Bitfenix Whisper 550W

707Q00065

Lab ID 137

Certification ID 25137

Test Result Report ID:

Certificate Issue Date: Apr 7, 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 550W
OEM/ODM	Channel Well Technology
Serial Number	707Q00065
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	8

□□□□ (Hz)	47-63
□□□□ (W)	550
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	135mm Hydro Dynamic Bearing Fan (DF1352512SEMN)
□□□□□	✗
Cybenetics Testing Information	
Lab ID	137
Date of receipt	Mar 28, 2018
Testing Date	Apr 4, 2018
Report Issued Date	Apr 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)	1	1	18AWG
6+2pin PCIe□□ (650mm)	2	2	18AWG
SATA□□ (500mm+150mm+150mm+150mm)	2	8	18AWG
□ 4pin Molex□□ (500mm+150mm+150mm+150mm)	1	4	18AWG

□□□□

□		3.3V	5V	12V	12V	12V	5VSB	-12V
□□□□	□□	20	20	25	25	30	2.5	0.3
	□	100		550			12.5	3.6
□□□□□ (W)		550						

Parts Description

General Data	
Manufacturer (OEM)	CWT
Platform Model	GPU
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x CAP004DG
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	1x GBU806 (600V, 8A @ 100°C)
APFC MOSFETS	2x Champion GP18S50G (500V, 28A @ 150°C, 0.19 Ohm)
APFC Boost Diode	1x STMicroelectronics STTH8S06D (600V, 8A @ 175°C)
Hold-up Cap(s)	1x Nichicon (400V, 390uF, 2000h @ 105°C, GG)
Main Switchers	2x Silan Microelecronics SVF20N50F (500V, 12.6A @ 100°C, 0.27Ohm)
APFC Controller	Champion CM6502S & CM03X Green PFC controller
Switching Controller	Champion CM6901
Topology	Primary side: Half-Bridge & LLC Resonant Converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	6x Sinopower SM4021NAKP (40V, 100A @ 100°C, 1.6mΩ)
5V & 3.3V	DC-DC Converters: 2x UBIQ QM3006D FETs (30V, 57A @ 100°C, 5.5mΩ), 2x UBIQ QM3004D FETs (30V, 40A @ 100°C, 8.5mΩ) PWM Controller: ANPEC APW7159C
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (105°C, KY series, KZE series, KMG series), Nichicon (105°C) Polymers: FPCAP (Japan)
Supervisor IC	Sytronix ST9S429-PG14 (OCP [2x 12V channels, OVP, UVP, PG) & Weltrend WD7518D (OCP [2x 12V channels], SCP)
Fan Model	Martech DF1352512SEMN (135mm, 12V, 0.45A, Fluid Dynamic Bearing)
5VSB Circuit	

Standby PWM Controller	TinySwitch-LT TNY177PN (18W Peak)

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)	88.803%
Average Noise Output (>1450 Load Combinations)	15.37dBA
PF□□□ (>1450 Load Combinations)	0.981
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
□□□□□□	0.0500W
Non-Accredited	
12V Ripple (Full Load)	18.56mV
5V Ripple (Full Load)	13.04mV
3.3V Ripple (Full Load)	21.02mV
5VSB Ripple (Full Load)	21.07mV
12V Load Regulation	0.59%
5V Load Regulation	1.48%
3.3V Load Regulation	1.47%
5VSB Load Regulation	1.55%
Inrush Current	36.103A

230V

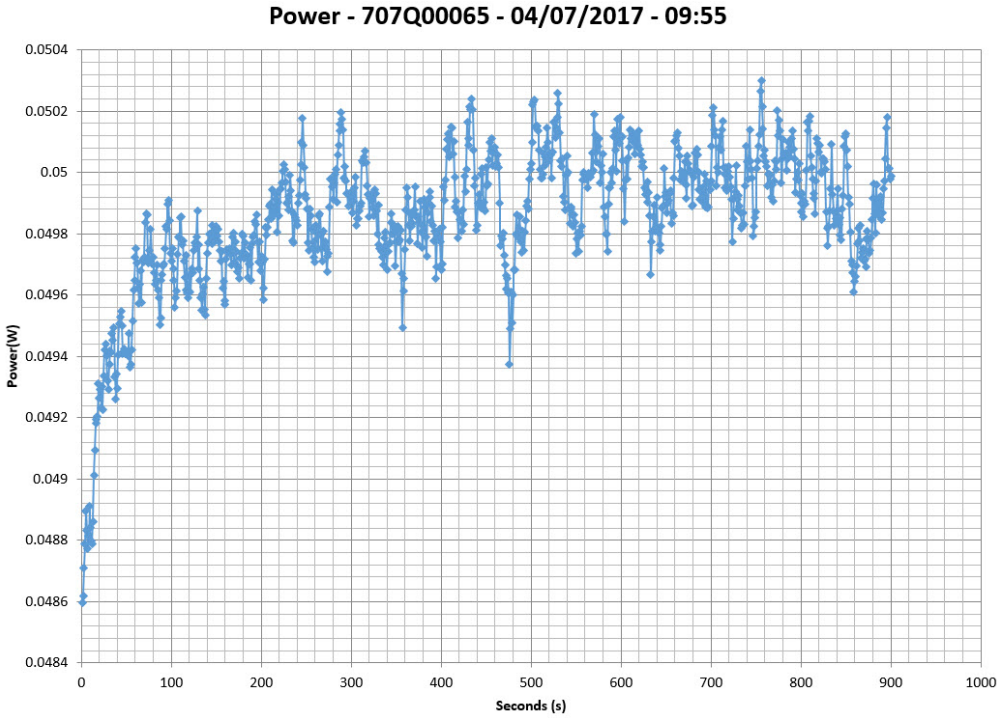
Accredited		
□□□□ (>1450 load combinations)		91.170%
Average Noise Output (>1450 Load Combinations)		15.74dBA
PF□□□ (>1450 Load Combinations)		0.921
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.0829W
Non-Accredited		
12V Ripple (Full Load)		18.76mV
5V Ripple (Full Load)		8.04mV
3.3V Ripple (Full Load)		5.31mV
5VSB Ripple (Full Load)		21.53mV
12V Load Regulation		0.47%
5V Load Regulation		0.24%
3.3V Load Regulation		0.42%
5VSB Load Regulation		1.26%
Inrush Current		51.220A
□□□□ & PG□□		13.30ms
AC Loss to PWR_OK Hold Up Time		12.50ms
PWR_OK Inactive to DC Loss Delay		0.80ms
OPP (0.00°C / 0.00°C)	-	-

