Anex

Deepcool DQ850-M

Lab ID#: 523
Receipt Date: -
Test Date: -

Report:
Report Date: Oct 31, 2018

DUT INFORMATION

Brand	Deepcool
Manufacturer (OEM)	Channel Well Technology
Series	DQ-M
Model Number	DQ850-M
Serial Number	DQ850M-20161804000205
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	12
Rated Frequency (Hz)	47-63
Rated Power (W)	850
Type	ATX12V
Cooling	120mm Fluid Dynamic Bearing Fan (DF1202512CH-003)
Semi-Passive Operation	✗
Cable Design	Fully Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V MBPH	12V CPU	12V VGA1	12V VGA2	5VSB	-12V
Max. Power	Amps	22	22	25	25	40	40	2.5	0.3
	Watts	120		850				12.5	3.6
Total Max. Power (W)		850							

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (550mm)	1	1	18AWG	No
4+4 pin EPS12V (700mm)	2	2	18AWG	No
6+2 pin PCIe (500mm+100mm)	2	4	18AWG	No
SATA (550mm+150mm+150mm) / 4-pin Molex (+150mm)	1	3 / 1	20AWG	No
SATA (450mm+150mm+150mm) / 4-pin Molex (+150mm)	1	3 / 1	20AWG	No
4-pin Molex (550mm+150mm) / SATA (+150mm+150mm)	1	2 / 2	20AWG	No
4-pin Molex (450mm+150mm) / SATA (+150mm+150mm)	1	2 / 2	20AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	No

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RESULTS	
Temperature Range (°C /°F)	30-32 / 86-89.6
Average Efficiency	88.955
Efficiency With 10W (≤500W) or 2% (>500W) Load -115V	67.347
Average Efficiency 5VSB	78.416
Standby Power Consumption (W) -115V	0.0485640
Standby Power Consumption (W) -230V	0.0761723
Average PF	0.980
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
Avg Noise Output	27.02
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A-

TEST EQUIPMENT		
Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Chroma 61604, Keysight AC6804B	
Power Analyzers	N4L PPA1530 x2, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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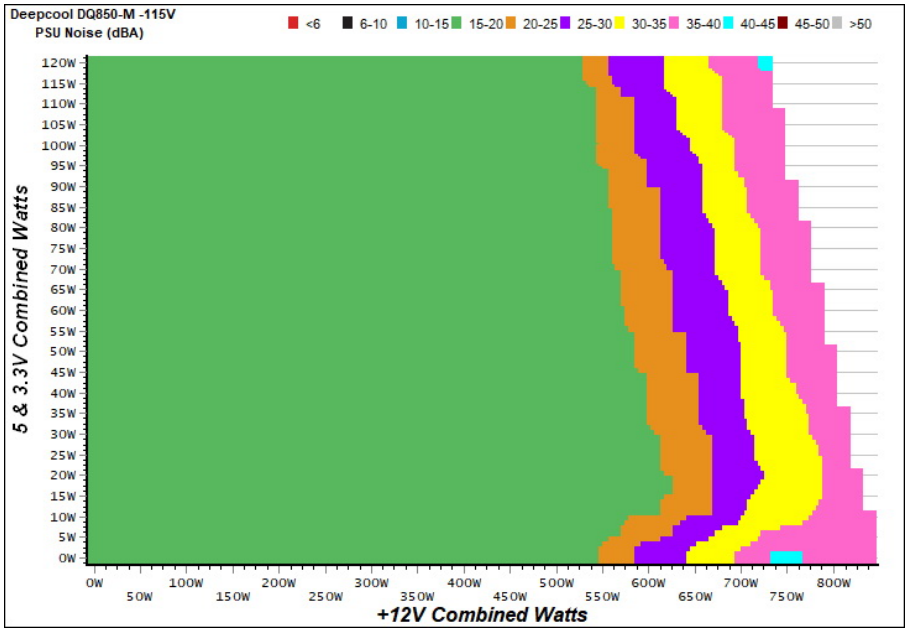
EFFICIENCY GRAPH

