Raijintek Ampere 1200W

Serial Number

Lab ID RJ12002329

Certification ID 252329

Test Result Report ID: 24PS2329A

Certificate Issue Date: Jan 19, 2024

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	Raijintek
Model	Ampere 1200W
OEM/ODM	Andyson
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	14-7

Rated Frequency (Hz)	50-60
Rated Power (W)	1200
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	RJ12002329
Date of receipt	Dec 18, 2023
Testing Date	Jan 17, 2024
Report Issued Date	Jan 19, 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 (600mm)	1	1	16AWG	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	16-26AWG	No
SATA (500mm+150mm+150mm+150mm)	2	8	18AWG	No
4-pin Molex (500mm+150mm+150mm) / FDD (+150mm)	1	3 / 1	18AWG	No

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	100	3	0.3
	Watts	100		1200	15	3.6
Total Max. Power (W)		1200				

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)	89.645%
Average Noise Output (>1450 Load Combinations)	31.85dBA
Average PF (>1450 Load Combinations)	0.977
Efficiency With 10W (≤500W) or 2% (>500W) Load	69.955%
Standby Power Consumption	0.0496W
Non-Accredited	
12V Ripple (Full Load)	48.97mV
5V Ripple (Full Load)	45.02mV
3.3V Ripple (Full Load)	51.83mV
5VSB Ripple (Full Load)	54.22mV
12V Load Regulation	1.01%

5V Load Regulation	0.46%
3.3V Load Regulation	0.80%
5VSB Load Regulation	3.40%
Inrush Current	60.510A

230V

Accredited		
Average Efficiency (>1450 load combinations)	91.636%	
Average Noise Output (>1450 Load Combinations)	40.13dBA	
Average PF (>1450 Load Combinations)	0.944	
Efficiency With 10W (≤500W) or 2% (>500W) Load	65.312%	
Standby Power Consumption	0.1219W	
Non-Accredited		
12V Ripple (Full Load)	29.13mV	
5V Ripple (Full Load)	14.16mV	
3.3V Ripple (Full Load)	26.27mV	
5VSB Ripple (Full Load)	25.98mV	
12V Load Regulation	0.48%	
5V Load Regulation	0.78%	
3.3V Load Regulation	1.17%	
5VSB Load Regulation	3.71%	
Inrush Current	93.900A	
12V Transient Response (200%)	11.30V	
5V Transient Response (200%)	4.914V	
3.3V Transient Response (200%)	3.155V	
5VSB Transient Response (200%)	4.974V	
Hold-Up Time & PWR_OK Signal	23.80ms	
AC Loss to PWR_OK Hold Up Time	18.80ms	
PWR_OK Inactive to DC Loss Delay	5.00ms	
PSU Timings: T1 (20% / 100%)	93.0ms	92.0ms
PSU Timings: T3 (20% / 100%)	125.0ms	125.0ms
12V OCP (29.3°C / 41.8°C)	134.00A (134.00%), 12.1175V	132.20A (132.20%), 12.1405V

5V OCP (29.3°C / 41.8°C)	29.7A (148.50%), 5.031V	29.6A (148.00%), 5.03V
3.3V OCP (29.3°C / 41.8°C)	29.4A (147.00%), 3.34V	29.3A (146.50%), 3.345V
5VSB OCP (29.3°C / 41.8°C)	6.5A (216.67%), 4.972V	6.4A (213.33%), 4.969V
OPP (28.95°C / 39.81°C)	141.51%	125.18%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	23.8
AC Loss to PWR_OK Hold Up Time (ms)	18.8
PWR_OK Inactive to DC Loss Delay (ms)	5

Stromverbrauch im Ruhezustand

Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.88 V	114.78 V	113.85 V	114.97 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.97 Hz	59.40 Hz	60.03 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.421	1.419	1.340	1.424	1.490	PASS
Mains Voltage THD:	0.15 %	0.11 %	N/A	0.29 %	2.00 %	PASS
Real Power:	0.050 W	0.001 W	N/A	0.086 W	N/A	N/A
Apparent Power:	7.935 W	7.905 W	N/A	7.985 W	N/A	N/A
Power Factor:	0.008	N/A	N/A	N/A	N/A	N/A

