ABYSM GAMING Morpheo GX5 1000W

AB2823AB21001T500503

Lab ID AB10002452

Certification ID 252452

Test Result Report ID: 24PS2452A

Certificate Issue Date: May 24, 2024

Scheme: ETA-EMI PSU

115V



230V



Scheme: LAMBDA PSU

115V



230V





Outside Validation Scope



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	ABYSM GAMING
Model	Morpheo GX5 1000W
OEM/ODM	Helly Technology
Serial Number	AB2823AB21001T500503
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240

□□□□ (Arms)	12-6
□□□□ (Hz)	50-60
□□□□ (W)	1000
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Fluid Dynamic Bearing Fan (HA1225M12F-Z)
□□□□□	✓ (selectable)
Cybenetics Testing Information	
Lab ID	AB10002452
Date of receipt	May 8, 2024
Testing Date	May 23, 2024
Report Issued Date	May 24, 2024
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□□
(Non-accredited measurements)

?????				
□□	□□□□	□□□□□□	**Gauge**	In Cable Capacitors
ATX □□ 20+4 pin (600mm)	1	1	18-22AWG	□
4+4 pin EPS 12V □□ (650mm)	2	2	18AWG	□
6+2pin PCIe□□ (600mm)	3	3	18AWG	□
12+4 pin PCIe (700mm) (600W)	1	1	16-24AWG	□
SATA□□ (450mm+145mm+145mm+145mm)	2	8	18AWG	□

?????				
4-pin Molex (450mm+145mm+145mm+145mm)	1	4	18AWG	□
AC Power Cord (1360mm) - C13 coupler	1	1	18AWG	-

Protection Features

Over Power Protection	✓
Over Current (+12V) Protection	✓
Over Temperature Protection	✓
Short Circuit Protection	✓
Surge Protection	✓
Inrush Current Protection	✓
Fan Failure Protection	✗

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	20	20	83	3	0.3
	□	120		996	15	3.6
□□□□□ (W)		1000				

Test Results

Temperature & Compliance Info

□□□□ (°C /°F)	28-32 / 82.4-89.6
□□ ErP Lot3/6□□	✓
□□ (EU) No 617/2013□□	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.1 PSU Power Excursion	✓

Performance Summary

115V

Accredited	
□□□□ (>1450 load combinations)	89.251%
Average Noise Output (>1450 Load Combinations)	28.16dBA
PF□□□ (>1450 Load Combinations)	0.991
Efficiency With 10W (≤500W) or 2% (>500W) Load	69.023%
□□□□□□	0.0416W
Non-Accredited	
12V Ripple (Full Load)	32.16mV
5V Ripple (Full Load)	15.48mV
3.3V Ripple (Full Load)	17.26mV
5VSB Ripple (Full Load)	27.20mV
12V Load Regulation	0.26%
5V Load Regulation	0.63%
3.3V Load Regulation	1.12%
5VSB Load Regulation	4.76%
Inrush Current	30.930A

230V

Accredited	
□□□□ (>1450 load combinations)	91.653%
Average Noise Output (>1450 Load Combinations)	26.39dBA
PF□□□ (>1450 Load Combinations)	0.972
Efficiency With 10W (≤500W) or 2% (>500W) Load	69.873%
□□□□□□	0.0858W
Non-Accredited	
12V Ripple (Full Load)	33.24mV
5V Ripple (Full Load)	16.11mV
3.3V Ripple (Full Load)	15.86mV

5VSB Ripple (Full Load)		26.71mV
12V Load Regulation		0.29%
5V Load Regulation		0.57%
3.3V Load Regulation		1.12%
5VSB Load Regulation		4.76%
Inrush Current		53.570A
12V Transient Response (200%)		11.47V
5V Transient Response (200%)		4.979V
3.3V Transient Response (200%)		3.199V
5VSB Transient Response (200%)		4.913V
□□□□ & PG□□		20.50ms
AC Loss to PWR_OK Hold Up Time		17.80ms
PWR_OK Inactive to DC Loss Delay		2.70ms
PSU Timings: T1 (20% / 100%)	61.0ms	62.0ms
PSU Timings: T3 (20% / 100%)	123.0ms	126.0ms
OPP (28.23°C / 43.11°C)	140.71%	134.37%

□□□□ & PG□□

Hold-Up Time (ms)	20.5
AC Loss to PWR_OK Hold Up Time (ms)	17.8
PWR_OK Inactive to DC Loss Delay (ms)	2.7

□□□□

Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.06 V	115.02 V	113.85 V	115.11 V	116.15 V	PASS