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



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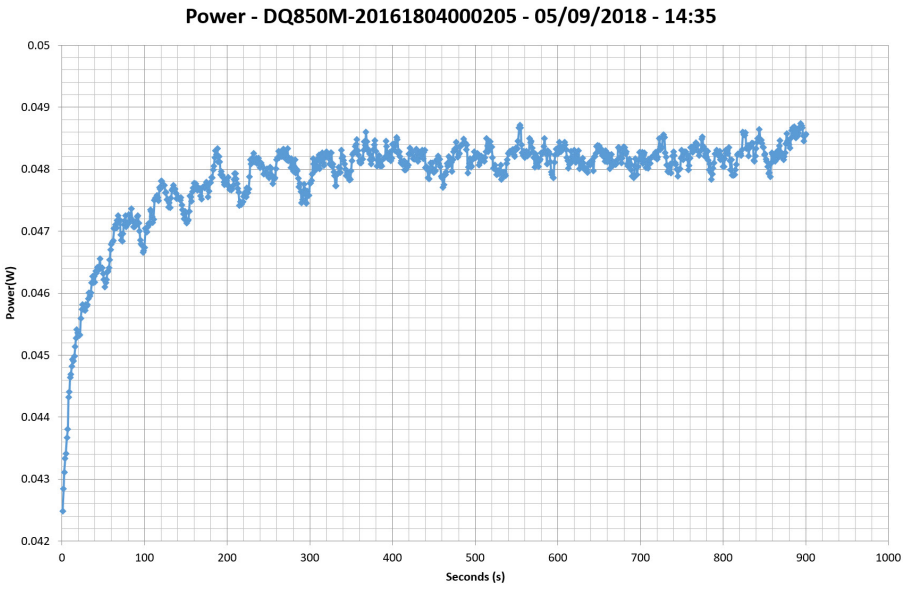
5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.229	70.462%	0.033
	5.093V	0.325		115.12V
2	0.090A	0.458	75.578%	0.061
	5.092V	0.606		115.12V
3	0.550A	2.796	80.046%	0.267
	5.082V	3.493		115.12V
4	1.000A	5.074	77.978%	0.365
	5.073V	6.507		115.12V
5	1.500A	7.596	77.844%	0.418
	5.063V	9.758		115.12V
6	2.500A	12.610	75.270%	0.466
	5.043V	16.753		115.11V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.229	64.146%	0.011
	5.093V	0.357		230.28V
2	0.090A	0.458	70.788%	0.020
	5.092V	0.647		230.27V
3	0.550A	2.796	77.323%	0.105
	5.082V	3.616		230.28V
4	1.000A	5.074	78.679%	0.172
	5.074V	6.449		230.28V
5	1.500A	7.595	78.534%	0.232
	5.063V	9.671		230.28V
6	2.500A	12.610	78.538%	0.310
	5.043V	16.056		230.28V

