Corsair AX1500i

Serial Number 16509500001009610055

Lab ID 102

Certification ID 25102

Test Result Report ID:

Certificate Issue Date: Feb 5, 2018

115V

Scheme: ETA-EMI PSU



115V



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	Corsair
Model	AX1500i
OEM/ODM	Flextronics
Serial Number	16509500001009610055
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	15-8
Rated Frequency (Hz)	50-60

Rated Power (W)	1500
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	140mm Fluid Dynamic Bearing Fan (NR140P)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	102
Date of receipt	Jan 25, 2018
Testing Date	Feb 3, 2018
Report Issued Date	Feb 5, 2018
DUT Notes	CP-9020057
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Modular Cables			
Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (700mm)	1	1	16-22AWG
4+4 pin EPS12V (800mm) / (650mm)	1 / 1	1 / 1	18AWG
6+2 pin PCIe (700mm+155mm) / (650mm) / (800mm)	2 / 4 / 2	4 / 4 / 2	18AWG
SATA (500mm+90mm+90mm+90mm)	3	12	18AWG
SATA (550mm+90mm+90mm+90mm)	2	8	18AWG
4 pin Molex (450mm+100mm+100mm+100mm)	3	12	18AWG
FDD Adapter (+105mm)	2	2	22AWG

C-Link USB Cable (800mm) / C-Link I2C Cable (800mm)	1 / 1	1 / 1	24-28 / 29AWG

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	30	30	125	3.5	0.8
	Watts	180		1500	17.5	9.6
Total Max. Power (W)		1500				

Parts Description

Primary Side	
Transient Filter	6x Y caps, 5x X caps, 3x CM chokes, 1x MOV, 2x TVS diodes
Inrush Protection	NTC Thermistor & Relay
Rectifiers	2x Toshiba TK62J60W (600V, 61.8A @ 150°C, 33 mOhm)
APFC MOSFETS	4x Infineon IPA60R099 (650V, 24A @ 100°C, 99 mOhm)
APFC Boost Diode	4x CREE C3D06060A (600V, 6A @ 154°C)
Hold-up Cap(s)	2x Nippon Chemi-Con (420V, 470uF & 680uF or 1150uF combined, 2000h @ 105°C, KMR)
Main Switchers	4x Infineon IPA60R099 (650V, 24A @ 100°C, 0.099 Ohm)
Topology	Primary side: Bridgeless Design, Two Phase Interleaved PFC, Full-Bridge & LLC Resonant Converter Secondary side: Synchronous Rectification & DC-DC converters
Digital Controllers	
Main Controller	Freescale MC56F8236
MCUs	Silicon Lab C8051F310 & C8051F380
Secondary Side	
+12V	16x fets
5V & 3.3V	2x DC-DC Converters
Filtering Capacitors	Electrolytics: Nippon Chemi-Con (105°C, KY, KZE), Rubycon (105°C, ZLH) Polymers: Nippon Chemi-Con, CapXon
Fan Model	NR135P (12V, 0.22A, Fluid Dynamic Bearing)
-12V Circuit	
Rectifier	IPA60R950C6 (650V, 2.8A @ 100°C, 0.95 Ohm)

