Anex

Corsair SF600 Platinum (Sample #5)

Lab ID#: 649
Receipt Date: Apr 19, 2019
Test Date: Apr 29, 2019

Report: 19PS649A
Report Date: May 3, 2019

DUT INFORMATION

Brand	Corsair
Manufacturer (OEM)	Great Wall
Series	SF Platinum
Model Number	
Serial Number	18434853000062930161
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	47-63
Rated Power (W)	600
Type	SFX
Cooling	92mm Rifle Bearing Fan (NR092L)
Semi-Passive Operation	✓
Cable Design	Fully Modular

TEST EQUIPMENT

Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Chroma 61604, Keysight AC6804B	
Power Analyzers	N4L PPA1530 x2, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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RESULTS

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

115V

Average Efficiency	90.041%
Efficiency With 10W (≤500W) or 2% (>500W)	61.014
Average Efficiency 5VSB	82.391%
Standby Power Consumption (W)	0.0486515
Average PF	0.984
Avg Noise Output	22.95 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A

230V

Average Efficiency	91.676%
Average Efficiency 5VSB	81.683%
Standby Power Consumption (W)	0.0760962
Average PF	0.946
Avg Noise Output	22.85 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	50	2.5	0.3
	Watts	120		600	12.5	3.6
Total Max. Power (W)		600				

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

Hold-Up Time (ms)	16.03
AC Loss to PWR_OK Hold Up Time (ms)	14.85
PWR_OK Inactive to DC Loss Delay (ms)	1.18

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (300mm)	1	1	16-18AWG	No
4+4 pin EPS12V (400mm)	1	1	16AWG	No
6+2 pin PCIe (700mm)	2	2	16AWG	No
SATA (100mm+105mm+105mm105mm)	1	4	18AWG	No
4 pin Molex (100mm+105mm+105mm)	1	3	18AWG	No
AC Power Cord (1400mm)	1	1	18AWG	-

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General Data	
Manufacturer (OEM)	Great Wall
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 3x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	1x GBU25KH (800V, 25A @ 125 °C)
APFC MOSFET	1x Infineon IPZ60R099C7 (650V, 14A @ 100°C, 0.099Ohm)
APFC Boost Diode	1x Infineon IDH06G65C6 (600V, 6A @ 145°C)
Hold-up Cap(s)	1x Nippon Chemi-Con (420V, 470uF, 2000h @ 105 °C, KMZ)
Main Switchers	2x 60F2094
Driver IC	Silicon Labs Si8230BD
APFC Controller	Champion CM6502 & CM03X Green PFC controller
Resonant Controller	Champion CM6901X
Topology	Primary side: Half-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x Alpha & Omega AON6590 (40V, 100A @ 100°C, 1.55mOhm)
5V & 3.3V	DC-DC Converters: 4x Nexperia PSMN2R0-30YL (30V, 100A @ 25°C, 2mOhm) PWM Controller: Anpec APW7159C
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (4-10,000h @ 105°C, KY), Rubycon (3-6,000h@ 105°C, YXJ) Polymers: Nippon Chemi-Con
Supervisor IC	IN1S429I -SCG
Fan Control MCU	PIC16F1824
Fan Model	Corsair NR092L (92mm, 12V, 0.22A, 3950 RPM, rifle bearing)
5VSB Circuit	
Rectifier	1x CSD18534 FET (60V, 69A @ 25 °C, 7.8mOhm)
Standby PWM Controller	Infineon ICE5QR1680AG

