ENERMAX

Enermax Revolution D.F.2 1200W

Serial Number 230400200325

Lab ID EM12002328

Certification ID 252328

Test Result Report ID: 24PS2328A

Certificate Issue Date: Jan 25, 2024

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	Enermax
Model	Revolution D.F.2 1200W
OEM/ODM	SANR
Serial Number	230400200325
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15-7

Rated Frequency (Hz)	47-63
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 Double Ball Bearing Fan (PFERS-12H)
Semi-Passive Operation	✓
Cybenetics Testing Information	
Lab ID	EM12002328
Date of receipt	Dec 28, 2023
Testing Date	Jan 22, 2024
Report Issued Date	Jan 25, 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 (640mm)	1	1	18-22AWG	No
4+4 pin EPS12V (700mm)	1	1	18AWG	No
4+4 pin EPS12V (600mm)	1	1	18AWG	No
6+2 pin PCIe (650mm+150mm)	4	8	18AWG	No
12+2 pin PCIe (610mm) (600W)	1	1	16-28AWG	No
SATA (500mm+150mm+150mm)	2	6	18AWG	No
SATA (500mm) / 4-pin Molex (+150mm+150mm)	2	2 / 4	18AWG	No

FDD Adapter (110mm)	1	1	22AWG	No
AC Power Cord (1100mm) - C13 coupler	1	2	18AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	100	2.5	0.3
	Watts	130		1200	12.5	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)	89.242%
Average Noise Output (>1450 Load Combinations)	37.96dBA
Average PF (>1450 Load Combinations)	0.983
Efficiency With 10W (≤500W) or 2% (>500W) Load	73.462%
Standby Power Consumption	0.0761W
Non-Accredited	
12V Ripple (Full Load)	30.75mV
5V Ripple (Full Load)	26.63mV

3.3V Ripple (Full Load)	26.67mV
5VSB Ripple (Full Load)	37.58mV
12V Load Regulation	0.24%
5V Load Regulation	0.26%
3.3V Load Regulation	0.44%
5VSB Load Regulation	1.56%
Inrush Current	26.850A

230V

Accredited	
Average Efficiency (>1450 load combinations)	91.522%
Average Noise Output (>1450 Load Combinations)	37.87dBA
Average PF (>1450 Load Combinations)	0.944
Efficiency With 10W (≤500W) or 2% (>500W) Load	68.906%
Standby Power Consumption	0.1963W
Non-Accredited	
12V Ripple (Full Load)	31.44mV
5V Ripple (Full Load)	26.89mV
3.3V Ripple (Full Load)	26.54mV
5VSB Ripple (Full Load)	36.28mV
12V Load Regulation	0.26%
5V Load Regulation	0.24%
3.3V Load Regulation	0.41%
5VSB Load Regulation	1.54%
Inrush Current	50.950A
12V Transient Response (200%)	11.07V
5V Transient Response (200%)	4.957V
3.3V Transient Response (200%)	3.195V
5VSB Transient Response (200%)	4.914V
Hold-Up Time & PWR_OK Signal	19.30ms
AC Loss to PWR_OK Hold Up Time	18.20ms
PWR_OK Inactive to DC Loss Delay	1.10ms

PSU Timings: T1 (20% / 100%)	106.0ms	103.0ms
PSU Timings: T3 (20% / 100%)	119.0ms	120.0ms
OPP (27.81°C / 41.56°C)	150.22%	135.01%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	19.3
AC Loss to PWR_OK Hold Up Time (ms)	18.2
PWR_OK Inactive to DC Loss Delay (ms)	1.1

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Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.92 V	114.84 V	113.85 V	114.99 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.96 Hz	59.40 Hz	60.03 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.420	1.418	1.340	1.421	1.490	PASS
Mains Voltage THD:	0.25 %	0.20 %	N/A	0.33 %	2.00 %	PASS
Real Power:	0.076 W	0.069 W	N/A	0.084 W	N/A	N/A
Apparent Power:	10.479 W	10.462 W	N/A	10.494 W	N/A	N/A
Power Factor:	0.008	N/A	N/A	N/A	N/A	N/A

