CORSAIR

Corsair Vengeance 650M

Serial Number

Lab ID 421

Certification ID 25421

Test Result Report ID:

Certificate Issue Date: Jun 28, 2018

115V 230V

Scheme: ETA-EMI PSU

CYBENETICS GOLD

115V 230V

CYBENETICS A+

Scheme: LAMBDA PSU

Aristeidis Bitziopoulos, Certification Body General Manager

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	Corsair
Model	Vengeance 650M
OEM/ODM	HEC
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	47-63

Rated Power (W)	650
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Semi Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Rifle Bearing Fan (NR120L)
Semi-Passive Operation	✓
Cybenetics Testing Information	
Lab ID	421
Date of receipt	Jun 16, 2018
Testing Date	Jun 26, 2018
Report Issued Date	Jun 28, 2018
DUT Notes	CP-9020175
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 (630mm)	1	1	18-22AWG	Yes
4+4 pin EPS12V (660mm)	1	1	18-22AWG	Yes
6+2 pin PCIe (660mm+100mm)	1	2	18AWG	Yes
Modular Cables				
4+4 pin EPS12V (650mm)	1	1	18AWG	No
6+2 pin PCIe (650mm+100mm)	1	2	16-18AWG	No
SATA (470mm+120mm+120mm)	1	3	18AWG	No

SATA (540mm+120mm)	1	2	18AWG	No
4 pin Molex (450mm+100mm+100mm+100mm)	2	8	18AWG	No
FDD Adapter (+105mm)	1	1	20AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	16AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	20	54	3	0.3
	Watts	100		648	15	3.6
Total Max. Power (W)		650				

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	✓

Performance Summary 115V

Accredited	
Average Efficiency (>1450 load combinations)	87.973%
Average Noise Output (>1450 Load Combinations)	17.78dBA
Average PF (>1450 Load Combinations)	0.984
Efficiency With 10W (≤500W) or 2% (>500W) Load	61.084%
Standby Power Consumption	0.0504W
Non-Accredited	
12V Ripple (Full Load)	19.14mV
5V Ripple (Full Load)	17.55mV
3.3V Ripple (Full Load)	29.87mV
5VSB Ripple (Full Load)	29.73mV

