



SilverStone HELA 2500Rz (1650W@115V)

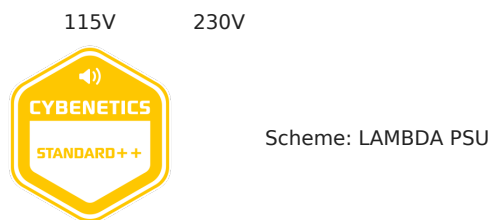
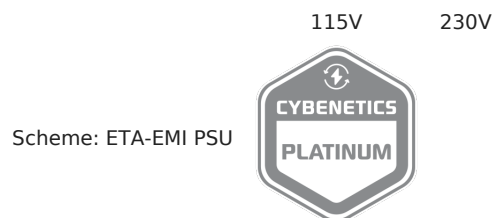
Serial Number DEHA250M25160033

Lab ID SL25002816

Certification ID 252816

Test Result Report ID: 25PS2816A

Certificate Issue Date: May 15, 2025



A handwritten signature in blue ink, appearing to read "A. Bitziopoulos", is written over a faint circular stamp.

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	SilverStone
Model	HELA 2500Rz (1650W@115V)
OEM/ODM	Sirfa
Serial Number	DEHA250M25160033
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15-20
Rated Frequency (Hz)	50-60

Rated Power (W)	2500
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	135mm Dual Ball Bearing Fan (RL4Z B1322512EH-3M)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	SL25002816
Date of receipt	Apr 29, 2025
Testing Date	May 14, 2025
Report Issued Date	May 15, 2025
DUT Notes	The device's Leakage current (3.72mA) exceeds the limit (3.5mA). The +12V OCP triggering points are misconfigured.
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 24 pin (600mm)	1	1	16-18AWG	No
4+4 pin EPS12V (600mm)	4	4	16AWG	No
6+2 pin PCIe (650mm+150mm)	2	4	16-18AWG	No
6+2 pin PCIe (600mm)	3	3	16AWG	No
12+4 pin PCIe (600mm) (600W)	4	4	16-24AWG	No
SATA (550mm+105mm+105mm+105mm)	3	12	18AWG	No
4-pin Molex (550mm+105mm+105mm+105mm)	1	4	18AWG	No

Protection Features(Manufacturer)

Over Power Protection	?
Over Current (+12V) Protection	?
Over Temperature Protection	✓
Short Circuit Protection	✓
Surge Protection	✓
Inrush Current Protection	✓
Fan Failure Protection	✗

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	22	22	137.5	3	0.3
	Watts	120		1650	15	6
Total Max. Power (W)		2500				

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	✓
ALPM (Alternative Low Power Mode) compatible	✓

Performance Summary 115V

Accredited	
Average Efficiency (>1450 load combinations)	89.954%
Average Noise Output (>1450 Load Combinations)	33.41dBA
Average PF (>1450 Load Combinations)	0.991
Efficiency With 10W (≤500W) or 2% (>500W) Load	66.696%

Standby Power Consumption	0.1106W
Non-Accredited	
12V Ripple (Full Load)	33.32mV
5V Ripple (Full Load)	15.22mV
3.3V Ripple (Full Load)	16.51mV
5VSB Ripple (Full Load)	13.22mV
12V Load Regulation	1.27%
5V Load Regulation	1.21%
3.3V Load Regulation	1.60%
5VSB Load Regulation	2.74%
Inrush Current	32.510A

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	18.6
AC Loss to PWR_OK Hold Up Time (ms)	16.3
PWR_OK Inactive to DC Loss Delay (ms)	2.3

