

Lab ID#: 198
Receipt Date: Oct 2, 2018
Test Date: Oct 13, 2018

Report:

Report Date: Oct 17, 2018

DUT INFORMATION

Brand	Thermaltake
Manufacturer (OEM)	Channel Well Technology
Series	Tough Power iRGB Plus
Model Number	PI-1200F2FDP
Serial Number	PSTPI1200F2FDPU1AL000004
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	14
Rated Frequency (Hz)	50-60
Rated Power (W)	1200
Type	ATX12V
Cooling	140mm HDB RGB Fan (TT-1425/A1425S12S)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	25	100	3	0.3
	Watts	130		1200	15	3.6
Total Max. Power (W)		1200				

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (600mm)	1	1	16AWG
4+4 pin EPS12V (650mm)	1	1	16AWG
8 pin EPS12V (650mm)	1	1	16AWG
6+2 pin PCIe (500mm+150mm)	4	8	16-18AWG
SATA (500mm+150mm+150mm+150mm)	3	12	18AWG
4 pin Molex (500mm+150mm+150mm+150mm)	2	8	18AWG
FDD Adapter (+100mm)	1	1	22AWG
USB Cable (+600mm)	1	1	24-28AWG

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PAGE 1/14

General Data	
Manufacturer (OEM)	CWT
Platform Model	-
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 A25N60EFL
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)
USB Interface MCU	Microchip PIC32MX230F064D (40 MHz, 64KB Flash, 13x analog channels, 10-bit ADC)
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 & Suscon
Supervisor IC	Weltrend WT751002 (OVP, UVP, PG) & LM358
Fan Model	Thermaltake TT-1425 (Hong Sheng OEM, A1425S12S-2, 140mm, 12V, 0.70A, 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

RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	89.708%
Efficiency With 10W (≤500W) or 2% (>500W)	0.000
Average Efficiency 5VSB	77.622%
Standby Power Consumption (W)	0.0404172
Average PF	0.993
Avg Noise Output	32.10 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	S++

230V

Average Efficiency	91.721%
Average Efficiency 5VSB	77.306%
Standby Power Consumption (W)	0.0587567
Average PF	0.936
Avg Noise Output	31.47 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	S++

TEST EQUIPMENT

Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, Chroma 61604	
Power Analyzers	N4L PPA1530, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2	

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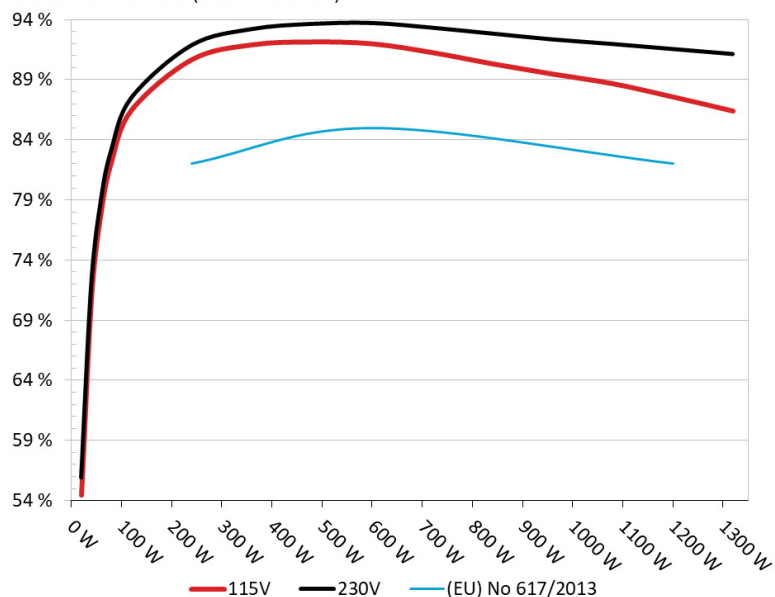
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PAGE 3/14

EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Thermaltake TPI-1200F2FDP

Ambient: 37°C - 49°C (98.6°F - 120.2°F)



