Thermaltake Smart RGB 700W

PSSPR0700NHFAWU1XK000244

Lab ID TT70001692

Certification ID 251692

Test Result Report ID: 20PS1692A

Certificate Issue Date: Jul 27, 2020

Scheme: ETA-EMI PSU

115V



230V



Scheme: LAMBDA PSU

115V



230V





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	Smart RGB 700W
OEM/ODM	
Serial Number	PSSPR0700NHFAWU1XK000244
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	12
□□□□ (Hz)	50-60

□□□□ (W)	700
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Sleeve Bearing Fan [TT-1225(XW12025MS)]
□□□□□	✗
Cybenetics Testing Information	
Lab ID	TT70001692
Date of receipt	Jul 17, 2020
Testing Date	Jul 23, 2020
Report Issued Date	Jul 27, 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 (520mm)	1	1	18-22AWG	□
4+4 pin EPS 12V □□ (620mm)	1	1	18AWG	□
6+2pin PCIe□□ (520mm+150mm)	1	2	18-20AWG	□
SATA□□ (520mm+150mm+150mm) / 4-pin Molex (+150mm)	2	6 / 2	20AWG	□
4-pin Molex (520mm+150mm+150mm) / FDD(+150mm)	1	3 / 1	20-22AWG	□
□□□□□				
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	24	17	54	2.5	0.5
	□	120		648	12.5	6
□□□□□ (W)		700				

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)	82.838%
Average Noise Output (>1450 Load Combinations)	43.97dBA
PF□□□ (>1450 Load Combinations)	0.991
Efficiency With 10W (≤500W) or 2% (>500W) Load	62.116%
□□□□□□	0.0609W
Non-Accredited	
12V Ripple (Full Load)	52.51mV
5V Ripple (Full Load)	42.64mV
3.3V Ripple (Full Load)	37.19mV
5VSB Ripple (Full Load)	38.65mV
12V Load Regulation	2.96%
5V Load Regulation	2.57%
3.3V Load Regulation	4.21%

5VSB Load Regulation	4.46%
Inrush Current	55.620A

230V

Accredited		
□□□□ (>1450 load combinations)		85.490%
Average Noise Output (>1450 Load Combinations)		43.32dBA
PF□□□ (>1450 Load Combinations)		0.963
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.1422W
Non-Accredited		
12V Ripple (Full Load)		43.43mV
5V Ripple (Full Load)		38.58mV
3.3V Ripple (Full Load)		33.95mV
5VSB Ripple (Full Load)		42.83mV
12V Load Regulation		2.97%
5V Load Regulation		2.66%
3.3V Load Regulation		4.04%
5VSB Load Regulation		4.40%
Inrush Current		84.470A
□□□□ & PG□□		12.00ms
AC Loss to PWR_OK Hold Up Time		12.20ms
PWR_OK Inactive to DC Loss Delay		-0.20ms
PSU Timings: T1 (20% / 100%)	44.0ms	44.0ms
PSU Timings: T3 (20% / 100%)	272.0ms	272.0ms
OPP (0.00°C / 0.00°C)	115.17%	-

