Bitfenix Whisper 850W

640Q00002

Lab ID 122

Certification ID 25122

Test Result Report ID:

Certificate Issue Date: Sep 6, 2018

Scheme: ETA-EMI PSU

115V



230V



Scheme: LAMBDA PSU

115V



230V





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	Bitfenix
Model	Whisper 850W
OEM/ODM	Channel Well Technology
Serial Number	640Q00002
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	12
□□□□ (Hz)	47-63

□□□□ (W)	850
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	135mm Hydro Dynamic Bearing Fan (DF1352512SEHN)
□□□□□	✗
Cybenetics Testing Information	
Lab ID	122
Date of receipt	Aug 22, 2018
Testing Date	Sep 4, 2018
Report Issued Date	Sep 6, 2018
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

□□□□			
□□	□□□□	□□□□□	Gauge
ATX □□ 20+4 pin (600mm)	1	1	18AWG
4+4 pin EPS 12V □□ (650mm)	2	2	18AWG
6+2pin PCIe□□ (650mm)	2	2	18AWG
6+2pin PCIe□□ (650mm+150mm)	2	4	18AWG
SATA□□ (500mm+150mm+150mm+150mm)	3	12	18AWG
□ 4pin Molex□□ (500mm+150mm+150mm+150mm)	1	4	18AWG

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	22	22	40	3	0.5
	□	120		850	15	6
□□□□□ (W)		850				

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)	89.042%
Average Noise Output (>1450 Load Combinations)	31.36dBA
PF□□□ (>1450 Load Combinations)	0.980
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
□□□□□□	0.0486W
Non-Accredited	
12V Ripple (Full Load)	17.94mV
5V Ripple (Full Load)	12.23mV
3.3V Ripple (Full Load)	17.26mV
5VSB Ripple (Full Load)	20.52mV
12V Load Regulation	1.12%
5V Load Regulation	1.43%
3.3V Load Regulation	2.38%

5VSB Load Regulation	1.57%
Inrush Current	26.855A

230V

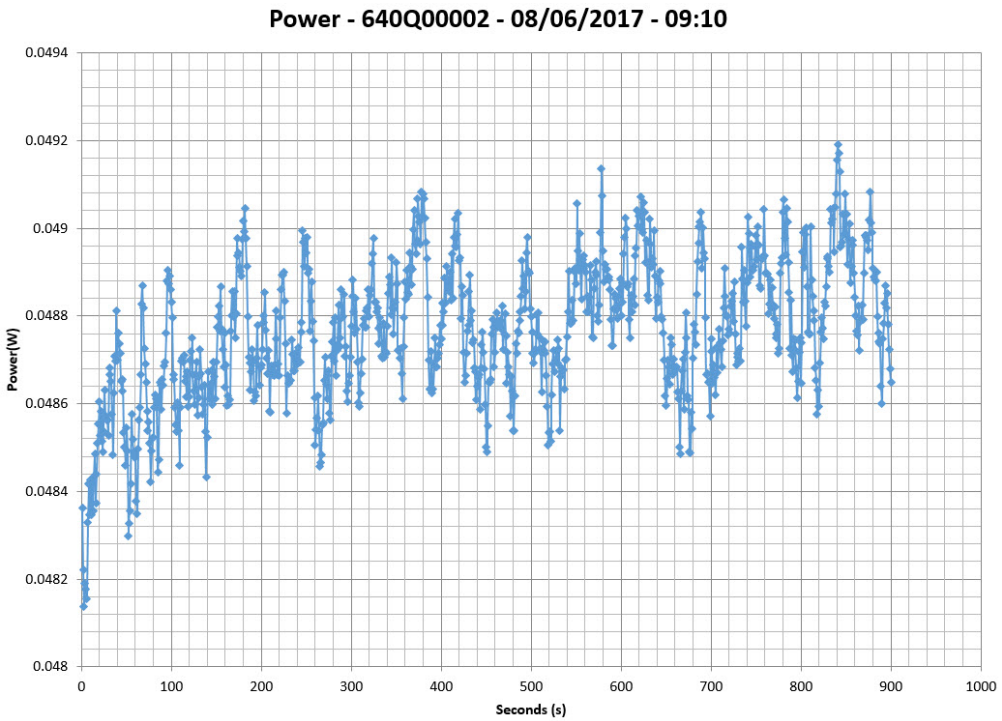
Accredited	
□□□□ (>1450 load combinations)	90.991%
Average Noise Output (>1450 Load Combinations)	31.27dBA
PF□□□ (>1450 Load Combinations)	0.938
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
□□□□□□	0.0790W
Non-Accredited	
12V Ripple (Full Load)	16.91mV
5V Ripple (Full Load)	9.61mV
3.3V Ripple (Full Load)	7.45mV
5VSB Ripple (Full Load)	22.03mV
12V Load Regulation	1.05%
5V Load Regulation	1.07%
3.3V Load Regulation	1.43%
5VSB Load Regulation	1.51%
Inrush Current	52.288A
□□□□ & PG□□	12.80ms
AC Loss to PWR_OK Hold Up Time	10.70ms
PWR_OK Inactive to DC Loss Delay	2.10ms
OPP (0.00°C / 0.00°C)	- -