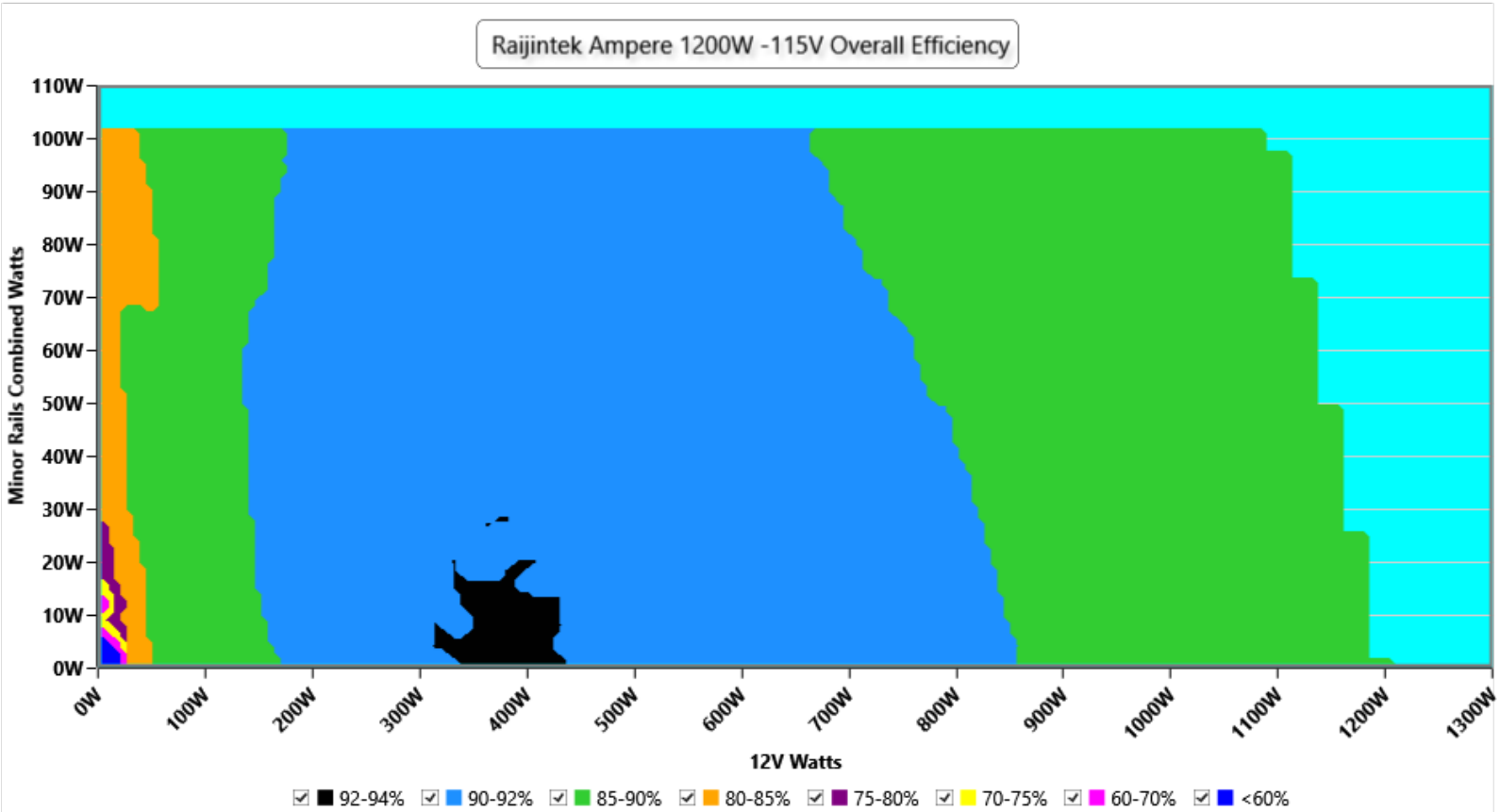
230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	229.87 V	229.79 V	227.70 V	229.92 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:	1.418	1.417	1.340	1.419	1.490	PASS
Mains Voltage THD:	0.13 %	0.09 %	N/A	0.19 %	2.00 %	PASS
Real Power:	0.122 W	0.079 W	N/A	0.179 W	N/A	N/A
Apparent Power:	27.851 W	27.810 W	N/A	27.896 W	N/A	N/A
Power Factor:	0.003	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