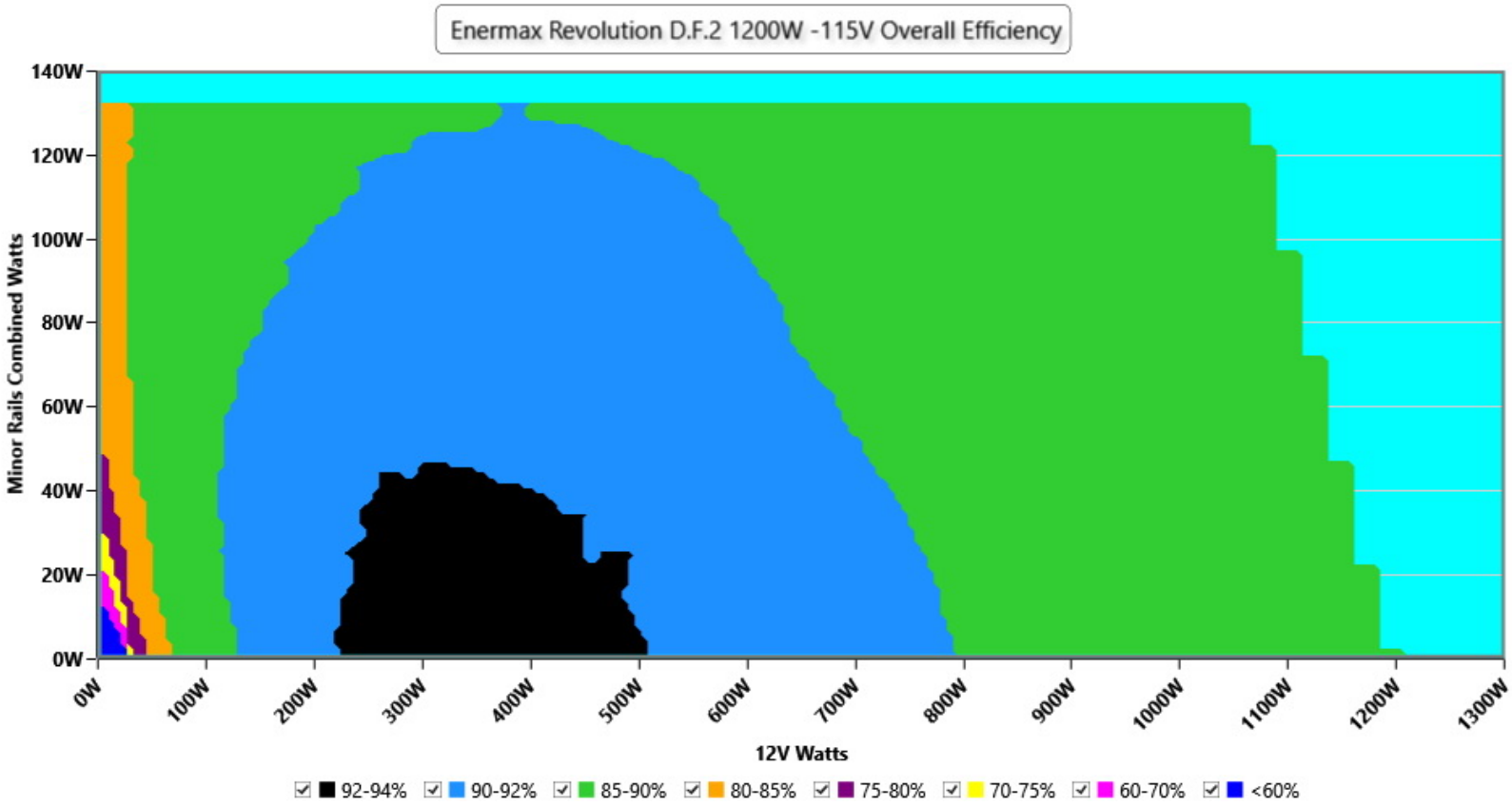
230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	229.88 V	229.80 V	227.70 V	229.97 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	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.18 %	0.14 %	N/A	0.24 %	2.00 %	PASS
Real Power:	0.196 W	0.157 W	N/A	0.250 W	N/A	N/A
Apparent Power:	35.320 W	35.297 W	N/A	35.346 W	N/A	N/A
Power Factor:	0.006	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

