Thermaltake Toughpower Grand RGB 1200W Platinum

PSTG1200F1FAPU1AL000009

Lab ID 199

Certification ID 25199

Test Result Report ID:

Certificate Issue Date: Oct 18, 2018

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	Thermaltake
Model	Toughpower Grand RGB 1200W Platinum
OEM/ODM	Channel Well Technology
Serial Number	PSTG1200F1FAPU1AL000009
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	14
□□□□ (Hz)	50-60

□□□□ (W)	1200
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	140mm HDB RGB Fan (TT-1425/A1425H12S)
□□□□□	✓ (selectable)
Cybenetics Testing Information	
Lab ID	199
Date of receipt	Oct 9, 2018
Testing Date	Oct 15, 2018
Report Issued Date	Oct 18, 2018
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

□□□□			
□□	□□□□	□□□□□	Gauge
ATX □□ 20+4 pin (600mm)	1	1	16AWG
4+4 pin EPS 12V □□ (650mm)	1	1	16AWG
8 pin EPS 12V □□ (650mm)	1	1	16AWG
6+2pin PCIe□□ (500mm+150mm)	4	8	16-18AWG
SATA□□ (500mm+150mm+150mm+150mm)	3	12	18AWG
□ 4pin Molex□□ (500mm+150mm+150mm+150mm)	2	8	18AWG
□ 4pin □□ (+100mm)	1	1	22AWG

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	25	25	100	3	0.3
	□	130		1200	15	3.6
□□□□□ (W)		1200				

Parts Description

General Data	
Manufacturer (OEM)	CWT
Primary Side	
Transient Filter	6x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x CM02X
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x Vishay LVB2560 (600V, 25A @ 105°C)
APFC MOSFETS	2x Toshiba TK25A60X (600V, 25A @ 150°C, 0.105Ohm)
APFC Boost Diode	2x CREE C3D10060A (600V, 10A @ 153°C)
Hold-up Cap(s)	2x Nichicon (400V, 680uF, 2000h @ 105°C, GG)
Main Switchers	4x A26N60EFL
Driver ICs	2x Silicon Labs Si8230BD
APFC MCU	Texas Instruments UCD3138A (31.25 MHz, 32-bit ARM7TDMI-S Processor, 32KB Flash, 4KB RAM, 3x Feedback loop control, 14-bit DAC, up to 2 MHz switching frequency)
LLC Resonant MCU	Texas Instruments UCD3138A (31.25 MHz, 32-bit ARM7TDMI-S Processor, 32KB Flash, 4KB RAM, 3x Feedback loop control, 14-bit DAC, up to 2 MHz switching frequency)
Topology	Primary side: Interleaved PFC, Full-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	8x Infineon BSC014N06NS (60V, 100A @ 100°C, 1.45mOhm)
5V & 3.3V	DC-DC Converters: 5x FETS PWM Controller: 1x
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (1-5,000 @ 105°C, KZE), Nippon Chemi-Con (4-10,000 @ 105°C, KY) Polymers: CapXon, Su' scon, APAQ
Supervisor IC	Weltrend WT751002 (OVP, UVP, PG) & LM358
Fan Model	Thermaltake TT-1425 (Hong Sheng OEM, A1425H12S, 140mm, 12V, 0.39A, Hydro Dynamic Bearing, RGB LED Lighting)

5VSB Circuit	
Rectifiers	ISD04N65A (650V, 4A, 2.5Ohm), SPN5003 (N-Channel Enhancement Mode FET) & PS1045L SBR
Driver IC	Texas Instruments UCC27324
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

