

#### Corsair RM650 (2019) (Sample #2)

Anex

Lab ID#: CR19650015 Receipt Date: Mar 21, 2019 Test Date: May 4, 2019

Report:

Report Date: Aug 4, 2019

DUT INFORMATION					
Brand	Corsair				
Manufacturer (OEM)	Channel Well Technology				
Series	RM				
Model Number					
Serial Number	19027120000038920016				
DUT Notes	CP-9020194				

DUT SPECIFICATIONS							
Rated Voltage (Vrms)	100-240						
Rated Current (Arms)	10-5						
Rated Frequency (Hz)	47-63						
Rated Power (W)	650						
Туре	ATX12V						
Cooling	140mm Rifle Bearing Fan (HA1425M12F-Z)						
Semi-Passive Operation	✓						
Cable Design	Fully Modular						

POWER SPECIFICATIONS								
Rail	3.3V	5V	12V	5VSB	-12V			
May Dawar	Amps	20	20	54	3	0.3		
Max. Power	Watts	130		648	15	3.6		
Total Max. Power (W)		650						

## CABLES AND CONNECTORS

Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (610mm)	1	1	18-20AWG	No
4+4 pin EPS12V (650mm)	2	2	18AWG	No
6+2 pin PCIe (600mm+150mm)	2	4	16-18AWG	No
SATA (500mm+100mm+100mm)	2	6	18AWG	No
4 pin Molex (450mm+100mm+100mm+100mm)	1	4	18AWG	No
AC Power Cord (1420mm) - C13 coupler	1	1	16AWG	-

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# **EFFICIENCY AND NOISE LEVEL CERTIFICATIONS**

#### Corsair RM650 (2019) (Sample #2)

RESULTS	
Temperature Range (°C /°F)	30-32 / 86-89.6
ErP Lot 3/6 Ready	1
(EU) No 617/2013 Compliance	1

115V		230V	
Average Efficiency	88.782%	Average Efficiency	90.816%
Efficiency With 10W ( $\leq$ 500W) or 2% (>500W)	75.342	Average Efficiency 5VSB	77.116%
Average Efficiency 5VSB	77.636%	Standby Power Consumption (W)	0.0636784
Standby Power Consumption (W)	0.0371971	Average PF	0.961
Average PF	0.991	Avg Noise Output	19.50 dB(A)
Avg Noise Output	19.31 dB(A)	Efficiency Rating (ETA)	GOLD
Efficiency Rating (ETA)	GOLD	Noise Rating (LAMBDA)	A+
Noise Rating (LAMBDA)	A+		

#### **TEST EQUIPMENT**

	Chroma 6314A x2         Chroma 63601-5 x4           63123A x6         Chroma 63600-2 x2				
Electronic Loads	63102A	63640-80-80 x20			
	63101A	63610-80-20 x2			
AC Sources	Chroma 6530, Chroma 61604, Keysight AC6804B				
Power Analyzers	N4L PPA1530 x2, 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				

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

Hold-Up Time (ms)	20.90
AC Loss to PWR_OK Hold Up Time (ms)	18.60
PWR_OK Inactive to DC Loss Delay (ms)	2.30

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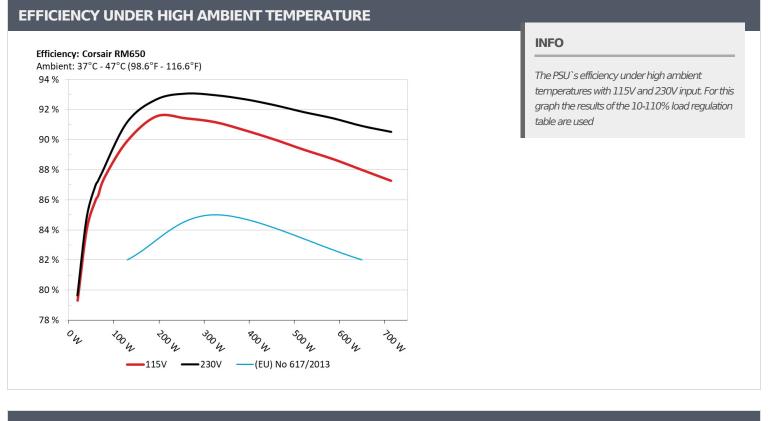
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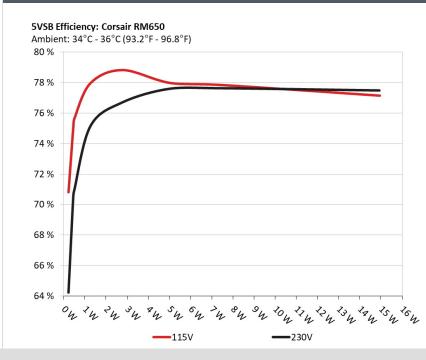


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#### **5VSB EFFICIENCY**



INFO

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input

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#### Corsair RM650 (2019) (Sample #2)