VAMPIRE POWER -115V



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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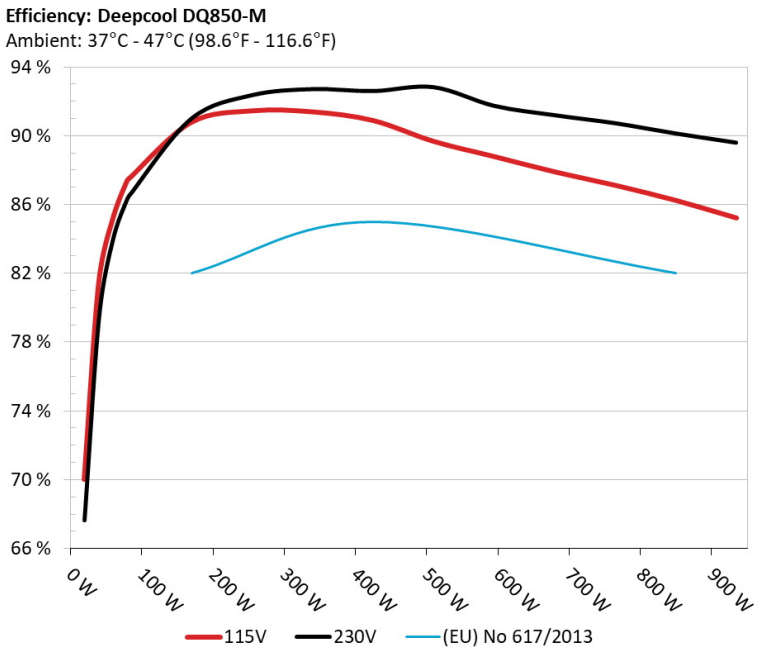
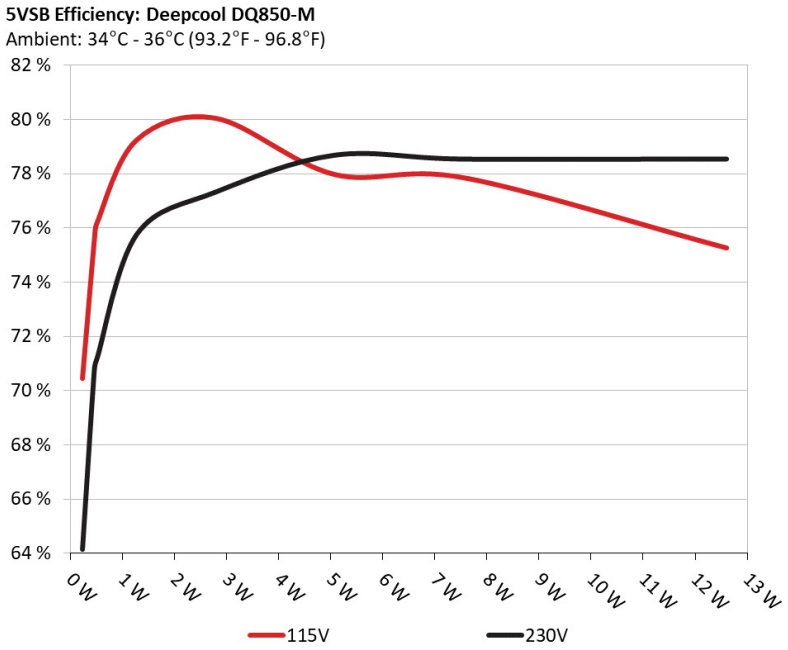
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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



