be quiet!

be quiet! Power Zone 2 1000W

Serial Number

Lab ID BQ10002676

Certification ID 252676

Test Result Report ID: 24PS2676A

Certificate Issue Date: Dec 19, 2024

Scheme: ETA-EMI PSU

115V



230V



115V



230V



Scheme: LAMBDA PSU



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	be quiet!
Model	Power Zone 2 1000W
OEM/ODM	FSP
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240

Rated Current (Arms)	6.5-13
Rated Frequency (Hz)	50-60
Rated Power (W)	1000
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	140mm Rifle Bearing Fan (Pure Wings 3, BQ PUW3-14025-HR)
Semi-Passive Operation	✓
Cybenetics Testing Information	
Lab ID	BQ10002676
Date of receipt	Dec 6, 2024
Testing Date	Dec 10, 2024
Report Issued Date	Dec 19, 2024
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors
(Non-accredited measurements)

Modular Cables				
Description	**Cable Count**	**Connector Count (Total)**	**Gauge**	In Cable Capacitors
ATX connector 20+4 pin (590mm)	1	1	16-22AWG	No
4+4 pin EPS12V (700mm)	1	1	16AWG	No
8 pin EPS12V (700mm)	1	1	16AWG	No
2x 6+2 pin PCIe (600mm)	1	2	16-18AWG	No
6+2 pin PCIe (600mm)	1	1	16AWG	No

12+4 pin PCIe (600mm) (600W)	1	1	16-26AWG	No
SATA (550mm+150mm+150mm+155mm)	1	4	18AWG	No
SATA (500mm+150mm+150) / 4-pin Molex (+150mm)	1	3/1	18AWG	No
AC Power Cord (1350mm) - 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	✗

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	83.3	3	0.5
	Watts	120		999.6	15	6
Total Max. Power (W)		1000				

Parts Description

General Data	
Manufacturer (OEM)	FSP
PCB Type	Single-Sided
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	1x NTC Thermistor SCK 202R0 (2 ohm) & Relay
Bridge Rectifier(s)	2x GBJ25V08 (800V, 25A @ 25°C)
APFC MOSFETs	2x Wuxin Unigroup Microelectronics TPW65R075DFD (700V, 27A @ 100°C, Rds(on): 0.075Ohm)

APFC Boost Diode	1x ROHM SCS310AM (650V, 10A @ 95°C)
Bulk Cap(s)	2x Elite (420V, 390uF or 780uF combined, 2,000h @ 105°C, PL)
Main Switchers	2x Magnachip MMFT65R090RTH (650V, 22A @ 100°C, Rds(on): 0.090Ohm)
IC Driver	Novosense NSi6602
Resonant Controller	Champion CM6901X
APFC Controller	Champion CM6500UNX
Topology	Primary side: APFC, Half-Bridge & LLC Resonant converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	6x Toshiba TPHR8504PL (40V, 150A @ 25°C, Rds(on): 0.85mOhm)
5V & 3.3V	DC-DC Converters: 4x Magnachip MDU1513 (30V, 70.4A @ 70°C, Rds(on): 4.6mOhm) PWM Controller(s): UPI-semiuP3861P
Filtering Capacitors	Electrolytic: 5x Elite (3-5,000h @105°C, EJ) 5x Elite (2-5,000h @105°C, ED) 4x Elite (3-6,000h @105°C, EV) Polymer: 8x Apaq, 7x Elite (CS), 5x CapXon
Supervisor IC	Weltrend WT7527RA (OCP, OVP, UVP, SCP,PG)
Fan Controller	Grenergy GR8031
Fan Model	Pure Wings 3, BQPUW3-14025-HR (140mm, 12V, 0.42A, Rifle Bearing Fan)
5VSB	
Rectifier	MPS MP9989 & 1x CET CEF03N8 (800V, 2A @ 100°C, Rds(on): 4.8Ohm)
Standby PWM Controller	MPS MP9989

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
ErP Lot 3/6 Ready	✓

(EU) No 617/2013 Compliance	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.1 PSU Power Excursion	✓

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	90.180%
Average Noise Output (>1450 Load Combinations)	19.66dBA
Average PF (>1450 Load Combinations)	0.987
Efficiency With 10W (≤500W) or 2% (>500W) Load	68.883%
Standby Power Consumption	0.0411W
Non-Accredited	
12V Ripple (Full Load)	52.81mV
5V Ripple (Full Load)	16.51mV
3.3V Ripple (Full Load)	18.41mV
5VSB Ripple (Full Load)	18.74mV
12V Load Regulation	0.77%
5V Load Regulation	1.19%
3.3V Load Regulation	1.73%
5VSB Load Regulation	2.93%
Inrush Current	77.220A

230V

Accredited	
Average Efficiency (>1450 load combinations)	92.281%
Average Noise Output (>1450 Load Combinations)	19.12dBA
Average PF (>1450 Load Combinations)	0.967
Efficiency With 10W (≤500W) or 2% (>500W) Load	68.664%
Standby Power Consumption	0.1021W

