Thermaltake TR2 S 700W

Serial Number PSTRS0700NPCWEU2X1000097

Lab ID TT70001693

Certification ID 251693

Test Result Report ID: 20PS1693A

Certificate Issue Date: Jul 28, 2020

115V 230V

Scheme: ETA-EMI PSU

115V 230V

Scheme: LAMBDA PSU

Aristeidis Bitziopoulos, Certification Body General Manager

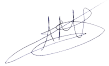
General Information

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	Thermaltake
Model	TR2 S 700W
OEM/ODM	Jiu Zhou Yang Guang Power Supply (HKC)
Serial Number	PSTRS0700NPCWEU2X1000097
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	230
Rated Current (Arms)	9
Rated Frequency (Hz)	50-60

Rated Power (W)	700
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Sleeve Bearing Fan [TT-1225(XW12025MS)]
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	TT70001693
Date of receipt	Jul 17, 2020
Testing Date	Jul 23, 2020
Report Issued Date	Jul 28, 2020
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Native Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Caps
ATX connector 20+4 pin (520mm)	1	1	18-22AWG	No
4+4 pin EPS12V (620mm)	1	1	18AWG	No
6+2 pin PCIe (520mm+150mm)	1	2	18-20AWG	No
SATA (530mm+150mm+150mm) / 4-pin Molex (+150mm)	2	4 / 2	18-20AWG	No
SATA (530mm) / 4-pin Molex (+150mm+150mm)	1	1 / 2	18-20AWG	No
SATA (530mm) / 4-pin Molex (+150mm) / FDD(+150mm)	1	1 / 1 / 1	18-22AWG	No
Modular Cables				
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	24	17	54	2.5	0.5
	Watts	120		648	12.5	6
Total Max. Power (W)		700				

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

Performance Summary 230V

Accredited	
Average Efficiency (>1450 load combinations)	84.403%
Average Noise Output (>1450 Load Combinations)	40.45dBA
Average PF (>1450 Load Combinations)	0.959
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.1387W
Non-Accredited	
12V Ripple (Full Load)	45.97mV
5V Ripple (Full Load)	20.60mV
3.3V Ripple (Full Load)	25.67mV
5VSB Ripple (Full Load)	34.01mV
12V Load Regulation	3.18%
5V Load Regulation	2.53%
3.3V Load Regulation	3.58%
5VSB Load Regulation	4.36%
Inrush Current	80.990A