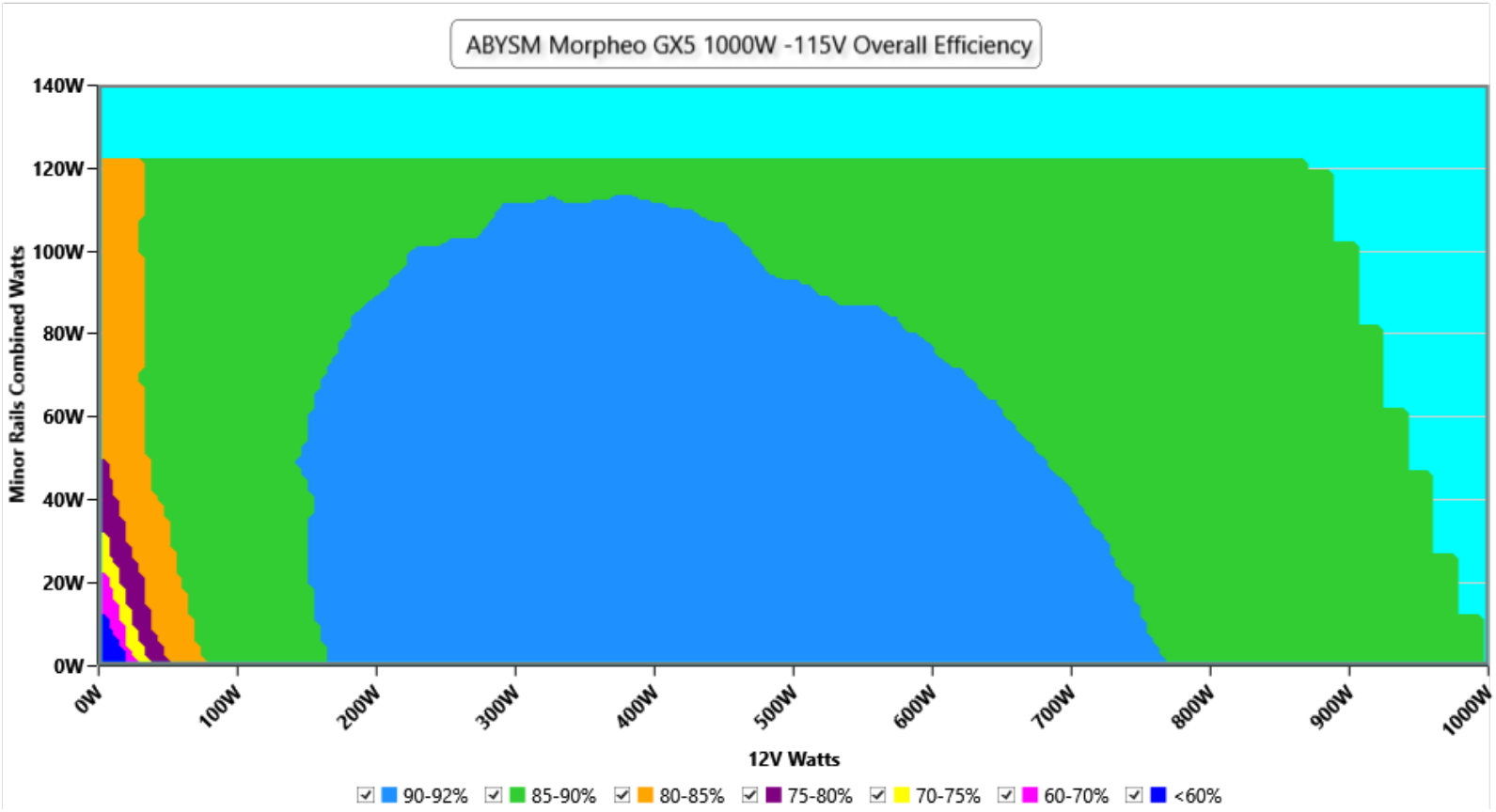
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.13 %	0.09 %	N/A	0.18 %	2.00 %	PASS
Real Power:	0.042 W	0.006 W	N/A	0.066 W	N/A	N/A
Apparent Power:	6.455 W	6.385 W	N/A	6.528 W	N/A	N/A
Power Factor:	0.009	N/A	N/A	N/A	N/A	N/A

230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.00 V	230.90 V	227.70 V	231.06 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	49.99 Hz	49.50 Hz	50.01 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.417	1.416	1.340	1.419	1.490	PASS
Mains Voltage THD:	0.17 %	0.14 %	N/A	0.26 %	2.00 %	PASS
Real Power:	0.086 W	0.074 W	N/A	0.106 W	N/A	N/A
Apparent Power:	21.561 W	21.383 W	N/A	21.738 W	N/A	N/A
Power Factor:	0.004	N/A	N/A	N/A	N/A	N/A

