be quiet!

be quiet! Dark Power Pro 14 IO 1600W

Serial Number 023EUL6140000923

Lab ID BQ16003312

Certification ID 263312

Test Result Report ID: 26PS3312A

Certificate Issue Date: Jun 17, 2026

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	be quiet!
Model	Dark Power Pro 14 IO 1600W
OEM/ODM	CWT
Serial Number	023EUL6140000923
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	115-240
Rated Current (Arms)	9-15

Rated Frequency (Hz)	50-60
Rated Power (W)	1600
Operating Temperature (Continuous Full Load) (°C)	0 - 50
Type	ATX12V
Cable Design	Fully Modular
Warranty	10 years
Cybenetics Measurements	
Dimensions (W x H x D)	150 x 85 x 200mm
Weight	2.68 kg (5.91 lb)
Cooling	135mm Fluid Dynamic Bearing Fan (BQ SIW4-13525-HF)
Semi-Passive Operation	✓
Cybenetics Testing Information	
Lab ID	BQ16003312
Date of receipt	May 11, 2026
Testing Date	Jun 9, 2026
Report Issued Date	Jun 17, 2026
Engineer Name	Ioannis Kalyviotis
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Modular Cables				
Description	**Cable Count**	**Connector Count (Total)**	**Gauge**	**Cable Type**
ATX connector 20+4 pin (600mm)	1	1	18AWG	Tinned Copper
4+4 pin EPS12V (700mm)	1	1	16AWG	Tinned Copper
8 pin EPS12V (700mm)	1	1	16AWG	Tinned Copper
2x 6+2 pin PCIe (600mm)	6	6	16AWG	Tinned Copper
12+4 pin PCIe (700mm) (600W)	1	1	16-24AWG	Tinned Copper
12+4 pin PCIe (600mm) (600W)	1	1	16-24AWG	Tinned Copper
SATA (600mm+150mm) / 4-pin Molex (150mm+150mm)	1	2 / 2	18AWG	Tinned Copper

Modular Cables				
SATA (600mm+150mm+150mm+150mm)	2	8	18AWG	Tinned Copper
SATA (600mm+150mm+150mm)	2	6	18AWG	Tinned Copper
USB 2.0 9-pin (770mm)	1	1	28AWG	-
AC Power Cord (1360mm) - C19 Coupler	1	1	17AWG	-

Protection Features(Manufacturer)

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	25	25	133.33	3.5	0.5
	Watts	150		1600	17.5	6
Total Max. Power (W)		1600				

Parts Description

General Data	
Manufacturer (OEM)	CWT
PCB Type	Double Sided
Primary Side	
Transient Filter	6x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor SCK-25150 (15 Ohm) & Relay
Bridge Rectifier(s)	2x WeEn WNB2560M (600V, 25A @ 127°C)
APFC MOSFETs	2x Toshiba TK040N60Z1 (600V, 52A @ 25°C, Rds(on): 0.040Ohm) & 2x Toshiba TW015N65C (650V, 82A @ 100°C, Rds(on): 0.021Ohm)

APFC Boost Diode	2x Vishay VS-3C10ET07T-M3 (650V, 10A @ 140°C)
Bulk Cap(s)	3x Nippon Chemi-con (420V, 510uF, 2,000h @ 105°C, KHE)
Main Switchers	4x Alpha & Omega AOTF29S50 (500V, 18A @ 100°C, Rds(on): 0.15Ohm)
IC Driver	2x Silicon Labs Si8233BD
Digital Controllers	2x Texas Instruments UCD3138A & Sync Power SPN5003 (reducing no-load consumption)
Topology	Primary side: Semi-Digital, Interleaved PFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	16x Vishay SiRS4600DP (60V, 287A @ 70°C, Rds(on): 1.15mOhm)
5V & 3.3V	DC-DC Converters: 6x UBIQ Semiconductor QM3054M6 (30V, 61A @ 100°C, Rds(on): 4.8mOhm) PWM Controller(s): 1x uPI Semi UP3861P
Filtering Capacitors	Electrolytic: 4x Nippon Chemi-Con (@ 105°C, W) 7x Rubycon (6~10,000 @ 105°C, YXJ) Polymer: 8x Nippon Chemi-con 25x Nichicon FPCAP Polymer: 10x Nichicon FPCAP, 34x Nippon Chemi-con
Supervisor IC	Weltrend WT7502R (OVP, UVP, SCP, PG) & Weltrend WT7518
Fan Controller / Micro Controller	Nuvoton M252SD2AE
Fan Model	be quiet! Silent Wings BQ SIW4-13525-HF (135mm, 12V, 0.56A, Fluid Dynamic Bearing Fan)
5VSB Circuit	
Rectifier	Leadtrend LD8926AA1 (110V, 15A)
Standby PWM Controller	On-Bright OB2365T

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	✓
Conducted Emissions EN 55032 & CISPR 32	Passed

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	91.193%
Average Noise Output (>1450 Load Combinations)	23.12dBA
Average PF (>1450 Load Combinations)	0.990
Efficiency With 10W (≤500W) or 2% (>500W) Load	75.724%
Standby Power Consumption	0.0139W
Non-Accredited	
12V Ripple (Full Load)	39.55mV
5V Ripple (Full Load)	29.94mV
3.3V Ripple (Full Load)	27.62mV
5VSB Ripple (Full Load)	29.31mV
12V Load Regulation	0.57%
5V Load Regulation	0.28%
3.3V Load Regulation	0.82%
5VSB Load Regulation	1.22%
Inrush Current	16.780A

230V

Accredited		
Average Efficiency (>1450 load combinations)		92.612%
Average Noise Output (>1450 Load Combinations)		22.60dBA
Average PF (>1450 Load Combinations)		0.951
Efficiency With 10W (≤500W) or 2% (>500W) Load		75.998%
Standby Power Consumption		0.0748W
Non-Accredited		
12V Ripple (Full Load)		37.50mV
5V Ripple (Full Load)		26.57mV
3.3V Ripple (Full Load)		23.12mV
5VSB Ripple (Full Load)		26.91mV
12V Load Regulation		0.51%
5V Load Regulation		0.24%
3.3V Load Regulation		0.85%
5VSB Load Regulation		1.28%
Inrush Current		32.990A
12V Transient Response (200%)		11.23V
5V Transient Response (200%)		4.865V
3.3V Transient Response (200%)		3.140V
5VSB Transient Response (200%)		4.840V
Hold-Up Time & PWR_OK Signal		20.10ms
AC Loss to PWR_OK Hold Up Time		18.80ms
PWR_OK Inactive to DC Loss Delay		1.30ms
PSU Timings: T1 (20% / 100%)	88.0ms	88.0ms
PSU Timings: T3 (20% / 100%)	131.0ms	131.0ms
12V OCP (30.0°C / 43.1°C)	160.60A (120.45%), 12.080V	151.40A (113.55%), 12.092V
5V OCP (30.0°C / 43.1°C)	28A (112.00%), 5.047V	27.8A (111.20%), 5.048V
3.3V OCP (30.0°C / 43.1°C)	27.6A (110.40%), 3.246V	27.6A (110.40%), 3.252V
5VSB OCP (30.0°C / 43.1°C)	6.2A (177.14%), 4.993V	6.1A (174.29%), 4.986V
OPP (30.38°C / 42.79°C)	121.07%	110.54%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	20.1
AC Loss to PWR_OK Hold Up Time (ms)	18.8
PWR_OK Inactive to DC Loss Delay (ms)	1.3

