

Anex

Superframe SF-G850M

Lab ID#: SR85002059
Receipt Date: Aug 5, 2022
Test Date: Sep 7, 2022

Report: 22PS2059A

Report Date: Sep 7, 2022

DUT INFORMATION

Brand	Superframe
Manufacturer (OEM)	Channel Well Technology
Series	
Model Number	
Serial Number	
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10
Rated Frequency (Hz)	47-63
Rated Power (W)	850
Type	ATX12V
Cooling	135mm Fluid Dynamic Bearing Fan (HA13525H12SF-Z)
Semi-Passive Operation	✓ (selectable)
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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Superframe SF-G850M

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	87.968%
Efficiency With 10W (≤500W) or 2% (>500W)	57.748
Average Efficiency 5VSB	78.895%
Standby Power Consumption (W)	0.0185000
Average PF	0.989
Avg Noise Output	28.71 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A-

230V

Average Efficiency	90.110%
Average Efficiency 5VSB	78.012%
Standby Power Consumption (W)	0.0888000
Average PF	0.965
Avg Noise Output	28.74 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A-

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	22	22	70.8	3	0.3
	Watts	120		849.6	15	3.6
Total Max. Power (W)		850				

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

Hold-Up Time (ms)	15.4
AC Loss to PWR_OK Hold Up Time (ms)	14.1
PWR_OK Inactive to DC Loss Delay (ms)	1.3

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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 (600mm+150mm)	2	4	18AWG	No
12+4 pin PCIe (600mm) (450W)	1	1	16-24AWG	No
SATA (500mm+150mm+150mm)	3	9	18AWG	No
4-pin Molex (500mm+150mm+150mm+150mm) / FDD (+150mm)	1	4 / 1	18-20AWG	No

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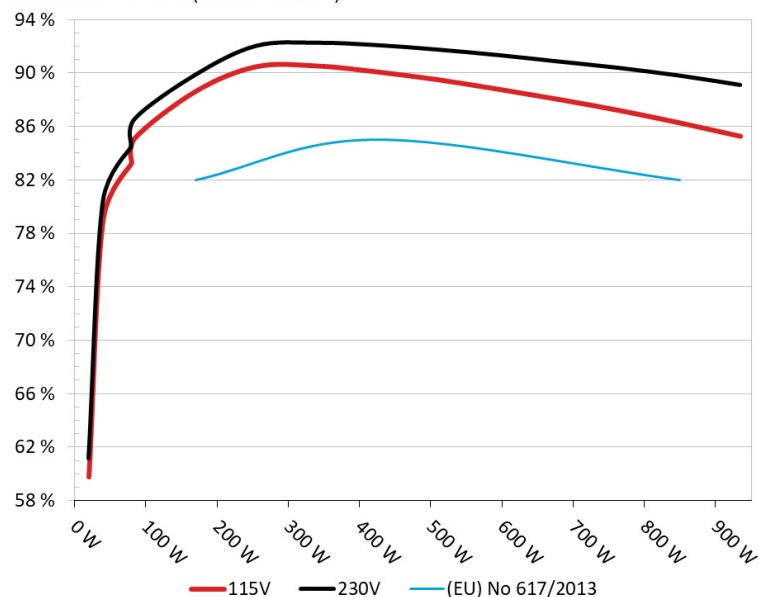
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Super Frame SF-850M

