

Anex

Corsair AX1600i (Sample #3)

Lab ID#: CR16001631

Receipt Date: -

Test Date: Apr 1, 2020

Report: 20PS1631A

Report Date: Apr 6, 2020

DUT INFORMATION

Brand	Corsair
Manufacturer (OEM)	Flextronics
Series	AXi
Model Number	RPS0036
Serial Number	17429560000049040027
DUT Notes	Balanced Profile

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	18-9
Rated Frequency (Hz)	50-60
Rated Power (W)	1600
Type	ATX12V
Cooling	140mm Fluid Dynamic Bearing Fan (NR140P)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

TEST EQUIPMENT

Electronic Loads	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Keysight AC6804B
Power Analyzers	N4L PPA1530 x2
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2
Tachometer	UNI-T UT372 x2
Digital Multimeter	Keysight U1273AX, Fluke 289, Keithley 2015 - THD
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

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Corsair AX1600i (Sample #3)

RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	92.221%
Efficiency With 10W (≤500W) or 2% (>500W)	78.233
Average Efficiency 5VSB	81.807%
Standby Power Consumption (W)	0.0457394
Average PF	0.992
Avg Noise Output	25.60 dB(A)
Efficiency Rating (ETA)	TTANIUM
Noise Rating (LAMBDA)	A-

230V

Average Efficiency	93.812%
Average Efficiency 5VSB	80.799%
Standby Power Consumption (W)	0.0744520
Average PF	0.988
Avg Noise Output	25.51 dB(A)
Efficiency Rating (ETA)	TTANIUM
Noise Rating (LAMBDA)	A-

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	30	30	133.3	3.5	0.8
	Watts	180		1600	17.5	9.6
Total Max. Power (W)		1600				

HOLD-UP TIME & POWER OK SIGNAL (230V)

Hold-Up Time (ms)	26.7
AC Loss to PWR_OK Hold Up Time (ms)	24.5
PWR_OK Inactive to DC Loss Delay (ms)	2.2

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CABLES AND CONNECTORS

Modular Cables

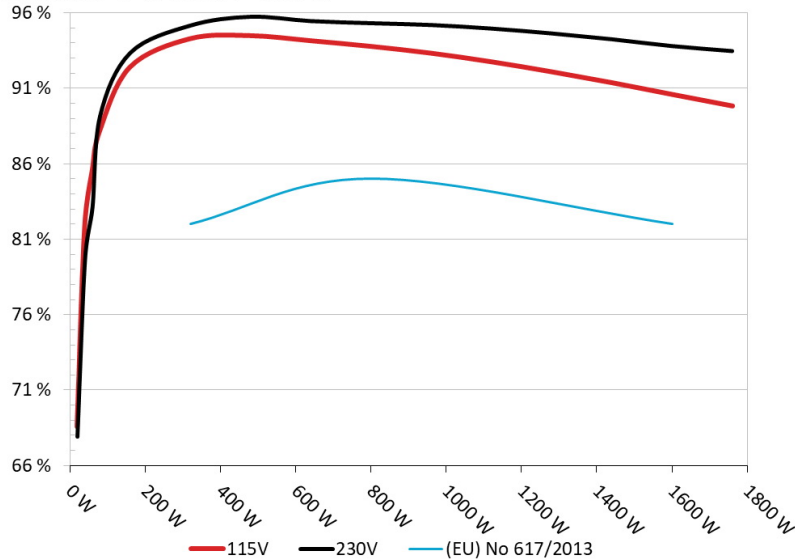
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	16-22AWG	Yes
4+4 pin EPS12V (650mm)	2	2	16AWG	Yes
6+2 pin PCIe (650mm)	6	6	16-18AWG	Yes
6+2 pin PCIe (680mm+100mm)	2	4	16-18AWG	Yes
SATA (450mm+110mm+110mm+110mm)	3	12	18AWG	No
SATA (550mm+110mm)	2	4	18AWG	No
4-pin Molex (450mm+100mm+100mm)	3	9	18AWG	No
FDD Adapter (+105mm)	2	2	20AWG	No
USB Mini to Motherboard Header Cable (+800mm)	1	1	24-28AWG	No
AC Power Cord (1400mm) - C19 coupler	1	1	14AWG	-

