Bitfenix Whisper 750W

706Q00093

Lab ID 135

Certification ID 25135

Test Result Report ID:

Certificate Issue Date: Mar 7, 2018

Scheme: ETA-EMI PSU

115V



230V



115V



230V



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	Bitfenix
Model	Whisper 750W
OEM/ODM	Channel Well Technology
Serial Number	706Q00093
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	10
□□□□ (Hz)	47-63

□□□□ (W)	750
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	135
Date of receipt	Feb 25, 2018
Testing Date	Mar 3, 2018
Report Issued Date	Mar 7, 2018
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

□□□□			
□□	□□□□	□□□□□	Gauge
ATX □□ 20+4 pin (610mm)	1	1	18AWG
4+4 pin EPS 12V □□ (650mm)	2	2	18AWG
6+2pin PCIe□□ (650mm+150mm)	2	4	18AWG
6+2pin PCIe□□ (650mm)	2	2	18AWG
SATA□□ (500mm+150mm+150mm+150mm)	3	12	18AWG
□ 4pin Molex□□ (500mm+150mm+150mm+150mm)	1	3	18AWG

		3.3V	5V	12V	12V	12V	12V	5VSB	-12V
		22	22	25	25	35	35	2.5	0.5
		120		750				12.5	6
	(W)	750							

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)	88.790%
Average Noise Output (>1450 Load Combinations)	36.03dBA
PF (>1450 Load Combinations)	0.981
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
	0.0502W
Non-Accredited	
12V Ripple (Full Load)	18.28mV
5V Ripple (Full Load)	15.74mV
3.3V Ripple (Full Load)	9.85mV
5VSB Ripple (Full Load)	24.49mV
12V Load Regulation	0.76%
5V Load Regulation	1.39%
3.3V Load Regulation	1.43%

5VSB Load Regulation	1.32%
Inrush Current	39.305A

230V

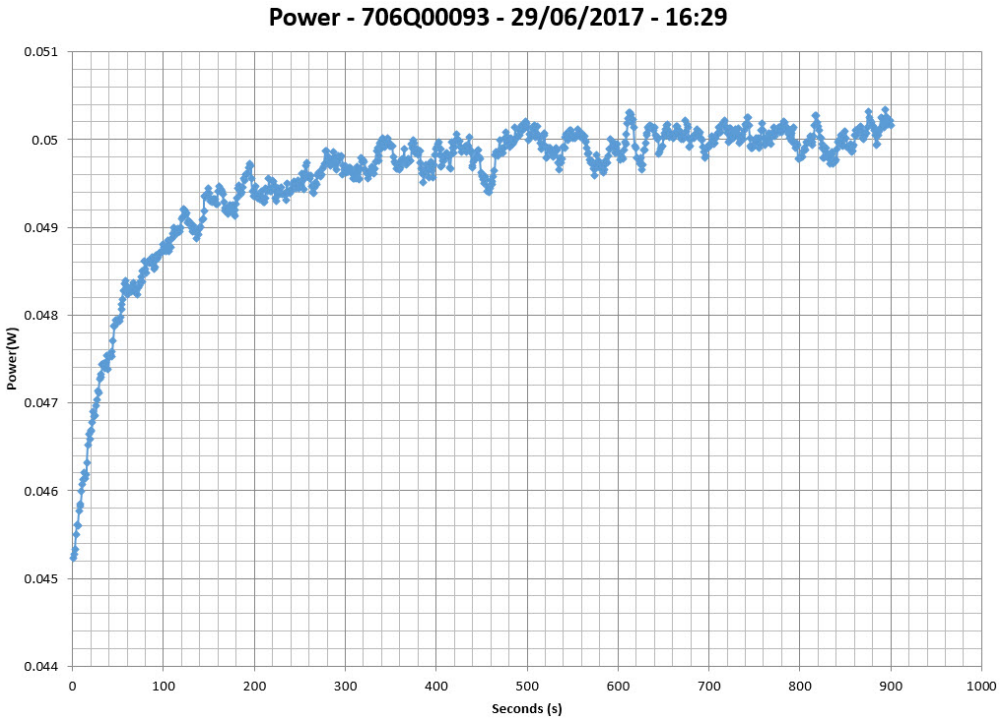
Accredited	
□□□□ (>1450 load combinations)	91.104%
Average Noise Output (>1450 Load Combinations)	31.79dBA
PF□□□ (>1450 Load Combinations)	0.932
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
□□□□□□	0.0869W
Non-Accredited	
12V Ripple (Full Load)	19.41mV
5V Ripple (Full Load)	11.09mV
3.3V Ripple (Full Load)	5.70mV
5VSB Ripple (Full Load)	27.56mV
12V Load Regulation	0.62%
5V Load Regulation	0.32%
3.3V Load Regulation	0.54%
5VSB Load Regulation	1.47%
Inrush Current	48.197A
□□□□ & PG□□	14.90ms
AC Loss to PWR_OK Hold Up Time	13.20ms
PWR_OK Inactive to DC Loss Delay	1.70ms
OPP (0.00°C / 0.00°C)	- -

