ASUS ROG-THOR-1200P (#4)

Serial Number J9YEKG0000137U6

Lab ID 620

Certification ID 25620

Test Result Report ID: 19PS620A

Certificate Issue Date: Apr 2, 2019

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	ASUS
Model	ROG-THOR-1200P (#4)
OEM/ODM	Seasonic
Serial Number	J9YEKG0000137U6
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15-7.5
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 Double Ball Bearing Fan (PLA13525B12M)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	620
Date of receipt	Mar 21, 2019
Testing Date	Mar 31, 2019
Report Issued Date	Apr 2, 2019
DUT Notes	RTSS01-1200P1
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 (610mm)	1	1	18-20AWG	No
4+4 pin EPS12V (650mm)	2	2	18AWG	No
6+2 pin PCIe (680mm)	4	4	18AWG	No
6+2 pin PCIe (680mm+70mm)	2	4	18AWG	Yes
SATA (350mm+150mm+150mm+150mm)	1	4	18AWG	No
SATA (400mm+115mm+115mm+115mm)	2	8	18AWG	No
4 pin Molex to 2xSATA (150mm)	1	2	18AWG	No

4 pin Molex (350mm+120mm)	1	2	18AWG	No
4 pin Molex (450mm+120mm+120mm)	1	3	18AWG	No
FDD Adapter (+105mm)	1	1	22AWG	No
RGB Cable (800mm)	1	1	22AWG	No
RGB Sinc Cable (800mm)	1	1	24AWG	No
AC Power Cord Type (1380mm)	1	1	18AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	100	3	0.3
	Watts	125		1200	15	3.6
Total Max. Power (W)		1200				

Parts Description

General Data	
Manufacturer (OEM)	Seasonic
Platform Model	Prime Ultra Platinum
Primary Side	
Transient Filter	6x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x Shindengen LL25XB60C (600V, 25A @ 105°C)
APFC MOSFETS	2x Infineon IPP60R099CP (650V, 19A @ 100°C, 0.099 Ohm)
APFC Boost Diode	1x STMicroelectronics STPSC10H065D (650V, 10A @ 135°C)
Hold-up Cap(s)	Hitachi (400V, 1x 820uF & 1x 470uF, 2000h @ 105°C, HU)
Main Switchers	4x Infineon IPP50R199CP (550V, 11A @ 100°C, 0.199 Ohm)
Drivers For Main Switchers	2x Silicon Labs Si8230BD
APFC Controller	ON Semiconductor NPC1654
Current Sensor IC	Allegro ACS725T
Switching Controller	Champion CM69016X
Topology	Primary side: Full-Bridge & LLC Resonant Converter Secondary side: Synchronous Rectification & DC-DC converters

Secondary Side	
+12V MOSFETS	8x Nexperia PSMN1R0-40YLD (40V, 200A @ 100°C, 1.4mOhm)
5V & 3.3V	DC-DC Converters: 6x Infineon BSC0906NS PWM Controller: APW7159
Filtering Capacitors	Electrolytics: Chemi-Con (105°C, W), Chemi-Con (4,000-10,000h @ 105°C, KY, KYB), 1x Rubycon (5VSB circuit, 105°C, YXD) Polymers: FPCAP, Nippon Chemi-Con
Micro Controller	Microchip ATmega8A
Flash Memory	Microchip SST26VF016B
Supervisor IC	Weltrend WT7527V (OVP, UVP, OCP, SCP, PG) & AS393M
Fan Model	Power Logic PLA13525B12M (135mm, 12V, 0.40A, 2000 RPM, 111.1 CFM, 41.6 dB[A], Double Ball Bearing)
5VSB Circuit	
Buck Converter	Leadtrend LD7750R
Rectifiers	STMicroelectronics STU6N65K3 (650V, 3A @ 100°C, 1.3Ohm)
-12V Circuit	
Buck Converter	Lite-On LSP5523 (3A max output current)

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)	89.445%
Average Noise Output (>1450 Load Combinations)	16.41dBA
Average PF (>1450 Load Combinations)	0.993
Efficiency With 10W (≤500W) or 2% (>500W) Load	73.105%

Standby Power Consumption	0.0573W
Non-Accredited	
12V Ripple (Full Load)	19.20mV
5V Ripple (Full Load)	10.90mV
3.3V Ripple (Full Load)	21.80mV
5VSB Ripple (Full Load)	23.58mV
12V Load Regulation	0.25%
5V Load Regulation	0.60%
3.3V Load Regulation	0.42%
5VSB Load Regulation	2.92%
Inrush Current	32.796A

230V

Accredited	
Average Efficiency (>1450 load combinations)	91.709%
Average Noise Output (>1450 Load Combinations)	15.67dBA
Average PF (>1450 Load Combinations)	0.965
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.0899W
Non-Accredited	
12V Ripple (Full Load)	18.87mV
5V Ripple (Full Load)	11.08mV
3.3V Ripple (Full Load)	20.40mV
5VSB Ripple (Full Load)	20.26mV
12V Load Regulation	0.26%
5V Load Regulation	0.58%
3.3V Load Regulation	0.42%
5VSB Load Regulation	2.92%
Inrush Current	65.055A
Hold-Up Time & PWR_OK Signal	23.60ms
AC Loss to PWR_OK Hold Up Time	20.50ms
PWR_OK Inactive to DC Loss Delay	3.10ms

