

Lab ID#: DC85001947  
Receipt Date: Nov 4, 2021  
Test Date: Jun 12, 2021

Report: 21PS1947A

Report Date: Dec 8, 2021

## DUT INFORMATION

Brand	Deepcool
Manufacturer (OEM)	Seasonic
Series	PQ-M
Model Number	DQ850-F21
Serial Number	2011110036D4214201195
DUT Notes	

## DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	12-6
Rated Frequency (Hz)	50-60
Rated Power (W)	850
Type	ATX12V
Cooling	120mm Fluid Dynamic Bearing Fan (HA1225H12F-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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## 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	88.594%
Efficiency With 10W (≤500W) or 2% (>500W)	66.798
Average Efficiency 5VSB	77.775%
Standby Power Consumption (W)	0.0432460
Average PF	0.978
Avg Noise Output	25.44 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A-

### 230V

Average Efficiency	90.854%
Average Efficiency 5VSB	77.330%
Standby Power Consumption (W)	0.0693571
Average PF	0.944
Avg Noise Output	31.05 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard++

## POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	70	3	0.3
	Watts	100		510	15	3.6
Total Max. Power (W)		850				

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## CABLES AND CONNECTORS

### Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (610mm)	1	1	18AWG	No
4+4 pin EPS12V (660mm)	2	2	18AWG	No
6+2 pin PCIe (760mm)	3	3	18AWG	No
SATA (460mm+120mm+120mm+120mm)	2	8	18AWG	No
SATA (450mm+120mm) / 4-pin Molex (+120mm+120mm)	1	2 / 2	18AWG	No
4-pin Molex (450mm+120mm+120mm)	1	3	18AWG	No
AC Power Cord (1370mm) - C13 coupler	1	1	18AWG	-

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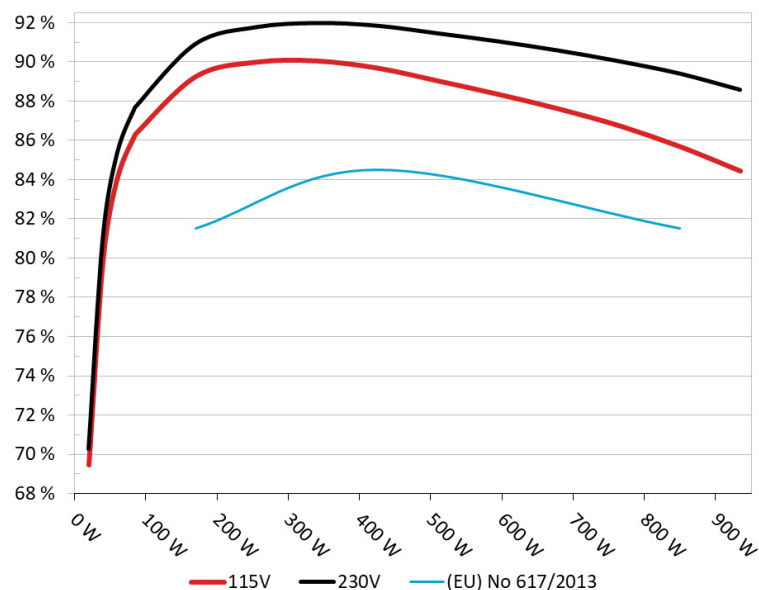
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General Data	-
Manufacturer (OEM)	Seasonic
PCB Type	Double Sided
Primary Side	-
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x Champion CM02X (Discharge IC)
Inrush Protection	NTC Thermistor MF72-5D15M (50hm) & Relay
Bridge Rectifier(s)	2x GBU1508 (800V, 15A @ 100°C)
APFC MOSFETs	2x Infineon IPA60R190P6 (600V, 12.7A @ 100°C, Rds(on): 0.19Ohm)
APFC Boost Diode	1x STMicroelectronics STTH8S06D (600V, 8A)
Bulk Cap(s)	1x Nippon Chemi-Con (400V, 680uF, 2,000h @ 105°C, KMR)
Main Switchers	4x Great Power GPT13N50DG (500V, 13A, Rds(on): 0.49Ohm)
APFC Controller	Champion CM6500UNX
Resonant Controller	Champion CM6901T6
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	4x Nexperia PSMN2R6-40YS (40V, 100A @ 100°C, Rds(on): 2.8mOhm)
5V & 3.3V	DC-DC Converter(s)
Filtering Capacitors	Electrolytic: 2x Nippon Chemi-Con (105°C, W), 5x Nippon Chemi-Con (2-5,000h @ 105°C, KZE), 6x Nippon Chemi-Con (4-10,000h @ 105°C, KY) Polymer: 17x FPCAP, 8x NIC, 2x no info
Supervisor IC	Weltrend WT7527V (OCP, OVP, UVP, SCP, PG)
Fan Model	Hong Hua HA1225H12F-Z (120mm, 12V, 0.58A, Fluid Dynamic Bearing Fan)
5VSB Circuit	-
Rectifier	1x M.C.C. MBR1045ULPS SBR (45V, 10A)
Standby PWM Controller	Excelliance MOS EM8569C

## EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

### Efficiency: Deepcool PQ850M

Ambient: 35°C - 48°C (95°F - 118.4°F)



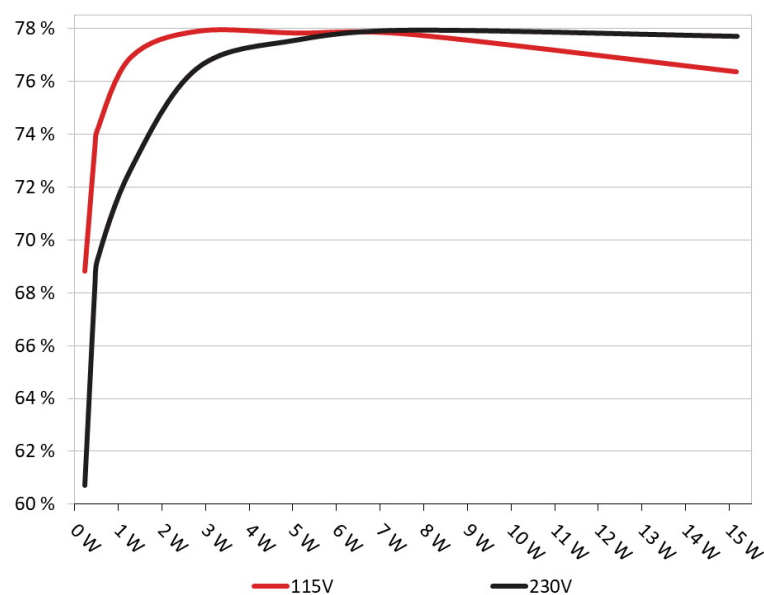
### INFO

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: Deepcool PQ850M

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	69.305%	0.054
	5.126V	0.333W		115.11V
2	0.09A	0.461W	73.998%	0.098
	5.125V	0.623W		115.11V
3	0.55A	2.813W	78.395%	0.334
	5.114V	3.588W		115.11V
4	1A	5.105W	78.324%	0.405
	5.104V	6.518W		115.11V
5	1.5A	7.64W	78.283%	0.442
	5.093V	9.759W		115.11V
6	3A	15.155W	76.86%	0.489
	5.051V	19.717W		115.11V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231W	61.192%	0.019
	5.126V	0.378W		230.24V
2	0.09A	0.461W	68.741%	0.033
	5.125V	0.671W		230.24V
3	0.55A	2.813W	76.996%	0.158
	5.114V	3.653W		230.24V
4	1A	5.104W	78.06%	0.239
	5.104V	6.539W		230.24V
5	1.5A	7.639W	78.426%	0.295
	5.092V	9.741W		230.23V
6	3A	15.173W	78.196%	0.374
	5.057V	19.404W		230.24V

