be quiet!

be quiet! Pure Power 13 M 850W

Serial Number 027EUS5161002004

Lab ID BQ85002841

Certification ID 252841

Test Result Report ID: 25PS2841A

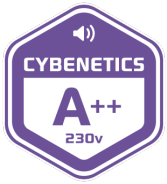
Certificate Issue Date: Jun 10, 2025

Scheme: ETA-EMI PSU



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	Pure Power 13 M 850W
OEM/ODM	FSP
Serial Number	027EUS5161002004
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240

Rated Current (Arms)	6-12
Rated Frequency (Hz)	50-60
Rated Power (W)	850
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Rifle Bearing Fan (BQ QF2-12025-HS)
Semi-Passive Operation	✓
Cybenetics Testing Information	
Lab ID	BQ85002841
Date of receipt	May 5, 2025
Testing Date	Jun 3, 2025
Report Issued Date	Jun 10, 2025
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 24 pin (550mm)	1	1	18-22AWG	No
4+4 pin EPS12V (650mm)	1	1	16AWG	No
8-pin EPS12V (650mm)	1	1	16AWG	No
2x 6+2 pin PCIe (600mm)	2	2	16-18AWG	No

6+2 pin PCIe (500mm+150mm)	1	2	16-18AWG	No
12+4 pin PCIe (595mm) (600W)	1	1	16-28AWG	No
SATA (500mm+150mm+150mm+150mm)	1	4	18AWG	No
SATA (510mm+150mm) / 4-pin Molex (+150mm+150mm)	1	2 / 2	18AWG	No
AC Power Cord (1350mm) - C13 Coupler	1	1	18AWG	-

Protection Features

Under Voltage Protection	✓
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	22	22	70.9	3	0.3
	Watts	120		850	15	3.6
Total Max. Power (W)		850				

Parts Description

	General Data
Manufacturer (OEM)	FSP
PCB Type	Double-Sided
	-**Primary Side**
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay

Bridge Rectifier(s)	2x HY Electronic GBJ2508L (800V, 25A @ 100°C)
APFC MOSFETs	2x GP36S60YERD
APFC Boost Diode	1x DSC08C065 (650V, 8A @ 25°C)
Bulk Cap(s)	2x Elite (420V, 390uF each or 940uF combined, 2000h @ 105°C,PL(M))
Main Switchers	2x ROHM Semiconductor R6035VNX3 (600V, 35A @ 25°C, Rds(on): 0.119Ohm)
IC Driver	Novosense NSI6602
APFC Controller	Champion CM6500UNX
Resonant Controller	Champion CM6901X
Topology	Primary side: APFC, Half-Bridge & LLC Resonant Converter Secondary side: [12V] Synchronous Rectification & [Minor Rails] DC-DC converters
	Secondary Side
+12V MOSFETs	6x Infineon BSC014N04LS (40V, 145A @ 100°C, Rds(on): 1.4mOhm)
5V & 3.3V	DC-DC Converters: 4x Nexperia PSMN3RO-30YLD (30V, 100A @ 25°C, Rds(on): 3.1mOhm) PWM Controller(s): ANPECAPW7159C
Filtering Capacitors	Electrolytic: 1x Rubycon (6-10,000 @ 105°C, ZLH) 3x Elite (2,000 @ 105°C, EL) 2x Elite (2-5,000 @ 105°C, ED) 1x Elite (4-10,000 @ 105°C, EY) 1x Elite (3-6,000 @ 105°C, EV) Polymer: 19x Apaq, 8 Elite (CS), 9x Biostar
Supervisor IC	IN1S4241-SDG (OCP, OVP, UVP, SCP, PG)
Fan Controller	Grenergy GR8031
Fan Model	BQ QF2-12025-HS (120mm, 12V, 0.30A, Rifle Bearing Fan)
	5VSB Circuit
Synchronous Rectification Driver	Leadtrend LD8926AA13 Synchronous Rectification IC

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)	90.834%
Average Noise Output (>1450 Load Combinations)	11.00dBA
Average PF (>1450 Load Combinations)	0.992
Efficiency With 10W (≤500W) or 2% (>500W) Load	72.605%
Standby Power Consumption	0.0396W
Non-Accredited	
12V Ripple (Full Load)	27.27mV
5V Ripple (Full Load)	13.67mV
3.3V Ripple (Full Load)	14.81mV
5VSB Ripple (Full Load)	23.24mV
12V Load Regulation	0.47%
5V Load Regulation	0.82%
3.3V Load Regulation	1.28%
5VSB Load Regulation	2.19%
Inrush Current	36.960A

230V

Accredited		
Average Efficiency (>1450 load combinations)		92.732%
Average Noise Output (>1450 Load Combinations)		10.96dBA
Average PF (>1450 Load Combinations)		0.961
Efficiency With 10W (≤500W) or 2% (>500W) Load		76.440%
Standby Power Consumption		0.1206W
Non-Accredited		
12V Ripple (Full Load)		27.94mV
5V Ripple (Full Load)		14.18mV
3.3V Ripple (Full Load)		14.59mV
5VSB Ripple (Full Load)		23.59mV
12V Load Regulation		0.48%
5V Load Regulation		0.84%
3.3V Load Regulation		1.31%
5VSB Load Regulation		2.21%
Inrush Current		66.440A
12V Transient Response (200%)		11.56V
5V Transient Response (200%)		4.912V
3.3V Transient Response (200%)		3.197V
5VSB Transient Response (200%)		4.982V
Hold-Up Time & PWR_OK Signal		21.80ms
AC Loss to PWR_OK Hold Up Time		17.40ms
PWR_OK Inactive to DC Loss Delay		4.40ms
PSU Timings: T1 (20% / 100%)	70.0ms	69.0ms
PSU Timings: T3 (20% / 100%)	142.0ms	141.0ms
12V OCP (29.0°C / 42.9°C)	84.40A (119.04%), 12.075V	82.20A (115.94%), 12.081V
5V OCP (29.0°C / 42.9°C)	28.8A (130.91%), 4.999V	28.5A (129.55%), 4.998V
3.3V OCP (29.0°C / 42.9°C)	30.6A (139.09%), 3.285V	30A (136.36%), 3.285V
5VSB OCP (29.0°C / 42.9°C)	3.9A (130.00%), 5.023V	3.9A (130.00%), 5.019V
OPP (29.48°C / 41.62°C)	121.14%	118.78%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	21.8
AC Loss to PWR_OK Hold Up Time (ms)	17.4
PWR_OK Inactive to DC Loss Delay (ms)	4.4

Stromverbrauch im Ruhezustand

Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.08 V	115.03 V	113.85 V	115.12 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:	0.040 W	-0.001 W	N/A	0.076 W	N/A	N/A
Apparent Power:	9.912 W	9.856 W	N/A	9.971 W	N/A	N/A
Power Factor:	0.005	N/A	N/A	N/A	N/A	N/A