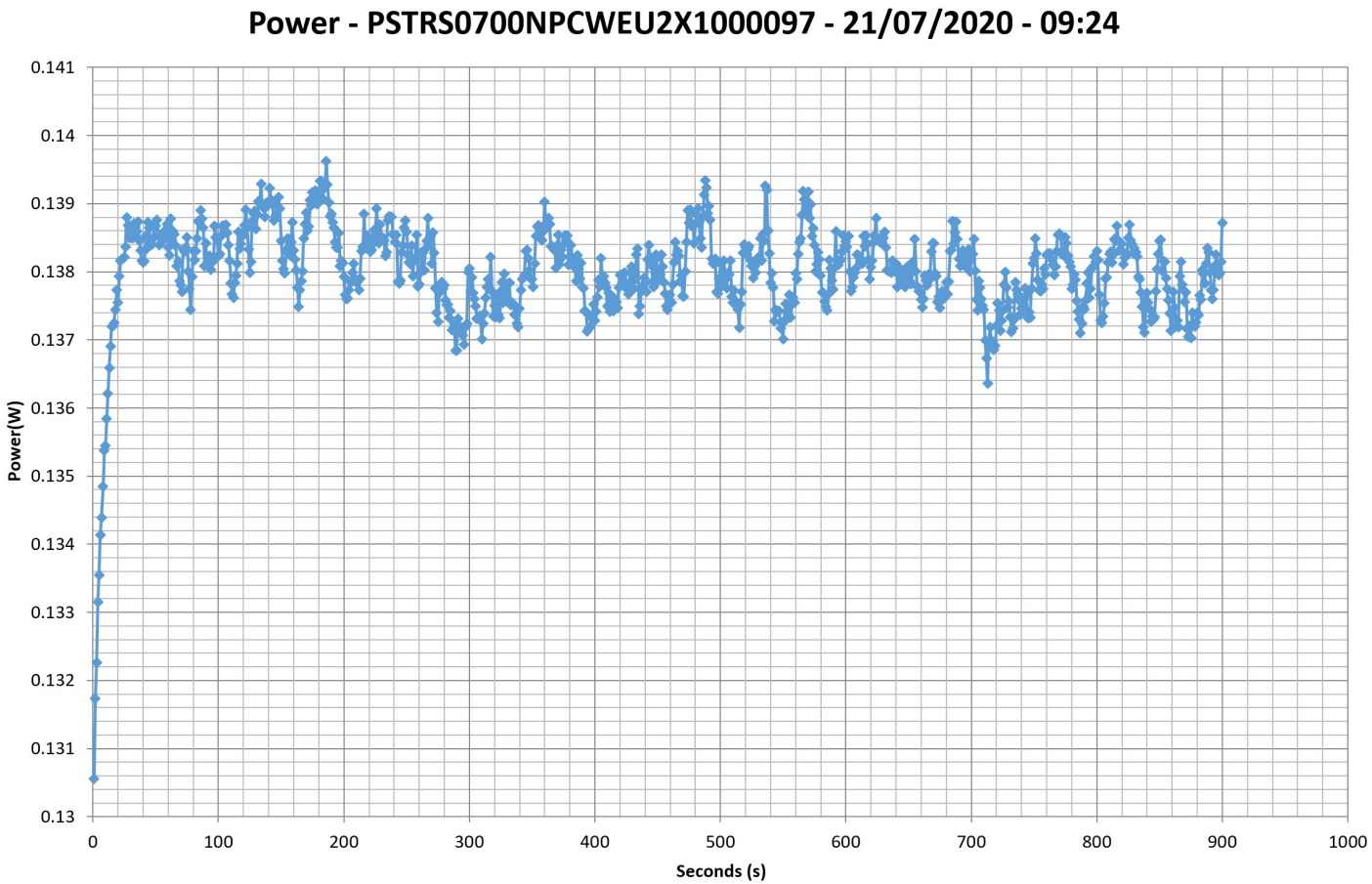
Hold-Up Time & PWR_OK Signal		12.50ms
AC Loss to PWR_OK Hold Up Time		12.60ms
PWR_OK Inactive to DC Loss Delay		-0.10ms
PSU Timings: T1 (20% / 100%)	50.0ms	52.0ms
PSU Timings: T3 (20% / 100%)	295.0ms	295.0ms
OPP (0.00°C / 0.00°C)	114.01%	-

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	12.5
AC Loss to PWR_OK Hold Up Time (ms)	12.6
PWR_OK Inactive to DC Loss Delay (ms)	-0.1

