Enermax Platimax D.F. 500W

Lab ID 50

Certification ID 2550

Test Result Report ID:

Certificate Issue Date: Jan 26, 2018

115V

Scheme: ETA-EMI PSU

115V

Scheme: LAMBDA PSU

Aristeidis Bitziopoulos, Certification Body General Manager

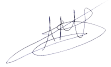
General Information

Test Equipment

Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 Chroma 63640-80-80 x10 Chroma 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P, GW Instek ASR-3500
Power Analyzers	Rohde & Schwarz HMC8015 & NPA701
Oscilloscopes	Picoscope 4444, Siglent SDS2104X PLUS
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Temperature Logger	Picoscope TC-08
Tachometer	UNI-T UT372
Multimeters	Keysight 34465A
EMI Analyzer	TekBox TBMR-110M-EU
Isolation Transformer	4kVA
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Testing Methodology	Cybenetics PSU Test Protocol

DUT Information(Non-accredited measurements)

Product Identification Details	
Brand	Enermax
Model	Platimax D.F. 500W
OEM/ODM	Enermax
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	10
□□□□ (Hz)	47-63

□□□□ (W)	500
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	139mm Twister Bearing Fan (ED142512W-CA)
□□□□□	✗
Cybenetics Testing Information	
Lab ID	50
Date of receipt	Jan 14, 2018
Testing Date	Jan 23, 2018
Report Issued Date	Jan 26, 2018
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□□ (Non-accredited measurements)

□□□□□			
□□	□□□□	□□□□□□	Gauge
ATX □□ 20+4 pin (535mm)	1	1	18-20AWG
4+4 pin EPS 12V □□ (645mm)	2	2	18AWG
6+2pin PCIe□□ (550mm+150mm)	2	4	18AWG
SATA□□ (450mm+155mm+155mm+155mm)	2	8	18AWG
□ 4pin Molex□□ (450mm+150mm+150mm)	2	6	18AWG
□ 4pin □□ (+105mm)	1	1	20AWG

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	16	25	41	2.5	0.3
	□	103		492	12.5	3.6
□□□□□ (W)		500				

Parts Description

General Data	
Manufacturer (OEM)	Fortech Electronics
Platform Model	Similar with Segotep ZP500P-SG
Primary Side	
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Diode
Bridge Rectifier(s)	2x
APFC MOSFETS	1x Infineon IPW60R099C6 (650V, 24A @ 100°C, 0.099Ohm)
APFC Boost Diode	1x SiCSCS210AG (650V, 10A @ 133°C)
Hold-up Cap(s)	1x Chemi-Con (400V, 330uF, 2000h @ 105°C, KMR)
Main Switchers	2x Fairchild FDPF20N50FT (500V, 12.9A @ 100°C, 0.26Ohm)
Combo APFC/PWM Controller	Champion CM6502S
Topology	Primary side: Half-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x Sinopower SM4021NA (40V, 100A @ 100°C, 1.6mOhm)
5V & 3.3V	DC-DC Converters: 4x Sinopower SM3116NAU (30V, 48A @ 100°C, 9.0mOhm) PWM Controller: 2x ANPEC APW7073A
Filtering Capacitors	Electrolytics: Chemi-Con (1-5,000 @ 105°C, KZE), Chemi-Con (4-10,000 @ 105°C, KY) Polymers: Man Yue (Samxon) X-CON ULR, Enesol
Supervisor IC	InfinnoST9S313-SAG (OVP, UVP, SCP, PG)
Fan Model	Enermax ED142512W-CA (139mm, 12V, 0.25A, Twister Bearing)
5VSB Circuit	
Standby PWM Controller	TNY278PN

