EVGA 430W (#2)

Serial Number 1603530404865170

Lab ID EV43001756

Certification ID 251756

Test Result Report ID: 20PS1756A

Certificate Issue Date: Dec 17, 2020

115V 230V

Scheme: ETA-EMI PSU

115V 230V

Scheme: LAMBDA PSU



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	EVGA
Model	430W (#2)
OEM/ODM	HEC
Serial Number	1603530404865170
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	8-4
Rated Frequency (Hz)	50-60

Rated Power (W)	430
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Sleeve Bearing Fan (EFS-12E12H)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	EV43001756
Date of receipt	Jul 28, 2020
Testing Date	Nov 23, 2020
Report Issued Date	Dec 17, 2020
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Native Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Caps
ATX connector 20+4 pin (550mm)	1	1	18-20AWG	No
4+4 pin EPS12V (620mm)	1	1	18-20AWG	No
6+2 pin PCIe (570mm+120mm)	1	2	20AWG	No
SATA (480mm+125mm+125mm)	2	6	20AWG	No
4-pin Molex (480mm+120mm+120mm) / FDD (+120mm)	1	3 / 1	20-22AWG	No
Modular Cables				
AC Power Cord (1080mm) - C13 coupler	1	1	18AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	24	15	34	3	0.3
	Watts	120		408	15	3.6
Total Max. Power (W)		430				

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)	80.967%
Average Noise Output (>1450 Load Combinations)	36.16dBA
Average PF (>1450 Load Combinations)	0.992
Efficiency With 10W (≤500W) or 2% (>500W) Load	52.271%
Standby Power Consumption	0.0571W
Non-Accredited	
12V Ripple (Full Load)	59.87mV
5V Ripple (Full Load)	39.70mV
3.3V Ripple (Full Load)	26.68mV
5VSB Ripple (Full Load)	27.66mV
12V Load Regulation	2.44%
5V Load Regulation	1.04%
3.3V Load Regulation	2.99%

5VSB Load Regulation	3.26%
Inrush Current	35.470A

230V

Accredited		
Average Efficiency (>1450 load combinations)		83.460%
Average Noise Output (>1450 Load Combinations)		35.47dBA
Average PF (>1450 Load Combinations)		0.973
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
Standby Power Consumption		0.1327W
Non-Accredited		
12V Ripple (Full Load)		58.65mV
5V Ripple (Full Load)		40.73mV
3.3V Ripple (Full Load)		24.73mV
5VSB Ripple (Full Load)		27.60mV
12V Load Regulation		2.44%
5V Load Regulation		1.18%
3.3V Load Regulation		2.91%
5VSB Load Regulation		3.19%
Inrush Current		75.810A
Hold-Up Time & PWR_OK Signal		18.50ms
AC Loss to PWR_OK Hold Up Time		12.20ms
PWR_OK Inactive to DC Loss Delay		6.30ms
PSU Timings: T1 (20% / 100%)	54.0ms	54.0ms
PSU Timings: T3 (20% / 100%)	284.0ms	284.0ms
OPP (24.00°C / 37.00°C)	131.00%	129.89%

Hold-Up Time & PWR_OK Signal

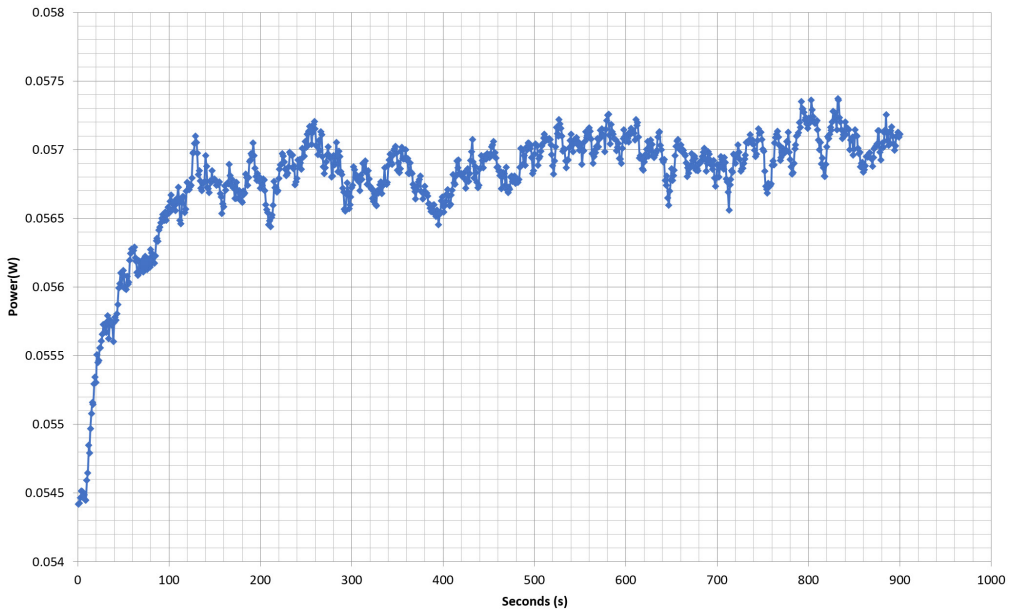
Hold-Up Time (ms)	18.5
AC Loss to PWR_OK Hold Up Time (ms)	12.2

