XPG Pylon 650W

4K2980397811

Lab ID AD65001779

Certification ID 251779

Test Result Report ID: 21PS1779A

Certificate Issue Date: Jan 27, 2021

Scheme: ETA-EMI PSU

115V



230V



Scheme: LAMBDA PSU

115V



230V





Aristeidis Bitziopoulos, Certification Body General Manager

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	XPG
Model	Pylon 650W
OEM/ODM	Channel Well Technology
Serial Number	4K2980397811
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	10-5

□□□□ (Hz)	50-60
□□□□ (W)	650
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
□□□□□	✗
Cybenetics Testing Information	
Lab ID	AD65001779
Date of receipt	Jan 8, 2021
Testing Date	Jan 19, 2021
Report Issued Date	Jan 27, 2021
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□□
(Non-accredited measurements)

Native Cables				
□□	□□□□	□□□□□□	Gauge	In Cable Caps
ATX □□ 20+4 pin (660mm)	1	1	18-22AWG	□
8 pin EPS 12V □□ (650mm) / 4+4 pinEPS12V (+150mm)	1	1 / 1	18AWG	□
6+2pin PCIe□□ (560mm+150mm)	2	4	18AWG	□
SATA□□ (560mm+150mm+150mm) / 4-pin Molex (+150mm)	2	6 / 2	18AWG	□
SATA□□ (560mm+150mm) / 4-pin Molex (+150mm) / FDD (+150mm)	1	2 / 1 / 1	18-20AWG	□

□□□□□				
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	20	20	54	2.5	0.3
	□	110		648	12.5	3.6
□□□□□ (W)		650				

Parts Description

General Data	-
Manufacturer (OEM)	CWT
PCB Type	Single Sided
Primary Side	-
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x CAP200DG (Discharge IC)
Inrush Protection	NTC Thermistor SCK - 2R58 (2.5 Ohm)
Bridge Rectifier(s)	1x GBU1506 (600V, 15A @ 100°C)
APFC MOSFETs	2x Great Power GP18S50G (500V, 18A, Rds(on): 0.19Ohm)
APFC Boost Diode	1x On Semiconductor FFSP0665A (650V, 6A @ 153°C)
Bulk Cap(s)	1x Nippon Chemi-Con (400V, 470uF, 2,000h @ 105°C, KMW)
Main Switchers	2x Silan Microelectronics SVF20N50F (500V, 12.6A @ 100°C, Rds(on): 0.27Ohm)
PFC/PWM Combo Controller	Champion CM6800TX & Champion CM03X
Topology	Primary side: APFC, Double Forward Secondary side: Passive Rectification (12V) & DC-DC converters (5V & 3.3V)
Secondary Side	-
+12V	4x PFC PFR30L60CT SBR (60V, 30A)
5V & 3.3V	4x Sync Power SPN3006 (30V, 57A @ 100°C, Rds(on): 5.5mOhm) PWM Controller: ANPEC APW7159C
Filtering Capacitors	Electrolytic: 5x Elite (2-5,000h @ 105°C, ED), 5x Elite (2-5,000h @ 105°C, EK), 4x Elite (4-10,000h @ 105°C, EY), 2x Elite (3-6,000h @ 105°C, EV), 1x Elite (3-6,000h @ 105°C, EG), 2x Elite (2,000h @ 105°C, PF) Polymer: 2x Elite
Supervisor IC	IN1S429I - DCG

Fan Model	Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, Fluid Dynamic Bearing Fan)
5VSB Circuit	-
Standby PWM Controller	Power Integrations TNY287PG

Test Results

Temperature & Compliance Info

□□□□ (°C /°F)	28-32 / 82.4-89.6
□□ ErP Lot3/6□□	✓
□□ (EU) No 617/2013□□	✓
ALPM (Alternative Low Power Mode) compatible	✓

Performance Summary

115V

Accredited	
□□□□ (>1450 load combinations)	85.443%
Average Noise Output (>1450 Load Combinations)	33.42dBA
PF□□□ (>1450 Load Combinations)	0.985
Efficiency With 10W (≤500W) or 2% (>500W) Load	65.084%
□□□□□□	0.0430W
Non-Accredited	
12V Ripple (Full Load)	56.72mV
5V Ripple (Full Load)	18.38mV
3.3V Ripple (Full Load)	19.50mV
5VSB Ripple (Full Load)	14.94mV
12V Load Regulation	1.03%
5V Load Regulation	0.38%
3.3V Load Regulation	0.72%
5VSB Load Regulation	2.34%
Inrush Current	33.860A

