ASUS ROG-THOR-1600T-GAMING

M7YENJ0001593Y4

Lab ID AS16001891

Certification ID 251891

Test Result Report ID: 21PS1891A

Certificate Issue Date: Sep 2, 2021

115V

Scheme: ETA-EMI PSU



115V



Scheme: LAMBDA PSU



Aristeidis Bitziopoulos, Certification Body General Manager

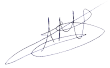
General Information

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-1600T-GAMING
OEM/ODM	Wentai
Serial Number	M7YENJ0001593Y4
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	15-7.5
□□□□ (Hz)	50-60

□□□□ (W)	1600
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	135mm Double Ball Bearing Fan (CF1325H12D)
□□□□□	✓
Cybenetics Testing Information	
Lab ID	AS16001891
Date of receipt	Aug 25, 2021
Testing Date	Aug 31, 2021
Report Issued Date	Sep 2, 2021
□□□□□	The DUT's reliability in the long run is questionable, because the speficic platform is unstable under not optimal operating conditions (e.g. lower than 100V input voltage or too high operating temperatures)
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□□ (Non-accredited measurements)

□□□□□				
□□	□□□□	□□□□□□	Gauge	In Cable Capacitors
ATX □□ 20+4 pin (610mm)	1	1	16-20AWG	□
4+4 pin EPS 12V □□ (660mm)	2	2	16AWG	□
6+2pin PCIe□□ (680mm)	4	4	16-20AWG	□
6+2pin PCIe□□ (690mm+80mm)	4	8	18-20AWG	□
SATA□□ (400mm+120mm+120mm+120mm)	3	12	20AWG	□

□ 4pin Molex□□ (450mm+120mm)	3	6	20AWG	□
RGB Cable (800mm)	1	1	22AWG	□
AC Power Cord (1300mm) - C19 coupler	1	1	14AWG	-

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	20	20	133.3	3	0.3
	□	100		1600	15	3.6
□□□□□ (W)		1600				

Parts Description

General Data	
Manufacturer (OEM)	Wentai
PCB Type	Double Sided
Primary Side	
Transient Filter	6x Y caps, 3x X caps, 2x CM chokes, 1x MOV, 1x CAP200DG (Discharge IC)
Inrush Protection	1x NTC Thermistor SCK-105 (10 Ohm) & Relay
Bridge Rectifier(s) (Standby Mode)	5x GBJ25JL (600V, 25A @ 115°C)
Totem-Pole PFC MODFETs (HEMTs)	2x Transform TP65H050WS GaN FET (650V, 25A @ 100°C, Rds(on): 0.06Ohm)
Totem-Pole PFC Driver	2x On Semiconductor NCP81071 & 1x Champion CM03X (Phantom Power Remover)
Totem-pole PFC MOSFETs	4x Semihow HCA60R040 (600V, 43.5A @ 100°C, Rds(on): 0.04Ohm)
Boost Diode(s)	2x Cree C3D10060A (600V, 10A @ 153°C)
Bulk Cap(s)	5 x TK (400V, 470uF each or 2,350uF compined, 2,000h @ 105°C, LGW)
Main Switchers	4x Alpha & Omega AOTF29S50 (500V, 18A @ 100°C, Rds(on): 0.4Ohm)
IC Driver(s)	2x Silicon Labs Si8230BD
Primary DSC	2x Texas Instruments UCD3138A
Topology	Primary side: Digital Totem-Pole Bridgeless PFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & Analogue Controlled DC-DC converters
Secondary Side	
+12V MOSFETs	unknown number of FETs
5V & 3.3V	DC-DC Converters: 6x Excelliance MOS EMB04N03HR (30V, 45A @ 100°C, Rds(on): 4mOhm) PWM Controller(s): ANPEC APW7159C

Filtering Capacitors	Electrolytic: 14x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 4x Rubycon (4-10,000h @ 105°C, YXF), 2x Rubycon (6 - 10,000h @ 105°C, ZLH) Polymer: United Chemi-Con, NIC
Supervisor IC	Weltrend WT7502R (OVP, UVP, SCP, PG)
Flash Memory	Winbond W25X16
Microcontroller	NXP LPC5506
Fan Model	Champion CF1325H12D (135mm, 12V, 0.6A, Double Ball Bearing Fan)
5VSB Circuit	
Rectifier	2x PS1045L SBR (45V, 10A) & 1x KEC KF5N65D FET (650V, 2.7A @ 100°C, Rds(on): 1.75Ohm)
Standby PWM Controller	On Bright OB5282CP

