MSI MAG A750GL PCIE5

Serial Number

Lab ID MS75002356

Certification ID 252356

Test Result Report ID: 24PS2356A

Certificate Issue Date: Feb 15, 2024

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	MAG A750GL PCIE5
OEM/ODM	CWT
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10

Rated Frequency (Hz)	47-63
Rated Power (W)	750
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Fluid Dynamic Bearing Fan (DF1202512FDHN)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	MS75002356
Date of receipt	Jan 26, 2024
Testing Date	Feb 14, 2024
Report Issued Date	Feb 15, 2024
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	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	18AWG	No
4+4 pin EPS12V (750mm)	2	2	18AWG	No
6+2 pin PCIe (600mm)	1	1	18AWG	No
6+2 pin PCIe (600mm+150mm)	1	2	18AWG	No
12+4 pin PCIe (590mm) (450W)	1	1	16-26AWG	No
SATA (500mm+150mm+150mm+150mm)	2	8	18AWG	No
4-pin Molex (500mm+150mm+150mm+150mm) / FDD (+150mm)	1	4 / 1	18-20AWG	No

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	62	2.5	0.3
	Watts	110		744	12.5	3.6
Total Max. Power (W)		750				

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	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.1 PSU Power Excursion	✓

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	88.709%
Average Noise Output (>1450 Load Combinations)	36.13dBA
Average PF (>1450 Load Combinations)	0.978
Efficiency With 10W (≤500W) or 2% (>500W) Load	64.826%
Standby Power Consumption	0.0369W
Non-Accredited	
12V Ripple (Full Load)	32.77mV
5V Ripple (Full Load)	16.47mV
3.3V Ripple (Full Load)	16.08mV
5VSB Ripple (Full Load)	15.22mV
12V Load Regulation	0.63%

5V Load Regulation	0.66%
3.3V Load Regulation	0.84%
5VSB Load Regulation	2.76%
Inrush Current	28.030A

230V

Accredited		
Average Efficiency (>1450 load combinations)		90.912%
Average Noise Output (>1450 Load Combinations)		35.42dBA
Average PF (>1450 Load Combinations)		0.934
Efficiency With 10W (≤500W) or 2% (>500W) Load		63.405%
Standby Power Consumption		0.1026W
Non-Accredited		
12V Ripple (Full Load)		33.39mV
5V Ripple (Full Load)		16.02mV
3.3V Ripple (Full Load)		15.24mV
5VSB Ripple (Full Load)		14.77mV
12V Load Regulation		0.61%
5V Load Regulation		0.66%
3.3V Load Regulation		0.84%
5VSB Load Regulation		2.76%
Inrush Current		49.670A
12V Transient Response (200%)		11.43V
5V Transient Response (200%)		4.939V
3.3V Transient Response (200%)		3.218V
5VSB Transient Response (200%)		4.874V
Hold-Up Time & PWR_OK Signal		18.00ms
AC Loss to PWR_OK Hold Up Time		16.60ms
PWR_OK Inactive to DC Loss Delay		1.40ms
PSU Timings: T1 (20% / 100%)	22.0ms	22.0ms
PSU Timings: T3 (20% / 100%)	126.0ms	124.0ms
OPP (26.37°C / 40.44°C)	131.54%	120.60%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	18
AC Loss to PWR_OK Hold Up Time (ms)	16.6
PWR_OK Inactive to DC Loss Delay (ms)	1.4

Vampire Power

Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.86 V	114.80 V	113.85 V	114.92 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.98 Hz	59.40 Hz	60.07 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.420	1.418	1.340	1.423	1.490	PASS
Mains Voltage THD:	0.15 %	0.10 %	N/A	0.26 %	2.00 %	PASS
Real Power:	0.037 W	-0.003 W	N/A	0.068 W	N/A	N/A
Apparent Power:	11.244 W	11.218 W	N/A	11.279 W	N/A	N/A
Power Factor:	0.005	N/A	N/A	N/A	N/A	N/A

