Chieftronic SteelPower 750W

G210400039115

Lab ID CT75001922

Certification ID 251922

Test Result Report ID: 21PS1922A

Certificate Issue Date: Oct 22, 2021

Scheme: ETA-EMI PSU

115V



230V



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	Chieftronic
Model	SteelPower 750W
OEM/ODM	CWT
Serial Number	G210400039115
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	10
□□□□ (Hz)	47-63

□□□□ (W)	750
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Double Ball Bearing Fan (HA1225H12B-Z)
□□□□□	✗
Cybenetics Testing Information	
Lab ID	CT75001922
Date of receipt	Oct 1, 2021
Testing Date	Oct 21, 2021
Report Issued Date	Oct 22, 2021
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

□□□□				
□□	□□□□	□□□□□	Gauge	In Cable Capacitors
ATX □□ 20+4 pin (650mm)	1	1	18AWG	□
8 pin EPS 12V □□ (600mm) / 4+4 pin EPS 12V □□ (+150mm)	1	1 / 1	18AWG	□
6+2pin PCIe□□ (500mm+150mm)	2	4	18AWG	□
SATA□□ (500mm+150mm+150mm)	2	6	18AWG	□
4-pin Molex (500mm+150mm+150mm) / FDD (+150mm)	1	3 / 1	18-20AWG	□
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	20	20	62.5	2.5	0.3
	□	120		750	12.5	3.6
□□□□□ (W)		750				

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)	85.293%
Average Noise Output (>1450 Load Combinations)	36.39dBA
PF□□□ (>1450 Load Combinations)	0.986
Efficiency With 10W (≤500W) or 2% (>500W) Load	60.853%
□□□□□□	0.0421W
Non-Accredited	
12V Ripple (Full Load)	45.68mV
5V Ripple (Full Load)	40.49mV
3.3V Ripple (Full Load)	31.39mV
5VSB Ripple (Full Load)	34.10mV
12V Load Regulation	0.84%
5V Load Regulation	0.88%
3.3V Load Regulation	0.75%

5VSB Load Regulation	5.15%
Inrush Current	35.020A

230V

Accredited		
□□□□ (>1450 load combinations)		87.734%
Average Noise Output (>1450 Load Combinations)		35.93dBA
PF□□□ (>1450 Load Combinations)		0.953
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.0824W
Non-Accredited		
12V Ripple (Full Load)		45.91mV
5V Ripple (Full Load)		38.73mV
3.3V Ripple (Full Load)		33.22mV
5VSB Ripple (Full Load)		31.59mV
12V Load Regulation		0.92%
5V Load Regulation		0.86%
3.3V Load Regulation		0.72%
5VSB Load Regulation		5.09%
Inrush Current		85.590A
□□□□ & PG□□		10.70ms
AC Loss to PWR_OK Hold Up Time		9.80ms
PWR_OK Inactive to DC Loss Delay		0.90ms
PSU Timings: T1 (20% / 100%)	58.0ms	56.0ms
PSU Timings: T3 (20% / 100%)	276.0ms	274.0ms
OPP (28.37°C / 42.29°C)	127.06%	119.05%

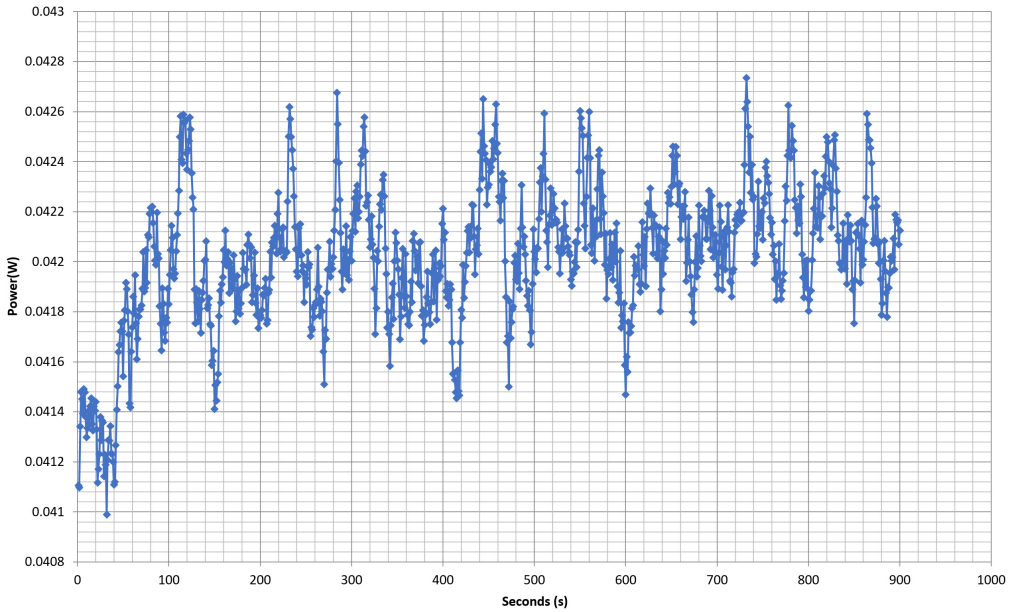
□□□□ & PG□□

Hold-Up Time (ms)	10.7
AC Loss to PWR_OK Hold Up Time (ms)	9.8

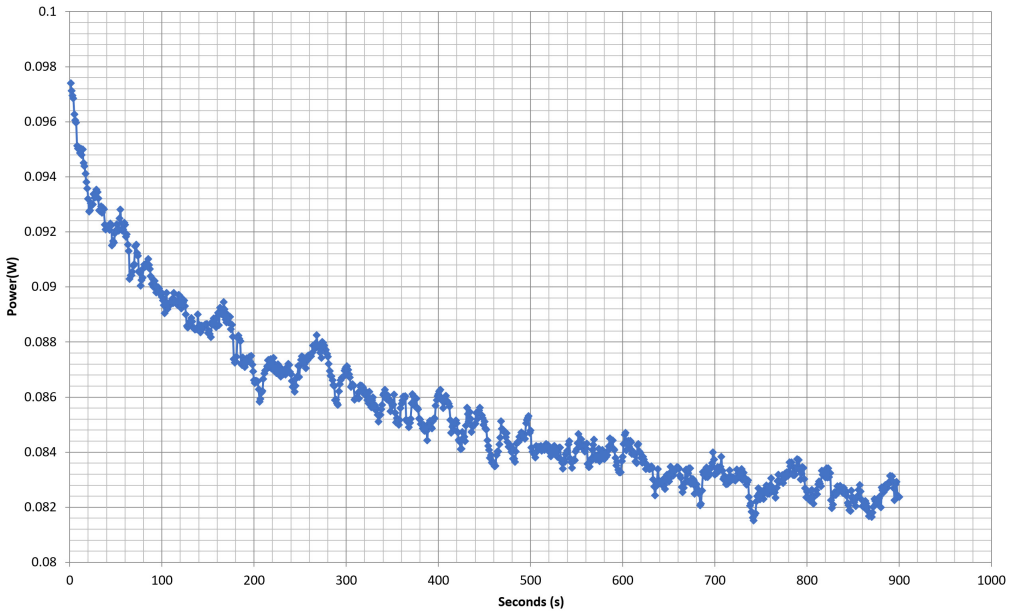
PWR_OK Inactive to DC Loss Delay (ms)	0.9

