FSP Technology AURUM PT 1200W PT-1200FM

Serial Number S4290000157

Lab ID 300

Certification ID 25300

Test Result Report ID:

Certificate Issue Date: Feb 28, 2018

Scheme: ETA-EMI PSU

115V



230V



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	FSP Technology
Model	AURUM PT 1200W PT-1200FM
OEM/ODM	FSP
Serial Number	S4290000157
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15-9
Rated Frequency (Hz)	50-60

Rated Power (W)	1200
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	135mm Hydro Dynamic Bearing Fan (PLA13525S12M)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	300
Date of receipt	Feb 15, 2018
Testing Date	Feb 26, 2018
Report Issued Date	Feb 28, 2018
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	18-24AWG	No
4+4 pin EPS12V (700mm)	2	2	18AWG	No
6+2 pin PCIe (500mm+100mm)	4	8	18AWG	No
SATA (550mm+150mm+150mm)	3	9	18AWG	No
SATA (550mm+50mm+50mm+50mm)	1	4	18AWG	No
4 pin Molex (550mm+150mm+150mm)	2	6	18AWG	No
FDD Adapter (+100mm)	1	1	22AWG	No
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	100	3	0.8
	Watts	160		1200	15	9.6
Total Max. Power (W)		1200				

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)	89.557%
Average Noise Output (>1450 Load Combinations)	32.61dBA
Average PF (>1450 Load Combinations)	0.992
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.0539W
Non-Accredited	
12V Ripple (Full Load)	38.39mV
5V Ripple (Full Load)	7.80mV
3.3V Ripple (Full Load)	10.56mV
5VSB Ripple (Full Load)	22.79mV
12V Load Regulation	0.58%
5V Load Regulation	1.70%
3.3V Load Regulation	2.61%

5VSB Load Regulation	2.30%
Inrush Current	36.185A

230V

Accredited		
Average Efficiency (>1450 load combinations)	91.998%	
Average Noise Output (>1450 Load Combinations)	31.19dBA	
Average PF (>1450 Load Combinations)	0.966	
Efficiency With 10W (≤500W) or 2% (>500W) Load	-	
Standby Power Consumption	0.0855W	
Non-Accredited		
12V Ripple (Full Load)	35.48mV	
5V Ripple (Full Load)	6.95mV	
3.3V Ripple (Full Load)	12.34mV	
5VSB Ripple (Full Load)	18.47mV	
12V Load Regulation	0.62%	
5V Load Regulation	1.68%	
3.3V Load Regulation	2.55%	
5VSB Load Regulation	2.39%	
Inrush Current	66.485A	
Hold-Up Time & PWR_OK Signal	12.80ms	
AC Loss to PWR_OK Hold Up Time	10.70ms	
PWR_OK Inactive to DC Loss Delay	2.10ms	
OPP (0.00°C / 0.00°C)	-	-

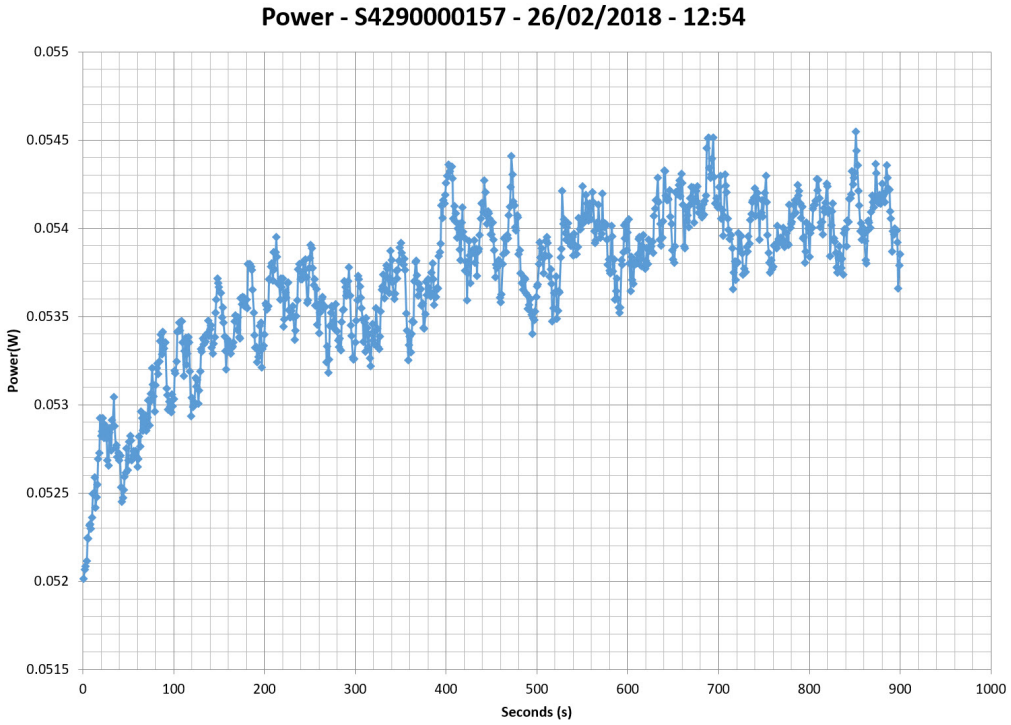
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	12.8
AC Loss to PWR_OK Hold Up Time (ms)	10.7
PWR_OK Inactive to DC Loss Delay (ms)	2.1

