Anex

Corsair SF600 Platinum (Sample #4)

Lab ID#: 504
Receipt Date: -
Test Date: -

Report:
Report Date: Oct 19, 2018

DUT INFORMATION

Brand	Corsair
Manufacturer (OEM)	Great Wall
Series	SF Platinum
Model Number	SF600 Platinum (Sample #4)
Serial Number	1831485100006293004
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

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				

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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RESULTS	
Temperature Range (°C /°F)	30-32 / 86-89.6
Average Efficiency	90.350
Efficiency With 10W (≤500W) or 2% (>500W) Load -115V	63.680
Average Efficiency 5VSB	83.156
Standby Power Consumption (W) -115V	0.0492972
Standby Power Consumption (W) -230V	0.0770647
Average PF	0.983
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	22.99
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A

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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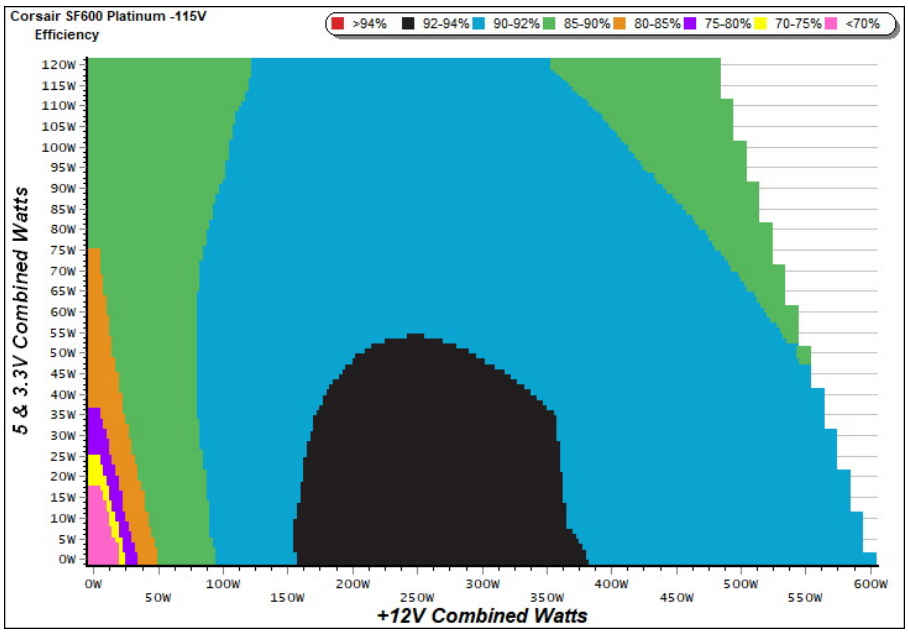
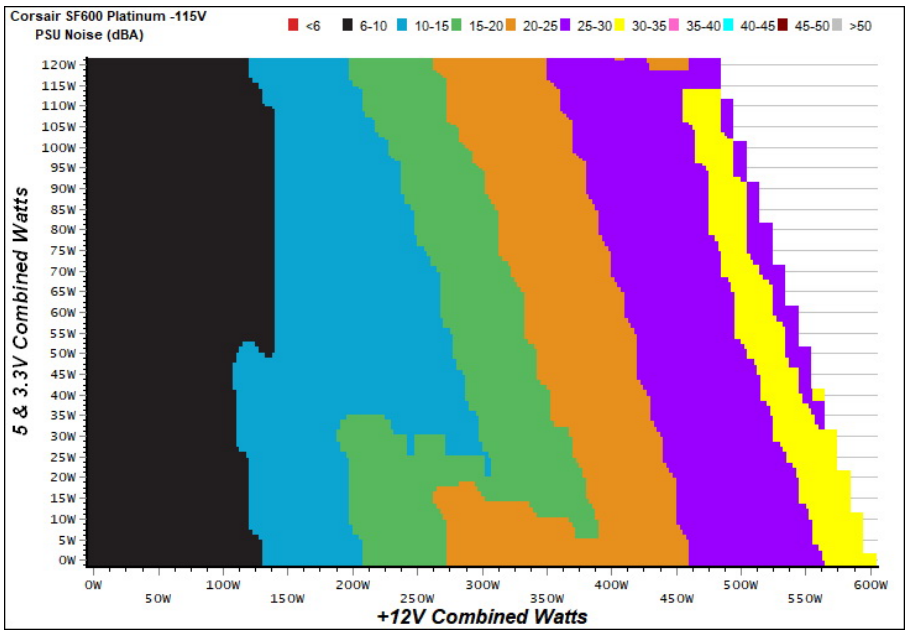
EFFICIENCY GRAPH