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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Corsair AX1600i
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

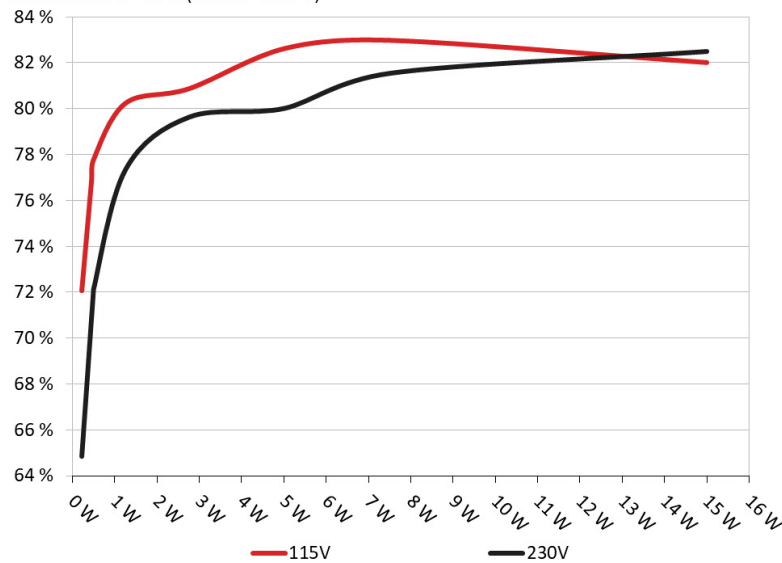


INFO

The PSU's efficiency under high ambient temperatures with 115V and 230V input. For this graph the results of the 10-110% load regulation table are used

5VSB EFFICIENCY

5VSB Efficiency: Corsair AX1600i
Ambient: 34°C - 36°C (93.2°F - 96.8°F)



INFO

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input

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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.227	72.063%	0.019
	5.037V	0.315		115.14V
2	0.090A	0.453	76.780%	0.035
	5.036V	0.590		115.14V
3	0.550A	2.767	80.883%	0.187
	5.029V	3.421		115.15V
4	1.000A	5.025	82.634%	0.295
	5.024V	6.081		115.14V
5	1.500A	7.527	82.988%	0.380
	5.017V	9.070		115.14V
6	3.000A	14.993	82.019%	0.513
	4.997V	18.280		115.13V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.227	64.857%	0.007
	5.037V	0.350		230.20V
2	0.090A	0.453	72.134%	0.011
	5.036V	0.628		230.20V
3	0.550A	2.766	79.620%	0.062
	5.030V	3.474		230.17V
4	1.000A	5.025	80.003%	0.109
	5.024V	6.281		230.18V
5	1.500A	7.527	81.532%	0.156
	5.018V	9.232		230.19V
6	3.000A	14.994	82.475%	0.270
	4.998V	18.180		230.19V

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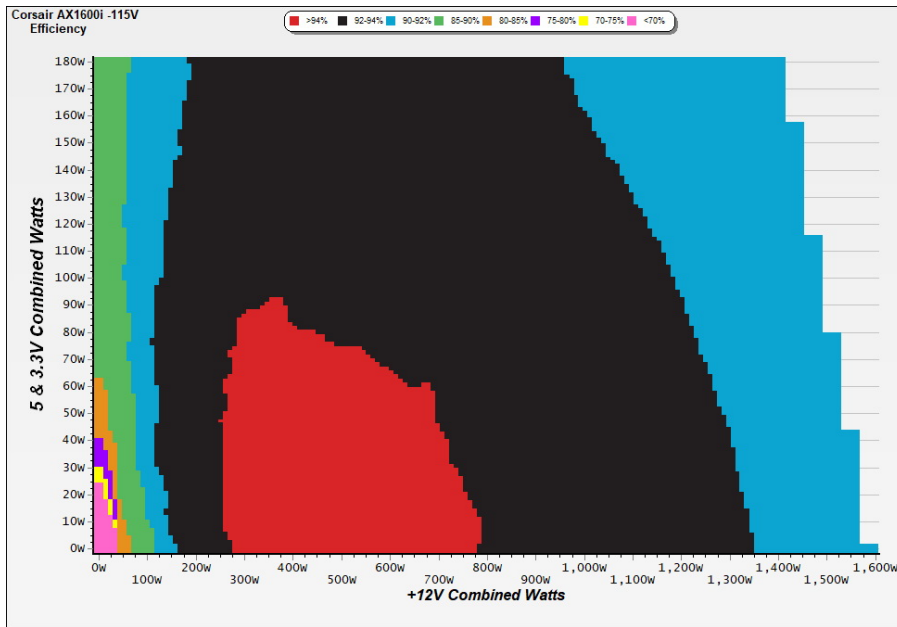
115V