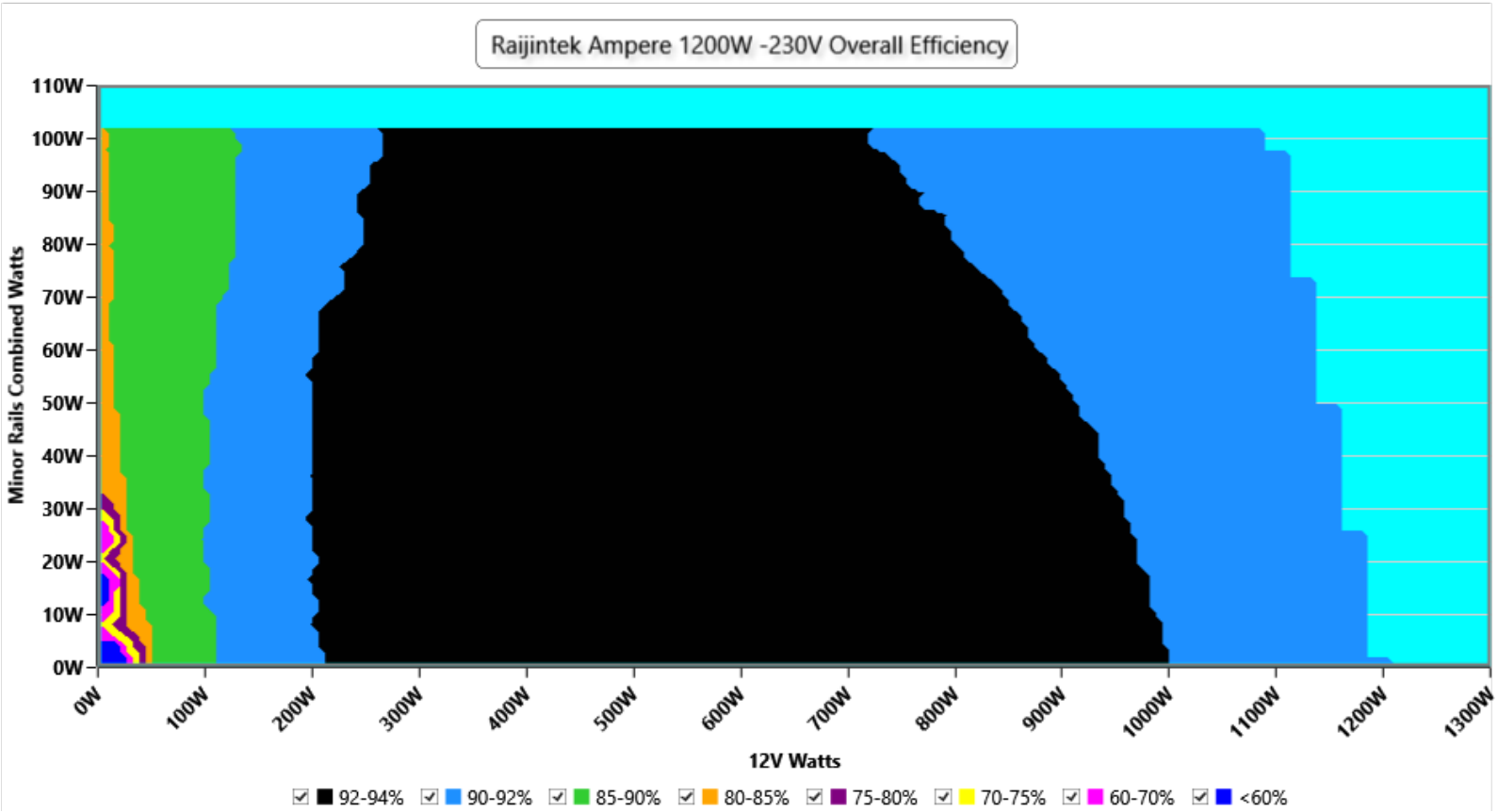
115V



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