□□□□□□

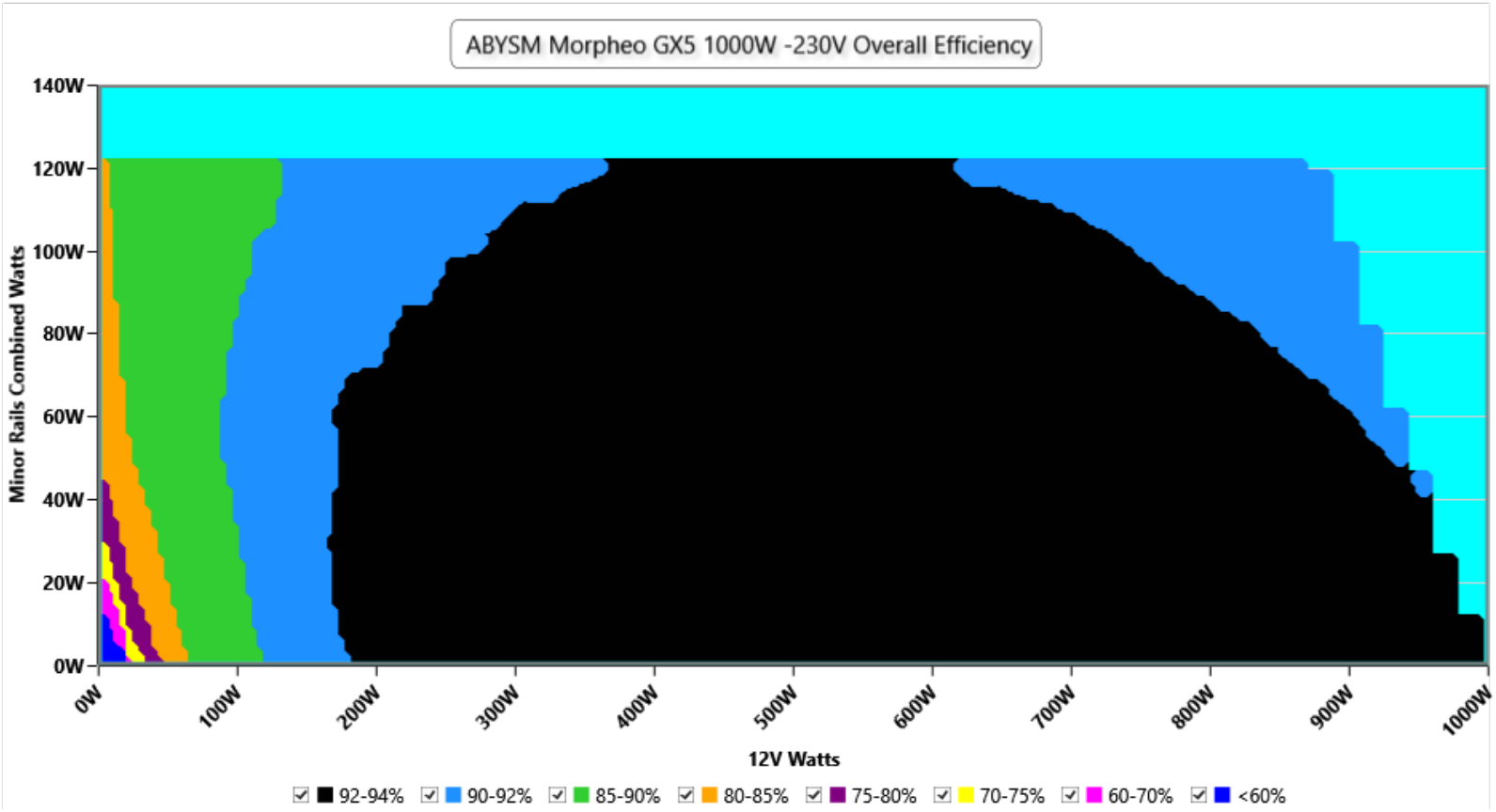
115V



□□

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

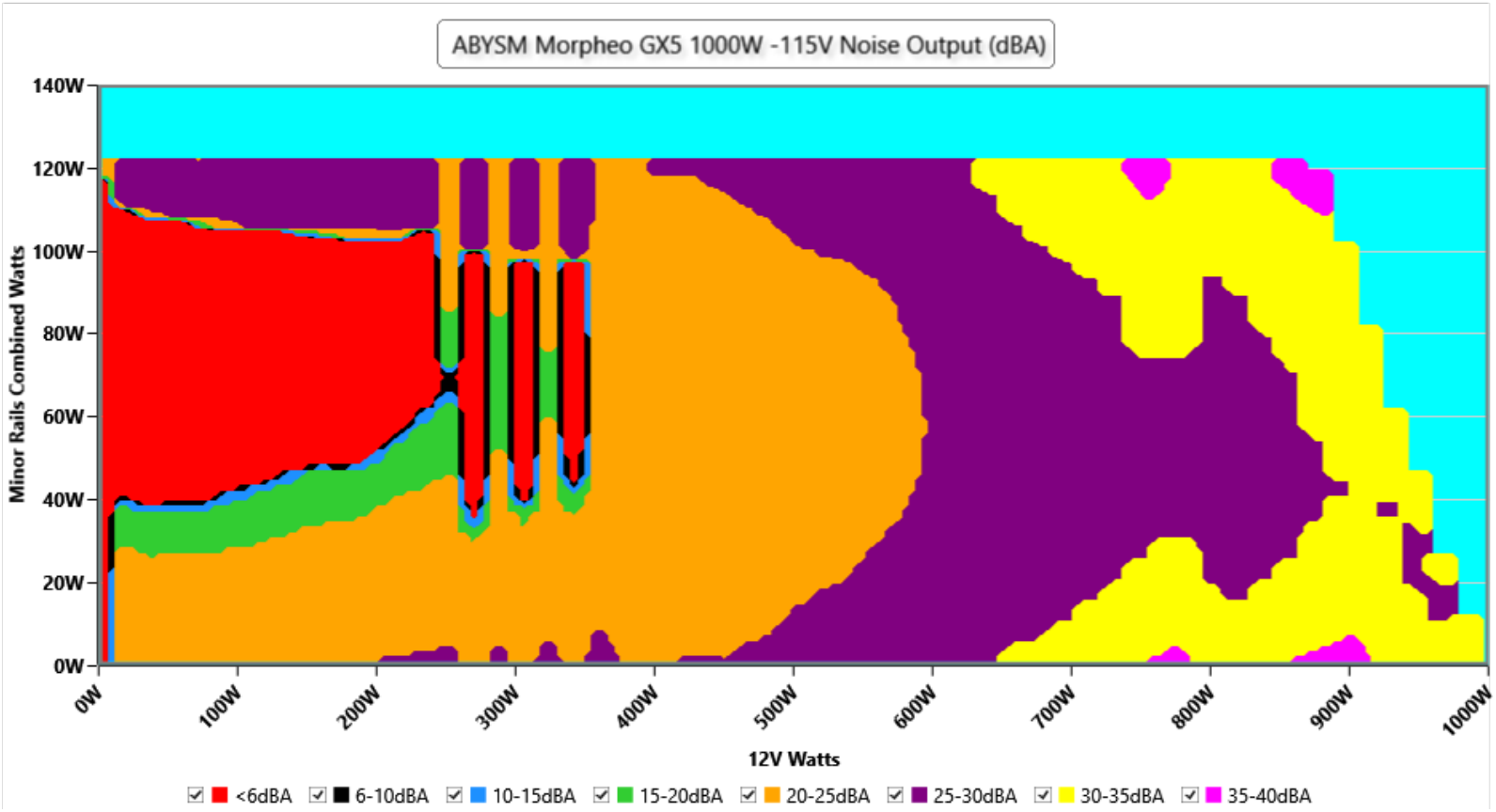
230V



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

