

## Anex

Enermax Platimax D.F. 1200W

Lab ID#: 215  
 Receipt Date: Nov 3, 2018  
 Test Date: Nov 11, 2018

Report:  
 Report Date: Nov 13, 2018

DUT INFORMATION	
Brand	Enermax
Manufacturer (OEM)	Channel Well Technology
Series	Platimax D.F.
Model Number	EPF1200EWT
Serial Number	
DUT Notes	

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	14-7
Rated Frequency (Hz)	47-63
Rated Power (W)	1200
Type	ATX12V
Cooling	140mm Twister Bearing Fan (ED142512H-FA)
Semi-Passive Operation	✓
Cable Design	Fully Modular

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 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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### RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

### 115V

Average Efficiency	89.530%
Efficiency With 10W (≤500W) or 2% (>500W)	0.000
Average Efficiency 5VSB	78.557%
Standby Power Consumption (W)	0.0375785
Average PF	0.993
Avg Noise Output	32.33 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	Standard++

### POWER SPECIFICATIONS

Rail		3.3V	5V	12V1	12V2	12V3	12V4	5VSB	-12V
Max. Power	Amps	25	25	25	25	40	40	3	0.3
	Watts	130		1200				15	3.6
Total Max. Power (W)		1200							

### HOLD-UP TIME & POWER OK SIGNAL (230V)

Hold-Up Time (ms)	17.8
AC Loss to PWR_OK Hold Up Time (ms)	15.7
PWR_OK Inactive to DC Loss Delay (ms)	2.1

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### 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	No
4+4 pin EPS12V (700mm)	1	1	16AWG	No
8 pin EPS12V (700mm)	1	1	16AWG	No
6+2 pin PCIe (2x600mm)	3	6	16-20AWG	No
SATA (500mm+150mm+150mm+150mm)	3	12	18AWG	No
4 pin Molex (500mm+140mm+140mm+140mm)	1	4	18AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	No

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General Data	
Manufacturer (OEM)	CWT
Primary Side	
Transient Filter	6x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x Vishay LVB2560 (600V, 25A @ 105°C)
APFC MOSFETS	2x Toshiba TK25A60X (600V, 25A @ 150°C, 0.105Ohm)
APFC Boost Diode	2x CREE C3D06060A (600V, 6A @ 154°C)
Hold-up Cap(s)	2x Nippon Chemi-Con (400V, 470uF, 2000h @ 105°C, KMR)
Main Switchers	4x B21N60EF
Driver ICs	2x Texas Instruments UCC21520
APFC Controller	Texas Instruments UCD3138A (31.25 MHz, 32-bit ARM7TDMI-S Processor, 32KB Flash, 4KB RAM, 3x Feedback loop control, 14-bit DAC, up to 2 MHz switching frequency)
LLC Resonant Controller	Champion CM6901T6X
Topology	Primary side: Interleaved PFC, Full-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	8x Infineon BSC014N06NS (60V, 100A @ 100°C, 1.45mOhm)
5V & 3.3V	DC-DC Converters: 2x UBIQ QM3016D (30V, 68A @ 100°C, 4mOhm) 2x UBIQ QM3006D (30V, 57A @ 100°C, 5.5mOhm) PWM Controller: 1x Anpec APW7159C
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (1-5,000 @ 105°C, KZE), Nippon Chemi-Con (4-10,000 @ 105°C, KY) Polymers: Su' scon, APAQ, Elite
Supervisor IC	Weltrend WT7518 (OCP, PG, SCP) & Weltrend WT751002 (OVP, UVP, PG) & LM358
Fan Model	Enermax ED142512H-FA (140mm, 12V, 0.46A, Twister Bearing)
5VSB Circuit	
Rectifiers	ISD04N65A (650V, 4A, 2.5Ohm), SPN5003 (N-Channel Enhancement Mode FET), & PS1045L SBR
Driver IC	Texas Instruments UCC27324
PWM Controller	On-Bright OB5282CP

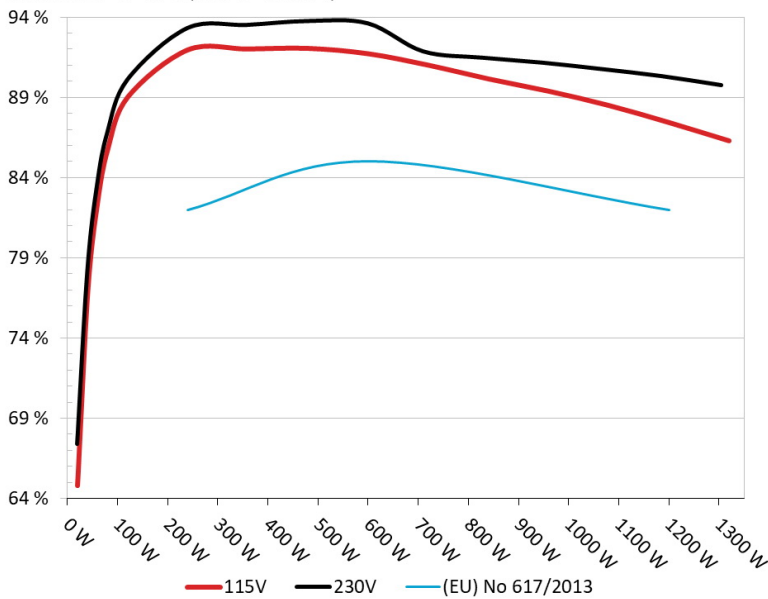
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### EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Enermax EPF1200EWT