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



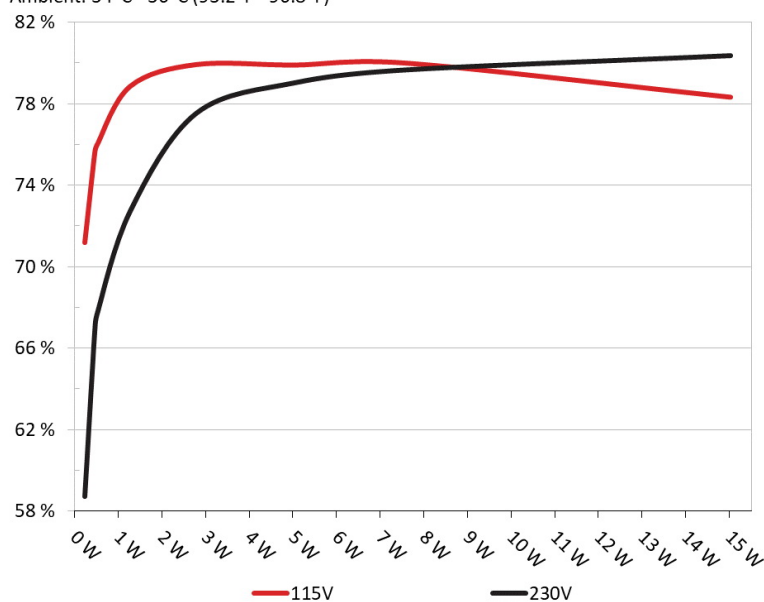
INFO

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: Super Frame SF-850M

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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Superframe SF-G850M

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.229W	70.692%	0.032
	5.076V	0.324W		114.93V
2	0.09A	0.457W	75.105%	0.059
	5.075V	0.609W		114.93V
3	0.55A	2.786W	79.438%	0.266
	5.065V	3.507W		114.93V
4	1A	5.055W	79.414%	0.358
	5.054V	6.366W		114.93V
5	1.5A	7.565W	79.514%	0.419
	5.043V	9.514W		114.93V
6	3A	15.028W	77.834%	0.497
	5.009V	19.308W		114.93V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.229W	58.215%	0.011
	5.075V	0.394W		229.9V
2	0.09A	0.457W	66.348%	0.02
	5.075V	0.689W		229.9V
3	0.55A	2.786W	77.049%	0.1
	5.065V	3.616W		229.9V
4	1A	5.055W	78.55%	0.167
	5.055V	6.436W		229.9V
5	1.5A	7.565W	79.175%	0.22
	5.043V	9.555W		229.89V
6	3.001A	15.028W	79.877%	0.327
	5.009V	18.815W		229.89V

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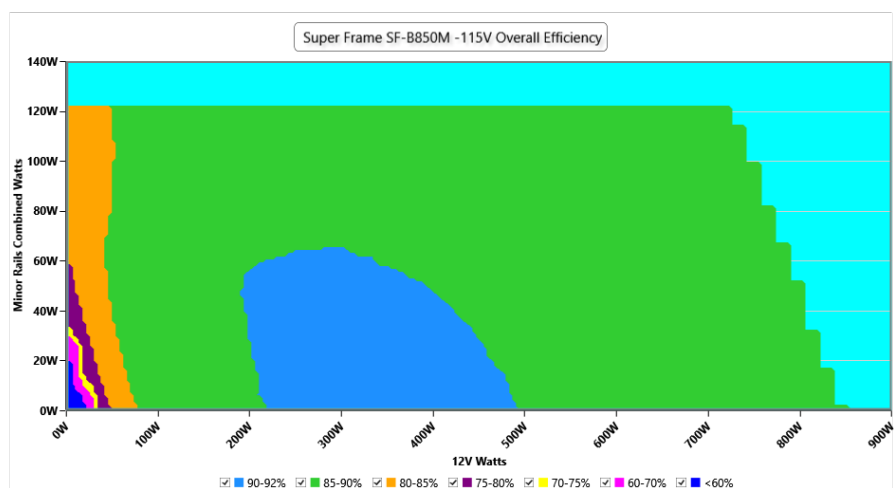
115V