□□□□ & PG□□

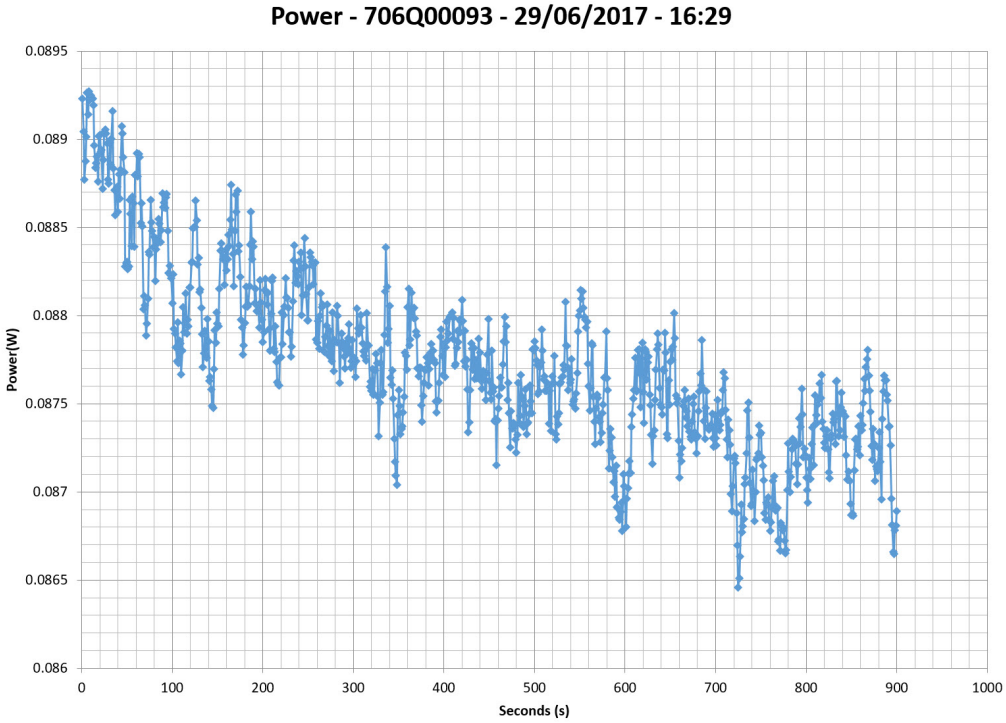
Hold-Up Time (ms)	14.9
AC Loss to PWR_OK Hold Up Time (ms)	13.2
PWR_OK Inactive to DC Loss Delay (ms)	1.7

