PCYES Aether 850W

Serial Number

Lab ID PY85002437

Certification ID 252437

Test Result Report ID: 24PS2437A

Certificate Issue Date: May 11, 2024

Scheme: ETA-EMI PSU

115V: CYBENETICS GOLD

230V: CYBENETICS PLATINUM 230v

Scheme: LAMBDA PSU

115V: CYBENETICS STANDARD+

230V: CYBENETICS STANDARD+ 230v

CYBENETICS ATX 3.1 PASS

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	PCYES
Model	Aether 850W
OEM/ODM	Kinpower
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15

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 (EFS-14E12H)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	PY85002437
Date of receipt	Apr 23, 2024
Testing Date	May 9, 2024
Report Issued Date	May 11, 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 (595mm)	1	1	16-22AWG	No
4+4 pin EPS12V (700mm)	2	2	16AWG	No
6+2 pin PCIe (550mm+150mm)	2	4	16-18AWG	No
12+4 pin PCIe (600mm) (600W)	1	1	16-24AWG	No
SATA (450mm+155mm+155mm)	3	9	18AWG	No
4-pin Molex (450mm+150mm+150mm)	1	3	18AWG	No

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	20	20	70.8	3	0.3
	Watts	103		850	15	3.6
Total Max. Power (W)		850				

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)	89.012%

Average Noise Output (>1450 Load Combinations)	37.41dBA
Average PF (>1450 Load Combinations)	0.973
Efficiency With 10W (≤500W) or 2% (>500W) Load	69.021%
Standby Power Consumption	0.0615W
Non-Accredited	
12V Ripple (Full Load)	32.38mV
5V Ripple (Full Load)	16.19mV
3.3V Ripple (Full Load)	19.98mV
5VSB Ripple (Full Load)	50.85mV
12V Load Regulation	0.71%
5V Load Regulation	0.72%
3.3V Load Regulation	1.29%
5VSB Load Regulation	2.41%
Inrush Current	34.520A

230V

Accredited	
Average Efficiency (>1450 load combinations)	91.183%
Average Noise Output (>1450 Load Combinations)	37.05dBA
Average PF (>1450 Load Combinations)	0.935
Efficiency With 10W (≤500W) or 2% (>500W) Load	68.448%
Standby Power Consumption	0.1088W
Non-Accredited	
12V Ripple (Full Load)	31.79mV
5V Ripple (Full Load)	17.33mV
3.3V Ripple (Full Load)	18.50mV
5VSB Ripple (Full Load)	49.32mV
12V Load Regulation	0.72%
5V Load Regulation	0.67%
3.3V Load Regulation	1.19%
5VSB Load Regulation	2.39%
Inrush Current	66.100A

12V Transient Response (200%)		11.48V
5V Transient Response (200%)		5.049V
3.3V Transient Response (200%)		3.261V
5VSB Transient Response (200%)		5.017V
Hold-Up Time & PWR_OK Signal		20.40ms
AC Loss to PWR_OK Hold Up Time		17.90ms
PWR_OK Inactive to DC Loss Delay		2.50ms
PSU Timings: T1 (20% / 100%)	39.0ms	40.0ms
PSU Timings: T3 (20% / 100%)	117.0ms	116.0ms
OPP (25.74°C / 41.17°C)	124.12%	116.48%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	20.4
AC Loss to PWR_OK Hold Up Time (ms)	17.9
PWR_OK Inactive to DC Loss Delay (ms)	2.5