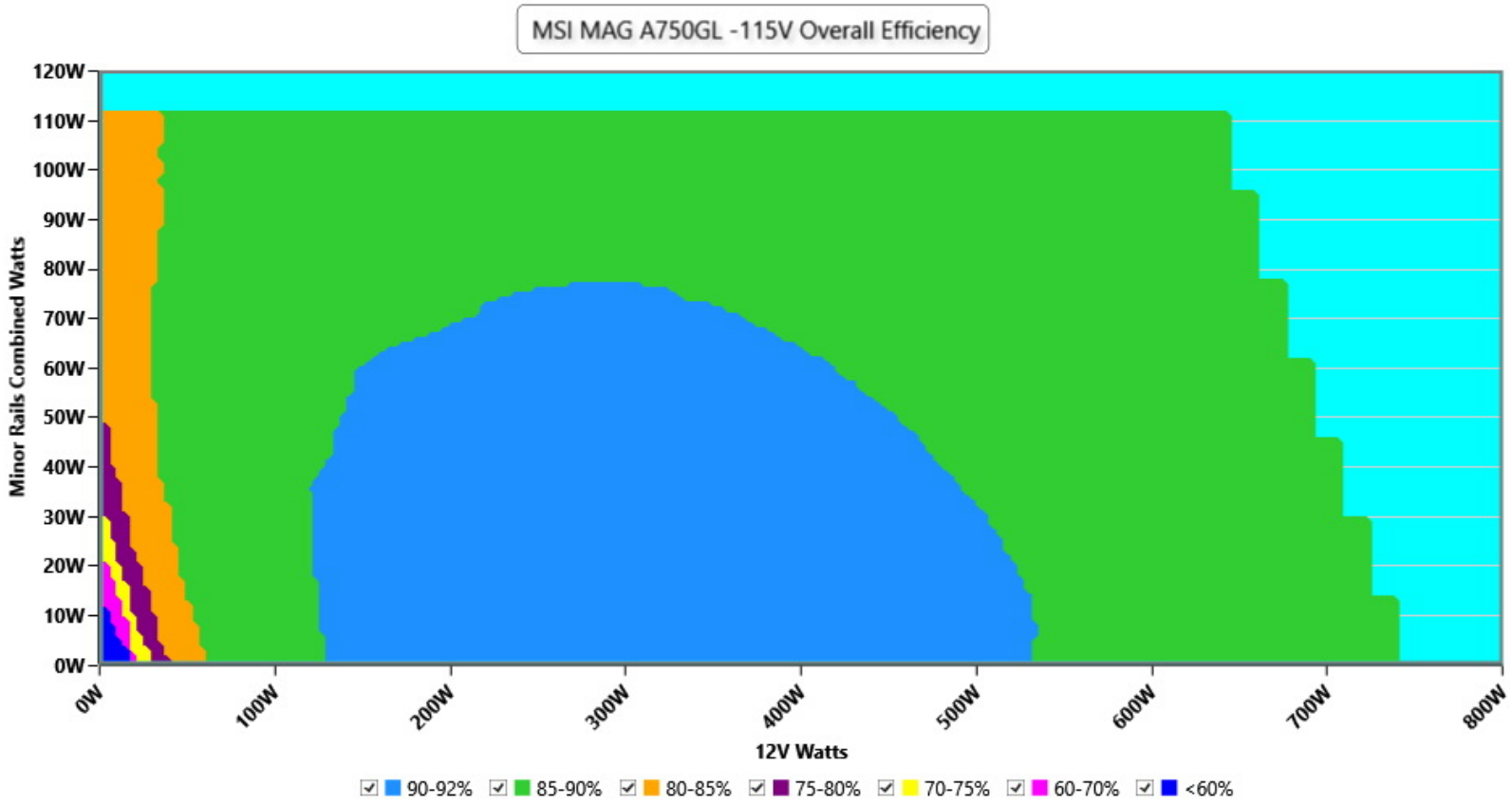
230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	229.89 V	229.82 V	227.70 V	229.98 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:	1.419	1.418	1.340	1.420	1.490	PASS
Mains Voltage THD:	0.17 %	0.12 %	N/A	0.22 %	2.00 %	PASS
Real Power:	0.103 W	0.064 W	N/A	0.146 W	N/A	N/A
Apparent Power:	39.095 W	39.051 W	N/A	39.156 W	N/A	N/A

Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

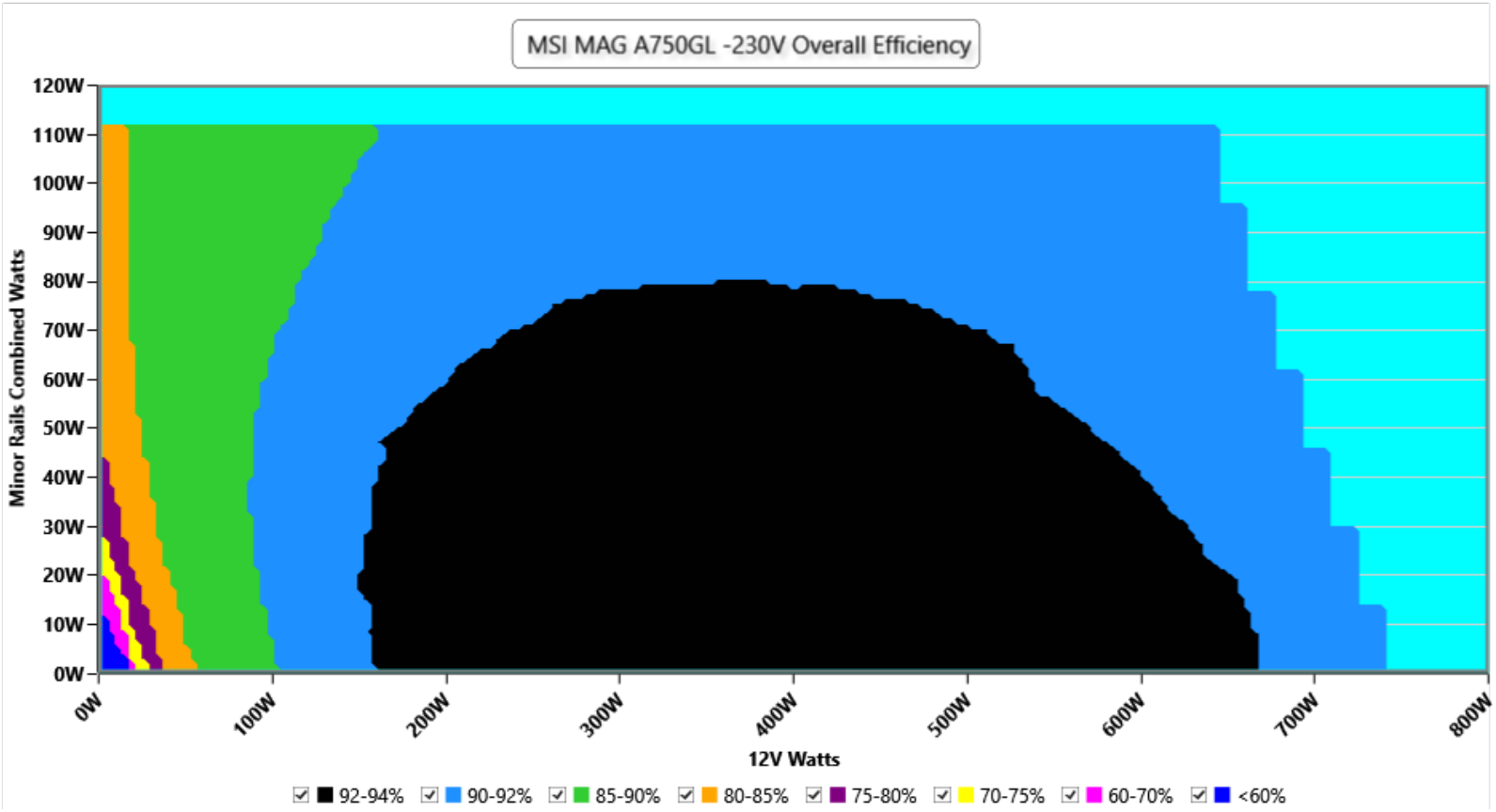
115V



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

