ASUS TUF-550B-GAMING

L7YEMT0000135A5

Lab ID AS55001709

Certification ID 251709

Test Result Report ID: 20PS1709A

Certificate Issue Date: Sep 9, 2020

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	TUF-550B-GAMING
OEM/ODM	Great Wall
Serial Number	L7YEMT0000135A5
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	8-4
□□□□ (Hz)	47-63

□□□□ (W)	550
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	135mm Double Ball-Bearing Fan (CF1325H12D)
□□□□□	✓
Cybenetics Testing Information	
Lab ID	AS55001709
Date of receipt	Aug 20, 2020
Testing Date	Sep 9, 2020
Report Issued Date	Sep 9, 2020
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

Native Cables				
□□	□□□	□□□□□	Gauge	In Cable Caps
ATX □□ 20+4 pin (610mm)	1	1	18-20AWG	□
4+4 pin EPS 12V □□ (820mm)	1	1	18AWG	□
6+2pin PCIe□□ (610mm+100mm)	1	2	18AWG	□
SATA□□ (400mm+120mm+120mm)	1	3	18AWG	□
SATA□□ (400mm+120mm)	1	2	18AWG	□
4-pin Molex (400mm+150mm+150mm+150mm)	1	4	18AWG	□

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	25	25	45.8	3	0.8
	□	120		549.6	15	9.6
□□□□□ (W)		550				

Parts Description

General Data	-
Manufacturer (OEM)	Great Wall
PCB Type	Single Sided
Primary Side	-
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor SCK-1R58
Bridge Rectifier(s)	1x Shindengen U15K80R (800V, 15A @ 101°C)
APFC MOSFETs	2x ROHM R6020ENX (600V, 20A @ 150°C, Rds(on): 0.196Ohm)
APFC Boost Diode	1x WeEn BYC8-600 (600V, 8A @ 109°C)
Bulk Cap(s)	1x Lelon (420V, 330uF, 3,000h @ 105°C, LSM)
Main Switchers	2x ROHM R6020ENX (600V, 20A @ 150°C, Rds(on): 0.196Ohm)
APFC Controller	Champion CM6500UNX & CM03X Phantom Power Remover
Resonant Controller	Champion CM6901X
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	2x Advanced Power AP9990GP (60V, 80A @ 100°C, Rds(on): 6mOhm)
5V & 3.3V	DC-DC Converters: 4x Infineon IPD040N03L (30V, 76A @ 100°C, Rds(on): 4mOhm) PWM Controllers: ANPEC APW7159C
Filtering Capacitors	Electrolytic: 2x Elite (2-5,000h @ 105°C, ED), 4x Teapo (6-10,000h @ 105°C, TC), 1x Teapo (3-5,000h @ 105°C, TX), 3x Lelon (4-10,000h @ 105°C, RZW), 1x Lelon (4-7,000h @ 105°C, RXW), 1x Rubycon (4-10,000h @ 105°C, YXF) Polymer: 3x Elite, 3x Lelon
Step-Down DC-DC Converter	Texas Instruments TPS54231
Supervisor IC	IN1S429I-DCG

Fan Model	Champion CF1325H12D (135mm, 12V, 0.6A, Double Ball Bearing)
5VSB Circuit	-
Rectifier	1x PFC PFR30L45CT SBR (45V, 30A)
Standby PWM Controller	Power Intergrations TNY278PN

Test Results

Temperature & Compliance Info

□□□□ (°C /°F)	28-32 / 82.4-89.6
□□ ErP Lot3/6□□	✓
□□ (EU) No 617/2013□□	✓
ALPM (Alternative Low Power Mode) compatible	✓

Performance Summary

115V

Accredited	
□□□□ (>1450 load combinations)	85.785%
Average Noise Output (>1450 Load Combinations)	35.34dBA
PF□□□ (>1450 Load Combinations)	0.989
Efficiency With 10W (≤500W) or 2% (>500W) Load	62.823%
□□□□□□	0.0578W
Non-Accredited	
12V Ripple (Full Load)	28.59mV
5V Ripple (Full Load)	13.71mV
3.3V Ripple (Full Load)	16.66mV
5VSB Ripple (Full Load)	31.03mV
12V Load Regulation	0.97%
5V Load Regulation	1.18%
3.3V Load Regulation	0.96%
5VSB Load Regulation	1.69%

