EFFICIENCY AND NOISE LEVEL CERTIFICATIONS

Anex

Asus ROG-THOR-1200P (#3)

Lab ID#: 503
Receipt Date: Oct 3, 2018
Test Date: Oct 14, 2018

Report:
Report Date: Oct 17, 2018

DUT INFORMATION

Brand	Asus
Manufacturer (OEM)	Seasonic
Series	Rog Thor Platinum
Model Number	RTSS01-1200P1
Serial Number	J9YEKG000046NEJ
DUT Notes	RTSS01-1200P1

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15-7.5
Rated Frequency (Hz)	50-60
Rated Power (W)	1200
Type	ATX12V
Cooling	135mm Double Ball Bearing Fan (PLA13525B12M)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully 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	

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RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	89.895%
Efficiency With 10W (≤500W) or 2% (>500W)	65.055
Average Efficiency 5VSB	78.462%
Standby Power Consumption (W)	0.0603555
Average PF	0.987
Avg Noise Output	17.45 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A+

230V

Average Efficiency	92.002%
Average Efficiency 5VSB	79.231%
Standby Power Consumption (W)	0.0998039
Average PF	0.958
Avg Noise Output	16.61 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A+

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				

HOLD-UP TIME & POWER OK SIGNAL (230V)

Hold-Up Time (ms)	20.4
AC Loss to PWR_OK Hold Up Time (ms)	18.8
PWR_OK Inactive to DC Loss Delay (ms)	1.6

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CABLES AND CONNECTORS

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	-

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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)

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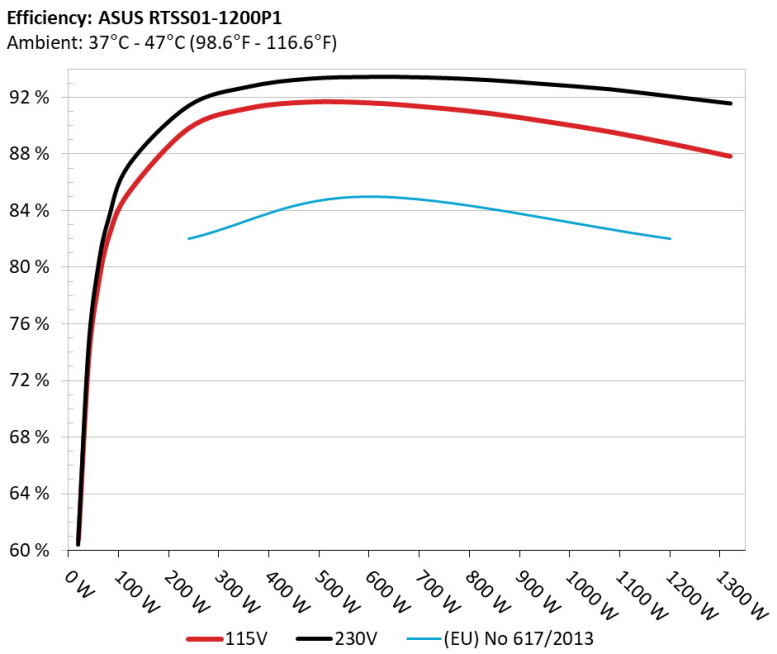
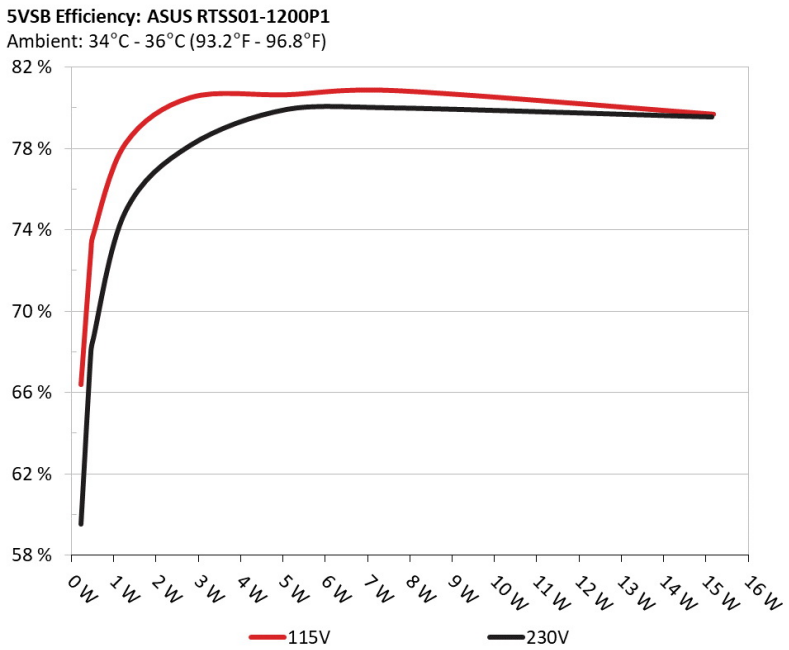
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	66.379%	0.034
	5.127V	0.348		115.05V
2	0.090A	0.462	72.871%	0.061
	5.126V	0.634		115.05V
3	0.550A	2.814	80.515%	0.262
	5.115V	3.495		115.05V
4	1.000A	5.104	80.657%	0.359
	5.104V	6.328		115.05V
5	1.500A	7.638	80.860%	0.414
	5.092V	9.446		115.05V
6	3.000A	15.171	79.696%	0.484
	5.057V	19.036		115.05V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	59.536%	0.012
	5.126V	0.388		230.21V
2	0.090A	0.462	67.941%	0.021
	5.125V	0.680		230.20V
3	0.550A	2.813	78.161%	0.105
	5.114V	3.599		230.19V
4	1.000A	5.103	79.934%	0.172
	5.103V	6.384		230.20V
5	1.500A	7.635	80.006%	0.231
	5.089V	9.543		230.20V
6	3.000A	15.146	79.561%	0.337
	5.049V	19.037		230.19V