230V



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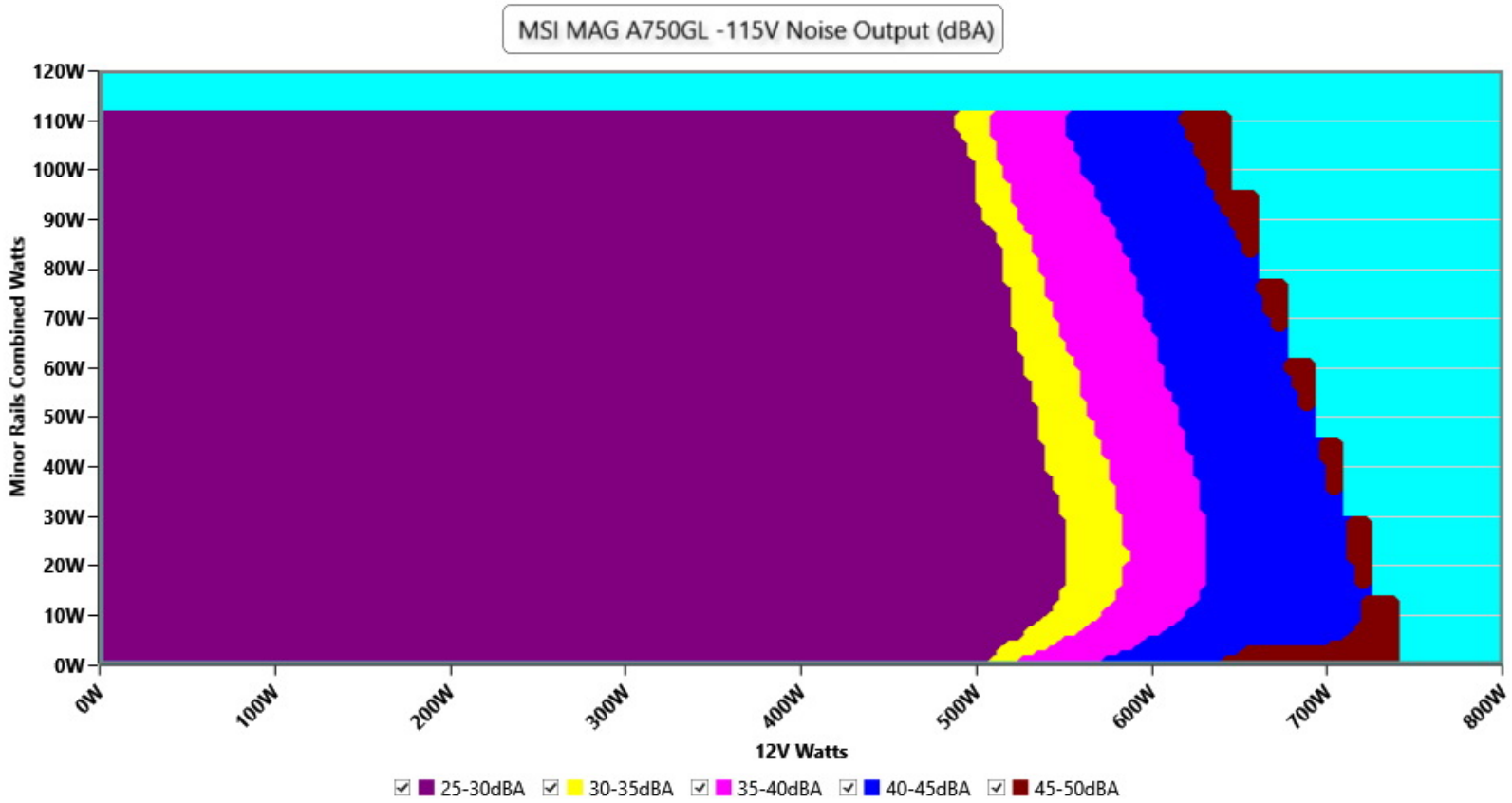
Noise Graph

