XPG KYBER 850

Serial Number 4N1581013346

Lab ID AD85002224

Certification ID 252224

Test Result Report ID: 23PS2224A

Certificate Issue Date: Aug 23, 2023

Scheme: ETA-EMI PSU

115V: CYBENETICS PLATINUM

230V: CYBENETICS GOLD 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	XPG
Model	KYBER 850
OEM/ODM	CWT
Serial Number	4N1581013346
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10

Rated Frequency (Hz)	47-63
Rated Power (W)	850
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Fluid Dynamic Bearing Fan (DF1202512FDHN)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	AD85002224
Date of receipt	Aug 3, 2023
Testing Date	Aug 23, 2023
Report Issued Date	Aug 23, 2023
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Captive Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (650mm)	1	1	18-20AWG	No
8 pin EPS12V (670mm) / 4+4 EPS12V (150mm)	1	1 / 1	18AWG	No
6+2 pin PCIe (640mm+150mm)	1	2	18AWG	No
12+4 pin PCIe (620mm) (600W)	1	1	16-26AWG	No
SATA (450mm+150mm+150mm) / 4-pin Molex (150mm)	2	6 / 2	18AWG	No
Modular Cables				
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	70.5	3	0.3
	Watts	110		846	15	3.6
Total Max. Power (W)		850				

Parts Description

General Data	-
Manufacturer (OEM)	CWT
PCB Type	Single-Side
Primary Side	-
Transient Filter	2x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor SCK-056 5Ohm & Relay
Bridge Rectifier(s)	1x GBU15005 (600V, 15A @ 100°C)
APFC MOSFETs	2x Great Power GP28S50 (500V, 28A , Rds(on): 0.125Ohm) & 1x Syncpower SPN5003 FET (for reduced the no-load consumption)
APFC Boost Diode	1x CRMICRO CRXI06D065G2(600V, 6A @ 167°C)
Bulk Cap(s)	1x Teapo (400V, 680uF, 2000h @ 85°C, LH)
Main Switchers	4x Silan Microelectroinics SVF20N50F (500V, 12.6A @ 100°C, Rds(on): 0.27Ohm)
APFC Controller	1x Champion CM6500UNX
Resonant Controller	Champion CM6901X
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	6x Infineon BSC014N04LS (40V, 100A @ 100°C, Rds(on): 1.4mOhm)
5V & 3.3V	DC-DC Converters: 4x InfineonSPN3006 (30V, 57A @ 100°C, Rds(on): 5.5mOhm) PWM Controller(s): APW7159C
Filtering Capacitors	Electrolytic: 11x Chengx (2-3,000h @ 105°C ,GR), Polymer: 14x CapXon
Supervisor IC	IN1S313I-DAG
Fan Model	Martech DF1202512FDHN (120mm, 12V, 0.42A, Fluid Dynamic Bearing Fan)
5VSB Circuit	-

Standby PWM Controller	Power Integrations TNY290

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)	89.011%
Average Noise Output (>1450 Load Combinations)	30.41dBA
Average PF (>1450 Load Combinations)	0.976
Efficiency With 10W (≤500W) or 2% (>500W) Load	65.531%
Standby Power Consumption	0.0495W
Non-Accredited	
12V Ripple (Full Load)	47.79mV
5V Ripple (Full Load)	21.78mV
3.3V Ripple (Full Load)	42.17mV
5VSB Ripple (Full Load)	27.28mV
12V Load Regulation	0.55%
5V Load Regulation	0.68%
3.3V Load Regulation	0.89%
5VSB Load Regulation	4.09%
Inrush Current	34.110A

230V		
Accredited		
Average Efficiency (>1450 load combinations)	91.034%	
Average Noise Output (>1450 Load Combinations)	31.39dBA	
Average PF (>1450 Load Combinations)	0.931	
Efficiency With 10W (≤500W) or 2% (>500W) Load	64.656%	
Standby Power Consumption	0.1117W	
Non-Accredited		
12V Ripple (Full Load)	44.12mV	
5V Ripple (Full Load)	23.17mV	
3.3V Ripple (Full Load)	31.37mV	
5VSB Ripple (Full Load)	24.43mV	
12V Load Regulation	0.61%	
5V Load Regulation	0.48%	
3.3V Load Regulation	0.64%	
5VSB Load Regulation	4.09%	
Inrush Current	63.060A	
12V Transient Response (200%)	11.23V	
5V Transient Response (200%)	4.907V	
3.3V Transient Response (200%)	3.143V	
5VSB Transient Response (200%)	4.921V	
Hold-Up Time & PWR_OK Signal	15.80ms	
AC Loss to PWR_OK Hold Up Time	14.10ms	
PWR_OK Inactive to DC Loss Delay	1.70ms	
PSU Timings: T1 (20% / 100%)	44.0ms	43.0ms
PSU Timings: T3 (20% / 100%)	112.0ms	113.0ms
OPP (27.85°C / 37.64°C)	131.73%	123.71%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	15.8
AC Loss to PWR_OK Hold Up Time (ms)	14.1
PWR_OK Inactive to DC Loss Delay (ms)	1.7

Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.85 V	114.79 V	113.85 V	114.91 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.98 Hz	59.40 Hz	60.02 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.419	1.417	1.340	1.421	1.490	PASS
Mains Voltage THD:	0.15 %	0.09 %	N/A	0.29 %	2.00 %	PASS
Real Power:	0.050 W	0.034 W	N/A	0.069 W	N/A	N/A
Apparent Power:	11.176 W	11.141 W	N/A	11.210 W	N/A	N/A
Power Factor:	0.004	N/A	N/A	N/A	N/A	N/A

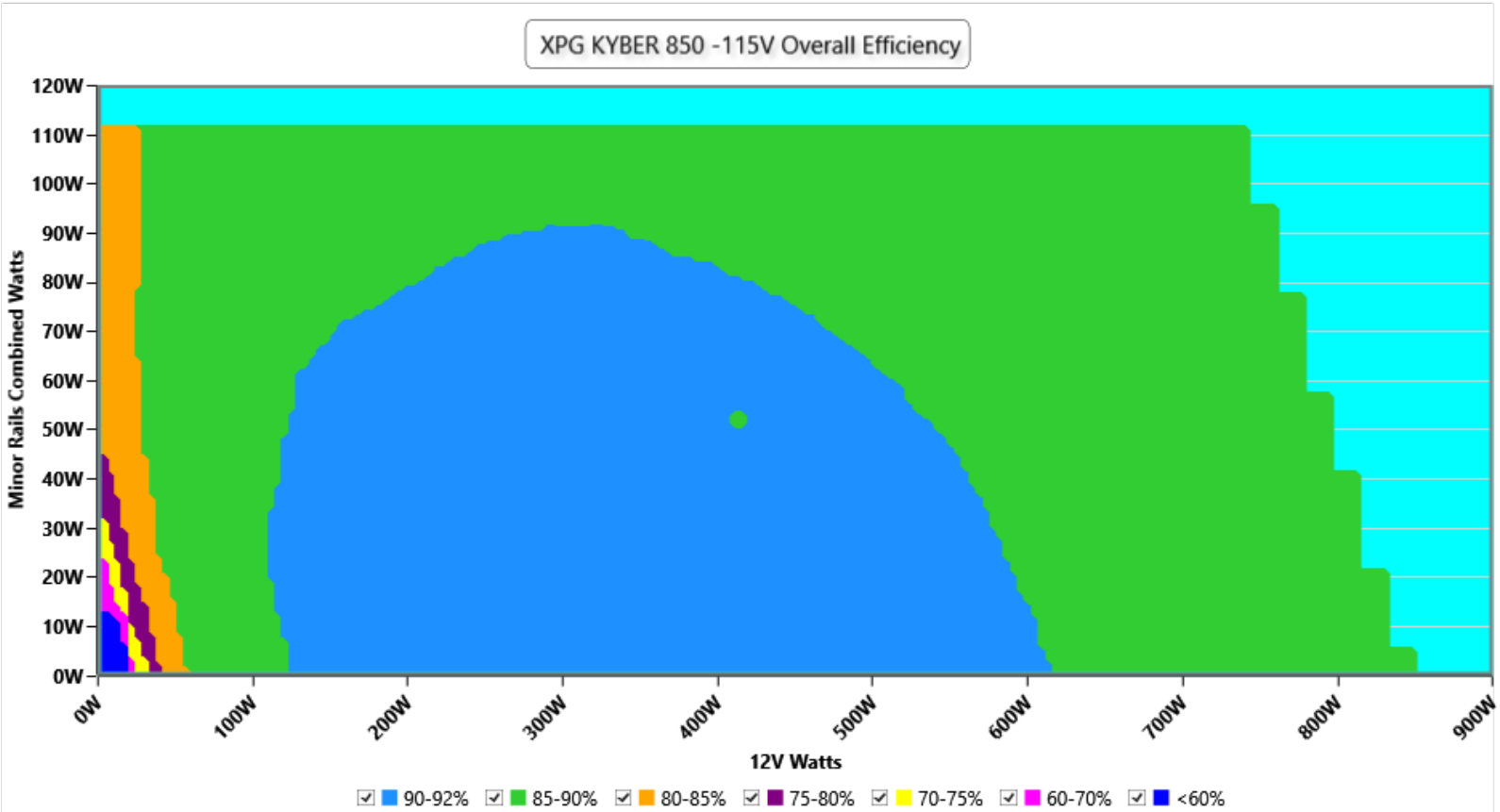
230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	229.86 V	229.76 V	227.70 V	229.93 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 %	0.13 %	N/A	0.23 %	2.00 %	PASS
Real Power:	0.112 W	0.078 W	N/A	0.192 W	N/A	N/A
Apparent Power:	38.750 W	38.708 W	N/A	38.794 W	N/A	N/A

Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

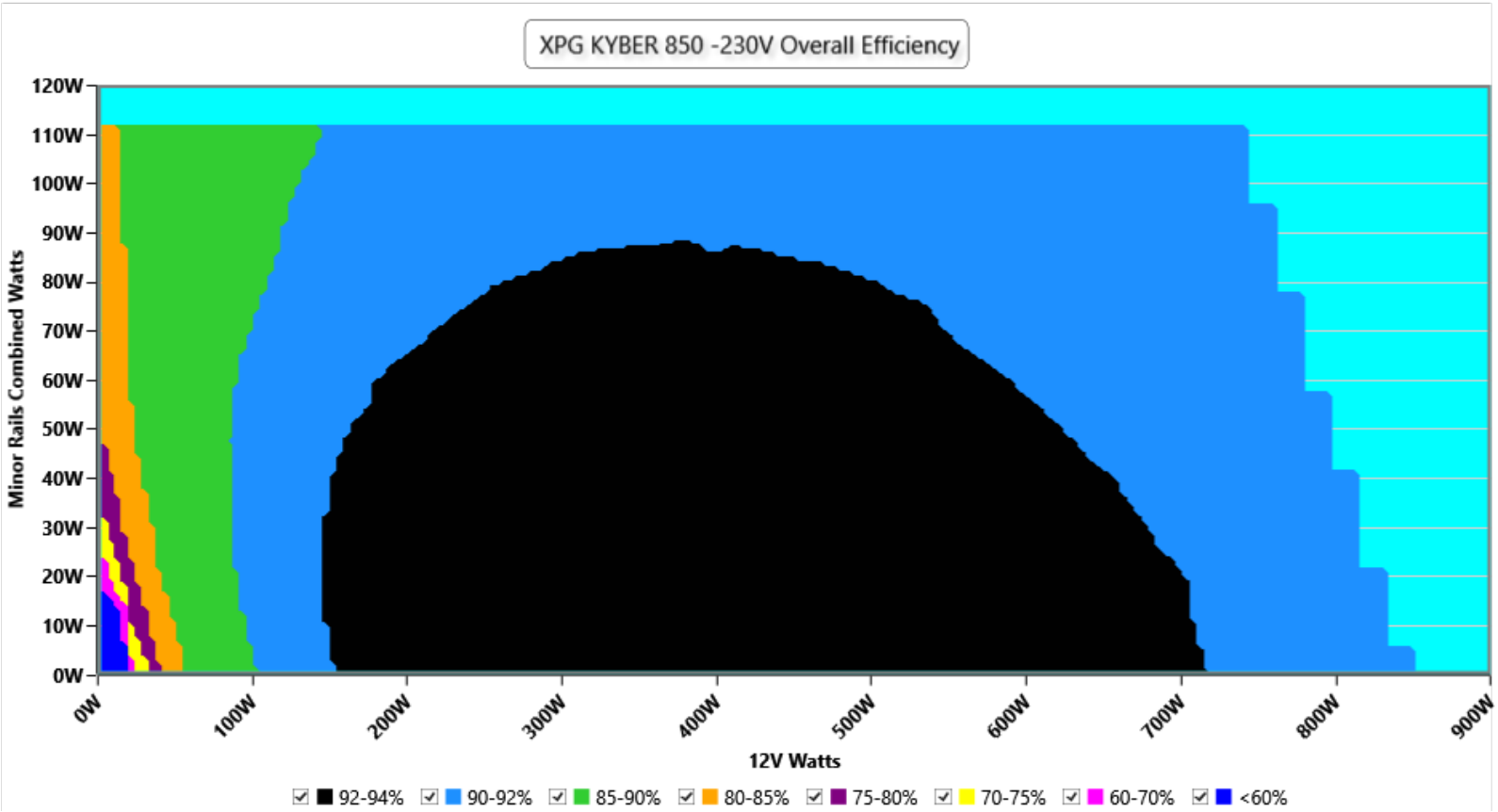
115V



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