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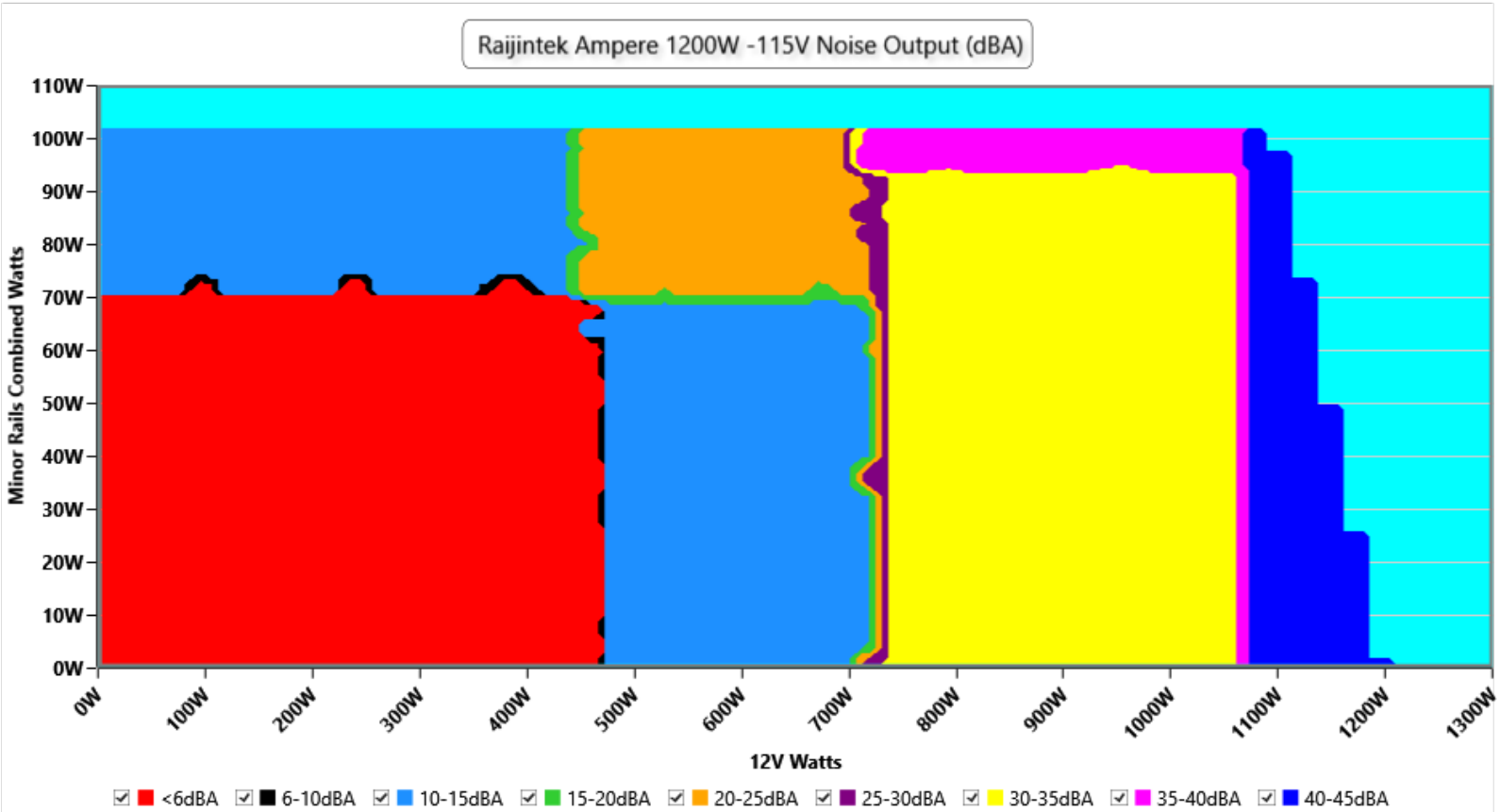
Noise Graph