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	✓

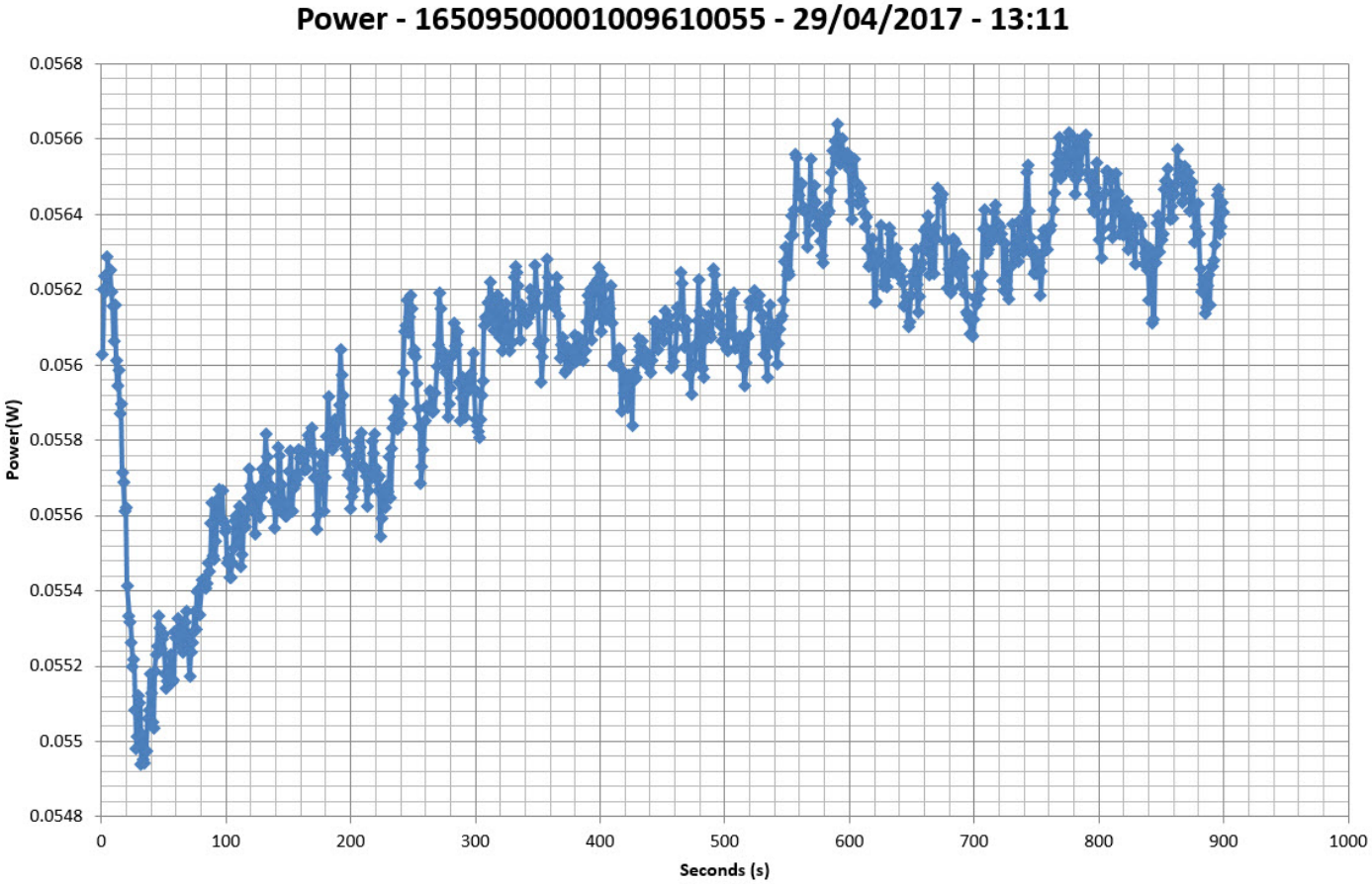
Performance Summary 115V

Accredited	
Average Efficiency (>1450 load combinations)	91.264%
Average Noise Output (>1450 Load Combinations)	27.55dBA
Average PF (>1450 Load Combinations)	0.993
Efficiency With 10W (≤500W) or 2% (>500W) Load	65.602%
Standby Power Consumption	0.0564W
Non-Accredited	
12V Ripple (Full Load)	12.66mV
5V Ripple (Full Load)	7.08mV
3.3V Ripple (Full Load)	5.79mV
5VSB Ripple (Full Load)	7.09mV
12V Load Regulation	0.13%
5V Load Regulation	0.26%
3.3V Load Regulation	0.36%
5VSB Load Regulation	1.63%
Inrush Current	28.812A