Graphs

115V



230V



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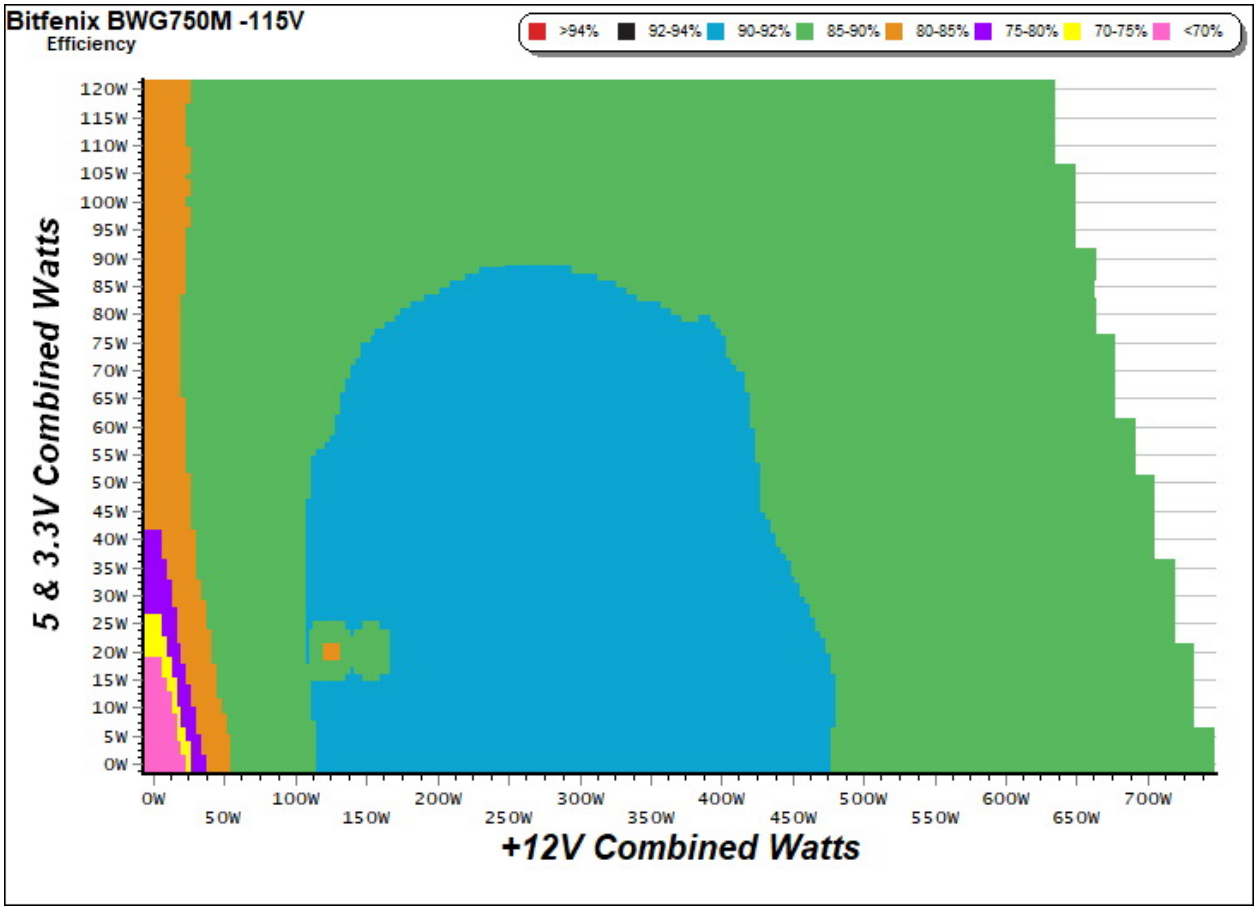
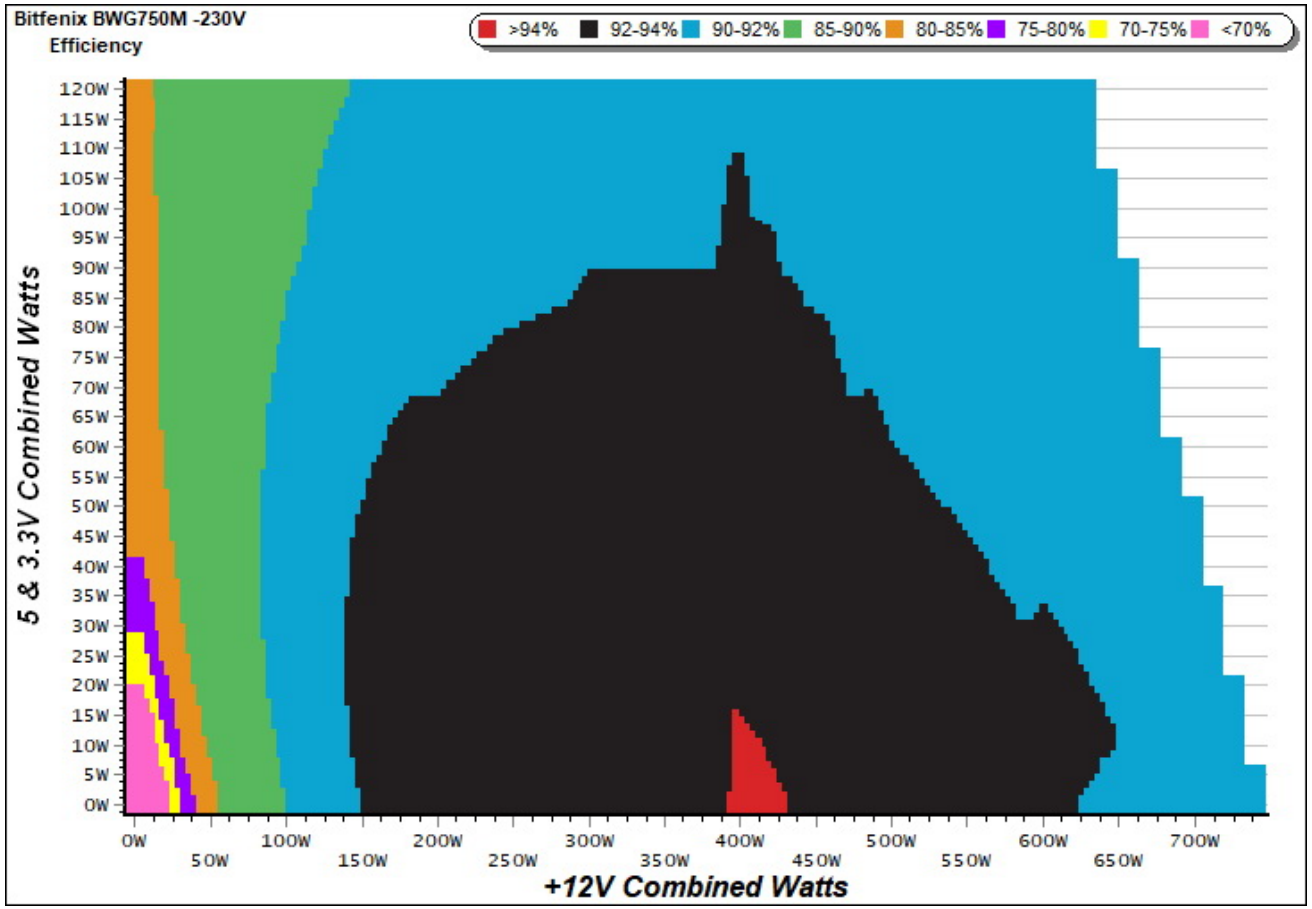
115V