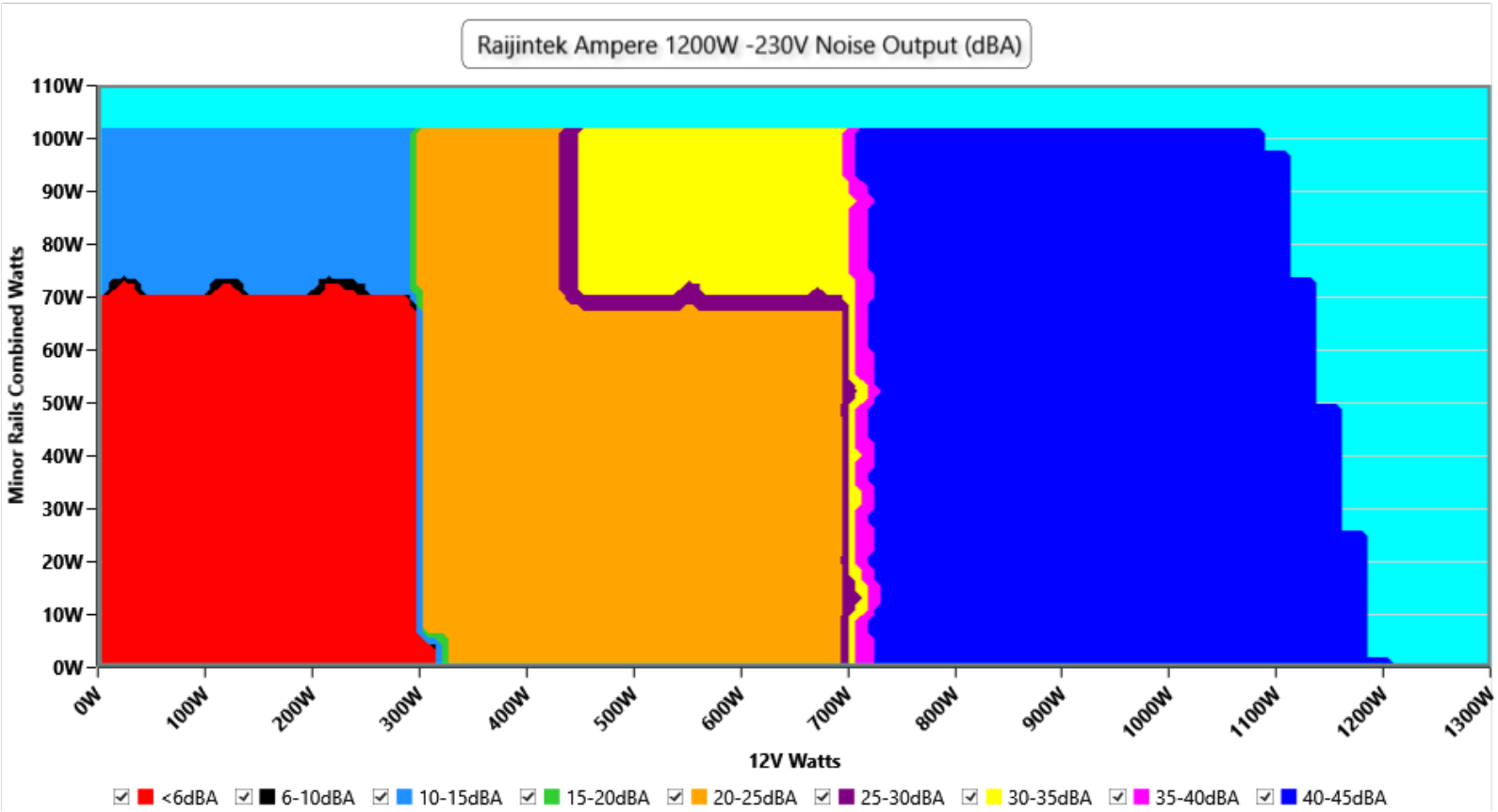
115V



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

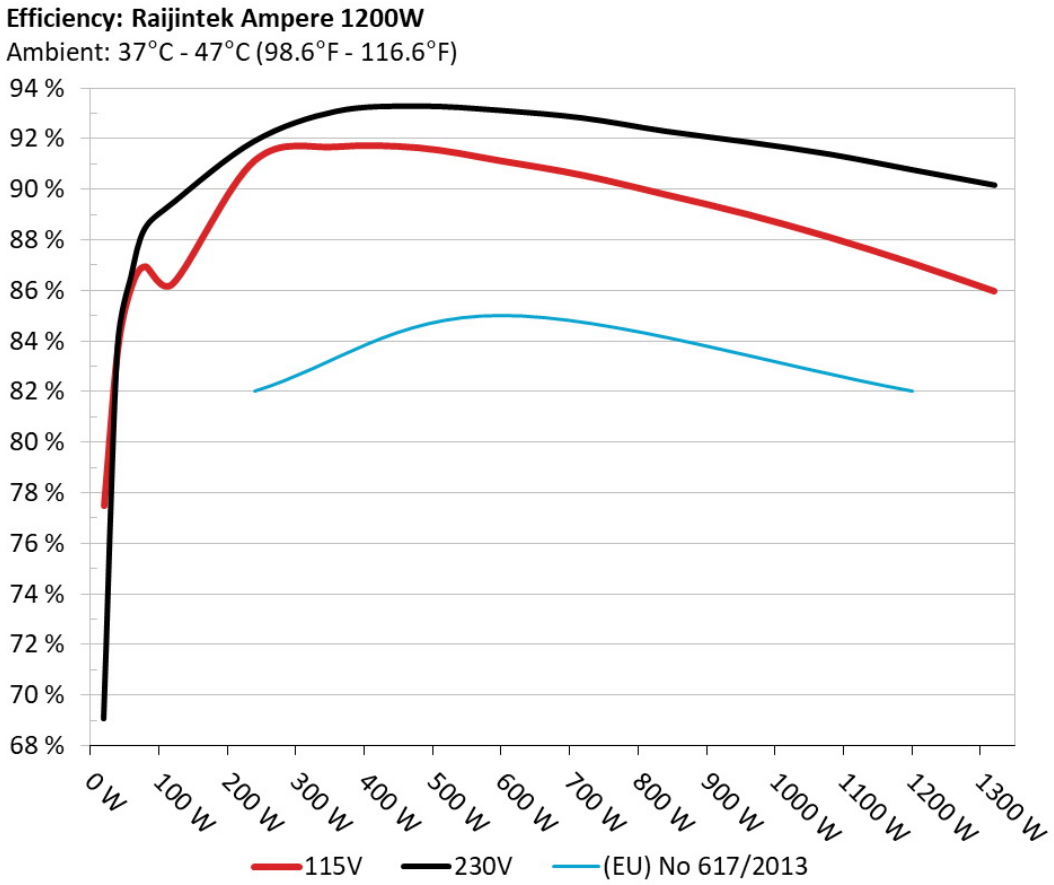


INFO

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

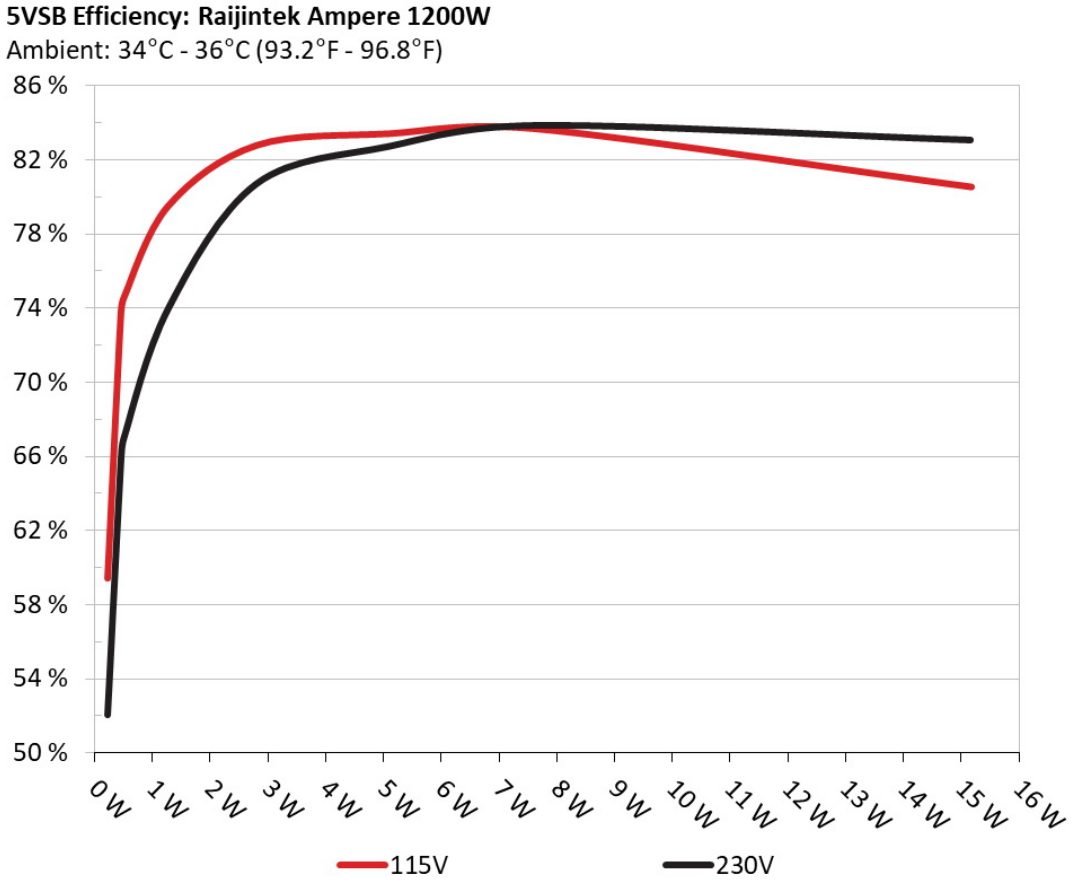
Efficiency under high ambient temperature



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	59.398%	0.05
	5.12V	0.387W		114.85V
2	0.09A	0.461W	73.788%	0.079
	5.118V	0.625W		114.85V
3	0.55A	2.81W	82.8%	0.3
	5.108V	3.394W		114.85V
4	1A	5.099W	83.427%	0.377
	5.099V	6.112W		114.86V
5	1.5A	7.634W	83.69%	0.424
	5.089V	9.122W		114.85V
6	3A	15.171W	80.547%	0.487
	5.057V	18.835W		114.84V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231W	52.043%	0.017
	5.121V	0.444W		229.86V
2	0.09A	0.461W	65.735%	0.026
	5.12V	0.702W		229.86V
3	0.55A	2.81W	80.712%	0.122
	5.109V	3.482W		229.86V
4	1A	5.1W	82.728%	0.196
	5.1V	6.165W		229.86V
5	1.5A	7.634W	83.858%	0.257
	5.089V	9.103W		229.86V
6	3A	15.165W	83.07%	0.354
	5.055V	18.256W		229.85V