Hold-Up Time & PWR_OK Signal

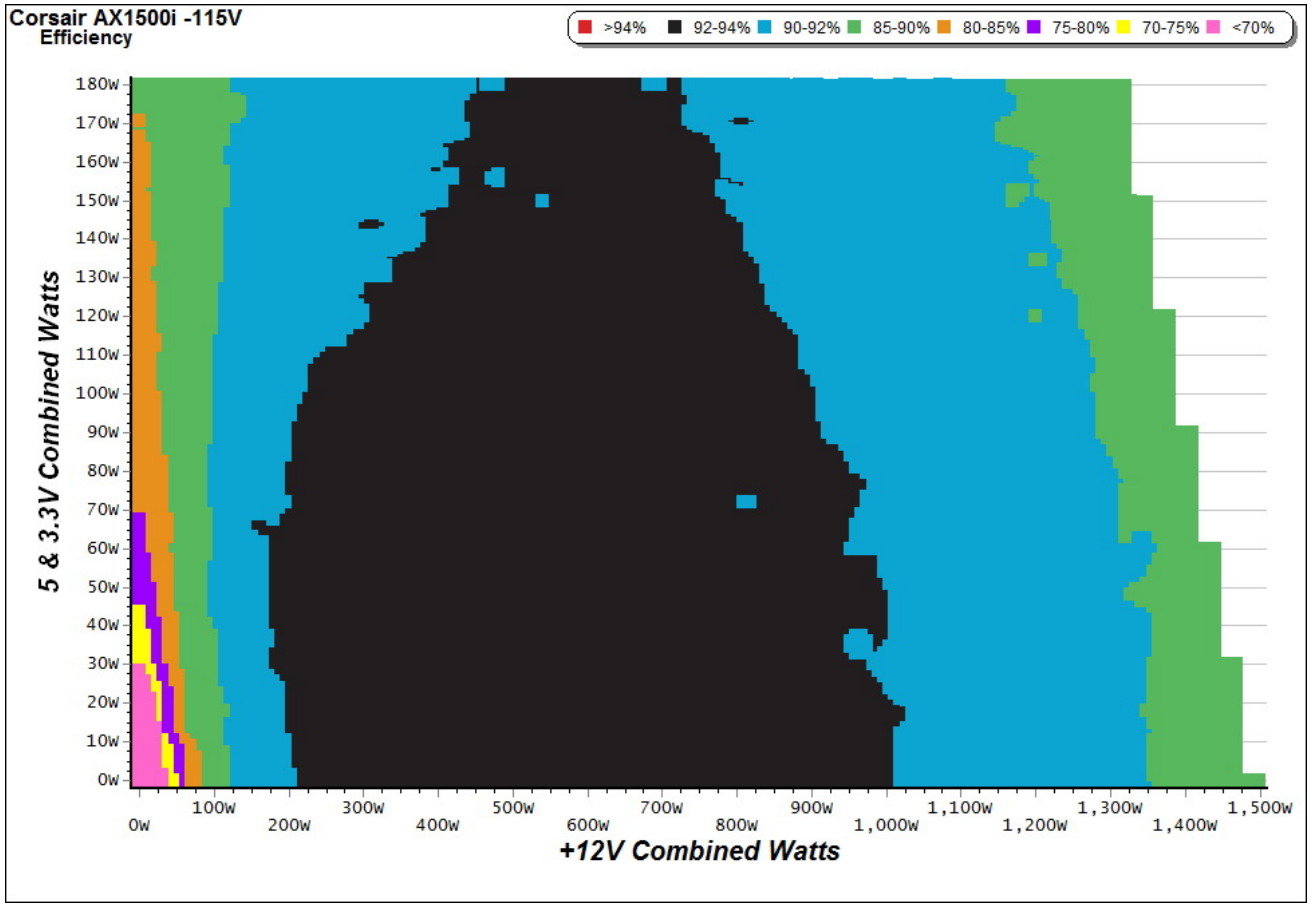
Hold-Up Time (ms)	24.0
AC Loss to PWR_OK Hold Up Time (ms)	21.3
PWR_OK Inactive to DC Loss Delay (ms)	2.7