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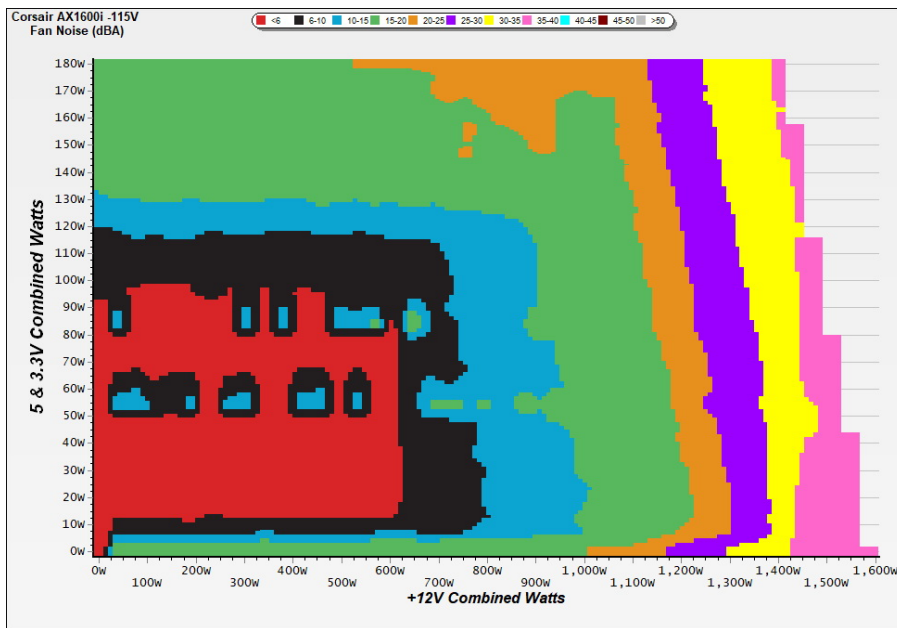
EFFICIENCY GRAPH 115V



INFO

This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations

NOISE GRAPH 115V



INFO

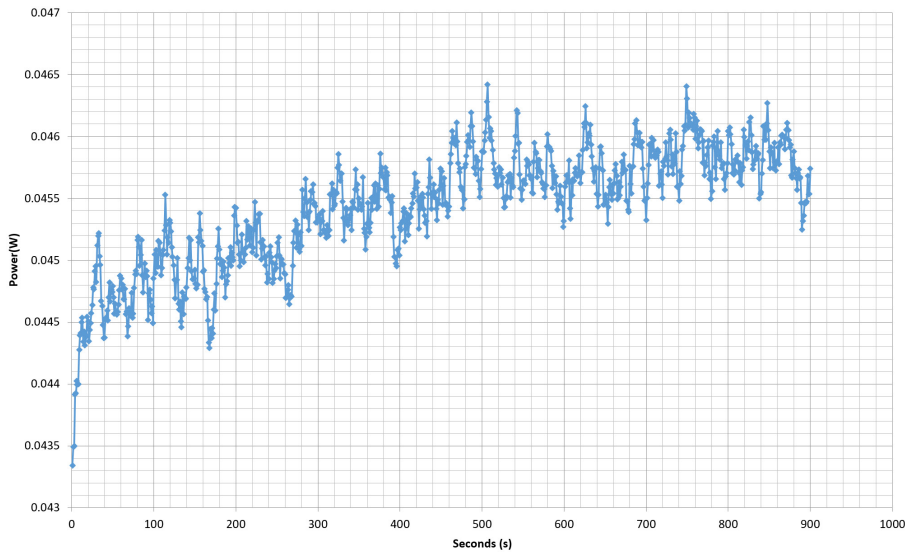
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - 17429560000049040027 - 30/03/2020 - 09:17



INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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10-110% LOAD TESTS 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	11.512A	2.009A	1.999A	1.006A	160.007	92.384%	0	<6.0	44.23°C	0.958
	12.022V	4.979V	3.304V	4.971V	173.198				40.12°C	115.12V
2	24.056A	3.014A	2.998A	1.208A	320.053	94.268%	0	<6.0	45.03°C	0.989
	12.020V	4.976V	3.303V	4.967V	339.515				40.51°C	115.13V
3	36.887A	3.518A	3.498A	1.411A	479.326	94.472%	0	<6.0	46.51°C	0.995
	12.017V	4.974V	3.303V	4.963V	507.374				41.64°C	115.11V
4	49.820A	4.024A	3.996A	1.613A	639.740	94.137%	0	<6.0	47.58°C	0.997
	12.014V	4.972V	3.302V	4.960V	679.584				42.35°C	115.10V
5	62.399A	5.028A	4.999A	1.816A	799.905	93.761%	562	9.7	42.43°C	0.998
	12.010V	4.970V	3.301V	4.957V	853.130				48.15°C	115.11V
6	74.973A	6.041A	6.003A	2.000A	959.916	93.311%	651	13.5	42.65°C	0.999
	12.007V	4.967V	3.299V	4.953V	1028.729				49.14°C	115.10V
7	87.525A	7.054A	7.005A	2.223A	1119.780	92.742%	741	17.0	43.56°C	0.998
	12.004V	4.965V	3.298V	4.950V	1207.411				50.57°C	115.10V
8	100.151A	8.002A	8.011A	2.427A	1280.026	92.079%	876	22.9	44.11°C	0.998
	12.001V	4.962V	3.296V	4.946V	1390.133				51.61°C	115.11V
9	113.115A	8.572A	8.496A	2.428A	1439.652	91.359%	1458	38.5	45.10°C	0.999
	11.998V	4.958V	3.295V	4.944V	1575.812				53.29°C	115.11V
10	125.919A	9.084A	9.016A	3.041A	1600.112	90.579%	1800	44.4	45.80°C	0.999
	11.995V	4.955V	3.294V	4.934V	1766.529				54.87°C	115.13V
11	139.297A	9.090A	9.019A	3.043A	1760.167	89.816%	1922	44.4	46.52°C	0.996
	11.992V	4.952V	3.293V	4.931V	1959.737				56.40°C	115.14V
CL1	0.116A	22.001A	22.002A	0.000A	183.588	87.948%	857	22.3	41.96°C	0.972
	12.023V	4.984V	3.297V	5.014V	208.746				48.85°C	115.15V
CL2	133.373A	1.000A	0.999A	1.000A	1613.019	90.766%	1751	43.8	45.87°C	0.999
	11.995V	4.959V	3.298V	4.956V	1777.124				54.46°C	115.13V

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Anex

Corsair AX1600i (Sample #3)