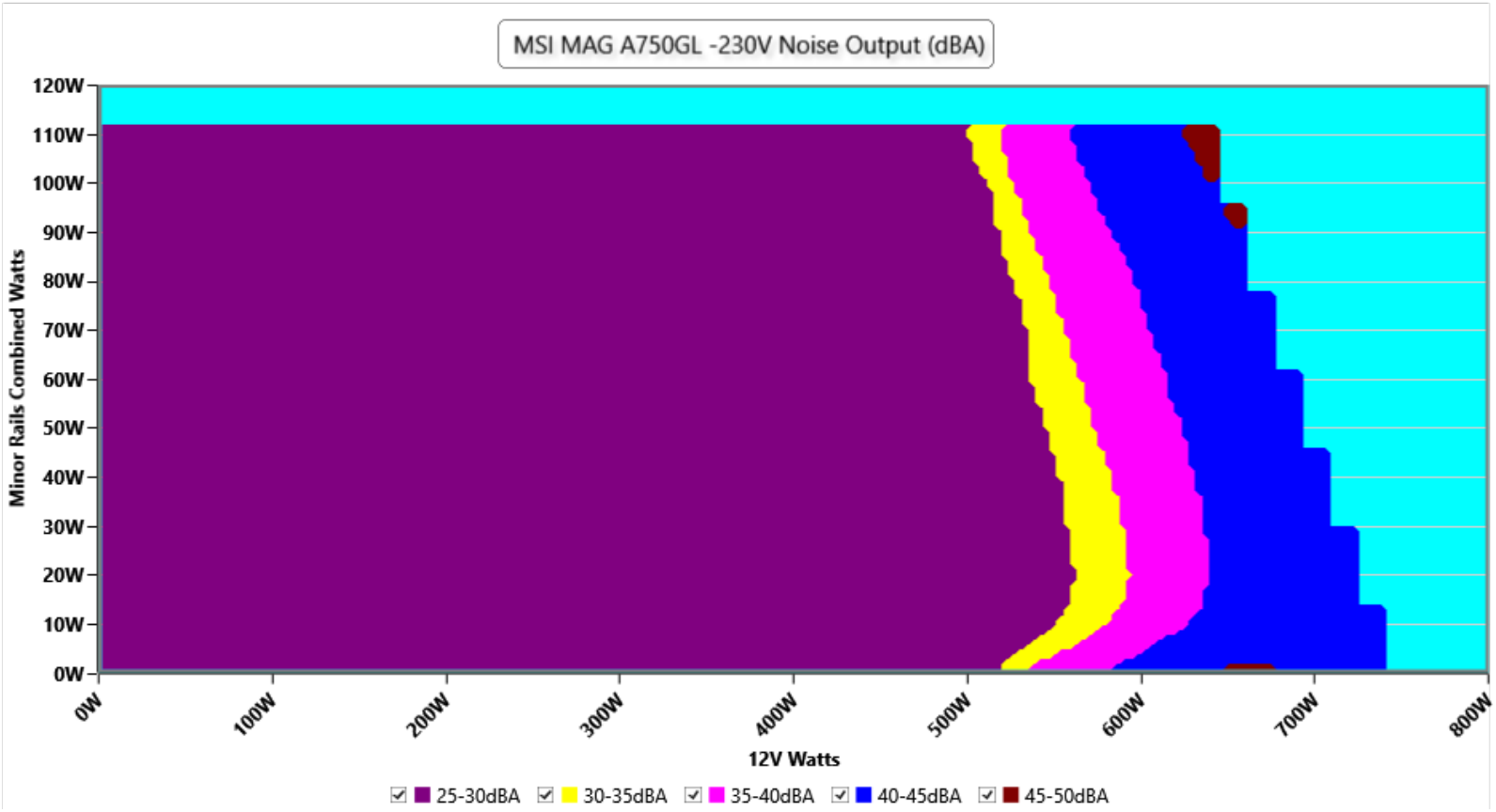
115V



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

230V

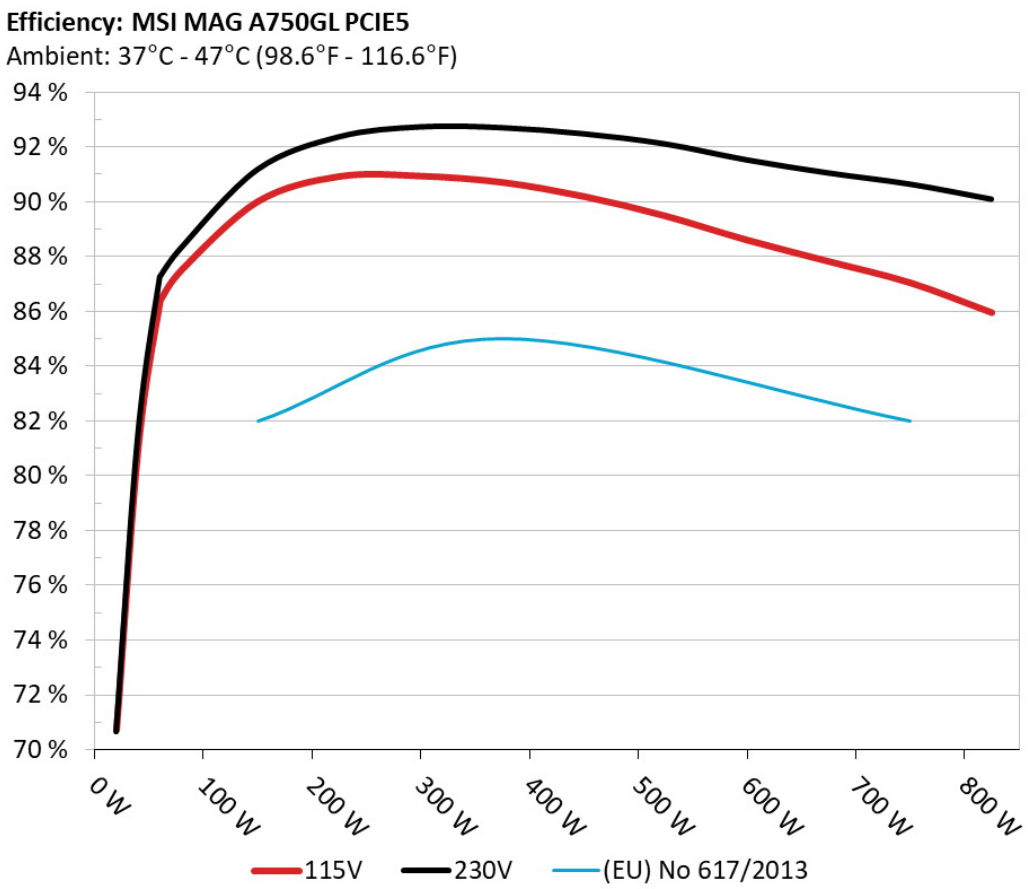


INFO

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

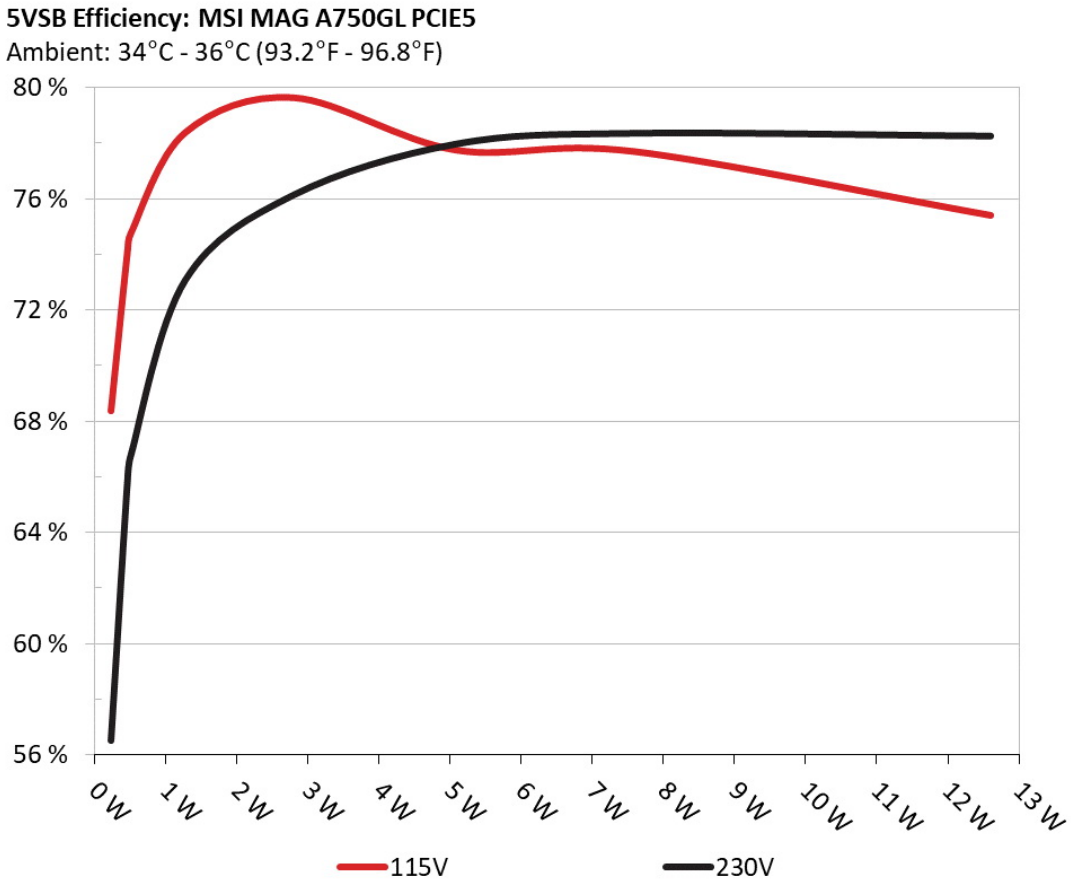
Efficiency under high ambient temperature



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)

115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	68.686%	0.032
	5.106V	0.335W		114.86V
2	0.09A	0.459W	74.342%	0.059
	5.105V	0.618W		114.86V
3	0.55A	2.801W	79.954%	0.262
	5.093V	3.503W		114.86V
4	1A	5.082W	78.07%	0.349
	5.082V	6.51W		114.85V
5	1.5A	7.604W	78.015%	0.407
	5.069V	9.747W		114.86V
6	2.5A	12.61W	75.722%	0.465
	5.043V	16.653W		114.85V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	56.811%	0.012
	5.104V	0.406W		229.86V
2	0.09A	0.459W	66.026%	0.02
	5.103V	0.696W		229.85V
3	0.55A	2.801W	76.423%	0.1
	5.093V	3.666W		229.85V
4	1A	5.08W	78.25%	0.166
	5.08V	6.492W		229.86V
5	1.5A	7.603W	78.636%	0.207
	5.068V	9.669W		229.85V
6	2.5A	12.607W	78.539%	0.289
	5.042V	16.052W		229.85V

Supplementary Tests (For Reference)

