EFFICIENCY AND NOISE LEVEL CERTIFICATIONS

Anex

Corsair CX450M

Lab ID#: 108
Receipt Date: -
Test Date: -

Report: 20PS108A
Report Date: Dec 5, 2000

DUT INFORMATION

Brand	Corsair
Manufacturer (OEM)	Channel Well Technology
Series	CXM
Model Number	CX450M
Serial Number	15477157000022290009
DUT Notes	CP-9020101

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	6-3
Rated Frequency (Hz)	47-63
Rated Power (W)	450
Type	ATX12V
Cooling	120mm Sleeve Bearing Fan (HA1225H12S-Z)
Semi-Passive Operation	✗
Cable Design	Semi Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	37.4	3	0.8
	Watts	110		448.8	15	9.6
Total Max. Power (W)		450				

CABLES AND CONNECTORS

Native Cables			
Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (600mm)	1	1	16-22AWG
4+4 pin EPS12V (650mm)	1	1	18AWG
Modular Cables			
6+2 pin PCIe (600mm+150mm)	1	2	16-18AWG
SATA (350mm+120mm+120mm+120mm)	1	4	18AWG
4 pin Molex (450mm+100mm+100mm) / FDD (+100mm)	1	3 / 1	18-22AWG

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RESULTS	
Temperature Range (°C /°F)	30-32 / 86-89.6
Average Efficiency	85.032
Efficiency With 10W (≤500W) or 2% (>500W) Load -115V	0.000
Average Efficiency 5VSB	78.991
Standby Power Consumption (W) -115V	0.0381528
Standby Power Consumption (W) -230V	0.0535146
Average PF	0.993
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	26.19
Efficiency Rating (ETA)	GOLD
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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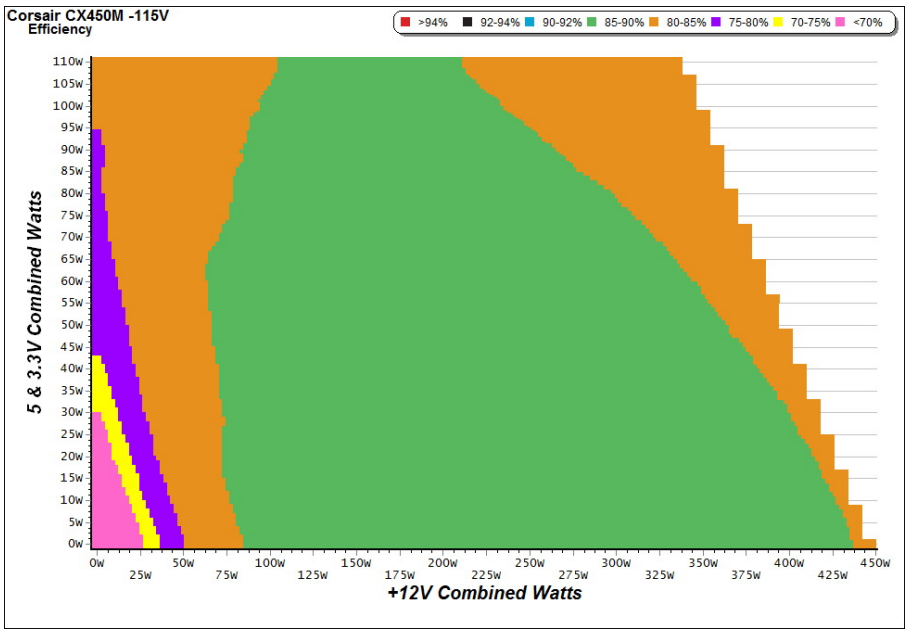
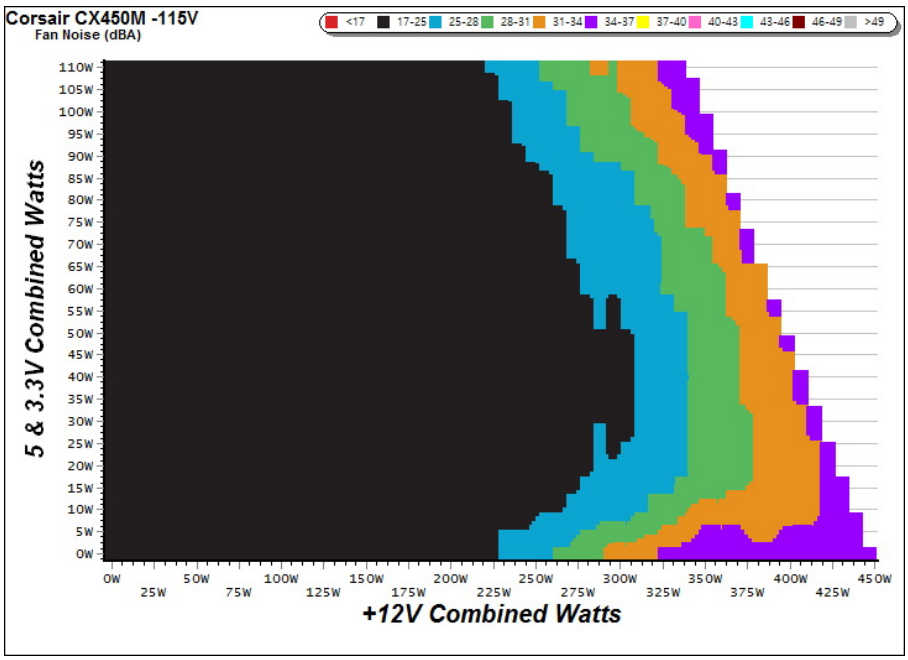
EFFICIENCY GRAPH