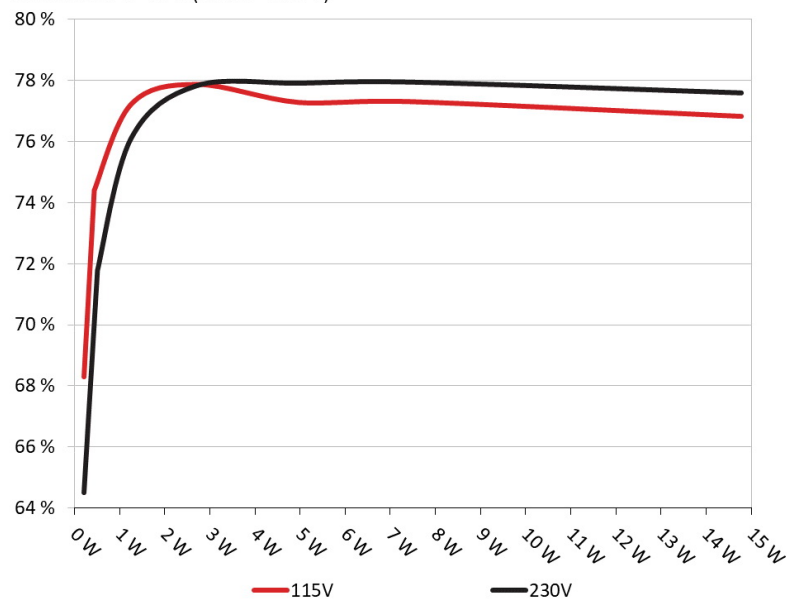
INFO

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

5VSB Efficiency: Thermaltake TPI-1200F2FDP

Ambient: 34°C - 36°C (93.2°F - 96.8°F)



INFO

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

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.209	68.301%	0.031
	4.984V	0.306		115.05V
2	0.087A	0.436	74.403%	0.057
	4.983V	0.586		115.05V
3	0.542A	2.697	77.880%	0.270
	4.972V	3.463		115.05V
4	1.002A	4.975	77.288%	0.382
	4.963V	6.437		115.06V
5	1.502A	7.440	77.315%	0.442
	4.954V	9.623		115.06V
6	3.002A	14.779	76.834%	0.506
	4.923V	19.235		115.06V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.209	64.506%	0.010
	4.985V	0.324		230.24V
2	0.087A	0.435	71.782%	0.018
	4.984V	0.606		230.24V
3	0.543A	2.698	77.819%	0.099
	4.973V	3.467		230.23V
4	1.002A	4.975	77.905%	0.169
	4.964V	6.386		230.24V
5	1.502A	7.441	77.941%	0.230
	4.954V	9.547		230.24V
6	3.002A	14.778	77.587%	0.342
	4.923V	19.047		230.24V

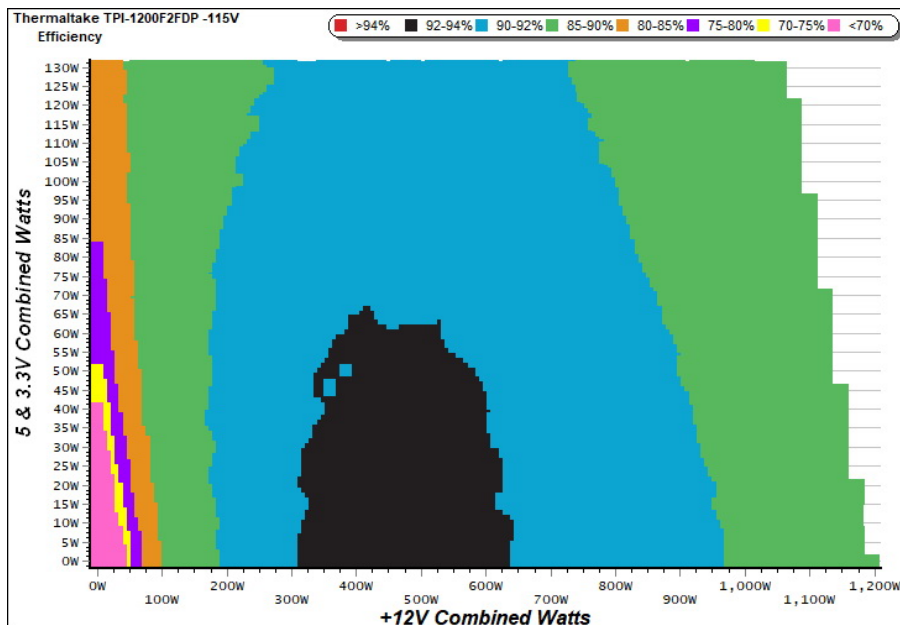
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PAGE 5/14

