EFFICIENCY AND NOISE LEVEL CERTIFICATIONS

Anex

Corsair RM1000e GEN5

Lab ID#: CR10002087
Receipt Date: Oct 29, 2022
Test Date: Nov 4, 2022

Report: 22PS2087A
Report Date: Nov 7, 2022

DUT INFORMATION

Brand	Corsair
Manufacturer (OEM)	HEC
Series	RMe
Model Number	RPS0179
Serial Number	C04702274
DUT Notes	CP-9020264

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	12-6
Rated Frequency (Hz)	47-63
Rated Power (W)	1000
Type	ATX12V
Cooling	120mm Rifle Bearing Fan (HA1225H12F-Z)
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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Corsair RM1000e GEN5

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	✓
ATX v3.0 PSU Power Excursion	✓

115V

Average Efficiency	89.389%
Efficiency With 10W (≤500W) or 2% (>500W)	76.118
Average Efficiency 5VSB	77.457%
Standby Power Consumption (W)	0.0547000
Average PF	0.982
Avg Noise Output	26.80 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A-

230V

Average Efficiency	91.312%
Average Efficiency 5VSB	77.823%
Standby Power Consumption (W)	0.0930000
Average PF	0.948
Avg Noise Output	27.15 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A-

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	83.3	3	0
	Watts	150		1000	15	0
Total Max. Power (W)		1000				

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

Hold-Up Time (ms)	18.2
AC Loss to PWR_OK Hold Up Time (ms)	16
PWR_OK Inactive to DC Loss Delay (ms)	2.2

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Corsair RM1000e GEN5

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	16-20AWG	No
4+4 pin EPS12V (650mm)	2	2	18AWG	No
6+2 pin PCIe (600mm+150mm)	2	4	16-18AWG	No
6+2 pin PCIe (600mm)	2	2	16AWG	No
SATA (500mm+100mm+100mm)	1	3	18AWG	No
SATA (450mm+115mm+115mm+115mm)	1	4	18AWG	No
4 pin Molex (450mm+100mm+100mm+100mm)	1	4	18AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	14AWG	-

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Corsair RM1000e GEN5

General Data	-
Manufacturer (OEM)	HEC
PCB Type	Double Sided
Primary Side	**-**
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV, 1x Power Integrations CAP200DG (Discharge IC)
Inrush Protection	NTC Thermistor SCK-056 (5 Ohm) & Relay
Bridge Rectifier(s)	2x GBU1506 (800V, 15A @ 100°C)
APFC MOSFETs	2x Great Power GP47S60 (600V, 47A, Rds(on): 0.081Ohm)
APFC Boost Diode	1x CREE C6D10065A (650V, 10A @ 155°C)
Bulk Cap(s)	1x Teapo (400V, 680uF, 2,000h @ 105°C, LS)
Main Switchers	2x GP36S60YERD
APFC Controller	Champion CM6500UN & CM03AX
Resonant Controller	Champion CM6901T6X
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	**-**
+12V MOSFETs	no info
5V & 3.3V	DC-DC Converters: 4x Potens Semiconductor PDD3906 (30V, 51A @ 100°C, Rds(on): 6mOhm) & 4x Excelliance MOS EMB07N03V (20V, 17A @ 100°C, Rds(on): 7mOhm) PWM Controller(s): 2x APEC APW7073
Filtering Capacitors	Electrolytic: 11x Teapo (1-3,000h @ 105°C, SC), 1x Nichicon (4-10,000h @ 105°C, HE) Polymer: 4x Elite, 6x Teapo, 13x no info
Supervisor IC	Weltrend WT7527RT (OCP, OVP, UVP, SCP, PG)
Fan Model	Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, Rifle Bearing Fan)
5VSB Circuit	**-**
Rectifier	1x PS1060L SBR (60V, 10A)
Standby PWM Controller	Power Integrations TNY290PG

