ASUS TUF-750B-GAMING

2K070017488

Lab ID AS75001707

Certification ID 251707

Test Result Report ID: 20PS1707A

Certificate Issue Date: Sep 7, 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-750B-GAMING
OEM/ODM	Great Wall
Serial Number	2K070017488
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	10-5
□□□□ (Hz)	47-63

□□□□ (W)	750
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	AS75001707
Date of receipt	Aug 20, 2020
Testing Date	Sep 2, 2020
Report Issued Date	Sep 7, 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)	2	2	18AWG	□
6+2pin PCIe□□ (610mm+100mm)	2	4	18AWG	□
SATA□□ (400mm+120mm+120mm+120mm)	2	8	18AWG	□
4-pin Molex (400mm+150mm+150mm+150mm)	1	4	18AWG	□

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	25	25	62	3	0.8
	□	130		744	15	9.6
□□□□□ (W)		750				

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 SCK201R0
Bridge Rectifier(s)	2x GBU1508 (800V, 15A @ 100°C)
APFC MOSFETs	2x Advanced Power AP30SL60WL (650V, 16.5A @ 100°C, Rds(on): 0.13Ohm)
APFC Boost Diode	1x STMicroelectronics STPSC6H065D (650V, 6A @ 135°C)
Bulk Cap(s)	2x Teapo (450V, 270uF each or 540uF combined, 2,000h @ 105°C, LG)
Main Switchers	2x Advanced Power AP65SL190D (650V, 12.3A @ 100°C, Rds(on): 0.19Ohm)
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	4x 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 (3-5,000h @ 105°C, EJ), 2x Elite (2-5,000h @ 105°C, ED), 1x Teapo (6-10,000h @ 105°C, TC), 1x Teapo (3-5,000h @ 105°C, TX), 2x Lelon (4-10,000h @ 105°C, RZW), 1x Lelon (4-7,000h @ 105°C, RXW) Polymer: 4x 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)	86.729%
Average Noise Output (>1450 Load Combinations)	37.97dBA
PF□□□ (>1450 Load Combinations)	0.979
Efficiency With 10W (≤500W) or 2% (>500W) Load	66.382%
□□□□□□	0.0570W
Non-Accredited	
12V Ripple (Full Load)	29.22mV
5V Ripple (Full Load)	12.78mV
3.3V Ripple (Full Load)	14.89mV
5VSB Ripple (Full Load)	23.82mV
12V Load Regulation	0.81%
5V Load Regulation	0.65%
3.3V Load Regulation	0.72%
5VSB Load Regulation	1.57%

Inrush Current	43.330A

230V

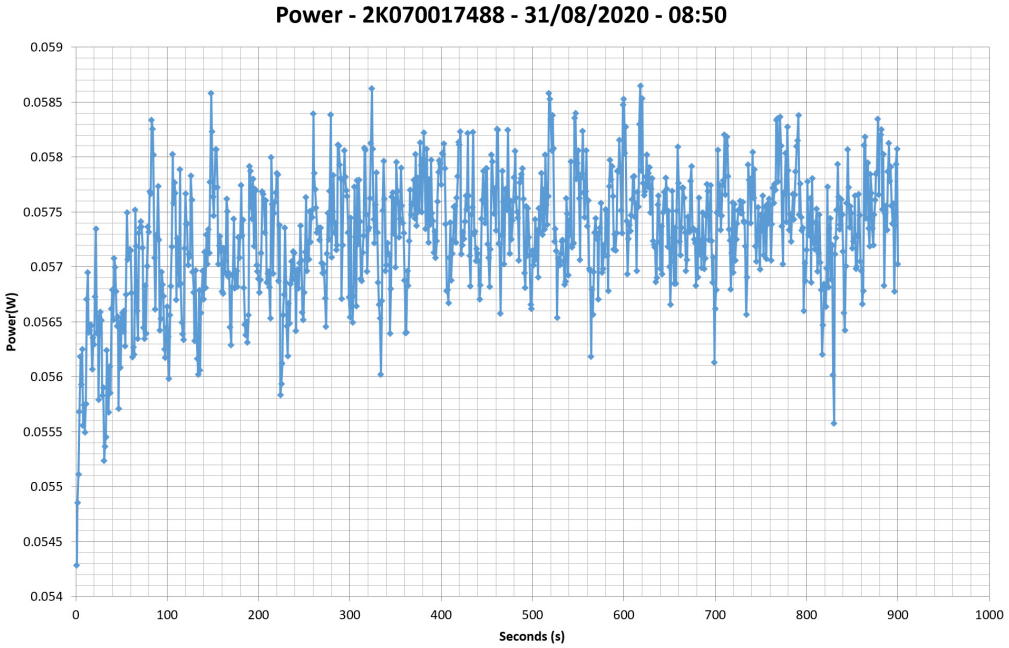
Accredited		
□□□□ (>1450 load combinations)		88.961%
Average Noise Output (>1450 Load Combinations)		37.31dBA
PF□□□ (>1450 Load Combinations)		0.946
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.0972W
Non-Accredited		
12V Ripple (Full Load)		28.27mV
5V Ripple (Full Load)		12.05mV
3.3V Ripple (Full Load)		14.71mV
5VSB Ripple (Full Load)		22.41mV
12V Load Regulation		0.85%
5V Load Regulation		0.65%
3.3V Load Regulation		0.72%
5VSB Load Regulation		1.57%
Inrush Current		94.880A
□□□□ & PG□□		13.70ms
AC Loss to PWR_OK Hold Up Time		10.10ms
PWR_OK Inactive to DC Loss Delay		3.60ms
PSU Timings: T1 (20% / 100%)	34.0ms	34.0ms
PSU Timings: T3 (20% / 100%)	130.0ms	130.0ms
OPP (28.00°C / 41.00°C)	128.40%	128.41%