Stromverbrauch im Ruhezustand

Tables

115V

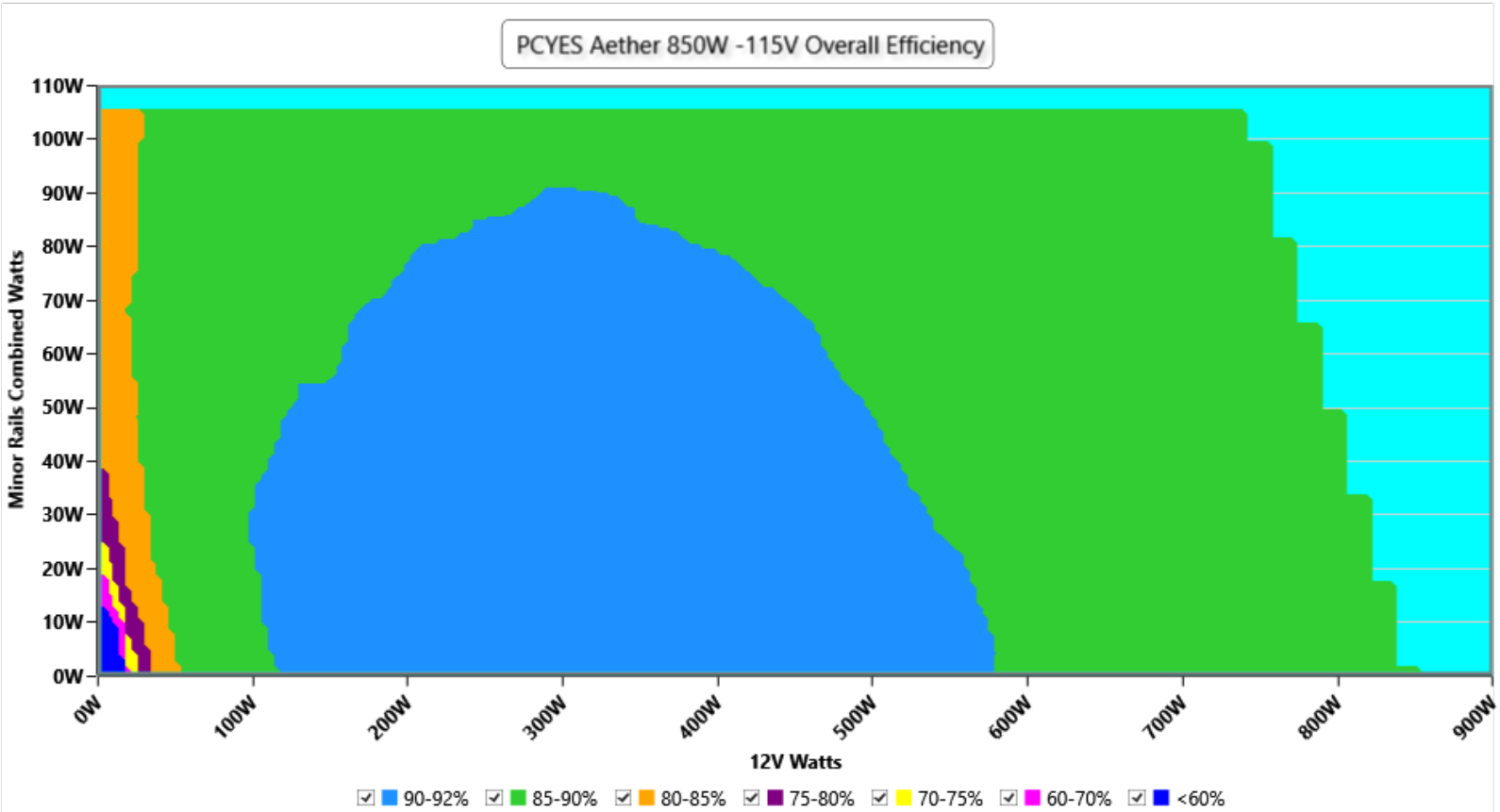
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.93 V	114.89 V	113.85 V	114.97 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.417	1.490	PASS
Mains Voltage THD:	0.14 %	0.12 %	N/A	0.17 %	2.00 %	PASS
Real Power:	0.061 W	0.054 W	N/A	0.070 W	N/A	N/A
Apparent Power:	8.082 W	8.061 W	N/A	8.102 W	N/A	N/A
Power Factor:	0.008	N/A	N/A	N/A	N/A	N/A

230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	229.90 V	229.84 V	227.70 V	229.94 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:	1.416	1.415	1.340	1.416	1.490	PASS
Mains Voltage THD:	0.13 %	0.11 %	N/A	0.16 %	2.00 %	PASS
Real Power:	0.109 W	0.075 W	N/A	0.156 W	N/A	N/A
Apparent Power:	27.558 W	27.504 W	N/A	27.653 W	N/A	N/A
Power Factor:	0.005	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

