be quiet!

be quiet! Pure Power 10 700W

Serial Number 275S8251000034

Lab ID BQ19700025

Certification ID 25680

Test Result Report ID: 20PS680A

Certificate Issue Date: Apr 30, 2019

Scheme: ETA-EMI PSU

115V: CYBENETICS GOLD

230V: CYBENETICS SILVER 230v

Scheme: LAMBDA PSU

115V: CYBENETICS A

230V: CYBENETICS A+ 230v



Aristeidis Bitziopoulos, Certification Body General Manager

General Information

Test Equipment

Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 Chroma 63640-80-80 x10 Chroma 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P, GW Instek ASR-3500
Power Analyzers	Rohde & Schwarz HMC8015 & NPA701
Oscilloscopes	Picoscope 4444, Siglent SDS2104X PLUS
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Temperature Logger	Picoscope TC-08
Tachometer	UNI-T UT372
Multimeters	Keysight 34465A
EMI Analyzer	TekBox TBMR-110M-EU
Isolation Transformer	4kVA
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Testing Methodology	Cybenetics PSU Test Protocol

DUT Information(Non-accredited measurements)

Product Identification Details	
Brand	be quiet!
Model	Pure Power 10 700W
OEM/ODM	FSP
Serial Number	275S8251000034
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	50-60

Rated Power (W)	700
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Rifle Bearing Fan (BQ QF1-12025-HS)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	BQ19700025
Date of receipt	Apr 19, 2019
Testing Date	Apr 25, 2019
Report Issued Date	Apr 30, 2019
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Captive Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (580mm)	1	1	18-24AWG	No
4+4 pin EPS12V (640mm)	1	1	18AWG	No
6+2 pin PCIe (530mm+150mm)	2	4	18AWG	No
SATA (510mm+150mm+150mm)	1	3	18AWG	No
SATA (510mm+150mm) / 4-pin Molex (+150mm) / FDD (+150mm)	1	2 / 1 / 1	18-24AWG	No
SATA (520mm) / 4-pin Molex (+150mm+150mm)	1	1 / 2	18AWG	No
AC Power Cord (1370mm) - C13 coupler	1	1	18AWG	-

Power Specifications

Rail		3.3V	5V	12V(1)	12V(2)	5VSB	-12V
Max. Power	Amps	25	20	36	30	3	0.3
	Watts	150		672		15	3.6
Total Max. Power (W)		700					

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	87.694%
Average Noise Output (>1450 Load Combinations)	20.82dBA
Average PF (>1450 Load Combinations)	0.989
Efficiency With 10W (≤500W) or 2% (>500W) Load	59.221%
Standby Power Consumption	0.1261W
Non-Accredited	
12V Ripple (Full Load)	68.66mV
5V Ripple (Full Load)	35.65mV
3.3V Ripple (Full Load)	57.03mV
5VSB Ripple (Full Load)	30.52mV
12V Load Regulation	1.00%
5V Load Regulation	2.20%
3.3V Load Regulation	2.95%

5VSB Load Regulation	2.83%
Inrush Current	98.705A

230V

Accredited		
Average Efficiency (>1450 load combinations)		89.059%
Average Noise Output (>1450 Load Combinations)		19.73dBA
Average PF (>1450 Load Combinations)		0.974
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
Standby Power Consumption		0.2031W
Non-Accredited		
12V Ripple (Full Load)		59.29mV
5V Ripple (Full Load)		33.27mV
3.3V Ripple (Full Load)		49.35mV
5VSB Ripple (Full Load)		24.28mV
12V Load Regulation		0.94%
5V Load Regulation		2.14%
3.3V Load Regulation		2.64%
5VSB Load Regulation		2.83%
Inrush Current		103.159A
Hold-Up Time & PWR_OK Signal		28.40ms
AC Loss to PWR_OK Hold Up Time		30.40ms
PWR_OK Inactive to DC Loss Delay		-2.00ms
OPP (0.00°C / 0.00°C)	117.65%	-

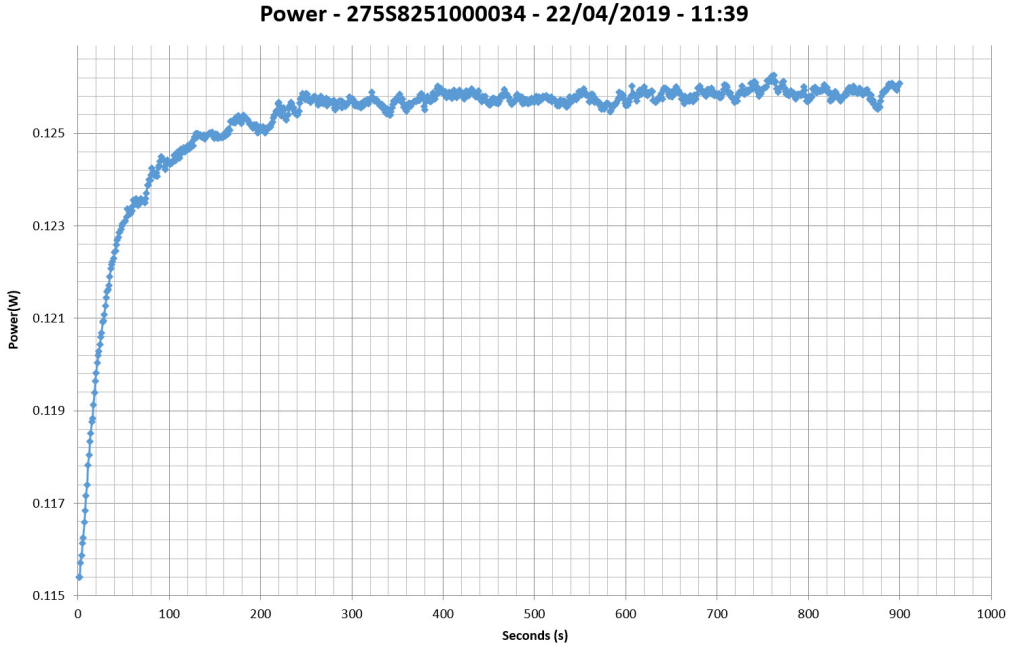
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	28.4
AC Loss to PWR_OK Hold Up Time (ms)	30.4
PWR_OK Inactive to DC Loss Delay (ms)	-2

