MSI MEG Ai1300P PCIE5

Lab ID MS13002035

Certification ID 252035

Test Result Report ID: 22PS2035A

Certificate Issue Date: Jun 5, 2022

Scheme: ETA-EMI PSU

115V



230V



Scheme: LAMBDA PSU

115V



230V





Outside Validation Scope



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	MSI
Model	MEG Ai1300P PCIE5
OEM/ODM	CWT
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	15

□□□□ (Hz)	50-60
□□□□ (W)	1300
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	120mm Hydraulic Bearing Fan (PLA12025S12H)
□□□□□	✓
Cybenetics Testing Information	
Lab ID	MS13002035
Date of receipt	Jun 22, 2022
Testing Date	Jun 30, 2022
Report Issued Date	Jun 5, 2022
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□□ (Non-accredited measurements)

□□□□□				
□□	□□□□	□□□□□□	Gauge	In Cable Capacitors
ATX □□ 20+4 pin (600mm)	1	1	16-18AWG	□
8 pin EPS 12V □□ (710mm)	2	2	18AWG	□
6+2pin PCIe□□ (610mm)	4	4	16AWG	□
6+2pin PCIe□□ (610mm+150mm)	2	4	16-18AWG	□
12+4 pin PCIe (610mm)	1	1	16-24AWG	□
2x 6+2pin PCIe□□ (610mm)	1	2	18AWG	□
SATA□□ (500mm+150mm+150mm+150mm)	4	16	18AWG	□

4-pin Molex (500mm+150mm+150mm+150mm) / FDD (+150mm)	1	4 / 1	18-20AWG	□
USB Cable 2C (600mm)	1	1	24-28AWG	□

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	25	25	108.33	3	0.3
	□	130		1300	15	3.6
□□□□□ (W)		1300				

Parts Description

General Data	-
Manufacturer (OEM)	CWT
Platform	CTT
PCB Type	Double Sided
Primary Side	-
Transient Filter	6x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor SCK-0510 (5 Ohm) & Relay
Bridge Rectifier(s)	2x GBJ2506 (600V, 25A @ 100°C)
APFC MOSFETs	2x Infineon IPA60R099P6 (600V, 24A @ 100°C, Rds(on): 0.099Ohm) & 1x SYNC Power SPN5003 (to reduce no load consumption)
APFC Boost Diode	2x ON Semiconductor FFSP1065B (650V, 10A @ 139°C)
Bulk Cap(s)	2x Nippon Chemi-Con (400V, 680uF each or 1360uF, 2,000h @ 105°C, KMW)
Main Switchers	4x Alpha & Omega AOT29S50 (500V, 18A @ 100°C, Rds(on): 0.15Ohm)
IC Drivers	2x Novosense NSi6602 & 1x Infineon 2EDN752x
Digital APFC Controller	Texas Instruments UCD3138A
Digital Resonant Controller	Texas Instruments UCD3138A
Topology	Primary side: Semi-Digital, Interleaved PFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	8x Infineon BSC014N06NS (60V, 152A @ 100°C, Rds(on): 1.45mOhm)

5V & 3.3V	DC-DC Converters: 6x PWM Controller(s): no info
Filtering Capacitors	Electrolytic: 6x Nippon Chemi-Con (105°C, W),1x Nippon Chemi-Con (2-5,000h @ 105°C, KZE), 4x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 3x Rubycon (4-10,000h @ 105°C, YXJ), 1x Elite (2-5,000h @ 105°C, ED) Polymer: 12x Nippon Chemi-Con, 14x FPCAP, 5x NIC
Supervisor IC	Weltrend WT7502R (OVP, UVP, SCP, PG)
MCU & Fan Controller	Microchip PIC32MM0064GPM036
Fan Model	MSI (Powerlogic) PLA12025S12H-4 (120mm, 12V, 0.36A, Hydro-Dynamic Bearing Fan)
5VSB Circuit	-
Rectifier	1x PS1045L SBR (45V, 10A)
Standby PWM Controller	On Bright OB2365T

Test Results

Temperature & Compliance Info

□□□□ (°C /°F)	28-32 / 82.4-89.6
□□ ErP Lot3/6□□	✓
□□ (EU) No 617/2013□□	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.0 Compliance	✓

Performance Summary

115V

Accredited	
□□□□ (>1450 load combinations)	89.115%
Average Noise Output (>1450 Load Combinations)	34.94dBA
PF□□□ (>1450 Load Combinations)	0.994
Efficiency With 10W (≤500W) or 2% (>500W) Load	73.456%
□□□□□□	0.0400W
Non-Accredited	
12V Ripple (Full Load)	34.02mV

5V Ripple (Full Load)	8.89mV
3.3V Ripple (Full Load)	11.98mV
5VSB Ripple (Full Load)	11.65mV
12V Load Regulation	1.58%
5V Load Regulation	0.46%
3.3V Load Regulation	1.22%
5VSB Load Regulation	1.48%
Inrush Current	34.270A