□□□□ & PG□□

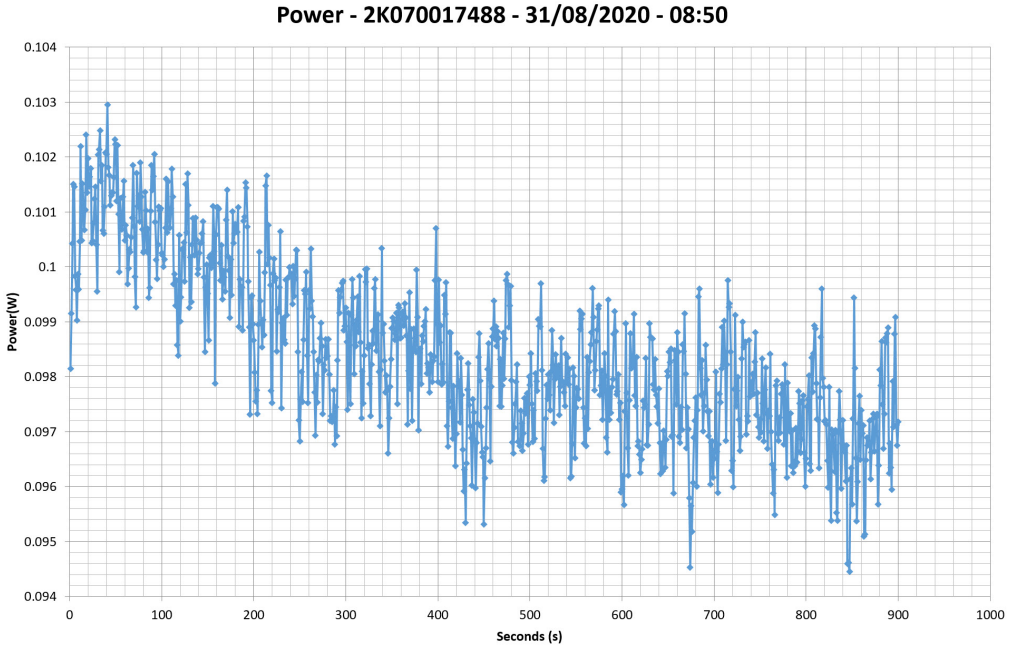
Hold-Up Time (ms)	13.7
AC Loss to PWR_OK Hold Up Time (ms)	10.1
PWR_OK Inactive to DC Loss Delay (ms)	3.6

