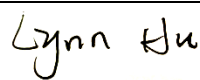
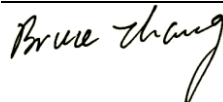


CEC Test Report for Energy Efficiency of Single-Voltage External AC-DC and AC-AC Power Supplies	
Report Reference No.....	22SCOS01042 00131
Date of issue	Jan. 22, 2022
Testing laboratory	DongGuan ShuoXin Electronic Technology Co., Ltd.
Address	Zone A, 1F, No. 6, XinGang Road YuanGang Street, XinAn District, ChangAn Town, DongGuan City, Guangdong, China
Testing location	As above.
Applicant	Xiamen Innov Electronics Tech Co., Ltd.
Address	1F/3F-5F,BLDG 5,No.943-5,Tonglong 2nd Rd,Torch Hi-tech Industrial Zone(Xiang' an), Xiamen,361000, P.R.China
Protocol	International Efficiency Marking Protocol for External Power Supplies, Version 3.0
Samples Received Date	Jan. 14, 2022
Tested Date	Jan.14, 2022
Description of Sample(s):	
Type of test object.....	Class 2 Power Supply
Model and/or type reference.....	IVP1200-1000
Rating(s).....	Input rating: 100-240V~ 50/60Hz 0.5A Output rating: 12.0V === 1.0A
Trademark	Innov,Invcy
Country of origin.....	CHINA
Manufacturer(s)	Same as applicant
Factory(ies)	Same as applicant
Address	Same as applicant
Integral Input power Switch	Not present
UUT Output Cord Length (± 1 cm)	180CM
Test Environment Temperature ($^{\circ}\text{C}$) ..	25
Number of page(s) (Report)	11
Number of page(s) (Attachment)	Photos: 1 pages
Conclusion:	
Standard(s) or Regulation(s):	US CEC: California Code of Regulations, Title 20, Division 2, Chapter 4, Article 4. Appliance Efficiency Regulations, Sections 1601 through 1609
Test method(s):	10 CFR part 430, subpart B, Appendix Z "Uniform Test Method for Measuring the Energy Consumption of External Power Supplies"
Compiled by.....	Lynn Hu
(+ signature)	
Approved by.....	Bruce Zhang
(+ signature)	

1. Copy of marking plate:

2. Instruments list:

Instr. Code	Instrument Type	Instr. Serial No	Range Used	Make and Model	Calibration date	Next Calibration date
ATT-Y008	Timer	PC393	0-24hrs	EVERY DAY	2021/10/26	2022/10/25
ATT-Y043	tapeline	ATT-Y043	0.01-5.0m	Tajima, Hilock-19	2021/04/23	2022/04/22
ATT-Y108	Electronic Load	002022506470001013	1-120V/0.1-50A	ITECH, IT8512C	2021/04/21	2022/04/20
ATT-Y109	Electronic Load	002022166171001001	1-120V/0.1-50A	ITECH, IT8512C	2021/08/02	2022/08/01
ATT-Y146	Power Parameter Meter	12BB18366	1-600V, 0.1-20A, 47-400Hz, 1-3000W,	YOKOGAWA, WT210	2021/08/02	2022/08/01
ATT-Y198	Electronic Load	002022506470001009	1-120V/0.1-50A	ITECH, IT8512C	2021/10/26	2022/10/25
ATT-Y217	Anemometer	10200040	0-15.0m/s	PROVA, AVW-01	2021/10/26	2022/10/25
ATT-Y232	Power Parameter Meter	91M336285	1-600V, 0.1-20A, 47-400Hz, 1-3000W,	YOKOGAWA, WT210	2021/08/02	2022/08/01
ATT-Y282	Power Parameter Meter	C3UD26024E	0.01V-600V 0.01mA-20A 40-70HZ 0.01mW-6KW	YOKOGAWA, WT310E	2021/03/25	2022/03/24
ATT-Y292	Humidity Meter	/	15-40℃, 30-80 (%RH)	Accurate	2021/08/02	2022/08/01
ATT-Y295	Electronic Load	800495041747610019	0-120V/0-60/300W	ITECH, IT8512C+	2021/10/26	2022/10/25

3. Remark

None.

