

Lab ID#: AD65001700
Receipt Date: Jul 31, 2020
Test Date: Aug 25, 2020

Report: 20PS1700A

Report Date: Aug 25, 2020

DUT INFORMATION

Brand	XPG
Manufacturer (OEM)	Channel Well Technology
Series	Pylon
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)	650
Type	ATX12V
Cooling	120mm Fluid Dynamic Bearing Fan (HA1225H12F-Z)
Semi-Passive Operation	X
Cable Design	Fixed cables

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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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	✓
ALPM (Alternative Low Power Mode) compatible	✓

115V

Average Efficiency	85.041%
Efficiency With 10W (≤500W) or 2% (>500W)	65.827
Average Efficiency 5VSB	79.715%
Standby Power Consumption (W)	0.0376381
Average PF	0.983
Avg Noise Output	32.21 dB(A)
Efficiency Rating (ETA)	SILVER
Noise Rating (LAMBDA)	Standard++

230V

Average Efficiency	87.344%
Average Efficiency 5VSB	78.013%
Standby Power Consumption (W)	0.0813144
Average PF	0.958
Avg Noise Output	32.25 dB(A)
Efficiency Rating (ETA)	SILVER
Noise Rating (LAMBDA)	Standard++

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	54	2.5	0.3
	Watts	110		648	12.5	3.6
Total Max. Power (W)		650				

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CABLES AND CONNECTORS

Native Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Caps
ATX connector 20+4 pin (660mm)	1	1	16-22AWG	No
8 pin EPS12V (660mm) / 4+4 pin EPS12V (+150mm)	1	1 / 1	18AWG	No
6+2 pin PCIe (580mm+150mm)	2	4	18AWG	No
SATA (550mm+150mm+150mm) / 4-pin Molex (+150mm)	2	6 / 2	18AWG	No
SATA (550mm+150mm) / 4-pin Molex (+150mm) / FDD (+150mm)	1	2 / 1 / 1	18-22AWG	No

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General Data	-
Manufacturer (OEM)	CWT
PCB Type	Single Sided
Primary Side	-
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x CAP200DG (Discharge IC)
Inrush Protection	NTC Thermistor SCK - 2R58
Bridge Rectifier(s)	1x GBU1506 (600V, 15A @ 100°C)
APFC MOSFETs	2x Champion GP18S50 (500V, 18A, Rds(on): 0.190hm)
APFC Boost Diode	1x On Semiconductor FFSP0665A (650V, 6A @ 153°C)
Bulk Cap(s)	1x Nippon Chemi-Con (400V, 470uF, 2,000h @ 105°C, KMW)
Main Switchers	2x Silan Microelectronics SVF20N50F (500V, 12.6 @ 100°C, Rds(on): 0.270hm)
PFC/PWM Combo Controller	Champion CM6800TX & Champion CM03X
Topology	Primary side: APFC, Double Forward Secondary side: Passive Rectification (12V) & DC-DC converters (5V & 3.3V)
Secondary Side	-
+12V SBRs	4x PFC PFR30L60CT (60V, 30A)
5V & 3.3V MOSFETs	4x Sync Power SPN3006 (30V, 57A @ 100°C, Rds(on): 5.5mOhm) PWM Controller: ANPEC APW7159C
Filtering Capacitors	Electrolytic: 6x Jun Fu (2-5,000h @ 105°C, WL), 4x Jun Fu (2,000h @ 105°C, WG), 3x CapXon (2-5,000h @ 105°C, KF), 4x CapXon (2,000h @ 105°C, GF) Polymer: 2x APAQ
Supervisor IC	INI1S429I - DCG
Fan Model	Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, Rifle Bearing Fan)
5VSB Circuit	-
Standby PWM Controller	Power Integrations TNY287PG

