MSI MPG A750G

Lab ID MS75001979

Certification ID 251979

Test Result Report ID: 22PS1979A

Certificate Issue Date: Feb 18, 2022

Scheme: ETA-EMI PSU

115V



230V



Scheme: LAMBDA PSU

115V



230V





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	MSI
Model	MPG A750G
OEM/ODM	CWT
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
□□□□ (Vrms)	100-240
□□□□ (Arms)	10-5
□□□□ (Hz)	50-60

□□□□ (W)	750
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	135mm Fluid Dynamic Bearing Fan (HA13525H12SF-Z)
□□□□□	✓ (selectable)
Cybenetics Testing Information	
Lab ID	MS75001979
Date of receipt	Feb 9, 2022
Testing Date	Feb 17, 2022
Report Issued Date	Feb 18, 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	18AWG	□
4+4 pin EPS 12V □□ (700mm)	2	2	18AWG	□
6+2pin PCIe□□ (600mm)	2	2	18AWG	□
6+2pin PCIe□□ (600mm+150mm)	2	4	18AWG	□
SATA□□ (500mm+150mm+150mm)	2	6	18AWG	□
SATA□□ (500mm+150mm)	1	2	18AWG	□
□ 4pin Molex□□ (500mm+150mm+150mm+150mm) / FDD (+150mm)	1	4 / 1	18-20AWG	□

		3.3V	5V	12V	5VSB	-12V
		22	22	62.5	3	0.3
		120		750	15	3.6
(W)		750				

Parts Description

General Data	
Manufacturer (OEM)	CWT
PCB Type	Double Sided
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	1x NTC Thermistor SCK-037 (3 Ohm) & Relay
Bridge Rectifier(s)	2x GBU806 (600V, 8A @ 100°C)
APFC MOSFETs	2x On Semiconductor FCPF190N60E (600V, 13.1A @ 100°C, Rds(on): 0.19Ohm)
APFC Boost Diode	1x On Semiconductor FFSP0665B (650V, 6A @ 150°C)
Bulk Cap(s)	1x Nippon Chemi-Con (400V, 560uF, 2,000h @ 105°C, KMR)
Main Switchers	2x On Semiconductor FCPF190N60E (600V, 13.1A @ 100°C, Rds(on): 0.19Ohm)
APFC Controller	Champion CM6500UNX & CM03X
Resonant Controller	Champion CU6901VA
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	4x On Semiconductor NTMFS5C430N (40V, 131A @ 100°C, Rds(on): 1.7mOhm)
5V & 3.3V	DC-DC Converters: 2x UBIQ QM3054M6 (30V, 61A @ 100°C, Rds(on): 4.8mOhm) & 2x UBIQ QN3107M6N (30V, 70A @ 100°C, Rds(on): 2.6mOhm) PWM Controller(s): uPI-Semi uP3861P
Filtering Capacitors	Electrolytic: 2x Nichicon (2-5,000h @ 105°C, HD), 3x Nippon Chemi-Con (1-5,000h @ 105°C, KZE), 2x Nichicon (4-10,000h @ 105°C, HE), 1x Nippon Chemi-Con (4-10,000h @ 105°C, KY), 1x Rubycon (4-10,000h @ 105°C, YXJ), 1x Rubycon (2-10,000h @ 105°C, YXF) Polymer: 18x United Chemi-Con, 8x FPCAP
Supervisor IC	Weltrend WT7502R (OVP, UVP, SCP, PG)
Fan Controller	Microchip PIC16F1503

Fan Model	Hong Hua HA13525H12SF-Z (135mm, 12V, 0.5A, Fluid 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	✓

Performance Summary

115V

Accredited	
□□□□ (>1450 load combinations)	88.074%
Average Noise Output (>1450 Load Combinations)	22.69dBA
PF□□□ (>1450 Load Combinations)	0.991
Efficiency With 10W (≤500W) or 2% (>500W) Load	50.595%
□□□□□□	0.0286W
Non-Accredited	
12V Ripple (Full Load)	21.14mV
5V Ripple (Full Load)	12.69mV
3.3V Ripple (Full Load)	20.00mV
5VSB Ripple (Full Load)	10.61mV
12V Load Regulation	0.68%
5V Load Regulation	0.90%
3.3V Load Regulation	1.39%

5VSB Load Regulation	1.51%
Inrush Current	54.120A

230V

Accredited		
□□□□ (>1450 load combinations)		90.311%
Average Noise Output (>1450 Load Combinations)		23.82dBA
PF□□□ (>1450 Load Combinations)		0.965
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
□□□□□□		0.0544W
Non-Accredited		
12V Ripple (Full Load)		20.67mV
5V Ripple (Full Load)		12.63mV
3.3V Ripple (Full Load)		10.18mV
5VSB Ripple (Full Load)		9.73mV
12V Load Regulation		0.70%
5V Load Regulation		1.08%
3.3V Load Regulation		0.40%
5VSB Load Regulation		1.61%
Inrush Current		105.380A
□□□□ & PG□□		18.10ms
AC Loss to PWR_OK Hold Up Time		15.80ms
PWR_OK Inactive to DC Loss Delay		2.30ms
PSU Timings: T1 (20% / 100%)	50.0ms	50.0ms
PSU Timings: T3 (20% / 100%)	141.0ms	139.0ms
OPP (28.39°C / 40.37°C)	127.05%	127.04%

