Anex

Corsair HX750

Lab ID#: 118
Receipt Date: -
Test Date: -

Report:
Report Date: Jan 6, 2018

DUT INFORMATION

Brand	Corsair
Manufacturer (OEM)	Channel Well Technology
Series	HX
Model Number	HX750
Serial Number	17027124000027040223
DUT Notes	CP-9020137

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	47-63
Rated Power (W)	750
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	62.5	3	0.8
	Watts	150		750	15	9.6
Total Max. Power (W)		750				

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 (680mm+100mm)	2	4	16-18AWG	Yes
SATA (500mm+115mm+115mm+115mm)	2	8	18AWG	No
SATA (500mm+110mm+110mm+110mm)	2	8	18AWG	No
4 pin Molex (450mm+100mm+100mm+100mm)	1	4	18AWG	No
FDD Adapter (+100mm)	1	1	20AWG	No
AC Power Cord (1420mm) - C13 coupler	1	1	16AWG	-

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General Data	
Manufacturer (OEM)	CWT
Platform Model	Custom made for Corsair
Primary Side	
Transient Filter	6x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Diode
Bridge Rectifier(s)	2x
APFC MOSFETS	2x Infineon IPA50R140CP (550V, 15A @ 100°C, 0.14Ohm)
APFC Boost Diode	1x CREE C3D08060A (600V, 8A @ 152°C)
Hold-up Cap(s)	2x Chemi-Con (400V, 470uF & 390uF, 2000h @ 105°C, KMW)
Main Switchers	2x Infineon IPA50R140CP (550V, 15A @ 100°C, 0.14Ohm)
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	6x Infineon BSC014N04LS (40V, 100A @ 100°C, 1.4mOhm)
5V & 3.3V	DC-DC Converters: 3x Ubiq QM3004D (30V, 40A @ 100°C, 8.5mOhm), 3x Ubiq QM3006D (30V, 50A @ 100°C, 5.5m 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 ISD04N65A (650V, 4A, 2.5Ohm), 1x QM3004D (30V, 40A @ 100°C, 8.5mOhm), 1x MBRU2045CT SBR (45V, 20A @
Standby PWM Controller	On-Bright OB5269CP

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RESULTS	
Temperature Range (°C /°F)	30-32 / 86-89.6
Average Efficiency	89.315
Efficiency With 10W (≤500W) or 2% (>500W) Load -115V	0.000
Average Efficiency 5VSB	79.668
Standby Power Consumption (W) -115V	0.0445682
Standby Power Consumption (W) -230V	0.0791833
Average PF	0.994
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	20.99
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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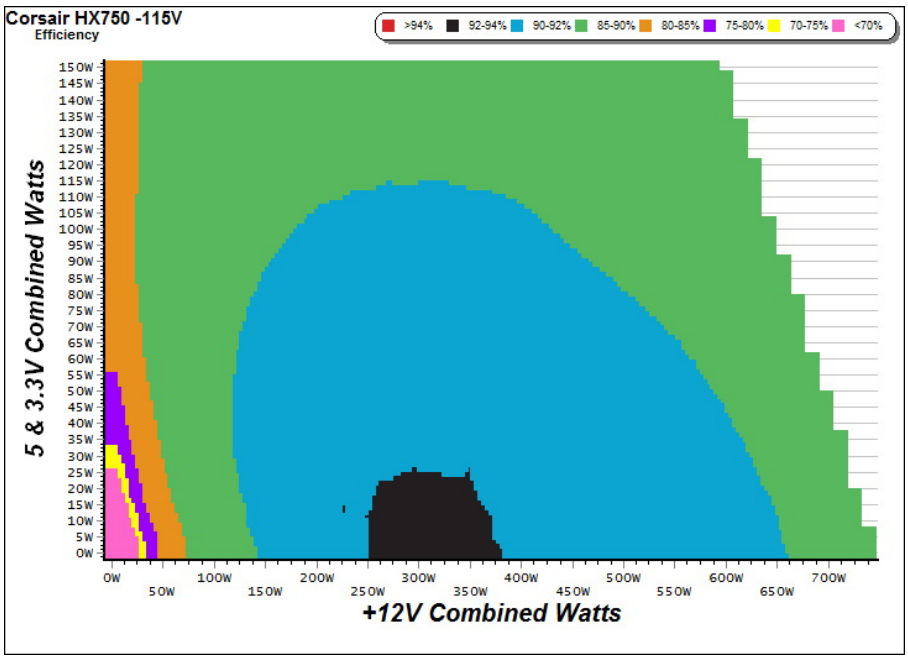
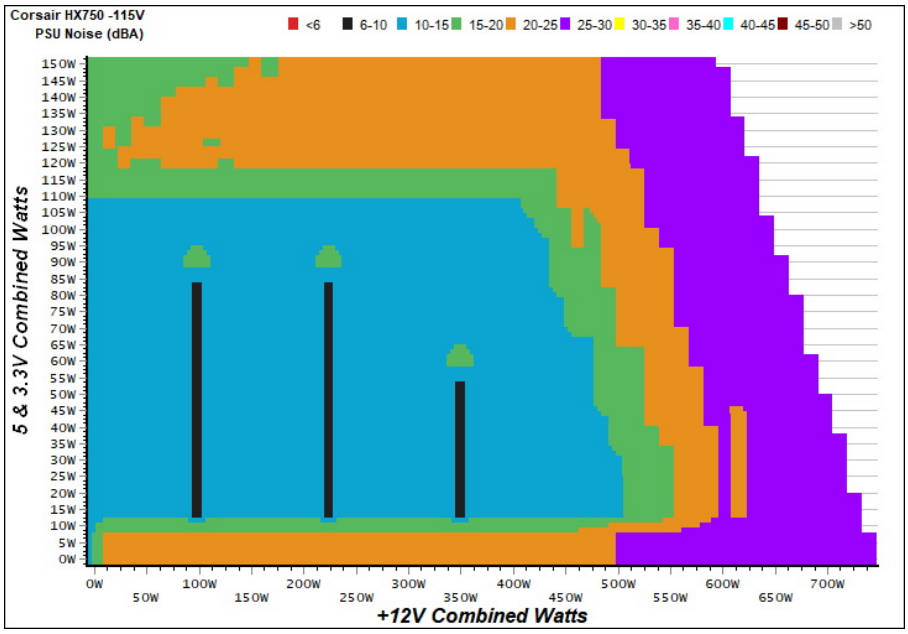
EFFICIENCY GRAPH



