Anex

Corsair Vengeance 650M (2018)

Lab ID#: 419
Receipt Date: -
Test Date: -

Report:

Report Date: Jun 26, 2018

DUT INFORMATION

Brand	Corsair
Manufacturer (OEM)	HEC
Series	Vengeance
Model Number	Vengeance 650M (2018)
Serial Number	
DUT Notes	CP-9020175

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	47-63
Rated Power (W)	650
Type	ATX12V
Cooling	120mm Rifle Bearing Fan (NR120L)
Semi-Passive Operation	✓
Cable Design	Semi Modular

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				

CABLES AND CONNECTORS

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
Captive Cables				
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	-

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RESULTS	
Temperature Range (°C /°F)	30-32 / 86-89.6
Average Efficiency	88.215
Efficiency With 10W (≤500W) or 2% (>500W) Load -115V	61.472
Average Efficiency 5VSB	78.816
Standby Power Consumption (W) -115V	0.0546375
Standby Power Consumption (W) -230V	0.1041640
Average PF	0.983
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	17.02
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A+

TEST EQUIPMENT		
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, Chroma 61604	
Power Analyzers	N4L PPA1530, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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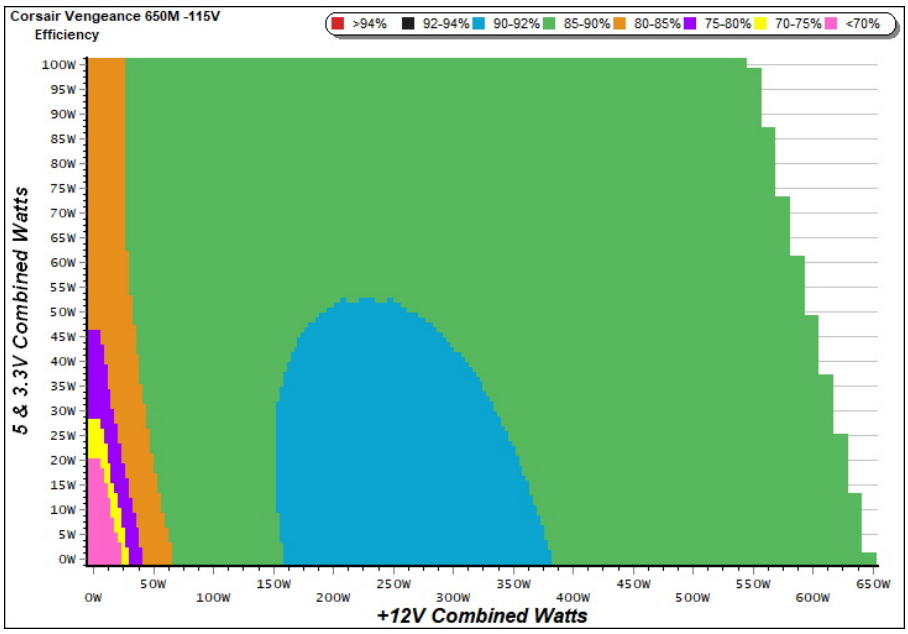
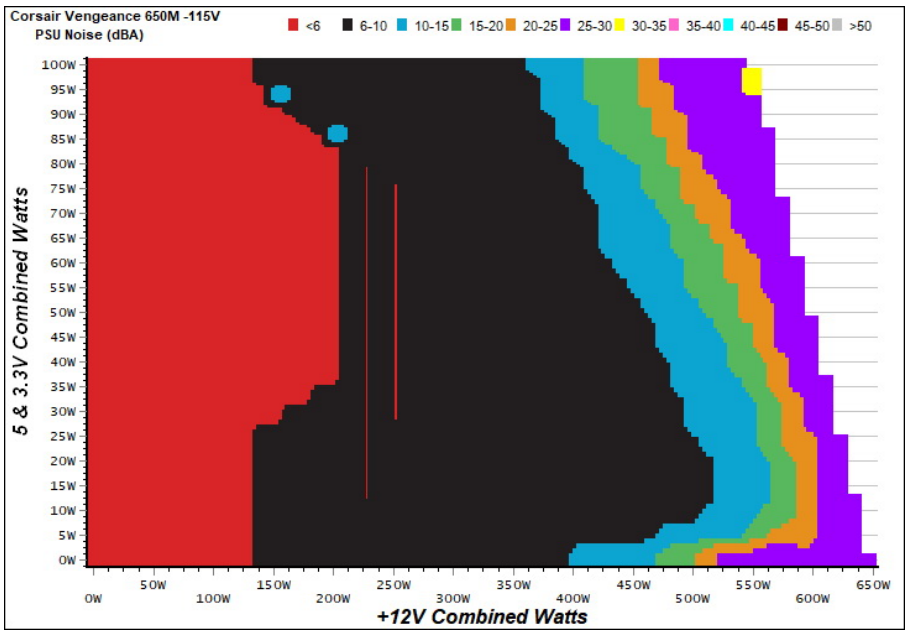
EFFICIENCY GRAPH