Graphs

115V



230V



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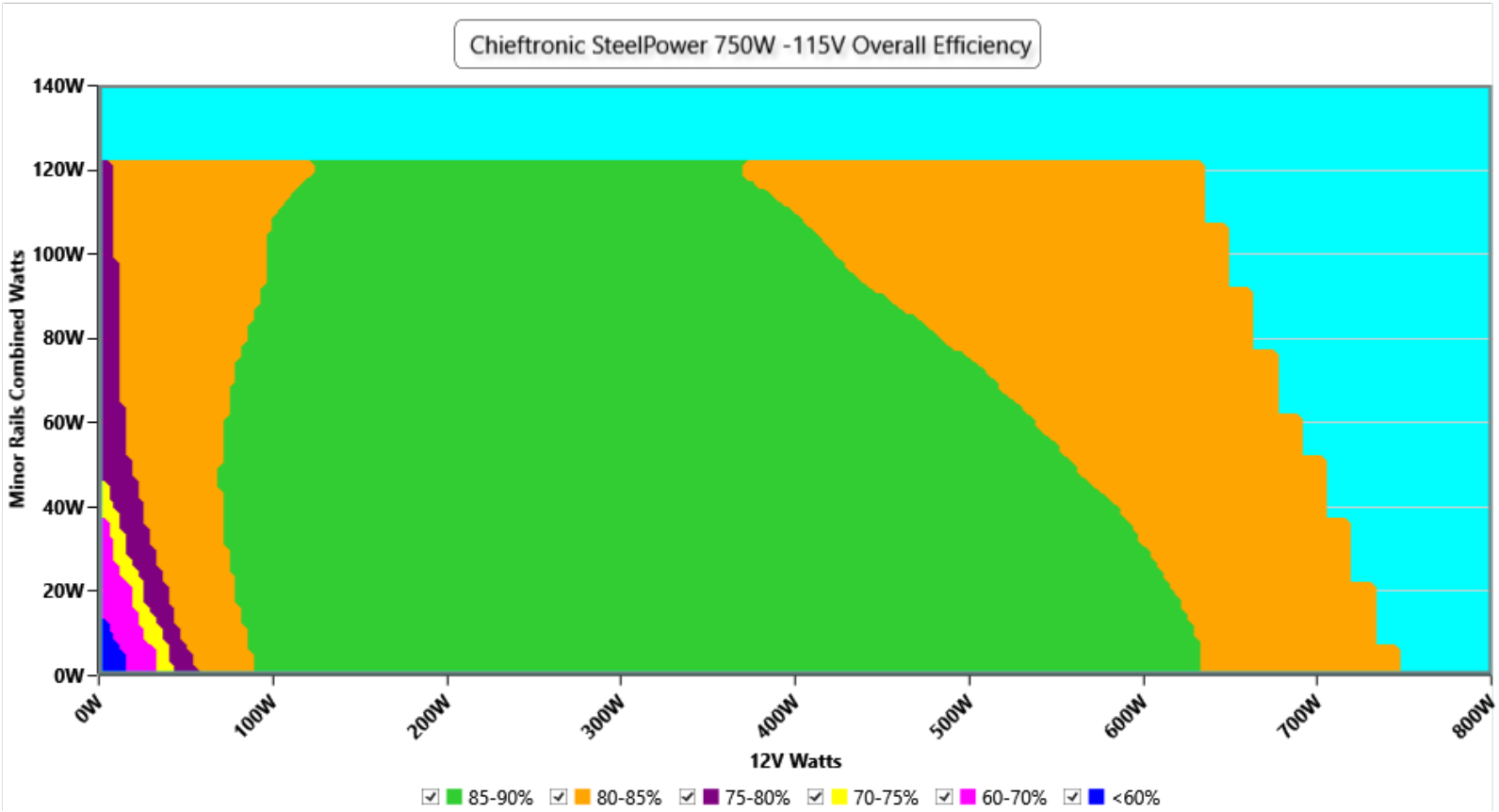
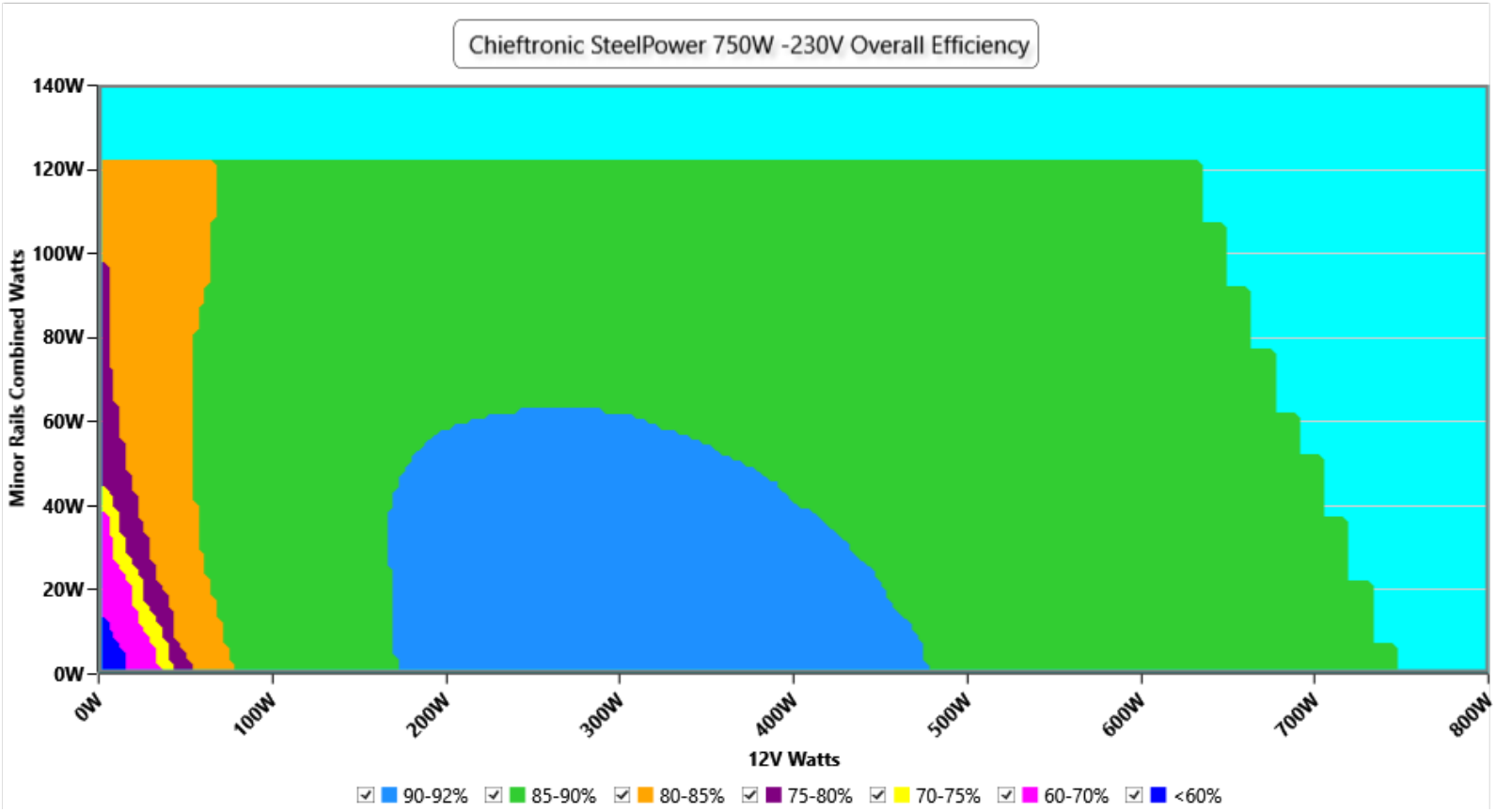
115V