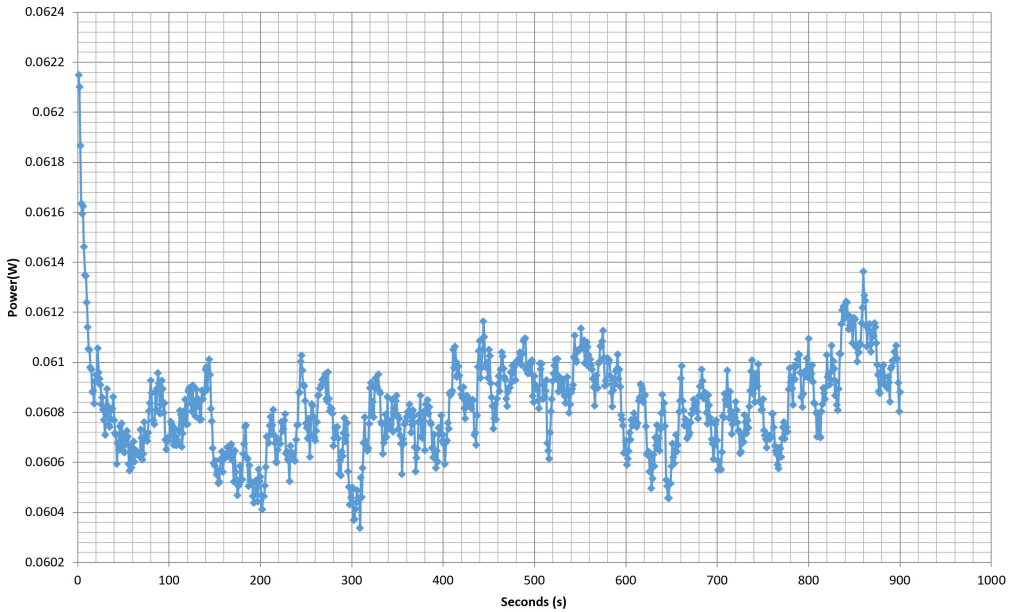
□□□□ & PG□□

Hold-Up Time (ms)	12
AC Loss to PWR_OK Hold Up Time (ms)	12.2

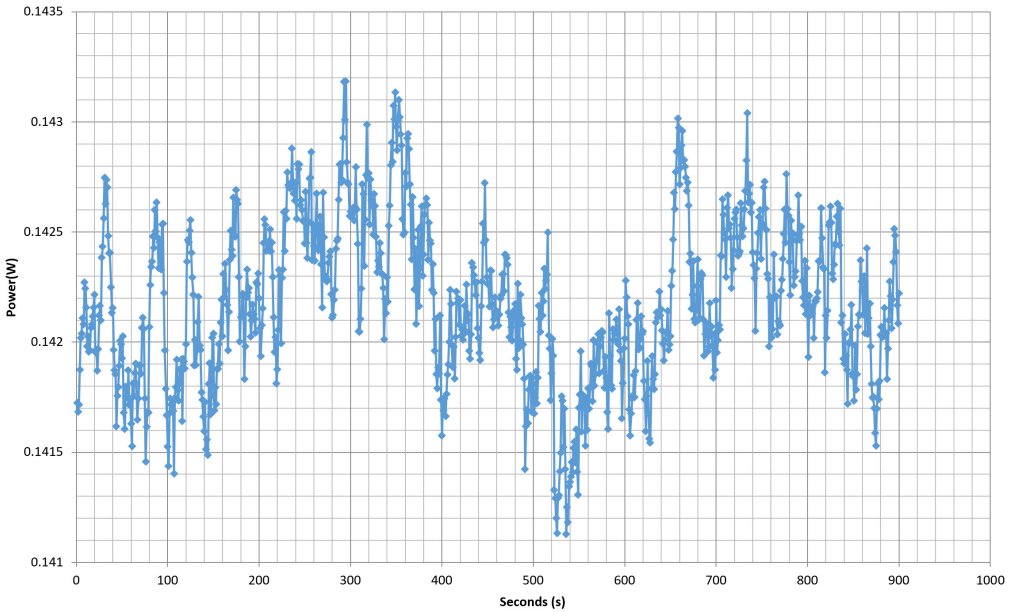
PWR_OK Inactive to DC Loss Delay (ms)	-0.2