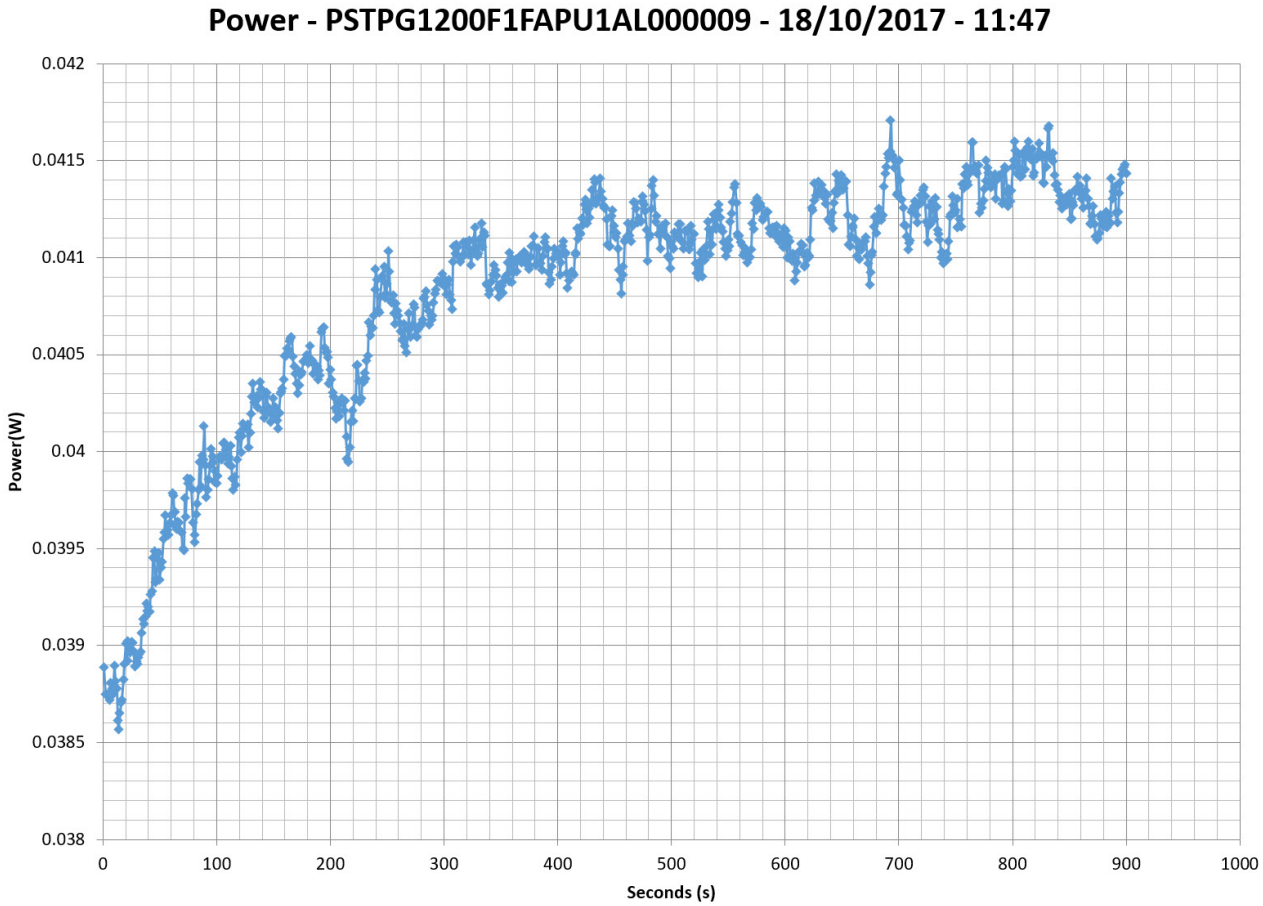
Accredited	
□□□□ (>1450 load combinations)	89.944%
Average Noise Output (>1450 Load Combinations)	32.74dBA
PF□□□ (>1450 Load Combinations)	0.993
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
□□□□□□	0.0414W
Non-Accredited	
12V Ripple (Full Load)	20.38mV
5V Ripple (Full Load)	13.24mV
3.3V Ripple (Full Load)	11.51mV
5VSB Ripple (Full Load)	10.31mV
12V Load Regulation	0.46%
5V Load Regulation	0.41%
3.3V Load Regulation	0.75%
5VSB Load Regulation	1.27%
Inrush Current	33.791A

