Anex

Asus ROG Strix 750 (#2)

Lab ID#: AS20750007
Receipt Date: Feb 27, 2020
Test Date: Feb 5, 2020

Report: 20PS1594A
Report Date: Feb 13, 2020

DUT INFORMATION

Brand	Asus ROG
Manufacturer (OEM)	Seasonic
Series	Rog Strix
Model Number	RSSS04-750G1
Serial Number	K7YEKG0076934BE
DUT Notes	RSSS04-750G1

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	50-60
Rated Power (W)	750
Type	ATX12V
Cooling	140mm Double Ball-Bearing Fan (FB14025BH)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

TEST EQUIPMENT

Electronic Loads	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Keysight AC6804B
Power Analyzers	N4L PPA1530 x2
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2
Tachometer	UNI-T UT372 x2
Digital Multimeter	Keysight U1273AX, Fluke 289, Keithley 2015 - THD
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

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Anex

Asus ROG Strix 750 (#2)

RESULTS

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

115V

Average Efficiency	88.701%
Efficiency With 10W (≤500W) or 2% (>500W)	63.507
Average Efficiency 5VSB	76.453%
Standby Power Consumption (W)	0.0568879
Average PF	0.973
Avg Noise Output	21.71 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

230V

Average Efficiency	90.675%
Average Efficiency 5VSB	75.833%
Standby Power Consumption (W)	0.0824840
Average PF	0.937
Avg Noise Output	21.52 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	62	3	0.3
	Watts	100		744	15	3.6
Total Max. Power (W)		750				

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

Hold-Up Time (ms)	19.6
AC Loss to PWR_OK Hold Up Time (ms)	17
PWR_OK Inactive to DC Loss Delay (ms)	2.6

Anex

Asus ROG Strix 750 (#2)

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (610mm)	1	1	18-22AWG	No
4+4 pin EPS12V (1000mm)	2	2	18AWG	No
6+2 pin PCIe (680mm+80mm)	2	4	18AWG	No
SATA (450mm+115mm+115mm+115mm)	1	4	18AWG	No
SATA (410mm+150mm+150mm+150mm)	1	4	18AWG	No
4 pin Molex (450mm+120mm+120mm)	1	3	18AWG	No
AC Power Cord (1400mm) - C13 coupler (EU)	1	1	18AWG	-
AC Power Cord (1370mm) - C13 coupler (British)	1	1	18AWG	-

Anex

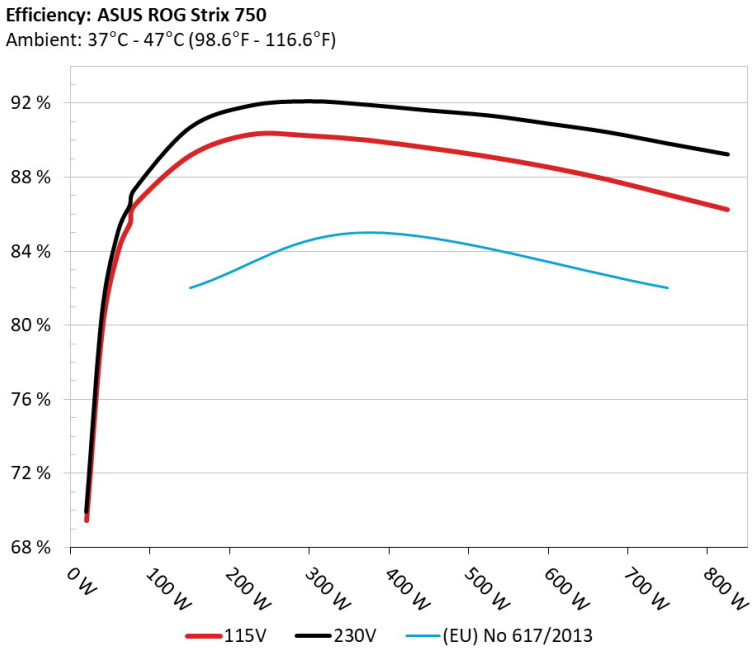
Asus ROG Strix 750 (#2)