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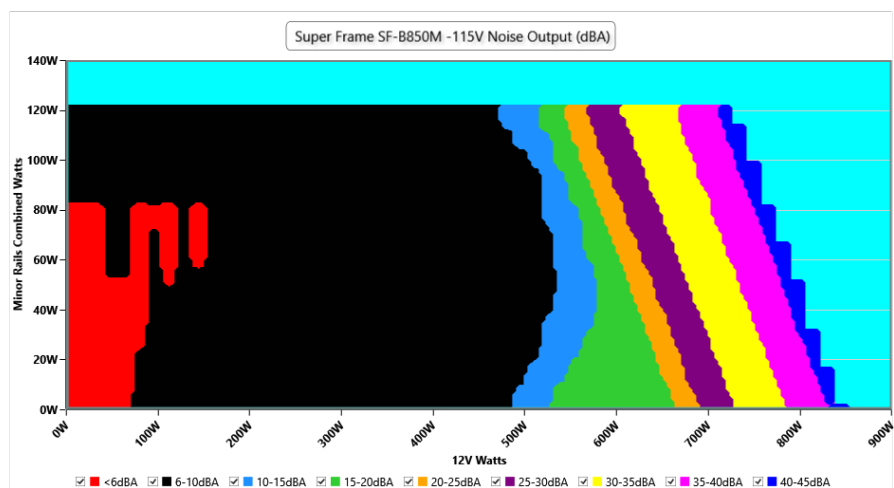
EFFICIENCY GRAPH 115V



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:	114.93 V	114.89 V	113.85 V	114.96 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.02 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.417	1.416	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.14 %	0.12 %	N/A	0.19 %	2.00 %	PASS
Real Power:	0.019 W	0.017 W	N/A	0.020 W	N/A	N/A
Apparent Power:	10.213 W	10.191 W	N/A	10.233 W	N/A	N/A
Power Factor:	0.002	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%	5.252A	1.977A	2.011A	0.992A	85.007	85.149%	0	<6.0	44.82°C	0.974
	12.073V	5.059V	3.282V	5.043V	99.834				40.54°C	114.92V
20%	11.520A	2.966A	3.021A	1.193A	169.955	88.623%	0	<6.0	45.53°C	0.987
	12.070V	5.057V	3.276V	5.031V	191.777				40.81°C	114.9V
30%	18.139A	3.461A	3.529A	1.372A	254.967	90.471%	0	<6.0	46.42°C	0.99
	12.069V	5.056V	3.273V	5.101V	281.823				41.38°C	114.87V
40%	24.800A	3.957A	4.038A	1.57A	340.063	90.523%	0	<6.0	47.38°C	0.991
	12.051V	5.054V	3.269V	5.095V	375.671				41.79°C	114.86V
50%	31.090A	4.949A	5.057A	1.77A	425.037	90.076%	407	7.6	42.23°C	0.99
	12.047V	5.052V	3.262V	5.085V	471.867				48.17°C	114.83V
60%	37.347A	5.941A	6.08A	1.971A	509.559	89.497%	619	16.7	42.54°C	0.992
	12.043V	5.05V	3.257V	5.075V	569.361				48.86°C	114.81V
70%	43.676A	6.934A	7.106A	2.173A	594.869	88.781%	758	23.3	43.04°C	0.993
	12.038V	5.048V	3.251V	5.064V	670.042				50.41°C	114.78V
80%	50.022A	7.928A	8.135A	2.275A	679.715	88.018%	972	31.2	44.37°C	0.994
	12.031V	5.047V	3.245V	5.056V	772.251				52.57°C	114.77V
90%	56.767A	8.426A	8.639A	2.378A	765.129	87.187%	1243	38.7	44.68°C	0.995
	12.025V	5.045V	3.241V	5.047V	877.579				54.03°C	114.73V
100%	63.255A	8.926A	9.177A	2.984A	849.956	86.259%	1560	44.7	45.31°C	0.995
	12.019V	5.043V	3.236V	5.027V	985.359				55.34°C	114.71V
110%	69.618A	9.921A	10.309A	2.989A	934.53	85.263%	1872	50.0	47.29°C	0.996
	12.012V	5.041V	3.23V	5.02V	1096.047				58.19°C	114.69V
CL1	0.116A	14.273A	14.706A	0A	121.317	82.485%	440	8.2	42.47°C	0.983
	12.079V	5.06V	3.243V	5.05V	147.076				48.94°C	114.89V
CL2	0.116A	21.67A	0A	0A	111.422	81.489%	408	7.6	43.39°C	0.982
	12.087V	5.078V	3.296V	5.058V	136.733				50.79°C	114.9V
CL3	0.116A	0A	22.527A	0A	73.985	74.7%	408	7.6	44.72°C	0.974
	12.084V	5.064V	3.222V	5.053V	99.045				53.01°C	114.91V
CL4	70.724A	0A	0A	0A	849.614	87.2%	1326	40.6	45.99°C	0.995
	12.014V	5.059V	3.275V	5.105V	974.341				55.89°C	114.71V