115V

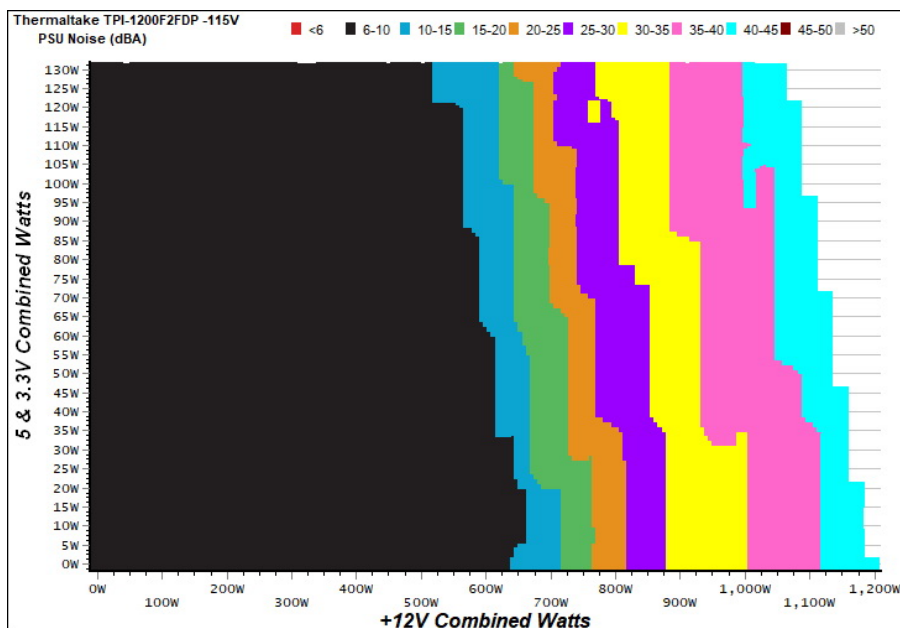
EFFICIENCY GRAPH 115V



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

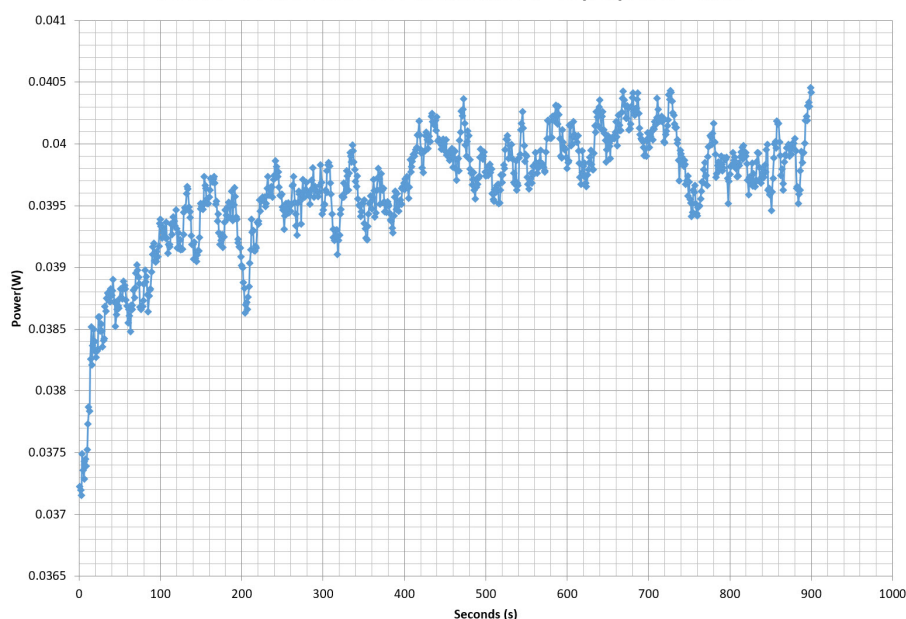
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - PSTPI1200F2FDPU1AL000004 - 17/10/2017 - 09:52