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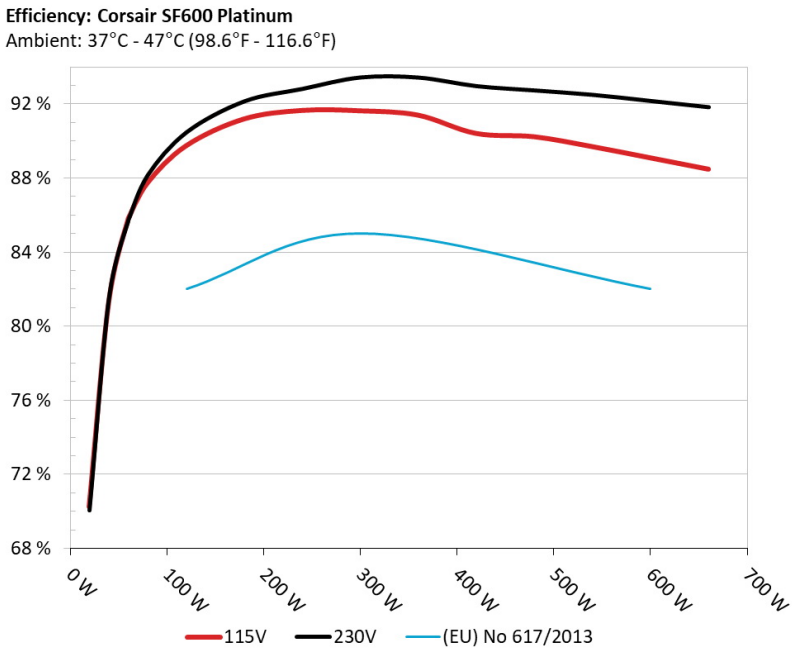
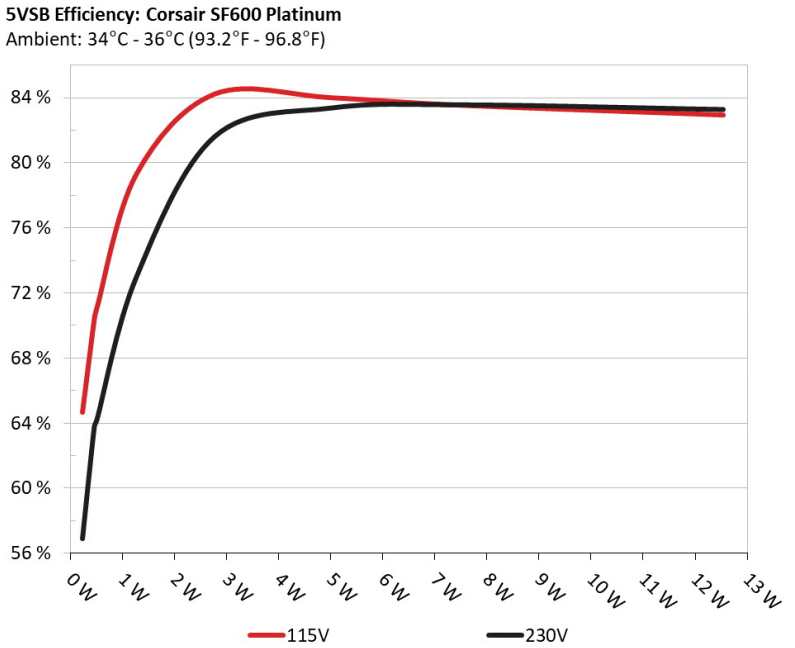
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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



INFO

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

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Corsair SF600 Platinum (Sample #5)

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.227	64.672%	0.051
	5.039V	0.351		115.12V
2	0.090A	0.454	70.388%	0.091
	5.039V	0.645		115.12V
3	0.550A	2.769	84.241%	0.306
	5.034V	3.287		115.11V
4	1.000A	5.030	84.001%	0.385
	5.029V	5.988		115.11V
5	1.500A	7.537	83.540%	0.427
	5.024V	9.022		115.11V
6	2.500A	12.534	82.946%	0.466
	5.013V	15.111		115.11V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.227	56.892%	0.018
	5.039V	0.399		230.28V
2	0.090A	0.454	63.764%	0.031
	5.039V	0.712		230.28V
3	0.550A	2.769	81.609%	0.135
	5.034V	3.393		230.27V
4	1.000A	5.030	83.361%	0.211
	5.029V	6.034		230.27V
5	1.500A	7.537	83.549%	0.270
	5.024V	9.021		230.27V
6	2.500A	12.534	83.260%	0.339
	5.013V	15.054		230.27V