OPP (0.00°C / 0.00°C)	-	-

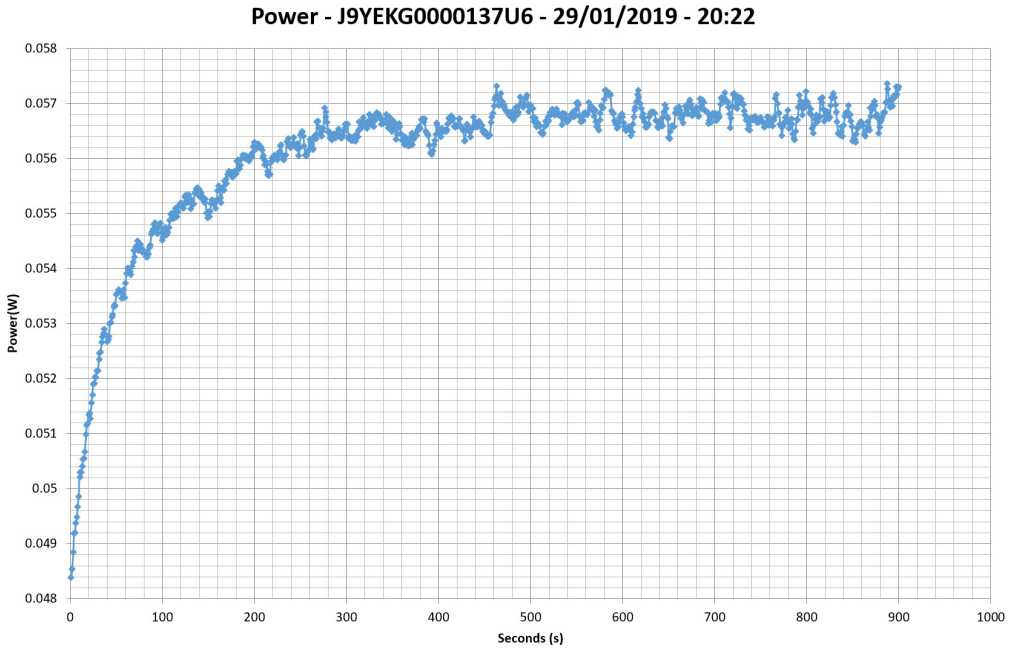
Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	23.6
AC Loss to PWR_OK Hold Up Time (ms)	20.5
PWR_OK Inactive to DC Loss Delay (ms)	3.1