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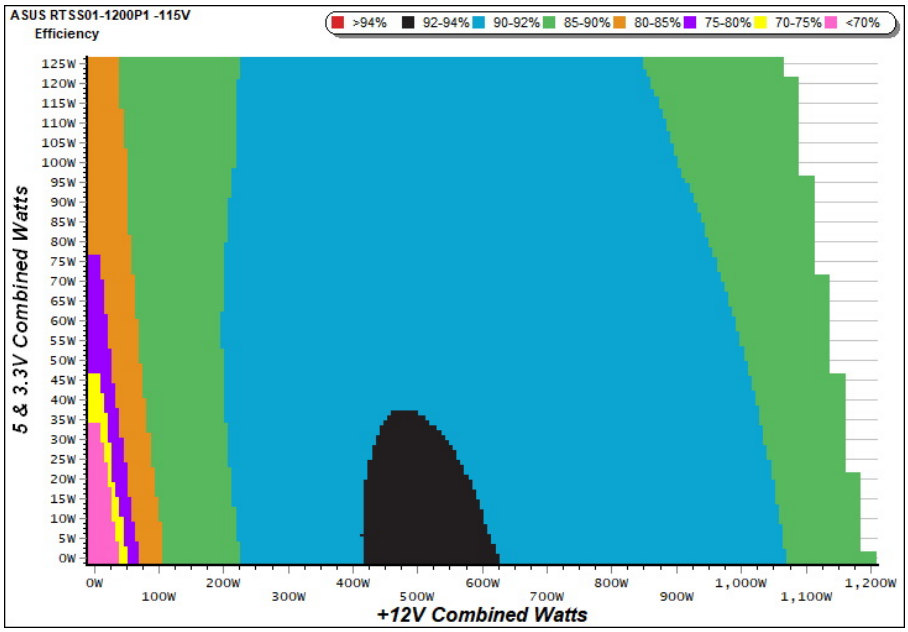
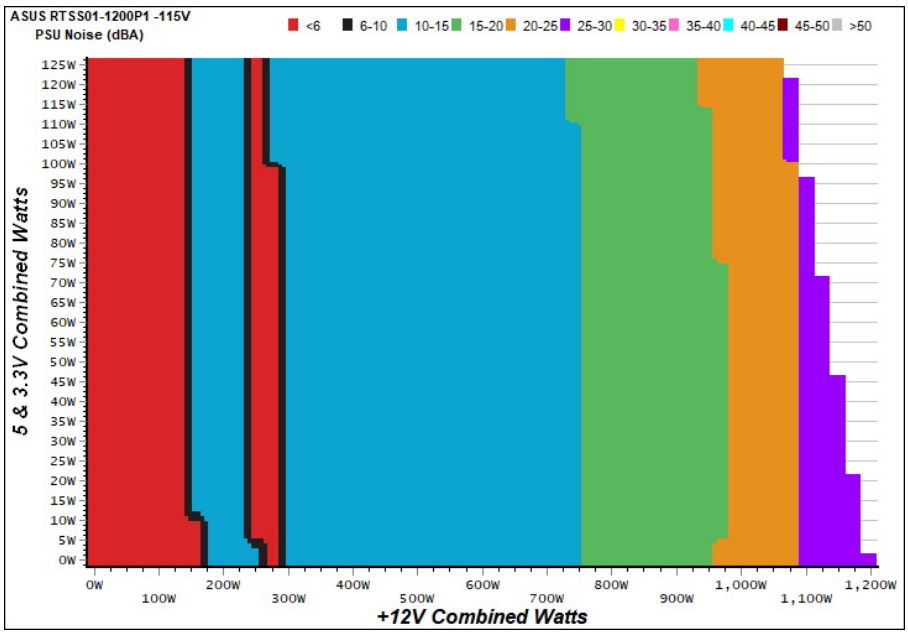
EFFICIENCY GRAPH 115V