230V

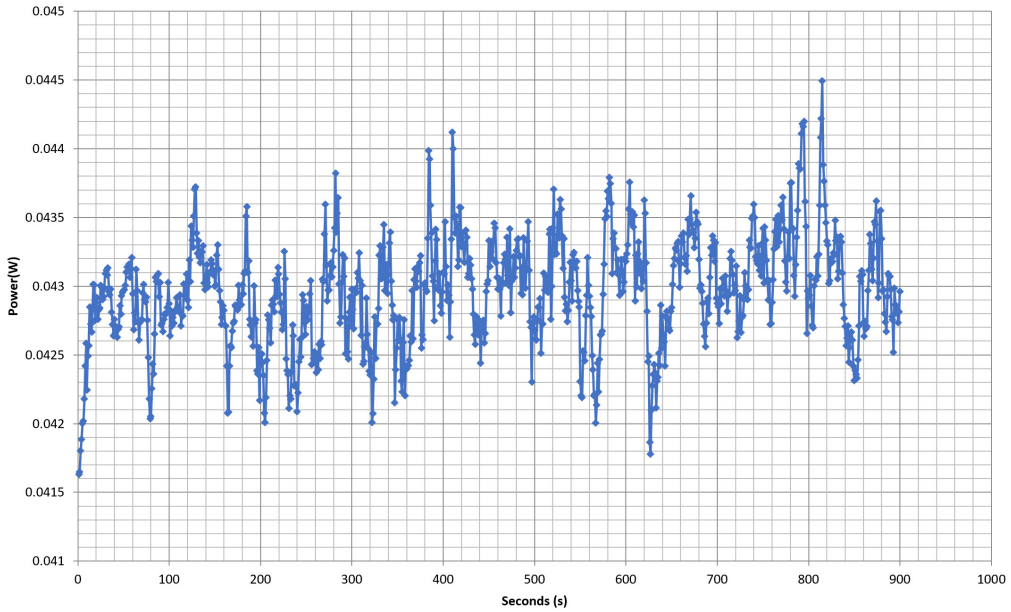
Accredited		
□□□□ (>1450 load combinations)		87.565%
Average Noise Output (>1450 Load Combinations)		32.44dBA
PF□□□ (>1450 Load Combinations)		0.960
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.0885W
Non-Accredited		
12V Ripple (Full Load)		52.46mV
5V Ripple (Full Load)		18.79mV
3.3V Ripple (Full Load)		18.82mV
5VSB Ripple (Full Load)		15.58mV
12V Load Regulation		1.01%
5V Load Regulation		0.40%
3.3V Load Regulation		0.72%
5VSB Load Regulation		2.32%
Inrush Current		65.220A
□□□□ & PG□□		14.70ms
AC Loss to PWR_OK Hold Up Time		12.90ms
PWR_OK Inactive to DC Loss Delay		1.80ms
PSU Timings: T1 (20% / 100%)	45.0ms	32.0ms
PSU Timings: T3 (20% / 100%)	130.0ms	130.0ms
OPP (21.40°C / 38.42°C)	126.45%	118.82%

□□□□ & PG□□

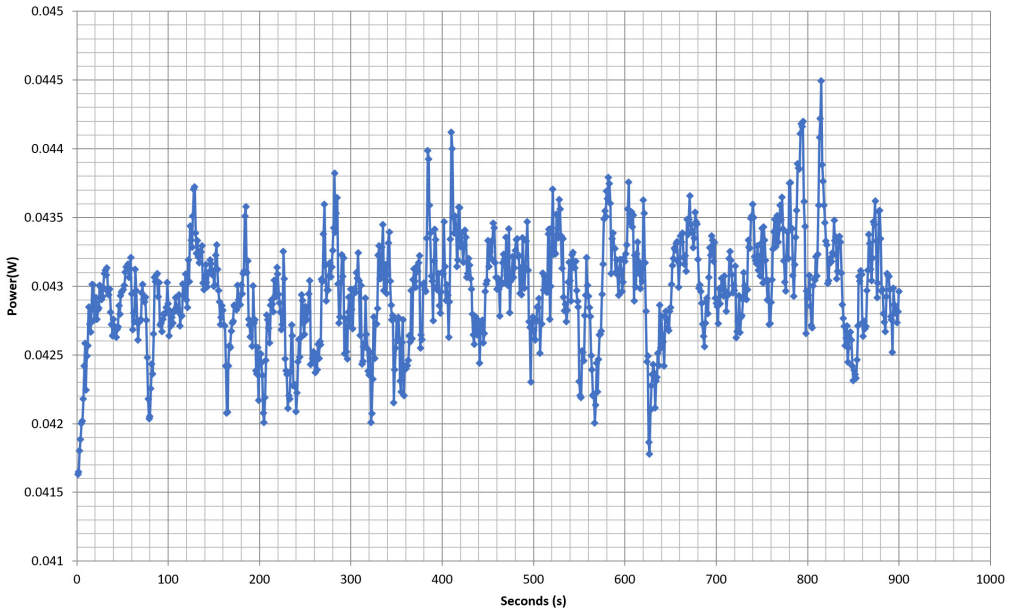
Hold-Up Time (ms)	14.7
AC Loss to PWR_OK Hold Up Time (ms)	12.9
PWR_OK Inactive to DC Loss Delay (ms)	1.8