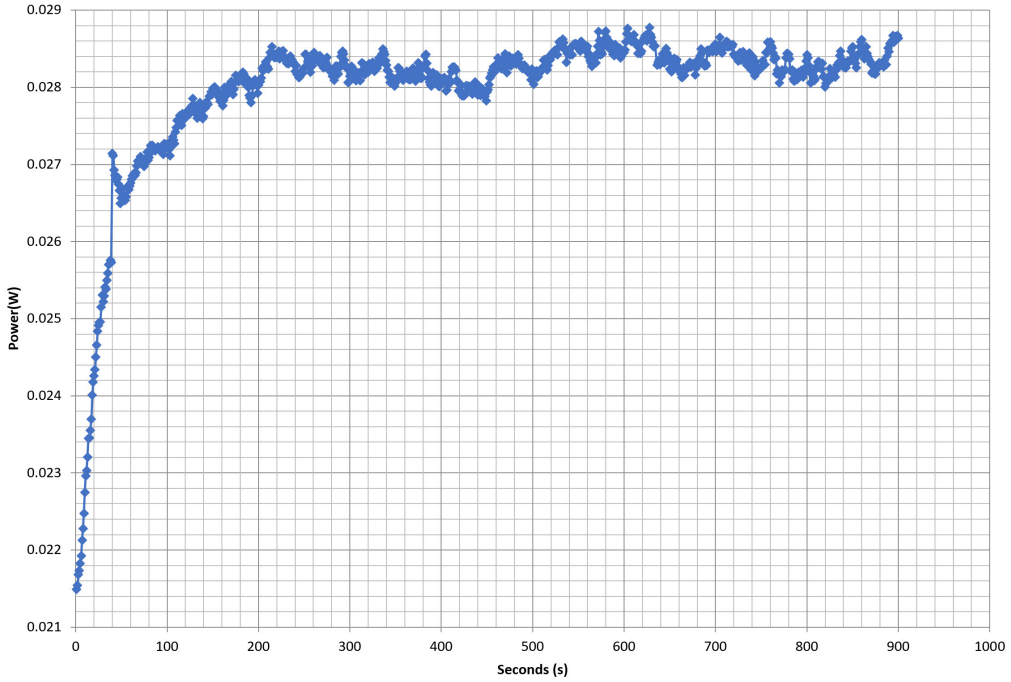
□□□□ & PG□□

Hold-Up Time (ms)	18.1
AC Loss to PWR_OK Hold Up Time (ms)	15.8

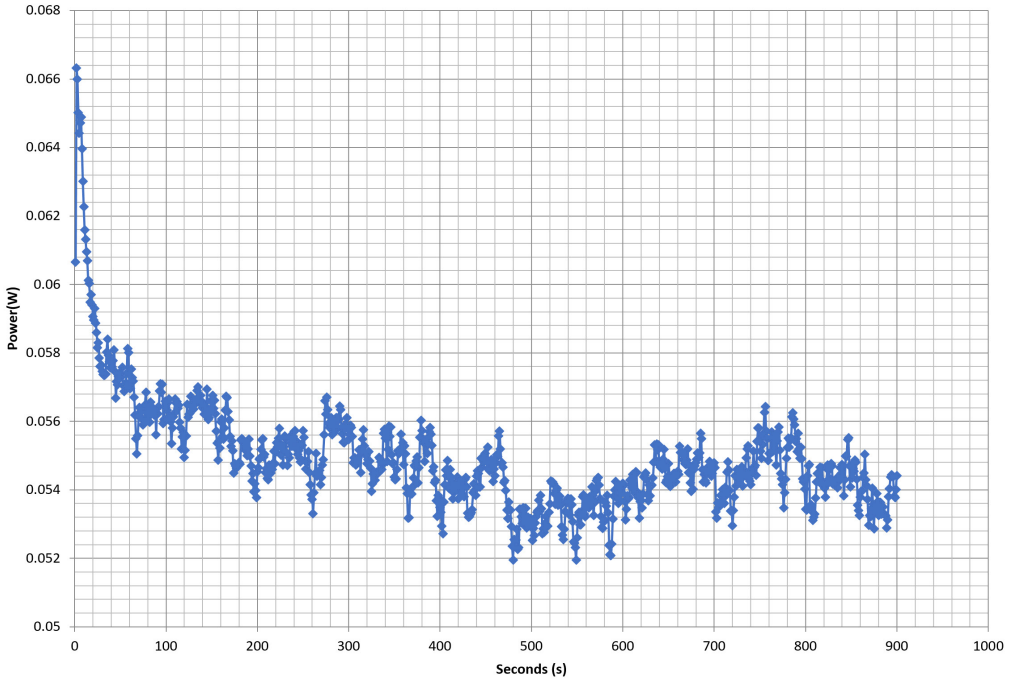
PWR_OK Inactive to DC Loss Delay (ms)	2.3