5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)							
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts			
1	0.045A	0.228	- 70 0070/	0.032			
1	5.055V	0.322	70.807%	115.13V			
2	0.090A	0.455	75.0000/	0.058			
2	5.054V	0.606	75.083%	115.13V			
2	0.550A	2.774	70.0000/	0.254			
3	5.043V	3.519	78.829%	115.11V			
4	1.000A	5.032		0.343			
4	5.031V	6.453	77.979%	115.11V			
-	1.500A	7.528	77.0410/	0.393			
5	5.018V	9.671	77.841%	115.12V			
C	3.000A	14.939	77 1 400/	0.457			
6	4.980V	19.364	77.148%	115.12V			

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228	64 2250/	0.010
1	5.054V	0.355	64.225%	230.27V
2	0.090A	0.455	70.543%	0.019
2	5.053V	0.645	70.543%	230.26V
2	0.550A	2.774	76 (00)	0.099
3	5.042V	3.617	76.693%	230.29V
4	1.000A	5.031	77 5010/	0.163
4	5.030V	6.484	77.591%	230.29V
F	1.500A	7.526	77 (200/	0.218
5	5.017V	9.696	77.620%	230.28V
	3.000A	14.932		0.315
6	4.978V	19.273	77.476%	230.27V

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Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



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**EFFICIENCY AND NOISE LEVEL CERTIFICATIONS** 

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# **115V**

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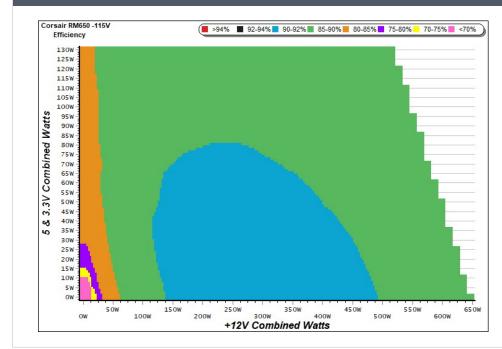
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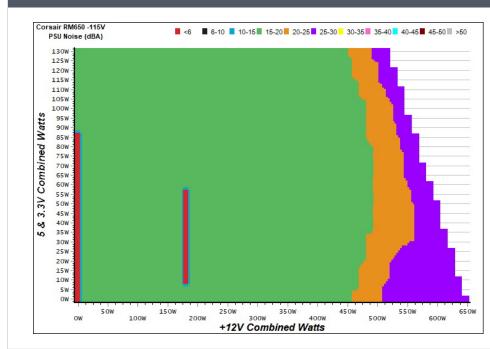
#### **EFFICIENCY GRAPH 115V**