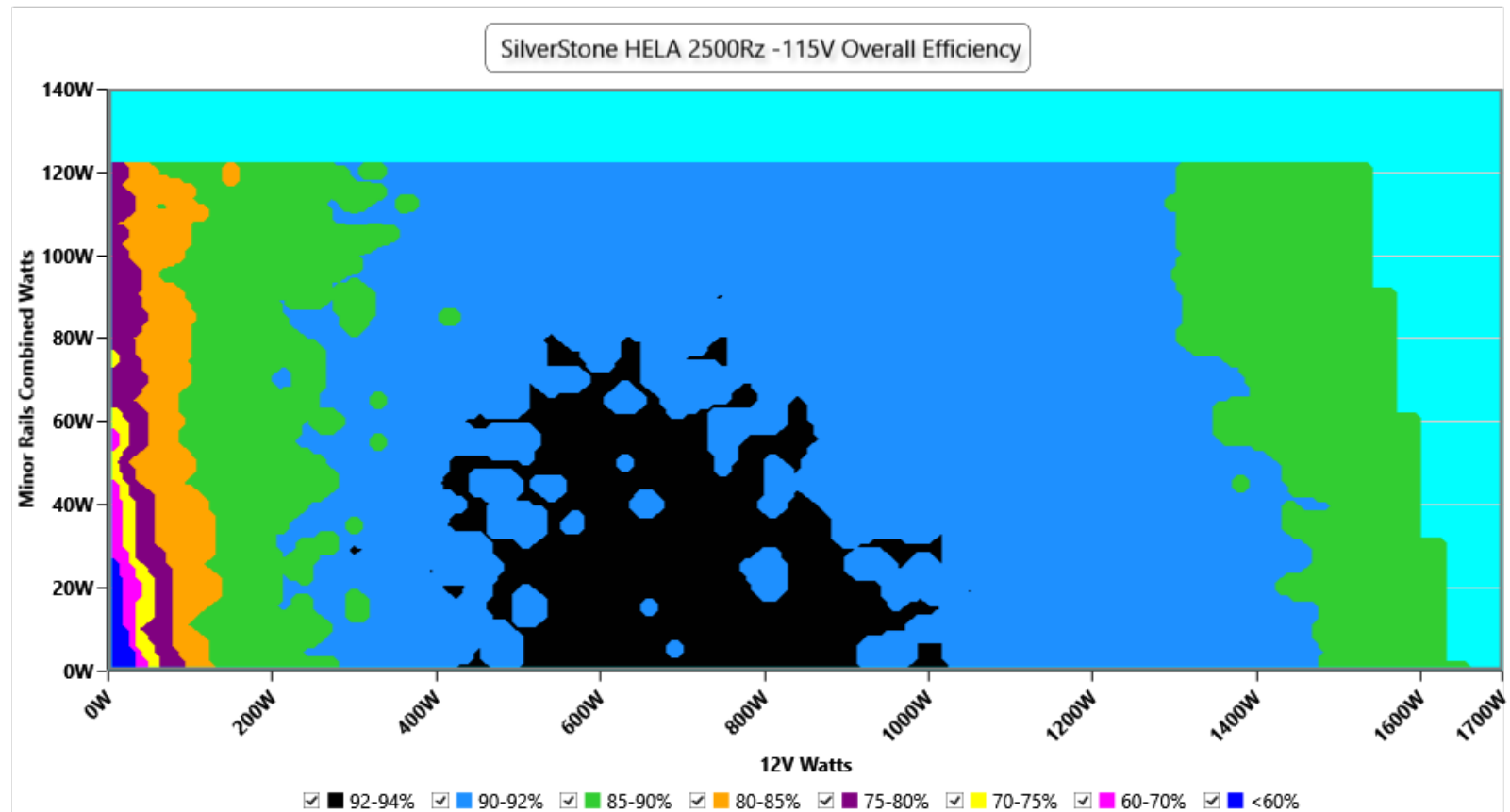
Stromverbrauch im Ruhezustand

Tables 115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.07 V	115.03 V	113.85 V	115.11 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 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:	0.14 %	0.10 %	N/A	0.20 %	2.00 %	PASS
Real Power:	0.111 W	0.085 W	N/A	0.137 W	N/A	N/A
Apparent Power:	9.943 W	9.391 W	N/A	10.516 W	N/A	N/A
Power Factor:	0.012	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

