Kolink SFX-450

Serial Number 19420900114914 50BRP1H02000128

Lab ID KL45001788

Certification ID 251788

Test Result Report ID: 21PS1788A

Certificate Issue Date: Feb 8, 2021

230V

Scheme: ETA-EMI PSU

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	Kolink
Model	SFX-450
OEM/ODM	
Serial Number	1942090011491450BRP1H02000128
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	230
Rated Current (Arms)	3.5
Rated Frequency (Hz)	50

Rated Power (W)	450
Operating Temperature (Continuous Full Load) (°C)	
Type	SFX
Cable Design	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	80mm Sleeve Bearing Fan (S0801512H)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	KL45001788
Date of receipt	Jun 27, 2021
Testing Date	Feb 4, 2021
Report Issued Date	Feb 8, 2021
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Captive Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (360mm)	1	1	18-22AWG	No
4+4 pin EPS12V (400mm)	1	1	18-20AWG	No
6+2 pin PCIe (500mm+110mm)	1	2	18-20AWG	No
SATA (300mm+150mm) / 4-pin Molex (+150mm)	2	4 / 2	20AWG	No

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	21	22	36	3	0.5
	Watts	120		432	15	6
Total Max. Power (W)		450				

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
ErP Lot 3/6 Ready	ErP Lot 6 2010: ✓ ErP Lot 6 2013: ✓ ErP Lot 3 2014 & CEC: Partially
(EU) No 617/2013 Compliance	✓

Performance Summary 230V

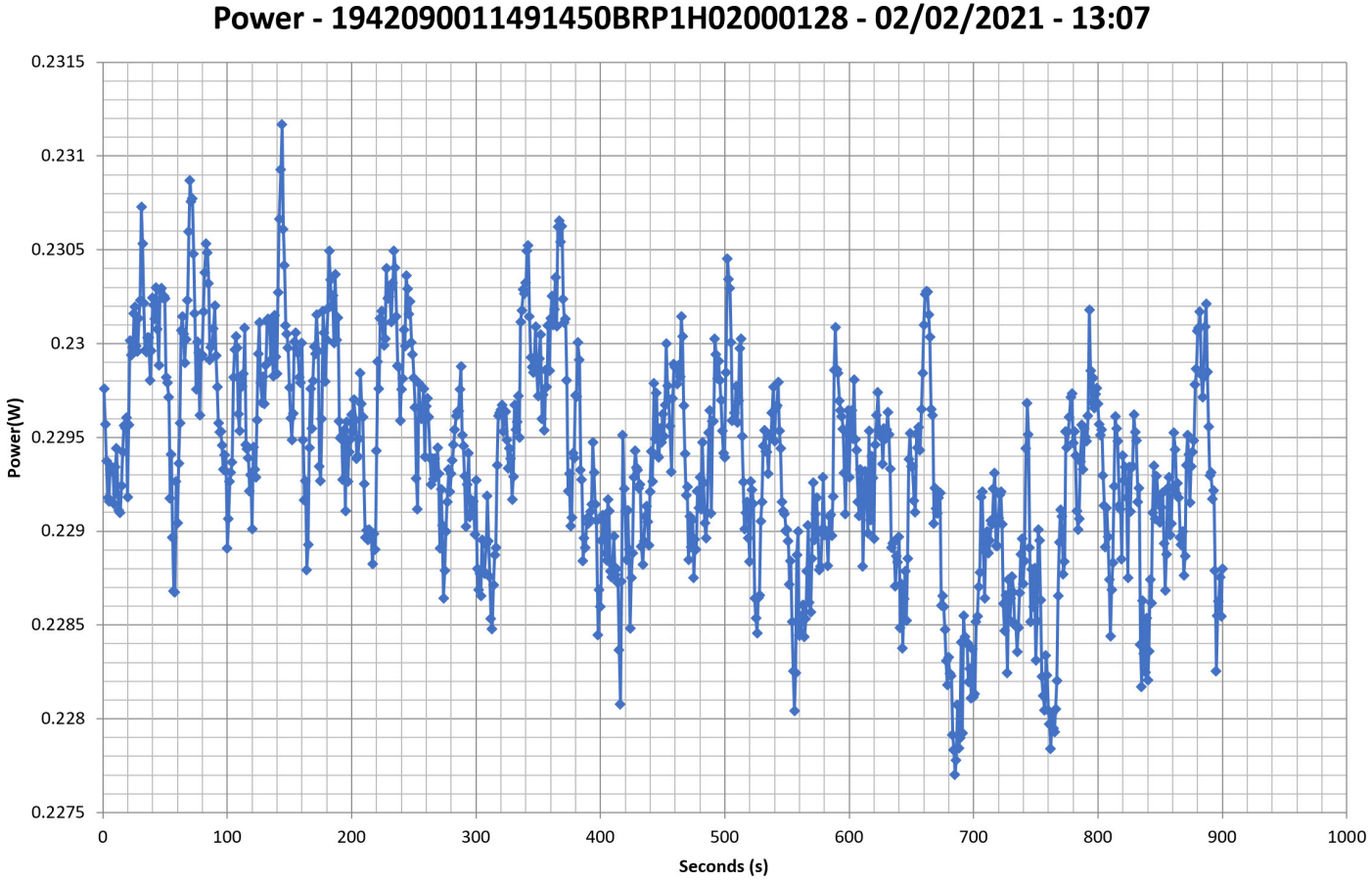
Accredited	
Average Efficiency (>1450 load combinations)	83.902%
Average Noise Output (>1450 Load Combinations)	38.31dBA
Average PF (>1450 Load Combinations)	0.979
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.2288W
Non-Accredited	
12V Ripple (Full Load)	66.32mV
5V Ripple (Full Load)	33.44mV
3.3V Ripple (Full Load)	30.03mV
5VSB Ripple (Full Load)	24.71mV
12V Load Regulation	1.79%
5V Load Regulation	2.76%
3.3V Load Regulation	2.51%