Non-Accredited		
12V Ripple (Full Load)		54.17mV
5V Ripple (Full Load)		18.89mV
3.3V Ripple (Full Load)		19.61mV
5VSB Ripple (Full Load)		18.67mV
12V Load Regulation		0.80%
5V Load Regulation		1.07%
3.3V Load Regulation		1.64%
5VSB Load Regulation		2.97%
Inrush Current		149.400A
12V Transient Response (200%)		11.48V
5V Transient Response (200%)		4.976V
3.3V Transient Response (200%)		3.155V
5VSB Transient Response (200%)		4.700V
Hold-Up Time & PWR_OK Signal		21.90ms
AC Loss to PWR_OK Hold Up Time		17.90ms
PWR_OK Inactive to DC Loss Delay		4.00ms
PSU Timings: T1 (20% / 100%)	68.0ms	68.0ms
PSU Timings: T3 (20% / 100%)	122.0ms	125.0ms
12V OCP (29.5°C / 41.9°C)	102.40A (122.93%), 12.204V	98.20A (117.89%), 12.218V
5V OCP (29.5°C / 41.9°C)	28.6A (143.00%), 5.065V	28A (140.00%), 5.059V
3.3V OCP (29.5°C / 41.9°C)	28.4A (142.00%), 3.299V	27.5A (137.50%), 3.299V
5VSB OCP (29.5°C / 41.9°C)	4.7A (156.67%), 4.937V	4.7A (156.67%), 4.916V
OPP (29.29°C / 40.98°C)	133.91%	125.51%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	21.9
AC Loss to PWR_OK Hold Up Time (ms)	17.9
PWR_OK Inactive to DC Loss Delay (ms)	4

Tables

115V

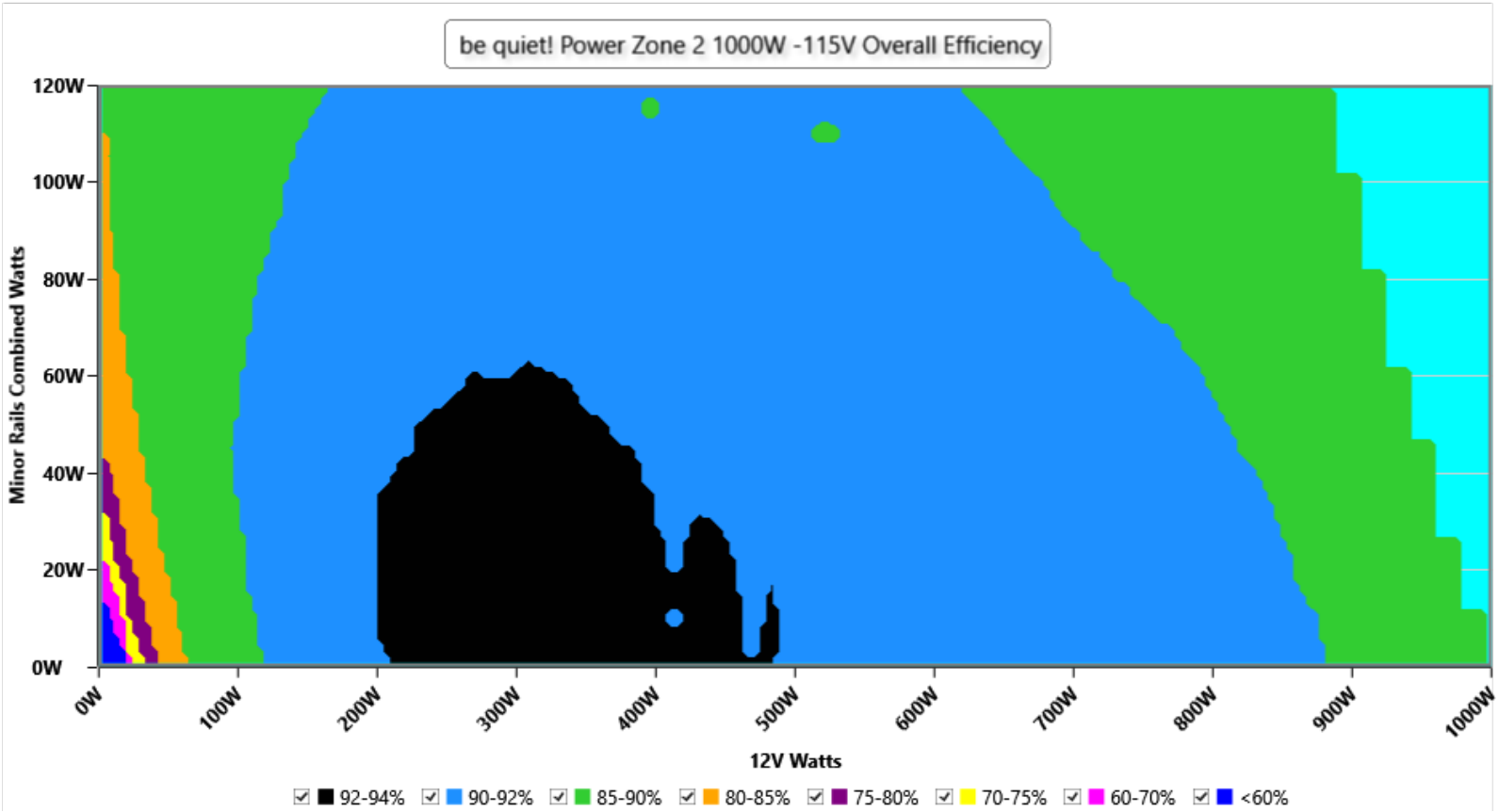
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.04 V	115.01 V	113.85 V	115.08 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.13 %	0.09 %	N/A	0.18 %	2.00 %	PASS
Real Power:	0.041 W	-0.009 W	N/A	0.088 W	N/A	N/A
Apparent Power:	8.304 W	8.254 W	N/A	8.354 W	N/A	N/A
Power Factor:	0.007	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	230.89 V	227.70 V	231.07 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	1.418	1.490	PASS
Mains Voltage THD:	0.17 %	0.14 %	N/A	0.27 %	2.00 %	PASS
Real Power:	0.102 W	0.055 W	N/A	0.172 W	N/A	N/A
Apparent Power:	28.499 W	28.342 W	N/A	28.693 W	N/A	N/A
Power Factor:	0.003	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