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



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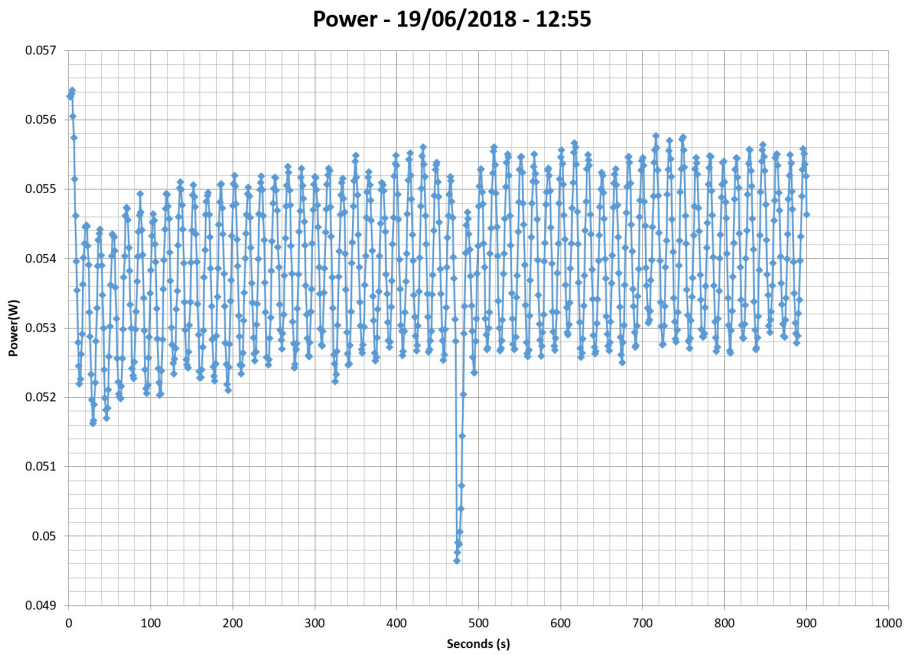
5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.227	68.373%	0.028
	5.030V	0.332		115.39V
2	0.090A	0.453	74.141%	0.051
	5.029V	0.611		115.39V
3	0.550A	2.762	79.551%	0.238
	5.020V	3.472		115.38V
4	1.000A	5.013	79.863%	0.339
	5.011V	6.277		115.37V
5	1.500A	7.505	79.730%	0.400
	5.002V	9.413		115.37V
6	3.001A	14.928	76.849%	0.476
	4.975V	19.425		115.35V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.227	59.424%	0.011
	5.030V	0.382		230.78V
2	0.090A	0.453	67.814%	0.019
	5.029V	0.668		230.95V
3	0.550A	2.762	77.086%	0.100
	5.019V	3.583		230.94V
4	1.000A	5.013	78.414%	0.166
	5.011V	6.393		230.77V
5	1.500A	7.506	79.077%	0.225
	5.003V	9.492		230.95V
6	3.000A	14.929	77.682%	0.335
	4.976V	19.218		230.93V

