EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH
CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

Enermax RevoBron 700W

Lab ID#: 505
Receipt Date: Oct 8, 2018
Test Date: Oct 15, 2018

Report: 20PS505A
Report Date: Oct 19, 2018

DUT INFORMATION

Brand	Enermax
Manufacturer (OEM)	Channel Well Technology
Series	RevoBron
Model Number	ERB700AWT
Serial Number	1857020124006TR
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	47-63
Rated Power (W)	700
Type	ATX12V
Cooling	120mm Twister Bearing Fan (ED122512H-FD)
Semi-Passive Operation	✗
Cable Design	Semi Modular

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	

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH
CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

Enermax RevoBron 700W

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	85.342%
Efficiency With 10W (≤500W) or 2% (>500W)	64.421
Average Efficiency 5VSB	78.335%
Standby Power Consumption (W)	0.0374528
Average PF	0.986
Avg Noise Output	33.60 dB(A)
Efficiency Rating (ETA)	SILVER
Noise Rating (LAMBDA)	Standard++

230V

Average Efficiency	87.632%
Average Efficiency 5VSB	77.205%
Standby Power Consumption (W)	0.0777069
Average PF	0.963
Avg Noise Output	33.33 dB(A)
Efficiency Rating (ETA)	SILVER
Noise Rating (LAMBDA)	Standard++

POWER SPECIFICATIONS

Rail		3.3V	5V	12V1	12V2	5VSB	-12V
Max. Power	Amps	22	18	35	35	2.5	0.3
	Watts	130		696 (58A)		12.5	3.6
Total Max. Power (W)		700					

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

CABLES AND CONNECTORS

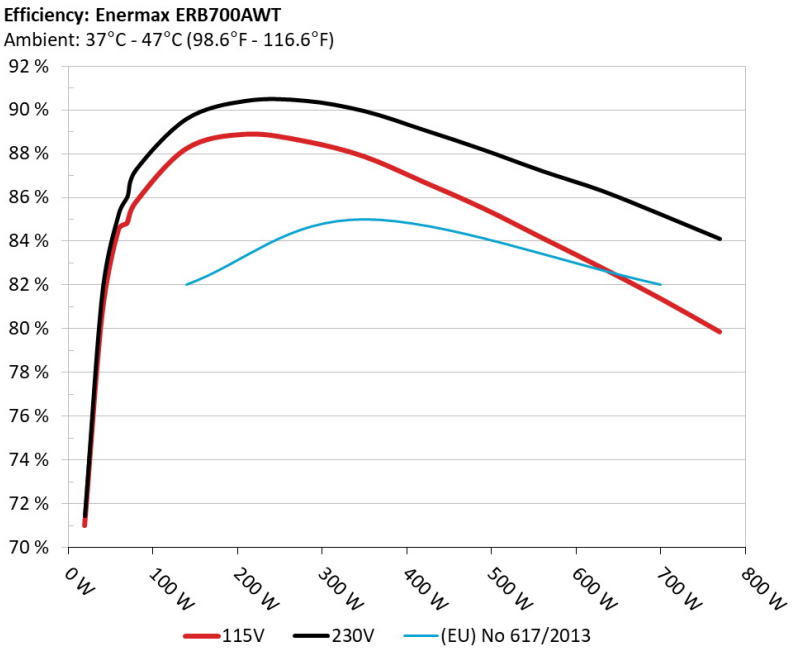
Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	18AWG	No
4+4 pin EPS12V (710mm)	1	1	18AWG	No
Native Cables				
6+2 pin PCIe (500mm+150mm)	2	4	18AWG	No
SATA (450mm+150mm+150mm+150mm)	2	8	18AWG	No
4-pin Molex (450mm+150mm+150mm+150mm)	1	4	18AWG	No
FDD Adapter (+105mm)	1	1	20AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	16AWG	-