□□□□ & PG□□

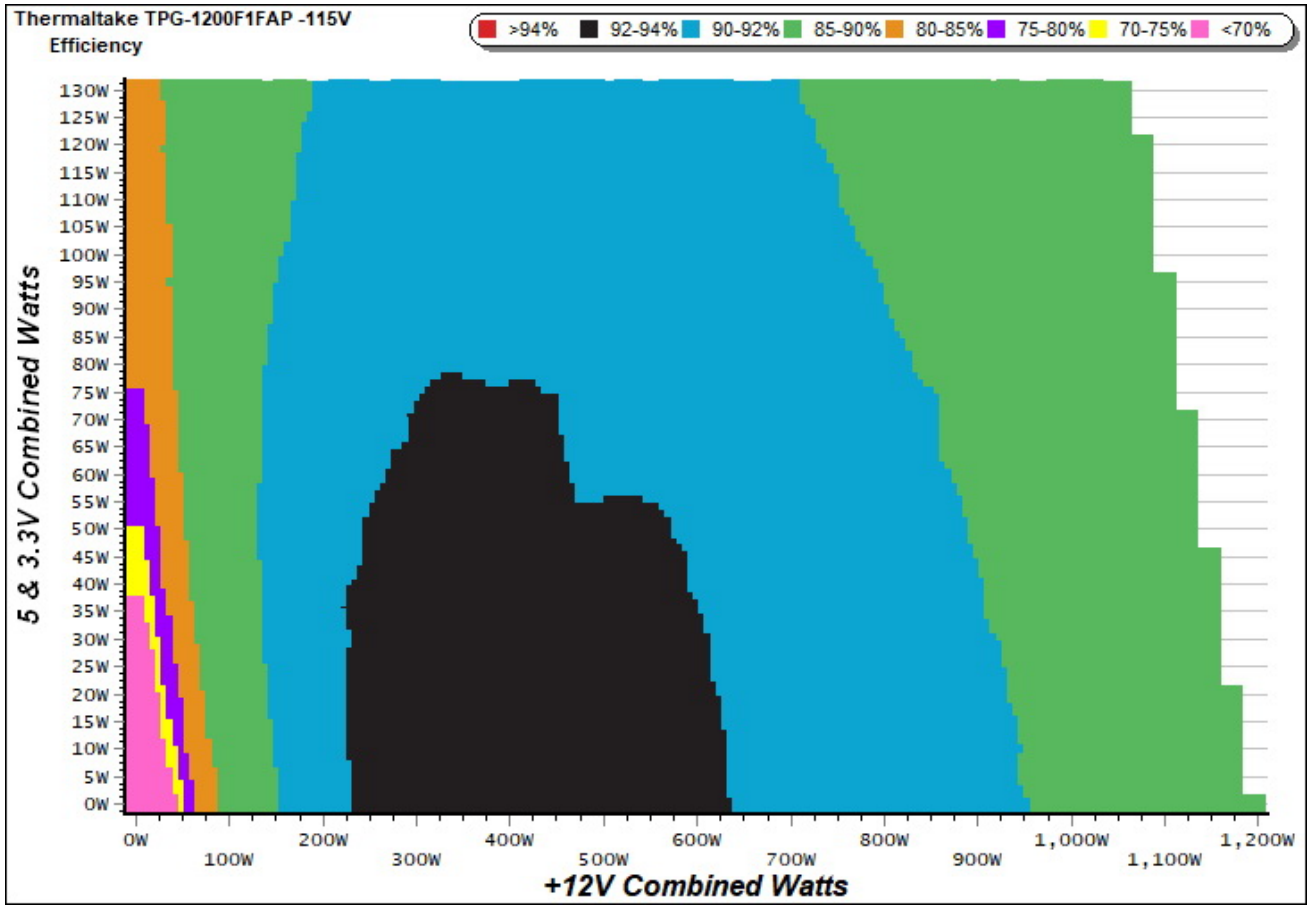
Hold-Up Time (ms)	19.1
AC Loss to PWR_OK Hold Up Time (ms)	20.9
PWR_OK Inactive to DC Loss Delay (ms)	-1.8