Stromverbrauch im Ruhezustand

Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.98 V	114.94 V	113.85 V	115.01 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	1.416	1.490	PASS
Mains Voltage THD:	0.13 %	0.10 %	N/A	0.16 %	2.00 %	PASS
Real Power:	0.014 W	-0.001 W	N/A	0.030 W	N/A	N/A
Apparent Power:	15.010 W	14.975 W	N/A	15.043 W	N/A	N/A
Power Factor:	0.000	N/A	N/A	N/A	N/A	N/A

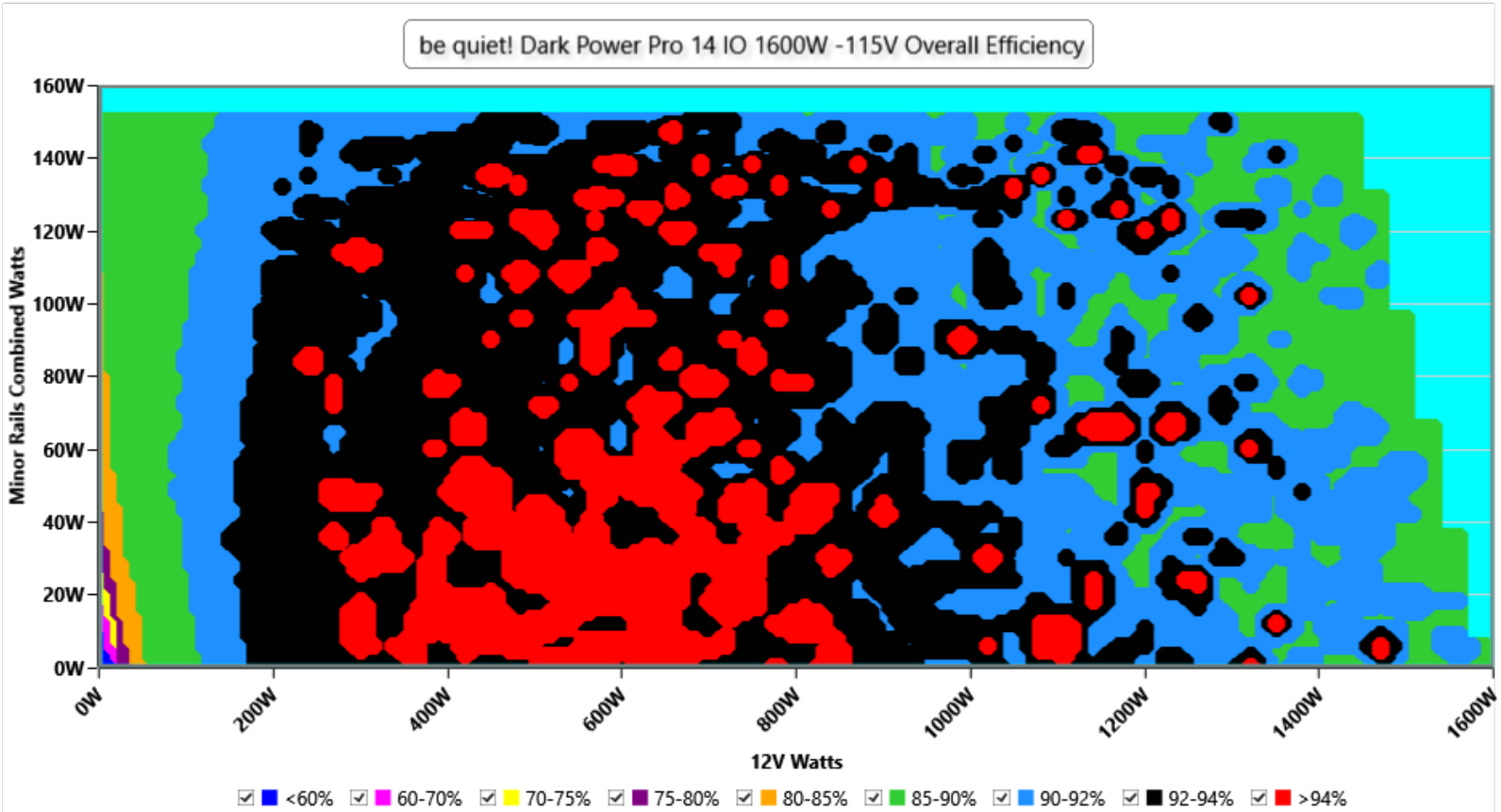
230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	230.00 V	229.95 V	227.70 V	230.01 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	50.00 Hz	49.50 Hz	50.00 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.415	1.415	1.340	1.416	1.490	PASS
Mains Voltage THD:	0.14 %	0.13 %	N/A	0.16 %	2.00 %	PASS
Real Power:	0.075 W	0.038 W	N/A	0.224 W	N/A	N/A
Apparent Power:	49.776 W	49.732 W	N/A	49.815 W	N/A	N/A