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115V

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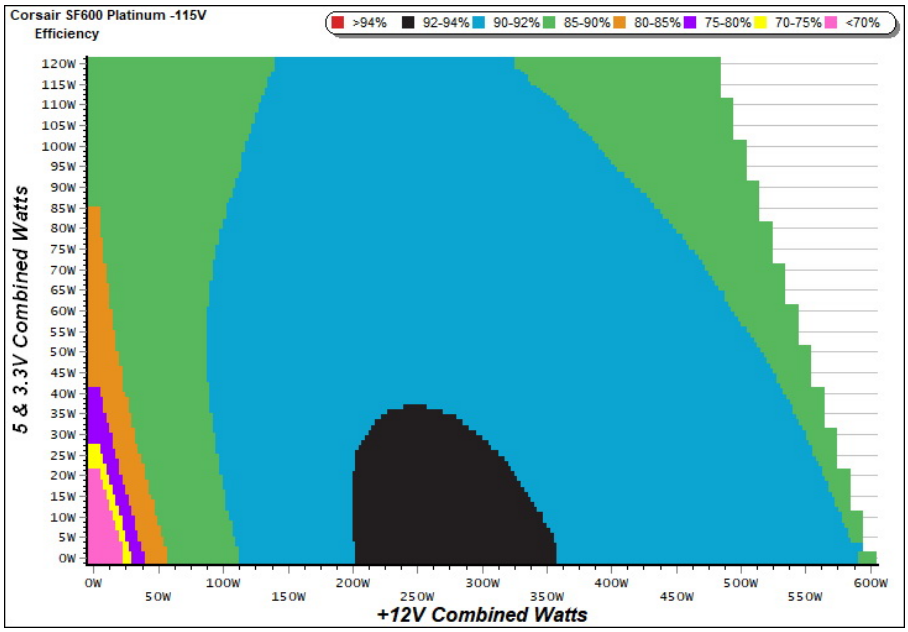
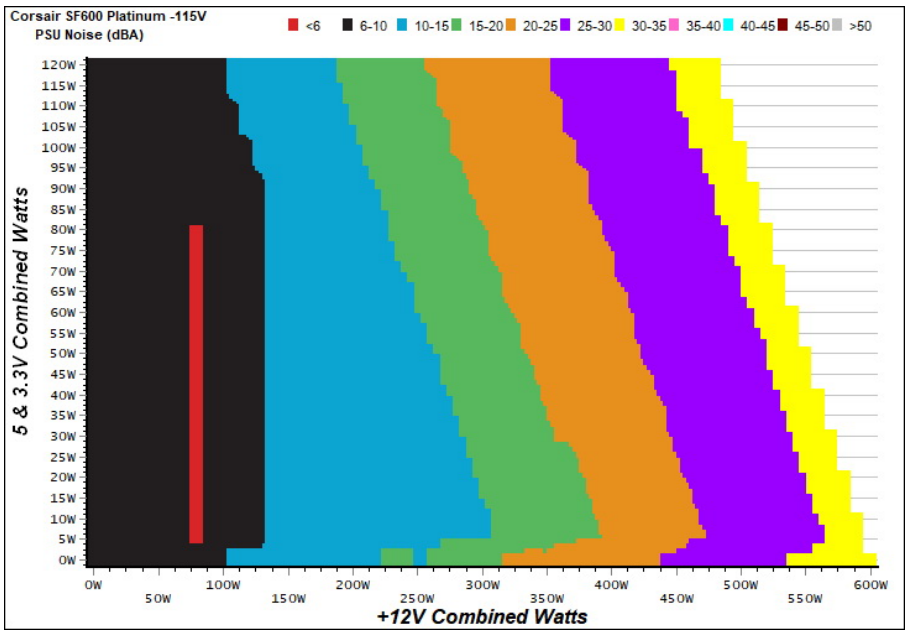
EFFICIENCY GRAPH 115V