Inrush Current	57.670A

230V

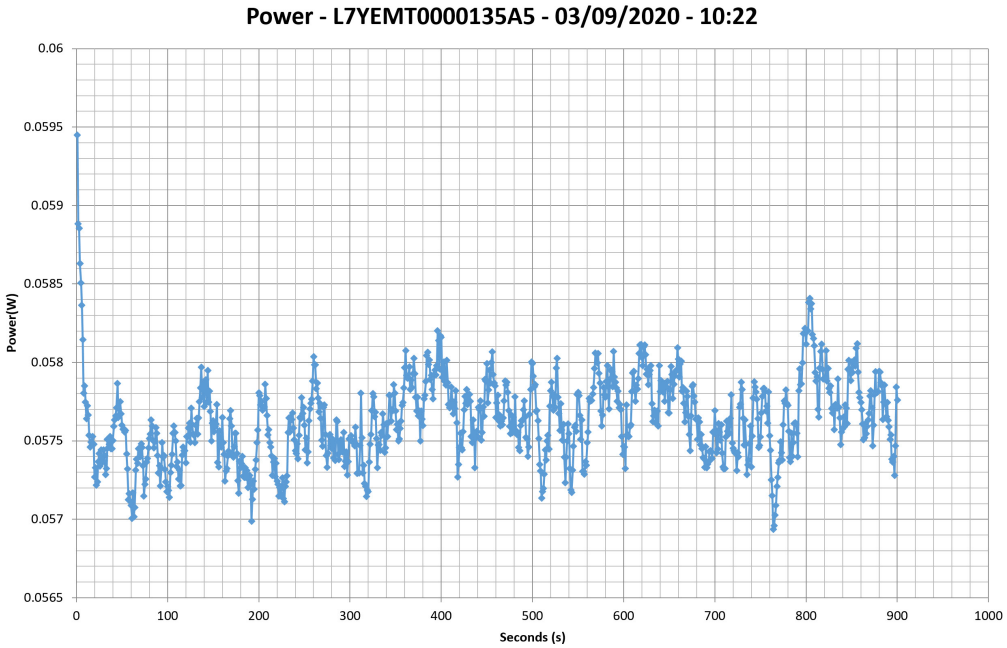
Accredited		
□□□□ (>1450 load combinations)		88.362%
Average Noise Output (>1450 Load Combinations)		35.42dBA
PF□□□ (>1450 Load Combinations)		0.957
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.0977W
Non-Accredited		
12V Ripple (Full Load)		27.44mV
5V Ripple (Full Load)		13.66mV
3.3V Ripple (Full Load)		15.49mV
5VSB Ripple (Full Load)		24.71mV
12V Load Regulation		0.97%
5V Load Regulation		1.28%
3.3V Load Regulation		0.99%
5VSB Load Regulation		1.67%
Inrush Current		101.600A
□□□□ & PG□□		10.90ms
AC Loss to PWR_OK Hold Up Time		7.40ms
PWR_OK Inactive to DC Loss Delay		3.50ms
PSU Timings: T1 (20% / 100%)	34.5ms	34.5ms
PSU Timings: T3 (20% / 100%)	128.5ms	128.5ms
OPP (27.00°C / 40.00°C)	134.91%	132.73%

□□□□ & PG□□

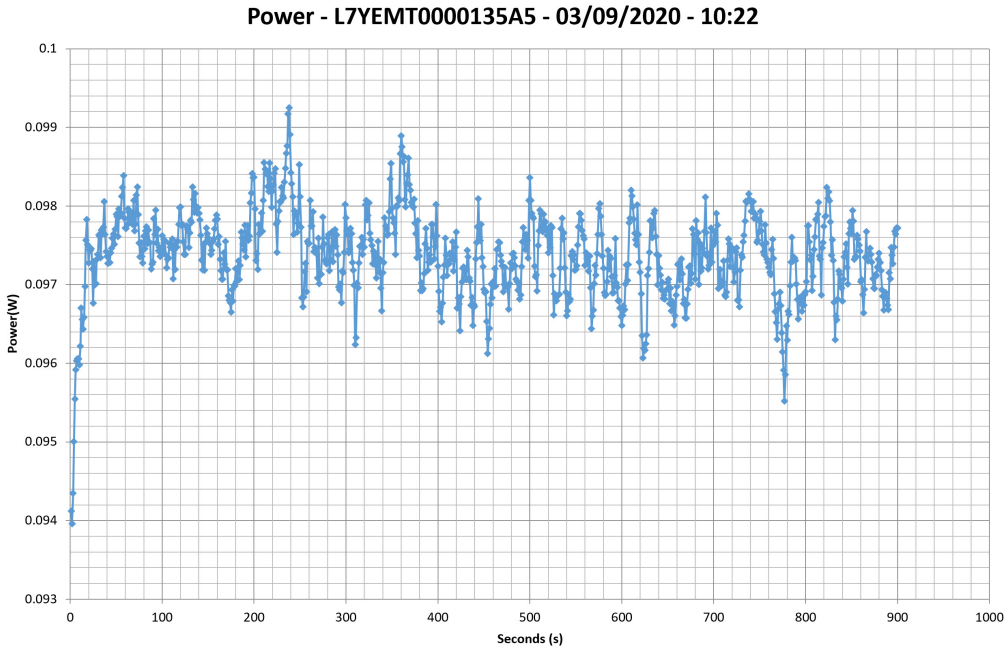
Hold-Up Time (ms)	10.9
AC Loss to PWR_OK Hold Up Time (ms)	7.4
PWR_OK Inactive to DC Loss Delay (ms)	3.5