230V

Accredited	
□□□□ (>1450 load combinations)	91.485%
Average Noise Output (>1450 Load Combinations)	34.88dBA
PF□□□ (>1450 Load Combinations)	0.953
Efficiency With 10W (≤500W) or 2% (>500W) Load	72.623%
□□□□□□	0.1626W
Non-Accredited	
12V Ripple (Full Load)	39.09mV
5V Ripple (Full Load)	9.36mV
3.3V Ripple (Full Load)	11.18mV
5VSB Ripple (Full Load)	11.69mV
12V Load Regulation	1.59%
5V Load Regulation	0.42%
3.3V Load Regulation	1.13%
5VSB Load Regulation	1.40%
Inrush Current	65.800A
12V Transient Response (200%)	11.23V
5V Transient Response (200%)	4.899V
3.3V Transient Response (200%)	3.164V
5VSB Transient Response (200%)	4.875V
□□□□ & PG□□	17.70ms
AC Loss to PWR_OK Hold Up Time	16.30ms

PWR_OK Inactive to DC Loss Delay		1.40ms
PSU Timings: T1 (20% / 100%)	51.0ms	57.0ms
PSU Timings: T3 (20% / 100%)	130.0ms	136.0ms
OPP (30.97°C / 44.22°C)	120.04%	117.57%

□□□□ & PG□□

Hold-Up Time (ms)	17.7
AC Loss to PWR_OK Hold Up Time (ms)	16.3
PWR_OK Inactive to DC Loss Delay (ms)	1.4

□□□□

Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.13 V	115.10 V	113.85 V	115.17 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.96 Hz	59.40 Hz	60.02 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.417	1.490	PASS
Mains Voltage THD:	0.13 %	0.10 %	N/A	0.19 %	2.00 %	PASS
Real Power:	0.040 W	0.030 W	N/A	0.097 W	N/A	N/A
Apparent Power:	15.625 W	15.578 W	N/A	15.677 W	N/A	N/A
Power Factor:	0.005	N/A	N/A	N/A	N/A	N/A

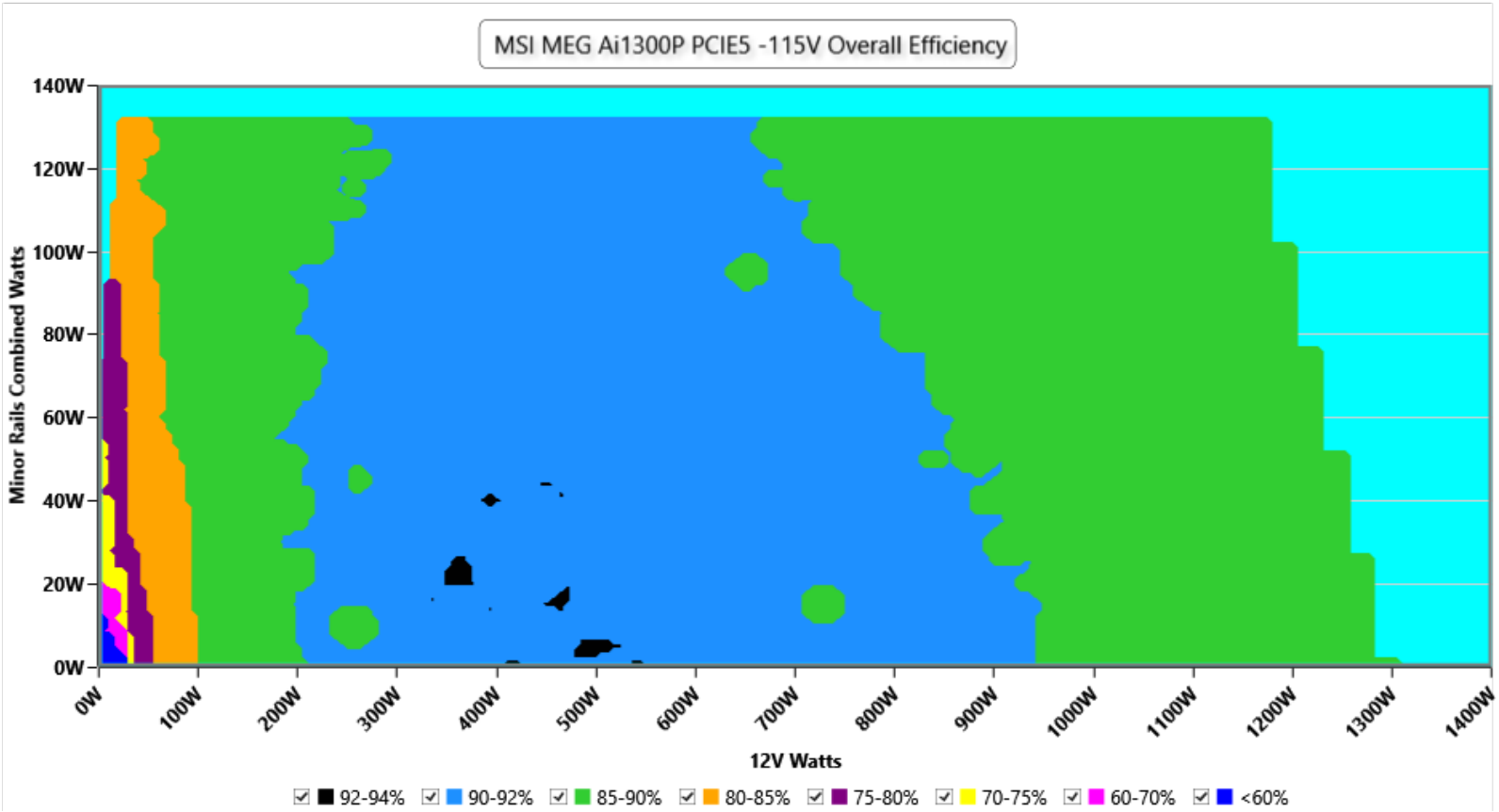
230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	230.28 V	230.19 V	227.70 V	230.34 V	232.30 V	PASS