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 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

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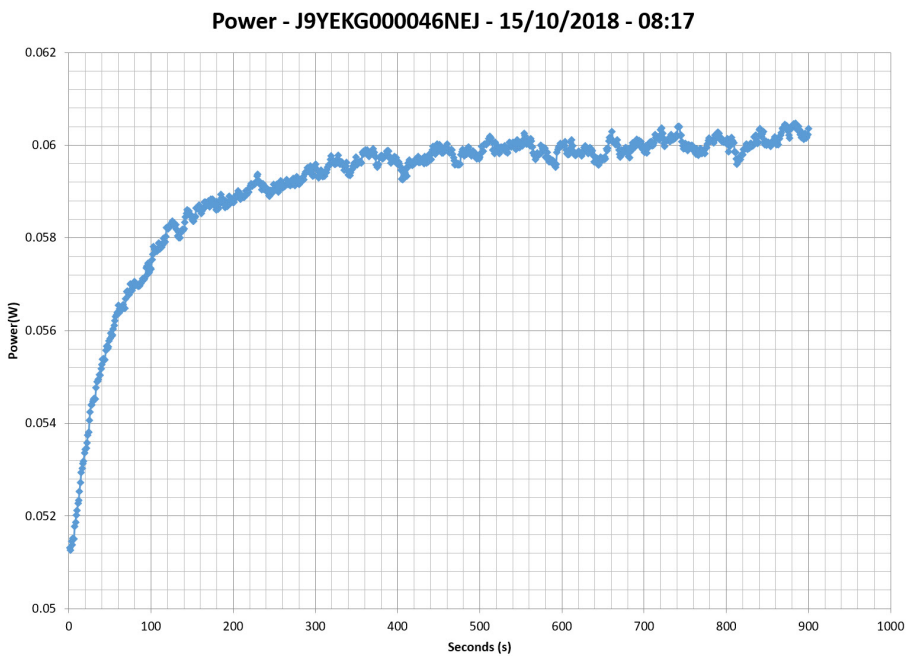
VAMPIRE POWER -115V



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

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Asus ROG-THOR-1200P (#3)

