

Lab ID#: TT85001727
Receipt Date: Jul 28, 2020
Test Date: Oct 2, 2020

Report: 20PS1727A
Report Date: Oct 3, 2020

DUT INFORMATION

Brand	Thermaltake
Manufacturer (OEM)	Jiu Zhou Yang Guang Power Supply (HKC)
Series	Toughpower PF1
Model Number	TTP-850AH2FKP
Serial Number	PSTPD0850FNFAPE1XD000041
DUT Notes	Toughpower PF1

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10
Rated Frequency (Hz)	50-60
Rated Power (W)	850
Type	ATX12V
Cooling	120mm Hydraulic Bearing Fan [TT-1225(XW12025MS)]
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

TEST EQUIPMENT

Electronic Loads	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Keysight AC6804B
Power Analyzers	N4L PPA1530 x2
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2
Tachometer	UNI-T UT372 x2
Digital Multimeter	Keysight U1273AX, Fluke 289, Keithley 2015 - THD
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

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

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	90.030%
Efficiency With 10W (≤500W) or 2% (>500W)	73.495
Average Efficiency 5VSB	80.111%
Standby Power Consumption (W)	0.0554739
Average PF	0.983
Avg Noise Output	29.24 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	A-

230V

Average Efficiency	92.101%
Average Efficiency 5VSB	79.826%
Standby Power Consumption (W)	0.0786161
Average PF	0.929
Avg Noise Output	28.45 dB(A)
Efficiency Rating (ETA)	SILVER
Noise Rating (LAMBDA)	A-

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	70	2.5	0.3
	Watts	100		840	12.5	3.6
Total Max. Power (W)		850				

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

CABLES AND CONNECTORS

Modular Cables

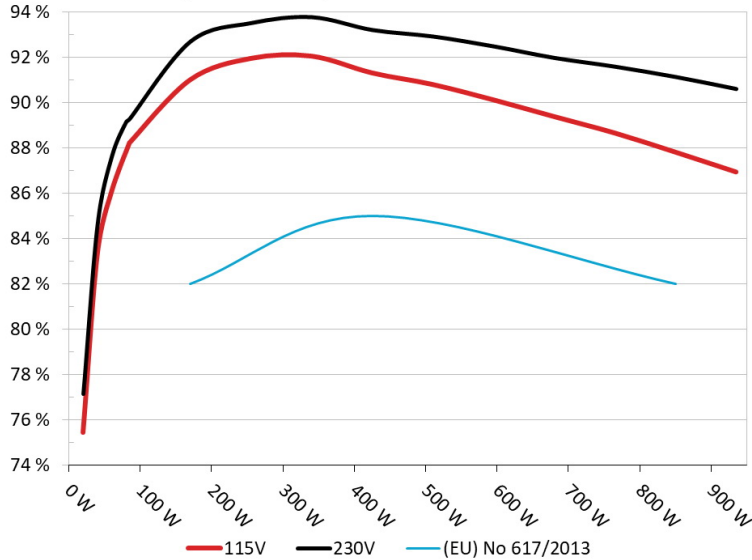
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	16-18AWG	No
4+4 pin EPS12V (650mm)	2	2	16AWG	No
6+2 pin PCIe (500mm+150mm)	3	6	16-18AWG	No
SATA (520mm+150mm+150mm+150mm)	3	12	18AWG	No
4-pin Molex (490mm+150mm+150mm+150mm)	1	4	18AWG	No
FDD Adapter (+100mm)	1	1	22AWG	No
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

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

EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Thermaltake TTP-850AH2FKP
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