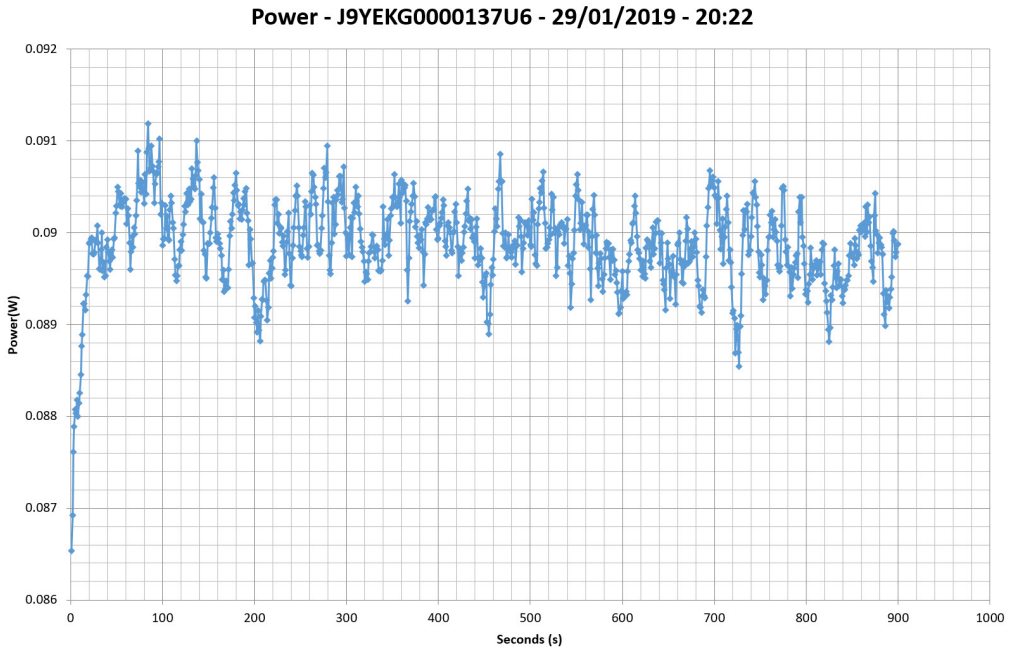
Vampire Power

Graphs

115V

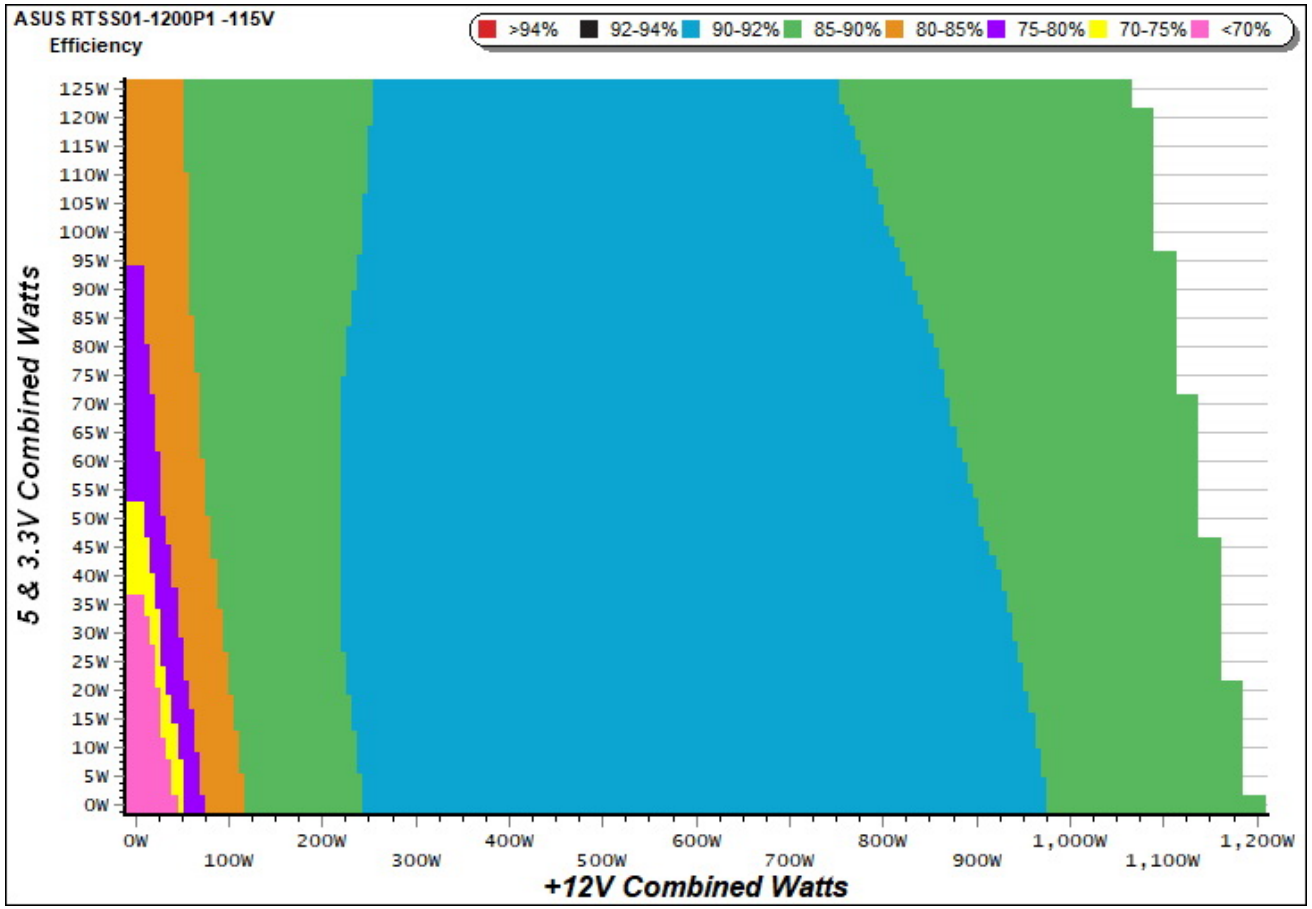


230V



Efficiency Graph

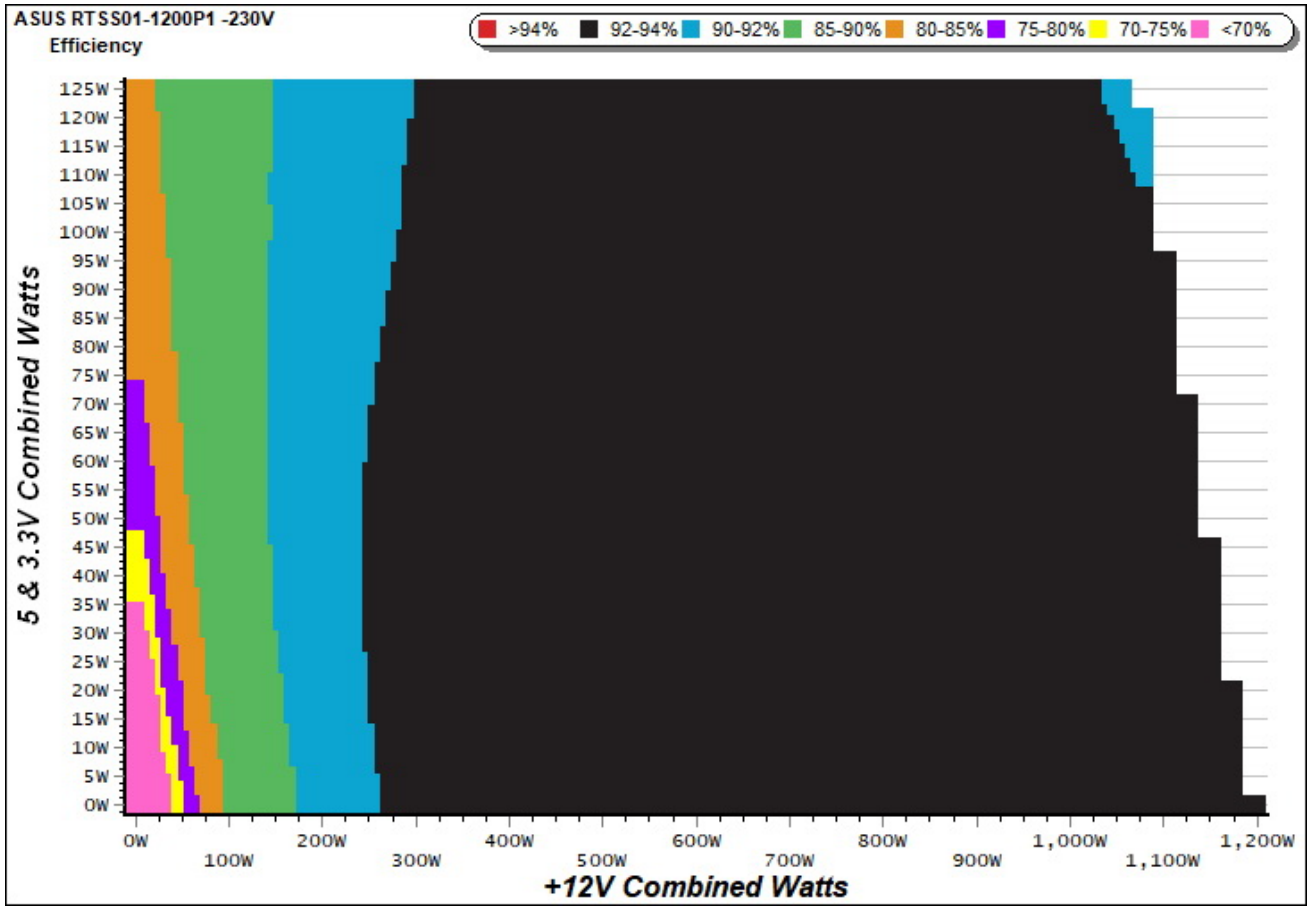