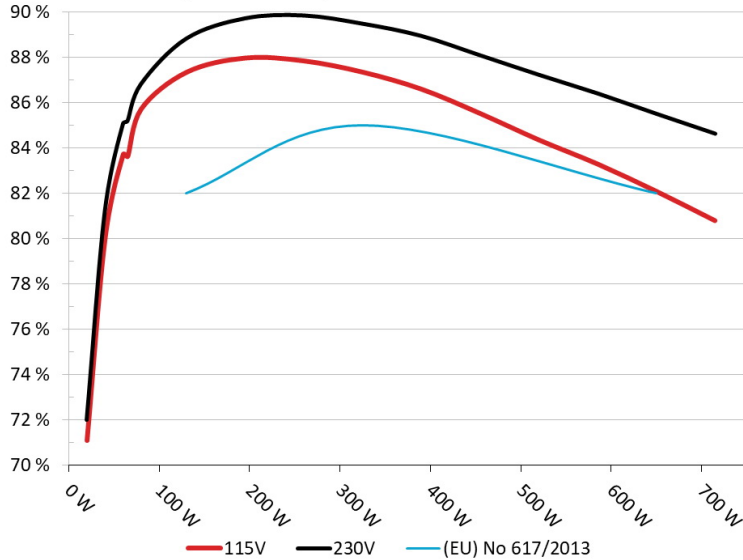
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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: XPG CSB650

Ambient: 32°C - 41°C (89.6°F - 105.8°F)



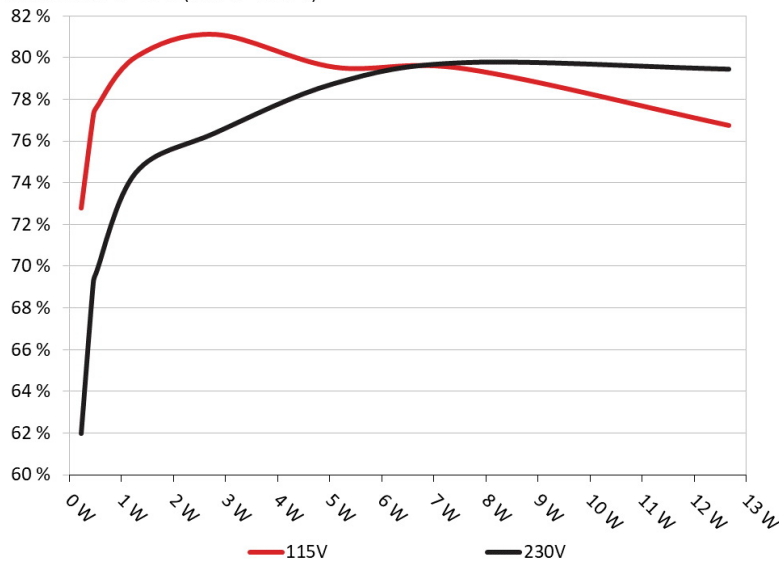
INFO

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: XPG CSB650

Ambient: 28°C - 32°C (82.4°F - 89.6°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	0.230	72.785%	0.037
	5.116V	0.316		115.18V
2	0.090A	0.461	77.219%	0.069
	5.115V	0.597		115.18V
3	0.550A	2.810	81.120%	0.277
	5.106V	3.464		115.18V
4	1.000A	5.099	79.548%	0.363
	5.098V	6.410		115.18V
5	1.500A	7.632	79.459%	0.410
	5.087V	9.605		115.17V
6	2.501A	12.671	76.752%	0.460
	5.067V	16.509		115.15V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	61.995%	0.013
	5.116V	0.371		230.38V
2	0.090A	0.461	69.219%	0.024
	5.115V	0.666		230.38V
3	0.550A	2.809	76.394%	0.120
	5.106V	3.677		230.38V
4	1.000A	5.099	78.761%	0.188
	5.098V	6.474		230.38V
5	1.500A	7.632	79.758%	0.242
	5.087V	9.569		230.38V
6	2.500A	12.672	79.443%	0.311
	5.068V	15.951		230.37V