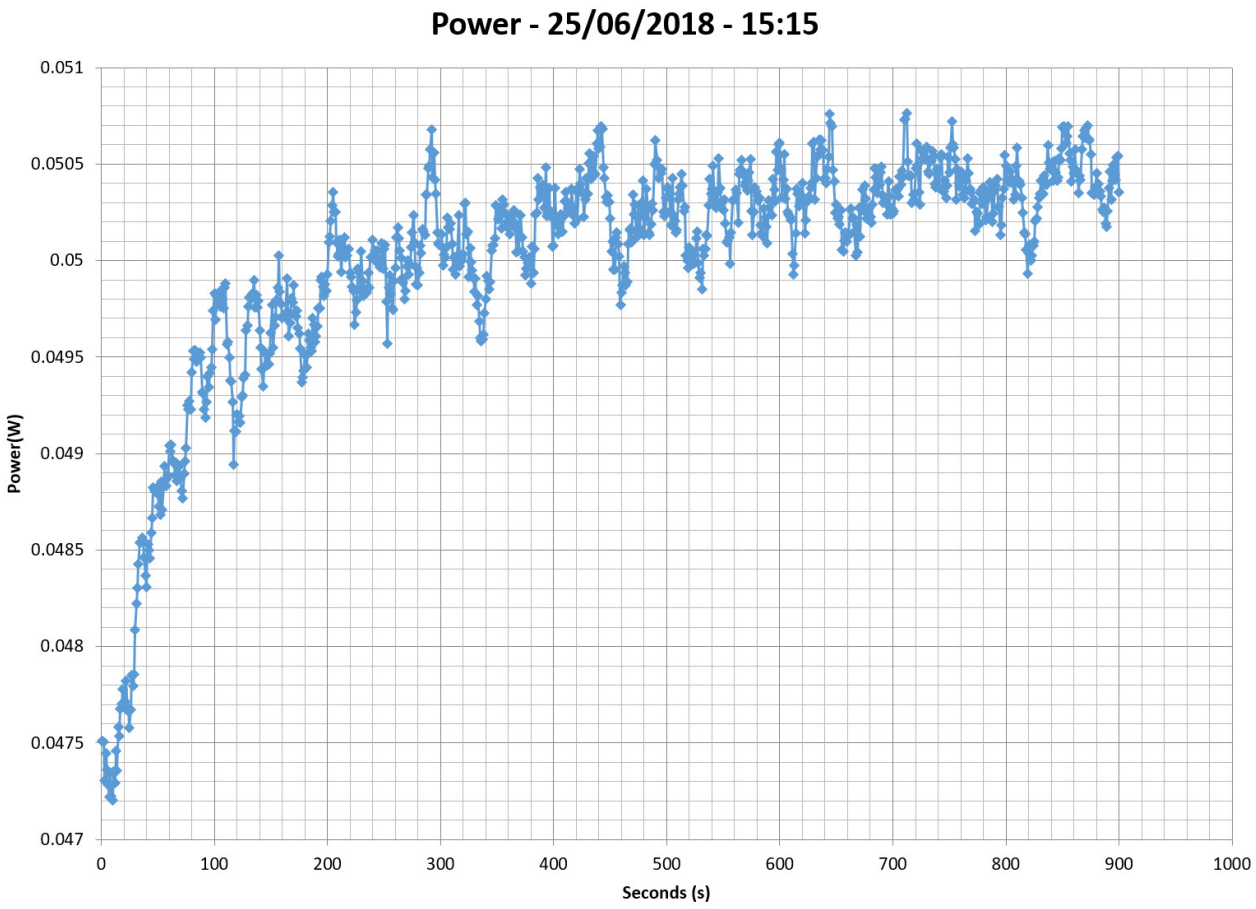
12V Load Regulation	0.81%
5V Load Regulation	1.20%
3.3V Load Regulation	0.87%
5VSB Load Regulation	1.81%
Inrush Current	30.287A

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	16.7
AC Loss to PWR_OK Hold Up Time (ms)	12.0
PWR_OK Inactive to DC Loss Delay (ms)	4.7