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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PAGE 8/14

COMMISSION REGULATION (EU) NO 617/2013 TESTING 115V

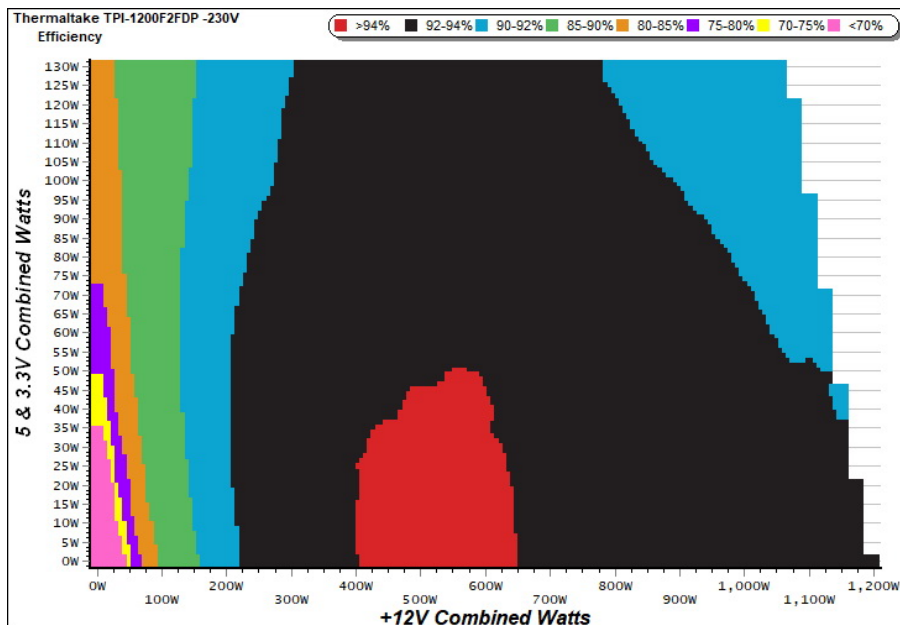
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PAGE 9/14