PWR_OK Inactive to DC Loss Delay (ms)	6.3

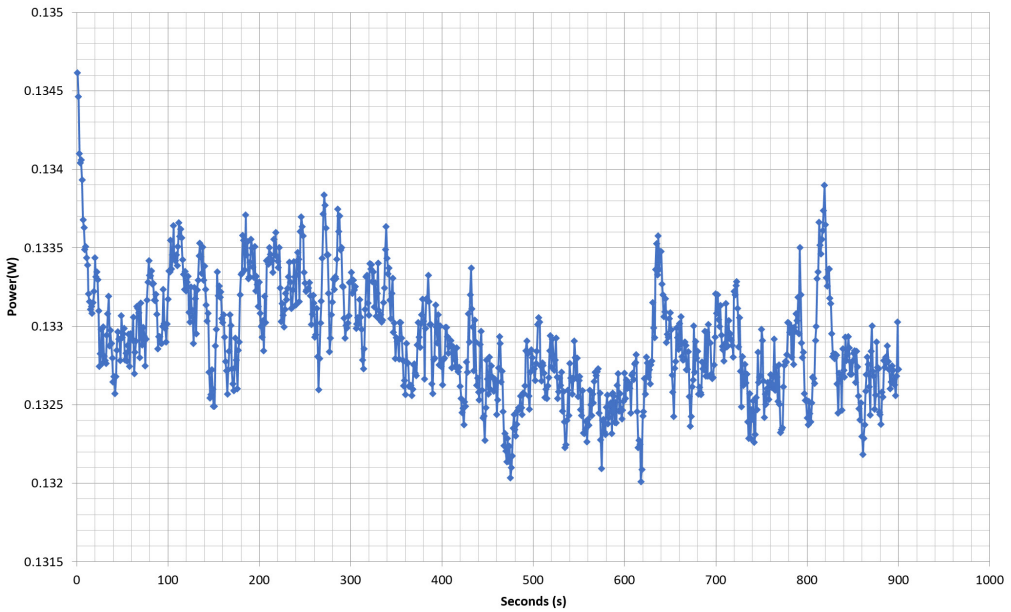
Stromverbrauch im Ruhezustand

Graphs

115V