5VSB Load Regulation		3.75%
Inrush Current		73.800A
Hold-Up Time & PWR_OK Signal		7.70ms
AC Loss to PWR_OK Hold Up Time		24.90ms
PWR_OK Inactive to DC Loss Delay		-17.20ms
PSU Timings: T1 (20% / 100%)	56.0ms	56.0ms
PSU Timings: T3 (20% / 100%)	284.0ms	284.0ms
OPP (27.40°C / 0.00°C)	126.68%	-

Hold-Up Time & PWR_OK Signal

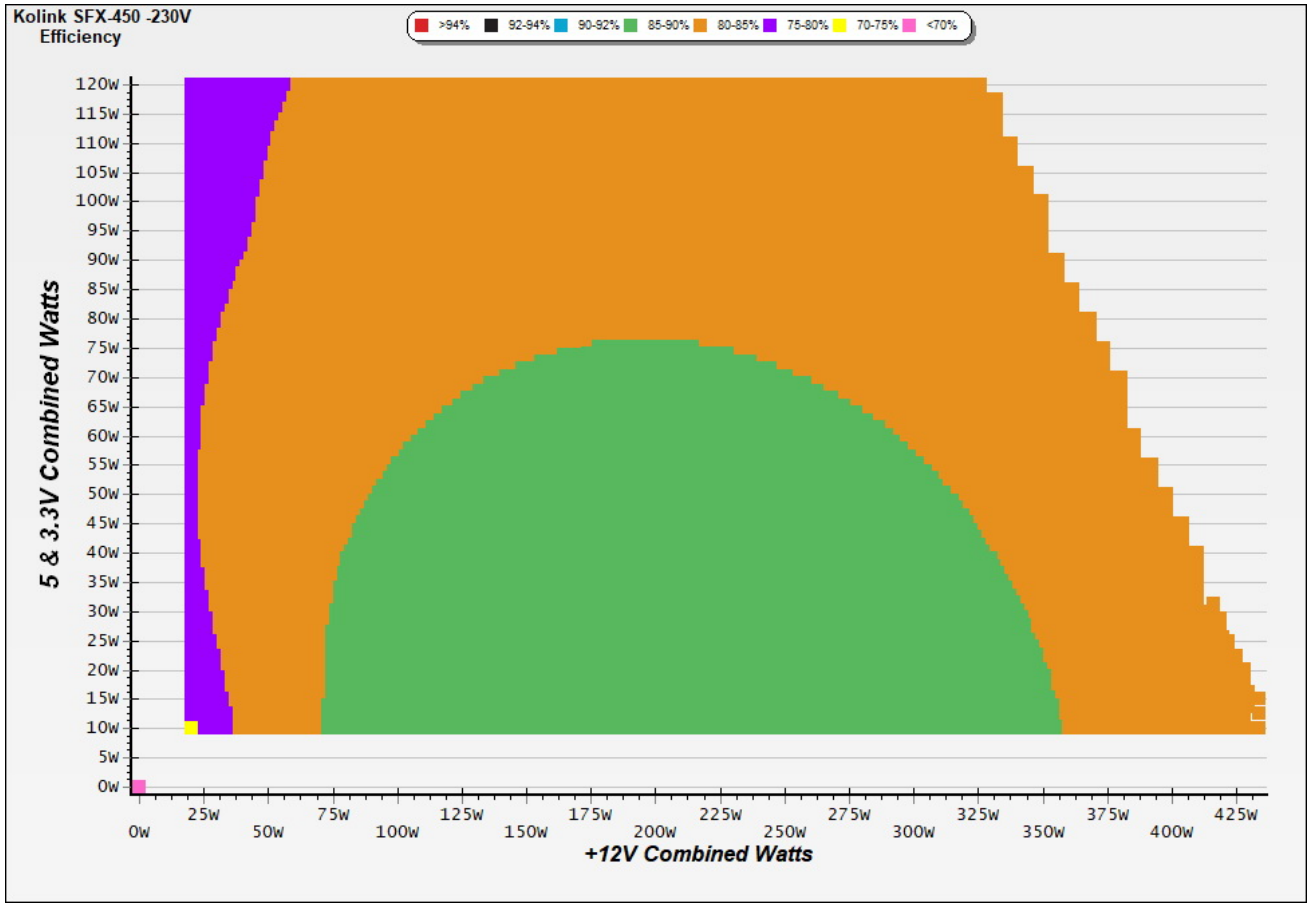
Hold-Up Time (ms)	7.7
AC Loss to PWR_OK Hold Up Time (ms)	24.9
PWR_OK Inactive to DC Loss Delay (ms)	-17.2