#### 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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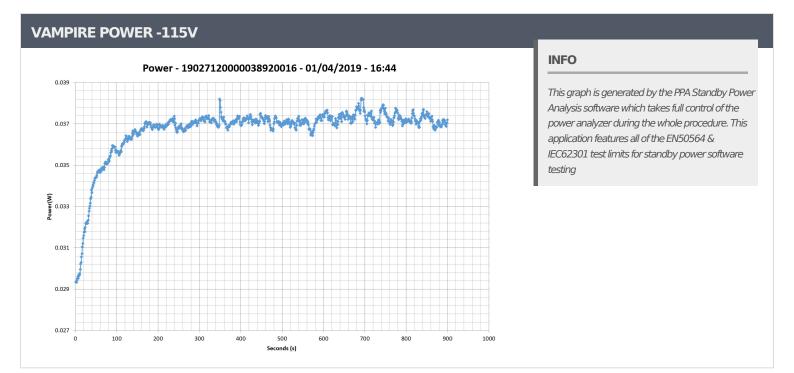
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11 12.0627/5.0387/3.037/5.0167/75.15386.265%//0<6.01	Test #	12V	5V	3.3V	5VSB		Efficiency	-		-	-
12.08275.03873.30275.016775.15339.88°C11.5117281.03A2.978A3.000A1.198A129.36539.902%0-6.048.48°C0.98812.15775.03673.29975.0117143.8969.902%0-6.045.80°C0.992313.051A3.478A3.488A1.399A19.44629.1546%0-6.045.80°C0.99212.13775.03473.29675.055711.2412-1.61A259.712-1.64%7.84-4.93°C0.99512.11975.03273.29674.993728.124-1.64%7.84-1.61A2.0967-1.511726.69A4.975A5.01A1.803A324.996-1.64%7.84-4.93°C0.99512.10875.02973.29374.9937356.537-1.64%-1.62-4.25°C0.99512.10875.02673.29174.9937429.866-1.64%-1.61%-4.25°C0.99512.10275.02673.29174.9937429.866-1.64%-1.61%-4.27°C0.99412.10285.02673.29174.9877429.866-1.64%-1.61%-4.27°C0.99412.10295.02673.29174.9877429.866-1.61%-4.27°C0.99412.10295.02673.29174.9877429.866-1.61%-4.27°C0.99412.10295.02743.29174.987750.16%-3.61%-3.61%-3.	1	3.578A	1.985A	1.999A	0.997A	64.831		0		43.82°C	0.966
2     12152V     5036V     3299V     5011V     143896     89902%     0     -6.0     4052°C     115.11V       3     13061A     3478A     3488A     1399A     194462     91.546%     0     -6.0     4052°C     0.992       4     12132V     5.034V     3296V     5005V     212421     91.66%     0     -6.0     40.9°C     0.992       4     12119V     5.032V     3296V     4999V     284.124     91.40%     784     16.1     46.95°C     115.11V       5     22669A     4.975A     5.010A     1803A     324.996     91.154%     786     16.2     49.93°C     0.995       12.108V     5.029V     3293V     4.993V     356.537     91.154%     786     16.2     42.9°C     0.994       6     12.108V     5.028V     3.291V     4.987V     42.9836     90.625%     91.8     2.1     42.9°C     15.11V       7     31.903A     6.969A     7.019A     2.209A     45.850     90.018%     1049     2.1     48.9°C     15.12V       8     36.562A     7.968A     8.025A     2.412A     50.16W     39.40%     51.1V     50.43%     50.41%     50.41%     50.41%     50.41%	1	12.082V	5.038V	3.302V	5.016V	75.153	86.265%	0	<6.0	39.88°C	115.11V
12.152V5036V3.299V5011V143.8964052°C115.11V313061A3.478A3.488A1.399A194.462 $$	2	8.103A	2.978A	3.000A	1.198A	129.365		0	-6.0	44.84°C	0.988
3     12.132V     5.034V     3.296V     5.005V     212.421     91.546%     0     <6.0	2	12.152V	5.036V	3.299V	5.011V	143.896	89.902%	0	<0.0	40.52°C	115.11V
12132V5034V3296V5005V2124214109°C1512V18030A3975A4005A1601A259.712 $P1408\%$ $P34$ $P34$ $P1408\%$ $P1116\%$	2	13.061A	3.478A	3.488A	1.399A	194.462	01 5 460/	0	-6.0	45.80°C	0.992
412.119V5.032V3.296V4.999V284.12491.408%78416.146.95°C115.11V522.669A4.975A5010A1.803A324.96991.154%78616.242.52°C0.99512.108V5029V3.293V4.993V356.53791.154%78616.248.24°C115.11V612.108V5029V3.293V4.993V356.53790.625%91.816.242.72°C0.99412.102V5026V3.291V4.987V42.983690.625%91.0492.0448.90°C115.12V731.903A6.969A7.019A2.209A454.85090.18%10.492.5743.0°C0.99412.091V50.24V3.290V4.982V505.28990.18%10.492.6750.3°C115.12V836562A7.968A8.025A2.412A520.16689.340%12.1051.98°C115.12V941608A8.469A8.517A2.413A582.05088.717%14.1336.0615.12V941608A8.69A8.517A2.413A582.05688.717%14.1332.0°C15.11V1050.19V3.287V4.957V659.4618.717%15.88°C0.99653.3°C15.11V1112.073V50.17V3.287V4.957V73.85548.717%15.88°C15.517C15.511V1112.073V50.16V3.287V4.955V81.9007766%1	3	12.132V	5.034V	3.296V	5.005V	212.421	91.546%	0	<0.0	41.09°C	115.12V