Graphs

115V



230V



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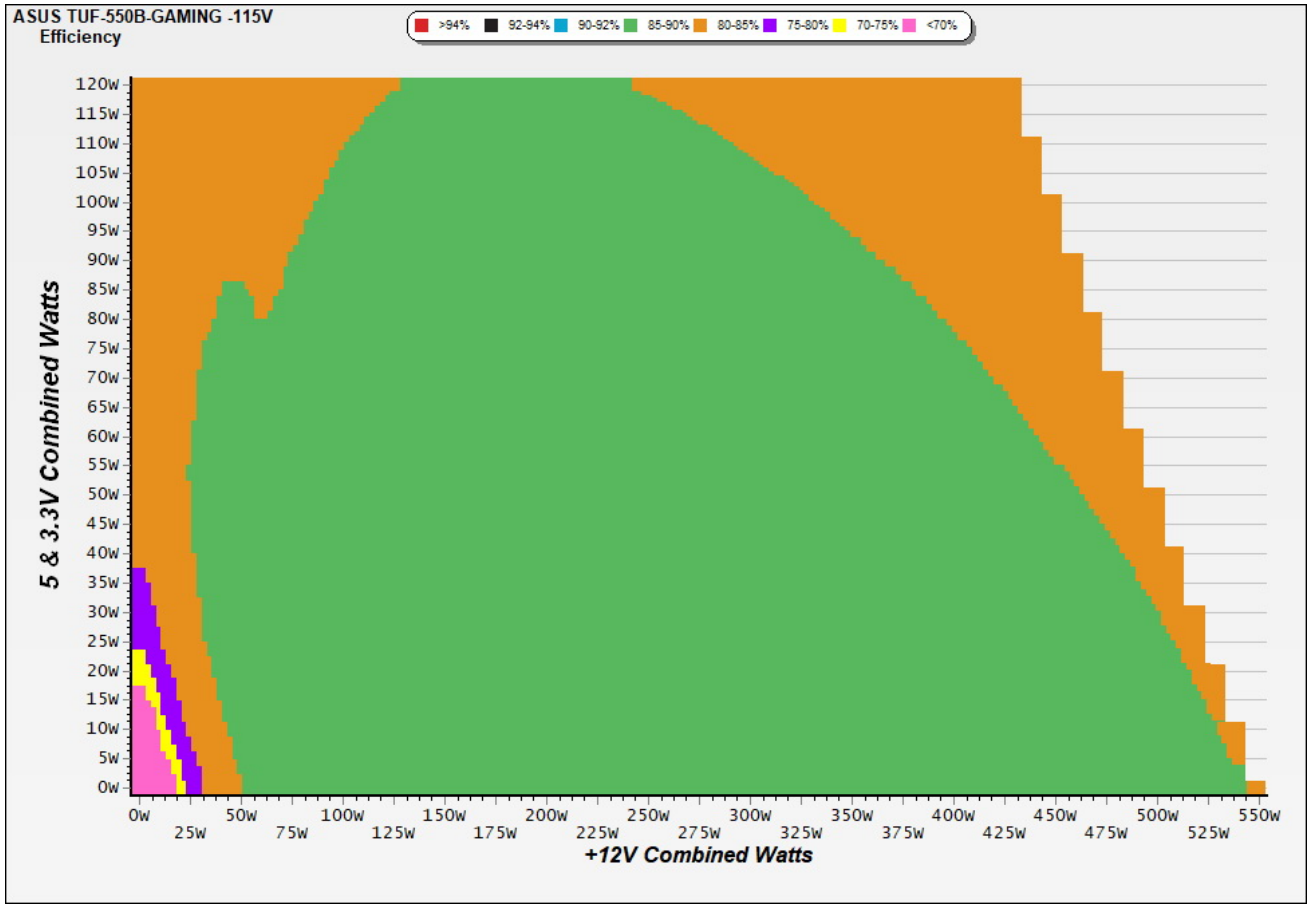
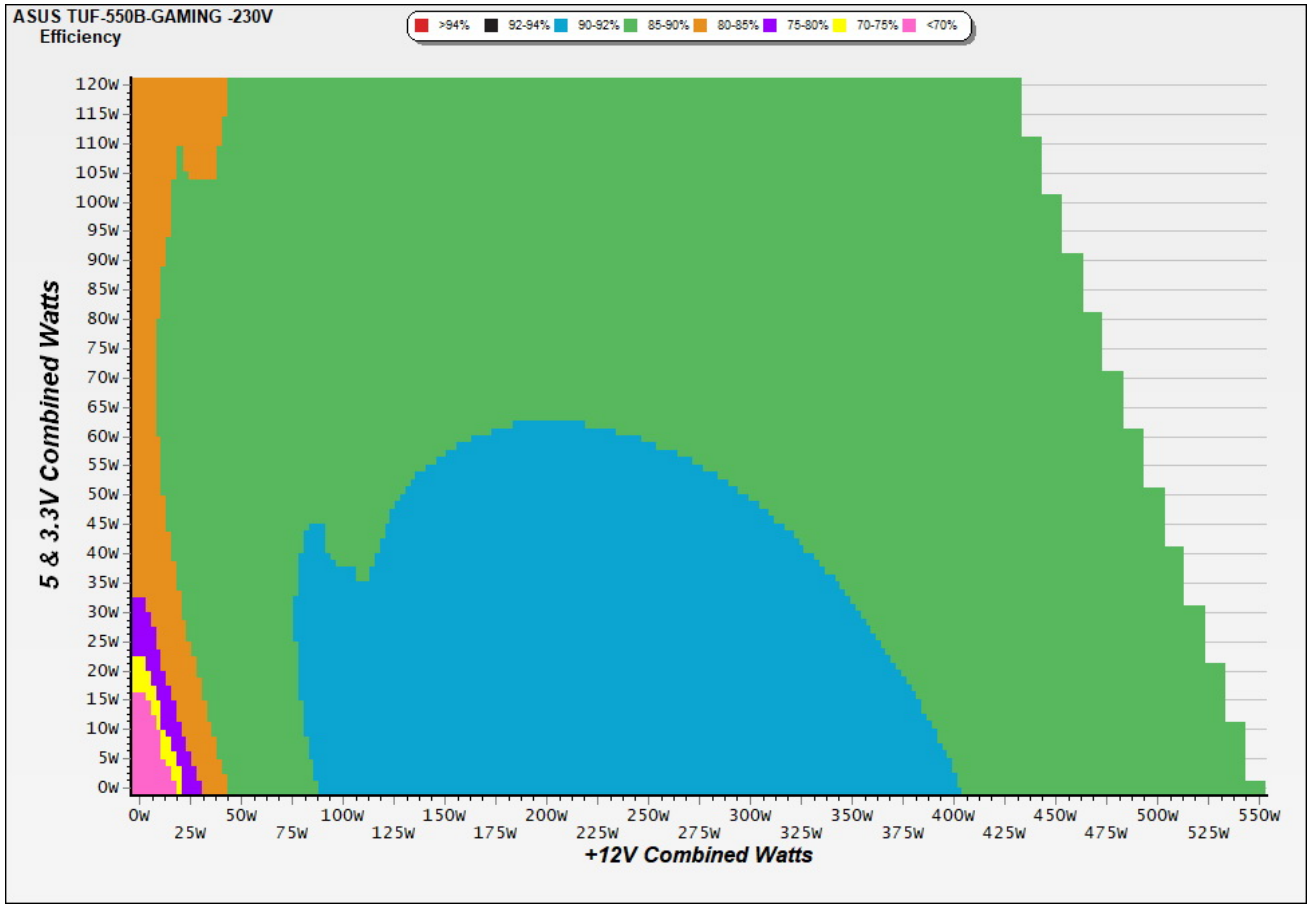
115V