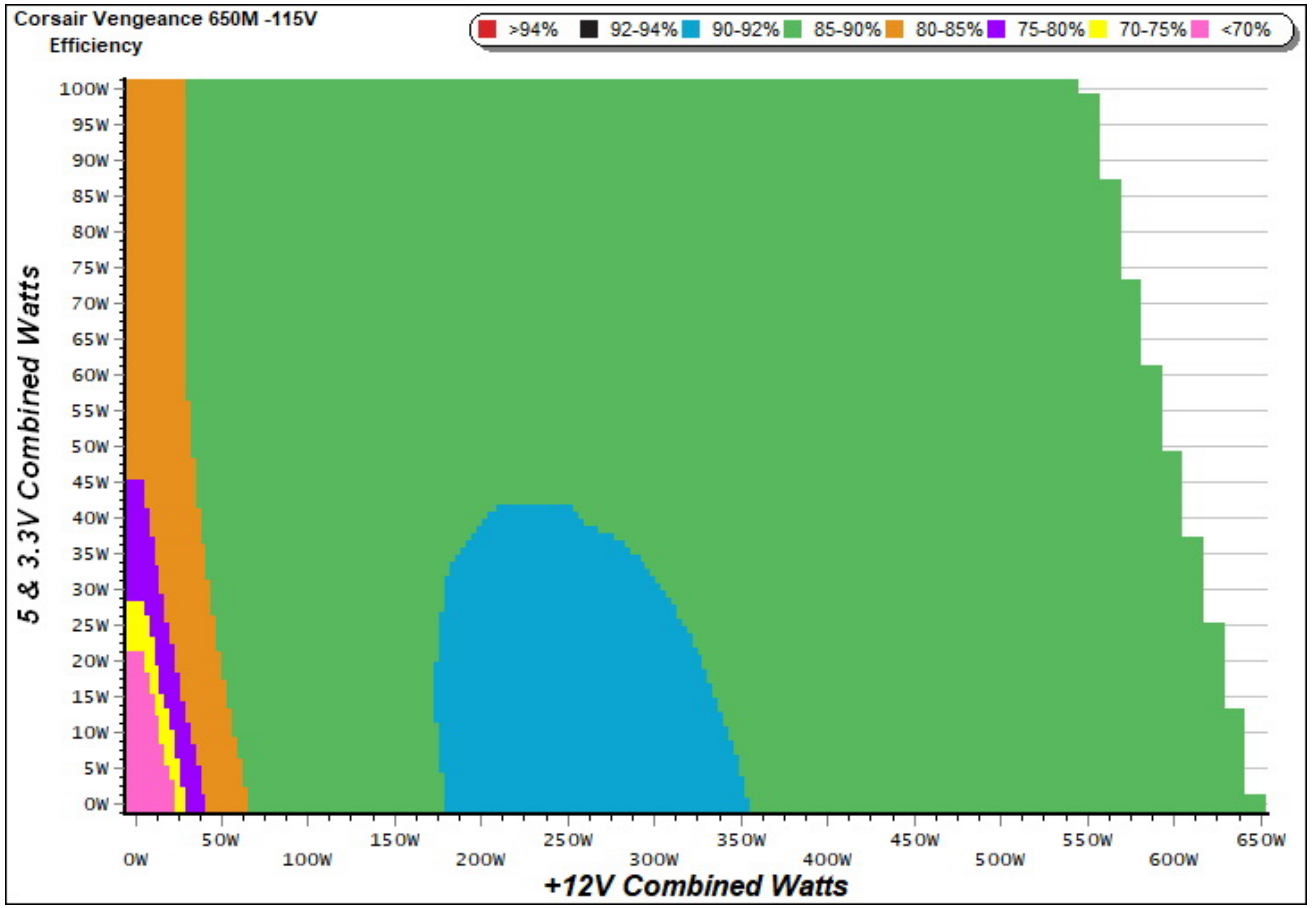
Vampire Power

Graphs 115V



Efficiency Graph

115V

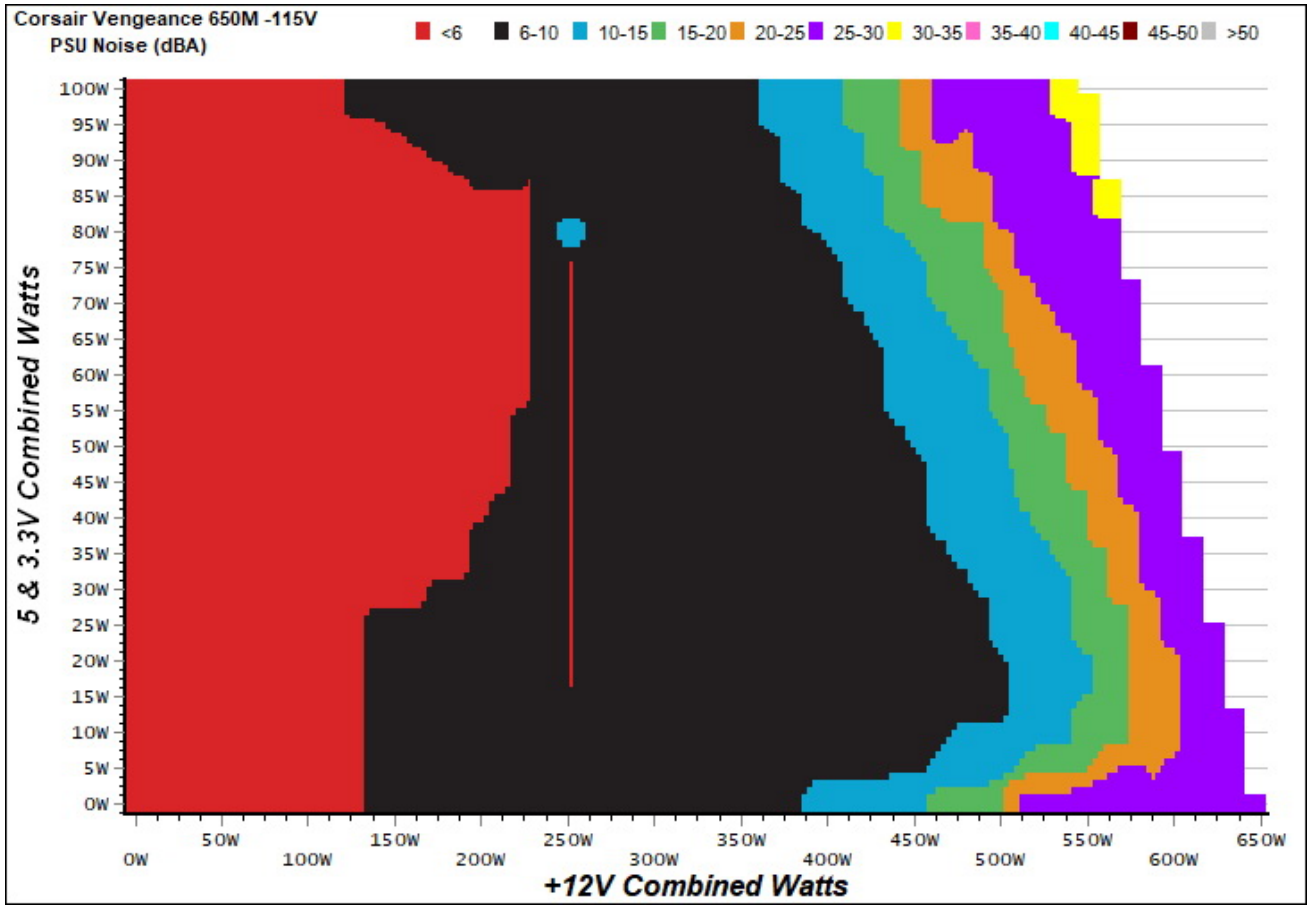