12.119V5.032V3.296V4.999V284.1244695°C115.11V52.669A4.975A5.010A1.803A324.996 $\mathcal{H}_154\%$ $\mathcal{H}_82$ $\mathcal{H}_82$ 0.99512.108V5.029V3.293V4.993V356.537 $\mathcal{H}_82$ $\mathcal{H}_82$ 4.82°C0.994617.108V5.026V3.291V4.987V429.836 $\mathcal{H}_82$ $\mathcal{H}_82$ 0.9448.90°C115.11V711.03V5.026V3.291V4.987V429.836 $\mathcal{H}_82$ $\mathcal{H}_82$ 0.9448.90°C115.12V711.03V5.026V3.291V4.987V429.836 $\mathcal{H}_82$ $\mathcal{H}_82$ 0.9445.97C0.994711.03V5.026V3.291V4.987V5.52.89 $\mathcal{H}_91$ $\mathcal{H}_92$ 4.31°C0.994711.08V5.024V3.290V4.962V5.02.19 $\mathcal{H}_91$ 4.97CV5.95.289 $\mathcal{H}_91$ $\mathcal{H}_92$ 4.97CV0.99585.65.658.917M5.62.09 $\mathcal{H}_91$ $\mathcal{H}_91$ 4.37°C0.99515.12V911.08V5.01V3.28V4.97V5.82.09 $\mathcal{H}_91$ $\mathcal{H}_91$ 4.97°C1.951V1011.02V5.01V3.28V4.97V5.85.05 $\mathcal{H}_91$ $\mathcal{H}_91$ $\mathcal{H}_92$ 5.32.0°C1.15.11V1112.073V5.01V3.28V4.97V7.85.54 $\mathcal{H}_92$ $\mathcal{H}_92$ 5.53.0°C1.51.1V1112.073V5.01V3.28V <t< td=""><td>4</td><td>18.030A</td><td>3.975A</td><td>4.005A</td><td>1.601A</td><td>259.712</td><td>01 4000/</td><td>704</td><td>16.1</td><td>41.93°C</td><td>0.995</td></t<>	4	18.030A	3.975A	4.005A	1.601A	259.712	01 4000/	704	16.1	41.93°C	0.995
5         12.108V         5.029V         3.293V         4.993V         356.537         91.154%         766         16.2         48.24°C         115.11V           6         27.246A         5.971A         6.015A         2.006A         389.540 $_{0.625\%}$ $_{918}$ $_{12.0}$ 48.90°C         191.151V           6         12.102V         5.026V         3.291V         4.987V         429.836 $_{0.625\%}$ $_{18}$ $_{12.0}$ 48.90°C         115.12V           7         31.903A         6.969A         7.019A         2.209A         454.850 $_{90.18\%}$ $_{0.49}$ $_{25.7}$ 43.10°C         0.994           12.091V         5.024V         3.290V         4.982V         505.289 $_{0018\%}$ $_{049}$ $_{31.0°C}$ 0.995           8         36.562A         7.968A         8.025A         2.412A         520.146 $_{89.17\%}$ $_{1210}$ $_{30.4}$ 51.97C         155.12V           1         2.068Z         5.017V         3.289V         4.975V         559.461 $_{1210}$ $_{320°C}$ 115.11V           1         2.073V         5.017V         3.287V	4	12.119V	5.032V	3.296V	4.999V	284.124	91.408%	91.406% 764	16.1	46.95°C	115.11V
12.108V5.029V3.293V4.993V356.53748.24°C115.11V67.1246A5.971A6.015A2.006A389.540 $_{90.625\%}$ $_{918}$ $_{21.2}$ 49.0°C115.12V712.102V5.026V3.291V4.987V429.836 $_{90.625\%}$ $_{918}$ $_{21.2}$ 48.0°C115.12V712.01V5.026V3.291V4.987V429.836 $_{90.18\%}$ $_{1049}$ $_{25.7}$ 43.0°C0.994712.01V5.024V3.290V4.982V505.289 $_{90.18\%}$ $_{1049}$ $_{25.7}$ 43.0°C0.994836.562A7.968A8.025A2.412A520.146 $_{99.40\%}$ $_{12.102}$ $_{30.4\%}$ 6.937C0.995941.608A8.469A8.517A2.413A580.56 $_{89.340\%}$ $_{12.102}$ $_{30.8\%}$ 6.996115.12V941.608A8.469A8.517A2.413A585.056 $_{87.17\%}$ $_{14.31}$ $_{50.6\%}$ 115.12V1012.078V5.019V3.288V4.975V659.461 $_{14.13}$ $_{50.6\%}$ 115.11V1112.073V5.017V3.287V4.957V738.554 $_{79.92\%}$ $_{14.31}$ $_{75.6\%}$ $_{71.7\%}$ 1112.071V5.016V3.285V4.955V738.554 $_{71.6\%}$ $_{71.7\%}$ $_{71.7\%}$ $_{71.7\%}$ 12.071V5.016V3.285V4.955V619.01 $_{71.7\%}$ $_{72.6\%}$ $_{71.7\%}$ $_{71.7\%}$ <	F	22.669A	4.975A	5.010A	1.803A	324.996	01 15 40/	700	16.2	42.52°C	0.995
6       12.102V       5.026V       3.291V       4.987V       429.836       90.625%       918       21.2       48.90°C       115.12V         7       31.903A       6.969A       7.019A       2.209A       454.850 $90.018\%$ $1049$ $25.7$ 43.10°C       0.994         7       12.091V       5.024V       3290V       4.982V       505.289 $1049$ $25.7$ 43.10°C       0.994         8       36.562A       7.968A       8.025A       2.412A       520.146 $89.340\%$ $1210$ $30.4$ 43.72°C       0.995         8       36.562A       7.968A       8.025A       2.412A       520.146 $89.340\%$ $1210$ $30.4$ 43.72°C       0.995         9       41.608A       8.469A       8.517A       2.413A       585.056 $89.340\%$ $1210$ $30.4$ 43.72°C       0.996         12.078V       5.019V       3.288V       4.975V       585.056 $88.717\%$ $1413$ $35.0$ 53.20°C       115.11V         10       46.396A       8.973A       9.038A       3.027A       649.870 $8.792\%$ $1598$ $85.51\%^2$ $5531°C$ $115.11$	5	12.108V	5.029V	3.293V	4.993V	356.537	91.104% 780	780	16.2	48.24°C	115.11V