□□

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



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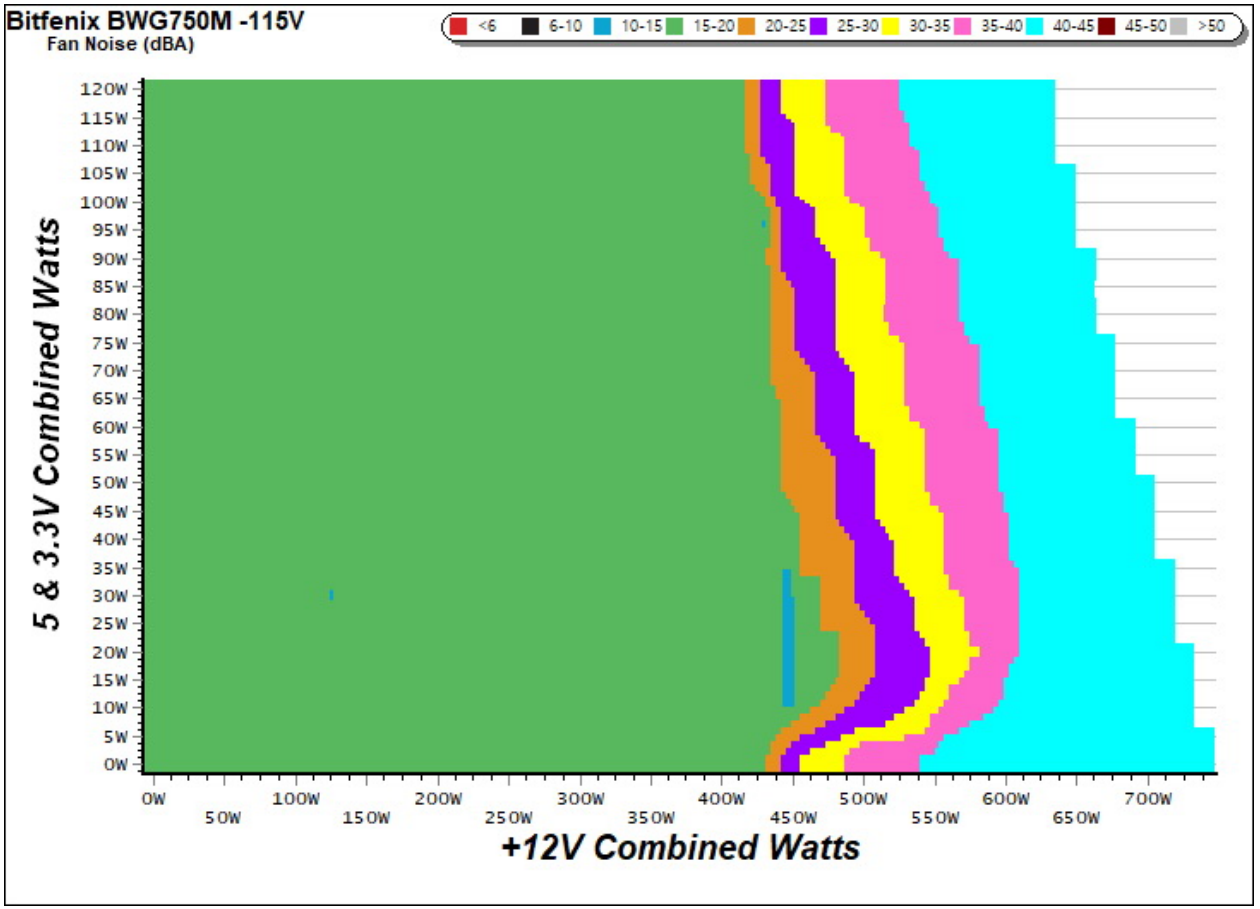
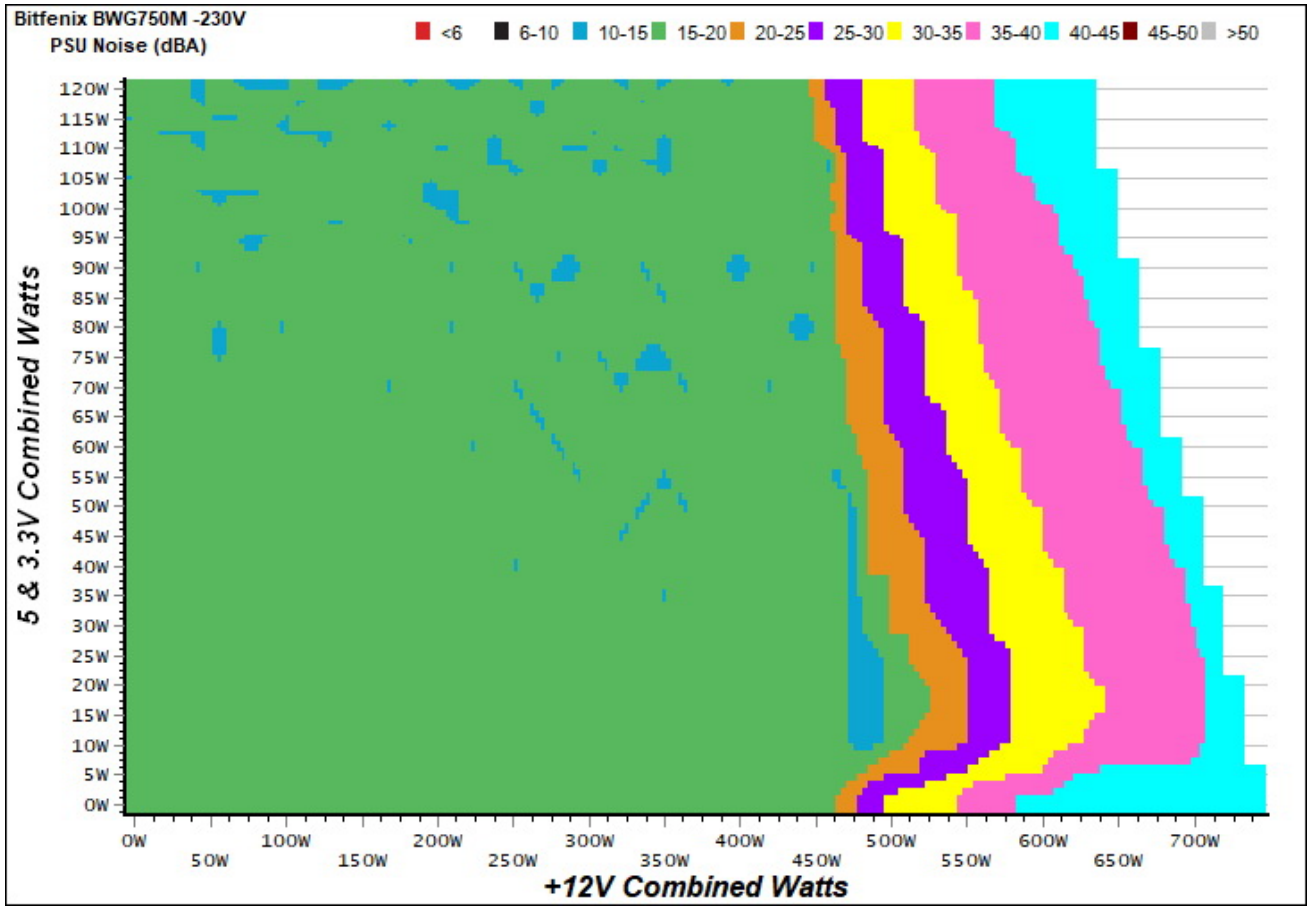
115V