INFO

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

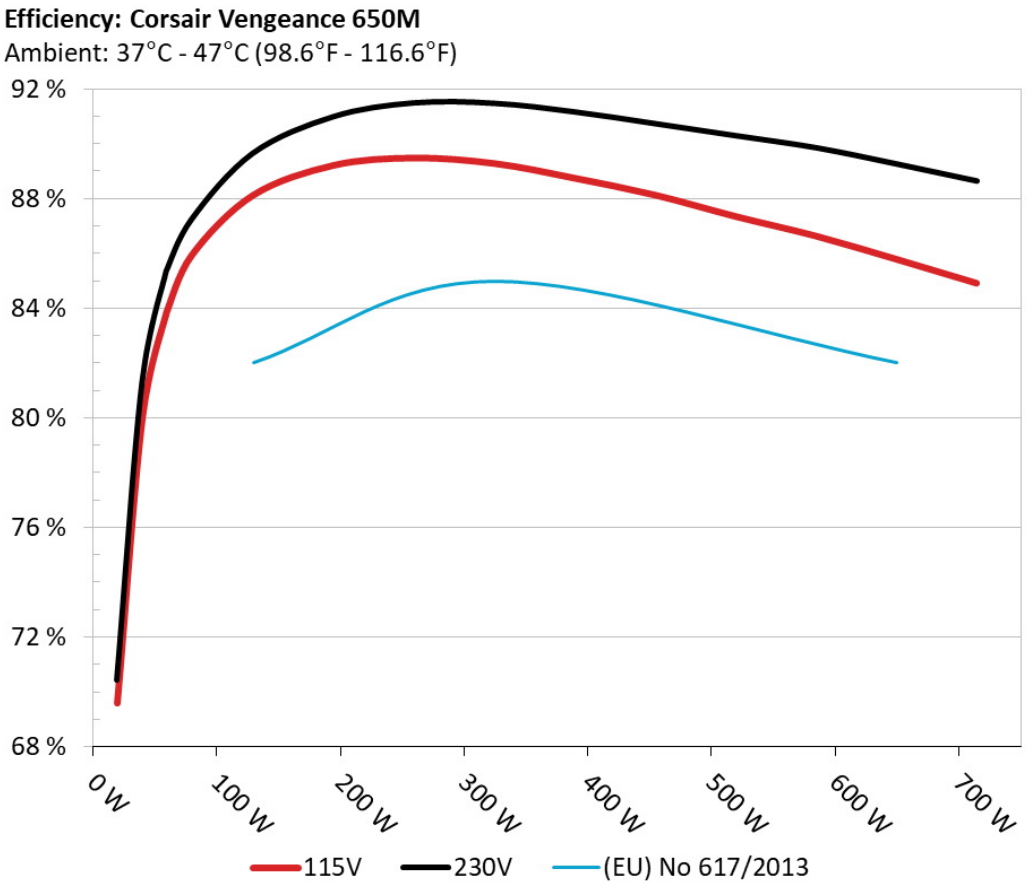


INFO

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