Graphs 115V


Power - 16509500001009610055 - 29/04/2017 - 13:11
Power(W)
0.0568
0.0566
0.0564
0.0562
0.056
0.0558
0.0556
0.0554
0.0552
0.055
0.0548
0
100
200
300
400
500
600
700
800
900
1000
Seconds (s)

Efficiency Graph

115V

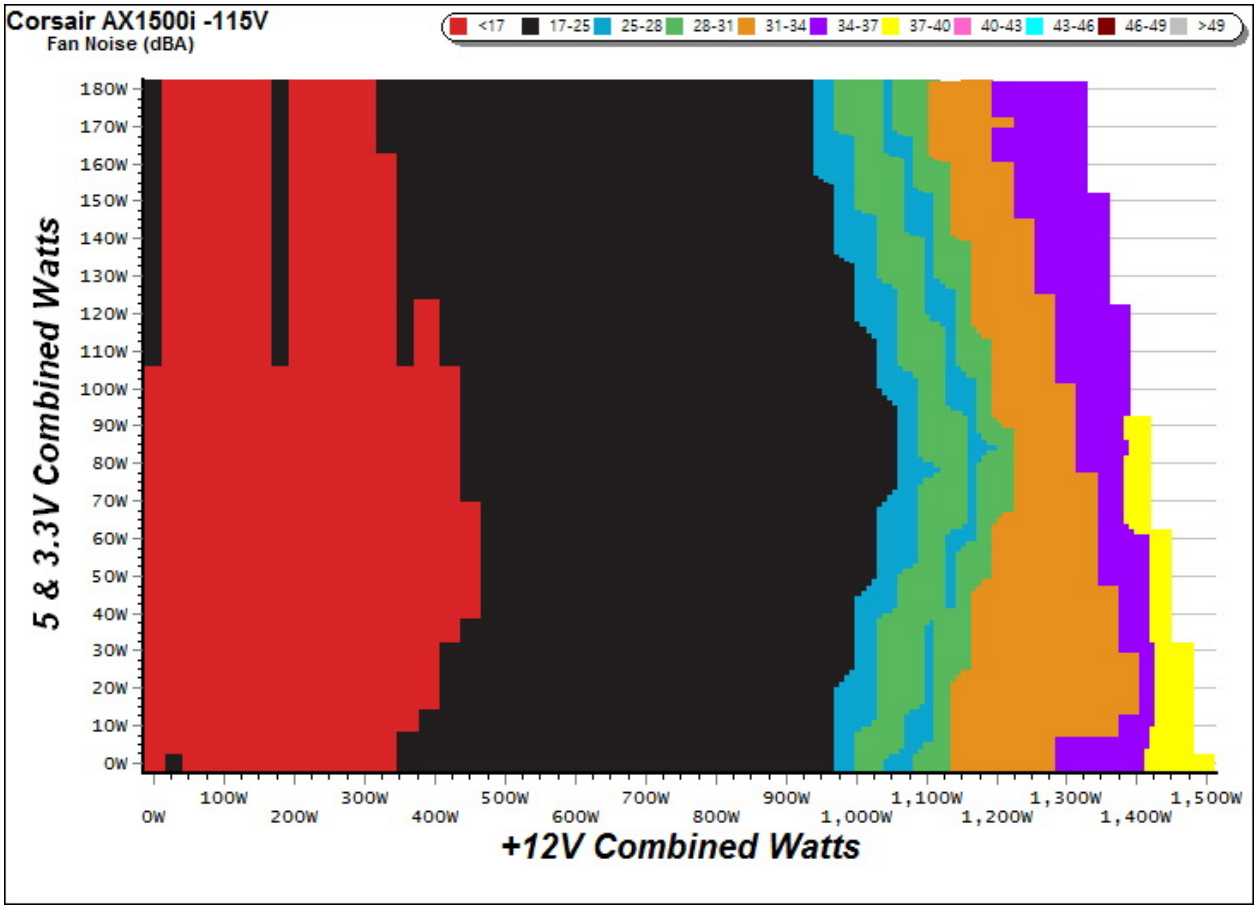