Graphs

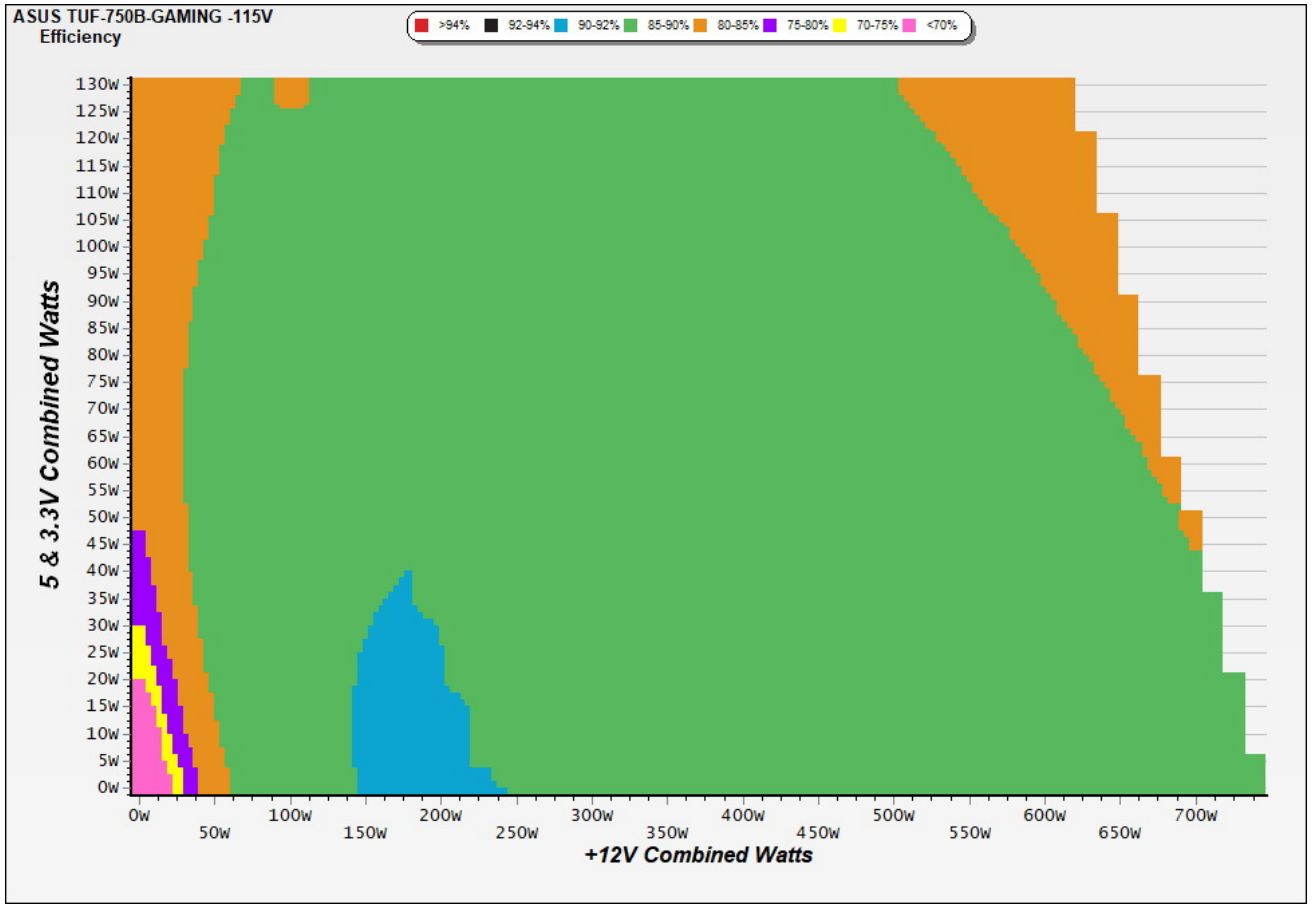
115V



230V



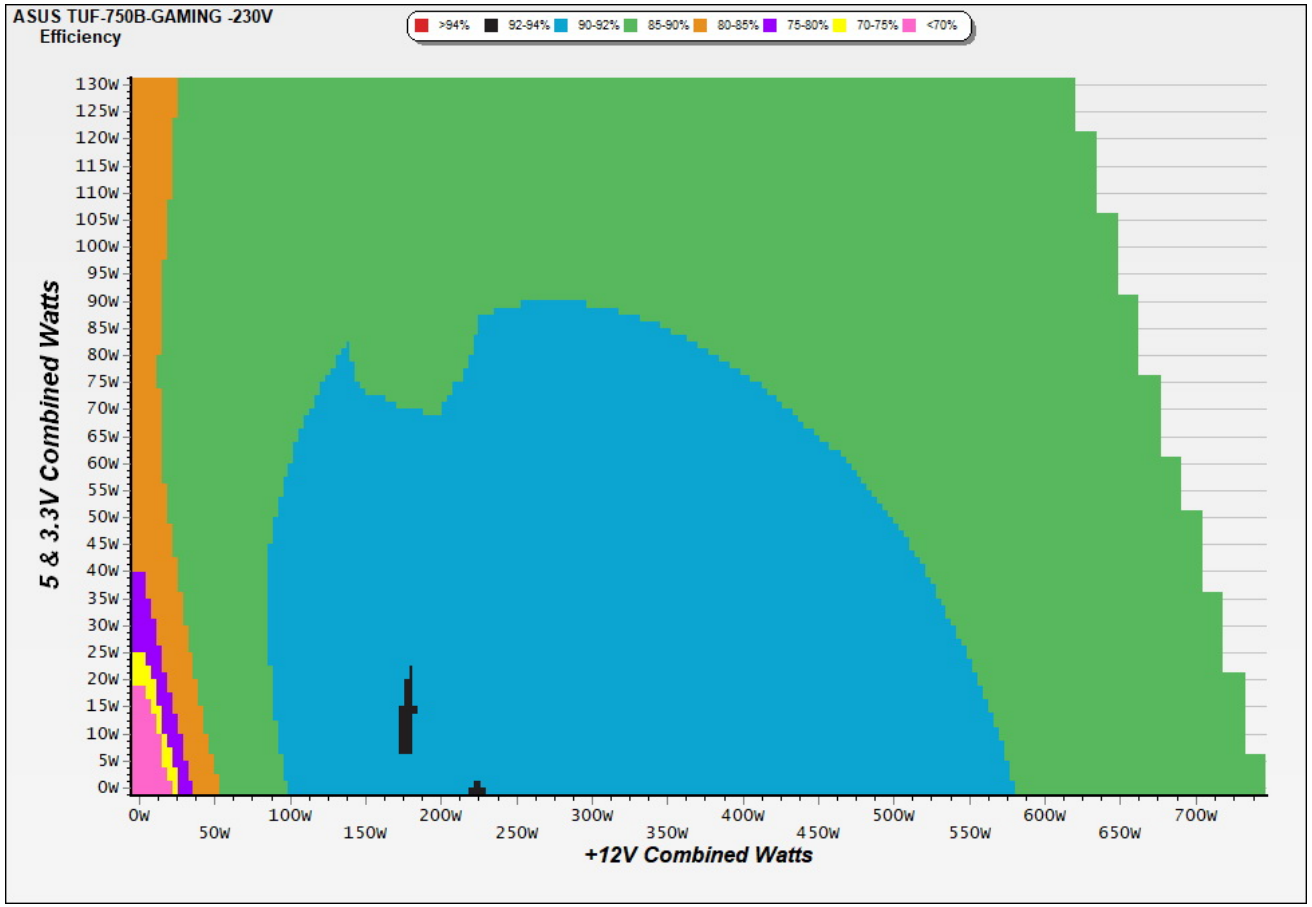
115V



□□

