EFFICIENCY AND NOISE LEVEL CERTIFICATIONS

Anex

XPG Cybercore 1300 Platinum

Lab ID#: AD13001990
Receipt Date: Feb 9, 2022
Test Date: Mar 21, 2022

Report: 22PS1990A
Report Date: Mar 21, 2022

DUT INFORMATION

Brand	XPG
Manufacturer (OEM)	CWT
Series	Cybercore
Model Number	
Serial Number	4L4380001357
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15
Rated Frequency (Hz)	50-60
Rated Power (W)	1300
Type	ATX12V
Cooling	120mm Double Ball Bearing Fan (D1225C12B6ZPAC7)
Semi-Passive Operation	✓
Cable Design	Fully Modular

TEST EQUIPMENT

Electronic Loads	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Keysight AC6804B
Power Analyzers	N4L PPA1530 x2
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2
Tachometer	UNI-T UT372 x2
Digital Multimeter	Keysight U1273AX, Fluke 289, Keithley 2015 - THD
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

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RESULTS

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

115V

Average Efficiency	89.053%
Efficiency With 10W (≤500W) or 2% (>500W)	70.911
Average Efficiency 5VSB	77.952%
Standby Power Consumption (W)	0.0206000
Average PF	0.985
Avg Noise Output	28.73 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A-

230V

Average Efficiency	91.261%
Average Efficiency 5VSB	78.623%
Standby Power Consumption (W)	0.0810000
Average PF	0.954
Avg Noise Output	28.82 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A-

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	108.33	3	0.3
	Watts	130		1300	15	3.6
Total Max. Power (W)		1300				

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

Hold-Up Time (ms)	17.7
AC Loss to PWR_OK Hold Up Time (ms)	16.7
PWR_OK Inactive to DC Loss Delay (ms)	1

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (750mm)	1	1	16-18AWG	No
4+4 pin EPS12V (750mm)	2	2	16AWG	No
6+2 pin PCIe (750mm)	6	6	16AWG	No
6+2 pin PCIe (750mm+150mm)	2	4	16-18AWG	No
SATA (600mm+150mm+150mm+150mm)	4	16	18AWG	No
4-pin Molex (600mm+150mm+150mm+150mm)	2	8	18AWG	No
FDD Adapter (150mm)	2	2	20AWG	No

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XPG Cybercore 1300 Platinum

General Data	-
Manufacturer (OEM)	CWT
PCB Type	Double Sided
Primary Side	**-**
Transient Filter	6x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor SCK207R0 (7 Ohm) & Relay
Bridge Rectifier(s)	2x Vishay LVB2560 (600V, 25A @ 105°C)
APFC MOSFETs	2x On Semiconductor FCPF067N65S3 (650V, 28A @ 100°C, Rds(on): 0.067Ohm) & 1x Sync Power SPN5003 FET (for reduced no-load consumption)
APFC Boost Diode	2x Infineon IDH10G65C6 (650V, 10A @ 140°C)
Bulk Cap(s)	2x Nippon Chemi-Con (400V, 680uF each or 1360uF combined, 2,000h @ 105°C, KMW)
Main Switchers	4x Alpha & Omega AOTF29S50 (500V, 18A @ 100°C, Rds(on): 0.15Ohm)
IC Driver	2x Silicon Labs Si8233BD & 1x On Semiconductor NCP81071
APFC MCU	1x Texas Instrument UCD3138A
LLC Resonant MCU	1x Texas Instrument UCD3138A
Topology	Primary side: Semi-Digital, Interleaved PFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	**-**
+12V MOSFETs	8x Infineon BSC016N06NS (60V, 143A @ 100°C, Rds(on): 1.6mOhm)
5V & 3.3V	DC-DC Converters
Filtering Capacitors	Electrolytic: 4x Nippon Chemi-Con (105°C,W), 2x Nippon Chemi-Con (2-5,000h @ 105°C, KZE), 4x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 2x Rubycon (6-10,000h @ 105°C, ZLH), 1x Rubycon (4-10,000h @ 105°C, YXJ), 1x Rubycon (4-10,000h @ 105°C, YXF) Polymer: 36x FPCAP, 4x Nippon Chemi-Con
Supervisor IC	Weltrend WT7502R (OVP, UVP, SCP, PG)
Fan Model	XPG Nidec D1225C12B6ZPAC7 (120mm, 12V, 0.13A, Double Ball Bearing Fan)
5VSB Circuit	**-**
Rectifier	1x PS1045L (45V, 10A) SBR & 1x IPS ISD04N65A FET
Standby PWM Controller	On-Bright OB5282