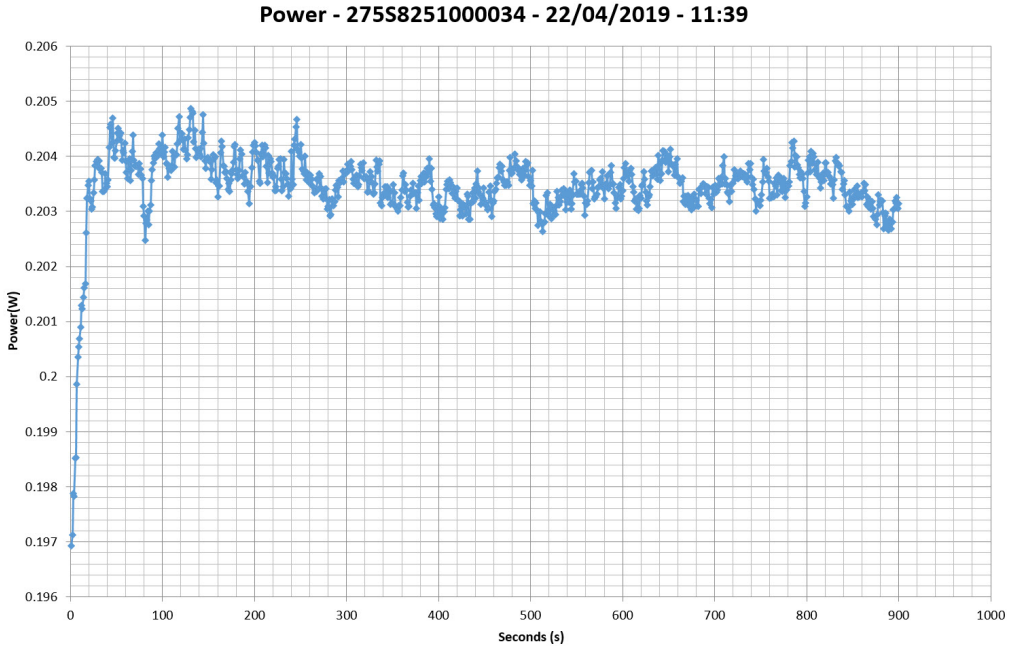
Vampire Power

Graphs

115V

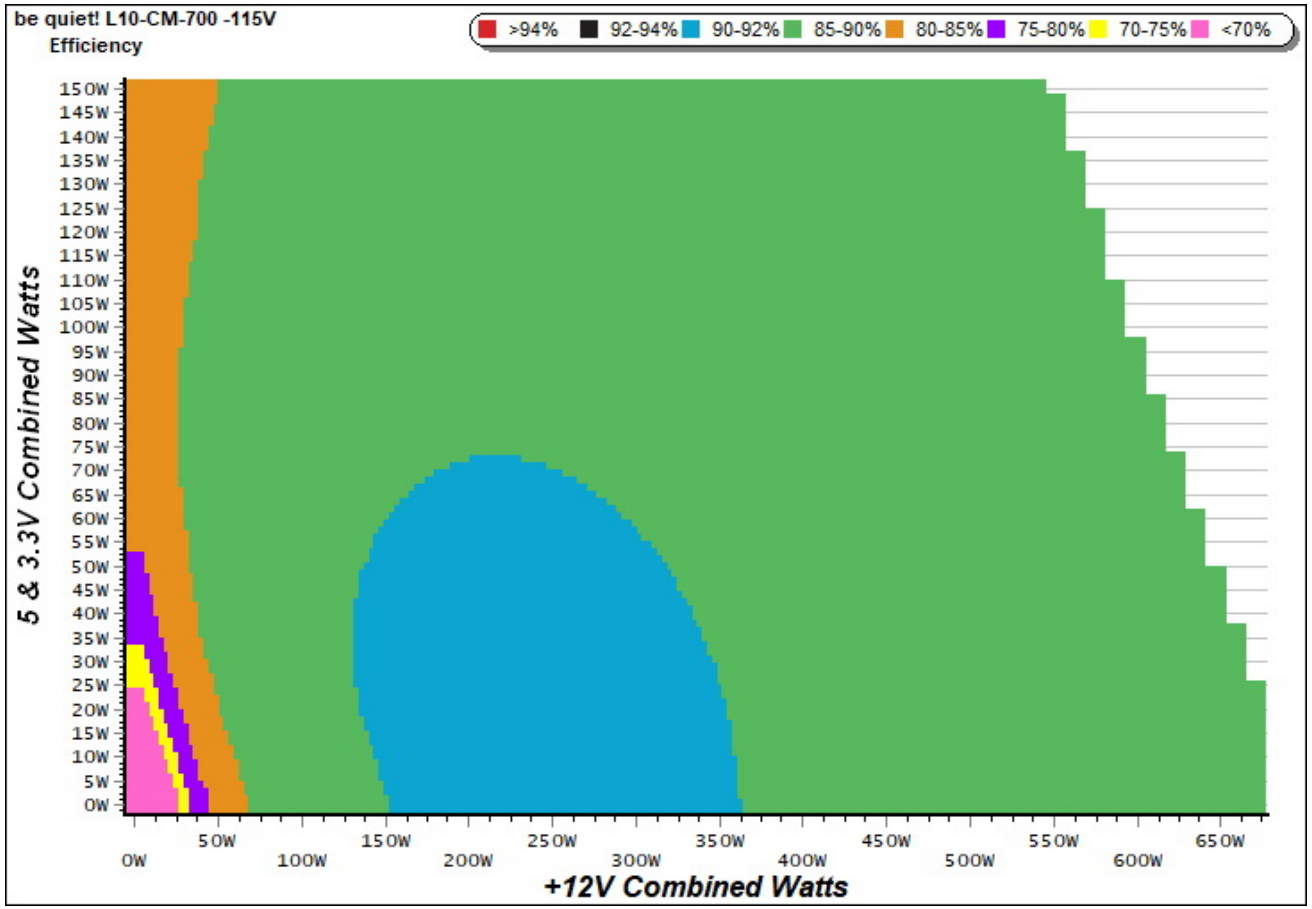


230V