10-110% 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	8.056A	2.008A	1.985A	0.982A	120.059	85.305%	570	11.2	40.14°C	0.960
	12.223V	4.979V	3.321V	5.092V	140.741				44.56°C	115.05V
2	17.091A	3.012A	2.982A	1.181A	239.741	89.842%	572	11.3	40.61°C	0.977
	12.220V	4.978V	3.319V	5.079V	266.848				45.62°C	115.05V
3	26.451A	3.520A	3.466A	1.382A	359.246	91.254%	576	11.5	41.23°C	0.985
	12.220V	4.976V	3.317V	5.067V	393.679				47.47°C	115.04V
4	35.883A	4.021A	3.978A	1.583A	479.653	91.693%	578	11.6	41.68°C	0.990
	12.219V	4.975V	3.316V	5.055V	523.108				48.56°C	115.04V
5	44.956A	5.030A	4.978A	1.785A	599.789	91.635%	615	12.9	42.20°C	0.993
	12.218V	4.974V	3.314V	5.042V	654.538				50.37°C	115.04V
6	54.025A	6.033A	5.977A	1.989A	719.926	91.327%	695	15.9	42.91°C	0.995
	12.219V	4.972V	3.312V	5.029V	788.297				51.91°C	115.03V
7	63.071A	7.042A	6.977A	2.193A	839.654	90.894%	787	19.1	43.22°C	0.995
	12.217V	4.972V	3.311V	5.017V	923.771				53.05°C	115.03V
8	72.179A	8.050A	7.978A	2.399A	960.157	90.276%	870	23.0	43.89°C	0.996
	12.216V	4.971V	3.309V	5.003V	1063.585				54.32°C	115.03V
9	81.619A	8.554A	8.467A	2.403A	1079.486	89.594%	970	26.0	44.41°C	0.996
	12.215V	4.969V	3.307V	4.996V	1204.870				55.29°C	115.02V
10	90.897A	9.058A	8.985A	3.017A	1199.915	88.767%	1520	39.8	45.90°C	0.996
	12.214V	4.968V	3.305V	4.973V	1351.760				57.57°C	115.02V
11	100.740A	9.062A	8.989A	3.021A	1319.960	87.861%	1860	46.4	46.59°C	0.996
	12.212V	4.968V	3.304V	4.966V	1502.330				59.17°C	115.01V
CL1	0.146A	15.002A	14.999A	0.000A	126.173	82.849%	785	19.1	42.54°C	0.966
	12.236V	4.974V	3.318V	5.105V	152.293				50.26°C	115.05V
CL2	100.009A	1.002A	1.000A	1.000A	1234.522	88.837%	1550	40.0	45.87°C	0.996
	12.211V	4.969V	3.305V	5.029V	1389.651				56.83°C	115.02V

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20-80W LOAD TESTS 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.185A	0.502A	0.480A	0.196A	19.583	60.811%	0	<6.0	0.816
	12.220V	4.984V	3.326V	5.119V	32.203				115.06V
2	2.425A	1.002A	0.993A	0.391A	39.940	73.598%	0	<6.0	0.889
	12.228V	4.979V	3.322V	5.111V	54.268				115.05V
3	3.603A	1.507A	1.473A	0.588A	59.461	78.873%	0	<6.0	0.918
	12.230V	4.978V	3.322V	5.105V	75.388				115.05V
4	4.845A	2.011A	1.985A	0.785A	79.851	82.182%	567	11.1	0.943
	12.228V	4.978V	3.321V	5.099V	97.164				115.05V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	13.3 mV	4.4 mV	12.4 mV	7.3 mV	Pass
20% Load	14.9 mV	4.6 mV	14.3 mV	8.4 mV	Pass
30% Load	8.7 mV	4.7 mV	14.8 mV	9.1 mV	Pass
40% Load	8.7 mV	4.9 mV	15.7 mV	8.7 mV	Pass
50% Load	10.2 mV	6.1 mV	16.6 mV	10.6 mV	Pass
60% Load	11.0 mV	6.3 mV	17.5 mV	11.6 mV	Pass
70% Load	12.3 mV	6.5 mV	18.4 mV	13.6 mV	Pass
80% Load	13.7 mV	7.8 mV	22.1 mV	15.2 mV	Pass
90% Load	16.3 mV	8.3 mV	21.9 mV	16.9 mV	Pass
100% Load	20.9 mV	8.9 mV	23.2 mV	18.6 mV	Pass
110% Load	21.5 mV	9.5 mV	22.5 mV	20.9 mV	Pass
Crossload 1	13.7 mV	7.7 mV	22.1 mV	7.7 mV	Pass
Crossload 2	21.5 mV	6.5 mV	13.8 mV	17.2 mV	Pass