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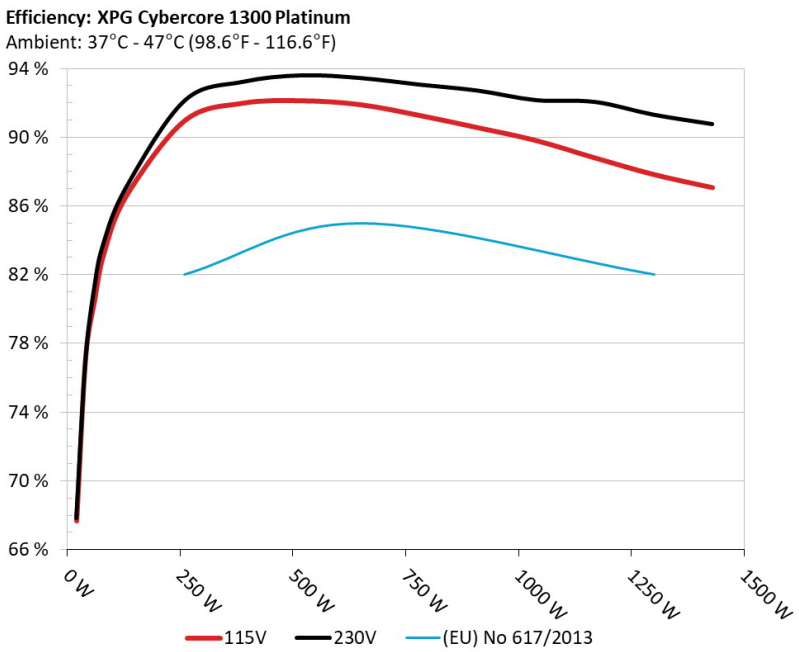
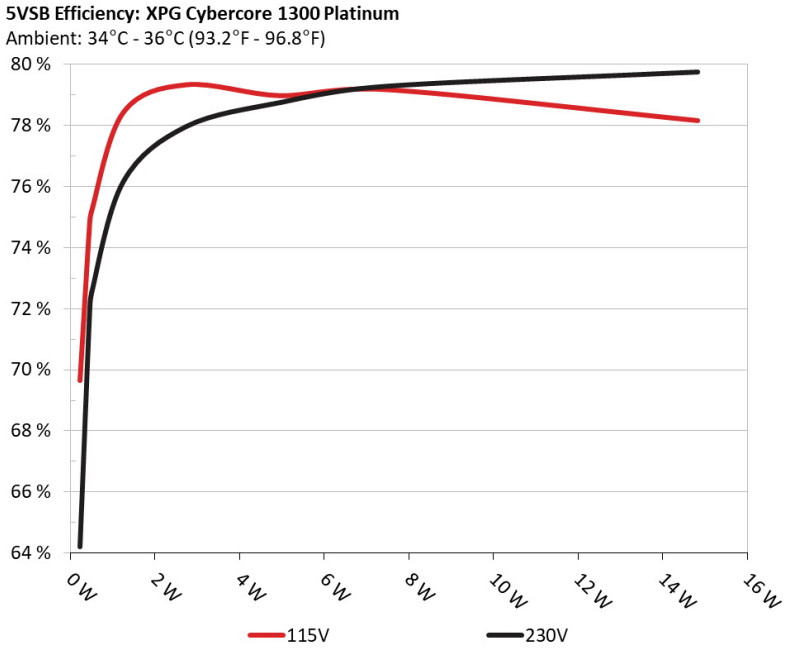
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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

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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.225W	69.641%	0.026
	4.989V	0.323W		115.15V
2	0.09A	0.449W	74.705%	0.047
	4.988V	0.601W		115.15V
3	0.55A	2.74W	79.326%	0.232
	4.981V	3.454W		115.14V
4	1A	4.974W	78.967%	0.342
	4.973V	6.299W		115.13V
5	1.5A	7.45W	79.168%	0.407
	4.965V	9.409W		115.13V
6	3A	14.818W	78.152%	0.497
	4.939V	18.961W		115.14V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.225W	64.209%	0.008
	4.989V	0.35W		230.36V
2	0.09A	0.449W	71.78%	0.015
	4.991V	0.626W		230.36V
3	0.55A	2.74W	77.962%	0.081
	4.98V	3.516W		230.35V
4	1A	4.974W	78.75%	0.139
	4.973V	6.316W		230.36V
5	1.5A	7.449W	79.275%	0.194
	4.965V	9.394W		230.35V
6	3A	14.82W	79.743%	0.308
	4.939V	18.593W		230.35V