Efficiency Graph

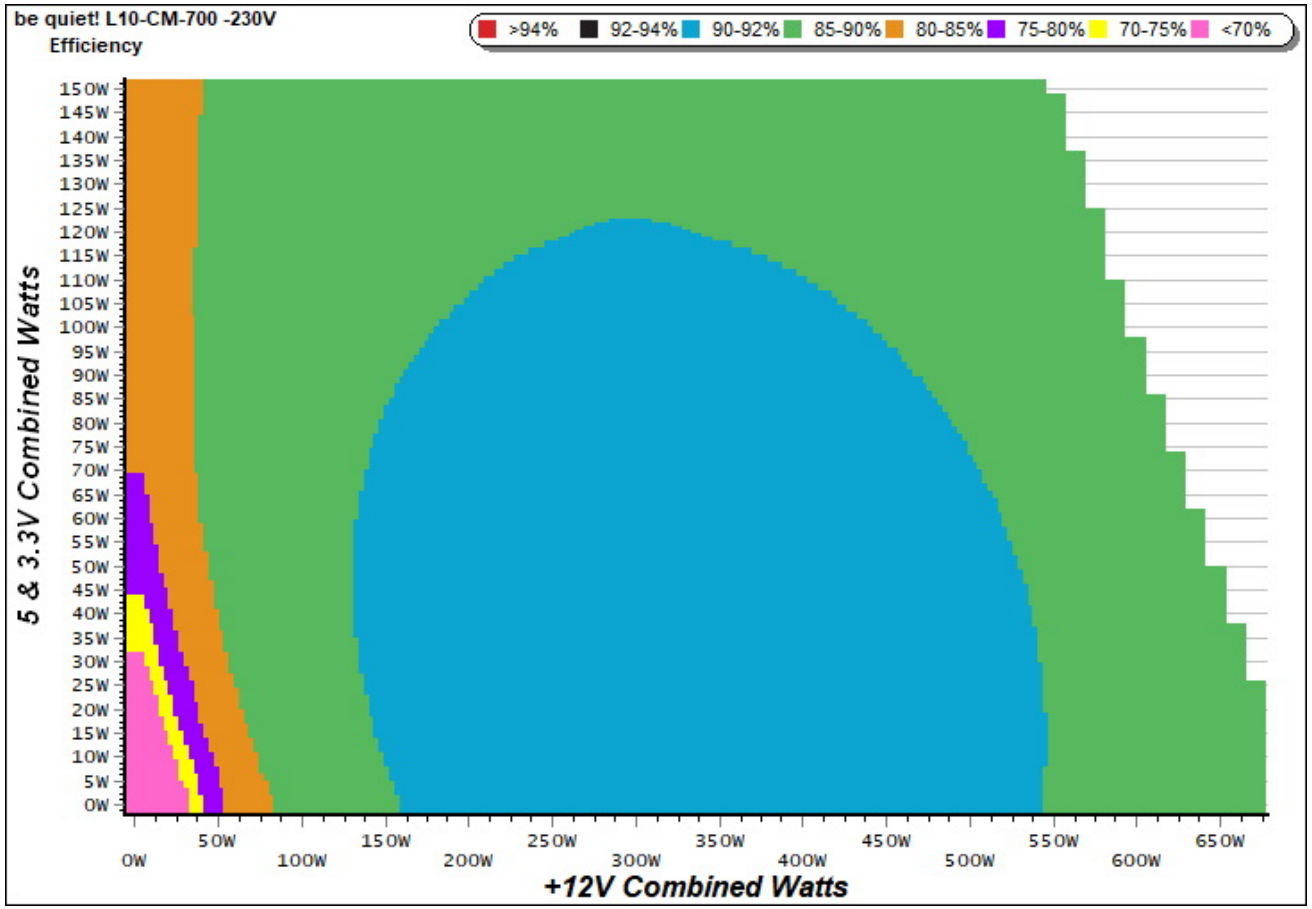
115V



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.