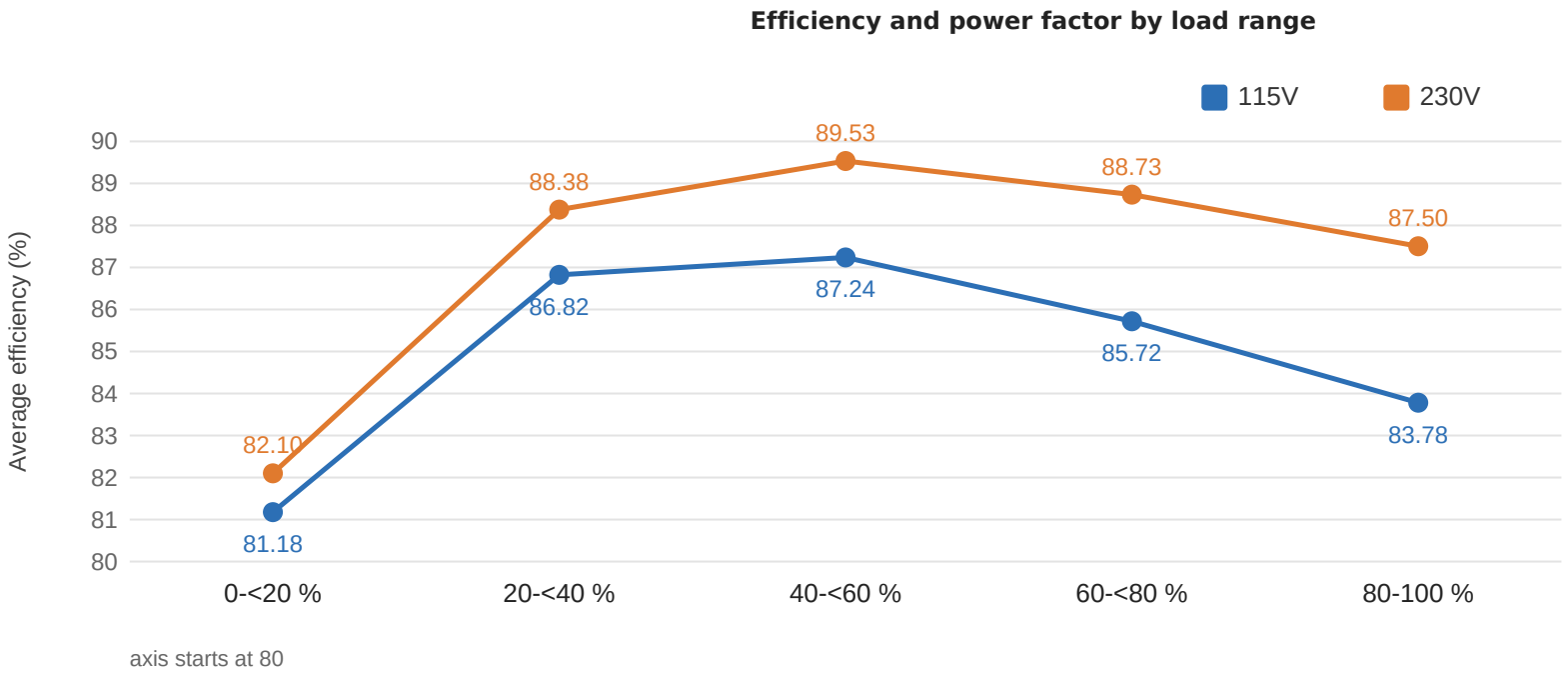
□□

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

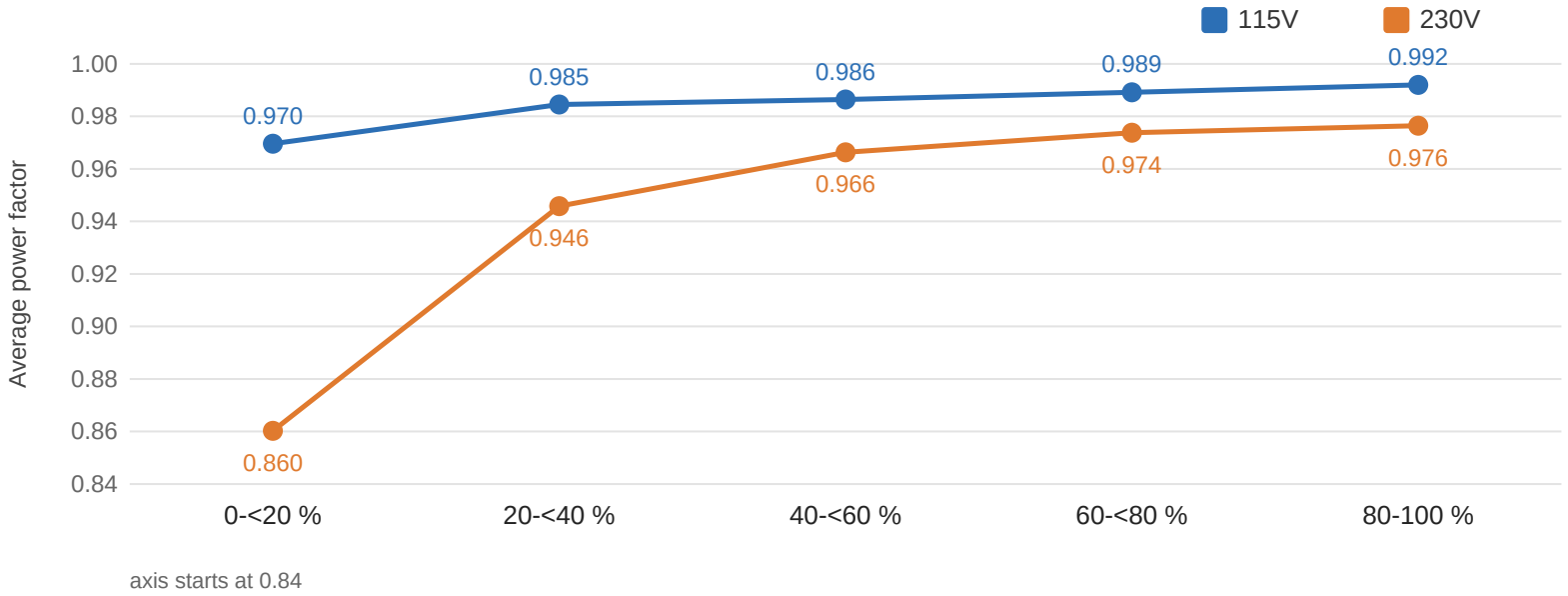
230V



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



axis starts at 80



axis starts at 0.84

Load range	Points	Efficiency 115V	Efficiency 230V	PF 115V	PF 230V
0-<20 %	183 / 183	81.18%	82.10%	0.970	0.860
20-<40 %	321 / 321	86.82%	88.38%	0.985	0.946
40-<60 %	321 / 321	87.24%	89.53%	0.986	0.966
60-<80 %	322 / 322	85.72%	88.73%	0.989	0.974
80-100 %	330 / 330	83.78%	87.50%	0.992	0.976
70-100 % (High-Load)	490 / 490	84.25%	87.81%	0.991	0.976
All (published average)	1477 / 1477	85.29%	87.73%	0.986	0.953

