

Anex

Corsair HX1000

Lab ID#: 125

Receipt Date: -

Test Date: -

Report:

Report Date: Jun 14, 2018

DUT INFORMATION	
Brand	Corsair
Manufacturer (OEM)	Channel Well Technology
Series	HX
Model Number	HX1000
Serial Number	17177139000027060047
DUT Notes	CP-9020139

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	13-6.5
Rated Frequency (Hz)	47-63
Rated Power (W)	1000
Type	ATX12V
Cooling	135mm Fluid Dynamic Bearing Fan (NR135P)
Semi-Passive Operation	✓
Cable Design	Fully Modular

POWER SPECIFICATIONS						
Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	83.3	3	0.8
	Watts	150		1000	15	9.6
Total Max. Power (W)		1000				

CABLES AND CONNECTORS				
Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	16-20AWG	Yes
4+4 pin EPS12V (650mm)	2	2	18AWG	Yes
6+2 pin PCIe (670mm+100mm)	4	8	16-18AWG	Yes
SATA (450mm+115mm+115mm+115mm)	2	8	18AWG	No
SATA (450mm+110mm+110mm+110mm)	2	8	18AWG	No
4 pin Molex (450mm+100mm+100mm+100mm)	2	8	18AWG	No
FDD Adapter (+100mm)	1	1	20AWG	No
AC Power Cord (1420mm) - C13 coupler	1	1	14AWG	-

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General Data	
Manufacturer (OEM)	CWT
Platform Model	-
Primary Side	
Transient Filter	6x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Diode
Bridge Rectifier(s)	2x VISHAY LVB2560 (600V, 25A @ 105°C)
APFC MOSFETS	2x Infineon IPA50R140CP (550V, 15A @ 100°C, 0.14Ω)
APFC Boost Diode	1x CREE C3D10060A (600V, 10A @ 153°C)
Hold-up Cap(s)	1x Chemi-Con (400V, 680uF, 2000h @ 105°C, GG) 1x Chemi-Con (400V, 470uF, 2000h @ 105°C, KMW)
Main Switchers	2x Vishay SIHG33N60E (650V, 21A @ 100°C, 0.099Ω)
APFC Controller	Texas Instruments UCC28070 & CM03X
LLC Resonant Controller	Infineon ICE2HS01G
Topology	Primary side: Half-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	10x Infineon BSC014N04LS (40V, 100A @ 100°C, 1.4mΩ)
5V & 3.3V	DC-DC Converters: 6x Ubiq QM3004D (30V, 40A @ 100°C, 8.5mΩ) PWM Controller: 1x APW7159C
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (1-5,000 @ 105°C, KZE), Nippon Chemi-Con (4-10,000 @ 105°C, KY) Polymers: Nippon Chemi-Con, FPCAP
Supervisor IC	Weltrend WT7502 (OVP, UVP, PG, SCP), 2x Weltrend WT7518 (OCP, PG, SCP)
Fan Model	NR135P (135mm, 12V, 0.22A, Fluid Dynamic Bearing)
Fan Controller	Microchip PIC16F1503
5VSB Circuit	
Mosfet / Rectifier	1x M03N65D / 1x MBRU2045CT SBR (45V, 20A @ 125°C)
Standby PWM Controller	On-Bright OB5269CP

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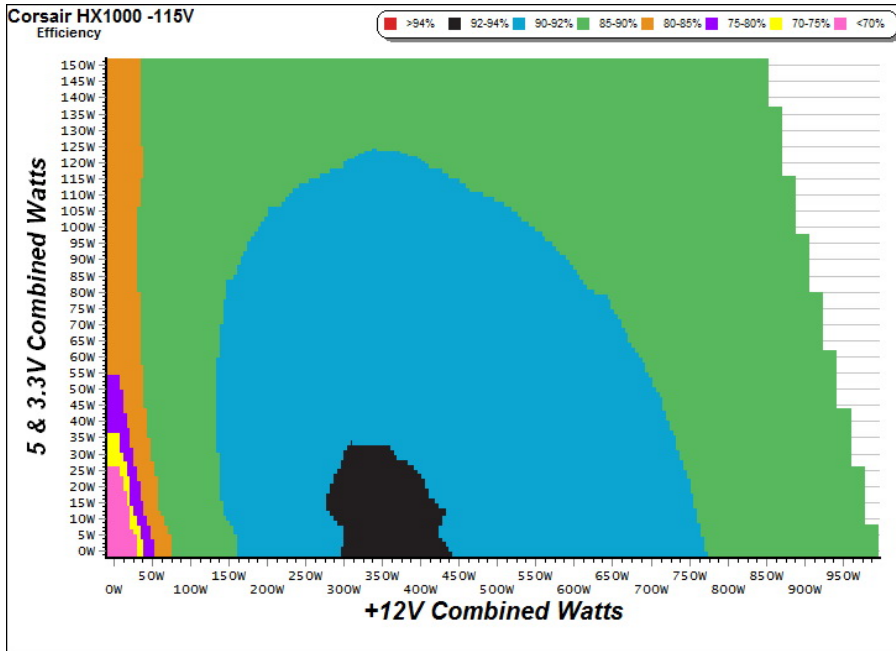
RESULTS	
Temperature Range (°C /°F)	30-32 / 86-89.6
Average Efficiency	89.285
Efficiency With 10W (≤500W) or 2% (>500W) Load -115V	0.000
Average Efficiency 5VSB	79.503
Standby Power Consumption (W) -115V	0.0463731
Standby Power Consumption (W) -230V	0.0815414
Average PF	0.994
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	23.61
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A