□□□□ & PG□□

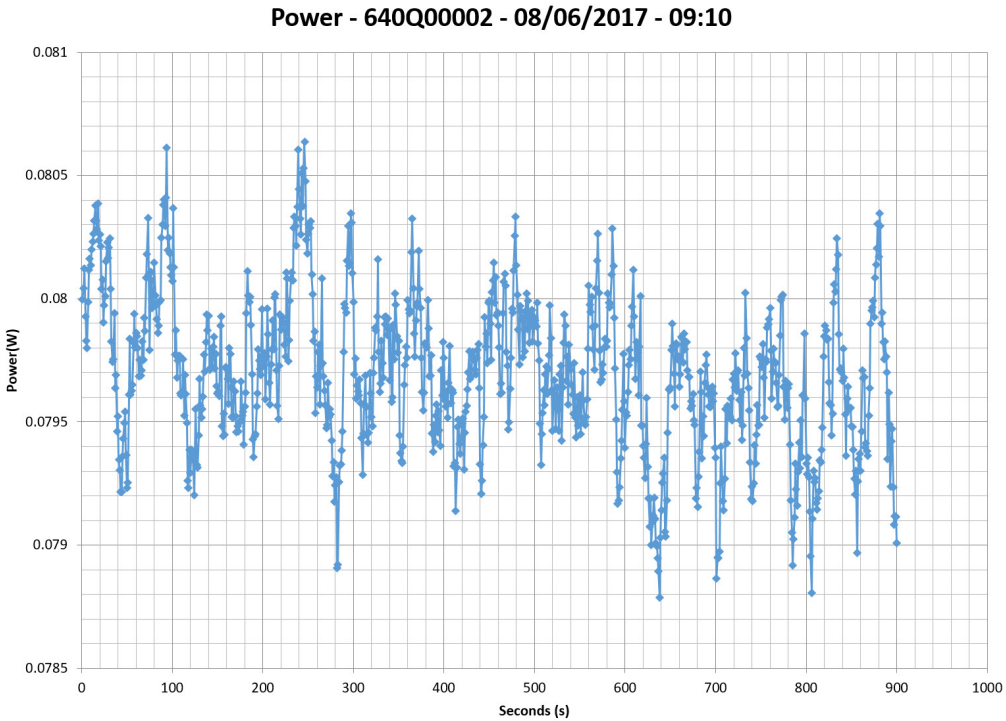
Hold-Up Time (ms)	12.8
AC Loss to PWR_OK Hold Up Time (ms)	10.7
PWR_OK Inactive to DC Loss Delay (ms)	2.1