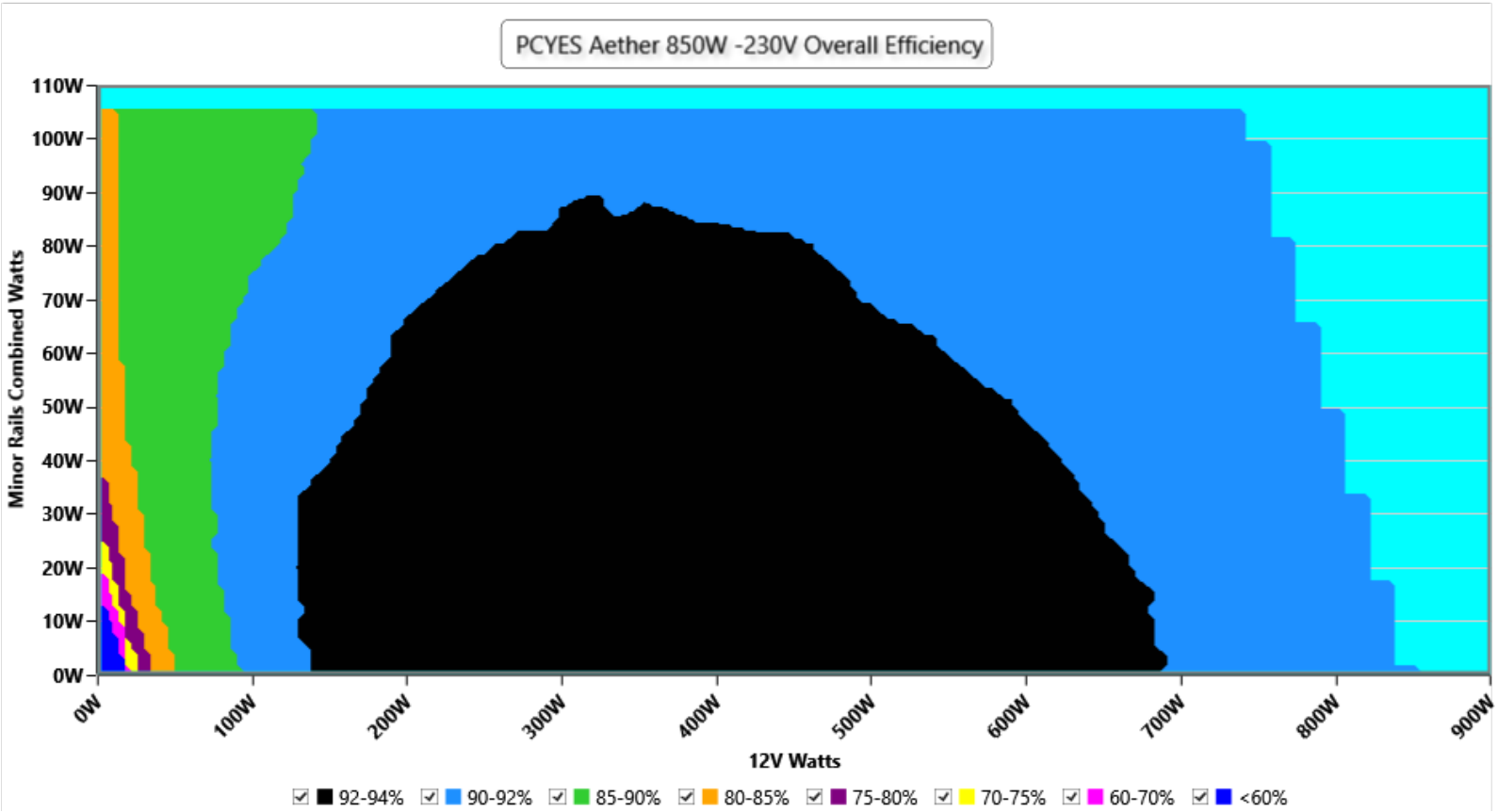
115V



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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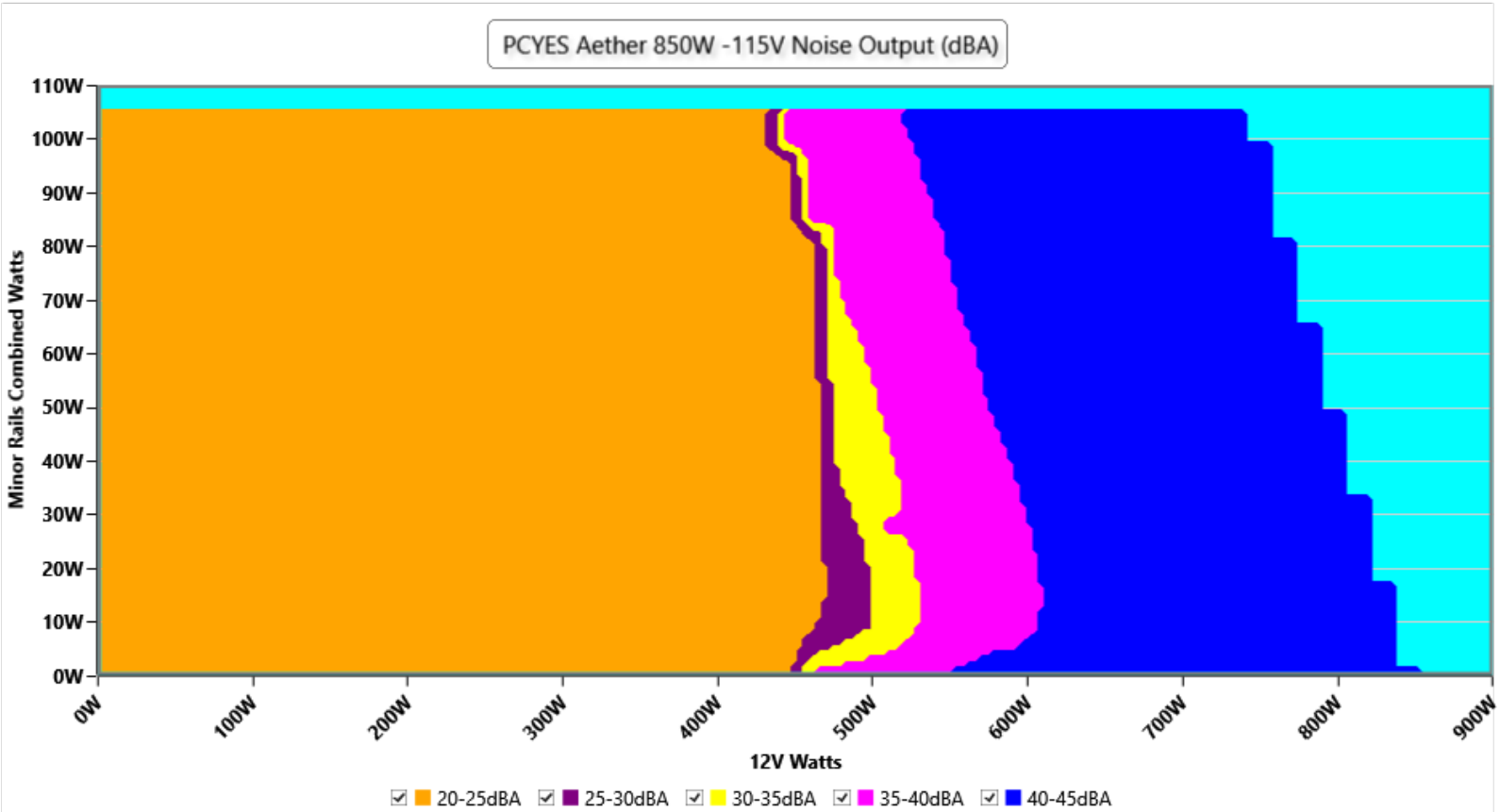
Noise Graph