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230V

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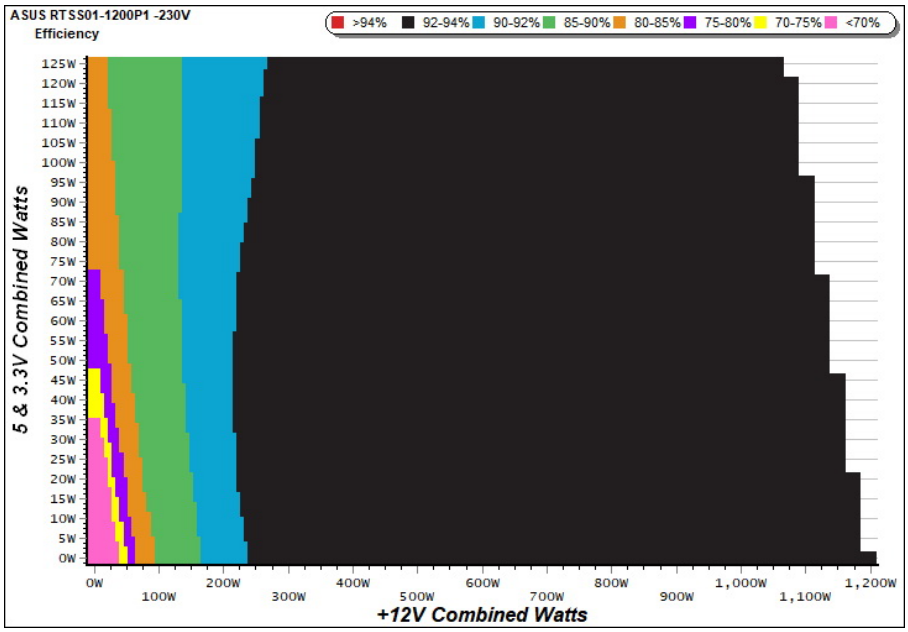
EFFICIENCY GRAPH 230V



INFO

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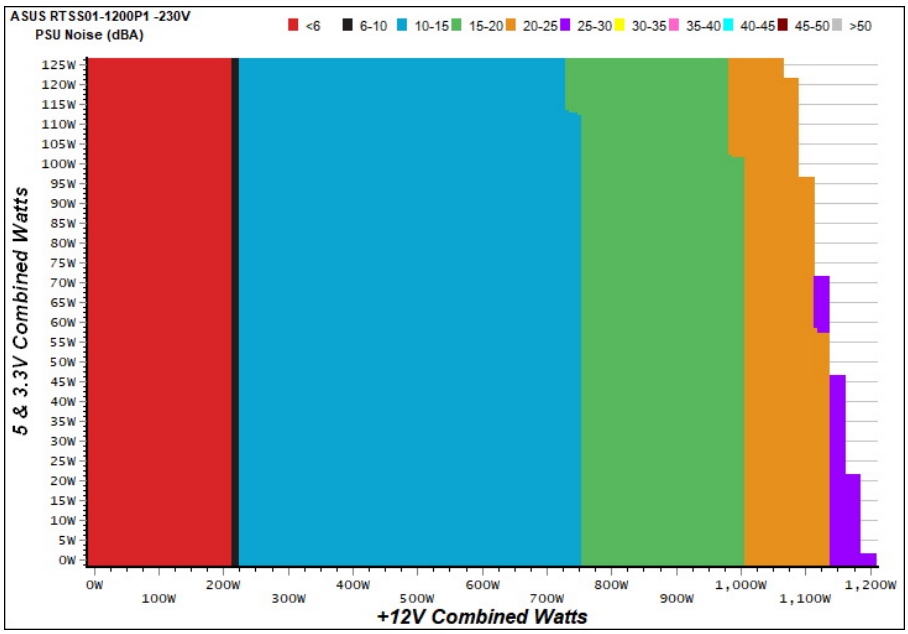
NOISE GRAPH 230V



