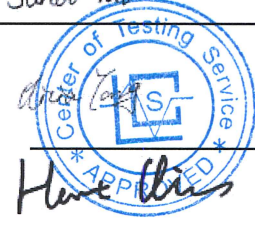
**EXTERNAL POWER SUPPLY TEST REPORT****DEPARTMENT OF ENERGY
(10 CFR Part 430)**

Report Reference No.....	LCS200722075AS	  
Prepared by	Janet Qi	
	Project Handler	
Checked by.....	Olivia Yang	
	Reviewer	
Approved by.....	Hart Qiu	
	Technical Director	
Date of issue.....	31 July 2020	
Total number of pages.....	13	
Testing Laboratory.....	Shenzhen LCS Compliance Testing Laboratory Ltd.	
Address.....	Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China	
Applicant's name.....	Shenzhen Fuyuandian Power Co., Ltd.	
Address.....	8F, A9 Building, Tianrui Industrial Park, Fuyong Town, Baoan District, Shenzhen, 518103 Guangdong, P.R. China	
Manufacturer's name.....	Shenzhen Fuyuandian Power Co., Ltd.	
Address.....	8F, A9 Building, Tianrui Industrial Park, Fuyong Town, Baoan District, Shenzhen, 518103 Guangdong, P.R. China	
Test specification:		
Standard.....	10 C.F.R Part 430 (Energy conservation standards specified in the Code of Federal Regulations at 10 CFR 430.32(w.) California Code Of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1609: Appliance Efficiency Regulations.	
Test procedure.....	10 C.F.R. section 430.23(bb) (Appendix Z to Subpart B of Part 430—Uniform Test Method for Measuring the Energy Consumption of External Power Supplies). US EPA –Test Method for Calculating the Energy Efficiency of Single-Voltage External Ac-Dc and Ac-Ac Power Supplies: August 11, 2004.	
Non-standard test method.....	N/A	
Test Report Form No.....	10 C.F.R Part 430_A	
Test Report Form(s) Originator.....	LCS Compliance Testing Laboratory Ltd.	
Master TRF.....	2017-05	

TRF No. 10 C.F.R Part 430_A

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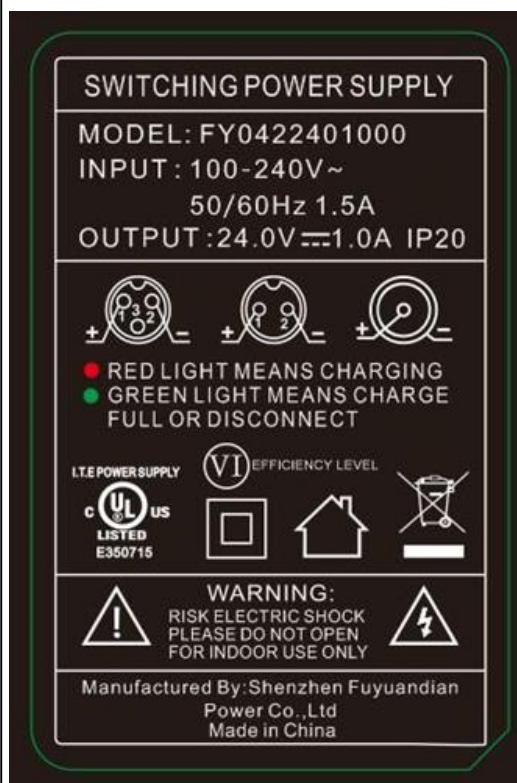
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Test item description.....: SWITCHING POWER SUPPLY
Trade Mark.....: N/A
Model/Type reference.....: FY0422401000
Ratings.....: Input: 100-240V~, 50/60Hz, 1.5A
Output: 24.0Vd.c. 1.0A

Copy of marking plate

The artwork below may be only a draft.



Marking requirements:

Requirement	Remark
Manufacturer's name or brand name or trademark	Provided.
Mode number	Provided.
Date of manufacture	Provided in serial numbers
international efficiency marking*	"VI" Provided

* The external power supply shall be clearly and permanently marked in accordance with the International Efficiency Marking Protocol for External Power Supplies (incorporated by reference; see §430.3), published by the U.S. Department of Energy. Any state-regulated external power supply complying with the requirements of section 1605.3(u) shall be clearly and permanently marked in accordance with the International Efficiency Marking Protocol for External Power Supplies, Version 3.0, September 2013.