General Data	
Manufacturer (OEM)	Seasonic
PCB Type	Double Sided
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x Discharge IC
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x GBU1508 (800V, 15A @ 100°C)
APFC MOSFETS	2x Infineon IPP50R140CP (550V, 15A @ 100°C, 0.14Ohm)
APFC Boost Diode	1x STMicroelectronics STTH8S06 (600V, 8A @ 25°C)
Hold-up Cap(s)	1x Hitachi (400V, 560uF, 2,000h @ 105°C, HU)
Main Switchers	4x Champion GPT10N50ADG (500V, 9.7A, 0.7Ohm)
APFC Controller	Champion CM6500UNX
Resonant Controllers	Champion CM6901T6
Topology	Primary side: Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x Nexperia PSMN2R6-40YS (40V, 100A @ 100°C, 3.7mOhm @ 100°C)
5V & 3.3V	DC-DC Converters:4x ON Semiconductor NTMFS4C028N (30V, 12.3A @ 80°C, 4.73mOhm) PWM Controllers: ANPEC APW7159C
Filtering Capacitors	Electrolytics: 3x Nippon Chemi-Con (105°C, W), 5x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 5x Nichicon (4-10,000h @ 105°C, HE) Polymers: 27x FPCAP
Supervisor IC	Weltrend WT7527V (OCP, OVP, UVP, SCP, PG
Fan Model	Everflow FB14025BH (135mm, 12V, 0.60A, Ball Bearing Fan)
5VSB Circuit	
Rectifier	1x PFC P10V45SP (45V, 10A)
Standby PWM Controller	Excelliance MOS EM8569

Anex

Asus ROG Strix 750 (#2)

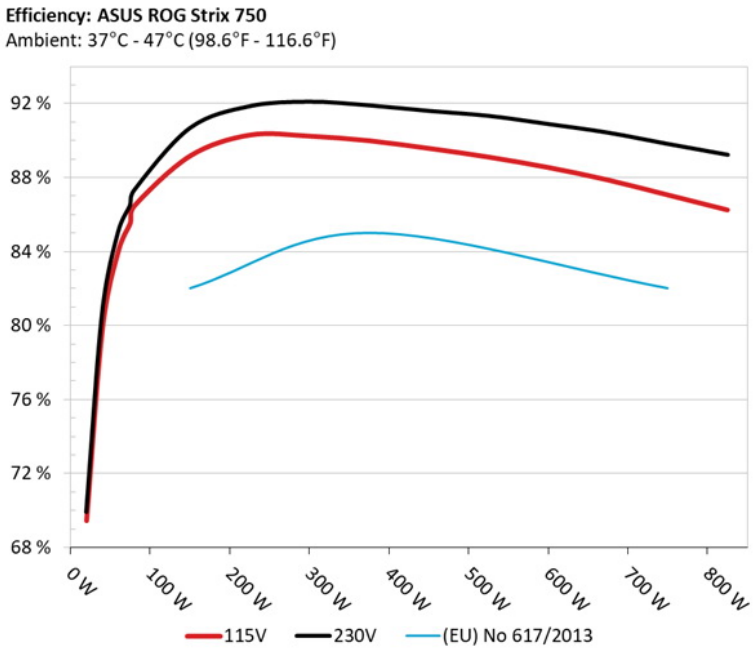
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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

Anex

Asus ROG Strix 750 (#2)

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	1.519A	0.230	65.903%	0.240
	5.079V	0.349		115.12V
2	0.090A	0.460	71.540%	0.103
	5.114V	0.643		115.12V
3	0.550A	2.807	77.094%	0.334
	5.103V	3.641		115.12V
4	1.000A	5.093	77.015%	0.402
	5.093V	6.613		115.12V
5	1.500A	7.622	77.044%	0.438
	5.081V	9.893		115.12V
6	3.000A	15.126	75.728%	0.488
	5.042V	19.974		115.11V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	59.740%	0.020
	5.114V	0.385		230.21V
2	0.090A	0.460	66.958%	0.035
	5.113V	0.687		230.21V
3	0.550A	2.807	75.416%	0.163
	5.103V	3.722		230.22V
4	1.000A	5.093	76.368%	0.244
	5.093V	6.669		230.22V
5	1.500A	7.623	77.054%	0.298
	5.082V	9.893		230.22V
6	3.000A	15.140	76.732%	0.374
	5.047V	19.731		230.21V