4. Standard**Special Instructions:**

Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be recorded at the time the test is conducted.

For Test Methods:

10 CFR part 430, subpart B, Appendix Z "Uniform Test Method for Measuring the Energy Consumption of External Power Supplies"

Ambient Temperature °C	Relative Humidity, RH %	Supply Voltage Tolerance %	Total Harmonic Distortion, THD %	Airspeed m/s	Supply Frequency Tolerance %
20±5	10-80 (For lab references)	±1	≤2	≤0.5	±1

NOTE:

1. The input voltage source shall be capable of delivering at least 10 times the nameplate input power of the UUT (as is specified in IEEE 1515-2000).

Table 1 – Load Conditions

Load Conditions for UUT	Percentage of Derated Nameplate Output Current
1	100% of derated nameplate output current ± 2% ⁽²⁾
2	75% of derated nameplate output current ± 2%
3	50% of derated nameplate output current ± 2%
4	25% of derated nameplate output current ± 2%
5	0%

Note(s):

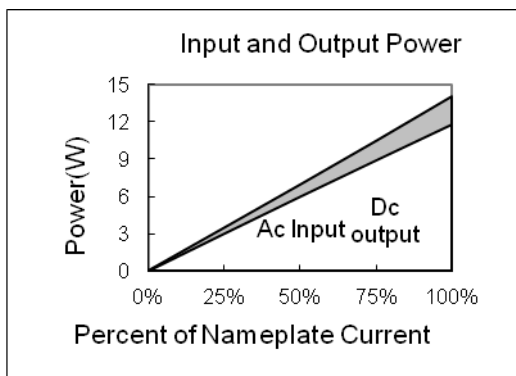
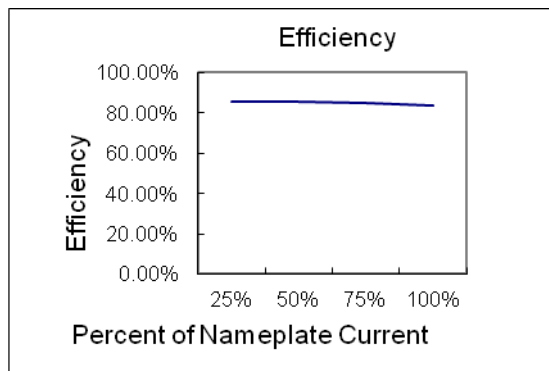
- ⁽²⁾ The 2% allowance is of nameplate output current, not of the calculated current value.
- For example, a UUT at Load Condition 3 may be tested in a range from 48% (min) to 52% (max) of rated output current.