12.102V       5.026V       3.291V       4.987V       429.836       48.90°C       115.12V $31.903A$ 6.969A       7.019A       2.209A       454.850 $\partial O 0.18\%$ $\partial H^A$ $25.7$ 43.10°C       0.994 $12.091V$ 5.024V       3.290V       4.982V       505.289 $\partial H^A$ $\partial H^A$ $25.7$ 43.10°C       0.994 $36.562A$ 7.968A       8.025A       2.412A       520.146 $\partial H^A$ <td>C</td> <td>27.246A</td> <td>5.971A</td> <td>6.015A</td> <td>2.006A</td> <td>389.540</td> <td rowspan="2">90.625%</td> <td>010</td> <td rowspan="2">21.2</td> <td>42.72°C</td> <td>0.994</td>	C	27.246A	5.971A	6.015A	2.006A	389.540	90.625%	010	21.2	42.72°C	0.994
7       12.091V       5.024V       3.290V       4.982V       505.289       90.018%       1049       25.7       50.43°C       115.12V         8       36.562A       7.968A       8.025A       2.412A       520.146 $a_{320V}$ $a_{328V}$ 4.976V       582.209 $a_{3240\%$ 1210 $a_{3.4}$ $a_{3.72°C}$ 0.995         9       41.608A       8.469A       8.517A       2.413A       585.056 $a_{8.717\%}$ $1413$ $35.0$ $4.429°C$ 0.996         9       12.078V       5.019V       3.288V       4.975V       659.461 $a_{717\%}$ $1413$ $35.0$ $53.20°C$ 115.11V         10       46.396A       8.973A       9.038A $3.027A$ 649.870 $a_{7192\%}$ $a_{718}$ $a_{7192\%}$ $a_{710}$ $a_{55.0°C}$ 0.996         10       12.073V       5.017V       3.287V       4.957V       738.554 $a_{7192\%}$ $a_{716}$ $a_{111}$ $a_{699°C}$ 0.996         11       12.071V       5.016V       3.285V       4.955V       819.007 $a_{726\%}$ $a_{111}$ $a_{699°C}$ 0.996       9.77°C       115.11V       9.94 <td>0</td> <td>12.102V</td> <td>5.026V</td> <td>3.291V</td> <td>4.987V</td> <td>429.836</td> <td>918</td> <td>48.90°C</td> <td>115.12V</td>	0	12.102V	5.026V	3.291V	4.987V	429.836		918		48.90°C	115.12V
12.091V       5.024V       3.290V       4.982V       505.289       5043°C       115.12V         36.562A       7.968A       8.025A       2.412A       520.146 $8_{9.340\%}$ 1210 $3.04$ $43.72°C$ 0.995         12.082V       5.021V       3.289V       4.976V       582.209 $115.12V$ 51.98°C       115.12V         9       41.608A       8.469A       8.517A       2.413A       585.056 $8.717\%$ $1413$ $35.0$ $42.9°C$ 0.996         12.078V       5.019V       3.288V       4.975V       659.461 $8.717\%$ $1413$ $35.0$ $42.9°C$ 0.996         10       46.396A       8.973A       9.038A       3.027A       649.870 $8.717\%$ $15.98^{\circ}$ $45.5°C$ 0.996         11       12.073V       5.017V       3.287V       4.957V       738.554 $87.92\%$ $15.98$ $38.5$ $45.9°C$ 0.996         11       12.073V       5.017V       3.287V       4.957V       738.554 $87.26\%$ $17.66$ $41.1$ $69.9°C$ 0.996         11       12.071V       5.016V       3.285V       4.955V       819.00	7	31.903A	6.969A	7.019A	2.209A	454.850		1040	.049 25.7	43.10°C	0.994
8         12.082V         5.021V         3.289V         4.976V         582.209         89.340%         1210         30.4         51.98°C         115.12V           9         41.608A         8.469A         8.517A         2.413A         585.056 $88.717\%$ $1413$ $35.0$ 44.29°C         0.996           9         41.608A         8.469A         8.517A         2.413A         585.056 $88.717\%$ $1413$ $35.0$ 44.29°C         0.996           10         46.396A         8.973A         9.038A         3.027A         649.870 $87.992\%$ $1598$ $3.65$ $45.56°C$ 0.996           10         46.396A         8.973A         9.038A         3.027A         649.870 $87.992\%$ $1598$ $3.85$ $4556°C$ 0.996           12.073V         5.017V         3.287V         4.957V         738.554 $87.992\%$ $1598$ $3.85$ $45.56°C$ 0.996           11         2.071V         5.016V         3.285V         4.955V         819.007 $87.26\%$ $17.66$ $41.1$ $57.77°C$ 115.11V           12.14V         5.019V         3.29V	/	12.091V	5.024V	3.290V	4.982V	505.289	90.018%	1049		50.43°C	115.12V