115V



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

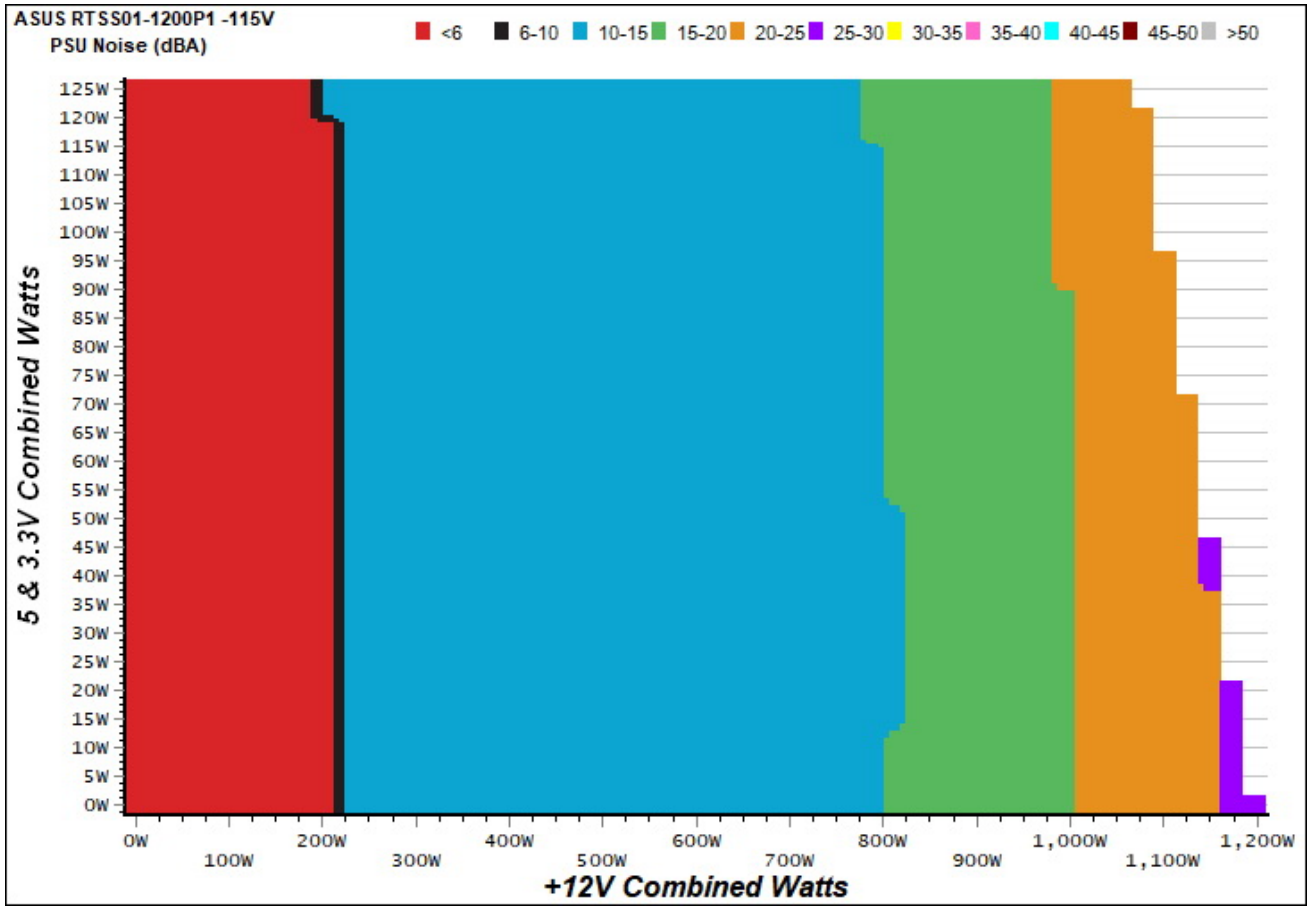


INFO

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