Graphs 230V


Power - 1942090011491450BRP1H02000128 - 02/02/2021 - 13:07
Power(W)
0.2315
0.231
0.2305
0.23
0.2295
0.229
0.2285
0.228
0.2275
0
100
200
300
400
500
600
700
800
900
1000
Seconds (s)

Efficiency Graph

230V

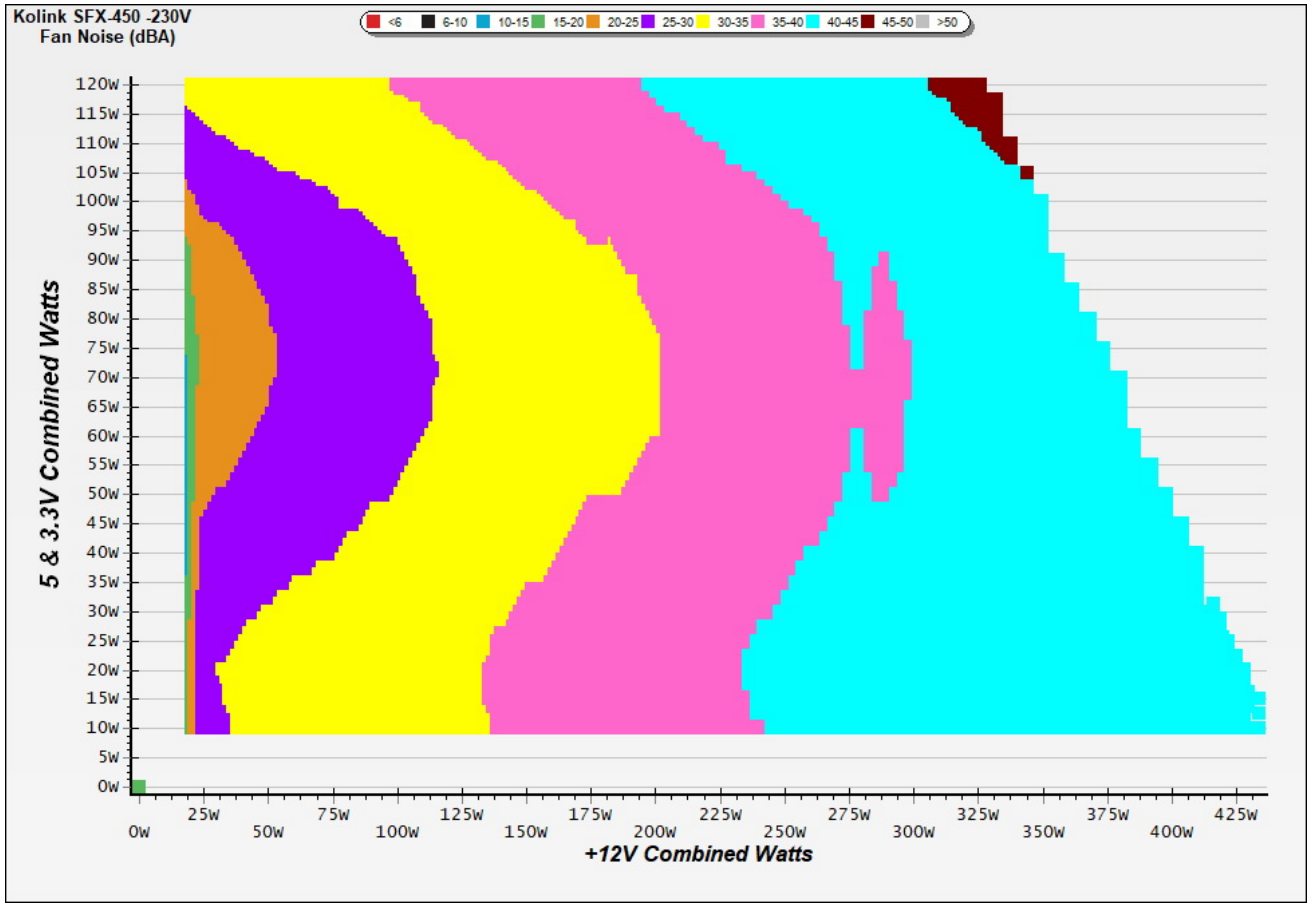


INFO