Test item particulars :	
UUT output cord length..... :	152cm Max, 24AWG
Product powered by the UUT if known..... :	N/A
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 of receipt of test item..... :	2020-07-22
Date (s) of performance of tests..... :	2020-07-22 to 2020-07-30
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 Issuing 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 comma (point) is used as the decimal separator.	
List of Attachments (including a total number of pages in each attachment):	
Attachment No. 1	Photographs 1 Page
Attachment No. 2	Test Equipment List 1 Page
General product information:	
The UUT (Unit under Test) is an AC-DC Adapter.	
The UUT (Unit under Test) is direct plug-in equipment.	
Name and address of Importer:	
RAZOR USA LLC	
12723 166th Street, CERRITOS, CA 90703	



	General Conditions for Measurement		P
a.	General	See below.	P
b.	Measuring Equipment..... :	Power measurement was made with a suitably calibrated power analyzer.	P
	Measurements of active power of 0.5 W or greater shall be made with an uncertainty of $\leq 2\%$:		P
	Measurements of active power of less than 0.5 W shall be made with an uncertainty of ≤ 0.01 W..... :		P
	The power measurement instrument shall have a resolution of 0.01W or better for active power..... :		P
	Measurements of voltage and current shall be made with an uncertainty of $\leq 2\%$:		P
c.	Test Room		P
	The tests shall be carried out in a room that has an air speed close to the UUT of ≤ 0.5 m/s..... :	< 0.5 m/s.	P
	Ambient temperature shall be maintained at $23\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$:	See appended table.	P
	There shall be no intentional cooling of the UUT by use of separately powered fans, air conditioners, or heat sinks.	No such devices are used.	N/A
	Products intended for outdoor use may be tested at additional temperatures	For indoor use.	N/A
d.	Test Voltage		P
	An ac reference source shall be used to provide input voltage to the UUT.		P
	Input to the UUT shall be the specified voltage $\pm 1\%$ and the specified frequency $\pm 1\%$		P
	The UUT shall be tested at two voltage and frequency combinations:		P
	If testing at both conditions is not possible, the UUT shall be tested at one of the above voltage and frequency combinations that is closest to its nameplate input voltage and frequency.		N/A
	115 V at 60 Hz		p
	230 V at 50 Hz		N/A
	If voltage and / or frequency ranges are not specified by the manufacturer (or the nameplate value is unclear), the UUT shall not be tested.	The voltage and / or frequency ranges are provided on the marking label.	N/A
e.	Input ac reference source		P
	The input voltage source shall be capable of delivering at least 10 times the nameplate input power of the UUT..... :		P

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	THD of the supply voltage when supplying the UUT in the specified mode shall not exceed 2 %, up to and including the 13 th harmonic..... :		P
	The peak value of the test voltage shall be within 1.34 and 1.49 times its rms value..... :		P
f.	Test Lead		P
	All leads used in the test set-up should be of large gauge and short length	Considered.	P

	Measurement Approach		P
a.	Preparing UUT for Test		P
	Any built-in switch in the UUT controlling power flow to the ac input shall be in the "on" position for this measurement,	No switch in the UUT.	N/A
	Existence of such a switch shall be noted in the final test report.	Ditto.	N/A
	Power supplies that are packaged for consumer use to power a product must be tested with the output cord supplied by the manufacturer.		N/A
	There are two options for connecting metering equipment to the output of this type of power supply:	See below.	P
	1. cut the cord immediately adjacent to the output connector, or		N/A
	2. Attach leads and measure the efficiency from the output connector itself.		P
	If the power supply is attached directly to the product that it is powering, cut the cord immediately adjacent to the powered product and connect output measurement probes at that point.		N/A
	If the product has more than two output wires, the tests should be conducted on the two output wires that supply the output power.		N/A
	Other output wires (sometimes used for battery monitoring) should be left electrically disconnected.		N/A
b.	Load Condition		P
	The UUT shall be tested at the following load conditions:		P
	Load condition 1: 100 % $\pm$ 2 %		P
	Load condition 2: 75 % $\pm$ 2 %		P
	Load condition 3: 50 % $\pm$ 2 %		P
	Load condition 4: 25 % $\pm$ 2 %		P
	Load condition 5: 0 %		P
c.	Loading Guideline		P