□□□□ & PG□□

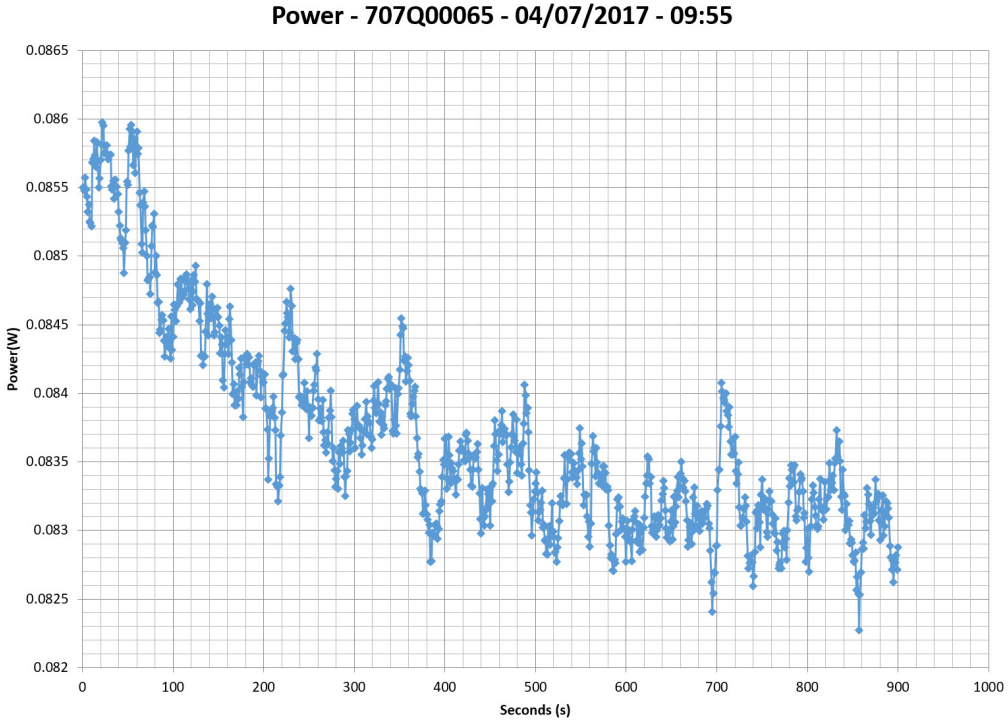
Hold-Up Time (ms)	13.3
AC Loss to PWR_OK Hold Up Time (ms)	12.5
PWR_OK Inactive to DC Loss Delay (ms)	0.8