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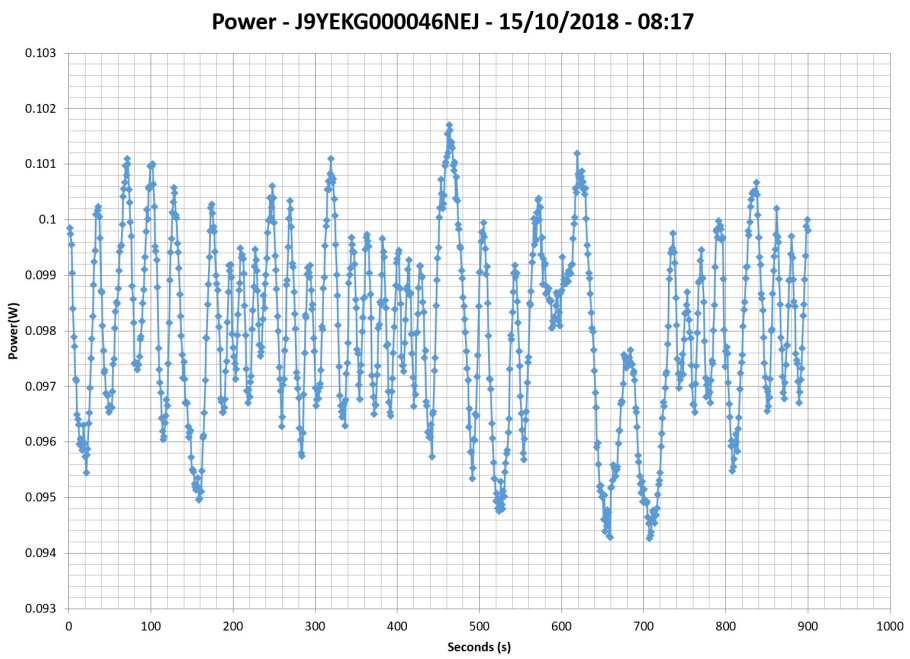
VAMPIRE POWER -230V



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Asus ROG-THOR-1200P (#3)

10-110% LOAD TESTS 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	8.057A	2.009A	1.988A	0.982A	120.086	87.176%	567	11.1	40.28°C	0.850
	12.223V	4.979V	3.321V	5.092V	137.752				43.82°C	230.19V
2	17.090A	3.013A	2.982A	1.182A	239.770	91.378%	572	11.3	40.66°C	0.927
	12.222V	4.977V	3.319V	5.079V	262.395				44.42°C	230.19V
3	26.454A	3.518A	3.466A	1.382A	359.274	92.726%	576	11.5	41.21°C	0.955
	12.220V	4.976V	3.317V	5.067V	387.456				45.23°C	230.19V
4	35.889A	4.021A	3.981A	1.583A	479.700	93.293%	578	11.6	41.58°C	0.971
	12.218V	4.975V	3.316V	5.055V	514.185				46.01°C	230.20V
5	44.959A	5.028A	4.979A	1.785A	599.820	93.418%	615	12.9	42.18°C	0.978
	12.218V	4.974V	3.314V	5.042V	642.079				47.55°C	230.20V
6	54.035A	6.035A	5.978A	1.989A	719.958	93.377%	688	15.8	42.67°C	0.983
	12.217V	4.973V	3.312V	5.029V	771.022				48.39°C	230.19V
7	63.079A	7.043A	6.980A	2.193A	839.687	93.198%	785	19.1	43.24°C	0.985
	12.216V	4.971V	3.310V	5.016V	900.971				49.37°C	230.19V
8	72.194A	8.050A	7.978A	2.399A	960.179	92.886%	863	22.6	43.63°C	0.986
	12.214V	4.970V	3.308V	5.003V	1033.720				50.26°C	230.20V
9	81.620A	8.556A	8.466A	2.403A	1079.502	92.551%	975	26.0	44.37°C	0.987
	12.215V	4.969V	3.307V	4.995V	1166.390				51.37°C	230.19V
10	90.913A	9.060A	8.987A	3.017A	1199.954	92.052%	1475	39.3	45.61°C	0.988
	12.212V	4.969V	3.305V	4.973V	1303.561				53.34°C	230.19V
11	100.758A	9.061A	8.992A	3.021A	1319.981	91.547%	1860	46.4	46.98°C	0.989
	12.210V	4.968V	3.304V	4.966V	1441.854				55.51°C	230.20V
CL1	0.146A	15.004A	14.998A	0.000A	126.194	84.704%	764	18.8	42.58°C	0.861
	12.234V	4.975V	3.318V	5.105V	148.982				48.72°C	230.21V
CL2	100.006A	1.003A	1.001A	1.000A	1234.397	92.248%	1500	39.6	45.30°C	0.988
	12.210V	4.970V	3.305V	5.030V	1338.123				53.67°C	230.20V

