

Anex

Sharkoon Rebel P20 850

Lab ID#: SK85002388
 Receipt Date: Feb 12, 2024
 Test Date: Mar 13, 2024

Report: 24PS2388A
 Report Date: Mar 15, 2024

DUT INFORMATION	
Brand	Sharkoon
Manufacturer (OEM)	Andyson
Series	Rebel P20
Model Number	
Serial Number	
DUT Notes	

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	50-60
Rated Power (W)	850
Type	ATX12V
Cooling	120mm Fluid Dynamic Bearing Fan (HA1225M12F-Z)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

TEST EQUIPMENT	
Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P
Power Analyzers	RS HMC8015, N4L PPA1530, N4L PPA5530
Oscilloscopes	Picoscope 4444, Rigol DS7014, 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, Keithley 2015 - THD
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Isolation Transformer	4kVA

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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 v3.1 PSU Power Excursion	✓

115V

Average Efficiency	88.584%
Efficiency With 10W (≤500W) or 2% (>500W)	73.676
Average Efficiency 5VSB	81.086%
Standby Power Consumption (W)	0.0513000
Average PF	0.980
Avg Noise Output	20.72 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

230V

Average Efficiency	90.800%
Average Efficiency 5VSB	79.908%
Standby Power Consumption (W)	0.1390000
Average PF	0.939
Avg Noise Output	20.67 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	70.8	3	0.3
	Watts	100		850	15	3.6
Total Max. Power (W)		850				

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

Hold-Up Time (ms)	20.6
AC Loss to PWR_OK Hold Up Time (ms)	16.1
PWR_OK Inactive to DC Loss Delay (ms)	4.5

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	18AWG	No
4+4 pin EPS12V (700mm)	2	2	18AWG	No
6+2 pin PCIe (550mm+150mm)	2	4	18AWG	No
12+4 pin PCIe (600mm) (600W)	1	1	16-26AWG	No
SATA (500mm+150mm+150mm)	1	3	18AWG	No
SATA (500mm+150mm+150mm+150mm)	2	8	18AWG	No
4-pin Molex Adapter (+150mm)	1	1	18AWG	No
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

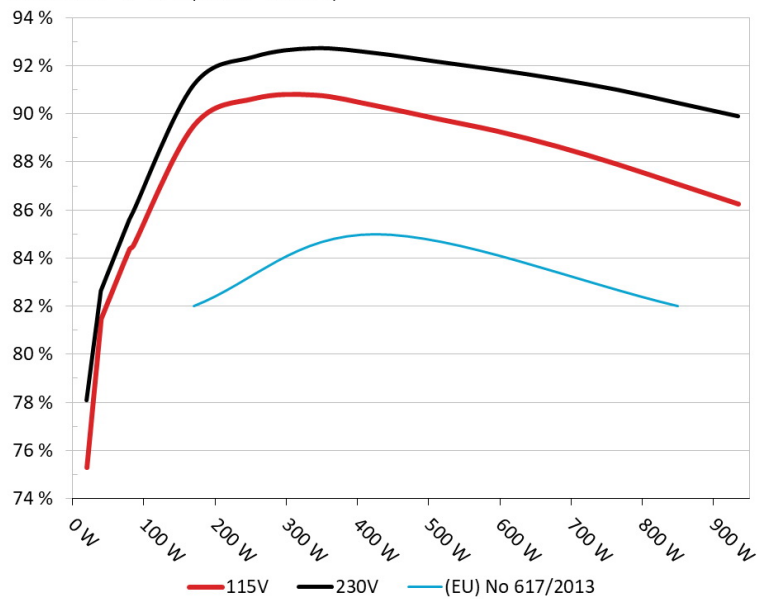
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Sharkoon Rebel P20 850

Ambient: 37°C - 47°C (98.6°F - 116.6°F)