TEST EQUIPMENT		
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, Chroma 61604	
Power Analyzers	N4L PPA1530, 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 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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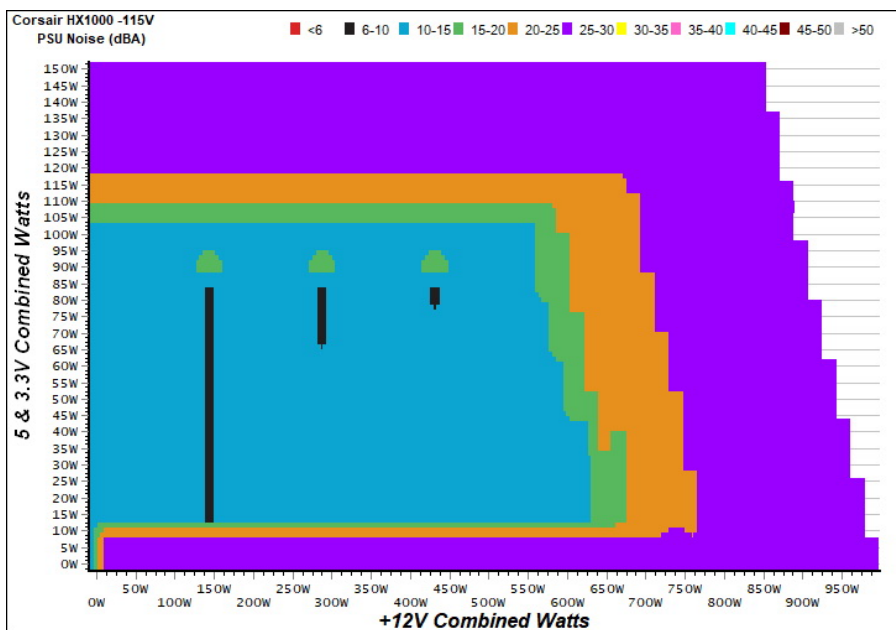
EFFICIENCY GRAPH



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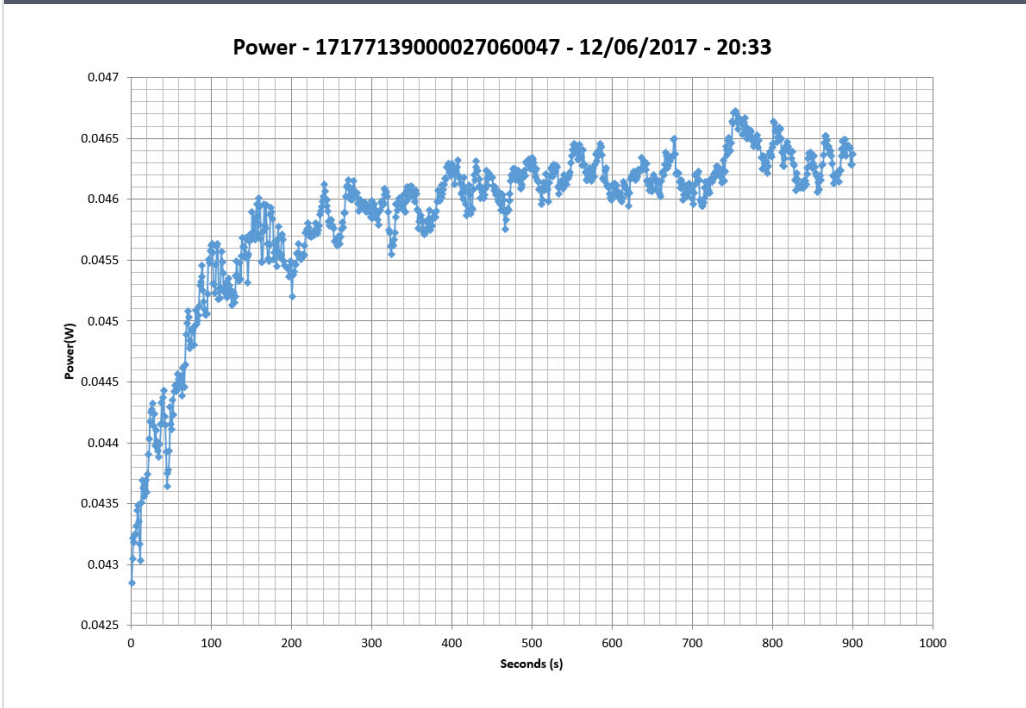
5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.210	70.000%	0.030
	5.040V	0.300		115.14V
2	0.087A	0.439	76.215%	0.057
	5.039V	0.576		115.14V
3	0.542A	2.726	80.295%	0.274
	5.028V	3.395		115.10V
4	1.002A	5.029	80.029%	0.391
	5.018V	6.284		115.12V
5	1.502A	7.521	79.790%	0.456
	5.008V	9.426		115.12V
6	3.002A	14.936	78.322%	0.530
	4.976V	19.070		115.12V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.210	61.947%	0.010
	5.041V	0.339		230.39V
2	0.087A	0.439	70.692%	0.019
	5.040V	0.621		230.40V
3	0.542A	2.727	79.021%	0.100
	5.029V	3.451		230.36V
4	1.002A	5.029	79.889%	0.171
	5.019V	6.295		230.37V
5	1.501A	7.521	80.036%	0.234
	5.009V	9.397		230.38V
6	3.001A	14.938	79.386%	0.354
	4.977V	18.817		230.38V