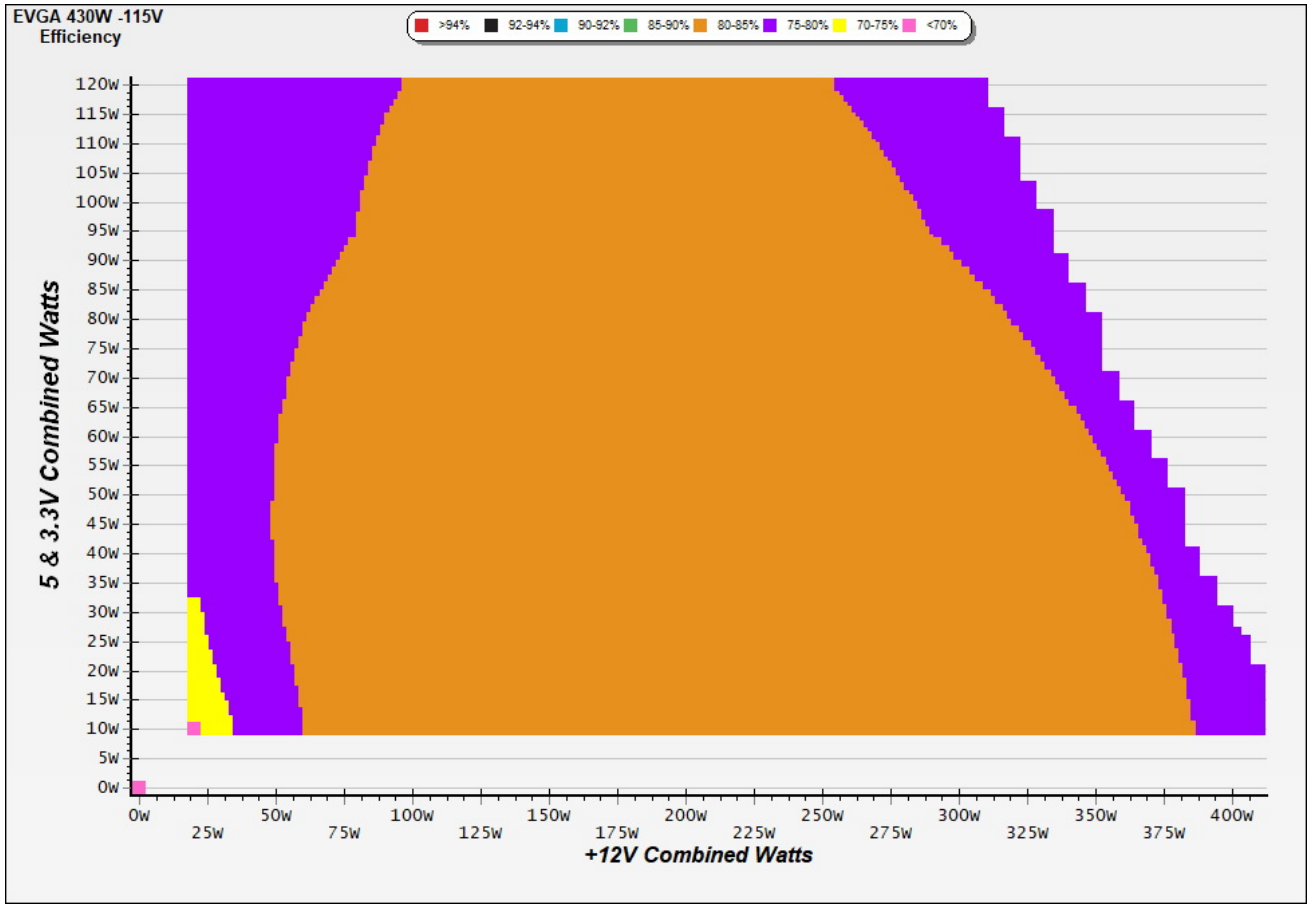


230V



Efficiency Graph

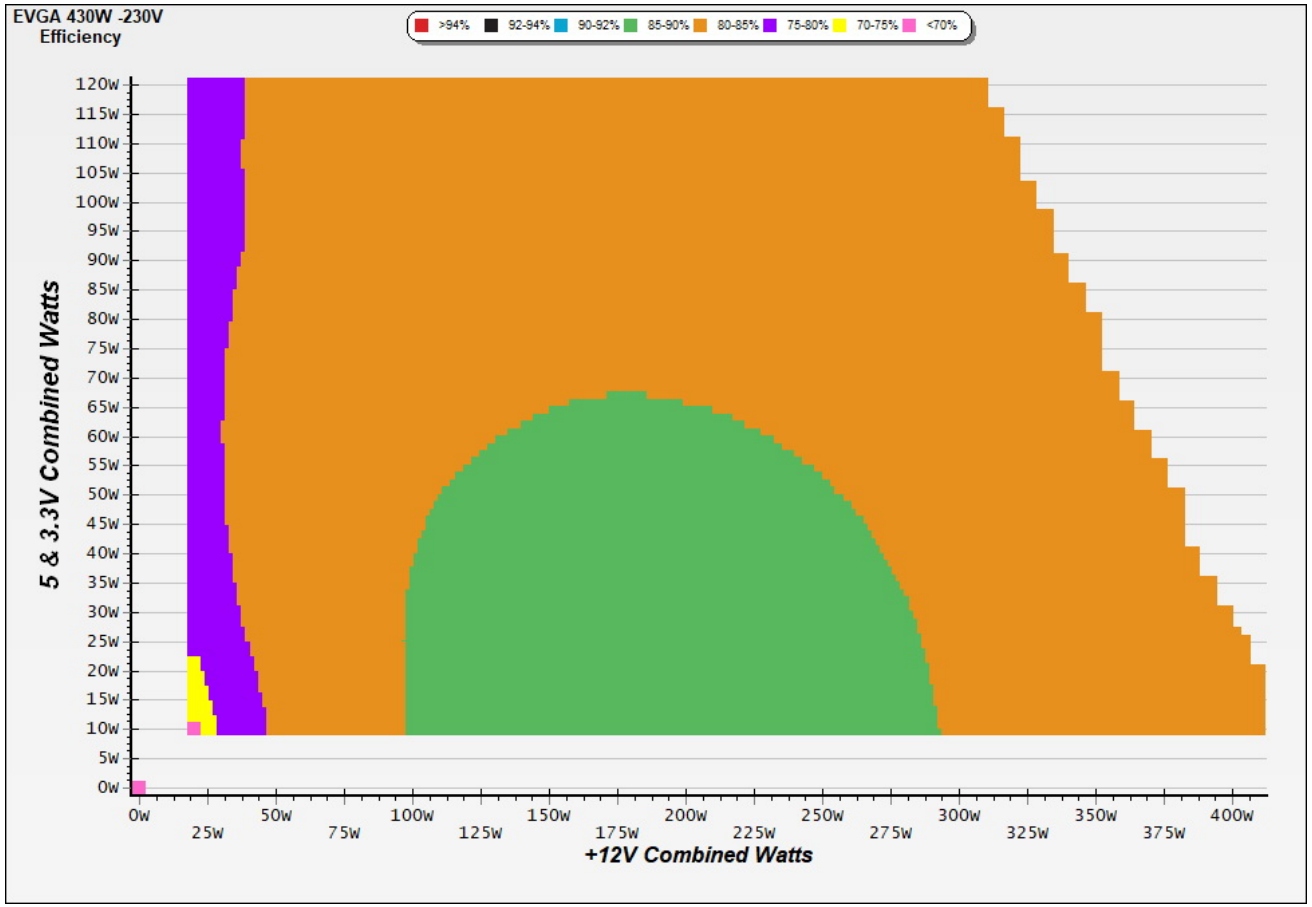
115V



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