115V

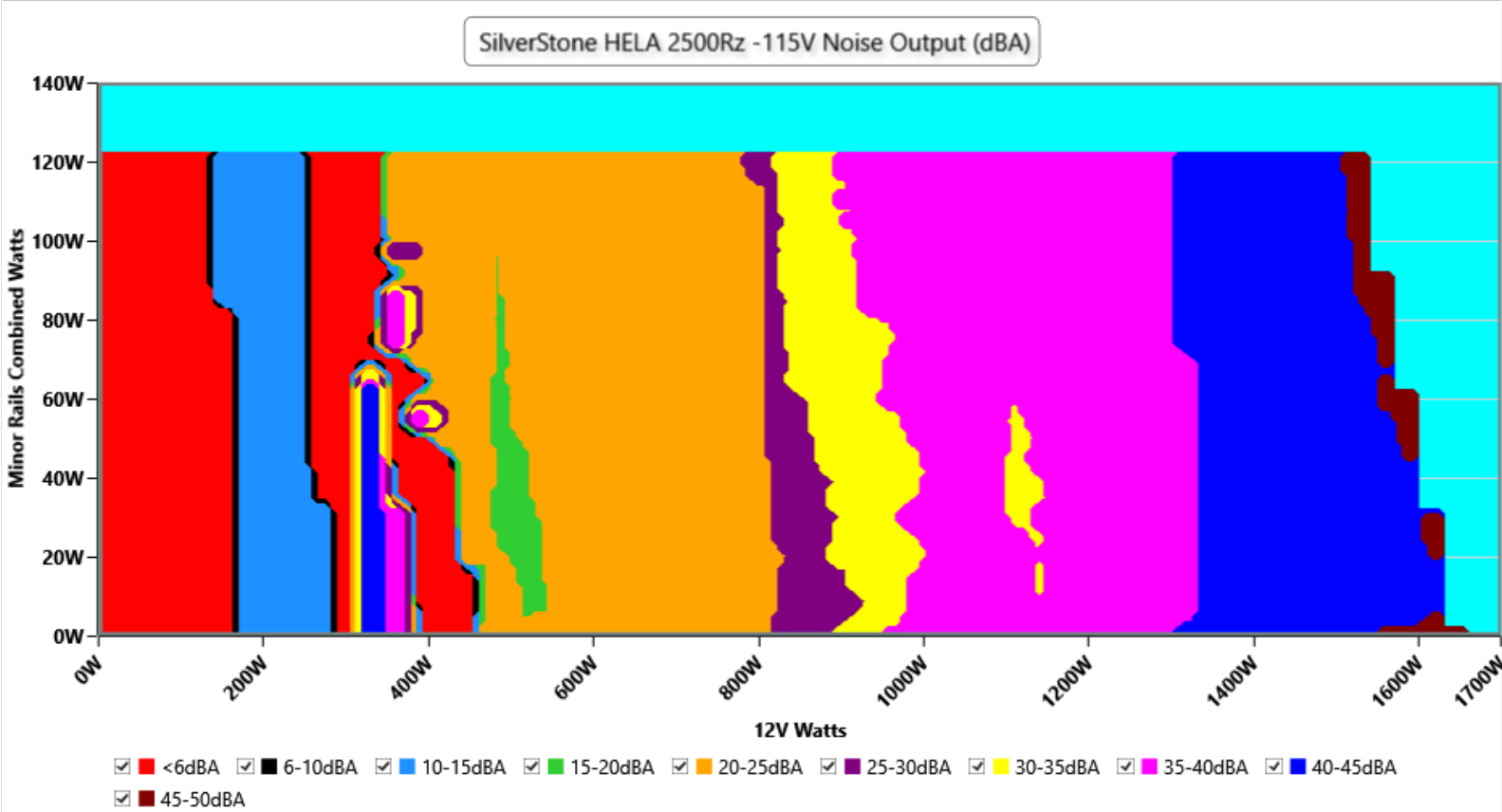


INFO

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

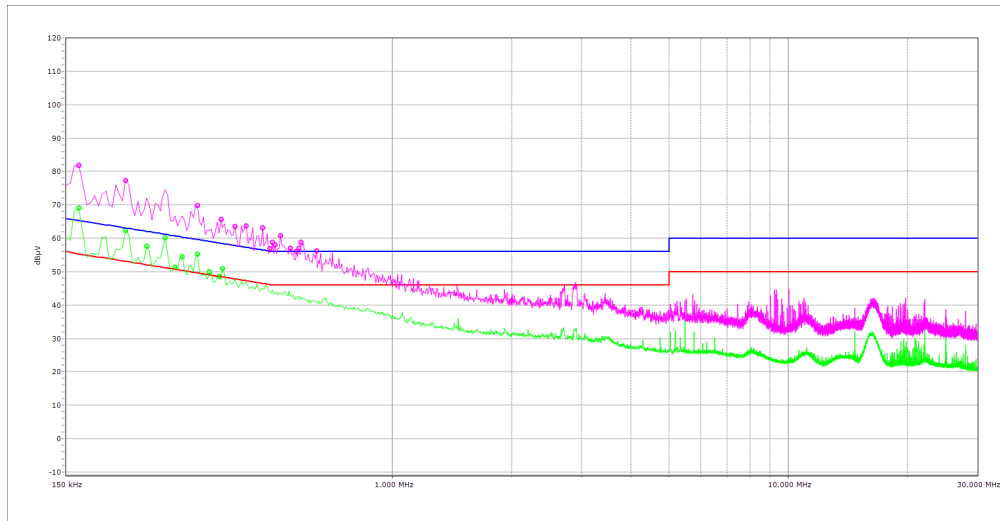