Anex

Asus ROG Strix 750 (#2)

115V

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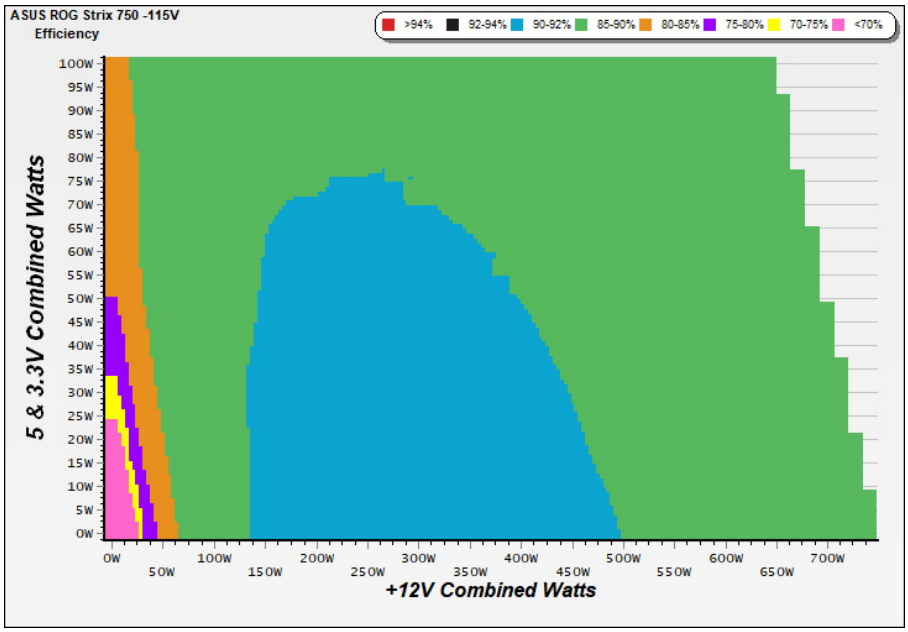
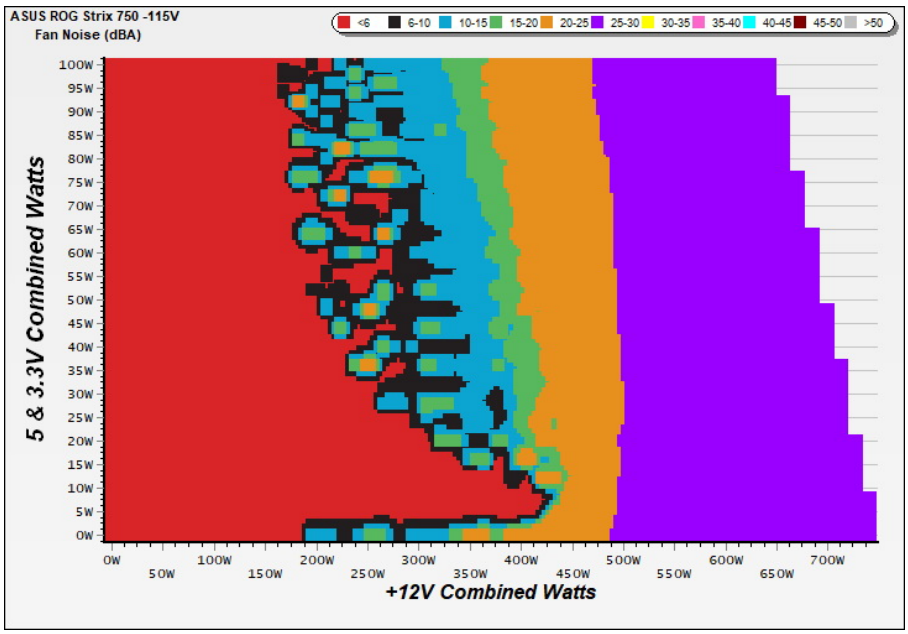
EFFICIENCY GRAPH 115V