Graphs

115V



230V



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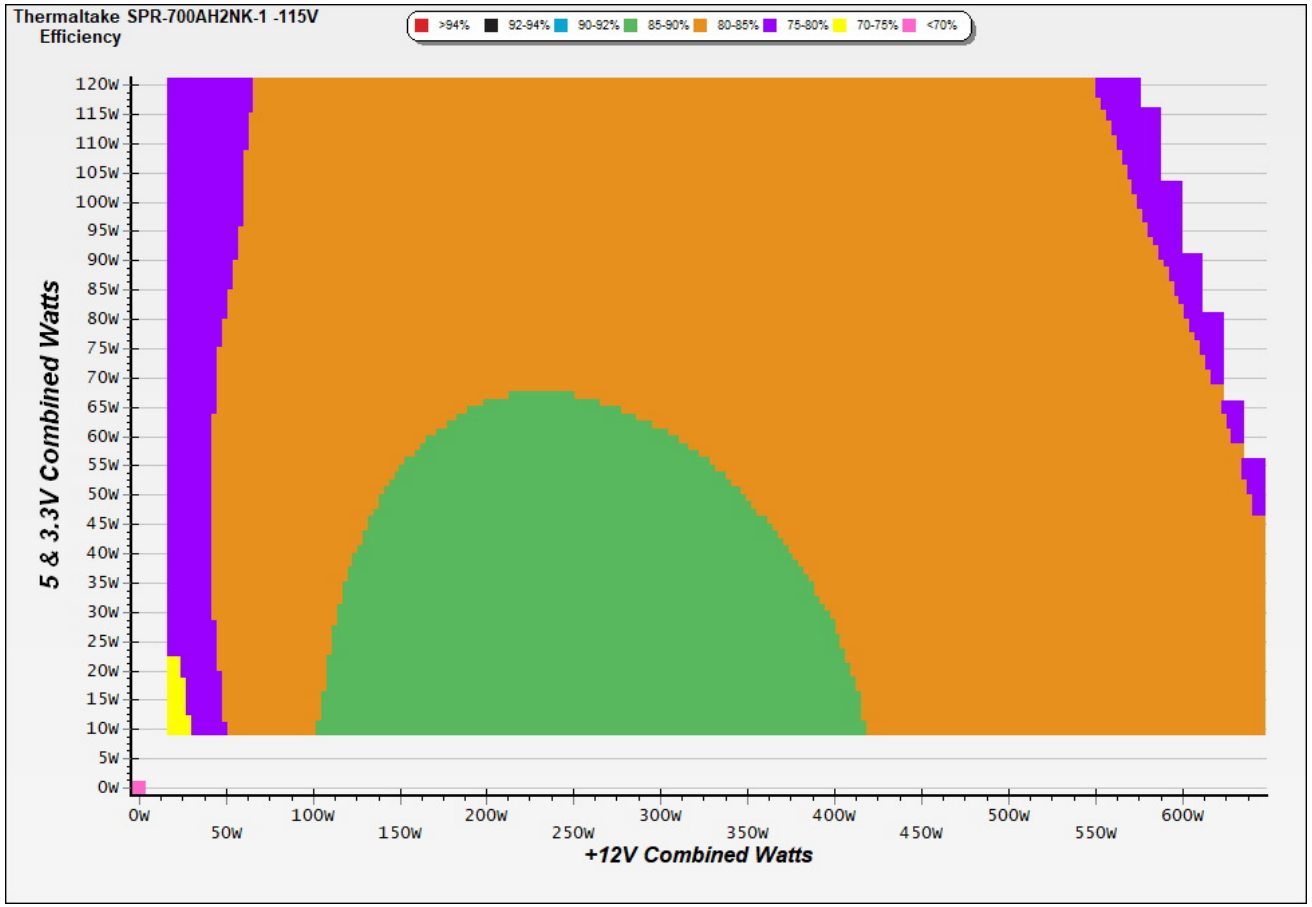
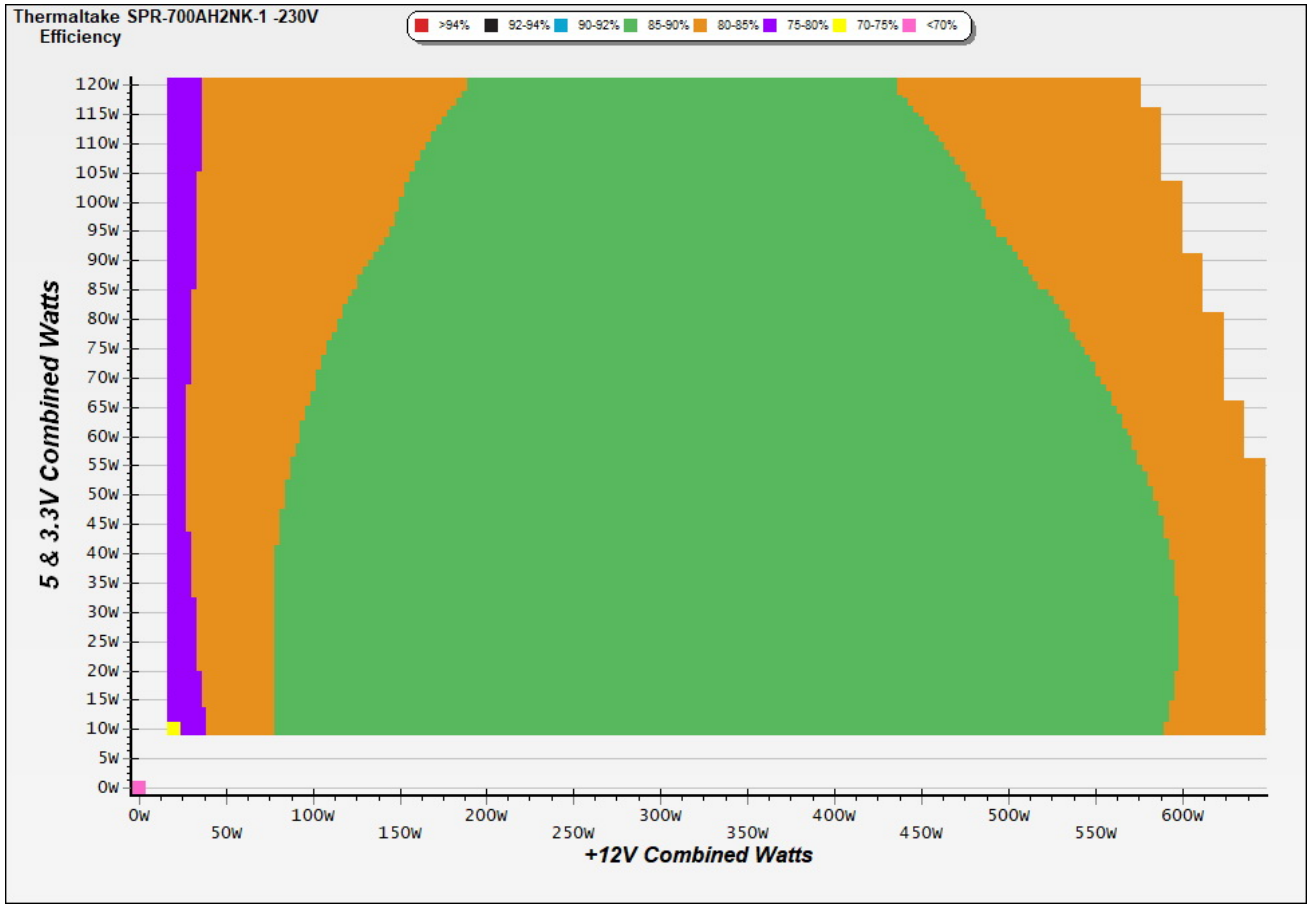
115V