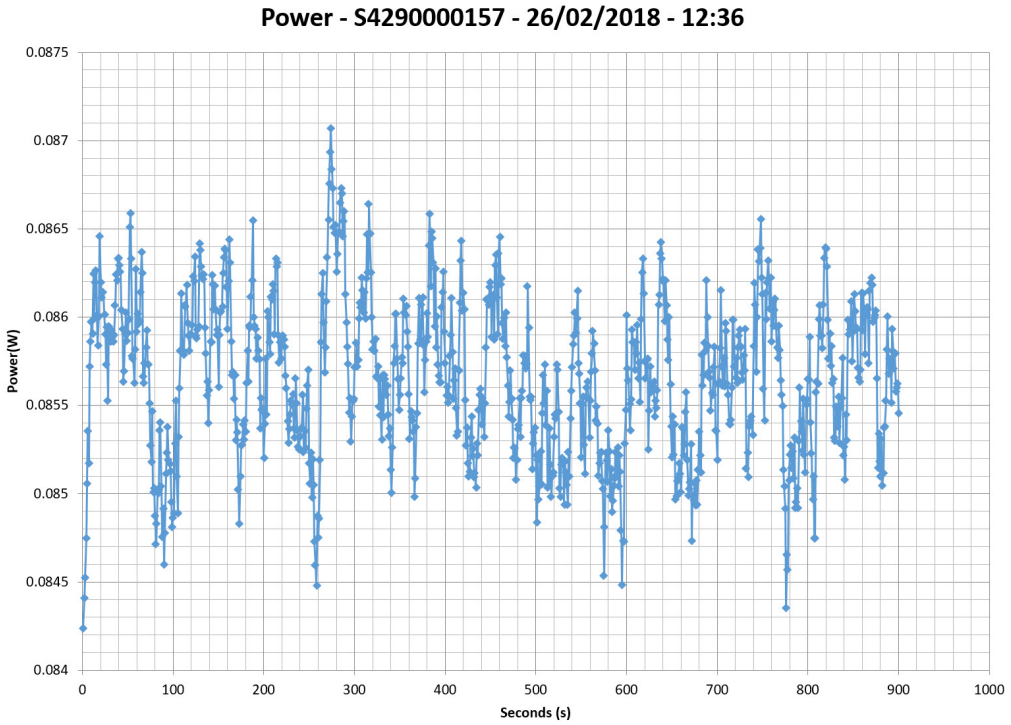
Stromverbrauch im Ruhezustand

Graphs

115V

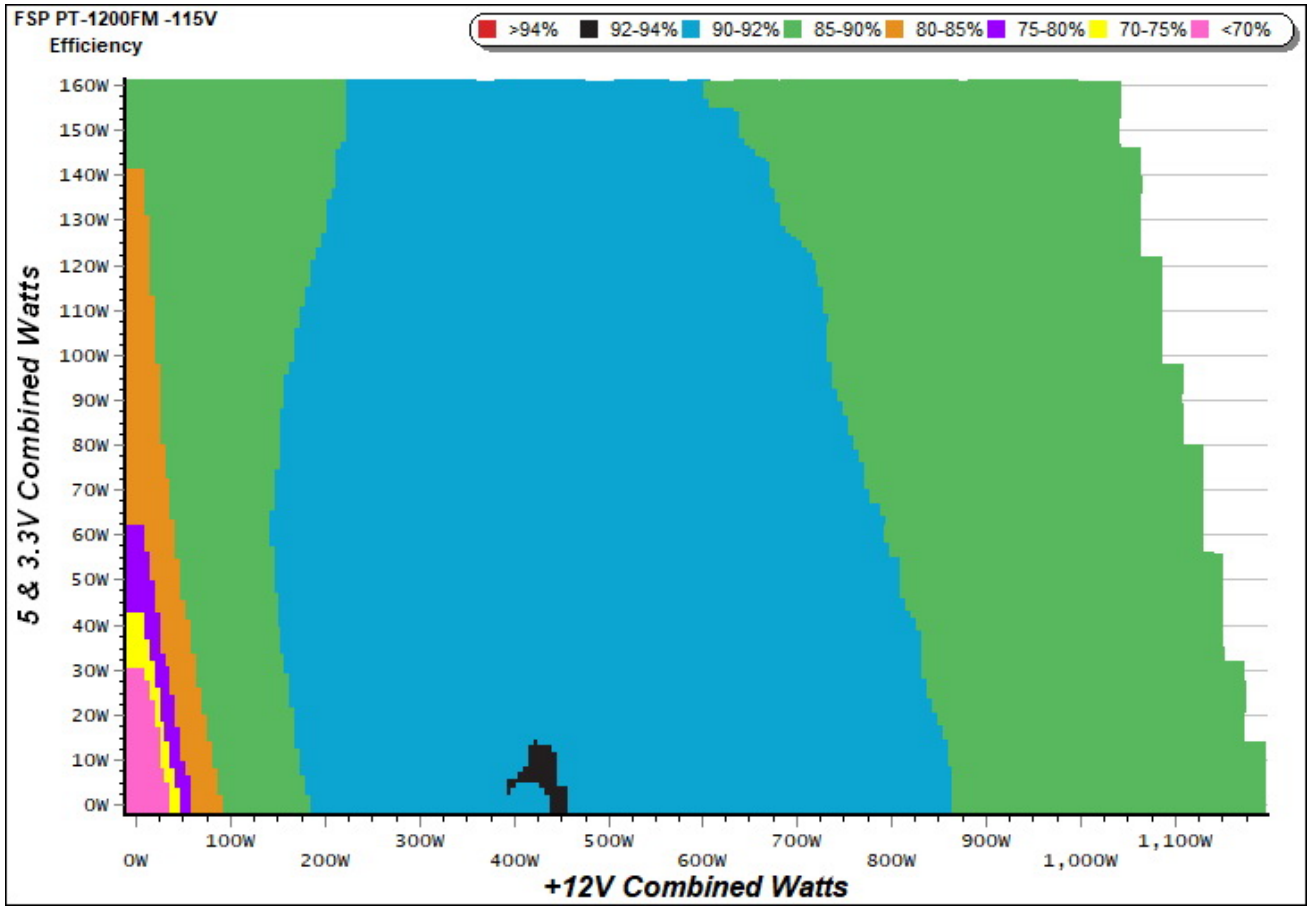


230V



Efficiency Graph

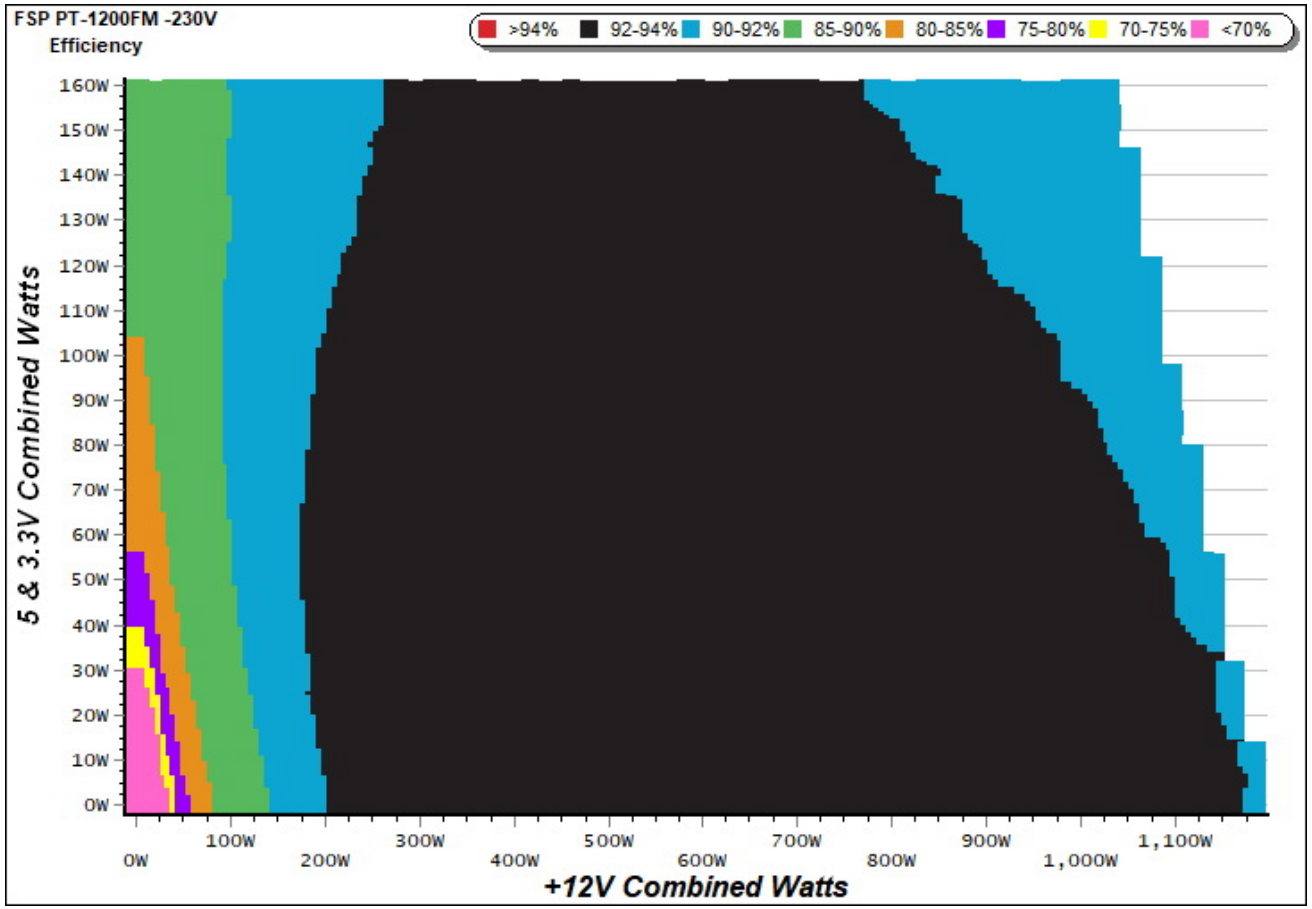
115V



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