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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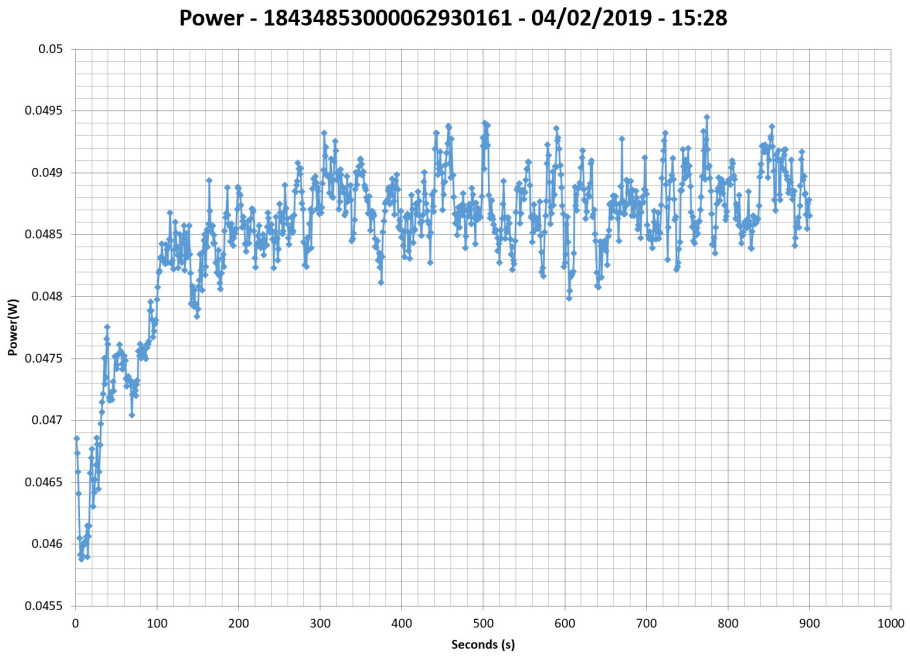
VAMPIRE POWER -115V



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	3.178A	1.979A	1.971A	0.996A	60.062	85.403%	0	<6.0	44.86°C	0.974
	12.105V	5.048V	3.348V	5.023V	70.328				40.17°C	115.14V
2	7.342A	2.973A	2.956A	1.196A	119.754	89.730%	0	<6.0	46.14°C	0.965
	12.103V	5.046V	3.346V	5.017V	133.461				41.15°C	115.13V
3	11.863A	3.469A	3.435A	1.397A	179.562	91.180%	0	<6.0	47.14°C	0.976
	12.102V	5.045V	3.346V	5.012V	196.931				41.69°C	115.10V
4	16.394A	3.966A	3.946A	1.598A	239.584	91.643%	0	<6.0	48.06°C	0.984
	12.101V	5.043V	3.345V	5.006V	261.431				41.94°C	115.09V
5	20.598A	4.959A	4.934A	1.800A	299.671	91.625%	1379	15.4	42.00°C	0.988
	12.097V	5.042V	3.343V	5.000V	327.061				49.16°C	115.09V
6	24.804A	5.952A	5.922A	2.003A	359.772	91.389%	1525	18.8	42.47°C	0.991
	12.094V	5.040V	3.342V	4.994V	393.669				50.39°C	115.09V
7	28.978A	6.947A	6.913A	2.206A	419.506	90.404%	1703	21.7	43.35°C	0.946
	12.092V	5.039V	3.341V	4.987V	464.033				51.75°C	115.10V
8	33.219A	7.942A	7.904A	2.409A	480.012	90.222%	2049	26.7	43.64°C	0.994
	12.090V	5.037V	3.339V	4.981V	532.035				52.71°C	115.09V
9	37.797A	8.441A	8.388A	2.411A	539.354	89.696%	2620	34.2	44.30°C	0.994
	12.087V	5.035V	3.338V	4.978V	601.311				54.19°C	115.09V
10	42.445A	8.941A	8.899A	2.514A	600.070	89.083%	3116	38.2	45.52°C	0.995
	12.083V	5.034V	3.337V	4.973V	673.608				55.87°C	115.09V
11	47.425A	8.944A	8.903A	2.515A	660.099	88.472%	3593	41.9	46.64°C	0.995
	12.080V	5.032V	3.336V	4.970V	746.109				57.99°C	115.09V
CL1	0.138A	14.002A	13.999A	0.000A	119.095	85.777%	993	8.2	42.01°C	0.966
	12.104V	5.046V	3.341V	5.018V	138.842				49.26°C	115.11V
CL2	50.003A	1.002A	0.999A	1.000A	617.566	89.547%	3166	38.5	45.72°C	0.995
	12.083V	5.034V	3.341V	4.998V	689.657				55.97°C	115.10V