Mains Frequency:	50.00 Hz	49.99 Hz	49.50 Hz	50.01 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.415	1.415	1.340	1.417	1.490	PASS
Mains Voltage THD:	0.13 %	0.10 %	N/A	0.20 %	2.00 %	PASS
Real Power:	0.163 W	0.147 W	N/A	0.191 W	N/A	N/A
Apparent Power:	53.076 W	52.836 W	N/A	53.398 W	N/A	N/A
Power Factor:	0.003	N/A	N/A	N/A	N/A	N/A

□□□□□□

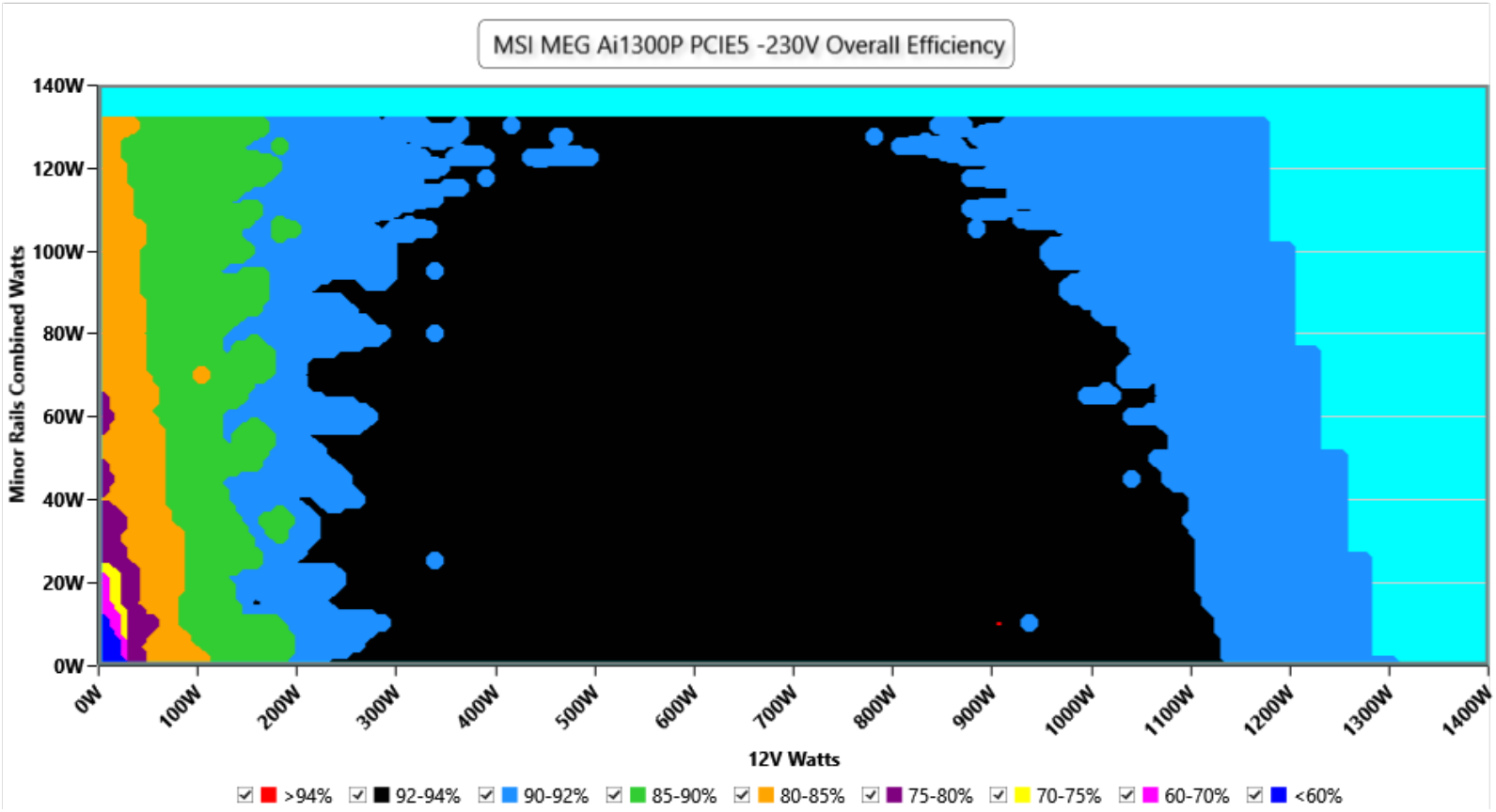
115V



□□

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

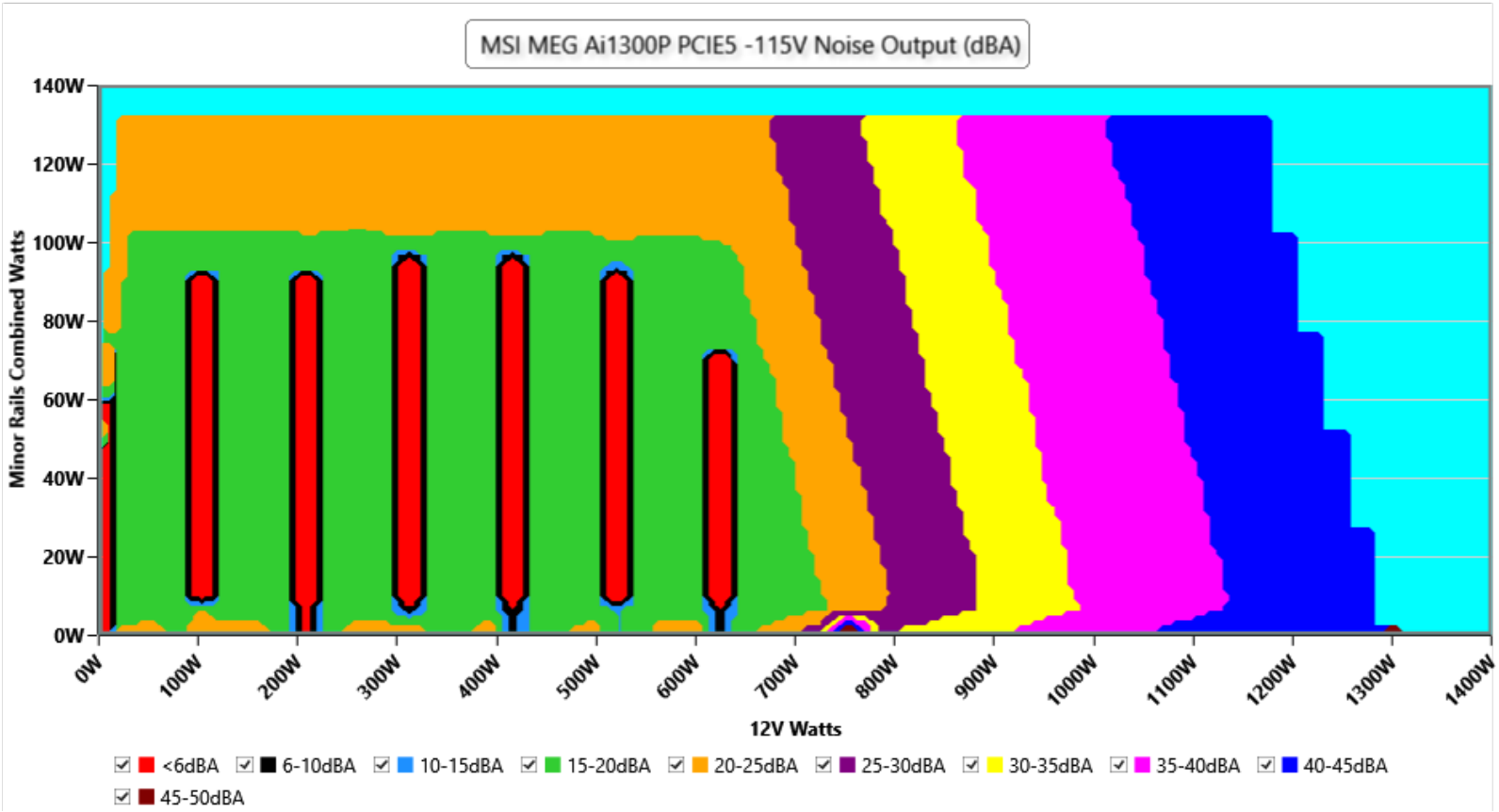