Power Factor:	0.001	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

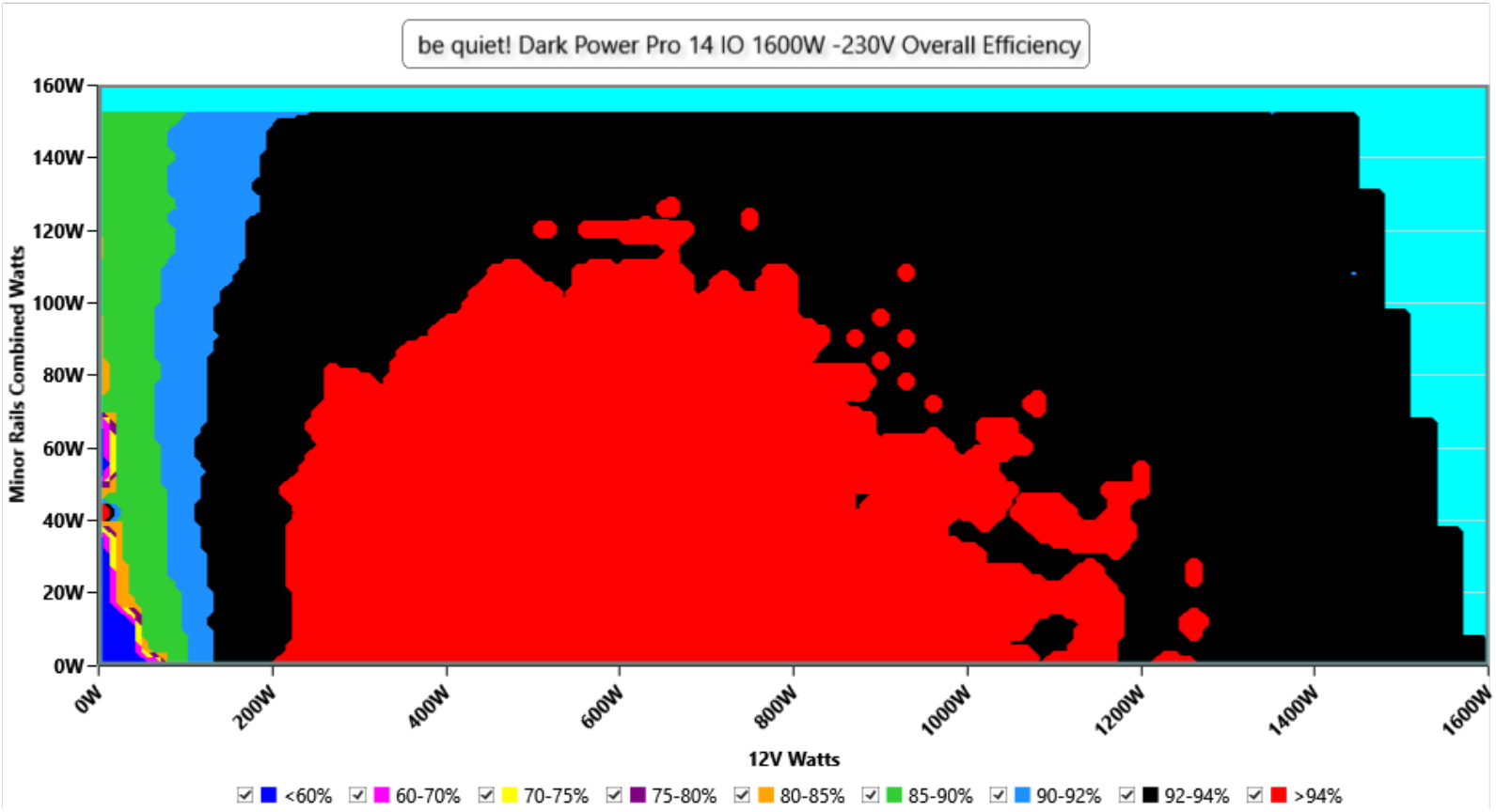
115V



INFO

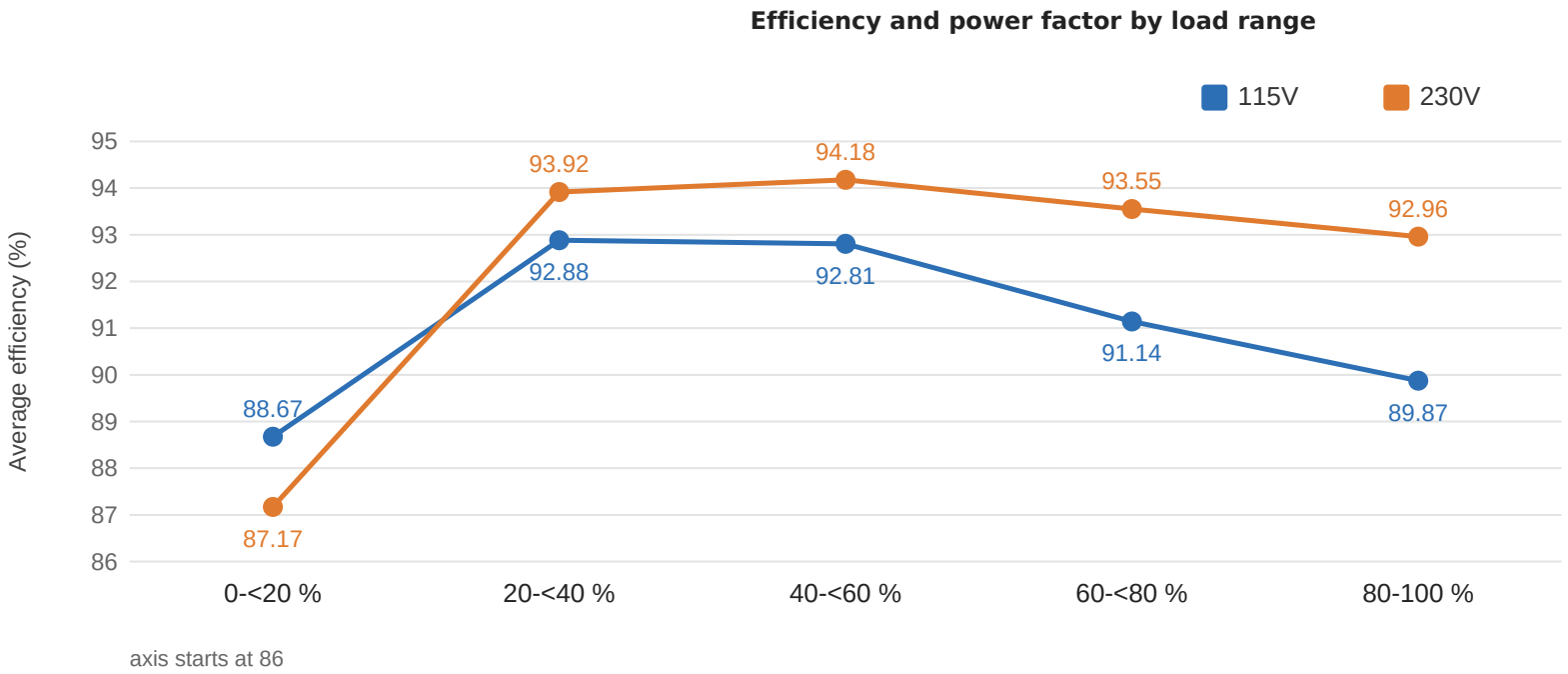
This graph depicts the PSU`s efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations

230V

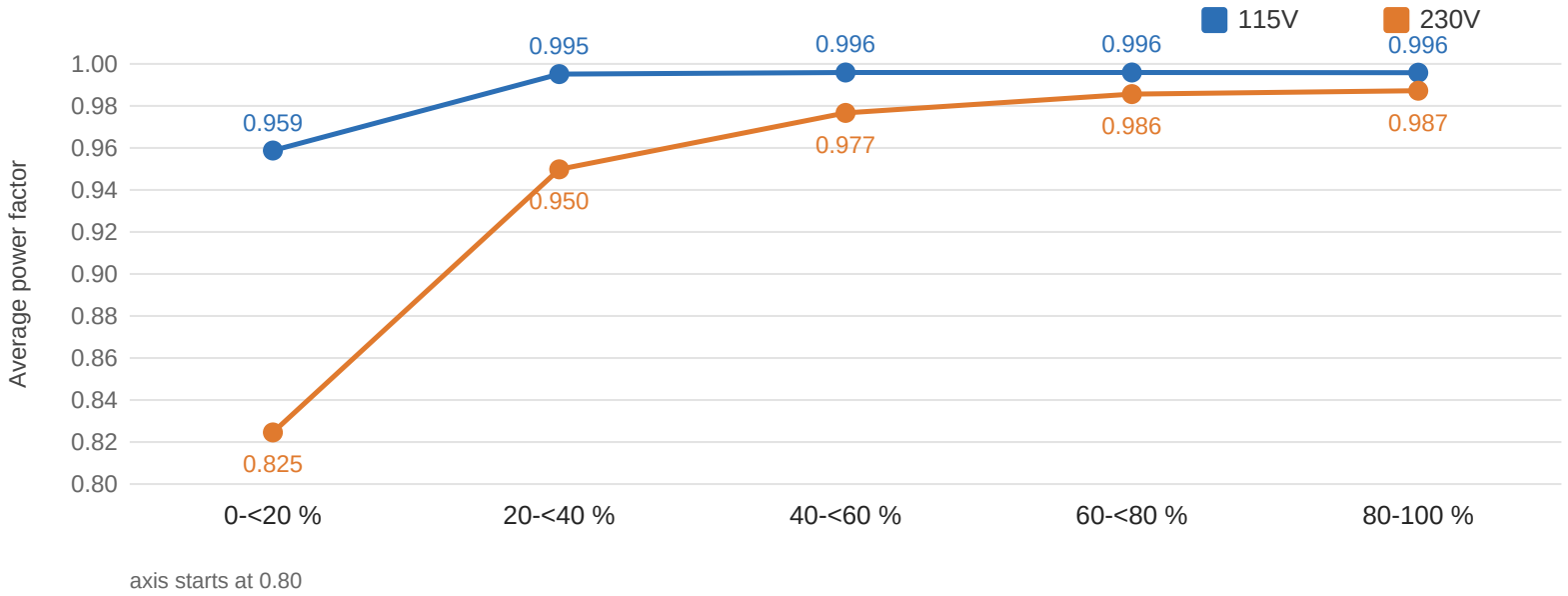


INFO

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 0.80

Load range	Points	Efficiency 115V	Efficiency 230V	PF 115V	PF 230V
0-<20 %	253 / 253	88.67%	87.17%	0.959	0.825
20-<40 %	334 / 334	92.88%	93.92%	0.995	0.950
40-<60 %	329 / 329	92.81%	94.18%	0.996	0.977
60-<80 %	330 / 329	91.14%	93.55%	0.996	0.986
80-100 %	334 / 335	89.87%	92.96%	0.996	0.987
70-100 % (High-Load)	497 / 497	90.17%	93.12%	0.996	0.987
All (published average)	1580 / 1580	91.19%	92.61%	0.990	0.951