□□

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



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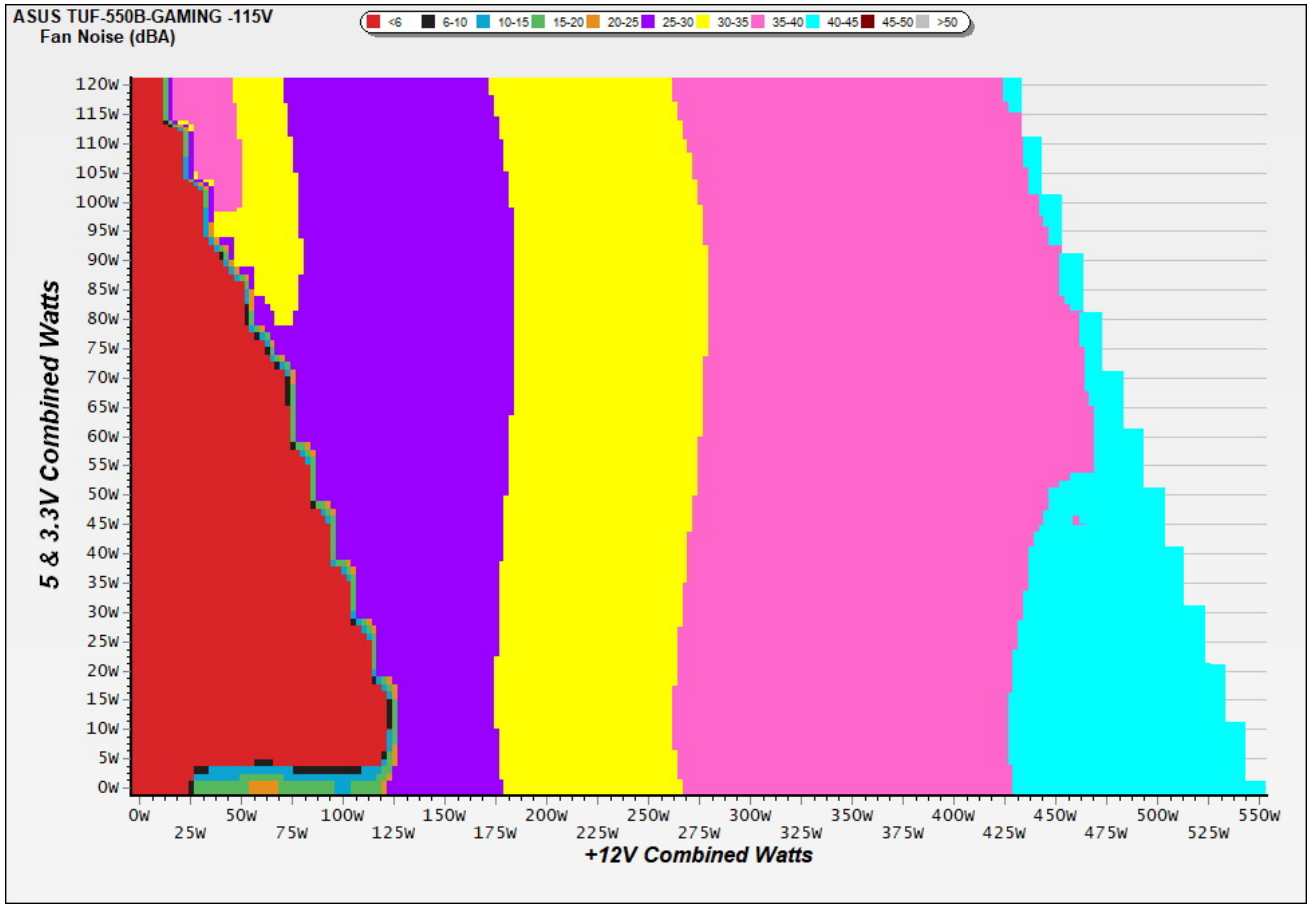
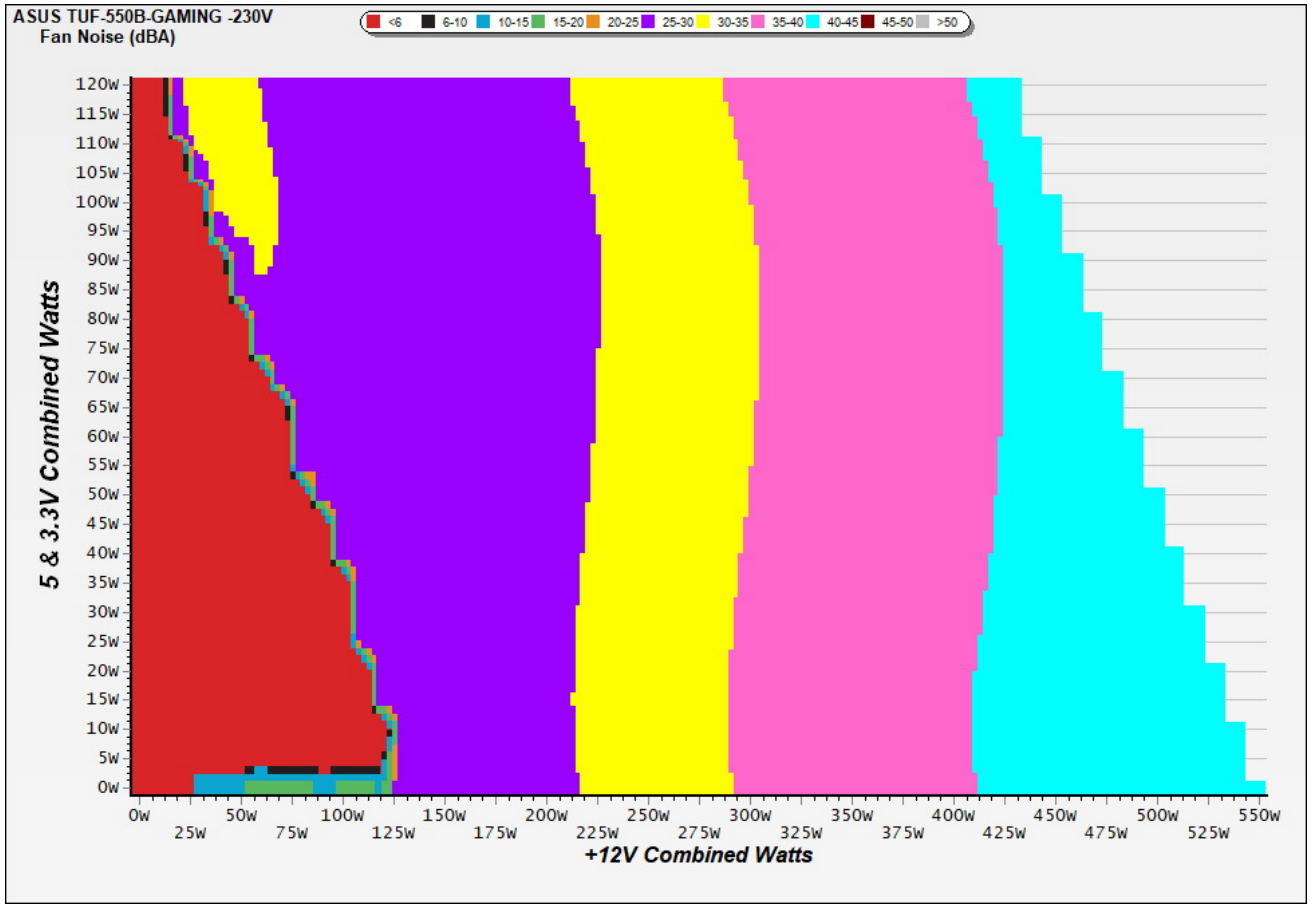
115V