INFO

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input

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10-110% LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	5.270A	1.983A	1.962A	0.986A	84.836	87.613%	752	18.7	40.02°C	0.966
	12.001V	5.044V	3.359V	5.070V	96.830				43.67°C	115.12V
2	11.546A	2.976A	2.946A	1.185A	169.339	90.793%	757	18.7	40.27°C	0.981
	11.991V	5.041V	3.357V	5.062V	186.511				44.22°C	115.11V
3	18.235A	3.475A	3.426A	1.385A	254.477	91.472%	760	18.8	41.21°C	0.983
	11.981V	5.038V	3.355V	5.056V	278.201				45.47°C	115.11V
4	24.930A	3.973A	3.936A	1.585A	339.675	91.416%	755	18.7	41.75°C	0.981
	11.972V	5.036V	3.354V	5.050V	371.569				46.21°C	115.11V
5	31.310A	4.968A	4.923A	1.785A	425.005	90.910%	757	18.7	42.21°C	0.980
	11.961V	5.033V	3.352V	5.042V	467.500				47.29°C	115.11V
6	37.630A	5.963A	5.911A	1.986A	509.517	89.698%	757	18.7	42.77°C	0.981
	11.951V	5.031V	3.350V	5.035V	568.039				48.24°C	115.11V
7	44.034A	6.962A	6.899A	2.188A	594.867	88.809%	1200	28.2	43.83°C	0.983
	11.940V	5.028V	3.348V	5.027V	669.828				49.66°C	115.23V
8	50.449A	7.961A	7.889A	2.391A	680.216	87.916%	1655	37.1	44.34°C	0.984
	11.929V	5.026V	3.346V	5.019V	773.708				50.45°C	115.14V
9	57.278A	8.463A	8.375A	2.392A	765.155	87.129%	1743	40.9	45.20°C	0.986
	11.918V	5.023V	3.344V	5.017V	878.183				51.82°C	115.29V
10	64.052A	8.965A	8.885A	2.495A	849.876	86.254%	1743	40.9	45.38°C	0.987
	11.907V	5.021V	3.342V	5.011V	985.319				52.78°C	115.15V
11	71.227A	8.970A	8.891A	2.496A	934.678	85.234%	1743	40.9	46.58°C	0.988
	11.898V	5.018V	3.341V	5.009V	1096.597				54.30°C	115.14V
CL1	0.148A	14.001A	14.001A	0.000A	119.102	83.836%	777	19.1	42.71°C	0.977
	11.986V	5.034V	3.346V	5.080V	142.065				47.83°C	115.13V
CL2	70.836A	1.002A	1.000A	1.000A	857.727	86.944%	1750	40.9	45.30°C	0.987
	11.919V	5.022V	3.351V	5.049V	986.525				52.41°C	115.21V

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20-80W LOAD TESTS

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.206A	0.497A	0.476A	0.197A	19.586	70.005%	752	18.7	0.822
	12.001V	5.049V	3.363V	5.089V	27.978				115.13V
2	2.468A	0.991A	0.980A	0.394A	39.933	81.419%	755	18.7	0.918
	12.007V	5.047V	3.361V	5.084V	49.046				115.12V
3	3.669A	1.487A	1.458A	0.591A	59.449	85.138%	760	18.8	0.948
	12.005V	5.045V	3.360V	5.079V	69.827				115.11V
4	4.937A	1.982A	1.963A	0.788A	79.845	87.400%	750	18.7	0.965
	12.002V	5.045V	3.359V	5.074V	91.356				115.11V

RIPPLE MEASUREMENTS

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.6 mV	12.4 mV	11.4 mV	7.4 mV	Pass
20% Load	12.6 mV	13.3 mV	13.0 mV	8.4 mV	Pass
30% Load	11.7 mV	13.8 mV	13.0 mV	9.5 mV	Pass
40% Load	13.0 mV	13.6 mV	13.8 mV	10.3 mV	Pass
50% Load	13.0 mV	14.6 mV	15.0 mV	11.5 mV	Pass
60% Load	11.9 mV	15.1 mV	15.7 mV	13.2 mV	Pass
70% Load	11.4 mV	17.3 mV	17.5 mV	19.1 mV	Pass
80% Load	12.4 mV	17.6 mV	19.6 mV	21.4 mV	Pass
90% Load	12.4 mV	17.4 mV	20.8 mV	18.4 mV	Pass
100% Load	19.9 mV	18.2 mV	21.9 mV	22.5 mV	Pass
110% Load	19.3 mV	18.7 mV	22.5 mV	25.0 mV	Pass
Crossload 1	17.4 mV	14.6 mV	21.3 mV	6.5 mV	Pass
Crossload 2	18.3 mV	17.5 mV	16.3 mV	17.0 mV	Pass

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HOLD-UP TIME & POWER OK SIGNAL (230V)	
Hold-Up Time (ms)	13.10
AC Loss to PWR_OK Hold Up Time (ms)	10.70
PWR_OK Inactive to DC Loss Delay (ms)	2.40

Top side

Power specifications label

CERTIFICATIONS