115V



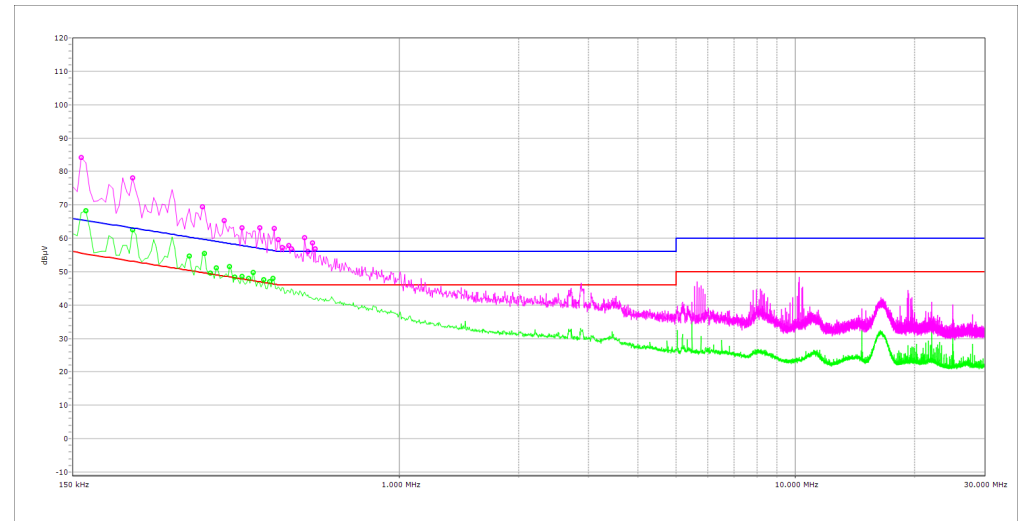
INFO

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

Conducted Emissions EN 55032 & CISPR 32