□□

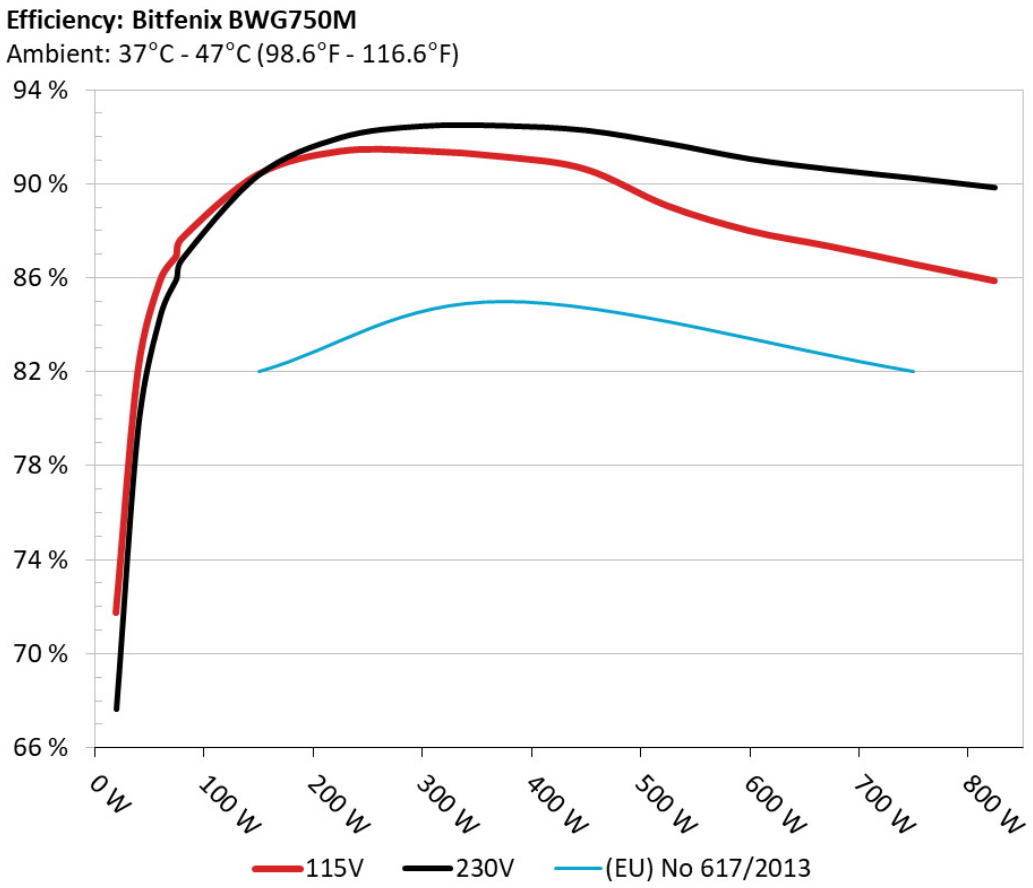
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

