

## Anex

Blitzwolf BW-CP1 600W

Lab ID#: BW60002168  
 Receipt Date: Jun 20, 2022  
 Test Date: Apr 6, 2023

Report: 23PS2168A  
 Report Date: Apr 11, 2023

DUT INFORMATION	
Brand	Blitzwolf
Manufacturer (OEM)	
Series	BW-CP1
Model Number	
Serial Number	BW2107B0675
DUT Notes	

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	200-240
Rated Current (Arms)	5
Rated Frequency (Hz)	50-60
Rated Power (W)	600
Type	ATX12V
Cooling	120mm Rifle Bearing Fan (BOK BDH12025S)
Semi-Passive Operation	x
Cable Design	Fixed cables

TEST EQUIPMENT	
Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P
Power Analyzers	RS HMC8015, N4L PPA1530, N4L PPA5530
Oscilloscopes	Picoscope 4444, Rigol DS7014, 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, Keithley 2015 - THD
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Isolation Transformer	4kVA

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### RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

### 230V

Average Efficiency	83.088%
Average Efficiency 5VSB	71.602%
Standby Power Consumption (W)	0.1491000
Average PF	0.908
Avg Noise Output	42.96 dB(A)
Efficiency Rating (ETA)	
Noise Rating (LAMBDA)	Standard

### POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	46	2.5	0.3
	Watts	120		552	12.5	3.6
Total Max. Power (W)		600				

### HOLD-UP TIME & POWER OK SIGNAL (230V)

Hold-Up Time (ms)	13.6
AC Loss to PWR_OK Hold Up Time (ms)	10
PWR_OK Inactive to DC Loss Delay (ms)	3.6

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**CABLES AND CONNECTORS**

**Captive Cables**

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (520mm)	1	1	18-22AWG	No
4+4 pin EPS12V (700mm+100mm)	1	2	18AWG	No
6+2 pin PCIe (530mm+150mm)	1	2	18AWG	No
SATA (500mm+150mm) / 4-pin Molex (+150mm)	2	4	18AWG	No

**Modular Cables**

AC Power Cord (1340mm) - C13 coupler	1	1	18AWG	-
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<b>General Data</b>	-
Manufacturer (OEM)	no info
PCB Type	Single Sided
<b>Primary Side</b>	-
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes
Inrush Protection	-
Bridge Rectifier(s)	1x GBU1006 (without heat sink) (600V, 10A @ 100°C)
APFC MOSFETs	1x Maplesemi SLF20N50S (500V, 13A @ 100°C, Rds(on): 0.270hm)
APFC Boost Diode	1x Diodes Inc LTTH806RFW (600V, 8A @ 125°C)
Bulk Cap(s)	1x Ltec (420V, 270uF, 2,000h @ 85°C, LP)
Main Switchers	2x Maplesemi SLF16N50C (500V, 9.6A @ 100°C, Rds(on): 0.3660hm)
PFC / PWM Combo Controller	OnSemiconductor FAN4800A
Topology	Primary side: APFC, Double Forward Secondary side: Semi - Synchronous Rectification
<b>Secondary Side</b>	-
+12V MOSFETs	2x PSM40U60YCT
5V & 3.3V	1x Vishay MBR3045CT SBR (45V, 30A) & 1x SBT30V45CT (45V, 40A)
Filtering Capacitors	Electrolytic: 3x Jicon (2,000h @ 105°C, ZC), 4x Chengx (2-4,000h @ 105°C, GR), 3x Nicon (2-3,000h @ 105°C, KME)
Supervisor IC	XF295M
Fan Model	BOK BDH12025S (120mm, 12V, 0.30A, Rifle Bearing Fan)
<b>5VSB Circuit</b>	-
Standby PWM Controller	Power Integrations TNY286PG

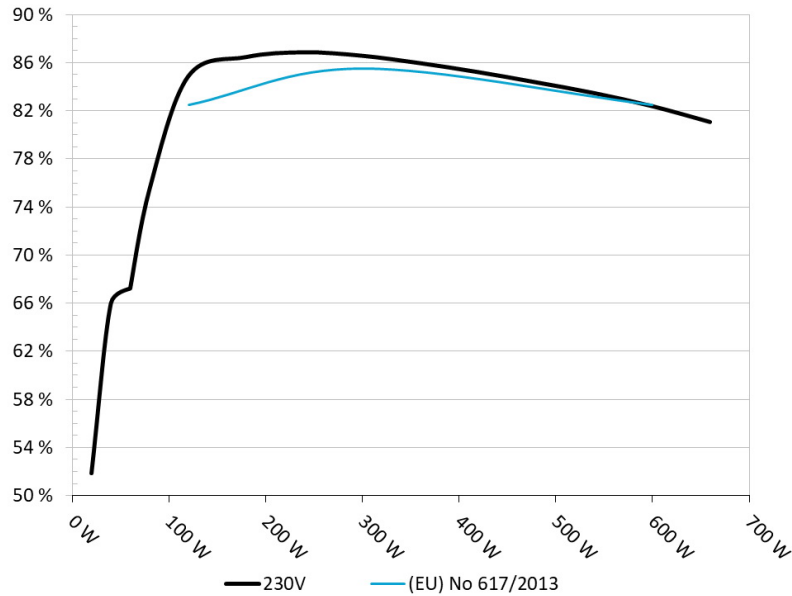
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#### EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