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



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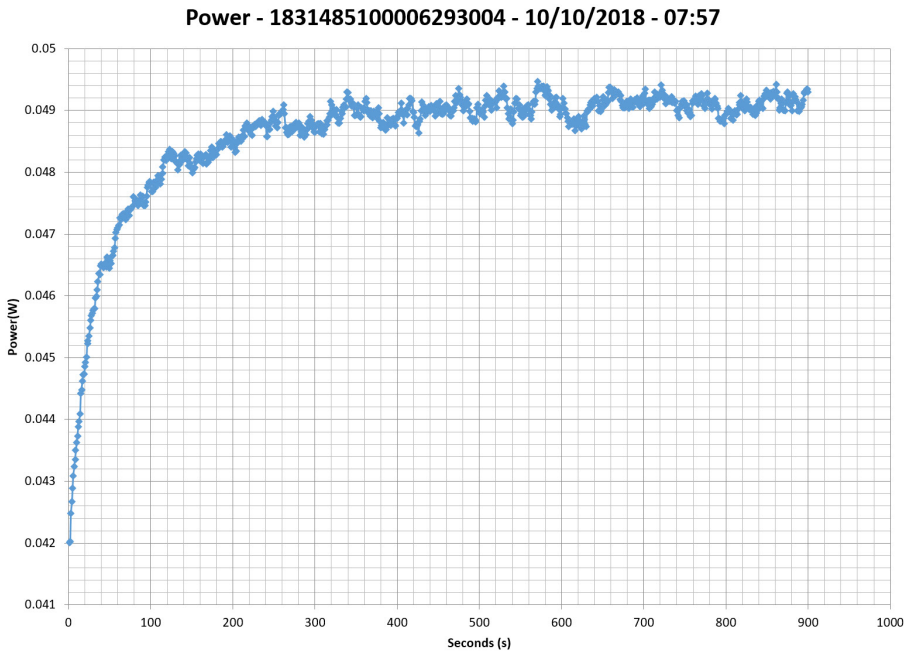
5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.227	64.857%	0.051
	5.032V	0.350		115.06V
2	0.090A	0.453	70.124%	0.091
	5.031V	0.646		115.06V
3	0.550A	2.764	85.072%	0.310
	5.024V	3.249		115.06V
4	1.000A	5.018	84.993%	0.391
	5.017V	5.904		115.06V
5	1.500A	7.515	83.891%	0.435
	5.009V	8.958		115.06V
6	2.500A	12.485	83.910%	0.473
	4.993V	14.879		115.06V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.227	56.750%	0.018
	5.031V	0.400		230.19V
2	0.090A	0.453	64.530%	0.031
	5.031V	0.702		230.19V
3	0.550A	2.764	82.879%	0.135
	5.024V	3.335		230.20V
4	1.000A	5.017	84.518%	0.212
	5.017V	5.936		230.20V
5	1.500A	7.514	84.332%	0.273
	5.009V	8.910		230.20V
6	2.500A	12.484	84.494%	0.341
	4.993V	14.775		230.20V