□□□□□

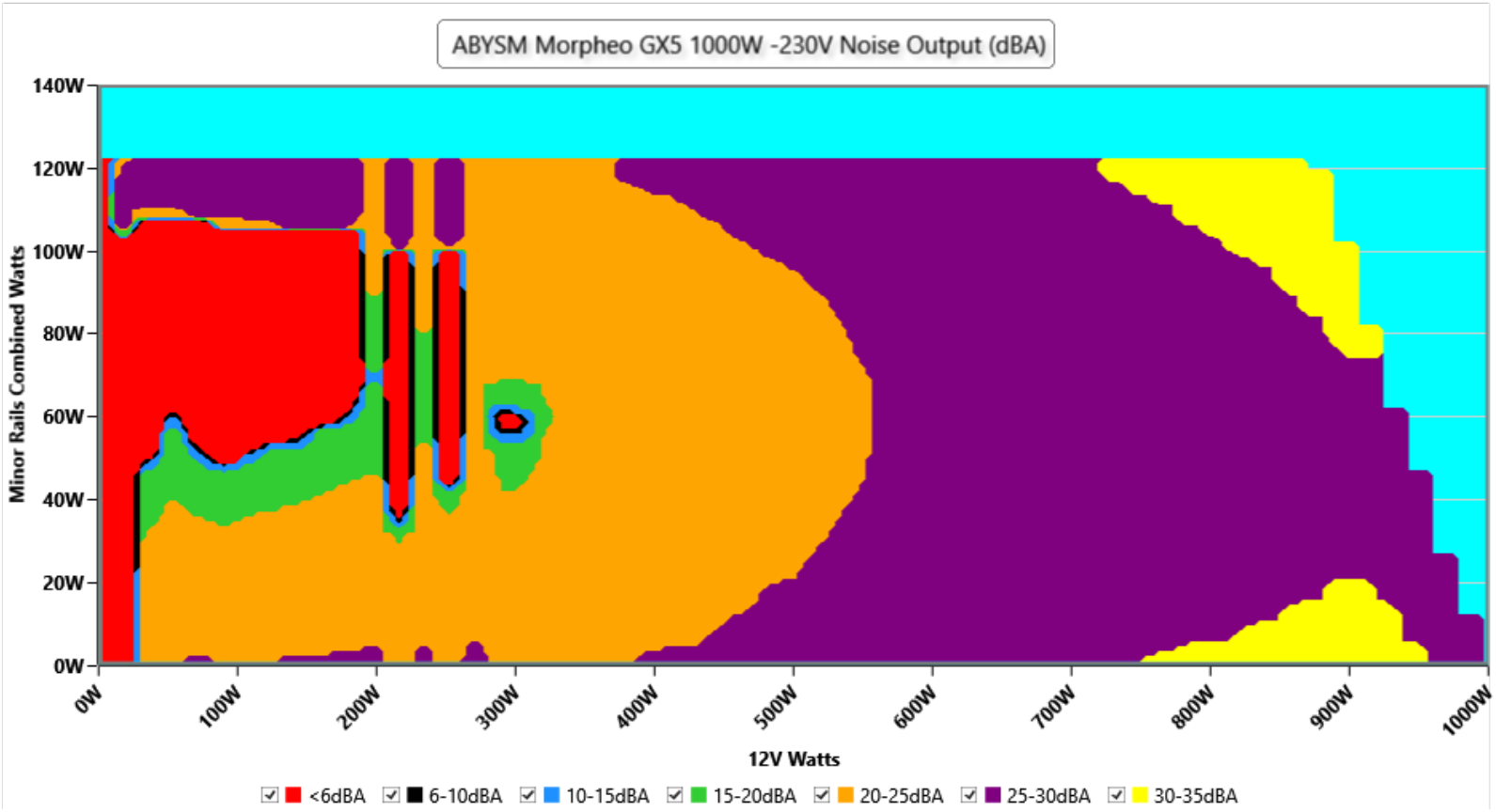
115V



□□

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

Noise under high ambient temperature (indicative)