230V

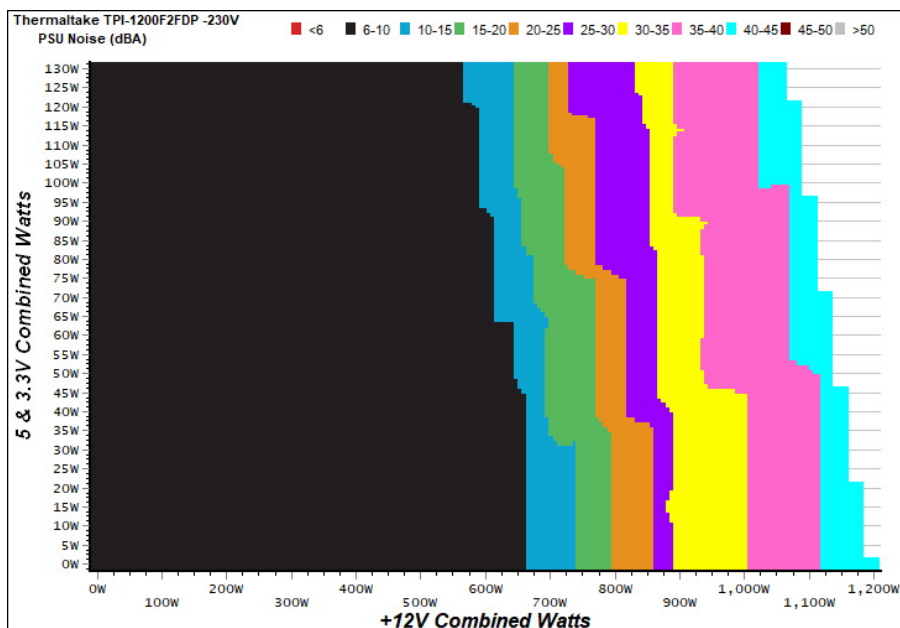
EFFICIENCY GRAPH 230V



INFO

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NOISE GRAPH 230V



INFO

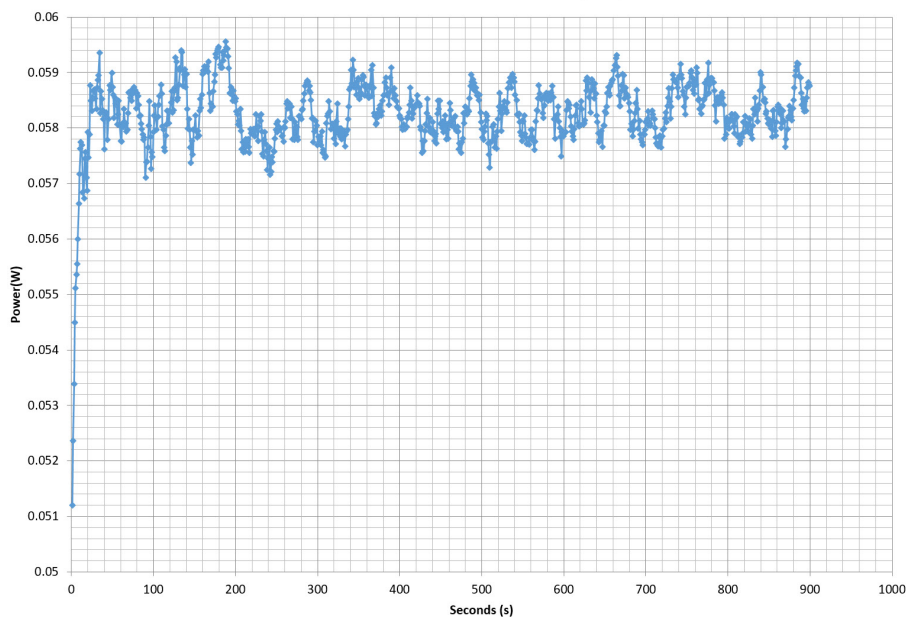
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 230V

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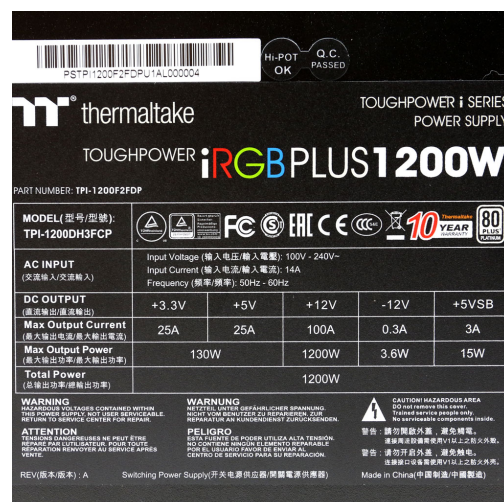
PAGE 13/14

EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH
CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

Thermaltake Tough Power iRGB Plus 1200W Platinum

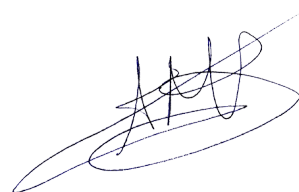


Top side



Power specifications label

CERTIFICATIONS 115V

Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V



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