**Efficiency: Blitzwolf BW-CP1 600W**  
 Ambient: 31°C - 42°C (87.8°F - 107.6°F)

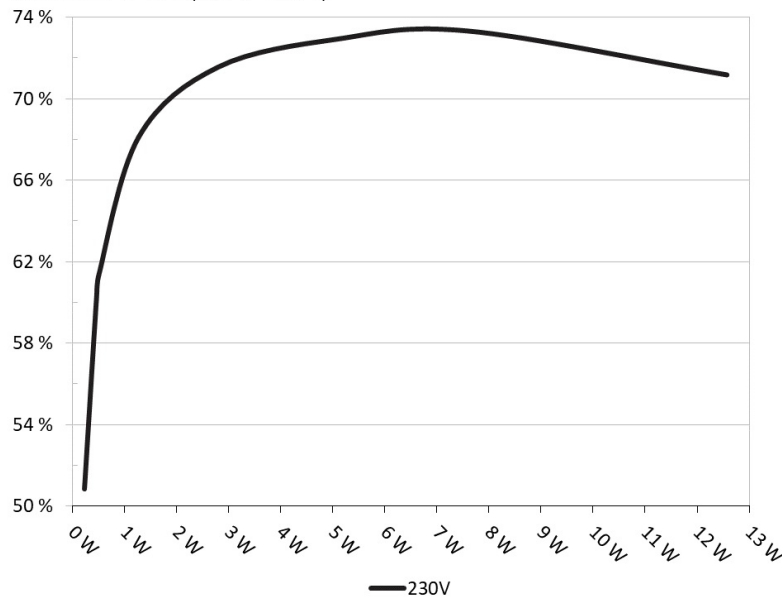


#### INFO

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

**5VSB Efficiency: Blitzwolf BW-CP1 600W**  
 Ambient: 28°C - 32°C (82.4°F - 89.6°F)



#### INFO

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

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### 5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	50.837%	0.021
	5.109V	0.453W		230.21V
2	0.09A	0.459W	60.106%	0.035
	5.107V	0.764W		230.21V
3	0.55A	2.8W	71.55%	0.154
	5.092V	3.915W		230.21V
4	1A	5.078W	72.922%	0.216
	5.079V	6.961W		230.21V
5	1.5A	7.594W	73.323%	0.255
	5.063V	10.357W		230.21V
6	2.499A	12.574W	71.167%	0.297
	5.031V	17.671W		230.21V

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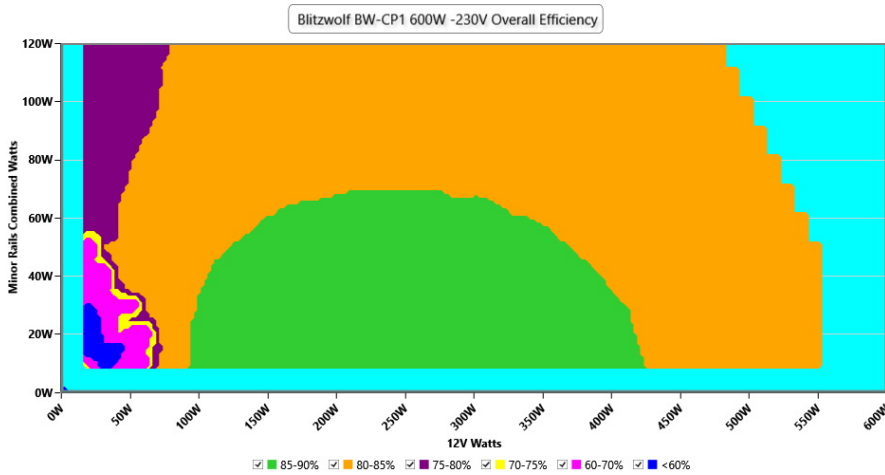
# 230V