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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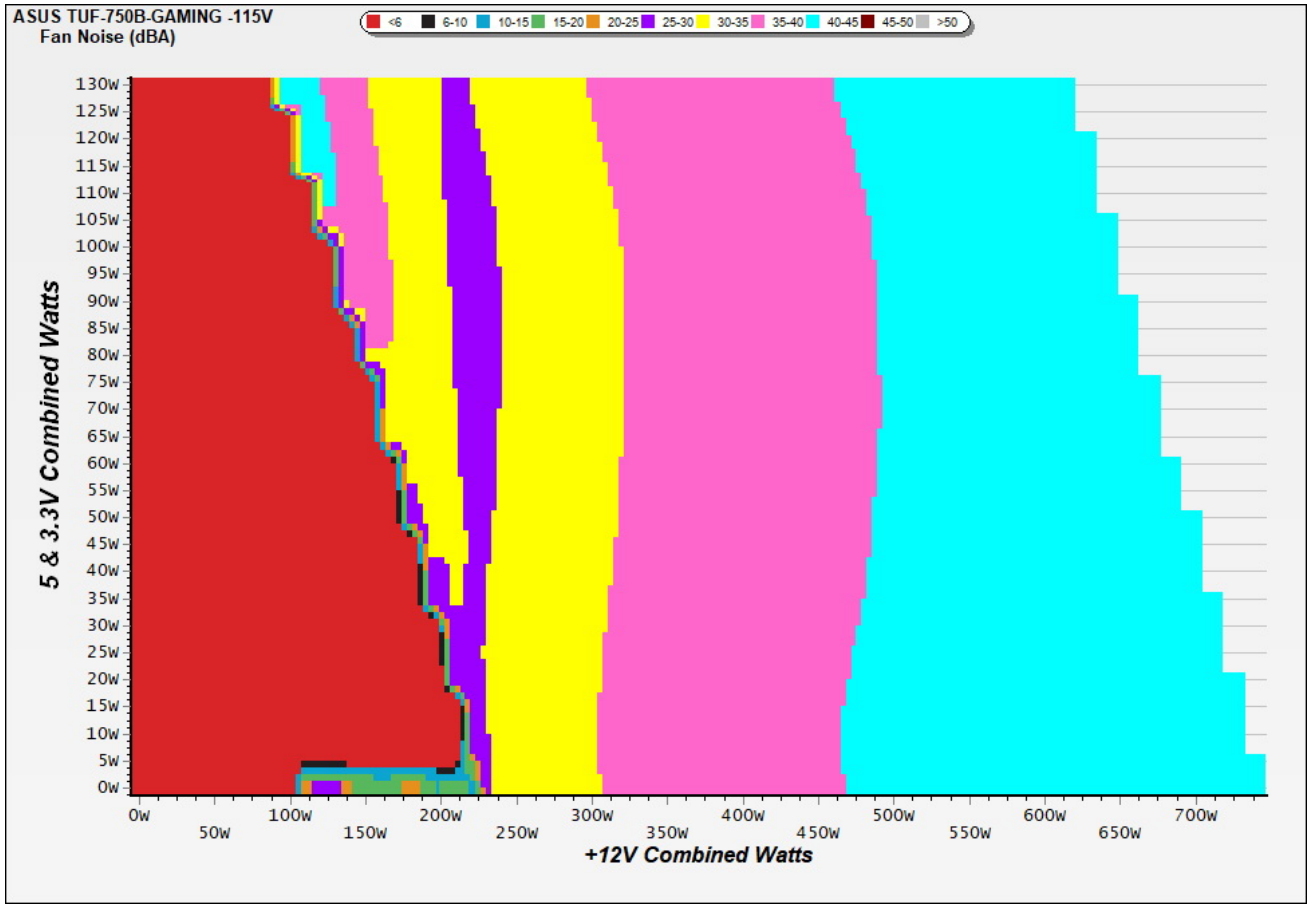
□□□□□