12.082V5.021V3.289V4.976V582.20951.98°C115.12V941.608A8.469A8.517A2.413A585.056 $\mathbb{A}_{377}$ $\mathbb{A}_{1413}$ $\mathbb{A}_{50}$ 44.29°C0.99612.078V5.019V3.288V4.975V659.461 $\mathbb{A}_{1776}$ $\mathbb{A}_{1413}$ $\mathbb{A}_{50}$ $\mathbb{A}_{50}$ 115.11V1046.396A8.973A9.038A3.027A649.870 $\mathbb{A}_{7.992\%}$ $\mathbb{A}_{598}$ $\mathbb{A}_{55}$ $\mathbb{A}_{556}$ 0.9961112.073V5.017V3.287V4.957V738.554 $\mathbb{A}_{7.992\%}$ $\mathbb{A}_{598}$ $\mathbb{A}_{11}$ $\mathbb{A}_{5531}^{\circ}$ C115.11V115.175A8.975A9.043A3.029A714.711 $\mathbb{A}_{7.266\%}$ $\mathbb{A}_{11}$ $\mathbb{A}_{6.99}^{\circ}$ C0.9961112.071V5.016V3.285V4.955V819.007 $\mathbb{A}_{7.266\%}$ $\mathbb{A}_{1.1}$ $\mathbb{A}_{6.99}^{\circ}$ C0.99612.14W5.019V3.285V4.955V819.007 $\mathbb{A}_{7.266\%}$ $\mathbb{A}_{1.1}$ $\mathbb{A}_{4.60°C}$ 0.990111.2144V5.019V3.285V4.955V819.007 $\mathbb{A}_{6.053\%}$ $\mathbb{A}_{1.1}$ $\mathbb{A}_{6.00°C}$ 115.13V12.14W5.019V3.294V5.069V160.254 $\mathbb{A}_{6.053\%}$ $\mathbb{A}_{6.43}$ $\mathbb{A}_{9.2}$ $\mathbb{A}_{6.60°C}$ 115.13V12.14W5.019V3.294V5.069V160.254 $\mathbb{A}_{6.33\%}$ $\mathbb{A}_{6.33}$ $\mathbb{A}_{9.2}$ $\mathbb{A}_{5.1°C}$ 0.99612.14V5.019V3.294V <td>0</td> <td>36.562A</td> <td>7.968A</td> <td>8.025A</td> <td>2.412A</td> <td>520.146</td> <td>00.2400/</td> <td>1010</td> <td>20.4</td> <td>43.72°C</td> <td>0.995</td>	0	36.562A	7.968A	8.025A	2.412A	520.146	00.2400/	1010	20.4	43.72°C	0.995
9       1413       35.0       53.20°C       115.11V         10       46.396A       8.973A       9.038A       3.027A       649.870 $\mathcal{H}_{3.792\%}$ $\mathcal{H}_{3.992\%}$ $\mathcal{H}_{3.992\%}$ $\mathcal{H}_{3.992\%}$ $\mathcal{H}_{3.987}$ $\mathcal{H}_{5.6}^{\circ C}$ 0.996         10 $\mathcal{H}_{3.975A}$ $\mathcal{H}_{9.57}$ $\mathcal{H}_{3.554}$ $\mathcal{H}_{9.92\%}$ $\mathcal{H}_{9.92\%}$ $\mathcal{H}_{1.1}$ $\mathcal{H}_{5.6}^{\circ C}$ 0.996         11 $\mathcal{H}_{1.75A}$ $\mathcal{H}_{9.75A}$ $\mathcal{H}_{9.57}$ $\mathcal{H}_{3.56}$ $\mathcal{H}_{1.1}$ $\mathcal{H}_{9.9°C}$ 0.996         11 $\mathcal{H}_{1.75A}$ $\mathcal{H}_{9.75A}$ $\mathcal{H}_{9.57}$ $\mathcal{H}_{1.11}$ $\mathcal{H}_{1.1}$ $\mathcal{H}_{9.9°C}$ 0.996         11 $\mathcal{H}_{1.1775A}$ $\mathcal{H}_{9.75A}$ $\mathcal{H}_{9.57}$ $\mathcal{H}_{1.11}$	8	12.082V	5.021V	3.289V	4.976V	582.209	89.340%	1210	30.4	51.98°C	115.12V
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	0	41.608A	8.469A	8.517A	2.413A	585.056	00 71 70/	1410	25.0	44.29°C	0.996
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	9	12.078V	5.019V	3.288V	4.975V	659.461	88./1/%	1413	35.0	53.20°C	115.11V
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	10	46.396A	8.973A	9.038A	3.027A	649.870	07.0000/	1500	20 5	45.56°C	0.996
11       12.071V       5.016V       3.285V       4.955V       819.007       1766       41.1       57.77°C       115.11V         0.138A       16.003A       16.000A       0.000A       134.699       84.053%       926       21.8       42.46°C       0.990         12.144V       5.019V       3.294V       5.069V       160.254       84.053%       926       21.8       48.60°C       115.13V         61.1       54.178A       1.002A       1.001A       1.000A       667.952       88.513%       1643       39.2       45.71°C       0.996	10	12.073V	5.017V	3.287V	4.957V	738.554	87.992%	1598	38.5	55.31°C	115.11V
12.071V       5.016V       3.285V       4.955V       819.007       57.77°C       115.11V         0.138A       16.003A       16.000A       0.000A       134.699       84.053%       926       21.8       42.46°C       0.990         12.144V       5.019V       3.294V       5.069V       160.254       667.952       88.513%       1643       39.2       45.71°C       0.996	11	51.775A	8.975A	9.043A	3.029A	714.711	07.0000	1700	47.7	46.99°C	0.996
CL1       12.144V       5.019V       3.294V       5.069V       160.254       926       21.8       48.60°C       115.13V         54.178A       1.002A       1.001A       1.000A       667.952       88.513%       1643       39.2       45.71°C       0.996	11	12.071V	5.016V	3.285V	4.955V	819.007	87.266%	1/00	41.1	57.77°C	115.11V
12.144V       5.019V       3.294V       5.069V       160.254       48.60°C       115.13V         54.178A       1.002A       1.001A       1.000A       667.952       88.513%       1643       39.2       45.71°C       0.996		0.138A	16.003A	16.000A	0.000A	134.699	04.0520/	000	21.0	42.46°C	0.990
CL2 88.513% 1643 39.2	CLI	12.144V	5.019V	3.294V	5.069V	160.254	84.053%	920	21.8	48.60°C	115.13V
		54.178A	1.002A	1.001A	1.000A	667.952	00 5300/	1642	20.2	45.71°C	0.996
	u2	12.083V	5.025V	3.285V	4.996V	754.641	88.513%	1643	39.2	55.62°C	115.11V