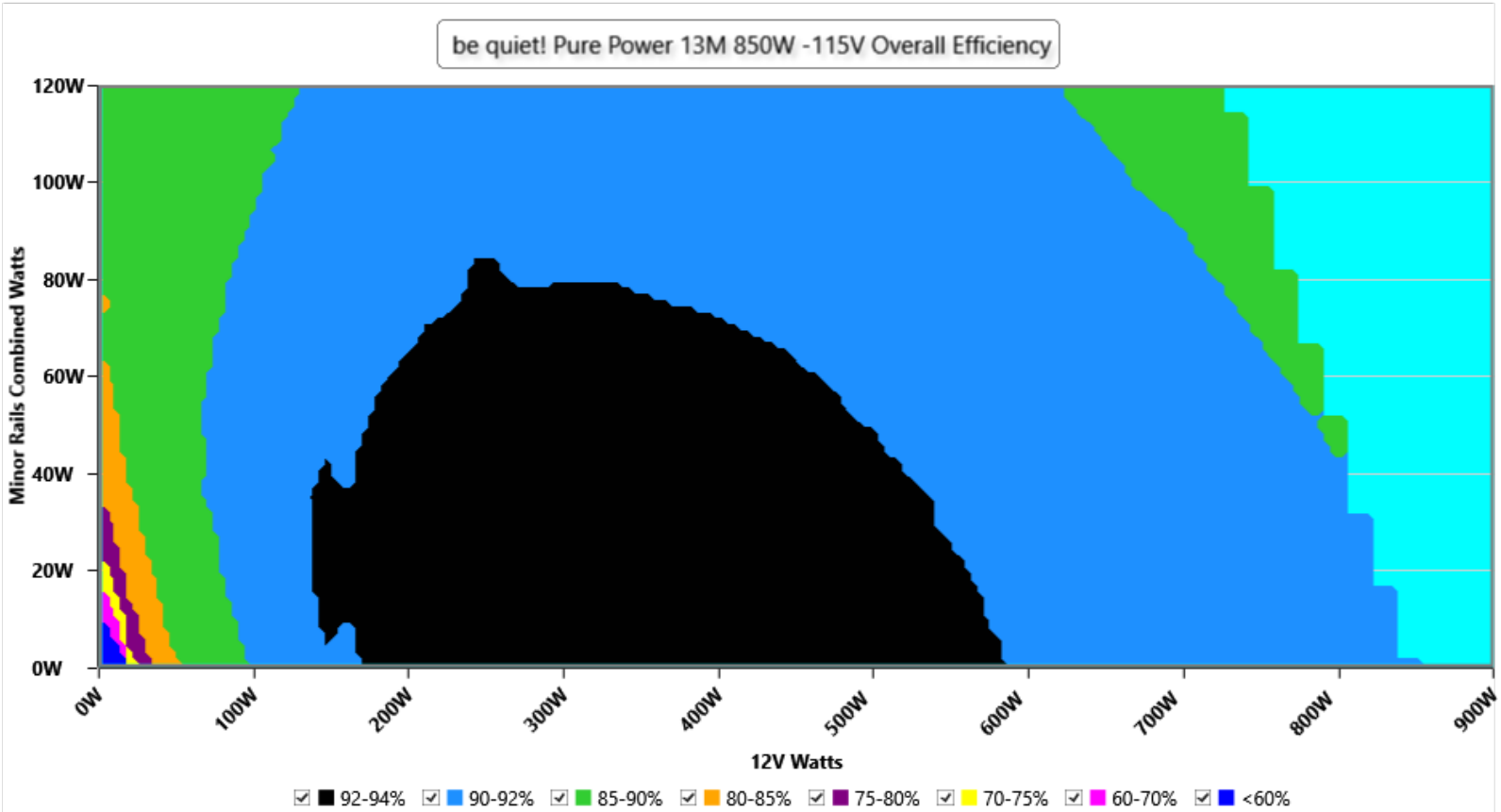
230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.01 V	230.92 V	227.70 V	231.09 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	0.27 %	2.00 %	PASS
Real Power:	0.121 W	0.082 W	N/A	0.183 W	N/A	N/A
Apparent Power:	34.099 W	33.880 W	N/A	34.329 W	N/A	N/A