Graphs

115V

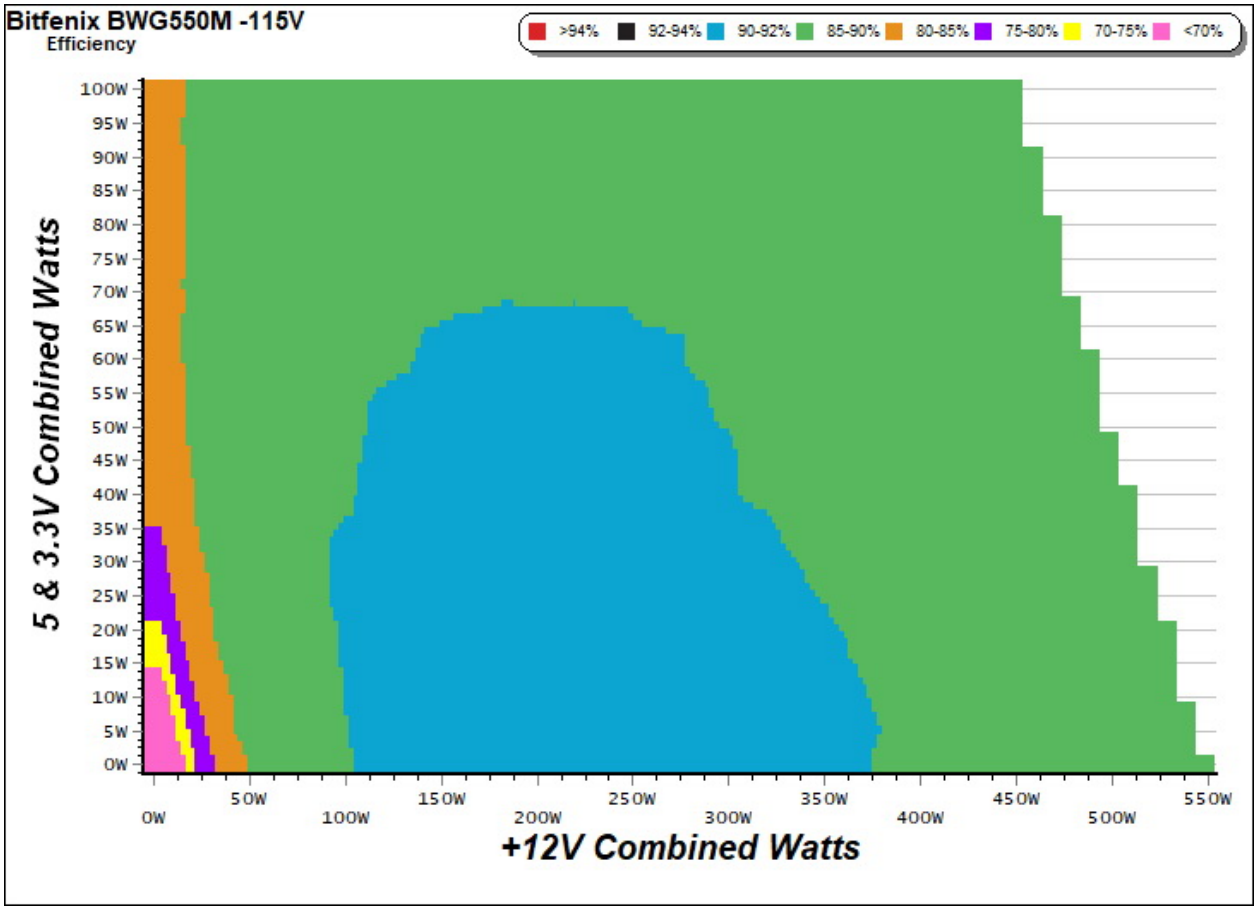


230V



□□□□□□

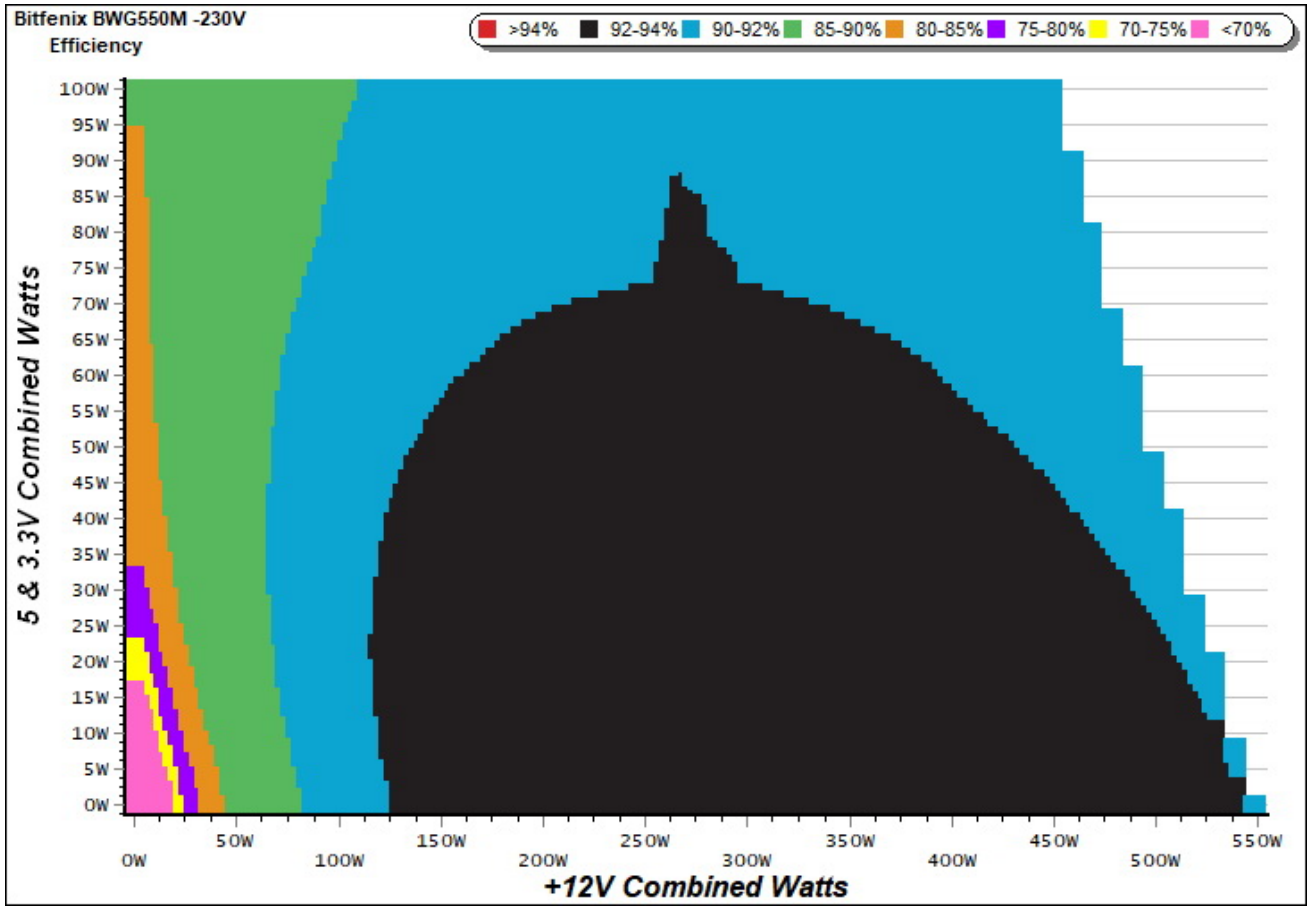
115V



□□