230V

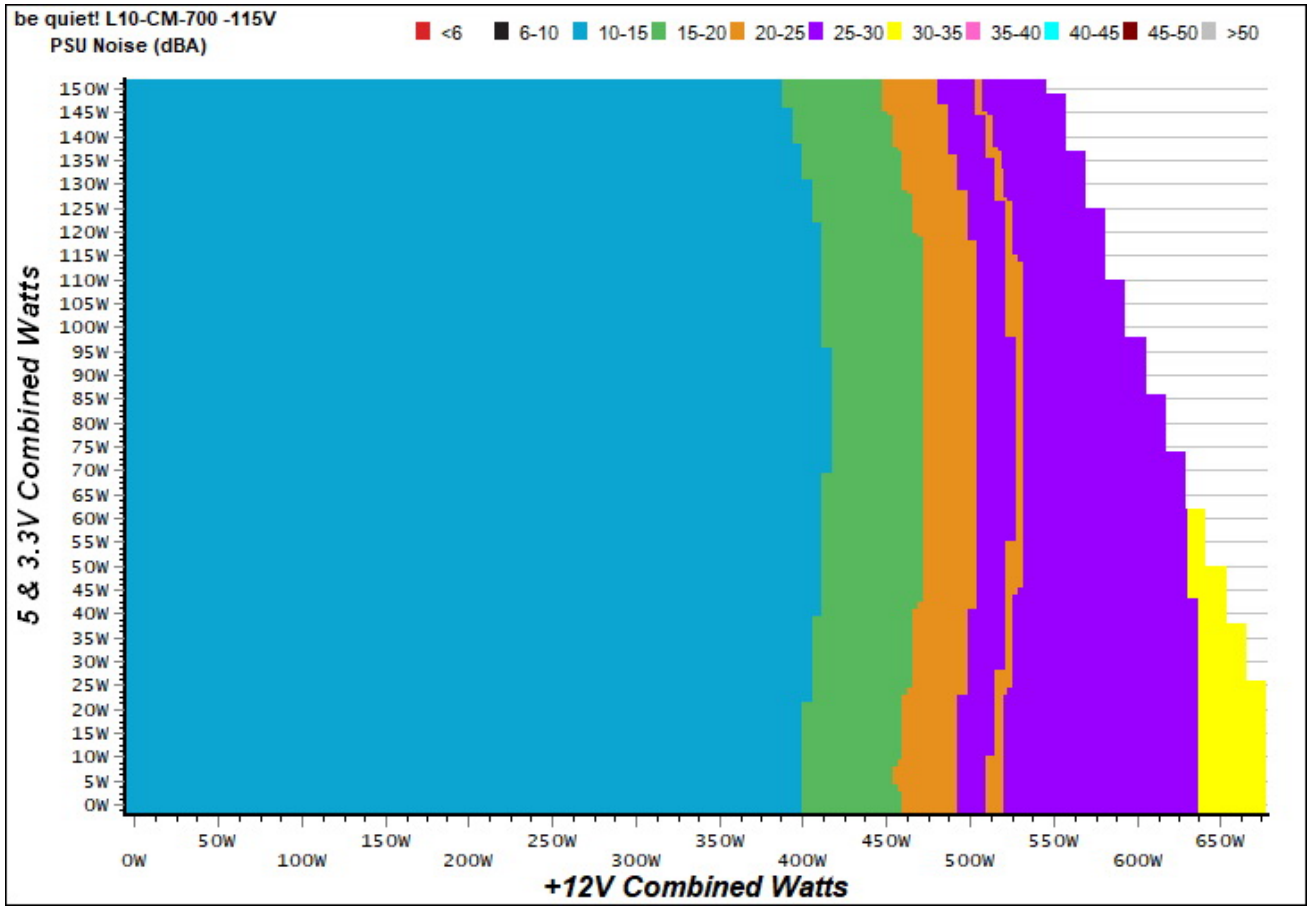


INFO

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