NEUTRAL



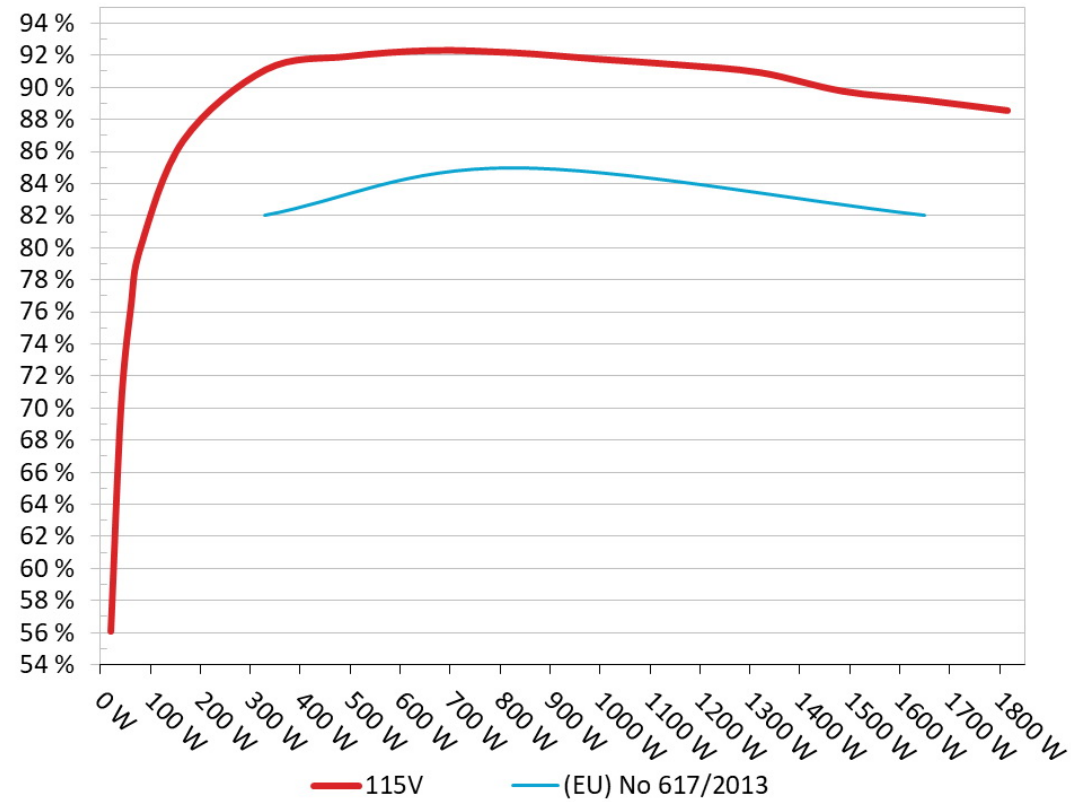
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Indicative Performance