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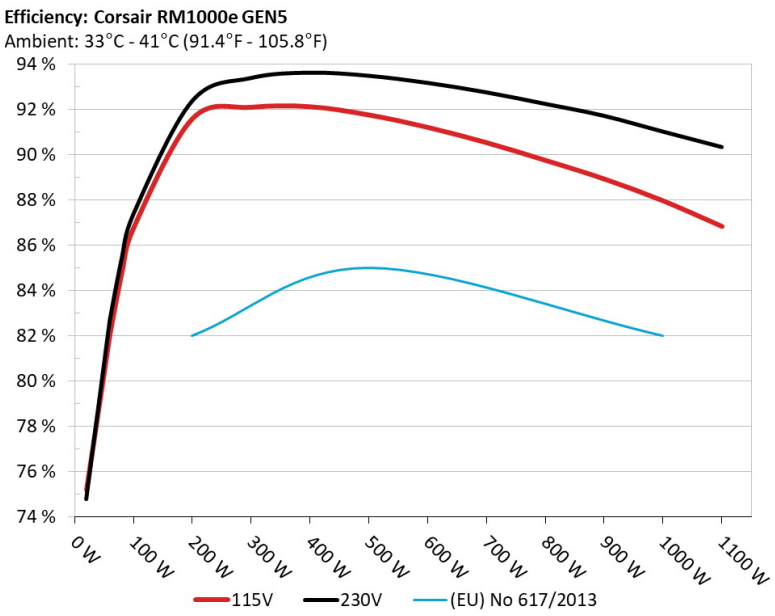
Corsair RM1000e GEN5

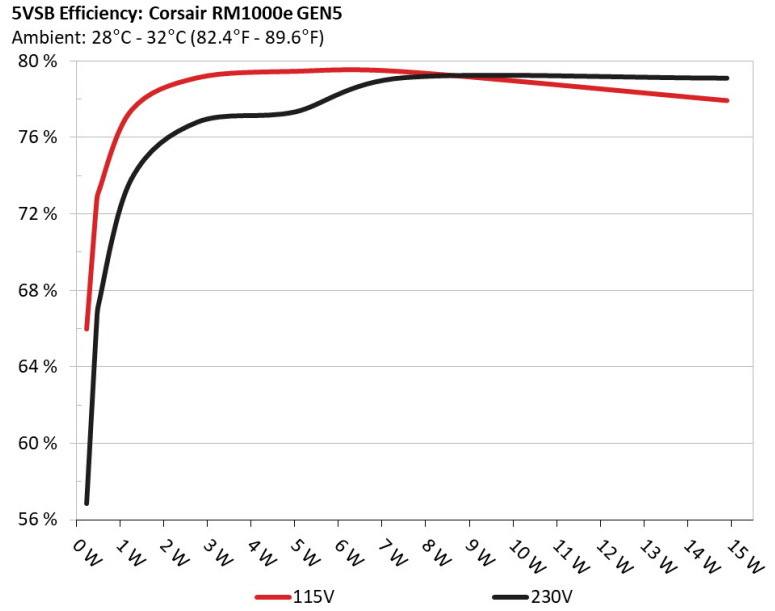
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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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Corsair RM1000e GEN5

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.226W	65.98%	0.028
	5.024V	0.343W		115.16V
2	0.09A	0.452W	72.558%	0.05
	5.022V	0.623W		115.16V
3	0.55A	2.758W	79.101%	0.234
	5.014V	3.487W		115.16V
4	1A	5.006W	79.438%	0.338
	5.005V	6.302W		115.16V
5	1.5A	7.496W	79.42%	0.396
	4.997V	9.439W		115.15V
6	3A	14.908W	77.912%	0.471
	4.969V	19.135W		115.15V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.226W	56.83%	0.01
	5.024V	0.398W		230.38V
2	0.09A	0.452W	66.153%	0.017
	5.023V	0.684W		230.38V
3	0.55A	2.758W	76.777%	0.085
	5.014V	3.593W		230.38V
4	1A	5.006W	77.315%	0.145
	5.005V	6.475W		230.38V
5	1.5A	7.496W	79.107%	0.198
	4.997V	9.478W		230.38V
6	3A	14.908W	79.083%	0.306
	4.969V	18.852W		230.38V