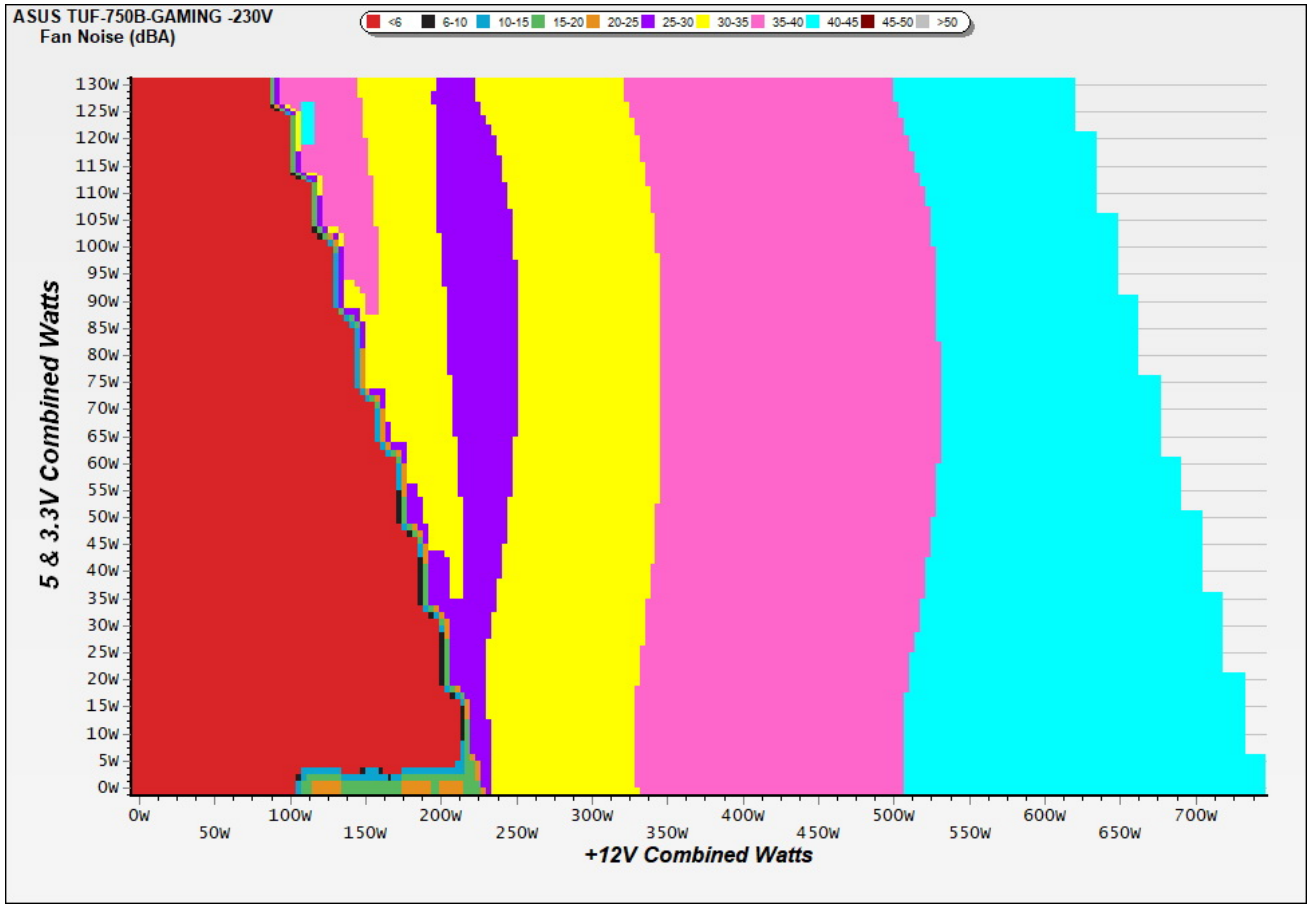
115V



□□

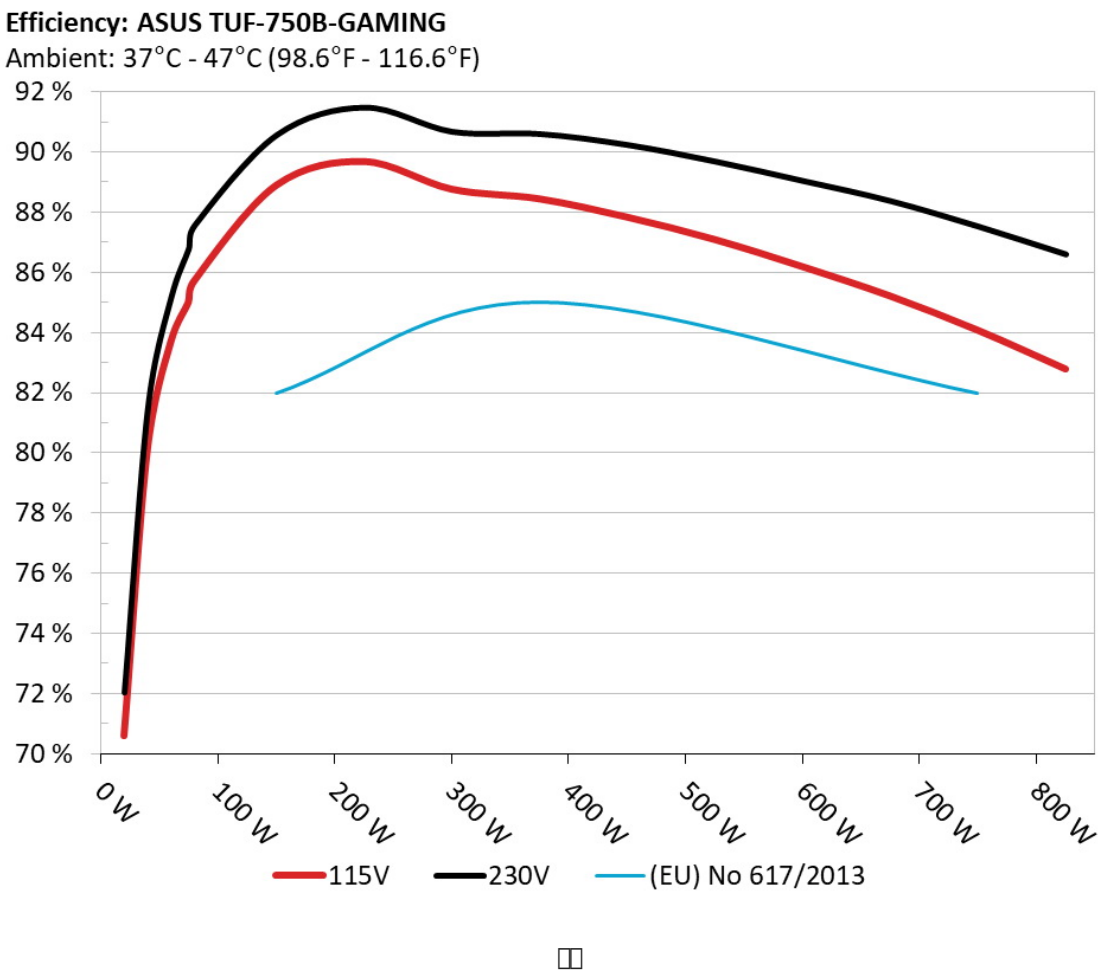
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