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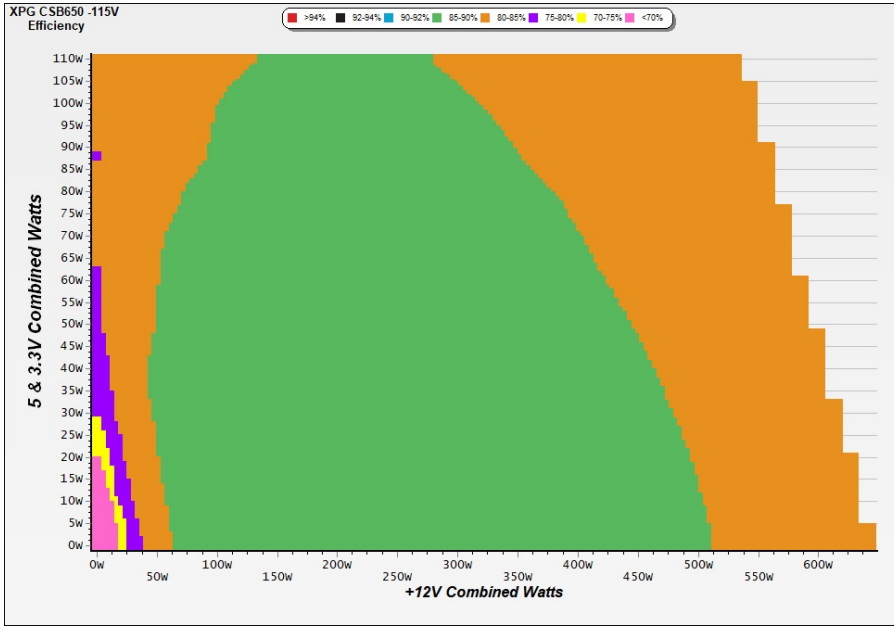
115V

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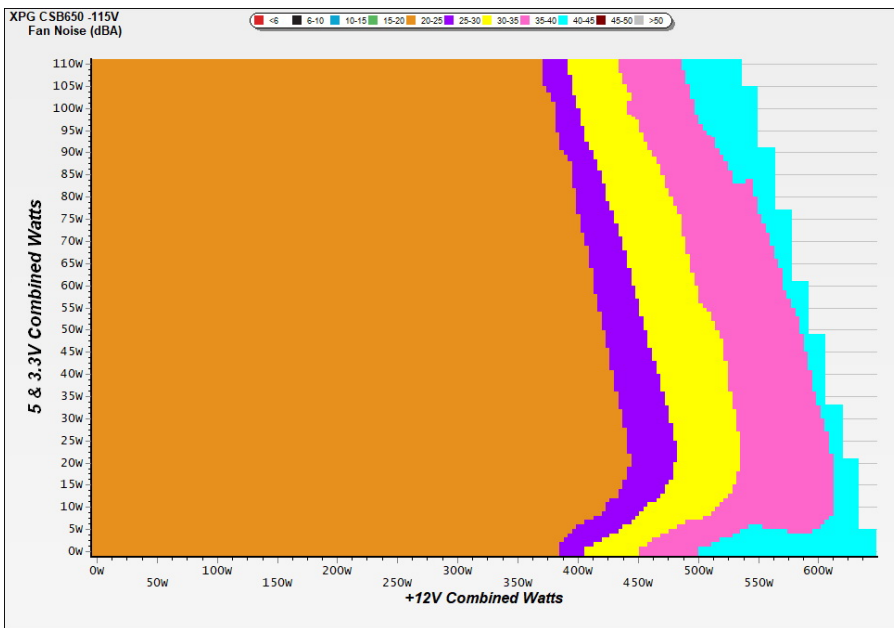
EFFICIENCY GRAPH 115V