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115V

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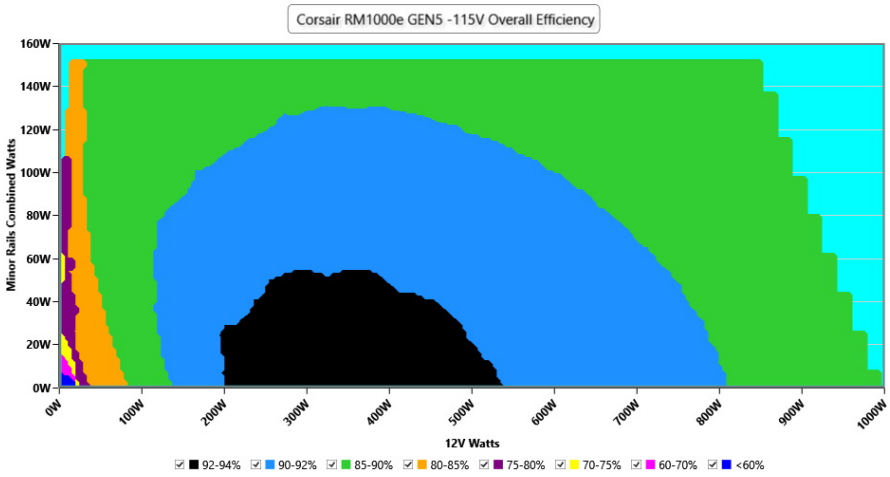
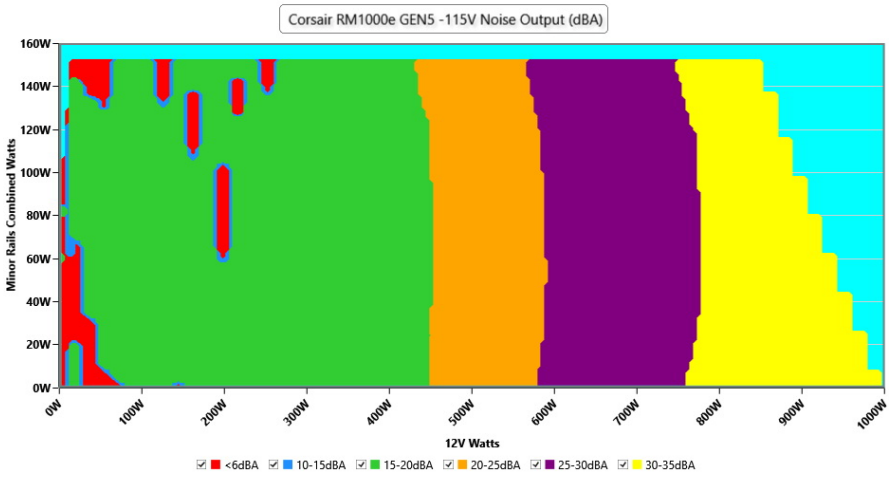
EFFICIENCY GRAPH 115V



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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Corsair RM1000e GEN5

VAMPIRE POWER -115V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.15 V	115.14 V	113.85 V	115.17 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.01 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	0.15 %	2.00 %	PASS
Real Power:	0.055 W	0.045 W	N/A	0.065 W	N/A	N/A
Apparent Power:	12.263 W	12.254 W	N/A	12.271 W	N/A	N/A
Power Factor:	0.005	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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Corsair RM1000e GEN5

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%	6.440A	2.008A	1.989A	0.999A	100.002	86.785%	876	20.6	35.51°C	0.965
	12.176V	4.981V	3.318V	5.005V	115.226				39.76°C	115.13V
20%	13.930A	3.013A	2.984A	1.201A	199.947	91.613%	871	20.4	35.88°C	0.976
	12.135V	4.979V	3.317V	4.996V	218.25				40.41°C	115.1V
30%	21.769A	3.52A	3.484A	1.403A	300	92.113%	874	20.5	36.55°C	0.98
	12.125V	4.973V	3.315V	4.989V	325.687				41.4°C	115.07V
40%	29.592A	4.026A	3.984A	1.606A	399.696	92.141%	874	20.5	36.74°C	0.982
	12.115V	4.969V	3.313V	4.981V	433.787				41.76°C	115.05V
50%	37.084A	5.034A	4.982A	1.81A	499.463	91.776%	918	22.1	36.85°C	0.984
	12.106V	4.967V	3.312V	4.973V	544.222				42.31°C	115.02V
60%	44.656A	6.046A	5.983A	2A	599.906	91.226%	995	24.2	37.33°C	0.987
	12.096V	4.963V	3.31V	4.965V	657.609				43.35°C	114.99V
70%	52.169A	7.058A	6.983A	2.219A	699.717	90.55%	1115	27.5	37.85°C	0.989
	12.088V	4.96V	3.308V	4.957V	772.746				45.41°C	114.97V
80%	59.765A	8.002A	7.984A	2.323A	799.413	89.771%	1194	29.8	38.02°C	0.991
	12.078V	4.956V	3.306V	4.951V	890.506				46.26°C	114.94V
90%	67.700A	8.582A	8.471A	2.427A	899.547	88.947%	1316	32.8	39.21°C	0.992
	12.069V	4.952V	3.305V	4.945V	1011.328				48.41°C	114.91V
100%	75.453A	9.095A	8.99A	3.043A	999.572	87.981%	1583	37.6	39.75°C	0.993
	12.059V	4.948V	3.303V	4.929V	1136.127				49.81°C	114.88V
110%	83.157A	10.115A	10.086A	3.046A	1100.181	86.844%	1952	42.9	40.64°C	0.994
	12.048V	4.943V	3.301V	4.925V	1266.864				51.49°C	114.86V
CL1	0.115A	18.126A	18.019A	0A	151.299	82.862%	1091	26.8	36.75°C	0.976
	12.142V	4.982V	3.308V	5.007V	182.59				42.28°C	115.11V
CL2	0.115A	20.023A	0A	0A	101.395	81.4%	938	22.7	37.11°C	0.966
	12.184V	4.994V	3.312V	5.025V	124.567				43.26°C	115.12V
CL3	0.114A	0A	19.894A	0A	67.384	75.131%	878	20.7	38.25°C	0.947
	12.173V	4.98V	3.317V	5.009V	89.689				45.26°C	115.13V
CL4	82.895A	0A	0A	0A	1000.093	88.832%	1346	33.1	39.51°C	0.993
	12.064V	4.95V	3.31V	4.995V	1125.822				47.48°C	114.89V