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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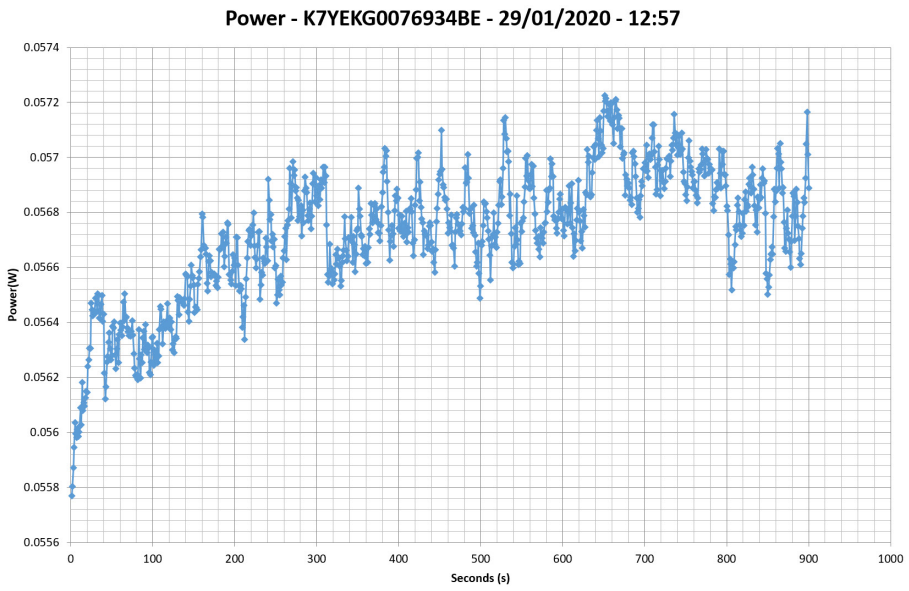
VAMPIRE POWER -115V



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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Anex

Asus ROG Strix 750 (#2)

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	4.414A	1.999A	1.986A	0.984A	74.953	85.554%	0	<6.0	44.89°C	0.925
	12.087V	4.999V	3.327V	5.082V	87.609				40.38°C	115.09V
2	9.855A	3.000A	2.977A	1.184A	150.006	89.178%	0	<6.0	45.67°C	0.954
	12.087V	4.996V	3.325V	5.069V	168.210				40.68°C	115.09V
3	15.632A	3.504A	3.475A	1.384A	225.008	90.311%	0	<6.0	46.28°C	0.969
	12.088V	4.994V	3.324V	5.057V	249.149				40.76°C	115.09V
4	21.413A	4.004A	3.972A	1.586A	300.016	90.252%	478	9.8	41.19°C	0.977
	12.087V	4.995V	3.322V	5.045V	332.421				47.35°C	115.09V
5	26.810A	5.007A	4.971A	1.788A	374.482	90.004%	820	24.7	42.18°C	0.981
	12.084V	4.994V	3.320V	5.034V	416.071				49.13°C	115.09V
6	32.245A	6.011A	5.967A	1.992A	449.422	89.591%	829	24.9	42.49°C	0.983
	12.083V	4.992V	3.318V	5.020V	501.640				50.36°C	115.09V
7	37.708A	7.017A	6.968A	2.197A	524.740	89.120%	840	25.2	43.20°C	0.986
	12.083V	4.989V	3.316V	5.007V	588.799				52.07°C	115.09V
8	43.167A	8.003A	7.965A	2.404A	599.940	88.555%	857	25.6	44.05°C	0.987
	12.084V	4.987V	3.314V	4.993V	677.475				53.35°C	115.09V
9	48.996A	8.526A	8.454A	2.408A	674.575	87.881%	1100	32.7	44.37°C	0.989
	12.084V	4.985V	3.312V	4.986V	767.603				54.62°C	115.09V
10	54.639A	9.030A	8.970A	3.023A	749.793	87.071%	1487	40.4	45.55°C	0.990
	12.081V	4.984V	3.310V	4.963V	861.130				56.59°C	115.08V
11	60.876A	9.032A	8.976A	3.027A	825.022	86.257%	1945	47.1	46.84°C	0.990
	12.079V	4.982V	3.309V	4.956V	956.474				58.64°C	115.08V
CL1	0.102A	12.000A	11.998A	0.000A	100.900	84.017%	605	16.1	42.54°C	0.943
	12.100V	4.987V	3.319V	5.086V	120.095				50.10°C	115.11V
CL2	62.010A	1.000A	1.000A	1.000A	762.286	87.484%	1553	41.3	45.01°C	0.990
	12.078V	4.993V	3.317V	5.020V	871.341				55.78°C	115.09V