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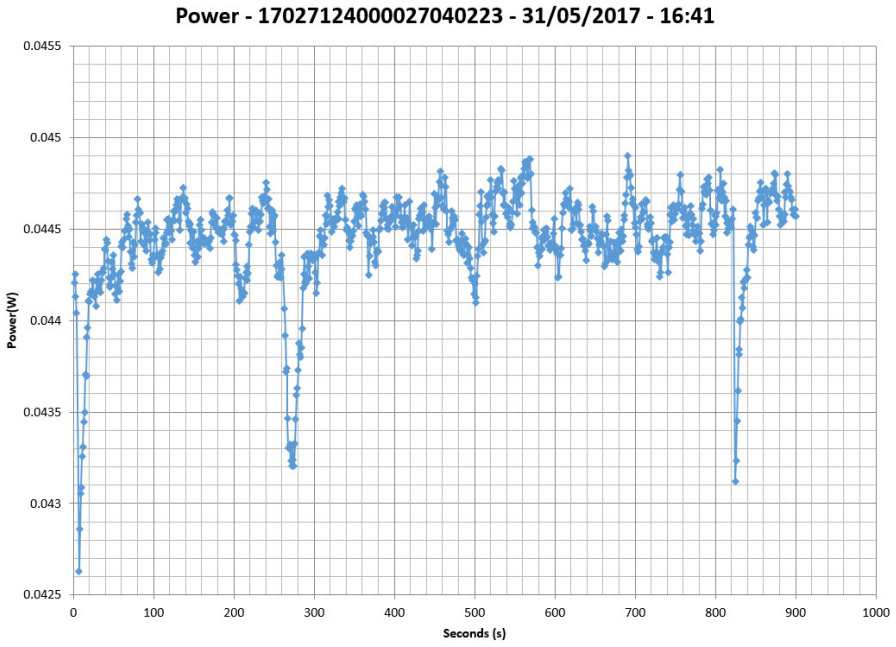
5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.212	70.432%	0.030
	5.058V	0.301		115.15V
2	0.088A	0.443	76.644%	0.057
	5.057V	0.578		115.16V
3	0.542A	2.738	80.648%	0.270
	5.049V	3.395		115.16V
4	1.002A	5.050	80.363%	0.387
	5.039V	6.284		115.16V
5	1.502A	7.552	80.187%	0.453
	5.029V	9.418		115.15V
6	3.002A	14.998	78.941%	0.522
	4.996V	18.999		115.14V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.213	61.919%	0.010
	5.057V	0.344		230.34V
2	0.088A	0.443	70.654%	0.019
	5.057V	0.627		230.34V
3	0.543A	2.739	78.956%	0.099
	5.048V	3.469		230.33V
4	1.003A	5.051	80.035%	0.169
	5.038V	6.311		230.34V
5	1.502A	7.552	80.119%	0.232
	5.028V	9.426		230.34V
6	3.002A	14.998	79.913%	0.351
	4.996V	18.768		230.34V

