

Lab ID#: AS19650103
Receipt Date: Aug 27, 2019
Test Date: Apr 9, 2019

Report: 19PS808A

Report Date: Jul 9, 2019

DUT INFORMATION

Brand	Asus ROG
Manufacturer (OEM)	Seasonic
Series	Rog Strix
Model Number	RSSS03-650G1
Serial Number	K7YEKG007689ZAB
DUT Notes	RSSS03-650G1

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	9-4.5
Rated Frequency (Hz)	47-63
Rated Power (W)	650
Type	ATX12V
Cooling	140mm Double Ball-Bearing Fan (FB14025BH)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	54	3	0.3
	Watts	100		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	18-22AWG	No
4+4 pin EPS12V (1000mm)	2	2	18AWG	No
6+2 pin PCIe (680mm+80mm)	2	4	18AWG	No
SATA (450mm+115mm+115mm+115mm)	1	4	18AWG	No
SATA (410mm+150mm+150mm+150mm)	1	4	18AWG	No
4 pin Molex (450mm+120mm+120mm)	1	3	18AWG	No
AC Power Cord (1400mm) - C13 coupler (EU)	1	1	18AWG	-
AC Power Cord (1370mm) - C13 coupler (British)	1	1	18AWG	-

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General Data	
Manufacturer (OEM)	Seasonic
PCB Type	Double Sided
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x Discharge IC
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x GBU1006 (600V, 10A @ 100°C)
APFC MOSFETS	2x Infineon IPA50R190CE (500V, 15.7A @ 100°C, 0.190hm)
APFC Boost Diode	1x NXP BYC8-600 (600V, 8A @ 109°C)
Hold-up Cap(s)	1x Hitachi (400V, 470uF, 2,000h @ 105°C, HU)
Main Switchers	4x Champion GPT10N50ADG (500V, 9.7A, 0.70hm)
APFC Controller	Champion CM6500UNX
Resonant Controllers	Champion CM6901T6
Topology	Primary side: Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x Nexperia PSMN2R6-40YS (40V, 100A @ 100°C, 3.7mOhm @ 100°C)
5V & 3.3V	DC-DC Converters: 4x ON Semiconductor NTMFS4C028N (30V, 12.3A @ 80°C, 4.73mOhm) PWM Controllers: ANPEC APW7159C
Filtering Capacitors	Electrolytics: 3x Nippon Chemi-Con (105°C, W), 5x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 5x Nichicon (4-10,000h @ 105°C, HE), 1x Rubycon (3-6,000h @ 105°C, YXG) Polymers: 25x FPCAP
Supervisor IC	Weltrend WT7527V (OCP, OVP, UVP, SCP, PG)
Fan Model	Everflow FB14025BH (135mm, 12V, 0.60A, Ball Bearing Fan)
5VSB Circuit	
Rectifier	1x PFC P10V45SP SBR (45V, 10A)
Standby PWM Controller	Excelliance MOS EM8569

RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	88.856%
Efficiency With 10W (≤500W) or 2% (>500W)	61.197
Average Efficiency 5VSB	76.316%
Standby Power Consumption (W)	0.0561810
Average PF	0.984
Avg Noise Output	21.29 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

230V

Average Efficiency	90.935%
Average Efficiency 5VSB	75.925%
Standby Power Consumption (W)	0.0782126
Average PF	0.934
Avg Noise Output	20.59 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

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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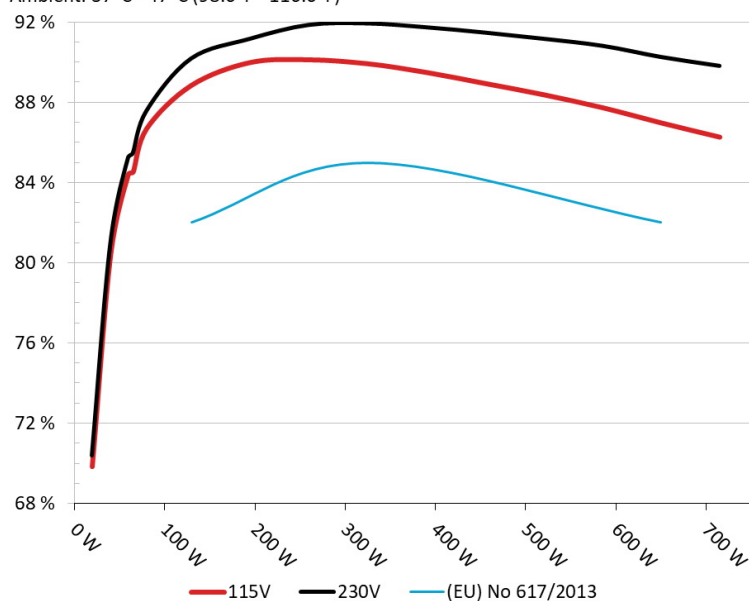
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: ASUS R550S3-650G1