Anex

Asus ROG Strix 750 (#2)

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	1.229A	0.499A	0.493A	0.196A	19.982	69.437%	0	<6.0	0.840
	12.074V	5.008V	3.333V	5.108V	28.777				115.08V
2	2.456A	0.999A	0.993A	0.392A	39.970	79.867%	0	<6.0	0.895
	12.080V	5.001V	3.329V	5.101V	50.046				115.09V
3	3.688A	1.499A	1.487A	0.589A	60.002	84.053%	0	<6.0	0.918
	12.081V	5.001V	3.329V	5.094V	71.386				115.09V
4	4.912A	2.000A	1.983A	0.786A	79.952	86.472%	0	<6.0	0.926
	12.084V	4.999V	3.328V	5.087V	92.460				115.09V

RIPPLE MEASUREMENTS 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.80mV	8.60mV	12.70mV	6.10mV	Pass
20% Load	15.40mV	9.60mV	14.70mV	6.20mV	Pass
30% Load	17.30mV	10.40mV	16.00mV	6.80mV	Pass
40% Load	19.50mV	11.60mV	18.20mV	7.50mV	Pass
50% Load	19.90mV	11.20mV	19.80mV	7.80mV	Pass
60% Load	16.90mV	11.10mV	22.00mV	9.40mV	Pass
70% Load	15.90mV	11.50mV	22.50mV	10.40mV	Pass
80% Load	16.50mV	11.50mV	17.50mV	11.40mV	Pass
90% Load	17.90mV	11.80mV	17.90mV	13.00mV	Pass
100% Load	29.10mV	12.80mV	20.30mV	14.20mV	Pass
110% Load	32.30mV	12.90mV	22.30mV	14.40mV	Pass
Crossload1	18.60mV	11.50mV	19.10mV	6.80mV	Pass
Crossload2	28.50mV	10.80mV	20.00mV	12.30mV	Pass

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Anex

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230V

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Anex

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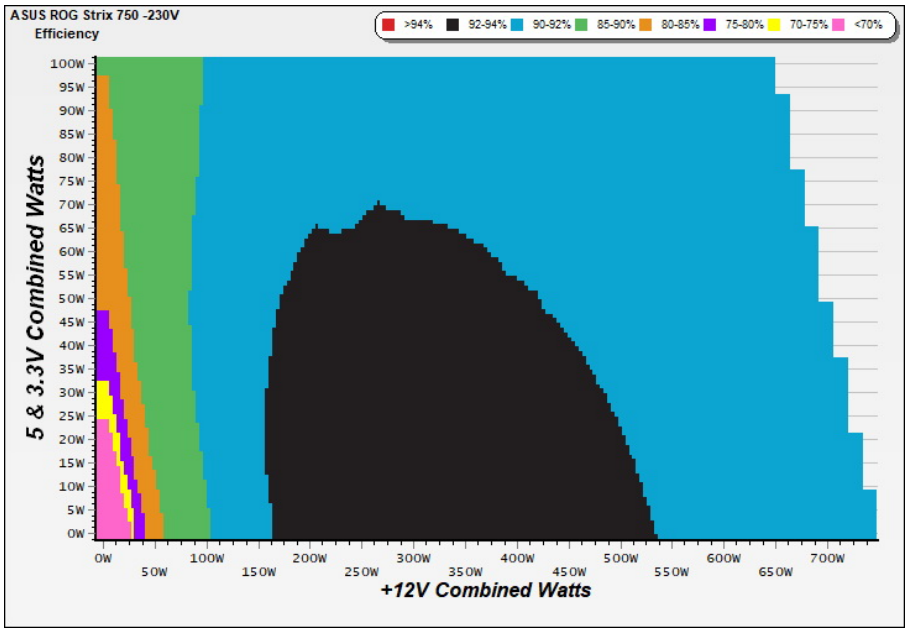
EFFICIENCY GRAPH 230V