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Superframe SF-G850M

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	1.230A	0.493A	0.501A	0.197A	20.005	59.786%	0	<6.0	40.43°C	0.911
	12.073V	5.074V	3.295V	5.067V	33.462				37.38°C	114.92V
40W	2.708A	0.69A	0.701A	0.296A	40.005	79.038%	0	<6.0	41.48°C	0.949
	12.071V	5.073V	3.294V	5.063V	50.617				38.12°C	114.91V
60W	4.186A	0.889A	0.903A	0.395A	60.004	83.243%	0	<6.0	42.39°C	0.962
	12.071V	5.063V	3.288V	5.06V	72.086				38.67°C	114.92V
80W	5.660A	1.087A	1.105A	0.495A	79.958	85.556%	0	<6.0	43.05°C	0.972
	12.072V	5.06V	3.286V	5.056V	93.46				39.09°C	114.92V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	5.73mV	5.72mV	5.83mV	4.76mV	Pass
20% Load	6.09mV	6.79mV	6.13mV	4.91mV	Pass
30% Load	14.81mV	7.20mV	6.65mV	5.07mV	Pass
40% Load	16.96mV	8.73mV	7.00mV	5.12mV	Pass
50% Load	17.93mV	7.91mV	7.36mV	5.99mV	Pass
60% Load	18.44mV	7.86mV	7.42mV	8.34mV	Pass
70% Load	18.91mV	10.42mV	12.99mV	6.91mV	Pass
80% Load	19.01mV	8.89mV	9.46mV	7.63mV	Pass
90% Load	19.36mV	9.29mV	10.07mV	8.19mV	Pass
100% Load	26.76mV	11.17mV	10.68mV	9.90mV	Pass
110% Load	26.93mV	11.89mV	10.86mV	10.92mV	Pass
Crossload1	12.79mV	10.14mV	10.50mV	9.76mV	Pass
Crossload2	9.67mV	12.51mV	7.26mV	9.62mV	Pass
Crossload3	6.34mV	6.38mV	11.91mV	9.57mV	Pass
Crossload4	17.45mV	9.53mV	8.47mV	12.00mV	Pass

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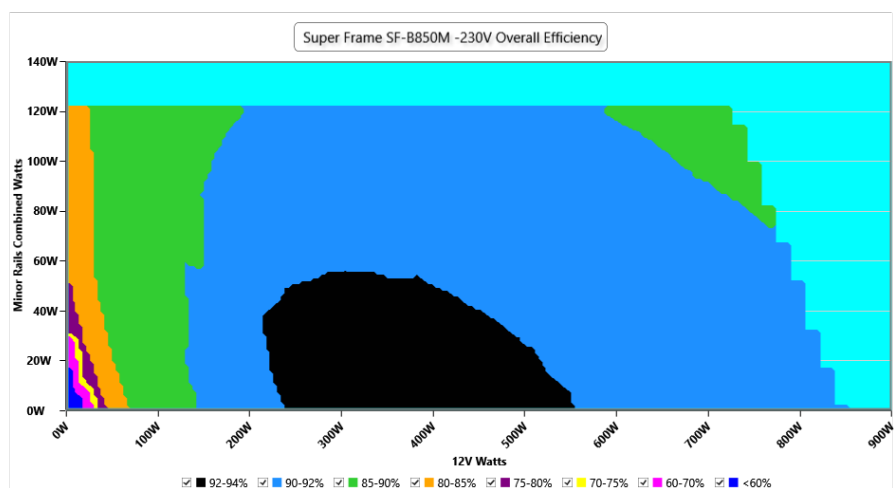
230V