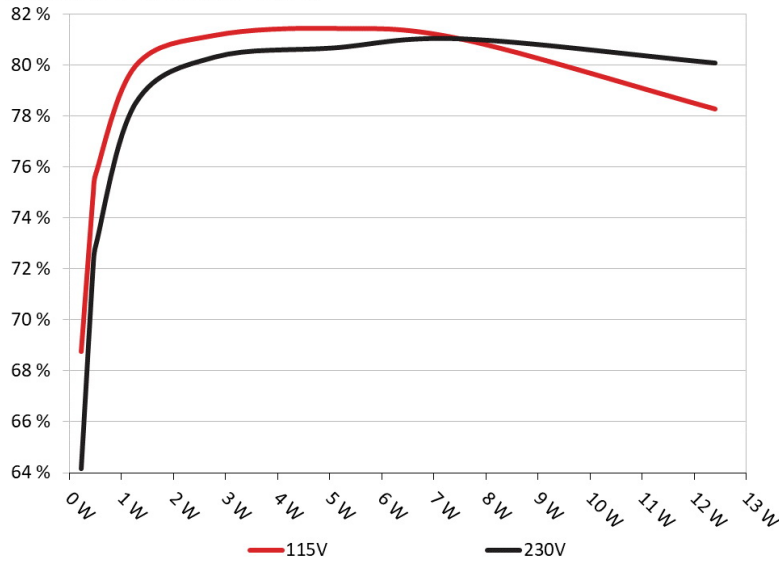


INFO

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 TTP-850AH2FKP
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

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

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	68.750%	0.039
	5.123V	0.336		115.13V
2	0.090A	0.461	74.959%	0.069
	5.120V	0.615		115.12V
3	0.550A	2.801	81.165%	0.269
	5.091V	3.451		115.12V
4	1.000A	5.062	81.435%	0.346
	5.062V	6.216		115.12V
5	1.500A	7.542	81.010%	0.388
	5.027V	9.310		115.12V
6	2.500A	12.399	78.272%	0.433
	4.960V	15.841		115.12V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	64.167%	0.012
	5.123V	0.360		230.29V
2	0.090A	0.461	72.144%	0.022
	5.120V	0.639		230.29V
3	0.550A	2.800	80.298%	0.111
	5.090V	3.487		230.29V
4	1.000A	5.061	80.653%	0.179
	5.060V	6.275		230.29V
5	1.500A	7.541	81.008%	0.232
	5.027V	9.309		230.30V
6	2.500A	12.397	80.063%	0.300
	4.958V	15.484		230.30V