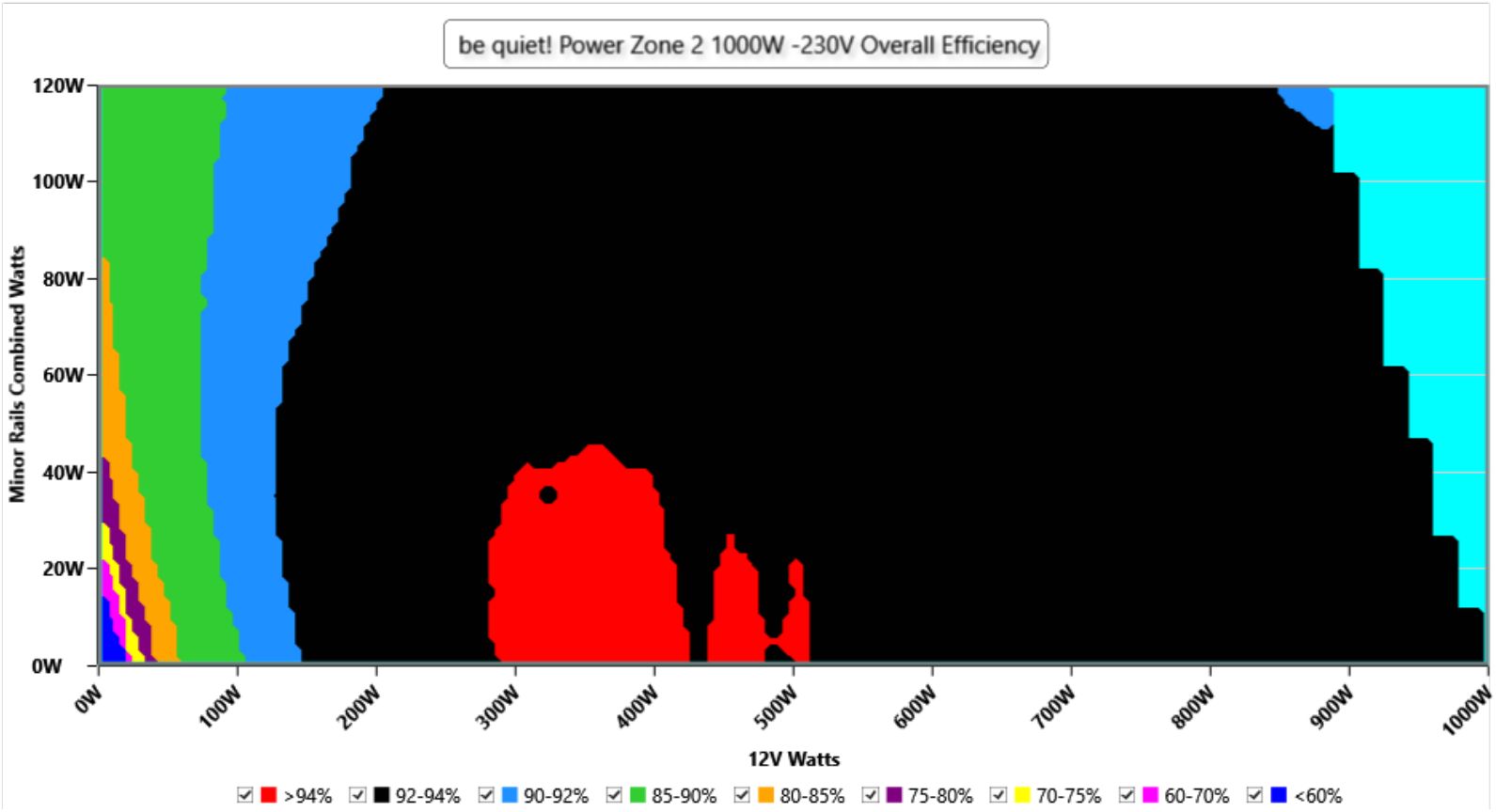
115V



INFO

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

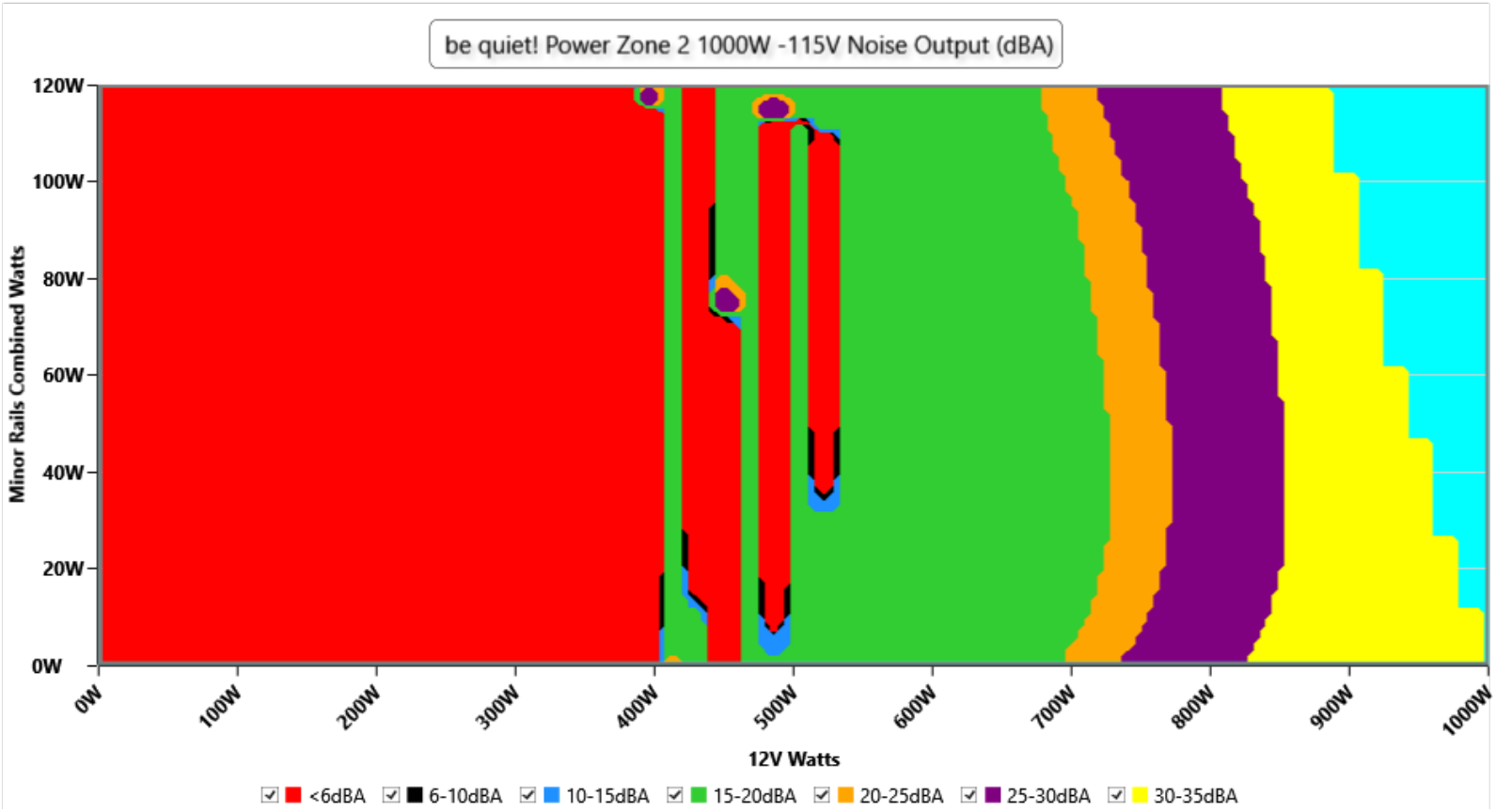


INFO

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Noise Graph

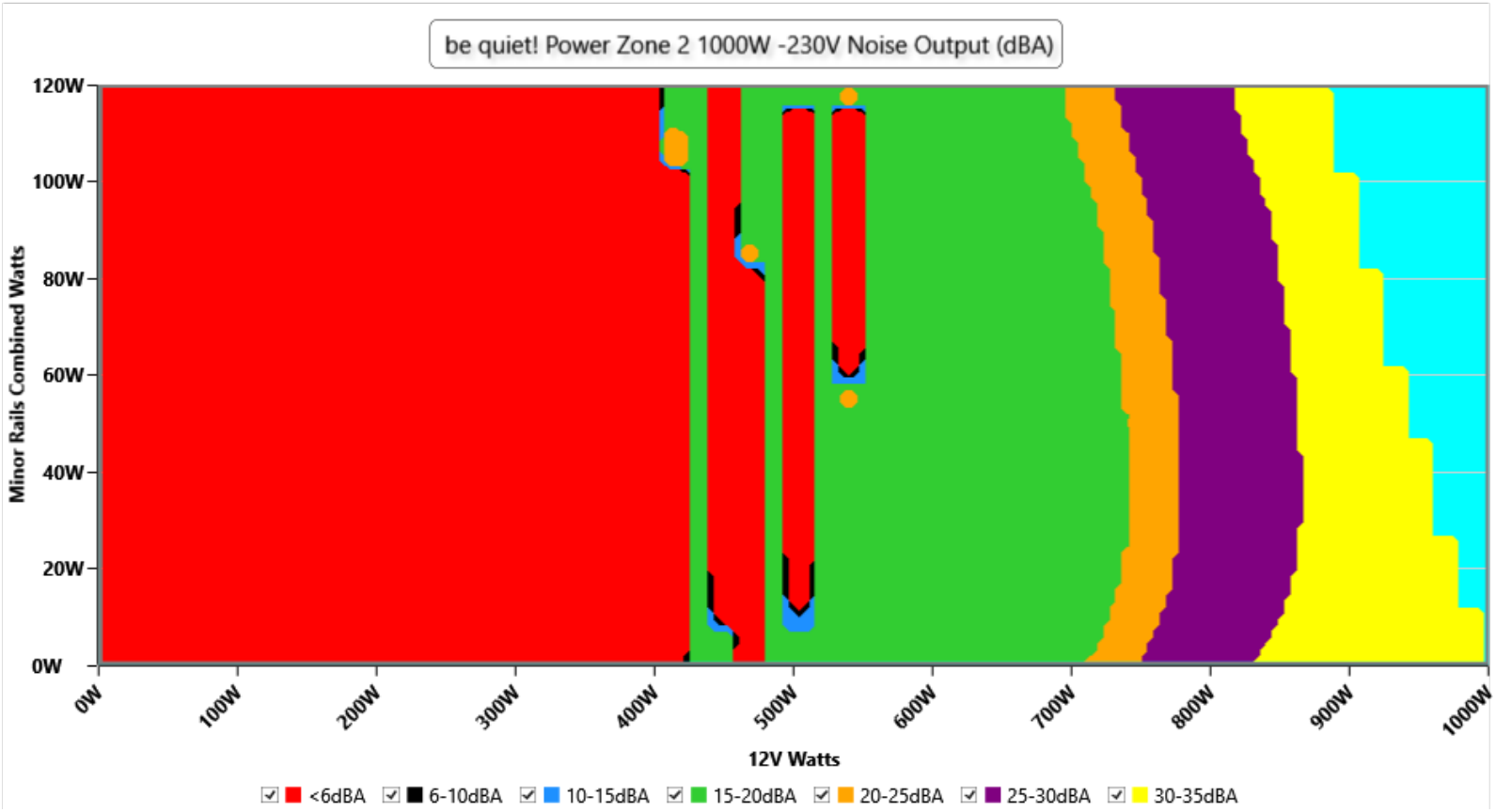
115V



INFO

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



INFO

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%	0 RPM · <6.0 dB(A) · 32.9 °C	0 RPM · <6.0 dB(A) · 48.3 °C	fan off in both
20%	0 RPM · <6.0 dB(A) · 33.6 °C	0 RPM · <6.0 dB(A) · 49.6 °C	fan off in both
50%	0 RPM · <6.0 dB(A) · 38.1 °C	0 RPM · <6.0 dB(A) · 56.4 °C	fan off in both
100%	1212 RPM · 31.3 dB(A) · 30.3 °C	1553 RPM · 38.2 dB(A) · 44.8 °C	**+6.9 dB(A)**

230V

Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	0 RPM · <6.0 dB(A) · 35.8 °C	0 RPM · <6.0 dB(A) · 47.0 °C	fan off in both
20%	0 RPM · <6.0 dB(A) · 35.6 °C	0 RPM · <6.0 dB(A) · 49.8 °C	fan off in both
50%	0 RPM · <6.0 dB(A) · 37.4 °C	756 RPM · 16.0 dB(A) · 42.0 °C	fan starts (<6.0 → 16.0)
100%	1153 RPM · 29.7 dB(A) · 30.7 °C	1534 RPM · 37.7 dB(A) · 45.9 °C	**+8.0 dB(A)**