INFO

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

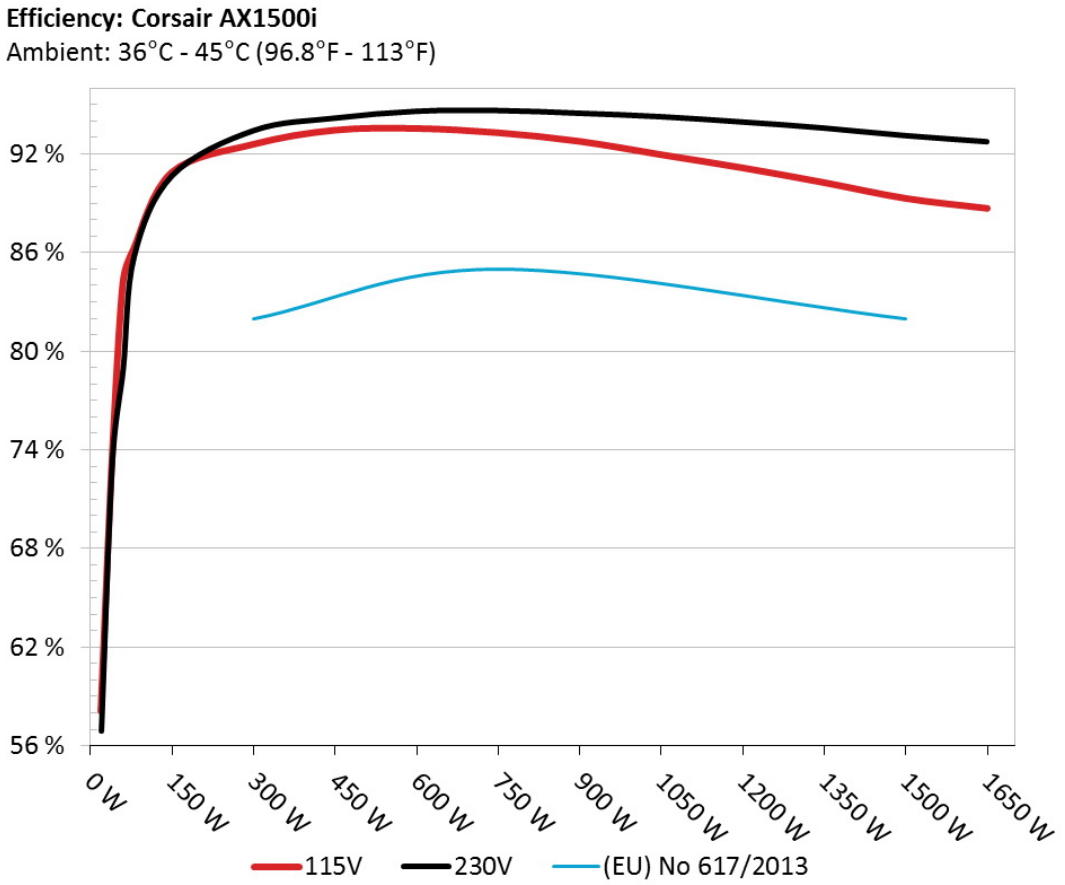


INFO

The PSU`s noise in its entire operational range and under 30-32 °C 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