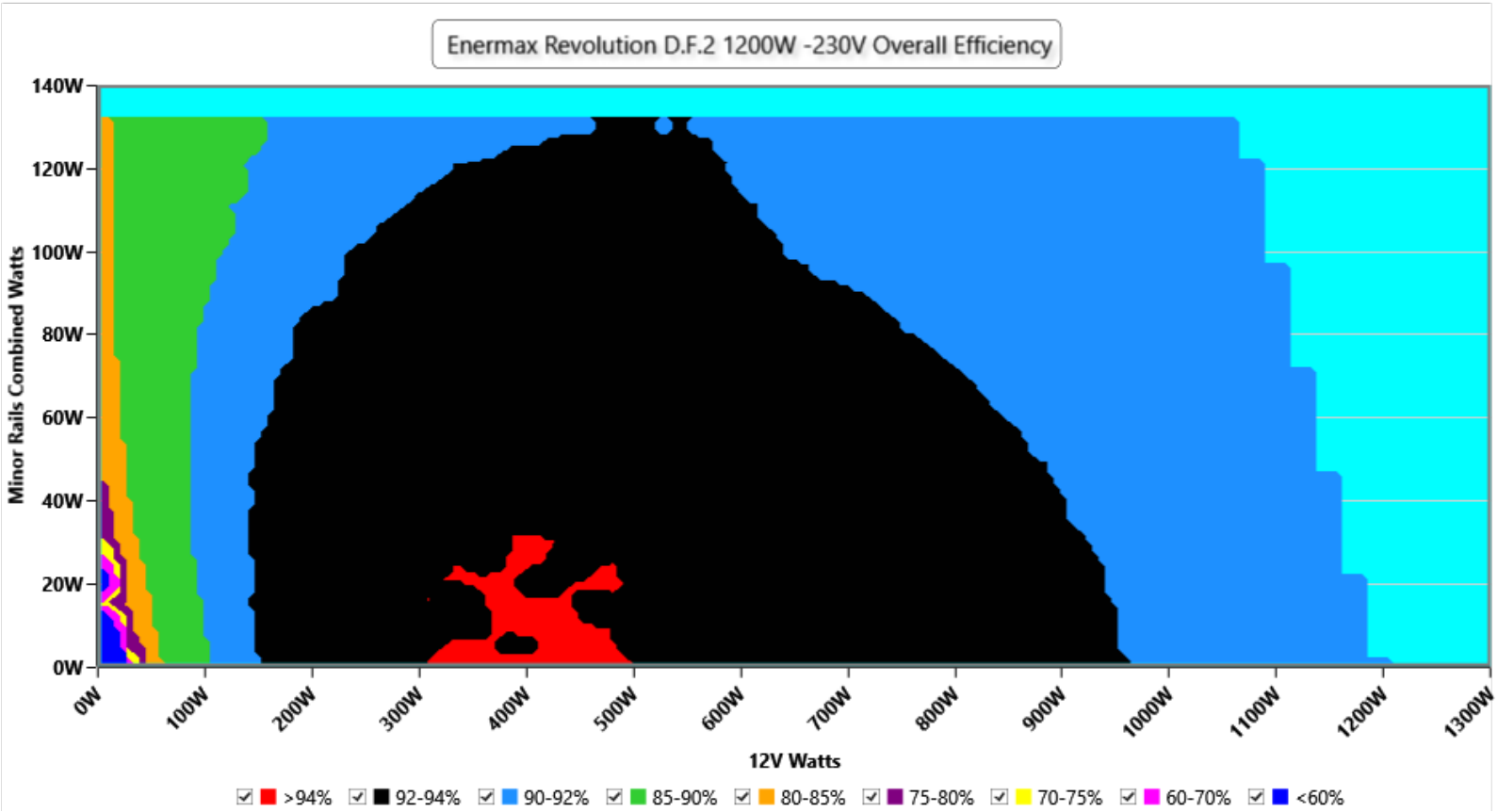
115V



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



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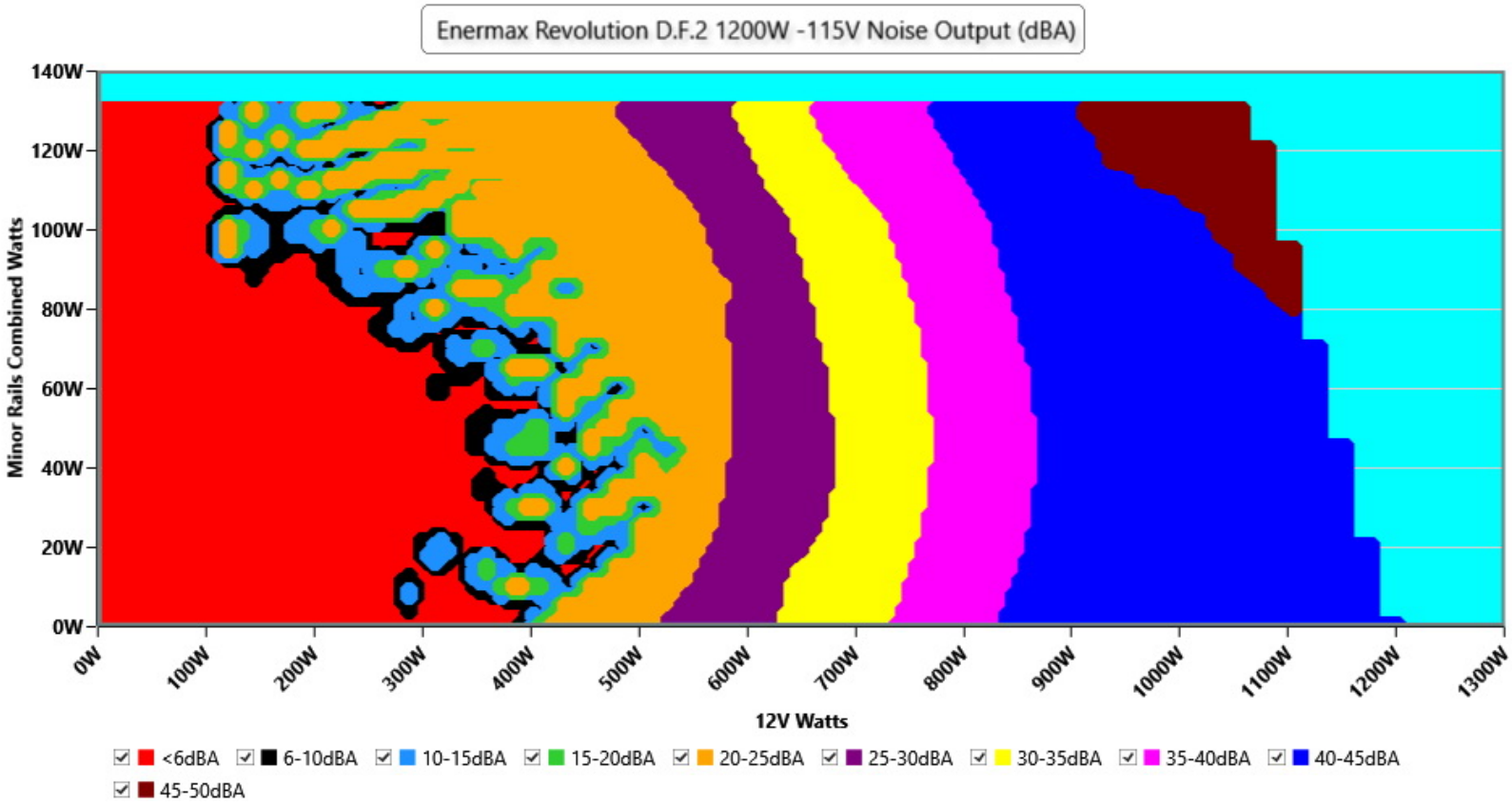
Noise Graph