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

General Data	
Manufacturer (OEM)	CWT
Platform Model	CSB
PCB	PCB Single Layer
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Bridge Rectifier(s)	1x GBU1506 (600V, 15A @ 100°C)
Inrush Current Protection	NTC Thermistor
APFC Mosfets	2x Champion [URL=http://www.kediman.com/attaches/2017/04/918-BgnNFE.pdf]GP28S50G[/URL] (500 V, 28 A @ 150 °C, 0.125 Ohm)
APFC Boost Diode	1x CREE [URL=https://www.wolfspeed.com/media/downloads/844/C3D06060A.pdf]C3D06060A[/URL] (600V, 6A @ 154°C)
Hold-up Cap(s)	2x Nichicon (400V, 470uF & 220uF or 690uF combined, 2000h @ 105°C, [URL=http://www.nichicon.co.jp/english/products/pdf/e-gg.pdf]GG[/URL] series)
Main Switchers	2x Champion [URL=http://www.kediman.com/attaches/2017/04/918-BgnNFE.pdf]GP28S50G[/URL] (500 V, 28 A @ 150 °C, 0.125 Ohm)
Combo APFC/PWM Controller	Champion [URL=http://www.champion-micro.com/datasheet/Analog%20Device/CM6800T.pdf]CM6800TX[/URL] & CM03X Green PFC controller
Topology	Primary side: Double Forward Secondary side: Semi-Synchronous Rectification & DC-DC converters
Secondary Side	
+12V	2x PFC PFR30L60CT (60V, 30A @ 50% duty cycle) 2x SG65N02P FETs
Driver for +12V FETs	Syncpower [URL=http://www.syncpower.com/datasheet/SP6019.pdf]SP6019[/URL]
5V & 3.3V	DC-DC Converters: 4x UBIQ [URL=http://www.efreewind.cn/data2/pdf_data/QM3006D(20110513).pdf]QM3006D[/URL] FETs (30V, 57A @ 100°C, 5.5mΩ) PWM Controllers: 1x APW7159C
Filtering Capacitors	Electrolytics: Chemi-Con (4,000-10,000h @ 105°C, [http://www.chemi-con.com/upload/files/5/1/74811667552d6c4d41a84c.pdf]KY series[/URL]), Chemi-Con (1,000-5,000h @ 105°C, [URL=http://www.chemi-con.com/upload/files/7/5/32389236352d6c56e8f45b.pdf]KZE series[/URL]) Polymers: Chemi-Con
Supervisor IC	Sytronix [URL=http://www.infinno.com.tw/products/SMPS_Supervisor.html]ST9S429-PG14[/URL] (OCP [2x 12V channels, OVP, UVP, PG)
Fan Model	ED122512H-FD (120 mm, 12 V, 0.35 A, Twister Bearing Fan)
5VSB Circuit	
Rectifying Diode	Plain Diode
Standby PWM Controller	TinySwitch-LT [URL=http://dalincom.ru/datasheet/TNY176PN.pdf]TNY177PN[/URL] (18W Peak)

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

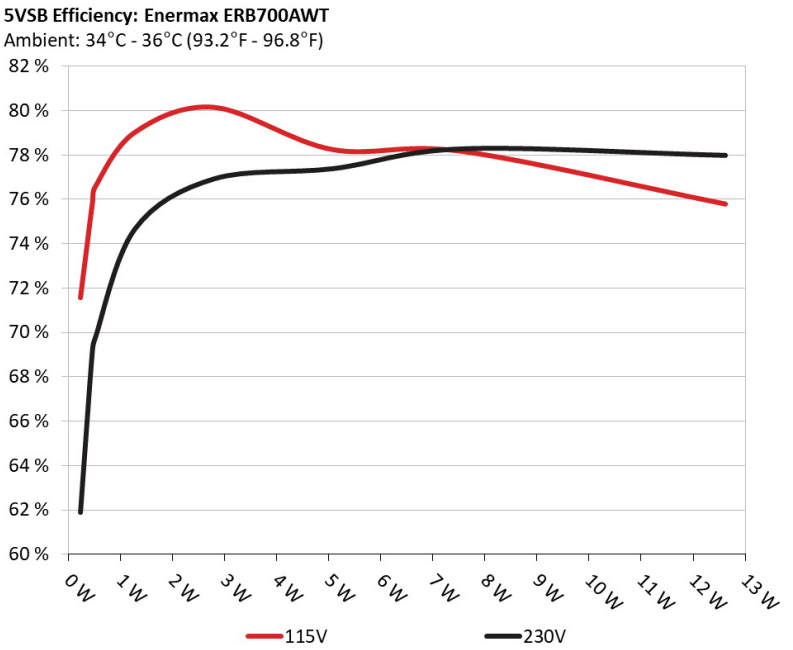
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.229	71.563%	0.037
	5.091V	0.320		115.10V
2	0.090A	0.458	75.828%	0.069
	5.090V	0.604		115.10V
3	0.550A	2.795	80.132%	0.274
	5.082V	3.488		115.10V
4	1.000A	5.074	78.230%	0.355
	5.073V	6.486		115.10V
5	1.500A	7.596	78.140%	0.397
	5.063V	9.721		115.10V
6	2.500A	12.612	75.780%	0.441
	5.044V	16.643		115.10V