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

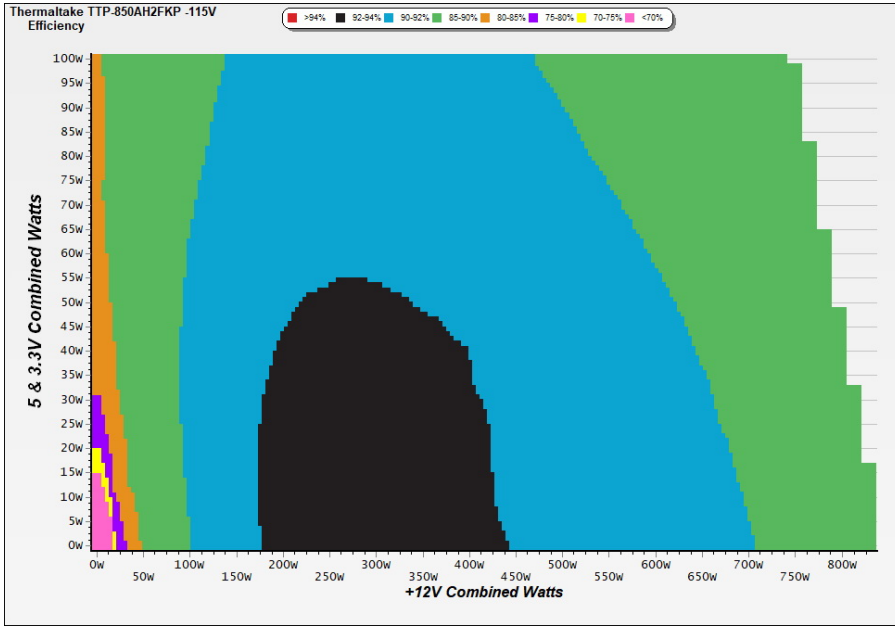
115V

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

PAGE 6/13

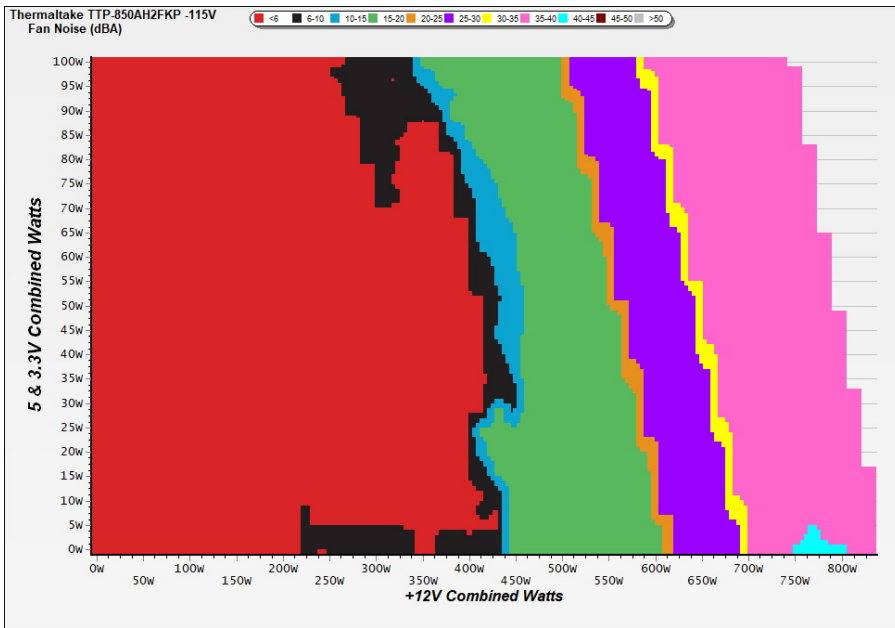
EFFICIENCY GRAPH 115V



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

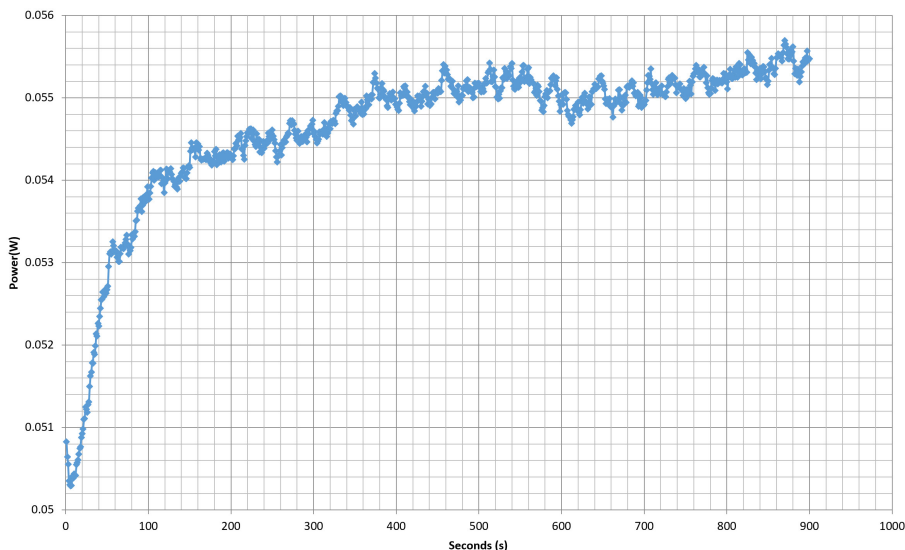
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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