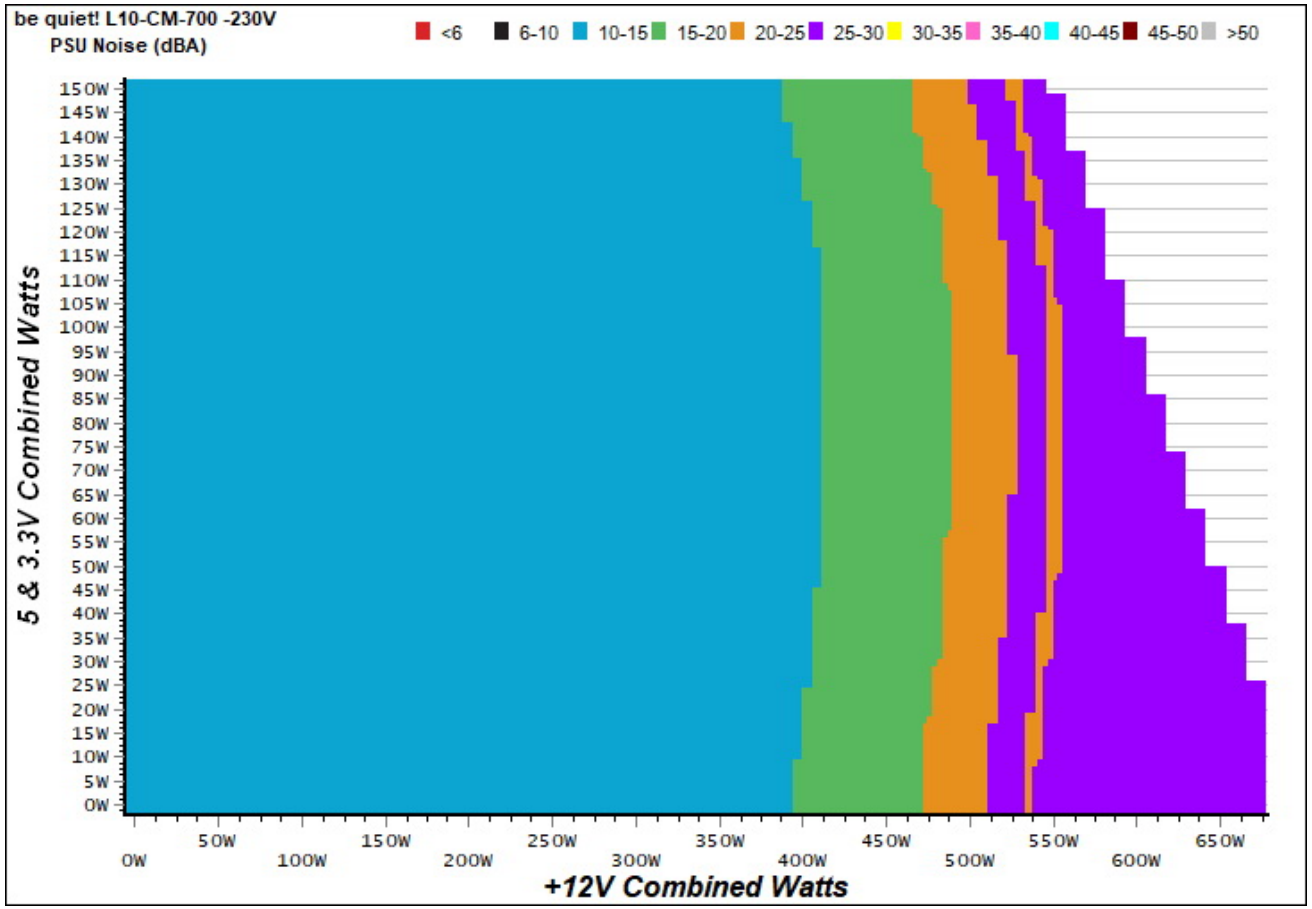
115V



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.