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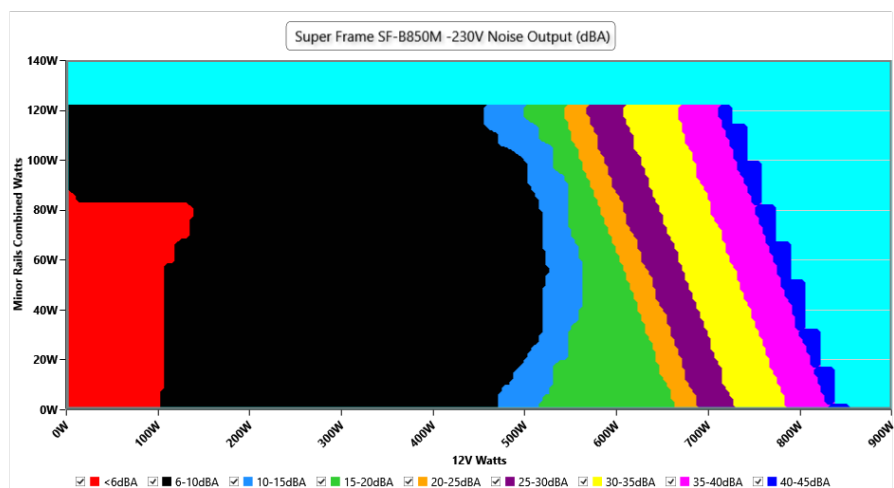
EFFICIENCY GRAPH 230V



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



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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:	229.88 V	229.85 V	227.70 V	229.93 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:	1.416	1.415	1.340	1.417	1.490	PASS
Mains Voltage THD:	0.15 %	0.13 %	N/A	0.17 %	2.00 %	PASS
Real Power:	0.089 W	0.077 W	N/A	0.106 W	N/A	N/A
Apparent Power:	34.505 W	34.480 W	N/A	34.532 W	N/A	N/A
Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A

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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%	5.250A	1.977A	2.01A	0.992A	85.009	86.576%	0	<6.0	44.84°C	0.87
	12.078V	5.059V	3.284V	5.042V	98.19				40.6°C	229.88V
20%	11.518A	2.966A	3.02A	1.193A	169.958	89.863%	0	<6.0	45.61°C	0.943
	12.074V	5.057V	3.278V	5.031V	189.127				40.79°C	229.87V
30%	18.135A	3.462A	3.528A	1.372A	254.972	92.022%	0	<6.0	46.25°C	0.965
	12.072V	5.055V	3.274V	5.101V	277.076				40.98°C	229.86V
40%	24.796A	3.958A	4.037A	1.57A	340.08	92.258%	0	<6.0	47.39°C	0.974
	12.053V	5.054V	3.27V	5.095V	368.618				41.75°C	229.85V
50%	31.092A	4.95A	5.056A	1.77A	425.091	92.081%	408	7.6	42.38°C	0.98
	12.047V	5.051V	3.264V	5.085V	461.647				48.41°C	229.84V
60%	37.354A	5.943A	6.078A	1.971A	509.615	91.747%	611	12.3	43.02°C	0.983
	12.042V	5.049V	3.258V	5.074V	555.452				49.53°C	229.83V
70%	43.690A	6.936A	7.103A	2.173A	594.921	91.336%	819	26	43.49°C	0.985
	12.035V	5.048V	3.252V	5.064V	651.359				50.58°C	229.82V
80%	50.037A	7.93A	8.13A	2.275A	679.761	90.857%	984	31.7	44.06°C	0.986
	12.028V	5.046V	3.247V	5.055V	748.168				52.11°C	229.81V
90%	56.791A	8.429A	8.635A	2.378A	765.168	90.371%	1211	37.7	44.45°C	0.988
	12.020V	5.044V	3.242V	5.047V	846.69				53.46°C	229.8V
100%	63.288A	8.928A	9.173A	2.985A	849.993	89.796%	1494	43.5	45.01°C	0.989
	12.013V	5.042V	3.238V	5.027V	946.584				55.04°C	229.79V
110%	69.658A	9.925A	10.305A	2.989A	934.567	89.101%	1874	50.0	47.04°C	0.989
	12.006V	5.04V	3.231V	5.02V	1048.894				57.91°C	229.78V
CL1	0.116A	14.276A	14.695A	0A	121.324	83.782%	439	8.2	42.61°C	0.922
	12.078V	5.059V	3.246V	5.05V	144.809				48.03°C	229.88V
CL2	0.116A	21.668A	0A	0A	111.428	82.567%	439	8.2	43.73°C	0.915
	12.089V	5.078V	3.296V	5.058V	134.949				50.03°C	229.88V
CL3	0.116A	0A	22.5A	0A	73.988	75.886%	408	7.6	44.49°C	0.871
	12.087V	5.063V	3.226V	5.052V	97.497				52.61°C	229.88V
CL4	70.713A	0A	0A	0A	849.652	90.603%	1359	41.0	45.72°C	0.989
	12.016V	5.059V	3.275V	5.105V	937.771				55.7°C	229.79V