Protection Features

OCP (Cold @ 29.3°C)	12V: 134.00A (134.00%), 12.1175V 5V: 29.7A (148.50%), 5.031V 3.3V: 29.4A (147.00%), 3.34V 5VSB: 6.5A (216.67%), 4.972V
OCP (Hot) @ 41.8°C)	12V: 132.20A (132.20%), 12.1405V 5V: 29.6A (148.00%), 5.03V 3.3V: 29.3A (146.50%), 3.345V 5VSB: 6.4A (213.33%), 4.969V
OCP (Cold @ 28.9°C)	1698.17W (141.51%)
OCP (Hot @ 39.8°C)	1502.13W (125.18%)
OTP	✓ (220°C @ 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 & 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%	8.095A	1.984A	1.943A	0.982A	119.99	86.269%	0	<6.0	44.25°C	0.96
	12.154V	5.039V	3.396V	5.09V	139.092				40.03°C	114.82V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20%	17.225A	2.977A	2.917A	1.182A	239.947	91.143%	0	<6.0	45.44°C	0.972
	12.136V	5.039V	3.394V	5.075V	263.267				40.87°C	114.79V
30%	26.635A	3.473A	3.405A	1.383A	359.169	91.686%	0	<6.0	46.35°C	0.975
	12.131V	5.039V	3.392V	5.061V	391.737				41.29°C	114.75V
40%	36.134A	3.97A	3.893A	1.586A	479.537	91.646%	0	<6.0	47.41°C	0.98
	12.131V	5.038V	3.391V	5.046V	523.251				41.9°C	114.71V
50%	45.261A	4.969A	4.873A	1.789A	599.304	91.131%	1018	23.6	42.23°C	0.983
	12.125V	5.032V	3.386V	5.031V	657.63				48.28°C	114.67V
60%	54.461A	5.969A	5.855A	1.994A	719.825	90.556%	1014	23.5	42.74°C	0.985
	12.119V	5.027V	3.382V	5.015V	794.892				49.29°C	114.62V
70%	63.596A	6.969A	6.838A	2.2A	839.574	89.799%	1704	38.6	43.44°C	0.986
	12.115V	5.023V	3.379V	5V	934.952				50.47°C	114.59V
80%	72.774A	7.966A	7.819A	2.307A	959.574	89.016%	1702	38.5	43.39°C	0.987
	12.116V	5.021V	3.376V	4.986V	1077.984				51.53°C	114.54V
90%	82.252A	8.464A	8.297A	2.414A	1079.388	88.113%	1700	38.5	44.9°C	0.988
	12.120V	5.021V	3.374V	4.973V	1224.999				53.95°C	114.49V
100%	91.575A	8.966A	8.808A	3.032A	1199.428	87.096%	2171	45.2	45.77°C	0.989
	12.118V	5.019V	3.372V	4.948V	1377.17				55.81°C	114.44V
110%	100.754A	9.962A	9.881A	3.04A	1320.04	85.983%	2175	45.3	46.56°C	0.99
	12.126V	5.019V	3.37V	4.935V	1535.245				57.5°C	114.38V
CL1	0.116A	11.927A	11.692A	0A	101.306	83.978%	1040	24.2	41.34°C	0.96
	12.080V	5.048V	3.395V	5.105V	120.635				46.85°C	114.82V
CL2	0.115A	19.739A	0A	0A	101.348	82.767%	1042	24.2	40.28°C	0.96
	12.060V	5.064V	3.387V	5.108V	122.45				47.37°C	114.82V
CL3	0.115A	0A	19.381A	0A	67.384	78.768%	1040	24.2	40.04°C	0.94
	12.043V	5.033V	3.405V	5.108V	85.557				49.09°C	114.83V
CL4	99.216A	0A	0A	0.001A	1199.955	87.732%	2168	45.2	45.5°C	0.988
	12.094V	5.016V	3.375V	5.022V	1367.747				56.48°C	114.45V

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%	8.145A	1.985A	1.957A	0.983A	119.977	89.43%	1039	24.1	40.04°C	0.852
	12.079V	5.037V	3.373V	5.087V	134.159				44.27°C	229.85V
20%	17.290A	2.979A	2.938A	1.183A	239.933	91.888%	1036	24.1	40.86°C	0.93
	12.090V	5.035V	3.369V	5.071V	261.114				45.39°C	229.83V
30%	26.638A	3.477A	3.431A	1.385A	359.111	93.063%	1029	23.9	41.06°C	0.95
	12.128V	5.033V	3.366V	5.055V	385.886				46.07°C	229.8V
40%	36.147A	3.976A	3.925A	1.588A	479.492	93.269%	1026	23.8	41.78°C	0.959
	12.125V	5.03V	3.363V	5.039V	514.097				47.29°C	229.79V
50%	45.258A	4.974A	4.912A	1.792A	599.262	93.099%	1030	23.9	42.39°C	0.965
	12.125V	5.027V	3.359V	5.022V	643.68				48.4°C	229.77V
60%	54.429A	5.974A	5.901A	1.998A	719.785	92.796%	1026	23.8	42.76°C	0.968
	12.125V	5.022V	3.355V	5.005V	775.662				49.33°C	229.74V
70%	63.554A	6.978A	6.895A	2.206A	839.542	92.278%	1695	38.4	43.22°C	0.971
	12.122V	5.016V	3.351V	4.988V	909.792				50.28°C	229.72V
80%	72.736A	7.979A	7.888A	2.313A	959.537	91.848%	1694	38.4	43.73°C	0.974
	12.122V	5.012V	3.347V	4.973V	1044.707				51.79°C	229.7V
90%	82.220A	8.482A	8.374A	2.421A	1079.353	91.37%	1693	38.4	44.12°C	0.975
	12.124V	5.01V	3.343V	4.958V	1181.302				53.17°C	229.68V
100%	91.527A	8.987A	8.893A	3.042A	1199.381	90.757%	2152	44.9	45.34°C	0.977
	12.124V	5.007V	3.34V	4.931V	1321.533				55.35°C	229.66V
110%	100.755A	9.993A	9.984A	3.051A	1320.03	90.15%	2156	45.0	46.76°C	0.978
	12.126V	5.003V	3.335V	4.917V	1464.263				57.7°C	229.63V
CL1	0.116A	11.965A	11.811A	0A	101.304	84.53%	1048	24.4	40.24°C	0.834
	12.121V	5.031V	3.361V	5.099V	119.84				45.72°C	229.84V
CL2	0.115A	19.881A	0A	0A	101.344	82.829%	1713	38.7	40.33°C	0.836
	12.104V	5.027V	3.368V	5.103V	122.351				47.44°C	229.84V
CL3	0.114A	0A	19.641A	0A	67.385	78.585%	1693	38.4	39.97°C	0.76
	12.092V	5.039V	3.36V	5.104V	85.745				49.12°C	229.85V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL4	99.136A	0A	0A	0.001A	1199.961	91.282%	2147	39.3	45.17°C	0.976
	12.104V	5.023V	3.355V	5.01V	1314.567				56.13°C	229.66V