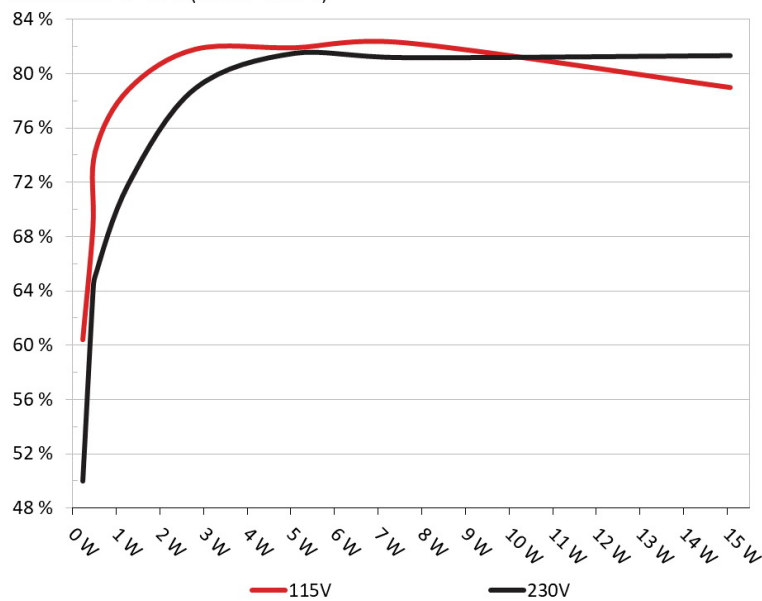
INFO

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

5VSB Efficiency: Sharkoon Rebel P20 850

Ambient: 34°C - 36°C (93.2°F - 96.8°F)



INFO

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

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231W	60.873%	0.047
	5.126V	0.38W		114.94V
2	0.09A	0.461W	69.103%	0.081
	5.124V	0.667W		114.94V
3	0.55A	2.81W	82.311%	0.301
	5.108V	3.414W		114.92V
4	1A	5.092W	82.417%	0.393
	5.092V	6.178W		114.92V
5	1.5A	7.611W	82.782%	0.432
	5.074V	9.195W		114.92V
6	3A	15.057W	79.484%	0.498
	5.019V	18.943W		114.92V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231W	50.487%	0.017
	5.126V	0.458W		229.9V
2	0.09A	0.461W	64.254%	0.026
	5.124V	0.718W		229.9V
3	0.55A	2.809W	79.398%	0.122
	5.109V	3.538W		229.89V
4	1A	5.093W	81.987%	0.195
	5.093V	6.212W		229.88V
5	1.5A	7.614W	81.662%	0.26
	5.076V	9.324W		229.89V
6	3A	15.07W	81.807%	0.35
	5.024V	18.421W		229.88V

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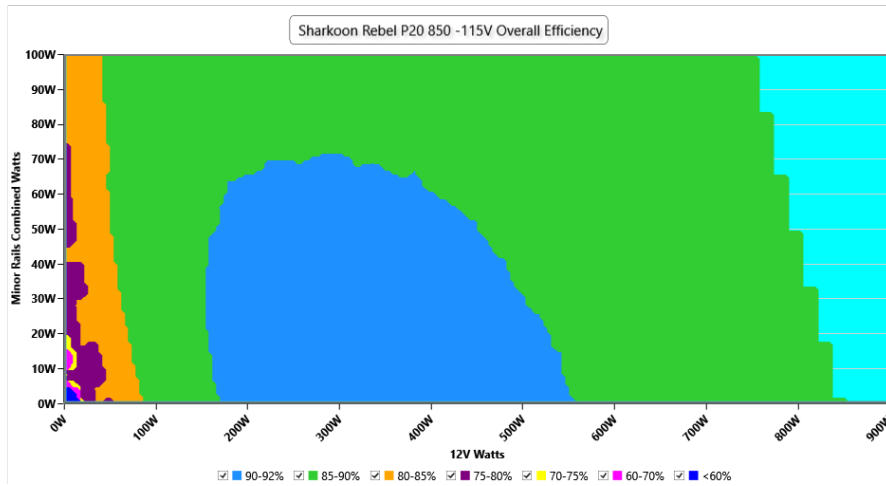
115V