Graphs

115V



230V



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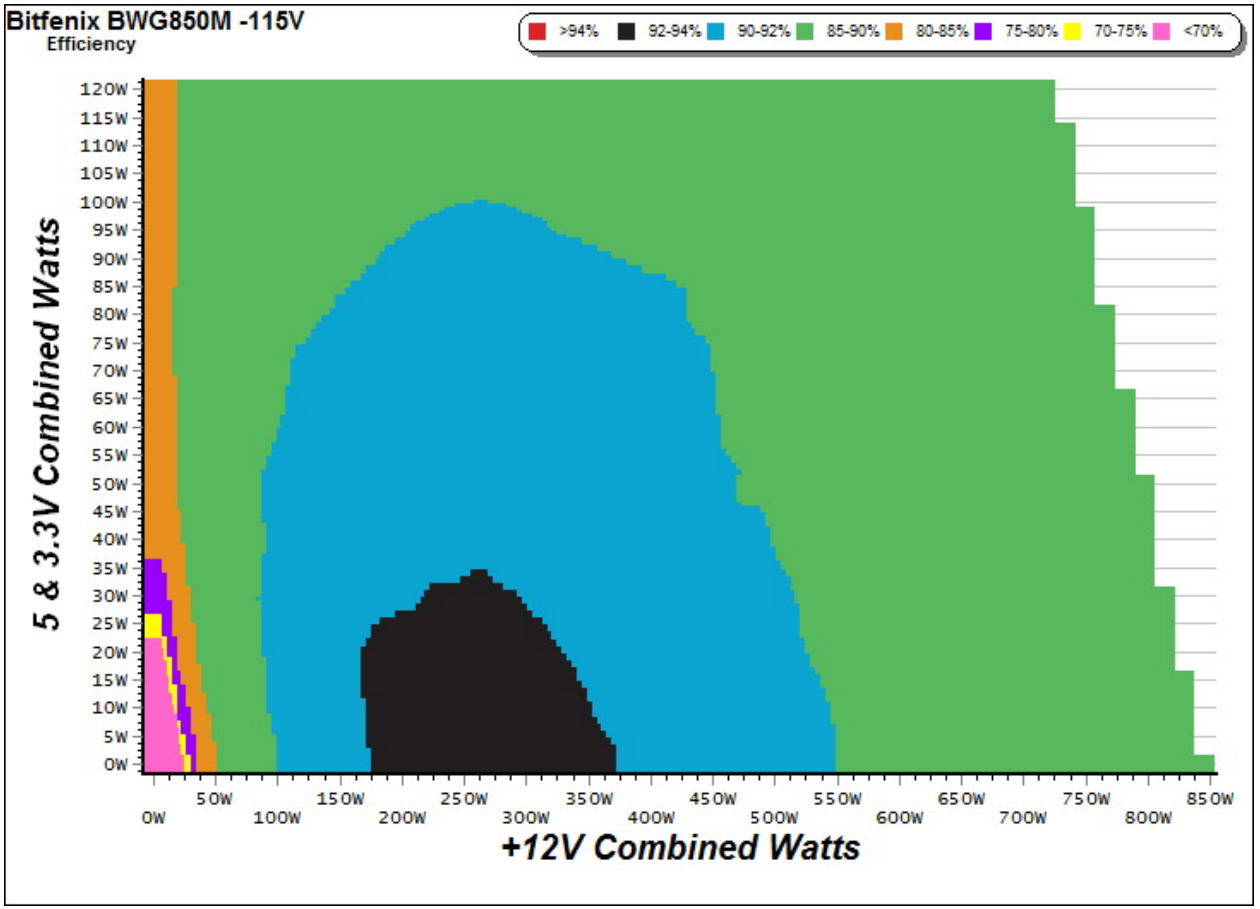
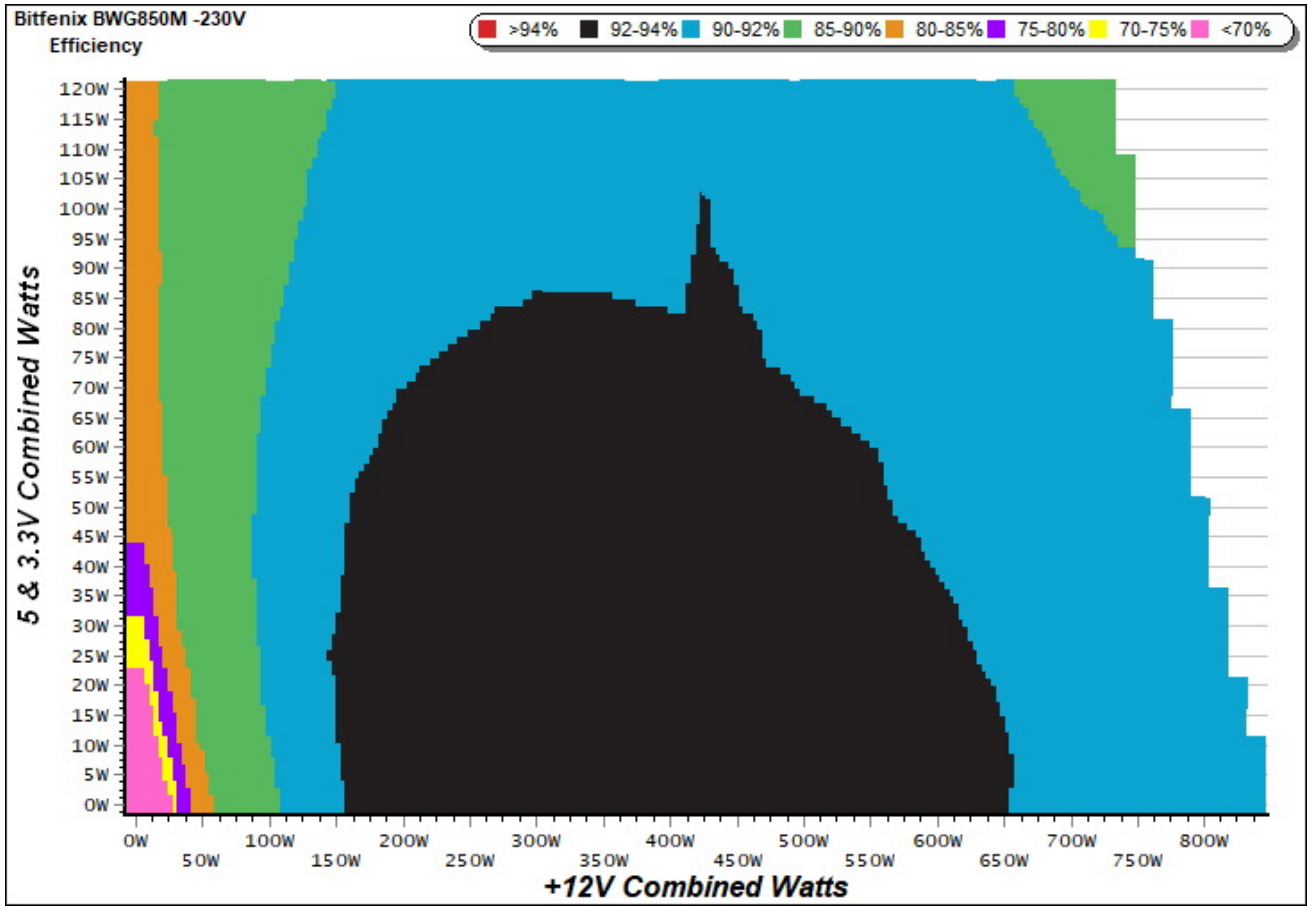
115V



□□

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.