Test Results

Temperature & Compliance Info

□□□□ (°C /°F)	28-32 / 82.4-89.6
□□ ErP Lot3/6□□	✓
□□ (EU) No 617/2013□□	✓

Performance Summary 115V

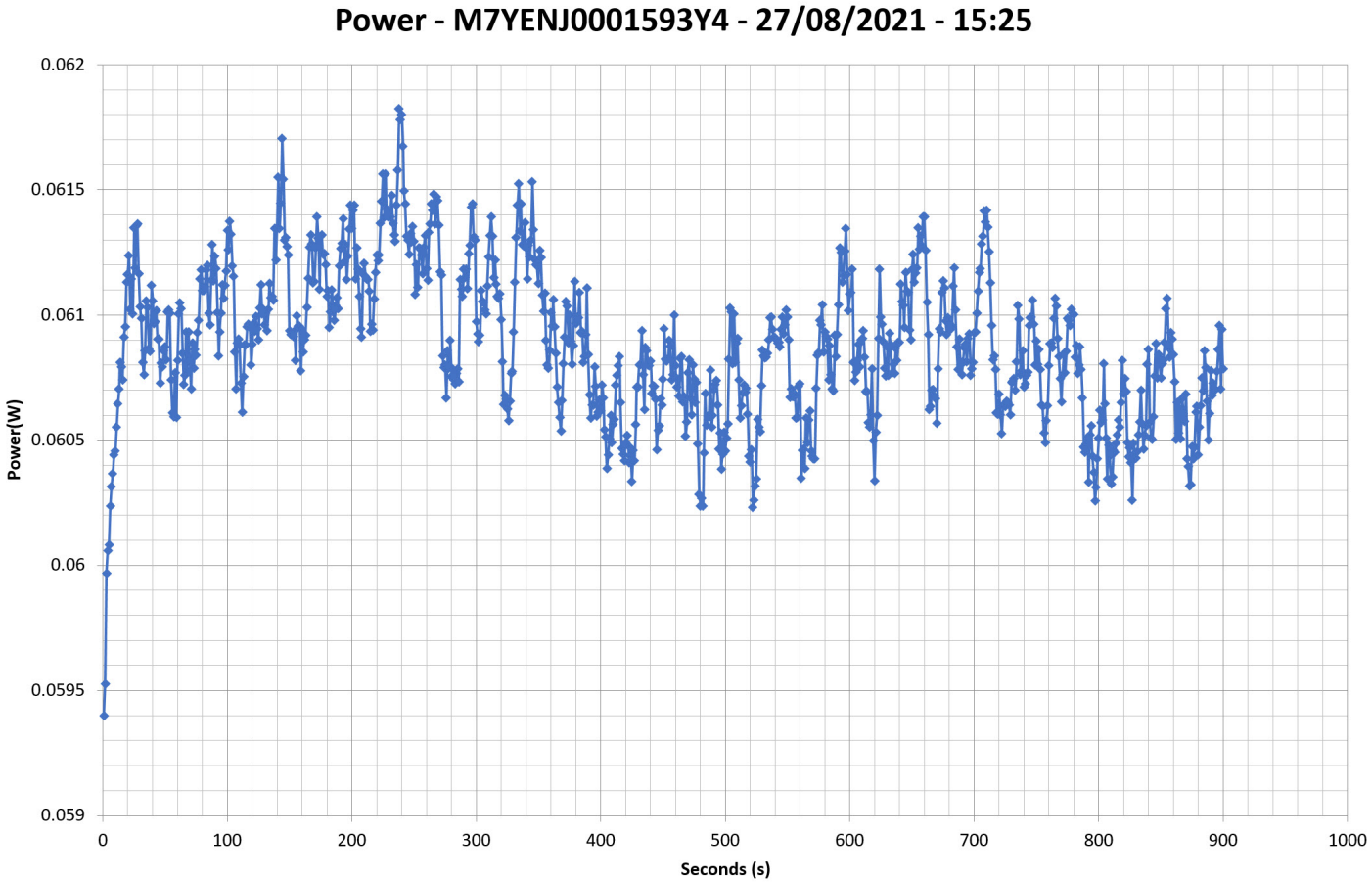
Accredited	
□□□□ (>1450 load combinations)	91.726%
Average Noise Output (>1450 Load Combinations)	13.95dBA
PF□□□ (>1450 Load Combinations)	0.994
Efficiency With 10W (≤500W) or 2% (>500W) Load	73.817%
□□□□□□	0.0608W
Non-Accredited	
12V Ripple (Full Load)	19.20mV
5V Ripple (Full Load)	14.92mV
3.3V Ripple (Full Load)	23.89mV
5VSB Ripple (Full Load)	13.63mV
12V Load Regulation	0.14%
5V Load Regulation	0.53%