.

Indicative Performance

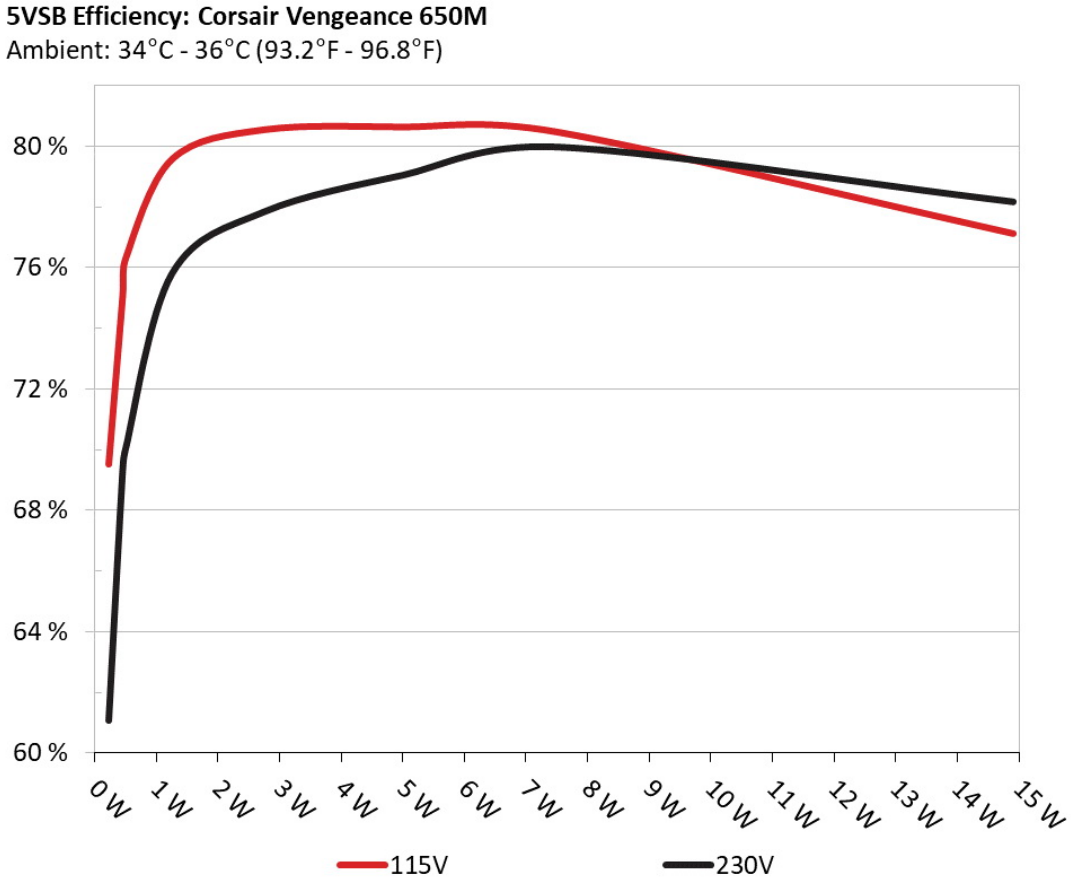
Efficiency under high ambient temperature