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.

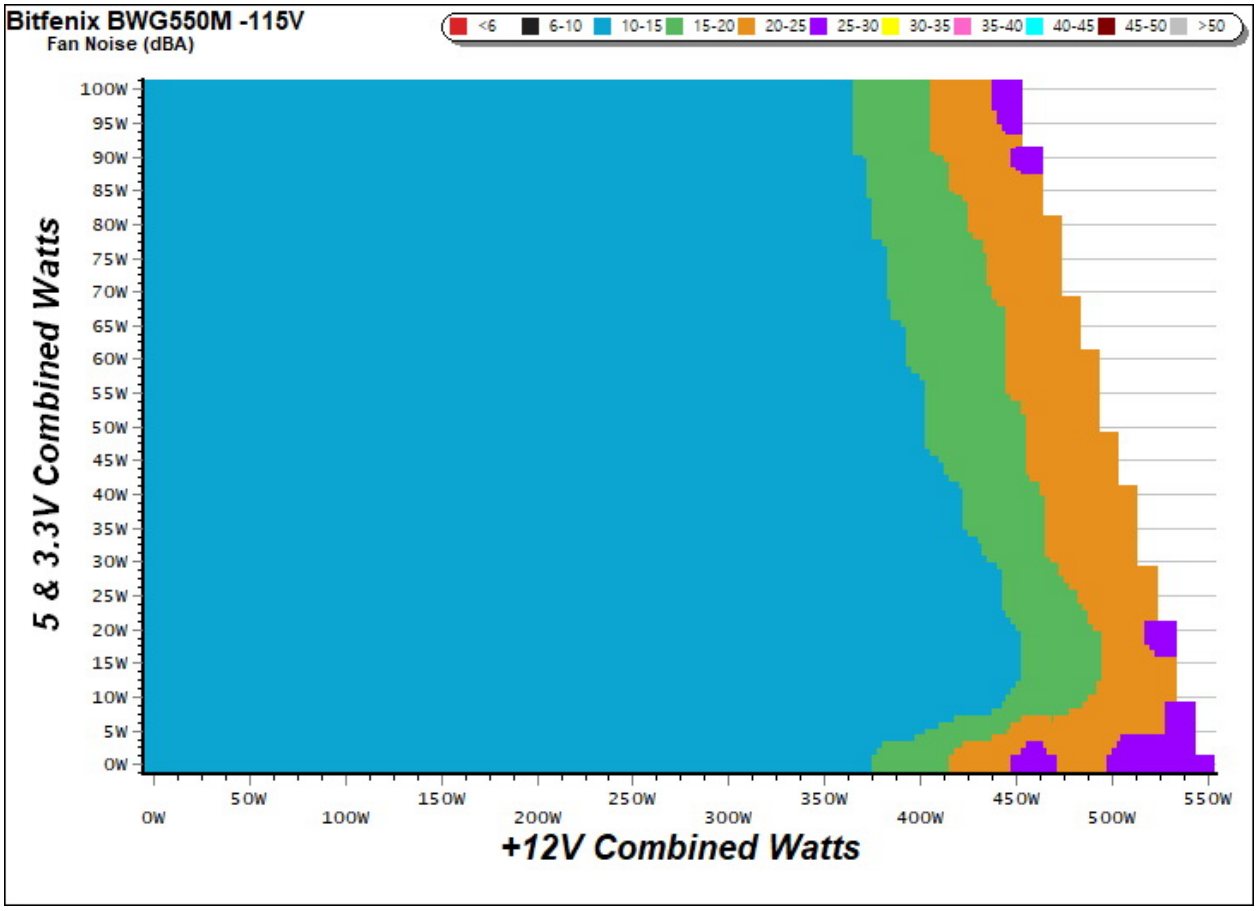
230V



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.