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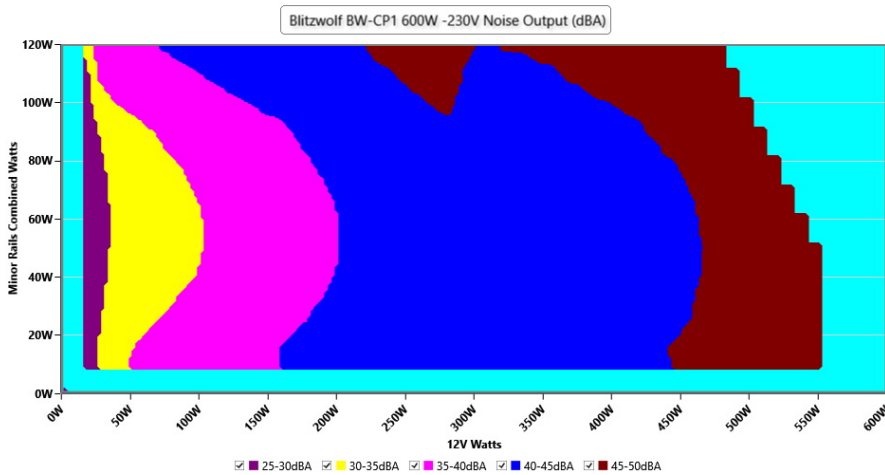
#### EFFICIENCY GRAPH 230V



#### 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

#### NOISE GRAPH 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

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### VAMPIRE POWER -230V

#### Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	230.23 V	230.08 V	227.70 V	230.28 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:	1.416	1.415	1.340	1.417	1.490	PASS
Mains Voltage THD:	0.13 %	0.10 %	N/A	0.23 %	2.00 %	PASS
Real Power:	0.149 W	0.128 W	N/A	0.193 W	N/A	N/A
Apparent Power:	21.658 W	21.519 W	N/A	21.782 W	N/A	N/A
Power Factor:	0.007	N/A	N/A	N/A	N/A	N/A

#### INFO

*This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing*

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### 10-110% LOAD TESTS 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%	3.136A	1.988A	1.984A	0.986A	59.976	66.353%	1655	38.3	34.57°C	0.638
	12.237V	5.03V	3.325V	5.069V	74.534				38.58°C	230.22V
20%	7.296A	2.991A	2.986A	1.188A	119.885	84.356%	2019	43.9	34.96°C	0.805
	12.200V	5.014V	3.315V	5.051V	142.118				39.22°C	230.21V
30%	11.837A	3.493A	3.495A	1.39A	179.91	85.966%	2029	43.8	35.52°C	0.858
	12.154V	5.009V	3.304V	5.034V	209.279				40.28°C	230.2V
40%	16.412A	3.996A	4.008A	1.594A	239.939	86.364%	2039	44	35.87°C	0.891
	12.110V	5.005V	3.293V	5.017V	277.821				40.91°C	230.2V
50%	20.641A	5.01A	5.028A	1.8A	299.879	86.075%	2216	45.9	36.46°C	0.913
	12.082V	4.989V	3.281V	4.999V	348.398				41.94°C	230.19V
60%	24.922A	6.033A	6.056A	2A	359.863	85.456%	2331	47.1	37.07°C	0.929
	12.041V	4.973V	3.269V	4.98V	421.104				43.15°C	230.18V
70%	29.137A	7.059A	7.093A	2.216A	419.141	84.726%	2376	47.4	38.88°C	0.939
	12.014V	4.959V	3.256V	4.96V	494.707				45.93°C	230.17V
80%	33.503A	8.087A	8.134A	2.325A	479.11	83.875%	2384	47.4	38.78°C	0.946
	11.977V	4.944V	3.243V	4.944V	571.228				46.86°C	230.16V
90%	38.301A	8.6A	8.658A	2.433A	538.925	82.984%	2382	47.4	39.35°C	0.952
	11.918V	4.94V	3.232V	4.929V	649.431				48.38°C	230.15V
100%	43.227A	9.116A	9.219A	2.543A	599.62	81.89%	2380	47.4	40.34°C	0.957
	11.855V	4.934V	3.219V	4.912V	732.214				50.43°C	230.15V
110%	47.702A	10.168A	10.382A	2.552A	659.464	80.572%	2383	47.4	42.04°C	0.961
	11.817V	4.916V	3.206V	4.896V	818.472				53.01°C	230.13V
CL1	1.894A	15.116A	14.537A	0.496A	146.358	76.183%	2442	48.3	39.06°C	0.845
	12.662V	4.776V	3.28V	5.039V	192.118				44.53°C	230.21V
CL2	1.874A	20.391A	1.002A	0.494A	126.472	78.827%	2177	45.5	35.52°C	0.82
	12.799V	4.742V	3.293V	5.057V	160.45				42.54°C	230.21V
CL3	1.962A	1A	18.47A	0.494A	92.462	70.858%	2117	44.8	34.71°C	0.794
	12.220V	5.003V	3.302V	5.056V	130.493				43.75°C	230.21V
CL4	51.421A	0.977A	1.018A	0.5A	599.205	82.311%	2310	47	41.49°C	0.957
	11.443V	5.119V	3.242V	4.996V	728.001				52.39°C	230.15V