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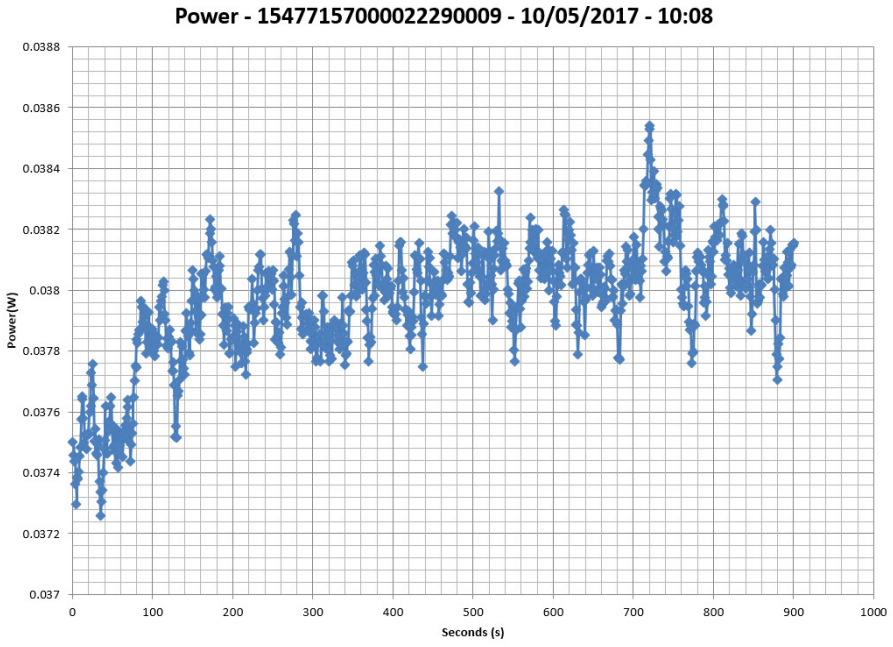
5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.210	70.946%	0.031
	5.009V	0.296		115.09V
2	0.087A	0.438	76.440%	0.059
	5.008V	0.573		115.10V
3	0.532A	2.662	79.724%	0.256
	5.002V	3.339		115.09V
4	1.002A	5.008	79.479%	0.347
	4.996V	6.301		115.11V
5	1.502A	7.494	79.402%	0.394
	4.989V	9.438		115.09V
6	3.001A	14.914	78.215%	0.452
	4.969V	19.068		115.08V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.210	65.831%	0.010
	5.009V	0.319		230.27V
2	0.087A	0.438	73.000%	0.018
	5.008V	0.600		230.27V
3	0.532A	2.661	78.519%	0.096
	5.002V	3.389		230.25V
4	1.002A	5.008	79.065%	0.164
	4.996V	6.334		230.26V
5	1.502A	7.493	79.090%	0.220
	4.989V	9.474		230.26V
6	3.002A	14.913	79.005%	0.316
	4.968V	18.876		230.26V