Graphs

115V

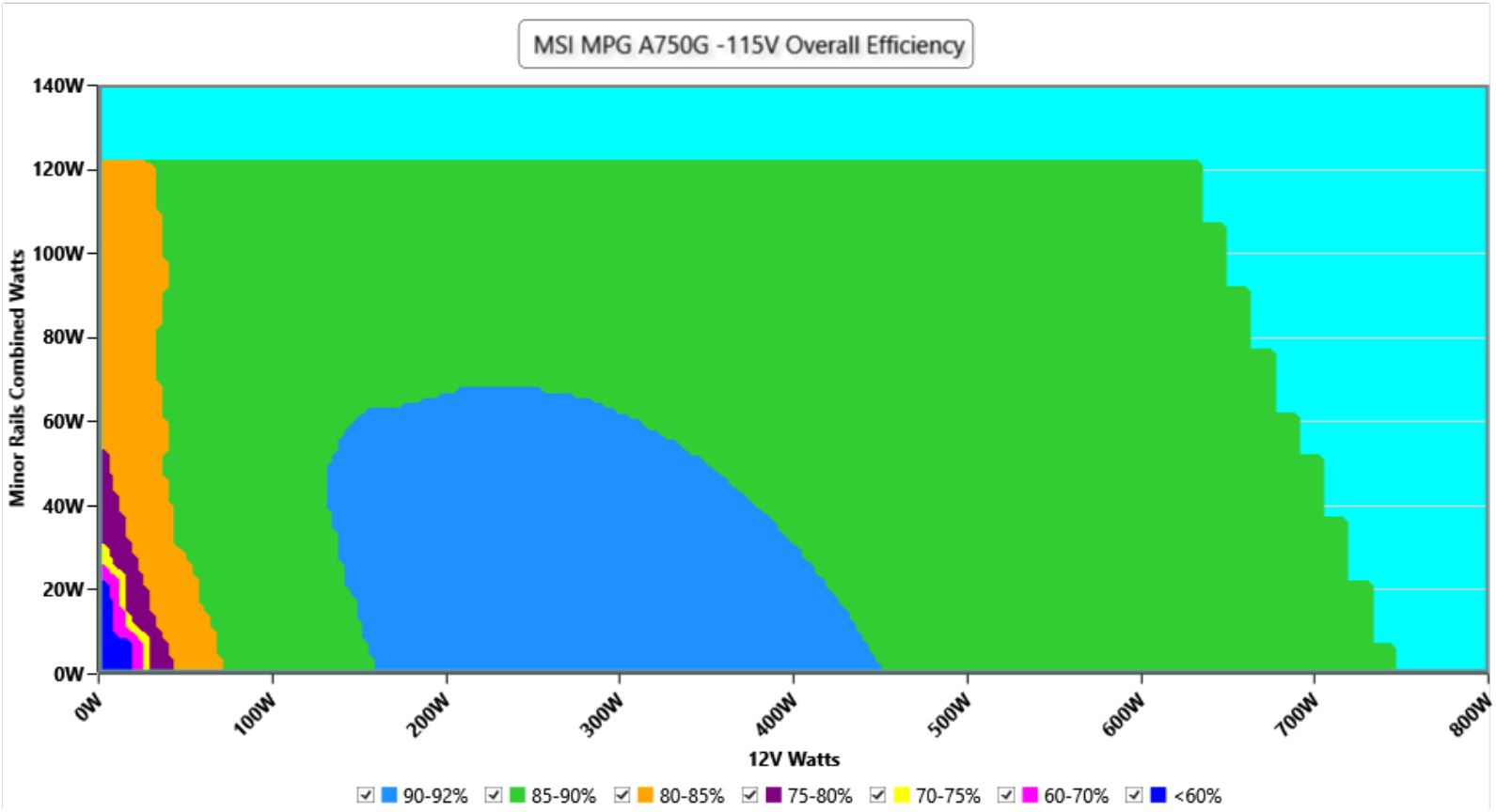


230V



□□□□□□

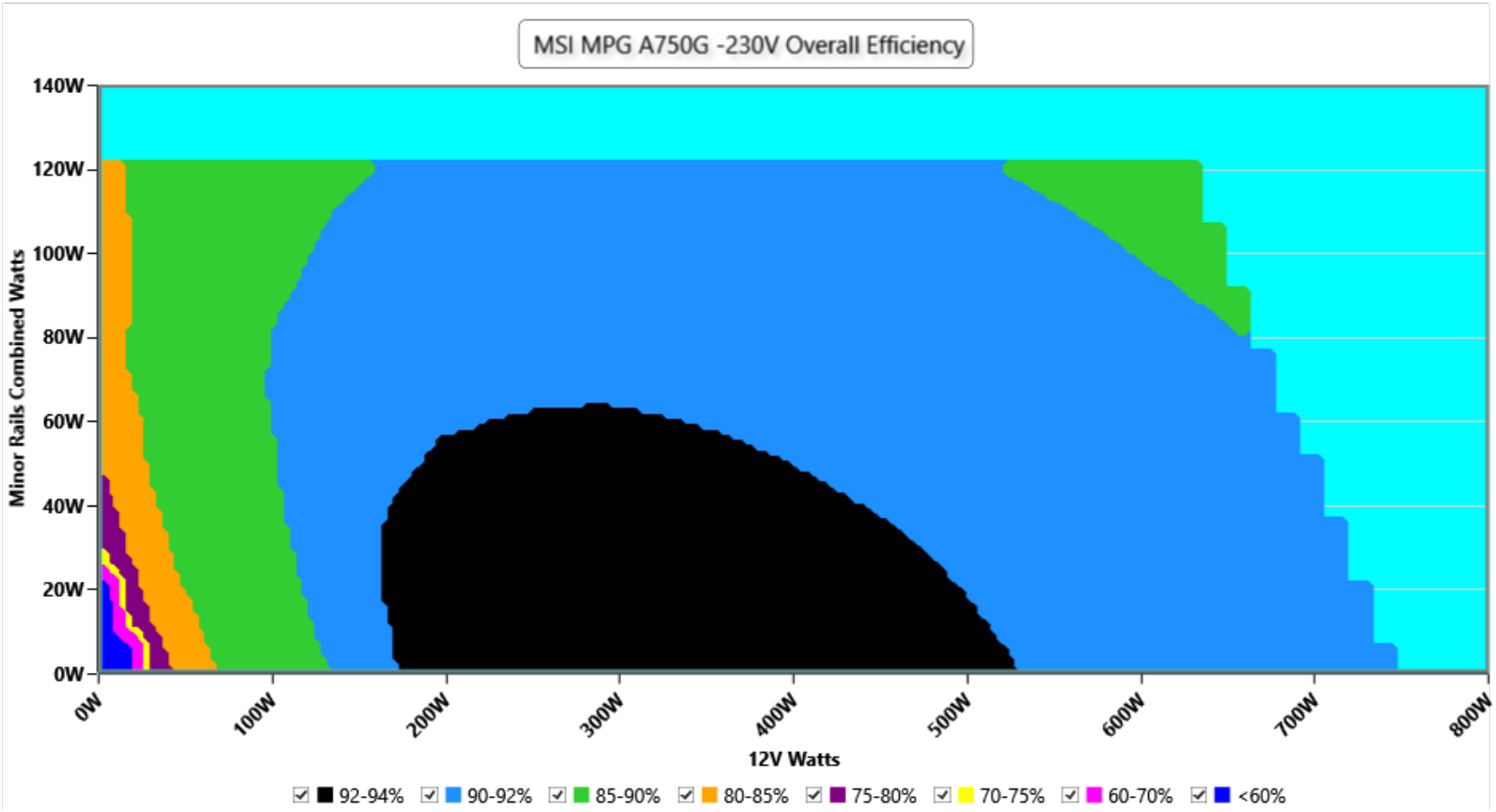
115V



□□

