la 2ème page)	
	PUBLICATION **EDITION**
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60065_2001
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitre partie de ce Certificat	TIRT060161

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme **National de Certification**

CQC China Quality Certification Centre

Date: 2006-10-30

Signature: Li Huailin

Issued 2003-05
China Quality Certification Centre
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Tel: +86-10-85622233
Fax: +86-10-65994298
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