□□

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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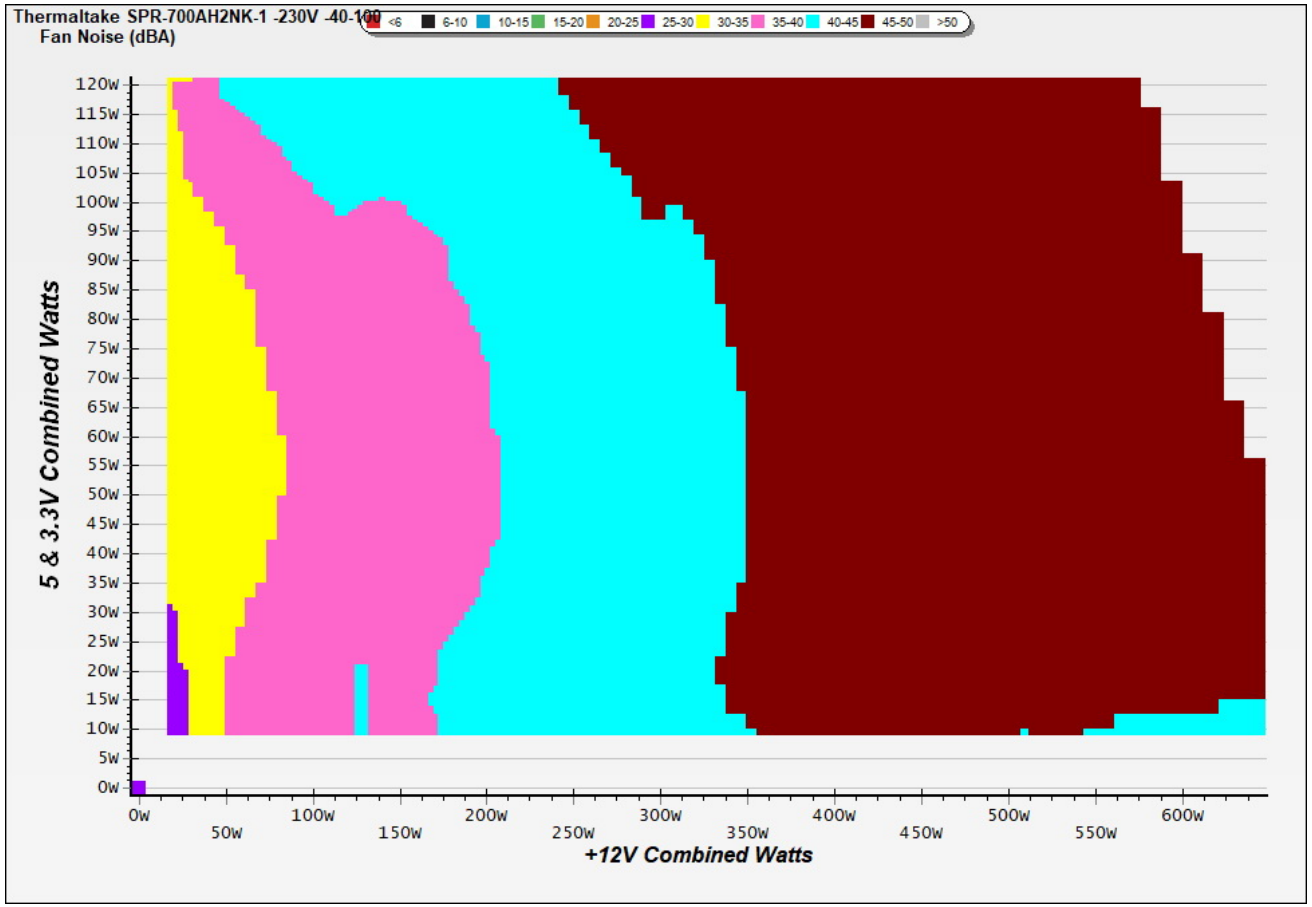
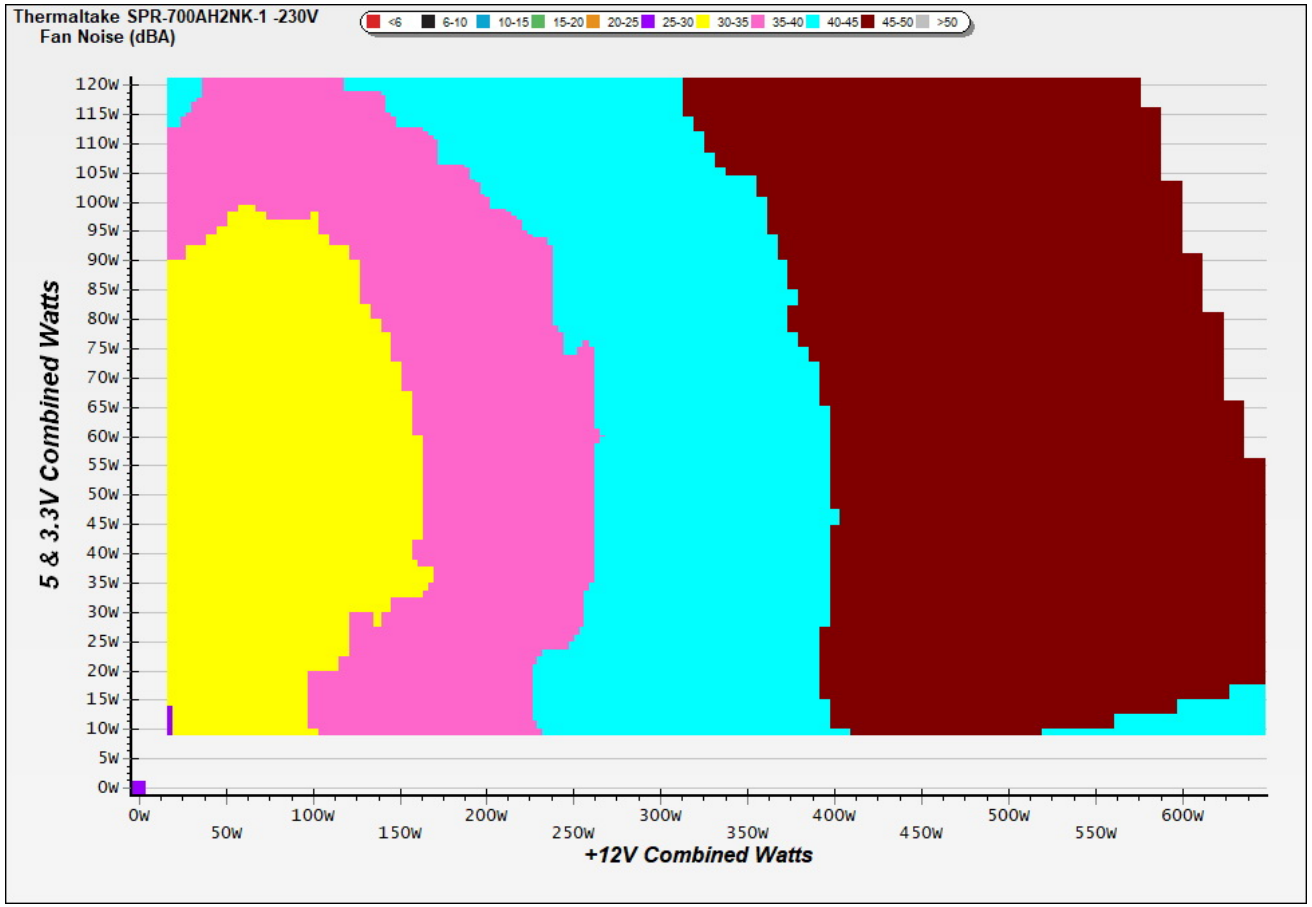
115V



□□

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

Noise under high ambient temperature (indicative)