230V



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

□□□□□

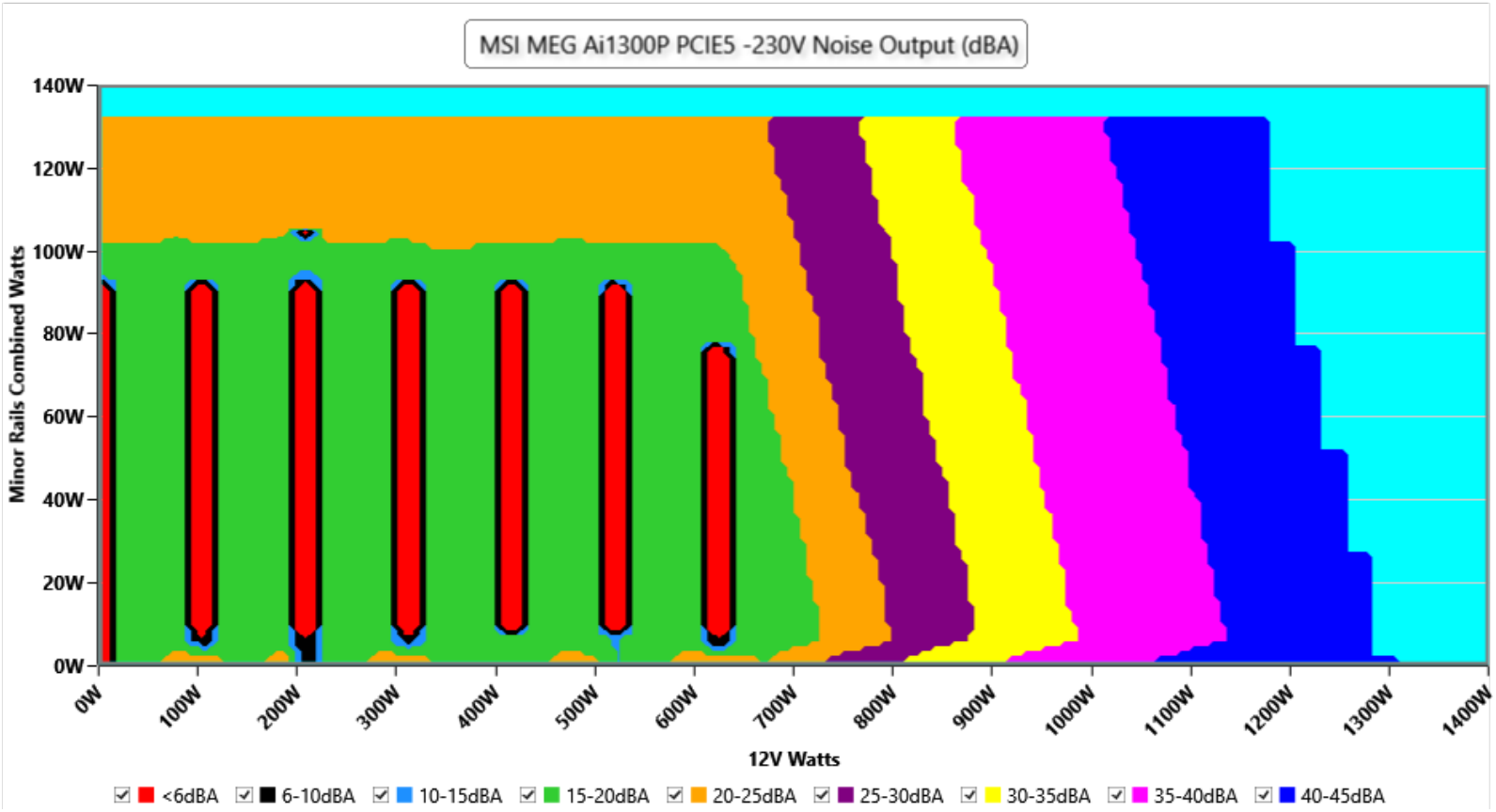
115V



□□

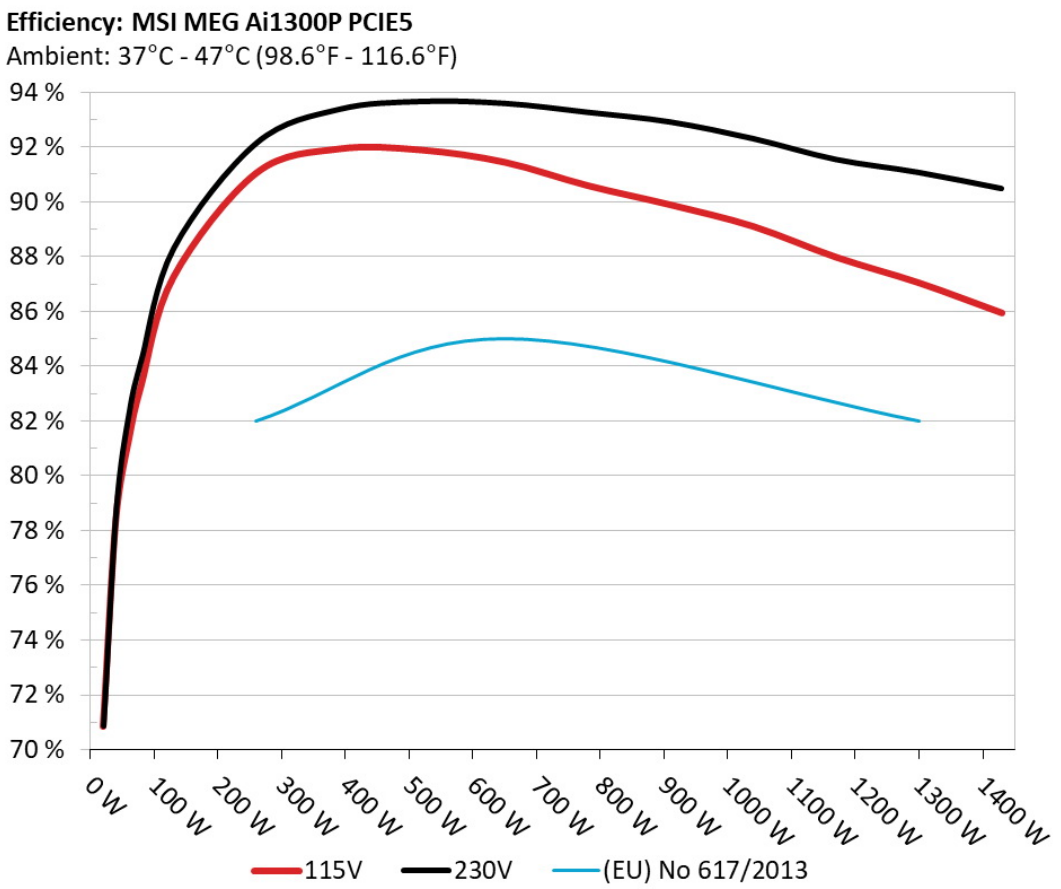
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