Graphs

115V



230V



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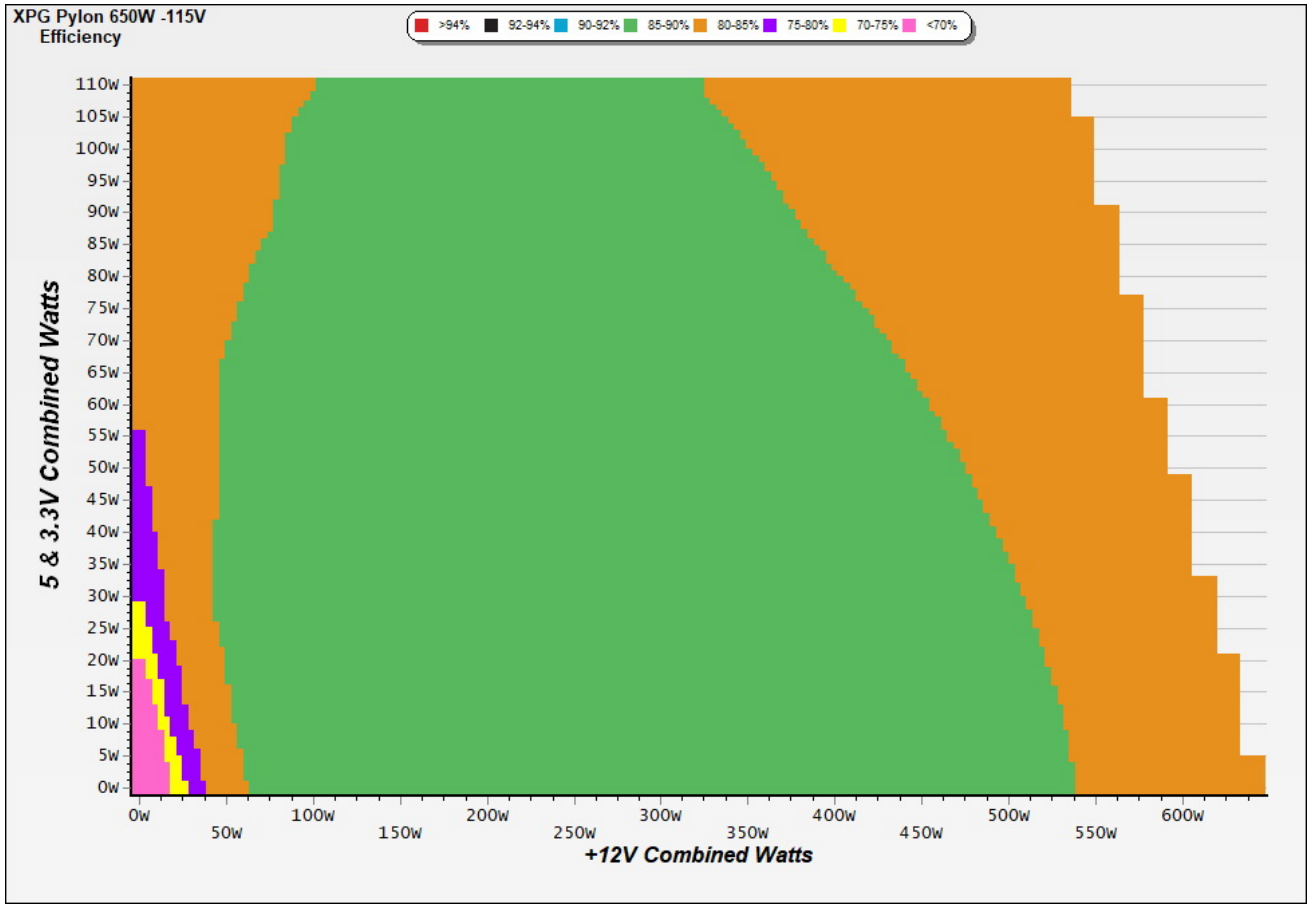
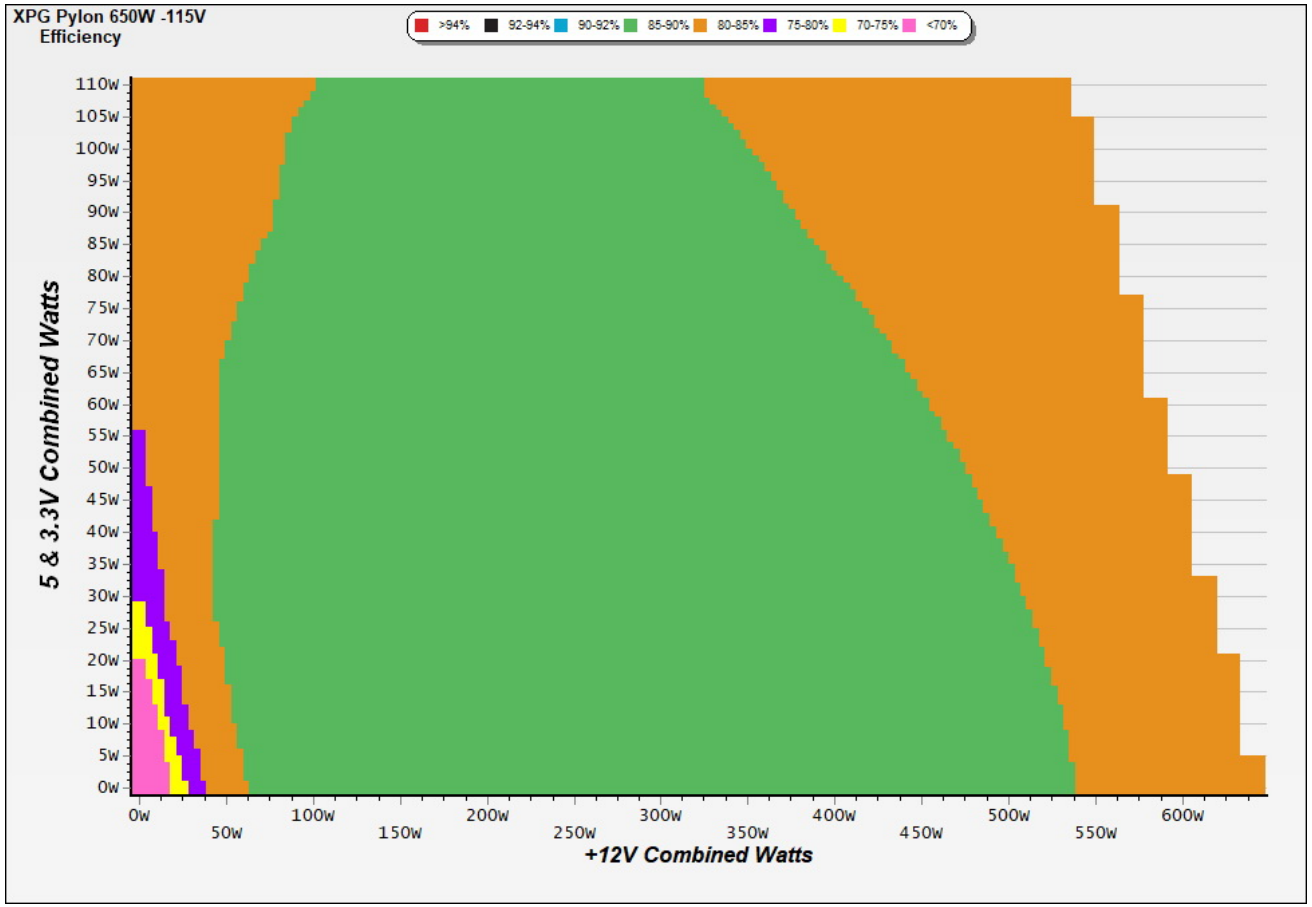
115V