Typical Load Tests

115V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
10%	4.429A	1.986A	1.974A	0.986A	74.999	86.392%	1082	27.8	40.04°C	0.955
	12.058V	5.034V	3.344V	5.071V	86.811				44.27°C	114.84V
20%	9.878A	2.982A	2.964A	1.186A	149.929	90.006%	1088	27.9	40.74°C	0.971
	12.050V	5.03V	3.341V	5.059V	166.575				45.28°C	114.81V
30%	15.684A	3.481A	3.46A	1.387A	224.928	90.921%	1091	28	41.36°C	0.979
	12.043V	5.027V	3.338V	5.046V	247.388				46.38°C	114.79V
40%	21.502A	3.98A	3.957A	1.59A	300.014	90.933%	1095	28.2	41.75°C	0.981
	12.036V	5.025V	3.336V	5.033V	329.93				47.3°C	114.76V
50%	26.927A	4.978A	4.95A	1.793A	374.411	90.703%	1100	28.3	42.21°C	0.982
	12.029V	5.022V	3.334V	5.019V	412.784				48.21°C	114.74V
60%	32.404A	5.977A	5.945A	1.998A	449.322	90.192%	1113	28.6	42.95°C	0.982
	12.021V	5.02V	3.331V	5.005V	498.186				49.47°C	114.7V
70%	37.887A	6.979A	6.942A	2.203A	524.253	89.483%	1314	34.3	43.27°C	0.982
	12.013V	5.016V	3.328V	4.993V	585.871				50.32°C	114.68V
80%	43.439A	7.981A	7.941A	2.308A	599.468	88.601%	1846	42.6	43.73°C	0.984
	12.007V	5.011V	3.324V	4.982V	676.599				51.8°C	114.65V
90%	49.327A	8.485A	8.429A	2.414A	674.52	87.823%	2317	47.4	44.08°C	0.985
	12.002V	5.008V	3.322V	4.972V	768.05				53.12°C	114.62V
100%	55.227A	8.989A	8.947A	2.52A	749.639	87.044%	2317	47.4	45.52°C	0.986
	11.995V	5.006V	3.32V	4.961V	861.223				55.57°C	114.59V
110%	60.806A	9.995A	10.04A	2.525A	824.66	85.956%	2319	47.4	46.78°C	0.987
	11.987V	5.002V	3.317V	4.952V	959.405				57.71°C	114.56V
CL1	0.115A	13.22A	13.147A	0A	111.295	82.77%	1130	29.2	41.41°C	0.969
	12.032V	5.008V	3.324V	5.082V	134.465				46.91°C	114.81V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	0.115A	19.967A	0A	0A	101.333	80.729%	1136	29.5	41.11°C	0.967
	12.037V	5.005V	3.339V	5.088V	125.523				48.15°C	114.82V
CL3	0.115A	0A	19.857A	0A	67.381	75.876%	1095	28.2	40.84°C	0.958
	12.039V	5.031V	3.324V	5.089V	88.806				50.01°C	114.83V
CL4	62.427A	0A	0A	0A	749.585	87.886%	2320	47.4	44.04°C	0.986
	12.007V	5.03V	3.338V	5.032V	852.906				55.01°C	114.59V

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
10%	4.430A	1.986A	1.974A	0.986A	75.001	87.261%	1096	28.2	40.19°C	0.803
	12.055V	5.034V	3.344V	5.07V	85.951				44.4°C	229.84V
20%	9.881A	2.982A	2.964A	1.186A	149.932	91.187%	1097	28.2	40.81°C	0.899
	12.048V	5.03V	3.341V	5.058V	164.421				45.37°C	229.83V
30%	15.686A	3.481A	3.46A	1.388A	224.933	92.382%	1093	28.1	41°C	0.93
	12.041V	5.027V	3.338V	5.045V	243.48				46.05°C	229.82V
40%	21.506A	3.98A	3.957A	1.59A	300.02	92.746%	1096	28.2	41.76°C	0.944
	12.034V	5.025V	3.336V	5.033V	323.484				47.31°C	229.81V
50%	26.932A	4.978A	4.95A	1.793A	374.422	92.716%	1101	28.3	42.29°C	0.952
	12.027V	5.022V	3.334V	5.019V	403.837				48.37°C	229.8V
60%	32.407A	5.977A	5.945A	1.998A	449.33	92.493%	1105	28.5	42.88°C	0.958
	12.020V	5.019V	3.331V	5.005V	485.797				49.38°C	229.78V
70%	37.892A	6.978A	6.942A	2.203A	524.258	92.126%	1263	33.0	43.21°C	0.961
	12.012V	5.016V	3.328V	4.993V	569.067				50.25°C	229.77V
80%	43.446A	7.981A	7.941A	2.309A	599.472	91.541%	1826	42.3	43.92°C	0.963
	12.005V	5.011V	3.324V	4.982V	654.869				52.01°C	229.76V
90%	49.336A	8.485A	8.429A	2.414A	674.521	91.062%	2320	47.4	44.4°C	0.964
	12.000V	5.008V	3.322V	4.971V	740.733				53.48°C	229.75V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	55.233A	8.989A	8.946A	2.52A	749.642	90.653%	2321	47.4	45.35°C	0.966
	11.994V	5.006V	3.32V	4.961V	826.941				55.36°C	229.73V
110%	60.812A	9.995A	10.04A	2.525A	824.664	90.103%	2323	47.4	46.58°C	0.968
	11.985V	5.002V	3.316V	4.951V	915.253				57.52°C	229.72V
CL1	0.115A	13.22A	13.147A	0A	111.295	83.982%	1123	28.9	40.53°C	0.875
	12.031V	5.008V	3.324V	5.082V	132.524				45.98°C	229.84V
CL2	0.115A	19.969A	0A	0A	101.336	81.688%	1123	28.9	41.21°C	0.867
	12.035V	5.005V	3.339V	5.087V	124.052				48.31°C	229.84V
CL3	0.115A	0A	19.856A	0A	67.382	76.655%	1095	28.2	40.02°C	0.808
	12.037V	5.03V	3.324V	5.088V	87.903				49.14°C	229.85V
CL4	62.431A	0A	0A	0A	749.544	91.651%	2324	47.4	45.05°C	0.967
	12.006V	5.032V	3.338V	5.032V	817.832				56.01°C	229.73V