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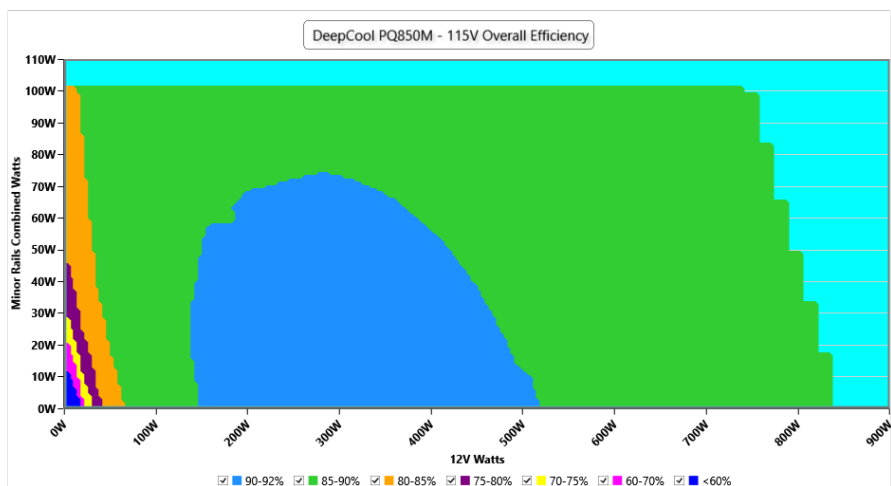
# 115V

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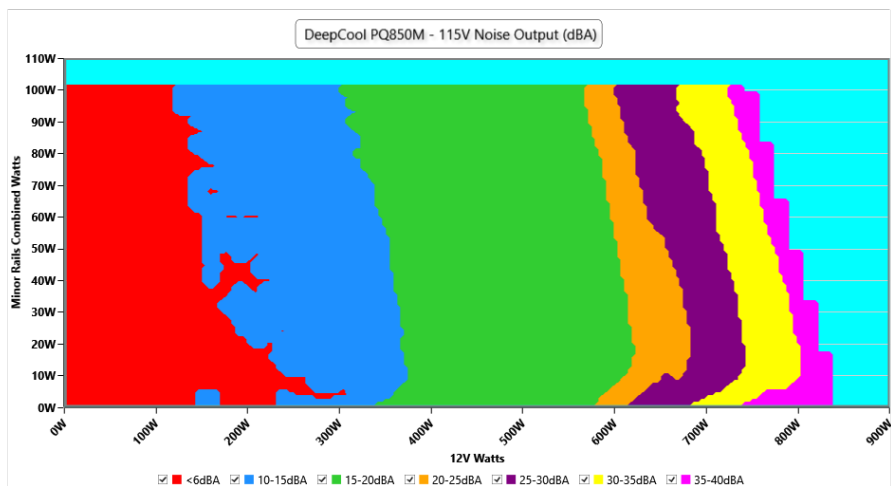
## EFFICIENCY GRAPH 115V



