EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH
CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

Zalman EBT 1000W

Lab ID#: 127
Receipt Date: Jun 7, 2018
Test Date: Jun 13, 2018

Report:
Report Date: Jun 15, 2018

DUT INFORMATION

Brand	Zalman
Manufacturer (OEM)	Sirfa
Series	EBT
Model Number	ZM1000-EBT
Serial Number	20758F1000158
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15
Rated Frequency (Hz)	50-60
Rated Power (W)	1000
Type	ATX12V
Cooling	135mm Fluid Dynamic Bearing Fan (RL4Z S1352512H)
Semi-Passive Operation	✗
Cable Design	Fully Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	83.4	4	0.3
	Watts	130		1000	20	3.6
Total Max. Power (W)		1000				

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (550mm)	1	1	16-22AWG
8 pin EPS12V (650mm)	1	1	16AWG
4+4 pin EPS12V (650mm)	1	1	16AWG
6+2 pin PCIe (550mm)	6	6	16AWG
SATA (470mm+150mm+150mm+150mm)	3	12	18AWG
4 pin Molex (450mm+150mm+150mm+150)	1	4	18AWG
4 pin Molex (450mm+150mm+150mm+150) / FDD (+150mm)	1	4 / 1	18-22AWG

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RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	ErP Lot 6 2010: ✓ ErP Lot 6 2013: ✓ ErP Lot 3 2014: Partially
(EU) No 617/2013 Compliance	✓

115V

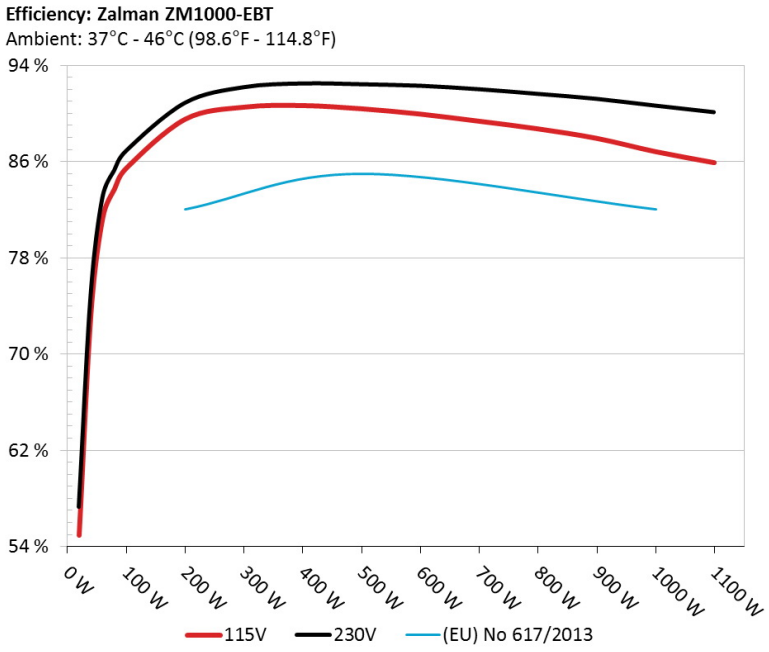
Average Efficiency	88.656%
Efficiency With 10W (≤500W) or 2% (>500W)	0.000
Average Efficiency 5VSB	77.067%
Standby Power Consumption (W)	0.1102720
Average PF	0.966
Avg Noise Output	37.07 dB(A)
Efficiency Rating (ETA)	SILVER
Noise Rating (LAMBDA)	S+