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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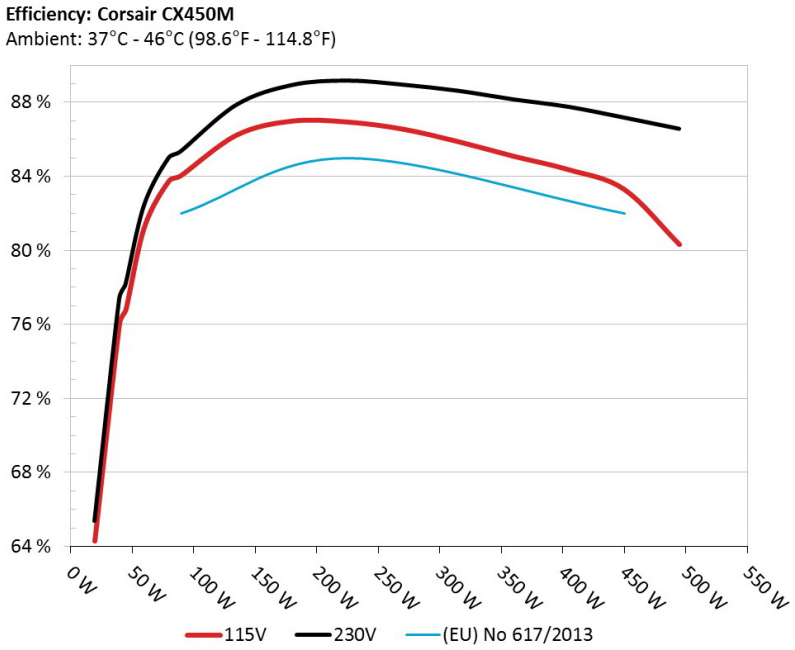
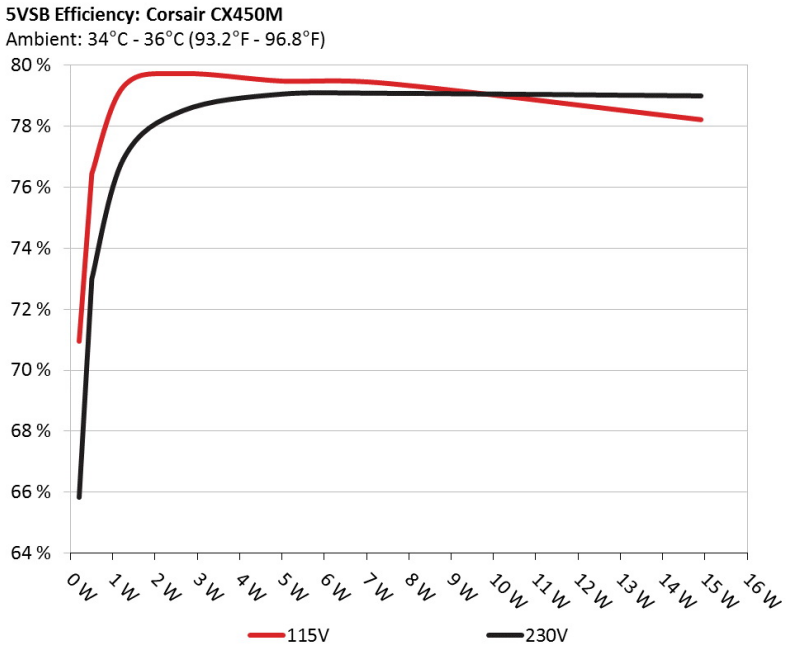
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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)	Fan Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	1.919A	1.986A	2.003A	1.000A	44.831	76.764%	925	20.3	39.23°C	0.969
	12.109V	5.046V	3.290V	4.983V	58.401				43.16°C	115.12V
2	4.872A	2.971A	3.012A	1.207A	89.787	84.031%	925	20.3	39.44°C	0.988
	12.097V	5.036V	3.283V	4.972V	106.850				43.82°C	115.14V
3	8.178A	3.478A	3.535A	1.409A	134.919	86.212%	925	20.3	40.07°C	0.993
	12.086V	5.031V	3.278V	4.963V	156.496				45.49°C	115.12V
4	11.481A	3.978A	4.031A	1.615A	179.804	86.968%	925	20.3	40.30°C	0.996
	12.074V	5.026V	3.273V	4.951V	206.747				46.92°C	115.12V
5	14.448A	4.980A	5.046A	1.822A	224.777	86.921%	1100	22.6	40.94°C	0.997
	12.063V	5.020V	3.268V	4.940V	258.598				48.84°C	115.12V
6	17.428A	5.986A	6.067A	2.024A	269.781	86.536%	1320	27.2	41.06°C	0.998
	12.050V	5.013V	3.262V	4.929V	311.754				49.96°C	115.12V
7	20.408A	6.999A	7.094A	2.236A	314.804	85.860%	1630	33.3	41.94°C	0.996
	12.039V	5.005V	3.255V	4.915V	366.649				51.56°C	115.13V
8	23.396A	8.006A	8.125A	2.446A	359.770	85.073%	1915	37.4	42.90°C	0.996
	12.026V	4.999V	3.249V	4.902V	422.898				53.20°C	115.12V
9	26.822A	8.512A	8.659A	2.451A	404.831	84.341%	2190	42.6	43.85°C	0.996
	12.014V	4.993V	3.245V	4.893V	479.992				54.74°C	115.12V
10	29.993A	9.033A	9.167A	3.073A	449.724	83.285%	2190	42.6	44.87°C	0.995
	12.002V	4.988V	3.240V	4.878V	539.984				58.07°C	115.12V
11	33.776A	9.037A	9.177A	3.077A	494.691	80.306%	2190	42.6	45.87°C	0.977
	11.990V	4.983V	3.236V	4.871V	616.007				62.26°C	115.16V
CL1	0.099A	13.019A	13.002A	0.004A	108.854	81.039%	925	20.3	42.67°C	0.991
	12.089V	5.010V	3.262V	4.962V	134.323				53.48°C	115.13V
CL2	37.475A	1.004A	1.002A	1.001A	463.005	84.046%	2190	42.6	45.10°C	0.995
	12.002V	5.013V	3.260V	4.926V	550.896				57.04°C	115.14V