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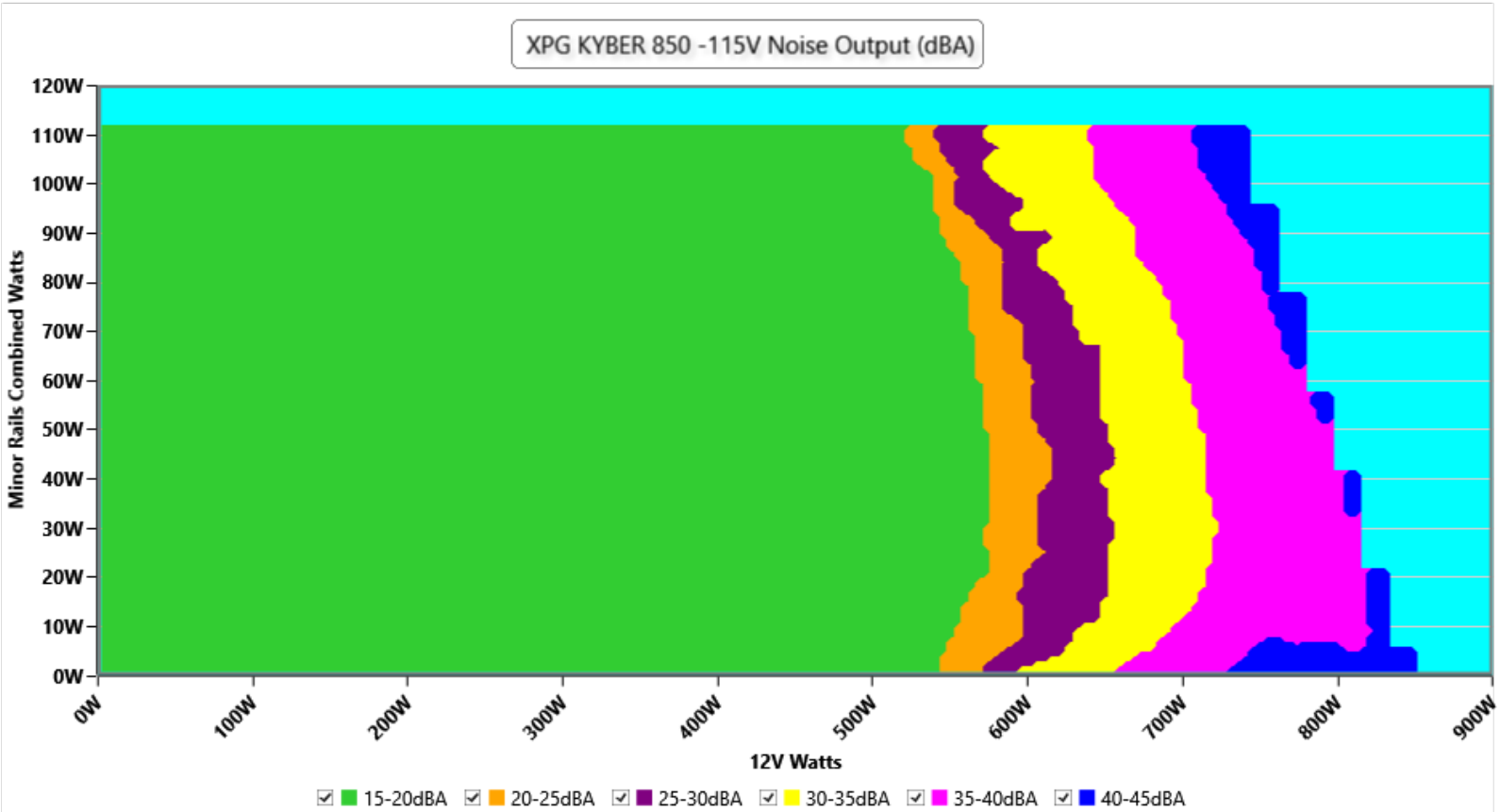
Noise Graph