□□

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



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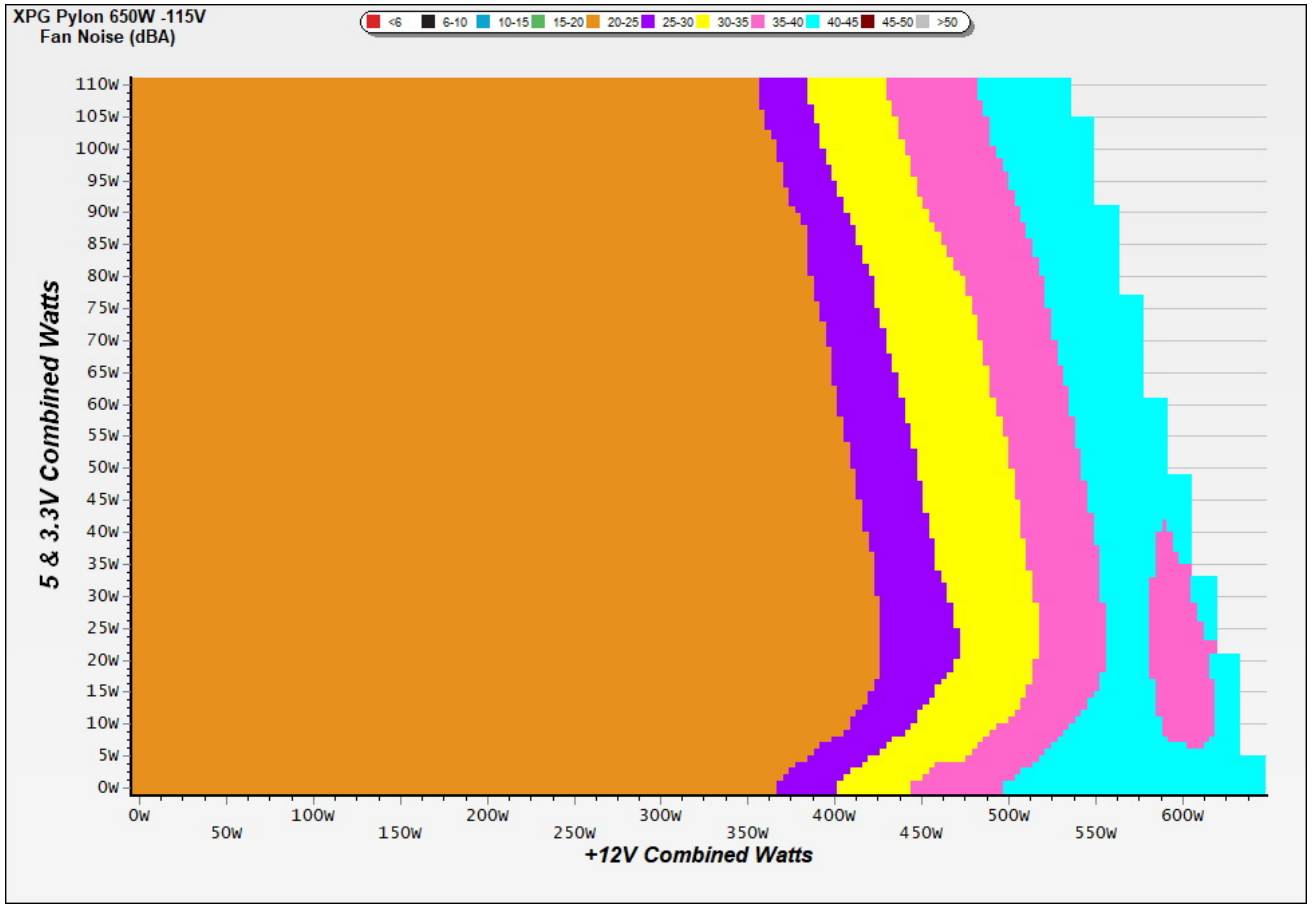
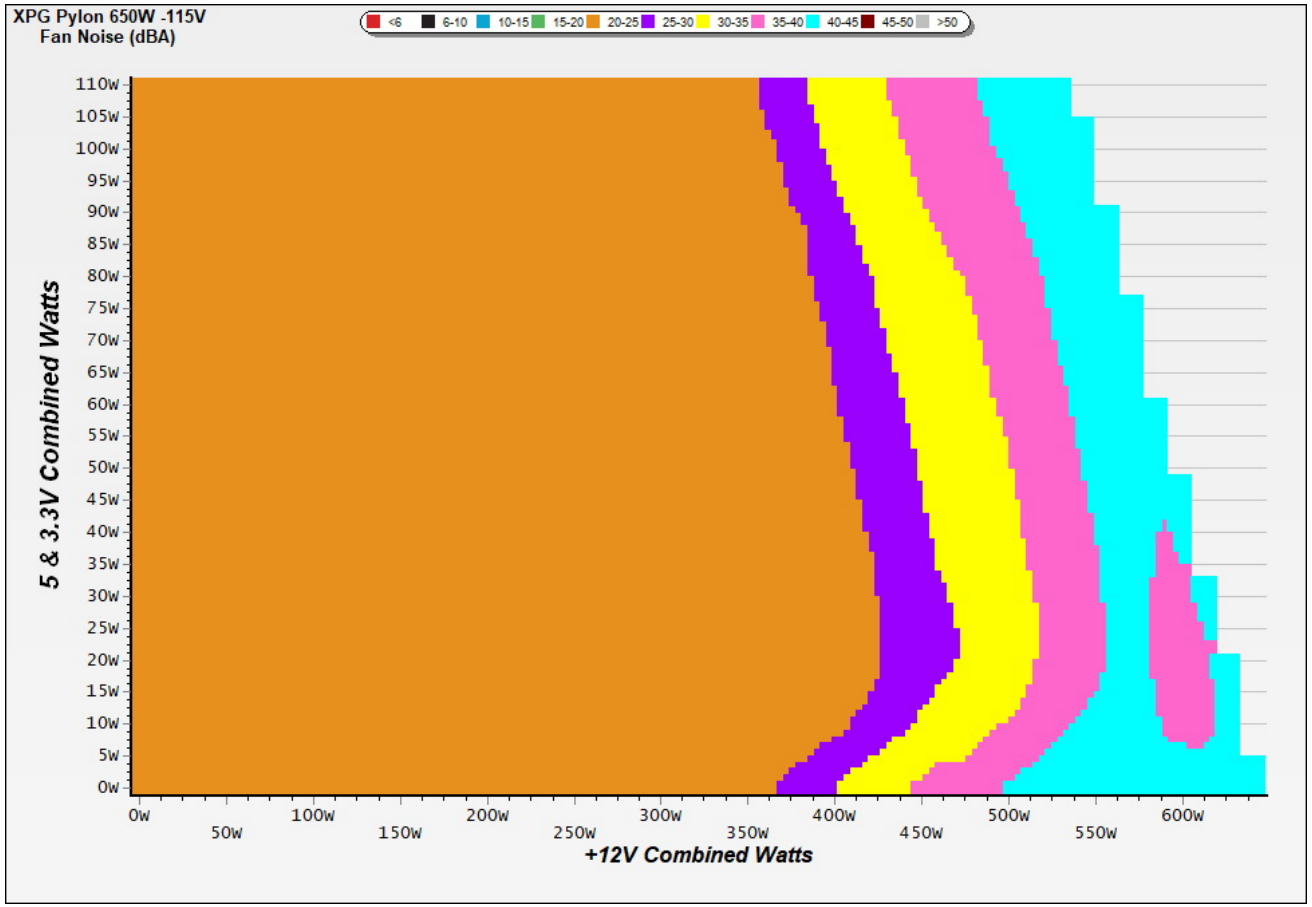
115V