Power Factor:	0.004	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

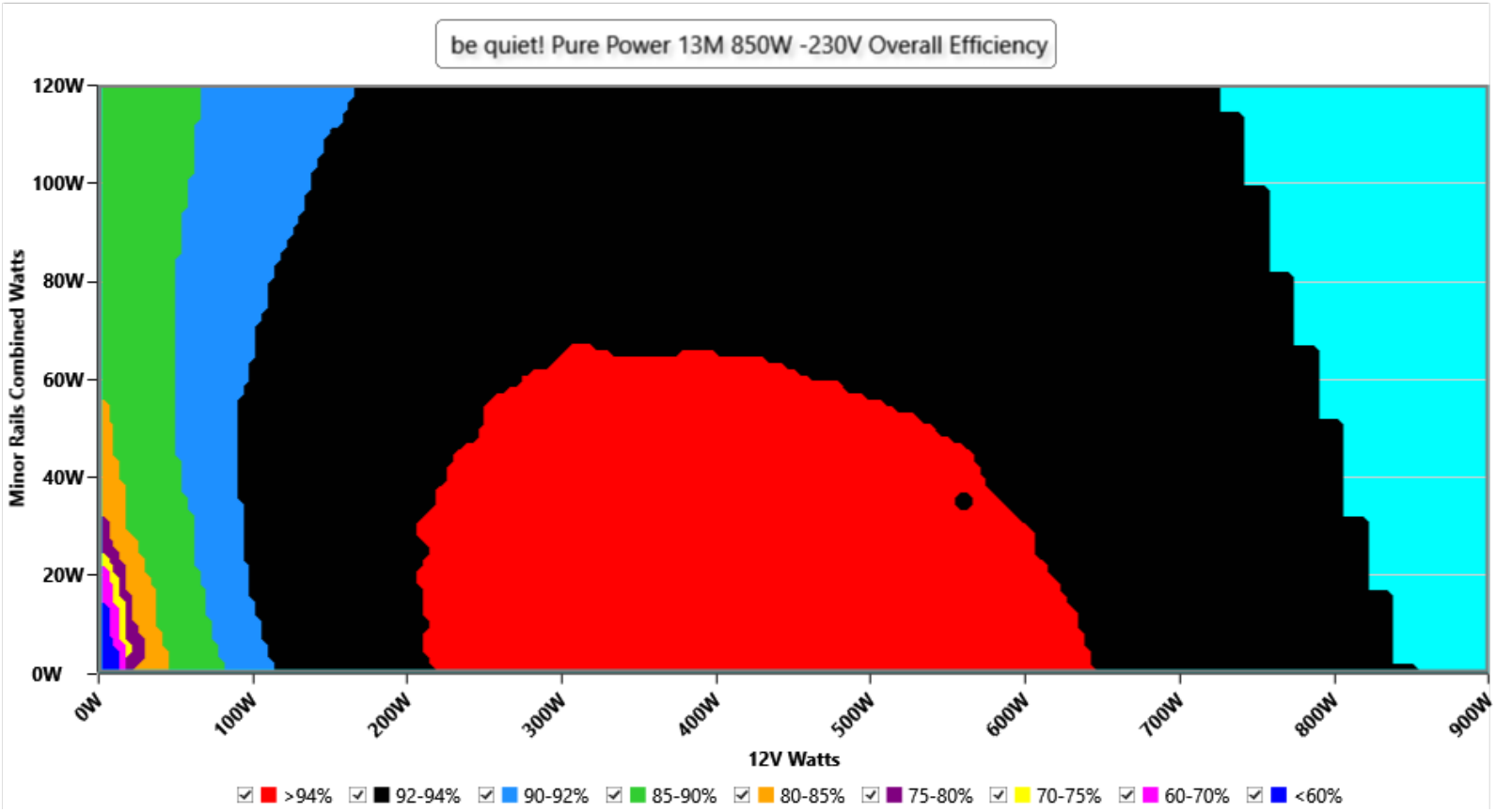
115V



INFO

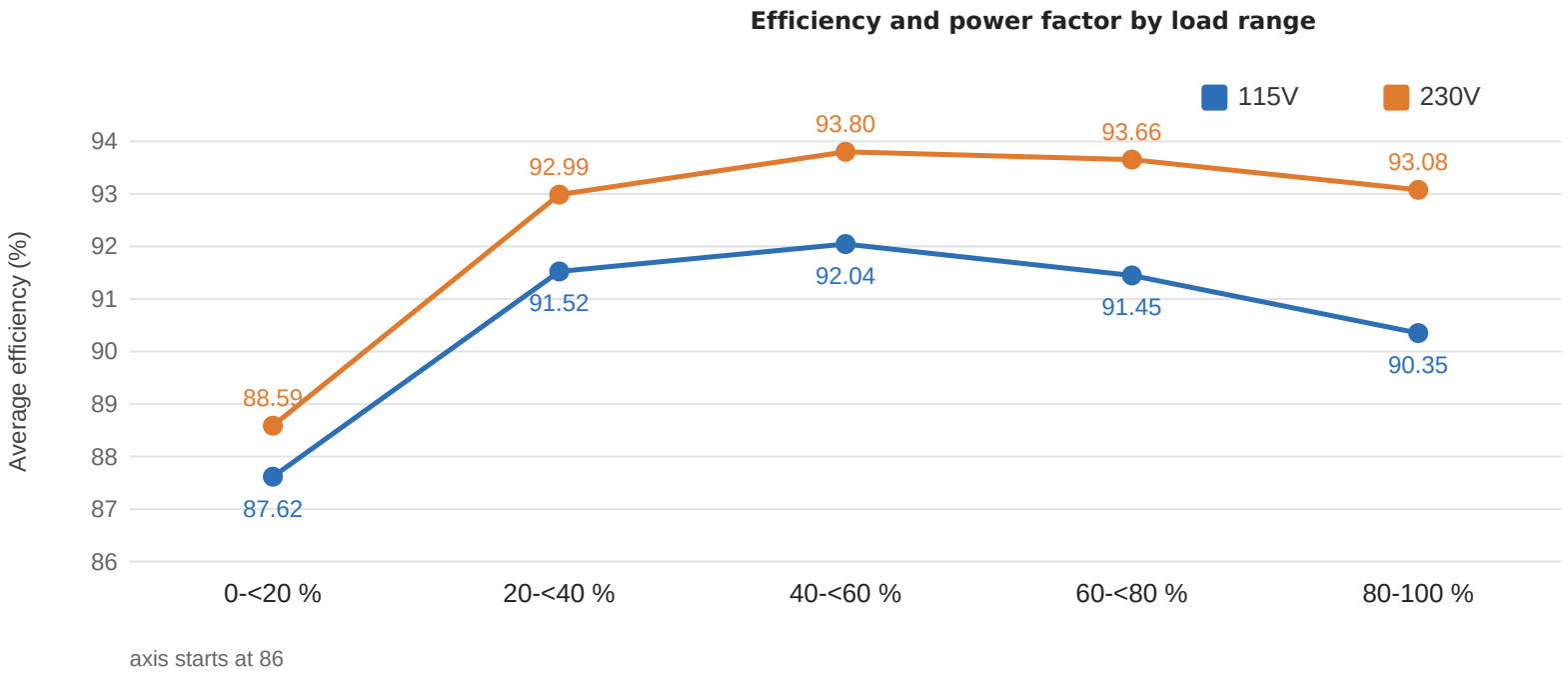
This graph depicts the PSU`s efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations

230V

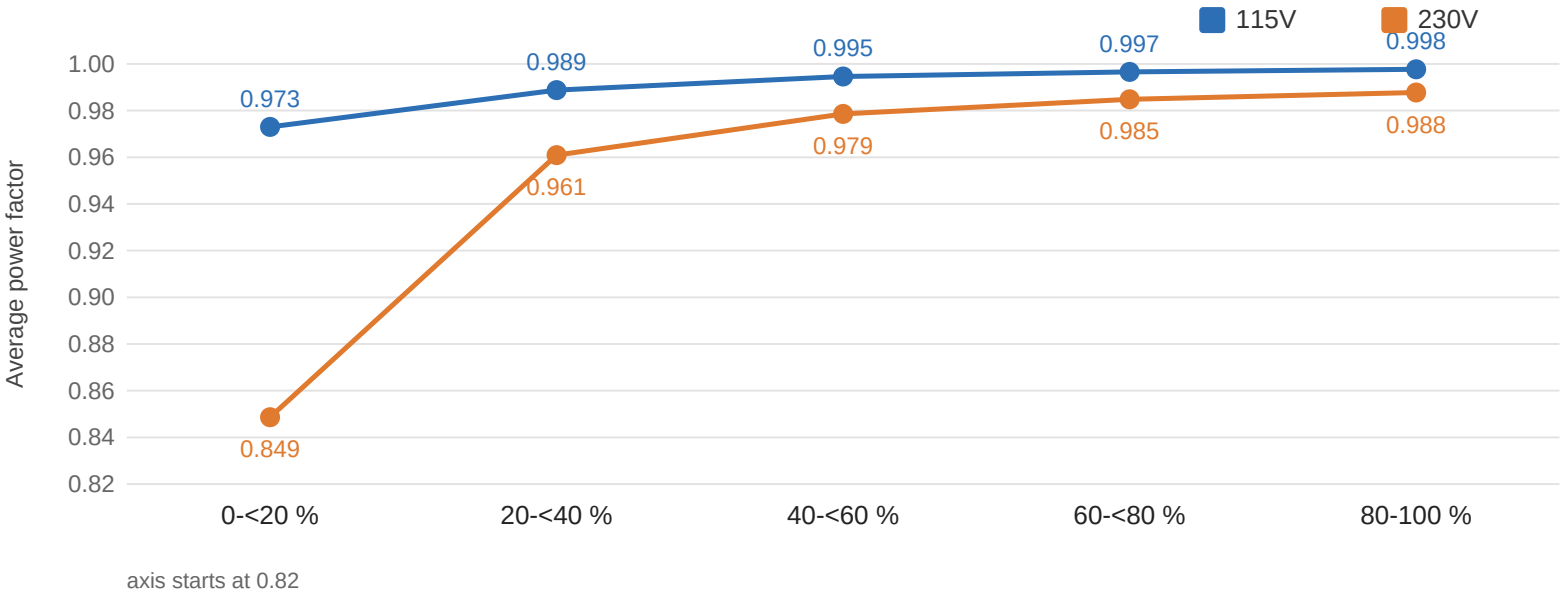


INFO

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



axis starts at 86



axis starts at 0.82

Load range	Points	Efficiency 115V	Efficiency 230V	PF 115V	PF 230V
0-<20 %	200 / 200	87.62%	88.59%	0.973	0.849
20-<40 %	318 / 318	91.52%	92.99%	0.989	0.961
40-<60 %	319 / 319	92.04%	93.80%	0.995	0.979
60-<80 %	318 / 318	91.45%	93.66%	0.997	0.985
80-100 %	326 / 326	90.35%	93.08%	0.998	0.988
70-100 % (High-Load)	486 / 486	90.64%	93.24%	0.997	0.987
All (published average)	1481 / 1481	90.83%	92.73%	0.992	0.961