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Corsair RM1000e GEN5

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	1.220A	0.502A	0.497A	0.199A	20.002	75.194%	0	<6.0	36.14°C	0.822
	12.174V	4.981V	3.321V	5.021V	26.602				33.03°C	115.16V
40W	2.684A	0.702A	0.696A	0.299A	40	82.129%	0	<6.0	37.49°C	0.907
	12.176V	4.986V	3.321V	5.019V	48.705				34.15°C	115.16V
60W	4.148A	0.903A	0.894A	0.399A	59.998	81.387%	876	20.6	34.55°C	0.947
	12.181V	4.985V	3.32V	5.018V	73.721				38.32°C	115.14V
80W	5.610A	1.104A	1.093A	0.499A	79.952	84.794%	876	20.6	35.05°C	0.948
	12.178V	4.982V	3.32V	5.015V	94.294				39.03°C	115.13V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.13mV	9.61mV	7.83mV	7.04mV	Pass
20% Load	16.51mV	9.97mV	8.29mV	9.89mV	Pass
30% Load	13.65mV	10.84mV	9.67mV	8.97mV	Pass
40% Load	12.72mV	11.45mV	8.90mV	8.51mV	Pass
50% Load	11.59mV	12.43mV	9.42mV	9.02mV	Pass
60% Load	13.74mV	13.40mV	10.64mV	10.20mV	Pass
70% Load	14.91mV	14.68mV	13.05mV	11.78mV	Pass
80% Load	14.71mV	15.09mV	16.79mV	11.83mV	Pass
90% Load	15.58mV	16.16mV	16.84mV	12.64mV	Pass
100% Load	24.57mV	18.40mV	19.00mV	15.63mV	Pass
110% Load	25.73mV	19.87mV	19.77mV	17.11mV	Pass
Crossload1	27.28mV	17.87mV	26.66mV	14.48mV	Pass
Crossload2	13.28mV	13.70mV	11.72mV	9.48mV	Pass
Crossload3	11.95mV	12.38mV	20.26mV	9.28mV	Pass
Crossload4	23.87mV	15.18mV	12.99mV	12.00mV	Pass

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Corsair RM1000e GEN5

230V

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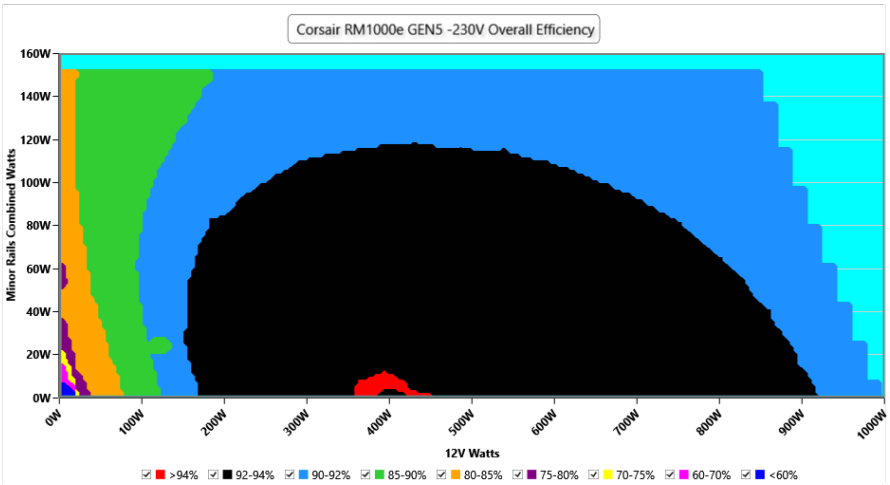
EFFICIENCY GRAPH 230V