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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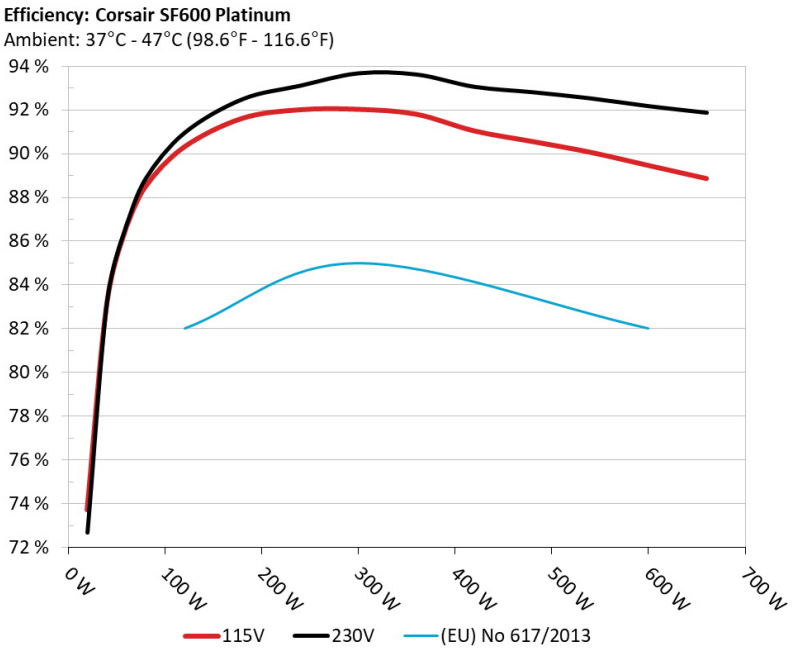
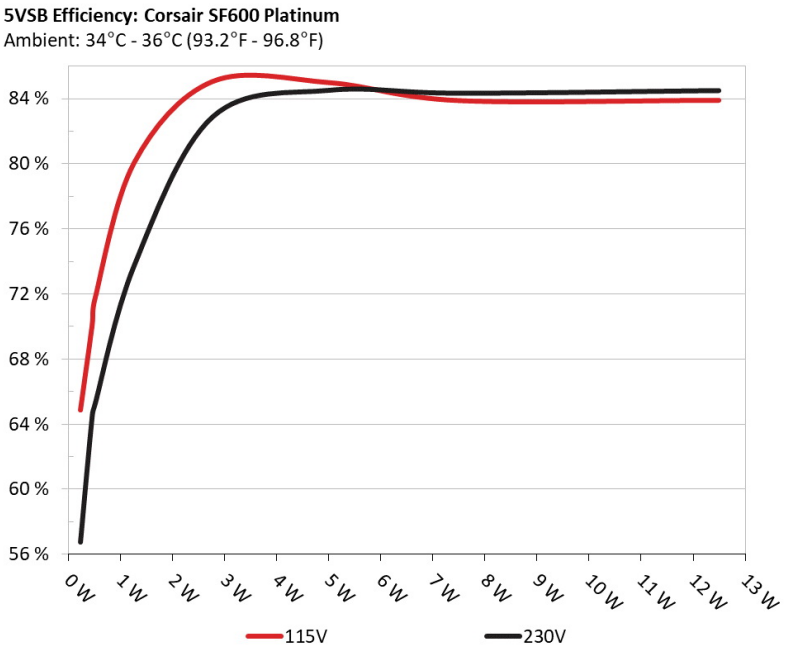
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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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10-110% LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	3.185A	1.980A	1.966A	0.998A	60.090	86.236%	0	<6.0	43.89°C	0.960
	12.085V	5.053V	3.354V	5.011V	69.681				40.16°C	115.06V
2	7.354A	2.969A	2.952A	1.199A	119.767	90.292%	0	<6.0	44.75°C	0.959
	12.085V	5.052V	3.352V	5.004V	132.644				40.73°C	115.06V
3	11.886A	3.467A	3.432A	1.401A	179.676	91.603%	0	<6.0	46.15°C	0.975
	12.087V	5.050V	3.351V	4.997V	196.146				41.53°C	115.05V
4	16.423A	3.960A	3.941A	1.603A	239.680	92.001%	1369	15.3	41.71°C	0.984
	12.086V	5.049V	3.349V	4.990V	260.518				46.84°C	115.05V
5	20.625A	4.955A	4.931A	1.806A	299.769	92.019%	1372	15.3	42.20°C	0.989
	12.085V	5.048V	3.347V	4.983V	325.767				47.68°C	115.05V
6	24.827A	5.946A	5.920A	2.010A	359.866	91.799%	1518	18.7	42.69°C	0.992
	12.086V	5.046V	3.345V	4.976V	392.017				48.89°C	115.05V
7	28.993A	6.939A	6.910A	2.214A	419.576	91.039%	1700	21.7	43.19°C	0.993
	12.088V	5.045V	3.343V	4.969V	460.874				50.55°C	115.05V
8	33.230A	7.933A	7.902A	2.419A	480.092	90.549%	1963	25.7	43.75°C	0.994
	12.088V	5.043V	3.341V	4.961V	530.200				51.53°C	115.04V
9	37.798A	8.432A	8.385A	2.421A	539.418	90.064%	2436	32.2	44.25°C	0.995
	12.088V	5.042V	3.339V	4.958V	598.930				52.32°C	115.04V
10	42.438A	8.930A	8.900A	2.525A	600.116	89.455%	2968	37.6	45.02°C	0.996
	12.086V	5.040V	3.337V	4.952V	670.861				53.62°C	115.04V
11	47.408A	8.933A	8.908A	2.526A	660.140	88.860%	3358	40.4	46.55°C	0.996
	12.085V	5.039V	3.334V	4.949V	742.897				55.93°C	115.04V
CL1	0.139A	14.003A	14.000A	0.000A	119.409	86.133%	1076	9.0	42.05°C	0.962
	12.102V	5.054V	3.354V	5.014V	138.633				47.90°C	115.06V
CL2	50.010A	1.002A	0.998A	1.000A	617.884	90.002%	2896	36.4	45.00°C	0.996
	12.088V	5.039V	3.338V	4.982V	686.525				53.37°C	115.04V