Test Results

Temperature & Compliance Info

□□□□ (°C /°F)	28-32 / 82.4-89.6
□□ ErP Lot3/6□□	✓
□□ (EU) No 617/2013□□	✓

Performance Summary 115V

Accredited	
□□□□ (>1450 load combinations)	90.554%
Average Noise Output (>1450 Load Combinations)	22.05dBA
PF□□□ (>1450 Load Combinations)	0.976
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
□□□□□□	0.0591W
Non-Accredited	
12V Ripple (Full Load)	41.62mV
5V Ripple (Full Load)	29.51mV
3.3V Ripple (Full Load)	25.35mV
5VSB Ripple (Full Load)	21.29mV
12V Load Regulation	0.40%
5V Load Regulation	1.60%
3.3V Load Regulation	2.53%
5VSB Load Regulation	3.02%
Inrush Current	47.308A

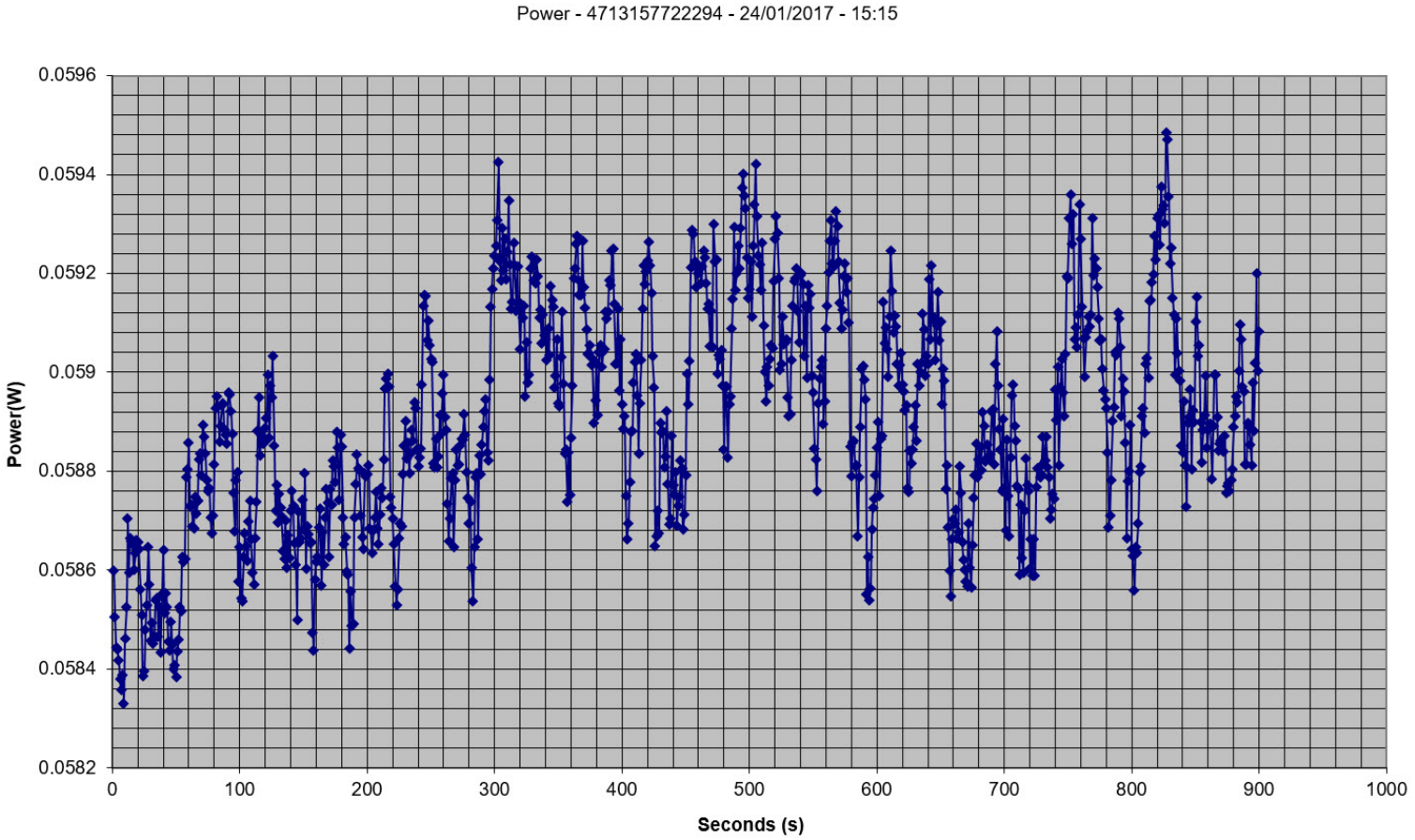
□□□□ & PG□□

Hold-Up Time (ms)	18.4
AC Loss to PWR_OK Hold Up Time (ms)	16.3

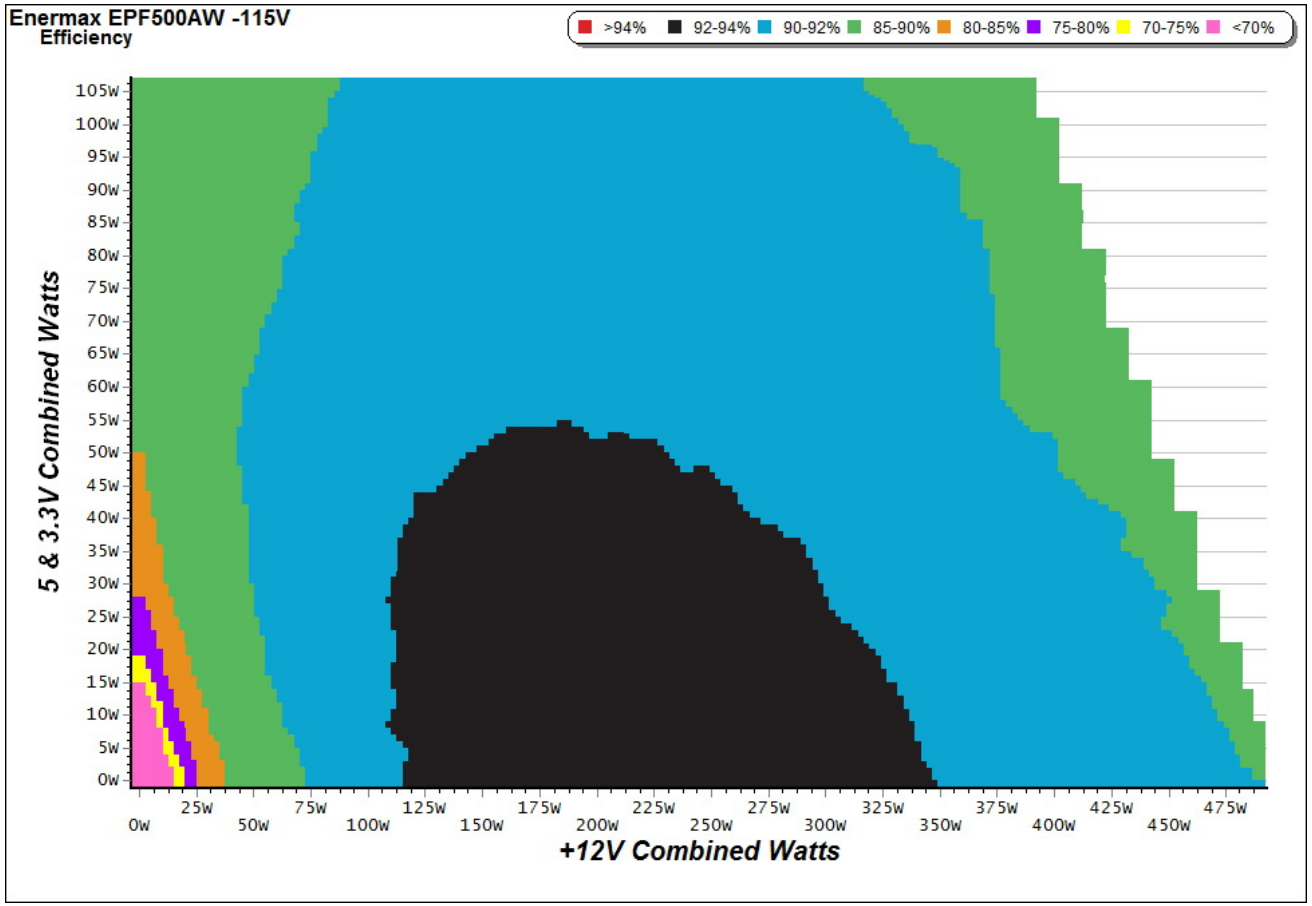
PWR_OK Inactive to DC Loss Delay (ms)	2.1