115V

Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	982 RPM · 23.0 dB(A) · 40.4 °C	982 RPM · 23.0 dB(A) · 40.4 °C	**+0.0 dB(A)**
20%	1044 RPM · 25.1 dB(A) · 40.9 °C	1044 RPM · 25.1 dB(A) · 40.9 °C	**+0.0 dB(A)**
50%	1173 RPM · 28.6 dB(A) · 42.2 °C	1173 RPM · 28.6 dB(A) · 42.2 °C	**+0.0 dB(A)**
100%	1867 RPM · 41.4 dB(A) · 45.6 °C	1867 RPM · 41.4 dB(A) · 45.6 °C	**+0.0 dB(A)**

230V

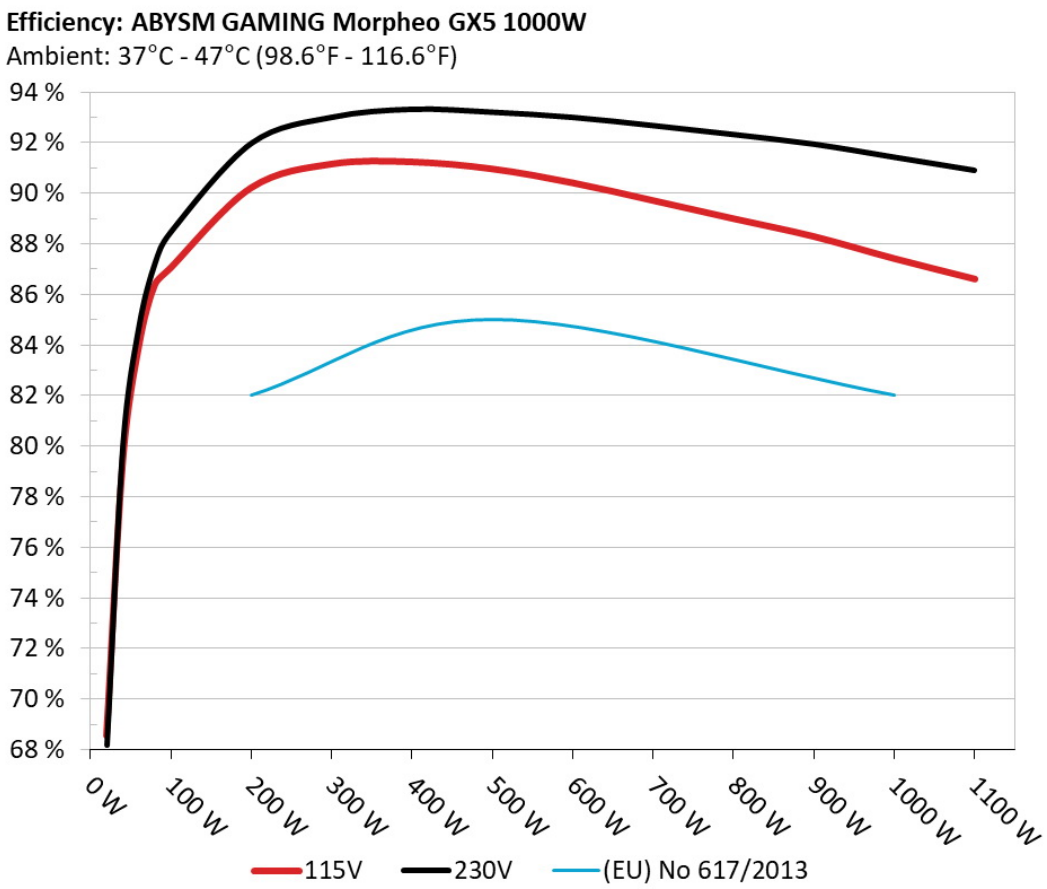
Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	956 RPM · 22.4 dB(A) · 40.2 °C	956 RPM · 22.4 dB(A) · 40.2 °C	**+0.0 dB(A)**
20%	1015 RPM · 24.1 dB(A) · 40.7 °C	1015 RPM · 24.1 dB(A) · 40.7 °C	**+0.0 dB(A)**
50%	1234 RPM · 30.1 dB(A) · 42.2 °C	1234 RPM · 30.1 dB(A) · 42.2 °C	**+0.0 dB(A)**
100%	1859 RPM · 41.2 dB(A) · 45.7 °C	1859 RPM · 41.2 dB(A) · 45.7 °C	**+0.0 dB(A)**

INFO

Fan speed, noise and the measured intake temperature at 10, 20, 50 and 100 % load, from the two load regulation tests: at normal ambient (about 30-32 °C) and at high ambient (about 40-47 °C). These are stabilized readings at fixed loads, not averages over the certification sweep, so they are indicative of how the fan behaves when it is hot. "<6.0" is the floor of our sound meter: the fan is stopped or too quiet to measure (the fan speed column says which); with the fan stopped, the intake sensor can read higher than the chamber air.