VAMPIRE POWER -115V



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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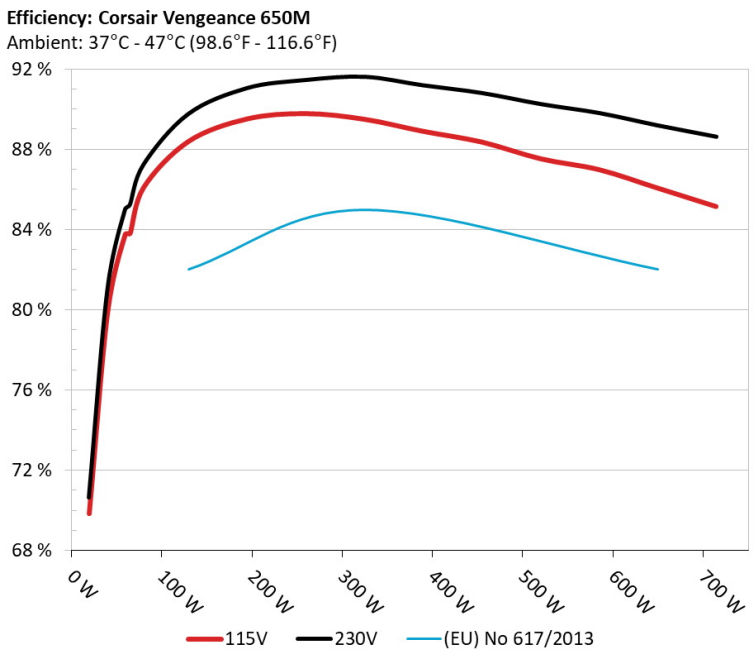
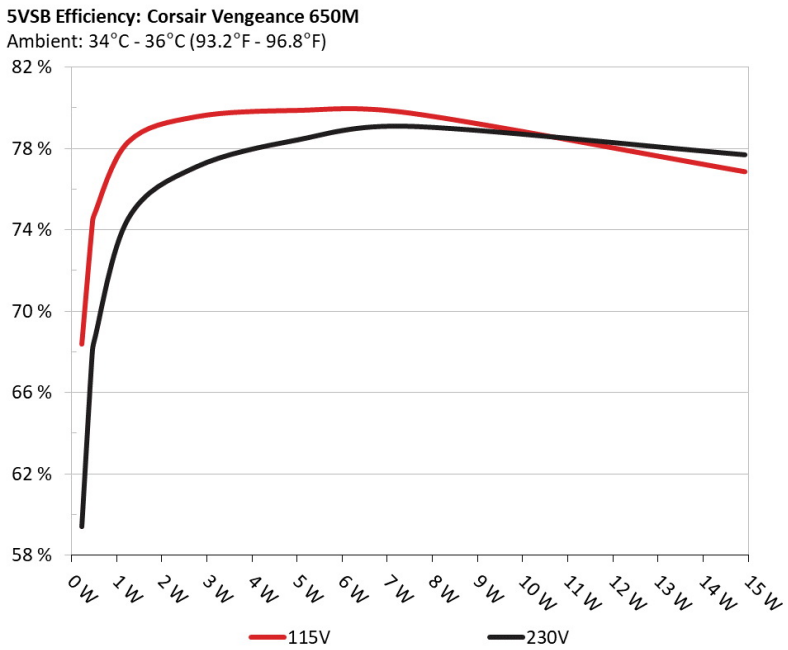
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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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10-110% LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	3.571A	2.006A	1.979A	0.997A	64.836	83.790%	0	<6.0	46.68°C	0.966
	12.109V	4.985V	3.333V	5.014V	77.379				40.30°C	115.28V
2	8.137A	3.011A	2.971A	1.198A	129.347	88.365%	0	<6.0	47.73°C	0.974
	12.098V	4.984V	3.332V	5.008V	146.378				40.79°C	115.21V
3	13.107A	3.513A	3.451A	1.399A	194.421	89.493%	423	7.4	41.18°C	0.976
	12.087V	4.983V	3.330V	5.003V	217.246				48.70°C	115.13V
4	18.090A	4.017A	3.967A	1.601A	259.655	89.759%	423	7.4	41.99°C	0.982
	12.076V	4.980V	3.326V	4.998V	289.279				49.88°C	115.13V
5	22.747A	5.023A	4.961A	1.803A	324.920	89.474%	423	7.4	42.39°C	0.986
	12.064V	4.978V	3.325V	4.992V	363.144				50.68°C	115.04V
6	27.355A	6.029A	5.957A	2.006A	389.457	88.879%	490	8.3	42.86°C	0.989
	12.051V	4.977V	3.323V	4.986V	438.187				51.98°C	114.95V
7	32.035A	7.036A	6.956A	2.209A	454.771	88.342%	819	12.6	43.00°C	0.990
	12.039V	4.975V	3.320V	4.981V	514.785				52.97°C	114.85V
8	36.720A	8.046A	7.958A	2.412A	520.076	87.508%	1196	26.4	43.85°C	0.991
	12.028V	4.973V	3.317V	4.975V	594.316				54.32°C	114.86V
9	41.817A	8.555A	8.444A	2.413A	584.994	86.965%	1577	35.2	44.20°C	0.990
	12.016V	4.970V	3.316V	4.974V	672.674				55.32°C	114.77V
10	46.856A	9.060A	8.965A	2.515A	649.717	86.049%	1775	37.0	45.40°C	0.991
	12.005V	4.968V	3.313V	4.970V	755.054				56.79°C	114.65V
11	52.312A	9.064A	8.968A	2.516A	714.541	85.132%	1765	36.9	46.52°C	0.993
	11.992V	4.966V	3.312V	4.969V	839.332				58.33°C	114.65V
CL1	0.143A	12.001A	12.001A	0.000A	101.482	83.465%	420	7.4	43.36°C	0.980
	12.094V	4.981V	3.331V	5.029V	121.587				53.08°C	115.22V
CL2	54.001A	1.003A	0.996A	1.000A	661.733	86.713%	1775	37.0	45.47°C	0.992
	12.008V	4.971V	3.314V	5.002V	763.127				56.60°C	114.65V