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	In order to load the power supply to produce all four active mode load conditions, a set of variable resistive or electronic loads shall be used.	Electronic loads were used.	P
	While these loads may have different characteristics than the electronic loads power supplies are intended to power, they provide standardized and readily repeatable references for testing and product comparison.		P
	For electronic loads, the desired output current should be adjusted in constant current (CC) mode rather than adjusting the required output power in constant power (CP) mode.	The electronic loads were adjusted in constant current (CC).	P
d.	Testing Sequence		P
	The UUT shall be operated at 100% of nameplate current output for at least 30 minutes immediately prior to conducting efficiency measurements.	The UUT is operated at 100% of nameplate current output for 30 minutes	P
	After this warm-up period, the technician shall monitor ac input power for a period of 5 minutes to assess the stability of the UUT.		P
	If the power level does not drift by more than 5 % from the maximum value observed, the UUT can be considered stable and the measurements can be recorded at the end of the 5 minute period.		P
	If ac input power is not stable over a 5 minute period, the technician shall follow the guidelines established by IEC 62301 for measuring average power or accumulated energy over time for both ac input and dc output.		N/A
	Efficiency measurements shall be conducted in sequence from Load Condition 1 to Load Condition 5 as indicated in Table 1		P
e.	Efficiency Calculation		P
	Efficiency shall be calculated by dividing the UUT's measured active output power at a given load condition by the active ac input power measured at that load condition.		P
f.	Power Consumption Calculation		P
	Power consumption of the UUT at each Load Condition 1 – 4 is the difference between the active output power (W) at that Load Condition and the ac active input power (W) at that Load Condition. The power consumption of Load Condition 5 (no load) is equal to the ac active input power (W) at that Load Condition.		P



Test results					P
	Temperature immediately surrounding the UUT (°C).....:	25.0			—
	Test voltage (V).....:	115			—
	Frequency (Hz).....:	60			—
	Unit Under Test.....:	Sample No. 1 Model: FY0422401000 Output: 24VDC, 1A			—
Test Item	Measure at load condition				
	1	2	3	4	5
Rms Output Current (A)	1.0	0.75	0.50	0.25	0
Rms Output Voltage (V)	24.01	24.0	24.0	23.9	24.3
Active Output Power (W)	24.01	18.0	12.0	5.98	--
Rms Input Current (A)	0.292	0.225	0.155	0.083	0.0036
Rms input voltage (V)	115	115	115	115	115
Rms Input Power (W)	27.20	20.71	13.80	6.80	0.08
Total Harmonic Distortion (VTHD%)	1.471	1.321	1.122	0.884	0.618
Total Harmonic Distortion (ATHD%)	131.96	140.22	152.32	167.59	354.15
True Power Factory	0.584	0.568	0.543	0.509	0.271
Power Consumed by UUT (W)	3.19	2.71	1.80	0.82	0.08
Efficiency	88.27%	86.91%	86.96%	87.94%	—
Average Efficiency	87.52% (Requirement: 86.20%)				--
Supplementary information:					
Limit for efficiency mark level VI:					
Average active mode efficiency limit ≥86.20%					
No load power limit: ≤ 0.1W.					



Test results					P
	Temperature immediately surrounding the UUT (°C).....:	25.0	—		
	Test voltage (V).....:	115	—		
	Frequency (Hz).....:	60	—		
	Unit Under Test.....:	Sample No. 2 Model: FY0422401000 Output: 24VDC, 1A	—		
Test Item	Measure at load condition				
	1	2	3	4	5
Rms Output Current (A)	1.0	0.75	0.50	0.25	0
Rms Output Voltage (V)	24.0	24.01	24.0	23.9	24.3
Active Output Power (W)	24.0	18.0	12.0	5.98	--
Rms Input Current (A)	0.292	0.225	0.155	0.083	0.0036
Rms input voltage (V)	115	115	115	115	115
Rms Input Power (W)	27.56	20.73	13.86	6.89	0.08
Total Harmonic Distortion (VTHD%)	1.471	1.321	1.122	0.884	0.618
Total Harmonic Distortion (ATHD%)	131.96	140.22	152.32	167.59	354.15
True Power Factory	0.584	0.568	0.543	0.509	0.271
Power Consumed by UUT (W)	3.19	2.71	1.80	0.82	0.08
Efficiency	87.08%	86.83%	86.58%	86.79%	—
Average Efficiency	86.82% (Requirement: 86.20%)				--
Supplementary information:					
Limit for efficiency mark level VI:					
Average active mode efficiency limit ≥86.20%					
No load power limit: ≤ 0.1W.					