□□

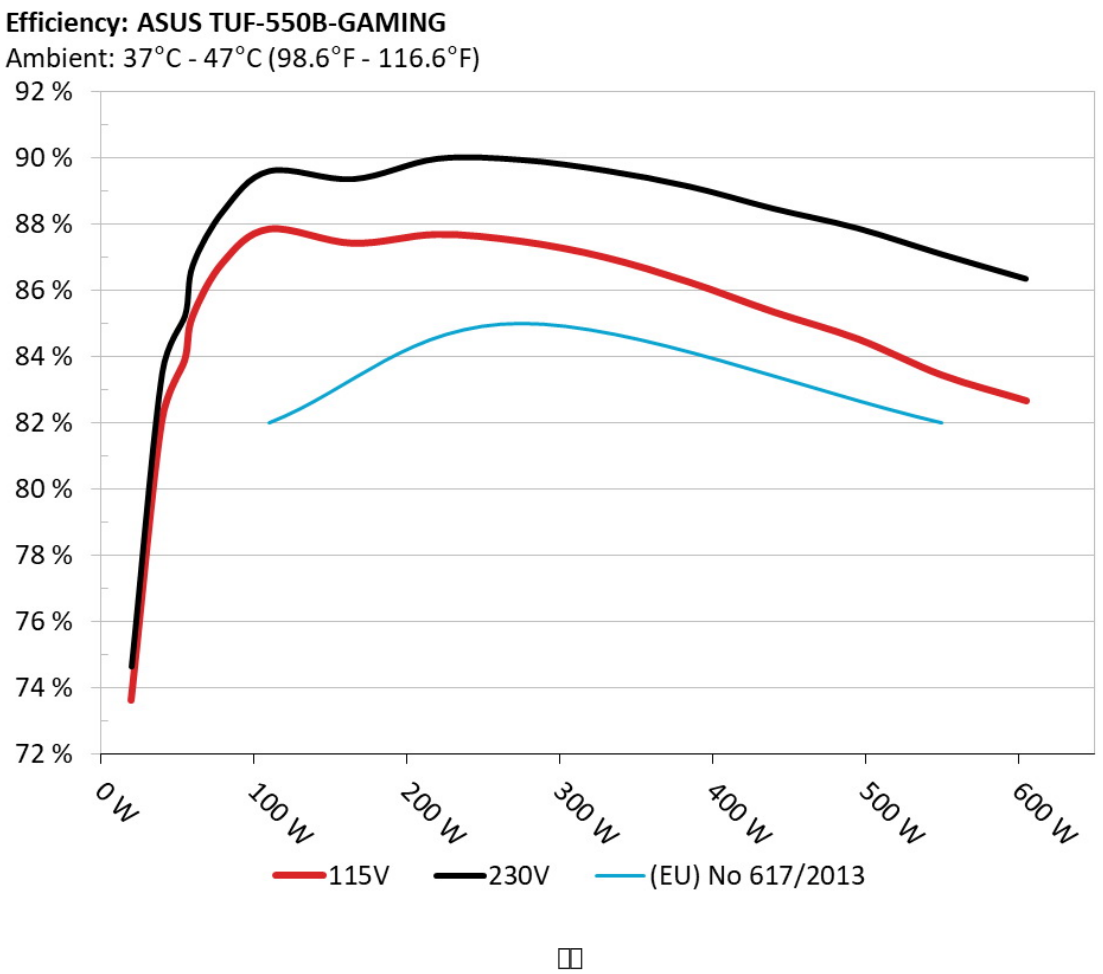
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

230V



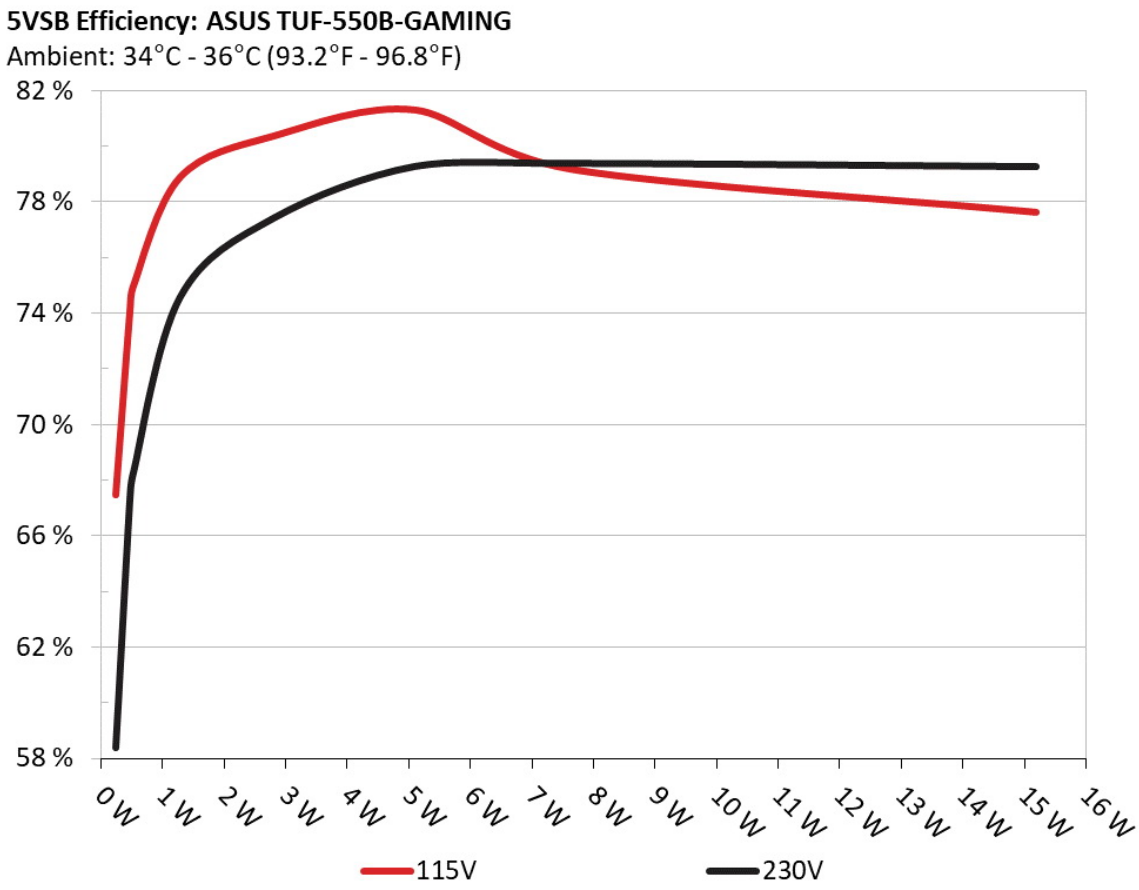
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance



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□□□□



□□

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input

□□□□ □□ 5Vsb □□ (ErP Lot3/6 & CEC)

115V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.230	67.449%	0.032
	5.106V	0.341		115.16V
2	0.090A	0.460	74.074%	0.057
	5.105V	0.621		115.16V
3	0.550A	2.805	80.349%	0.254
	5.099V	3.491		115.16V
4	1.000A	5.094	81.283%	0.345
	5.093V	6.267		115.16V
5	1.500A	7.632	79.154%	0.393
	5.087V	9.642		115.15V
6	3.000A	15.192	77.605%	0.448
	5.064V	19.576		115.12V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.230	58.376%	0.011
	5.106V	0.394		230.36V
2	0.090A	0.460	67.350%	0.019
	5.106V	0.683		230.36V
3	0.550A	2.806	77.428%	0.096
	5.100V	3.624		230.35V
4	1.000A	5.095	79.275%	0.158
	5.093V	6.427		230.35V
5	1.500A	7.632	79.384%	0.212
	5.087V	9.614		230.35V
6	3.000A	15.195	79.269%	0.311
	5.065V	19.169		230.33V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	2.763A	1.968A	1.987A	0.984A	54.968	83.883%	0	<6.0	46.41°C	0.965
	12.075V	5.082V	3.323V	5.083V	65.529				40.97°C	115.09V
2	6.559A	2.956A	2.983A	1.183A	110.035	87.841%	0	<6.0	46.86°C	0.979
	12.063V	5.077V	3.320V	5.074V	125.266				40.42°C	115.11V
3	10.706A	3.454A	3.487A	1.381A	165.041	87.413%	1527	35.8	41.21°C	0.987
	12.048V	5.067V	3.313V	5.070V	188.805				47.87°C	115.12V
4	14.856A	3.952A	3.988A	1.580A	220.037	87.682%	1635	37.5	41.75°C	0.991
	12.037V	5.063V	3.311V	5.065V	250.948				49.32°C	115.09V
5	18.671A	4.946A	4.990A	1.780A	275.032	87.471%	1625	37.3	41.92°C	0.993
	12.025V	5.056V	3.307V	5.058V	314.426				50.62°C	115.08V
6	22.492A	5.942A	5.994A	1.981A	330.017	86.986%	1765	39.6	42.58°C	0.994
	12.013V	5.050V	3.305V	5.050V	379.390				52.02°C	115.08V
7	26.333A	6.941A	6.998A	2.182A	385.104	86.238%	1852	41.0	43.50°C	0.995
	12.000V	5.043V	3.301V	5.043V	446.559				53.32°C	115.09V
8	30.181A	7.942A	8.004A	2.384A	440.229	85.336%	1940	42.3	43.62°C	0.995
	11.988V	5.038V	3.299V	5.034V	515.880				53.86°C	115.09V
9	34.422A	8.446A	8.498A	2.386A	494.732	84.532%	1975	42.6	44.02°C	0.995
	11.976V	5.031V	3.295V	5.030V	585.262				54.92°C	115.04V
10	38.472A	8.955A	9.022A	2.992A	549.963	83.438%	2081	44.2	45.30°C	0.996
	11.963V	5.027V	3.292V	5.015V	659.130				56.87°C	115.07V
11	43.124A	8.963A	9.031A	2.995A	605.099	82.663%	2093	44.3	46.60°C	0.996
	11.951V	5.022V	3.289V	5.011V	732.006				59.46°C	115.09V
CL1	0.117A	14.002A	14.000A	0.000A	118.164	81.714%	0	<6.0	50.76°C	0.986
	12.034V	5.031V	3.308V	5.070V	144.607				41.50°C	115.11V

CL2	45.848A	1.000A	1.001A	1.000A	562.723	84.333%	2057	43.8	45.75°C	0.996
	11.981V	5.058V	3.303V	5.053V	667.265				57.48°C	115.07V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	2.763A	1.969A	1.987A	0.984A	54.970	85.238%	0	<6.0	45.81°C	0.802
	12.075V	5.081V	3.323V	5.082V	64.490				40.28°C	230.38V
2	6.560A	2.957A	2.984A	1.183A	110.041	89.600%	0	<6.0	47.16°C	0.915
	12.062V	5.074V	3.320V	5.074V	122.814				40.94°C	230.38V
3	10.706A	3.456A	3.487A	1.381A	165.040	89.356%	1610	37.0	41.39°C	0.951
	12.047V	5.066V	3.314V	5.069V	184.699				48.79°C	230.38V
4	14.859A	3.953A	3.988A	1.580A	220.046	89.973%	1620	37.2	41.55°C	0.966
	12.036V	5.060V	3.310V	5.064V	244.570				49.53°C	230.37V
5	18.676A	4.949A	4.991A	1.780A	275.044	89.936%	1658	37.9	42.45°C	0.975
	12.023V	5.052V	3.306V	5.056V	305.821				51.00°C	230.30V
6	22.500A	5.947A	5.997A	1.981A	330.038	89.615%	1747	39.3	42.79°C	0.980
	12.010V	5.045V	3.303V	5.049V	368.283				52.42°C	230.41V
7	26.336A	6.950A	7.001A	2.183A	385.102	89.133%	1848	40.9	43.24°C	0.984
	11.998V	5.038V	3.300V	5.041V	432.051				53.45°C	230.34V
8	30.190A	7.955A	8.011A	2.385A	440.256	88.465%	1961	42.5	44.11°C	0.986
	11.985V	5.031V	3.296V	5.033V	497.659				55.23°C	230.32V
9	34.438A	8.459A	8.504A	2.388A	494.807	87.876%	2025	43.4	44.31°C	0.988
	11.972V	5.025V	3.293V	5.027V	563.076				56.11°C	230.33V
10	38.489A	8.967A	9.030A	2.993A	550.020	87.091%	2080	44.2	45.64°C	0.989
	11.959V	5.020V	3.290V	5.014V	631.547				57.96°C	230.34V
11	43.155A	8.974A	9.035A	2.996A	605.248	86.349%	2061	43.9	46.57°C	0.991
	11.946V	5.016V	3.287V	5.009V	700.933				59.41°C	230.34V
CL1	0.118A	14.004A	14.000A	0.000A	118.074	83.326%	0	<6.0	50.94°C	0.931
	12.032V	5.025V	3.306V	5.068V	141.701				42.03°C	230.39V