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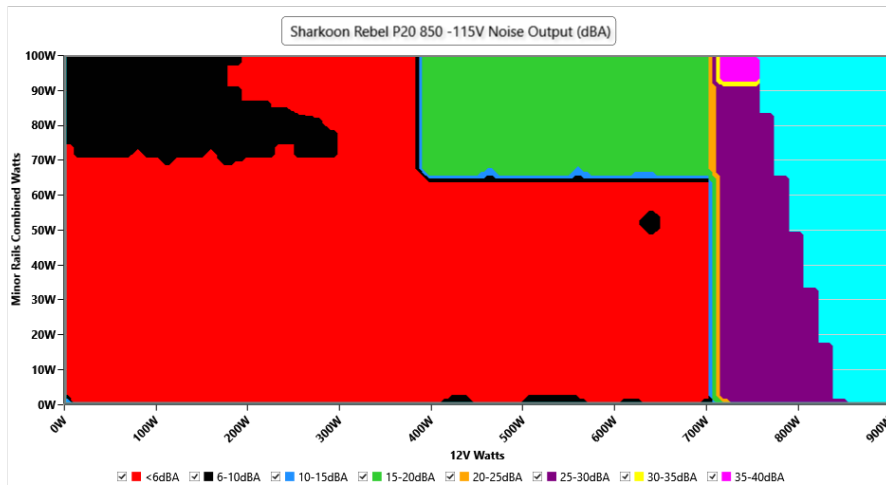
EFFICIENCY GRAPH 115V



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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VAMPIRE POWER -115V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.04 V	115.00 V	113.85 V	115.08 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.95 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.13 %	0.09 %	N/A	0.19 %	2.00 %	PASS
Real Power:	0.051 W	0.010 W	N/A	0.079 W	N/A	N/A
Apparent Power:	7.945 W	7.733 W	N/A	8.161 W	N/A	N/A
Power Factor:	0.009	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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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%	5.216A	1.994A	1.973A	0.983A	84.997	84.516%	0	<6.0	44.2°C	0.963
	12.154V	5.015V	3.344V	5.088V	100.569				40.19°C	114.88V
20%	11.442A	2.991A	2.963A	1.183A	169.927	89.506%	0	<6.0	44.99°C	0.982
	12.150V	5.014V	3.341V	5.073V	189.848				40.72°C	114.86V
30%	18.051A	3.49A	3.459A	1.384A	254.931	90.634%	0	<6.0	46.15°C	0.98
	12.126V	5.014V	3.339V	5.057V	281.273				41.41°C	114.82V
40%	24.649A	3.99A	3.955A	1.587A	340.015	90.779%	0	<6.0	47°C	0.98
	12.123V	5.012V	3.337V	5.042V	374.549				41.97°C	114.8V
50%	30.861A	4.989A	4.948A	1.791A	424.803	90.338%	0	<6.0	47.89°C	0.984
	12.128V	5.011V	3.335V	5.026V	470.239				42.4°C	114.77V
60%	37.096A	5.993A	5.948A	1.996A	509.349	89.807%	917	20	42.52°C	0.986
	12.118V	5.006V	3.329V	5.01V	567.157				48.53°C	114.73V
70%	43.390A	6.997A	6.948A	2.203A	594.657	89.286%	915	20	43.05°C	0.987
	12.112V	5.003V	3.325V	4.994V	666.013				50.13°C	114.7V
80%	49.659A	7.996A	7.946A	2.309A	679.488	88.649%	910	19.8	43.88°C	0.988
	12.115V	5.001V	3.322V	4.981V	766.493				51.89°C	114.67V
90%	56.292A	8.496A	8.433A	2.415A	764.912	87.897%	903	19.7	44.52°C	0.989
	12.123V	5.001V	3.32V	4.969V	870.238				53.56°C	114.64V
100%	62.719A	9A	8.953A	3.038A	849.722	87.073%	1536	36.3	45.03°C	0.99
	12.118V	4.999V	3.317V	4.938V	975.876				55.08°C	114.61V
110%	68.989A	10.003A	10.048A	3.044A	934.304	86.251%	1536	36.3	46.65°C	0.99
	12.119V	4.997V	3.314V	4.928V	1083.249				57.59°C	114.56V
CL1	0.114A	12A	11.925A	0A	101.291	81.469%	921	20.1	41.33°C	0.971
	12.198V	5.016V	3.329V	5.111V	124.335				46.79°C	114.87V
CL2	0.114A	19.874A	0A	0A	101.337	79.865%	1545	36.5	39.61°C	0.973
	12.167V	5.029V	3.336V	5.114V	126.886				46.71°C	114.88V
CL3	0.114A	0A	19.842A	0A	67.394	74.296%	1545	36.5	41.99°C	0.959
	12.155V	5.007V	3.327V	5.114V	90.709				51.05°C	114.88V
CL4	70.268A	0A	0A	0A	849.494	87.973%	1535	36.3	46.72°C	0.989
	12.090V	5.003V	3.333V	5.055V	965.631				57.69°C	114.61V