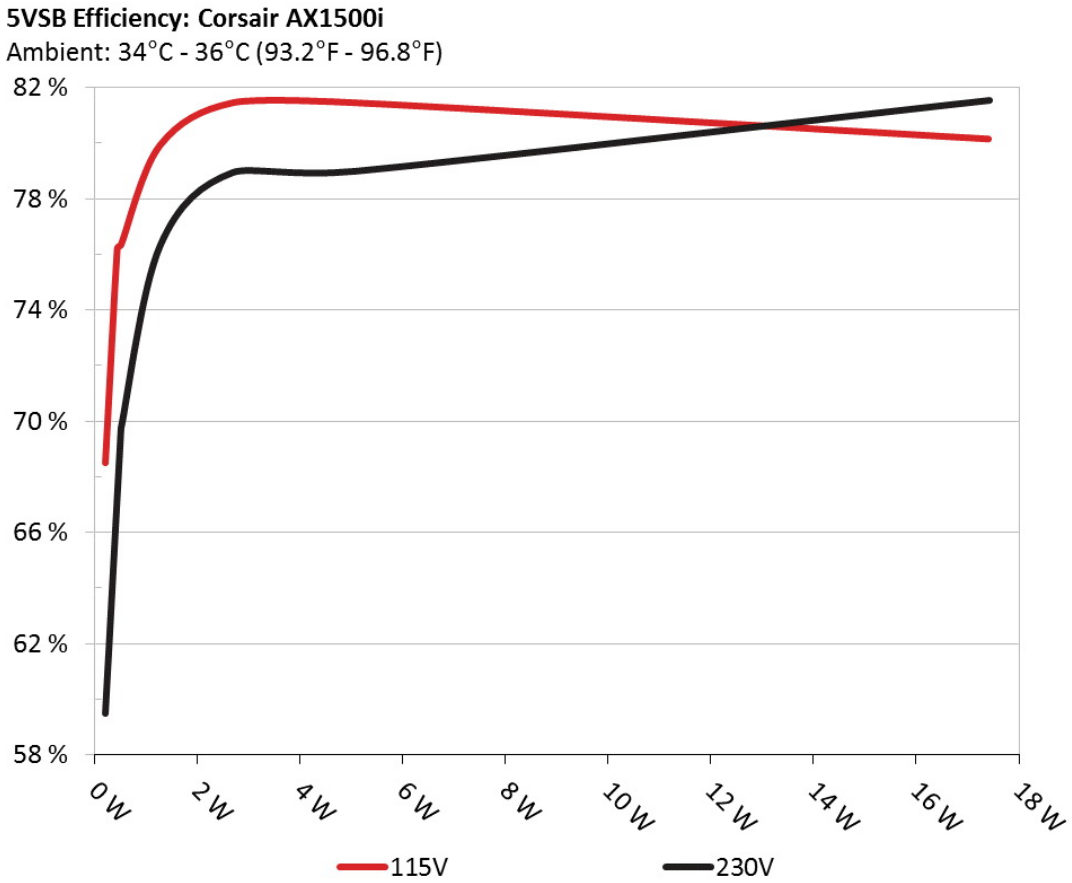
Efficiency under high ambient temperature



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) 115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.042A	0.213	68.489%	0.016
	5.084V	0.311		115.12V

2	0.088A	0.445	76.199%	0.029
	5.083V	0.584		115.13V
3	0.532A	2.697	79.534%	0.158
	5.069V	3.391		115.12V
4	3.502A	17.415	80.150%	0.502
	4.973V	21.728		115.11V

Supplementary Tests (For Reference)

Typical Load Tests 115V

Load Regulation & Efficiency Tests
Nidus 500 PG-5001-BR -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	10.693A	2.006A	1.999A	1.006A	149.780	90.853%	0000	<6.0	46.44°C	0.986
	11.992V	4.984V	3.296V	4.961V	164.859				38.49°C	115.11V
2	22.435A	3.012A	3.004A	1.211A	299.751	92.568%	0000	<6.0	47.01°C	0.986
	11.986V	4.977V	3.293V	4.951V	323.817				38.94°C	115.12V
3	34.491A	3.515A	3.521A	1.415A	449.757	93.426%	0000	<6.0	47.12°C	0.992
	11.995V	4.973V	3.291V	4.944V	481.402				39.64°C	115.13V
4	46.544A	4.027A	4.011A	1.618A	599.596	93.529%	0000	<6.0	40.40°C	0.994
	11.999V	4.971V	3.289V	4.938V	641.079				44.38°C	115.12V
5	58.260A	5.014A	5.010A	1.818A	749.457	93.271%	0000	<6.0	40.74°C	0.995
	11.999V	4.981V	3.292V	4.945V	803.526				44.58°C	115.13V
6	70.003A	6.030A	6.023A	2.023A	899.392	92.747%	0000	<6.0	41.47°C	0.996
	11.994V	4.977V	3.287V	4.938V	969.727				45.16°C	115.12V
7	81.775A	7.040A	7.031A	2.230A	1049.260	91.937%	0000	<6.0	42.62°C	0.997
	11.987V	4.971V	3.284V	4.930V	1141.285				46.36°C	115.12V
8	93.533A	8.034A	8.023A	2.431A	1199.262	91.136%	0000	<6.0	43.65°C	0.998
	11.984V	4.981V	3.289V	4.936V	1315.910				47.33°C	115.12V
9	105.692A	8.545A	8.547A	2.431A	1349.343	90.239%	0000	<6.0	45.02°C	0.998
	11.987V	4.976V	3.287V	4.933V	1495.303				48.81°C	115.13V