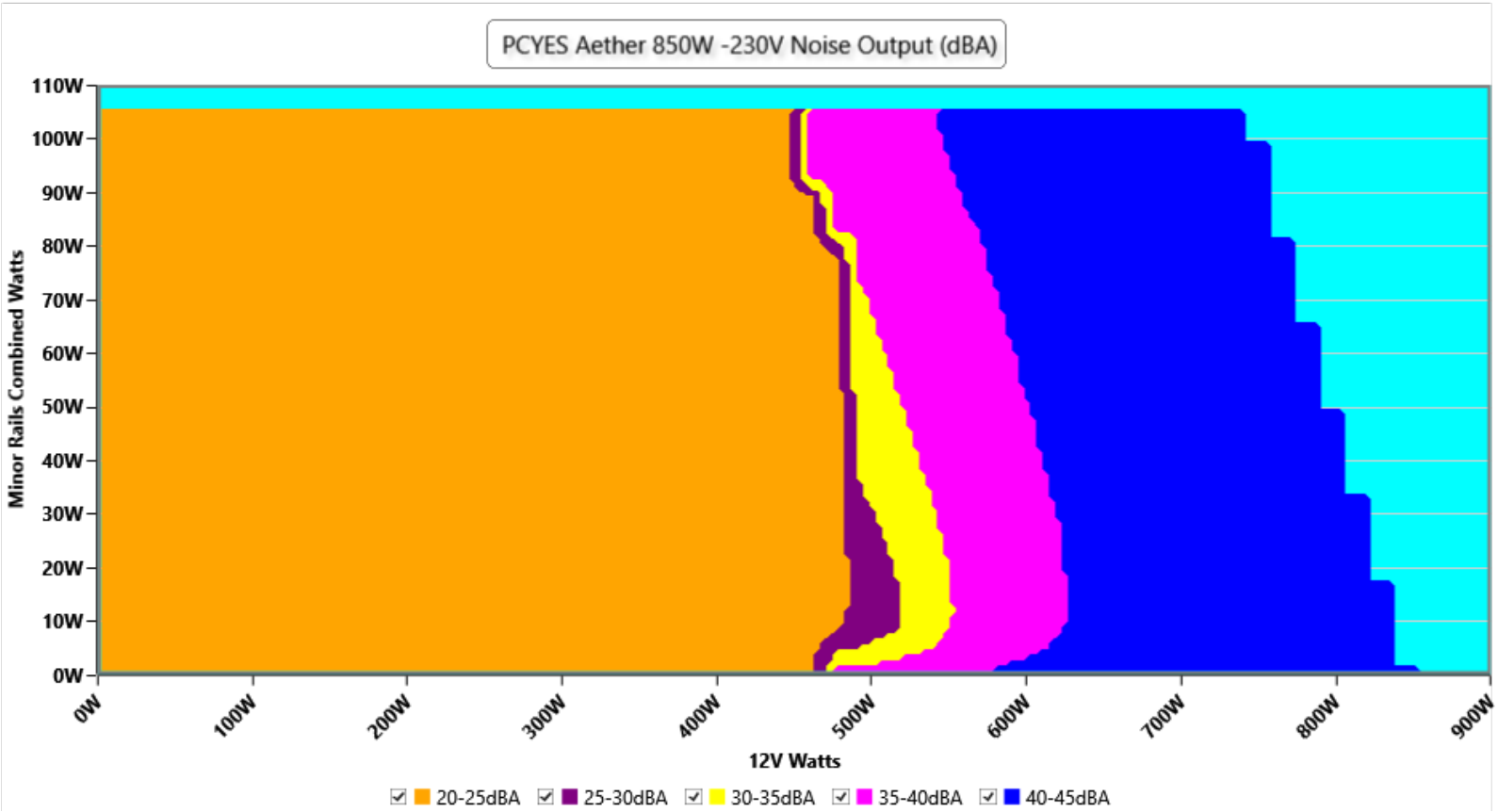
115V



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

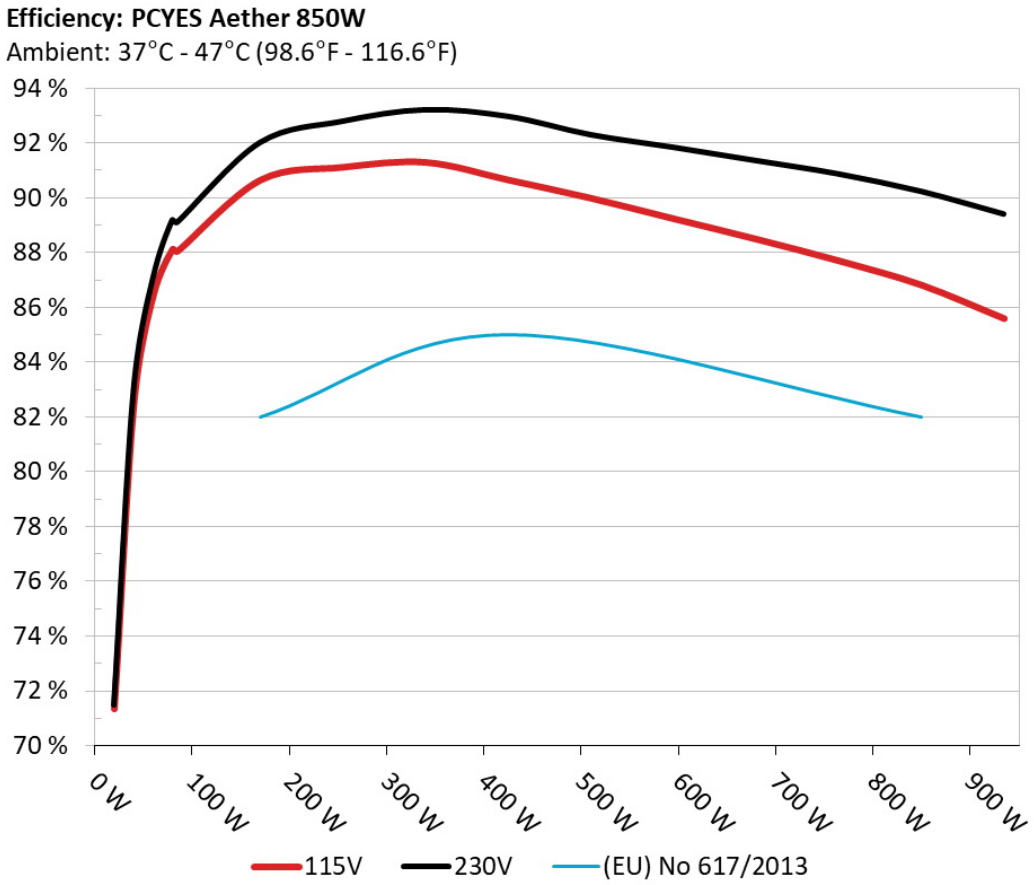


INFO