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



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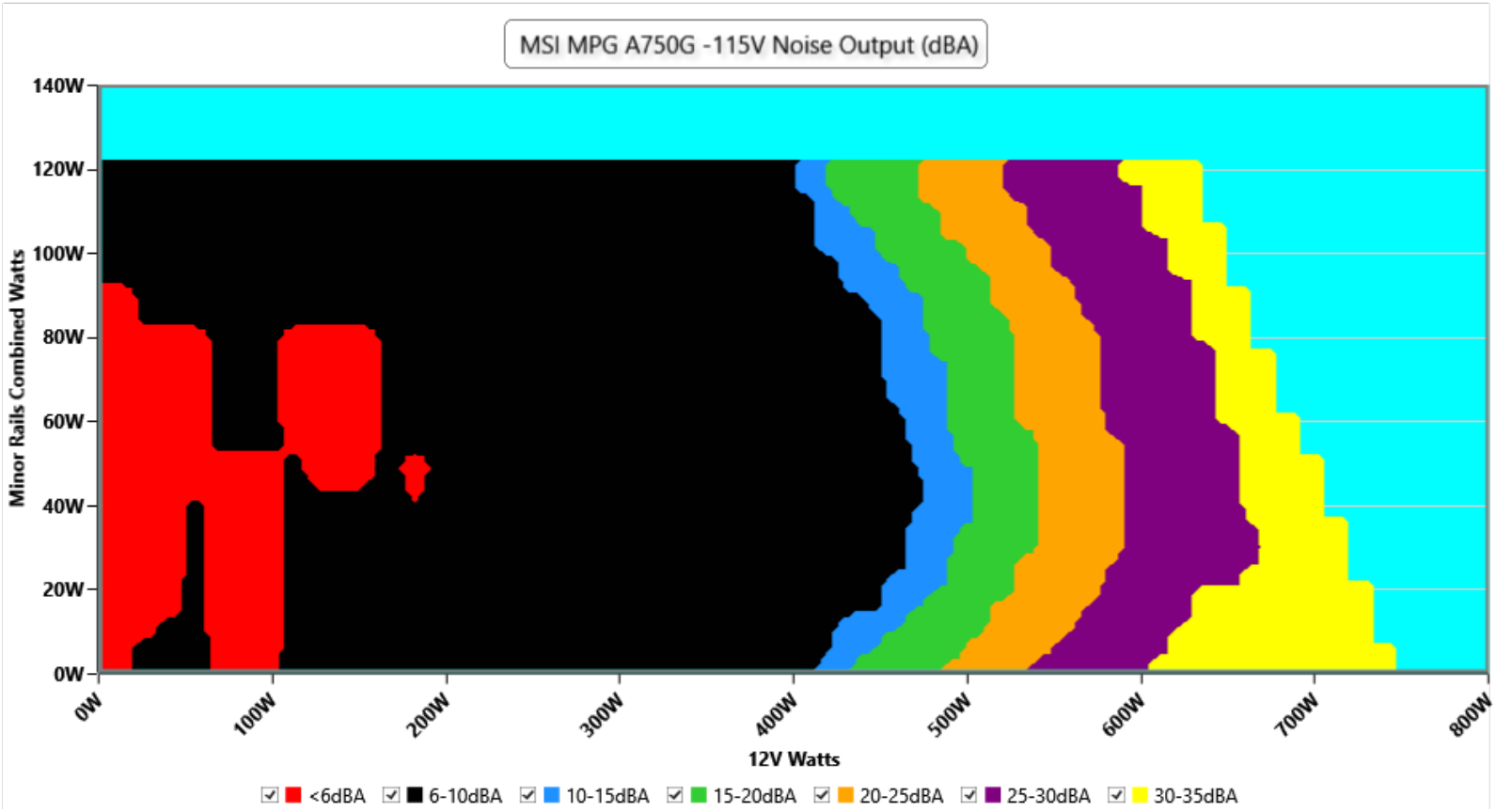
□□□□□