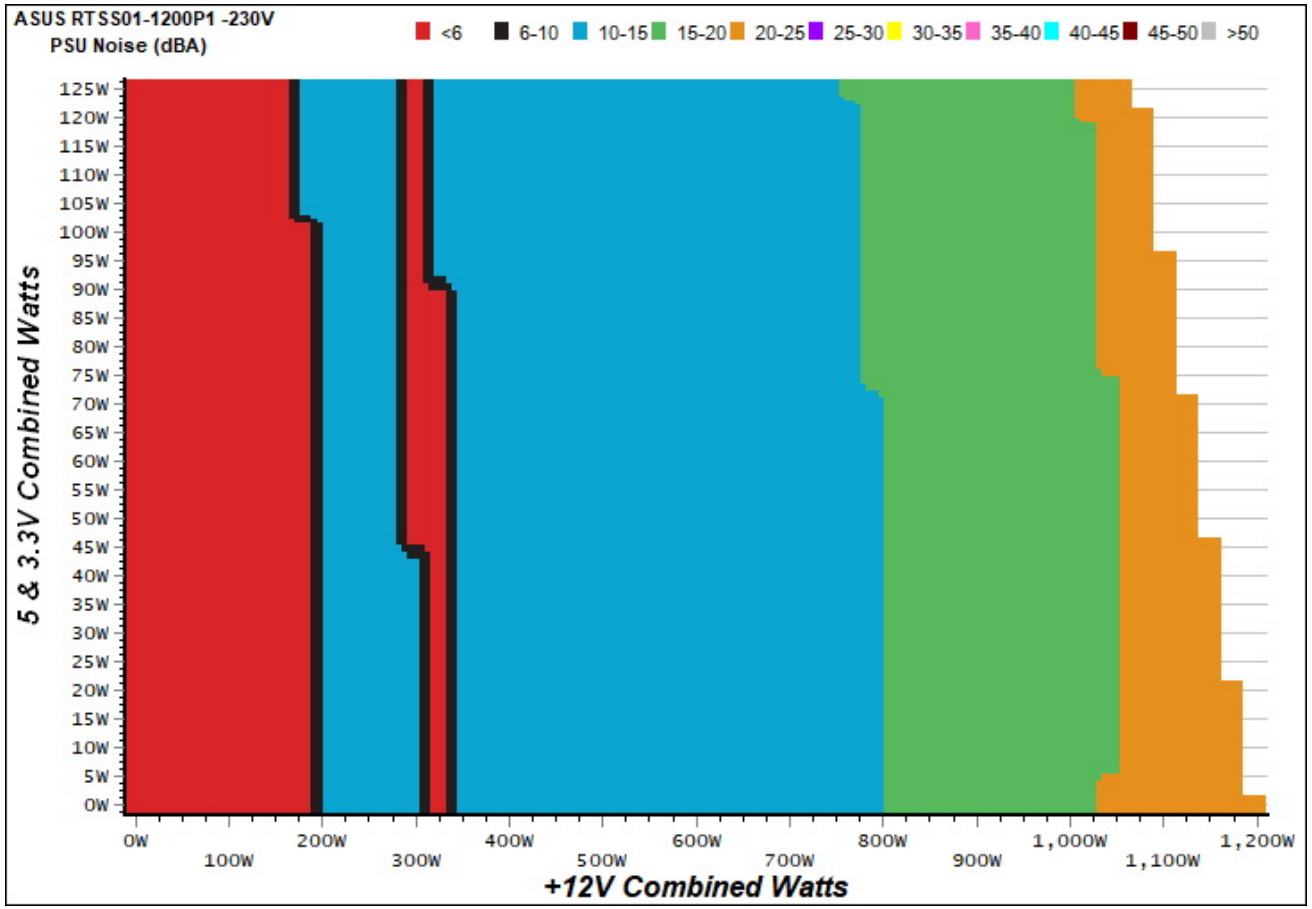
115V



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

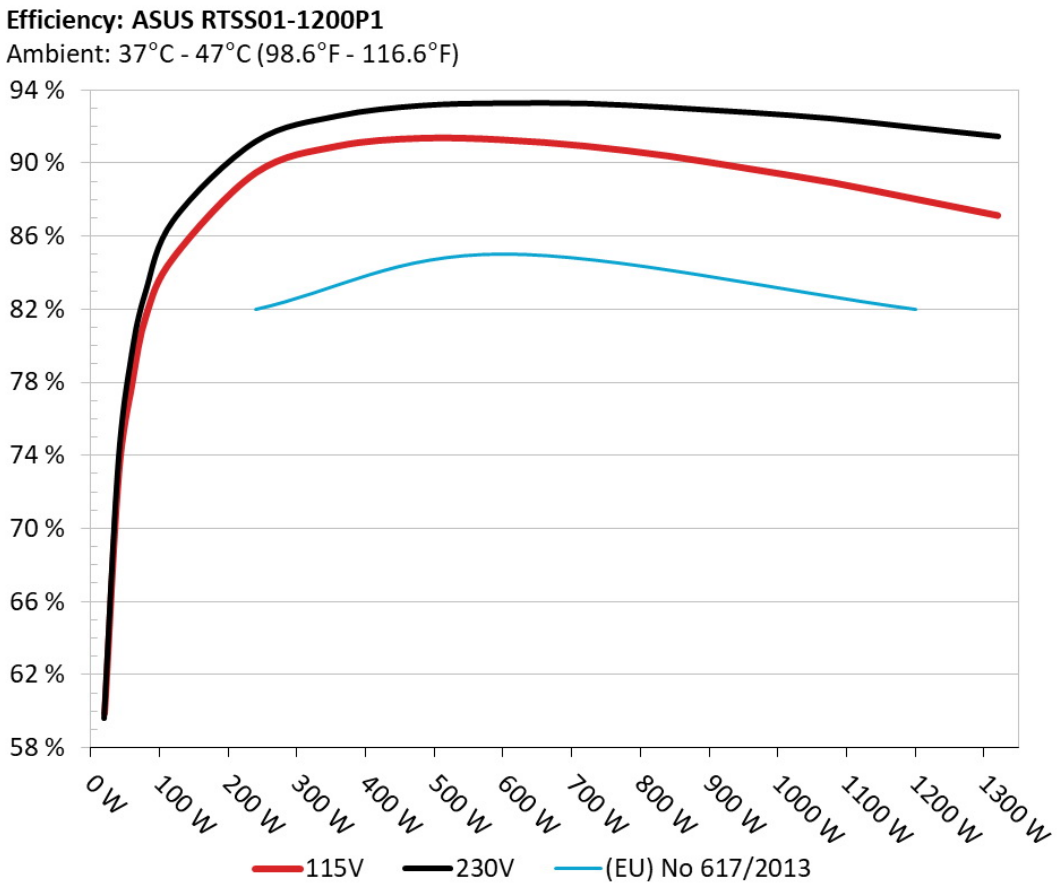