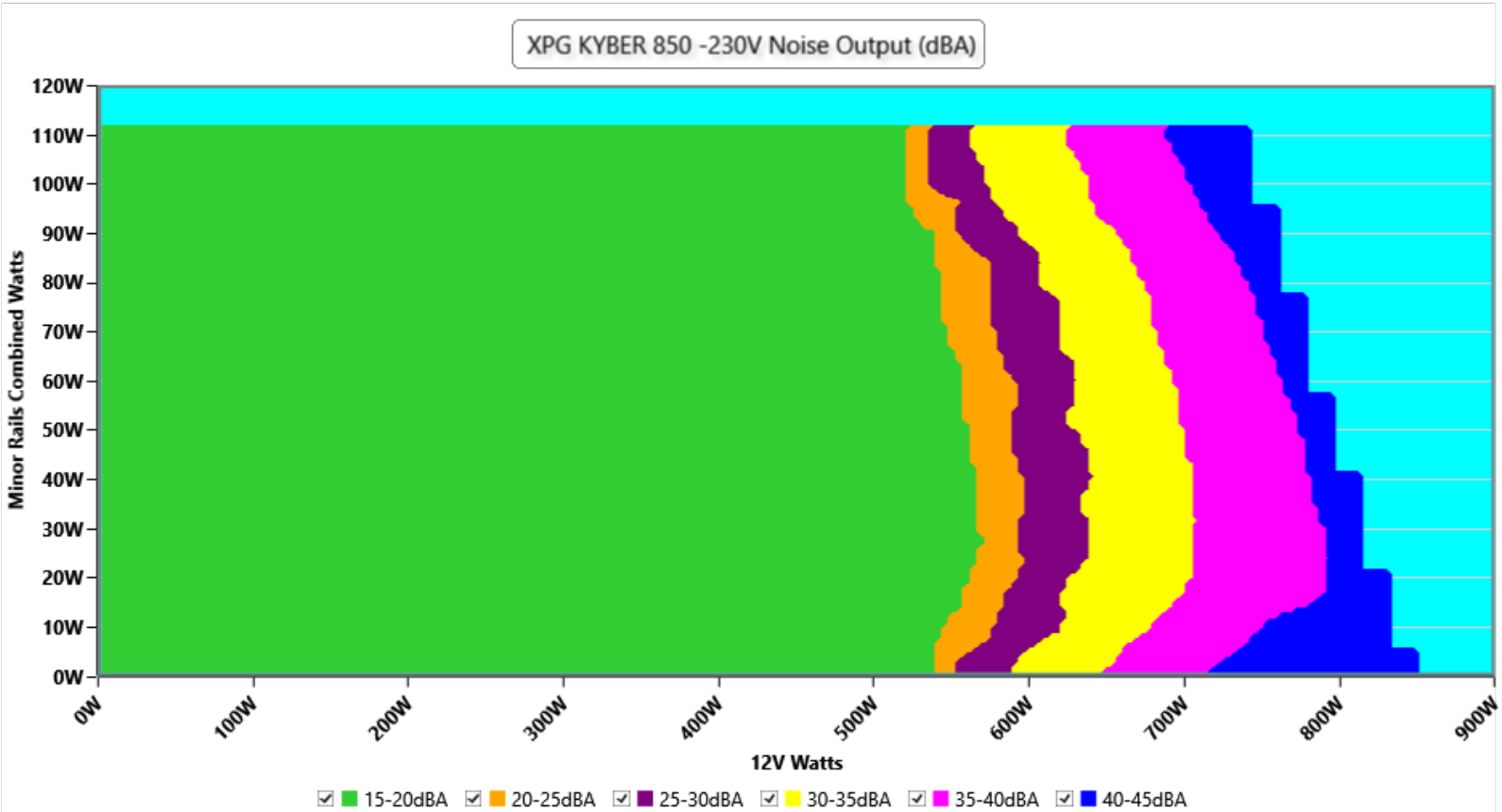
115V



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

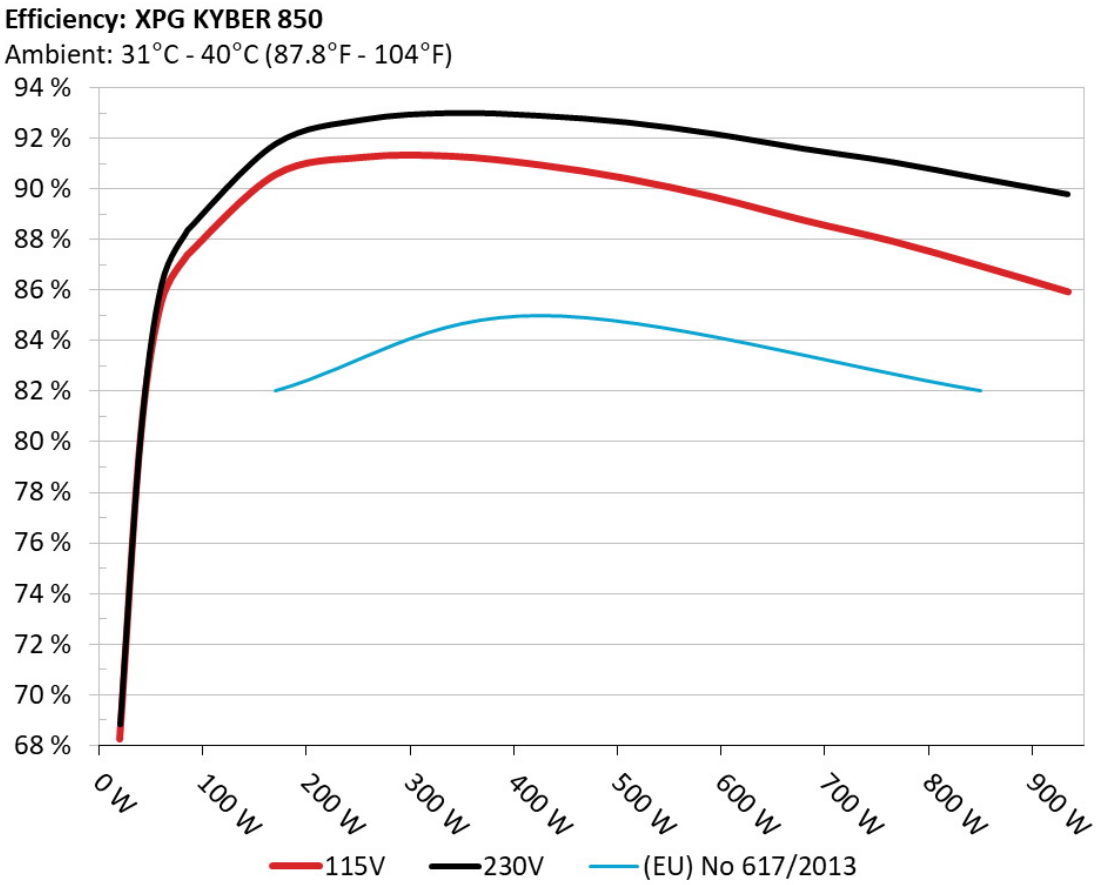


INFO

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

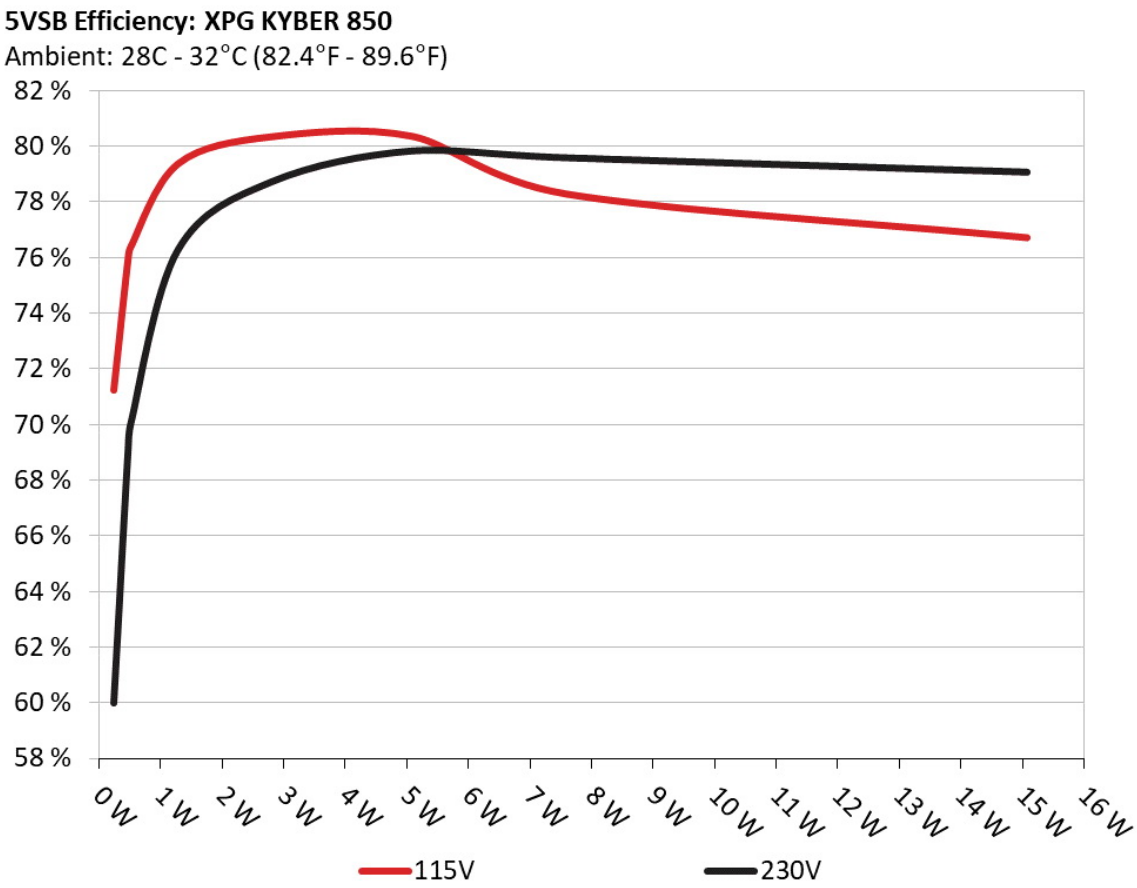
Efficiency under high ambient temperature



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	0.23W	71.215%	0.031
	5.101V	0.323W		114.86V
2	0.09A	0.459W	75.869%	0.058
	5.1V	0.605W		114.85V
3	0.55A	2.799W	80.325%	0.262
	5.089V	3.485W		114.85V
4	1A	5.077W	80.341%	0.346
	5.077V	6.319W		114.84V
5	1.5A	7.596W	78.264%	0.408
	5.064V	9.706W		114.84V
6	3A	15.081W	76.695%	0.478
	5.027V	19.664W		114.84V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	59.995%	0.011
	5.101V	0.384W		229.85V
2	0.09A	0.459W	68.962%	0.019
	5.1V	0.666W		229.85V
3	0.55A	2.799W	78.722%	0.098
	5.088V	3.556W		229.85V
4	1A	5.077W	79.829%	0.164
	5.077V	6.36W		229.85V
5	1.5A	7.597W	79.582%	0.206
	5.065V	9.546W		229.85V
6	3A	15.078W	79.064%	0.318
	5.026V	19.071W		229.85V