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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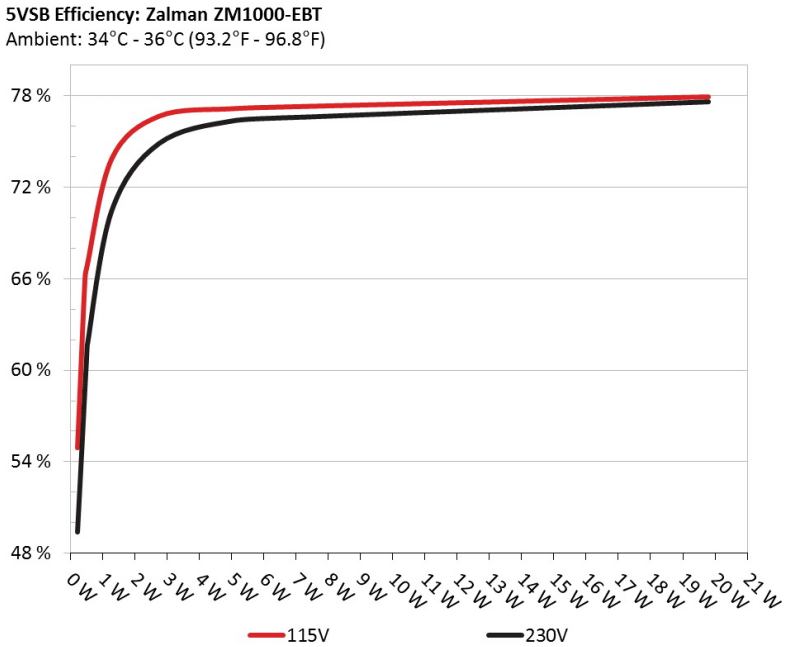
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.212	54.922%	0.054
	5.061V	0.386		115.17V
2	0.088A	0.443	66.021%	0.090
	5.059V	0.671		115.17V
3	0.542A	2.736	76.660%	0.270
	5.045V	3.569		115.16V
4	1.002A	5.045	77.164%	0.320
	5.033V	6.538		115.17V
5	1.502A	7.539	77.323%	0.345
	5.019V	9.750		115.17V
6	4.004A	19.784	77.936%	0.397
	4.941V	25.385		115.16V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.212	49.417%	0.018
	5.061V	0.429		230.38V
2	0.087A	0.442	61.646%	0.031
	5.059V	0.717		230.38V
3	0.542A	2.735	74.870%	0.137
	5.044V	3.653		230.35V
4	1.002A	5.044	76.366%	0.206
	5.032V	6.605		230.36V
5	1.502A	7.537	76.634%	0.253
	5.019V	9.835		230.37V
6	4.002A	19.800	77.614%	0.342
	4.948V	25.511		230.37V

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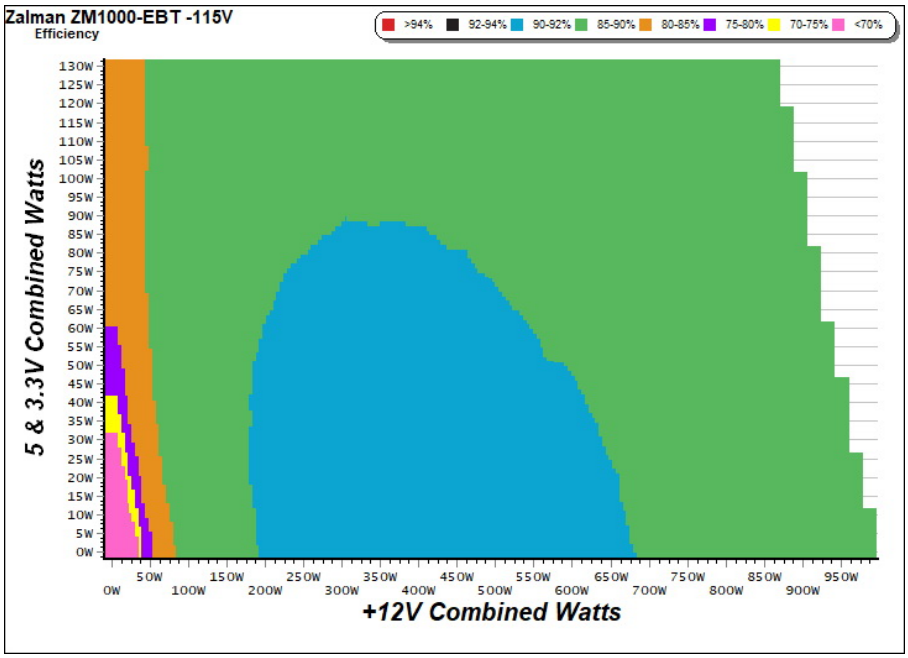
115V