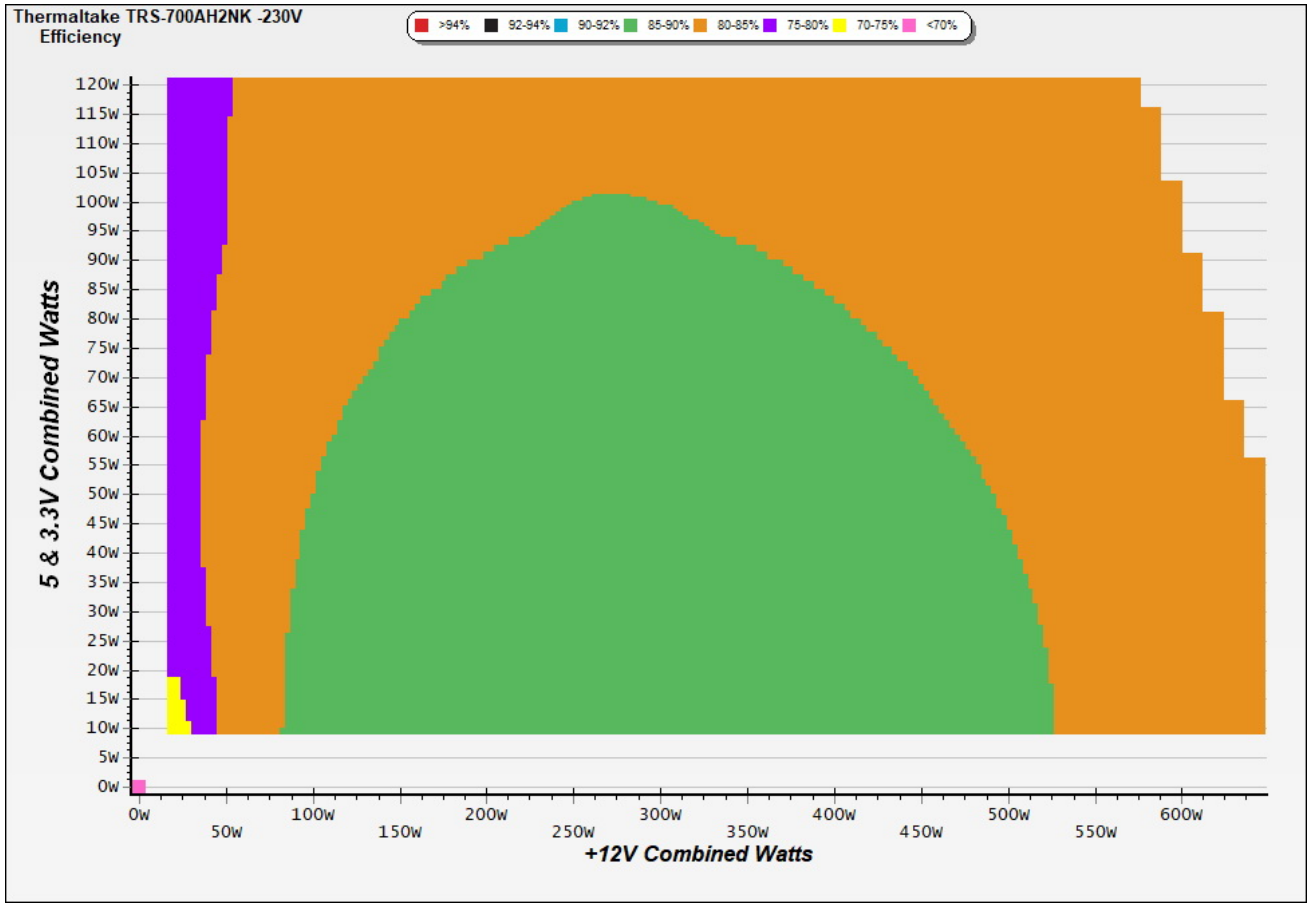
Vampire Power

Graphs 230V



Efficiency Graph

230V

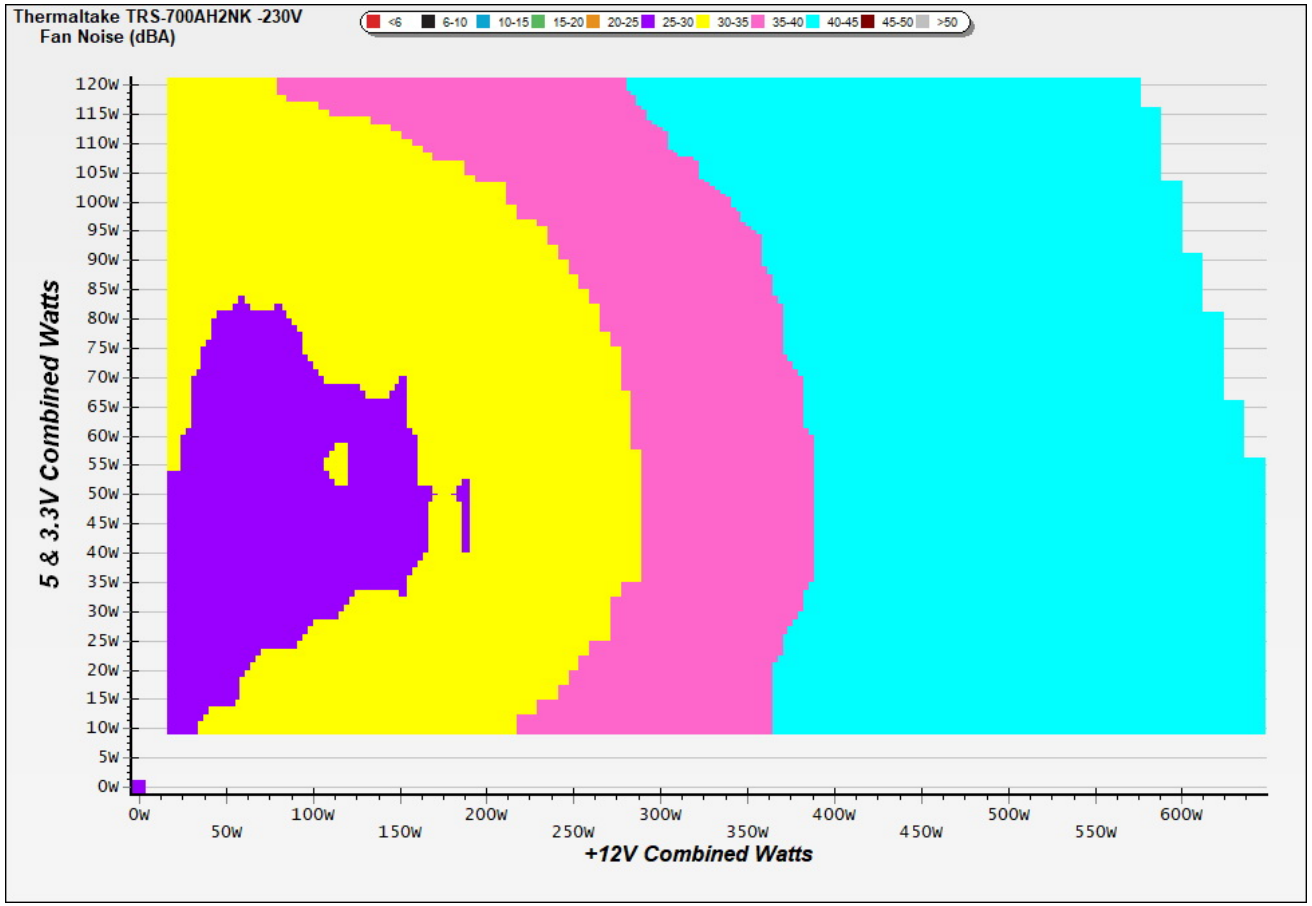


INFO

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

230V

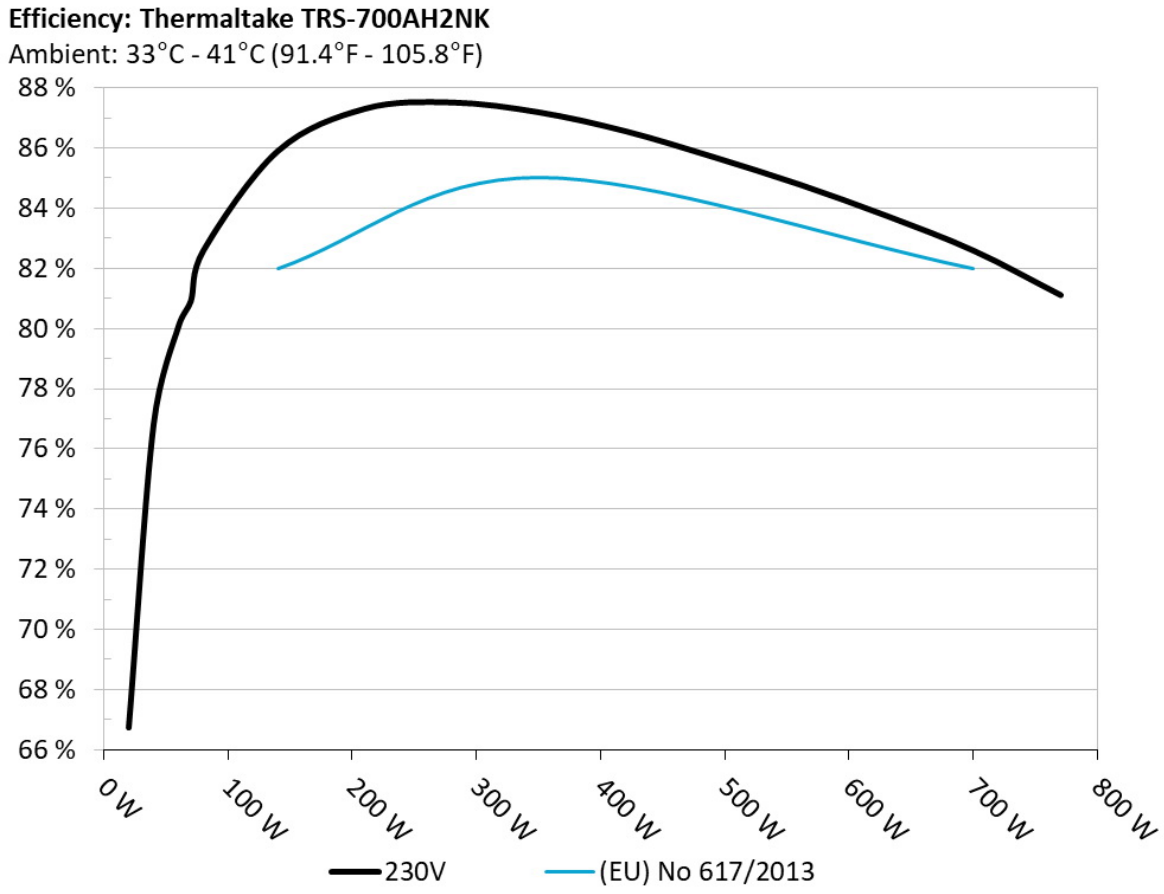


INFO

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

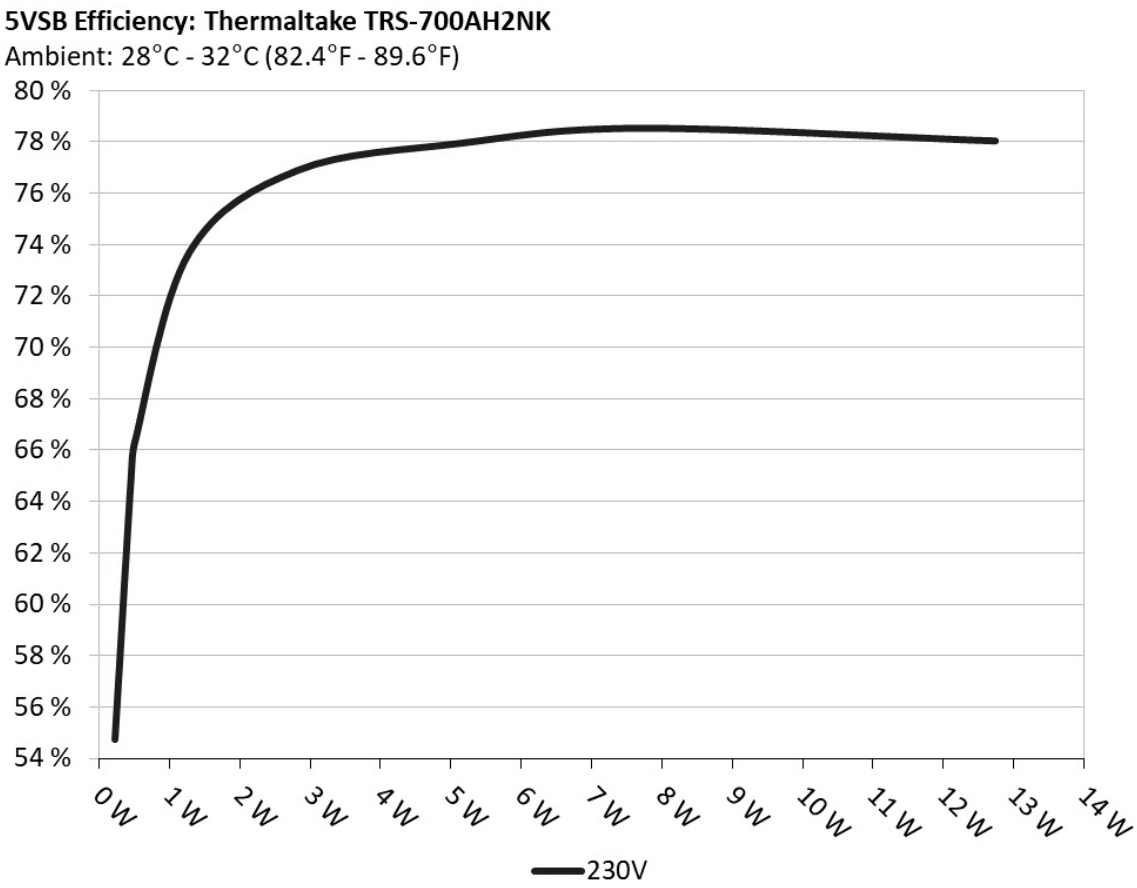
Efficiency under high ambient temperature



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



INFO

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