All Class A external power supplies manufactured on or after July 1, 2008
Federally Regulated - 10 C.F.R. 430.32 (w)(1)(i)

Table U-1
Standards for Class A External Power Supplies That are Federally Regulated

Nameplate Output	Minimum Efficiency in Active Mode (Decimal equivalent of a Percentage)
Less than 1 watt	0.5 times the Nameplate Output
From 1 watt to not more than 51 watts	The sum of 0.09 times the Natural Logarithm of the Nameplate Output and 0.5
Greater than 51 watts	0.85
	Maximum consumption in No-load mode
Not more than 250 watts	0.5 watts

Note: 1) International Efficiency Marking Protocol for External Power Supplies Marking "IV".

All direct operation external power supplies manufactured on or after February 10, 2016
Federally Regulated - 10 C.F.R. 430.32 (w)(1)(ii)

Table U-2
Standards for Direct Operation External Power Supplies

Power Supply Type	Nameplate Output Power P_{out}	Minimum Average Efficiency in Active Mode*	Maximum Power in No-Load Mode (W)
Single-Voltage External AC-DC Power Supply, Basic Voltage	$P_{out} \leq 1\text{ W}$	$\geq 0.5 \times P_{out} + 0.16$	≤ 0.100
	$1\text{ W} < P_{out} \leq 49\text{ W}$	$\geq 0.071 \times \ln(P_{out}) - 0.0014 \times P_{out} + 0.67$	≤ 0.100
	$49\text{ W} < P_{out} \leq 250\text{ W}$	≥ 0.880	≤ 0.210
	$P_{out} > 250\text{ W}$	≥ 0.875	≤ 0.500
Single-Voltage External AC-DC Power Supply, Low-Voltage	$P_{out} \leq 1\text{ W}$	$\geq 0.517 \times P_{out} + 0.087$	≤ 0.100
	$1\text{ W} < P_{out} \leq 49\text{ W}$	$\geq 0.0834 \times \ln(P_{out}) - 0.0014 \times P_{out} + 0.609$	≤ 0.100
	$49\text{ W} < P_{out} \leq 250\text{ W}$	≥ 0.870	≤ 0.210
	$P_{out} > 250\text{ W}$	≥ 0.875	≤ 0.500
Single-Voltage External AC-AC Power Supply, Basic Voltage	$P_{out} \leq 1\text{ W}$	$\geq 0.5 \times P_{out} + 0.16$	≤ 0.210
	$1\text{ W} < P_{out} \leq 49\text{ W}$	$\geq 0.071 \times \ln(P_{out}) - 0.0014 \times P_{out} + 0.67$	≤ 0.210
	$49\text{ W} < P_{out} \leq 250\text{ W}$	≥ 0.880	≤ 0.210
	$P_{out} > 250\text{ W}$	≥ 0.875	≤ 0.500
Single-Voltage External AC-AC Power Supply, Low-Voltage	$P_{out} \leq 1\text{ W}$	$\geq 0.517 \times P_{out} + 0.087$	≤ 0.210
	$1\text{ W} < P_{out} \leq 49\text{ W}$	$\geq 0.0834 \times \ln(P_{out}) - 0.0014 \times P_{out} + 0.609$	≤ 0.210
	$49\text{ W} < P_{out} \leq 250\text{ W}$	≥ 0.870	≤ 0.210
	$P_{out} > 250\text{ W}$	≥ 0.875	≤ 0.500
Multiple-Voltage External Power Supply	$P_{out} \leq 1\text{ W}$	$\geq 0.497 \times P_{out} + 0.067$	≤ 0.300
	$1\text{ W} < P_{out} \leq 49\text{ W}$	$\geq 0.075 \times \ln(P_{out}) + 0.561$	≤ 0.300
	$P_{out} > 49\text{ W}$	≥ 0.860	≤ 0.300

*Expressed as a decimal

Notes: 1) International Efficiency Marking Protocol for External Power Supplies Marking "VI".