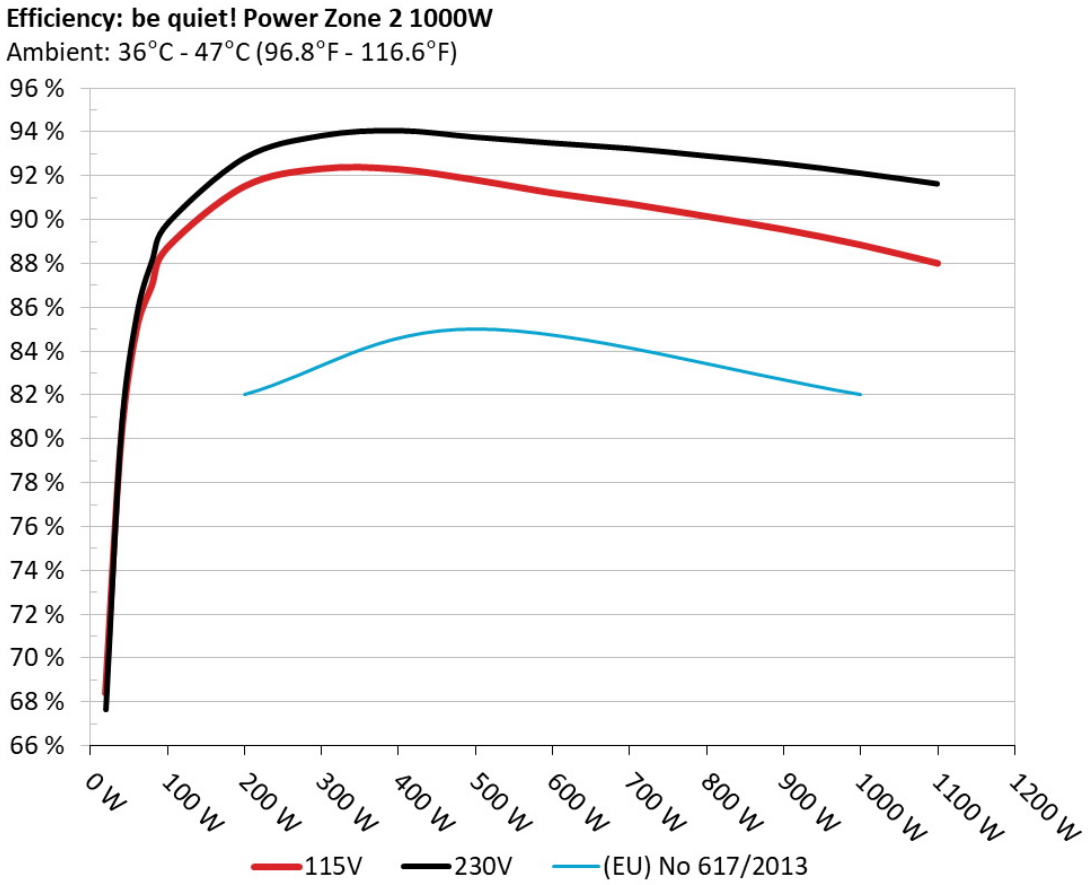
INFO

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

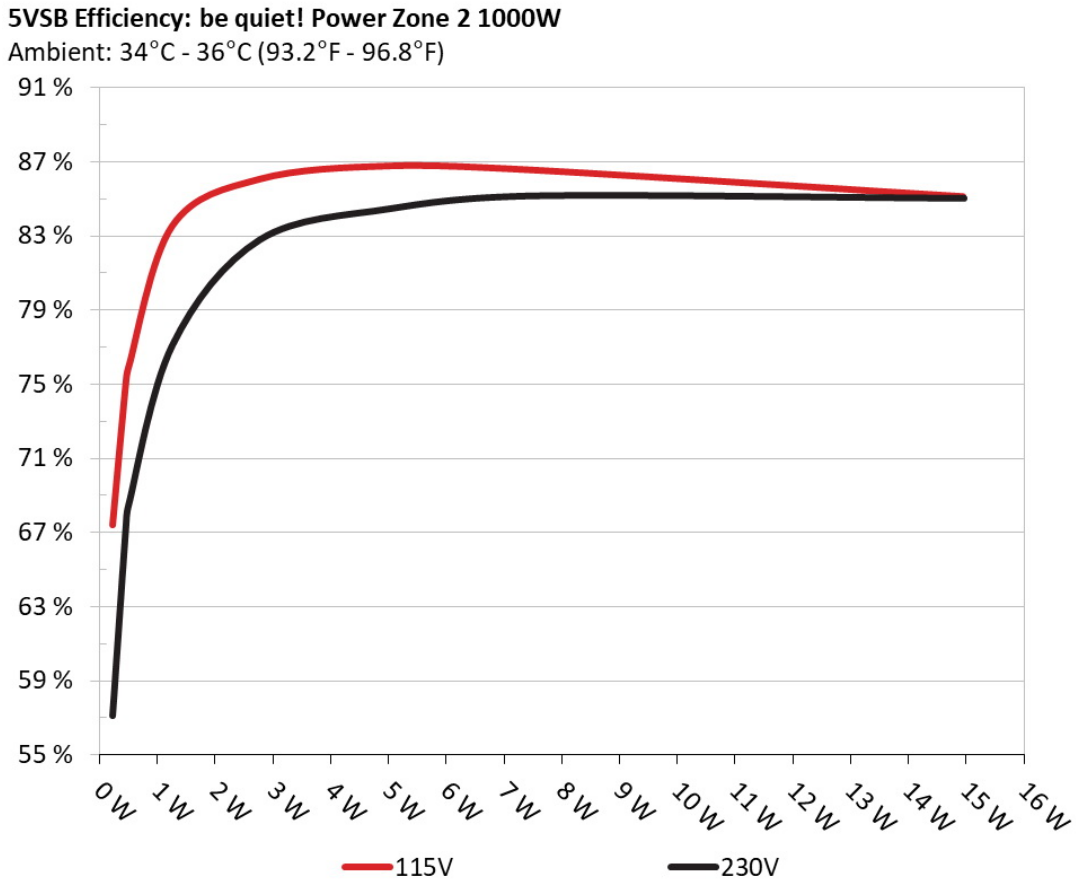
Efficiency under high ambient temperature



INFO

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 Efficiency



INFO

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

5VSB Efficiency (ERP LOT 3/6 & CEC)

115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.228W	67.414%	0.039
	5.06V	0.339W		114.91V
2	**0.09A**	0.455W	75.001%	0.068
	5.059V	0.607W		114.91V
3	**0.55A**	2.776W	86.057%	0.264
	5.047V	3.225W		114.91V
4	**1A**	5.035W	86.765%	0.329
	5.035V	5.803W		114.91V
5	**1.5A**	7.535W	86.537%	0.377
	5.022V	8.707W		114.91V
6	**3A**	14.952W	85.115%	0.44
	4.984V	17.567W		114.9V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.227W	57.102%	0.014
	5.058V	0.399W		229.91V
2	**0.09A**	0.455W	67.213%	0.023
	5.057V	0.678W		229.91V
3	**0.55A**	2.775W	82.82%	0.107
	5.046V	3.35W		229.9V
4	**1A**	5.034W	84.498%	0.175
	5.035V	5.958W		229.89V
5	**1.5A**	7.534W	85.19%	0.211
	5.023V	8.843W		229.89V
6	**3A**	14.957W	85.055%	0.311
	4.987V	17.585W		229.89V

Protection Features

OCP (Normal @ 29.5°C)	12V: 102.4A (122.93%), 12.204V 5V: 28.6A (143%), 5.065V 3.3V: 28.4A (142%), 3.299V 5VSB: 4.7A (156.67%), 4.937V
OCP (Hot @ 41.9°C)	12V: 98.2A (117.89%), 12.218V 5V: 28A (140%), 5.059V 3.3V: 27.5A (137.5%), 3.299V 5VSB: 4.7A (156.67%), 4.916V
OPP (Normal @ 29.3°C)	1339.13W (133.91%)
OPP (Hot @ 41°C)	1255.1W (125.51%)
OTP	✓ (115°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 & Bypass Relay

Supplementary Tests (For Reference)