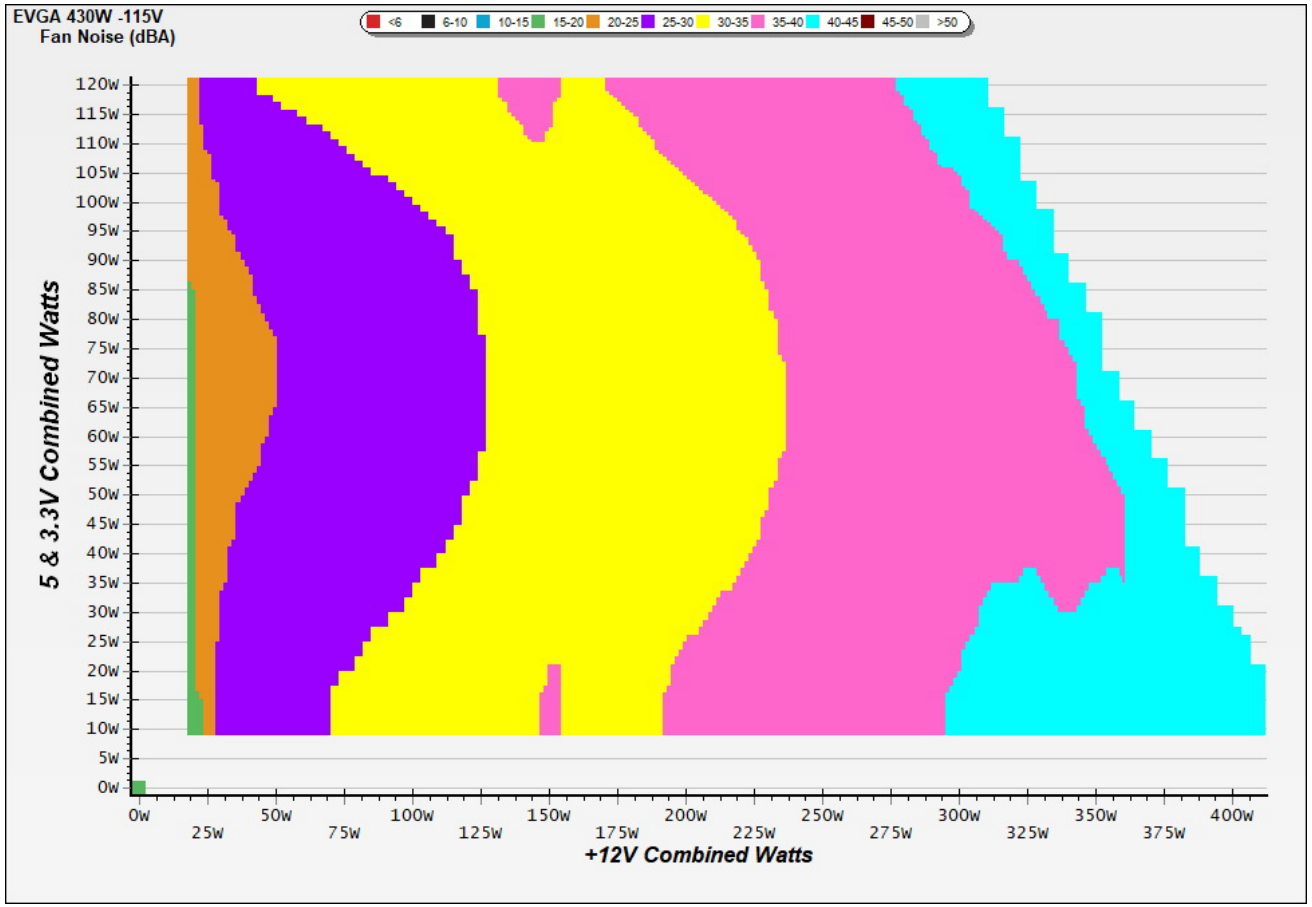


INFO

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Noise Graph