230V

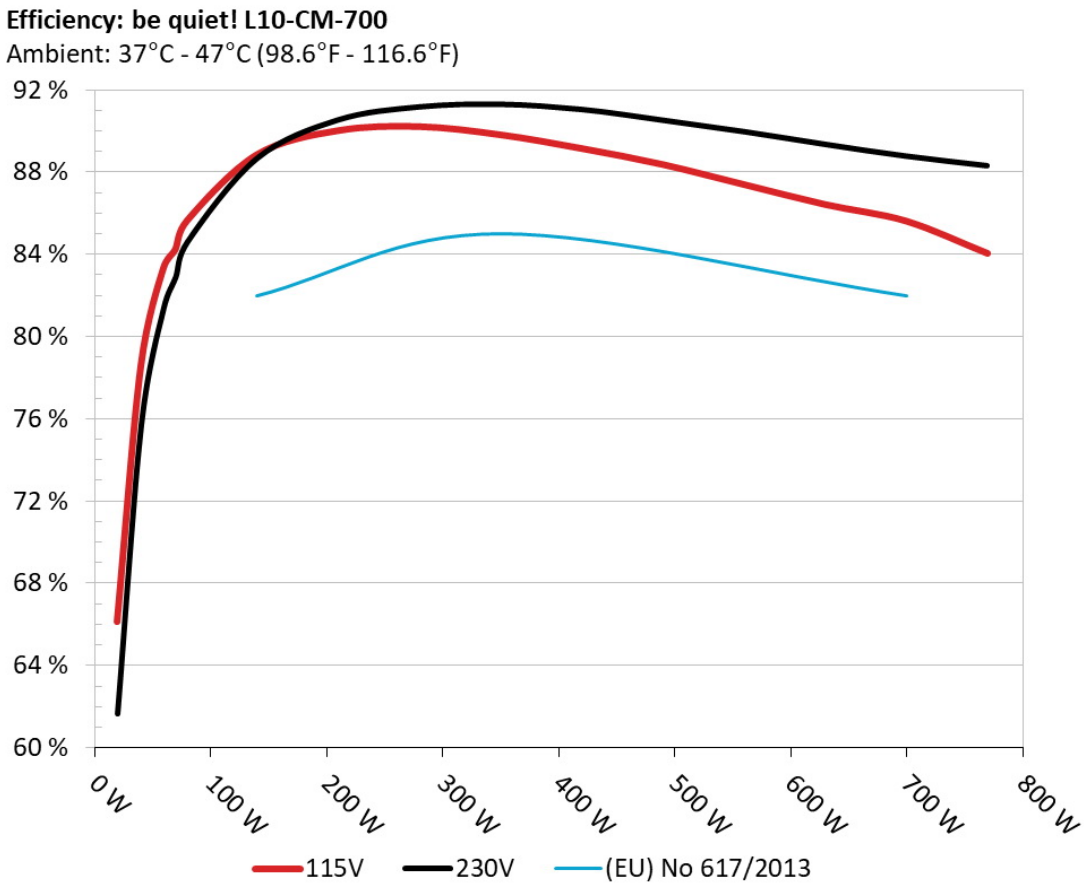


INFO

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.

Indicative Performance

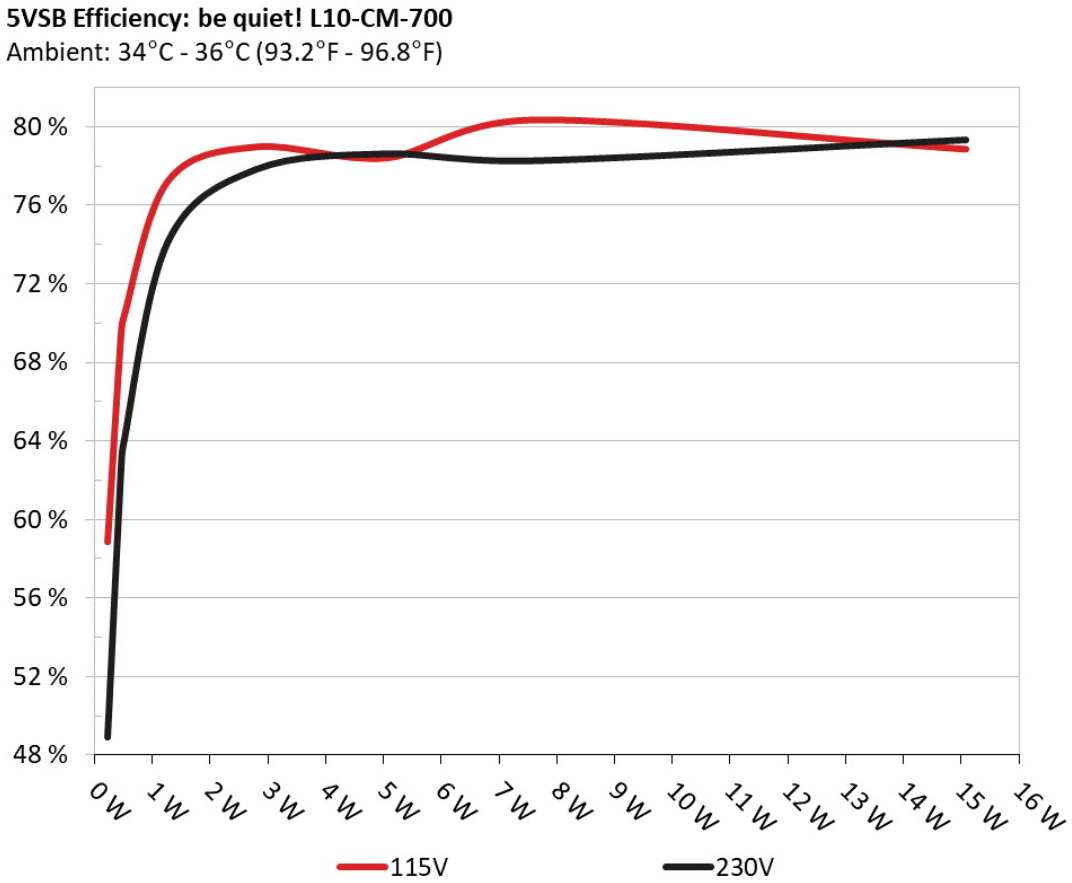
Efficiency under high ambient temperature



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.