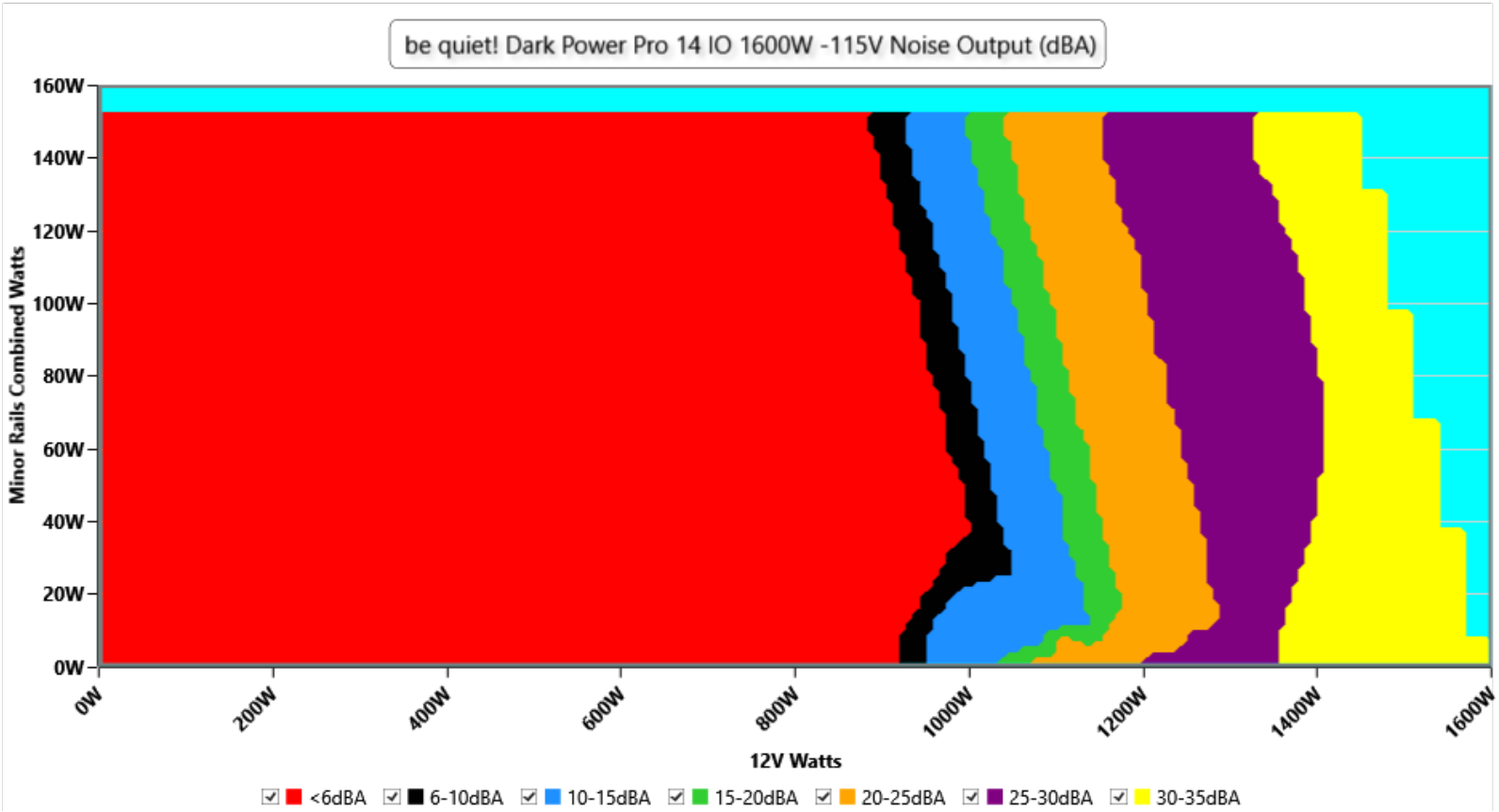
INFO

The average efficiency and power factor in five ranges of load. Calculated from the 1580 (115V) and 1580 (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 1600 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