The results above are not used in the certification process

Light Load Tests

115V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20W	1.230A	0.496A	0.493A	0.196A	19.993	70.744%	1064	27.2	36.89°C	0.845
	12.070V	5.039V	3.348V	5.098V	28.261				39.95°C	114.85V
40W	2.709A	0.695A	0.69A	0.294A	39.995	81.086%	1067	27.3	37.04°C	0.917
	12.067V	5.038V	3.347V	5.094V	49.325				40.4°C	114.84V
60W	4.188A	0.893A	0.887A	0.393A	59.996	85.149%	1073	27.5	38.18°C	0.944
	12.063V	5.036V	3.346V	5.089V	70.458				41.98°C	114.83V
80W	5.664A	1.092A	1.085A	0.492A	79.936	87.516%	1078	27.6	39.07°C	0.96
	12.060V	5.036V	3.345V	5.084V	91.341				43.05°C	114.84V

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20W	1.230A	0.496A	0.493A	0.196A	19.997	70.654%	1073	27.5	36.56°C	0.477
	12.067V	5.039V	3.348V	5.098V	28.303				39.59°C	229.86V
40W	2.710A	0.695A	0.69A	0.295A	39.998	81.503%	1083	27.8	37.86°C	0.656
	12.063V	5.038V	3.347V	5.093V	49.076				41.15°C	229.85V
60W	4.190A	0.893A	0.887A	0.393A	59.998	85.99%	1083	27.8	38.02°C	0.754
	12.061V	5.037V	3.346V	5.089V	69.773				41.54°C	229.85V
80W	5.665A	1.092A	1.085A	0.492A	79.94	88.335%	1091	28	39.21°C	0.814
	12.058V	5.036V	3.345V	5.084V	90.497				43.05°C	229.84V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.67mV	13.86mV	13.39mV	8.01mV	Pass
20% Load	20.51mV	13.91mV	13.96mV	9.39mV	Pass
30% Load	22.61mV	15.19mV	14.88mV	10.01mV	Pass
40% Load	23.12mV	14.06mV	13.29mV	13.60mV	Pass
50% Load	21.12mV	15.14mV	14.77mV	14.26mV	Pass
60% Load	19.90mV	14.16mV	14.31mV	16.68mV	Pass
70% Load	20.10mV	15.86mV	14.26mV	13.24mV	Pass
80% Load	19.64mV	15.96mV	15.13mV	13.96mV	Pass
90% Load	21.33mV	17.14mV	15.39mV	15.65mV	Pass
100% Load	32.77mV	16.47mV	16.08mV	15.22mV	Pass
110% Load	34.91mV	17.36mV	16.16mV	14.68mV	Pass
Crossload1	34.17mV	15.10mV	16.65mV	8.87mV	Pass
Crossload2	23.22mV	19.96mV	13.70mV	8.93mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	20.40mV	14.01mV	17.03mV	8.31mV	Pass
Crossload4	32.67mV	15.91mV	16.03mV	11.70mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	18.05mV	13.81mV	13.14mV	8.47mV	Pass
20% Load	20.72mV	14.27mV	13.03mV	10.01mV	Pass
30% Load	24.09mV	13.55mV	13.49mV	9.18mV	Pass
40% Load	24.86mV	13.70mV	13.03mV	13.19mV	Pass
50% Load	19.59mV	14.47mV	15.09mV	15.80mV	Pass
60% Load	18.92mV	15.19mV	13.90mV	17.34mV	Pass
70% Load	19.18mV	15.70mV	16.52mV	12.47mV	Pass
80% Load	20.82mV	17.35mV	15.34mV	13.18mV	Pass
90% Load	21.23mV	16.01mV	14.62mV	15.34mV	Pass
100% Load	33.39mV	16.02mV	15.24mV	14.77mV	Pass
110% Load	35.31mV	17.19mV	17.64mV	15.56mV	Pass
Crossload1	34.05mV	14.96mV	15.50mV	8.81mV	Pass
Crossload2	21.63mV	20.12mV	13.85mV	8.72mV	Pass
Crossload3	20.36mV	14.22mV	17.34mV	8.82mV	Pass
Crossload4	32.08mV	15.28mV	15.00mV	11.56mV	Pass

The results above are not used in the certification process

MSI MAG A750GL PCIE5

Top side

Power specifications label

All data and graphs included in this test report can be used by any individual on the following conditions:

› It should be mentioned that the test results are provided by Cybenetics

› The link to the original test results document should be provided in any case

Cybenetics runs voluntary certification programs for power supplies - ETA for efficiency, LAMBDA for noise and SAFE for safety and correct operation - and for cooling products, with DELTA for chassis soundproofing and PHI for fan airflow and static pressure. THETA rates cooler performance on AMD AM5 and Intel LGA1851 outside ISO 17065 and accreditation scope

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