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	0.226	69.538%	0.040
	5.029V	0.325		115.10V

2	0.090A	0.452	75.083%	0.072
	5.028V	0.602		115.10V
3	0.550A	2.761	80.566%	0.289
	5.019V	3.427		115.10V
4	1.000A	5.011	80.653%	0.375
	5.010V	6.213		115.11V
5	1.500A	7.501	80.491%	0.421
	5.000V	9.319		115.10V
6	3.000A	14.912	77.140%	0.483
	4.970V	19.331		115.09V

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
1	3.549A	2.004A	1.980A	0.999A	64.767	83.853%	0	<6.0	45.23°C	0.971
	12.166V	4.988V	3.329V	5.008V	77.239				39.22°C	115.11V
2	8.094A	3.011A	2.974A	1.200A	129.287	88.113%	0	<6.0	46.23°C	0.976
	12.156V	4.983V	3.326V	5.001V	146.728				39.44°C	115.10V
3	13.041A	3.517A	3.457A	1.402A	194.397	89.204%	436	7.6	40.71°C	0.978
	12.146V	4.978V	3.324V	4.994V	217.923				48.05°C	115.10V
4	17.997A	4.024A	3.972A	1.605A	259.613	89.474%	436	7.6	40.82°C	0.983
	12.136V	4.972V	3.321V	4.986V	290.155				49.23°C	115.10V
5	22.633A	5.036A	4.970A	1.808A	324.922	89.269%	436	7.6	41.60°C	0.987
	12.125V	4.965V	3.318V	4.979V	363.980				50.89°C	115.10V
6	27.211A	6.050A	5.973A	2.012A	389.439	88.738%	608	8.9	42.64°C	0.989
	12.114V	4.959V	3.315V	4.971V	438.863				52.36°C	115.10V
7	31.863A	7.070A	6.975A	2.217A	454.752	88.119%	1006	19.8	43.38°C	0.990
	12.103V	4.952V	3.312V	4.963V	516.065				53.54°C	115.11V
8	36.523A	8.092A	7.980A	2.422A	520.077	87.338%	1431	31.4	44.12°C	0.991
	12.093V	4.944V	3.308V	4.955V	595.473				54.70°C	115.16V

9	41.585A	8.608A	8.471A	2.424A	584.978	86.624%	1785	37.1	45.08°C	0.992
	12.083V	4.937V	3.306V	4.952V	675.304				56.26°C	115.10V
10	46.398A	9.127A	8.994A	3.039A	649.821	85.780%	1790	37.2	46.71°C	0.993
	12.072V	4.931V	3.302V	4.936V	757.546				58.45°C	115.10V
11	51.815A	9.136A	8.997A	3.041A	714.646	84.910%	1790	37.2	47.15°C	0.993
	12.061V	4.927V	3.300V	4.933V	841.654				59.71°C	115.09V
CL1	0.138A	12.000A	11.998A	0.000A	101.114	82.959%	435	7.6	43.96°C	0.984
	12.152V	4.970V	3.317V	5.015V	121.884				54.14°C	115.10V
CL2	54.005A	1.002A	0.998A	1.000A	665.364	86.336%	1793	37.2	46.76°C	0.993
	12.075V	4.951V	3.314V	4.986V	770.670				58.54°C	115.09V

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])	PF/AC Volts
1	1.187A	0.501A	0.477A	0.199A	19.540	69.602%	0	<6.0	0.869
	12.173V	4.994V	3.332V	5.027V	28.074				115.13V
2	2.434A	1.002A	0.988A	0.398A	39.914	80.025%	0	<6.0	0.947
	12.171V	4.991V	3.331V	5.022V	49.877				115.13V
3	3.614A	1.504A	1.472A	0.598A	59.379	83.851%	0	<6.0	0.971
	12.168V	4.989V	3.329V	5.017V	70.815				115.11V
4	4.866A	2.007A	1.979A	0.798A	79.790	85.931%	0	<6.0	0.979
	12.165V	4.987V	3.328V	5.012V	92.854				115.11V