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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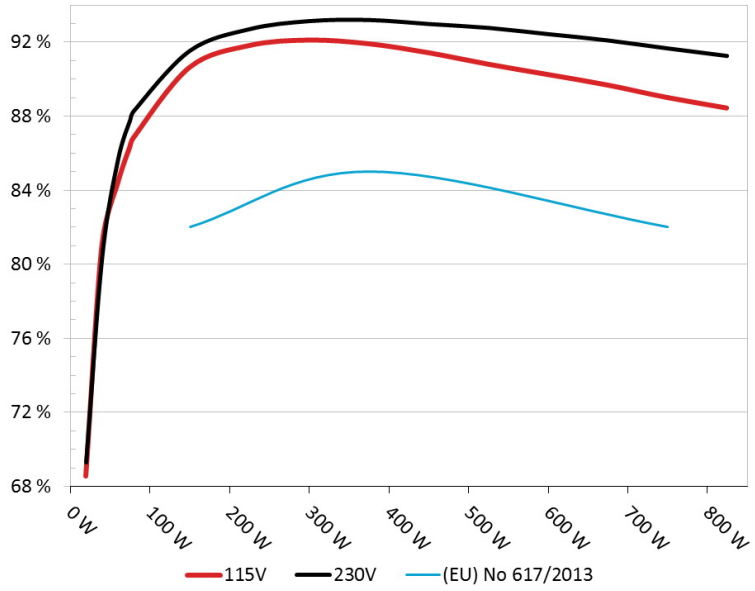
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Corsair HX750
Ambient: 37°C - 46°C (98.6°F - 114.8°F)