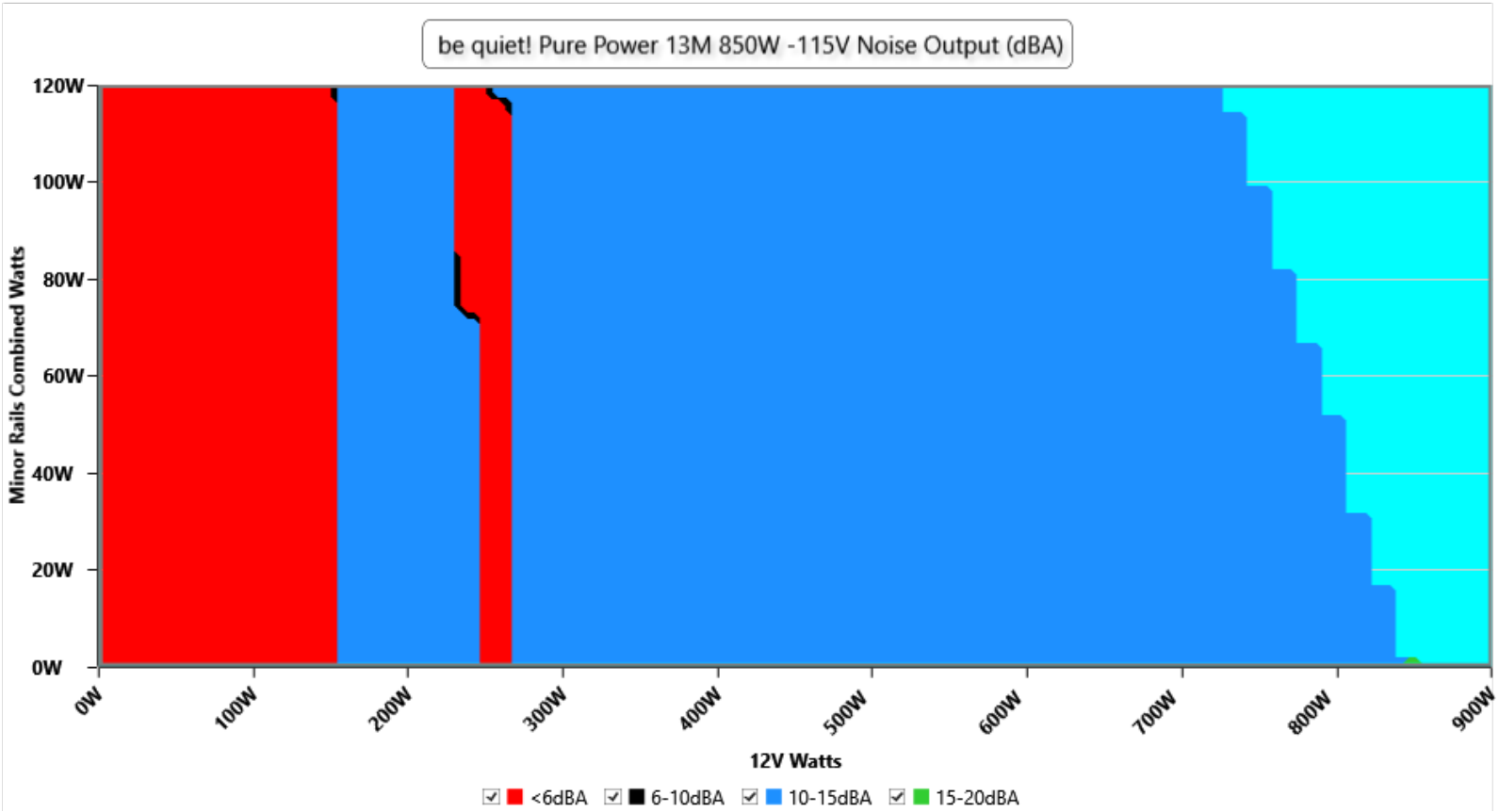
INFO

The average efficiency and power factor in five ranges of load. Calculated from the 1481 (115V) and 1481 (230V) load combinations of the certification sweep, the same data that ETA and LAMBDA use (test 0 excluded). Load is the total DC output as a share of the rated 850 W. These are plain averages of the valid readings, as for the ETA rating, so the ranges combined give back the published averages.

Informational. Not part of the ETA or LAMBDA rating.