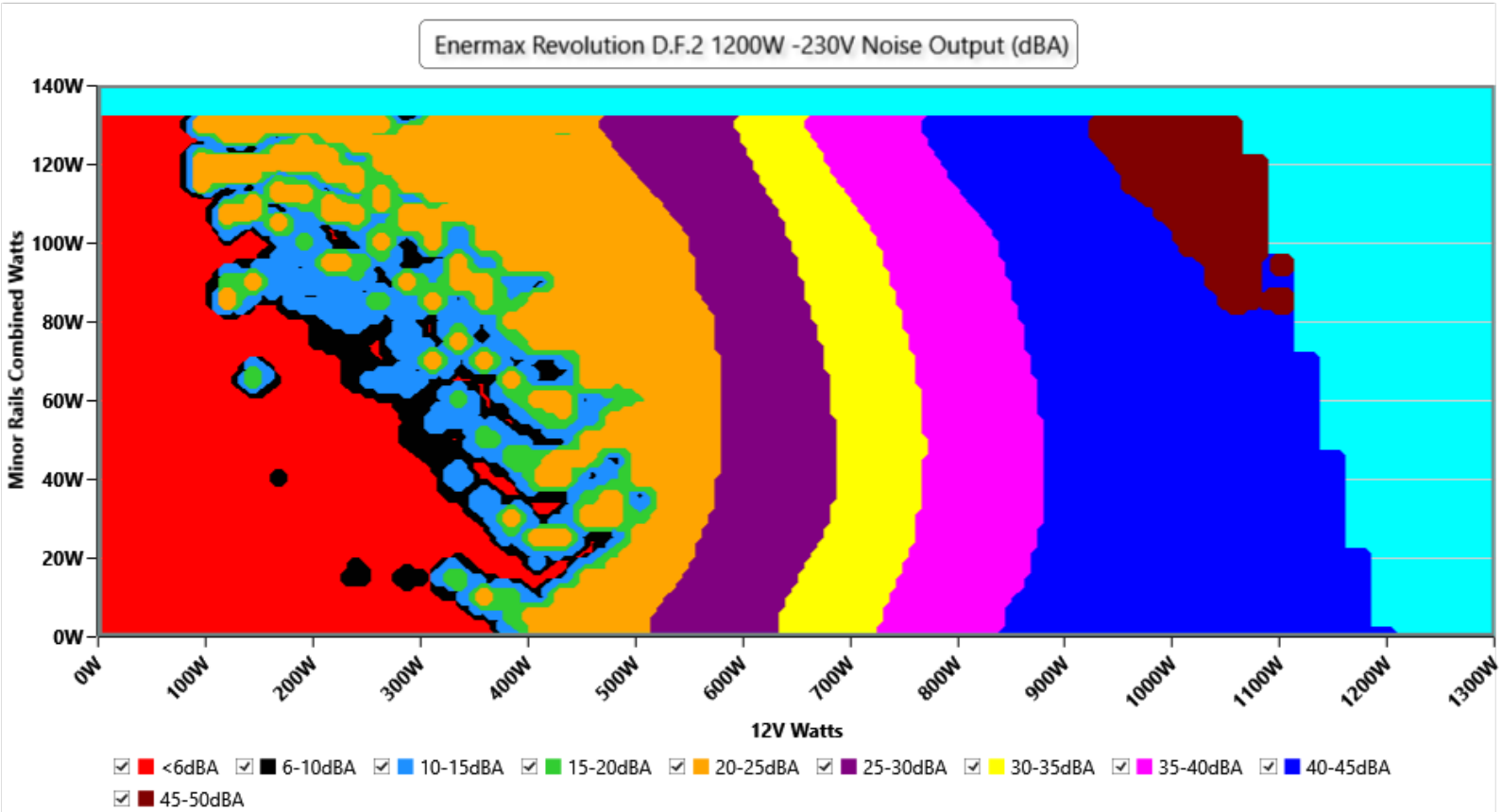
115V



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



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