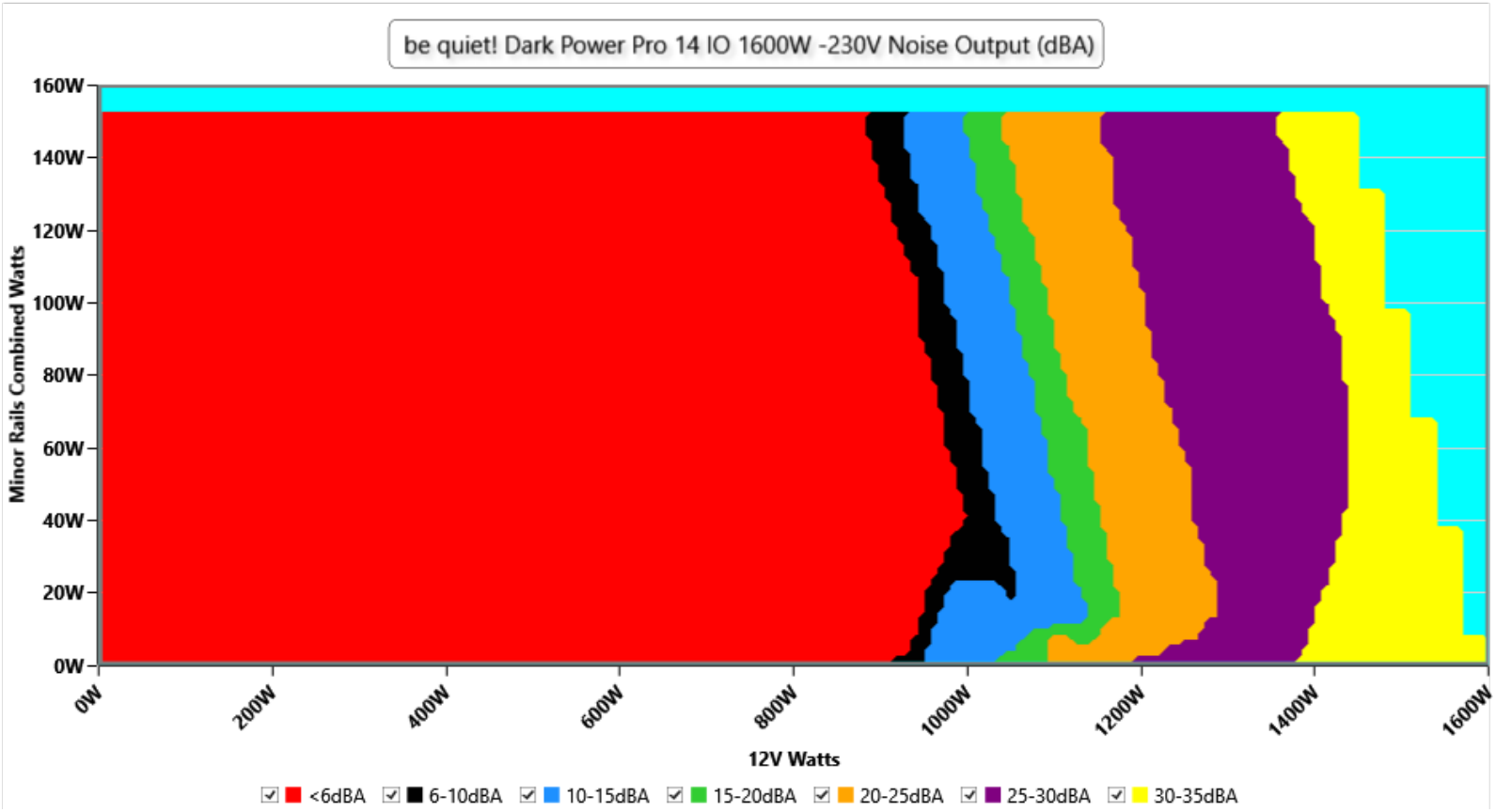
115V



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

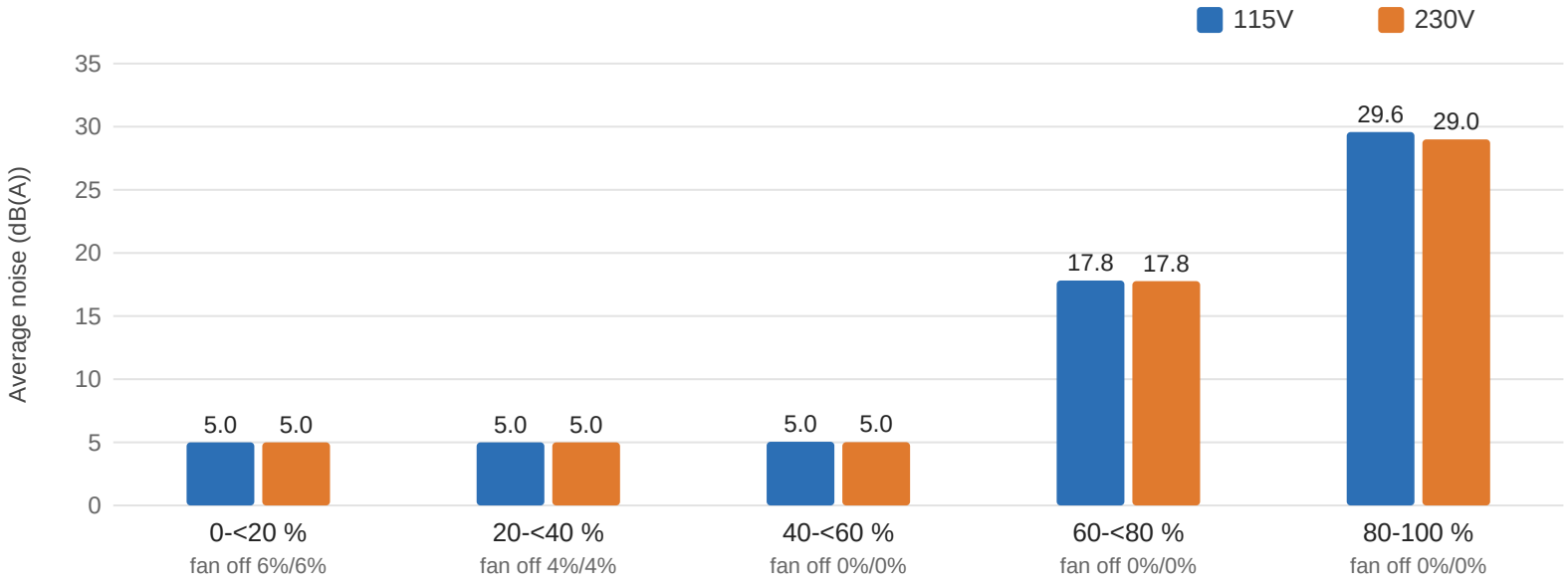
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Noise by load range

High-Load Index (70-100 % load)

Noise **28.1 dB(A)** at 115V and **27.6 dB(A)** at 230V · loudest point 33.1 dB(A)

Efficiency 90.17% / 93.12% · power factor 0.996 / 0.987 (115V / 230V)



Load range	Noise 115V avg (loudest)	Noise 230V avg (loudest)	Fan off 115V / 230V
0-<20 %	5.0 (5.0)	5.0 (5.0)	6% / 6%
20-<40 %	5.0 (5.0)	5.0 (5.0)	4% / 4%
40-<60 %	5.0 (9.1)	5.0 (9.1)	0% / 0%
60-<80 %	17.8 (25.5)	17.8 (26.9)	0% / 0%
80-100 %	29.6 (33.1)	29.0 (32.0)	0% / 0%
70-100 % (High-Load)	28.1 (33.1)	27.6 (32.0)	0% / 0%
All (published average)	23.1 (33.1)	22.6 (32.0)	2% / 2%

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 1580 (115V) and 1580 (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 1600 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".

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) · 32.7 °C	0 RPM · <6.0 dB(A) · 43.1 °C	fan off in both
20%	0 RPM · <6.0 dB(A) · 32.9 °C	0 RPM · <6.0 dB(A) · 43.0 °C	fan off in both
50%	0 RPM · <6.0 dB(A) · 32.7 °C	0 RPM · <6.0 dB(A) · 42.9 °C	fan off in both
100%	1377 RPM · 31.1 dB(A) · 30.6 °C	1566 RPM · 34.1 dB(A) · 45.4 °C	**+3.0 dB(A)**

230V

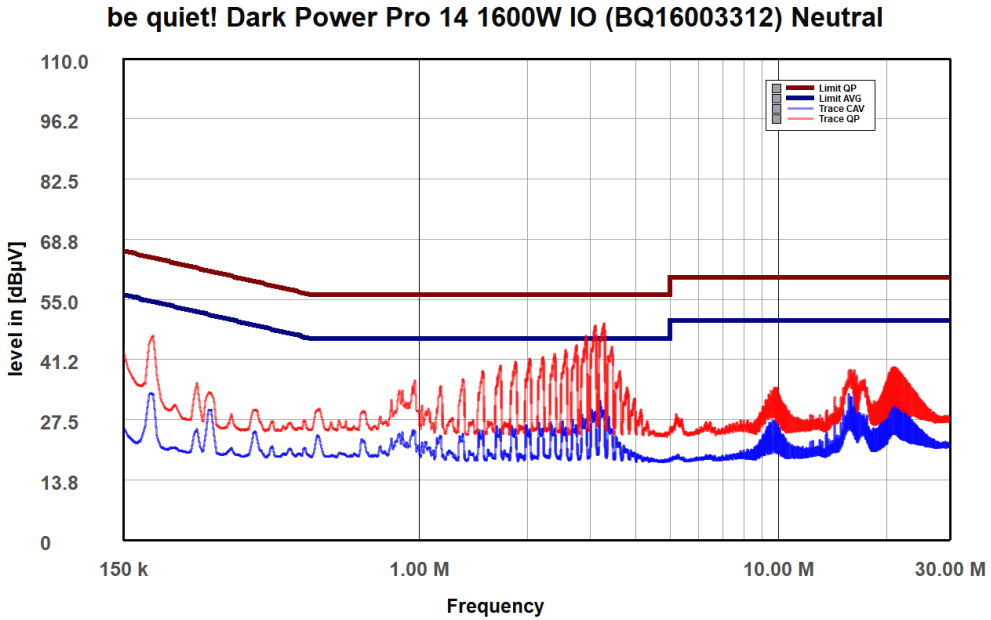
Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	0 RPM · <6.0 dB(A) · 32.3 °C	0 RPM · <6.0 dB(A) · 42.7 °C	fan off in both
20%	0 RPM · <6.0 dB(A) · 33.2 °C	0 RPM · <6.0 dB(A) · 41.9 °C	fan off in both
50%	0 RPM · <6.0 dB(A) · 33.1 °C	0 RPM · <6.0 dB(A) · 43.3 °C	fan off in both
100%	1379 RPM · 31.1 dB(A) · 30.7 °C	1599 RPM · 34.9 dB(A) · 45.5 °C	**+3.8 dB(A)**