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20-80W LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	Fan Noise (dB[A])	PF/AC Volts
1	1.207A	0.493A	0.483A	0.199A	19.700	64.299%	925	20.3	0.924
	12.115V	5.052V	3.295V	5.001V	30.638				115.12V
2	2.437A	0.989A	0.999A	0.401A	39.797	76.050%	925	20.3	0.965
	12.110V	5.049V	3.293V	4.994V	52.330				115.12V
3	3.673A	1.477A	1.516A	0.601A	59.894	81.231%	925	20.3	0.980
	12.104V	5.045V	3.290V	4.988V	73.733				115.11V
4	4.895A	1.985A	2.005A	0.801A	79.818	83.725%	925	20.3	0.985
	12.100V	5.042V	3.287V	4.982V	95.333				115.11V

RIPPLE MEASUREMENTS

Ripple Measurements
Corsair CX450M

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.8 mV	7.1 mV	9.9 mV	13.1 mV	Pass
20% Load	12.8 mV	8.3 mV	9.7 mV	15.3 mV	Pass
30% Load	14.7 mV	8.1 mV	11.0 mV	17.2 mV	Pass
40% Load	16.3 mV	8.6 mV	11.1 mV	18.9 mV	Pass
50% Load	37.2 mV	10.4 mV	13.8 mV	22.2 mV	Pass
60% Load	38.7 mV	11.2 mV	14.3 mV	24.3 mV	Pass
70% Load	40.5 mV	11.9 mV	15.5 mV	27.5 mV	Pass
80% Load	41.7 mV	11.9 mV	15.5 mV	30.0 mV	Pass
90% Load	44.0 mV	12.7 mV	15.7 mV	31.3 mV	Pass
100% Load	36.3 mV	14.4 mV	18.0 mV	34.6 mV	Pass
110% Load	38.5 mV	17.5 mV	20.9 mV	38.3 mV	Pass
Crossload 1	13.7 mV	8.8 mV	10.8 mV	18.0 mV	Pass
Crossload 2	36.4 mV	14.5 mV	18.3 mV	36.1 mV	Pass

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HOLD-UP TIME & POWER OK SIGNAL (230V)	
Hold-Up Time (ms)	12.50
AC Loss to PWR_OK Hold Up Time (ms)	9.84
PWR_OK Inactive to DC Loss Delay (ms)	2.66

Top side

Power specifications label

CERTIFICATIONS

CYBENETICS GOLD

CYBENETICS A-