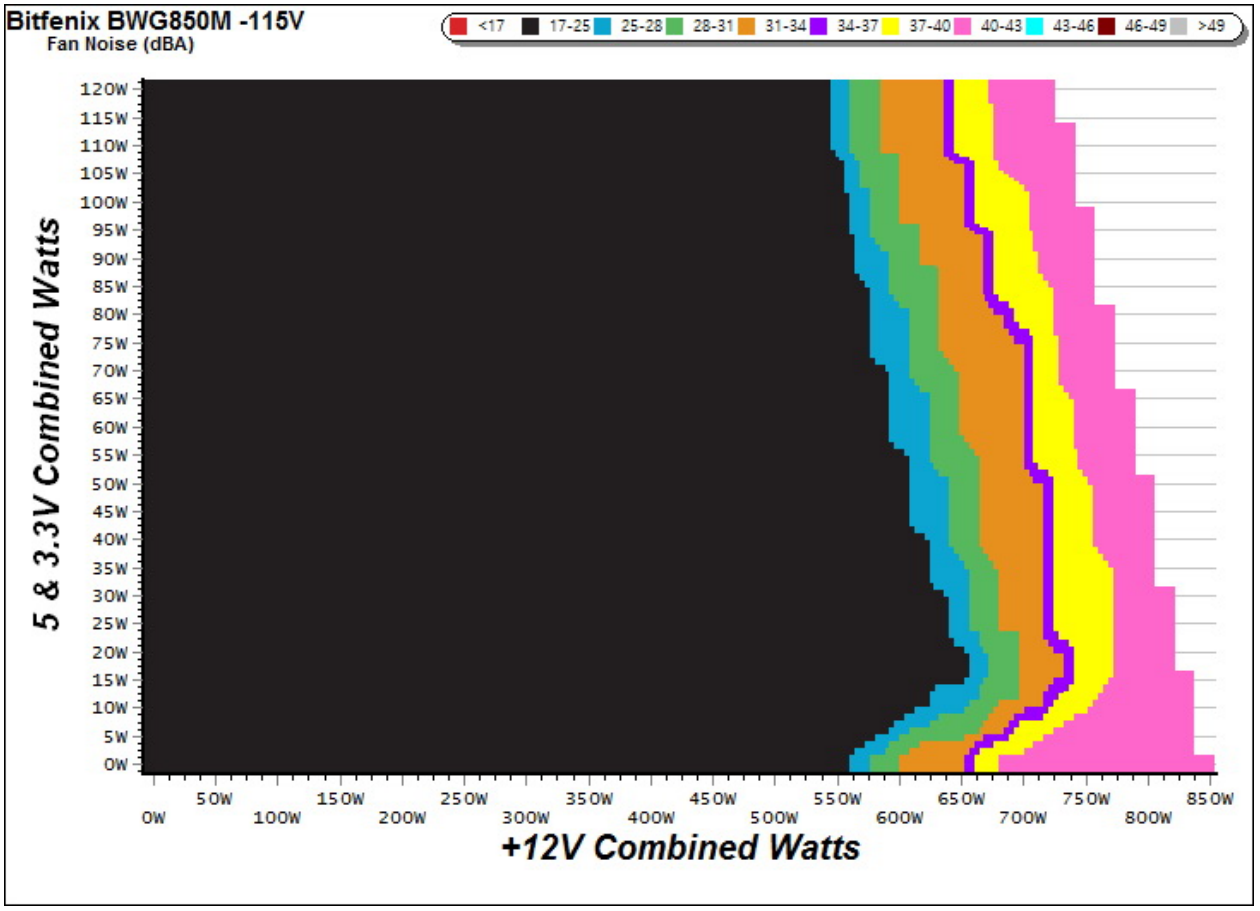
230V



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.