INFO

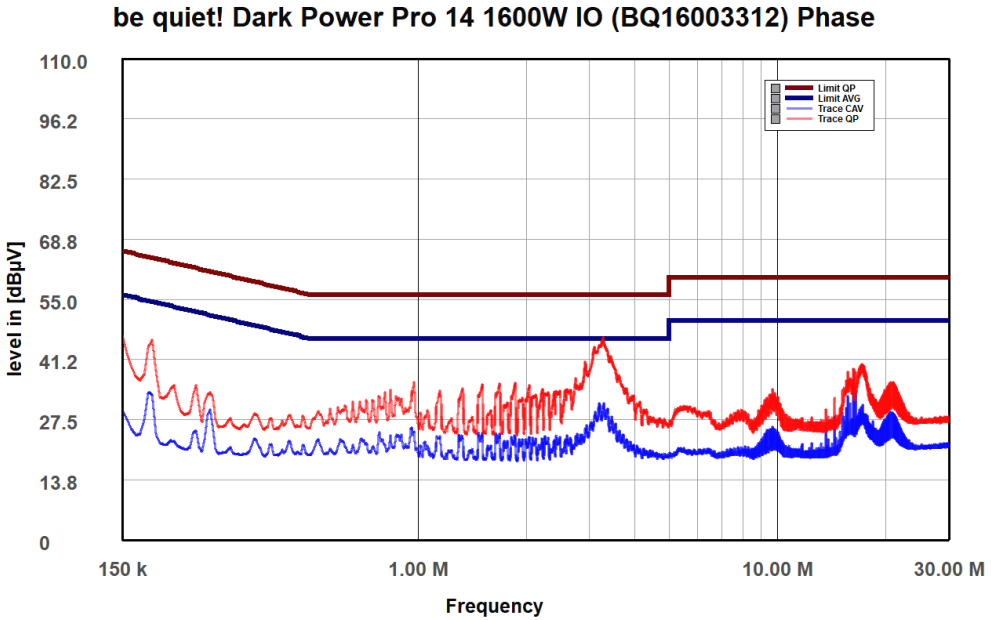
Fan speed, noise and the measured intake temperature at 10, 20, 50 and 100 % load, from the two load regulation tests: at normal ambient (about 30-32 °C) and at high ambient (about 40-47 °C). These are stabilized readings at fixed loads, not averages over the certification sweep, so they are indicative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



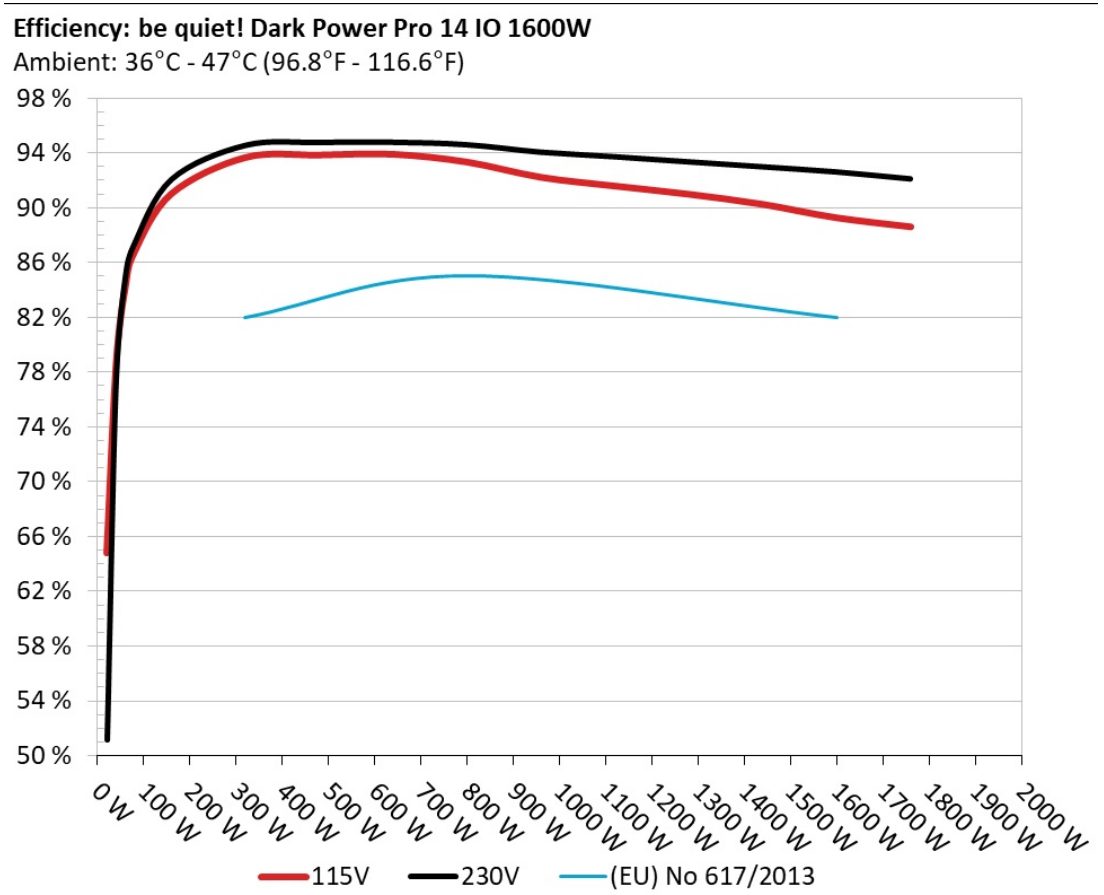
NEUTRAL



PHASE

Indicative Performance

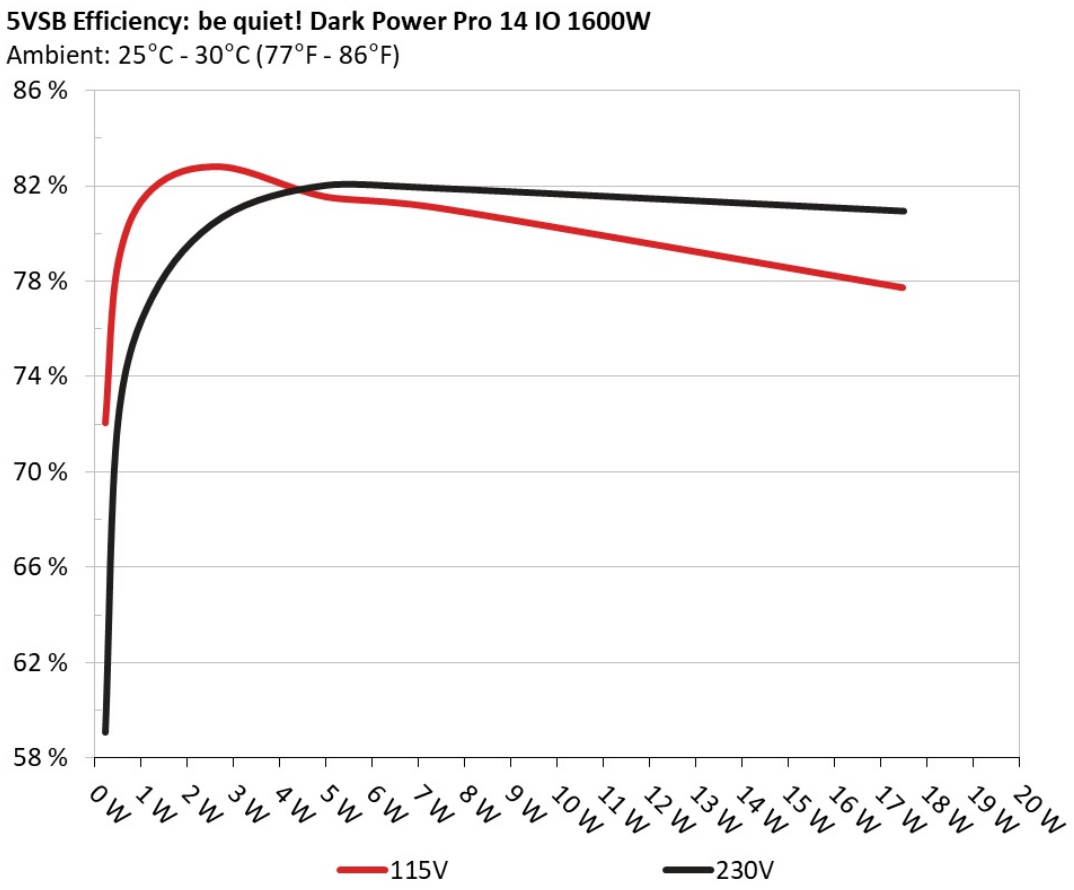
Efficiency under high ambient temperature