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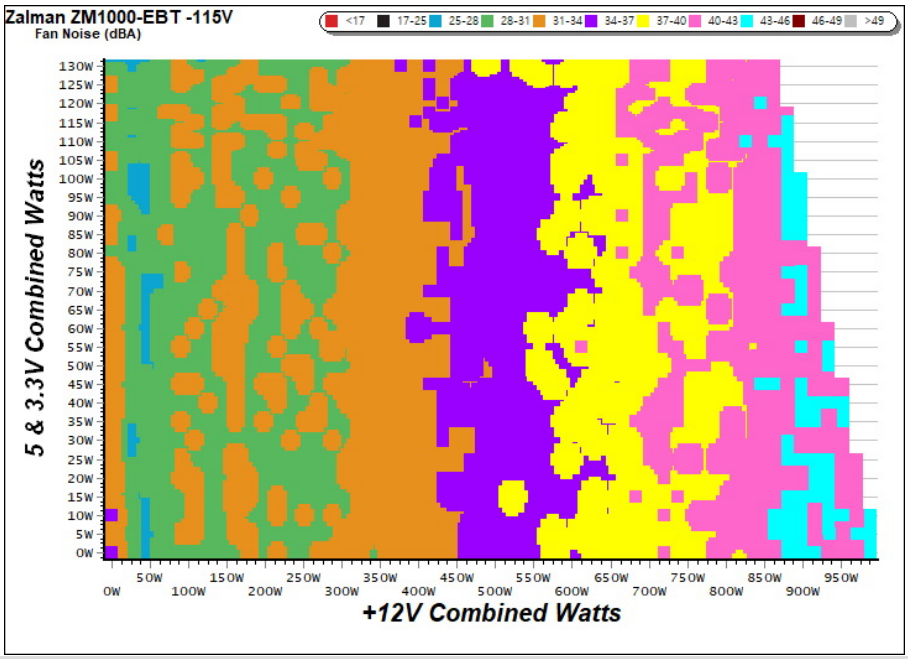
EFFICIENCY GRAPH 115V



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

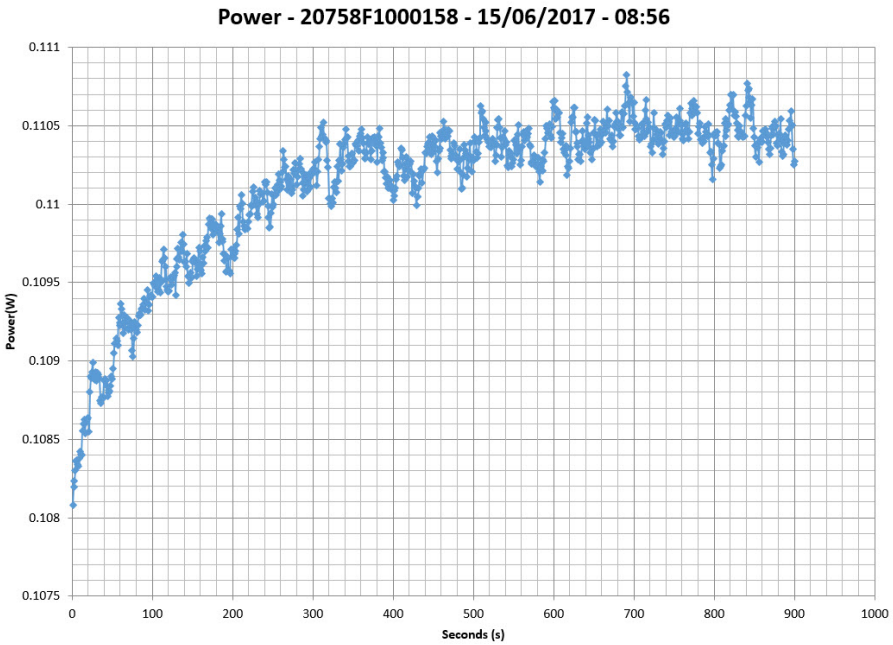
The PSU's noise in its entire operational range and under 30-32 °C (+-2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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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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COMMISSION REGULATION (EU) NO 617/2013 TESTING 115V

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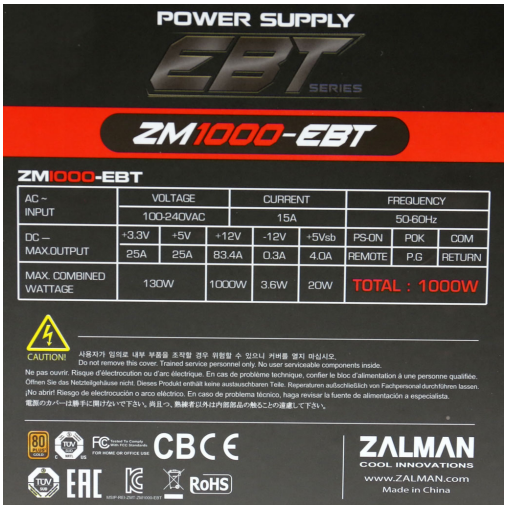
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Top side



Power specifications label

CERTIFICATIONS 115V

CYBENETICS SILVER

CYBENETICS STANDARD+



Aris Mpitsiopoulos
Lab Director

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