□□□□

Graphs 115V



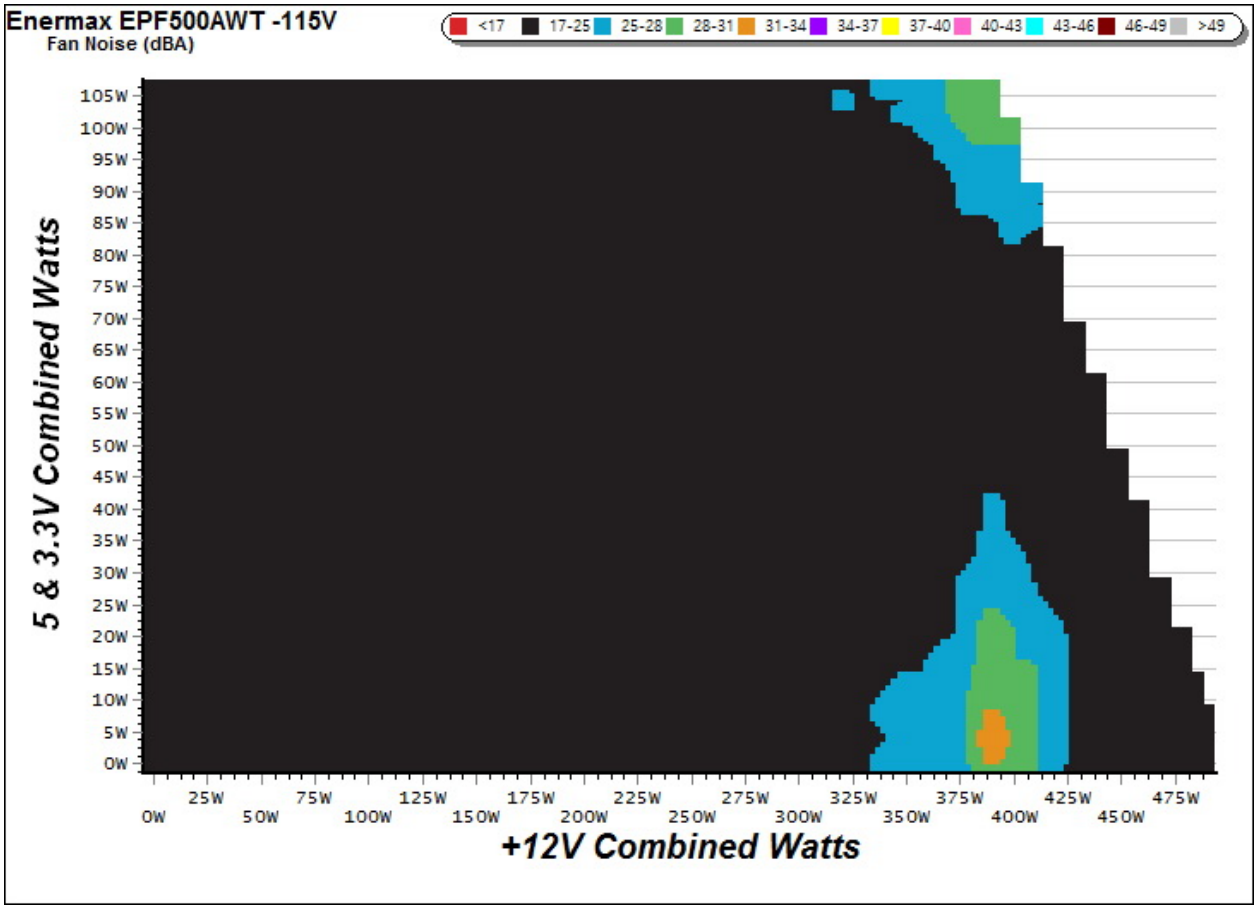
115V



□□

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.