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.232	54.717%	0.026
	5.156V	0.424		230.37V

2	0.090A	0.464	65.077%	0.043
	5.155V	0.713		230.37V
3	0.550A	2.830	76.881%	0.182
	5.144V	3.681		230.36V
4	1.000A	5.134	77.930%	0.256
	5.133V	6.588		230.36V
5	1.500A	7.683	78.518%	0.300
	5.121V	9.785		230.36V
6	2.501A	12.743	78.025%	0.346
	5.096V	16.332		230.36V

Supplementary Tests (For Reference)

Typical Load Tests 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	4.003A	1.937A	1.954A	0.978A	70.008	80.904%	1034	28.8	34.97°C	0.893
	12.092V	5.164V	3.378V	5.114V	86.532				36.80°C	230.39V
2	9.049A	2.914A	2.943A	1.178A	140.050	85.891%	1141	31.5	35.33°C	0.934
	12.061V	5.150V	3.365V	5.093V	163.055				37.48°C	230.39V
3	14.489A	3.404A	3.442A	1.380A	210.056	87.293%	1332	35.6	36.76°C	0.948
	12.009V	5.144V	3.354V	5.074V	240.633				39.23°C	230.40V
4	19.974A	3.895A	3.949A	1.583A	280.061	87.500%	1472	38.5	36.86°C	0.956
	11.958V	5.137V	3.343V	5.054V	320.068				39.86°C	230.38V
5	25.109A	4.883A	4.955A	1.789A	350.060	87.174%	1612	40.6	37.08°C	0.962
	11.930V	5.121V	3.330V	5.033V	401.566				40.89°C	230.38V
6	30.264A	5.878A	5.970A	1.997A	420.017	86.542%	1756	42.8	38.23°C	0.965
	11.902V	5.105V	3.317V	5.010V	485.335				42.31°C	230.36V
7	35.480A	6.878A	6.992A	2.207A	490.152	85.694%	1879	44.3	38.76°C	0.969
	11.867V	5.089V	3.304V	4.987V	571.982				43.34°C	230.38V
8	40.733A	7.888A	8.027A	2.419A	560.290	84.766%	1892	44.6	39.01°C	0.972
	11.830V	5.073V	3.289V	4.962V	660.988				44.51°C	230.38V