3.3V Load Regulation	0.58%
5VSB Load Regulation	1.17%
Inrush Current	26.040A

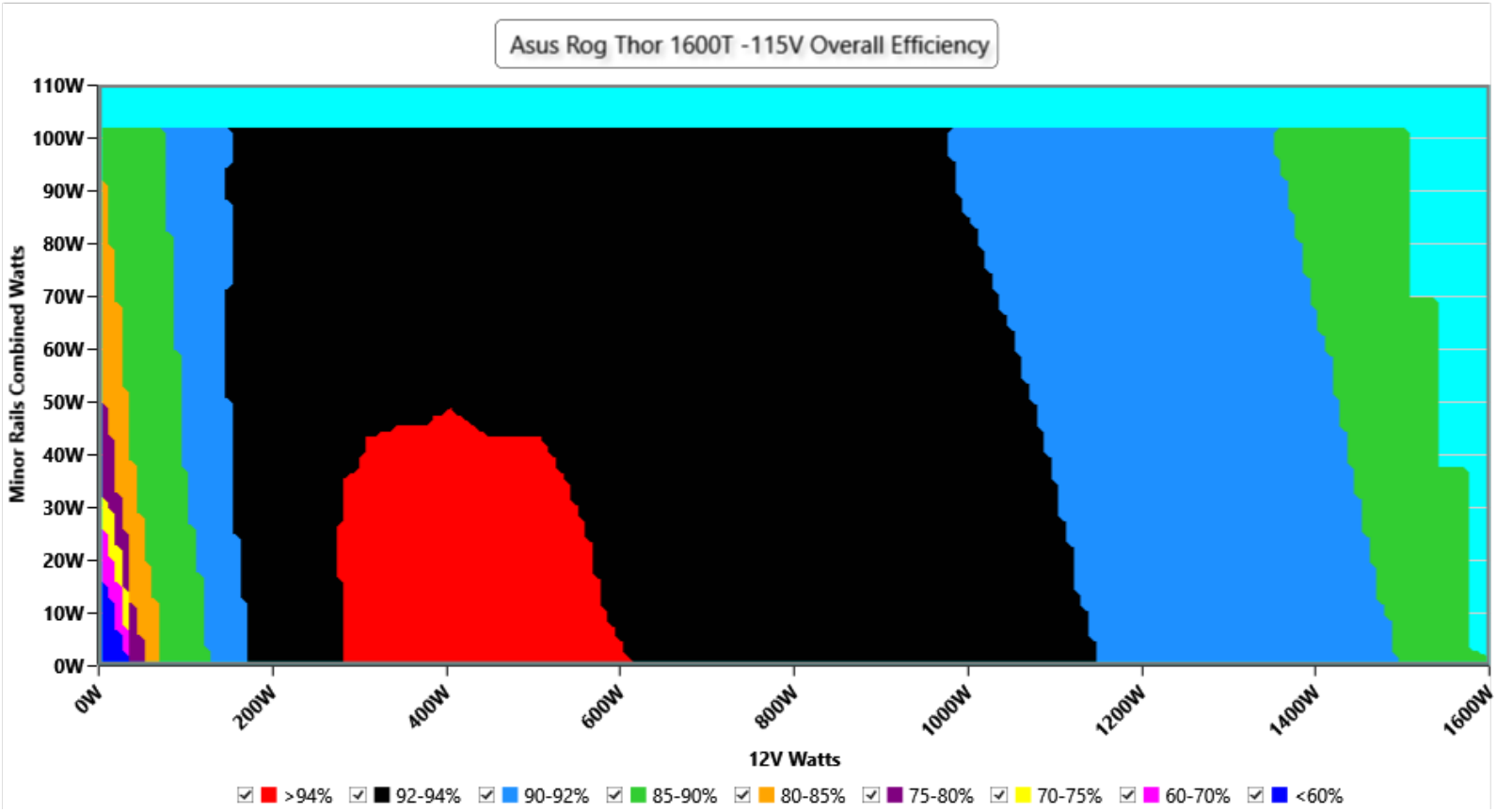
□□□□ & PG□□

Hold-Up Time (ms)	22.3
AC Loss to PWR_OK Hold Up Time (ms)	19.1
PWR_OK Inactive to DC Loss Delay (ms)	3.2