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

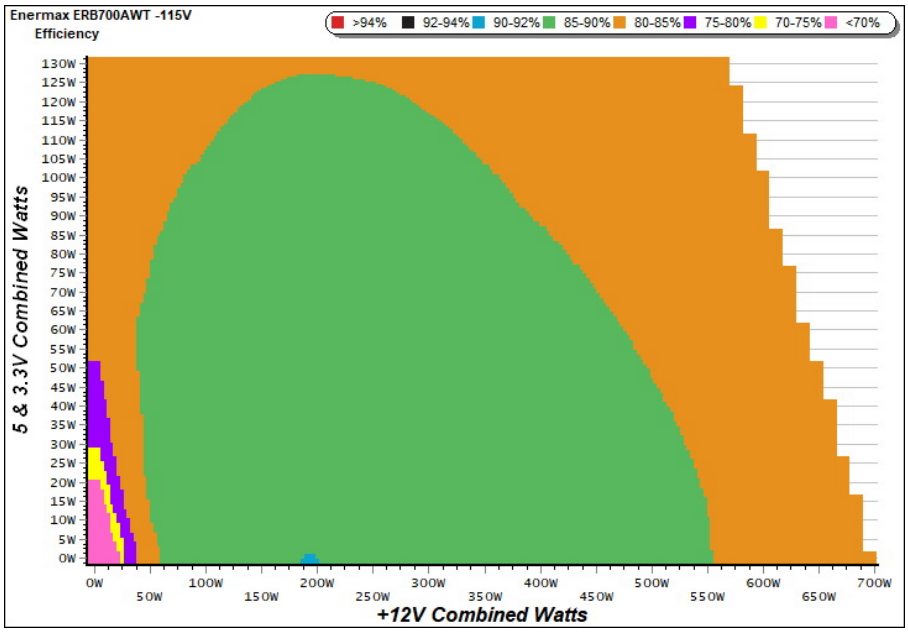
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.229	61.892%	0.013
	5.092V	0.370		230.26V
2	0.090A	0.458	69.184%	0.023
	5.091V	0.662		230.26V
3	0.550A	2.795	76.912%	0.117
	5.082V	3.634		230.26V
4	1.000A	5.074	77.371%	0.189
	5.073V	6.558		230.26V
5	1.500A	7.595	78.267%	0.244
	5.063V	9.704		230.26V
6	2.500A	12.614	77.970%	0.314
	5.045V	16.178		230.26V