5. Test Result:

5.1 For Model: IVP1200-1000

5.1.1 Output rating: 12.0V===1.0A

5.1.2 Sample 1#

Measured Diagram at 115V 60Hz

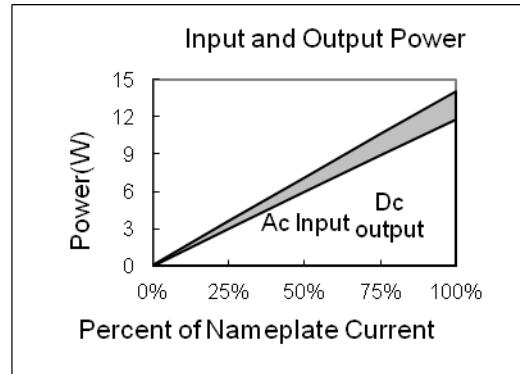
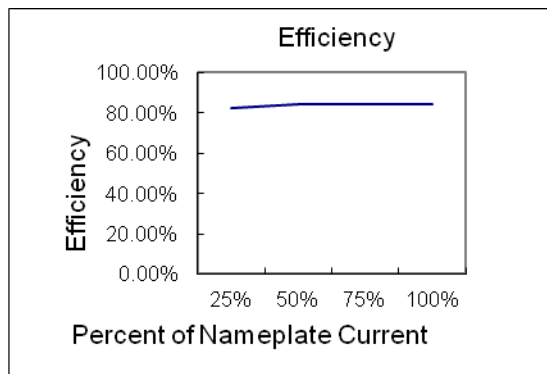
Measured and Calculated Data at 115V 60Hz						Pass
	No Load	Active Power Values				Average
Percent of Nameplate Current	0%	25%	50%	75%	100%	
Output Current (mA)		250	500	750	1,000	
Output Voltage (V)		12.01	11.93	11.85	11.78	
Output Power (W)		3.00	5.97	8.89	11.78	
Ac Input Voltage (V)	115	115	115	115	115	
Ac Input Power (W)	0.050	3.50	6.96	10.47	14.06	
True Power Factor (W/VA)	0.196	0.403	0.467	0.510	0.543	0.481
Total Harmonic Distortion (THD –V%)	0.215	0.243	0.278	0.311	0.334	0.292
Total Harmonic Distortion (THD –A%)	259.16	216.67	175.14	152.57	135.67	170.013
AC Input Frequency	60	60	60	60	60	60
Power Consumed by UUT (W)	0.05	0.50	0.99	1.58	2.28	
Efficiencya		85.71%	85.78%	84.91%	83.78%	85.05%
Limited efficiency						82.96%

5. Test Result:

5.1 For Model: IVP1200-1000

5.1.1 Output rating: 12.0V $\overline{\text{---}}$ 1.0A

5.1.2 Sample 1#

Measured Diagram at 230V 50Hz

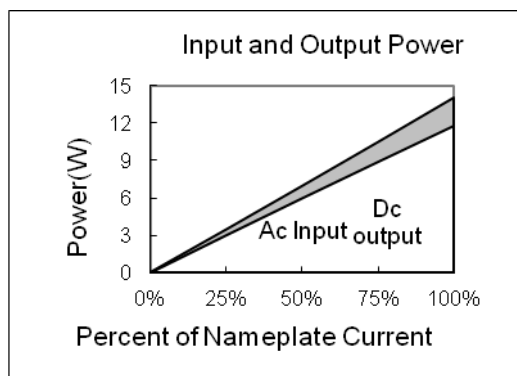
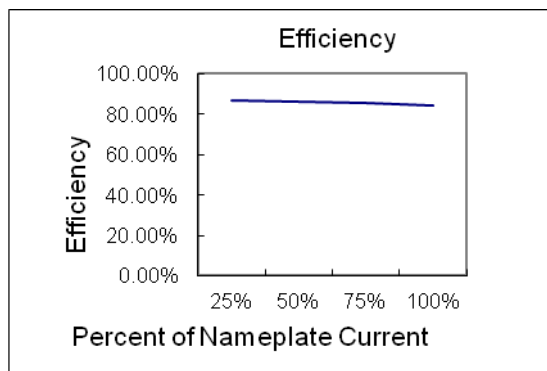
Measured and Calculated Data at 230V 50Hz						Pass
	No Load	Active Power Values				Average
Percent of Nameplate Current	0%	25%	50%	75%	100%	
Output Current (mA)		250	500	750	1,000	
Output Voltage (V)		12.01	11.94	11.86	11.78	
Output Power (W)		3.00	5.97	8.90	11.78	
Ac Input Voltage (V)	230	230	230	230	230	
Ac Input Power (W)	0.093	3.63	7.08	10.58	13.99	
True Power Factor (W/VA)	0.116	0.326	0.369	0.389	0.412	0.374
Total Harmonic Distortion (THD –V%)	0.124	0.148	0.194	0.232	0.266	0.210
Total Harmonic Distortion (THD –A%)	345.47	259.13	236.37	220.94	207.01	230.863
AC Input Frequency	50	50	50	50	50	50
Power Consumed by UUT (W)	0.093	0.63	1.11	1.68	2.21	
Efficiencya		82.64%	84.32%	84.12%	84.20%	83.82%
Limited efficiency						82.96%