Typical Load Tests

115V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
10%	**6.372A**	**1.96A**	**1.977A**	**0.994A**	99.987	88.726%	0	<6.0	48.3°C	0.97
	12.303V	5.101V	3.338V	5.031V	112.691				40.04°C	114.87V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20%	**13.748A**	**2.944A**	**2.971A**	**1.196A**	199.938	91.527%	0	<6.0	49.64°C	0.976
	12.295V	5.095V	3.333V	5.019V	218.448				40.54°C	114.84V
30%	**21.483A**	**3.439A**	**3.471A**	**1.398A**	299.991	92.338%	0	<6.0	51.9°C	0.982
	12.286V	5.089V	3.328V	5.006V	324.884				41.05°C	114.81V
40%	**29.187A**	**3.934A**	**3.973A**	**1.602A**	399.545	92.316%	0	<6.0	53.14°C	0.987
	12.277V	5.084V	3.323V	4.994V	432.803				41.51°C	114.79V
50%	**36.573A**	**4.923A**	**4.975A**	**1.807A**	499.245	91.835%	0	<6.0	56.35°C	0.991
	12.269V	5.078V	3.317V	4.982V	543.634				42.01°C	114.74V
60%	**44.052A**	**5.914A**	**5.981A**	**2A**	599.725	91.234%	776	18	42.9°C	0.993
	12.258V	5.073V	3.311V	4.97V	657.348				43.15°C	114.71V
70%	**51.482A**	**6.908A**	**6.99A**	**2.219A**	699.52	90.741%	951	23.7	41.05°C	0.994
	12.245V	5.067V	3.305V	4.957V	770.897				43.48°C	114.67V
80%	**58.985A**	**7.901A**	**8.003A**	**2.325A**	799.532	90.168%	1154	29.7	43.74°C	0.994
	12.234V	5.062V	3.299V	4.946V	886.717				43.34°C	114.63V
90%	**66.824A**	**8.407A**	**8.505A**	**2.431A**	899.323	89.575%	1368	34.5	44.23°C	0.995
	12.224V	5.054V	3.292V	4.936V	1003.987				44.54°C	114.59V
100%	**74.479A**	**8.912A**	**9.037A**	**3.054A**	999.327	88.87%	1553	38.2	44.83°C	0.995
	12.213V	5.048V	3.287V	4.912V	1124.495				45.11°C	114.55V
110%	**82.077A**	**9.915A**	**10.153A**	**3.059A**	1099.964	88.027%	1731	40.6	46.34°C	0.996
	12.203V	5.042V	3.28V	4.903V	1249.579				46.51°C	114.5V
CL1	**0.114A**	**14.242A**	**14.439A**	**0A**	121.296	84.267%	0	<6.0	47.61°C	0.974
	12.299V	5.069V	3.304V	5.045V	143.944				40.11°C	114.86V
CL2	**0.113A**	**19.717A**	**0A**	**0A**	101.352	82.803%	0	<6.0	49.67°C	0.972
	12.308V	5.07V	3.318V	5.052V	122.401				41.5°C	114.87V
CL3	**0.112A**	**0A**	**19.972A**	**0A**	67.399	77.009%	0	<6.0	49.18°C	0.961
	12.309V	5.074V	3.305V	5.052V	87.521				40.92°C	114.89V
CL4	**81.788A**	**0A**	**0A**	**0A**	999.924	89.383%	1580	38.5	45.67°C	0.995
	12.225V	5.066V	3.303V	4.999V	1118.697				46.07°C	114.56V

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
10%	**6.371A**	**1.961A**	**1.978A**	**0.994A**	99.993	89.443%	0	<6.0	47.04°C	0.904
	12.305V	5.098V	3.336V	5.031V	111.795				40.02°C	229.87V
20%	**13.750A**	**2.945A**	**2.972A**	**1.196A**	199.943	92.818%	0	<6.0	49.75°C	0.95
	12.294V	5.092V	3.331V	5.019V	215.416				40.99°C	229.85V
30%	**21.483A**	**3.44A**	**3.473A**	**1.398A**	299.995	93.832%	0	<6.0	49.02°C	0.968
	12.286V	5.088V	3.326V	5.007V	319.714				41.43°C	229.84V
40%	**29.189A**	**3.935A**	**3.975A**	**1.602A**	399.555	94.069%	0	<6.0	49.28°C	0.973
	12.277V	5.082V	3.321V	4.995V	424.742				41.59°C	229.82V
50%	**36.579A**	**4.925A**	**4.978A**	**1.807A**	499.265	93.768%	756	16	42.03°C	0.978
	12.268V	5.076V	3.315V	4.982V	532.449				42.92°C	229.8V
60%	**44.063A**	**5.916A**	**5.983A**	**2A**	599.74	93.5%	777	18	42.91°C	0.982
	12.255V	5.071V	3.31V	4.97V	641.43				43.41°C	229.78V
70%	**51.490A**	**6.91A**	**6.993A**	**2.219A**	699.532	93.254%	966	24.2	43.49°C	0.984
	12.243V	5.066V	3.304V	4.957V	750.136				43.87°C	229.77V
80%	**58.994A**	**7.903A**	**8.006A**	**2.325A**	799.536	92.917%	1156	29.8	43.58°C	0.985
	12.233V	5.06V	3.298V	4.946V	860.483				43.95°C	229.75V
90%	**66.828A**	**8.405A**	**8.503A**	**2.431A**	899.307	92.566%	1353	34.1	44.77°C	0.986
	12.223V	5.055V	3.293V	4.936V	971.533				44.8°C	229.73V
100%	**74.486A**	**8.909A**	**9.035A**	**3.054A**	999.338	92.128%	1534	37.7	45.93°C	0.987
	12.213V	5.05V	3.287V	4.912V	1084.726				46.55°C	229.72V
110%	**82.084A**	**9.911A**	**10.149A**	**3.059A**	1099.957	91.642%	1722	40.4	46.43°C	0.988
	12.203V	5.044V	3.281V	4.904V	1200.278				47.08°C	229.69V
CL1	**0.114A**	**14.239A**	**14.427A**	**0A**	121.295	85.354%	0	<6.0	45.21°C	0.929
	12.297V	5.07V	3.307V	5.045V	142.11				41.88°C	229.86V
CL2	**0.113A**	**19.713A**	**0A**	**0A**	101.355	83.756%	0	<6.0	45.71°C	0.914
	12.306V	5.071V	3.321V	5.052V	121.014				41.69°C	229.87V
CL3	**0.112A**	**0A**	**19.953A**	**0A**	67.397	78.321%	0	<6.0	45.32°C	0.868
	12.307V	5.076V	3.308V	5.052V	86.05				41.31°C	229.88V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL4	**81.795A**	**0A**	**0A**	**0A**	999.916	92.571%	1565	38.4	45.28°C	0.987
	12.224V	5.067V	3.307V	4.999V	1080.163				45.69°C	229.72V