115V

Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	1279 RPM · 34.5 dB(A) · 35.7 °C	1279 RPM · 34.5 dB(A) · 35.7 °C	**+0.0 dB(A)**
20%	1462 RPM · 38.2 dB(A) · 36.0 °C	1462 RPM · 38.2 dB(A) · 36.0 °C	**+0.0 dB(A)**
50%	1996 RPM · 45.5 dB(A) · 37.8 °C	1996 RPM · 45.5 dB(A) · 37.8 °C	**+0.0 dB(A)**
100%	2004 RPM · 45.8 dB(A) · 40.5 °C	2004 RPM · 45.8 dB(A) · 40.5 °C	**+0.0 dB(A)**

230V

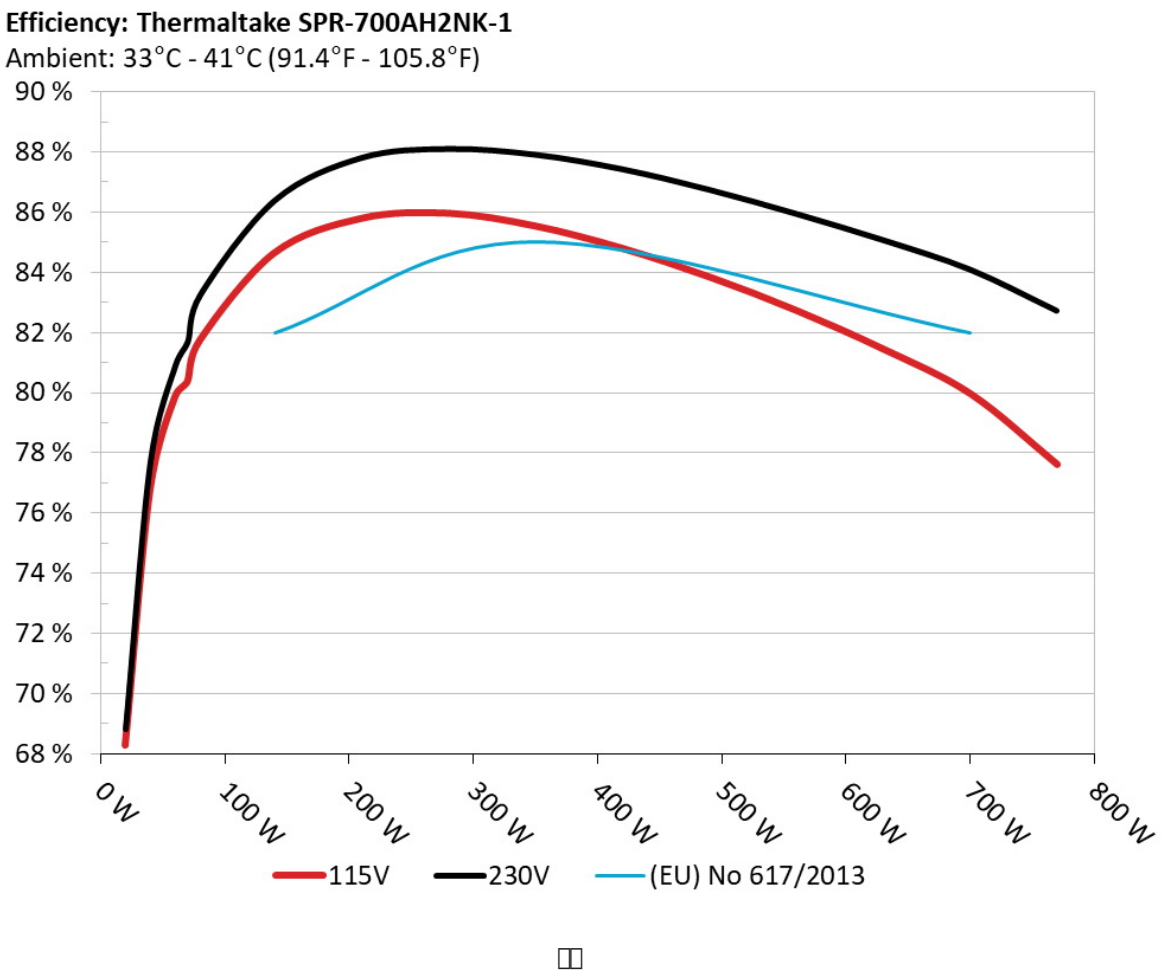
Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	1099 RPM · 30.7 dB(A) · 34.7 °C	1099 RPM · 30.7 dB(A) · 34.7 °C	**+0.0 dB(A)**
20%	1433 RPM · 37.6 dB(A) · 35.5 °C	1433 RPM · 37.6 dB(A) · 35.5 °C	**+0.0 dB(A)**
50%	2004 RPM · 45.8 dB(A) · 37.8 °C	2004 RPM · 45.8 dB(A) · 37.8 °C	**+0.0 dB(A)**
100%	2011 RPM · 45.9 dB(A) · 40.1 °C	2011 RPM · 45.9 dB(A) · 40.1 °C	**+0.0 dB(A)**

INFO

Fan speed, noise and the measured intake temperature at 10, 20, 50 and 100 % load, from the two load regulation tests: at normal ambient (about 30-32 °C) and at high ambient (about 40-47 °C). These are stabilized readings at fixed loads, not averages over the certification sweep, so they are indicative of how the fan behaves when it is hot. "<6.0" is the floor of our sound meter, with the fan stopped; with the fan stopped, the intake sensor can read higher than the chamber air.