□□□□□

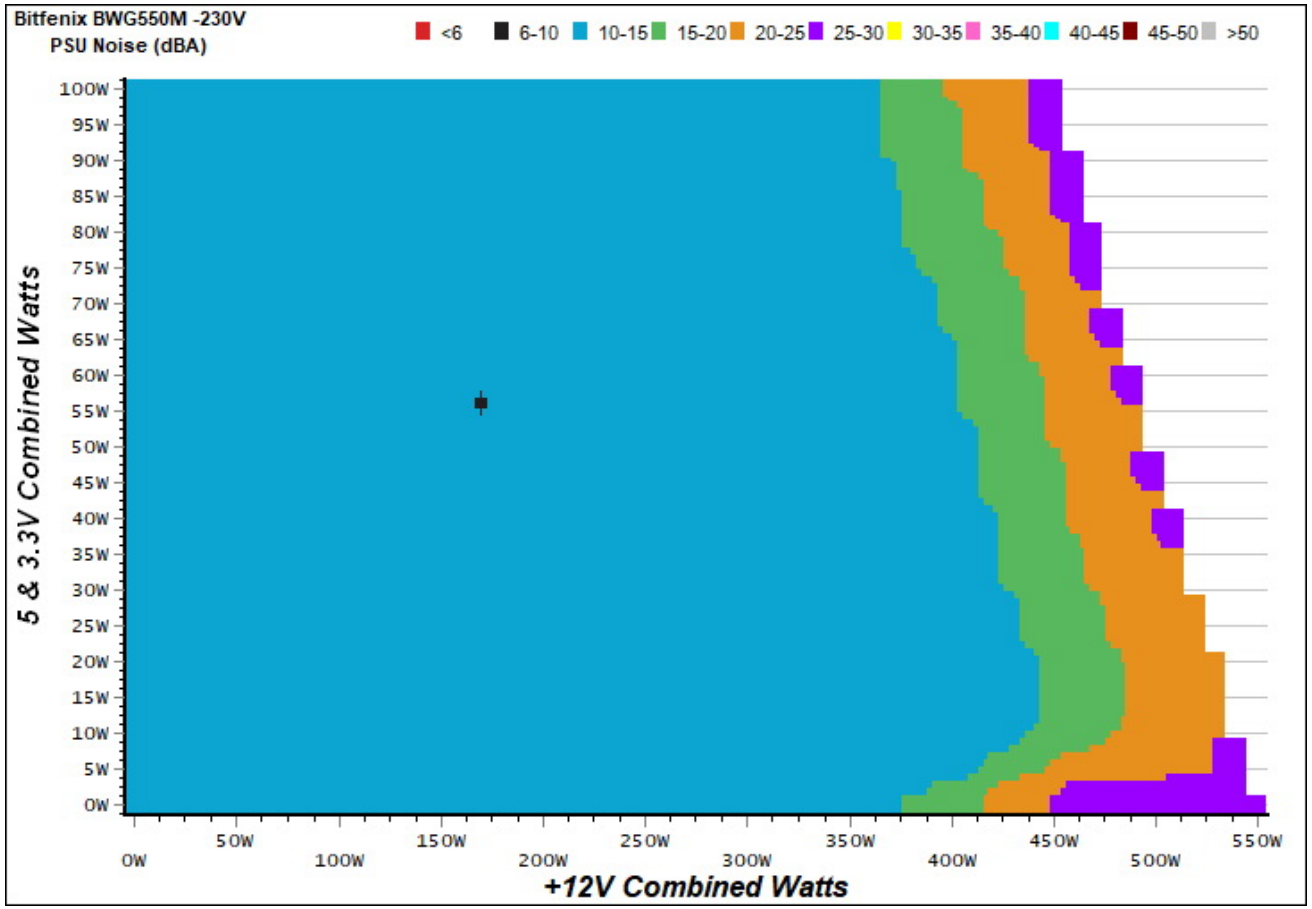
115V



□□

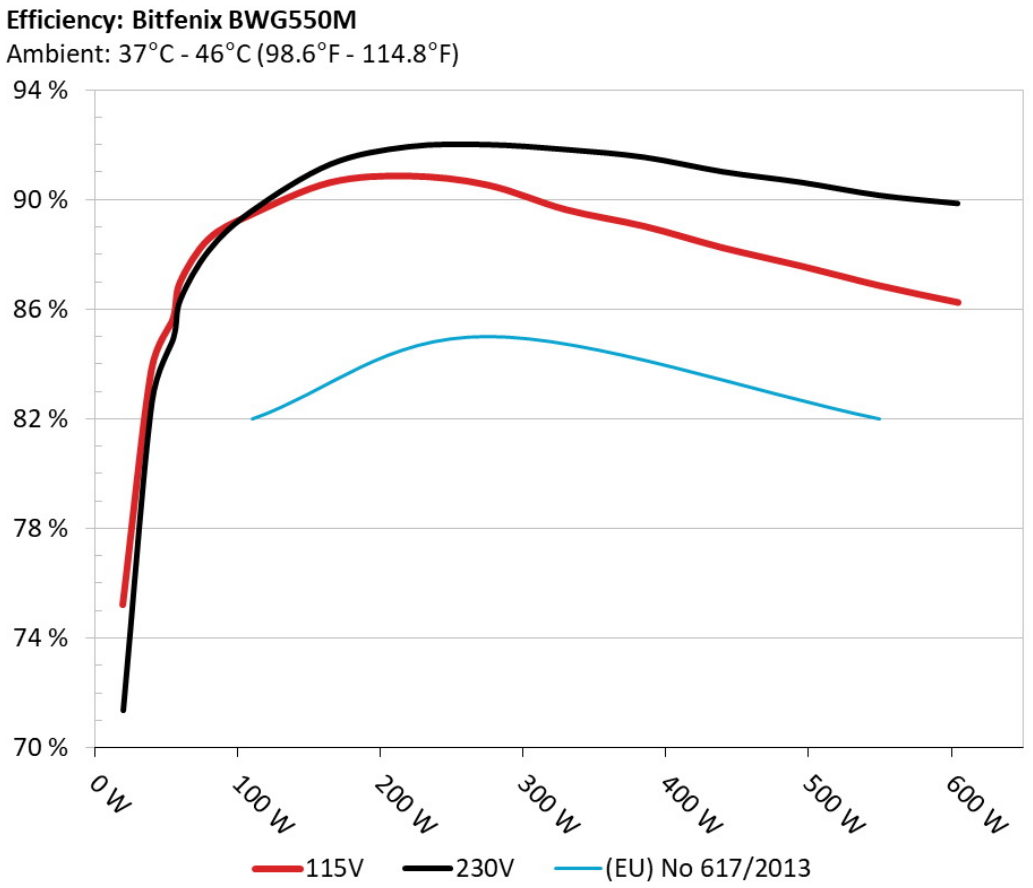
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