The results above are not used in the certification process

Light Load Tests

115V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20W	**1.206A**	**0.489A**	**0.493A**	**0.198A**	19.993	68.417%	0	<6.0	42.62°C	0.923
	12.307V	5.108V	3.344V	5.056V	29.224				36.13°C	114.91V
40W	**2.656A**	**0.685A**	**0.691A**	**0.297A**	39.993	79.797%	0	<6.0	44.19°C	0.935
	12.306V	5.107V	3.342V	5.052V	50.121				37.37°C	114.9V
60W	**4.106A**	**0.881A**	**0.889A**	**0.396A**	59.993	84.944%	0	<6.0	45.12°C	0.953
	12.305V	5.105V	3.341V	5.049V	70.628				38.34°C	114.89V
80W	**5.552A**	**1.077A**	**1.087A**	**0.495A**	79.934	86.982%	0	<6.0	46.84°C	0.962
	12.305V	5.104V	3.34V	5.045V	91.896				39.02°C	114.88V

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20W	**1.206A**	**0.49A**	**0.494A**	**0.198A**	20.006	67.653%	0	<6.0	43.49°C	0.565
	12.311V	5.104V	3.341V	5.058V	29.567				36.2°C	229.88V
40W	**2.656A**	**0.686A**	**0.692A**	**0.297A**	40.001	80.34%	0	<6.0	45.32°C	0.749
	12.310V	5.103V	3.34V	5.054V	49.79				37.11°C	229.87V
60W	**4.106A**	**0.882A**	**0.889A**	**0.396A**	59.998	85.622%	0	<6.0	46.77°C	0.827
	12.308V	5.102V	3.339V	5.05V	70.075				38.06°C	229.88V
80W	**5.550A**	**1.078A**	**1.087A**	**0.495A**	79.942	88.13%	0	<6.0	46.28°C	0.875
	12.307V	5.101V	3.338V	5.046V	90.712				39.45°C	229.87V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	19.03mV	15.43mV	14.53mV	15.91mV	Pass
20% Load	23.67mV	15.58mV	14.99mV	16.52mV	Pass
30% Load	26.28mV	17.47mV	16.47mV	16.47mV	Pass
40% Load	29.25mV	15.84mV	14.53mV	15.19mV	Pass
50% Load	30.42mV	15.33mV	15.24mV	15.09mV	Pass
60% Load	31.40mV	15.79mV	16.01mV	15.45mV	Pass
70% Load	30.78mV	15.68mV	15.35mV	16.47mV	Pass
80% Load	32.52mV	16.19mV	16.68mV	16.11mV	Pass
90% Load	33.70mV	16.35mV	19.49mV	17.14mV	Pass
100% Load	52.81mV	16.51mV	18.41mV	18.74mV	Pass
110% Load	54.71mV	17.51mV	18.98mV	20.55mV	Pass
Crossload1	33.33mV	17.45mV	20.63mV	16.30mV	Pass
Crossload2	20.36mV	18.04mV	17.29mV	15.29mV	Pass
Crossload3	20.31mV	16.09mV	20.05mV	17.08mV	Pass
Crossload4	51.08mV	16.62mV	16.84mV	16.97mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	19.54mV	16.71mV	15.09mV	17.49mV	Pass
20% Load	24.59mV	15.48mV	15.14mV	15.86mV	Pass
30% Load	28.38mV	16.81mV	15.55mV	18.01mV	Pass
40% Load	32.42mV	16.81mV	15.55mV	16.83mV	Pass
50% Load	34.62mV	17.32mV	17.09mV	17.13mV	Pass
60% Load	34.36mV	16.55mV	16.01mV	17.60mV	Pass

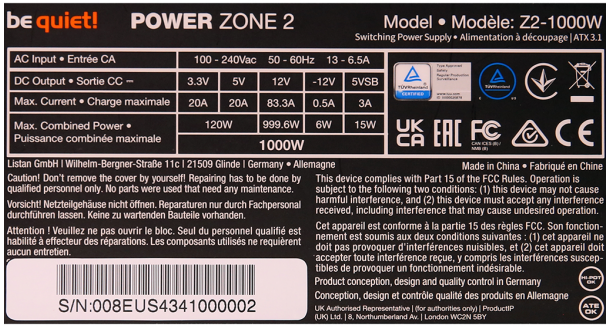
Test	12V	5V	3.3V	5VSB	Pass/Fail
70% Load	35.08mV	16.91mV	17.04mV	17.39mV	Pass
80% Load	35.39mV	17.17mV	18.06mV	18.72mV	Pass
90% Load	37.53mV	17.01mV	17.91mV	17.03mV	Pass
100% Load	54.17mV	18.89mV	19.61mV	18.67mV	Pass
110% Load	58.10mV	17.93mV	20.17mV	21.50mV	Pass
Crossload1	34.15mV	17.37mV	22.32mV	16.80mV	Pass
Crossload2	20.36mV	18.96mV	17.34mV	16.32mV	Pass
Crossload3	19.34mV	16.91mV	21.23mV	17.70mV	Pass
Crossload4	52.08mV	16.16mV	15.60mV	18.11mV	Pass

The results above are not used in the certification process

be quiet! Power Zone 2 1000W



Top side



Power specifications label

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