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%	5.294A	1.994A	2.002A	0.987A	84.997	87.162%	866	19.2	34.12°C	0.959
	11.974V	5.014V	3.297V	5.068V	97.516				38.37°C	114.81V
20%	11.609A	2.994A	3.006A	1.188A	169.922	90.443%	871	19.3	34.57°C	0.973
	11.976V	5.01V	3.294V	5.052V	187.879				39.21°C	114.79V
30%	18.287A	3.495A	3.509A	1.39A	254.922	91.201%	875	19.3	35.1°C	0.978
	11.969V	5.007V	3.291V	5.036V	279.514				40.27°C	114.76V
40%	24.981A	3.996A	4.014A	1.594A	340.007	91.349%	879	19.4	35.75°C	0.979
	11.962V	5.004V	3.289V	5.019V	372.209				41.56°C	114.73V
50%	31.312A	5A	5.023A	1.8A	424.8	91.026%	884	19.5	36.37°C	0.978
	11.954V	5.001V	3.285V	5.001V	466.678				42.59°C	114.7V
60%	37.630A	6.003A	6.033A	2A	509.294	90.521%	888	19.6	36.82°C	0.979
	11.946V	4.998V	3.282V	4.983V	562.627				43.73°C	114.67V
70%	44.024A	7.008A	7.044A	2.216A	594.663	89.77%	1184	25.2	37.42°C	0.981
	11.938V	4.995V	3.28V	4.963V	662.427				44.82°C	114.64V
80%	50.428A	8.001A	8.057A	2.325A	679.433	88.938%	1618	37.3	37.81°C	0.983
	11.930V	4.991V	3.276V	4.947V	763.94				46.21°C	114.61V
90%	57.244A	8.521A	8.554A	2.433A	764.897	88.194%	1955	43.4	38.84°C	0.985
	11.921V	4.987V	3.273V	4.932V	867.294				47.98°C	114.58V
100%	63.809A	9.028A	9.081A	3.061A	849.763	87.197%	2268	45.2	39.43°C	0.986
	11.911V	4.984V	3.271V	4.901V	974.53				49.21°C	114.55V
110%	70.239A	10.038A	10.192A	3.071A	934.36	86.233%	2269	45.2	40.03°C	0.987
	11.903V	4.981V	3.267V	4.886V	1083.531				50.88°C	114.5V
CL1	0.116A	13.271A	13.337A	0A	111.299	83.63%	896	19.7	34.19°C	0.969
	11.973V	4.989V	3.277V	5.076V	133.087				44.61°C	114.81V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	0.116A	20.04A	0A	0.001A	101.337	82.468%	895	19.7	34.46°C	0.965
	11.975V	4.987V	3.289V	5.083V	122.882				40.2°C	114.8V
CL3	0.116A	0A	20.135A	0A	67.398	76.557%	876	19.3	34.09°C	0.956
	11.972V	5.007V	3.278V	5.084V	88.037				40.44°C	114.82V
CL4	71.278A	0A	0A	0.001A	849.513	88.175%	2267	45.1	39.18°C	0.987
	11.919V	5.007V	3.288V	4.993V	963.448				50.19°C	114.55V

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%	5.275A	1.995A	2.005A	0.987A	85.001	88.263%	884	19.5	34.22°C	0.814
	12.019V	5.013V	3.291V	5.065V	96.306				38.5°C	229.83V
20%	11.575A	2.994A	3.01A	1.188A	169.931	91.8%	888	19.6	34.53°C	0.897
	12.011V	5.01V	3.289V	5.05V	185.112				39.16°C	229.82V
30%	18.235A	3.494A	3.514A	1.391A	254.933	92.761%	891	19.7	35.18°C	0.927
	12.004V	5.008V	3.287V	5.033V	274.827				40.22°C	229.8V
40%	24.908A	3.995A	4.018A	1.595A	340.02	93.021%	895	19.7	35.65°C	0.942
	11.997V	5.007V	3.286V	5.015V	365.533				41.23°C	229.8V
50%	31.222A	4.996A	5.026A	1.802A	424.847	92.914%	900	19.7	36.04°C	0.948
	11.990V	5.004V	3.283V	4.996V	457.247				42.29°C	229.78V
60%	37.524A	5.997A	6.033A	2A	509.368	92.65%	906	19.8	36.57°C	0.953
	11.982V	5.003V	3.283V	4.977V	549.78				43.6°C	229.77V
70%	43.895A	6.997A	7.04A	2.219A	594.739	92.187%	1079	25.0	37.13°C	0.955
	11.974V	5.003V	3.282V	4.957V	645.148				44.83°C	229.75V
80%	50.280A	8.001A	8.051A	2.328A	679.54	91.606%	1504	35.4	37.73°C	0.959
	11.966V	4.999V	3.279V	4.941V	741.804				46.15°C	229.74V
90%	57.078A	8.508A	8.547A	2.437A	764.955	91.084%	1904	41.5	38.03°C	0.962
	11.957V	4.995V	3.276V	4.925V	839.84				47.09°C	229.72V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	63.615A	9.014A	9.072A	3.065A	849.779	90.437%	2329	46.1	39.43°C	0.964
	11.948V	4.992V	3.274V	4.895V	939.643				49.25°C	229.71V
110%	70.025A	10.021A	10.178A	3.074A	934.367	89.807%	2330	46.1	40.35°C	0.966
	11.940V	4.989V	3.271V	4.88V	1040.423				51.22°C	229.69V
CL1	0.117A	13.236A	13.31A	0A	111.299	84.612%	917	20.3	34.27°C	0.862
	12.016V	5.002V	3.283V	5.076V	131.543				42.8°C	229.83V
CL2	0.115A	19.954A	0A	0.001A	101.342	83.275%	921	20.5	34.9°C	0.852
	12.019V	5.009V	3.294V	5.082V	121.695				41.3°C	229.84V
CL3	0.116A	0A	20.072A	0A	67.397	77.207%	900	19.7	34.98°C	0.795
	12.019V	5.024V	3.288V	5.083V	87.296				41.01°C	229.83V
CL4	71.069A	0A	0A	0A	849.535	91.443%	2128	43.8	39.35°C	0.964
	11.954V	5.016V	3.292V	4.987V	929.04				45.55°C	229.7V