Efficiency under high ambient temperature

Efficiency: SilverStone HELA 2500Rz

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

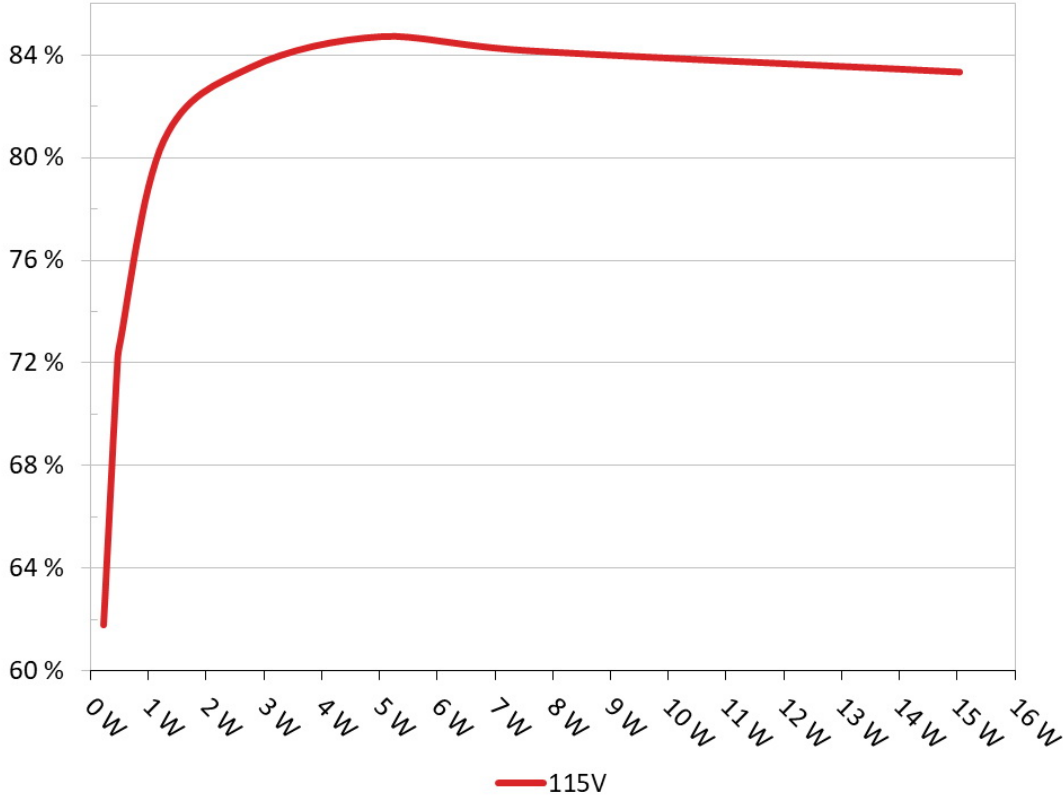


INFO

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: SilverStone HELA 2500Rz
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

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228W	61.783%	0.039
	5.067V	0.369W		114.83V

2	0.09A	0.456W	71.549%	0.067
	5.066V	0.637W		114.83V
3	0.55A	2.782W	83.539%	0.276
	5.058V	3.33W		114.83V
4	1A	5.05W	84.734%	0.382
	5.05V	5.96W		114.83V
5	1.5A	7.563W	84.187%	0.431
	5.042V	8.984W		114.83V
6	3A	15.05W	83.35%	0.52
	5.016V	18.056W		114.83V

Protection Features

OCP (Normal @ 26.1°C)	12V: NaNA (NaN%), NaNV 5V: 31.1A (141.36%), 4.972V 3.3V: 31.1A (141.36%), 3.196V 5VSB: 5.6A (186.67%), 4.972V
OCP (Hot @ 43.5°C)	12V: NaNA (NaN%), NaNV 5V: 31.3A (142.27%), 4.945V 3.3V: 31.2A (141.82%), 3.187V 5VSB: 5.5A (183.33%), 4.971V
OPP (Normal @ 0.0°C)	0.00W (0.00%)
OPP (Hot @ 0.0°C)	0.00W (0.00%)
OTP	✓ (100°C @ Heat Sink)
SCP	12V to Earth: ✓ 5V to Earth: ✓ 3.3V to Earth: ✓ 5VSB to Earth: ✓ -12V to Earth: ✓
PWR_OK	Proper Operation
UVP (Full Load @ 90V)	✓
UVP (No Damage @ 80V)	✓
Conducted Emissions EN55032 & CISPR 32	✗
NLO	✓