230V



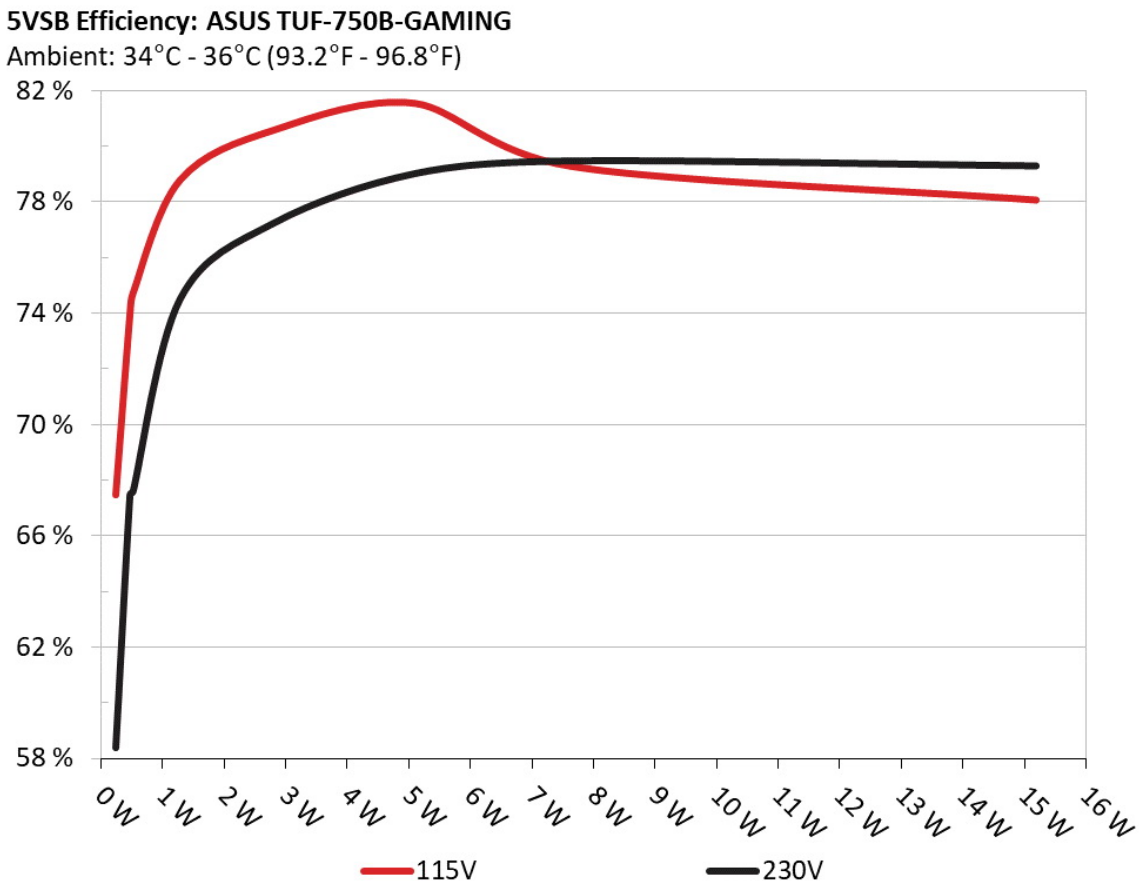
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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%	0.031
	5.107V	0.341		115.15V
2	0.090A	0.460	73.955%	0.057
	5.107V	0.622		115.15V
3	0.550A	2.806	80.563%	0.236
	5.100V	3.483		115.15V
4	1.000A	5.095	81.520%	0.314
	5.094V	6.250		115.15V
5	1.500A	7.634	79.257%	0.362
	5.088V	9.632		115.15V
6	3.000A	15.193	78.045%	0.426
	5.065V	19.467		115.14V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.230	58.376%	0.011
	5.107V	0.394		230.33V
2	0.090A	0.460	67.449%	0.019
	5.107V	0.682		230.33V
3	0.550A	2.806	77.236%	0.095
	5.101V	3.633		230.33V
4	1.000A	5.096	79.008%	0.156
	5.095V	6.450		230.33V
5	1.500A	7.634	79.463%	0.208
	5.088V	9.607		230.32V
6	3.000A	15.198	79.284%	0.300
	5.066V	19.169		230.32V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	4.436A	1.957A	1.986A	0.984A	74.963	85.015%	0	<6.0	46.21°C	0.960
	12.032V	5.108V	3.319V	5.083V	88.176				40.44°C	115.07V
2	9.915A	2.939A	2.984A	1.183A	150.034	88.902%	0	<6.0	47.14°C	0.964
	12.015V	5.105V	3.317V	5.075V	168.763				40.78°C	115.07V
3	15.728A	3.431A	3.483A	1.382A	225.042	89.697%	0	<6.0	48.93°C	0.973
	12.016V	5.102V	3.315V	5.068V	250.891				41.39°C	115.07V
4	21.570A	3.926A	3.988A	1.580A	300.055	88.777%	1747	39.3	41.61°C	0.979
	12.000V	5.096V	3.311V	5.065V	337.987				49.89°C	115.06V
5	27.044A	4.910A	4.990A	1.780A	374.725	88.458%	1790	40.0	42.29°C	0.984
	11.988V	5.093V	3.309V	5.058V	423.617				51.22°C	115.03V
6	32.539A	5.896A	5.991A	1.980A	449.604	87.854%	1892	41.4	42.75°C	0.987
	11.979V	5.090V	3.306V	5.051V	511.762				52.30°C	115.05V
7	38.083A	6.884A	6.993A	2.182A	524.930	87.107%	1974	42.6	43.61°C	0.989
	11.969V	5.086V	3.303V	5.043V	602.629				53.38°C	115.11V
8	43.642A	7.871A	7.999A	2.383A	600.241	86.201%	2047	43.7	44.15°C	0.991
	11.957V	5.083V	3.301V	5.036V	696.327				54.33°C	115.08V
9	49.576A	8.368A	8.490A	2.385A	674.805	85.231%	2065	43.9	44.19°C	0.993
	11.947V	5.080V	3.299V	5.032V	791.741				55.18°C	115.09V
10	55.325A	8.866A	9.011A	2.989A	750.030	84.090%	2061	43.9	45.63°C	0.994