The results above are not used in the certification process

Ripple Measurements 115V

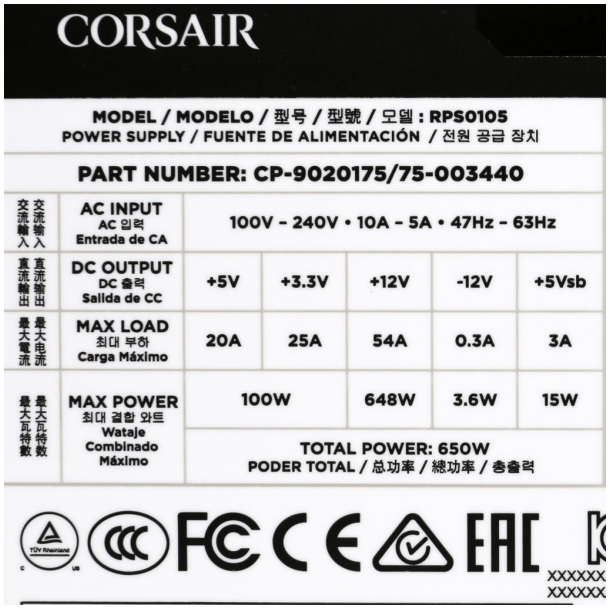
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	16.1 mV	12.5 mV	22.6 mV	6.5 mV	Pass
20% Load	8.7 mV	15.2 mV	21.4 mV	8.3 mV	Pass
30% Load	8.2 mV	19.3 mV	26.5 mV	9.9 mV	Pass
40% Load	11.2 mV	30.1 mV	22.9 mV	12.9 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	11.7 mV	34.5 mV	24.8 mV	17.4 mV	Pass
60% Load	11.6 mV	39.8 mV	26.3 mV	15.5 mV	Pass
70% Load	11.5 mV	17.3 mV	29.0 mV	18.4 mV	Pass
80% Load	13.0 mV	13.9 mV	22.7 mV	20.4 mV	Pass
90% Load	13.9 mV	15.9 mV	23.0 mV	21.3 mV	Pass
100% Load	19.1 mV	17.6 mV	29.9 mV	29.7 mV	Pass
110% Load	25.1 mV	28.3 mV	47.1 mV	43.3 mV	Pass
Crossload 1	12.7 mV	13.7 mV	24.3 mV	9.3 mV	Pass
Crossload 2	20.5 mV	15.5 mV	28.8 mV	21.4 mV	Pass

The results above are not used in the certification process

Corsair Vengeance 650M

Top side



CORSAIR

MODEL / MODELO / 型号 / 型號 / 모델 : RPS0105
POWER SUPPLY / FUENTE DE ALIMENTACIÓN / 전원 공급 장치

PART NUMBER: CP-9020175/75-003440

交流輸入	AC INPUT AC 입력 Entrada de CA	100V - 240V • 10A - 5A • 47Hz - 63Hz				
直流輸出	DC OUTPUT DC 출력 Salida de CC	+5V	+3.3V	+12V	-12V	+5Vsb
最大電流	MAX LOAD 최대 부하 Carga Máximo	20A	25A	54A	0.3A	3A
最大瓦特數	MAX POWER 최대 결합 와트 Wataje Combinado Máximo	100W		648W	3.6W	15W
		TOTAL POWER: 650W PODER TOTAL / 总功率 / 總功率 / 총출력				

XXXXXX
XXXXXX

Power specifications label

All data and graphs included in this test report can be used by any individual on the following conditions:
› It should be mentioned that the test results are provided by Cybenetics
› The link to the original test results document should be provided in any case

Cybenetics runs voluntary certification programs for power supplies - ETA for efficiency, LAMBDA for noise and SAFE for safety and correct operation - and for cooling products, with DELTA for chassis soundproofing and PHI for fan airflow and static pressure. THETA rates cooler performance on AMD AM5 and Intel LGA1851 outside ISO 17065 and accreditation scope

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