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115V

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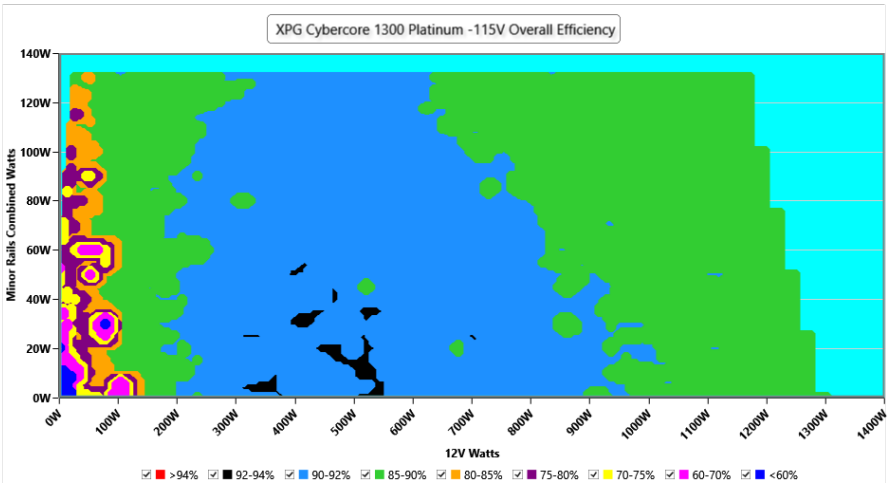
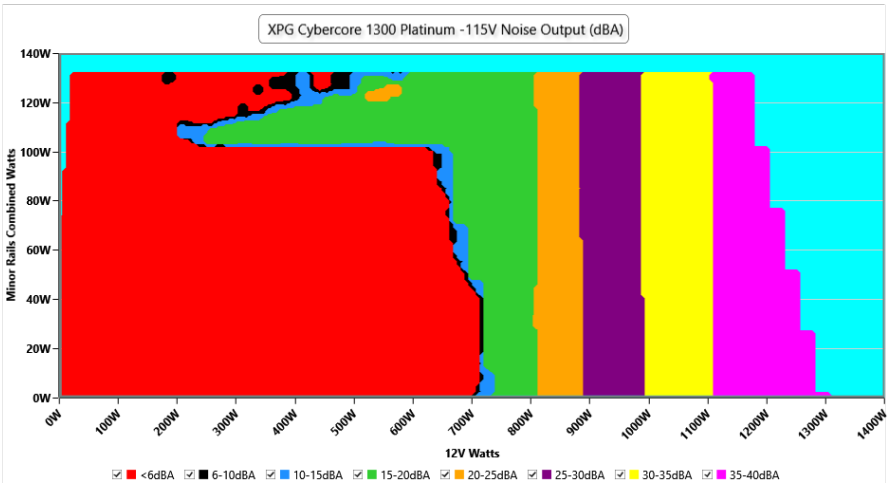
EFFICIENCY GRAPH 115V



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

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

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XPG Cybercore 1300 Platinum

VAMPIRE POWER -115V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.14 V	115.13 V	113.85 V	115.16 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	60.00 Hz	59.40 Hz	60.00 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.415	1.415	1.340	1.416	1.490	PASS
Mains Voltage THD:	0.13 %	0.11 %	N/A	0.14 %	2.00 %	PASS
Real Power:	0.021 W	0.019 W	N/A	0.022 W	N/A	N/A
Apparent Power:	12.594 W	12.591 W	N/A	12.598 W	N/A	N/A
Power Factor:	0.002	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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XPG Cybercore 1300 Platinum