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

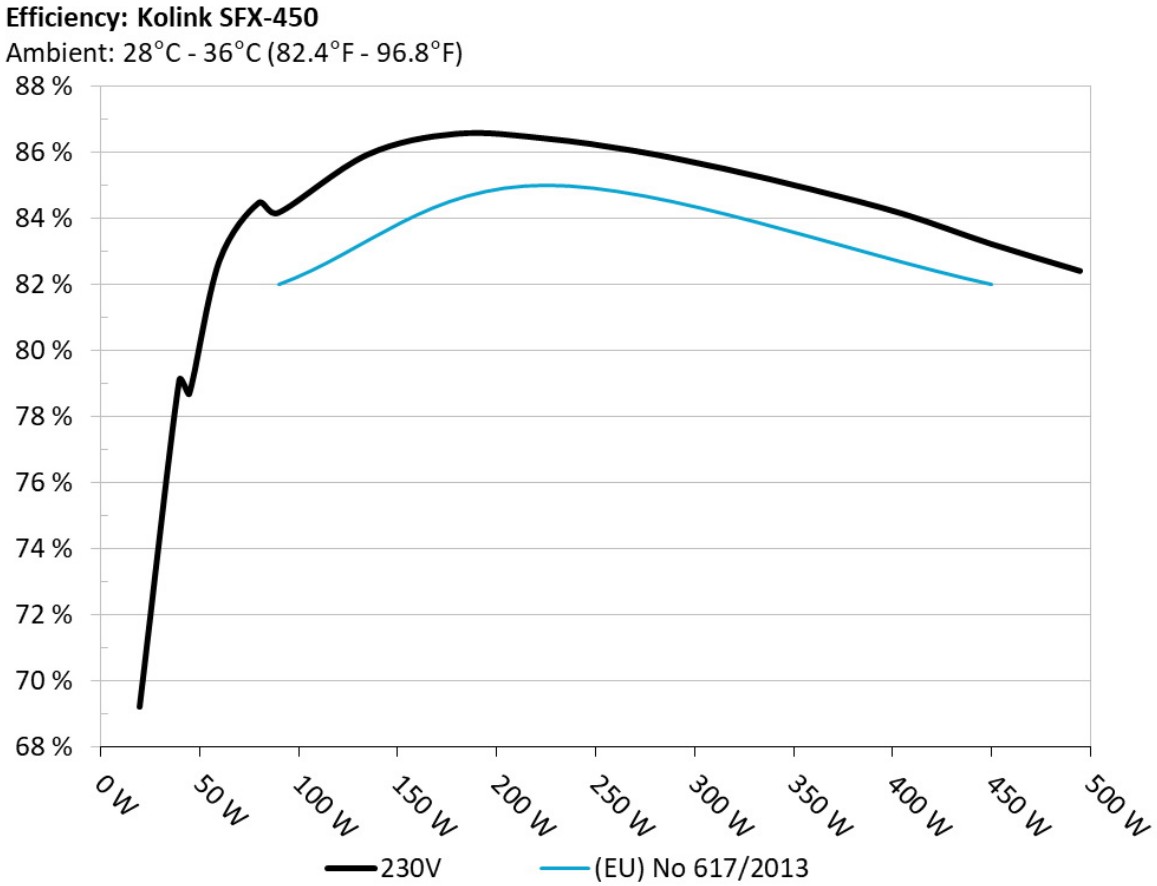


INFO

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

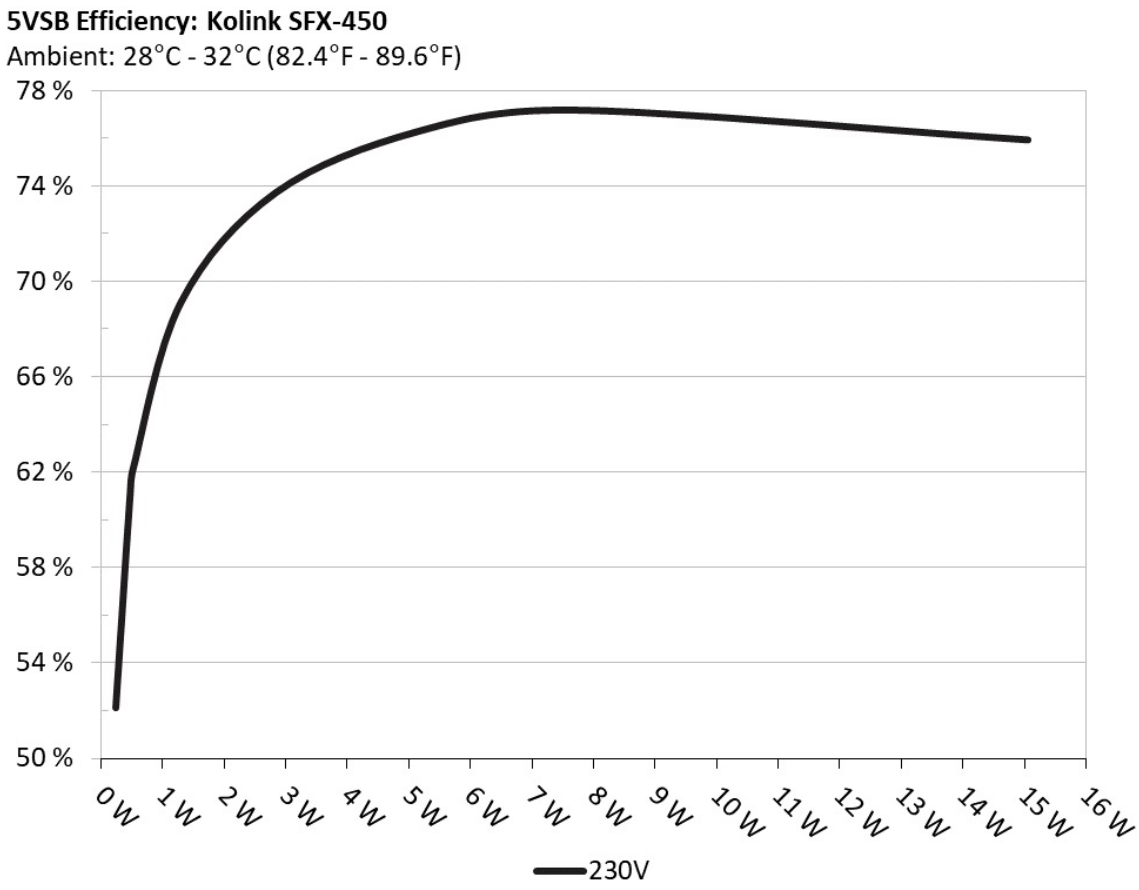
Efficiency under high ambient temperature



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	52.135%	0.029
	5.159V	0.445		230.35V

2	0.090A	0.464	61.053%	0.049
	5.157V	0.760		230.35V
3	0.550A	2.827	73.697%	0.202
	5.139V	3.836		230.35V
4	1.000A	5.121	76.251%	0.286
	5.120V	6.716		230.34V
5	1.500A	7.662	77.160%	0.337
	5.107V	9.930		230.34V
6	3.000A	15.049	75.913%	0.406
	5.016V	19.824		230.34V