5. Test Result:

5.2 For Model: IVP1200-1000

5.2.1 Output rating: 12.0V==1.0A

5.2.2 Sample 2#

Measured Diagram at 115V 60Hz

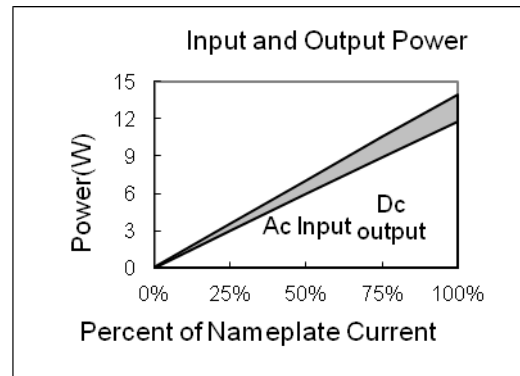
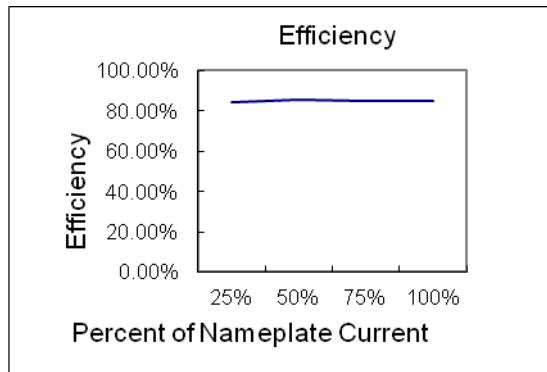
Measured and Calculated Data at 115V 60Hz						Pass
	No Load	Active Power Values				Average
Percent of Nameplate Current	0%	25%	50%	75%	100%	
Output Current (mA)		250	500	750	1,000	
Output Voltage (V)		12.04	11.96	11.88	11.81	
Output Power (W)		3.01	5.98	8.91	11.81	
Ac Input Voltage (V)	115	115	115	115	115	
Ac Input Power (W)	0.050	3.47	6.94	10.44	13.99	
True Power Factor (W/VA)	0.185	0.401	0.468	0.510	0.543	0.481
Total Harmonic Distortion (THD –V%)	0.217	0.246	0.280	0.309	0.327	0.291
Total Harmonic Distortion (THD –A%)	280.13	217.76	175.79	153.09	135.82	170.615
AC Input Frequency	60	60	60	60	60	60
Power Consumed by UUT (W)	0.05	0.46	0.96	1.53	2.18	
Efficiencya		86.74%	86.17%	85.34%	84.42%	85.67%
Limited efficiency						82.96%