	11.935V	5.077V	3.297V	5.020V	891.939				57.24°C	115.09V
11	61.681A	8.870A	9.015A	2.992A	825.274	82.797%	2050	43.7	46.51°C	0.995
	11.925V	5.075V	3.295V	5.016V	996.744				59.25°C	115.09V
CL1	0.117A	16.001A	16.001A	0.000A	135.847	81.316%	0	<6.0	51.53°C	0.970
	12.021V	5.097V	3.305V	5.068V	167.060				42.81°C	115.10V

CL2	62.028A	1.000A	1.000A	1.000A	754.432	84.500%	2052	43.7	45.69°C	0.995
	11.946V	5.084V	3.306V	5.055V	892.815				57.89°C	115.06V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	4.434A	1.959A	1.989A	0.984A	74.970	86.787%	0	<6.0	46.72°C	0.836
	12.034V	5.108V	3.320V	5.083V	86.384				40.85°C	230.39V
2	9.906A	2.940A	2.983A	1.183A	150.056	90.568%	0	<6.0	47.63°C	0.914
	12.028V	5.105V	3.317V	5.074V	165.684				41.23°C	230.38V
3	15.727A	3.432A	3.484A	1.382A	225.070	91.486%	0	<6.0	48.55°C	0.941
	12.018V	5.102V	3.315V	5.067V	246.016				41.52°C	230.34V
4	21.575A	3.925A	3.987A	1.580A	300.082	90.683%	1767	39.7	42.12°C	0.955
	11.999V	5.096V	3.311V	5.064V	330.912				49.72°C	230.30V
5	27.046A	4.911A	4.989A	1.780A	374.794	90.609%	1829	40.8	42.90°C	0.962
	11.990V	5.092V	3.308V	5.057V	413.638				51.62°C	230.36V
6	32.548A	5.897A	5.991A	1.980A	449.709	90.248%	1893	41.4	43.02°C	0.967
	11.979V	5.089V	3.306V	5.051V	498.303				52.27°C	230.34V
7	38.100A	6.886A	6.994A	2.182A	525.039	89.693%	1991	43.0	43.68°C	0.972
	11.966V	5.086V	3.304V	5.043V	585.372				53.70°C	230.32V
8	43.655A	7.875A	8.000A	2.383A	600.369	89.046%	2043	43.7	43.74°C	0.976
	11.956V	5.082V	3.301V	5.036V	674.227				54.12°C	230.32V
9	49.602A	8.370A	8.489A	2.385A	674.916	88.382%	2067	43.9	44.52°C	0.979
	11.943V	5.079V	3.299V	5.033V	763.638				55.68°C	230.32V
10	55.334A	8.868A	9.010A	2.990A	750.137	87.532%	2065	43.9	46.27°C	0.981
	11.935V	5.076V	3.297V	5.019V	856.984				58.11°C	230.28V
11	61.689A	8.872A	9.017A	2.992A	825.373	86.602%	2053	43.7	46.54°C	0.984
	11.925V	5.074V	3.295V	5.015V	953.069				59.36°C	230.35V
CL1	0.118A	16.003A	16.004A	0.000A	135.879	82.982%	0	<6.0	51.66°C	0.918
	12.021V	5.097V	3.305V	5.067V	163.746				42.91°C	230.37V