□□□□

Graphs 115V



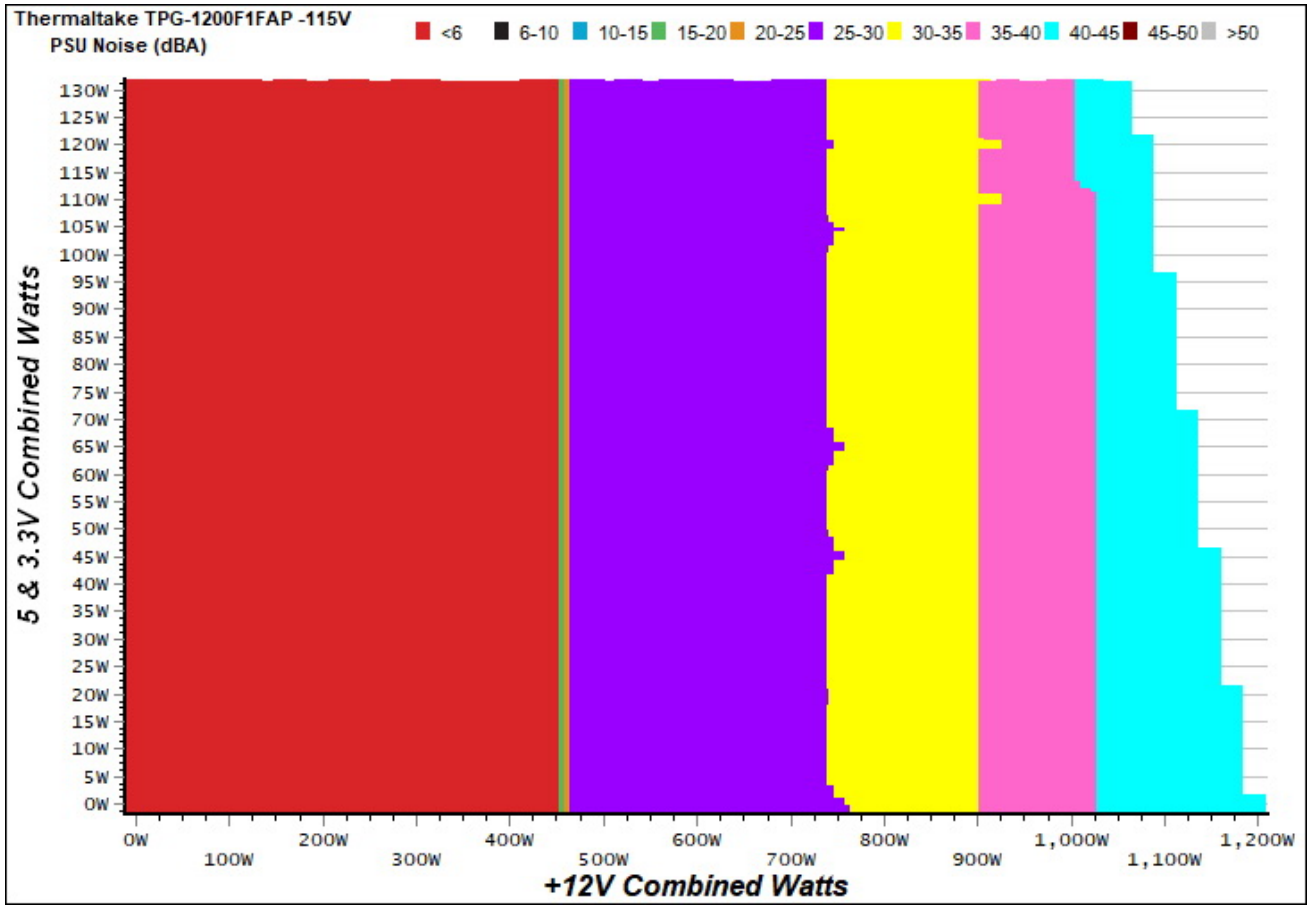
115V



□□

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.