5. Test Result:

5.2 For Model: IVP1200-1000

5.2.1 Output rating: 12.0V==1.0A

5.2.2 Sample 2#

Measured Diagram at 230V 50Hz

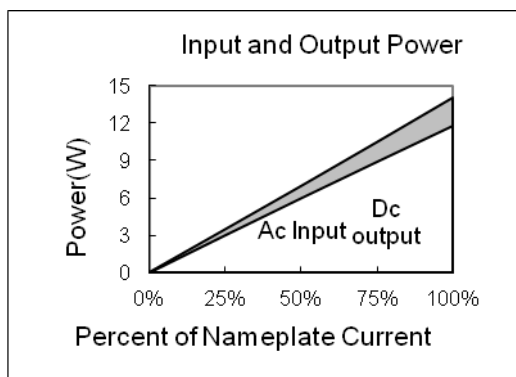
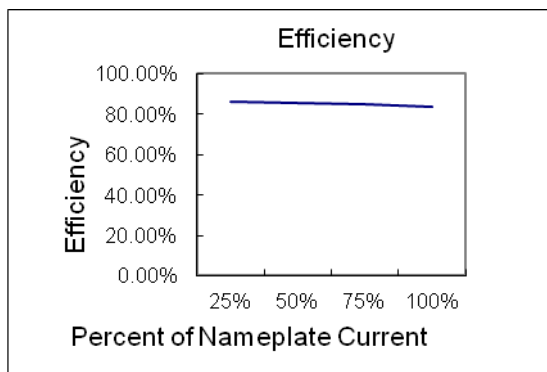
Measured and Calculated Data at 230V 50Hz						Pass
	No Load	Active Power Values				Average
Percent of Nameplate Current	0%	25%	50%	75%	100%	
Output Current (mA)		250	500	750	1,000	
Output Voltage (V)		12.04	11.96	11.88	11.80	
Output Power (W)		3.01	5.98	8.91	11.80	
Ac Input Voltage (V)	230	230	230	230	230	
Ac Input Power (W)	0.086	3.56	7.01	10.51	13.88	
True Power Factor (W/VA)	0.104	0.320	0.362	0.384	0.408	0.369
Total Harmonic Distortion (THD –V%)	0.125	0.144	0.178	0.219	0.255	0.199
Total Harmonic Distortion (THD –A%)	374.13	261.03	239.80	224.52	209.13	233.620
AC Input Frequency	50	50	50	50	50	50
Power Consumed by UUT (W)	0.086	0.55	1.03	1.60	2.08	
Efficiencya		84.55%	85.31%	84.78%	85.01%	84.91%
Limited efficiency						82.96%

5. Test Result:

5.3 For Model: IVP1200-1000

5.3.1 Output rating: 12.0V===1.0A

5.3.2 Sample 3#

Measured Diagram at 115V 60Hz

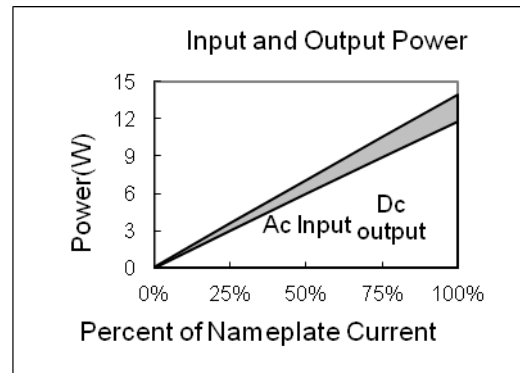
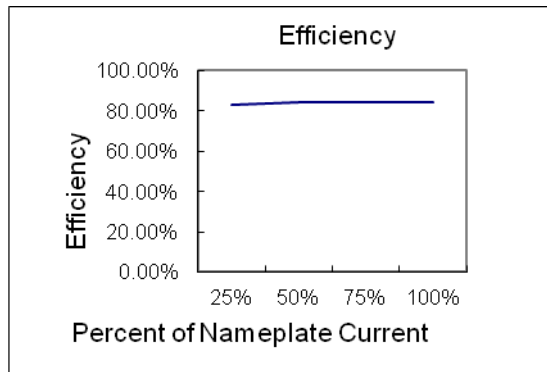
Measured and Calculated Data at 115V 60Hz						Pass
	No Load	Active Power Values				Average
Percent of Nameplate Current	0%	25%	50%	75%	100%	
Output Current (mA)		250	500	750	1,000	
Output Voltage (V)		12.04	11.96	11.88	11.80	
Output Power (W)		3.01	5.98	8.91	11.80	
Ac Input Voltage (V)	115	115	115	115	115	
Ac Input Power (W)	0.051	3.50	6.97	10.49	14.06	
True Power Factor (W/VA)	0.184	0.402	0.468	0.510	0.544	0.481
Total Harmonic Distortion (THD –V%)	0.214	0.240	0.275	0.304	0.324	0.286
Total Harmonic Distortion (THD –A%)	271.64	217.58	175.34	152.48	135.44	170.210
AC Input Frequency	60	60	60	60	60	60
Power Consumed by UUT (W)	0.051	0.49	0.99	1.58	2.26	
Efficiencya		86.00%	85.80%	84.94%	83.93%	85.17%
Limited efficiency						82.96%