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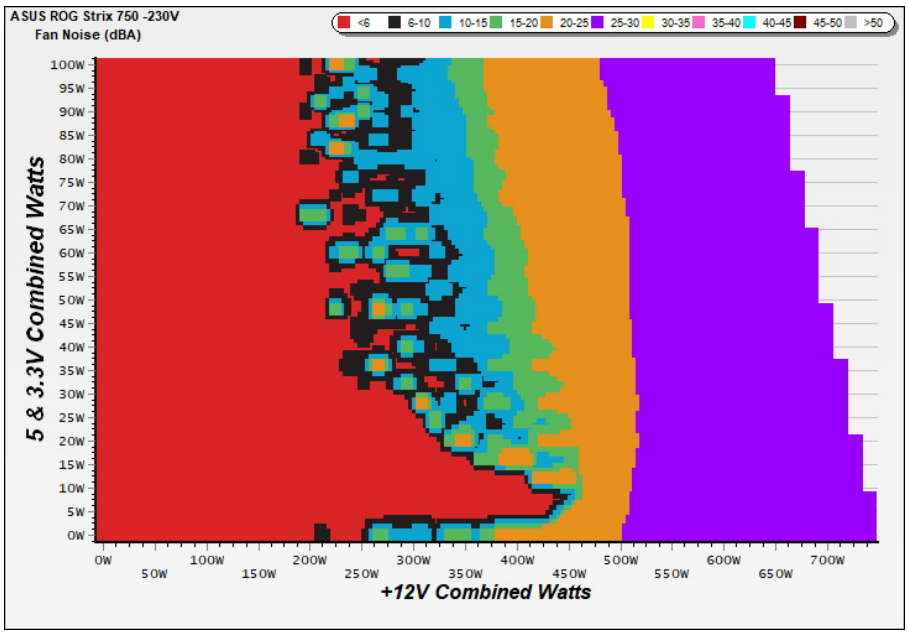
NOISE GRAPH 230V



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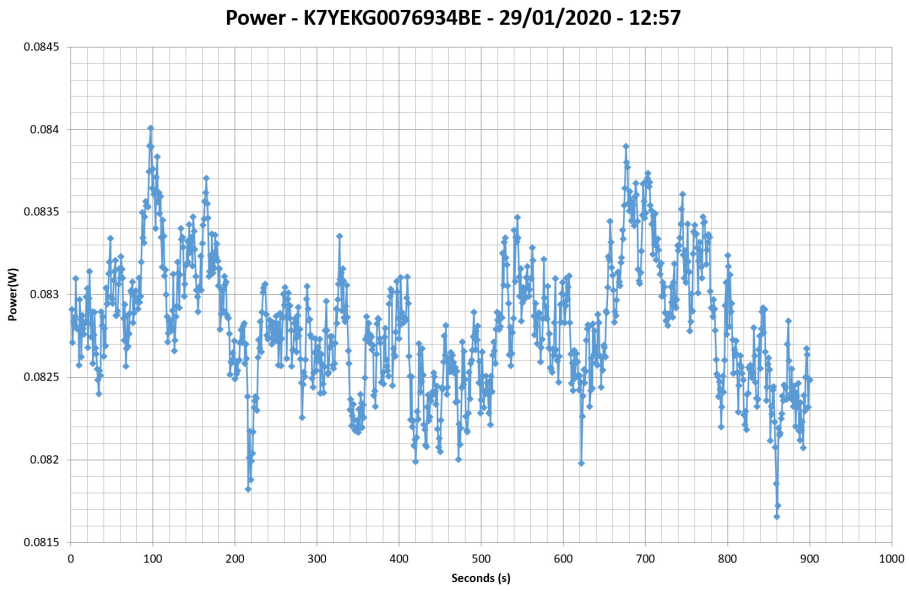
Anex

Asus ROG Strix 750 (#2)