□□□□□

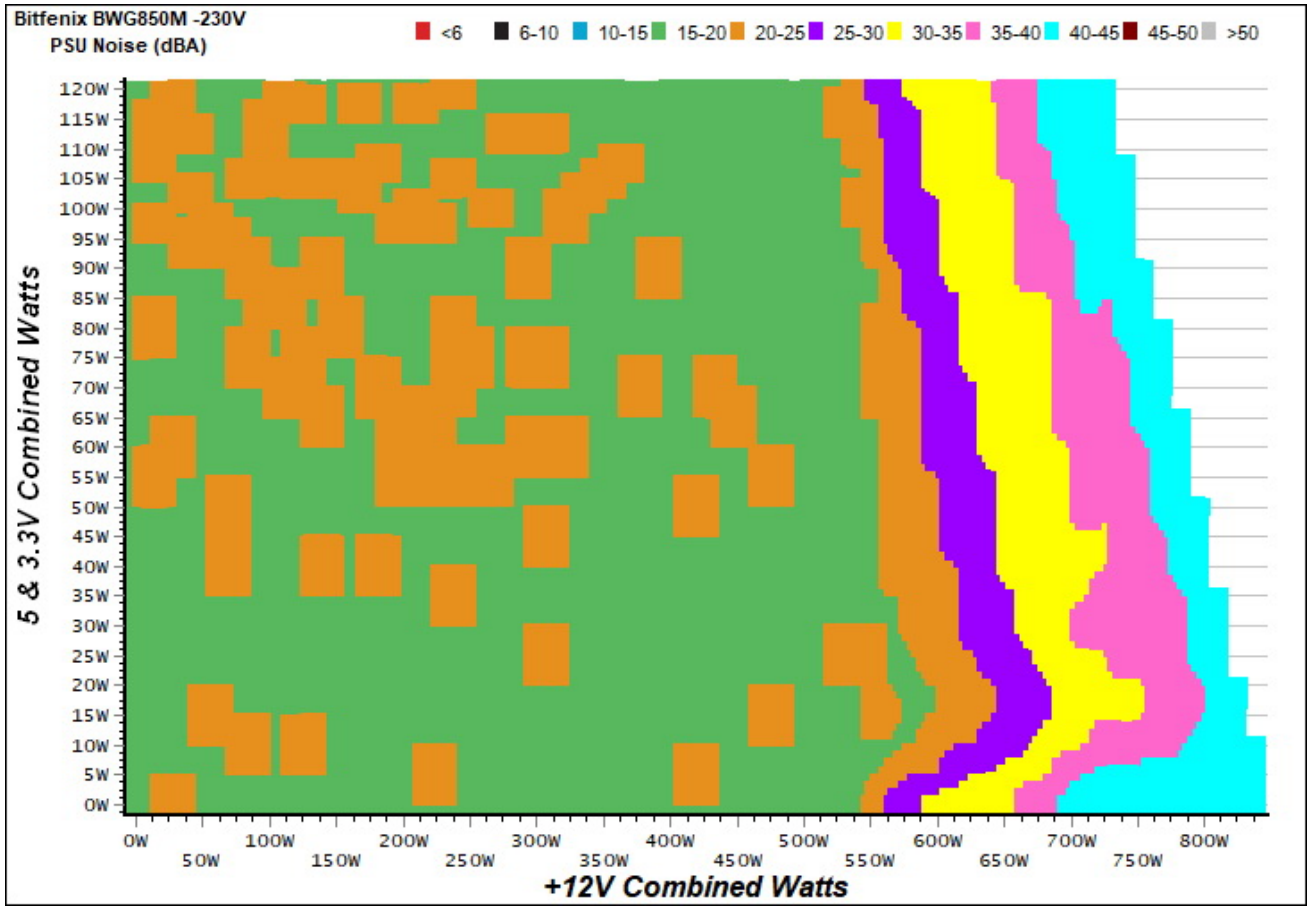
115V



□□

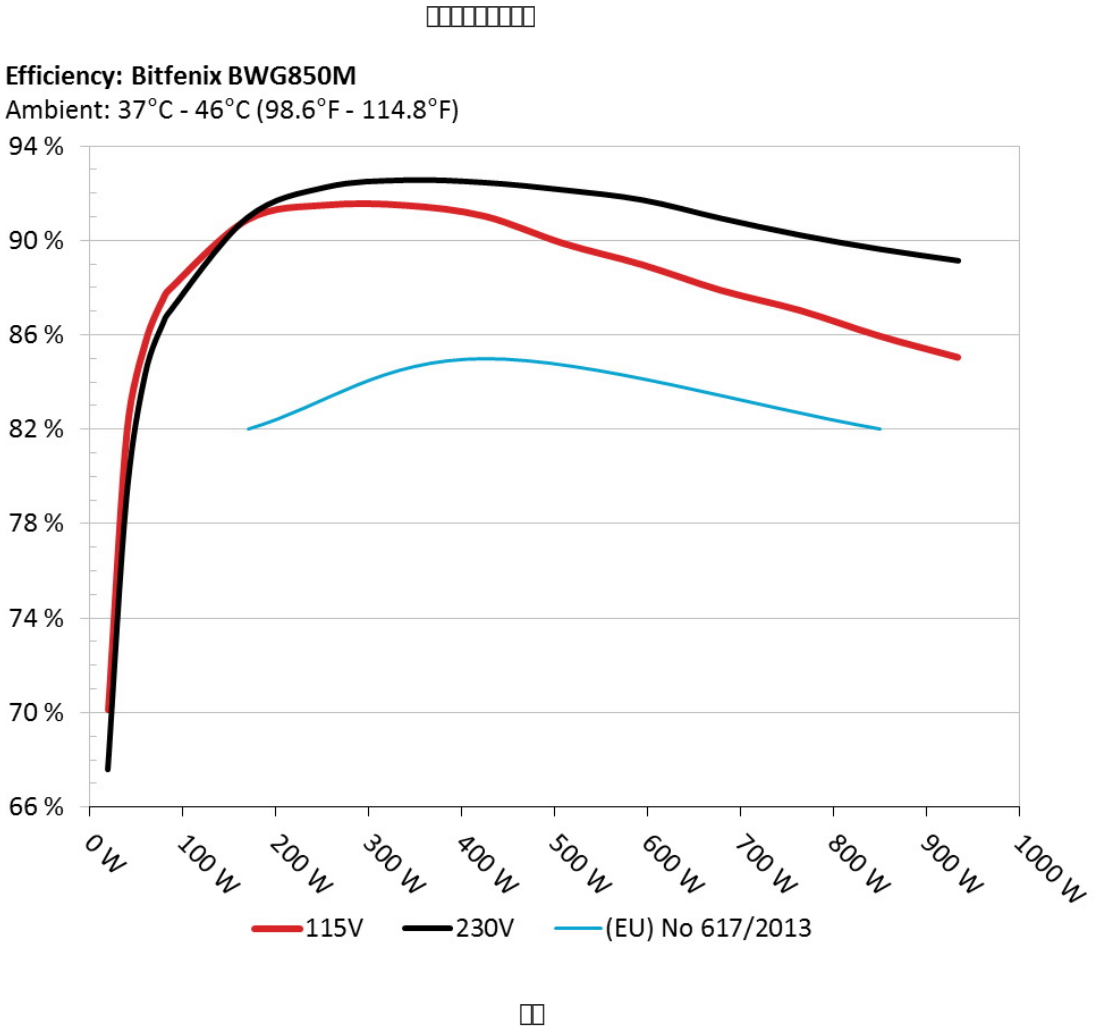
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