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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	1.232A	0.498A	0.493A	0.195A	19.994	75.304%	0	<6.0	39.67°C	0.759
	12.042V	5.018V	3.348V	5.122V	26.555				36.58°C	114.91V
40W	2.714A	0.697A	0.69A	0.293A	39.994	81.675%	0	<6.0	40.74°C	0.9
	12.046V	5.018V	3.347V	5.117V	48.967				37.52°C	114.9V
60W	4.160A	0.897A	0.887A	0.391A	59.993	81.48%	0	<6.0	42.15°C	0.944
	12.146V	5.018V	3.347V	5.112V	73.629				38.37°C	114.89V
80W	5.622A	1.096A	1.085A	0.489A	79.934	84.379%	0	<6.0	43.51°C	0.961
	12.150V	5.017V	3.345V	5.107V	94.732				39.55°C	114.88V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	14.22mV	14.10mV	13.05mV	17.39mV	Pass
20% Load	17.14mV	14.05mV	13.97mV	17.29mV	Pass
30% Load	15.30mV	14.46mV	14.12mV	17.95mV	Pass
40% Load	15.09mV	15.17mV	14.84mV	17.80mV	Pass
50% Load	15.09mV	15.33mV	14.68mV	17.95mV	Pass
60% Load	14.94mV	15.12mV	15.45mV	19.03mV	Pass
70% Load	15.45mV	15.94mV	16.73mV	19.18mV	Pass
80% Load	15.81mV	16.76mV	16.57mV	19.39mV	Pass
90% Load	16.98mV	18.29mV	18.62mV	21.43mV	Pass
100% Load	21.22mV	17.94mV	19.05mV	22.92mV	Pass
110% Load	22.36mV	18.29mV	20.27mV	23.21mV	Pass
Crossload1	14.72mV	15.92mV	16.17mV	16.20mV	Pass
Crossload2	14.48mV	20.54mV	14.43mV	15.70mV	Pass
Crossload3	14.53mV	15.02mV	16.57mV	14.07mV	Pass
Crossload4	21.24mV	18.44mV	19.01mV	18.74mV	Pass

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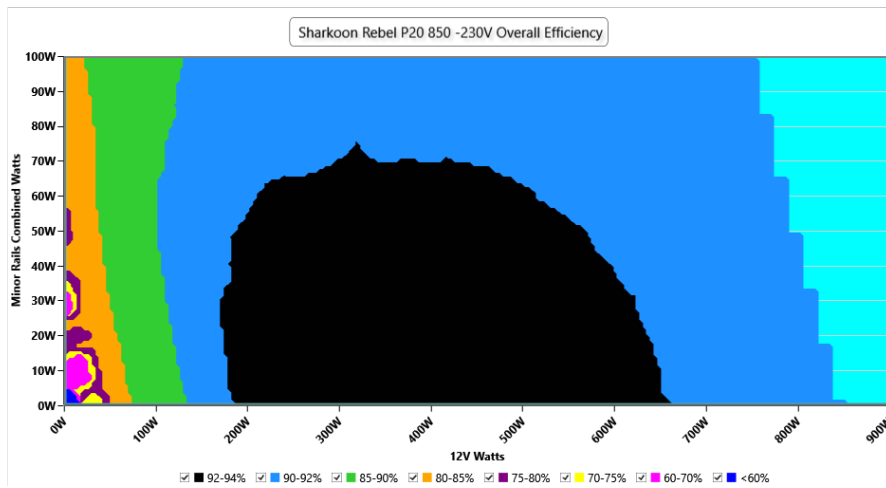
230V