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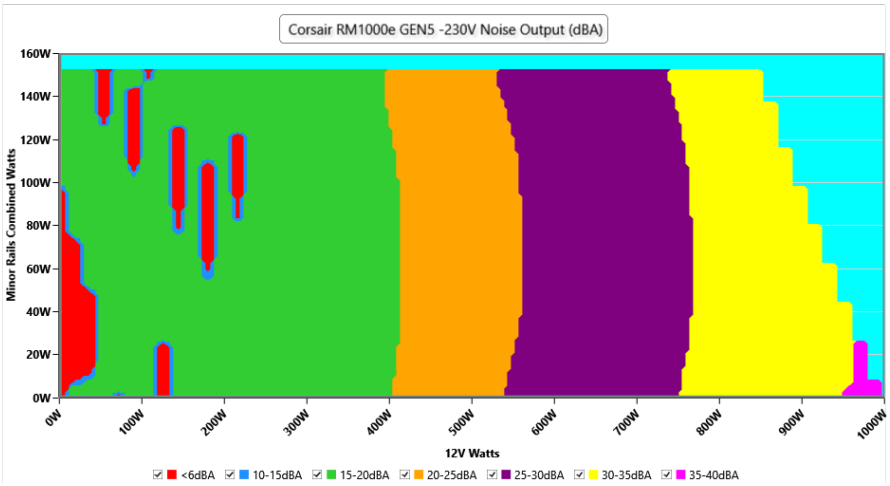
NOISE GRAPH 230V



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VAMPIRE POWER -230V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	230.38 V	230.36 V	227.70 V	230.40 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:	0.093 W	0.068 W	N/A	0.117 W	N/A	N/A
Apparent Power:	40.949 W	40.932 W	N/A	40.968 W	N/A	N/A
Power Factor:	0.003	N/A	N/A	N/A	N/A	N/A

INFO

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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%	6.439A	2.007A	1.989A	0.999A	100.001	87.363%	881	20.8	36.32°C	0.834
	12.176V	4.982V	3.318V	5.005V	114.468				40.53°C	230.38V
20%	13.929A	3.014A	2.986A	1.201A	199.954	92.375%	873	20.5	36.6°C	0.918
	12.137V	4.978V	3.316V	4.996V	216.456				41.13°C	230.37V
30%	21.770A	3.519A	3.485A	1.403A	300.005	93.394%	876	20.6	37.23°C	0.944
	12.125V	4.973V	3.314V	4.989V	321.226				42.09°C	230.36V
40%	29.590A	4.025A	3.985A	1.606A	399.704	93.631%	880	20.8	38.21°C	0.956
	12.115V	4.97V	3.313V	4.981V	426.888				43.22°C	230.35V
50%	37.083A	5.035A	4.984A	1.81A	499.425	93.494%	931	22.5	38.58°C	0.963
	12.106V	4.966V	3.311V	4.973V	534.177				44.06°C	230.34V
60%	44.654A	6.048A	5.984A	2A	599.918	93.18%	1032	25.2	38.71°C	0.968
	12.097V	4.962V	3.309V	4.965V	643.821				44.79°C	230.33V
70%	52.170A	7.06A	6.986A	2.219A	699.721	92.761%	1133	28.0	39.14°C	0.971
	12.088V	4.958V	3.307V	4.957V	754.328				46.18°C	230.32V
80%	59.766A	8.002A	7.987A	2.323A	799.404	92.255%	1215	30.4	39.56°C	0.974
	12.078V	4.955V	3.305V	4.951V	866.509				47.72°C	230.3V
90%	67.707A	8.585A	8.475A	2.427A	899.551	91.725%	1322	32.8	39.7°C	0.977
	12.068V	4.95V	3.304V	4.945V	980.713				49.01°C	230.29V
100%	75.462A	9.098A	8.994A	3.044A	999.607	91.027%	1621	38.6	39.96°C	0.978
	12.058V	4.946V	3.302V	4.929V	1098.136				49.99°C	230.28V
110%	83.167A	10.118A	10.089A	3.047A	1100.22	90.342%	2020	44.2	40.35°C	0.979
	12.047V	4.942V	3.3V	4.924V	1217.838				51.21°C	230.26V
CL1	0.115A	18.126A	18.02A	0A	151.277	83.911%	872	20.4	38.88°C	0.9
	12.133V	4.981V	3.307V	5.007V	180.277				44.39°C	230.34V
CL2	0.114A	20.014A	0A	0A	101.389	81.981%	885	21.0	39.59°C	0.847
	12.181V	4.996V	3.311V	5.025V	123.675				45.63°C	230.35V
CL3	0.114A	0A	19.891A	0A	67.387	75.495%	908	21.8	40.68°C	0.785
	12.177V	4.985V	3.318V	5.009V	89.259				47.92°C	230.36V
CL4	82.903A	0A	0A	0A	1000.027	91.922%	1301	32.6	40.85°C	0.978
	12.062V	4.952V	3.312V	4.994V	1087.91				49.78°C	230.25V