10	117.413A	9.055A	9.042A	3.569A	1499.188	89.278%	0000	<6.0	46.02°C	0.998
	11.984V	4.975V	3.285V	4.901V	1679.245				49.61°C	115.12V
11	129.906A	9.056A	9.043A	3.569A	1649.181	88.672%	0000	<6.0	45.07°C	0.998
	11.985V	4.973V	3.284V	4.901V	1859.873				49.57°C	115.12V
CL1	0.099A	22.030A	19.998A	0.004A	176.532	84.649%	0000	<6.0	44.42°C	0.982
	11.991V	4.971V	3.290V	5.010V	208.547				48.05°C	115.13V
CL2	124.927A	1.003A	1.003A	1.002A	1508.590	89.275%	0000	<6.0	46.28°C	0.998
	11.970V	4.984V	3.295V	4.965V	1689.825				49.69°C	115.13V

The results above are not used in the certification process

Light Load Tests 115V

Efficiency at Low Loads Nidus 500 PG-5001-BR -115V									
Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.217A	0.502A	0.483A	0.202A	19.709	58.103%	0000	<6.0	0.896
	12.003V	4.988V	3.294V	4.982V	33.921				115.12V
2	2.460A	1.001A	1.000A	0.400A	39.791	73.101%	0000	<6.0	0.953
	11.999V	4.984V	3.294V	4.974V	54.433				115.12V
3	3.702A	1.497A	1.514A	4.967A	59.840	84.034%	0000	<6.0	0.967
	11.996V	4.980V	3.293V	4.967V	71.209				115.12V
4	4.940A	2.009A	2.003A	0.805A	79.835	86.211%	0000	<6.0	0.978
	11.994V	4.977V	3.291V	4.960V	92.604				115.11V

The results above are not used in the certification process

Ripple Measurements 115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	5.6 mV	5.6 mV	4.0 mV	3.1 mV	Pass
20% Load	8.3 mV	8.2 mV	4.6 mV	7.6 mV	Pass
30% Load	9.3 mV	5.0 mV	4.2 mV	3.8 mV	Pass
40% Load	9.7 mV	4.6 mV	4.3 mV	4.2 mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
50% Load	10.0 mV	4.9 mV	4.2 mV	4.8 mV	Pass
60% Load	9.4 mV	12.4 mV	5.8 mV	12.1 mV	Pass
70% Load	9.7 mV	8.8 mV	4.7 mV	8.0 mV	Pass
80% Load	9.8 mV	6.2 mV	4.6 mV	5.3 mV	Pass
90% Load	10.9 mV	6.9 mV	5.1 mV	6.7 mV	Pass
100% Load	12.7 mV	7.1 mV	5.8 mV	7.1 mV	Pass
110% Load	13.3 mV	7.2 mV	6.2 mV	7.4 mV	Pass
Crossload 1	19.5 mV	10.9 mV	7.4 mV	6.2 mV	Pass
Crossload 2	12.5 mV	5.3 mV	5.1 mV	7.6 mV	Pass

The results above are not used in the certification process

Corsair AX1500i



Top side



Power specifications label