Graphs 115V


Power - M7YENJ0001593Y4 - 27/08/2021 - 15:25
Power(W)
0.062
0.0615
0.061
0.0605
0.06
0.0595
0.059
0
100
200
300
400
500
600
700
800
900
1000
Seconds (s)

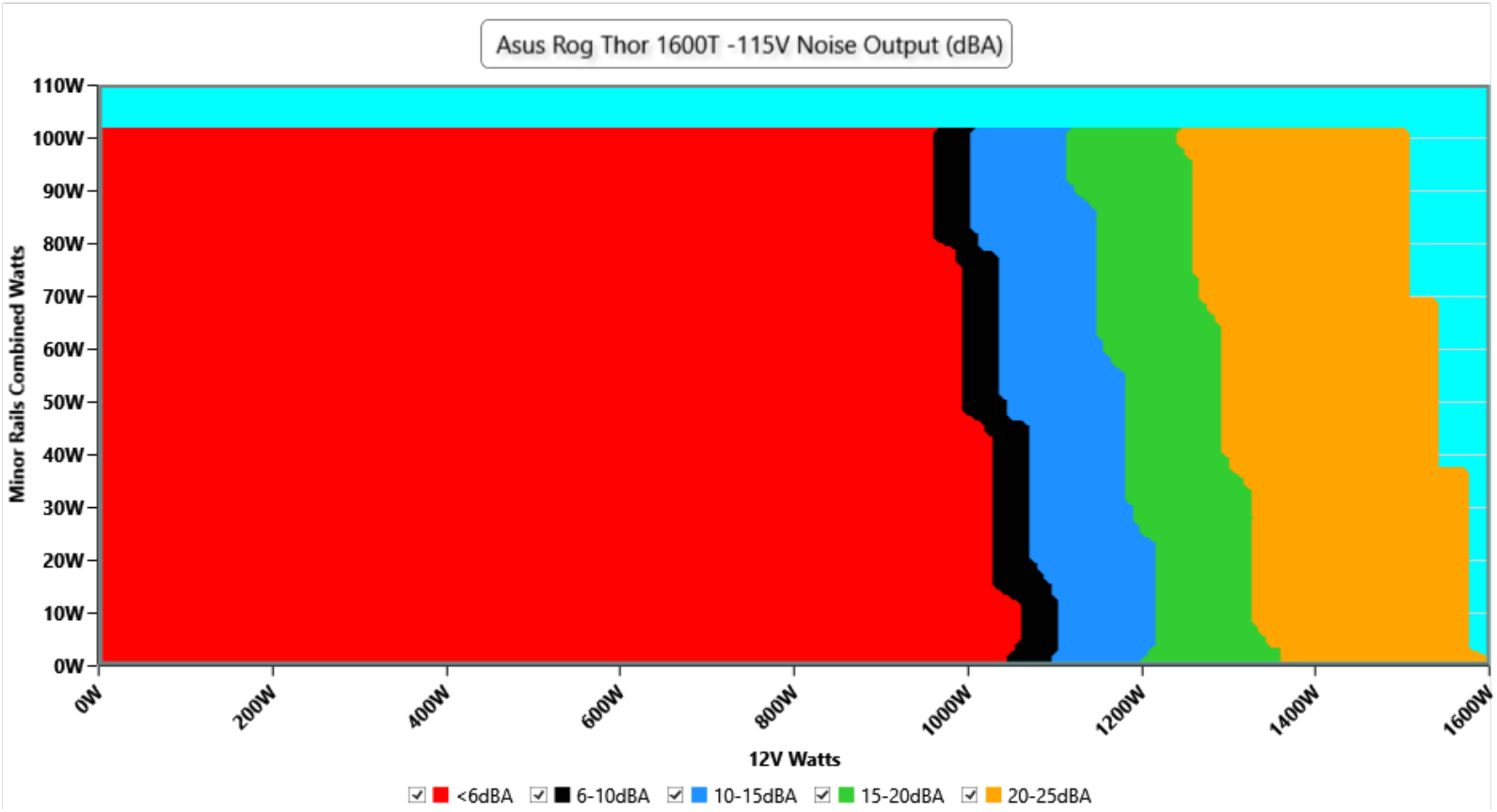
115V



□□

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

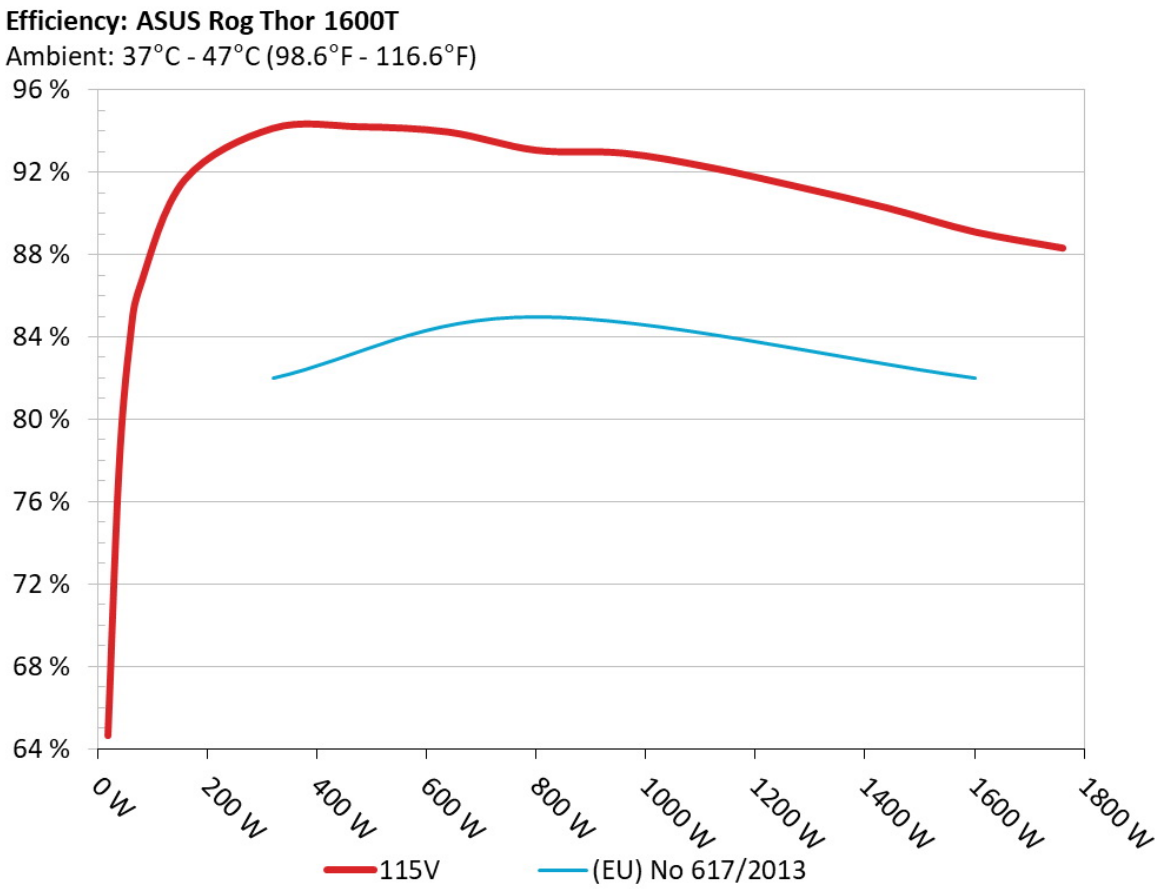
115V



□□

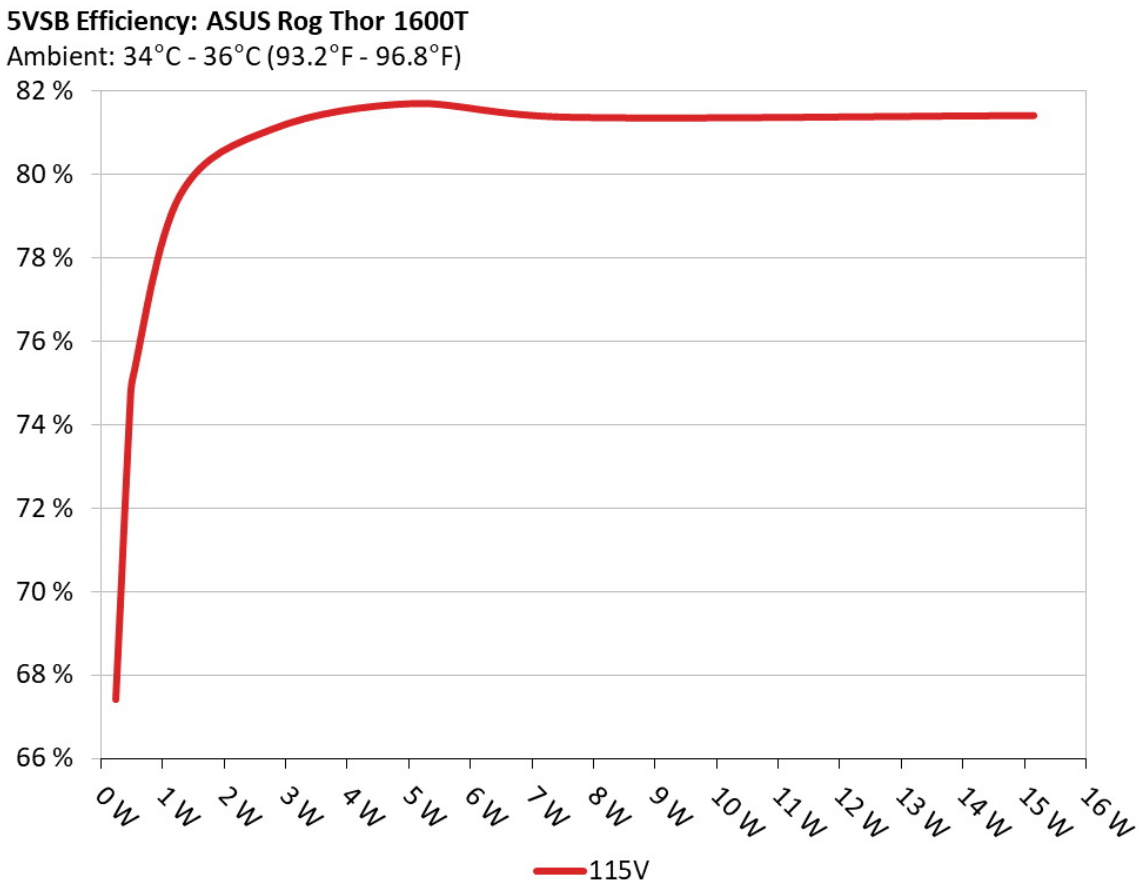
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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	0.23W	67.406%	0.02
	5.101V	0.341W		115.19V

2	0.09A	0.459W	74.38%	0.037
	5.099V	0.617W		115.19V
3	0.55A	2.8W	81.096%	0.185
	5.09V	3.453W		115.19V
4	1A	5.084W	81.697%	0.29