INFO

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

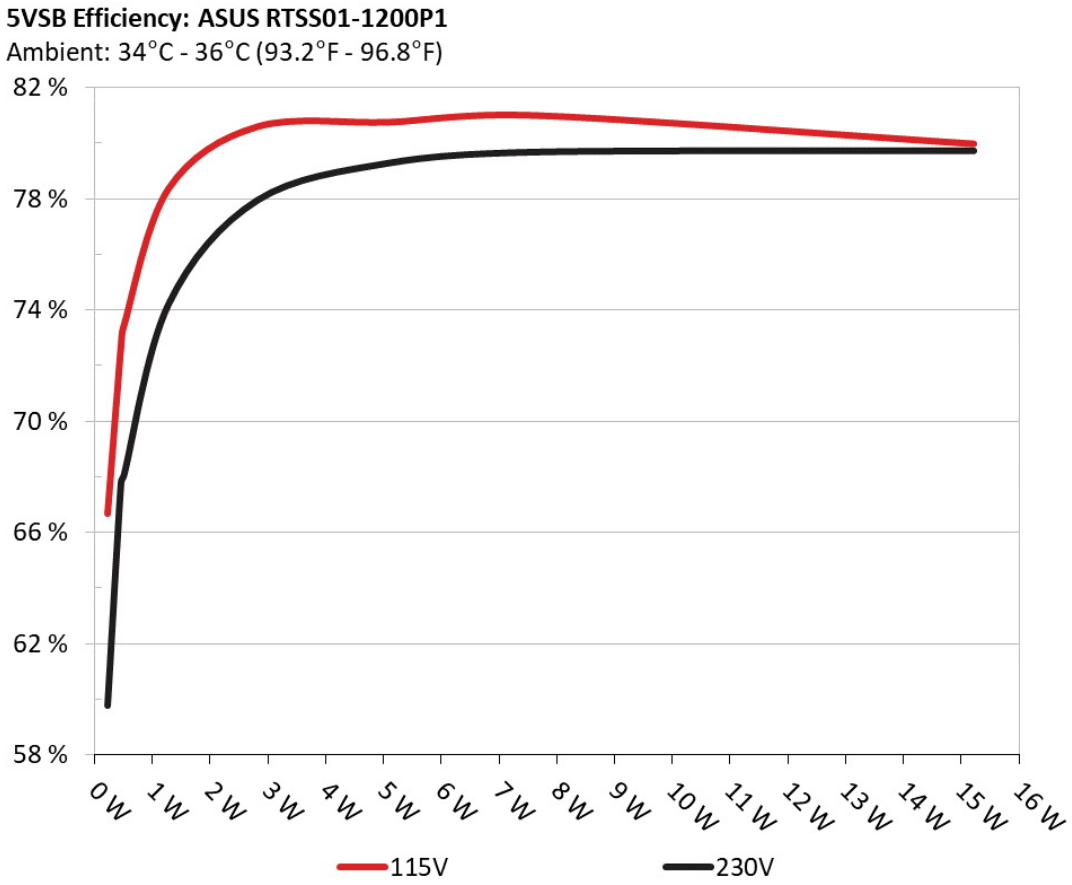
Efficiency under high ambient temperature