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## Anex

## Corsair RM650 (2019) (Sample #2)

20-80	20-80W LOAD TESTS 115V										
Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts		
1	1.190A	0.495A	0.483A	0.199A	19.455	70 21 40/	0	-6.0	0.807		
1 12.07	12.072V	5.037V	3.299V	5.032V	24.529	79.314%	0	<6.0	115.11V		
2	2.450A	0.992A	0.997A	0.398A	39.873	04.0600/	0	-6.0	0.930		
2	12.074V	5.038V	3.303V	5.029V	47.429	84.069%	0	<6.0	115.11V		
2	3.642A	1.487A	1.481A	0.597A	59.378	05 00 40/	0	-6.0	0.962		
3	12.080V	5.037V	3.303V	5.025V	69.057	85.984%	1% 0	<6.0	115.11V		
	4.880A	1.985A	1.999A	0.797A	79.783	07 5000	0		0.976		
4	12.127V	5.037V	3.303V	5.021V	91.157	87.523%	0	<6.0	115.11V		

#### **RIPPLE MEASUREMENTS 115V**

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	13.5 mV	7.8 mV	10.8 mV	9.2 mV	Pass
20% Load	7.1 mV	8.1 mV	11.4 mV	10.5 mV	Pass
30% Load	10.4 mV	8.8 mV	11.6 mV	10.8 mV	Pass
40% Load	9.7 mV	9.1 mV	12.2 mV	10.1 mV	Pass
50% Load	10.4 mV	11.3 mV	15.5 mV	11.5 mV	Pass
60% Load	10.1 mV	10.5 mV	13.1 mV	9.8 mV	Pass
70% Load	11.2 mV	11.0 mV	13.8 mV	10.7 mV	Pass
80% Load	11.8 mV	11.4 mV	15.0 mV	10.6 mV	Pass
90% Load	12.7 mV	11.9 mV	15.1 mV	10.7 mV	Pass
100% Load	17.8 mV	13.4 mV	15.9 mV	11.4 mV	Pass
110% Load	21.2 mV	13.6 mV	15.9 mV	11.4 mV	Pass
Crossload 1	21.9 mV	11.7 mV	16.7 mV	10.8 mV	Pass
Crossload 2	16.3 mV	10.7 mV	13.4 mV	10.8 mV	Pass

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Anex

EFFICIENCY AND NOISE LEVEL CERTIFICATIONS

Corsair RM650 (2019) (Sample #2)

# **230V**

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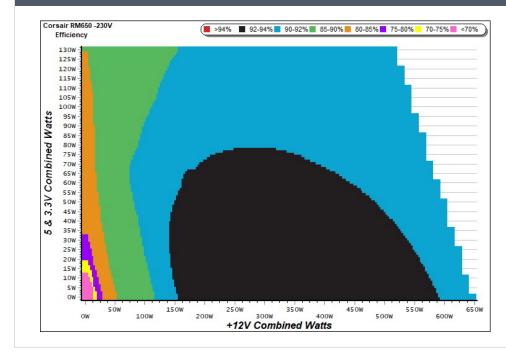
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#### Corsair RM650 (2019) (Sample #2)

## Anex

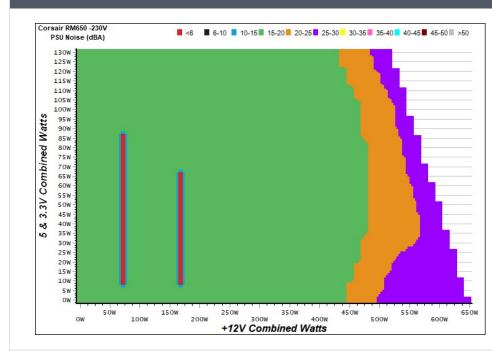
#### **EFFICIENCY GRAPH 230V**



#### 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 230V**



#### 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 RM650 (2019) (Sample #2)

## Anex

#### **VAMPIRE POWER -230V** Power - 19027120000038920016 - 01/04/2019 - 16:44 0.075 0.073 0.071 0.069 0.067 (M) 0.065 0.063 0.061 0.059 0.057 0.055 100 200 300 400 500 600 700 800 900 1000 0 Seconds (s)