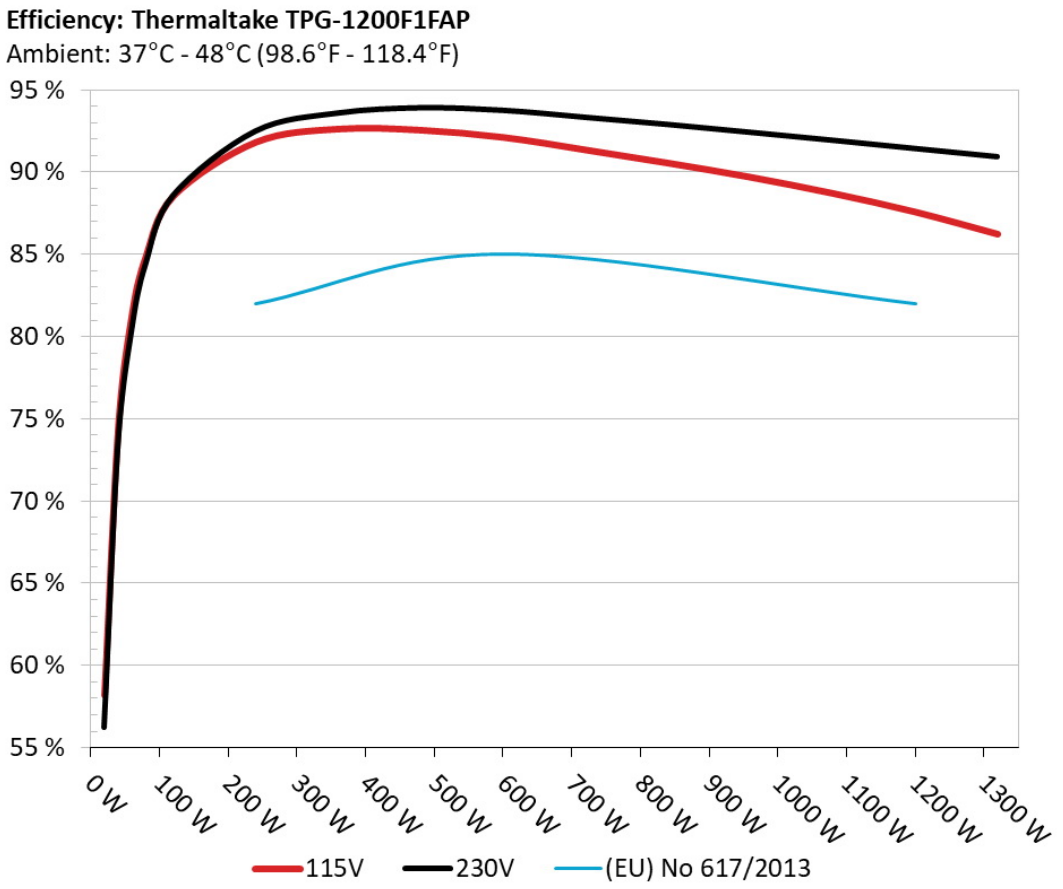
115V



□□

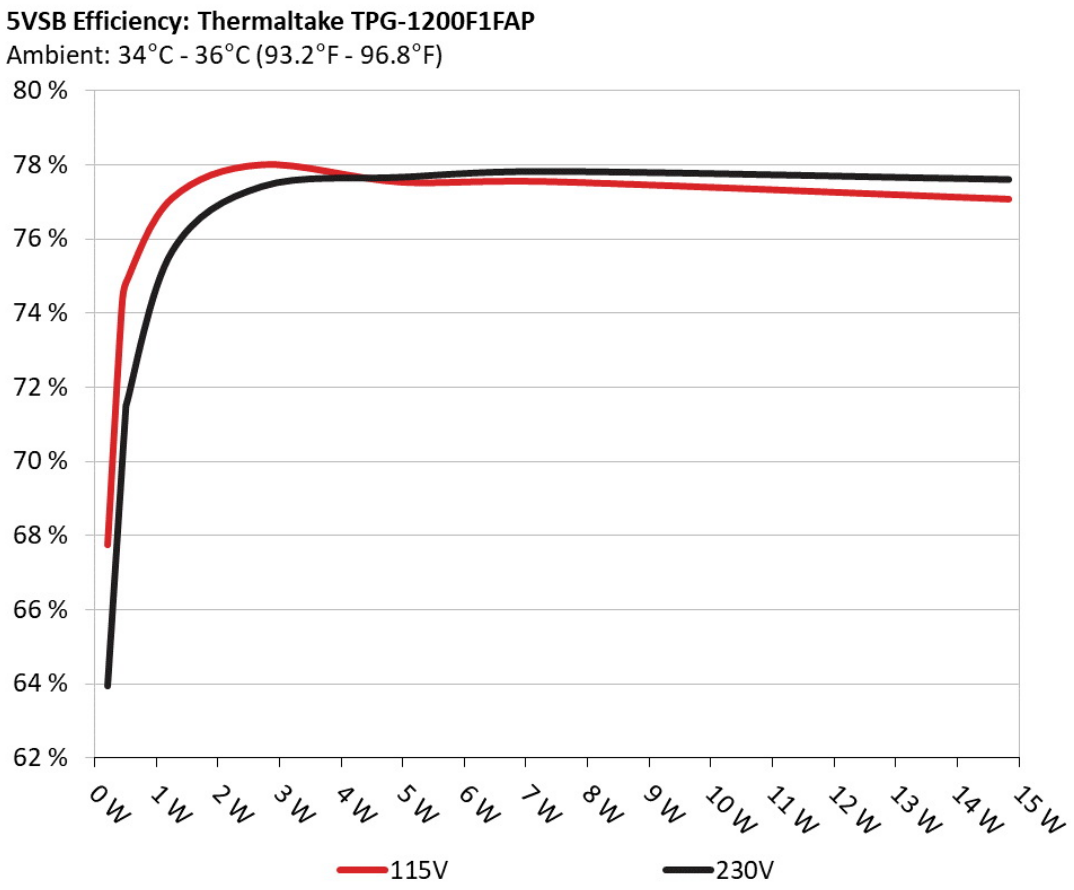
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

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	0.042A	0.210	67.742%	0.031
	5.003V	0.310		115.09V

2	0.088A	0.438	74.112%	0.059
	5.001V	0.591		115.10V
3	0.543A	2.708	77.995%	0.269
	4.991V	3.472		115.09V
4	1.002A	4.994	77.523%	0.374
	4.982V	6.442		115.09V
5	1.502A	7.469	77.536%	0.430
	4.973V	9.633		115.09V
6	3.002A	14.837	77.067%	0.497
	4.943V	19.252		115.09V

Supplementary Tests (For Reference)

10-110%□□□□ 115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	8.167A	1.975A	1.990A	0.991A	119.832	88.535%	0	<6.0	46.70°C	0.983
	12.028V	5.064V	3.315V	5.047V	135.350				38.25°C	115.13V
2	17.360A	2.960A	2.985A	1.188A	239.635	91.810%	0	<6.0	47.44°C	0.994