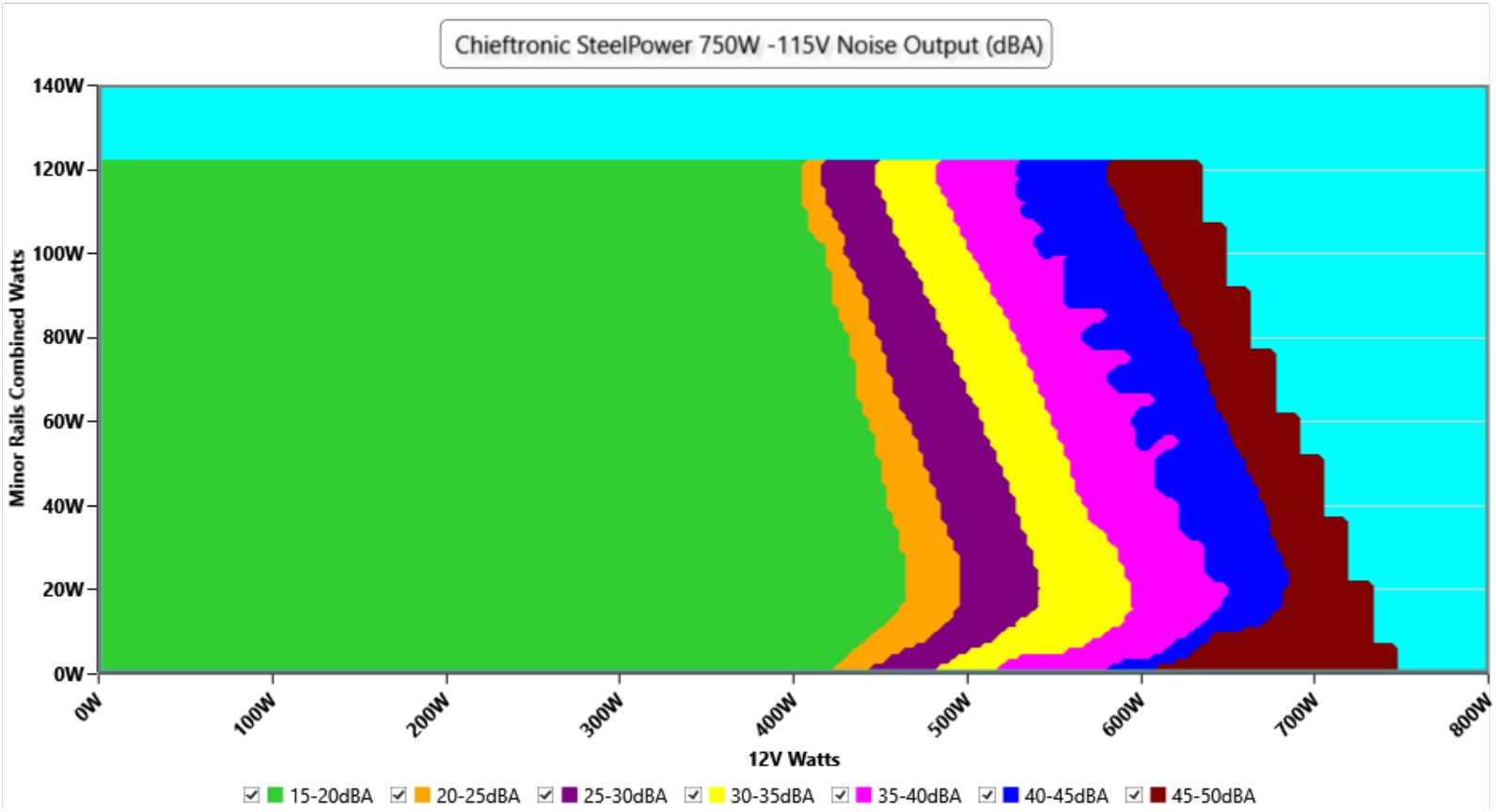
INFO

The average efficiency and power factor in five ranges of load. Calculated from the 1477 (115V) and 1477 (230V) load combinations of the certification sweep, the same data that ETA and LAMBDA use (test 0 excluded). Load is the total DC output as a share of the rated 750 W. These are plain averages of the valid readings, as for the ETA rating, so the ranges combined give back the published averages.

Informational. Not part of the ETA or LAMBDA rating.