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

Indicative Performance

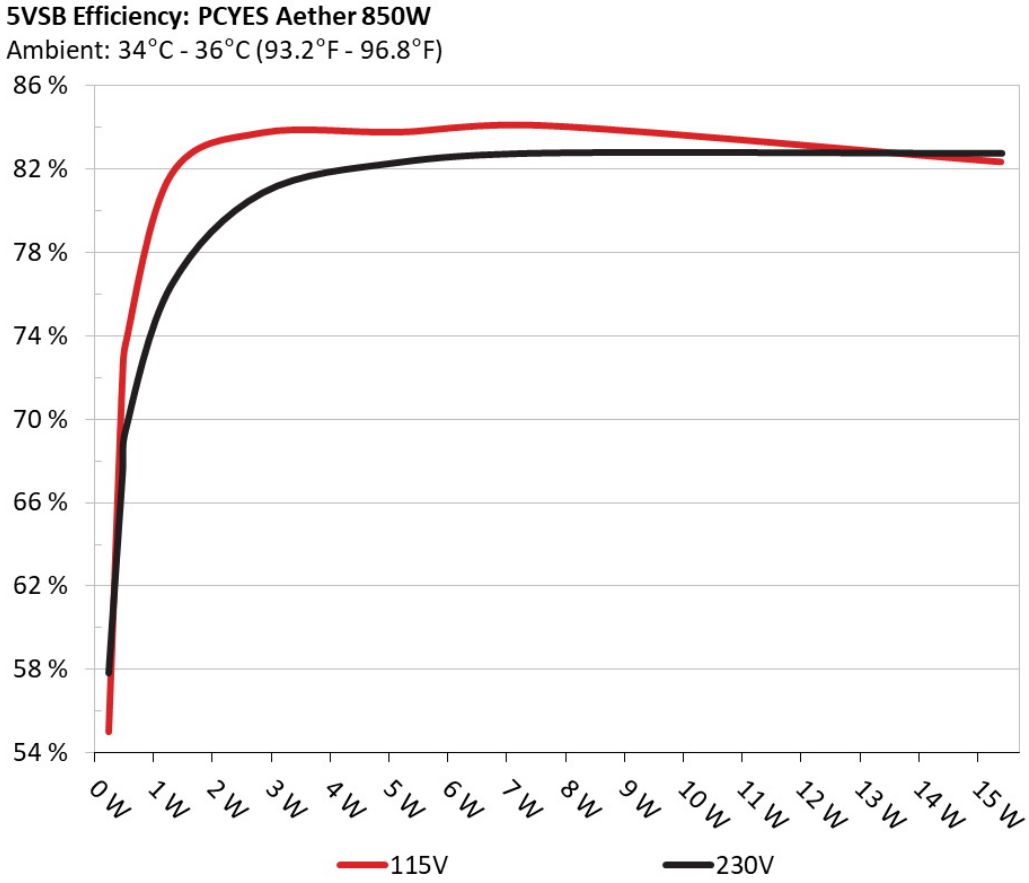
Efficiency under high ambient temperature