Fan Failure Protection	X
SIP	Surge: MOV Inrush: NTC & Bypass Relay

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
10%	11.755A	1.994A	2.006A	0.991A	164.948	86.656%	524	15.3	40.74°C	0.954
	12.195V	5.014V	3.289V	5.045V	190.406				48.93°C	114.8V
20%	24.581A	2.995A	3.014A	1.192A	329.947	91.075%	522	15.2	40.91°C	0.996
	12.166V	5.008V	3.285V	5.033V	362.347				48.9°C	114.73V
30%	37.733A	3.497A	3.52A	1.394A	494.327	91.901%	1038	36.2	41.24°C	0.996
	12.145V	5.004V	3.281V	5.021V	537.857				47.68°C	114.67V
40%	50.975A	4A	4.028A	1.597A	659.559	92.27%	1037	36.2	41.56°C	0.996
	12.131V	4.999V	3.277V	5.009V	714.859				47.2°C	114.62V
50%	63.909A	5.007A	5.043A	1.801A	824.883	92.134%	1211	41.4	42.43°C	0.995
	12.117V	4.993V	3.272V	4.997V	895.357				48.12°C	114.57V
60%	76.814A	6.016A	6.062A	2A	989.377	91.749%	1301	42.2	42.67°C	0.994
	12.102V	4.987V	3.267V	4.985V	1076.471				48.42°C	114.45V
70%	89.800A	7.028A	7.085A	2.212A	1154.762	91.384%	1537	46.3	43.25°C	0.993
	12.089V	4.98V	3.261V	4.973V	1263.715				49.79°C	114.43V
80%	102.823A	8.042A	8.11A	2.318A	1319.571	90.896%	1544	46.5	43.57°C	0.993
	12.076V	4.973V	3.255V	4.962V	1437.796				50.88°C	114.41V
90%	116.240A	8.554A	8.614A	2.424A	1484.985	89.734%	1886	50.4	44.2°C	0.992
	12.065V	4.968V	3.25V	4.951V	1541.012				51.77°C	114.31V
100%	129.448A	9.068A	9.152A	3.042A	1649.797	89.169%	2003	52	46.16°C	0.992
	12.052V	4.962V	3.245V	4.931V	1800.358				53.17°C	114.27V
110%	142.549A	10.091A	10.284A	3.048A	1814.423	88.529%	2165	52.3	46.96°C	0.991
	12.038V	4.954V	3.238V	4.922V	1785.19				54.68°C	114.11V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL1	0.113A	14.518A	14.679A	0A	121.276	79.378%	0	<6.0	40.36°C	0.949
	12.182V	4.973V	3.249V	5.056V	152.847				41.1°C	114.81V
CL2	0.113A	22.111A	0A	0A	111.291	77.579%	0	<6.0	41.52°C	0.948
	12.205V	4.971V	3.267V	5.06V	143.598				40.47°C	114.8V
CL3	0.113A	0A	22.509A	0A	73.978	70.623%	523	15.2	41.32°C	0.94
	12.193V	4.986V	3.225V	5.059V	104.824				49.5°C	114.81V
CL4	136.794A	0A	0A	0A	1649.508	89.5%	1911	50.6	44.13°C	0.992
	12.058V	4.987V	3.263V	4.991V	1795.076				49.25°C	114.57V

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])	Temps (In/Out)	PF/AC Volts
20W	1.216A	0.498A	0.501A	0.197A	19.996	56.057%	0	<6.0	38.35°C	0.87
	12.205V	5.019V	3.294V	5.066V	35.83				36.78°C	114.83V
40W	2.678A	0.697A	0.701A	0.296A	39.997	69.847%	0	<6.0	40.48°C	0.914
	12.205V	5.022V	3.297V	5.064V	57.36				37.08°C	114.82V
60W	4.140A	0.896A	0.901A	0.395A	59.997	76.276%	0	<6.0	43.35°C	0.93
	12.205V	5.022V	3.296V	5.061V	78.724				38.19°C	114.81V
80W	5.596A	1.095A	1.102A	0.494A	79.932	80.038%	0	<6.0	45.36°C	0.938
	12.205V	5.02V	3.294V	5.058V	99.889				39.05°C	114.81V

The results above are not used in the certification process

Ripple Measurements 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	17.08mV	15.50mV	15.39mV	11.49mV	Pass
20% Load	16.83mV	14.06mV	13.80mV	9.44mV	Pass
30% Load	18.82mV	14.58mV	14.83mV	10.11mV	Pass
40% Load	18.52mV	15.55mV	15.59mV	10.26mV	Pass
50% Load	18.36mV	14.99mV	15.70mV	10.32mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
60% Load	19.64mV	15.24mV	15.44mV	10.67mV	Pass
70% Load	20.76mV	15.65mV	16.52mV	11.65mV	Pass
80% Load	23.88mV	16.37mV	17.34mV	13.29mV	Pass
90% Load	20.56mV	15.55mV	16.88mV	12.16mV	Pass
100% Load	33.32mV	15.22mV	16.51mV	13.22mV	Pass
110% Load	34.75mV	15.15mV	17.85mV	13.50mV	Pass
Crossload1	19.84mV	16.93mV	17.42mV	12.01mV	Pass
Crossload2	18.56mV	18.43mV	16.42mV	11.65mV	Pass
Crossload3	17.34mV	15.70mV	18.93mV	11.54mV	Pass
Crossload4	31.24mV	12.54mV	14.70mV	10.40mV	Pass

The results above are not used in the certification process

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Top side



Power specifications label

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CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus

www.cybenetics.com - info@cybenetics.com