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	0.232	66.667%	0.037
	5.139V	0.348		115.11V
2	0.090A	0.463	72.684%	0.067
	5.138V	0.637		115.11V
3	0.550A	2.821	80.577%	0.277
	5.128V	3.501		115.11V
4	1.000A	5.119	80.741%	0.371
	5.118V	6.340		115.11V
5	1.500A	7.663	80.979%	0.424
	5.107V	9.463		115.11V
6	3.000A	15.225	79.963%	0.493
	5.075V	19.040		115.11V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.232	59.794%	0.013
	5.139V	0.388		230.29V
2	0.090A	0.463	67.789%	0.022
	5.138V	0.683		230.29V
3	0.550A	2.820	77.965%	0.110
	5.127V	3.617		230.29V
4	1.000A	5.118	79.312%	0.180
	5.117V	6.453		230.29V
5	1.500A	7.660	79.700%	0.240
	5.106V	9.611		230.29V
6	3.000A	15.215	79.747%	0.345
	5.071V	19.079		230.29V

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	8.069A	1.997A	1.980A	0.979A	119.989	84.836%	574	11.4	40.28°C	0.983
	12.195V	5.005V	3.330V	5.106V	141.436				46.61°C	115.12V
2	17.127A	3.000A	2.971A	1.178A	239.688	89.464%	577	11.5	40.89°C	0.985
	12.191V	5.001V	3.329V	5.093V	267.916				47.67°C	115.11V
3	26.518A	3.501A	3.454A	1.378A	359.196	90.923%	580	11.6	41.23°C	0.990
	12.188V	4.998V	3.328V	5.081V	395.053				48.93°C	115.11V
4	35.982A	4.003A	3.967A	1.579A	479.632	91.352%	584	11.8	41.86°C	0.994
	12.185V	4.995V	3.326V	5.068V	525.037				50.25°C	115.11V
5	45.090A	5.009A	4.961A	1.781A	599.789	91.266%	618	13.0	42.23°C	0.996
	12.182V	4.992V	3.325V	5.054V	657.191				51.83°C	115.12V
6	54.203A	6.014A	5.957A	1.984A	719.939	90.921%	687	15.8	42.71°C	0.997
	12.179V	4.989V	3.323V	5.041V	791.827				53.18°C	115.12V
7	63.285A	7.020A	6.953A	2.188A	839.657	90.382%	766	18.9	43.49°C	0.997
	12.176V	4.986V	3.322V	5.027V	929.006				54.64°C	115.13V
8	72.436A	8.030A	7.950A	2.394A	960.163	89.669%	851	22.0	43.76°C	0.998
	12.173V	4.982V	3.320V	5.013V	1070.791				55.78°C	115.13V
9	81.923A	8.536A	8.434A	2.398A	1079.498	88.924%	953	25.3	44.94°C	0.998
	12.170V	4.979V	3.319V	5.005V	1213.953				57.51°C	115.13V
10	91.264A	9.044A	8.952A	3.012A	1199.945	88.028%	1423	37.9	45.69°C	0.998
	12.165V	4.977V	3.318V	4.981V	1363.136				59.24°C	115.14V
11	101.168A	9.048A	8.952A	3.017A	1320.008	87.128%	1799	44.5	46.74°C	0.998
	12.161V	4.974V	3.317V	4.974V	1515.023				60.84°C	115.14V
CL1	0.149A	15.001A	14.999A	0.000A	126.603	82.327%	769	18.9	42.80°C	0.989
	12.198V	4.997V	3.322V	5.111V	153.780				51.98°C	115.13V

CL2	100.020A	1.002A	0.997A	1.000A	1229.983	88.265%	1476	39.3	45.23°C	0.998
	12.164V	4.981V	3.322V	5.037V	1393.505				58.68°C	115.14V

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	8.069A	1.998A	1.979A	0.979A	119.991	86.865%	574	11.4	40.29°C	0.868
	12.195V	5.005V	3.330V	5.106V	138.135				46.93°C	230.30V
2	17.125A	2.999A	2.970A	1.178A	239.658	91.184%	578	11.6	40.84°C	0.940
	12.191V	5.002V	3.329V	5.093V	262.830				47.83°C	230.29V
3	26.514A	3.501A	3.453A	1.378A	359.148	92.583%	580	11.7	41.49°C	0.964
	12.188V	4.999V	3.328V	5.081V	387.919				49.05°C	230.28V
4	35.979A	4.004A	3.966A	1.579A	479.602	93.152%	584	11.8	41.91°C	0.977
	12.185V	4.996V	3.326V	5.068V	514.859				50.14°C	230.28V
5	45.089A	5.008A	4.963A	1.781A	599.778	93.289%	621	13.2	42.11°C	0.983
	12.182V	4.992V	3.325V	5.055V	642.927				51.33°C	230.29V
6	54.202A	6.014A	5.957A	1.984A	719.925	93.270%	688	15.8	42.79°C	0.987
	12.179V	4.989V	3.323V	5.041V	771.873				52.65°C	230.29V
7	63.293A	7.019A	6.953A	2.188A	839.686	93.054%	766	18.8	43.02°C	0.988
	12.175V	4.986V	3.322V	5.027V	902.367				53.65°C	230.29V
8	72.447A	8.028A	7.952A	2.394A	960.167	92.775%	834	21.2	43.93°C	0.989
	12.171V	4.983V	3.321V	5.014V	1034.939				55.43°C	230.30V
9	81.930A	8.535A	8.435A	2.398A	1079.507	92.439%	927	24.4	44.56°C	0.990
	12.169V	4.980V	3.319V	5.005V	1167.806				57.09°C	230.30V
10	91.266A	9.043A	8.950A	3.012A	1199.957	91.951%	1406	37.6	45.49°C	0.990
	12.165V	4.977V	3.318V	4.981V	1305.001				58.61°C	230.31V
11	101.169A	9.048A	8.954A	3.017A	1320.037	91.468%	1775	44.4	46.65°C	0.991
	12.161V	4.975V	3.317V	4.974V	1443.172				60.70°C	230.31V
CL1	0.147A	15.001A	14.999A	0.000A	126.581	84.299%	754	18.3	42.78°C	0.880
	12.198V	4.997V	3.322V	5.110V	150.157				51.22°C	230.32V