230V



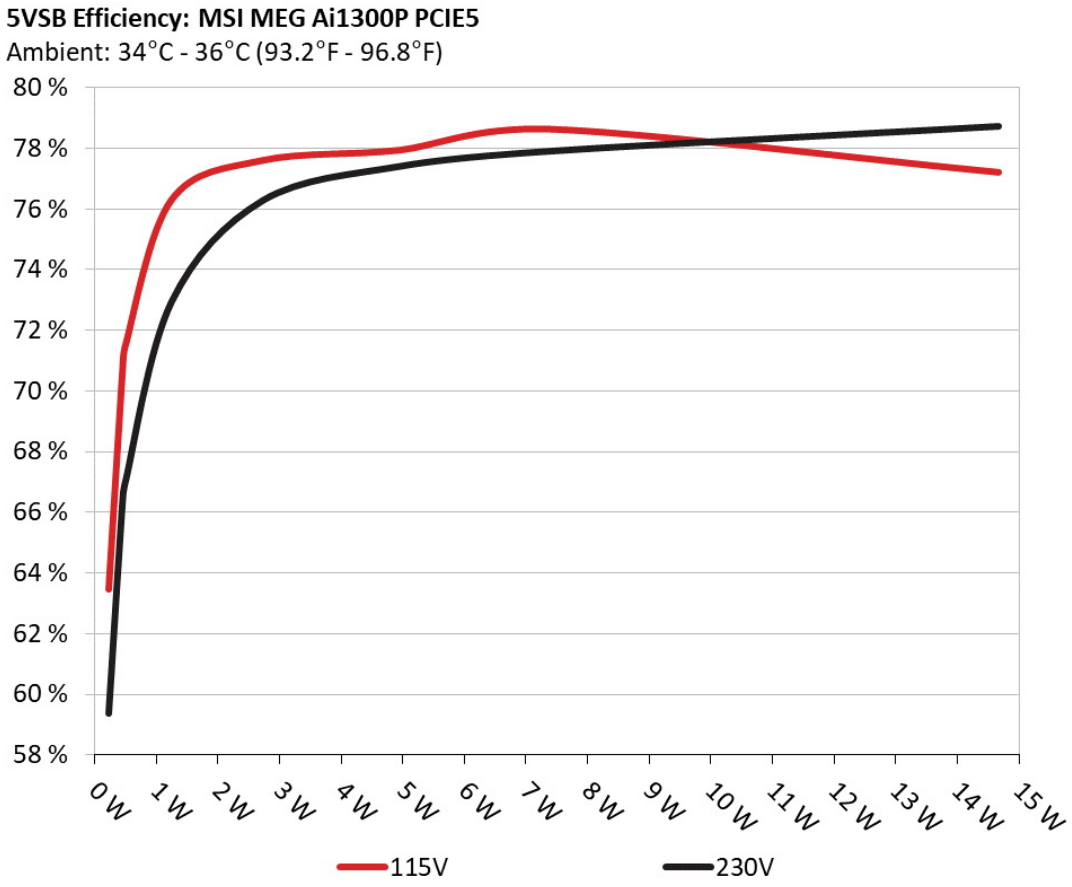
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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	0.224W	63.45%	0.023
	4.967V	0.353W		115.15V
2	0.09A	0.447W	70.644%	0.041
	4.966V	0.633W		115.15V
3	0.55A	2.725W	77.61%	0.199
	4.954V	3.511W		115.14V
4	1A	4.942W	77.946%	0.301
	4.941V	6.34W		115.15V
5	1.5A	7.393W	78.639%	0.365
	4.928V	9.401W		115.14V
6	3.001A	14.666W	77.216%	0.458
	4.888V	18.993W		115.14V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.224W	59.353%	0.007
	4.966V	0.378W		230.33V
2	0.09A	0.447W	66.313%	0.013
	4.965V	0.675W		230.33V
3	0.55A	2.725W	76.274%	0.068
	4.954V	3.573W		230.33V
4	1A	4.943W	77.396%	0.117
	4.942V	6.387W		230.33V
5	1.5A	7.394W	77.9%	0.165
	4.929V	9.491W		230.32V
6	3.001A	14.666W	78.718%	0.27
	4.888V	18.631W		230.32V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
10%	8.990A	1.976A	1.995A	0.991A	130.048	87.243%	0	<6.0	45.15°C	0.987
	12.062V	5.062V	3.308V	5.046V	149.047				40.09°C	115.12V
20%	19.046A	2.965A	2.997A	1.19A	260.033	91.039%	0	<6.0	45.82°C	0.995
	12.030V	5.06V	3.304V	5.041V	285.616				40.17°C	115.08V
30%	29.445A	3.46A	3.499A	1.39A	389.943	91.925%	0	<6.0	47.43°C	0.997
	12.018V	5.059V	3.301V	5.036V	424.22				41.36°C	115.04V
40%	39.877A	3.955A	4.003A	1.591A	519.907	91.883%	0	<6.0	48.28°C	0.998
	12.004V	5.058V	3.298V	5.03V	565.801				41.83°C	115V
50%	50.020A	4.945A	5.008A	1.791A	650.047	91.44%	0	<6.0	49.27°C	0.998
	11.986V	5.057V	3.295V	5.026V	710.874				42.23°C	114.96V
60%	60.236A	5.939A	6.019A	1.993A	780.16	90.586%	1084	24.6	42.52°C	0.998
	11.958V	5.053V	3.29V	5.019V	861.254				49.93°C	114.92V
70%	70.391A	6.934A	7.033A	2.196A	910.245	89.885%	1378	31.5	43.08°C	0.998
	11.950V	5.049V	3.285V	5.012V	1012.694				51.15°C	114.87V
80%	80.588A	7.929A	8.047A	2.297A	1039.87	89.097%	1633	36.6	43.76°C	0.999
	11.936V	5.047V	3.281V	5.008V	1167.139				52.61°C	114.83V
90%	91.348A	8.43A	8.546A	2.4A	1170.123	87.971%	2144	46.3	44.44°C	0.999
	11.906V	5.044V	3.277V	5.002V	1330.142				53.68°C	114.77V
100%	101.746A	8.93A	9.077A	3.008A	1299.747	87.039%	2358	47.0	45.86°C	0.998
	11.893V	5.042V	3.272V	4.987V	1493.271				55.68°C	114.75V
110%	112.196A	9.928A	10.19A	3.01A	1429.894	85.94%	2420	47.0	46.06°C	0.998
	11.868V	5.039V	3.268V	4.985V	1663.636				56.91°C	114.68V
CL1	0.116A	15.52A	15.65A	0A	131.332	82.341%	1084	24.6	42.68°C	0.988
	12.065V	5.047V	3.297V	5.084V	159.508				49.14°C	115.11V