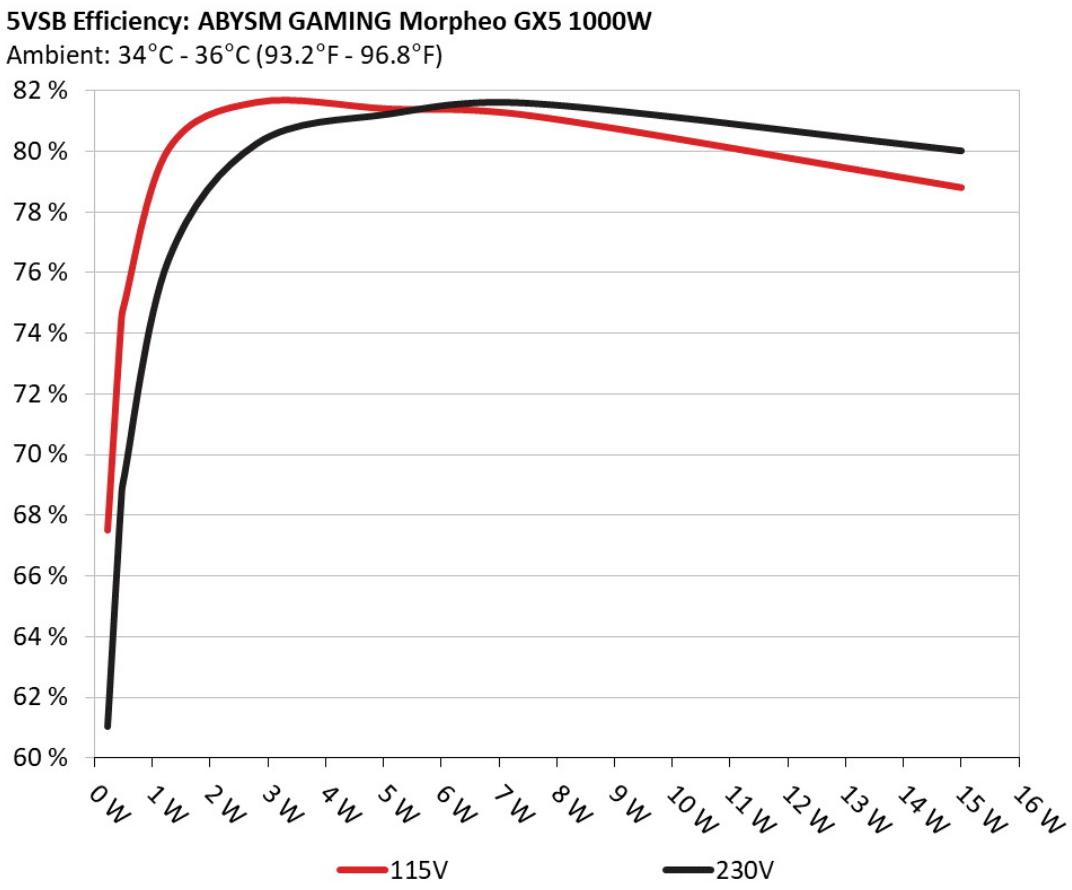
Informational. Not part of the ETA or LAMBDA rating.

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	**0.045A**	0.231W	67.517%	0.049
	5.142V	0.342W		114.88V
2	**0.09A**	0.463W	74.295%	0.089
	5.14V	0.623W		114.88V
6	**0.55A**	2.815W	81.599%	0.353
	5.118V	3.45W		114.87V
4	**1A**	5.097W	81.379%	0.462
	5.097V	6.263W		114.86V
5	**1.5A**	7.611W	81.141%	0.518
	5.073V	9.38W		114.86V
6	**3A**	15.008W	78.79%	0.573
	5.002V	19.048W		114.86V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	**0.045A**	0.232W	61.035%	0.016
	5.142V	0.38W		229.94V
2	**0.09A**	0.463W	68.379%	0.029
	5.14V	0.677W		229.94V
3	**0.55A**	2.815W	80.237%	0.14
	5.118V	3.508W		229.94V
4	**1A**	5.097W	81.207%	0.228
	5.097V	6.277W		229.94V
5	**1.5A**	7.611W	81.555%	0.301
	5.073V	9.332W		229.94V
6	**3.001A**	15.007W	79.996%	0.402
	5.002V	18.76W		229.94V

Protection Features

Protection Features	
OCP (Cold @ 27°C)	12V: 112.8A (135.9%), 12.18V 5V: 29.5A (147.5%), 5.059V 3.3V: 30.6A (153%), 3.293V 5VSB: 4.1A (136.67%), 4.944V
OCP (Hot @ 45°C)	12V: 111A (133.73%), 12.192V 5V: 29.7A (148.5%), 5.06V 3.3V: 30.1A (150.5%), 3.294V 5VSB: 4A (133.33%), 4.94V
OPP (Cold @ 28°C)	1407.08W (140.71%)
OPP (Hot @ 43°C)	1343.66W (134.37%)
OTP	✓ (133°C @ secondary side)
SCP	12V to Earth: ✓ 5V to Earth: ✓ 3.3V to Earth: ✓ 5VSB to Earth: ✓ -12V to Earth: ✓
PWR_OK	Proper operation
NLO	✓
Fan Failure Protection	✗
SIP	Surge: MOV Inrush: NTC Thermistor & Bypass relay