	12.026V	5.062V	3.313V	5.042V	261.013				38.47°C	115.12V
3	26.924A	3.459A	3.500A	1.386A	359.803	92.617%	0	<6.0	48.80°C	0.996
	12.024V	5.060V	3.310V	5.036V	388.483				38.89°C	115.12V
4	36.477A	3.954A	3.987A	1.588A	479.669	92.547%	0	<6.0	49.86°C	0.995
	12.021V	5.058V	3.308V	5.032V	518.300				39.31°C	115.12V
5	45.702A	4.949A	4.990A	1.790A	599.565	92.111%	1015	27.7	40.00°C	0.996
	12.014V	5.055V	3.304V	5.026V	650.915				50.91°C	115.12V
6	54.962A	5.936A	5.998A	1.990A	719.495	91.347%	1033	28.3	41.10°C	0.998
	12.003V	5.053V	3.301V	5.021V	787.652				53.74°C	115.13V
7	64.237A	6.935A	6.999A	2.191A	839.369	90.547%	1158	31.3	42.68°C	0.998
	11.991V	5.050V	3.299V	5.017V	926.996				56.43°C	115.13V
8	73.511A	7.924A	8.008A	2.393A	959.273	89.689%	1288	34.0	44.20°C	0.998
	11.983V	5.049V	3.296V	5.010V	1069.552				59.01°C	115.13V