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	1.948A	1.956A	1.973A	0.977A	44.957	78.679%	950	11.2	30.71°C	0.872
	11.989V	5.113V	3.345V	5.118V	57.140				35.15°C	230.38V
2	4.938A	2.942A	2.966A	1.176A	90.015	84.170%	1064	13.2	31.08°C	0.946
	11.973V	5.098V	3.336V	5.101V	106.944				36.16°C	230.39V
3	8.288A	3.436A	3.471A	1.376A	135.012	85.934%	1380	20.4	31.63°C	0.967
	11.940V	5.094V	3.328V	5.086V	157.112				37.56°C	230.40V
4	11.658A	3.929A	3.976A	1.577A	180.006	86.564%	1607	25.4	32.38°C	0.977
	11.907V	5.090V	3.319V	5.073V	207.945				38.91°C	230.40V
5	14.670A	4.930A	4.983A	1.780A	224.999	86.417%	2019	31.7	32.88°C	0.983
	11.895V	5.072V	3.310V	5.057V	260.363				40.28°C	230.39V
6	17.688A	5.937A	6.000A	1.985A	269.985	86.043%	2260	35.0	33.09°C	0.986
	11.882V	5.055V	3.300V	5.040V	313.779				41.19°C	230.38V
7	20.722A	6.947A	7.021A	2.191A	315.056	85.501%	2515	37.9	33.99°C	0.986
	11.869V	5.038V	3.291V	5.021V	368.482				42.65°C	230.37V
8	23.748A	7.968A	8.040A	2.404A	360.022	84.860%	2628	39.1	34.83°C	0.987
	11.859V	5.021V	3.282V	4.992V	424.253				43.96°C	230.36V

9	27.289A	8.469A	8.553A	2.404A	404.851	84.142%	2903	42.9	35.47°C	0.987
	11.813V	5.017V	3.273V	4.993V	481.151				45.43°C	230.35V
10	30.575A	8.980A	9.096A	3.029A	449.680	83.224%	3082	45.5	35.72°C	0.987
	11.774V	5.011V	3.264V	4.953V	540.326				46.89°C	230.36V
11	34.574A	8.964A	9.118A	3.032A	494.508	82.405%	3121	46.1	36.02°C	0.986
	11.709V	5.019V	3.256V	4.948V	600.095				47.87°C	230.34V
CL1	4.000A	14.000A	14.000A	0.000A	163.252	79.886%	2667	40.1	33.26°C	0.977
	12.372V	4.830V	3.296V	5.093V	204.356				40.76°C	230.39V
CL2	36.004A	2.001A	1.999A	1.000A	433.323	84.028%	2780	40.5	35.68°C	0.987
	11.423V	5.211V	3.287V	5.051V	515.688				45.62°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	1.243A	0.485A	0.493A	0.194A	19.986	69.204%	870	10.0	0.600
	11.933V	5.156V	3.355V	5.149V	28.880				230.41V
2	2.486A	0.973A	0.984A	0.389A	39.975	79.093%	919	9.9	0.848
	11.936V	5.145V	3.350V	5.139V	50.542				230.39V
3	3.733A	1.460A	1.480A	0.585A	60.004	82.677%	927	10.3	0.908
	11.936V	5.134V	3.345V	5.129V	72.576				230.39V
4	4.972A	1.952A	1.978A	0.781A	79.953	84.468%	941	11.1	0.938
	11.936V	5.124V	3.340V	5.119V	94.655				230.39V

The results above are not used in the certification process

Ripple Measurements 230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	32.70mV	17.60mV	21.50mV	16.30mV	Pass
20% Load	34.60mV	18.20mV	20.60mV	16.60mV	Pass
30% Load	35.60mV	18.00mV	20.30mV	16.80mV	Pass
40% Load	37.30mV	19.00mV	21.30mV	17.00mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	37.20mV	19.30mV	20.60mV	17.00mV	Pass
60% Load	35.80mV	18.50mV	20.70mV	16.70mV	Pass
70% Load	34.20mV	18.40mV	20.90mV	17.40mV	Pass
80% Load	35.00mV	17.80mV	24.90mV	19.10mV	Pass
90% Load	35.80mV	18.00mV	22.80mV	18.50mV	Pass
100% Load	66.30mV	33.40mV	30.00mV	24.70mV	Pass
110% Load	70.10mV	34.40mV	27.90mV	25.70mV	Pass
Crossload1	58.80mV	29.50mV	33.90mV	33.40mV	Pass
Crossload2	61.70mV	28.80mV	22.40mV	20.70mV	Pass

The results above are not used in the certification process

Kolink SFX-450



Top side



Power specifications label