VAMPIRE POWER -115V



INFO

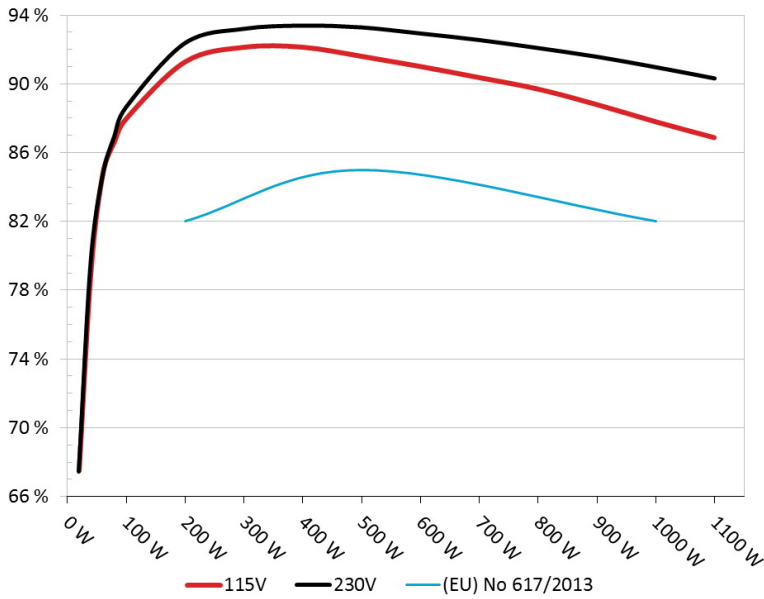
This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Corsair HX1000