9	83.210A	8.431A	8.529A	2.395A	1079.333	88.701%	1442	37.3	45.26°C	0.997
	11.978V	5.047V	3.294V	5.009V	1216.819				60.94°C	115.12V
10	92.670A	8.929A	9.022A	3.001A	1199.248	87.573%	1572	41.4	45.97°C	0.993
	11.973V	5.043V	3.291V	4.995V	1369.434				61.92°C	115.10V
11	102.733A	8.933A	9.032A	3.003A	1319.228	86.225%	1820	43.3	47.93°C	0.987
	11.968V	5.040V	3.289V	4.992V	1529.987				65.70°C	115.07V
CL1	0.100A	16.027A	16.002A	0.005A	135.516	82.663%	0	<6.0	49.88°C	0.983
	12.030V	5.065V	3.319V	5.088V	163.937				44.24°C	115.13V
CL2	99.939A	1.002A	1.000A	1.002A	1210.762	87.547%	1820	43.3	48.42°C	0.991
	11.981V	5.047V	3.296V	5.029V	1382.982				64.65°C	115.10V

The results above are not used in the certification process

20-80□□□□□ 115V

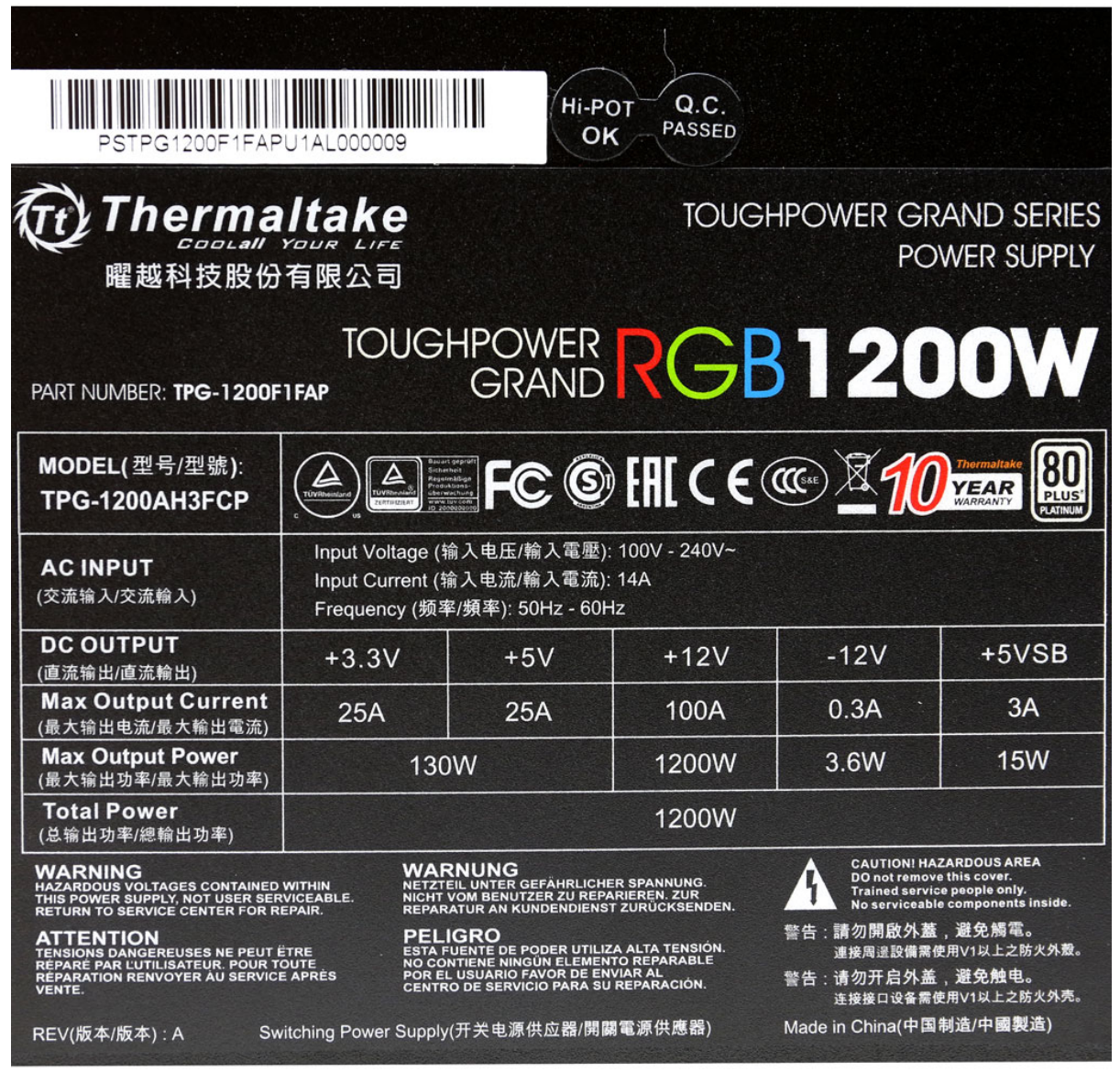
□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.213A	0.493A	0.480A	0.196A	19.665	58.180%	0	<6.0	0.846
	12.024V	5.064V	3.316V	5.059V	33.800				115.12V
2	2.454A	0.980A	0.994A	0.396A	39.774	74.531%	0	<6.0	0.931
	12.026V	5.064V	3.316V	5.057V	53.366				115.13V
3	3.695A	1.477A	1.504A	0.591A	59.893	81.363%	0	<6.0	0.950