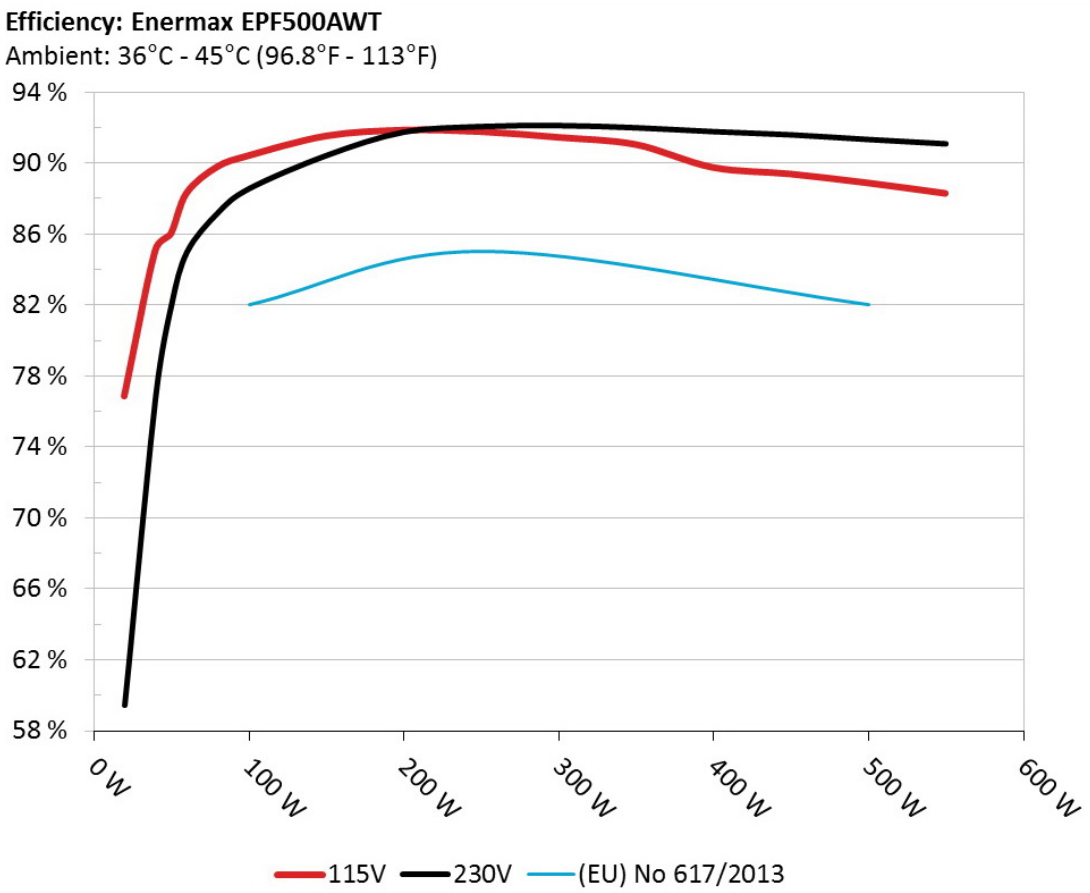
115V



□□

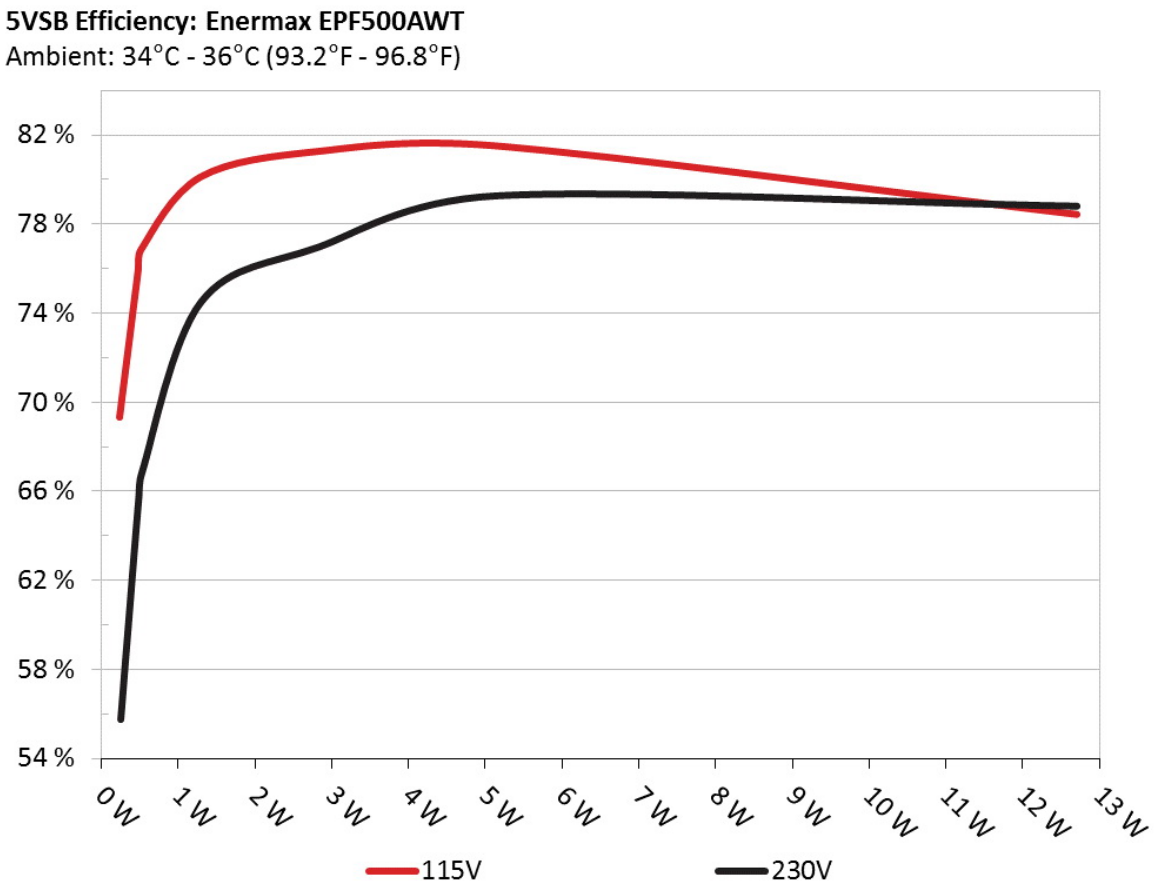
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance



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□□□□



□□

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input.

□□□□ □□ 5Vsb □□ (ErP Lot3/6 & CEC) 115V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.047A	0.242	69.341%	0.029
	5.147V	0.349		115.08V

2	0.093A	0.479	75.791%	0.053
	5.146V	0.632		115.08V
3	0.552A	2.833	81.245%	0.228
	5.133V	3.487		115.08V
4	2.502A	12.703	78.423%	0.421
	5.077V	16.198		115.07V

Supplementary Tests (For Reference)