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



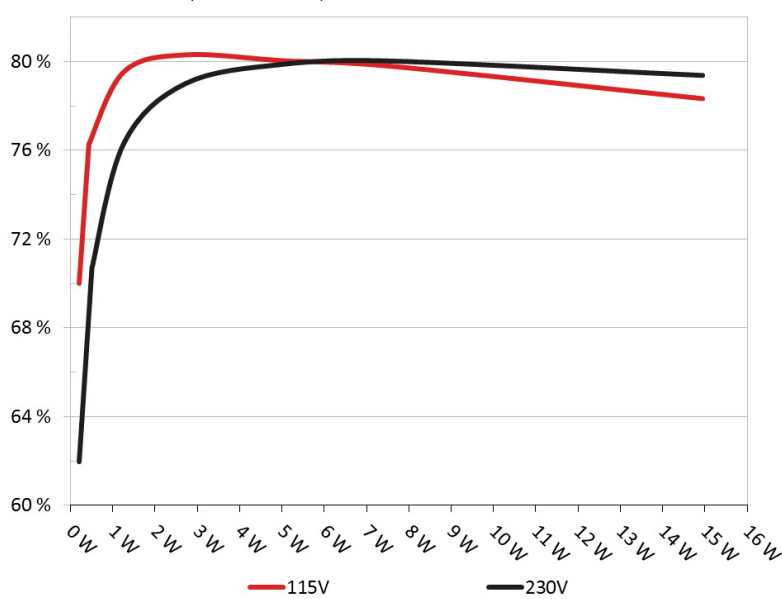
INFO

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 HX1000

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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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	6.477A	1.998A	1.998A	1.001A	99.835	87.999%	0	<6.0	45.56°C	0.972
	12.078V	5.015V	3.298V	4.991V	113.450				39.33°C	115.18V
2	13.993A	2.990A	3.003A	1.201A	199.669	91.302%	0	<6.0	46.58°C	0.991
	12.064V	5.010V	3.294V	4.984V	218.691				40.38°C	115.17V
3	21.890A	3.498A	3.522A	1.405A	299.871	92.153%	0	<6.0	47.18°C	0.995
	12.050V	5.007V	3.291V	4.976V	325.406				40.94°C	115.17V
4	29.785A	3.400A	4.013A	1.608A	399.683	92.155%	0	<6.0	48.26°C	0.996
	12.036V	5.002V	3.287V	4.970V	433.707				42.01°C	115.17V
5	37.367A	4.999A	5.023A	1.811A	499.652	91.626%	0	<6.0	49.15°C	0.998
	12.021V	4.998V	3.283V	4.963V	545.314				42.77°C	115.16V
6	44.960A	6.011A	6.035A	2.015A	599.608	91.034%	700	15.6	42.99°C	0.998
	12.007V	4.991V	3.279V	4.954V	658.666				56.47°C	115.16V
7	52.569A	7.016A	7.052A	2.220A	699.532	90.385%	840	19.1	43.29°C	0.998
	11.993V	4.988V	3.275V	4.946V	773.946				57.72°C	115.15V
8	60.200A	8.028A	8.070A	2.426A	799.450	89.717%	950	24.6	44.22°C	0.998
	11.978V	4.983V	3.270V	4.939V	891.078				59.64°C	115.15V
9	68.280A	8.538A	8.597A	2.430A	899.428	88.817%	1060	26.5	45.38°C	0.998
	11.963V	4.979V	3.267V	4.937V	1012.678				62.80°C	115.15V
10	76.123A	9.055A	9.098A	3.050A	999.258	87.817%	1200	30.2	45.46°C	0.998
	11.948V	4.975V	3.264V	4.917V	1137.884				63.95°C	115.15V
11	84.594A	9.060A	9.106A	3.051A	1099.182	86.891%	1280	32.2	46.57°C	0.998
	11.933V	4.971V	3.261V	4.913V	1265.019				66.53°C	115.15V
CL1	0.099A	18.028A	18.000A	0.004A	150.105	83.097%	1030	25.4	45.57°C	0.986
	12.058V	4.989V	3.275V	5.019V	180.638				60.94°C	115.17V
CL2	83.247A	1.004A	1.002A	1.002A	1008.319	88.177%	1170	29.7	46.34°C	0.998
	11.953V	4.987V	3.277V	4.967V	1143.523				64.66°C	115.15V

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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	1.206A	0.492A	0.481A	0.196A	19.621	67.507%	0	<6.0	0.832
	12.090V	5.019V	3.302V	5.012V	29.065				115.18V
2	2.443A	0.991A	0.999A	0.395A	39.774	79.118%	0	<6.0	0.916
	12.087V	5.017V	3.300V	5.006V	50.272				115.18V
3	3.675A	1.488A	1.512A	0.598A	59.853	84.781%	0	<6.0	0.963
	12.084V	5.017V	3.299V	5.001V	70.597				115.18V
4	4.900A	1.997A	1.998A	0.801A	79.798	86.657%	0	<6.0	0.969
	12.080V	5.015V	3.298V	4.996V	92.084				115.18V

RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	3.6 mV	4.7 mV	5.5 mV	5.1 mV	Pass
20% Load	4.5 mV	5.3 mV	6.6 mV	5.6 mV	Pass
30% Load	5.2 mV	5.8 mV	7.3 mV	6.8 mV	Pass
40% Load	6.2 mV	6.1 mV	7.7 mV	7.9 mV	Pass
50% Load	5.7 mV	6.1 mV	8.8 mV	8.6 mV	Pass
60% Load	6.1 mV	6.4 mV	9.7 mV	9.8 mV	Pass
70% Load	6.8 mV	7.3 mV	10.5 mV	11.2 mV	Pass
80% Load	7.9 mV	8.1 mV	12.1 mV	12.8 mV	Pass
90% Load	9.3 mV	8.6 mV	13.9 mV	14.2 mV	Pass
100% Load	11.9 mV	11.3 mV	16.4 mV	17.3 mV	Pass
110% Load	14.4 mV	12.2 mV	17.0 mV	19.4 mV	Pass
Crossload 1	6.8 mV	8.9 mV	10.7 mV	8.4 mV	Pass
Crossload 2	11.3 mV	11.0 mV	15.2 mV	16.3 mV	Pass

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HOLD-UP TIME & POWER OK SIGNAL (230V)	
Hold-Up Time (ms)	27.46
AC Loss to PWR_OK Hold Up Time (ms)	18.06
PWR_OK Inactive to DC Loss Delay (ms)	9.40



Top side



Power specifications label

CERTIFICATIONS



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