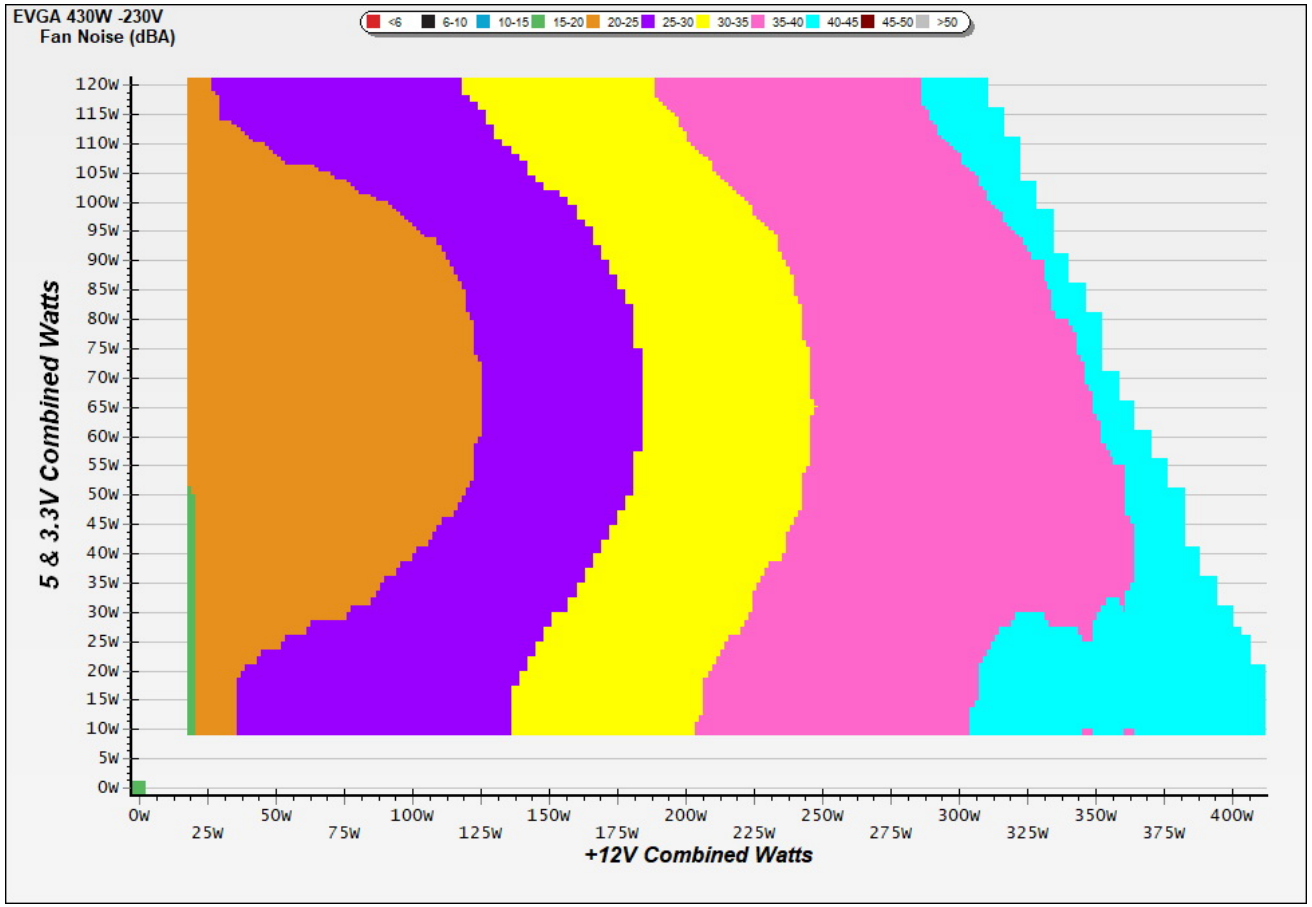
115V



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

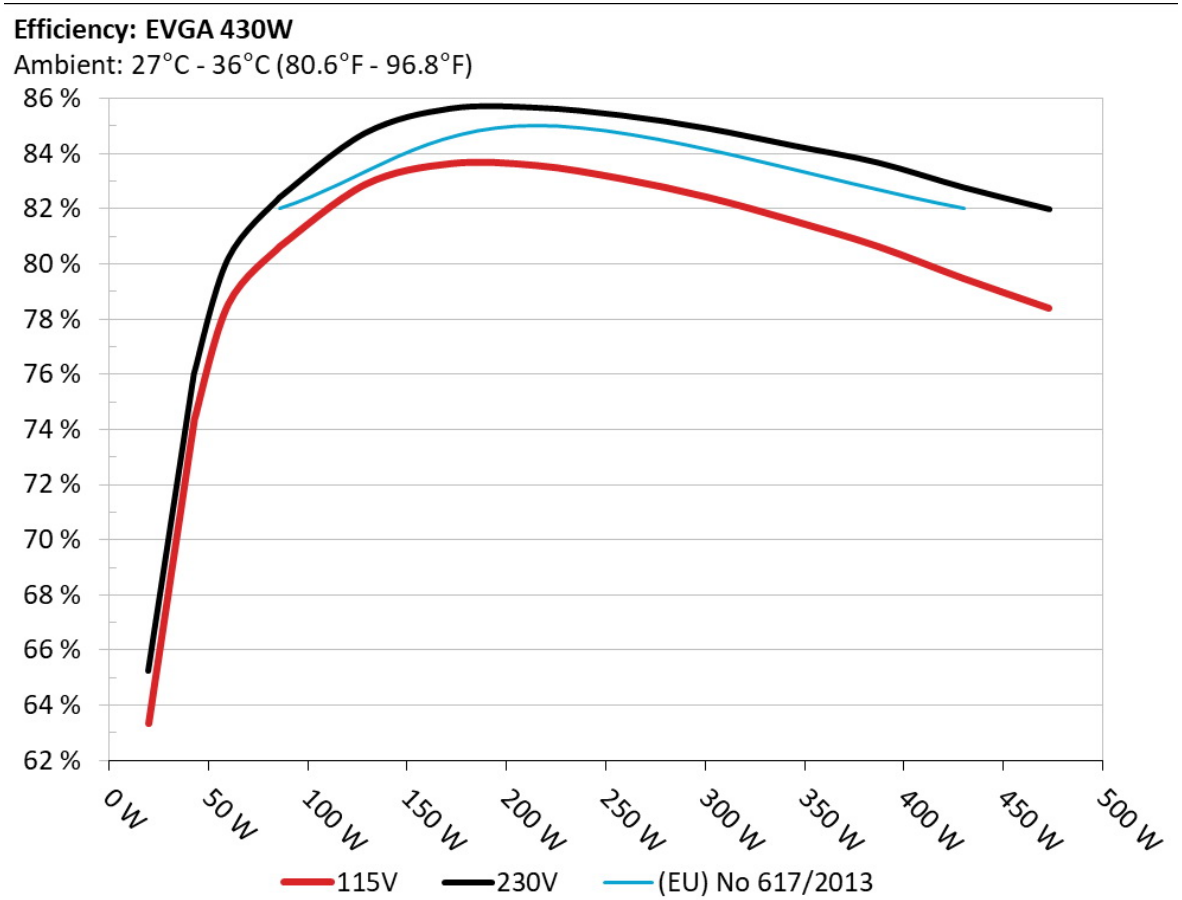


INFO