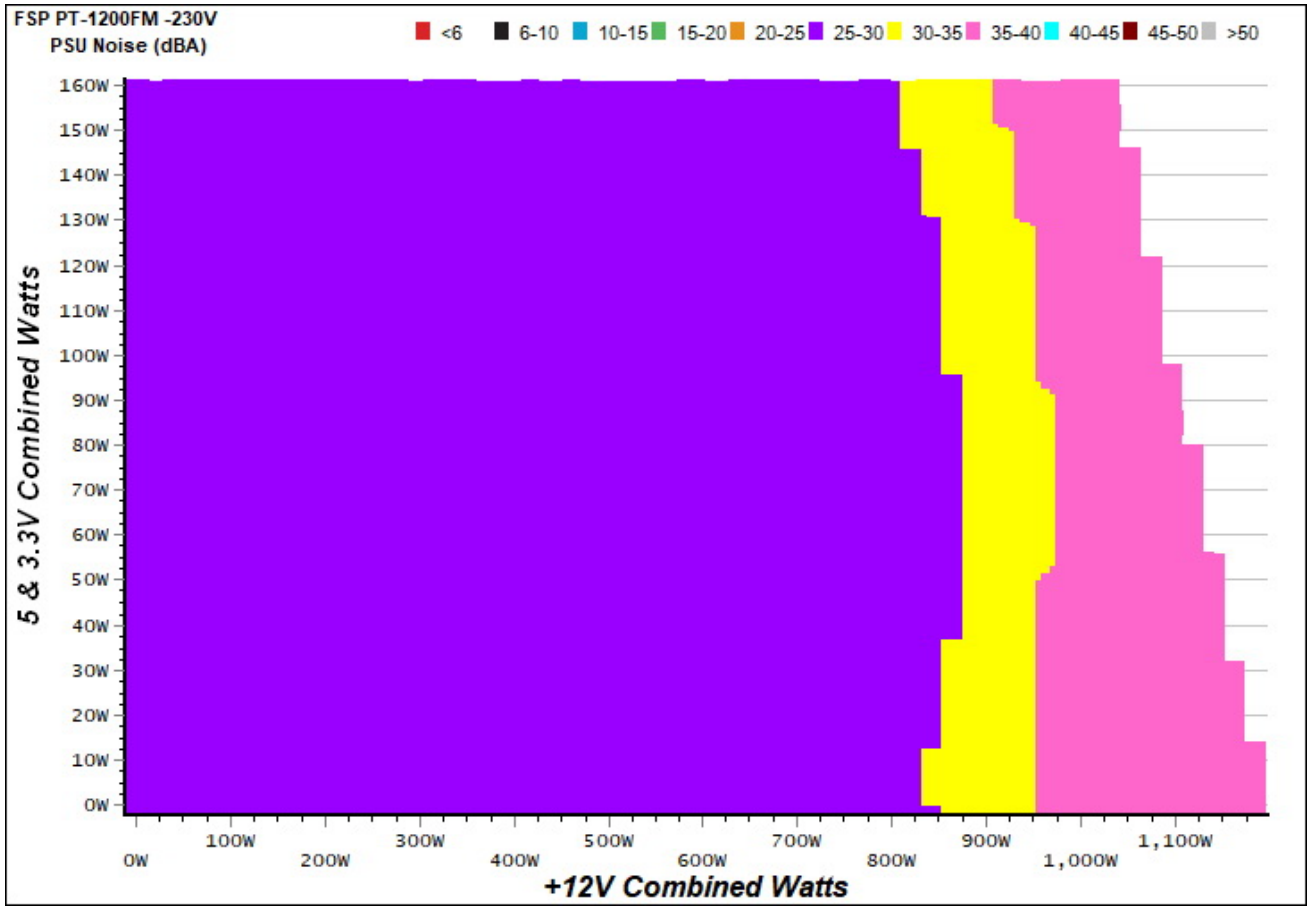


INFO

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Noise Graph

230V

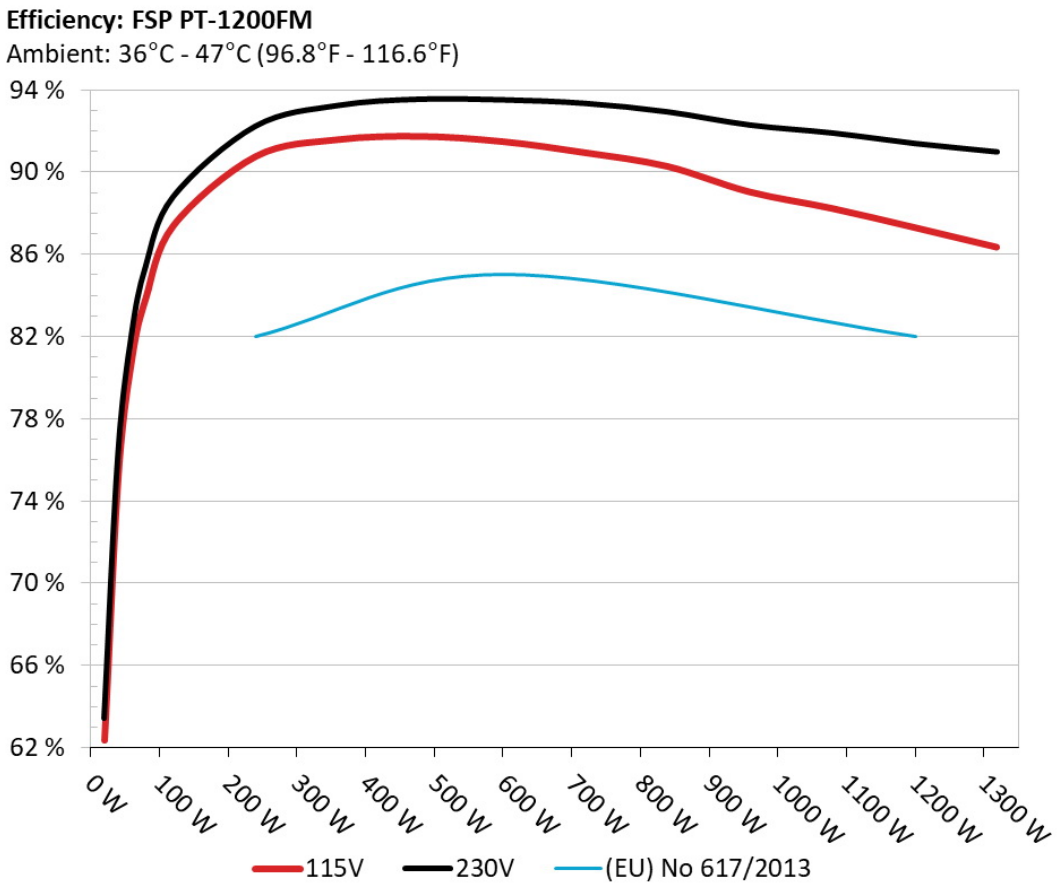


INFO

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

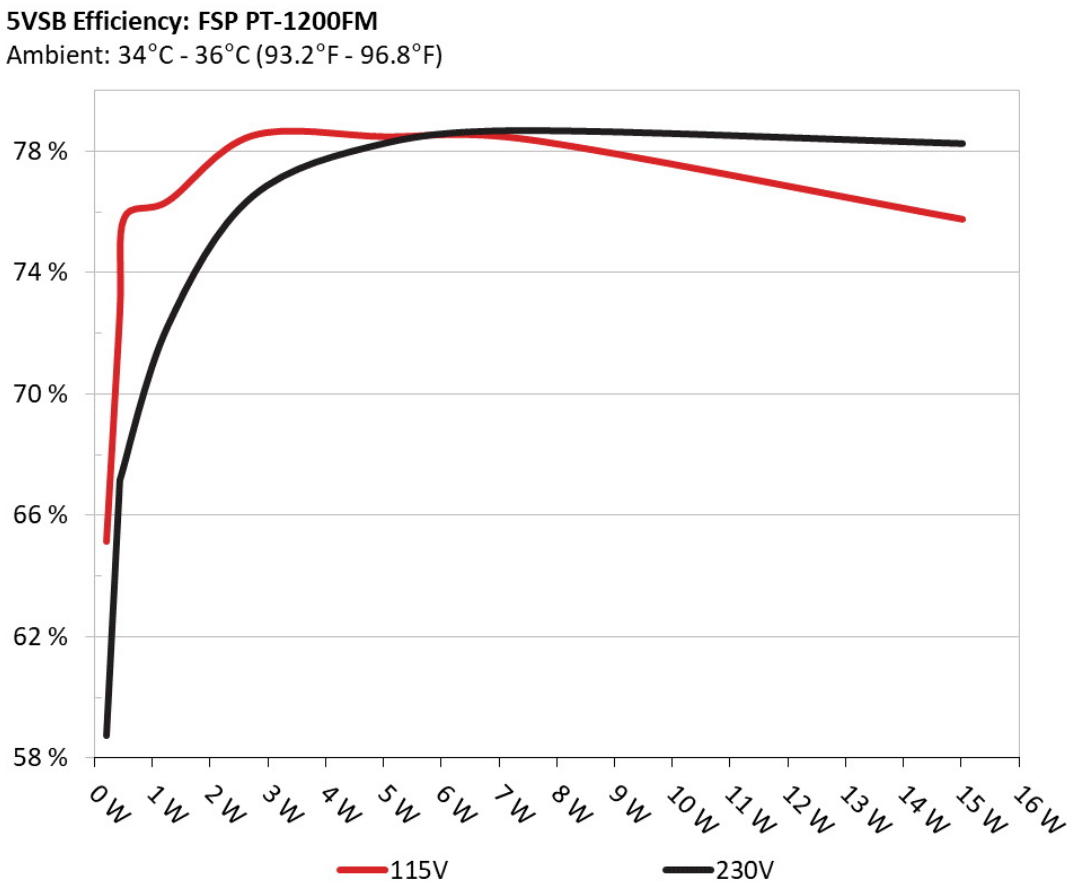
Efficiency under high ambient temperature



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	0.042A	0.211	65.123%	0.028
	5.057V	0.324		115.08V
2	0.087A	0.441	72.652%	0.052
	5.056V	0.607		115.08V
3	0.542A	2.737	78.514%	0.237
	5.048V	3.486		115.08V
4	1.002A	5.050	78.477%	0.336
	5.039V	6.435		115.08V
5	1.502A	7.555	78.371%	0.395
	5.030V	9.640		115.08V
6	3.001A	15.016	75.754%	0.473
	5.003V	19.822		115.07V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.212	58.726%	0.009
	5.057V	0.361		230.22V
2	0.087A	0.442	66.970%	0.017
	5.056V	0.660		230.22V
3	0.542A	2.737	76.517%	0.088
	5.047V	3.577		230.22V
4	1.002A	5.050	78.282%	0.150
	5.039V	6.451		230.22V
5	1.502A	7.555	78.690%	0.205
	5.030V	9.601		230.22V
6	3.001A	15.019	78.261%	0.313
	5.004V	19.191		230.21V