230V



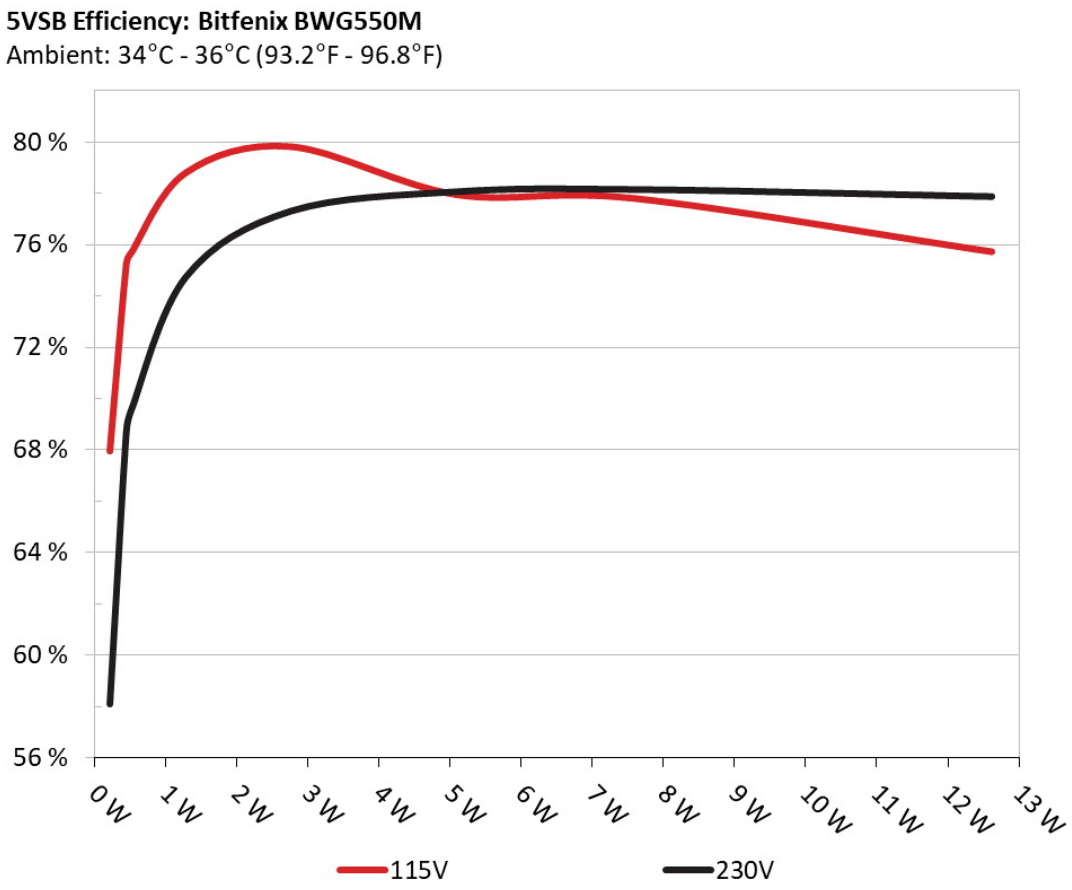
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