□□□□□

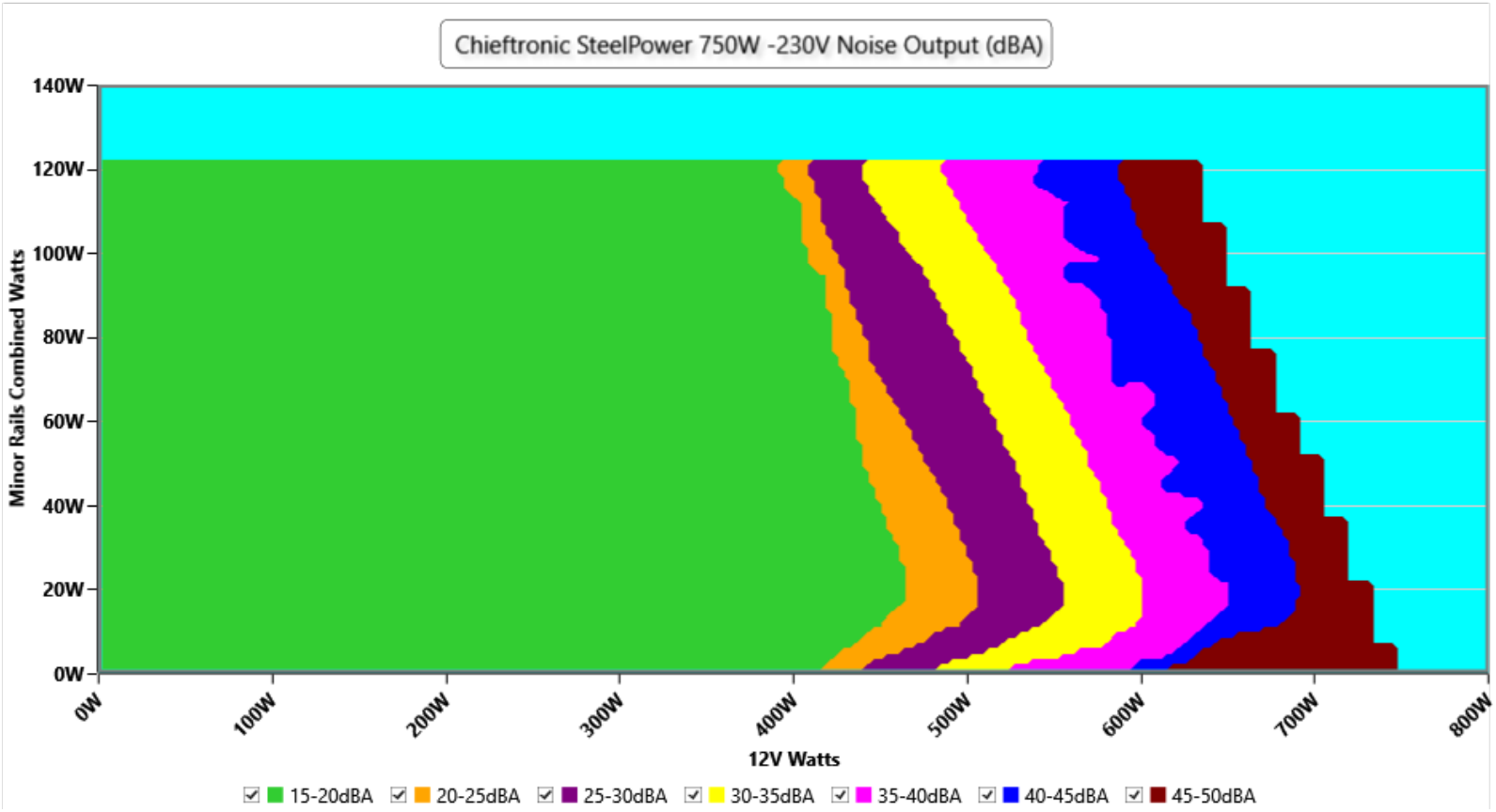
115V



□□

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

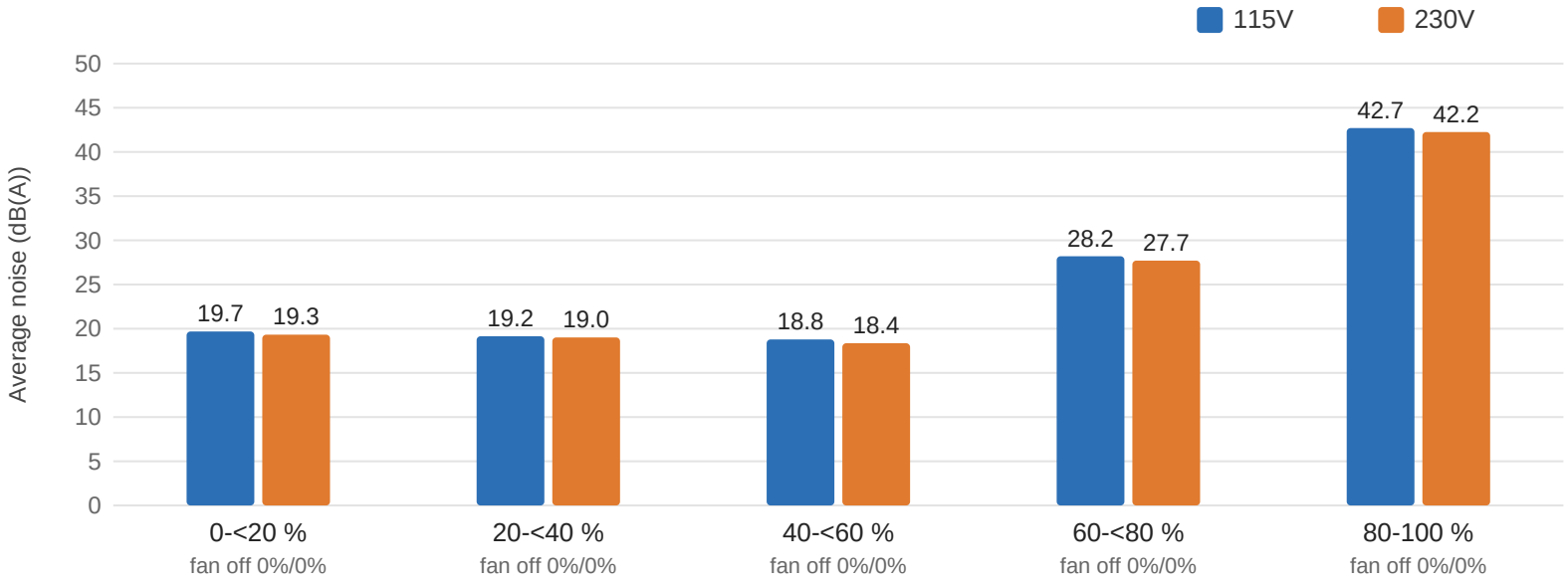
230V



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 by load range

High-Load Index (70-100 % load)
Noise **41.1 dB(A)** at 115V and **40.7 dB(A)** at 230V · loudest point 48.4 dB(A)
Efficiency 84.25% / 87.81% · power factor 0.991 / 0.976 (115V / 230V)



Load range	Noise 115V avg (loudest)	Noise 230V avg (loudest)	Fan off 115V / 230V
0-<20 %	19.7 (19.7)	19.3 (19.7)	0% / 0%
20-<40 %	19.2 (19.7)	19.0 (19.7)	0% / 0%
40-<60 %	18.8 (22.2)	18.4 (23.7)	0% / 0%
60-<80 %	28.2 (41.4)	27.7 (37.2)	0% / 0%
80-100 %	42.7 (48.4)	42.2 (46.9)	0% / 0%
70-100 % (High-Load)	41.1 (48.4)	40.7 (46.9)	0% / 0%
All (published average)	36.4 (48.4)	35.9 (46.9)	0% / 0%

INFO

The average noise in five ranges of load, the share of points with the fan stopped (semi-passive operation), and the High-Load Index: the same figures for all points at 70 % of the rated output and above. Calculated from the 1477 (115V) and 1477 (230V) load combinations of the certification sweep, the same data that ETA and LAMBDA use (test 0 excluded). Load is the total DC output as a share of the rated 750 W. Noise is averaged on the energy scale, as for LAMBDA, so the ranges combined give back the published average noise. Each load combination is held for about five seconds; the stabilized readings at fixed loads are under "Noise under high ambient temperature".

Informational. Not part of the ETA or LAMBDA rating.

Noise under high ambient temperature (indicative)

115V

Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	718 RPM · 21.2 dB(A) · 39.7 °C	718 RPM · 21.2 dB(A) · 39.7 °C	**+0.0 dB(A)**
20%	724 RPM · 19.2 dB(A) · 40.7 °C	724 RPM · 19.2 dB(A) · 40.7 °C	**+0.0 dB(A)**
50%	732 RPM · 19.0 dB(A) · 42.2 °C	732 RPM · 19.0 dB(A) · 42.2 °C	**+0.0 dB(A)**
100%	2360 RPM · 49.6 dB(A) · 45.4 °C	2360 RPM · 49.6 dB(A) · 45.4 °C	**+0.0 dB(A)**