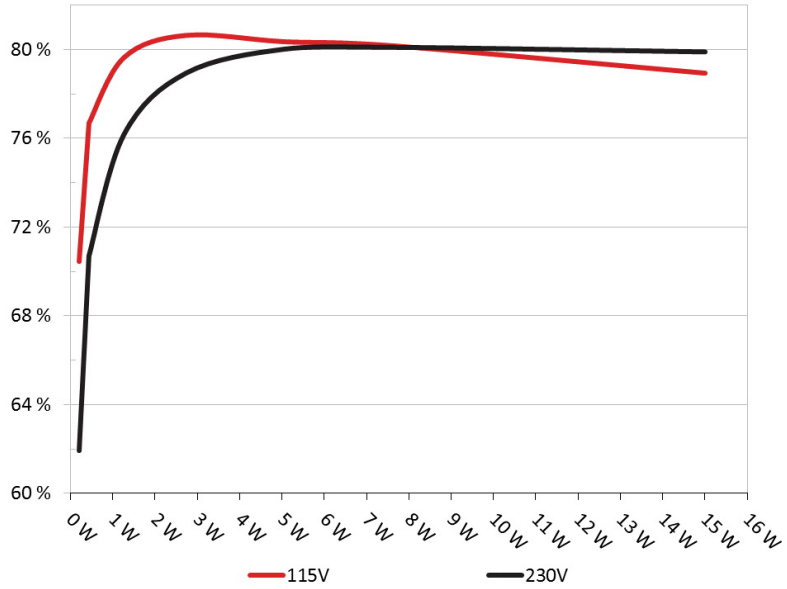


INFO

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 HX750
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	4.435A	1.995A	1.995A	0.999A	74.852	86.349%	0	<6.0	46.59°C	0.966
	12.007V	5.019V	3.305V	5.000V	86.685				38.10°C	115.14V
2	9.920A	2.988A	2.993A	1.201A	149.811	90.650%	0	<6.0	47.86°C	0.988
	11.990V	5.015V	3.303V	4.995V	165.264				38.65°C	115.14V
3	15.772A	3.497A	3.512A	1.401A	224.925	91.835%	0	<6.0	48.58°C	0.994
	11.972V	5.011V	3.300V	4.989V	244.924				38.86°C	115.14V
4	21.630A	3.996A	3.999A	1.606A	299.805	92.130%	0	<6.0	50.08°C	0.995
	11.956V	5.007V	3.298V	4.982V	325.414				39.52°C	115.13V
5	27.166A	4.990A	5.003A	1.805A	374.718	91.934%	0	<6.0	52.31°C	0.997
	11.937V	5.003V	3.296V	4.976V	407.595				40.45°C	115.13V
6	32.707A	6.005A	6.007A	2.011A	449.722	91.449%	710	14.7	40.92°C	0.998
	11.922V	4.997V	3.294V	4.970V	491.774				53.36°C	115.12V
7	38.272A	7.014A	7.015A	2.215A	524.684	90.829%	730	13.1	41.33°C	0.998
	11.904V	4.990V	3.293V	4.964V	577.661				54.21°C	115.12V
8	43.849A	8.027A	8.023A	2.420A	599.645	90.271%	900	20.7	42.23°C	0.998
	11.887V	4.986V	3.290V	4.956V	664.270				55.67°C	115.11V
9	49.878A	8.533A	8.546A	2.421A	674.695	89.702%	1050	25.9	43.55°C	0.998
	11.871V	4.981V	3.288V	4.953V	752.149				57.71°C	115.11V
10	55.672A	9.053A	9.039A	3.036A	749.610	89.029%	1170	29.7	44.71°C	0.998
	11.853V	4.976V	3.285V	4.937V	841.985				59.54°C	115.10V
11	62.084A	9.060A	9.049A	3.040A	824.500	88.460%	1260	31.4	45.99°C	0.998
	11.835V	4.971V	3.282V	4.934V	932.061				61.27°C	115.10V
CL1	0.100A	18.026A	18.002A	0.005A	151.066	83.694%	845	19.1	44.08°C	0.990
	11.974V	4.992V	3.325V	5.050V	180.499				51.94°C	115.14V
CL2	62.457A	1.004A	1.004A	1.002A	753.774	89.514%	1130	28.0	44.28°C	0.998
	11.856V	4.990V	3.278V	4.973V	842.073				52.97°C	115.11V

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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	1.213A	0.493A	0.481A	0.196A	19.635	68.556%	0	<6.0	0.840
	12.024V	5.023V	3.305V	5.019V	28.641				115.14V
2	2.457A	0.990A	0.998A	0.396A	39.782	81.006%	0	<6.0	0.931
	12.018V	5.021V	3.305V	5.013V	49.110				115.14V
3	3.700A	1.487A	1.508A	0.596A	59.878	84.421%	0	<6.0	0.954
	12.012V	5.020V	3.305V	5.008V	70.928				115.14V
4	4.933A	1.996A	1.995A	0.796A	79.826	86.872%	0	<6.0	0.969
	12.007V	5.019V	3.305V	5.005V	91.889				115.14V

RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	5.2 mV	5.0 mV	6.0 mV	4.4 mV	Pass
20% Load	6.0 mV	6.0 mV	6.4 mV	4.7 mV	Pass
30% Load	6.6 mV	6.1 mV	7.0 mV	5.1 mV	Pass
40% Load	7.6 mV	6.4 mV	7.0 mV	5.5 mV	Pass
50% Load	8.3 mV	6.7 mV	7.6 mV	7.2 mV	Pass
60% Load	9.4 mV	7.7 mV	8.7 mV	6.8 mV	Pass
70% Load	7.7 mV	8.3 mV	8.9 mV	7.7 mV	Pass
80% Load	8.1 mV	8.4 mV	9.7 mV	8.3 mV	Pass
90% Load	8.3 mV	9.5 mV	10.6 mV	9.3 mV	Pass
100% Load	10.8 mV	10.8 mV	12.2 mV	10.4 mV	Pass
110% Load	11.5 mV	11.2 mV	12.7 mV	11.5 mV	Pass
Crossload 1	9.2 mV	10.4 mV	9.2 mV	7.6 mV	Pass
Crossload 2	10.1 mV	8.8 mV	11.6 mV	7.9 mV	Pass

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HOLD-UP TIME & POWER OK SIGNAL (230V)	
Hold-Up Time (ms)	28.08
AC Loss to PWR_OK Hold Up Time (ms)	18.58
PWR_OK Inactive to DC Loss Delay (ms)	9.50

Top side

Power specifications label

CERTIFICATIONS