CL2	0.116A	24.818A	0A	0A	126.445	80.726%	1583	35.5	43.77°C	0.988
	12.077V	5.039V	3.314V	5.105V	156.651				51.43°C	115.11V
CL3	0.116A	0A	25.083A	0A	83.894	74.05%	1688	37.5	44.22°C	0.98
	12.059V	5.071V	3.289V	5.063V	113.306				53.18°C	115.12V
CL4	109.205A	0A	0A	0A	1300.123	87.887%	2119	43.5	45.55°C	0.998
	11.905V	5.057V	3.283V	5.038V	1479.206				55.8°C	114.73V

The results above are not used in the certification process

230V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
10%	8.980A	1.978A	1.998A	0.992A	130.035	88.287%	0	<6.0	45.12°C	0.888
	12.075V	5.056V	3.304V	5.04V	147.277				39.96°C	230.32V
20%	19.024A	2.968A	2.999A	1.191A	260.014	92.131%	0	<6.0	46.55°C	0.932
	12.043V	5.055V	3.301V	5.037V	282.255				40.68°C	230.3V
30%	29.423A	3.462A	3.502A	1.391A	389.894	93.364%	0	<6.0	47.23°C	0.952
	12.025V	5.055V	3.299V	5.032V	417.694				40.9°C	230.28V
40%	39.871A	3.957A	4.005A	1.591A	519.873	93.651%	0	<6.0	48.13°C	0.961
	12.005V	5.055V	3.296V	5.028V	555.15				41.53°C	230.27V
50%	50.049A	4.947A	5.01A	1.792A	650.006	93.58%	0	<6.0	49.16°C	0.969
	11.978V	5.054V	3.294V	5.024V	694.619				42.11°C	230.25V
60%	60.142A	5.94A	6.02A	1.993A	780.144	93.256%	1101	24.6	42.9°C	0.973
	11.977V	5.052V	3.29V	5.018V	836.597				50.5°C	230.23V
70%	70.266A	6.935A	7.034A	2.196A	910.231	92.899%	1377	31.5	43.61°C	0.974
	11.971V	5.048V	3.285V	5.012V	979.758				51.67°C	230.21V
80%	80.554A	7.931A	8.048A	2.297A	1039.856	92.296%	1631	36.6	43.88°C	0.983
	11.941V	5.046V	3.281V	5.007V	1126.606				52.74°C	230.2V
90%	91.350A	8.43A	8.545A	2.4A	1170.12	91.534%	2142	46.3	44.52°C	0.989
	11.906V	5.044V	3.277V	5.003V	1278.327				53.55°C	230.17V
100%	101.681A	8.93A	9.076A	3.008A	1299.74	91.062%	2318	47.0	45.86°C	0.989
	11.900V	5.042V	3.273V	4.988V	1427.382				55.52°C	230.15V

110%	112.044A	9.926A	10.188A	3.009A	1429.939	90.474%	2425	47.0	46.62°C	0.989
	11.885V	5.04V	3.269V	4.986V	1580.507				57.41°C	230.13V
CL1	0.116A	15.518A	15.647A	0A	131.33	83.408%	1088	24.6	42.88°C	0.901
	12.063V	5.047V	3.297V	5.084V	157.432				48.82°C	230.31V
CL2	0.116A	24.819A	0A	0A	126.447	81.508%	1582	35.5	43.98°C	0.898
	12.077V	5.038V	3.314V	5.105V	155.196				50.75°C	230.31V
CL3	0.116A	0A	25.087A	0A	83.895	75.269%	1686	37.5	44.97°C	0.808
	12.060V	5.071V	3.288V	5.063V	111.465				52.61°C	230.32V
CL4	109.161A	0A	0A	0A	1300.151	91.596%	2115	43.5	45.57°C	0.989
	11.910V	5.056V	3.283V	5.037V	1419.445				55.35°C	230.15V