### 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

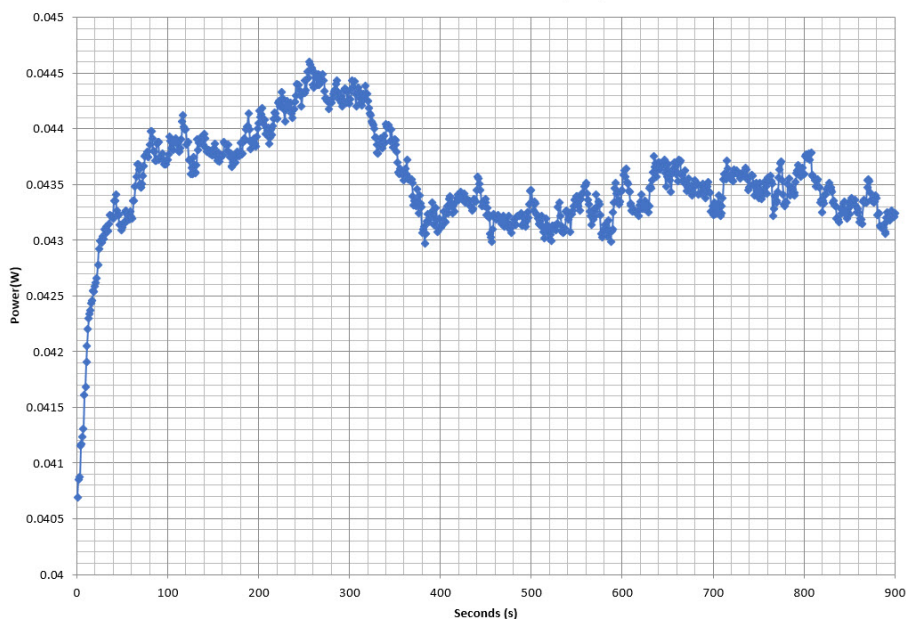
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## VAMPIRE POWER -115V

Power - 2011110036D4214201195 - 30/11/2021 - 15:21



### 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
10%	5.242A	1.983A	1.982A	0.982A	85.01	86.479%	0	<6.0	44.78°C	0.937
	12.098V	5.042V	3.33V	5.095V	98.302				40.65°C	115.12V
20%	11.495A	2.976A	2.973A	1.181A	169.972	89.733%	0	<6.0	45.01°C	0.962
	12.098V	5.041V	3.33V	5.083V	189.421				40.34°C	115.12V
50%	30.957A	4.962A	4.956A	1.784A	425.073	90.166%	731	17.2	42.11°C	0.984
	12.100V	5.039V	3.33V	5.046V	471.436				47.68°C	115.11V
100%	62.823A	8.943A	8.924A	3.016A	849.956	86.164%	2048	45.5	45.98°C	0.99
	12.101V	5.033V	3.328V	4.974V	986.442				55.77°C	115.08V

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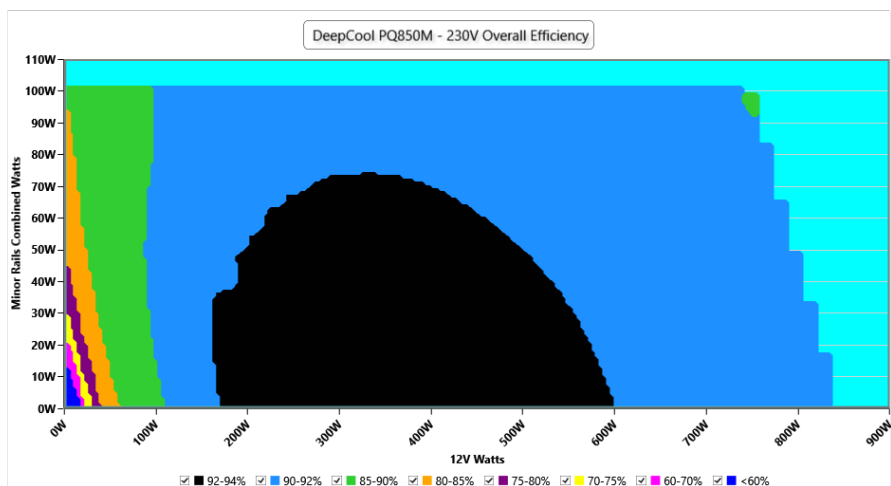
# 230V