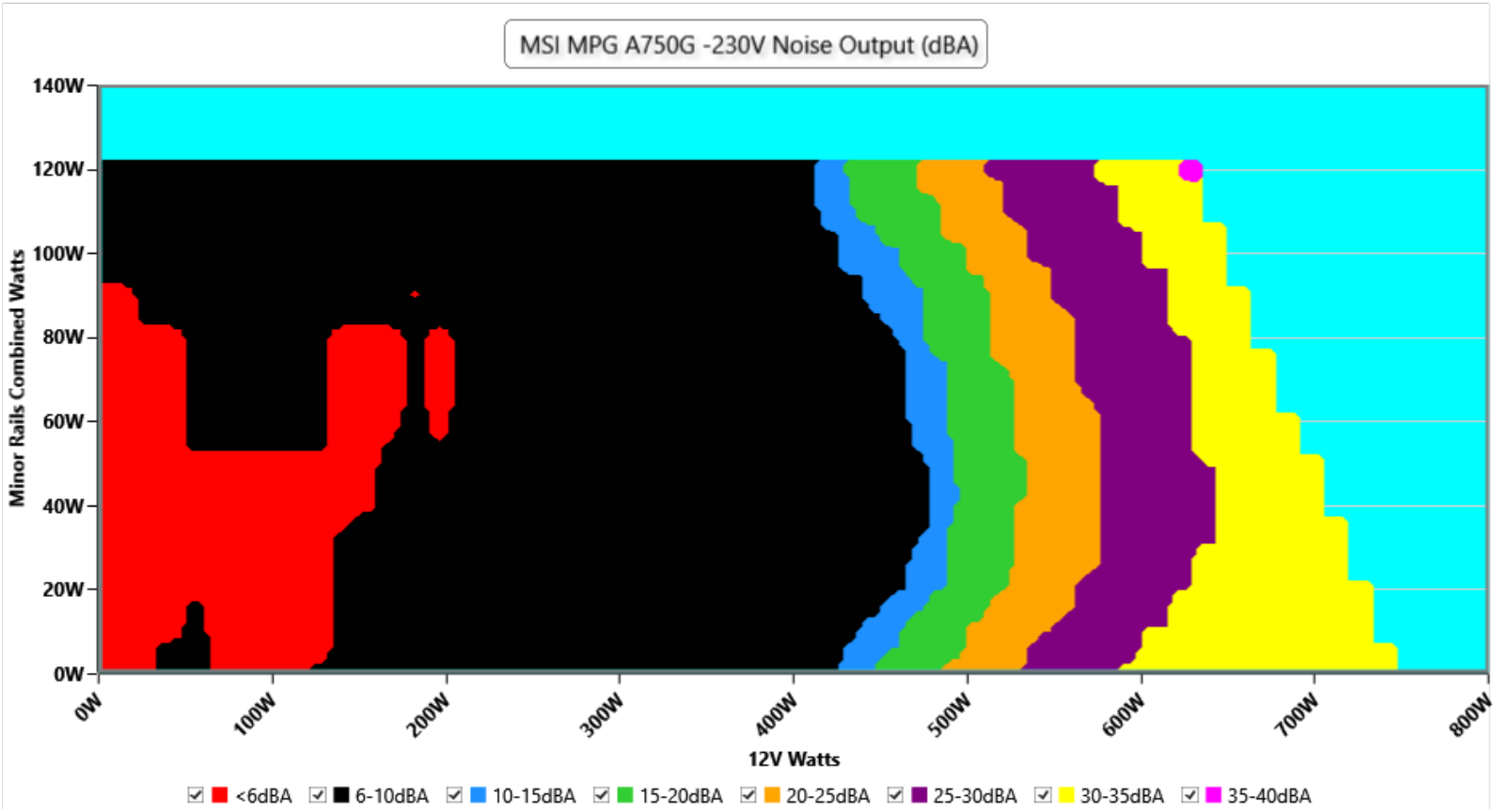
115V



□□

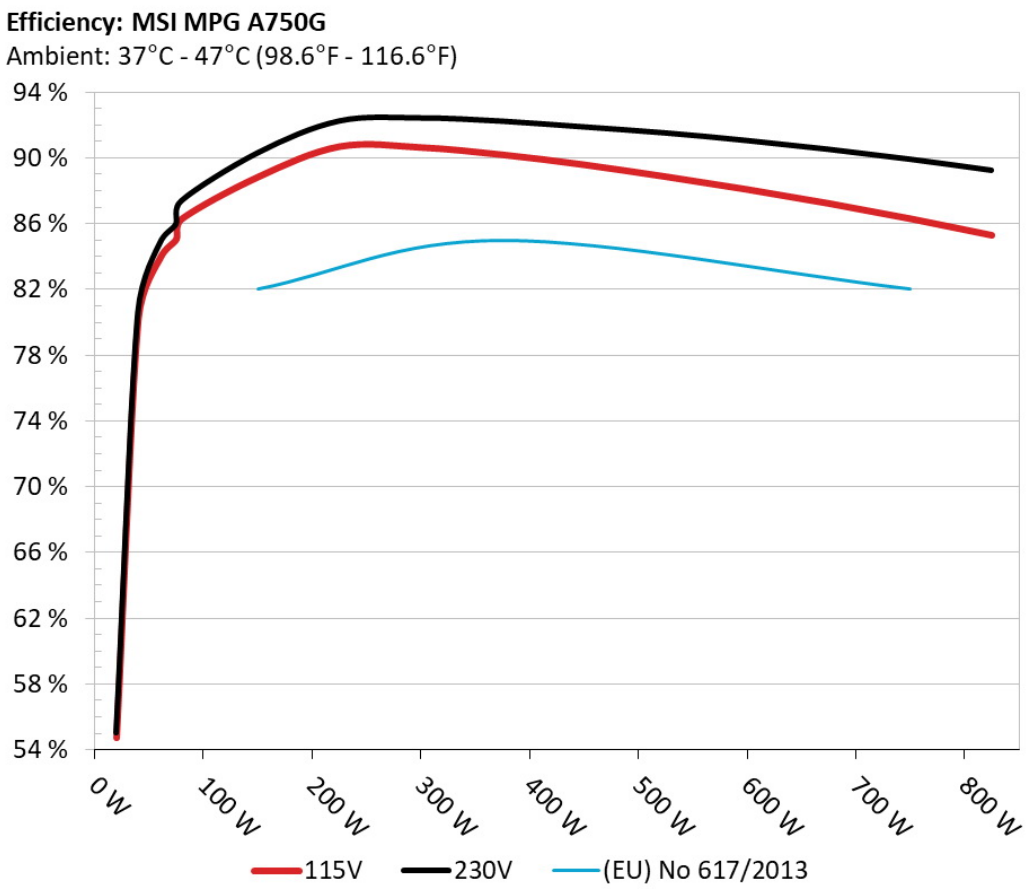
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

230V



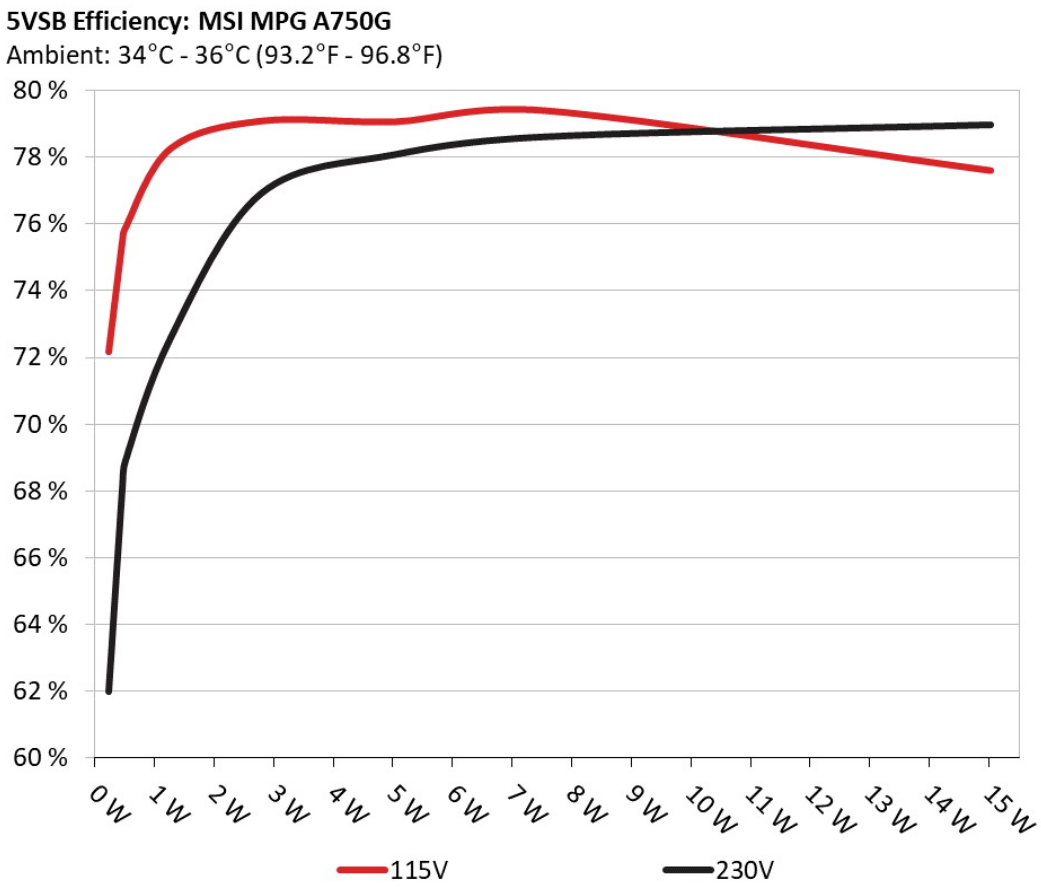
The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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	0.229W	72.167%	0.032
	5.079V	0.317W		115.12V
2	0.09A	0.457W	75.478%	0.06
	5.079V	0.605W		115.11V
3	0.55A	2.788W	79.092%	0.259
	5.069V	3.525W		115.12V
4	1A	5.058W	79.072%	0.347
	5.058V	6.397W		115.12V
5	1.5A	7.57W	79.403%	0.394
	5.046V	9.533W		115.12V
6	3A	15.032W	77.607%	0.457
	5.01V	19.369W		115.12V

230V

□□ #	5VSB	DC/AC (□)	□□	PF/AC □□
1	0.045A	0.229W	62.001%	0.011
	5.08V	0.369W		230.25V
2	0.09A	0.457W	68.1%	0.02
	5.079V	0.671W		230.24V
3	0.55A	2.788W	76.917%	0.101
	5.068V	3.625W		230.25V
4	1A	5.058W	78.088%	0.166
	5.058V	6.477W		230.25V
5	1.5A	7.57W	78.614%	0.221
	5.046V	9.629W		230.25V
6	3.001A	15.031W	78.969%	0.316
	5.01V	19.034W		230.25V