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	0.233W	55%	0.032
	5.177V	0.259W		114.91V
2	0.09A	0.466W	72.027%	0.078
	5.176V	0.647W		114.91V
3	0.55A	2.843W	83.764%	0.292
	5.169V	3.394W		114.91V
4	1A	5.163W	83.789%	0.364
	5.163V	6.162W		114.91V
5	1.5A	7.734W	84.094%	0.413
	5.156V	9.197W		114.91V
6	3A	15.401W	82.363%	0.471
	5.134V	18.698W		114.9V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.233W	57.843%	0.015
	5.177V	0.405W		229.88V
2	0.09A	0.466W	67.358%	0.025
	5.176V	0.693W		229.88V
3	0.55A	2.843W	80.862%	0.119
	5.17V	3.513W		229.88V
4	1A	5.163W	82.324%	0.193
	5.163V	6.271W		229.87V
5	1.5A	7.735W	82.775%	0.234
	5.156V	9.345W		229.87V
6	3A	15.402W	82.756%	0.338
	5.134V	18.61W		229.87V

Protection Features

Protection Features	
OCP (Cold @ 25°C)	12V: 92.4A (130.51%), 12.117V 5V: 27.3A (136.5%), 5.092V 3.3V: 27.1A (135.5%), 3.338V 5VSB: 4.4A (146.67%), 5.112V
OCP (Hot @ 41°C)	12V: 88.4A (124.86%), 12.128V 5V: 27.1A (135.5%), 5.086V 3.3V: 27A (135%), 3.313V 5VSB: 4.5A (150%), 4.961V, 54.01mV ripple
OPP (Cold @ 26°C)	1055.02W (124.12%)
OPP (Hot @ 41°C)	990.1W (116.48%)
OTP	✓ (145°C @ +12V heat sink)
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)

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%	5.192A	1.947A	1.953A	0.97A	84.999	88.068%	900	23.2	40.05°C	0.921
	12.211V	5.135V	3.379V	5.157V	96.508				44.32°C	114.88V
20%	11.395A	2.923A	2.933A	1.166A	169.936	90.661%	902	23.2	40.53°C	0.95
	12.202V	5.132V	3.375V	5.146V	187.424				45.15°C	114.86V
30%	17.952A	3.412A	3.425A	1.363A	254.94	91.133%	904	23.2	41.34°C	0.966
	12.193V	5.129V	3.372V	5.136V	279.749				46.34°C	114.83V
40%	24.524A	3.901A	3.919A	1.561A	340.023	91.312%	906	23.2	41.65°C	0.977
	12.185V	5.127V	3.368V	5.125V	372.359				47.2°C	114.79V
50%	30.740A	4.88A	4.904A	1.76A	424.803	90.668%	1278	35.8	42.16°C	0.982
	12.176V	5.123V	3.365V	5.114V	468.523				48.18°C	114.77V
60%	36.947A	5.859A	5.889A	1.96A	509.322	90.007%	1527	39.6	42.62°C	0.985
	12.166V	5.121V	3.362V	5.102V	565.875				49.14°C	114.74V
70%	43.233A	6.84A	6.878A	2.16A	594.621	89.254%	1737	42.7	43.38°C	0.988
	12.155V	5.117V	3.359V	5.091V	666.214				50.41°C	114.71V
80%	49.530A	7.821A	7.872A	2.263A	679.478	88.509%	1745	42.7	43.79°C	0.99
	12.146V	5.113V	3.353V	5.08V	767.64				51.82°C	114.69V
90%	56.232A	8.316A	8.36A	2.367A	764.932	87.713%	1743	42.7	44.21°C	0.992
	12.136V	5.11V	3.349V	5.07V	872.053				53.29°C	114.64V
100%	62.676A	8.81A	8.876A	2.969A	849.742	86.825%	1741	42.7	45.88°C	0.993
	12.127V	5.107V	3.346V	5.052V	978.677				55.89°C	114.61V
110%	69.007A	9.8A	9.971A	2.975A	934.36	85.606%	1743	42.7	46.67°C	0.994
	12.116V	5.101V	3.34V	5.042V	1091.473				57.54°C	114.56V
CL1	0.115A	12.144A	12.236A	0.001A	104.301	81.903%	896	23.1	42.42°C	0.934
	12.206V	5.105V	3.343V	5.159V	127.352				52.63°C	114.88V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	0.113A	19.67A	0A	0.001A	101.364	80.913%	900	23.2	41.03°C	0.934
	12.207V	5.082V	3.359V	5.164V	125.279				50.15°C	114.87V
CL3	0.113A	0A	19.847A	0A	67.398	75.463%	900	23.2	42.4°C	0.918
	12.207V	5.111V	3.326V	5.163V	89.314				50.9°C	114.89V
CL4	70.011A	0A	0A	0.008A	849.545	87.797%	1759	43.0	44.63°C	0.993
	12.135V	5.123V	3.36V	5.105V	967.634				55.93°C	114.62V