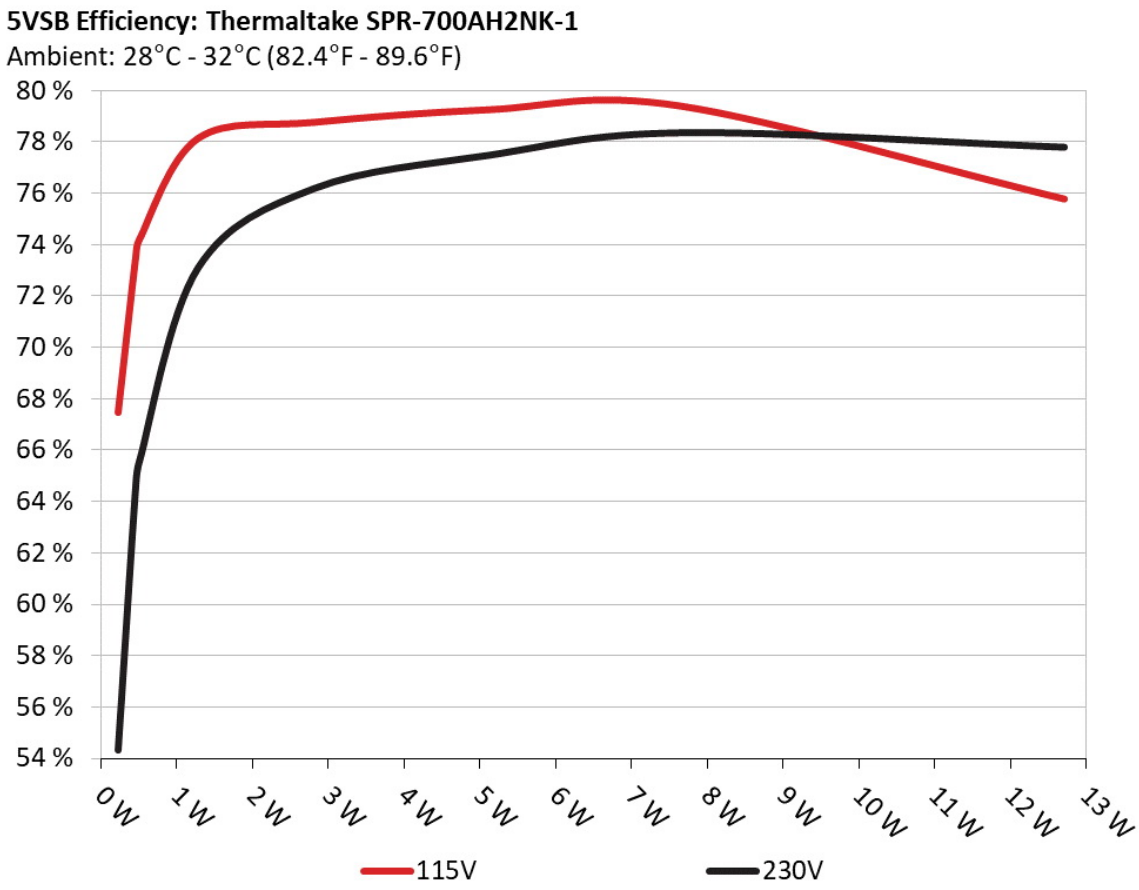
Informational. Not part of the ETA or LAMBDA rating.

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	0.232	67.442%	0.049
	5.147V	0.344		115.12V
2	0.090A	0.463	73.492%	0.087
	5.146V	0.630		115.12V
3	0.550A	2.825	78.757%	0.301
	5.134V	3.587		115.13V
4	1.000A	5.124	79.245%	0.361
	5.123V	6.466		115.13V
5	1.500A	7.666	79.383%	0.393
	5.110V	9.657		115.13V
6	2.501A	12.718	75.766%	0.431
	5.086V	16.786		115.12V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.232	54.333%	0.018
	5.148V	0.427		230.25V
2	0.090A	0.463	64.575%	0.030
	5.146V	0.717		230.24V
3	0.550A	2.825	76.207%	0.139
	5.134V	3.707		230.24V
4	1.000A	5.124	77.495%	0.211
	5.123V	6.612		230.25V
5	1.500A	7.667	78.371%	0.261
	5.111V	9.783		230.25V
6	2.500A	12.715	77.810%	0.316
	5.085V	16.341		230.26V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	3.970A	1.938A	1.950A	0.980A	70.012	80.374%	1279	34.5	35.73°C	0.979
	12.192V	5.163V	3.385V	5.105V	87.108				40.50°C	115.13V
2	8.976A	2.914A	2.936A	1.181A	140.048	84.648%	1462	38.2	35.98°C	0.980
	12.160V	5.148V	3.370V	5.083V	165.447				41.24°C	115.13V
3	14.362A	3.405A	3.440A	1.383A	210.053	85.793%	1747	42.8	36.42°C	0.987
	12.115V	5.141V	3.358V	5.063V	244.837				42.76°C	115.13V
4	19.790A	3.897A	3.946A	1.587A	280.067	85.962%	1863	43.9	37.01°C	0.991
	12.070V	5.132V	3.345V	5.043V	325.804				43.86°C	115.13V
5	24.876A	4.889A	4.954A	1.793A	350.081	85.537%	1996	45.5	37.79°C	0.992
	12.043V	5.114V	3.330V	5.020V	409.275				45.50°C	115.13V
6	29.983A	5.884A	5.973A	2.000A	420.007	84.797%	2005	45.8	38.60°C	0.994
	12.014V	5.098V	3.315V	4.997V	495.310				47.25°C	115.12V
7	35.140A	6.892A	7.004A	2.213A	490.142	83.846%	2010	45.9	38.73°C	0.995
	11.981V	5.081V	3.299V	4.973V	584.575				48.27°C	115.12V
8	40.334A	7.901A	8.043A	2.426A	560.249	82.733%	2012	45.9	39.70°C	0.996
	11.946V	5.064V	3.283V	4.948V	677.174				50.01°C	115.12V
9	46.058A	8.409A	8.569A	2.435A	629.967	81.453%	2007	45.9	39.73°C	0.996
	11.886V	5.056V	3.268V	4.929V	773.415				51.46°C	115.12V
10	51.818A	8.920A	9.133A	2.547A	700.292	79.967%	2004	45.8	40.48°C	0.997
	11.831V	5.047V	3.253V	4.909V	875.725				52.74°C	115.11V
11	58.160A	8.918A	9.174A	2.558A	769.920	77.625%	2000	45.7	40.53°C	0.997
	11.738V	5.049V	3.238V	4.889V	991.840				53.24°C	115.11V
CL1	0.102A	14.005A	14.001A	0.001A	114.017	74.214%	2174	47.7	37.94°C	0.981
	13.550V	4.706V	3.337V	5.077V	153.632				45.32°C	115.13V