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	1.240A	0.498A	0.5A	0.196A	19.993	69.888%	844	18.3	30.58°C	0.828
	11.977V	5.018V	3.3V	5.097V	28.606				33.69°C	114.85V
40W	2.729A	0.698A	0.7A	0.295A	39.994	80.799%	852	18.6	31.81°C	0.91
	11.976V	5.017V	3.3V	5.092V	49.499				35.15°C	114.84V
60W	4.219A	0.897A	0.9A	0.393A	59.994	84.97%	856	18.8	32.18°C	0.937
	11.976V	5.016V	3.299V	5.087V	70.606				35.92°C	114.82V
80W	5.704A	1.096A	1.1A	0.492A	79.931	87.298%	860	19.0	33.35°C	0.959
	11.974V	5.016V	3.298V	5.082V	91.56				37.38°C	114.82V

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	1.236A	0.498A	0.501A	0.196A	19.999	68.813%	877	19.4	30.31°C	0.498
	12.016V	5.016V	3.295V	5.095V	29.06				33.39°C	229.84V
40W	2.721A	0.698A	0.701A	0.295A	39.997	80.373%	875	19.3	31.37°C	0.658
	12.013V	5.014V	3.293V	5.089V	49.764				34.57°C	229.84V
60W	4.204A	0.897A	0.902A	0.393A	59.996	86.257%	875	19.3	32.23°C	0.743
	12.020V	5.014V	3.292V	5.085V	69.556				35.83°C	229.84V
80W	5.683A	1.097A	1.103A	0.492A	79.937	88.389%	878	19.4	33.08°C	0.802
	12.019V	5.014V	3.292V	5.08V	90.437				36.95°C	229.84V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.64mV	10.06mV	25.34mV	9.85mV	Pass
20% Load	29.05mV	10.93mV	25.04mV	12.27mV	Pass
30% Load	26.50mV	11.55mV	26.22mV	14.62mV	Pass
40% Load	20.20mV	12.68mV	30.06mV	14.32mV	Pass
50% Load	19.54mV	13.45mV	27.34mV	16.78mV	Pass
60% Load	22.40mV	13.96mV	27.65mV	18.88mV	Pass
70% Load	25.93mV	17.04mV	28.93mV	25.96mV	Pass
80% Load	29.26mV	19.30mV	30.32mV	28.99mV	Pass
90% Load	32.84mV	20.48mV	31.19mV	22.63mV	Pass
100% Load	47.79mV	21.78mV	42.17mV	27.28mV	Pass
110% Load	53.02mV	25.17mV	43.44mV	30.99mV	Pass
Crossload1	63.97mV	19.48mV	35.22mV	9.80mV	Pass
Crossload2	39.38mV	25.76mV	25.86mV	12.98mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	29.46mV	15.09mV	30.47mV	9.49mV	Pass
Crossload4	34.64mV	17.51mV	43.31mV	17.16mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	23.89mV	11.08mV	28.83mV	9.80mV	Pass
20% Load	23.73mV	12.78mV	28.01mV	11.91mV	Pass
30% Load	21.89mV	12.27mV	27.40mV	15.39mV	Pass
40% Load	18.62mV	15.86mV	36.53mV	16.52mV	Pass
50% Load	19.39mV	12.88mV	25.34mV	19.35mV	Pass
60% Load	21.99mV	13.50mV	22.01mV	19.86mV	Pass
70% Load	24.19mV	17.76mV	23.19mV	21.09mV	Pass
80% Load	26.75mV	20.43mV	25.91mV	22.17mV	Pass
90% Load	29.76mV	21.09mV	26.88mV	23.19mV	Pass
100% Load	44.12mV	23.17mV	31.37mV	24.43mV	Pass
110% Load	47.98mV	25.99mV	33.58mV	26.90mV	Pass
Crossload1	50.19mV	17.46mV	24.87mV	11.33mV	Pass
Crossload2	30.74mV	25.35mV	17.70mV	12.83mV	Pass
Crossload3	34.11mV	12.93mV	27.40mV	9.19mV	Pass
Crossload4	33.64mV	19.77mV	27.88mV	16.33mV	Pass

The results above are not used in the certification process

XPG KYBER 850

Top side

Power specifications label

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