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%	5.192A	1.947A	1.953A	0.97A	84.999	89.096%	900	23.2	40.23°C	0.812
	12.210V	5.136V	3.379V	5.157V	95.365				44.48°C	229.86V
20%	11.396A	2.923A	2.933A	1.166A	169.937	92.002%	902	23.2	40.57°C	0.895
	12.201V	5.133V	3.375V	5.146V	184.674				45.07°C	229.87V
30%	17.954A	3.411A	3.425A	1.363A	254.944	92.782%	904	23.2	41.01°C	0.926
	12.192V	5.13V	3.372V	5.135V	274.779				46.08°C	229.85V
40%	24.529A	3.901A	3.918A	1.561A	340.04	93.202%	906	23.2	41.67°C	0.943
	12.184V	5.127V	3.369V	5.125V	364.843				47.17°C	229.83V
50%	30.751A	4.88A	4.904A	1.76A	424.871	92.959%	1300	35.8	42.34°C	0.954
	12.174V	5.124V	3.365V	5.113V	457.05				48.4°C	229.82V
60%	36.957A	5.858A	5.89A	1.96A	509.384	92.292%	1542	40.1	42.86°C	0.961
	12.165V	5.121V	3.362V	5.102V	551.913				49.45°C	229.81V
70%	43.241A	6.839A	6.879A	2.161A	594.668	91.832%	1737	42.7	43.48°C	0.966
	12.154V	5.118V	3.358V	5.09V	647.546				50.49°C	229.78V
80%	49.535A	7.82A	7.872A	2.264A	679.5	91.347%	1743	42.7	43.84°C	0.971
	12.145V	5.114V	3.354V	5.08V	743.875				51.85°C	229.76V
90%	56.233A	8.313A	8.356A	2.367A	764.917	90.856%	1742	42.7	44.36°C	0.974
	12.136V	5.111V	3.351V	5.07V	841.902				53.39°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%	62.677A	8.807A	8.872A	2.969A	849.724	90.218%	1741	42.7	45.84°C	0.976
	12.126V	5.109V	3.348V	5.053V	941.86				55.85°C	229.74V
110%	69.002A	9.795A	9.966A	2.974A	934.301	89.395%	1739	42.7	46.81°C	0.978
	12.116V	5.104V	3.342V	5.043V	1045.124				57.69°C	229.73V
CL1	1.968A	12.144A	12.237A	0.485A	129.406	85.55%	895	23.1	42.39°C	0.876
	12.202V	5.105V	3.342V	5.15V	151.266				53.05°C	229.87V
CL2	1.966A	18.989A	0.983A	0.485A	126.481	84.742%	898	23.1	41.07°C	0.875
	12.204V	5.091V	3.358V	5.154V	149.257				49.2°C	229.87V
CL3	1.966A	0.977A	18.347A	0.485A	92.508	81.701%	898	23.1	40.91°C	0.841
	12.203V	5.117V	3.325V	5.155V	113.218				46.97°C	229.88V
CL4	69.159A	0.976A	0.982A	0.49A	849.863	91.104%	1756	42.9	44.49°C	0.976
	12.133V	5.124V	3.361V	5.098V	932.86				53.42°C	229.75V

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	1.216A	0.486A	0.487A	0.193A	19.998	71.347%	895	23.1	36.56°C	0.818
	12.204V	5.144V	3.389V	5.174V	28.029				39.66°C	114.89V
40W	2.676A	0.681A	0.682A	0.29A	39.997	82.477%	897	23.1	37.14°C	0.881
	12.213V	5.142V	3.387V	5.171V	48.493				40.5°C	114.89V
60W	4.138A	0.875A	0.877A	0.387A	59.995	86.45%	897	23.1	38.17°C	0.904
	12.212V	5.14V	3.384V	5.168V	69.403				41.82°C	114.89V
80W	5.594A	1.07A	1.073A	0.484A	79.938	88.14%	900	23.2	39.1°C	0.918
	12.211V	5.138V	3.382V	5.165V	90.681				43.06°C	114.89V