CL2	54.023A	0.998A	1.000A	1.000A	617.536	81.358%	1927	45.8	40.15°C	0.996
	11.180V	5.290V	3.291V	4.988V	759.037				52.47°C	115.11V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
1	3.970A	1.936A	1.949A	0.980A	70.008	81.676%	1099	30.7	34.67°C	0.875
	12.194V	5.163V	3.386V	5.105V	85.714				39.29°C	230.26V
2	8.974A	2.914A	2.935A	1.180A	140.036	86.373%	1433	37.6	35.46°C	0.934
	12.162V	5.148V	3.371V	5.084V	162.130				40.89°C	230.25V
3	14.360A	3.405A	3.439A	1.383A	210.044	87.792%	1655	41.6	36.56°C	0.954
	12.116V	5.140V	3.359V	5.064V	239.251				42.65°C	230.26V
4	19.787A	3.897A	3.946A	1.586A	280.050	88.087%	1841	43.6	36.70°C	0.964
	12.071V	5.132V	3.346V	5.043V	317.925				43.52°C	230.26V
5	24.871A	4.888A	4.954A	1.793A	350.054	87.894%	2004	45.8	37.83°C	0.970
	12.044V	5.115V	3.331V	5.021V	398.270				45.22°C	230.26V
6	29.976A	5.886A	5.971A	2.000A	419.962	87.413%	2010	45.9	37.91°C	0.973
	12.015V	5.098V	3.316V	4.997V	480.435				46.84°C	230.26V
7	35.131A	6.890A	6.999A	2.212A	490.089	86.731%	2017	45.9	38.01°C	0.976
	11.983V	5.081V	3.301V	4.974V	565.065				47.42°C	230.25V
8	40.327A	7.901A	8.036A	2.426A	560.201	85.928%	2015	45.9	38.93°C	0.979
	11.947V	5.065V	3.284V	4.949V	651.946				49.35°C	230.26V
9	46.047A	8.408A	8.565A	2.435A	629.920	85.059%	2013	45.9	39.05°C	0.982
	11.888V	5.056V	3.269V	4.930V	740.565				50.45°C	230.26V
10	51.808A	8.917A	9.127A	2.547A	700.218	84.077%	2011	45.9	40.11°C	0.984
	11.832V	5.049V	3.254V	4.909V	832.826				52.17°C	230.26V
11	58.146A	8.914A	9.172A	2.558A	769.855	82.712%	2002	45.8	40.60°C	0.986
	11.740V	5.050V	3.238V	4.889V	930.763				53.27°C	230.26V
CL1	0.102A	14.004A	13.999A	0.001A	114.047	76.080%	2170	47.7	37.72°C	0.932
	13.549V	4.708V	3.338V	5.078V	149.904				45.36°C	230.26V

CL2	54.016A	1.001A	1.001A	1.000A	618.020	85.001%	1925	45.8	40.16°C	0.982
	11.190V	5.289V	3.293V	4.990V	727.072				52.92°C	230.26V

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	1.219A	0.482A	0.483A	0.195A	20.002	68.304%	1048	29.2	0.927
	12.188V	5.186V	3.400V	5.138V	29.284				115.12V
2	2.437A	0.965A	0.972A	0.390A	39.992	76.803%	1055	29.3	0.961
	12.184V	5.180V	3.396V	5.128V	52.071				115.13V
3	3.660A	1.450A	1.460A	0.586A	60.022	79.869%	1215	33.8	0.981
	12.179V	5.173V	3.389V	5.118V	75.151				115.13V
4	4.876A	1.935A	1.950A	0.783A	79.973	81.742%	1342	35.9	0.975
	12.178V	5.165V	3.384V	5.108V	97.836				115.13V

The results above are not used in the certification process

230V

□□ #	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	PF/AC □□
1	1.218A	0.481A	0.486A	0.195A	19.997	68.810%	1037	29.0	0.653
	12.191V	5.186V	3.400V	5.138V	29.061				230.26V
2	2.436A	0.965A	0.972A	0.390A	39.986	77.694%	1054	29.3	0.795
	12.186V	5.180V	3.396V	5.128V	51.466				230.26V
3	3.659A	1.450A	1.460A	0.586A	60.017	80.885%	1057	29.3	0.855
	12.181V	5.173V	3.389V	5.118V	74.200				230.26V
4	4.875A	1.936A	1.950A	0.783A	79.968	83.227%	1113	31.4	0.889
	12.178V	5.165V	3.385V	5.108V	96.084				230.26V