5. Test Result:

5.3 For Model: IVP1200-1000

5.3.1 Output rating: 12.0V===1.0A

5.3.2 Sample 3#

Measured Diagram at 230V 50Hz

Measured and Calculated Data at 230V 50Hz						Pass
	No Load	Active Power Values				Average
Percent of Nameplate Current	0%	25%	50%	75%	100%	
Output Current (mA)		250	500	750	1,000	
Output Voltage (V)		12.04	11.96	11.88	11.80	
Output Power (W)		3.01	5.98	8.91	11.80	
Ac Input Voltage (V)	230	230	230	230	230	
Ac Input Power (W)	0.091	3.62	7.07	10.54	13.95	
True Power Factor (W/VA)	0.115	0.320	0.363	0.384	0.408	0.369
Total Harmonic Distortion (THD –V%)	0.125	0.146	0.183	0.222	0.256	0.202
Total Harmonic Distortion (THD –A%)	356.37	260.17	241.91	222.38	208.73	233.298
AC Input Frequency	50	50	50	50	50	50
Power Consumed by UUT (W)	0.091	0.61	1.09	1.63	2.15	
Efficiencya		83.15%	84.58%	84.54%	84.59%	84.22%
Limited efficiency						82.96%

Table 2: International Efficiency Marking Protocol for External Power Supplies

Mark	Performance Requirements				
	Nameplate Output Power (P _{no}) ²	No-Load Mode Power ³	Nameplate Output Power (P _{no})	Average Efficiency in Active Mode ⁴	Power Factor
I	Used if none of the other criteria are met.				
II	0 to ≤ 10 W	≤ 0.75	0 to < 1 W	≥ 0.39 * P _{no}	Not Applicable
	> 10 to 250 W	≤ 1.0	1 to < 49 W	≥ 0.107 * ln(P _{no}) + 0.39	
			> 49 W	≥ 0.82	
III	0 to < 10 W	≤ 0.5	0 to 1 W	≥ 0.49 * P _{no}	Not Applicable
	10 to 250 W	≤ 0.75	> 1 to 49 W	≥ 0.09 * ln(P _{no}) + 0.49	
			> 49 to 250 W	≥ 0.84	
IV	0 to 250 W	≤ 0.5	0 to < 1 W	≥ 0.5 * P _{no}	Not Applicable
			1 to 51 W	≥ 0.09 * ln(P _{no}) + 0.5	
			> 51 to 250 W	≥ 0.85	
V	0 to < 50 W	AC-DC: ≤ 0.3 AC-AC: ≤ 0.5	0 to ≤ 1 W	Basic Voltage: ≥ 0.480 * P _{no} + 0.140 Low Voltage ⁵ : ≥ 0.497 * P _{no} + 0.067	EPSs with ≥ 100 watts input power must have a true power factor ≥ 0.9 at 100% of rated load when tested at 115 volts/60Hz.
	≥ 50 to ≤ 250 W	≤ 0.5	> 1 to ≤ 49 W	Basic Voltage: ≥ 0.0626 * ln(P _{no}) + 0.622 Low Voltage: ≥ 0.0750 * ln(P _{no}) + 0.561	
			> 49 to 250 W	Basic Voltage: ≥ 0.870 Low Voltage: ≥ 0.860	
VI	Single-Voltage				Not Applicable
	0 to ≤ 49 W	AC-DC: ≤ 0.100 AC-AC: ≤ 0.210	0 to ≤ 1 W	Basic Voltage: ≥ 0.5 * P _{no} + 0.16 Low Voltage: ≥ 0.517 * P _{no} + 0.087	
			> 1 to ≤ 49 W	Basic Voltage: ≥ 0.071 * ln(P _{no}) – 0.0014 * P _{no} + 0.67 Low Voltage: ≥ 0.0834 * ln(P _{no}) – 0.0014 * P _{no} + 0.609	
	> 49 to ≤ 250 W	≤ 0.210	> 49 to ≤ 250 W	Basic Voltage: ≥ 0.880 Low Voltage: ≥ 0.870	
	> 250 W	≤ 0.500	> 250 W	≥ 0.875	
	Multiple-Voltage				
	Any	≤ 0.300	0 to ≤ 1 W	≥ 0.497 * P _{no} + 0.067	
			> 1 to ≤ 49 W	≥ 0.075 * ln(P _{no}) + 0.561	
			> 49 W	≥ 0.860	
VII	Reserved for future use.				