230V



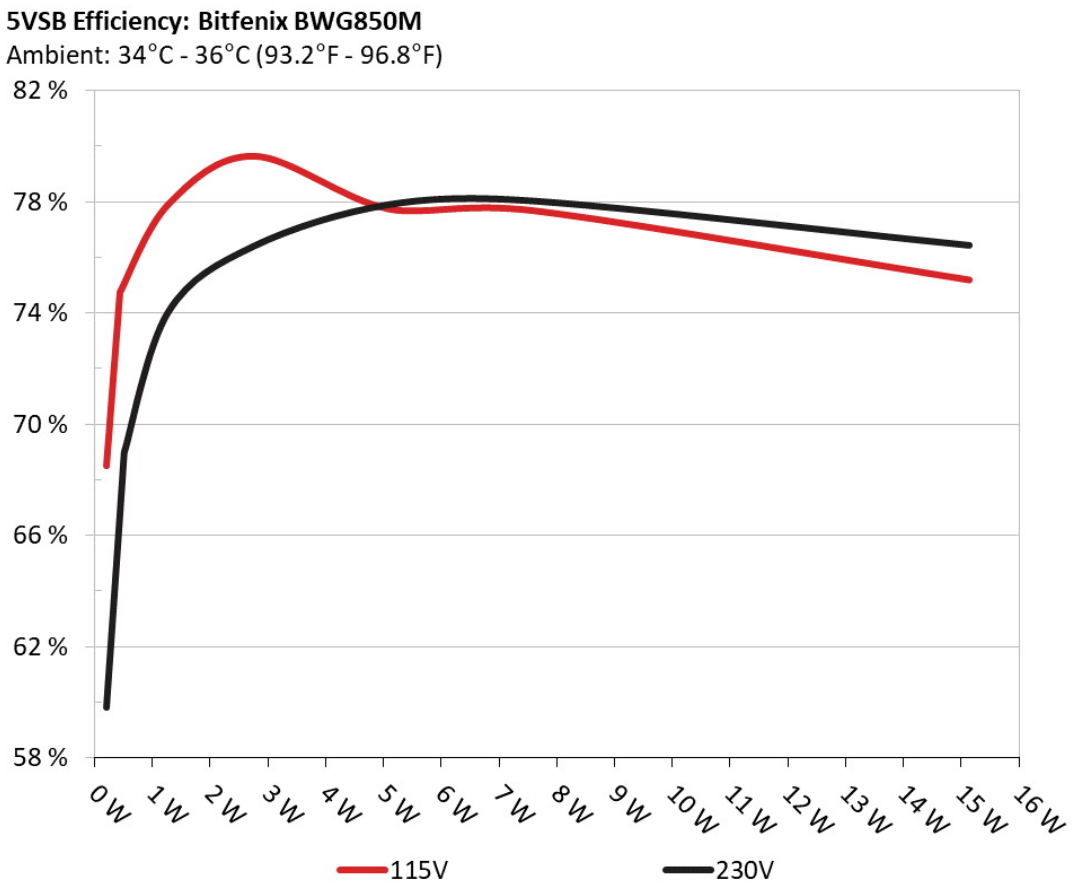
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