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Anex

Superframe SF-G850M

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	1.230A	0.493A	0.5A	0.197A	20.004	61.163%	0	<6.0	40.49°C	0.609
	12.078V	5.074V	3.297V	5.067V	32.706				37.42°C	229.89V
40W	2.708A	0.69A	0.701A	0.296A	40.005	80.375%	0	<6.0	40.5°C	0.722
	12.076V	5.073V	3.296V	5.063V	49.774				37.2°C	229.88V
60W	4.184A	0.889A	0.903A	0.395A	60.004	84.48%	0	<6.0	41.37°C	0.813
	12.076V	5.063V	3.289V	5.059V	71.029				37.81°C	229.89V
80W	5.658A	1.087A	1.104A	0.495A	79.959	86.967%	0	<6.0	42.52°C	0.859
	12.076V	5.06V	3.287V	5.055V	91.941				38.71°C	229.89V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	5.53mV	5.77mV	5.52mV	5.17mV	Pass
20% Load	6.34mV	6.84mV	6.24mV	5.32mV	Pass
30% Load	17.98mV	6.84mV	6.09mV	5.53mV	Pass
40% Load	17.37mV	8.22mV	6.65mV	5.53mV	Pass
50% Load	17.06mV	7.51mV	6.80mV	6.09mV	Pass
60% Load	17.22mV	7.86mV	7.67mV	5.94mV	Pass
70% Load	18.04mV	10.62mV	12.73mV	6.86mV	Pass
80% Load	18.75mV	8.89mV	10.23mV	7.21mV	Pass
90% Load	19.47mV	9.20mV	9.67mV	7.78mV	Pass
100% Load	27.99mV	10.65mV	10.35mV	9.26mV	Pass
110% Load	29.52mV	11.30mV	10.78mV	10.13mV	Pass
Crossload1	12.62mV	10.82mV	9.90mV	9.60mV	Pass
Crossload2	8.75mV	12.05mV	6.39mV	9.72mV	Pass
Crossload3	6.14mV	5.87mV	11.87mV	9.21mV	Pass
Crossload4	18.25mV	9.13mV	8.56mV	11.25mV	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

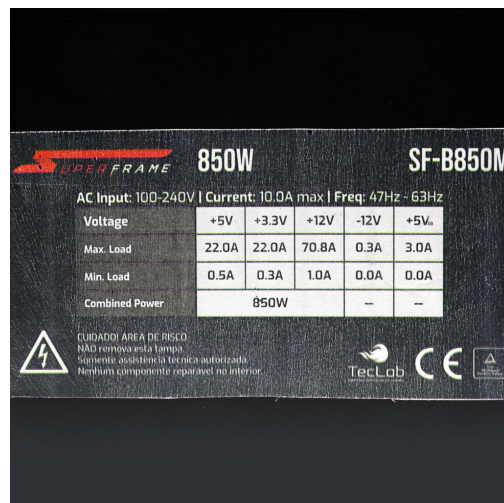
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Anex

Superframe SF-G850M



Top side



Power specifications label

CERTIFICATIONS 115V




Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



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