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

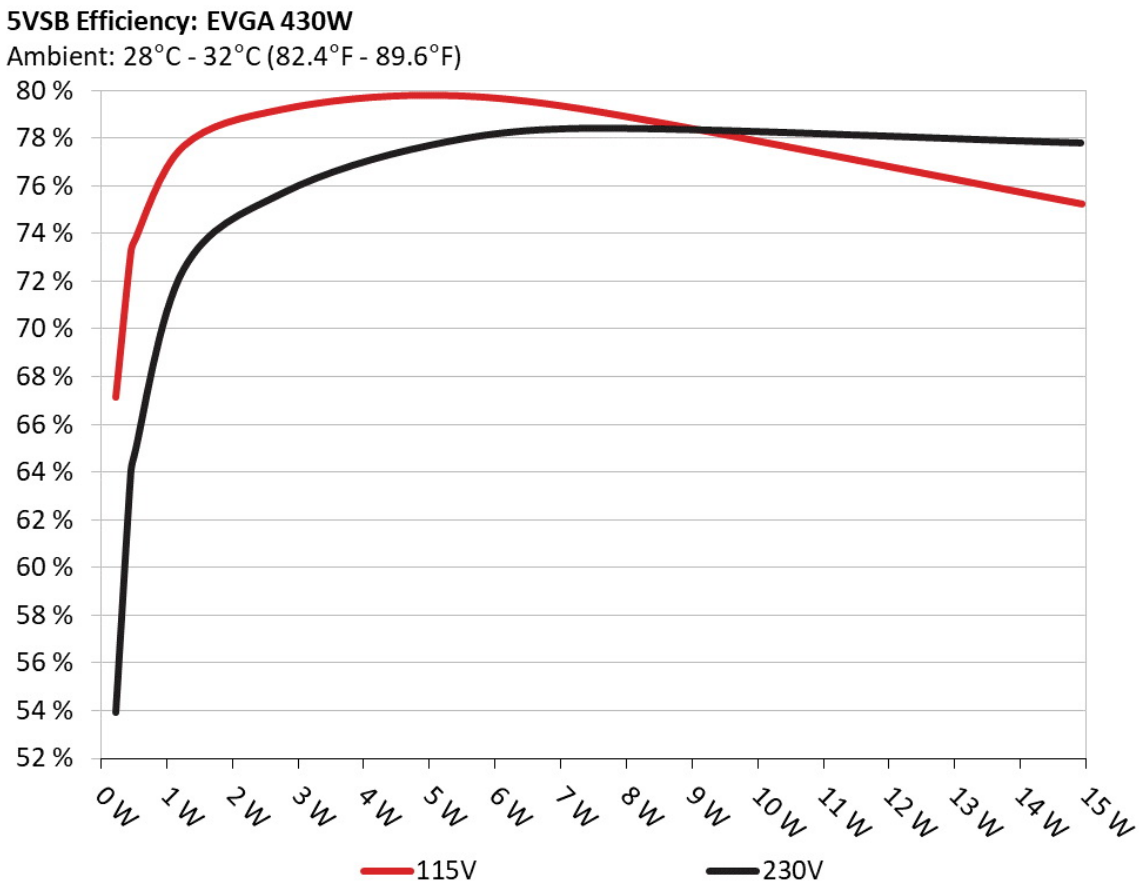
Efficiency under high ambient temperature