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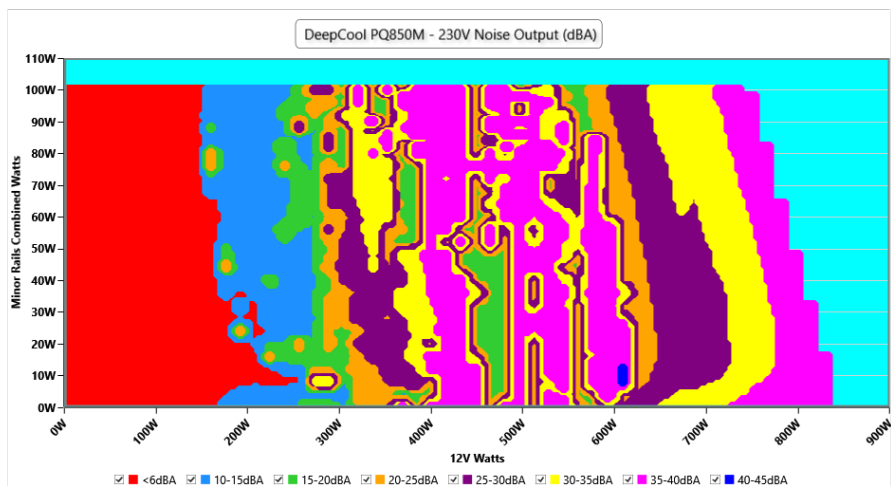
## EFFICIENCY GRAPH 230V



### 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

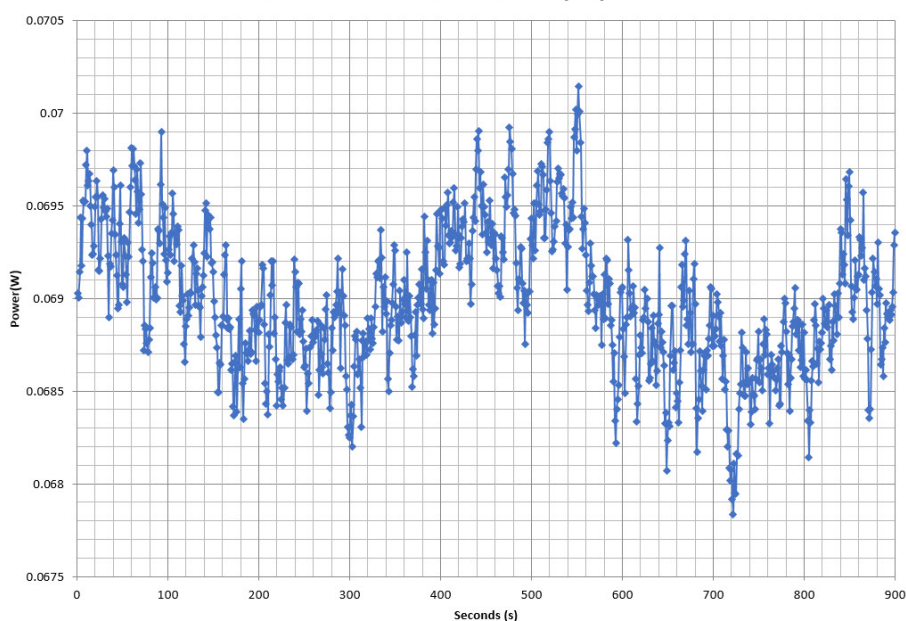
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## VAMPIRE POWER -230V

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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
10%	5.241A	1.983A	1.982A	0.981A	85.006	87.939%	0	<6.0	44.25°C	0.823
	12.098V	5.042V	3.33V	5.095V	96.665				40.1°C	230.23V
20%	11.493A	2.975A	2.973A	1.18A	169.954	91.405%	439	11.7	40.71°C	0.91
	12.098V	5.042V	3.33V	5.083V	185.935				45.09°C	230.23V
50%	30.955A	4.961A	4.957A	1.784A	425.043	92.337%	732	17.2	42.12°C	0.965
	12.099V	5.039V	3.328V	5.046V	460.319				47.43°C	230.23V
100%	62.829A	8.942A	8.931A	3.015A	849.902	89.897%	2049	45.5	45.85°C	0.981
	12.099V	5.033V	3.325V	4.976V	945.422				56.2°C	230.22V

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Power specifications label

## CERTIFICATIONS 115V

**Aristeidis Bitziopoulos**  
Lab Director

## CERTIFICATIONS 230V



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