Noise Graph

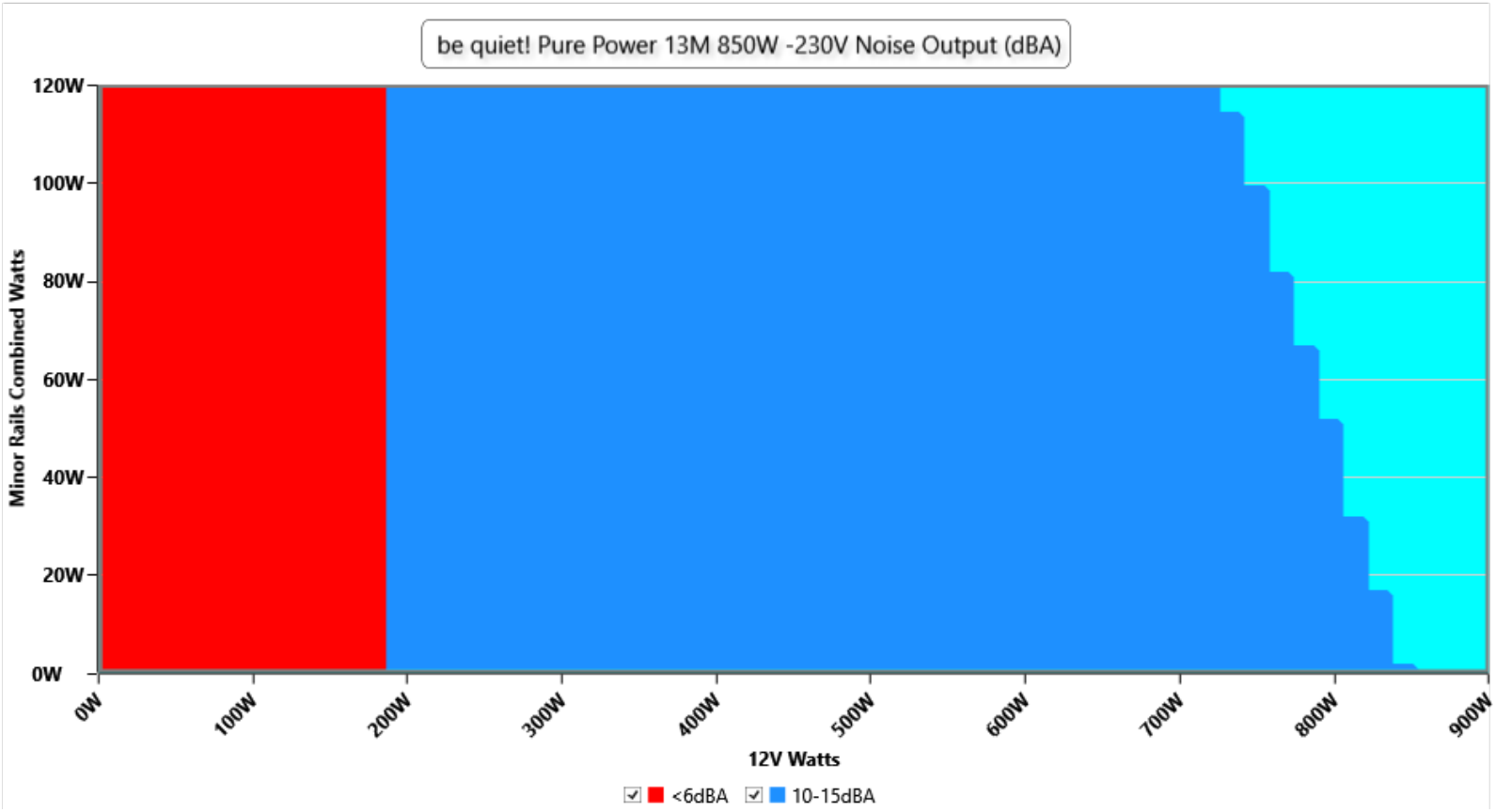
115V



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

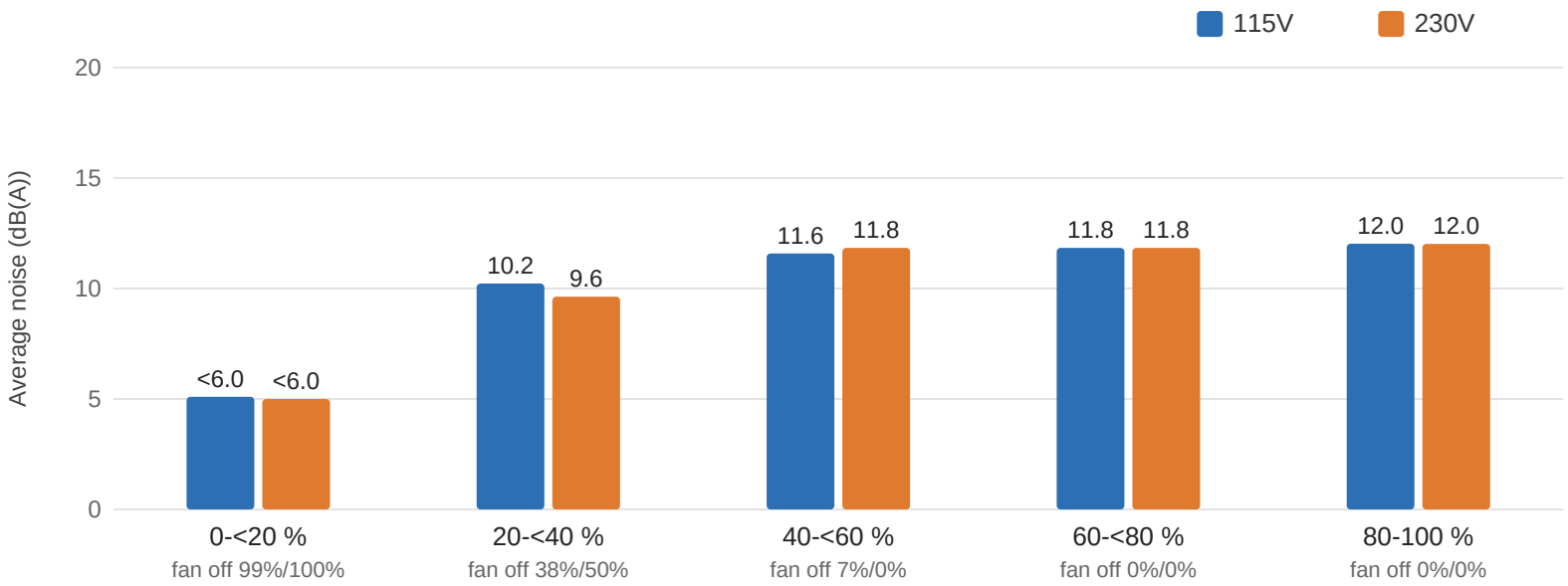
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Noise by load range

High-Load Index (70-100 % load)

Noise **12.0 dB(A)** at 115V and **12.0 dB(A)** at 230V · loudest point 15.5 dB(A)

Efficiency 90.64% / 93.24% · power factor 0.997 / 0.987 (115V / 230V)



Load range	Noise 115V avg (loudest)	Noise 230V avg (loudest)	Fan off 115V / 230V
0-<20 %	<6.0 (10.1)	<6.0 (<6.0)	99% / 100%
20-<40 %	10.2 (11.8)	9.6 (11.8)	38% / 50%
40-<60 %	11.6 (11.8)	11.8 (11.8)	7% / 0%
60-<80 %	11.8 (11.8)	11.8 (11.8)	0% / 0%
80-100 %	12.0 (15.5)	12.0 (13.9)	0% / 0%
70-100 % (High-Load)	12.0 (15.5)	12.0 (13.9)	0% / 0%
All (published average)	11.0 (15.5)	11.0 (13.9)	23% / 24%

INFO

The average noise in five ranges of load, the share of points with the fan stopped (semi-passive operation), and the High-Load Index: the same figures for all points at 70 % of the rated output and above. Calculated from the 1481 (115V) and 1481 (230V) load combinations of the certification sweep, the same data that ETA and LAMBDA use (test 0 excluded). Load is the total DC output as a share of the rated 850 W. Noise is averaged on the energy scale, as for LAMBDA, so the ranges combined give back the published average noise. Each load combination is held for about five seconds; the stabilized readings at fixed loads are under "Noise under high ambient temperature". Below 6 dB(A), the floor of our sound meter, the table and the chart show <6.0. In the averages a stopped fan counts as 5 dB(A),

as in the published average.

Informational. Not part of the ETA or LAMBDA rating.

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) · 31.4 °C	714 RPM · 11.4 dB(A) · 40.3 °C	fan starts (<6.0 → 11.4)
20%	0 RPM · <6.0 dB(A) · 34.4 °C	716 RPM · 11.3 dB(A) · 40.7 °C	fan starts (<6.0 → 11.3)
50%	685 RPM · 10.5 dB(A) · 30.3 °C	724 RPM · 12.2 dB(A) · 42.2 °C	**+1.7 dB(A)**
100%	698 RPM · 11.5 dB(A) · 31.0 °C	1164 RPM · 26.6 dB(A) · 45.2 °C	**+15.1 dB(A)**

230V

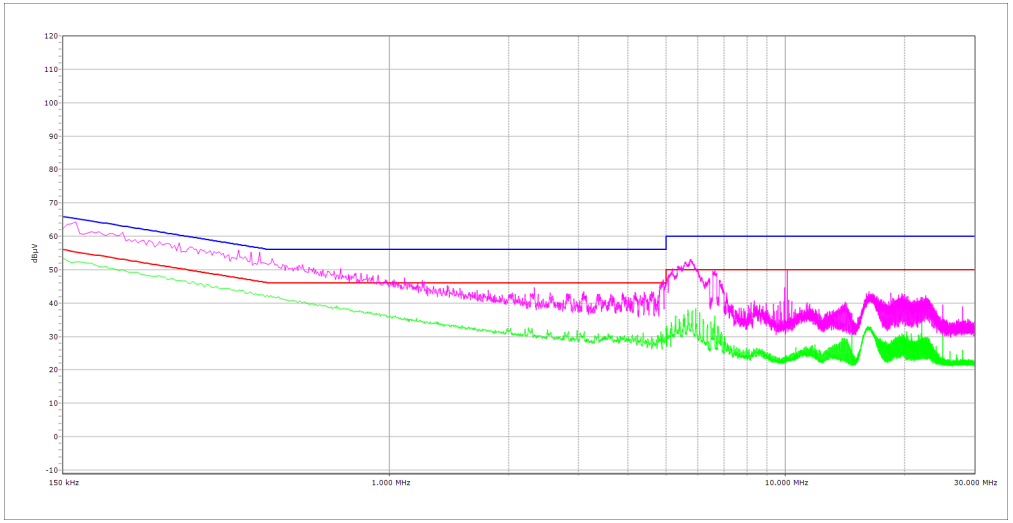
Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	0 RPM · <6.0 dB(A) · 32.1 °C	0 RPM · <6.0 dB(A) · 44.8 °C	fan off in both
20%	0 RPM · <6.0 dB(A) · 33.2 °C	720 RPM · 11.8 dB(A) · 40.6 °C	fan starts (<6.0 → 11.8)
50%	683 RPM · 10.2 dB(A) · 30.1 °C	726 RPM · 12.4 dB(A) · 42.4 °C	**+2.2 dB(A)**
100%	695 RPM · 11.4 dB(A) · 30.2 °C	1157 RPM · 26.2 dB(A) · 45.4 °C	**+14.8 dB(A)**