Anex

Corsair RM1000e GEN5

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	1.220A	0.501A	0.497A	0.199A	20	74.772%	0	<6.0	36.27°C	0.427
	12.174V	4.986V	3.319V	5.021V	26.749				33.17°C	230.39V
40W	2.685A	0.702A	0.696A	0.299A	39.998	82.682%	0	<6.0	37.38°C	0.61
	12.175V	4.987V	3.32V	5.019V	48.371				34.06°C	230.38V
60W	4.149A	0.903A	0.895A	0.399A	59.996	81.987%	877	20.6	34.7°C	0.733
	12.178V	4.983V	3.318V	5.018V	73.177				38.24°C	230.38V
80W	5.610A	1.104A	1.094A	0.499A	79.949	85.363%	879	20.7	35.42°C	0.796
	12.179V	4.982V	3.318V	5.016V	93.686				39.23°C	230.37V

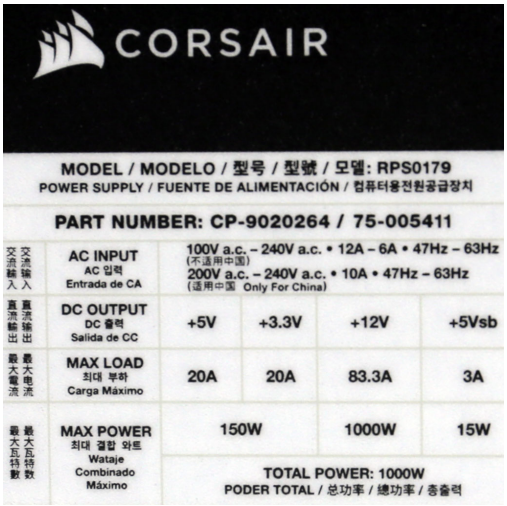
RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.90mV	10.43mV	7.62mV	6.98mV	Pass
20% Load	16.36mV	10.58mV	8.50mV	10.35mV	Pass
30% Load	13.65mV	10.79mV	8.60mV	8.56mV	Pass
40% Load	12.33mV	11.66mV	10.03mV	8.46mV	Pass
50% Load	13.08mV	13.25mV	10.13mV	9.18mV	Pass
60% Load	12.36mV	13.75mV	11.41mV	10.25mV	Pass
70% Load	14.00mV	14.42mV	12.23mV	11.01mV	Pass
80% Load	15.22mV	15.03mV	16.94mV	12.03mV	Pass
90% Load	15.42mV	16.11mV	16.84mV	13.05mV	Pass
100% Load	24.26mV	17.72mV	19.36mV	15.09mV	Pass
110% Load	24.60mV	18.61mV	19.66mV	15.97mV	Pass
Crossload1	26.54mV	17.21mV	24.98mV	14.01mV	Pass
Crossload2	15.22mV	13.55mV	11.87mV	9.79mV	Pass
Crossload3	11.55mV	11.97mV	19.35mV	9.84mV	Pass
Crossload4	23.38mV	14.10mV	11.68mV	11.30mV	Pass

Anex

Corsair RM1000e GEN5

Top side



Power specifications label

CERTIFICATIONS 115V

CYBENETICS PLATINUM

CYBENETICS A–

CERTIFICATIONS 230V

CYBENETICS PLATINUM 230v

CYBENETICS A– 230v

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Lab Director