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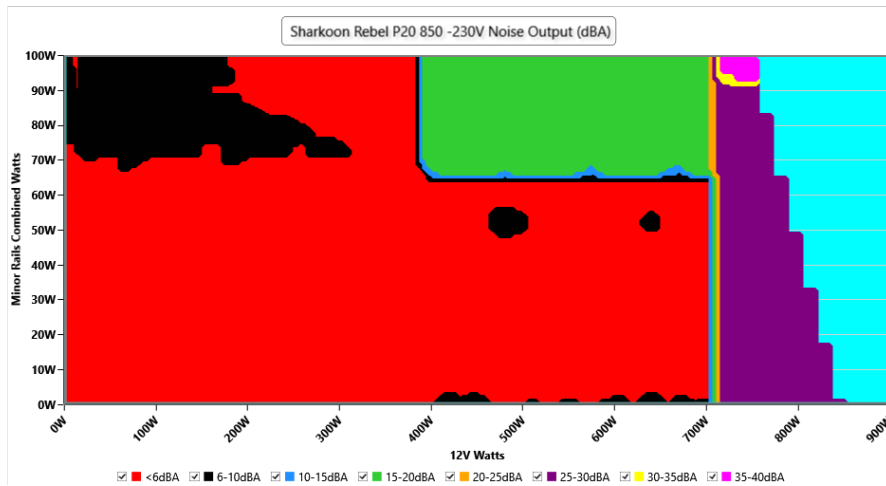
EFFICIENCY GRAPH 230V



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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VAMPIRE POWER -230V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.00 V	230.89 V	227.70 V	231.05 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	1.416	1.340	1.419	1.490	PASS
Mains Voltage THD:	0.17 %	0.15 %	N/A	0.26 %	2.00 %	PASS
Real Power:	0.139 W	0.121 W	N/A	0.171 W	N/A	N/A
Apparent Power:	26.043 W	25.749 W	N/A	26.348 W	N/A	N/A
Power Factor:	0.005	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%	5.217A	1.994A	1.974A	0.983A	85.001	85.892%	0	<6.0	44.29°C	0.796
	12.153V	5.016V	3.344V	5.088V	98.961				40.25°C	229.87V
20%	11.445A	2.991A	2.963A	1.183A	169.936	91.177%	0	<6.0	44.84°C	0.907
	12.148V	5.015V	3.341V	5.072V	186.378				40.52°C	229.86V
30%	18.055A	3.49A	3.459A	1.384A	254.944	92.359%	0	<6.0	46.2°C	0.942
	12.123V	5.014V	3.339V	5.057V	276.035				41.38°C	229.85V
40%	24.654A	3.99A	3.956A	1.587A	340.027	92.712%	0	<6.0	46.89°C	0.956
	12.121V	5.013V	3.337V	5.042V	366.759				41.87°C	229.83V
50%	30.878A	4.988A	4.949A	1.791A	424.816	92.512%	0	<6.0	47.8°C	0.964
	12.122V	5.012V	3.334V	5.026V	459.204				42.28°C	229.82V
60%	37.111A	5.992A	5.949A	1.996A	509.357	92.166%	917	20	42.95°C	0.968
	12.114V	5.007V	3.328V	5.01V	552.65		49.03°C		229.8V	
70%	43.393A	6.995A	6.948A	2.203A	594.677	91.821%	914	20	43.26°C	0.971
	12.112V	5.004V	3.325V	4.993V	647.65		50.36°C		229.79V	
80%	49.661A	7.993A	7.947A	2.309A	679.501	91.441%	910	19.8	43.79°C	0.973
	12.114V	5.003V	3.322V	4.981V	743.097		52.01°C		229.77V	
90%	56.305A	8.494A	8.434A	2.415A	764.932	90.986%	905	19.7	44.17°C	0.975
	12.121V	5.003V	3.32V	4.969V	840.713		53.27°C		229.76V	
100%	62.727A	8.997A	8.955A	3.038A	849.744	90.439%	1536	36.3	45.55°C	0.976
	12.117V	5V	3.317V	4.938V	939.569		55.57°C		229.74V	
110%	69.003A	10A	10.051A	3.043A	934.312	89.89%	1535	36.3	46.85°C	0.978
	12.116V	4.999V	3.313V	4.929V	1039.392		57.8°C		229.73V	
CL1	0.115A	11.995A	11.929A	0A	101.293	82.923%	922	20.1	41.8°C	0.842
	12.193V	5.018V	3.329V	5.111V	122.15				47.29°C	229.87V
CL2	0.114A	19.895A	0A	0A	101.341	81.1%	1545	36.5	40.03°C	0.846
	12.167V	5.024V	3.336V	5.114V	124.959				47.06°C	229.87V
CL3	0.114A	0A	19.844A	0A	67.395	75.26%	1544	36.5	40.55°C	0.77
	12.154V	5.007V	3.327V	5.113V	89.548				49.59°C	229.88V
CL4	70.299A	0A	0A	0A	849.503	91.167%	1534	36.3	44.59°C	0.976
	12.085V	5.002V	3.332V	5.055V	931.812				55.57°C	229.75V