□□

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



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%	872 RPM · 21.8 dB(A) · 34.7 °C	872 RPM · 21.8 dB(A) · 34.7 °C	**+0.0 dB(A)**
20%	876 RPM · 21.7 dB(A) · 35.6 °C	876 RPM · 21.7 dB(A) · 35.6 °C	**+0.0 dB(A)**
50%	888 RPM · 23.1 dB(A) · 37.3 °C	888 RPM · 23.1 dB(A) · 37.3 °C	**+0.0 dB(A)**
100%	2343 RPM · 46.5 dB(A) · 40.1 °C	2343 RPM · 46.5 dB(A) · 40.1 °C	**+0.0 dB(A)**

230V

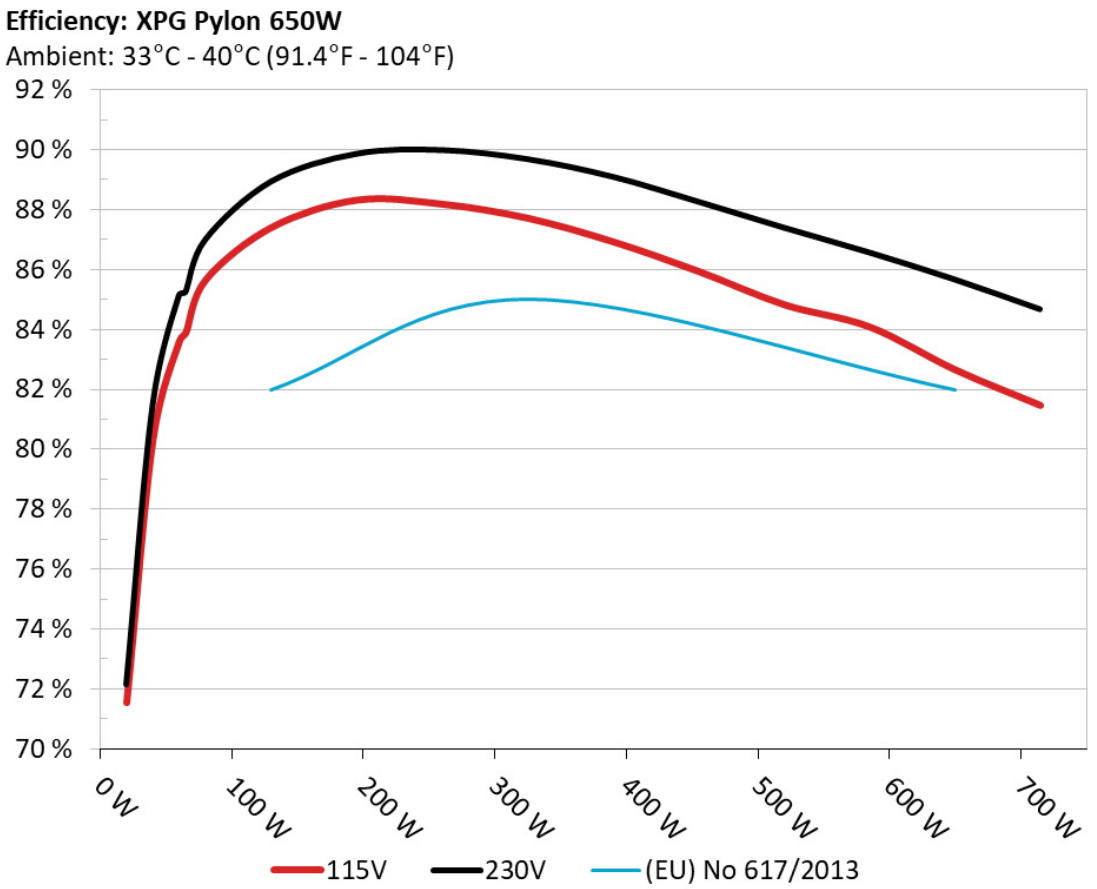
Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	871 RPM · 21.8 dB(A) · 34.9 °C	871 RPM · 21.8 dB(A) · 34.9 °C	**+0.0 dB(A)**
20%	877 RPM · 21.8 dB(A) · 35.6 °C	877 RPM · 21.8 dB(A) · 35.6 °C	**+0.0 dB(A)**
50%	887 RPM · 22.9 dB(A) · 37.6 °C	887 RPM · 22.9 dB(A) · 37.6 °C	**+0.0 dB(A)**
100%	2196 RPM · 45.9 dB(A) · 39.8 °C	2196 RPM · 45.9 dB(A) · 39.8 °C	**+0.0 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.

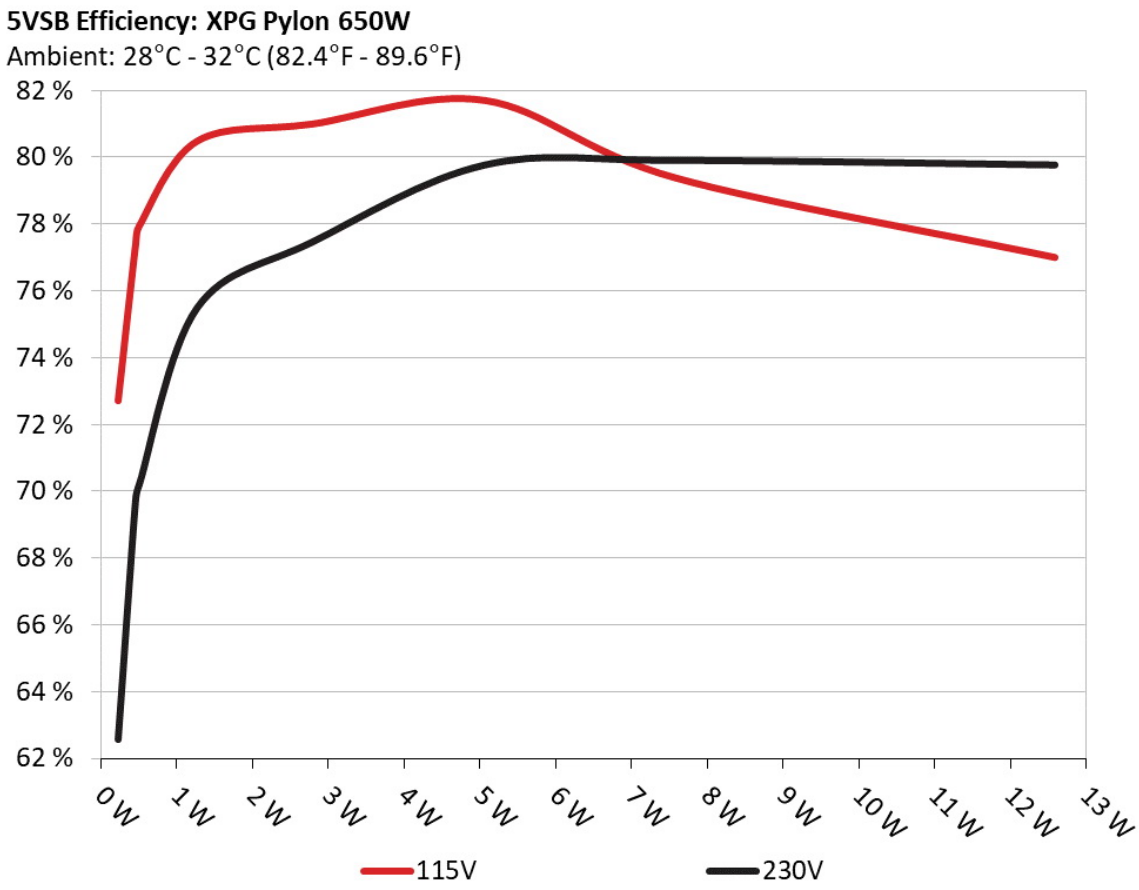
Informational. Not part of the ETA or LAMBDA rating.