INFO

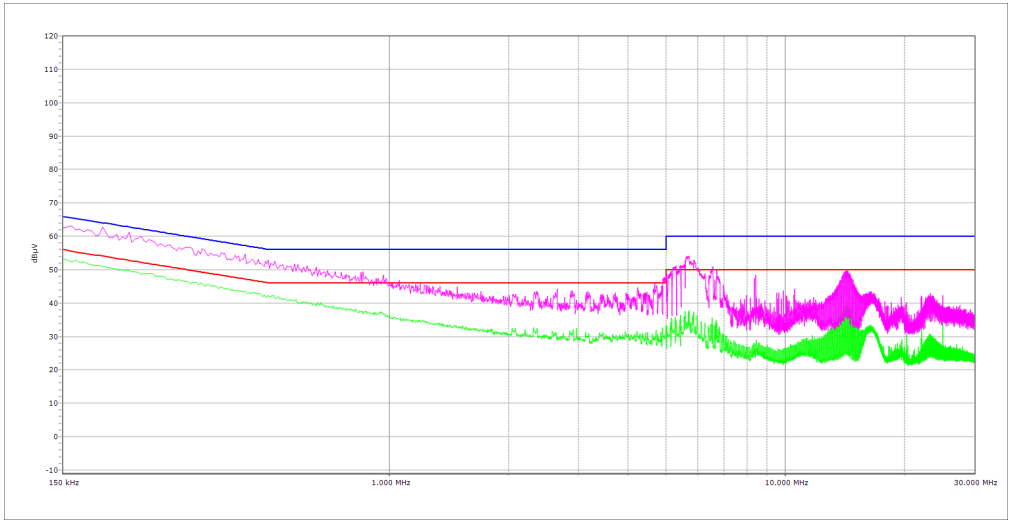
Fan speed, noise and the measured intake temperature at 10, 20, 50 and 100 % load, from the two load regulation tests: at normal ambient (about 30-32 °C) and at high ambient (about 40-47 °C). These are stabilized readings at fixed loads, not averages over the certification sweep, so they are indicative 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.

Conducted Emissions EN 55032 & CISPR 32



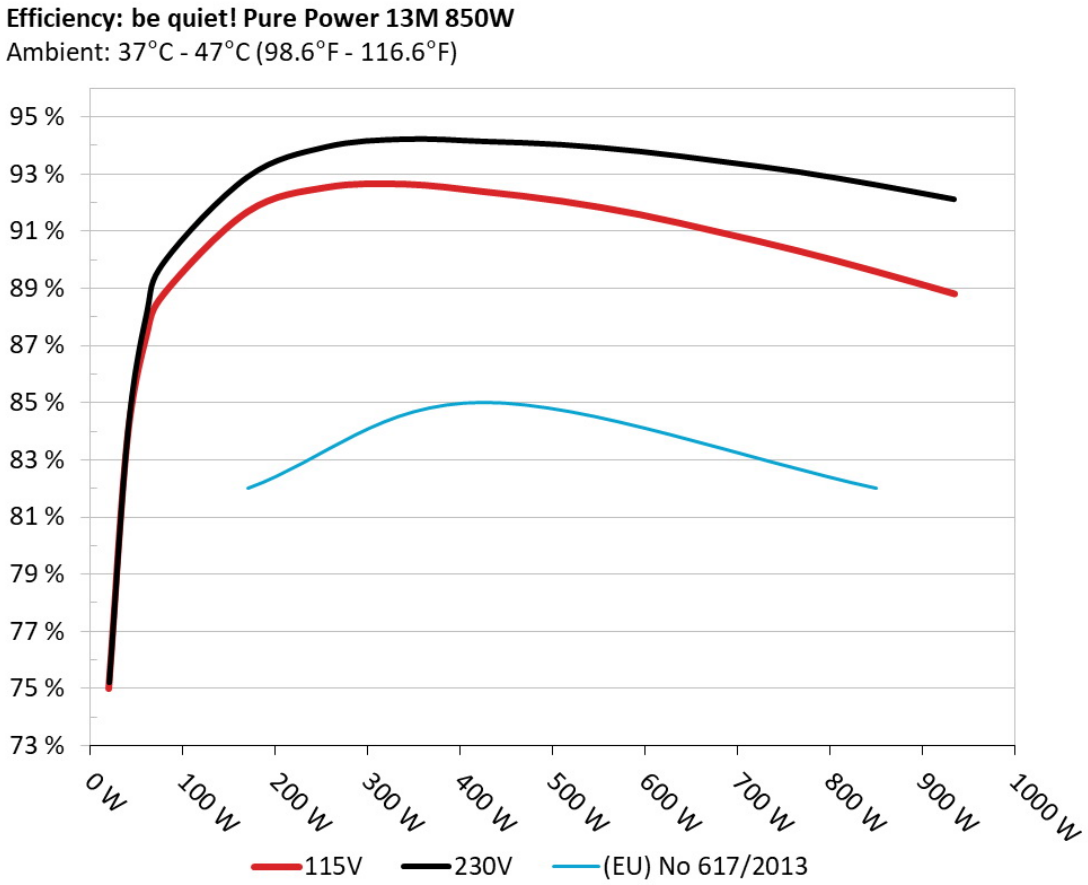
NEUTRAL



PHASE

Indicative Performance

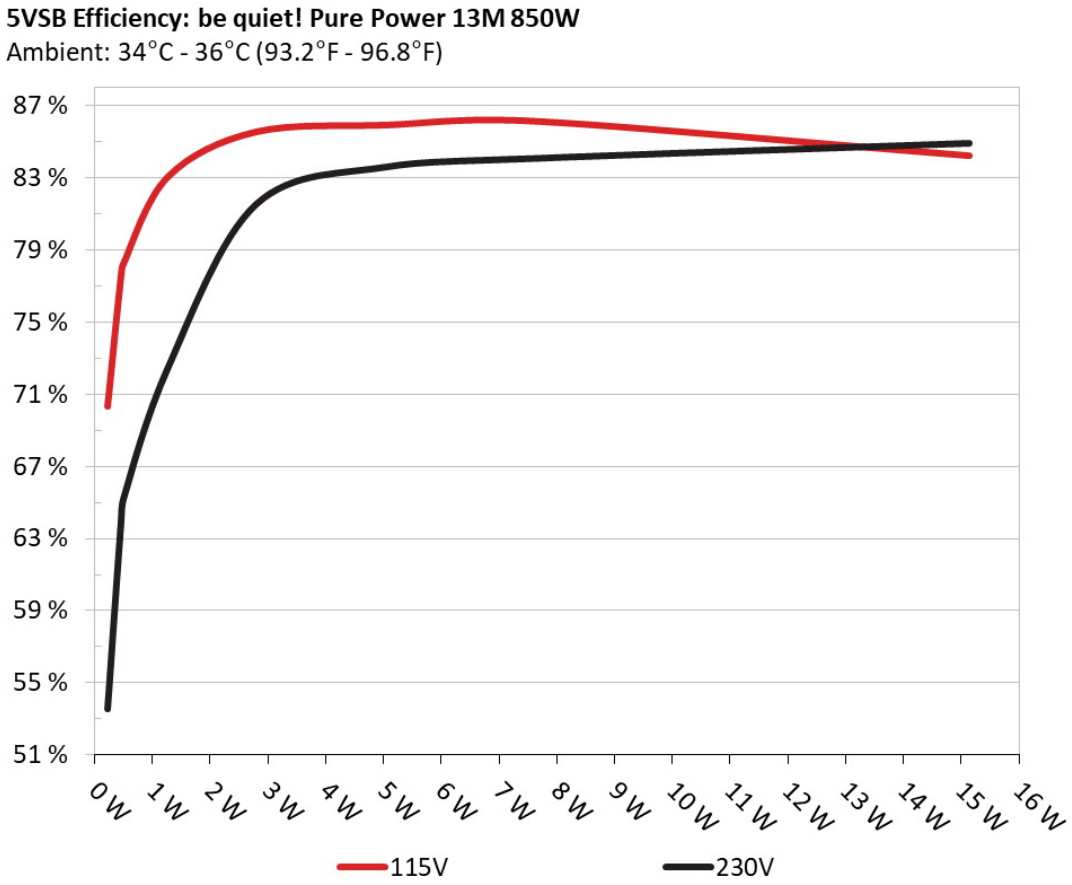
Efficiency under high ambient temperature