CL2	45.856A	1.000A	1.001A	1.000A	562.630	87.937%	2072	44.0	45.15°C	0.990
	11.977V	5.056V	3.301V	5.052V	639.809				57.44°C	230.31V

The results above are not used in the certification process

20-80□□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.229A	0.491A	0.498A	0.196A	19.996	73.634%	0	<6.0	0.886
	12.077V	5.089V	3.325V	5.101V	27.156				115.06V
2	2.457A	0.983A	0.993A	0.393A	39.985	82.042%	0	<6.0	0.949
	12.080V	5.087V	3.324V	5.096V	48.737				115.06V
3	3.692A	1.474A	1.490A	0.590A	60.015	85.198%	0	<6.0	0.968
	12.071V	5.084V	3.323V	5.091V	70.442				115.06V
4	4.918A	1.968A	1.988A	0.787A	79.965	86.838%	0	<6.0	0.969
	12.070V	5.081V	3.322V	5.085V	92.085				115.09V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.229A	0.492A	0.497A	0.196A	19.999	74.645%	0	<6.0	0.531
	12.077V	5.090V	3.326V	5.099V	26.792				230.39V
2	2.457A	0.983A	0.993A	0.393A	39.988	83.515%	0	<6.0	0.720
	12.081V	5.087V	3.325V	5.094V	47.881				230.39V
3	3.691A	1.476A	1.488A	0.590A	60.018	86.758%	0	<6.0	0.818
	12.075V	5.083V	3.323V	5.089V	69.179				230.39V
4	4.918A	1.969A	1.988A	0.787A	79.966	88.396%	0	<6.0	0.871
	12.070V	5.080V	3.321V	5.084V	90.463				230.39V

The results above are not used in the certification process

□□□□

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	21.80mV	6.80mV	4.70mV	7.80mV	Pass
20% Load	24.40mV	6.80mV	5.50mV	9.30mV	Pass
30% Load	18.40mV	6.70mV	5.40mV	9.80mV	Pass
40% Load	17.60mV	8.20mV	6.40mV	16.60mV	Pass
50% Load	18.50mV	8.70mV	7.30mV	16.30mV	Pass
60% Load	14.70mV	9.60mV	7.70mV	16.70mV	Pass
70% Load	14.40mV	10.00mV	7.90mV	19.30mV	Pass
80% Load	16.70mV	10.40mV	14.80mV	21.10mV	Pass
90% Load	16.80mV	10.90mV	14.70mV	20.20mV	Pass
100% Load	28.60mV	13.70mV	16.70mV	31.00mV	Pass
110% Load	47.50mV	33.50mV	35.90mV	57.10mV	Fail
Crossload1	26.90mV	9.20mV	15.90mV	8.20mV	Pass
Crossload2	30.20mV	10.10mV	9.00mV	26.10mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	24.20mV	6.60mV	4.60mV	7.10mV	Pass
20% Load	25.80mV	6.70mV	5.30mV	8.80mV	Pass
30% Load	19.70mV	6.70mV	5.40mV	9.80mV	Pass
40% Load	18.30mV	8.20mV	6.10mV	15.40mV	Pass
50% Load	18.90mV	8.60mV	6.60mV	16.30mV	Pass
60% Load	15.90mV	9.60mV	7.30mV	16.70mV	Pass
70% Load	13.80mV	9.60mV	7.80mV	19.40mV	Pass
80% Load	16.50mV	10.40mV	14.30mV	19.10mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	17.10mV	10.60mV	14.40mV	19.90mV	Pass
100% Load	27.40mV	13.70mV	15.50mV	24.70mV	Pass
110% Load	30.00mV	13.50mV	16.10mV	29.30mV	Pass
Crossload1	26.50mV	9.10mV	16.60mV	8.40mV	Pass
Crossload2	28.80mV	9.60mV	8.70mV	23.70mV	Pass

The results above are not used in the certification process

ASUS TUF-550B-GAMING

Top side

Power specifications label

本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由 Cybenetics提供。
在任何情况下都应提供原始测试结果文档的网站链接

Cybenetics 提供自愿性认证计划：电源方面有 ETA (效率)、 LAMBDA (噪声) 与 SAFE (安全与正确运行)；散热产品方面有 DELTA (机箱隔音) 与 PHI (风扇风量与静压)

CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus

www.cybenetics.com - info@cybenetics.com