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	8.063A	1.930A	1.959A	0.991A	119.810	87.393%	775	26.5	39.09°C	0.980
	12.183V	5.180V	3.366V	5.032V	137.093				43.69°C	115.08V
2	17.147A	2.905A	2.948A	1.191A	239.661	90.759%	775	26.5	39.79°C	0.994
	12.175V	5.171V	3.356V	5.022V	264.064				44.64°C	115.12V
3	26.599A	3.383A	3.463A	1.396A	359.738	91.578%	775	26.5	40.82°C	0.994
	12.169V	5.163V	3.348V	5.010V	392.823				46.30°C	115.08V
4	36.037A	3.873A	3.949A	1.598A	479.460	91.736%	775	26.5	41.63°C	0.995
	12.163V	5.155V	3.339V	5.001V	522.652				47.59°C	115.06V
5	45.159A	4.855A	4.950A	1.801A	599.268	91.483%	775	26.5	44.04°C	0.995
	12.155V	5.146V	3.331V	4.991V	655.061				50.26°C	115.08V
6	54.286A	5.839A	5.959A	2.006A	719.297	90.943%	805	27.0	45.09°C	0.995
	12.149V	5.137V	3.321V	4.981V	790.929				51.55°C	115.08V
7	63.416A	6.823A	6.975A	2.211A	839.131	90.278%	1255	34.6	45.41°C	0.994
	12.143V	5.127V	3.312V	4.970V	929.494				52.81°C	115.11V
8	72.583A	7.820A	7.993A	2.416A	959.113	89.036%	1630	39.9	45.01°C	0.994
	12.134V	5.118V	3.301V	4.960V	1077.217				53.14°C	115.08V
9	82.166A	8.323A	8.532A	2.421A	1078.946	88.237%	1875	44.8	45.93°C	0.993
	12.126V	5.108V	3.293V	4.953V	1222.780				54.55°C	115.09V
10	91.540A	8.826A	9.043A	3.037A	1198.777	87.308%	2000	45.6	46.48°C	0.993
	12.116V	5.098V	3.284V	4.935V	1373.050				55.35°C	115.08V
11	101.489A	8.840A	9.068A	3.041A	1318.723	86.353%	2000	45.6	46.88°C	0.992
	12.110V	5.091V	3.275V	4.929V	1527.125				56.46°C	115.08V
CL1	0.099A	19.028A	19.001A	0.005A	162.840	84.788%	935	27.4	42.79°C	0.988
	12.179V	5.156V	3.342V	5.041V	192.055				48.36°C	115.11V

CL2	99.961A	1.002A	1.002A	1.002A	1224.539	87.606%	1990	45.6	45.67°C	0.993
	12.116V	5.110V	3.295V	4.979V	1397.773				54.61°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	8.061A	1.931A	1.958A	0.990A	119.784	88.775%	775	26.5	38.21°C	0.852
	12.183V	5.180V	3.367V	5.033V	134.930				41.56°C	230.18V
2	17.145A	2.905A	2.946A	1.191A	239.638	92.213%	775	26.5	38.40°C	0.939
	12.175V	5.172V	3.357V	5.024V	259.875				42.17°C	230.24V
3	26.597A	3.388A	3.463A	1.395A	359.710	93.220%	775	26.5	38.94°C	0.965
	12.168V	5.163V	3.348V	5.012V	385.874				43.07°C	230.26V
4	36.034A	3.874A	3.951A	1.599A	479.363	93.527%	775	26.5	39.53°C	0.977
	12.161V	5.155V	3.340V	4.995V	512.540				44.06°C	230.22V
5	45.165A	4.854A	4.950A	1.800A	599.347	93.494%	775	26.5	40.36°C	0.981
	12.153V	5.146V	3.332V	4.991V	641.053				45.34°C	230.22V
6	54.294A	5.843A	5.958A	2.032A	719.278	93.325%	775	26.5	41.63°C	0.984
	12.146V	5.137V	3.321V	4.932V	770.726				47.04°C	230.23V
7	63.434A	6.826A	6.974A	2.210A	839.104	92.911%	1220	33.7	43.01°C	0.984
	12.139V	5.127V	3.312V	4.970V	903.126				48.80°C	230.23V
8	72.591A	7.823A	7.995A	2.426A	958.968	92.270%	1595	40.1	43.88°C	0.985
	12.130V	5.118V	3.302V	4.947V	1039.309				49.84°C	230.28V
9	82.202A	8.325A	8.531A	2.430A	1079.076	91.884%	1875	44.8	45.45°C	0.984
	12.122V	5.108V	3.293V	4.941V	1174.395				52.30°C	230.29V
10	91.548A	8.829A	9.043A	3.036A	1198.703	91.378%	2000	45.6	46.36°C	0.983
	12.114V	5.098V	3.284V	4.935V	1311.813				53.67°C	230.28V
11	101.500A	8.843A	9.065A	3.045A	1318.550	90.969%	2000	45.6	47.16°C	0.982
	12.107V	5.091V	3.275V	4.920V	1449.450				54.88°C	230.29V
CL1	0.099A	19.024A	19.002A	0.005A	162.824	86.682%	1065	30.5	43.43°C	0.906
	12.176V	5.156V	3.342V	5.041V	187.841				46.54°C	230.33V

CL2	99.946A	1.003A	1.003A	1.002A	1224.464	91.817%	1855	44.6	46.48°C	0.983
	12.117V	5.110V	3.294V	4.978V	1333.593				50.12°C	230.26V

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	1.201A	0.480A	0.470A	0.196A	19.703	62.377%	775	26.5	0.848
	12.187V	5.188V	3.373V	5.051V	31.587				115.08V
2	2.423A	0.954A	0.977A	0.396A	39.770	75.295%	775	26.5	0.924
	12.187V	5.186V	3.372V	5.047V	52.819				115.08V
3	3.645A	1.445A	1.482A	0.594A	59.898	81.030%	775	26.5	0.951
	12.186V	5.184V	3.370V	5.042V	73.921				115.08V
4	4.860A	1.924A	1.957A	0.791A	79.766	83.869%	775	26.5	0.966
	12.185V	5.183V	3.368V	5.036V	95.108				115.08V