Supplementary Tests (For Reference)

10-110%□□□□

115V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
10%	4.391A	1.988A	2.013A	0.991A	75.022	85.064%	0	<6.0	45.69°C	0.979
	12.165V	5.031V	3.28V	5.046V	88.195				40.57°C	115.14V
20%	9.793A	2.985A	3.023A	1.192A	150	88.835%	0	<6.0	46.38°C	0.989
	12.160V	5.027V	3.275V	5.034V	168.852				40.63°C	115.13V
30%	15.569A	3.484A	3.531A	1.371A	225.009	90.689%	0	<6.0	47.12°C	0.992
	12.137V	5.025V	3.272V	5.106V	248.112				41.1°C	115.13V
40%	21.344A	3.983A	4.039A	1.569A	300.092	90.635%	417	7.5	41.37°C	0.993
	12.129V	5.022V	3.268V	5.099V	331.101				48.21°C	115.11V
50%	26.745A	4.983A	5.055A	1.769A	374.693	90.195%	416	7.5	42.01°C	0.992
	12.122V	5.018V	3.264V	5.089V	415.427				49.27°C	115.11V
60%	32.176A	5.983A	6.073A	1.969A	449.579	89.587%	645	18.1	42.82°C	0.992
	12.113V	5.015V	3.26V	5.079V	501.837				50.58°C	115.1V
70%	37.616A	6.985A	7.095A	2.171A	524.477	88.865%	786	24.6	43.1°C	0.993
	12.106V	5.012V	3.256V	5.068V	590.199				51.36°C	115.09V
80%	43.134A	7.989A	8.116A	2.273A	599.68	88.085%	944	30.3	43.42°C	0.994
	12.096V	5.009V	3.253V	5.06V	680.795				52.12°C	115.09V
90%	48.981A	8.491A	8.616A	2.376A	674.69	87.235%	1370	41.2	44.62°C	0.995
	12.090V	5.006V	3.249V	5.051V	773.422				53.68°C	115.08V
100%	54.634A	8.996A	9.147A	2.982A	749.901	86.304%	1655	46.6	45.98°C	0.995
	12.084V	5.003V	3.247V	5.03V	868.906				55.63°C	115.08V
110%	60.166A	10.002A	10.26A	2.986A	824.926	85.298%	2009	51.1	47.91°C	0.996
	12.077V	5V	3.245V	5.024V	967.109				58.52°C	115.07V
CL1	0.115A	14.413A	14.629A	0A	121.314	82.779%	445	8.3	42.39°C	0.987
	12.160V	5.011V	3.26V	5.051V	146.55				49.49°C	115.11V

CL2	0.115A	21.939A	0A	0A	111.42	81.825%	444	8.3	43.51°C	0.986
	12.166V	5.015V	3.281V	5.06V	136.168				51.71°C	115.11V
CL3	0.115A	0A	22.387A	0A	73.983	75.483%	442	8.3	44.77°C	0.981
	12.164V	5.021V	3.242V	5.056V	98.013				54.08°C	115.11V
CL4	61.990A	0A	0A	0A	749.622	87.405%	1560	44.7	46.2°C	0.995
	12.092V	5.026V	3.268V	5.114V	857.646				55.97°C	115.07V

The results above are not used in the certification process

230V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
10%	4.392A	1.988A	2.005A	0.991A	75.01	85.965%	0	<6.0	44.13°C	0.853
	12.163V	5.029V	3.292V	5.045V	87.257				40.07°C	230.23V
20%	9.794A	2.985A	3.008A	1.192A	149.966	90.282%	0	<6.0	45.19°C	0.939
	12.157V	5.025V	3.292V	5.032V	166.108				40.87°C	230.23V
30%	15.572A	3.485A	3.514A	1.372A	224.979	92.221%	0	<6.0	45.55°C	0.963
	12.133V	5.021V	3.287V	5.102V	243.957				41°C	230.23V
40%	21.352A	3.987A	4.018A	1.57A	300.081	92.408%	412	7.7	41.69°C	0.974
	12.125V	5.017V	3.285V	5.095V	324.736				46.43°C	230.23V
50%	26.755A	4.988A	5.023A	1.771A	374.678	92.211%	412	7.7	42.45°C	0.98
	12.116V	5.013V	3.285V	5.083V	406.325				47.53°C	230.23V
60%	32.189A	5.99A	6.028A	1.972A	449.579	91.864%	618	16.7	42.76°C	0.983
	12.109V	5.009V	3.285V	5.071V	489.396				49.24°C	230.23V
70%	37.617A	6.991A	7.02A	2.173A	524.232	91.503%	764	23.6	43.09°C	0.985
	12.099V	5.006V	3.29V	5.062V	572.914				50.13°C	230.18V
80%	43.132A	7.997A	8.021A	2.276A	599.44	91.041%	975	31.4	43.43°C	0.987
	12.092V	5.002V	3.29V	5.053V	658.429				51.67°C	230.18V
90%	48.983A	8.503A	8.511A	2.38A	674.485	90.506%	1294	40.1	44.46°C	0.988
	12.086V	4.998V	3.289V	5.043V	745.241				53.56°C	230.18V
100%	54.645A	9.011A	9.033A	2.988A	749.709	89.905%	1625	46.2	45.61°C	0.989
	12.078V	4.994V	3.287V	5.021V	833.894				55.72°C	230.19V