#### 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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## Anex

#### Corsair RM650 (2019) (Sample #2)

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
1	3.585A	1.985A	1.998A	0.997A	64.928	07.0449/	0	<6.0	44.01°C	0.789
	12.085V	5.040V	3.301V	5.019V	74.421	87.244%			39.84°C	230.27V
2	8.100A	2.978A	3.001A	1.197A	129.372	01 1 450/	0	<6.0	45.53°C	0.916
	12.157V	5.038V	3.298V	5.013V	141.941	91.145%			40.55°C	230.27V
2	13.065A	3.476A	3.487A	1.398A	194.468	02.000/	791	16.3	41.33°C	0.953
3	12.129V	5.036V	3.297V	5.008V	209.855	92.668%			46.90°C	230.26V
4	18.027A	3.973A	4.005A	1.600A	259.654	02.0550/	788	16.2	41.71°C	0.969
4	12.118V	5.034V	3.296V	5.001V	279.032	93.055%			47.83°C	230.25V
F	22.667A	4.968A	5.009A	1.802A	324.931	02.0400/	700	16.3	42.13°C	0.978
5	12.107V	5.032V	3.294V	4.996V	349.582	92.948%	790		48.75°C	230.24V
6	27.250A	5.966A	6.012A	2.004A	389.445	00.0000/	791	16.3	42.60°C	0.982
6	12.097V	5.029V	3.293V	4.991V	420.177	92.686%			49.74°C	230.24V
7	31.902A	6.962A	7.019A	2.207A	454.763	02.2000/	925	21.8	43.06°C	0.985
7	12.089V	5.027V	3.291V	4.985V	492.709	92.298%			50.85°C	230.24V
0	36.556A	7.963A	8.025A	2.411A	520.074	01 0220/	1102	30.1	43.68°C	0.987
8	12.082V	5.024V	3.289V	4.979V	566.330	91.832%	1193		52.34°C	230.24V
0	41.608A	8.467A	8.516A	2.411A	585.024	01 4000/	1.400	34.8	44.41°C	0.989
9	12.077V	5.022V	3.288V	4.978V	639.911	91.423%	1406		53.70°C	230.25V
10	46.397A	8.968A	9.038A	3.026A	649.865	00.0000	1635	39.0	45.55°C	0.990
10	12.073V	5.019V	3.286V	4.959V	714.877	90.906%			55.66°C	230.25V
	51.787A	8.973A	9.043A	3.027A	714.694	90.514%	1763	41.0	46.87°C	0.991
11	12.068V	5.018V	3.284V	4.957V	789.591				57.55°C	230.25V
	0.142A	16.004A	15.999A	0.000A	134.782	05 10 10/	928	21.9	42.36°C	0.930
CL1	12.142V	5.022V	3.293V	5.071V	158.336	85.124%			48.52°C	230.26V
	54.179A	1.002A	1.001A	1.000A	667.863	01 55 50/	1589	38.3	45.68°C	0.990
CL2	12.081V	5.028V	3.285V	5.000V	729.789	91.515%			55.96°C	230.26V

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## Anex

#### Corsair RM650 (2019) (Sample #2)

20-80W LOAD TESTS 230V									
Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.198A	0.496A 0.485A 0.199A 19.564	0		0.418				
1 12	12.074V	5.039V	3.298V	5.035V	24.559	79.661%	0	<6.0	230.27V
2	2.459A	0.993A	0.997A	0.398A	39.997	04 01 70/	0	<6.0	0.645
	12.076V	5.041V	3.303V	5.032V	47.157	84.817%			230.27V
2	3.651A	1.486A	1.484A	0.597A	59.503	00 05 20/	0	<6.0	0.765
3	12.082V	5.040V	3.302V	5.028V	68.431	80.953%	U		230.27V
4	4.274A	1.984A	1.998A	0.796A	72.564	07 7000/	0	<6.0	0.817
	12.159V	5.040V	3.302V	5.024V	82.720	87.722%			230.28V
3	12.076V 3.651A 12.082V 4.274A	5.041V 1.486A 5.040V 1.984A	3.303V 1.484A 3.302V 1.998A	5.032V 0.597A 5.028V 0.796A	47.157 59.503 68.431 72.564	84.817% 86.953% 87.722%	0	<6.0	230.27V 0.765 230.27V 0.817

#### **RIPPLE MEASUREMENTS 230V**

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	14.2 mV	7.5 mV	11.3 mV	9.4 mV	Pass
20% Load	7.4 mV	7.7 mV	10.7 mV	9.6 mV	Pass
30% Load	11.3 mV	8.7 mV	11.6 mV	9.8 mV	Pass
40% Load	10.1 mV	8.5 mV	12.3 mV	9.6 mV	Pass
50% Load	9.6 mV	10.1 mV	14.3 mV	10.5 mV	Pass
60% Load	9.7 mV	10.6 mV	12.8 mV	10.0 mV	Pass
70% Load	10.0 mV	11.3 mV	12.8 mV	10.2 mV	Pass
80% Load	10.1 mV	11.0 mV	15.0 mV	9.7 mV	Pass
90% Load	12.1 mV	11.7 mV	15.0 mV	10.2 mV	Pass
100% Load	17.9 mV	13.0 mV	16.5 mV	10.8 mV	Pass
110% Load	19.9 mV	13.4 mV	24.6 mV	10.9 mV	Pass
Crossload 1	24.3 mV	11.4 mV	16.5 mV	10.5 mV	Pass
Crossload 2	16.7 mV	10.9 mV	14.7 mV	10.6 mV	Pass

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> The link to the original test results document should be provided in any case

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Cybenetics offers the ETA and Lambda voluntary certification programs, through which the efficient and silent power supplies are promoted



## Anex

Corsair RM650 (2019) (Sample #2)



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

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