² P_{no} is the Nameplate Output Power of the unit under test.

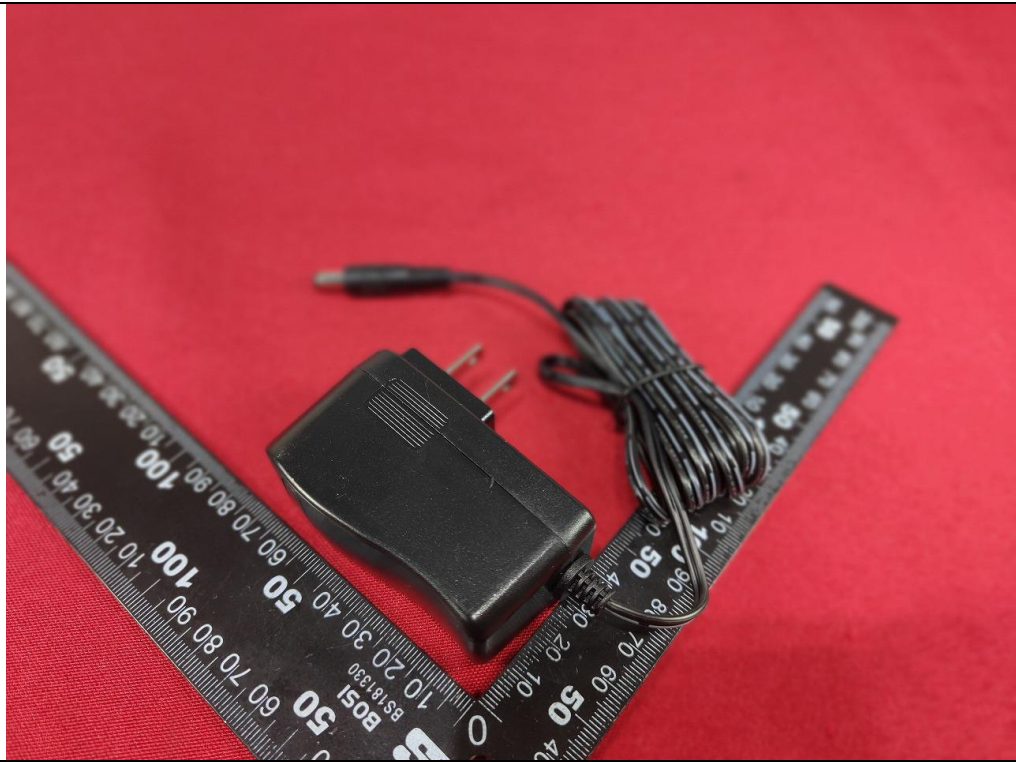
³ In Australia and New Zealand, AC-AC external power supplies are not required to meet the no-load mode power requirements.

⁴ "ln" refers to the natural logarithm.

⁵ A low-voltage model is an EPS with nameplate output voltage of less than 6 volts and nameplate output current greater than or equal to 550 milliamperes. A basic-voltage model is an EPS that is not a low-voltage model.

Attachment: Photo documentations**For model: IVP1200-1000**

View:

☒ general☐ front☐ rear☐ right☐ left☐ top☐ bottom

View:

☒ general☐ front☐ rear☐ right☐ left☐ top☐ bottom