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
	6.422A	**1.961A**	**1.984A**	**0.983A**	99.997	87.074%	982	23.0	40.42°C	0.974
	12.208V	5.1V	3.326V	5.086V	114.842				44.62°C	114.85V
	13.852A	**2.944A**	**2.981A**	**1.184A**	199.949	90.232%	1044	25.1	40.89°C	0.985
	12.204V	5.095V	3.321V	5.067V	221.592				45.55°C	114.81V
	21.636A	**3.437A**	**3.481A**	**1.387A**	300.003	91.167%	1082	26.3	41.34°C	0.989
	12.200V	5.093V	3.318V	5.049V	329.069				46.39°C	114.78V
	29.387A	**3.93A**	**3.983A**	**1.591A**	399.608	91.251%	1133	27.7	41.53°C	0.993
	12.196V	5.09V	3.315V	5.03V	437.919				47.11°C	114.74V
	36.812A	**4.916A**	**4.985A**	**1.796A**	499.32	90.977%	1173	28.6	42.2°C	0.994
	12.192V	5.086V	3.31V	5.011V	548.844				48.26°C	114.71V
	44.304A	**5.903A**	**5.988A**	**2A**	599.837	90.423%	1458	35.0	42.76°C	0.996
	12.189V	5.083V	3.307V	4.991V	663.371				49.27°C	114.67V
	51.739A	**6.892A**	**6.995A**	**2.213A**	699.6	89.727%	1560	36.7	43.31°C	0.996
	12.186V	5.08V	3.303V	4.97V	779.699				50.34°C	114.64V
	59.242A	**7.88A**	**8.003A**	**2.321A**	799.611	89.009%	1675	38.8	43.89°C	0.997
	12.182V	5.076V	3.299V	4.955V	898.35				52.02°C	114.6V
	67.076A	**8.377A**	**8.497A**	**2.429A**	899.395	88.307%	1799	40.5	44.34°C	0.997
	12.179V	5.074V	3.295V	4.94V	1018.484				53.34°C	114.56V
	74.716A	**8.874A**	**9.023A**	**3.063A**	999.397	87.434%	1867	41.4	45.57°C	0.998
	12.176V	5.071V	3.292V	4.899V	1143.025				55.64°C	114.52V
	82.284A	**9.864A**	**10.126A**	**3.069A**	1099.947	86.624%	1882	41.7	46.5°C	0.998
	12.173V	5.069V	3.288V	4.889V	1269.8				57.41°C	114.48V
	0.115A	**14.216A**	**14.408A**	**0.001A**	121.308	82.64%	1606	37.6	40.05°C	0.982
	12.211V	5.079V	3.31V	5.115V	146.791				48.33°C	114.83V

	0.115A	**19.708A**	**0A**	**0.001A**	101.392	81.472%	1411	33.8	40.41°C	0.976
	12.211V	5.074V	3.328V	5.126V	124.448				45.59°C	114.85V
	0.113A	**0A**	**19.96A**	**0.001A**	67.392	75.825%	1475	35.3	40.21°C	0.967
	12.207V	5.101V	3.306V	5.122V	88.881				43.61°C	114.85V
	82.136A	**0A**	**0A**	**0.001A**	999.947	88.419%	1734	39.5	45.09°C	0.997
	12.174V	5.087V	3.304V	5.066V	1130.927				54.18°C	114.53V

The results above are not used in the certification process

230V

□□	**12V**	**5V**	**3.3V**	**5VSB**	**DC/AC (□)**	□□	□□□□ **(RPM)**	□□□□□□□ **(dB[A])**	□□ **(□□ /□□)**	**PF/AC □□**
	6.420A	**1.962A**	**1.985A**	**0.983A**	99.979	88.501%	956	22.4	40.18°C	0.909
	12.209V	5.097V	3.325V	5.086V	112.968				44.42°C	229.93V
	13.848A	**2.944A**	**2.98A**	**1.184A**	199.919	91.994%	1015	24.1	40.71°C	0.958
	12.205V	5.095V	3.322V	5.068V	217.317				45.36°C	229.91V
	21.629A	**3.437A**	**3.48A**	**1.386A**	299.958	93.02%	1075	26.0	41.45°C	0.972
	12.202V	5.093V	3.319V	5.049V	322.467				46.45°C	229.9V
	29.372A	**3.929A**	**3.981A**	**1.59A**	399.424	93.339%	1115	27.2	41.81°C	0.979
	12.196V	5.091V	3.315V	5.031V	427.927				47.31°C	229.88V
	36.793A	**4.915A**	**4.983A**	**1.796A**	499.167	93.224%	1234	30.1	42.22°C	0.983
	12.194V	5.087V	3.312V	5.011V	535.45				48.22°C	229.87V
	44.293A	**5.902A**	**5.987A**	**2A**	599.695	93.018%	1445	34.7	42.92°C	0.985
	12.190V	5.083V	3.307V	4.992V	644.711				49.46°C	229.85V
	51.726A	**6.891A**	**6.993A**	**2.213A**	699.455	92.694%	1532	36.4	43°C	0.987
	12.187V	5.08V	3.303V	4.971V	754.581				50.03°C	229.84V
	59.229A	**7.879A**	**8.001A**	**2.32A**	799.485	92.34%	1668	38.7	43.93°C	0.989
	12.183V	5.077V	3.299V	4.956V	865.809				52.06°C	229.82V
	67.065A	**8.375A**	**8.494A**	**2.429A**	899.283	91.961%	1787	40.3	44.58°C	0.99
	12.179V	5.074V	3.296V	4.941V	977.9				53.75°C	229.81V
	74.704A	**8.872A**	**9.02A**	**3.061A**	999.284	91.445%	1859	41.2	45.65°C	0.99
	12.177V	5.072V	3.292V	4.9V	1092.766				55.72°C	229.79V