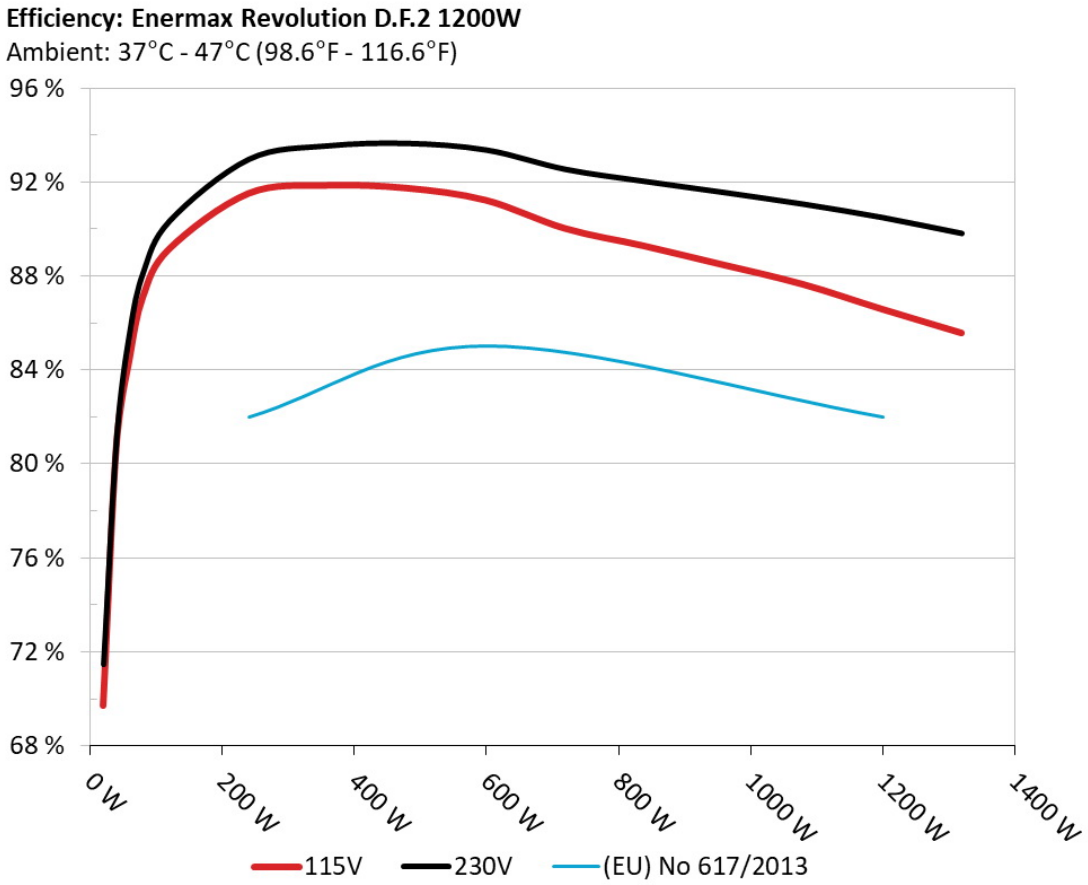
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance

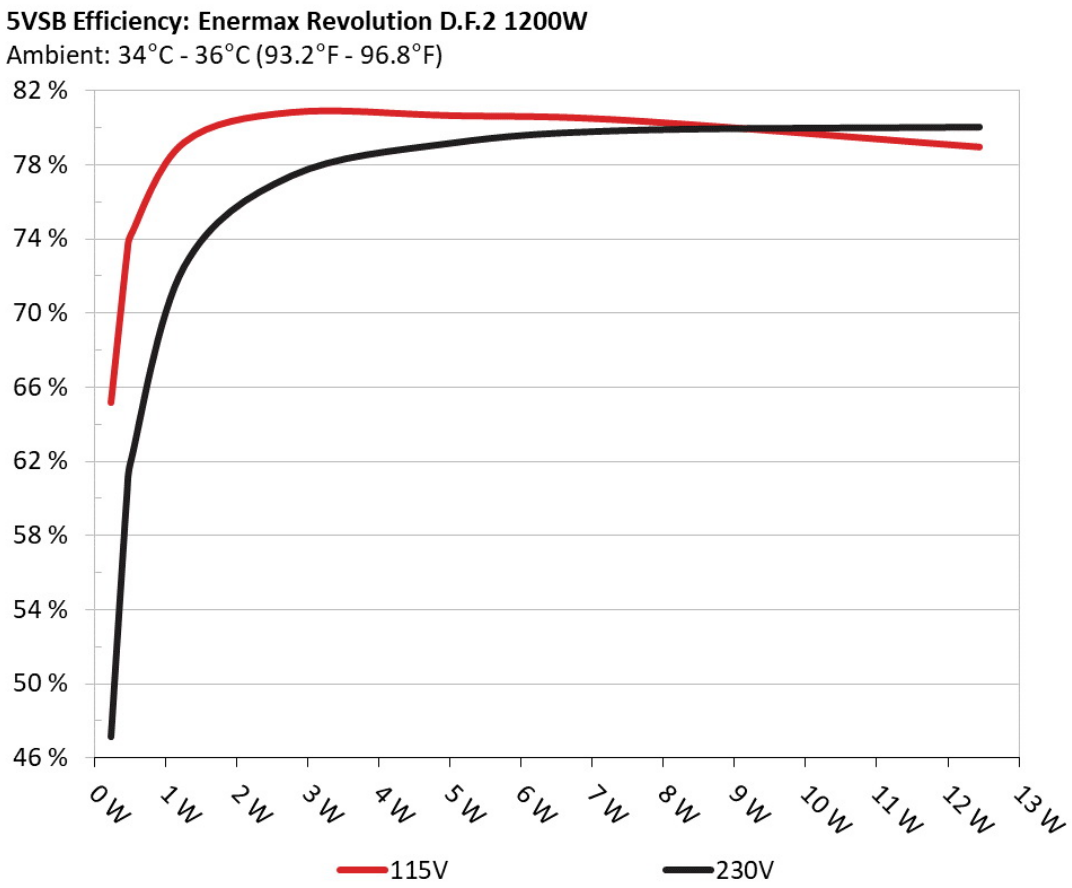
Efficiency under high ambient temperature