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20-80W LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.194A	0.501A	0.479A	0.199A	19.562	69.834%	0	<6.0	0.840
	12.116V	4.986V	3.333V	5.030V	28.012				115.34V
2	2.448A	1.004A	0.989A	0.398A	39.959	79.878%	0	<6.0	0.935
	12.114V	4.986V	3.333V	5.026V	50.025				115.33V
3	3.636A	1.503A	1.470A	0.598A	59.431	83.735%	0	<6.0	0.964
	12.111V	4.985V	3.333V	5.022V	70.975				115.29V
4	4.894A	2.008A	1.979A	0.797A	79.854	86.078%	0	<6.0	0.976
	12.107V	4.985V	3.332V	5.017V	92.769				115.27V

RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.0 mV	10.0 mV	8.7 mV	7.3 mV	Pass
20% Load	11.6 mV	11.6 mV	8.8 mV	11.8 mV	Pass
30% Load	12.7 mV	11.2 mV	11.2 mV	10.5 mV	Pass
40% Load	15.0 mV	14.1 mV	10.3 mV	13.5 mV	Pass
50% Load	16.9 mV	15.6 mV	11.8 mV	21.6 mV	Pass
60% Load	18.2 mV	16.4 mV	13.1 mV	16.0 mV	Pass
70% Load	20.5 mV	14.5 mV	15.9 mV	18.6 mV	Pass
80% Load	21.7 mV	15.9 mV	15.9 mV	21.0 mV	Pass
90% Load	24.1 mV	21.9 mV	27.0 mV	25.9 mV	Pass
100% Load	27.0 mV	24.1 mV	24.4 mV	25.5 mV	Pass
110% Load	29.4 mV	24.4 mV	26.8 mV	27.4 mV	Pass
Crossload 1	12.9 mV	18.3 mV	22.0 mV	12.0 mV	Pass
Crossload 2	25.9 mV	12.7 mV	13.6 mV	18.5 mV	Pass

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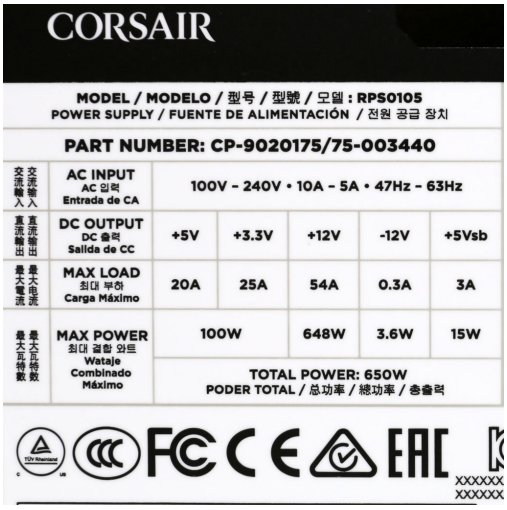
HOLD-UP TIME & POWER OK SIGNAL (230V)	
Hold-Up Time (ms)	18.5
AC Loss to PWR_OK Hold Up Time (ms)	12.5
PWR_OK Inactive to DC Loss Delay (ms)	6.0

Top side



Power specifications label

CERTIFICATIONS

CYBENETICS PLATINUM

CYBENETICS A+

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