Ambient: 37°C - 48°C (98.6°F - 118.4°F)



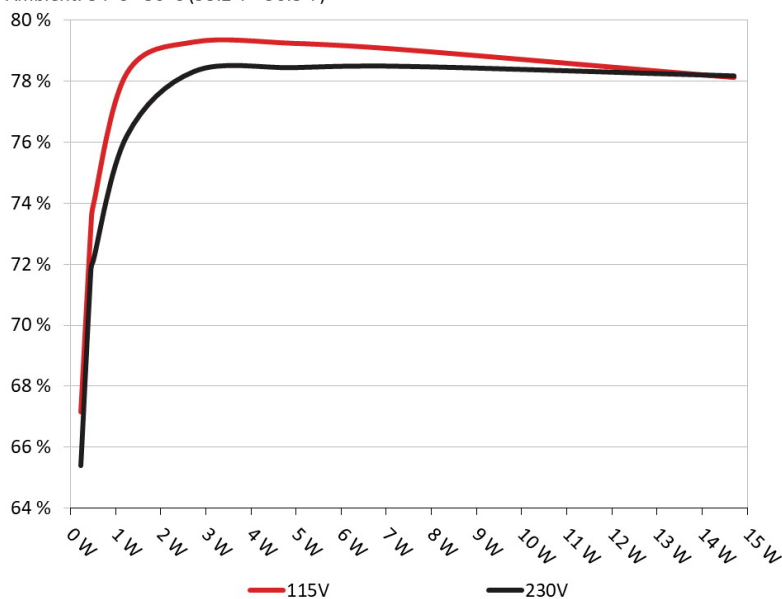
#### INFO

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: Enermax EPF1200EWT

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.225	67.164%	0.025
	4.992V	0.335		115.28V
2	0.090A	0.449	73.246%	0.045
	4.990V	0.613		115.27V
3	0.550A	2.737	79.287%	0.210
	4.976V	3.452		115.27V
4	1.000A	4.962	79.240%	0.303
	4.962V	6.262		115.27V
5	1.500A	7.420	79.029%	0.361
	4.947V	9.389		115.26V
6	3.000A	14.701	78.122%	0.436
	4.901V	18.818		115.26V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.225	65.407%	0.009
	4.992V	0.344		230.84V
2	0.090A	0.449	71.840%	0.016
	4.990V	0.625		230.84V
3	0.550A	2.737	78.312%	0.085
	4.976V	3.495		230.78V
4	1.000A	4.962	78.438%	0.144
	4.962V	6.326		230.83V
5	1.500A	7.421	78.479%	0.198
	4.947V	9.456		230.83V
6	3.000A	14.702	78.165%	0.300
	4.901V	18.809		230.82V

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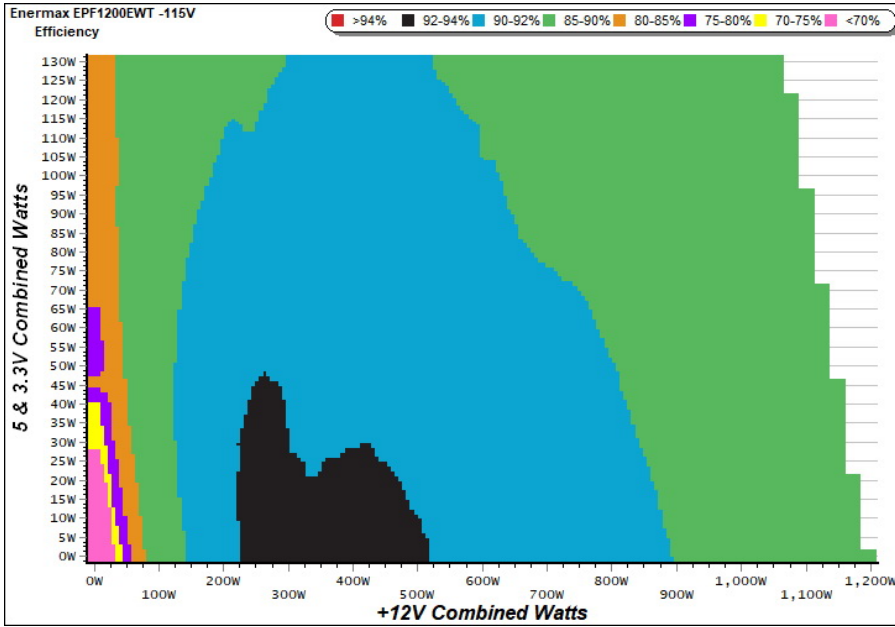
# 115V