VAMPIRE POWER -230V



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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	4.417A	2.000A	1.984A	0.984A	74.960	86.514%	0	<6.0	44.60°C	0.814
	12.081V	4.999V	3.327V	5.082V	86.645				40.07°C	230.23V
2	9.861A	3.003A	2.978A	1.184A	150.028	90.689%	0	<6.0	46.19°C	0.897
	12.080V	4.996V	3.325V	5.070V	165.432				40.91°C	230.24V
3	15.643A	3.505A	3.476A	1.384A	225.039	91.870%	0	<6.0	47.57°C	0.929
	12.081V	4.994V	3.323V	5.058V	244.953				41.68°C	230.22V
4	21.438A	4.008A	3.975A	1.585A	300.059	92.112%	0	<6.0	48.57°C	0.947
	12.074V	4.994V	3.321V	5.047V	325.756				41.77°C	230.24V
5	26.827A	5.009A	4.972A	1.788A	374.556	91.919%	644	18.3	42.04°C	0.957
	12.079V	4.993V	3.319V	5.034V	407.484				49.14°C	230.24V
6	32.261A	6.013A	5.968A	1.992A	449.488	91.619%	832	25.0	42.89°C	0.964
	12.079V	4.991V	3.317V	5.020V	490.604				50.76°C	230.24V
7	37.723A	7.017A	6.969A	2.197A	524.806	91.348%	841	25.2	43.33°C	0.969
	12.080V	4.989V	3.315V	5.008V	574.512				52.33°C	230.24V
8	43.182A	8.003A	7.966A	2.404A	599.989	90.906%	858	25.6	43.70°C	0.973
	12.081V	4.987V	3.313V	4.994V	660.008				53.26°C	230.24V
9	49.012A	8.528A	8.452A	2.407A	674.613	90.443%	1103	32.7	44.29°C	0.976
	12.081V	4.985V	3.311V	4.986V	745.896				54.64°C	230.24V
10	54.647A	9.031A	8.972A	3.022A	749.835	89.831%	1448	40.0	45.78°C	0.978
	12.080V	4.983V	3.310V	4.964V	834.715				56.77°C	230.24V
11	60.889A	9.032A	8.977A	3.027A	825.055	89.244%	1949	47.2	46.68°C	0.980
	12.077V	4.982V	3.308V	4.957V	924.491				58.40°C	230.23V
CL1	0.101A	12.001A	11.998A	0.000A	100.892	85.392%	455	8.8	42.49°C	0.861
	12.098V	4.987V	3.319V	5.086V	118.151				49.71°C	230.23V
CL2	62.012A	1.001A	1.000A	1.000A	762.193	90.315%	1548	41.2	46.11°C	0.978
	12.076V	4.993V	3.317V	5.021V	843.925				56.73°C	230.22V

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Anex

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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	1.229A	0.498A	0.495A	0.196A	19.987	69.936%	0	<6.0	0.570
	12.078V	5.007V	3.332V	5.106V	28.579				230.23V
2	2.457A	1.000A	0.991A	0.392A	39.977	80.718%	0	<6.0	0.704
	12.079V	5.001V	3.329V	5.100V	49.527				230.22V
3	3.689A	1.499A	1.488A	0.589A	60.007	85.076%	0	<6.0	0.779
	12.079V	5.001V	3.328V	5.093V	70.533				230.23V
4	4.914A	2.001A	1.983A	0.786A	79.959	87.321%	0	<6.0	0.822
	12.080V	4.999V	3.327V	5.086V	91.569				230.23V

RIPPLE MEASUREMENTS 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.70mV	8.00mV	13.90mV	6.10mV	Pass
20% Load	16.10mV	8.80mV	13.90mV	6.50mV	Pass
30% Load	18.40mV	9.20mV	14.50mV	6.40mV	Pass
40% Load	20.60mV	9.10mV	13.00mV	6.70mV	Pass
50% Load	20.80mV	10.10mV	13.80mV	6.70mV	Pass
60% Load	17.70mV	9.80mV	13.70mV	7.00mV	Pass
70% Load	17.00mV	10.50mV	14.50mV	7.10mV	Pass
80% Load	17.20mV	10.90mV	15.50mV	7.40mV	Pass
90% Load	19.80mV	11.00mV	16.00mV	8.00mV	Pass
100% Load	29.50mV	12.50mV	16.80mV	9.60mV	Pass
110% Load	32.50mV	12.70mV	17.40mV	10.80mV	Pass
Crossload1	17.00mV	10.80mV	13.40mV	6.10mV	Pass
Crossload2	29.50mV	10.90mV	15.60mV	9.00mV	Pass

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Anex

Asus ROG Strix 750 (#2)

Top side

Power specifications label

CERTIFICATIONS 115V

CERTIFICATIONS 230V