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	1.216A	0.486A	0.487A	0.193A	20	71.471%	896	23.1	36.65°C	0.508
	12.205V	5.143V	3.388V	5.174V	27.981				39.75°C	229.88V
40W	2.676A	0.681A	0.682A	0.29A	39.998	82.93%	897	23.1	37.2°C	0.662
	12.213V	5.141V	3.385V	5.171V	48.228				40.52°C	229.88V
60W	4.138A	0.875A	0.878A	0.387A	59.995	87.044%	897	23.1	38.25°C	0.751
	12.212V	5.14V	3.384V	5.168V	68.926				41.83°C	229.88V
80W	5.594A	1.07A	1.073A	0.484A	79.934	89.176%	898	23.1	39.45°C	0.802
	12.210V	5.139V	3.382V	5.165V	89.639				43.19°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	12.8 mV	9.1 mV	9.2 mV	13.9 mV	Pass
20% Load	13.1 mV	8.9 mV	8.5 mV	16.3 mV	Pass
30% Load	15.2 mV	10.3 mV	9.5 mV	20.7 mV	Pass
40% Load	15.6 mV	10.5 mV	9.0 mV	21.8 mV	Pass
50% Load	17.3 mV	10.9 mV	10.3 mV	25.9 mV	Pass
60% Load	19.8 mV	11.6 mV	11.9 mV	30.2 mV	Pass
70% Load	21.9 mV	12.7 mV	12.8 mV	35.5 mV	Pass
80% Load	19.8 mV	12.5 mV	13.9 mV	37.0 mV	Pass
90% Load	21.1 mV	12.7 mV	15.2 mV	40.2 mV	Pass
100% Load	32.4 mV	16.2 mV	20.0 mV	50.9 mV	Fail
110% Load	33.7 mV	18.0 mV	19.6 mV	56.3 mV	Fail
Crossload 1	22.2 mV	18.8 mV	21.9 mV	17.1 mV	Pass
Crossload 2	14.6 mV	16.6 mV	15.7 mV	14.0 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload 3	14.1 mV	19.7 mV	18.5 mV	12.9 mV	Pass
Crossload 4	31.3 mV	14.4 mV	11.3 mV	45.1 mV	Pass

The results above are not used in the certification process

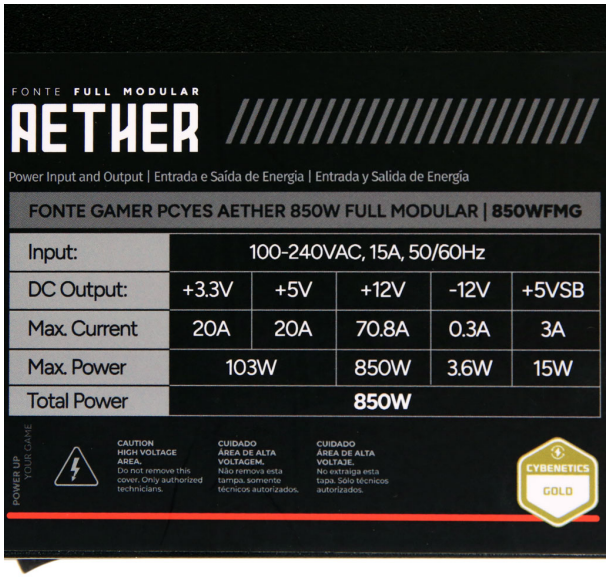
230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.4 mV	7.8 mV	7.2 mV	11.7 mV	Pass
20% Load	11.8 mV	8.8 mV	8.8 mV	15.8 mV	Pass
30% Load	14.3 mV	11.1 mV	10.0 mV	20.2 mV	Pass
40% Load	16.2 mV	10.9 mV	10.1 mV	22.5 mV	Pass
50% Load	17.5 mV	11.7 mV	10.9 mV	26.6 mV	Pass
60% Load	16.6 mV	10.2 mV	10.5 mV	29.6 mV	Pass
70% Load	17.4 mV	11.5 mV	11.5 mV	33.5 mV	Pass
80% Load	20.5 mV	12.8 mV	15.1 mV	37.9 mV	Pass
90% Load	22.5 mV	15.2 mV	17.6 mV	42.8 mV	Pass
100% Load	31.8 mV	17.3 mV	18.5 mV	49.3 mV	Pass
110% Load	33.7 mV	18.2 mV	19.6 mV	53.4 mV	Fail
Crossload 1	22.3 mV	18.2 mV	22.2 mV	18.8 mV	Pass
Crossload 2	14.9 mV	16.6 mV	24.9 mV	16.2 mV	Pass
Crossload 3	13.2 mV	17.9 mV	15.9 mV	14.4 mV	Pass
Crossload 4	30.4 mV	14.0 mV	11.5 mV	46.0 mV	Pass

The results above are not used in the certification process

PCYES Aether 850W

Top side



Power specifications label

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