VAMPIRE POWER -115V

Power - PSTPD0850FNFAPE1XD000041 - 30/09/2020 - 09:03



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

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

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

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	5.263A	1.982A	1.987A	0.992A	84.975	88.085%	0	<6.0	44.51°C	0.949
	12.041V	5.046V	3.322V	5.041V	96.469				40.01°C	115.14V
2	11.554A	2.975A	2.985A	1.197A	170.060	90.999%	0	<6.0	44.80°C	0.978
	12.044V	5.043V	3.316V	5.014V	186.882				40.86°C	115.14V
5	31.052A	4.968A	4.997A	1.825A	425.096	91.300%	588	6.3	42.11°C	0.995
	12.063V	5.034V	3.303V	4.932V	465.606				47.78°C	115.12V
10	63.238A	8.971A	9.058A	2.596A	849.882	87.807%	1803	41.1	45.76°C	0.997
	12.060V	5.019V	3.279V	4.817V	967.894				55.66°C	115.11V

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

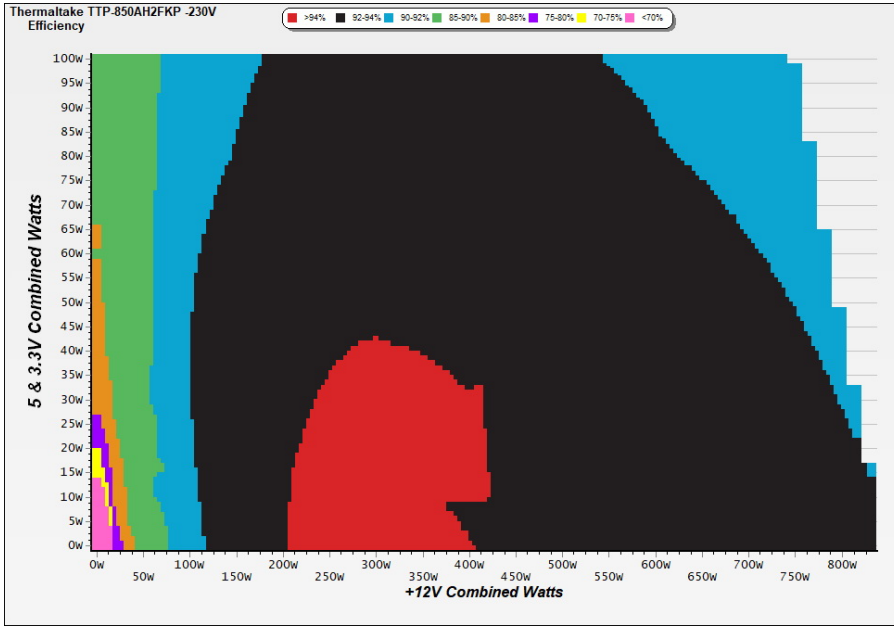
230V

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

PAGE 10/13

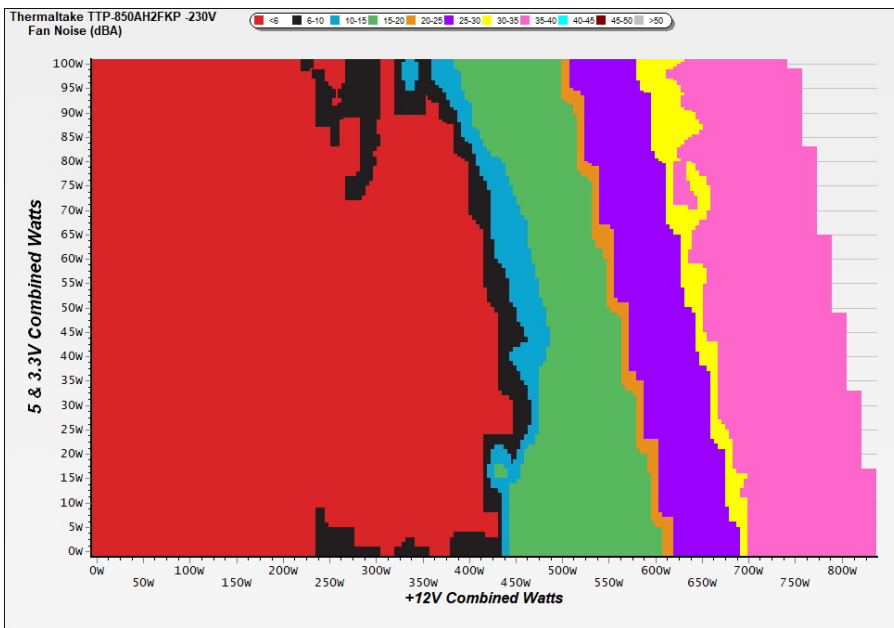
EFFICIENCY GRAPH 230V



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

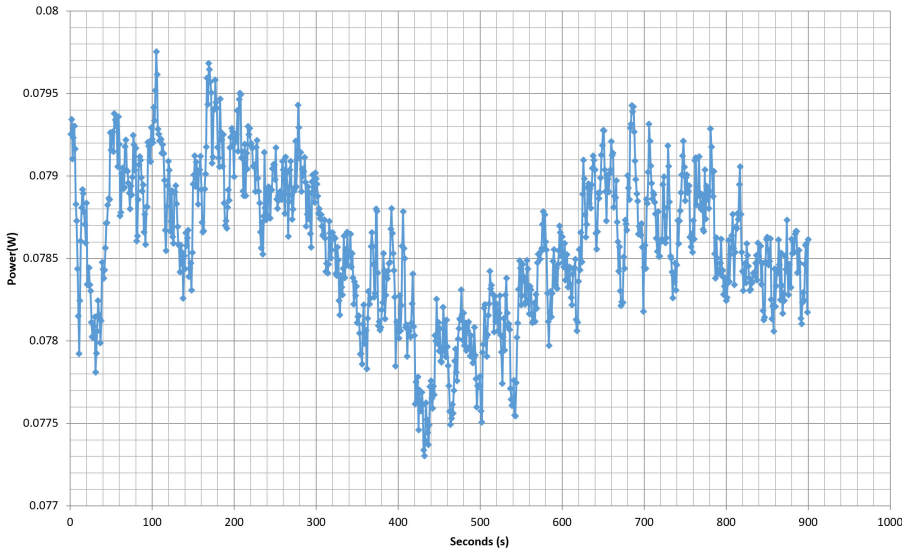