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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	1.197A	0.497A	0.476A	0.199A	19.595	70.248%	0	<6.0	0.869
	12.105V	5.049V	3.349V	5.035V	27.894				115.13V
2	2.450A	0.992A	0.983A	0.398A	39.960	81.334%	0	<6.0	0.927
	12.105V	5.049V	3.348V	5.032V	49.131				115.13V
3	3.640A	1.488A	1.462A	0.597A	59.466	85.801%	0	<6.0	0.974
	12.104V	5.048V	3.348V	5.028V	69.307				115.13V
4	4.901A	1.982A	1.969A	0.796A	79.914	87.726%	0	<6.0	0.966
	12.104V	5.047V	3.347V	5.024V	91.095				115.13V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.6 mV	6.3 mV	10.1 mV	10.4 mV	Pass
20% Load	9.2 mV	6.8 mV	11.0 mV	11.0 mV	Pass
30% Load	11.9 mV	6.9 mV	10.8 mV	10.9 mV	Pass
40% Load	14.7 mV	6.7 mV	10.5 mV	10.8 mV	Pass
50% Load	19.0 mV	7.6 mV	11.1 mV	10.8 mV	Pass
60% Load	22.4 mV	7.9 mV	11.5 mV	12.3 mV	Pass
70% Load	248.3 mV	10.5 mV	14.6 mV	25.2 mV	Fail
80% Load	22.5 mV	8.9 mV	13.0 mV	13.6 mV	Pass
90% Load	25.7 mV	9.3 mV	12.8 mV	15.0 mV	Pass
100% Load	32.2 mV	10.2 mV	14.3 mV	16.5 mV	Pass
110% Load	35.1 mV	9.9 mV	14.5 mV	17.5 mV	Pass
Crossload 1	15.9 mV	9.3 mV	16.4 mV	8.1 mV	Pass
Crossload 2	30.9 mV	8.6 mV	12.1 mV	18.4 mV	Pass

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230V

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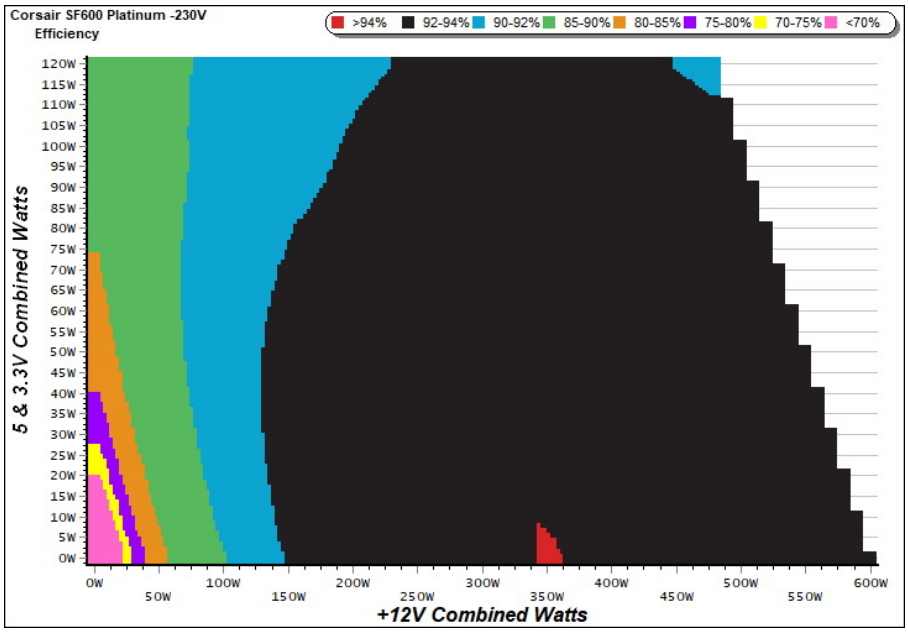
EFFICIENCY GRAPH 230V