20-80W LOAD TESTS 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.234A	0.500A	0.499A	0.200A	19.987	68.599%	0	<6.0	0.879
	12.024V	5.000V	3.304V	5.000V	29.136				115.15V
2	2.468A	1.001A	0.998A	0.400A	39.977	81.806%	0	<6.0	0.942
	12.024V	5.000V	3.304V	4.998V	48.868				115.15V
3	3.706A	1.499A	1.498A	0.601A	60.008	85.517%	0	<6.0	0.919
	12.024V	5.000V	3.304V	4.996V	70.171				115.14V
4	4.936A	2.008A	2.000A	0.804A	79.957	88.172%	0	<6.0	0.918
	12.024V	4.980V	3.304V	4.974V	90.683				115.13V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	5.60mV	4.60mV	12.70mV	5.80mV	Pass
20% Load	5.80mV	4.40mV	12.80mV	5.50mV	Pass
30% Load	5.80mV	4.40mV	12.20mV	5.60mV	Pass
40% Load	7.00mV	4.60mV	12.90mV	5.90mV	Pass
50% Load	7.20mV	4.80mV	12.90mV	6.10mV	Pass
60% Load	6.40mV	4.90mV	12.20mV	5.60mV	Pass
70% Load	7.30mV	5.60mV	12.50mV	6.90mV	Pass
80% Load	7.70mV	5.50mV	14.30mV	6.40mV	Pass
90% Load	7.70mV	5.70mV	14.60mV	6.60mV	Pass
100% Load	10.30mV	6.20mV	15.00mV	6.60mV	Pass
110% Load	11.80mV	6.10mV	14.50mV	6.30mV	Pass
Crossload1	7.40mV	6.50mV	16.00mV	6.00mV	Pass
Crossload2	10.40mV	5.50mV	13.80mV	6.60mV	Pass

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Anex

Corsair AX1600i (Sample #3)