	5.082V	6.223W		115.19V
5	1.5A	7.613W	81.365%	0.368
	5.074V	9.357W		115.19V
6	3.001A	15.147W	81.406%	0.476
	5.048V	18.606W		115.19V

Supplementary Tests (For Reference)

10-110%□□□□ 115V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
10%	11.402A	1.953A	1.996A	0.979A	160.038	91.636%	0	<6.0	46.15°C	0.992
	12.141V	5.122V	3.307V	5.109V	174.649				40.92°C	115.18V
20%	23.795A	2.931A	2.996A	1.176A	320.019	94.125%	0	<6.0	47.27°C	0.995
	12.150V	5.119V	3.305V	5.105V	339.993				41.35°C	115.17V
30%	36.526A	3.421A	3.497A	1.373A	479.52	94.208%	0	<6.0	47.89°C	0.996
	12.141V	5.117V	3.303V	5.1V	509.005				41.56°C	115.17V
40%	49.276A	3.912A	3.998A	1.57A	639.94	93.955%	0	<6.0	48.69°C	0.996
	12.150V	5.114V	3.302V	5.096V	681.114				41.94°C	115.19V
50%	61.617A	4.892A	5.001A	1.768A	799.656	93.073%	0	<6.0	50.23°C	0.997
	12.158V	5.112V	3.3V	5.092V	859.171				42.8°C	115.2V
60%	74.109A	5.874A	6.005A	1.967A	960.153	92.925%	407	<6.0	43.19°C	0.998
	12.149V	5.108V	3.298V	5.086V	1033.257				51.17°C	115.19V
70%	86.530A	6.859A	7.011A	2.165A	1119.947	92.217%	541	10.1	43.36°C	0.998
	12.144V	5.105V	3.295V	5.081V	1214.472				51.82°C	115.19V
80%	98.874A	7.843A	8.018A	2.265A	1280.073	91.275%	671	17.1	44.42°C	0.997
	12.158V	5.102V	3.293V	5.078V	1402.431				53.22°C	115.19V