230V

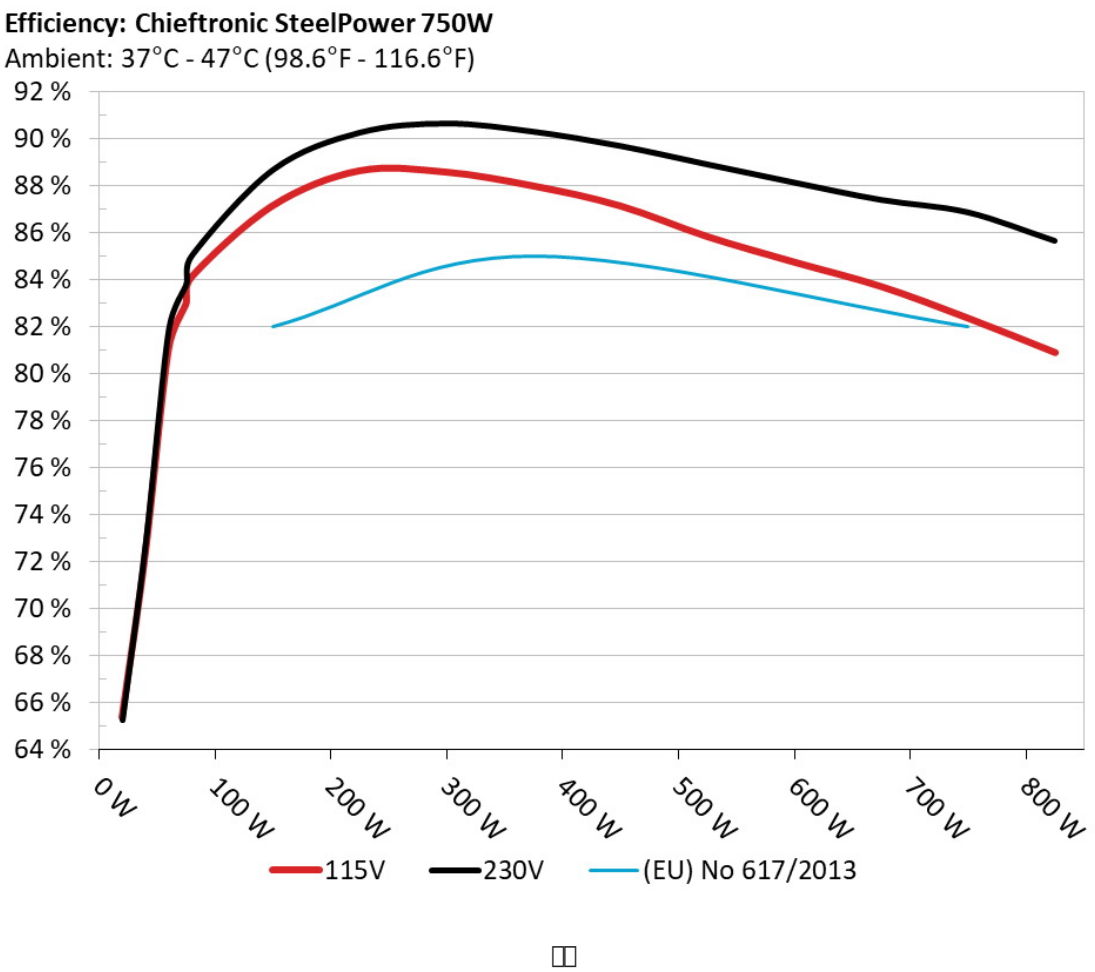
Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	717 RPM · 22.0 dB(A) · 40.7 °C	717 RPM · 22.0 dB(A) · 40.7 °C	**+0.0 dB(A)**
20%	720 RPM · 21.2 dB(A) · 41.1 °C	720 RPM · 21.2 dB(A) · 41.1 °C	**+0.0 dB(A)**
50%	732 RPM · 19.0 dB(A) · 42.1 °C	732 RPM · 19.0 dB(A) · 42.1 °C	**+0.0 dB(A)**
100%	2277 RPM · 49.7 dB(A) · 45.5 °C	2277 RPM · 49.7 dB(A) · 45.5 °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.

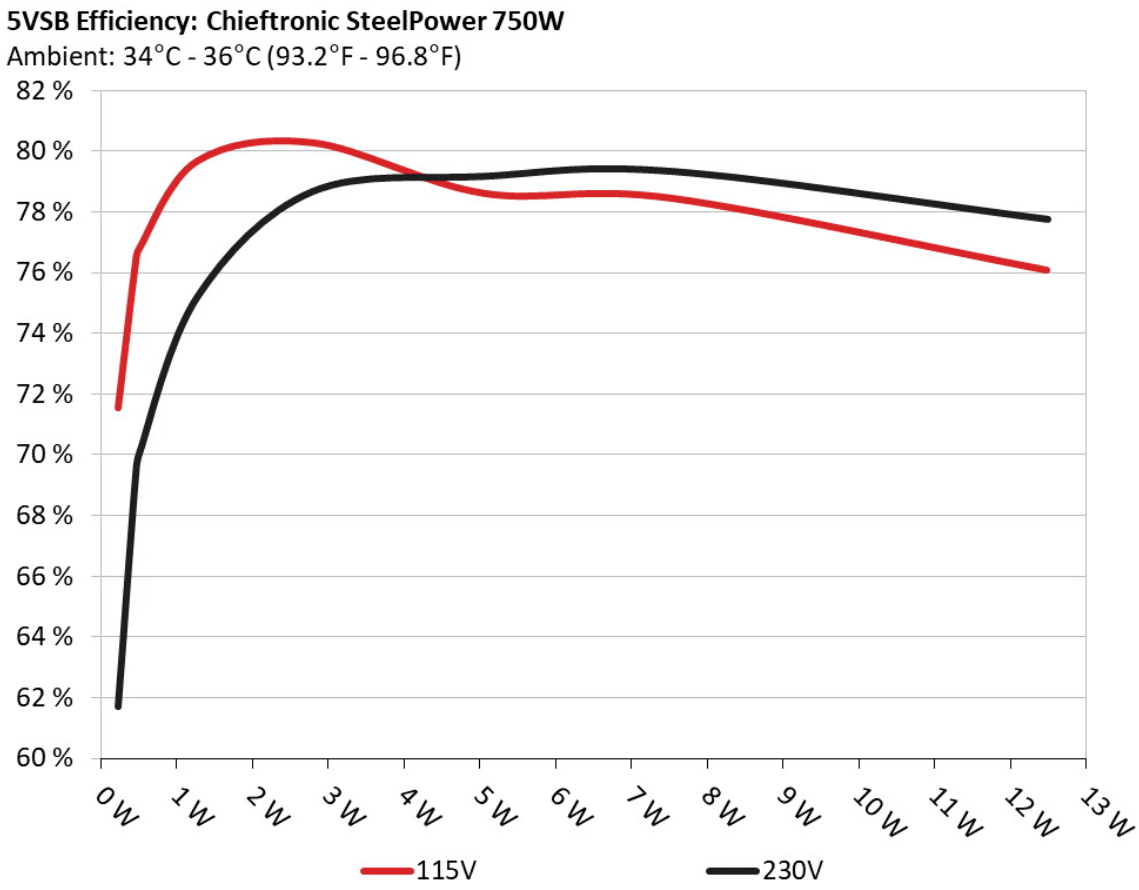
Informational. Not part of the ETA or LAMBDA rating.