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	1.232A	0.494A	0.498A	0.198A	20.022	70.855%	0	<6.0	40.21°C	0.778
	12.080V	5.065V	3.312V	5.061V	28.223				37°C	115.14V
40W	2.710A	0.691A	0.698A	0.297A	40.019	78.408%	0	<6.0	41.19°C	0.91
	12.070V	5.065V	3.312V	5.06V	51.043				37.57°C	115.14V
60W	4.190A	0.889A	0.897A	0.396A	60.018	81.301%	0	<6.0	42.71°C	0.953
	12.062V	5.064V	3.311V	5.058V	73.845				38.63°C	115.13V
80W	5.670A	1.086A	1.097A	0.495A	79.989	83.329%	0	<6.0	43.83°C	0.972
	12.055V	5.064V	3.31V	5.056V	96.013				39.18°C	115.13V

The results above are not used in the certification process

230V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
20W	1.230A	0.494A	0.499A	0.198A	20.017	70.861%	0	<6.0	39.88°C	0.398
	12.089V	5.062V	3.31V	5.058V	28.395				36.78°C	230.33V
40W	2.708A	0.691A	0.698A	0.297A	40.019	78.776%	0	<6.0	40.83°C	0.577
	12.076V	5.063V	3.31V	5.057V	50.834				37.27°C	230.33V
60W	4.190A	0.889A	0.898A	0.396A	60.022	82.263%	0	<6.0	42.82°C	0.687
	12.066V	5.063V	3.31V	5.056V	72.962				38.9°C	230.33V
80W	5.670A	1.087A	1.097A	0.495A	80	84.271%	0	<6.0	43.45°C	0.764
	12.058V	5.063V	3.31V	5.055V	94.929				39.19°C	230.32V

The results above are not used in the certification process

□□□□

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.16mV	6.28mV	7.26mV	7.17mV	Pass
20% Load	11.11mV	6.49mV	7.36mV	7.47mV	Pass
30% Load	13.56mV	6.54mV	7.62mV	7.62mV	Pass
40% Load	15.56mV	6.95mV	11.71mV	7.88mV	Pass
50% Load	15.94mV	6.79mV	8.03mV	8.60mV	Pass
60% Load	16.63mV	9.40mV	16.67mV	10.28mV	Pass
70% Load	17.91mV	8.48mV	15.85mV	9.47mV	Pass
80% Load	19.14mV	7.51mV	10.12mV	9.57mV	Pass
90% Load	24.30mV	8.79mV	14.32mV	13.31mV	Pass
100% Load	34.02mV	8.89mV	11.98mV	11.65mV	Pass
110% Load	36.50mV	9.67mV	13.66mV	12.21mV	Pass
Crossload1	12.90mV	7.28mV	9.93mV	7.29mV	Pass
Crossload2	10.03mV	6.84mV	7.36mV	7.32mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	44.42mV	7.61mV	11.35mV	7.16mV	Pass
Crossload4	33.84mV	9.08mV	10.35mV	11.74mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.47mV	6.59mV	7.26mV	7.27mV	Pass
20% Load	11.82mV	6.64mV	7.21mV	7.27mV	Pass
30% Load	13.92mV	6.64mV	7.26mV	7.78mV	Pass
40% Load	16.97mV	7.20mV	12.22mV	8.70mV	Pass
50% Load	16.51mV	8.58mV	14.17mV	9.41mV	Pass
60% Load	20.80mV	7.46mV	10.89mV	9.11mV	Pass
70% Load	22.34mV	7.46mV	8.80mV	9.52mV	Pass
80% Load	23.26mV	7.66mV	10.07mV	9.82mV	Pass
90% Load	23.87mV	8.43mV	14.83mV	10.85mV	Pass
100% Load	39.09mV	9.36mV	11.18mV	11.69mV	Pass
110% Load	43.96mV	9.26mV	11.98mV	11.86mV	Pass
Crossload1	12.53mV	6.96mV	9.48mV	7.58mV	Pass
Crossload2	9.62mV	6.74mV	7.00mV	7.37mV	Pass
Crossload3	40.48mV	6.79mV	10.99mV	7.21mV	Pass
Crossload4	38.85mV	9.11mV	9.66mV	11.95mV	Pass

The results above are not used in the certification process





MSI MEG Ai1300P PCIE5

Top side

Power specifications label

本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由 Cybenetics提供。
在任何情况下都应提供原始测试结果文档的网站链接

Cybenetics 提供自愿性认证计划：电源方面有 ETA（效率）、LAMBDA（噪声）与 SAFE（安全与正确运行）；散热产品方面有 DELTA（机箱隔音）与 PHI（风扇风量与静压）

CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus

www.cybenetics.com - info@cybenetics.com