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

115V

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

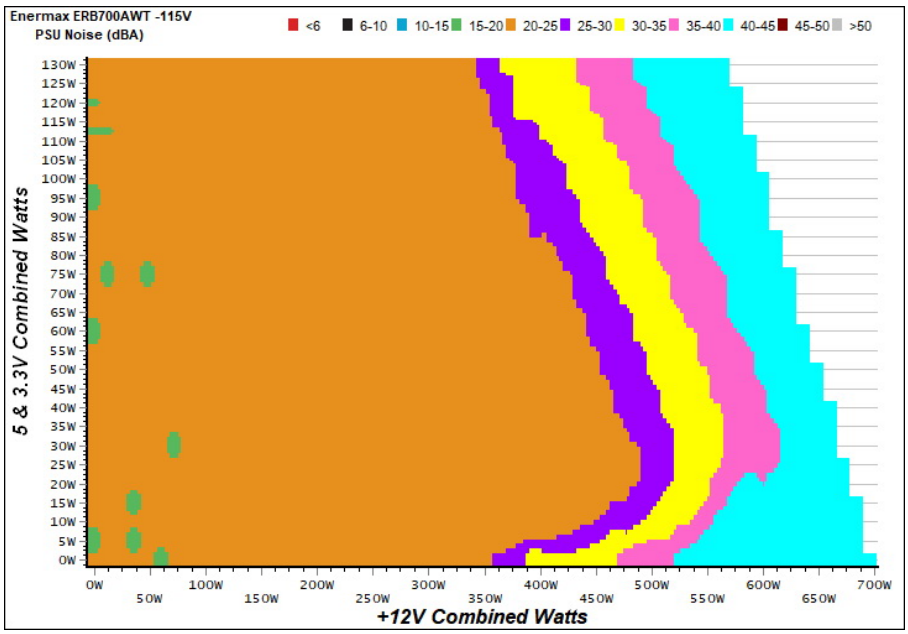
EFFICIENCY GRAPH 115V



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

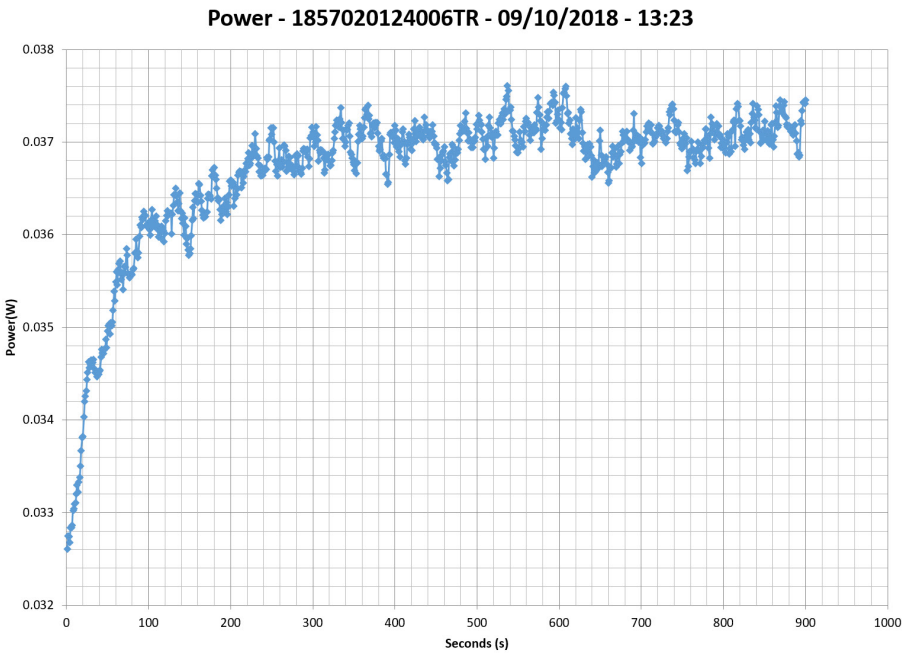
NOISE GRAPH 115V



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

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

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

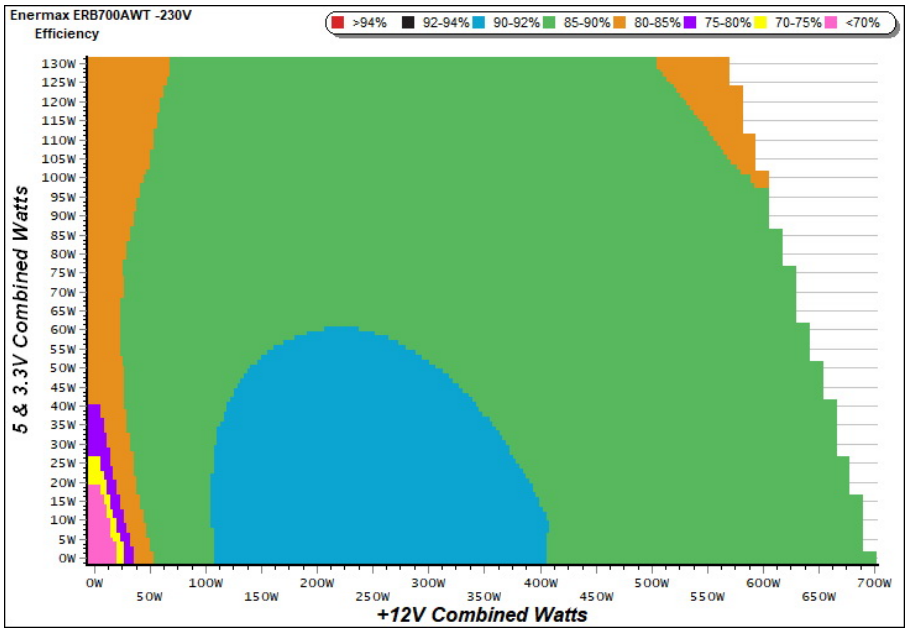
COMMISSION REGULATION (EU) NO 617/2013 TESTING 115V