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### 20-80W LOAD TESTS 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	1.216A	0.493A	0.494A	0.196A	19.974	51.377%	1158	28.3	30.61°C	0.408
	12.198V	5.065V	3.337V	5.103V	29.638				33.65°C	230.22V
40W	2.682A	0.691A	0.693A	0.294A	39.976	65.479%	1216	30	31.66°C	0.551
	12.180V	5.063V	3.333V	5.096V	51.787				34.99°C	230.22V
60W	4.154A	0.889A	0.891A	0.393A	59.975	66.737%	1473	35.3	32.75°C	0.645
	12.160V	5.059V	3.33V	5.09V	75.501				36.22°C	230.22V
80W	5.618A	1.087A	1.091A	0.491A	79.9	74.957%	1427	34.1	33.45°C	0.695
	12.152V	5.056V	3.326V	5.083V	94.928				37.23°C	230.22V

### RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.12mV	5.84mV	15.67mV	26.92mV	Pass
20% Load	21.47mV	15.91mV	14.71mV	26.77mV	Pass
30% Load	34.28mV	17.13mV	20.17mV	25.45mV	Pass
40% Load	40.25mV	17.08mV	16.53mV	23.02mV	Pass
50% Load	26.53mV	8.03mV	18.91mV	24.29mV	Pass
60% Load	49.11mV	21.14mV	18.85mV	21.00mV	Pass
70% Load	45.11mV	20.53mV	21.49mV	27.98mV	Pass
80% Load	57.16mV	25.15mV	23.76mV	28.79mV	Pass
90% Load	55.34mV	23.48mV	26.24mV	32.44mV	Pass
100% Load	80.04mV	26.01mV	31.14mV	42.65mV	Pass
110% Load	99.35mV	31.28mV	33.38mV	51.43mV	Pass
Crossload1	29.23mV	25.48mV	21.87mV	21.83mV	Pass
Crossload2	20.35mV	23.43mV	12.49mV	21.56mV	Pass
Crossload3	33.87mV	16.87mV	23.36mV	21.10mV	Pass
Crossload4	94.04mV	22.46mV	34.64mV	48.97mV	Pass

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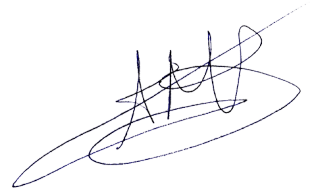
**Blitzwolf BW-CP1 600W**



Top side

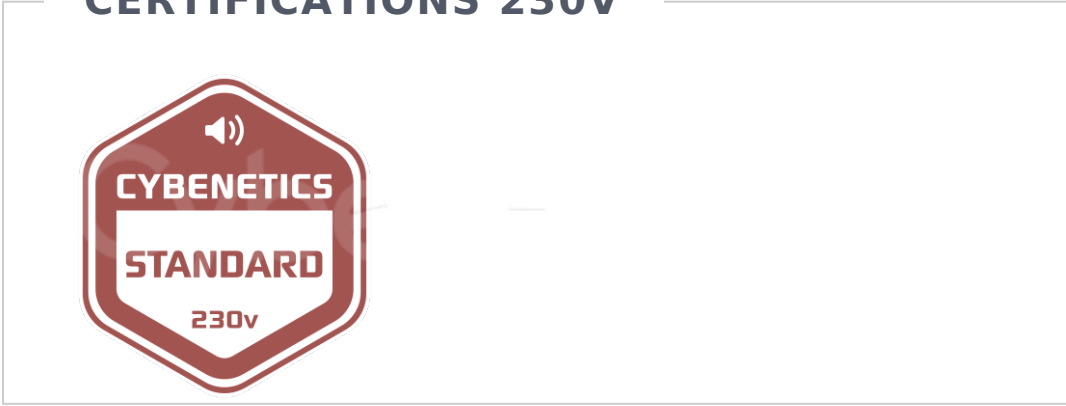


Power specifications label



**Aristeidis Bitziopoulos**  
Lab Director

**CERTIFICATIONS 230V**



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