10-110% 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%	8.972A	1.985A	1.988A	0.996A	129.989	86.582%	0	<6.0	44.57°C	0.984
	12.081V	5.039V	3.32V	5.022V	150.119				40.16°C	115.11V
20%	18.983A	2.979A	2.983A	1.196A	259.943	90.977%	0	<6.0	45.38°C	0.994
	12.066V	5.036V	3.318V	5.017V	285.714				40.55°C	115.08V
30%	29.328A	3.478A	3.483A	1.397A	389.613	91.991%	0	<6.0	46.79°C	0.997
	12.055V	5.032V	3.316V	5.01V	423.556				41.54°C	115.04V
40%	39.727A	3.976A	3.981A	1.598A	519.607	92.129%	0	<6.0	47.32°C	0.997
	12.042V	5.03V	3.315V	5.006V	563.947				41.64°C	115.01V
50%	49.793A	4.98A	4.986A	1.802A	649.765	91.9%	0	<6.0	47.97°C	0.998
	12.035V	5.021V	3.309V	4.995V	707.052				41.91°C	114.98V
60%	59.935A	5.976A	5.984A	2A	779.929	91.276%	929	16.2	42.72°C	0.998
	12.015V	5.021V	3.309V	4.992V	854.503				49.24°C	114.94V
70%	70.101A	6.976A	6.985A	2.206A	910.052	90.557%	1150	22.2	43.65°C	0.998
	11.996V	5.019V	3.308V	4.987V	1005.016				50.68°C	114.91V
80%	80.268A	7.977A	7.985A	2.308A	1039.682	89.807%	1465	29.7	43.81°C	0.998
	11.982V	5.016V	3.306V	4.984V	1157.692				52.02°C	114.88V
90%	90.903A	8.478A	8.471A	2.41A	1169.95	88.794%	1743	34.8	45.55°C	0.999
	11.963V	5.013V	3.304V	4.98V	1317.671				54.8°C	114.85V
100%	101.274A	8.982A	8.991A	3.022A	1299.602	87.836%	2233	41.5	45.59°C	0.999
	11.947V	5.01V	3.303V	4.963V	1479.493				55.78°C	114.82V
110%	111.569A	9.989A	10.089A	3.024A	1429.801	87.07%	2235	40.2	46.86°C	0.999
	11.934V	5.006V	3.3V	4.961V	1641.856				57.67°C	114.78V
CL1	0.115A	15.534A	15.569A	0A	131.265	81.984%	0	<6.0	48.44°C	0.984
	12.074V	5.04V	3.314V	5.069V	159.291				43.13°C	115.08V
CL2	0.115A	24.743A	0A	0A	126.374	80.089%	930	16.2	43.27°C	0.984
	12.079V	5.052V	3.316V	5.108V	157.894				50.61°C	115.08V
CL4	108.610A	0A	0A	0A	1299.909	88.621%	2084	39.5	43.9°C	0.999
	11.968V	5.011V	3.307V	5.018V	1466.977				55.08°C	114.79V

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XPG Cybercore 1300 Platinum

20-80W 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	1.228A	0.496A	0.496A	0.198A	19.994	67.653%	0	<6.0	40.38°C	0.648
	12.088V	5.043V	3.323V	5.041V	30.012				37.33°C	115.14V
40W	2.704A	0.694A	0.695A	0.298A	39.992	77.205%	0	<6.0	41.23°C	0.713
	12.086V	5.042V	3.322V	5.038V	52.082				37.85°C	115.14V
60W	4.181A	0.893A	0.894A	0.397A	59.99	80.548%	0	<6.0	42.98°C	0.745
	12.084V	5.041V	3.322V	5.035V	74.702				39.11°C	115.14V
80W	5.654A	1.091A	1.093A	0.497A	79.939	83.191%	0	<6.0	44.05°C	0.804
	12.081V	5.041V	3.321V	5.033V	96.206				39.98°C	115.14V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	8.07mV	5.11mV	3.68mV	5.10mV	Pass
20% Load	10.88mV	5.73mV	4.15mV	5.00mV	Pass
30% Load	11.08mV	5.68mV	5.84mV	5.45mV	Pass
40% Load	12.14mV	6.54mV	5.22mV	5.97mV	Pass
50% Load	13.38mV	6.70mV	5.68mV	6.12mV	Pass
60% Load	12.62mV	7.31mV	6.40mV	6.42mV	Pass
70% Load	11.39mV	8.03mV	6.81mV	6.48mV	Pass
80% Load	13.89mV	8.44mV	13.31mV	8.05mV	Pass
90% Load	14.10mV	9.10mV	13.97mV	7.75mV	Pass
100% Load	19.02mV	9.85mV	14.79mV	9.84mV	Pass
110% Load	21.33mV	10.55mV	15.68mV	9.63mV	Pass
Crossload1	8.94mV	6.48mV	12.52mV	5.65mV	Pass
Crossload2	7.00mV	6.75mV	3.48mV	4.84mV	Pass
Crossload3	0.00mV	0.00mV	0.00mV	0.00mV	Pass
Crossload4	19.61mV	8.68mV	8.79mV	8.83mV	Pass