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	0.227	67.160%	0.070
	5.035V	0.338		115.12V
2	0.090A	0.453	73.183%	0.121
	5.034V	0.619		115.12V
3	0.550A	2.763	79.192%	0.322
	5.022V	3.489		115.12V
4	1.000A	5.015	79.780%	0.371
	5.014V	6.286		115.12V
5	1.500A	7.507	79.121%	0.400
	5.004V	9.488		115.12V
6	3.001A	14.931	75.238%	0.447
	4.976V	19.845		115.12V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.227	53.919%	0.027
	5.035V	0.421		230.24V
2	0.090A	0.453	63.893%	0.044
	5.034V	0.709		230.25V
3	0.550A	2.764	75.705%	0.181
	5.025V	3.651		230.25V
4	1.000A	5.016	77.719%	0.248
	5.016V	6.454		230.25V
5	1.500A	7.508	78.429%	0.288
	5.005V	9.573		230.25V
6	3.000A	14.923	77.813%	0.343
	4.974V	19.178		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	1.752A	1.983A	1.959A	1.000A	42.957	73.406%	877	19.9	29.29°C	0.971
	12.189V	5.041V	3.372V	5.001V	58.520				32.49°C	115.11V
2	4.533A	2.979A	2.944A	1.203A	86.017	80.627%	889	20.2	29.40°C	0.984
	12.161V	5.035V	3.361V	4.986V	106.685				33.32°C	115.11V
3	7.667A	3.472A	3.444A	1.408A	129.003	82.874%	909	20.9	30.62°C	0.990
	12.124V	5.041V	3.352V	4.973V	155.662				34.96°C	115.11V
4	10.822A	3.963A	3.949A	1.613A	172.006	83.627%	902	20.7	30.83°C	0.990
	12.087V	5.047V	3.342V	4.961V	205.683				35.78°C	115.11V
5	13.640A	4.962A	4.953A	1.821A	215.004	83.561%	1147	28.5	31.39°C	0.991
	12.060V	5.039V	3.331V	4.944V	257.301				36.80°C	115.11V
6	16.472A	5.960A	5.966A	2.000A	257.855	83.080%	1321	32.9	31.92°C	0.993
	12.032V	5.034V	3.320V	4.927V	310.368				37.81°C	115.11V
7	19.327A	6.958A	6.985A	2.240A	301.078	82.412%	1486	36.2	32.10°C	0.994
	12.003V	5.028V	3.308V	4.913V	365.333				38.97°C	115.11V
8	22.185A	7.967A	8.008A	2.451A	344.075	81.560%	1622	38.3	32.93°C	0.995
	11.975V	5.022V	3.296V	4.898V	421.868				40.70°C	115.11V
9	25.523A	8.447A	8.519A	2.456A	387.028	80.624%	1795	41.3	33.50°C	0.996
	11.931V	5.032V	3.287V	4.888V	480.038				41.94°C	115.11V
10	28.601A	8.931A	9.067A	3.086A	429.833	79.469%	1947	43.8	34.89°C	0.996
	11.892V	5.039V	3.276V	4.862V	540.881				44.10°C	115.11V
11	32.388A	8.885A	9.090A	3.091A	472.974	78.388%	2041	44.7	36.37°C	0.996
	11.834V	5.064V	3.267V	4.854V	603.376				46.13°C	115.10V
CL1	0.117A	14.004A	13.998A	0.001A	112.504	74.748%	1573	37.6	31.37°C	0.990
	12.538V	4.614V	3.316V	4.963V	150.512				36.75°C	115.12V

CL2	34.007A	1.000A	1.001A	1.000A	411.478	79.812%	1847	41.8	34.70°C	0.996
	11.702V	5.272V	3.312V	4.940V	515.561				43.93°C	115.11V

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	1.753A	1.985A	1.958A	1.000A	42.969	74.906%	871	19.6	29.01°C	0.858
	12.187V	5.040V	3.371V	5.000V	57.364				31.99°C	230.26V
2	4.534A	2.981A	2.944A	1.204A	86.030	82.306%	883	20.0	29.89°C	0.930
	12.160V	5.033V	3.360V	4.984V	104.524				33.37°C	230.26V
3	7.670A	3.473A	3.446A	1.408A	129.034	84.741%	902	20.7	30.28°C	0.957
	12.123V	5.040V	3.351V	4.971V	152.268				34.62°C	230.26V
4	10.825A	3.965A	3.948A	1.613A	172.033	85.632%	946	22.3	30.72°C	0.968
	12.086V	5.046V	3.342V	4.960V	200.897				35.74°C	230.26V
5	13.643A	4.963A	4.956A	1.821A	215.029	85.665%	1068	26.1	31.24°C	0.976
	12.059V	5.038V	3.330V	4.943V	251.011				36.83°C	230.26V
6	16.475A	5.962A	5.966A	2.000A	257.873	85.385%	1274	31.6	31.86°C	0.980
	12.031V	5.034V	3.319V	4.924V	302.012				38.27°C	230.26V
7	19.327A	6.965A	6.983A	2.240A	301.101	84.911%	1388	34.4	32.62°C	0.984
	12.003V	5.027V	3.308V	4.913V	354.608				39.80°C	230.26V
8	22.189A	7.963A	8.010A	2.451A	344.079	84.287%	1430	35.0	32.86°C	0.986
	11.973V	5.024V	3.296V	4.897V	408.222				40.79°C	230.25V
9	25.524A	8.447A	8.519A	2.456A	387.039	83.664%	1574	37.6	33.25°C	0.987
	11.931V	5.032V	3.287V	4.888V	462.610				41.90°C	230.25V
10	28.606A	8.931A	9.067A	3.086A	429.836	82.769%	1803	41.4	34.57°C	0.989
	11.890V	5.040V	3.275V	4.862V	519.322				43.89°C	230.25V
11	32.380A	8.889A	9.089A	3.091A	473.008	81.979%	1965	44.0	35.65°C	0.990
	11.838V	5.061V	3.268V	4.854V	576.985				45.51°C	230.25V
CL1	0.103A	14.003A	14.000A	0.001A	112.428	76.530%	1504	36.7	31.87°C	0.955
	12.531V	4.621V	3.316V	4.963V	146.907				36.32°C	230.25V

CL2	33.971A	1.001A	1.001A	1.000A	411.456	82.924%	1797	41.4	34.91°C	0.988
	11.714V	5.259V	3.313V	4.940V	496.185				43.69°C	230.25V