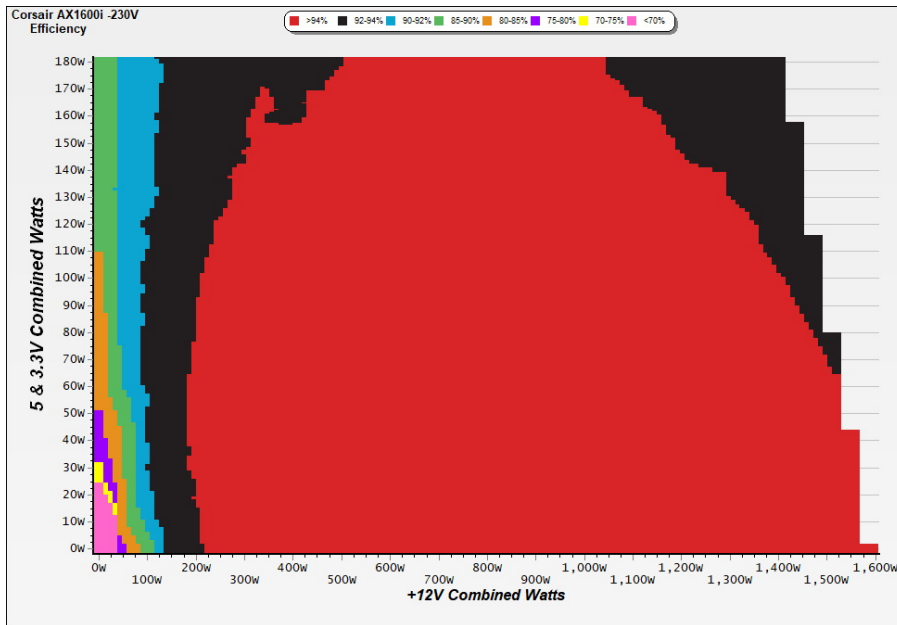
230V

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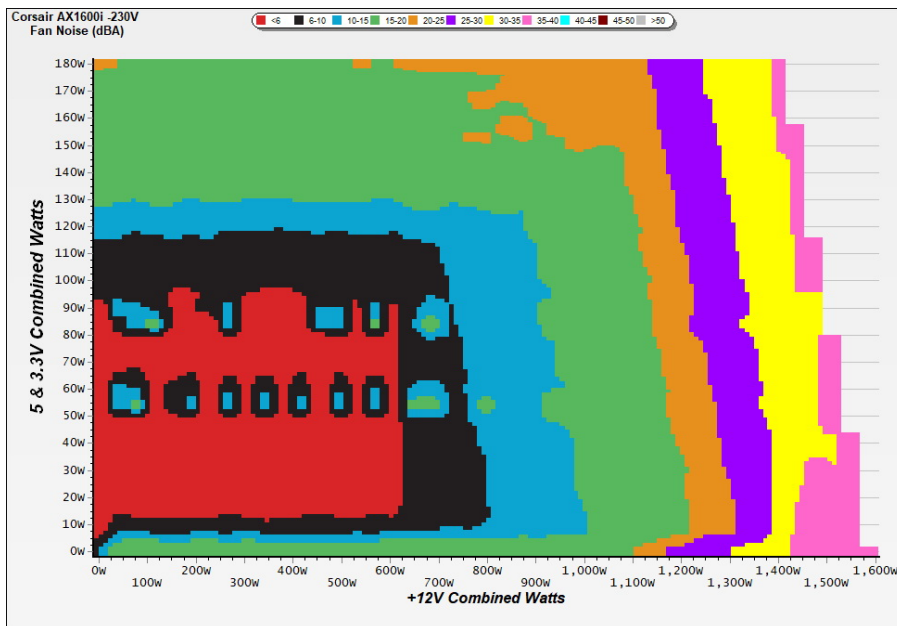
EFFICIENCY GRAPH 230V



INFO

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NOISE GRAPH 230V



INFO

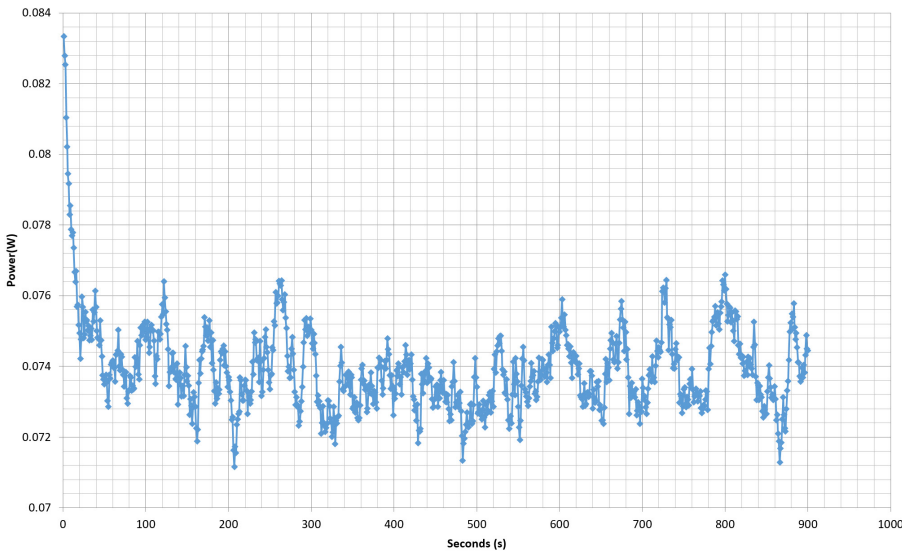
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VAMPIRE POWER -230V