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	0.229W	71.54%	0.032
	5.094V	0.32W		115.15V
2	0.09A	0.458W	76.315%	0.06
	5.093V	0.6W		115.14V
3	0.55A	2.791W	80.287%	0.254
	5.073V	3.476W		115.15V
4	1A	5.055W	78.618%	0.34
	5.054V	6.43W		115.15V
5	1.5A	7.555W	78.448%	0.385
	5.036V	9.631W		115.16V
6	2.501A	12.487W	76.081%	0.433
	4.994V	16.413W		115.16V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.229W	61.716%	0.011
	5.094V	0.371W		230.39V
2	0.09A	0.458W	69.278%	0.02
	5.092V	0.661W		230.39V
3	0.55A	2.791W	78.672%	0.102
	5.073V	3.548W		230.39V
4	1A	5.055W	79.175%	0.168
	5.054V	6.385W		230.38V
5	1.5A	7.556W	79.334%	0.222
	5.036V	9.524W		230.38V
6	2.501A	12.489W	77.76%	0.295
	4.995V	16.061W		230.37V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
10%	4.438A	1.987A	1.966A	0.993A	75.003	82.951%	718	21.2	39.65°C	0.97
	12.033V	5.035V	3.358V	5.037V	90.418				44.83°C	115.19V
20%	9.902A	2.983A	2.951A	1.197A	149.963	87.138%	724	19.2	40.69°C	0.981
	12.023V	5.03V	3.355V	5.014V	172.098				46.35°C	115.19V
30%	15.719A	3.483A	3.445A	1.403A	224.971	88.623%	727	18.8	41.86°C	0.986
	12.018V	5.026V	3.353V	4.991V	253.853				48.27°C	115.19V
40%	21.544A	3.984A	3.94A	1.611A	300.062	88.561%	730	18.4	41.94°C	0.986
	12.015V	5.022V	3.351V	4.968V	338.818				48.85°C	115.18V
50%	27.008A	4.984A	4.929A	1.821A	374.633	87.974%	732	19.0	42.15°C	0.986
	12.001V	5.017V	3.348V	4.945V	425.847				49.66°C	115.18V
60%	32.515A	5.985A	5.918A	2A	449.357	87.131%	736	19.4	42.74°C	0.986
	11.985V	5.014V	3.346V	4.923V	515.729				50.87°C	115.18V
70%	38.010A	6.991A	6.91A	2.248A	524.524	85.824%	1086	27.6	43.21°C	0.989
	11.981V	5.008V	3.343V	4.894V	611.165				51.88°C	115.18V
80%	43.607A	7.996A	7.902A	2.36A	599.738	84.734%	1525	37.3	43.82°C	0.991
	11.967V	5.004V	3.341V	4.873V	707.786				53.01°C	115.18V
90%	49.554A	8.5A	8.386A	2.473A	674.786	83.695%	2115	47.4	44.06°C	0.992
	11.952V	5.001V	3.339V	4.854V	806.245				53.81°C	115.18V
100%	55.509A	9.007A	8.902A	2.587A	749.924	82.343%	2360	49.6	45.44°C	0.993
	11.939V	4.997V	3.336V	4.833V	910.728				55.62°C	115.18V
110%	61.135A	10.018A	9.989A	2.596A	824.926	80.886%	2361	49.6	46.66°C	0.994
	11.926V	4.991V	3.333V	4.816V	1019.884				57.49°C	115.19V
CL1	0.116A	14.437A	14.271A	0A	121.306	79.812%	741	19.1	42.04°C	0.983
	12.047V	5.001V	3.342V	5.034V	151.989				49.14°C	115.2V

CL2	0.116A	20.027A	0A	0A	101.397	78.43%	743	18.4	43.46°C	0.976
	12.061V	4.993V	3.348V	5.059V	129.284				51.91°C	115.2V
CL3	0.116A	0A	19.712A	0A	67.393	72.809%	721	21.2	44.45°C	0.973
	12.053V	5.021V	3.348V	5.048V	92.561				53.62°C	115.2V
CL4	62.819A	0.001A	0A	0.004A	749.793	83.277%	2362	49.6	45.18°C	0.993
	11.935V	5.015V	3.346V	4.967V	900.376				55.41°C	115.18V

The results above are not used in the certification process

230V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
10%	4.438A	1.986A	1.966A	0.993A	75	83.799%	717	22.0	40.72°C	0.841
	12.033V	5.035V	3.358V	5.037V	89.5				46.61°C	230.39V
20%	9.903A	2.982A	2.951A	1.197A	149.951	88.677%	720	21.2	41.12°C	0.921
	12.022V	5.03V	3.355V	5.014V	169.097				47.51°C	230.39V
30%	15.723A	3.482A	3.445A	1.403A	224.957	90.261%	726	19.2	41.44°C	0.948
	12.014V	5.026V	3.353V	4.991V	249.23				48.22°C	230.4V
40%	21.548A	3.983A	3.94A	1.611A	300.047	90.643%	728	18.4	41.78°C	0.96
	12.012V	5.022V	3.351V	4.968V	331.019				49.04°C	230.4V
50%	27.014A	4.984A	4.929A	1.821A	374.617	90.296%	732	19.0	42.11°C	0.967
	11.998V	5.017V	3.348V	4.944V	414.876				49.84°C	230.4V
60%	32.507A	5.987A	5.919A	2.001A	449.382	89.693%	737	19.5	42.88°C	0.971
	11.989V	5.012V	3.345V	4.92V	501.021				51.34°C	230.41V
70%	38.019A	6.991A	6.911A	2.248A	524.481	88.909%	1112	30.2	43.35°C	0.974
	11.977V	5.008V	3.343V	4.894V	589.909				52.42°C	230.41V
80%	43.620A	7.996A	7.902A	2.36A	599.685	88.135%	1487	37.0	43.92°C	0.976
	11.962V	5.004V	3.341V	4.873V	680.421				53.55°C	230.41V
90%	49.572A	8.499A	8.386A	2.473A	674.729	87.397%	2012	45.4	44.61°C	0.976
	11.947V	5.001V	3.339V	4.854V	772.03				54.72°C	230.42V
100%	55.527A	9.004A	8.9A	2.585A	749.728	86.868%	2277	49.7	45.51°C	0.976
	11.932V	4.998V	3.337V	4.836V	863.076				56.05°C	230.41V

110%	61.156A	10.016A	9.989A	2.596A	824.863	85.655%	2358	49.5	46.73°C	0.978
	11.921V	4.992V	3.333V	4.816V	963.016				57.62°C	230.42V
CL1	0.116A	14.44A	14.271A	0A	121.301	81.137%	739	19.5	42.1°C	0.913
	12.048V	5V	3.342V	5.035V	149.503				49.85°C	230.43V
CL2	0.116A	19.996A	0A	0A	101.39	79.713%	738	19.5	43.24°C	0.896
	12.043V	5.001V	3.349V	5.059V	127.195				51.67°C	230.42V
CL3	0.116A	0A	19.707A	0A	67.387	73.411%	720	21.2	44.84°C	0.847
	12.048V	5.024V	3.349V	5.049V	91.794				54.2°C	230.42V
CL4	62.819A	0.001A	0A	0.004A	749.727	87.447%	2346	49.7	45.93°C	0.978
	11.934V	5.015V	3.346V	4.967V	857.357				56.46°C	230.42V

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 □□
20W	1.234A	0.496A	0.491A	0.197A	20.002	65.364%	714	22.5	36.87°C	0.891
	12.040V	5.041V	3.361V	5.082V	30.602				40.14°C	115.19V
40W	2.716A	0.694A	0.687A	0.296A	40	72.345%	715	22.5	37.34°C	0.949
	12.038V	5.04V	3.36V	5.074V	55.291				41.12°C	115.19V
60W	4.198A	0.893A	0.884A	0.395A	59.999	81.022%	715	22.5	38.04°C	0.96
	12.034V	5.038V	3.359V	5.066V	74.053				42.32°C	115.19V
80W	5.680A	1.092A	1.081A	0.494A	79.962	84.104%	715	22.5	38.58°C	0.974
	12.031V	5.037V	3.359V	5.058V	95.076				43.21°C	115.19V