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	1.199A	0.482A	0.471A	0.195A	19.688	63.459%	775	26.5	0.407
	12.188V	5.188V	3.374V	5.052V	31.025				230.15V
2	2.421A	0.959A	0.977A	0.406A	39.760	76.264%	775	26.5	0.573
	12.188V	5.187V	3.373V	4.884V	52.135				230.16V
3	3.646A	1.447A	1.480A	0.591A	59.906	82.174%	775	26.5	0.688
	12.187V	5.185V	3.370V	5.043V	72.901				230.17V
4	4.858A	1.926A	1.955A	0.791A	79.755	85.359%	775	26.5	0.763
	12.186V	5.183V	3.369V	5.039V	93.435				230.17V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	19.7 mV	4.1 mV	6.8 mV	11.1 mV	Pass
20% Load	25.4 mV	4.6 mV	7.2 mV	12.0 mV	Pass
30% Load	29.1 mV	5.2 mV	8.1 mV	11.8 mV	Pass
40% Load	32.6 mV	4.9 mV	8.9 mV	15.2 mV	Pass
50% Load	32.6 mV	5.1 mV	8.0 mV	13.0 mV	Pass
60% Load	33.0 mV	5.1 mV	8.3 mV	14.6 mV	Pass
70% Load	34.8 mV	6.6 mV	15.1 mV	15.1 mV	Pass
80% Load	29.4 mV	7.1 mV	12.1 mV	18.5 mV	Pass
90% Load	31.3 mV	7.1 mV	12.5 mV	20.8 mV	Pass
100% Load	38.4 mV	7.8 mV	10.6 mV	22.8 mV	Pass
110% Load	40.8 mV	8.0 mV	10.8 mV	24.6 mV	Pass
Crossload 1	21.7 mV	4.5 mV	7.3 mV	11.3 mV	Pass
Crossload 2	38.8 mV	7.4 mV	8.9 mV	20.8 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.5 mV	4.5 mV	6.7 mV	10.6 mV	Pass
20% Load	22.5 mV	4.4 mV	7.0 mV	11.8 mV	Pass
30% Load	27.3 mV	4.8 mV	7.7 mV	10.8 mV	Pass
40% Load	29.9 mV	5.0 mV	8.5 mV	13.9 mV	Pass
50% Load	30.7 mV	5.1 mV	8.1 mV	11.4 mV	Pass
60% Load	29.4 mV	5.0 mV	10.5 mV	12.7 mV	Pass
70% Load	30.3 mV	5.9 mV	13.8 mV	12.8 mV	Pass
80% Load	29.0 mV	5.9 mV	11.3 mV	14.4 mV	Pass

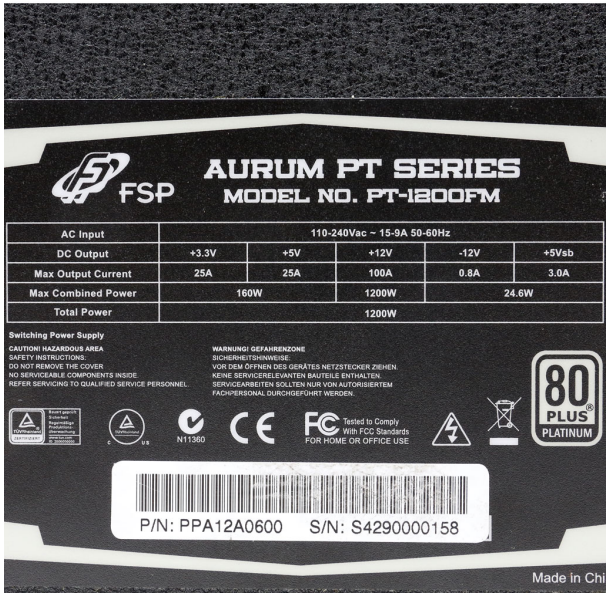
Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	31.3 mV	6.4 mV	9.9 mV	48.1 mV	Pass
100% Load	35.5 mV	7.0 mV	12.3 mV	18.5 mV	Pass
110% Load	37.7 mV	6.7 mV	13.3 mV	18.4 mV	Pass
Crossload 1	19.8 mV	4.0 mV	8.5 mV	11.8 mV	Pass
Crossload 2	35.7 mV	6.7 mV	11.5 mV	13.3 mV	Pass

The results above are not used in the certification process

FSP Technology AURUM PT 1200W PT-1200FM



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

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