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**	0.225W	72.037%	0.021
	4.995V	0.312W		115.05V
2	**0.09A**	0.45W	78.008%	0.039
	4.995V	0.576W		115.05V
3	**0.1A**	0.5W	78.766%	0.042
	4.995V	0.634W		115.05V
4	**0.25A**	1.249W	81.893%	0.098
	4.996V	1.525W		115.05V
5	**0.55A**	2.748W	82.803%	0.193
	4.996V	3.319W		115.04V
6	**1A**	4.998W	81.543%	0.296
	4.997V	6.128W		115.04V
7	**1.5A**	7.498W	81.059%	0.371
	4.998V	9.25W		115.04V
8	**3.5A**	17.497W	77.727%	0.495
	4.999V	22.51W		115.04V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.225W	59.08%	0.008
	4.995V	0.383W		230.01V
2	**0.09A**	0.45W	70.819%	0.013
	4.995V	0.636W		230.01V
3	**0.1A**	0.5W	72.153%	0.014
	4.995V	0.693W		230.01V
4	**0.25A**	1.249W	77.384%	0.032
	4.996V	1.614W		230.01V

5	**0.55A**	2.748W	80.691%	0.067
	4.996V	3.406W		230.01V
6	**1A**	4.997W	82.037%	0.115
	4.997V	6.091W		230.01V
7	**1.5A**	7.498W	81.907%	0.164
	4.998V	9.154W		230.01V
8	**3.5A**	17.499W	80.954%	0.307
	5V	21.615W		230.01V

Protection Features

OCP (Normal @ 30.0°C)	12V: 160.60A (120.45%), 12.080V 5V: 28A (112.00%), 5.047V 3.3V: 27.6A (110.40%), 3.246V 5VSB: 6.2A (177.14%), 4.993V
OCP (Hot @ 43.1°C)	12V: 151.40A (113.55%), 12.092V 5V: 27.8A (111.20%), 5.048V 3.3V: 27.6A (110.40%), 3.252V 5VSB: 6.1A (174.29%), 4.986V
OPP (Normal @ 30.4°C)	1937.06W (121.07%)
OPP (Hot @ 42.8°C)	1768.65W (110.54%)
OTP	✓ (128°C @ 12V Heatsink)
SCP	12V to Earth: ✓ 5V to Earth: ✓ 3.3V to Earth: ✓ 5VSB to Earth: ✓ -12V to Earth: ✓
PWR_OK	Proper Operation
UVP (Typical 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%	**11.404A**	**1.977A**	**1.997A**	**1.002A**	160.017	90.99%	0	<6.0	43.12°C	0.989
	12.138V	5.059V	3.305V	4.989V	175.865				40.06°C	114.99V
20%	**23.828A**	**2.966A**	**2.999A**	**1.204A**	319.984	93.631%	0	<6.0	43°C	0.994
	12.132V	5.057V	3.302V	4.982V	341.83				40.54°C	114.94V
30%	**36.547A**	**3.461A**	**3.5A**	**1.407A**	479.204	93.813%	0	<6.0	42.99°C	0.996
	12.125V	5.056V	3.3V	4.975V	510.898				41.01°C	114.88V
40%	**49.372A**	**3.956A**	**4.002A**	**1.61A**	639.582	93.866%	0	<6.0	44.22°C	0.995
	12.120V	5.055V	3.299V	4.968V	681.635				41.77°C	114.83V
50%	**61.818A**	**4.947A**	**5.006A**	**1.815A**	799.322	93.3%	0	<6.0	42.9°C	0.996
	12.113V	5.054V	3.296V	4.96V	856.924				42.35°C	114.78V
60%	**74.354A**	**5.938A**	**6.013A**	**2A**	959.725	92.187%	512	<6.0	42.67°C	0.996
	12.105V	5.053V	3.293V	4.96V	1040.814				60.66°C	114.71V
70%	**86.836A**	**6.93A**	**7.021A**	**2.22A**	1119.534	91.55%	905	18.8	43.04°C	0.996
	12.097V	5.051V	3.29V	4.954V	1223.286				62.93°C	114.64V
80%	**99.412A**	**7.92A**	**8.032A**	**2.324A**	1279.538	90.952%	1281	28.7	43.9°C	0.996
	12.087V	5.049V	3.287V	4.948V	1408.673				60.78°C	114.58V
90%	**112.322A**	**8.417A**	**8.527A**	**2.428A**	1439.336	90.216%	1503	33.1	44.69°C	0.996
	12.080V	5.048V	3.284V	4.942V	1596.075				59.85°C	114.52V
100%	**124.848A**	**8.915A**	**9.051A**	**3.545A**	1599.447	89.235%	1566	34.1	45.41°C	0.996
	12.073V	5.047V	3.281V	4.936V	1792.169				61.2°C	114.44V
110%	**137.515A**	**9.91A**	**10.159A**	**3.551A**	1760.037	88.573%	1664	35.9	46.62°C	0.995
	12.066V	5.045V	3.278V	4.929V	1986.915				61.05°C	114.38V
CL1	**0.116A**	**17.9A**	**18.3A**	**0A**	151.301	84.501%	384	<6.0	40.45°C	0.989
	12.133V	5.044V	3.257V	4.982V	179.064				55.9°C	114.99V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	**0.115A**	**24.714A**	**0A**	**0A**	126.23	82.989%	925	19.6	41.17°C	0.989
	12.138V	5.051V	3.308V	4.987V	152.096				52.13°C	115V
CL3	**0.114A**	**0A**	**25.439A**	**0A**	83.896	77.335%	1011	22.0	41.85°C	0.818
	12.136V	5.061V	3.243V	4.987V	108.484				48.54°C	115.01V
CL4	**132.408A**	**0A**	**0A**	**0A**	1599.893	89.754%	1443	31.8	45.97°C	0.996
	12.083V	5.059V	3.306V	4.941V	1782.366				59.48°C	114.46V