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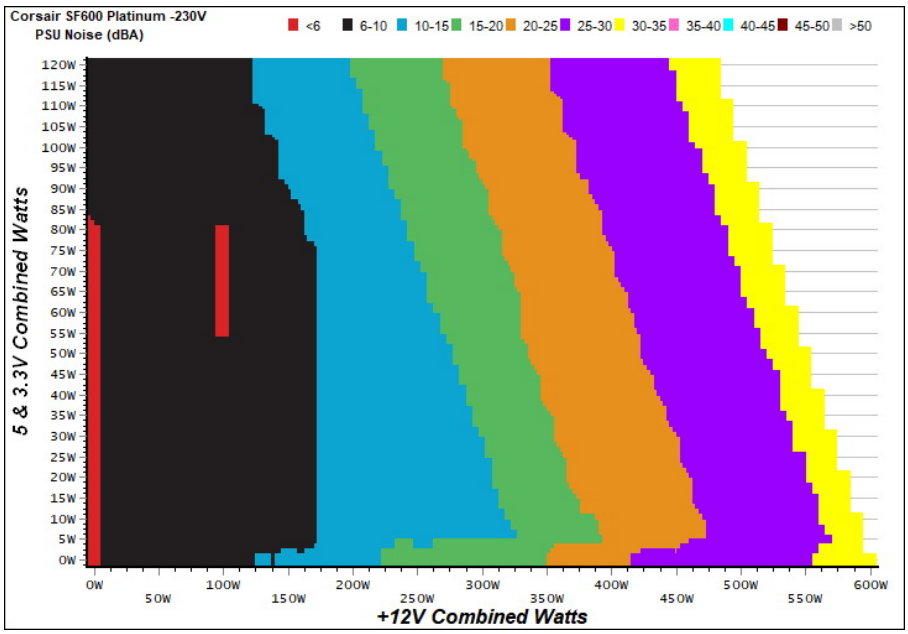
NOISE GRAPH 230V



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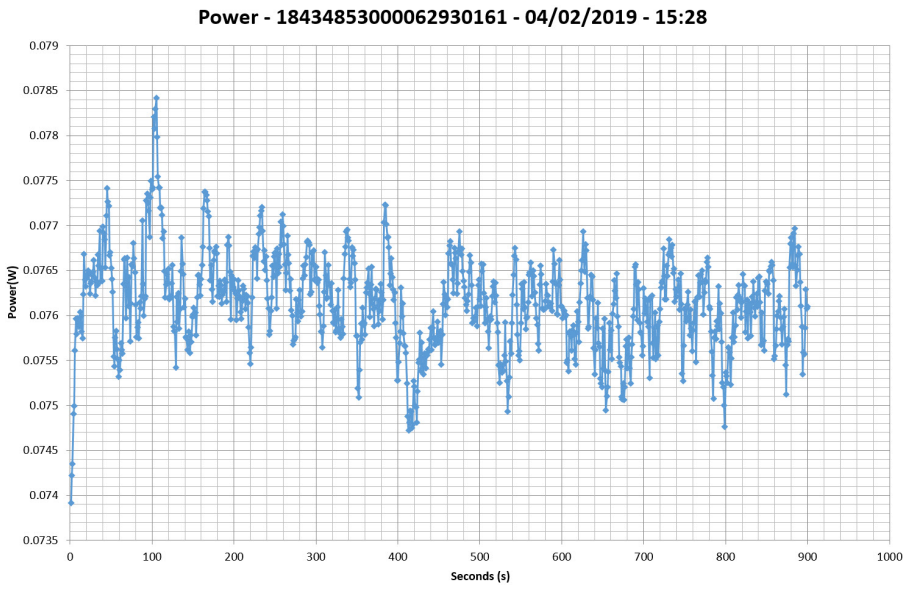
VAMPIRE POWER -230V