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**PAGE 7/12**

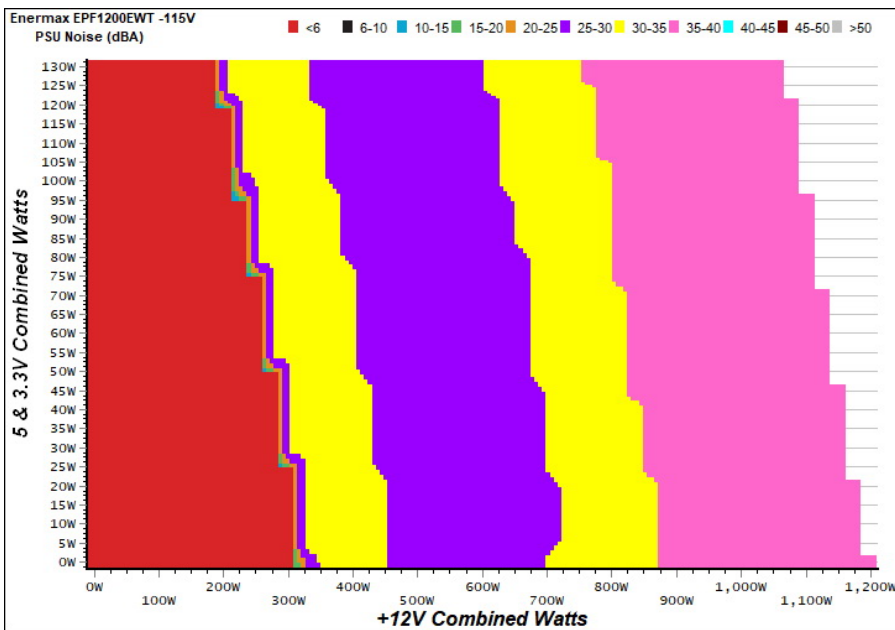
### EFFICIENCY GRAPH 115V



#### 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 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

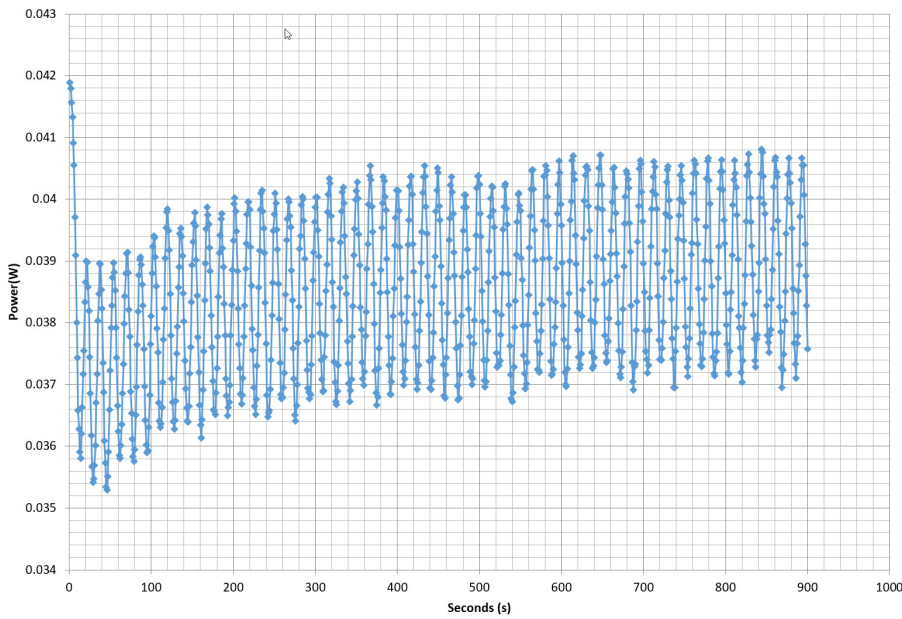
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**VAMPIRE POWER -115V**