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20-80W LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.197A	0.495A	0.476A	0.199A	19.568	73.730%	0	<6.0	0.834
	12.088V	5.054V	3.356V	5.027V	26.540				115.06V
2	2.462A	0.990A	0.986A	0.398A	40.043	83.180%	0	<6.0	0.912
	12.078V	5.053V	3.353V	5.022V	48.140				115.06V
3	3.652A	1.484A	1.461A	0.598A	59.511	86.659%	0	<6.0	0.960
	12.079V	5.053V	3.353V	5.018V	68.673				115.07V
4	4.909A	1.980A	1.970A	0.798A	79.910	88.494%	0	<6.0	0.953
	12.080V	5.052V	3.353V	5.013V	90.300				115.06V

RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.2 mV	5.8 mV	4.2 mV	10.0 mV	Pass
20% Load	9.9 mV	6.6 mV	4.9 mV	12.1 mV	Pass
30% Load	12.5 mV	7.0 mV	5.5 mV	12.8 mV	Pass
40% Load	15.2 mV	7.4 mV	5.9 mV	12.6 mV	Pass
50% Load	19.4 mV	8.6 mV	7.1 mV	12.7 mV	Pass
60% Load	23.9 mV	9.4 mV	7.9 mV	13.7 mV	Pass
70% Load	22.5 mV	9.9 mV	8.2 mV	13.7 mV	Pass
80% Load	25.2 mV	10.8 mV	9.2 mV	15.5 mV	Pass
90% Load	27.1 mV	11.3 mV	9.9 mV	17.1 mV	Pass
100% Load	31.2 mV	12.7 mV	11.4 mV	19.1 mV	Pass
110% Load	33.5 mV	13.4 mV	11.5 mV	20.7 mV	Pass
Crossload 1	13.5 mV	12.9 mV	10.9 mV	6.3 mV	Pass
Crossload 2	30.2 mV	9.1 mV	7.4 mV	21.0 mV	Pass

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HOLD-UP TIME & POWER OK SIGNAL (230V)	
Hold-Up Time (ms)	17.4
AC Loss to PWR_OK Hold Up Time (ms)	15.0
PWR_OK Inactive to DC Loss Delay (ms)	2.4

Top side

Power specifications table

CERTIFICATIONS