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%	**11.404A**	**1.976A**	**1.998A**	**1.002A**	160.017	92.104%	0	<6.0	42.74°C	0.839
	12.138V	5.06V	3.304V	4.989V	173.728				40.13°C	229.99V
20%	**23.828A**	**2.966A**	**3A**	**1.204A**	319.996	94.592%	0	<6.0	41.87°C	0.914
	12.132V	5.058V	3.3V	4.982V	338.283				40.76°C	229.96V
30%	**36.550A**	**3.46A**	**3.502A**	**1.407A**	479.266	94.806%	0	<6.0	43.81°C	0.956
	12.126V	5.058V	3.299V	4.975V	505.53				41.15°C	229.93V
40%	**49.376A**	**3.955A**	**4.004A**	**1.611A**	639.653	94.818%	0	<6.0	42.95°C	0.969
	12.120V	5.057V	3.297V	4.968V	674.62				41.62°C	229.91V
50%	**61.818A**	**4.945A**	**5.01A**	**1.815A**	799.404	94.639%	0	<6.0	43.27°C	0.977
	12.114V	5.056V	3.294V	4.96V	844.717				42.16°C	229.88V
60%	**74.339A**	**5.936A**	**6.017A**	**2A**	959.801	94.097%	508	<6.0	42.83°C	0.985
	12.108V	5.055V	3.291V	4.959V	1019.981				52.77°C	229.85V
70%	**86.814A**	**6.927A**	**7.027A**	**2.221A**	1119.605	93.762%	882	19.6	43.13°C	0.986
	12.100V	5.054V	3.288V	4.953V	1194.098				55.43°C	229.82V
80%	**99.372A**	**7.917A**	**8.04A**	**2.325A**	1279.604	93.392%	1282	28.7	43.81°C	0.987
	12.093V	5.052V	3.284V	4.947V	1370.168				54.68°C	229.8V
90%	**112.268A**	**8.414A**	**8.532A**	**2.429A**	1439.399	93.028%	1512	33.3	44.06°C	0.988
	12.086V	5.05V	3.282V	4.941V	1547.406				54.57°C	229.77V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	**124.768A**	**8.911A**	**9.057A**	**3.548A**	1599.51	92.652%	1599	34.9	45.45°C	0.988
	12.081V	5.049V	3.28V	4.933V	1726.543				56.7°C	229.73V
110%	**137.410A**	**9.904A**	**10.165A**	**3.553A**	1760.062	92.147%	1670	36.0	46.55°C	0.988
	12.075V	5.048V	3.276V	4.927V	1909.934				57.45°C	229.7V
CL1	**0.116A**	**17.877A**	**18.284A**	**0A**	151.309	85.4%	383	<6.0	41.06°C	0.843
	12.132V	5.05V	3.26V	4.981V	177.174				52.99°C	229.99V
CL2	**0.116A**	**24.712A**	**0A**	**0A**	126.245	83.845%	925	19.6	40.5°C	0.816
	12.136V	5.052V	3.308V	4.987V	150.565				50.12°C	230V
CL3	**0.115A**	**0A**	**25.419A**	**0A**	83.909	77.539%	1011	22.0	40.64°C	0.723
	12.135V	5.061V	3.246V	4.986V	108.223				47.71°C	230V
CL4	**132.422A**	**0A**	**0A**	**0A**	1599.961	92.94%	1522	33.5	45.46°C	0.988
	12.082V	5.058V	3.305V	4.939V	1721.568				53.92°C	229.73V

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**	**0.494A**	**0.499A**	**0.2A**	20.008	64.776%	0	<6.0	40.52°C	0.704
	12.142V	5.061V	3.308V	4.996V	30.9				36.02°C	115.03V
40W	**2.693A**	**0.692A**	**0.698A**	**0.3A**	40.009	78.483%	0	<6.0	39.32°C	0.771
	12.142V	5.06V	3.308V	4.995V	50.975				37.01°C	115.03V
60W	**4.162A**	**0.889A**	**0.898A**	**0.401A**	60.009	84.158%	0	<6.0	40.57°C	0.798
	12.141V	5.06V	3.307V	4.994V	71.306				38.02°C	115.02V
80W	**5.628A**	**1.087A**	**1.098A**	**0.501A**	79.962	86.74%	0	<6.0	41.21°C	0.81
	12.141V	5.06V	3.307V	4.992V	92.189				39.01°C	115.02V

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
21W	**1.223A**	**0.494A**	**0.499A**	**0.2A**	21.009	51.155%	0	<6.0	38.62°C	0.235
	12.143V	5.061V	3.308V	4.996V	41.556				35.85°C	229.99V
40W	**2.692A**	**0.692A**	**0.699A**	**0.3A**	40	77.231%	0	<6.0	38.81°C	0.535
	12.142V	5.061V	3.307V	4.995V	50.667				37.62°C	230.01V
60W	**4.162A**	**0.889A**	**0.898A**	**0.4A**	60.001	84.913%	0	<6.0	39.13°C	0.331
	12.141V	5.061V	3.307V	4.994V	71.709				38.73°C	230V
80W	**5.628A**	**1.087A**	**1.098A**	**0.501A**	79.952	87.412%	0	<6.0	40.59°C	0.685
	12.141V	5.061V	3.306V	4.993V	91.459				39.24°C	230V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	33.51mV	26.47mV	24.76mV	24.60mV	Pass
20% Load	38.73mV	26.87mV	25.12mV	26.14mV	Pass
30% Load	38.32mV	27.95mV	25.27mV	27.01mV	Pass
40% Load	43.95mV	26.98mV	26.14mV	26.34mV	Pass
50% Load	42.98mV	27.89mV	26.24mV	26.44mV	Pass
60% Load	33.56mV	28.97mV	25.12mV	28.08mV	Pass
70% Load	35.04mV	28.35mV	27.27mV	30.33mV	Pass
80% Load	38.63mV	29.33mV	27.57mV	28.90mV	Pass
90% Load	37.86mV	28.97mV	26.75mV	29.36mV	Pass
100% Load	39.55mV	29.94mV	27.62mV	29.31mV	Pass
110% Load	38.42mV	29.02mV	25.99mV	29.21mV	Pass
Crossload1	34.28mV	26.67mV	26.60mV	26.60mV	Pass
Crossload2	34.69mV	32.34mV	25.37mV	28.59mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	31.31mV	27.44mV	29.62mV	28.39mV	Pass
Crossload4	37.91mV	29.48mV	27.11mV	29.11mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	33.15mV	25.85mV	24.40mV	23.33mV	Pass
20% Load	38.58mV	25.50mV	24.25mV	24.14mV	Pass
30% Load	37.60mV	26.36mV	24.56mV	25.11mV	Pass
40% Load	38.68mV	26.16mV	24.50mV	24.25mV	Pass
50% Load	38.11mV	26.36mV	23.53mV	25.68mV	Pass
60% Load	31.87mV	26.62mV	23.89mV	24.30mV	Pass
70% Load	33.77mV	25.75mV	22.76mV	24.96mV	Pass
80% Load	34.53mV	27.59mV	24.96mV	26.39mV	Pass
90% Load	36.78mV	28.10mV	24.25mV	27.31mV	Pass
100% Load	37.50mV	26.57mV	23.12mV	26.91mV	Pass
110% Load	37.91mV	26.67mV	25.06mV	27.37mV	Pass
Crossload1	32.74mV	26.05mV	24.76mV	28.39mV	Pass
Crossload2	32.54mV	30.14mV	23.02mV	28.90mV	Pass
Crossload3	29.62mV	24.32mV	26.96mV	26.91mV	Pass
Crossload4	38.68mV	27.18mV	23.58mV	26.45mV	Pass

The results above are not used in the certification process

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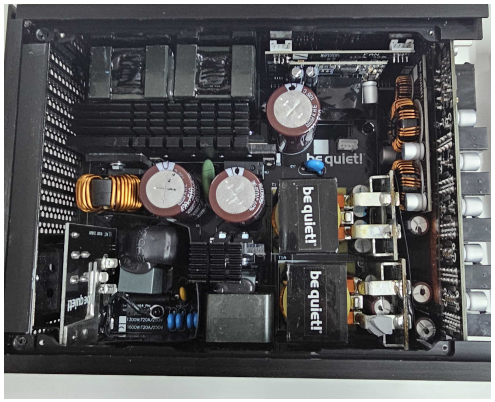
Top side



Power specifications label



Fan



PSU Internals

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

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