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XPG Cybercore 1300 Platinum

230V

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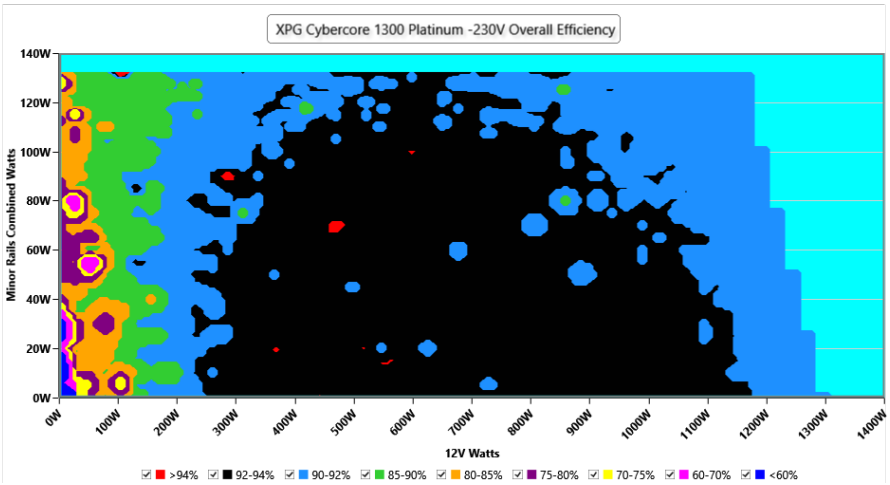
EFFICIENCY GRAPH 230V



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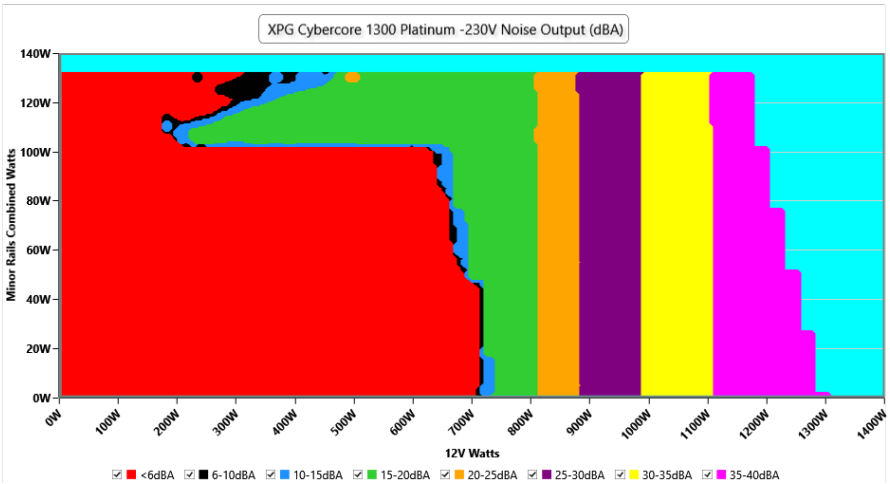
NOISE GRAPH 230V