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

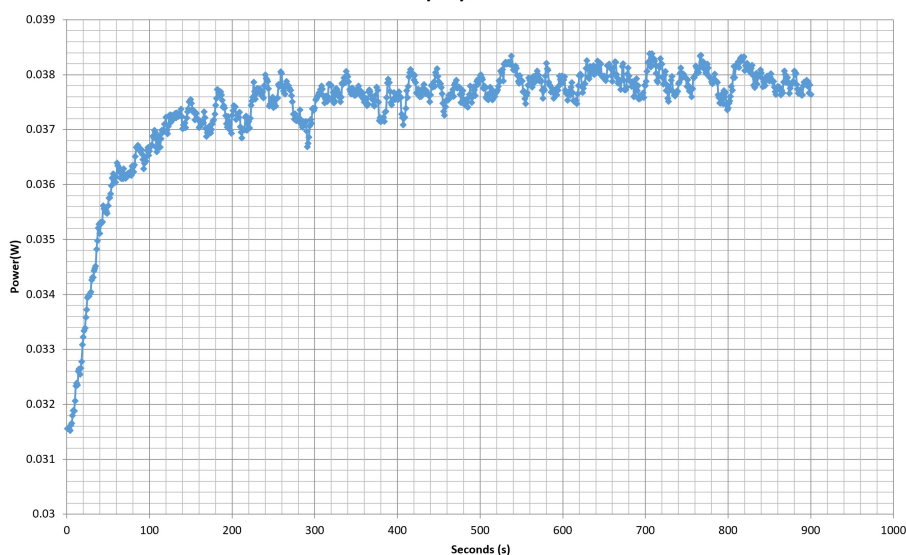
The PSU's noise in its entire operational range and under 30-32 °C (+-2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - 06/08/2020 - 10:05



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	3.570A	1.988A	1.996A	0.984A	64.964	83.616%	883	22.1	34.26°C	0.950
	12.146V	5.031V	3.306V	5.084V	77.693				37.42°C	115.13V
2	8.170A	2.985A	2.998A	1.183A	130.031	87.329%	885	22.5	34.93°C	0.973
	12.132V	5.027V	3.304V	5.073V	148.897				38.67°C	115.11V
5	22.707A	4.982A	5.005A	1.787A	325.073	87.332%	896	22.8	36.02°C	0.988
	12.091V	5.020V	3.299V	5.037V	372.226				41.91°C	115.04V
10	46.820A	8.984A	9.026A	2.511A	649.891	82.076%	2206	45.9	39.07°C	0.993
	12.018V	5.010V	3.290V	4.979V	791.820				48.68°C	115.09V

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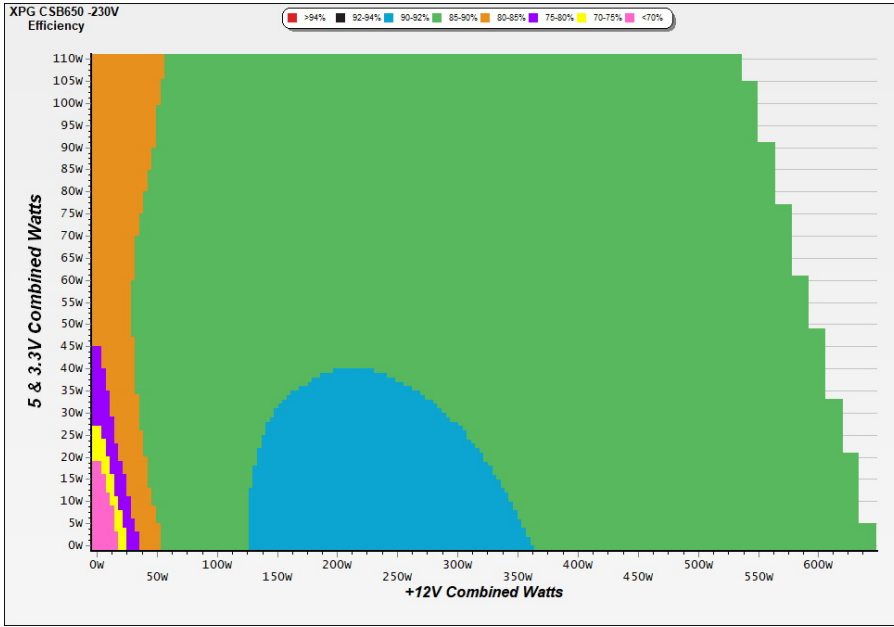
230V