Indicative Performance



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□□□□



□□

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

□□□□ □□ 5Vsb □□ (ErP Lot3/6 & CEC)

115V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.229	72.698%	0.034
	5.088V	0.315		115.17V
2	0.090A	0.458	77.365%	0.062
	5.087V	0.592		115.17V
3	0.550A	2.792	80.998%	0.260
	5.078V	3.447		115.17V
4	1.000A	5.069	81.705%	0.340
	5.069V	6.204		115.17V
5	1.500A	7.587	79.379%	0.387
	5.058V	9.558		115.17V
6	2.499A	12.591	76.995%	0.432
	5.038V	16.353		115.17V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.229	62.568%	0.013
	5.088V	0.366		230.32V
2	0.090A	0.458	69.711%	0.023
	5.087V	0.657		230.32V
3	0.550A	2.792	77.448%	0.114
	5.078V	3.605		230.32V
4	1.000A	5.069	79.751%	0.180
	5.069V	6.356		230.31V
5	1.500A	7.587	79.888%	0.234
	5.058V	9.497		230.32V
6	2.499A	12.593	79.753%	0.300
	5.039V	15.790		230.31V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	3.556A	1.983A	1.983A	0.988A	64.950	83.894%	872	21.8	34.69°C	0.956
	12.193V	5.044V	3.324V	5.058V	77.419				38.96°C	115.16V
2	8.137A	2.976A	2.981A	1.189A	130.006	87.405%	876	21.7	35.60°C	0.976
	12.179V	5.042V	3.321V	5.046V	148.739				40.54°C	115.15V
3	13.065A	3.473A	3.480A	1.390A	195.002	88.319%	881	22.0	36.42°C	0.984
	12.166V	5.040V	3.319V	5.035V	220.794				41.84°C	115.15V
4	18.004A	3.970A	3.980A	1.592A	260.003	88.182%	884	22.5	36.60°C	0.987
	12.153V	5.038V	3.317V	5.024V	294.848				43.29°C	115.15V
5	22.613A	4.966A	4.979A	1.796A	325.033	87.709%	888	23.1	37.30°C	0.990
	12.140V	5.036V	3.314V	5.013V	370.582				45.07°C	115.15V
6	27.173A	5.959A	5.978A	2.000A	389.279	86.930%	892	22.9	38.33°C	0.991
	12.125V	5.036V	3.312V	4.999V	447.807				46.96°C	115.15V
7	31.826A	6.955A	6.979A	2.205A	454.594	85.935%	1091	28.0	38.98°C	0.992
	12.112V	5.035V	3.310V	4.988V	529.000				47.97°C	115.14V
8	36.486A	7.953A	7.980A	2.411A	519.852	84.823%	1466	36.4	39.59°C	0.993
	12.099V	5.032V	3.307V	4.976V	612.870				49.50°C	115.14V
9	41.540A	8.452A	8.469A	2.412A	584.610	84.084%	1625	38.7	39.63°C	0.993
	12.088V	5.027V	3.305V	4.973V	695.270				50.15°C	115.12V
10	46.571A	8.951A	8.990A	2.519A	649.384	82.656%	2343	46.5	40.06°C	0.994
	12.072V	5.027V	3.302V	4.961V	785.647				51.82°C	115.11V
11	51.998A	8.955A	8.997A	2.522A	714.228	81.467%	2343	46.5	40.19°C	0.994
	12.059V	5.025V	3.300V	4.954V	876.703				52.89°C	115.10V
CL1	0.116A	12.996A	12.996A	0.000A	110.033	80.722%	903	22.8	37.77°C	0.974
	12.176V	5.043V	3.315V	5.056V	136.311				45.99°C	115.15V