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	1.234A	0.496A	0.485A	0.196A	19.998	77.501%	0	<6.0	39.68°C	0.744
	12.038V	5.042V	3.399V	5.116V	25.803				36.59°C	114.85V
40W	2.716A	0.694A	0.68A	0.293A	39.998	83.714%	0	<6.0	40.89°C	0.881
	12.034V	5.042V	3.399V	5.112V	47.782				37.62°C	114.85V
60W	4.199A	0.892A	0.874A	0.392A	59.997	86.174%	0	<6.0	42.13°C	0.922
	12.034V	5.042V	3.398V	5.108V	69.622				38.41°C	114.83V
80W	5.678A	1.091A	1.068A	0.49A	79.94	86.954%	0	<6.0	43.25°C	0.943
	12.032V	5.041V	3.397V	5.104V	91.935				39.29°C	114.84V

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	1.230A	0.495A	0.488A	0.196A	19.991	69.094%	0	<6.0	39.81°C	0.457
	12.070V	5.046V	3.379V	5.114V	28.245				36.76°C	229.87V
40W	2.708A	0.694A	0.684A	0.293A	39.991	83.727%	0	<6.0	40.85°C	0.595
	12.071V	5.04V	3.377V	5.111V	47.768				37.51°C	229.86V
60W	4.184A	0.892A	0.88A	0.392A	59.991	86.557%	0	<6.0	42.12°C	0.701
	12.074V	5.04V	3.376V	5.107V	69.317				38.61°C	229.86V
80W	5.654A	1.091A	1.075A	0.49A	79.926	88.43%	0	<6.0	42.98°C	0.765
	12.081V	5.039V	3.375V	5.102V	90.38				39.24°C	229.85V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	45.1 mV	44.4 mV	44.8 mV	47.4 mV	Pass
20% Load	45.5 mV	43.7 mV	45.3 mV	47.5 mV	Pass
30% Load	46.3 mV	43.3 mV	45.9 mV	47.0 mV	Pass
40% Load	44.8 mV	43.0 mV	44.3 mV	47.0 mV	Pass
50% Load	46.8 mV	45.2 mV	46.9 mV	49.5 mV	Pass
60% Load	47.1 mV	43.9 mV	47.1 mV	49.8 mV	Pass
70% Load	44.6 mV	44.0 mV	47.2 mV	49.9 mV	Pass
80% Load	46.4 mV	44.8 mV	49.9 mV	50.0 mV	Pass
90% Load	44.1 mV	42.1 mV	47.8 mV	48.8 mV	Pass
100% Load	49.0 mV	45.0 mV	51.8 mV	54.2 mV	Fail
110% Load	51.2 mV	45.9 mV	51.7 mV	57.6 mV	Fail
Crossload 1	56.2 mV	45.1 mV	46.7 mV	44.2 mV	Pass
Crossload 2	55.5 mV	48.0 mV	47.4 mV	43.0 mV	Pass
Crossload 3	56.0 mV	44.6 mV	47.4 mV	43.4 mV	Pass
Crossload 4	54.0 mV	44.3 mV	51.1 mV	48.7 mV	Fail

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	23.63mV	12.98mV	15.75mV	16.78mV	Pass
20% Load	54.78mV	14.06mV	15.19mV	16.57mV	Pass
30% Load	18.16mV	13.50mV	16.78mV	16.47mV	Pass
40% Load	18.92mV	14.11mV	16.21mV	17.55mV	Pass
50% Load	19.03mV	13.39mV	16.32mV	19.24mV	Pass
60% Load	20.41mV	14.47mV	17.91mV	19.70mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
70% Load	22.25mV	14.62mV	17.91mV	20.68mV	Pass
80% Load	21.48mV	14.01mV	19.09mV	21.40mV	Pass
90% Load	22.40mV	14.42mV	18.78mV	22.99mV	Pass
100% Load	29.13mV	14.16mV	26.27mV	25.98mV	Pass
110% Load	31.26mV	14.34mV	25.31mV	29.70mV	Pass
Crossload1	24.97mV	13.67mV	16.51mV	13.93mV	Pass
Crossload2	25.68mV	17.19mV	15.44mV	13.14mV	Pass
Crossload3	29.77mV	13.24mV	17.95mV	13.70mV	Pass
Crossload4	30.89mV	14.91mV	24.10mV	20.08mV	Pass

The results above are not used in the certification process

Raijintek Ampere 1200W

Top side

Power specifications label

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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