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**	0.23W	70.341%	0.032
	5.099V	0.327W		114.94V
2	**0.09A**	0.459W	77.479%	0.057
	5.099V	0.592W		114.93V
3	**0.55A**	2.8W	85.56%	0.257
	5.09V	3.273W		114.92V
4	**1A**	5.082W	85.941%	0.363
	5.082V	5.914W		114.92V
5	**1.5A**	7.61W	86.151%	0.411
	5.073V	8.833W		114.92V
6	**3A**	15.136W	84.239%	0.488
	5.045V	17.968W		114.91V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.229W	53.544%	0.012
	5.097V	0.428W		229.9V
2	**0.09A**	0.459W	63.801%	0.021
	5.097V	0.72W		229.9V
3	**0.55A**	2.799W	81.506%	0.096
	5.089V	3.434W		229.9V
4	**1A**	5.082W	83.585%	0.16
	5.081V	6.08W		229.91V
5	**1.5A**	7.609W	84.045%	0.22
	5.072V	9.054W		229.9V
6	**3A**	15.133W	84.882%	0.314
	5.045V	17.83W		229.9V

Protection Features

OCP (Normal @ 29°C)	12V: 84.4A (119.04%), 12.075V 5V: 28.8A (130.91%), 4.999V 3.3V: 30.6A (139.09%), 3.285V 5VSB: 3.9A (130%), 5.023V
OCP (Hot @ 42.9°C)	12V: 82.2A (115.94%), 12.081V 5V: 28.5A (129.55%), 4.998V 3.3V: 30A (136.36%), 3.285V 5VSB: 3.9A (130%), 5.019V
OPP (Normal @ 29.5°C)	1029.66W (121.14%)
OPP (Hot @ 41.6°C)	1009.64W (118.78%)
OTP	✓ (132°C @ Heat Sink)
SCP	12V to Earth: ✓ 5V to Earth: ✓ 3.3V to Earth: ✓ 5VSB to Earth: ✓ -12V to Earth: ✓
PWR_OK	Proper Operation
UVP (Full Load @ 90V)	✓
UVP (No Damage @ 80V)	✓
Conducted Emissions EN55032 & CISPR 32	✓
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%	**5.231A**	**1.987A**	**1.982A**	**0.986A**	85.008	88.051%	714	11.4	40.3°C	0.98
	12.121V	5.034V	3.331V	5.071V	96.544				41.61°C	114.89V
20%	**11.477A**	**2.984A**	**2.977A**	**1.185A**	169.959	91.665%	716	11.3	40.7°C	0.983
	12.115V	5.028V	3.326V	5.062V	185.412				41.7°C	114.86V
30%	**18.075A**	**3.483A**	**3.477A**	**1.385A**	254.967	92.514%	718	11.4	41.03°C	0.989
	12.111V	5.025V	3.322V	5.053V	275.597				43.13°C	114.83V
40%	**24.686A**	**3.983A**	**3.977A**	**1.586A**	340.052	92.63%	721	11.9	41.76°C	0.993
	12.106V	5.022V	3.319V	5.044V	367.111				44.5°C	114.8V
50%	**30.937A**	**4.983A**	**4.978A**	**1.788A**	424.869	92.369%	724	12.2	42.21°C	0.995
	12.101V	5.018V	3.315V	5.034V	459.965				46.41°C	114.77V
60%	**37.174A**	**5.985A**	**5.982A**	**1.99A**	509.415	92.034%	726	12.4	42.6°C	0.996
	12.095V	5.013V	3.31V	5.025V	553.513				47.68°C	114.74V
70%	**43.477A**	**6.988A**	**6.989A**	**2.193A**	594.734	91.562%	729	12.9	43.15°C	0.997
	12.089V	5.009V	3.306V	5.016V	649.545				49.45°C	114.7V
80%	**49.788A**	**7.99A**	**7.998A**	**2.297A**	679.545	90.954%	732	13.4	43.87°C	0.997
	12.084V	5.005V	3.301V	5.007V	747.134				52.73°C	114.67V
90%	**56.500A**	**8.495A**	**8.492A**	**2.4A**	764.967	90.3%	961	20.2	44.7°C	0.998
	12.079V	5.002V	3.297V	4.999V	847.145				53.82°C	114.65V
100%	**62.956A**	**9.002A**	**9.017A**	**3.01A**	849.778	89.573%	1164	26.6	45.16°C	0.998
	12.073V	4.998V	3.294V	4.983V	948.694				55.3°C	114.6V
110%	**69.284A**	**10.012A**	**10.126A**	**3.014A**	934.362	88.795%	1363	31.7	46.14°C	0.998
	12.068V	4.993V	3.289V	4.976V	1052.272				57.49°C	114.57V
CL1	**0.116A**	**14.422A**	**14.456A**	**0A**	121.293	85.467%	731	13.4	40.02°C	0.986
	12.115V	5.005V	3.3V	5.079V	141.921				45.18°C	114.86V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	**0.114A**	**21.941A**	**0A**	**0A**	111.308	83.441%	725	12.3	40.15°C	0.988
	12.117V	5.01V	3.317V	5.084V	133.396				44.46°C	114.87V
CL3	**0.114A**	**0A**	**21.995A**	**0A**	73.995	78.33%	724	12.2	40.14°C	0.98
	12.119V	5.026V	3.301V	5.085V	94.468				44.49°C	114.88V
CL4	**70.350A**	**0A**	**0A**	**0A**	849.658	90.094%	1016	22.3	45.21°C	0.998
	12.078V	5.021V	3.316V	5.04V	943.072				56.95°C	114.61V