	82.273A	**9.865A**	**10.125A**	**3.068A**	1099.905	90.921%	1868	41.4	46.82°C	0.991
	12.174V	5.068V	3.288V	4.889V	1209.732				57.7°C	229.78V
	0.113A	**14.216A**	**14.407A**	**0.001A**	121.284	84.491%	1494	35.7	41.33°C	0.932
	12.209V	5.079V	3.311V	5.116V	143.546				44.75°C	229.93V
	0.113A	**19.706A**	**0A**	**0.001A**	101.381	83.23%	1203	29.5	40.13°C	0.917
	12.212V	5.074V	3.328V	5.126V	121.807				43.29°C	229.93V
	0.113A	**0A**	**19.955A**	**0.001A**	67.384	77.327%	1471	35.2	41.56°C	0.877
	12.209V	5.1V	3.307V	5.123V	87.145				43.34°C	229.93V
	82.123A	**0A**	**0A**	**0.001A**	999.836	92.148%	1652	38.5	45.84°C	0.99
	12.175V	5.086V	3.305V	5.067V	1085.034				54.35°C	229.78V

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 □□
20W	1.216A	0.49A	0.496A	0.195A	19.997	68.583%	0	<6.0	39.78°C	0.895
	12.204V	5.102V	3.329V	5.132V	29.157				36.72°C	114.88V
40W	2.678A	0.686A	0.694A	0.293A	39.998	79.375%	0	<6.0	41.03°C	0.942
	12.206V	5.103V	3.329V	5.126V	50.392				37.71°C	114.88V
60W	4.140A	0.882A	0.892A	0.391A	59.998	83.962%	0	<6.0	41.96°C	0.961
	12.206V	5.103V	3.328V	5.119V	71.459				38.29°C	114.86V
80W	5.596A	1.078A	1.091A	0.489A	79.944	86.388%	0	<6.0	43.5°C	0.967
	12.207V	5.102V	3.328V	5.113V	92.541				39.6°C	114.85V

The results above are not used in the certification process

230V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
20W	1.214A	0.49A	0.495A	0.195A	19.976	69.302%	0	<6.0	39.78°C	0.623
	12.210V	5.104V	3.33V	5.133V	28.823				36.73°C	229.95V
40W	2.676A	0.685A	0.694A	0.292A	39.977	80.804%	0	<6.0	41.12°C	0.762
	12.211V	5.105V	3.33V	5.127V	49.476				37.79°C	229.95V
60W	4.137A	0.881A	0.892A	0.39A	59.978	85.399%	0	<6.0	41.82°C	0.839
	12.211V	5.104V	3.329V	5.12V	70.234				38.14°C	229.94V
80W	5.591A	1.077A	1.09A	0.489A	79.901	87.84%	0	<6.0	43.23°C	0.883
	12.211V	5.104V	3.329V	5.113V	90.964				39.39°C	229.93V

The results above are not used in the certification process

□□□□

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	17.34mV	12.47mV	11.69mV	20.95mV	Pass
20% Load	16.65mV	11.33mV	10.55mV	23.18mV	Pass
30% Load	17.43mV	11.38mV	11.07mV	23.80mV	Pass
40% Load	17.53mV	11.59mV	11.53mV	23.90mV	Pass
50% Load	18.20mV	12.16mV	11.69mV	24.47mV	Pass
60% Load	17.99mV	11.80mV	13.24mV	24.67mV	Pass
70% Load	19.13mV	13.96mV	14.07mV	24.93mV	Pass
80% Load	19.23mV	14.43mV	14.53mV	24.83mV	Pass
90% Load	21.39mV	14.17mV	14.89mV	24.78mV	Pass
100% Load	32.16mV	15.48mV	17.26mV	27.20mV	Pass
110% Load	33.81mV	17.37mV	16.84mV	27.57mV	Pass
Crossload1	24.71mV	14.82mV	13.90mV	36.55mV	Pass
Crossload2	16.75mV	14.07mV	12.82mV	36.29mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	16.57mV	12.16mV	12.00mV	35.93mV	Pass
Crossload4	32.71mV	12.75mV	13.08mV	39.96mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.22mV	10.20mV	10.81mV	20.39mV	Pass
20% Load	16.41mV	10.77mV	10.60mV	22.45mV	Pass
30% Load	16.36mV	11.23mV	11.01mV	24.10mV	Pass
40% Load	17.08mV	13.55mV	12.57mV	24.26mV	Pass
50% Load	17.74mV	12.37mV	12.00mV	24.36mV	Pass
60% Load	18.05mV	13.24mV	13.03mV	24.00mV	Pass
70% Load	18.75mV	14.11mV	13.29mV	23.85mV	Pass
80% Load	19.02mV	14.37mV	14.22mV	24.77mV	Pass
90% Load	19.06mV	14.53mV	14.33mV	23.95mV	Pass
100% Load	33.24mV	16.11mV	15.86mV	26.71mV	Pass
110% Load	35.31mV	17.19mV	16.82mV	27.16mV	Pass
Crossload1	26.31mV	14.23mV	13.51mV	36.95mV	Pass
Crossload2	17.03mV	14.84mV	13.24mV	35.51mV	Pass
Crossload3	17.29mV	12.52mV	12.52mV	36.65mV	Pass
Crossload4	33.63mV	13.19mV	14.67mV	39.25mV	Pass

The results above are not used in the certification process

ABYSM GAMING Morpheo GX5 1000W



Top side



Power specifications label

□□□