CL2	53.980A	1.001A	1.000A	1.000A	665.156	83.185%	2223	46.1	40.88°C	0.994
	12.075V	5.032V	3.309V	5.001V	799.609				52.46°C	115.10V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	3.556A	1.983A	1.983A	0.988A	64.949	85.249%	871	21.8	34.94°C	0.855
	12.193V	5.044V	3.324V	5.058V	76.187				39.41°C	230.32V
2	8.137A	2.976A	2.981A	1.189A	130.006	88.942%	877	21.8	35.60°C	0.932
	12.179V	5.041V	3.322V	5.046V	146.170				40.83°C	230.32V
3	13.065A	3.473A	3.480A	1.390A	195.000	89.869%	883	22.1	36.80°C	0.957
	12.166V	5.040V	3.319V	5.035V	216.983				42.51°C	230.32V
4	18.002A	3.970A	3.980A	1.592A	259.999	89.992%	886	22.7	37.37°C	0.969
	12.154V	5.038V	3.317V	5.025V	288.914				43.67°C	230.32V
5	22.613A	4.965A	4.981A	1.795A	325.031	89.690%	887	22.9	37.59°C	0.976
	12.140V	5.036V	3.314V	5.013V	362.392				44.86°C	230.32V
6	27.166A	5.958A	5.978A	2.000A	389.227	89.107%	892	22.9	38.09°C	0.980
	12.126V	5.036V	3.313V	5.001V	436.807				46.21°C	230.32V
7	31.822A	6.954A	6.981A	2.204A	454.545	88.271%	1104	28.4	38.83°C	0.983
	12.112V	5.035V	3.310V	4.989V	514.943				47.52°C	230.32V
8	36.488A	7.952A	7.981A	2.411A	519.837	87.401%	1494	37.1	38.98°C	0.985
	12.098V	5.032V	3.307V	4.976V	594.774				48.79°C	230.32V
9	41.565A	8.450A	8.470A	2.414A	584.746	86.574%	1846	41.6	39.05°C	0.987
	12.084V	5.029V	3.304V	4.969V	675.433				49.63°C	230.31V
10	46.580A	8.953A	8.993A	2.520A	649.459	85.675%	2196	45.9	39.79°C	0.988
	12.071V	5.026V	3.302V	4.960V	758.051				51.27°C	230.31V
11	52.012A	8.956A	8.997A	2.524A	714.294	84.682%	2343	46.5	40.40°C	0.989
	12.057V	5.024V	3.300V	4.953V	843.497				52.99°C	230.31V
CL1	0.116A	12.998A	12.998A	0.000A	110.036	81.612%	905	22.8	37.03°C	0.925
	12.174V	5.043V	3.314V	5.054V	134.829				44.00°C	230.32V

CL2	53.986A	1.001A	0.999A	1.000A	665.060	86.260%	2342	46.5	39.83°C	0.988
	12.072V	5.032V	3.308V	4.999V	770.995				51.80°C	230.31V

The results above are not used in the certification process

20-80□□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.215A	0.495A	0.497A	0.197A	19.979	71.543%	866	22.0	0.882
	12.202V	5.048V	3.328V	5.080V	27.926				115.15V
2	2.432A	0.991A	0.993A	0.394A	39.968	80.347%	864	22.1	0.936
	12.198V	5.046V	3.326V	5.074V	49.744				115.15V
3	3.654A	1.486A	1.488A	0.592A	60.000	83.610%	867	21.9	0.953
	12.194V	5.044V	3.325V	5.068V	71.762				115.15V
4	4.869A	1.983A	1.985A	0.790A	79.951	85.653%	872	21.8	0.966
	12.190V	5.044V	3.324V	5.061V	93.343				115.15V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.215A	0.495A	0.496A	0.197A	19.977	72.158%	873	21.8	0.603
	12.202V	5.048V	3.328V	5.080V	27.685				230.32V
2	2.432A	0.991A	0.992A	0.394A	39.966	81.470%	872	21.8	0.764
	12.198V	5.047V	3.326V	5.074V	49.056				230.32V
3	3.653A	1.487A	1.489A	0.592A	59.998	85.141%	871	21.8	0.841
	12.194V	5.045V	3.325V	5.067V	70.469				230.32V
4	4.869A	1.982A	1.986A	0.790A	79.949	86.998%	872	21.8	0.881
	12.190V	5.044V	3.324V	5.060V	91.898				230.32V

The results above are not used in the certification process

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115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.00mV	39.50mV	11.60mV	12.10mV	Pass
20% Load	11.50mV	15.00mV	10.50mV	8.00mV	Pass
30% Load	14.90mV	45.10mV	14.60mV	15.30mV	Pass
40% Load	11.20mV	13.90mV	10.90mV	8.20mV	Pass
50% Load	14.70mV	19.90mV	14.00mV	9.30mV	Pass
60% Load	20.60mV	23.30mV	17.00mV	11.30mV	Pass
70% Load	21.70mV	11.50mV	11.10mV	12.70mV	Pass
80% Load	27.20mV	14.40mV	14.60mV	13.40mV	Pass
90% Load	34.20mV	14.10mV	17.00mV	15.10mV	Pass
100% Load	56.70mV	18.40mV	19.50mV	14.90mV	Pass
110% Load	74.90mV	20.80mV	21.80mV	16.80mV	Pass
Crossload1	14.50mV	15.00mV	18.80mV	8.00mV	Pass
Crossload2	61.00mV	36.80mV	26.20mV	12.90mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	8.30mV	9.60mV	10.20mV	7.80mV	Pass
20% Load	11.70mV	14.40mV	11.30mV	8.30mV	Pass
30% Load	12.20mV	16.20mV	11.90mV	10.40mV	Pass
40% Load	11.30mV	15.50mV	13.60mV	9.10mV	Pass
50% Load	13.70mV	49.00mV	14.40mV	13.60mV	Pass
60% Load	16.90mV	22.60mV	17.70mV	11.30mV	Pass
70% Load	20.10mV	47.60mV	21.10mV	15.20mV	Pass
80% Load	25.40mV	13.00mV	15.60mV	13.70mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	34.40mV	14.90mV	15.30mV	14.30mV	Pass
100% Load	52.50mV	18.80mV	18.80mV	15.60mV	Pass
110% Load	68.30mV	20.00mV	20.60mV	16.70mV	Pass
Crossload1	14.20mV	15.00mV	17.70mV	7.60mV	Pass
Crossload2	59.30mV	14.20mV	15.00mV	13.50mV	Pass

The results above are not used in the certification process

XPG Pylon 650W

Top side

Power specifications label

本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由 Cybenetics提供。
在任何情况下都应提供原始测试结果文档的网站链接

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