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

230V

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

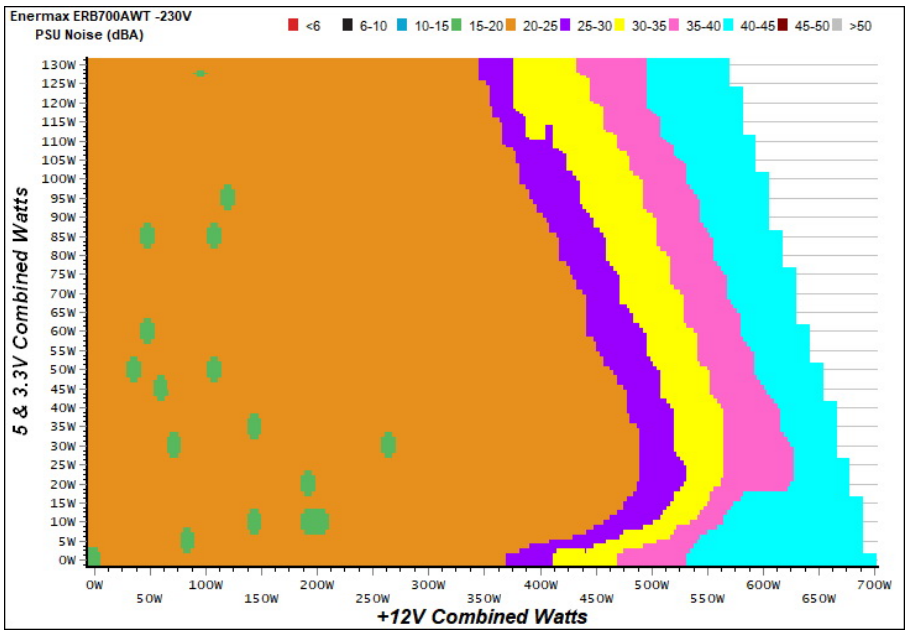
EFFICIENCY GRAPH 230V



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

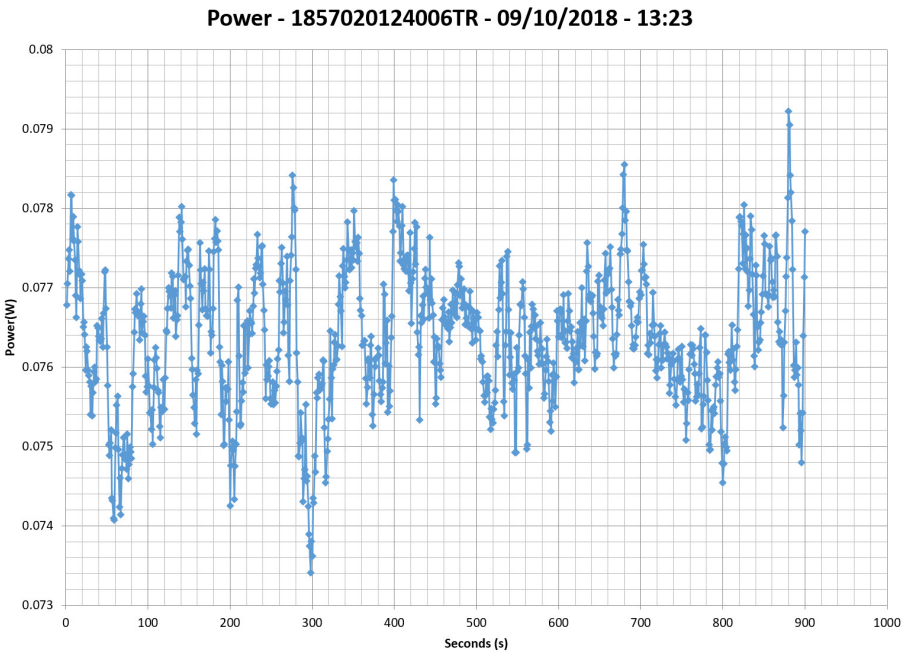


INFO

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

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

VAMPIRE POWER -230V



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

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

COMMISSION REGULATION (EU) NO 617/2013 TESTING 230V

www.cybenetics.com -info@cybenetics.com
CYBENETICS LTD
Syrou 6, Latsia, 2231, Nicosia Cyprus

EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH
CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

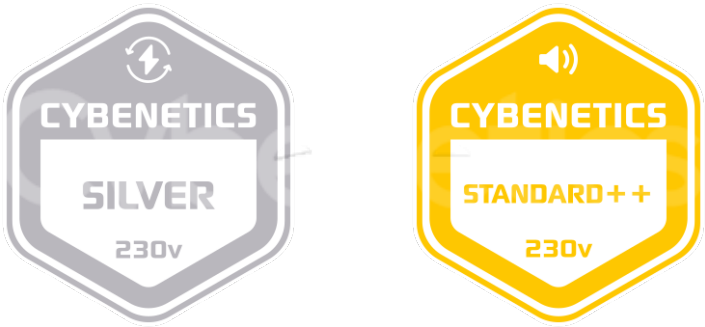
Enermax RevoBron 700W

Top side

Power specifications label

CERTIFICATIONS 115V

CERTIFICATIONS 230V



Aristeidis Bitziopoulos
Lab Director