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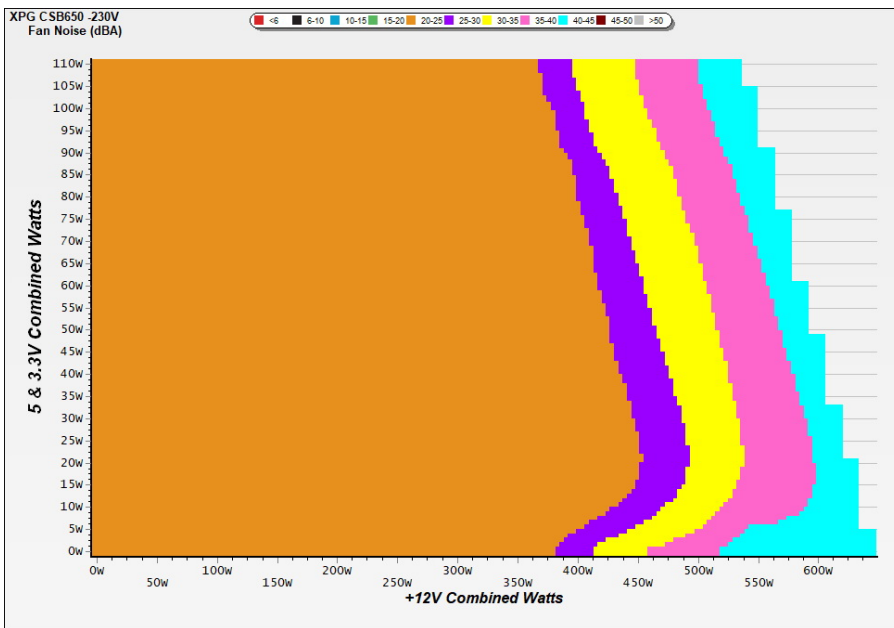
EFFICIENCY GRAPH 230V



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

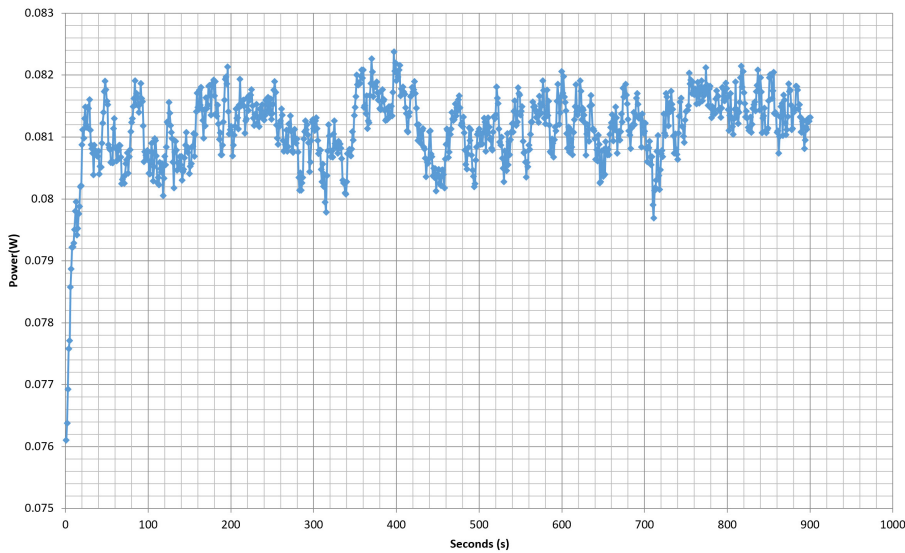
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VAMPIRE POWER -230V

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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	3.570A	1.988A	1.996A	0.984A	64.964	85.173%	882	22.1	34.12°C	0.852
	12.146V	5.031V	3.306V	5.084V	76.273				37.07°C	230.33V
2	8.171A	2.985A	2.997A	1.183A	130.033	88.817%	886	22.7	34.67°C	0.927
	12.131V	5.028V	3.304V	5.073V	146.405				38.43°C	230.32V
5	22.710A	4.981A	5.005A	1.788A	325.084	89.471%	897	22.8	36.53°C	0.974
	12.090V	5.020V	3.299V	5.036V	363.339				42.42°C	230.26V
10	46.831A	8.988A	9.029A	2.512A	649.952	85.499%	2185	45.8	39.00°C	0.987
	12.016V	5.009V	3.290V	4.978V	760.183				49.31°C	230.27V

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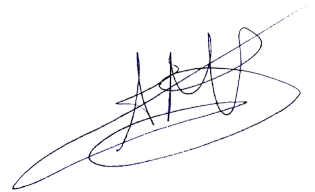


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Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



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