10-110%□□□□ 115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	2.323A	1.973A	1.963A	0.976A	49.776	86.006%	580	20.8	37.07°C	0.930
	12.140V	5.066V	3.358V	5.109V	57.875				41.44°C	115.05V
2	5.679A	2.958A	2.952A	1.177A	99.758	90.413%	580	20.8	38.46°C	0.963
	12.135V	5.059V	3.348V	5.094V	110.336				43.09°C	115.04V
3	9.384A	3.465A	3.470A	1.376A	149.914	91.522%	580	20.8	39.29°C	0.972
	12.130V	5.052V	3.340V	5.080V	163.801				44.16°C	115.04V
4	13.081A	3.963A	3.959A	1.576A	199.768	91.853%	600	21.4	39.20°C	0.973
	12.124V	5.045V	3.333V	5.066V	217.487				44.62°C	115.04V
5	16.445A	4.970A	4.964A	1.781A	249.787	91.768%	720	24.5	39.58°C	0.976
	12.118V	5.034V	3.322V	5.051V	272.194				45.44°C	115.06V
6	19.806A	5.971A	5.975A	1.985A	299.700	91.446%	920	31.7	40.27°C	0.981
	12.113V	5.024V	3.313V	5.036V	327.734				46.44°C	115.05V
7	23.178A	6.981A	6.990A	2.191A	349.729	91.042%	930	32.1	41.48°C	0.985
	12.107V	5.017V	3.303V	5.021V	384.142				48.22°C	115.07V
8	26.542A	7.991A	8.013A	2.396A	399.654	89.748%	940	32.3	41.99°C	0.990
	12.104V	5.007V	3.293V	5.005V	445.307				50.47°C	115.07V
9	30.346A	8.502A	8.558A	2.402A	449.682	89.381%	940	32.3	42.92°C	0.992
	12.097V	4.999V	3.282V	4.995V	503.106				53.08°C	115.08V
10	34.101A	9.028A	9.064A	2.504A	499.564	88.876%	940	32.3	43.77°C	0.994
	12.092V	4.989V	3.276V	4.984V	562.091				54.59°C	115.08V

11	38.249A	9.038A	9.080A	2.512A	549.573	88.290%	940	32.3	44.78°C	0.995
	12.088V	4.983V	3.269V	4.976V	622.462				59.10°C	115.08V
CL1	0.099A	12.011A	12.003A	0.005A	101.674	86.913%	940	32.3	43.57°C	0.966
	12.139V	5.038V	3.327V	5.107V	116.984				50.52°C	115.08V
CL2	40.958A	1.003A	1.001A	1.003A	508.577	89.619%	940	32.3	44.27°C	0.994
	12.090V	5.012V	3.301V	5.048V	567.489				57.19°C	115.08V