9	46.517A	8.393A	8.546A	2.429A	630.016	83.731%	1894	44.7	39.27°C	0.975
	11.770V	5.065V	3.276V	4.942V	752.431				45.39°C	230.34V
10	52.367A	8.905A	9.107A	2.542A	700.338	82.567%	1881	44.4	39.44°C	0.978
	11.708V	5.056V	3.261V	4.919V	848.210				46.47°C	230.35V
11	58.722A	8.905A	9.142A	2.551A	769.981	81.099%	1882	44.4	40.61°C	0.981
	11.627V	5.055V	3.249V	4.901V	949.432				48.53°C	230.41V
CL1	0.119A	14.001A	14.000A	0.002A	114.803	74.553%	2010	45.9	37.47°C	0.938
	13.309V	4.748V	3.338V	5.081V	153.988				41.06°C	230.37V
CL2	54.020A	1.000A	1.000A	1.000A	619.765	83.657%	1836	43.6	39.65°C	0.975
	11.222V	5.255V	3.295V	5.002V	740.840				46.81°C	230.35V

The results above are not used in the certification process

Light Load Tests 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.227A	0.482A	0.487A	0.194A	19.996	66.731%	1030	28.7	0.731
	12.101V	5.184V	3.391V	5.147V	29.965				230.38V
2	2.456A	0.965A	0.972A	0.390A	39.987	76.808%	1026	28.5	0.829
	12.090V	5.179V	3.387V	5.137V	52.061				230.38V
3	3.690A	1.449A	1.465A	0.585A	60.017	80.065%	1025	28.5	0.877
	12.078V	5.174V	3.381V	5.127V	74.960				230.38V
4	4.916A	1.935A	1.954A	0.782A	79.967	82.573%	1038	29.0	0.904
	12.077V	5.166V	3.377V	5.117V	96.844				230.38V

The results above are not used in the certification process

Ripple Measurements 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.10mV	4.60mV	6.70mV	6.00mV	Pass
20% Load	11.10mV	5.10mV	7.30mV	6.60mV	Pass
30% Load	13.00mV	5.70mV	7.50mV	7.70mV	Pass
40% Load	14.10mV	6.70mV	8.00mV	8.60mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	16.60mV	8.30mV	9.80mV	9.60mV	Pass
60% Load	22.00mV	9.00mV	9.90mV	10.10mV	Pass
70% Load	24.10mV	10.40mV	9.90mV	15.90mV	Pass
80% Load	27.70mV	11.40mV	18.50mV	21.20mV	Pass
90% Load	32.40mV	14.70mV	21.70mV	29.90mV	Pass
100% Load	46.00mV	20.60mV	25.70mV	34.00mV	Pass
110% Load	53.90mV	22.10mV	29.20mV	43.70mV	Pass
Crossload1	13.80mV	75.30mV	23.70mV	16.70mV	Fail
Crossload2	45.60mV	12.60mV	18.20mV	17.00mV	Pass

The results above are not used in the certification process

Thermaltake TR2 S 700W

Top side

Power specifications label

All data and graphs included in this test report can be used by any individual on the following conditions:

› It should be mentioned that the test results are provided by Cybenetics

› The link to the original test results document should be provided in any case

Cybenetics runs voluntary certification programs for power supplies - ETA for efficiency, LAMBDA for noise and SAFE for safety and correct operation - and for cooling products, with DELTA for chassis soundproofing and PHI for fan airflow and static pressure. THETA rates cooler performance on AMD AM5 and Intel LGA1851 outside ISO 17065 and accreditation scope

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