The results above are not used in the certification process

230V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
20W	1.233A	0.496A	0.491A	0.197A	19.999	65.256%	712	22.4	36.83°C	0.563
	12.042V	5.041V	3.361V	5.082V	30.647				40.06°C	230.4V
40W	2.716A	0.694A	0.687A	0.296A	39.998	72.806%	708	21.9	37.73°C	0.735
	12.036V	5.04V	3.36V	5.075V	54.938				41.61°C	230.4V
60W	4.200A	0.893A	0.884A	0.395A	59.996	81.896%	709	21.9	38.46°C	0.801
	12.029V	5.039V	3.359V	5.067V	73.258				42.71°C	230.4V
80W	5.680A	1.092A	1.081A	0.494A	79.954	85.036%	712	22.4	38.97°C	0.85
	12.028V	5.038V	3.359V	5.058V	94.023				43.86°C	230.39V

The results above are not used in the certification process

□□□□

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.74mV	10.53mV	4.50mV	11.22mV	Pass
20% Load	13.69mV	10.64mV	5.68mV	16.32mV	Pass
30% Load	39.45mV	11.61mV	6.86mV	12.08mV	Pass
40% Load	34.65mV	28.64mV	10.14mV	17.13mV	Pass
50% Load	29.33mV	14.37mV	7.98mV	17.23mV	Pass
60% Load	24.79mV	17.85mV	11.92mV	20.60mV	Pass
70% Load	22.75mV	18.26mV	13.92mV	24.11mV	Pass
80% Load	24.36mV	20.51mV	18.32mV	25.90mV	Pass
90% Load	26.40mV	26.49mV	21.19mV	28.75mV	Pass
100% Load	45.68mV	40.49mV	31.39mV	34.10mV	Pass
110% Load	46.69mV	32.96mV	25.33mV	35.23mV	Pass
Crossload1	11.18mV	9.77mV	14.46mV	8.00mV	Pass
Crossload2	23.04mV	11.10mV	6.60mV	7.50mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	12.26mV	9.41mV	20.98mV	7.14mV	Pass
Crossload4	44.32mV	30.50mV	19.77mV	25.29mV	Pass

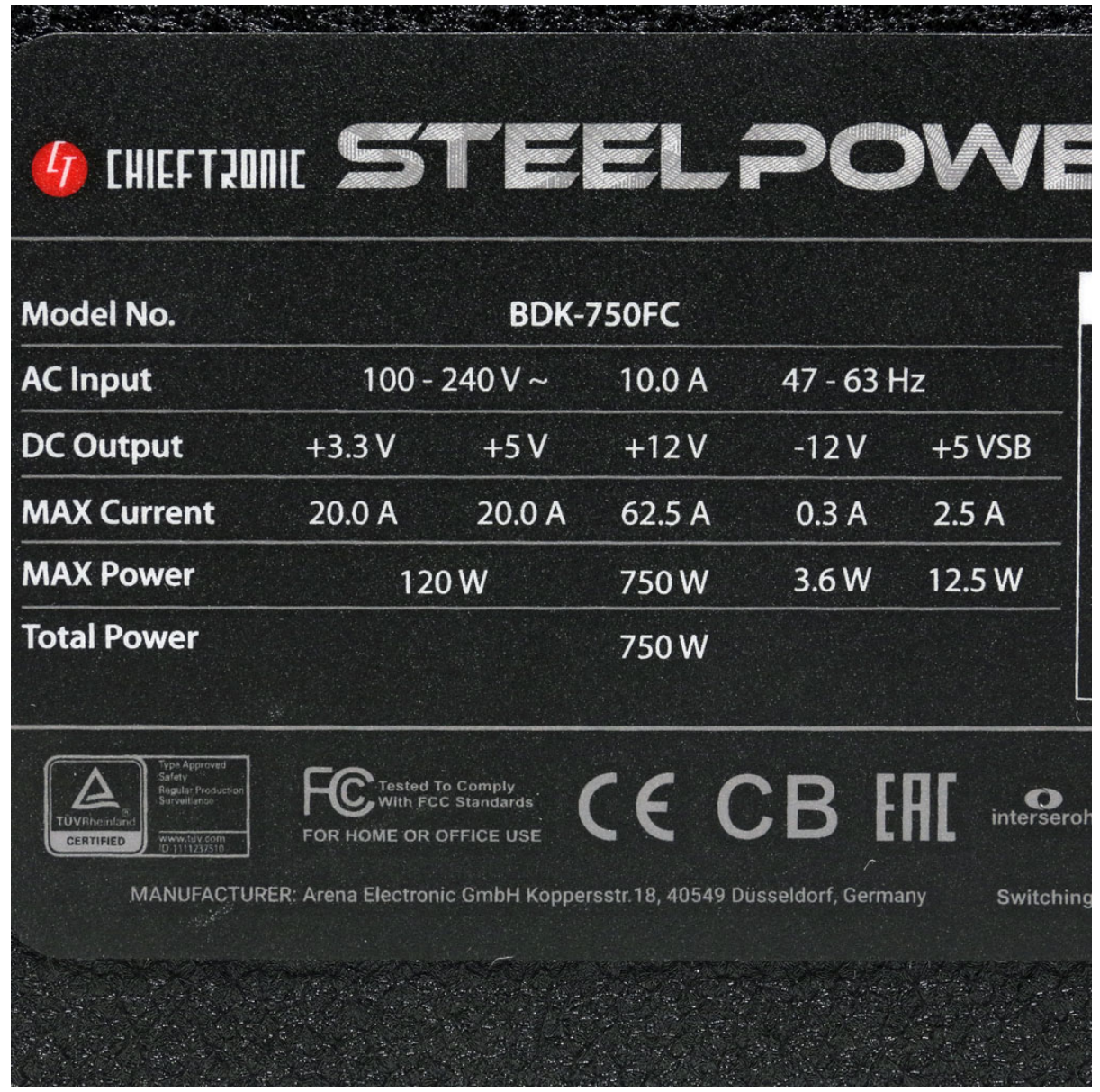
The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.89mV	9.97mV	4.45mV	10.91mV	Pass
20% Load	14.87mV	10.12mV	5.63mV	15.55mV	Pass
30% Load	41.44mV	12.07mV	6.81mV	12.08mV	Pass
40% Load	35.00mV	27.20mV	10.59mV	17.38mV	Pass
50% Load	31.89mV	14.22mV	8.14mV	18.35mV	Pass
60% Load	26.27mV	18.77mV	12.23mV	21.05mV	Pass
70% Load	24.53mV	20.91mV	15.56mV	23.04mV	Pass
80% Load	26.17mV	20.45mV	18.63mV	24.52mV	Pass
90% Load	27.90mV	29.66mV	22.67mV	29.82mV	Pass
100% Load	45.91mV	38.73mV	33.22mV	31.59mV	Pass
110% Load	47.89mV	31.80mV	30.54mV	36.26mV	Pass
Crossload1	11.90mV	10.43mV	14.41mV	8.43mV	Pass
Crossload2	17.06mV	10.89mV	6.30mV	7.09mV	Pass
Crossload3	11.85mV	10.28mV	20.52mV	6.83mV	Pass
Crossload4	45.79mV	29.49mV	19.59mV	25.23mV	Pass

The results above are not used in the certification process





Chieftronic SteelPower 750W

Top side

Power specifications label

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