The results above are not used in the certification process

20-80□□□□ 115V

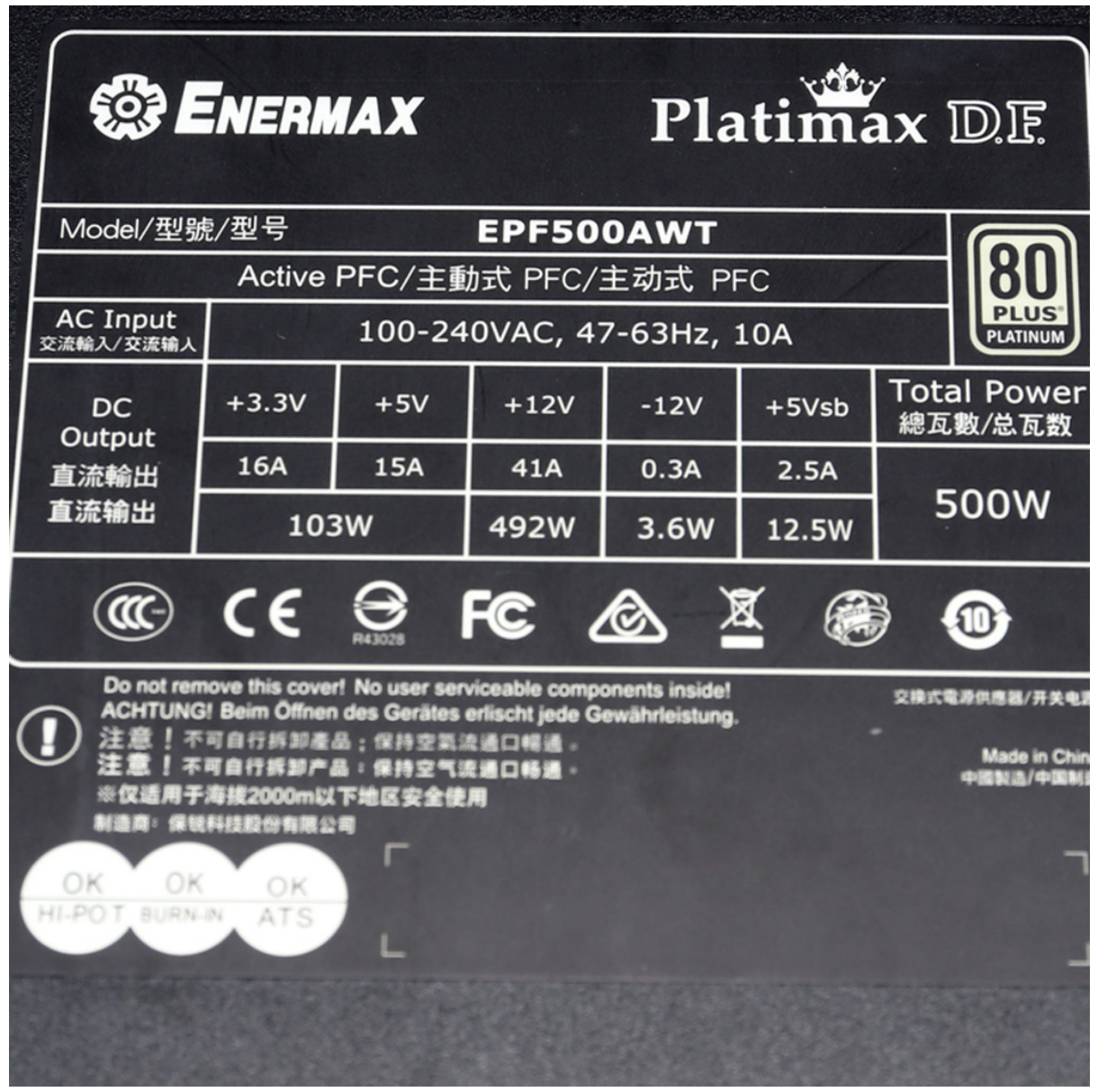
□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□ (dB[A])	PF/AC □□
1	1.207A	0.491A	0.475A	0.191A	19.73	76.855%	580	20.8	0.844
	12.142V	5.074V	3.367V	5.139V	25.67				115.06V
2	2.429A	0.978A	0.980A	0.386A	39.72	85.084%	580	20.8	0.918
	12.139V	5.070V	3.361V	5.129V	46.68				115.06V
3	3.660A	1.473A	1.485A	0.586A	59.88	88.300%	580	20.8	0.940
	12.138V	5.066V	3.359V	5.120V	67.81				115.05V
4	4.878A	1.973A	1.965A	0.781A	79.77	89.794%	580	20.8	0.961
	12.136V	5.063V	3.354V	5.111V	88.84				115.05V

The results above are not used in the certification process

□□□□ 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	17.0 mV	9.4 mV	9.1 mV	9.7 mV	Pass
20% Load	21.0 mV	10.8 mV	11.4 mV	9.8 mV	Pass
30% Load	23.7 mV	13.8 mV	12.8 mV	10.8 mV	Pass
40% Load	26.0 mV	16.4 mV	14.0 mV	19.3 mV	Pass
50% Load	28.7 mV	18.4 mV	15.3 mV	14.3 mV	Pass
60% Load	30.5 mV	19.2 mV	17.0 mV	15.8 mV	Pass
70% Load	33.1 mV	18.6 mV	18.5 mV	17.6 mV	Pass
80% Load	37.9 mV	23.9 mV	20.2 mV	19.0 mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	38.9 mV	26.6 mV	21.3 mV	19.3 mV	Pass
100% Load	41.6 mV	29.5 mV	25.4 mV	21.3 mV	Pass
110% Load	43.0 mV	29.8 mV	26.5 mV	21.4 mV	Pass
Crossload 1	29.3 mV	16.6 mV	19.9 mV	11.5 mV	Pass
Crossload 2	34.8 mV	23.7 mV	20.9 mV	15.4 mV	Pass

The results above are not used in the certification process

Enermax Platimax D.F. 500W

Top side

Power specifications label

本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由 Cybenetics提供。
在任何情况下都应提供原始测试结果文档的网站链接

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CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus

www.cybenetics.com - info@cybenetics.com