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



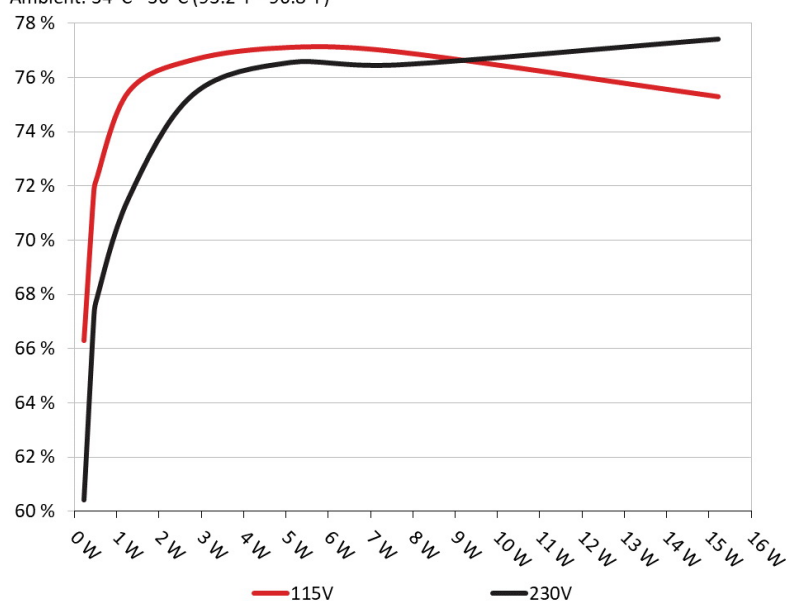
INFO

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: ASUS R550S3-650G1

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	0.232	66.286%	0.057
	5.138V	0.350		115.17V
2	0.090A	0.463	71.783%	0.101
	5.137V	0.645		115.17V
3	0.550A	2.820	76.672%	0.334
	5.126V	3.678		115.17V
4	1.000A	5.118	77.125%	0.403
	5.116V	6.636		115.17V
5	1.500A	7.660	76.954%	0.438
	5.105V	9.954		115.16V
6	3.000A	15.209	75.303%	0.483
	5.069V	20.197		115.16V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.232	60.417%	0.012
	5.138V	0.384		230.37V
2	0.090A	0.463	67.101%	0.034
	5.136V	0.690		230.37V
3	0.550A	2.820	75.381%	0.160
	5.126V	3.741		230.36V
4	1.000A	5.118	76.548%	0.240
	5.116V	6.686		230.36V
5	1.500A	7.659	76.460%	0.296
	5.105V	10.017		230.36V
6	3.000A	15.218	77.406%	0.371
	5.072V	19.660		230.36V