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Asus ROG-THOR-1200P (#3)

20-80W LOAD TESTS 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.185A	0.502A	0.479A	0.195A	19.571	60.388%	0	<6.0	0.530
	12.216V	4.986V	3.326V	5.119V	32.409				230.19V
2	2.429A	1.005A	0.992A	0.391A	39.984	74.163%	0	<6.0	0.666
	12.220V	4.981V	3.323V	5.112V	53.914				230.21V
3	3.604A	1.506A	1.474A	0.588A	59.442	79.991%	0	<6.0	0.737
	12.221V	4.980V	3.322V	5.106V	74.311				230.20V
4	4.849A	2.009A	1.986A	0.785A	79.871	83.359%	567	11.1	0.788
	12.223V	4.979V	3.321V	5.100V	95.816				230.20V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	15.7 mV	4.6 mV	12.5 mV	6.7 mV	Pass
20% Load	15.0 mV	4.7 mV	14.1 mV	7.7 mV	Pass
30% Load	9.4 mV	4.7 mV	14.7 mV	8.1 mV	Pass
40% Load	8.6 mV	4.8 mV	15.6 mV	9.2 mV	Pass
50% Load	9.4 mV	5.6 mV	17.0 mV	10.2 mV	Pass
60% Load	10.6 mV	6.6 mV	17.5 mV	11.3 mV	Pass
70% Load	12.7 mV	6.4 mV	18.3 mV	14.2 mV	Pass
80% Load	13.6 mV	7.9 mV	22.1 mV	15.5 mV	Pass
90% Load	18.2 mV	8.3 mV	21.9 mV	16.8 mV	Pass
100% Load	21.4 mV	8.6 mV	23.3 mV	19.2 mV	Pass
110% Load	23.0 mV	9.0 mV	22.9 mV	20.0 mV	Pass
Crossload 1	16.2 mV	8.1 mV	22.5 mV	7.1 mV	Pass
Crossload 2	21.6 mV	5.9 mV	13.2 mV	16.8 mV	Pass

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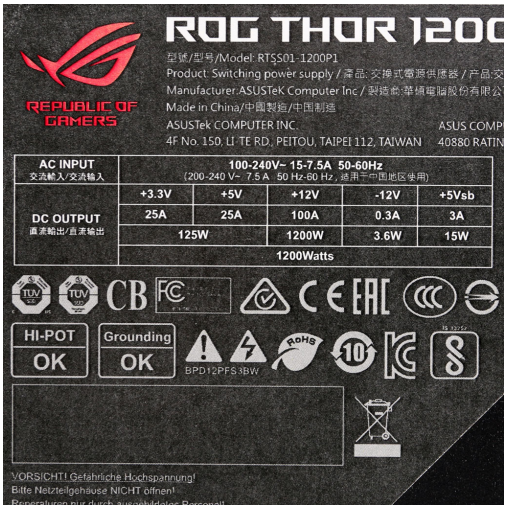
Anex

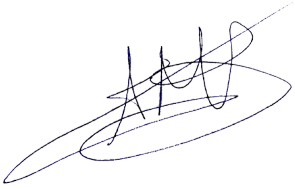
Asus ROG-THOR-1200P (#3)

Top side



Power specifications label

CERTIFICATIONS 115V



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CERTIFICATIONS 230V

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