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	0.042A	0.213	68.489%	0.031
	5.111V	0.311		115.13V
2	0.087A	0.445	74.664%	0.057
	5.109V	0.596		115.14V
3	0.542A	2.765	79.660%	0.259
	5.099V	3.471		115.14V
4	1.002A	5.099	77.752%	0.362
	5.089V	6.558		115.14V
5	1.502A	7.625	77.687%	0.415
	5.077V	9.815		115.15V
6	3.001A	15.136	75.195%	0.478
	5.043V	20.129		115.15V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.042A	0.213	59.831%	0.010
	5.111V	0.356		230.41V
2	0.087A	0.445	68.992%	0.019
	5.109V	0.645		230.40V
3	0.542A	2.764	76.417%	0.100
	5.099V	3.617		230.40V
4	1.002A	5.099	77.907%	0.167
	5.088V	6.545		230.40V
5	1.502A	7.624	78.035%	0.226
	5.077V	9.770		230.40V
6	3.001A	15.136	76.444%	0.332
	5.043V	19.800		230.40V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	5.270A	1.985A	1.969A	0.981A	84.827	87.912%	695	20.0	38.03°C	0.963
	11.998V	5.047V	3.347V	5.087V	96.491				41.68°C	115.18V
2	11.582A	2.971A	2.963A	1.180A	169.656	90.891%	720	20.5	38.59°C	0.981
	11.984V	5.039V	3.339V	5.080V	186.659				42.98°C	115.17V
3	18.274A	3.477A	3.475A	1.376A	254.826	91.508%	695	20.0	39.06°C	0.984
	11.971V	5.033V	3.334V	5.074V	278.473				44.66°C	115.17V
4	24.961A	3.977A	3.965A	1.574A	339.671	91.491%	720	20.5	39.33°C	0.981
	11.959V	5.026V	3.328V	5.069V	371.260				46.31°C	115.17V
5	31.319A	4.981A	4.970A	1.774A	424.585	91.037%	720	20.5	39.92°C	0.981
	11.945V	5.020V	3.319V	5.062V	466.388				48.54°C	115.17V
6	37.700A	5.986A	5.977A	1.975A	509.569	89.881%	720	20.5	41.15°C	0.982
	11.931V	5.012V	3.310V	5.055V	566.936				52.14°C	115.16V
7	44.095A	7.001A	6.998A	2.175A	594.552	88.979%	935	26.6	41.96°C	0.984
	11.916V	5.005V	3.300V	5.049V	668.197				53.28°C	115.17V
8	50.502A	8.009A	8.018A	2.379A	679.412	87.894%	1450	38.9	42.44°C	0.985
	11.901V	4.994V	3.292V	5.042V	772.989				53.86°C	115.16V
9	57.360A	8.522A	8.558A	2.379A	764.489	87.044%	1795	44.5	43.51°C	0.987
	11.888V	4.988V	3.283V	5.040V	878.278				55.39°C	115.16V
10	63.979A	9.045A	9.070A	2.983A	849.296	85.967%	1795	44.5	45.45°C	0.988
	11.872V	4.980V	3.275V	5.025V	987.930				57.83°C	115.16V
11	71.229A	9.051A	9.084A	2.985A	934.262	85.057%	1795	44.5	46.46°C	0.989
	11.857V	4.973V	3.269V	5.023V	1098.401				60.29°C	115.16V
CL1	0.099A	14.026A	14.006A	0.004A	117.583	84.017%	720	20.5	45.02°C	0.976
	11.971V	5.009V	3.293V	5.106V	139.951				56.58°C	115.19V

CL2	70.789A	1.003A	1.003A	1.002A	854.325	86.580%	1795	44.5	45.32°C	0.988
	11.879V	5.003V	3.310V	5.074V	986.743				57.22°C	115.16V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	5.272A	1.975A	1.965A	0.981A	84.774	86.988%	720	20.5	38.46°C	0.814
	11.990V	5.053V	3.356V	5.085V	97.455				44.00°C	230.27V
2	11.576A	2.966A	2.949A	1.181A	169.638	91.015%	720	20.5	39.23°C	0.909
	11.988V	5.050V	3.354V	5.078V	186.385				45.23°C	230.27V
3	18.261A	3.467A	3.458A	1.379A	254.830	92.336%	720	20.5	40.24°C	0.939
	11.979V	5.048V	3.351V	5.071V	275.981				47.45°C	230.28V
4	24.941A	3.964A	3.939A	1.576A	339.686	92.646%	720	20.5	40.88°C	0.951
	11.969V	5.045V	3.348V	5.064V	366.651				48.97°C	230.29V
5	31.287A	4.960A	4.931A	1.777A	424.623	92.550%	720	20.5	41.48°C	0.957
	11.958V	5.043V	3.345V	5.057V	458.803				50.37°C	230.27V
6	37.654A	5.953A	5.922A	1.980A	509.649	92.212%	720	20.5	42.47°C	0.962
	11.947V	5.040V	3.343V	5.049V	552.692				52.83°C	230.26V
7	44.022A	6.950A	6.916A	2.180A	594.575	91.528%	1152	33.1	43.48°C	0.965
	11.937V	5.036V	3.339V	5.042V	649.608				55.39°C	230.26V
8	50.408A	7.946A	7.912A	2.380A	679.544	90.830%	1665	42.2	44.79°C	0.967
	11.926V	5.034V	3.336V	5.035V	748.152				56.84°C	230.27V
9	57.234A	8.454A	8.427A	2.382A	764.560	90.328%	1795	44.5	45.46°C	0.969
	11.915V	5.031V	3.334V	5.033V	846.422				58.18°C	230.27V
10	63.818A	8.954A	8.912A	2.990A	849.376	89.741%	1795	44.5	45.94°C	0.971
	11.904V	5.028V	3.330V	5.013V	946.472				59.42°C	230.26V
11	71.011A	8.961A	8.922A	2.991A	934.311	89.203%	1795	44.5	46.25°C	0.972
	11.894V	5.025V	3.328V	5.010V	1047.393				61.29°C	230.26V
CL1	0.099A	14.025A	14.007A	0.004A	118.829	83.894%	720	20.5	43.29°C	0.880
	11.963V	5.043V	3.348V	5.107V	141.642				54.89°C	230.27V