2) A low voltage model is an EPS with a nameplate output voltage of less than 6 volts and a nameplate output current greater than or equal to 550 milliamps.

TRF No. 10 C.F.R Part 430_A

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Table U-3
Standards for All External Power Supplies Manufactured On or After February 10, 2016

Operation EPS Type	Class A EPS	Non-Class A EPS
Direct Operation EPS	Level VI: 10 C.F.R. 430.32 (w)(1)(ii)	Level VI: 10 C.F.R. 430.32 (w)(1)(ii)
Indirect Operation EPS	Level IV: 10 C.F.R. 430.32 (w)(1)(i)	No standards

Table U-4
Standards for State-Regulated External Power Supplies Effective July 1, 2008

Nameplate Output	Minimum Efficiency in Active Mode (Decimal equivalent of a Percentage)
< 1 watt	$0.49 * \text{Nameplate Output}$
≥ 1 and ≤ 51 watts	$0.09 * \ln(\text{Nameplate Output}) + 0.49$
> 51 watts	0.84
	Maximum Energy Consumption in No-load mode
Any output	0.5 watts

Where $\ln$ (Nameplate Output) = Natural Logarithm of the nameplate output expressed in watts.

**Department of Energy (DOE) sampling plan for Class A External Power Supplies**

Section 24(bb) of Title 10 of the Code of Federal Regulations (10 CFR) Part 430 states, For each basic model of external power supply selected for testing, a sample of sufficient size shall be selected at random and tested, which is based on the one-sided confidence limit.

Test sample number	Measured Active Mode Efficiency (%)	Measured No-Load Mode Power (W)
1	87.52%	0.08
2	86.82%	0.08
The reported no load power consumption on 97.5% confidence level is the higher of: 1. $UCL/1.05 = (X + t * s/\sqrt{n})/1.05 = (0.08 + 0.0/\sqrt{2})/1.05 = 0.076W$, or 2. The mean value of measured No-Load Mode Power=0.08W		
The reported Active Mode Efficiency on 97.5% confidence level is the lower of: 1. $LCL/0.95 = (X - t * s/\sqrt{n})/0.95 = (87.17\% - 0.0629/\sqrt{2})/0.95 = 87.08\%$, or 2. The mean value of measured Active Mode Efficiency=87.17%		
Summary: The reported No-Load Power is 0.08W, lower than limit of 0.100W. The reported Active Mode Efficiency is 86.82%, greater than limit of 86.20%		
Verdict: The External Power Supply Unit described in this report meets the Energy conservation standards specified in the Code of Federal Regulations at 10 CFR 430.32(w). and California Code Of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1609: Appliance Efficiency Regulations.		



Attachment No. 1 –Photographs

Details of: External view



Details of: External view



TRF No. 10 C.F.R Part 430_A

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Attachment No. 2: Equipment list

Instrument Code	Instrument Type	Manufacturer	Model	Range Used	Calibration Date
					Calibration Due Date
LCS-S-003	Digital Power Meter	EVERFINE	PF-9901	0V~600V, 1W~12.00kW, 0.005A~20A, PF:45~65 Hz	2019/11/11 2020/11/10
LCS-S-062	DC Electronic Load	Ainuo Instrument Co., Ltd.	AN23103H	0~150Vdc, 0~60A, 0~300W	2019/11/11 2020/11/10
LCS-S-056	Digital multimeter	FLUKE	15B+	0~1000Vdc, 0~10A, 0~20MΩ, 700Vac	2019/10/15 2020/10/13
LCS-S-029	Stop watch	SMTWTFS	PC396	0.01s-24h	2019/10/15 2020/10/14
LCS-S-122	Anemograph	SMART SENSOR	AR866A	0.0~30.0m/s, 0.0~45.0℃, 0~999900m3/min	2019/11/11 2020/11/10
LCS-S-015	THERMD-HYGROGRAPH	SHANGHAI METEOROLOGICAL INSTRUMENT FACTORY CHINA	ZJ1-2B	Temperature:-35~45℃; Humidity:30%~100%RH	2019/10/15 2020/10/14

--- END OF TEST REPORT ---