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%	**5.230A**	**1.986A**	**1.981A**	**0.986A**	85.006	89.813%	0	<6.0	44.76°C	0.832
	12.123V	5.035V	3.331V	5.072V	94.649				40.08°C	229.87V
20%	**11.476A**	**2.983A**	**2.977A**	**1.185A**	169.953	92.906%	720	11.8	40.57°C	0.937
	12.117V	5.029V	3.326V	5.062V	182.932				43.44°C	229.86V
30%	**18.075A**	**3.483A**	**3.476A**	**1.386A**	254.966	93.953%	722	12	41.25°C	0.963
	12.112V	5.025V	3.323V	5.053V	271.377				42.59°C	229.85V
40%	**24.687A**	**3.983A**	**3.977A**	**1.586A**	340.058	94.222%	724	12.2	41.89°C	0.974
	12.106V	5.022V	3.319V	5.044V	360.913				43.86°C	229.83V
50%	**30.939A**	**4.983A**	**4.978A**	**1.788A**	424.884	94.145%	726	12.4	42.35°C	0.979
	12.100V	5.018V	3.315V	5.034V	451.306				45.02°C	229.82V
60%	**37.175A**	**5.985A**	**5.983A**	**1.991A**	509.424	94.031%	727	12.4	42.76°C	0.984
	12.094V	5.013V	3.31V	5.025V	541.765				45.81°C	229.8V
70%	**43.481A**	**6.989A**	**6.99A**	**2.193A**	594.746	93.79%	729	12.9	43.06°C	0.985
	12.088V	5.009V	3.305V	5.015V	634.129				46.54°C	229.78V
80%	**49.795A**	**7.992A**	**7.999A**	**2.297A**	679.561	93.452%	730	13.1	43.56°C	0.987
	12.083V	5.004V	3.301V	5.008V	727.181				47.45°C	229.77V
90%	**56.510A**	**8.496A**	**8.492A**	**2.4A**	764.987	93.082%	886	17.7	44.92°C	0.988
	12.077V	5.001V	3.297V	5V	821.836				49.2°C	229.76V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	**62.963A**	**9.003A**	**9.018A**	**3.011A**	849.798	92.623%	1157	26.2	45.41°C	0.989
	12.072V	4.997V	3.294V	4.983V	917.48				51.69°C	229.74V
110%	**69.293A**	**10.013A**	**10.126A**	**3.015A**	934.376	92.119%	1335	31	46.91°C	0.991
	12.066V	4.993V	3.289V	4.976V	1014.313				52.42°C	229.72V
CL1	**0.116A**	**14.422A**	**14.456A**	**0A**	121.3	86.562%	732	13.4	41.73°C	0.907
	12.115V	5.005V	3.3V	5.078V	140.131				47.4°C	228.28V
CL2	**0.116A**	**21.941A**	**0A**	**0A**	111.314	84.353%	727	12.4	39.16°C	0.896
	12.118V	5.01V	3.317V	5.082V	131.96				45.33°C	229.96V
CL3	**0.114A**	**0A**	**21.998A**	**0A**	74.003	79.299%	727	12.4	40.4°C	0.828
	12.119V	5.026V	3.301V	5.084V	93.32				44.92°C	229.99V
CL4	**70.354A**	**0A**	**0A**	**0A**	849.571	93.26%	735	13.9	45.19°C	0.989
	12.076V	5.023V	3.316V	5.042V	910.978				50.4°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	**1.224A**	**0.496A**	**0.495A**	**0.196A**	20.001	75.005%	0	<6.0	41.08°C	0.819
	12.130V	5.039V	3.336V	5.092V	26.665				36.69°C	114.9V
40W	**2.696A**	**0.695A**	**0.693A**	**0.295A**	40	83.707%	0	<6.0	42.16°C	0.932
	12.125V	5.039V	3.336V	5.089V	47.786				37.12°C	114.89V
60W	**4.168A**	**0.893A**	**0.891A**	**0.393A**	59.999	87.245%	0	<6.0	44.51°C	0.964
	12.125V	5.038V	3.335V	5.085V	68.772				38.53°C	114.88V
80W	**5.635A**	**1.092A**	**1.089A**	**0.492A**	79.951	88.812%	0	<6.0	47.24°C	0.978
	12.124V	5.037V	3.333V	5.082V	90.025				39.63°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	**1.224A**	**0.496A**	**0.495A**	**0.196A**	20	75.201%	0	<6.0	43°C	0.419
	12.130V	5.039V	3.337V	5.093V	26.326				36.79°C	230.01V
40W	**2.696A**	**0.695A**	**0.693A**	**0.295A**	40	83.944%	0	<6.0	43.66°C	0.618
	12.124V	5.039V	3.336V	5.09V	47.651				37.66°C	229.9V
60W	**4.168A**	**0.893A**	**0.891A**	**0.393A**	60	88.054%	0	<6.0	44.08°C	0.738
	12.125V	5.038V	3.335V	5.086V	68.139				38.82°C	229.88V
80W	**5.635A**	**1.092A**	**1.089A**	**0.492A**	79.949	89.948%	0	<6.0	44.19°C	0.815
	12.124V	5.037V	3.334V	5.083V	88.884				39.47°C	229.88V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	28.39mV	13.75mV	14.68mV	14.94mV	Pass
20% Load	27.01mV	13.44mV	14.58mV	15.96mV	Pass
30% Load	31.00mV	13.85mV	22.20mV	16.27mV	Pass
40% Load	24.05mV	13.54mV	13.97mV	15.75mV	Pass
50% Load	24.51mV	13.79mV	14.68mV	17.24mV	Pass
60% Load	25.73mV	14.41mV	15.29mV	18.62mV	Pass
70% Load	25.89mV	13.95mV	15.04mV	19.64mV	Pass
80% Load	26.86mV	14.36mV	15.96mV	20.46mV	Pass
90% Load	27.27mV	14.15mV	14.94mV	20.77mV	Pass
100% Load	27.27mV	13.67mV	14.81mV	23.24mV	Pass
110% Load	28.08mV	13.77mV	14.75mV	23.64mV	Pass
Crossload1	27.52mV	14.80mV	15.11mV	18.49mV	Pass
Crossload2	29.83mV	17.06mV	15.65mV	18.93mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	28.14mV	13.84mV	16.22mV	18.82mV	Pass
Crossload4	27.42mV	13.06mV	13.68mV	20.24mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	30.34mV	13.39mV	15.50mV	14.94mV	Pass
20% Load	28.14mV	13.95mV	14.58mV	18.05mV	Pass
30% Load	25.12mV	14.10mV	14.68mV	16.11mV	Pass
40% Load	24.45mV	13.54mV	14.63mV	15.81mV	Pass
50% Load	25.43mV	15.48mV	15.19mV	16.88mV	Pass
60% Load	27.06mV	14.81mV	16.32mV	19.64mV	Pass
70% Load	27.52mV	15.27mV	15.66mV	20.15mV	Pass
80% Load	27.47mV	14.46mV	15.20mV	20.15mV	Pass
90% Load	27.68mV	14.66mV	15.60mV	21.48mV	Pass
100% Load	27.94mV	14.18mV	14.59mV	23.59mV	Pass
110% Load	28.51mV	13.98mV	14.78mV	25.10mV	Pass
Crossload1	28.16mV	14.24mV	15.46mV	18.59mV	Pass
Crossload2	30.13mV	17.17mV	15.86mV	20.10mV	Pass
Crossload3	29.06mV	14.15mV	15.40mV	19.54mV	Pass
Crossload4	28.06mV	13.10mV	14.56mV	18.81mV	Pass

The results above are not used in the certification process

be quiet! Pure Power 13 M 850W



Top side



Power specifications label

Cybenetics bietet freiwillige Zertifizierungsprogramme für Netzteile – ETA für Effizienz, LAMBDA für Lautstärke und SAFE für Sicherheit und korrekten Betrieb – sowie für Kühlprodukte mit DELTA für die Schalldämmung von Gehäusen und PHI für Luftstrom und statischen Druck von Lüftern

CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus

www.cybenetics.com - info@cybenetics.com