5VSB Efficiency (ERP LOT 3/6 & CEC)

115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.229	58.869%	0.075
	5.087V	0.389		115.11V
2	0.090A	0.458	69.289%	0.121
	5.086V	0.661		115.11V
3	0.550A	2.792	78.959%	0.328
	5.075V	3.536		115.11V
4	1.000A	5.067	78.400%	0.380
	5.066V	6.463		115.11V
5	1.500A	7.585	80.333%	0.406
	5.056V	9.442		115.11V
6	3.000A	15.075	78.844%	0.451
	5.025V	19.120		115.11V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.229	48.932%	0.028
	5.086V	0.468		230.25V
2	0.090A	0.458	62.398%	0.043
	5.085V	0.734		230.25V
3	0.550A	2.792	77.837%	0.174
	5.075V	3.587		230.25V
4	1.000A	5.066	78.640%	0.248
	5.066V	6.442		230.24V
5	1.500A	7.584	78.282%	0.294
	5.055V	9.688		230.24V
6	3.000A	15.074	79.345%	0.354
	5.024V	18.998		230.25V

Supplementary Tests (For Reference)

Typical Load Tests

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	3.956A	1.981A	1.945A	0.988A	69.591	84.254%	670	11.0	39.49°C	0.949
	12.133V	5.047V	3.390V	5.062V	82.597				42.81°C	115.09V
2	8.977A	2.977A	2.928A	1.188A	139.691	88.868%	671	11.0	40.17°C	0.972
	12.121V	5.035V	3.379V	5.049V	157.190				43.93°C	115.10V
3	14.337A	3.482A	3.409A	1.390A	209.601	90.043%	673	11.0	41.43°C	0.984
	12.109V	5.026V	3.371V	5.037V	232.779				45.49°C	115.09V
4	19.709A	3.990A	3.926A	1.592A	279.619	90.241%	674	11.0	41.72°C	0.991
	12.097V	5.014V	3.361V	5.024V	309.857				46.18°C	115.09V
5	24.762A	4.998A	4.921A	1.796A	349.724	89.844%	676	10.9	42.36°C	0.994
	12.084V	5.004V	3.351V	5.011V	389.255				47.82°C	115.09V
6	29.825A	6.012A	5.927A	2.001A	419.826	89.178%	678	10.9	42.64°C	0.997
	12.071V	4.991V	3.341V	4.998V	470.775				49.24°C	115.09V
7	34.905A	7.035A	6.940A	2.208A	489.964	88.393%	933	17.0	43.41°C	0.998
	12.057V	4.977V	3.328V	4.984V	554.304				50.69°C	115.09V
8	40.000A	8.064A	7.967A	2.415A	560.091	87.420%	1212	24.9	43.91°C	0.998
	12.042V	4.961V	3.314V	4.970V	640.691				52.45°C	115.09V
9	45.499A	8.586A	8.476A	2.420A	629.825	86.449%	1454	28.9	44.80°C	0.998
	12.029V	4.951V	3.304V	4.960V	728.554				54.09°C	115.09V
10	50.756A	9.107A	9.022A	3.038A	699.730	85.642%	1505	30.2	45.43°C	0.998
	12.019V	4.940V	3.292V	4.939V	817.045				55.91°C	115.09V
11	56.644A	9.121A	9.035A	3.043A	769.780	84.073%	1553	31.3	46.98°C	0.998
	12.006V	4.935V	3.287V	4.930V	915.610				57.94°C	115.09V
CL1	0.135A	18.004A	18.001A	0.000A	151.058	82.191%	669	11.0	42.32°C	0.978
	12.105V	4.959V	3.341V	5.048V	183.788				47.74°C	115.12V

CL2	56.007A	1.001A	1.001A	1.000A	687.180	85.367%	1413	28.2	45.58°C	0.998
	12.032V	4.983V	3.317V	4.996V	804.976				55.80°C	115.10V

The results above are not used in the certification process

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	3.955A	1.986A	1.956A	0.988A	69.567	82.890%	668	11.0	39.50°C	0.895
	12.130V	5.034V	3.372V	5.061V	83.927				42.71°C	230.22V
2	8.977A	2.986A	2.941A	1.188A	139.673	88.676%	668	11.0	40.24°C	0.946
	12.118V	5.023V	3.363V	5.050V	157.509				43.82°C	230.22V
3	14.340A	3.492A	3.427A	1.390A	209.602	90.548%	670	11.0	41.00°C	0.965
	12.106V	5.013V	3.354V	5.038V	231.482				45.31°C	230.23V
4	19.712A	3.997A	3.945A	1.592A	279.603	91.185%	671	11.0	41.68°C	0.976
	12.094V	5.004V	3.347V	5.026V	306.633				46.41°C	230.23V
5	24.767A	5.007A	4.943A	1.796A	349.714	91.310%	673	11.0	42.35°C	0.982
	12.081V	4.994V	3.338V	5.011V	382.996				47.89°C	230.23V
6	29.830A	6.023A	5.950A	2.002A	419.818	91.062%	674	11.0	42.65°C	0.986
	12.069V	4.980V	3.328V	4.997V	461.024				49.09°C	230.23V
7	34.921A	7.051A	6.966A	2.209A	490.058	90.537%	938	16.9	43.38°C	0.990
	12.054V	4.966V	3.316V	4.982V	541.281				51.12°C	230.27V
8	40.006A	8.077A	7.988A	2.417A	560.179	89.980%	1218	24.8	43.73°C	0.991
	12.042V	4.954V	3.306V	4.967V	622.559				52.40°C	230.28V
9	45.500A	8.602A	8.495A	2.421A	629.887	89.365%	1460	28.9	44.63°C	0.992
	12.030V	4.943V	3.296V	4.958V	704.851				53.85°C	230.28V
10	50.748A	9.126A	9.039A	3.039A	699.757	88.791%	1510	30.3	45.98°C	0.993
	12.021V	4.932V	3.286V	4.937V	788.097				56.39°C	230.27V
11	56.616A	9.136A	9.055A	3.043A	769.668	88.325%	1562	31.4	46.70°C	0.994
	12.010V	4.926V	3.280V	4.931V	871.401				57.91°C	230.24V
CL1	0.131A	18.002A	17.999A	0.000A	150.452	82.577%	674	11.0	42.28°C	0.954
	12.100V	4.945V	3.325V	5.047V	182.197				47.94°C	230.25V