The results above are not used in the certification process

□□□□

115V

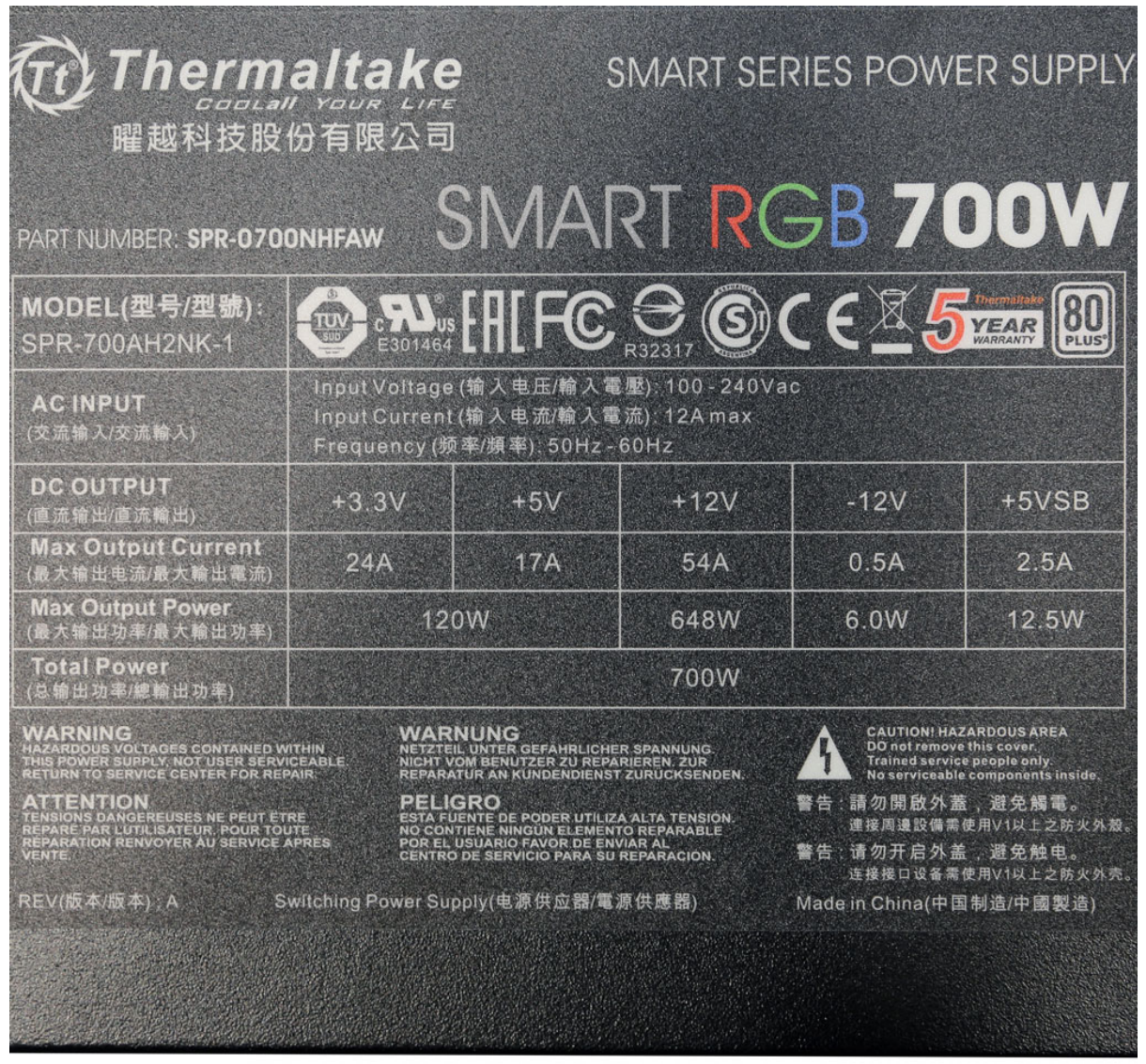
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.00mV	13.50mV	17.30mV	10.40mV	Pass
20% Load	12.80mV	14.80mV	17.60mV	10.20mV	Pass
30% Load	14.80mV	17.10mV	15.80mV	9.80mV	Pass
40% Load	16.30mV	19.00mV	15.90mV	10.00mV	Pass
50% Load	17.70mV	19.70mV	15.70mV	10.10mV	Pass
60% Load	21.70mV	23.60mV	18.00mV	14.10mV	Pass
70% Load	25.40mV	25.30mV	20.00mV	18.10mV	Pass
80% Load	28.70mV	28.40mV	25.00mV	22.30mV	Pass
90% Load	36.70mV	31.70mV	29.70mV	27.00mV	Pass
100% Load	52.50mV	42.60mV	37.20mV	38.70mV	Pass
110% Load	59.90mV	47.30mV	43.10mV	48.00mV	Pass
Crossload1	13.10mV	64.10mV	23.60mV	15.40mV	Fail
Crossload2	46.60mV	31.60mV	33.50mV	15.10mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	10.90mV	14.30mV	14.90mV	10.70mV	Pass
20% Load	12.00mV	14.40mV	14.30mV	10.20mV	Pass
30% Load	12.90mV	16.90mV	16.50mV	10.00mV	Pass
40% Load	15.80mV	19.10mV	18.50mV	9.90mV	Pass
50% Load	15.80mV	20.70mV	20.20mV	9.80mV	Pass
60% Load	17.20mV	22.00mV	19.00mV	13.00mV	Pass
70% Load	19.90mV	24.30mV	21.30mV	23.70mV	Pass
80% Load	22.60mV	25.90mV	23.80mV	27.50mV	Pass





Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	25.30mV	30.00mV	25.30mV	34.90mV	Pass
100% Load	43.40mV	38.60mV	34.00mV	42.80mV	Pass
110% Load	45.30mV	42.50mV	37.90mV	49.70mV	Pass
Crossload1	13.20mV	62.50mV	22.30mV	14.80mV	Fail
Crossload2	39.60mV	32.10mV	36.40mV	14.70mV	Pass

The results above are not used in the certification process

Thermaltake Smart RGB 700W

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）