230V



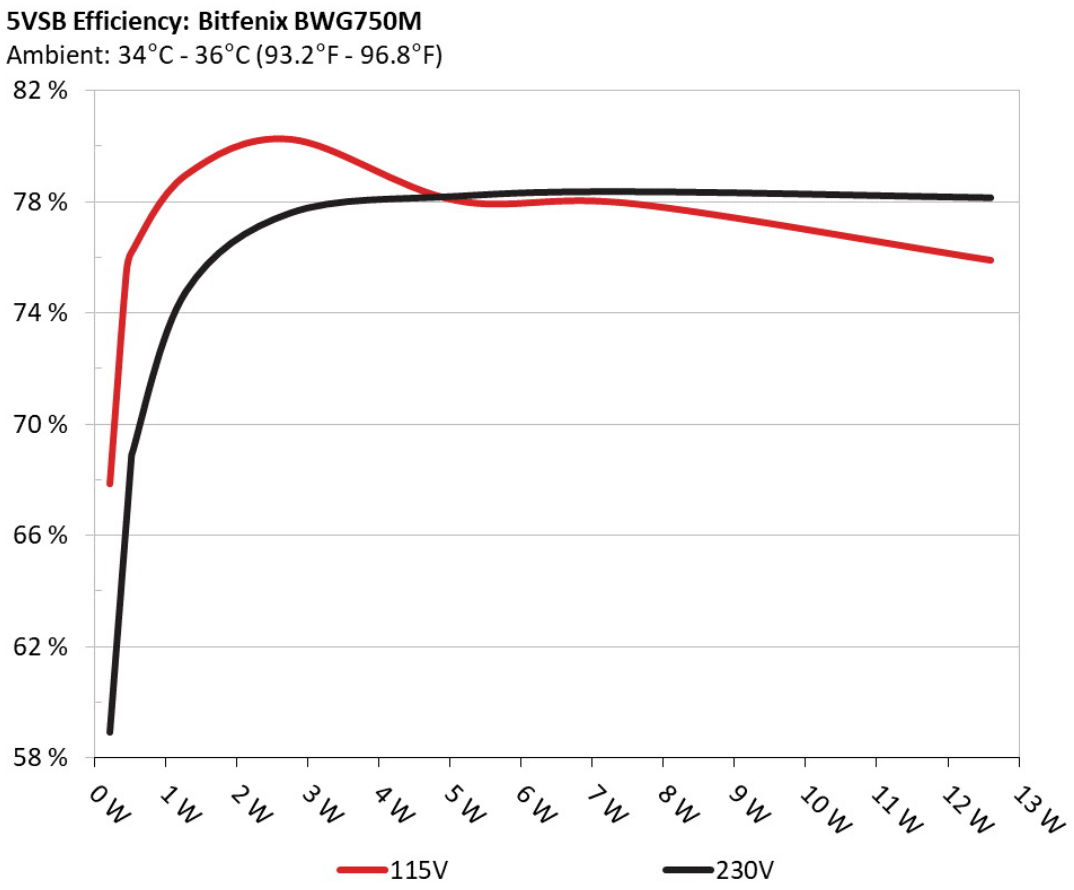
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