Power - 17429560000049040027 - 30/03/2020 - 09:17



INFO

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10-110% LOAD TESTS 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	11.509A	2.007A	1.998A	1.006A	159.964	93.349%	0	<6.0	44.27°C	0.960
	12.023V	4.979V	3.303V	4.970V	171.361				40.21°C	230.17V
2	24.051A	3.015A	2.998A	1.208A	319.998	95.165%	0	<6.0	45.15°C	0.985
	12.020V	4.976V	3.303V	4.967V	336.257				40.46°C	230.19V
3	36.872A	3.519A	3.498A	1.411A	479.145	95.747%	0	<6.0	46.64°C	0.994
	12.017V	4.973V	3.302V	4.963V	500.429				41.44°C	230.20V
4	49.807A	4.024A	3.999A	1.614A	639.589	95.462%	0	<6.0	47.50°C	0.993
	12.014V	4.971V	3.301V	4.959V	669.991				41.53°C	230.20V
5	62.381A	5.032A	5.000A	1.817A	799.772	95.322%	571	9.8	42.05°C	0.997
	12.011V	4.969V	3.301V	4.956V	839.021				48.57°C	230.21V
6	74.962A	6.042A	6.001A	2.000A	959.776	95.202%	649	13.5	42.54°C	0.998
	12.007V	4.966V	3.299V	4.953V	1008.149				49.50°C	230.22V
7	87.516A	7.057A	7.005A	2.223A	1119.677	94.969%	752	17.7	43.47°C	0.997
	12.004V	4.964V	3.298V	4.949V	1178.989				50.88°C	230.23V
8	100.146A	8.001A	8.012A	2.427A	1279.946	94.648%	869	22.8	43.89°C	0.998
	12.001V	4.961V	3.295V	4.945V	1352.318				51.87°C	230.24V
9	113.108A	8.575A	8.497A	2.428A	1439.576	94.260%	1325	35.7	44.67°C	0.998
	11.998V	4.957V	3.295V	4.943V	1527.239				53.51°C	230.24V
10	125.922A	9.085A	9.017A	3.042A	1600.024	93.808%	1769	44.0	45.13°C	0.999
	11.994V	4.954V	3.294V	4.933V	1705.635				54.54°C	230.25V
11	139.293A	9.091A	9.019A	3.043A	1760.112	93.477%	1926	44.4	46.78°C	0.999
	11.992V	4.951V	3.293V	4.930V	1882.942				56.70°C	230.27V
CL1	0.118A	22.001A	21.997A	0.000A	183.552	88.815%	849	21.9	42.88°C	0.967
	12.023V	4.982V	3.297V	5.013V	206.668				49.05°C	230.29V
CL2	133.357A	1.000A	1.000A	1.000A	1612.923	93.997%	1638	41.4	45.02°C	0.999
	11.995V	4.957V	3.297V	4.953V	1715.938				54.08°C	230.27V

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20-80W LOAD TESTS 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.234A	0.502A	0.498A	0.200A	19.987	67.944%	0	<6.0	0.562
	12.027V	4.985V	3.305V	4.985V	29.417				230.32V
2	2.468A	1.002A	0.998A	0.402A	39.978	79.598%	0	<6.0	0.754
	12.027V	4.984V	3.305V	4.982V	50.225				230.33V
3	3.705A	1.504A	1.497A	0.603A	60.007	83.144%	0	<6.0	0.851
	12.027V	4.984V	3.305V	4.980V	72.172				230.33V
4	4.936A	2.005A	1.997A	0.804A	79.956	89.146%	0	<6.0	0.894
	12.026V	4.984V	3.305V	4.978V	89.691				230.32V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	5.80mV	4.60mV	13.10mV	6.20mV	Pass
20% Load	6.00mV	4.70mV	13.20mV	6.20mV	Pass
30% Load	6.70mV	4.60mV	13.20mV	5.90mV	Pass
40% Load	7.00mV	4.70mV	13.60mV	6.10mV	Pass
50% Load	7.50mV	5.00mV	13.40mV	6.60mV	Pass
60% Load	6.90mV	5.50mV	13.50mV	6.90mV	Pass
70% Load	7.70mV	5.30mV	14.00mV	6.90mV	Pass
80% Load	8.20mV	5.50mV	14.10mV	6.80mV	Pass
90% Load	7.70mV	6.20mV	14.00mV	6.90mV	Pass
100% Load	10.80mV	6.30mV	15.60mV	6.70mV	Pass
110% Load	11.50mV	6.00mV	15.40mV	6.70mV	Pass
Crossload1	7.40mV	6.30mV	15.70mV	6.10mV	Pass
Crossload2	11.20mV	5.30mV	14.60mV	6.80mV	Pass

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Anex

Corsair AX1600i (Sample #3)



Top side

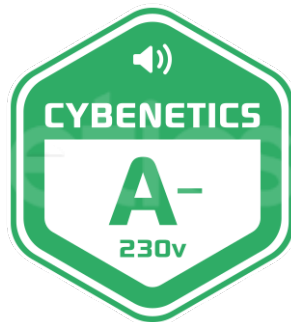


Power specifications label

CERTIFICATIONS 115V



CERTIFICATIONS 230V



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