CL2	100.016A	1.002A	0.999A	1.000A	1229.944	92.192%	1416	37.8	45.44°C	0.991
	12.164V	4.982V	3.323V	5.037V	1334.115				58.44°C	230.32V

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	1.184A	0.498A	0.477A	0.195A	19.521	59.899%	0	<6.0	0.862
	12.192V	5.011V	3.335V	5.131V	32.590				115.13V
2	2.432A	0.999A	0.987A	0.390A	39.938	72.958%	570	11.2	0.937
	12.191V	5.007V	3.332V	5.125V	54.741				115.12V
3	3.611A	1.498A	1.469A	0.586A	59.410	77.914%	570	11.2	0.956
	12.190V	5.006V	3.331V	5.119V	76.251				115.12V
4	4.854A	1.998A	1.979A	0.782A	79.786	81.647%	572	11.3	0.975
	12.195V	5.005V	3.331V	5.113V	97.721				115.12V

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	1.186A	0.499A	0.477A	0.195A	19.547	59.627%	568	11.1	0.552
	12.188V	5.013V	3.335V	5.132V	32.782				230.32V
2	2.434A	1.000A	0.989A	0.390A	39.969	73.516%	569	11.2	0.690
	12.188V	5.008V	3.332V	5.126V	54.368				230.32V
3	3.614A	1.499A	1.469A	0.586A	59.457	79.481%	570	11.2	0.761
	12.191V	5.007V	3.331V	5.120V	74.807				230.32V
4	4.859A	1.999A	1.978A	0.782A	79.845	82.961%	572	11.3	0.812
	12.194V	5.006V	3.331V	5.113V	96.244				230.32V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	13.8 mV	6.5 mV	14.2 mV	10.6 mV	Pass
20% Load	13.6 mV	7.0 mV	14.7 mV	10.7 mV	Pass
30% Load	7.5 mV	6.6 mV	14.6 mV	10.8 mV	Pass
40% Load	7.7 mV	7.3 mV	15.9 mV	11.6 mV	Pass
50% Load	8.2 mV	7.7 mV	15.8 mV	12.7 mV	Pass
60% Load	9.3 mV	7.4 mV	15.7 mV	15.0 mV	Pass
70% Load	10.2 mV	8.4 mV	16.4 mV	16.1 mV	Pass
80% Load	11.1 mV	8.1 mV	18.4 mV	16.8 mV	Pass
90% Load	11.7 mV	8.5 mV	19.7 mV	19.4 mV	Pass
100% Load	19.2 mV	10.9 mV	21.8 mV	23.6 mV	Pass
110% Load	24.1 mV	12.5 mV	22.3 mV	25.9 mV	Pass
Crossload 1	17.6 mV	10.3 mV	21.4 mV	13.2 mV	Pass
Crossload 2	19.7 mV	8.5 mV	15.4 mV	22.0 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	16.7 mV	6.5 mV	13.5 mV	9.3 mV	Pass
20% Load	15.4 mV	7.0 mV	14.6 mV	10.0 mV	Pass
30% Load	7.9 mV	7.0 mV	15.4 mV	9.9 mV	Pass
40% Load	7.1 mV	7.2 mV	15.0 mV	11.3 mV	Pass
50% Load	7.7 mV	7.5 mV	16.3 mV	11.8 mV	Pass
60% Load	9.2 mV	7.6 mV	15.7 mV	13.1 mV	Pass
70% Load	10.2 mV	7.9 mV	16.4 mV	16.2 mV	Pass
80% Load	11.1 mV	8.2 mV	19.7 mV	15.4 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	11.9 mV	10.2 mV	30.0 mV	31.1 mV	Pass
100% Load	18.9 mV	11.1 mV	20.4 mV	20.3 mV	Pass
110% Load	24.4 mV	12.1 mV	22.0 mV	20.9 mV	Pass
Crossload 1	20.3 mV	10.2 mV	21.6 mV	12.0 mV	Pass
Crossload 2	19.4 mV	7.7 mV	15.0 mV	18.9 mV	Pass

The results above are not used in the certification process

ASUS ROG-THOR-1200P (#4)



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