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	0.226W	65.2%	0.033
	5.028V	0.347W		114.92V
2	0.09A	0.453W	73.275%	0.058
	5.027V	0.618W		114.92V
3	0.55A	2.76W	80.836%	0.257
	5.018V	3.414W		114.91V
4	1A	5.01W	80.663%	0.359
	5.009V	6.211W		114.91V
5	1.5A	7.5W	80.403%	0.409
	4.999V	9.328W		114.91V
6	2.5A	12.449W	78.972%	0.466
	4.98V	15.763W		114.91V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.226W	47.17%	0.014
	5.027V	0.479W		229.89V
2	0.09A	0.452W	60.325%	0.021
	5.026V	0.751W		229.89V
3	0.55A	2.759W	77.37%	0.097
	5.017V	3.577W		229.88V
4	1A	5.009W	79.136%	0.161
	5.009V	6.329W		229.89V
5	1.5A	7.499W	79.825%	0.209
	4.999V	9.396W		229.88V
6	2.5A	12.447W	80.006%	0.29
	4.979V	15.558W		229.88V

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%	8.128A	1.969A	1.949A	1A	119.988	89.155%	293	<6.0	40.26°C	0.97
	12.105V	5.078V	3.387V	5.002V	134.583				44.47°C	114.88V
20%	17.279A	2.955A	2.925A	1.201A	239.944	91.518%	450	8.0	40.98°C	0.971
	12.098V	5.076V	3.385V	4.996V	262.179				45.51°C	114.83V
30%	26.713A	3.448A	3.414A	1.403A	359.134	91.863%	1149	25.1	41.43°C	0.979
	12.094V	5.075V	3.383V	4.989V	390.943				46.51°C	114.8V
40%	36.248A	3.942A	3.903A	1.606A	479.522	91.745%	1286	28.4	41.55°C	0.984
	12.093V	5.074V	3.382V	4.983V	522.673				47.09°C	114.75V
50%	45.375A	4.929A	4.881A	1.809A	599.286	91.232%	1610	35.1	42.38°C	0.987
	12.094V	5.073V	3.381V	4.976V	656.882				48.41°C	114.71V
60%	54.537A	5.917A	5.861A	2A	719.77	90.026%	2066	42.3	42.96°C	0.99
	12.103V	5.071V	3.379V	4.969V	799.488				49.51°C	114.66V
70%	63.657A	6.905A	6.841A	2.217A	839.551	89.282%	2233	44.7	43.41°C	0.991
	12.103V	5.07V	3.377V	4.962V	940.333				50.48°C	114.61V
80%	72.819A	7.891A	7.821A	2.32A	959.56	88.477%	2248	45.0	43.81°C	0.992
	12.109V	5.068V	3.375V	4.956V	1084.52				51.82°C	114.58V
90%	82.314A	8.387A	8.297A	2.424A	1079.359	87.654%	2264	45.1	44.39°C	0.993
	12.110V	5.067V	3.375V	4.951V	1231.383				53.44°C	114.51V
100%	91.815A	8.88A	8.802A	2.528A	1200.085	86.591%	2285	45.2	45.15°C	0.994
	12.121V	5.067V	3.374V	4.944V	1385.931				55.18°C	114.46V
110%	100.912A	9.87A	9.874A	2.53A	1319.912	85.58%	2305	45.2	46.89°C	0.993
	12.130V	5.065V	3.373V	4.94V	1542.316				57.81°C	114.42V
CL1	0.116A	15.472A	15.322A	0A	131.306	81.701%	1632	35.4	38.86°C	0.973
	12.140V	5.06V	3.368V	5.02V	160.718				44.34°C	114.86V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	0.115A	19.747A	0A	0A	101.36	80.647%	1241	27.4	39.96°C	0.965
	12.117V	5.062V	3.383V	5.022V	125.68				47.01°C	114.87V
CL3	0.114A	0A	19.595A	0A	67.398	76.902%	1146	25.0	41.85°C	0.945
	12.112V	5.074V	3.369V	5.023V	87.637				50.88°C	114.88V
CL4	99.112A	0A	0A	0.002A	1200.012	87.201%	2237	44.8	46.14°C	0.994
	12.107V	5.078V	3.387V	4.995V	1376.147				57.11°C	114.47V