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	1.220A	0.492A	0.486A	0.199A	19.984	63.331%	811	17.2	0.940
	12.162V	5.085V	3.382V	5.026V	31.555				115.10V
2	2.440A	0.986A	0.977A	0.399A	39.973	74.364%	836	18.3	0.967
	12.159V	5.075V	3.377V	5.016V	53.753				115.10V
3	3.667A	1.479A	1.469A	0.599A	60.005	78.537%	851	18.9	0.977
	12.151V	5.067V	3.372V	5.009V	76.403				115.10V
4	4.889A	1.975A	1.959A	0.800A	79.956	80.632%	871	19.9	0.982
	12.143V	5.061V	3.366V	4.999V	99.162				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])	PF/AC Volts
1	1.221A	0.491A	0.488A	0.199A	19.997	65.228%	868	19.4	0.726
	12.159V	5.090V	3.382V	5.026V	30.657				230.26V
2	2.442A	0.985A	0.978A	0.399A	39.988	76.003%	866	19.4	0.845
	12.157V	5.074V	3.376V	5.015V	52.614				230.26V
3	3.669A	1.480A	1.467A	0.599A	60.019	80.169%	864	19.3	0.893
	12.149V	5.067V	3.371V	5.008V	74.866				230.26V
4	4.890A	1.977A	1.962A	0.800A	79.969	82.410%	869	19.5	0.924
	12.140V	5.060V	3.365V	4.998V	97.038				230.26V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	16.90mV	34.80mV	19.50mV	12.20mV	Pass
20% Load	20.60mV	33.40mV	20.00mV	12.60mV	Pass
30% Load	24.00mV	33.60mV	21.20mV	14.30mV	Pass
40% Load	25.90mV	32.00mV	20.90mV	17.30mV	Pass
50% Load	28.70mV	33.70mV	21.80mV	20.10mV	Pass
60% Load	33.60mV	36.20mV	21.80mV	20.50mV	Pass
70% Load	38.10mV	38.60mV	24.00mV	25.50mV	Pass
80% Load	42.60mV	38.70mV	27.00mV	30.10mV	Pass
90% Load	48.50mV	36.80mV	26.50mV	29.70mV	Pass
100% Load	59.90mV	39.70mV	26.70mV	27.70mV	Pass
110% Load	65.50mV	38.50mV	27.80mV	28.30mV	Pass
Crossload1	31.70mV	59.90mV	26.30mV	14.40mV	Fail
Crossload2	56.50mV	16.20mV	23.10mV	19.90mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	16.80mV	35.40mV	18.60mV	12.20mV	Pass
20% Load	20.60mV	34.00mV	18.30mV	12.90mV	Pass
30% Load	23.30mV	33.80mV	19.20mV	13.90mV	Pass
40% Load	24.50mV	32.90mV	18.90mV	16.20mV	Pass
50% Load	29.50mV	33.90mV	19.20mV	20.00mV	Pass
60% Load	33.40mV	37.30mV	19.40mV	20.90mV	Pass
70% Load	38.40mV	38.70mV	20.40mV	24.70mV	Pass
80% Load	42.60mV	39.20mV	23.20mV	29.40mV	Pass

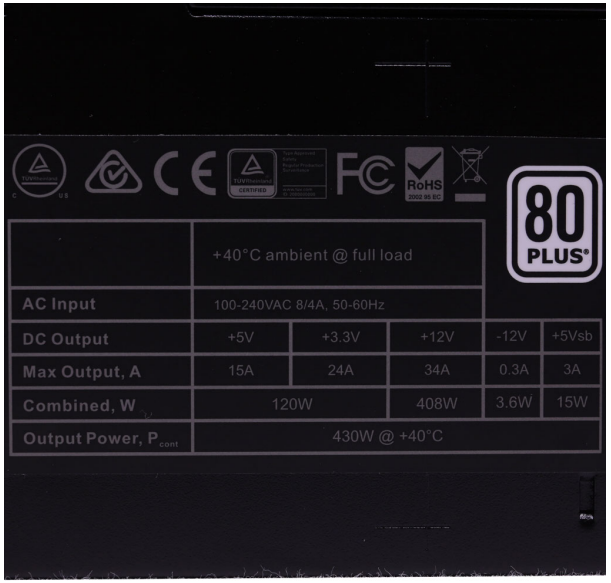
Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	47.60mV	37.40mV	24.50mV	30.50mV	Pass
100% Load	58.70mV	40.70mV	24.70mV	27.60mV	Pass
110% Load	63.30mV	37.40mV	25.50mV	28.50mV	Pass
Crossload1	31.20mV	63.10mV	25.00mV	14.20mV	Fail
Crossload2	57.80mV	16.70mV	20.30mV	19.60mV	Pass

The results above are not used in the certification process

EVGA 430W (#2)



Top side



Power specifications label

Cybenetics bietet freiwillige Zertifizierungsprogramme für Netzteile – ETA für Effizienz, LAMBDA für Lautstärke und SAFE für Sicherheit und korrekten Betrieb – sowie für Kühlprodukte mit DELTA für die Schalldämmung von Gehäusen und PHI für Luftstrom und statischen Druck von Lüftern

CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus

www.cybenetics.com - info@cybenetics.com