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VAMPIRE POWER -230V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	230.37 V	230.33 V	227.70 V	230.37 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:	1.415	1.415	1.340	1.416	1.490	PASS
Mains Voltage THD:	0.14 %	0.13 %	N/A	0.16 %	2.00 %	PASS
Real Power:	0.081 W	0.073 W	N/A	0.089 W	N/A	N/A
Apparent Power:	42.057 W	42.048 W	N/A	42.063 W	N/A	N/A
Power Factor:	0.002	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%	8.975A	1.984A	1.987A	0.995A	129.994	87.066%	0	<6.0	45.41°C	0.869
	12.078V	5.041V	3.321V	5.025V	148.559				40.98°C	230.34V
20%	18.986A	2.978A	2.982A	1.196A	259.953	92.133%	0	<6.0	46.47°C	0.941
	12.064V	5.038V	3.319V	5.019V	282.125				41.5°C	230.33V
30%	29.340A	3.476A	3.481A	1.396A	389.63	93.232%	0	<6.0	47.71°C	0.954
	12.051V	5.035V	3.318V	5.013V	417.898				42.21°C	230.31V
40%	39.741A	3.975A	3.98A	1.598A	519.607	93.609%	0	<6.0	48.41°C	0.959
	12.038V	5.033V	3.316V	5.008V	555.115				42.39°C	230.29V
50%	49.841A	4.97A	4.976A	1.799A	649.768	93.45%	0	<6.0	49.15°C	0.97
	12.023V	5.031V	3.315V	5.004V	695.374				42.53°C	230.28V
60%	59.971A	5.97A	5.979A	2A	779.933	93.07%	934	16.1	43.26°C	0.973
	12.008V	5.026V	3.312V	4.996V	838.166				50.3°C	230.25V
70%	70.090A	6.971A	6.981A	2.205A	910.028	92.717%	1162	22.7	43.75°C	0.97
	11.998V	5.022V	3.309V	4.989V	981.446				51.1°C	230.23V
80%	80.294A	7.974A	7.982A	2.307A	1039.679	92.162%	1486	29.7	44.26°C	0.983
	11.978V	5.018V	3.307V	4.985V	1128.017				52.43°C	230.22V
90%	90.784A	8.482A	8.476A	2.411A	1169.688	92.059%	1731	34.5	45°C	0.984
	11.975V	5.01V	3.303V	4.978V	1270.667				54.35°C	230.2V
100%	101.221A	8.986A	8.995A	3.023A	1299.505	91.317%	1969	38.1	45.66°C	0.99
	11.952V	5.008V	3.301V	4.962V	1423.109				55.86°C	230.19V
110%	111.515A	9.99A	10.091A	3.024A	1429.695	90.771%	2240	41.6	46.86°C	0.989
	11.939V	5.005V	3.299V	4.961V	1574.926				57.72°C	230.17V
CL1	0.116A	15.518A	15.554A	0A	131.292	83.231%	493	<6.0	40.7°C	0.906
	12.063V	5.046V	3.317V	5.076V	158.107				45.84°C	230.35V
CL2	0.115A	24.73A	0A	0A	126.388	80.753%	928	16.2	43.2°C	0.878
	12.072V	5.055V	3.318V	5.112V	156.333				50.44°C	230.35V
CL4	108.702A	0A	0A	0A	1300.054	91.65%	2101	39.8	43.48°C	0.99
	11.960V	5.016V	3.309V	5.023V	1418.389				54.33°C	230.19V

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XPG Cybercore 1300 Platinum

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	1.228A	0.496A	0.497A	0.198A	19.996	67.823%	0	<6.0	40.31°C	0.436
	12.088V	5.042V	3.322V	5.04V	29.654				37.23°C	230.36V
40W	2.704A	0.694A	0.695A	0.298A	39.995	76.905%	0	<6.0	41.39°C	0.612
	12.085V	5.042V	3.322V	5.038V	52.561				38.19°C	230.36V
60W	4.182A	0.893A	0.894A	0.397A	59.993	81.28%	0	<6.0	42.22°C	0.711
	12.082V	5.042V	3.322V	5.036V	74.189				38.72°C	230.35V
80W	5.656A	1.091A	1.092A	0.497A	79.944	83.803%	0	<6.0	42.86°C	0.782
	12.079V	5.042V	3.322V	5.034V	95.397				39.14°C	230.35V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	8.22mV	5.11mV	3.63mV	4.79mV	Pass
20% Load	10.52mV	4.91mV	3.94mV	4.79mV	Pass
30% Load	12.33mV	5.68mV	9.47mV	5.51mV	Pass
40% Load	15.80mV	5.98mV	5.07mV	5.86mV	Pass
50% Load	12.31mV	6.14mV	5.43mV	6.37mV	Pass
60% Load	14.35mV	6.75mV	5.84mV	6.02mV	Pass
70% Load	19.63mV	7.52mV	6.65mV	7.70mV	Pass
80% Load	15.53mV	8.33mV	13.05mV	7.44mV	Pass
90% Load	18.34mV	8.54mV	13.56mV	8.46mV	Pass
100% Load	23.68mV	9.55mV	14.68mV	8.89mV	Pass
110% Load	29.22mV	10.29mV	15.86mV	9.95mV	Pass
Crossload1	10.57mV	6.01mV	12.50mV	5.46mV	Pass
Crossload2	8.17mV	6.34mV	3.12mV	4.79mV	Pass
Crossload3	0.00mV	0.00mV	0.00mV	0.00mV	Pass
Crossload4	24.79mV	8.09mV	8.13mV	8.43mV	Pass

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XPG Cybercore 1300 Platinum

Top side

Power specifications label

CERTIFICATIONS 115V

CERTIFICATIONS 230V

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