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%	8.130A	1.969A	1.949A	1A	119.993	90.353%	238	<6.0	40.34°C	0.826
	12.103V	5.078V	3.387V	5.002V	132.807				44.59°C	229.91V
20%	17.281A	2.955A	2.925A	1.201A	239.948	92.979%	361	<6.0	40.64°C	0.919
	12.097V	5.075V	3.385V	4.996V	258.06				45.21°C	229.91V
30%	26.718A	3.449A	3.414A	1.403A	359.145	93.549%	1119	24.2	41.11°C	0.945
	12.093V	5.074V	3.384V	4.989V	383.916				46.22°C	229.9V
40%	36.249A	3.942A	3.902A	1.606A	479.522	93.654%	1294	28.6	41.79°C	0.958
	12.092V	5.074V	3.383V	4.983V	512.014				47.38°C	229.89V
50%	45.385A	4.929A	4.881A	1.809A	599.287	93.376%	1298	28.7	42.38°C	0.965
	12.091V	5.072V	3.381V	4.976V	641.795				48.39°C	229.88V
60%	54.560A	5.918A	5.861A	2A	719.752	92.549%	2099	42.8	42.97°C	0.973
	12.097V	5.07V	3.379V	4.969V	777.752				49.48°C	229.87V
70%	63.680A	6.906A	6.841A	2.217A	839.543	92.038%	2219	44.3	43.37°C	0.976
	12.099V	5.069V	3.377V	4.962V	912.167				50.41°C	229.85V
80%	72.855A	7.892A	7.822A	2.32A	959.537	91.566%	2251	45.1	43.94°C	0.978
	12.102V	5.067V	3.375V	4.957V	1047.925				51.98°C	229.84V
90%	82.331A	8.387A	8.298A	2.424A	1079.343	91.071%	2261	45.1	44.19°C	0.979
	12.108V	5.067V	3.374V	4.951V	1185.165				53.27°C	229.82V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	91.861A	8.88A	8.803A	2.528A	1200.068	90.496%	2288	45.2	45.08°C	0.981
	12.115V	5.067V	3.374V	4.945V	1326.105				55.15°C	229.81V
110%	100.969A	9.869A	9.875A	2.53A	1319.889	89.824%	2310	45.3	46.85°C	0.983
	12.123V	5.066V	3.372V	4.942V	1469.407				57.79°C	229.79V
CL1	0.116A	15.47A	15.327A	0A	131.3	83.24%	1562	34.6	41.87°C	0.858
	12.128V	5.061V	3.367V	5.022V	157.74				47.39°C	229.92V
CL2	0.114A	19.744A	0A	0A	101.357	81.773%	1215	27.0	40.57°C	0.813
	12.117V	5.063V	3.383V	5.023V	123.948				47.58°C	229.92V
CL3	0.114A	0A	19.596A	0A	67.396	77.673%	1098	23.5	40.33°C	0.724
	12.112V	5.074V	3.368V	5.023V	86.767				49.43°C	229.92V
CL4	99.262A	0A	0A	0.002A	1199.961	91.096%	2225	44.5	45.03°C	0.981
	12.088V	5.077V	3.386V	4.997V	1317.261				55.98°C	229.8V

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	1.226A	0.492A	0.487A	0.199A	19.993	69.718%	0	<6.0	39.65°C	0.763
	12.101V	5.079V	3.389V	5.021V	28.672				36.57°C	114.91V
40W	2.700A	0.689A	0.682A	0.299A	39.993	80.773%	0	<6.0	41.15°C	0.882
	12.102V	5.079V	3.389V	5.018V	49.516				37.84°C	114.9V
60W	4.174A	0.886A	0.876A	0.399A	59.993	84.514%	0	<6.0	42.31°C	0.924
	12.103V	5.079V	3.388V	5.016V	70.987				38.49°C	114.89V
80W	5.643A	1.083A	1.071A	0.499A	79.937	87.1%	0	<6.0	43.03°C	0.947
	12.105V	5.08V	3.388V	5.013V	91.78				39.07°C	114.88V