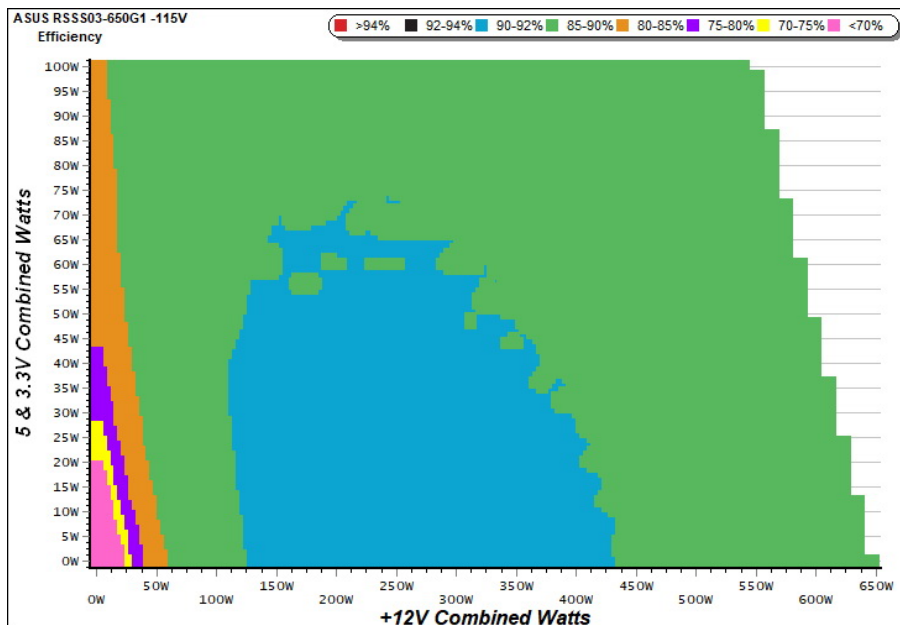
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115V

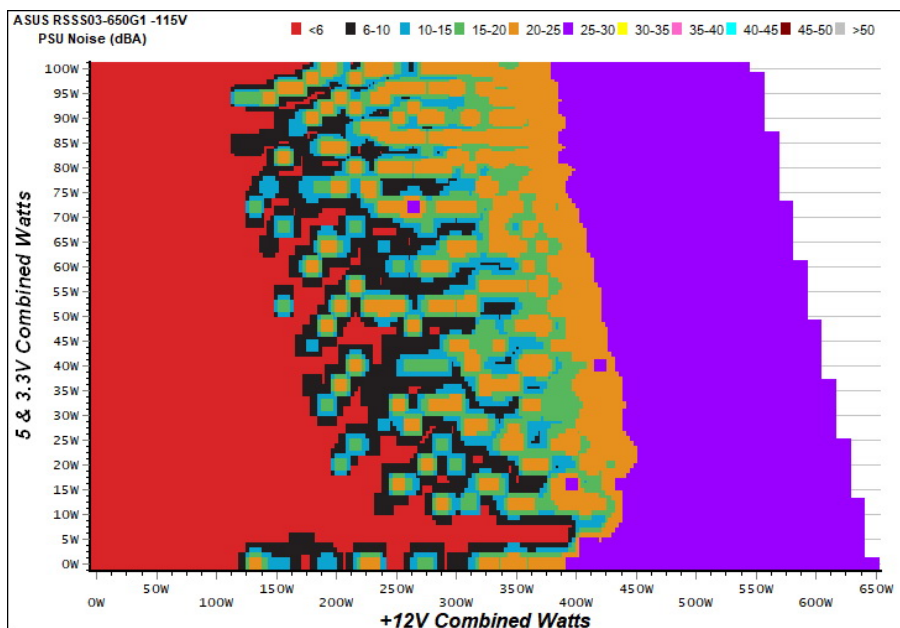
EFFICIENCY GRAPH 115V



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

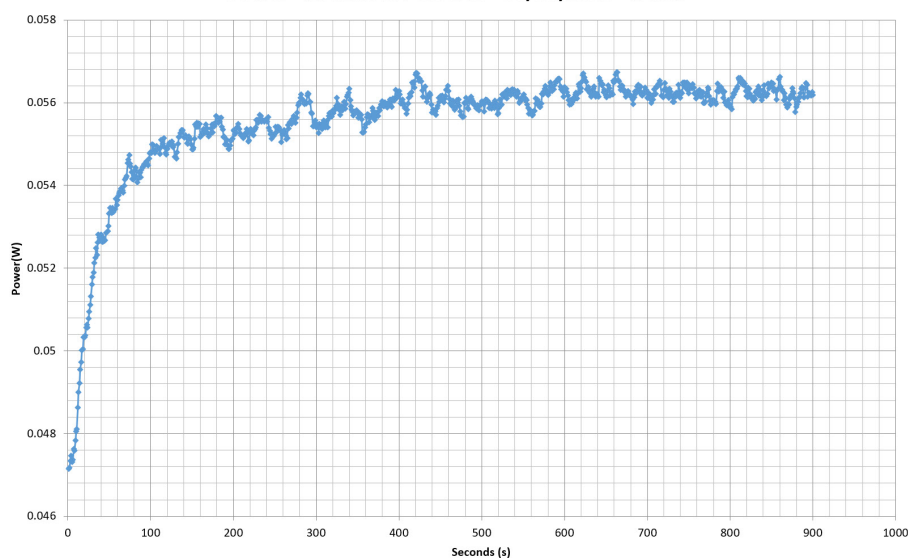
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - K7YEKG007689ZAB - 30/08/2019 - 14:55