110%	60.190A	10.021A	10.126A	2.993A	824.774	89.229%	1968	50.5	47.31°C	0.99
	12.069V	4.99V	3.288V	5.012V	924.331				58.44°C	230.19V
CL1	0.115A	14.41A	14.306A	0A	121.297	84.4%	441	8.2	43.32°C	0.926
	12.154V	5.011V	3.334V	5.048V	143.716				48.46°C	230.2V
CL2	0.115A	21.918A	0A	0A	111.408	82.485%	439	8.2	42.03°C	0.92
	12.162V	5.02V	3.281V	5.057V	135.065				49.24°C	230.2V
CL3	0.115A	0A	21.566A	0A	73.975	78.486%	438	8.2	40.79°C	0.867
	12.160V	5.019V	3.366V	5.054V	94.252				50.23°C	230.21V
CL4	62.004A	0A	0A	0A	749.567	90.755%	1611	46.0	45.96°C	0.989
	12.089V	5.018V	3.262V	5.106V	825.929				57.12°C	230.2V

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	1.222A	0.495A	0.501A	0.197A	20.014	54.738%	0	<6.0	40.08°C	0.924
	12.166V	5.048V	3.292V	5.071V	36.564				36.95°C	115.13V
40W	2.688A	0.694A	0.702A	0.296A	40.014	80.236%	0	<6.0	41.28°C	0.949
	12.165V	5.047V	3.291V	5.067V	49.87				37.61°C	115.13V
60W	4.156A	0.893A	0.904A	0.395A	60.016	83.903%	0	<6.0	42.53°C	0.969
	12.164V	5.038V	3.285V	5.063V	71.53				38.36°C	115.13V
80W	5.620A	1.093A	1.106A	0.494A	79.991	86.287%	0	<6.0	44.55°C	0.98
	12.164V	5.034V	3.283V	5.059V	92.704				39.99°C	115.14V

The results above are not used in the certification process

230V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
20W	1.222A	0.495A	0.5A	0.197A	20.009	55.071%	0	<6.0	40.24°C	0.614
	12.162V	5.048V	3.298V	5.072V	36.334				37.15°C	230.23V
40W	2.688A	0.694A	0.7A	0.296A	40.007	80.607%	0	<6.0	41.01°C	0.712
	12.161V	5.047V	3.297V	5.067V	49.633				37.66°C	230.23V
60W	4.156A	0.893A	0.902A	0.395A	60.007	84.787%	0	<6.0	42.1°C	0.808
	12.161V	5.037V	3.292V	5.063V	70.774				38.5°C	230.24V
80W	5.620A	1.093A	1.103A	0.494A	79.967	87.376%	0	<6.0	43.19°C	0.862
	12.161V	5.032V	3.29V	5.058V	91.521				39.36°C	230.24V

The results above are not used in the certification process

□□□□

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	8.34mV	9.96mV	17.54mV	4.76mV	Pass
20% Load	9.62mV	10.32mV	15.24mV	4.66mV	Pass
30% Load	15.12mV	10.62mV	15.44mV	5.01mV	Pass
40% Load	12.77mV	10.42mV	16.41mV	6.50mV	Pass
50% Load	11.99mV	10.57mV	16.11mV	5.89mV	Pass
60% Load	13.00mV	11.59mV	16.16mV	6.14mV	Pass
70% Load	13.76mV	11.03mV	15.80mV	7.06mV	Pass
80% Load	14.23mV	11.90mV	17.39mV	7.57mV	Pass
90% Load	13.71mV	11.54mV	16.93mV	8.19mV	Pass
100% Load	21.14mV	12.69mV	20.00mV	10.61mV	Pass
110% Load	22.27mV	14.01mV	20.47mV	11.07mV	Pass
Crossload1	10.16mV	13.66mV	18.96mV	8.70mV	Pass
Crossload2	10.64mV	16.69mV	16.26mV	9.01mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	9.01mV	9.86mV	17.85mV	8.65mV	Pass
Crossload4	20.39mV	12.17mV	19.18mV	11.76mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	6.04mV	9.14mV	5.58mV	3.89mV	Pass
20% Load	6.14mV	8.58mV	5.73mV	3.94mV	Pass
30% Load	16.29mV	9.76mV	6.09mV	4.30mV	Pass
40% Load	13.68mV	9.50mV	6.24mV	5.84mV	Pass
50% Load	12.61mV	9.75mV	6.55mV	5.48mV	Pass
60% Load	11.79mV	10.26mV	7.47mV	5.53mV	Pass
70% Load	11.44mV	10.83mV	6.90mV	6.09mV	Pass
80% Load	11.95mV	11.03mV	9.26mV	6.70mV	Pass
90% Load	12.54mV	11.03mV	9.87mV	6.96mV	Pass
100% Load	20.67mV	12.63mV	10.18mV	9.73mV	Pass
110% Load	22.00mV	12.84mV	10.99mV	10.14mV	Pass
Crossload1	8.64mV	13.20mV	10.22mV	8.22mV	Pass
Crossload2	8.34mV	14.71mV	7.67mV	8.75mV	Pass
Crossload3	7.01mV	9.76mV	11.91mV	7.93mV	Pass
Crossload4	19.94mV	11.42mV	7.15mV	10.30mV	Pass

The results above are not used in the certification process





MSI MPG A750G

Top side

Power specifications label

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在任何情况下都应提供原始测试结果文档的网站链接

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