	12.027V	5.064V	3.316V	5.054V	73.612				115.13V
4	4.924A	1.975A	1.990A	0.791A	79.822	84.846%	0	<6.0	0.965
	12.028V	5.064V	3.316V	5.052V	94.079				115.13V

The results above are not used in the certification process

□□□□ 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.3 mV	4.3 mV	3.6 mV	3.9 mV	Pass
20% Load	14.3 mV	4.8 mV	4.0 mV	4.5 mV	Pass
30% Load	16.4 mV	5.2 mV	4.6 mV	5.2 mV	Pass
40% Load	15.8 mV	10.3 mV	7.9 mV	10.1 mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	19.4 mV	8.0 mV	9.2 mV	7.6 mV	Pass
60% Load	17.0 mV	6.5 mV	6.5 mV	5.9 mV	Pass
70% Load	16.8 mV	9.5 mV	7.4 mV	8.6 mV	Pass
80% Load	18.9 mV	10.8 mV	9.3 mV	10.4 mV	Pass
90% Load	18.5 mV	9.4 mV	9.0 mV	9.0 mV	Pass
100% Load	20.4 mV	13.2 mV	11.5 mV	10.3 mV	Pass
110% Load	23.0 mV	25.1 mV	22.2 mV	23.2 mV	Pass
Crossload 1	10.4 mV	5.3 mV	4.9 mV	3.1 mV	Pass
Crossload 2	22.5 mV	13.1 mV	11.5 mV	10.2 mV	Pass

The results above are not used in the certification process

Thermaltake Toughpower Grand RGB 1200W Platinum

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