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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COMMISSION REGULATION (EU) NO 617/2013 TESTING 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	3.583A	1.999A	1.989A	0.980A	65.022	84.513%	0	<6.0	45.07°C	0.951
	12.116V	5.006V	3.318V	5.106V	76.937				39.34°C	115.18V
2	8.137A	3.002A	2.987A	1.178A	129.511	88.832%	0	<6.0	46.60°C	0.977
	12.117V	5.001V	3.315V	5.093V	145.794				40.53°C	115.18V
5	22.665A	5.009A	4.990A	1.781A	325.164	89.909%	684	19.6	42.23°C	0.990
	12.118V	4.992V	3.307V	5.055V	361.659				49.54°C	115.17V
10	46.258A	9.055A	9.024A	3.011A	650.084	86.964%	1459	40.1	45.82°C	0.993
	12.114V	4.971V	3.291V	4.983V	747.529				56.73°C	115.17V

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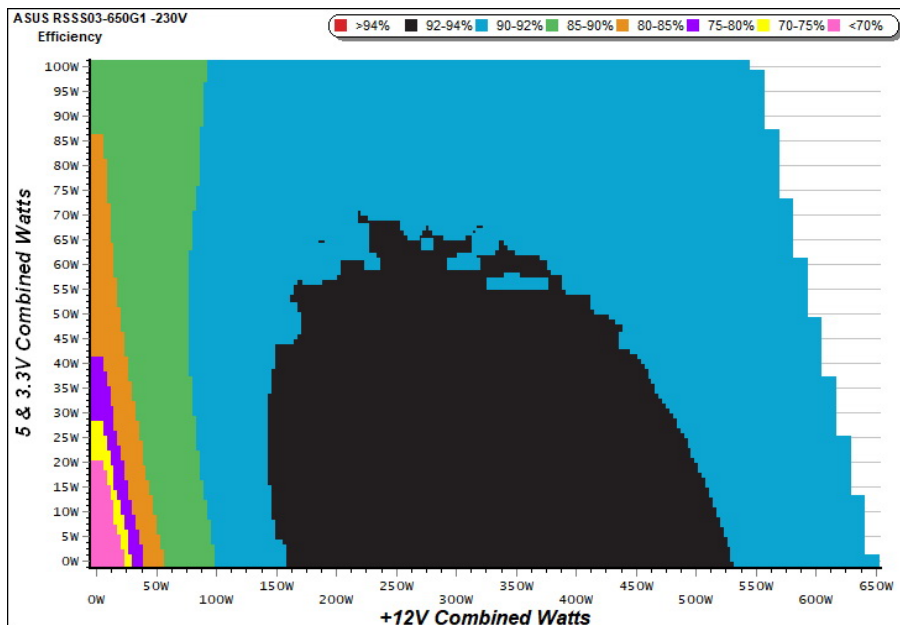
230V