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	0.041A	0.211	67.846%	0.031
	5.098V	0.311		115.19V
2	0.087A	0.442	75.427%	0.057
	5.097V	0.586		115.19V
3	0.542A	2.755	80.251%	0.257
	5.086V	3.433		115.19V
4	1.002A	5.084	78.047%	0.358
	5.075V	6.514		115.19V
5	1.501A	7.603	77.924%	0.411
	5.064V	9.757		115.20V
6	2.501A	12.605	75.897%	0.456
	5.040V	16.608		115.22V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.041A	0.211	58.939%	0.011
	5.098V	0.358		230.47V
2	0.087A	0.443	68.896%	0.019
	5.097V	0.643		230.47V
3	0.541A	2.753	77.593%	0.100
	5.086V	3.548		230.47V
4	1.002A	5.084	78.191%	0.169
	5.075V	6.502		230.47V
5	1.501A	7.602	78.355%	0.227
	5.064V	9.702		230.47V
6	2.501A	12.606	78.138%	0.303
	5.040V	16.133		230.49V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	4.436A	1.984A	1.972A	0.985A	74.787	86.932%	455	10.9	38.43°C	0.956
	11.992V	5.043V	3.341V	5.073V	86.029				41.24°C	115.21V
2	9.922A	2.970A	2.963A	1.181A	149.716	90.401%	470	11.5	38.86°C	0.980
	11.982V	5.035V	3.338V	5.069V	165.614				42.12°C	115.20V
3	15.765A	3.478A	3.477A	1.380A	224.811	91.384%	455	10.9	39.12°C	0.985
	11.972V	5.030V	3.334V	5.062V	246.007				43.12°C	115.21V
4	21.605A	3.984A	3.961A	1.580A	299.693	91.406%	435	9.9	39.65°C	0.986
	11.965V	5.025V	3.328V	5.056V	327.869				44.80°C	115.20V
5	27.117A	4.982A	4.960A	1.780A	374.650	91.152%	455	10.9	40.03°C	0.985
	11.955V	5.017V	3.323V	5.050V	411.016				46.31°C	115.20V
6	32.630A	5.990A	5.965A	1.980A	449.554	90.626%	455	10.9	40.74°C	0.984
	11.945V	5.010V	3.318V	5.044V	496.052				48.25°C	115.19V
7	38.147A	7.003A	6.970A	2.180A	524.547	89.071%	1225	34.4	41.96°C	0.984
	11.939V	5.003V	3.313V	5.038V	588.908				49.87°C	115.20V
8	43.688A	8.013A	7.978A	2.383A	599.508	88.010%	1795	44.4	43.01°C	0.985
	11.928V	4.994V	3.308V	5.031V	681.180				51.03°C	115.19V
9	49.677A	8.522A	8.503A	2.384A	674.533	87.335%	1795	44.4	44.38°C	0.986
	11.916V	4.988V	3.303V	5.029V	772.349				52.53°C	115.19V
10	55.615A	9.048A	9.006A	2.485A	749.403	86.599%	1795	44.4	45.10°C	0.987
	11.906V	4.980V	3.298V	5.026V	865.374				54.73°C	115.19V
11	61.965A	9.057A	9.016A	2.485A	824.297	85.877%	1795	44.4	46.76°C	0.989
	11.895V	4.974V	3.293V	5.024V	959.863				56.72°C	115.19V
CL1	0.094A	14.027A	14.004A	0.004A	117.535	84.170%	570	13.6	44.56°C	0.977
	11.974V	4.987V	3.316V	5.094V	139.640				55.07°C	115.21V

CL2	62.470A	1.003A	1.002A	1.002A	757.438	87.227%	1795	44.4	46.64°C	0.988
	11.910V	5.012V	3.313V	5.063V	868.348				55.82°C	115.19V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	4.417A	1.982A	1.974A	0.985A	74.543	86.016%	470	11.5	40.22°C	0.769
	11.984V	5.049V	3.345V	5.075V	86.662				44.90°C	231.01V
2	9.894A	2.973A	2.962A	1.184A	149.450	90.422%	470	11.5	40.83°C	0.891
	11.981V	5.047V	3.343V	5.070V	165.280				45.69°C	230.96V
3	15.778A	3.470A	3.442A	1.382A	224.951	92.064%	470	11.5	41.25°C	0.929
	11.975V	5.046V	3.341V	5.065V	244.342				46.42°C	230.91V
4	21.607A	3.965A	3.952A	1.582A	299.755	92.558%	470	11.5	41.80°C	0.945
	11.966V	5.045V	3.340V	5.059V	323.855				47.94°C	230.85V
5	27.112A	4.958A	4.944A	1.782A	374.694	92.565%	470	11.5	42.30°C	0.955
	11.957V	5.044V	3.338V	5.053V	404.788				49.05°C	230.80V
6	32.620A	5.951A	5.935A	1.982A	449.596	92.170%	895	25.4	42.82°C	0.960
	11.949V	5.043V	3.337V	5.047V	487.791				49.95°C	230.75V
7	38.178A	6.946A	6.926A	2.183A	524.924	91.639%	1415	38.2	43.08°C	0.964
	11.939V	5.041V	3.335V	5.041V	572.820				50.38°C	230.70V
8	43.732A	7.941A	7.922A	2.384A	600.192	91.088%	1690	42.5	43.78°C	0.966
	11.931V	5.039V	3.333V	5.036V	658.915				51.68°C	230.65V
9	49.676A	8.441A	8.408A	2.385A	674.769	90.700%	1795	44.4	44.48°C	0.968
	11.922V	5.037V	3.331V	5.034V	743.953				52.66°C	230.59V
10	55.424A	8.940A	8.921A	2.990A	749.992	90.227%	1795	44.4	45.19°C	0.970
	11.913V	5.036V	3.329V	5.019V	831.231				53.55°C	230.53V
11	61.690A	8.940A	8.924A	2.989A	824.831	89.758%	1795	44.4	46.53°C	0.970
	11.916V	5.036V	3.329V	5.019V	791.112				55.48°C	230.54V
CL1	0.144A	14.005A	14.002A	0.000A	118.978	84.226%	570	13.6	44.69°C	0.872
	11.967V	5.036V	3.337V	5.096V	141.261				52.96°C	230.96V