CL2	70.799A	1.004A	1.003A	1.002A	857.049	90.396%	1795	44.5	45.92°C	0.971
	11.915V	5.035V	3.338V	5.066V	948.106				58.68°C	230.26V

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	1.217A	0.493A	0.472A	0.196A	19.685	70.123%	720	20.5	0.825
	12.002V	5.055V	3.358V	5.105V	28.072				115.17V
2	2.457A	0.979A	0.982A	0.391A	39.736	81.908%	720	20.5	0.920
	12.007V	5.052V	3.355V	5.100V	48.513				115.17V
3	3.699A	1.477A	1.489A	0.586A	59.832	85.707%	720	20.5	0.949
	12.003V	5.049V	3.351V	5.095V	69.810				115.17V
4	4.934A	1.987A	1.969A	0.786A	79.824	87.629%	695	20.0	0.961
	11.999V	5.047V	3.348V	5.090V	91.093				115.17V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.218A	0.491A	0.474A	0.195A	19.689	67.495%	720	20.5	0.458
	12.002V	5.057V	3.360V	5.105V	29.171				230.28V
2	2.459A	0.980A	0.980A	0.391A	39.743	79.172%	720	20.5	0.634
	11.998V	5.056V	3.359V	5.100V	50.198				230.28V
3	3.701A	1.476A	1.489A	0.585A	59.831	84.384%	695	20.0	0.737
	11.994V	5.055V	3.358V	5.094V	70.903				230.28V
4	4.938A	1.975A	1.964A	0.786A	79.783	86.709%	695	20.0	0.801
	11.991V	5.053V	3.356V	5.089V	92.012				230.28V

The results above are not used in the certification process

□□□□

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	12.1 mV	8.2 mV	5.7 mV	5.4 mV	Pass
20% Load	14.3 mV	8.3 mV	7.1 mV	9.8 mV	Pass
30% Load	14.1 mV	8.4 mV	8.2 mV	6.6 mV	Pass
40% Load	14.7 mV	8.9 mV	9.7 mV	8.5 mV	Pass
50% Load	15.8 mV	10.1 mV	10.4 mV	12.0 mV	Pass
60% Load	15.4 mV	8.9 mV	10.7 mV	15.1 mV	Pass
70% Load	15.0 mV	8.9 mV	11.9 mV	20.8 mV	Pass
80% Load	15.5 mV	10.1 mV	12.6 mV	21.4 mV	Pass
90% Load	16.6 mV	10.7 mV	13.7 mV	18.9 mV	Pass
100% Load	17.9 mV	12.2 mV	17.3 mV	20.5 mV	Pass
110% Load	22.5 mV	17.9 mV	23.2 mV	30.1 mV	Pass
Crossload 1	17.0 mV	10.7 mV	9.0 mV	7.0 mV	Pass
Crossload 2	16.8 mV	12.4 mV	17.9 mV	18.5 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	3.9 mV	7.0 mV	6.0 mV	5.7 mV	Pass
20% Load	20.8 mV	6.0 mV	5.9 mV	5.9 mV	Pass
30% Load	17.1 mV	7.9 mV	6.9 mV	7.3 mV	Pass
40% Load	14.1 mV	6.0 mV	5.3 mV	8.8 mV	Pass
50% Load	13.8 mV	6.0 mV	5.3 mV	10.6 mV	Pass
60% Load	13.4 mV	6.1 mV	5.5 mV	14.4 mV	Pass
70% Load	12.7 mV	6.8 mV	5.8 mV	21.9 mV	Pass
80% Load	13.1 mV	7.9 mV	6.9 mV	23.4 mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	13.8 mV	9.3 mV	7.5 mV	20.9 mV	Pass
100% Load	14.0 mV	17.5 mV	9.2 mV	22.2 mV	Pass
110% Load	14.5 mV	8.8 mV	7.6 mV	18.2 mV	Pass
Crossload 1	4.8 mV	7.1 mV	7.4 mV	4.7 mV	Pass
Crossload 2	13.9 mV	8.2 mV	7.6 mV	18.1 mV	Pass

The results above are not used in the certification process

Bitfenix Whisper 850W

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。
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