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	0.212	67.949%	0.032
	5.103V	0.312		115.15V
2	0.087A	0.444	75.254%	0.058
	5.101V	0.590		115.16V
3	0.542A	2.759	79.809%	0.260
	5.090V	3.457		115.13V
4	1.002A	5.090	77.936%	0.358
	5.080V	6.531		115.14V
5	1.502A	7.612	77.785%	0.410
	5.069V	9.786		115.14V
6	2.501A	12.619	75.717%	0.459
	5.045V	16.666		115.14V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.042A	0.212	58.082%	0.011
	5.103V	0.365		230.37V
2	0.087A	0.443	68.682%	0.019
	5.101V	0.645		230.39V
3	0.542A	2.758	77.320%	0.101
	5.090V	3.567		230.38V
4	1.002A	5.090	78.079%	0.170
	5.080V	6.519		230.38V
5	1.502A	7.610	78.164%	0.228
	5.068V	9.736		230.38V
6	2.501A	12.620	77.887%	0.305
	5.046V	16.203		230.38V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	2.766A	1.991A	1.984A	0.981A	54.765	85.636%	470	11.6	38.42°C	0.946
	12.014V	5.005V	3.321V	5.077V	63.951				43.24°C	115.17V
2	6.571A	3.002A	2.983A	1.181A	109.759	89.455%	455	10.5	38.55°C	0.975
	12.005V	4.996V	3.315V	5.070V	122.698				43.61°C	115.17V
3	10.734A	3.510A	3.500A	1.380A	164.857	90.622%	470	11.6	39.01°C	0.982
	11.997V	4.988V	3.310V	5.064V	181.917				44.85°C	115.17V
4	14.894A	4.016A	3.991A	1.580A	219.763	90.860%	470	11.6	39.78°C	0.985
	11.990V	4.981V	3.305V	5.057V	241.870				45.89°C	115.17V
5	18.716A	5.022A	4.999A	1.781A	274.695	90.536%	470	11.6	40.12°C	0.986
	11.981V	4.973V	3.299V	5.049V	303.410				47.16°C	115.17V
6	22.539A	6.046A	6.009A	1.980A	329.700	89.633%	470	11.6	41.16°C	0.986
	11.975V	4.965V	3.294V	5.042V	367.833				49.06°C	115.17V
7	26.371A	7.057A	7.020A	2.182A	384.643	89.026%	640	16.4	42.00°C	0.985
	11.967V	4.958V	3.289V	5.034V	432.056				50.12°C	115.17V
8	30.205A	8.086A	8.038A	2.385A	439.601	88.238%	970	27.3	42.72°C	0.985
	11.958V	4.950V	3.284V	5.026V	498.199				51.87°C	115.16V
9	34.476A	8.599A	8.569A	2.385A	494.632	87.572%	1280	35.2	43.48°C	0.985
	11.952V	4.943V	3.278V	5.023V	564.827				52.96°C	115.16V
10	38.709A	9.118A	9.067A	2.489A	549.523	86.855%	1455	39.2	44.68°C	0.986
	11.944V	4.936V	3.274V	5.018V	632.692				54.48°C	115.16V
11	43.323A	9.127A	9.078A	2.489A	604.455	86.240%	1455	39.2	45.99°C	0.988
	11.940V	4.932V	3.270V	5.014V	700.896				56.04°C	115.16V
CL1	0.096A	12.014A	12.004A	0.004A	100.507	84.697%	470	11.6	44.31°C	0.974
	11.994V	4.963V	3.308V	5.095V	118.666				55.31°C	115.18V

CL2	45.782A	1.001A	1.002A	1.001A	560.977	87.698%	1455	39.2	44.88°C	0.987
	11.962V	4.970V	3.287V	5.059V	639.671				54.19°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	2.735A	1.994A	1.982A	0.984A	54.442	84.941%	470	11.6	40.11°C	0.711
	12.010V	5.016V	3.327V	5.081V	64.094				46.11°C	230.91V
2	6.534A	2.991A	2.977A	1.182A	109.322	89.709%	470	11.6	40.85°C	0.857
	12.003V	5.014V	3.325V	5.075V	121.863				47.19°C	230.88V
3	10.731A	3.492A	3.461A	1.381A	164.844	91.508%	470	11.6	41.18°C	0.908
	12.006V	5.013V	3.323V	5.070V	180.142				49.19°C	230.85V
4	14.873A	3.989A	3.973A	1.580A	219.653	92.190%	470	11.6	41.77°C	0.932
	11.999V	5.012V	3.322V	5.064V	238.262				51.29°C	230.81V
5	18.684A	4.991A	4.967A	1.780A	274.543	92.776%	470	11.6	42.08°C	0.945
	11.991V	5.011V	3.320V	5.058V	295.920				52.33°C	230.77V
6	22.499A	5.989A	5.964A	1.980A	329.460	92.155%	470	11.6	42.96°C	0.954
	11.985V	5.011V	3.319V	5.053V	357.507				54.82°C	230.73V
7	26.360A	6.991A	6.962A	2.180A	384.781	91.775%	750	21.0	43.00°C	0.958
	11.975V	5.009V	3.318V	5.047V	419.266				55.76°C	230.69V
8	30.226A	7.991A	7.961A	2.381A	440.102	91.342%	1020	30.6	43.66°C	0.962
	11.966V	5.008V	3.316V	5.040V	481.820				56.90°C	230.65V
9	34.459A	8.493A	8.448A	2.382A	494.611	91.024%	1310	35.4	44.19°C	0.965
	11.959V	5.006V	3.314V	5.039V	543.384				57.89°C	230.71V
10	38.693A	8.994A	8.966A	2.483A	549.718	90.611%	1455	39.2	45.43°C	0.967
	11.953V	5.005V	3.313V	5.035V	606.679				59.63°C	230.67V
11	43.336A	8.995A	8.970A	2.483A	604.944	90.333%	1455	39.2	46.11°C	0.969
	11.947V	5.004V	3.311V	5.034V	669.681				60.90°C	230.63V
CL1	0.140A	12.002A	11.999A	0.000A	101.718	84.988%	470	11.6	42.68°C	0.856
	11.997V	5.013V	3.323V	5.103V	119.685				54.31°C	230.97V