**Power 11/11/2017 - 09:35**



**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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### 10-110% LOAD TESTS 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	8.176A	1.968A	1.989A	0.989A	119.994	89.032%	0	<6.0	48.33°C	0.982
	12.035V	5.078V	3.318V	5.058V	134.776				38.18°C	115.22V
2	17.371A	2.955A	2.984A	1.188A	239.713	91.969%	0	<6.0	49.17°C	0.992
	12.021V	5.076V	3.315V	5.054V	260.645				38.54°C	115.05V
3	26.922A	3.450A	3.472A	1.387A	359.197	92.021%	1105	31.8	38.76°C	0.994
	12.005V	5.073V	3.311V	5.047V	390.344				49.81°C	114.98V
4	36.561A	3.945A	3.993A	1.587A	479.649	92.059%	1105	31.8	39.06°C	0.996
	11.992V	5.070V	3.308V	5.041V	521.022				50.49°C	114.85V
5	45.843A	4.934A	4.994A	1.788A	599.801	91.726%	1105	31.8	39.67°C	0.997
	11.982V	5.068V	3.304V	5.036V	653.908				51.40°C	114.74V
6	55.061A	5.923A	5.996A	1.988A	719.933	91.010%	1105	31.8	40.62°C	0.997
	11.989V	5.066V	3.302V	5.031V	791.044				54.33°C	114.66V
7	64.268A	6.914A	7.004A	2.189A	839.688	90.154%	1230	36.5	41.89°C	0.998
	11.990V	5.063V	3.299V	5.026V	931.393				57.89°C	114.48V
8	73.609A	7.906A	8.011A	2.391A	960.183	89.385%	1330	36.0	43.18°C	0.998
	11.979V	5.061V	3.296V	5.021V	1074.210				61.54°C	114.37V
9	83.291A	8.404A	8.504A	2.391A	1079.515	88.503%	1410	37.6	45.35°C	0.998
	11.970V	5.059V	3.293V	5.020V	1219.744				66.55°C	114.16V
10	92.846A	8.903A	9.028A	2.999A	1199.973	87.437%	1410	37.6	46.03°C	0.998
	11.958V	5.056V	3.290V	5.003V	1372.384				71.73°C	114.05V
11	102.952A	8.905A	9.037A	3.000A	1319.896	86.295%	1625	42.1	47.79°C	0.998
	11.949V	5.055V	3.287V	5.001V	1529.516				74.87°C	113.85V
CL1	0.744A	16.005A	15.999A	0.000A	143.069	83.059%	0	0	48.25°C	0.987
	12.031V	5.069V	3.312V	5.112V	172.249				46.09°C	115.15V
CL2	100.011A	1.001A	0.999A	1.000A	1210.027	87.632%	1430	37.1	47.23°C	0.998
	11.965V	5.062V	3.293V	5.038V	1380.807				72.93°C	114.07V

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### 20-80W LOAD TESTS 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.173A	0.491A	0.482A	0.197A	19.355	64.784%	0	<6.0	0.694
	12.157V	5.081V	3.321V	5.076V	29.876				115.34V
2	2.431A	0.983A	0.993A	0.395A	39.835	76.890%	0	<6.0	0.873
	12.152V	5.080V	3.320V	5.072V	51.808				115.31V
3	3.649A	1.475A	1.475A	0.592A	59.310	82.427%	0	<6.0	0.946
	12.037V	5.079V	3.319V	5.067V	71.955				115.28V
4	4.919A	1.968A	1.989A	0.790A	79.797	85.774%	0	<6.0	0.968
	12.035V	5.079V	3.319V	5.064V	93.032				115.26V

### RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	12.9 mV	4.9 mV	5.3 mV	4.0 mV	Pass
20% Load	19.7 mV	6.0 mV	6.9 mV	5.6 mV	Pass
30% Load	28.2 mV	6.7 mV	16.5 mV	8.6 mV	Pass
40% Load	32.9 mV	7.7 mV	18.3 mV	10.5 mV	Pass
50% Load	39.3 mV	8.4 mV	19.4 mV	12.9 mV	Pass
60% Load	29.5 mV	17.1 mV	25.7 mV	20.2 mV	Pass
70% Load	29.4 mV	9.4 mV	24.2 mV	14.7 mV	Pass
80% Load	32.8 mV	10.4 mV	24.9 mV	16.4 mV	Pass
90% Load	35.7 mV	14.0 mV	30.0 mV	21.2 mV	Pass
100% Load	39.8 mV	25.0 mV	39.0 mV	33.0 mV	Pass
110% Load	45.0 mV	27.5 mV	40.4 mV	48.5 mV	Pass
Crossload 1	15.7 mV	10.1 mV	18.8 mV	5.1 mV	Pass
Crossload 2	39.2 mV	27.4 mV	37.0 mV	34.6 mV	Pass

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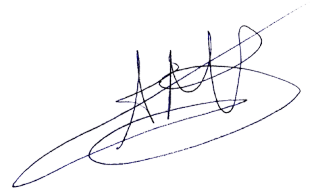


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Power specifications label

**CERTIFICATIONS 115V**

**Aristeidis Bitziopoulos**  
Lab Director

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