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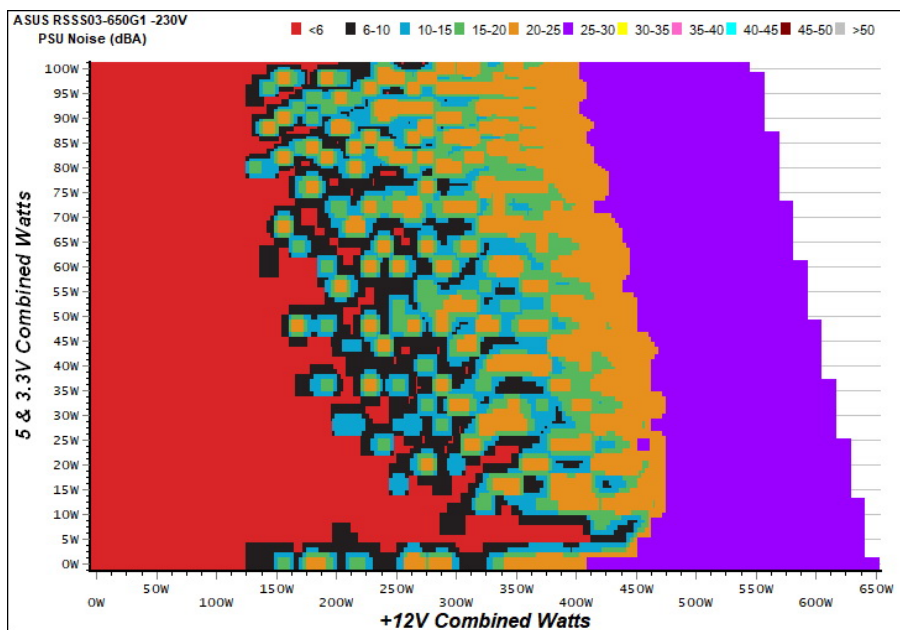
EFFICIENCY GRAPH 230V



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

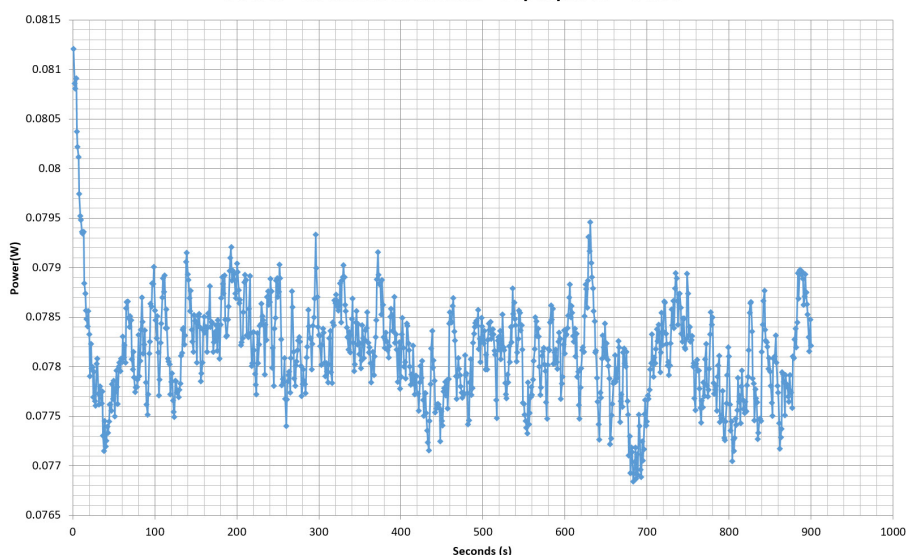
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -230V

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 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	3.576A	1.999A	1.988A	0.979A	64.921	85.440%	0	<6.0	44.76°C	0.752
	12.115V	5.005V	3.317V	5.106V	75.984				40.14°C	230.35V
2	8.131A	3.002A	2.987A	1.178A	129.424	90.167%	0	<6.0	45.78°C	0.880
	12.117V	4.999V	3.313V	5.092V	143.538				40.56°C	230.35V
5	22.661A	5.013A	4.993A	1.781A	325.111	91.918%	708	20.3	42.16°C	0.958
	12.118V	4.989V	3.304V	5.053V	353.698				48.64°C	230.37V
10	46.259A	9.066A	9.039A	3.013A	650.064	90.247%	1499	40.6	45.97°C	0.980
	12.113V	4.966V	3.286V	4.980V	720.317				56.16°C	230.39V

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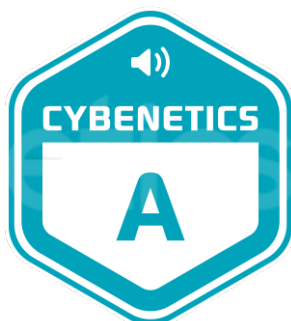
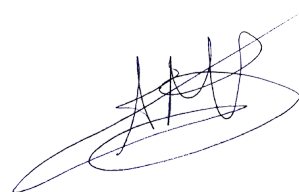


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Power specifications label

CERTIFICATIONS 115V

Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V



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