CL2	45.839A	1.003A	1.000A	1.000A	561.740	91.525%	1455	39.2	45.92°C	0.967
	11.962V	5.011V	3.317V	5.071V	613.758				59.13°C	230.67V

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	1.214A	0.488A	0.479A	0.195A	19.627	75.202%	455	10.5	0.819
	12.020V	5.014V	3.328V	5.097V	26.099				115.17V
2	2.454A	0.992A	0.990A	0.391A	39.736	83.794%	470	11.6	0.918
	12.015V	5.010V	3.323V	5.093V	47.421				115.17V
3	3.697A	1.485A	1.503A	0.585A	59.815	86.988%	470	11.6	0.949
	12.013V	5.007V	3.321V	5.087V	68.762				115.18V
4	4.928A	1.996A	1.986A	0.785A	79.751	88.560%	470	11.6	0.965
	12.010V	5.003V	3.319V	5.081V	90.053				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	1.202A	0.499A	0.480A	0.196A	19.544	71.248%	470	11.6	0.441
	12.015V	5.018V	3.329V	5.100V	27.431				230.93V
2	2.465A	0.997A	0.991A	0.393A	39.912	82.774%	470	11.6	0.624
	12.012V	5.016V	3.328V	5.095V	48.218				230.92V
3	3.666A	1.495A	1.472A	0.590A	59.427	86.366%	470	11.6	0.731
	12.010V	5.016V	3.327V	5.090V	68.808				230.90V
4	4.949A	1.997A	1.987A	0.787A	79.964	88.145%	470	11.6	0.798
	11.992V	5.012V	3.325V	5.082V	90.719				231.00V

The results above are not used in the certification process

□□□□

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	12.2 mV	8.4 mV	7.2 mV	9.0 mV	Pass
20% Load	17.8 mV	8.6 mV	9.0 mV	6.1 mV	Pass
30% Load	17.8 mV	8.3 mV	10.3 mV	7.1 mV	Pass
40% Load	16.7 mV	8.6 mV	11.4 mV	7.4 mV	Pass
50% Load	16.8 mV	8.8 mV	11.8 mV	10.0 mV	Pass
60% Load	19.2 mV	8.9 mV	12.0 mV	11.8 mV	Pass
70% Load	19.2 mV	10.4 mV	14.0 mV	19.5 mV	Pass
80% Load	18.1 mV	10.7 mV	16.9 mV	16.3 mV	Pass
90% Load	18.1 mV	19.1 mV	22.8 mV	18.0 mV	Pass
100% Load	18.6 mV	13.0 mV	21.0 mV	21.1 mV	Pass
110% Load	20.3 mV	13.4 mV	24.1 mV	24.8 mV	Pass
Crossload 1	20.5 mV	12.2 mV	9.5 mV	6.0 mV	Pass
Crossload 2	17.6 mV	11.9 mV	21.0 mV	20.5 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	3.8 mV	5.0 mV	2.5 mV	6.8 mV	Pass
20% Load	12.3 mV	5.3 mV	2.8 mV	8.2 mV	Pass
30% Load	26.0 mV	5.7 mV	3.2 mV	7.7 mV	Pass
40% Load	20.5 mV	5.5 mV	3.3 mV	8.7 mV	Pass
50% Load	17.2 mV	6.1 mV	3.4 mV	12.5 mV	Pass
60% Load	18.7 mV	6.1 mV	3.7 mV	11.3 mV	Pass
70% Load	18.9 mV	6.2 mV	4.2 mV	17.4 mV	Pass
80% Load	18.0 mV	7.3 mV	5.0 mV	17.3 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	17.9 mV	19.6 mV	11.6 mV	19.1 mV	Pass
100% Load	18.8 mV	8.0 mV	5.3 mV	21.5 mV	Pass
110% Load	19.8 mV	7.8 mV	5.4 mV	24.3 mV	Pass
Crossload 1	4.4 mV	6.8 mV	5.3 mV	3.4 mV	Pass
Crossload 2	18.3 mV	6.1 mV	3.5 mV	20.2 mV	Pass

The results above are not used in the certification process

Bitfenix Whisper 550W

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

Cybenetics 提供自愿性认证计划：电源方面有 ETA（效率）、 LAMBDA（噪声）与 SAFE（安全与正确运行）；散热产品方面有 DELTA（机箱隔音）与 PHI（风扇风量与静压）