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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

VAMPIRE POWER -230V

Power - PSTPD0850FNFAPE1XD000041 - 30/09/2020 - 09:03



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

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

COMMISSION REGULATION (EU) NO 617/2013 TESTING 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	5.258A	1.981A	1.987A	0.992A	84.976	89.292%	0	<6.0	44.51°C	0.713
	12.054V	5.046V	3.321V	5.041V	95.166				40.01°C	230.28V
2	11.546A	2.972A	2.986A	1.197A	170.067	92.705%	0	<6.0	46.37°C	0.877
	12.054V	5.043V	3.316V	5.014V	183.450				41.02°C	230.28V
5	31.074A	4.968A	4.996A	1.824A	425.135	93.213%	588	6.3	42.18°C	0.967
	12.056V	5.034V	3.302V	4.935V	456.090				50.00°C	230.28V
10	63.280A	8.972A	9.065A	2.597A	849.949	91.140%	1802	41.1	45.09°C	0.987
	12.053V	5.018V	3.277V	4.816V	932.577				55.73°C	230.27V

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

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

Thermaltake Toughpower PF1 850W

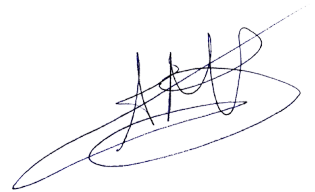


Top side



Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



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