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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	3.172A	1.982A	1.969A	0.996A	60.032	85.422%	0	<6.0	44.27°C	0.792
	12.116V	5.048V	3.348V	5.023V	70.277				39.91°C	230.32V
2	7.337A	2.974A	2.957A	1.196A	119.754	90.483%	0	<6.0	45.49°C	0.901
	12.110V	5.046V	3.347V	5.017V	132.350				40.61°C	230.32V
3	11.866A	3.470A	3.434A	1.397A	179.644	92.164%	0	<6.0	46.81°C	0.940
	12.106V	5.044V	3.346V	5.011V	194.918				41.45°C	230.32V
4	16.400A	3.964A	3.946A	1.599A	239.678	92.838%	0	<6.0	47.78°C	0.952
	12.103V	5.042V	3.345V	5.005V	258.168				41.96°C	230.32V
5	20.606A	4.960A	4.935A	1.800A	299.750	93.457%	1377	15.3	42.15°C	0.960
	12.096V	5.041V	3.343V	5.000V	320.735				48.54°C	230.31V
6	24.812A	5.954A	5.925A	2.003A	359.828	93.452%	1526	18.8	42.60°C	0.968
	12.092V	5.039V	3.341V	4.994V	385.042				49.39°C	230.30V
7	28.983A	6.949A	6.914A	2.206A	419.539	92.991%	1708	21.8	43.22°C	0.972
	12.091V	5.038V	3.340V	4.988V	451.159				50.29°C	230.31V
8	33.223A	7.943A	7.905A	2.409A	480.028	92.756%	1924	25.1	43.51°C	0.975
	12.089V	5.036V	3.339V	4.981V	517.519				51.61°C	230.30V
9	37.796A	8.443A	8.387A	2.411A	539.349	92.523%	2463	32.4	44.24°C	0.978
	12.087V	5.035V	3.338V	4.978V	582.933				53.03°C	230.29V
10	42.441A	8.942A	8.898A	2.514A	600.057	92.188%	3025	37.6	45.69°C	0.980
	12.084V	5.033V	3.337V	4.973V	650.905				55.37°C	230.29V
11	47.419A	8.945A	8.904A	2.515A	660.084	91.853%	3529	41.7	46.78°C	0.982
	12.081V	5.032V	3.336V	4.970V	718.627				57.58°C	230.28V
CL1	0.135A	14.001A	13.999A	0.000A	119.055	86.584%	1133	10.4	41.99°C	0.907
	12.109V	5.046V	3.341V	5.018V	137.502				48.04°C	230.29V
CL2	50.005A	1.002A	0.997A	1.000A	617.634	92.676%	3053	37.7	45.87°C	0.981
	12.084V	5.034V	3.341V	4.998V	666.444				55.91°C	230.28V

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Anex

Corsair SF600 Platinum (Sample #5)

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	1.197A	0.496A	0.478A	0.199A	19.598	70.058%	0	<6.0	0.541
	12.107V	5.049V	3.349V	5.035V	27.974				230.32V
2	2.447A	0.991A	0.984A	0.398A	39.948	81.593%	0	<6.0	0.691
	12.116V	5.048V	3.349V	5.032V	48.960				230.32V
3	3.638A	1.486A	1.462A	0.597A	59.469	85.785%	0	<6.0	0.788
	12.114V	5.048V	3.348V	5.028V	69.323				230.32V
4	4.891A	1.981A	1.971A	0.796A	79.841	88.170%	0	<6.0	0.852
	12.113V	5.047V	3.348V	5.024V	90.553				230.32V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.3 mV	6.3 mV	10.4 mV	9.8 mV	Pass
20% Load	12.2 mV	7.6 mV	11.1 mV	10.9 mV	Pass
30% Load	11.5 mV	7.0 mV	11.3 mV	10.8 mV	Pass
40% Load	12.2 mV	7.0 mV	11.2 mV	11.4 mV	Pass
50% Load	18.4 mV	7.5 mV	11.6 mV	12.5 mV	Pass
60% Load	23.4 mV	8.1 mV	12.1 mV	13.1 mV	Pass
70% Load	19.8 mV	8.9 mV	12.9 mV	12.9 mV	Pass
80% Load	22.7 mV	9.4 mV	14.2 mV	13.9 mV	Pass
90% Load	25.7 mV	9.3 mV	13.9 mV	15.0 mV	Pass
100% Load	33.0 mV	9.7 mV	15.5 mV	16.7 mV	Pass
110% Load	36.4 mV	10.5 mV	15.8 mV	17.5 mV	Pass
Crossload 1	19.9 mV	10.1 mV	15.0 mV	8.6 mV	Pass
Crossload 2	32.8 mV	8.7 mV	13.6 mV	18.3 mV	Pass

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Anex

Corsair SF600 Platinum (Sample #5)

Top side

Power specifications table

CERTIFICATIONS 115V

CYBENETICS PLATINUM

CYBENETICS A

CERTIFICATIONS 230V

CYBENETICS PLATINUM 230v

CYBENETICS A 230v

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