CL2	55.995A	1.002A	1.000A	1.000A	687.014	88.910%	1415	28.2	45.85°C	0.993
	12.032V	4.972V	3.305V	4.995V	772.704				56.52°C	230.24V

The results above are not used in the certification process

Light Load Tests

115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.181A	0.494A	0.468A	0.197A	19.432	66.151%	667	11.0	0.890
	12.145V	5.055V	3.397V	5.083V	29.375				115.09V
2	2.437A	0.989A	0.969A	0.394A	39.868	78.599%	668	11.0	0.928
	12.140V	5.051V	3.392V	5.076V	50.723				115.09V
3	3.621A	1.484A	1.444A	0.592A	59.335	83.354%	669	11.0	0.941
	12.136V	5.049V	3.391V	5.070V	71.184				115.09V
4	4.878A	1.979A	1.946A	0.790A	79.762	85.671%	669	11.0	0.954
	12.130V	5.049V	3.391V	5.065V	93.103				115.09V

The results above are not used in the certification process

230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.183A	0.496A	0.472A	0.197A	19.463	61.670%	662	11.0	0.732
	12.143V	5.045V	3.380V	5.083V	31.560				230.21V
2	2.437A	0.990A	0.976A	0.394A	39.865	75.694%	664	11.0	0.834
	12.138V	5.040V	3.376V	5.077V	52.666				230.21V
3	3.623A	1.488A	1.449A	0.592A	59.348	81.415%	665	11.0	0.879
	12.134V	5.038V	3.374V	5.070V	72.896				230.21V
4	4.877A	1.985A	1.957A	0.790A	79.747	84.616%	666	11.0	0.907
	12.129V	5.035V	3.372V	5.064V	94.246				230.21V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	17.6 mV	13.3 mV	14.9 mV	21.8 mV	Pass
20% Load	19.0 mV	12.7 mV	15.7 mV	22.2 mV	Pass
30% Load	21.9 mV	14.2 mV	17.0 mV	22.0 mV	Pass
40% Load	25.0 mV	15.4 mV	18.7 mV	17.1 mV	Pass
50% Load	28.4 mV	16.3 mV	22.1 mV	16.9 mV	Pass
60% Load	33.5 mV	18.0 mV	26.5 mV	18.0 mV	Pass
70% Load	38.1 mV	20.1 mV	28.9 mV	20.7 mV	Pass
80% Load	45.9 mV	22.6 mV	33.3 mV	23.2 mV	Pass
90% Load	54.5 mV	24.3 mV	37.3 mV	25.5 mV	Pass
100% Load	68.7 mV	35.7 mV	57.0 mV	30.5 mV	Fail
110% Load	84.6 mV	41.3 mV	61.2 mV	32.8 mV	Fail
Crossload 1	28.8 mV	18.7 mV	31.7 mV	20.4 mV	Pass
Crossload 2	69.6 mV	36.0 mV	53.3 mV	38.2 mV	Fail

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	17.6 mV	13.2 mV	15.6 mV	21.9 mV	Pass
20% Load	21.2 mV	17.5 mV	15.8 mV	26.5 mV	Pass
30% Load	21.6 mV	13.8 mV	16.7 mV	24.1 mV	Pass
40% Load	26.9 mV	16.3 mV	16.8 mV	23.6 mV	Pass
50% Load	28.7 mV	17.1 mV	18.1 mV	18.8 mV	Pass
60% Load	30.8 mV	20.1 mV	22.2 mV	18.8 mV	Pass
70% Load	35.8 mV	23.4 mV	29.7 mV	21.0 mV	Pass
80% Load	42.8 mV	23.5 mV	32.3 mV	22.4 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	48.3 mV	25.9 mV	32.8 mV	22.7 mV	Pass
100% Load	59.3 mV	33.3 mV	49.4 mV	24.3 mV	Pass
110% Load	68.7 mV	38.2 mV	55.0 mV	27.5 mV	Fail
Crossload 1	28.2 mV	22.0 mV	30.8 mV	24.3 mV	Pass
Crossload 2	62.5 mV	38.1 mV	50.2 mV	36.5 mV	Fail

The results above are not used in the certification process

be quiet! Pure Power 10 700W



Top side



Power specifications label

All data and graphs included in this test report can be used by any individual on the following conditions:
› It should be mentioned that the test results are provided by Cybenetics
› The link to the original test results document should be provided in any case

Cybenetics runs voluntary certification programs for power supplies - ETA for efficiency, LAMBDA for noise and SAFE for safety and correct operation - and for cooling products, with DELTA for chassis soundproofing and PHI for fan airflow and static pressure. THETA rates cooler performance on AMD AM5 and Intel LGA1851 outside ISO 17065 and accreditation scope

CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus

www.cybenetics.com - info@cybenetics.com