CL2	62.523A	1.002A	1.001A	1.000A	758.789	90.936%	1795	44.4	45.73°C	0.970
	11.921V	5.042V	3.332V	5.065V	834.423				54.29°C	230.54V

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	1.215A	0.493A	0.476A	0.196A	19.664	71.769%	470	11.5	0.797
	12.001V	5.053V	3.348V	5.093V	27.399				115.21V
2	2.456A	0.985A	0.986A	0.391A	39.727	82.033%	455	10.9	0.908
	11.997V	5.050V	3.346V	5.088V	48.428				115.21V
3	3.700A	1.477A	1.495A	0.590A	59.832	85.854%	455	10.9	0.947
	11.994V	5.048V	3.344V	5.083V	69.690				115.21V
4	4.936A	1.983A	1.973A	0.786A	79.771	87.674%	435	9.9	0.960
	11.991V	5.043V	3.341V	5.078V	90.986				115.21V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.210A	0.497A	0.480A	0.196A	19.629	67.442%	455	10.9	0.425
	11.993V	5.054V	3.349V	5.094V	29.105				231.03V
2	2.481A	0.991A	0.986A	0.393A	40.055	79.826%	435	16.8	0.600
	11.990V	5.052V	3.347V	5.090V	50.178				231.03V
3	3.683A	1.486A	1.464A	0.590A	59.552	84.308%	435	16.8	0.711
	11.987V	5.051V	3.346V	5.085V	70.636				231.01V
4	4.952A	1.982A	1.973A	0.788A	79.949	86.812%	415	16.9	0.784
	11.983V	5.049V	3.345V	5.080V	92.094				231.00V

The results above are not used in the certification process

□□□□

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.4 mV	9.1 mV	7.3 mV	6.6 mV	Pass
20% Load	14.7 mV	9.4 mV	6.8 mV	7.0 mV	Pass
30% Load	14.2 mV	9.5 mV	7.1 mV	6.8 mV	Pass
40% Load	14.6 mV	10.5 mV	8.1 mV	7.7 mV	Pass
50% Load	15.5 mV	11.2 mV	8.9 mV	11.2 mV	Pass
60% Load	17.0 mV	10.6 mV	10.0 mV	15.1 mV	Pass
70% Load	17.3 mV	11.6 mV	10.0 mV	17.9 mV	Pass
80% Load	18.0 mV	12.0 mV	10.2 mV	22.4 mV	Pass
90% Load	17.4 mV	12.9 mV	9.3 mV	26.5 mV	Pass
100% Load	18.3 mV	15.7 mV	9.9 mV	24.5 mV	Pass
110% Load	19.2 mV	16.6 mV	9.8 mV	22.0 mV	Pass
Crossload 1	15.8 mV	13.0 mV	8.8 mV	7.0 mV	Pass
Crossload 2	17.5 mV	15.0 mV	10.3 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	3.5 mV	7.3 mV	2.7 mV	3.6 mV	Pass
20% Load	22.3 mV	7.9 mV	3.5 mV	4.3 mV	Pass
30% Load	19.4 mV	8.1 mV	3.3 mV	5.9 mV	Pass
40% Load	16.6 mV	7.7 mV	3.7 mV	6.7 mV	Pass
50% Load	15.4 mV	8.1 mV	3.6 mV	9.1 mV	Pass
60% Load	16.9 mV	8.6 mV	4.3 mV	13.0 mV	Pass
70% Load	18.3 mV	9.2 mV	4.4 mV	18.2 mV	Pass
80% Load	18.6 mV	9.3 mV	4.6 mV	24.5 mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	18.4 mV	10.2 mV	5.5 mV	28.8 mV	Pass
100% Load	19.4 mV	11.1 mV	5.7 mV	27.6 mV	Pass
110% Load	18.8 mV	11.0 mV	5.7 mV	27.7 mV	Pass
Crossload 1	14.7 mV	10.1 mV	6.3 mV	2.3 mV	Pass
Crossload 2	19.5 mV	11.1 mV	4.2 mV	19.0 mV	Pass

The results above are not used in the certification process

Bitfenix Whisper 750W

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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