CL2	62.029A	1.002A	1.000A	1.000A	754.578	88.025%	2057	43.8	46.21°C	0.982
	11.948V	5.084V	3.306V	5.055V	857.233				58.77°C	230.34V

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	1.233A	0.489A	0.496A	0.196A	19.994	70.603%	0	<6.0	0.892
	12.043V	5.111V	3.321V	5.100V	28.319				115.09V
2	2.467A	0.978A	0.995A	0.393A	39.983	80.121%	0	<6.0	0.945
	12.030V	5.110V	3.321V	5.096V	49.903				115.09V
3	3.704A	1.468A	1.489A	0.590A	60.013	83.707%	0	<6.0	0.940
	12.032V	5.109V	3.320V	5.091V	71.694				115.07V
4	4.935A	1.958A	1.987A	0.787A	79.962	85.728%	0	<6.0	0.962
	12.029V	5.108V	3.319V	5.086V	93.274				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	1.233A	0.489A	0.495A	0.196A	19.999	72.030%	0	<6.0	0.531
	12.049V	5.111V	3.322V	5.098V	27.765				230.39V
2	2.465A	0.979A	0.995A	0.393A	39.990	81.484%	0	<6.0	0.706
	12.041V	5.110V	3.321V	5.095V	49.077				230.39V
3	3.703A	1.468A	1.490A	0.590A	60.019	85.177%	0	<6.0	0.795
	12.036V	5.109V	3.320V	5.090V	70.464				230.39V
4	4.934A	1.959A	1.987A	0.787A	79.969	87.560%	0	<6.0	0.846
	12.032V	5.108V	3.319V	5.085V	91.330				230.39V

The results above are not used in the certification process

□□□□

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.60mV	7.30mV	4.20mV	8.80mV	Pass
20% Load	21.30mV	7.50mV	4.90mV	9.60mV	Pass
30% Load	15.60mV	7.80mV	4.70mV	10.60mV	Pass
40% Load	11.10mV	9.40mV	6.60mV	15.50mV	Pass
50% Load	13.20mV	8.70mV	5.40mV	17.10mV	Pass
60% Load	15.70mV	9.30mV	5.80mV	18.40mV	Pass
70% Load	16.50mV	10.10mV	6.10mV	21.30mV	Pass
80% Load	18.60mV	10.60mV	12.60mV	20.70mV	Pass
90% Load	20.70mV	12.30mV	13.40mV	25.80mV	Pass
100% Load	29.20mV	12.80mV	14.90mV	23.80mV	Pass
110% Load	31.10mV	13.70mV	14.80mV	24.60mV	Pass
Crossload1	27.70mV	13.40mV	16.70mV	9.70mV	Pass
Crossload2	28.40mV	11.30mV	7.40mV	21.80mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	7.20mV	8.20mV	5.40mV	9.70mV	Pass
20% Load	23.20mV	7.40mV	8.20mV	9.10mV	Pass
30% Load	16.80mV	7.80mV	4.70mV	10.60mV	Pass
40% Load	11.90mV	9.50mV	6.30mV	16.30mV	Pass
50% Load	12.50mV	8.50mV	5.30mV	16.50mV	Pass
60% Load	14.50mV	9.20mV	5.60mV	17.80mV	Pass
70% Load	15.90mV	9.60mV	5.90mV	16.70mV	Pass
80% Load	18.10mV	9.90mV	12.90mV	17.70mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	19.20mV	10.70mV	13.30mV	19.20mV	Pass
100% Load	28.30mV	12.10mV	14.70mV	22.40mV	Pass
110% Load	31.10mV	13.10mV	14.80mV	22.80mV	Pass
Crossload1	27.50mV	13.70mV	17.20mV	9.10mV	Pass
Crossload2	29.00mV	10.50mV	6.70mV	19.40mV	Pass

The results above are not used in the certification process

ASUS TUF-750B-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)

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