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	1.228A	0.492A	0.487A	0.199A	19.996	71.478%	0	<6.0	39.95°C	0.401
	12.083V	5.078V	3.388V	5.021V	27.975				36.89°C	229.9V
40W	2.704A	0.689A	0.682A	0.299A	39.996	81.186%	0	<6.0	40.97°C	0.553
	12.088V	5.078V	3.388V	5.019V	49.261				37.66°C	229.91V
60W	4.178A	0.886A	0.876A	0.399A	59.995	85.668%	0	<6.0	42.2°C	0.659
	12.092V	5.078V	3.388V	5.016V	70.036				38.65°C	229.91V
80W	5.648A	1.083A	1.071A	0.499A	79.942	88.153%	0	<6.0	42.98°C	0.737
	12.097V	5.079V	3.388V	5.013V	90.685				39.15°C	229.91V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	13.71mV	12.06mV	12.33mV	12.23mV	Pass
20% Load	16.20mV	13.64mV	13.81mV	14.37mV	Pass
30% Load	16.35mV	14.51mV	14.37mV	15.60mV	Pass
40% Load	16.68mV	16.50mV	15.81mV	16.73mV	Pass
50% Load	18.06mV	17.11mV	16.68mV	18.62mV	Pass
60% Load	16.88mV	24.37mV	20.72mV	21.28mV	Pass
70% Load	19.75mV	25.95mV	24.04mV	23.94mV	Pass
80% Load	19.39mV	23.81mV	22.25mV	26.80mV	Pass
90% Load	20.36mV	23.29mV	23.43mV	30.54mV	Pass
100% Load	30.75mV	26.63mV	26.67mV	37.58mV	Pass
110% Load	33.21mV	29.34mV	28.74mV	40.90mV	Pass
Crossload1	22.68mV	22.96mV	26.94mV	15.99mV	Pass
Crossload2	15.04mV	19.52mV	26.70mV	14.53mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	12.23mV	21.97mV	15.20mV	13.40mV	Pass
Crossload4	30.53mV	24.39mV	22.10mV	37.37mV	Pass

The results above are not used in the certification process

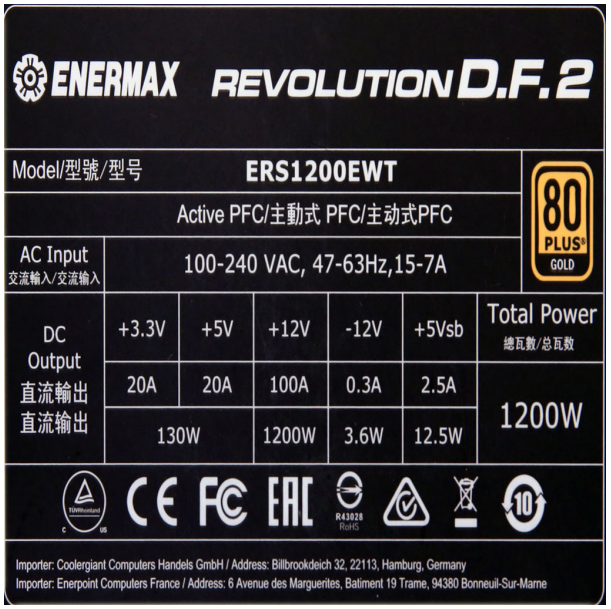
230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	14.62mV	12.62mV	12.07mV	11.36mV	Pass
20% Load	16.87mV	14.00mV	14.73mV	12.63mV	Pass
30% Load	16.20mV	14.61mV	14.02mV	13.86mV	Pass
40% Load	17.12mV	15.79mV	14.89mV	16.21mV	Pass
50% Load	18.35mV	17.73mV	17.60mV	17.90mV	Pass
60% Load	18.71mV	24.88mV	22.81mV	22.51mV	Pass
70% Load	19.39mV	27.23mV	24.50mV	22.15mV	Pass
80% Load	18.98mV	25.75mV	23.69mV	24.45mV	Pass
90% Load	19.95mV	23.81mV	23.94mV	29.62mV	Pass
100% Load	31.44mV	26.89mV	26.54mV	36.28mV	Pass
110% Load	33.30mV	29.37mV	28.22mV	39.51mV	Pass
Crossload1	22.54mV	23.97mV	27.81mV	15.82mV	Pass
Crossload2	14.68mV	19.87mV	26.40mV	15.35mV	Pass
Crossload3	12.28mV	21.92mV	17.60mV	13.66mV	Pass
Crossload4	32.03mV	23.96mV	23.04mV	35.38mV	Pass

The results above are not used in the certification process

Enermax Revolution D.F.2 1200W

Top side



ENERMAX REVOLUTION D.F.2

Model/型號/型号	ERS1200EWT					80 PLUS GOLD
	Active PFC/主動式 PFC/主动式PFC					
AC Input 交流輸入/交流输入	100-240 VAC, 47-63Hz,15-7A					
DC Output 直流輸出 直流输出	+3.3V	+5V	+12V	-12V	+5Vsb	Total Power 總瓦數/总瓦数
	20A	20A	100A	0.3A	2.5A	1200W
	130W		1200W	3.6W	12.5W	

Importer: Coolergiant Computers Handels GmbH / Address: Billbrookdeich 32, 22113, Hamburg, Germany
Importer: Enerpoint Computers France / Address: 6 Avenue des Marguerites, Batiment 19 Trame, 94380 Bonneuil-Sur-Marne

Power specifications label

Cybenetics □□□□□□□□□□□□□□□□□□ ETA□□□□ LAMBDA□□□□ SAFE□□□□□□□□□□□□□□□□□□ DELTA□□□□□□□ PHI□□□□□□□□□

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