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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	1.234A	0.498A	0.493A	0.195A	19.995	78.09%	0	<6.0	39.62°C	0.442
	12.033V	5.015V	3.345V	5.121V	25.612				36.58°C	229.9V
40W	2.716A	0.698A	0.691A	0.293A	39.996	82.685%	0	<6.0	40.75°C	0.584
	12.036V	5.015V	3.345V	5.116V	48.373				37.5°C	229.89V
60W	4.163A	0.897A	0.888A	0.391A	59.996	82.633%	0	<6.0	41.69°C	0.709
	12.137V	5.016V	3.345V	5.111V	72.606				38.2°C	229.88V
80W	5.626A	1.096A	1.085A	0.49A	79.94	85.593%	0	<6.0	43.9°C	0.78
	12.144V	5.016V	3.344V	5.106V	93.396				40.01°C	229.88V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.51mV	11.04mV	9.92mV	13.56mV	Pass
20% Load	12.64mV	11.29mV	10.43mV	14.42mV	Pass
30% Load	12.13mV	11.85mV	11.15mV	14.68mV	Pass
40% Load	11.36mV	12.36mV	11.56mV	14.63mV	Pass
50% Load	11.82mV	11.29mV	11.10mV	15.45mV	Pass
60% Load	11.36mV	11.55mV	12.07mV	15.50mV	Pass
70% Load	11.00mV	11.44mV	11.36mV	16.11mV	Pass
80% Load	12.13mV	12.98mV	13.25mV	15.96mV	Pass
90% Load	12.33mV	13.33mV	13.66mV	15.91mV	Pass
100% Load	17.10mV	13.80mV	14.93mV	18.67mV	Pass
110% Load	17.58mV	13.96mV	15.85mV	17.75mV	Pass
Crossload1	10.96mV	12.58mV	12.52mV	12.07mV	Pass
Crossload2	12.07mV	16.71mV	11.00mV	11.61mV	Pass
Crossload3	12.38mV	11.85mV	13.61mV	10.74mV	Pass
Crossload4	16.84mV	12.58mV	13.50mV	14.03mV	Pass

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

Anex

Sharkoon Rebel P20 850



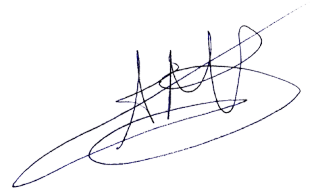
Top side



Model	REBEL P20 850				
Input (AC)	Input Voltage		Current	Frequency	
	100 - 240 V~		10 - 5 A	50 - 60 Hz	
Output (DC)	+3.3 V	+5 V	+12 V	-12 V	+5 Vsb
Max. Output Current	20 A	20 A	70.8 A	0.3 A	3 A
Max. Combined Power	100 W		849.6 W	3.6 W	15 W
Total Power	850 W				

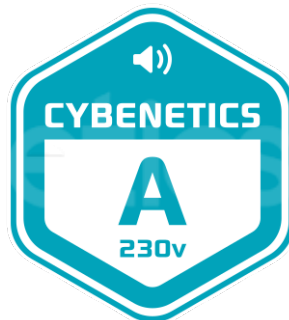
Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



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