90%	111.668A	8.338A	8.508A	2.365A	1439.903	90.267%	747	20.1	45.29°C	0.997
	12.155V	5.099V	3.291V	5.075V	1595.168				54.6°C	115.18V
100%	124.269A	8.833A	9.029A	2.964A	1599.92	89.1%	747	20.1	45.78°C	0.996
	12.152V	5.096V	3.29V	5.063V	1795.647				55.9°C	115.17V
110%	137.017A	9.818A	10.128A	2.964A	1760.247	88.317%	748	20.1	46.92°C	0.995
	12.129V	5.094V	3.288V	5.062V	1993.12				57.84°C	115.16V
CL1	0.115A	11.73A	12.039A	0A	101.314	85.306%	0	<6.0	49.7°C	0.983
	12.171V	5.133V	3.298V	5.145V	118.767				42.69°C	115.19V
CL2	0.115A	19.441A	0A	0A	101.4	84.472%	0	<6.0	51.67°C	0.983
	12.167V	5.144V	3.302V	5.172V	120.039				43.41°C	115.19V
CL3	0.115A	0A	20.02A	0A	67.398	78.152%	0	<6.0	53.83°C	0.968
	12.167V	5.122V	3.297V	5.115V	86.243				44.62°C	115.19V
CL4	131.813A	0A	0A	0A	1600.241	89.687%	743	20.0	45.19°C	0.996
	12.140V	5.093V	3.3V	5.1V	1784.261				55.24°C	115.17V

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 □□
20W	1.222A	0.488A	0.499A	0.195A	20.008	64.633%	0	<6.0	40.09°C	0.819
	12.156V	5.123V	3.309V	5.122V	30.958				36.86°C	115.19V
40W	2.690A	0.683A	0.698A	0.293A	40.006	77.547%	0	<6.0	41.02°C	0.92
	12.155V	5.123V	3.309V	5.12V	51.588				37.14°C	115.18V
60W	4.158A	0.879A	0.898A	0.391A	60.005	83.836%	0	<6.0	43.34°C	0.958
	12.153V	5.123V	3.308V	5.118V	71.576				38.94°C	115.18V
80W	5.624A	1.074A	1.097A	0.489A	79.971	86.586%	0	<6.0	44.78°C	0.97
	12.150V	5.122V	3.308V	5.117V	92.358				39.93°C	115.18V

The results above are not used in the certification process

□□□ 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.11mV	6.90mV	7.88mV	7.34mV	Pass
20% Load	12.72mV	7.41mV	8.29mV	8.06mV	Pass
30% Load	16.09mV	12.99mV	24.67mV	12.19mV	Pass
40% Load	16.04mV	8.18mV	8.91mV	8.16mV	Pass
50% Load	18.29mV	19.48mV	34.24mV	18.35mV	Pass
60% Load	15.88mV	8.69mV	9.42mV	8.51mV	Pass
70% Load	16.65mV	12.12mV	16.17mV	11.22mV	Pass
80% Load	16.14mV	12.99mV	21.90mV	12.39mV	Pass
90% Load	16.24mV	13.75mV	23.44mV	12.34mV	Pass
100% Load	19.20mV	14.92mV	23.89mV	13.63mV	Pass
110% Load	23.47mV	14.57mV	24.19mV	13.50mV	Pass
Crossload1	11.72mV	7.67mV	15.40mV	8.21mV	Pass
Crossload2	10.78mV	7.00mV	6.81mV	7.65mV	Pass
Crossload3	15.02mV	7.42mV	17.45mV	8.26mV	Pass
Crossload4	20.19mV	15.64mV	23.92mV	15.82mV	Pass

The results above are not used in the certification process





ASUS ROG-THOR-1600T-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
在任何情况下都应提供原始测试结果文档的网站链接

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