ASRock Steel Legend SL-750G

Serial Number

Lab ID AR75002669

Certification ID 252669

Test Result Report ID: 24PS2669A

Certificate Issue Date: Dec 6, 2024

Scheme: ETA-EMI PSU

115V: CYBENETICS PLATINUM

230V: CYBENETICS PLATINUM 230v

Scheme: LAMBDA PSU

115V: CYBENETICS A+

230V: CYBENETICS A+ 230v

CYBENETICS ATX 3.1 PASS

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	ASRock
Model	Steel Legend SL-750G
OEM/ODM	HEC
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	5-10

Rated Frequency (Hz)	50-60
Rated Power (W)	750
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	135mm Fluid Dynamic Bearing Fan (RL4ZS1352512HH)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	AR75002669
Date of receipt	Nov 22, 2024
Testing Date	Dec 3, 2024
Report Issued Date	Dec 6, 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 (700mm)	2	2	18AWG	No
6+2 pin PCIe (590mm+140mm)	1	2	18AWG	No
6+2 pin PCIe (590mm)	1	1	18AWG	No
12+4 pin PCIe (640mm) (600W)	1	1	16-28AWG	No
SATA (450mm+120mm+120mm)	3	9	18AWG	No
4-pin Molex (440mm+110mm+110mm)	1	3	18AWG	No

Protection Features(Manufacturer)

Over Power Protection	✓
Over Current (+12V) Protection	✓
Over Temperature Protection	✓
Short Circuit Protection	✓
Surge Protection	✓
Inrush Current Protection	✓
Fan Failure Protection	✗

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	62.5	3	0.3
	Watts	120		750	15	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)	90.084%

Average Noise Output (>1450 Load Combinations)	18.76dBA
Average PF (>1450 Load Combinations)	0.986
Efficiency With 10W (≤500W) or 2% (>500W) Load	69.147%
Standby Power Consumption	0.0408W
Non-Accredited	
12V Ripple (Full Load)	39.29mV
5V Ripple (Full Load)	20.04mV
3.3V Ripple (Full Load)	22.37mV
5VSB Ripple (Full Load)	21.94mV
12V Load Regulation	0.51%
5V Load Regulation	0.45%
3.3V Load Regulation	0.57%
5VSB Load Regulation	2.08%
Inrush Current	33.650A

230V

Accredited	
Average Efficiency (>1450 load combinations)	92.167%
Average Noise Output (>1450 Load Combinations)	18.38dBA
Average PF (>1450 Load Combinations)	0.963
Efficiency With 10W (≤500W) or 2% (>500W) Load	67.067%
Standby Power Consumption	0.0982W
Non-Accredited	
12V Ripple (Full Load)	37.95mV
5V Ripple (Full Load)	18.71mV
3.3V Ripple (Full Load)	19.11mV
5VSB Ripple (Full Load)	17.43mV
12V Load Regulation	0.53%
5V Load Regulation	0.49%
3.3V Load Regulation	0.57%
5VSB Load Regulation	2.06%
Inrush Current	62.200A

12V Transient Response (200%)		11.39V
5V Transient Response (200%)		5.032V
3.3V Transient Response (200%)		3.204V
5VSB Transient Response (200%)		5.049V
Hold-Up Time & PWR_OK Signal		16.30ms
AC Loss to PWR_OK Hold Up Time		13.70ms
PWR_OK Inactive to DC Loss Delay		2.60ms
PSU Timings: T1 (20% / 100%)	55.0ms	54.0ms
PSU Timings: T3 (20% / 100%)	122.0ms	122.0ms
12V OCP (29.1°C / 44.0°C)	78.80A (126.08%), 12.013V	78.60A (125.76%), 12.022V
5V OCP (29.1°C / 44.0°C)	29A (145.00%), 5.076V	28.1A (140.50%), 5.077V
3.3V OCP (29.1°C / 44.0°C)	29.2A (146.00%), 3.315V	28.2A (141.00%), 3.318V
5VSB OCP (29.1°C / 44.0°C)	3.9A (130.00%), 5.084V	3.9A (130.00%), 5.088V
OPP (29.30°C / 43.58°C)	139.83%	139.02%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	16.3
AC Loss to PWR_OK Hold Up Time (ms)	13.7
PWR_OK Inactive to DC Loss Delay (ms)	2.6

Stromverbrauch im Ruhezustand

Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.05 V	115.02 V	113.85 V	115.09 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.97 Hz	59.40 Hz	60.02 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS

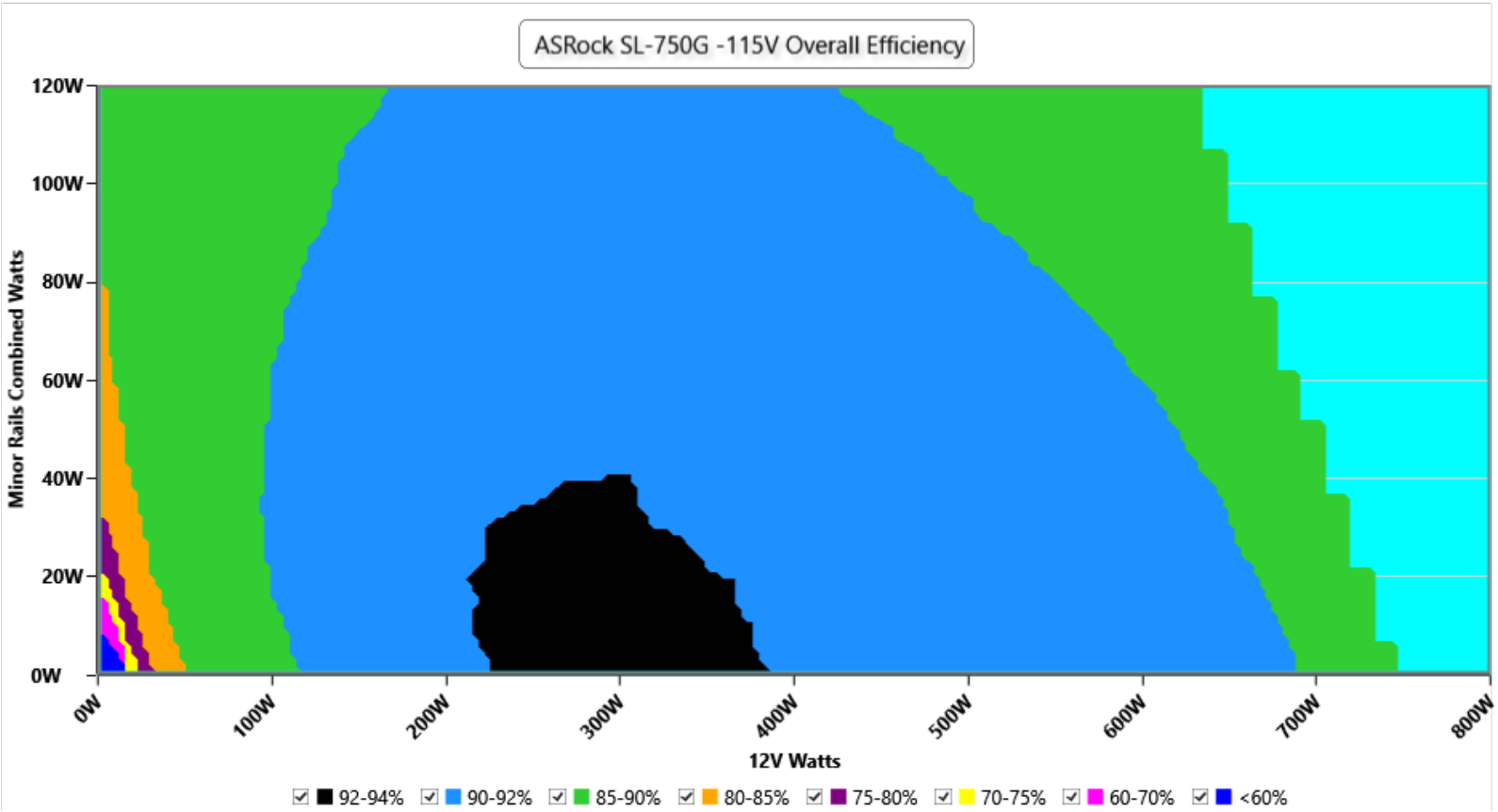
Mains Voltage THD:	0.13 %	0.09 %	N/A	0.19 %	2.00 %	PASS
Real Power:	0.041 W	-0.006 W	N/A	0.080 W	N/A	N/A
Apparent Power:	8.148 W	8.090 W	N/A	8.202 W	N/A	N/A
Power Factor:	0.008	N/A	N/A	N/A	N/A	N/A

230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.02 V	230.93 V	227.70 V	231.08 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:	1.417	1.416	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.17 %	0.15 %	N/A	0.25 %	2.00 %	PASS
Real Power:	0.098 W	0.061 W	N/A	0.152 W	N/A	N/A
Apparent Power:	27.968 W	27.787 W	N/A	28.163 W	N/A	N/A
Power Factor:	0.003	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

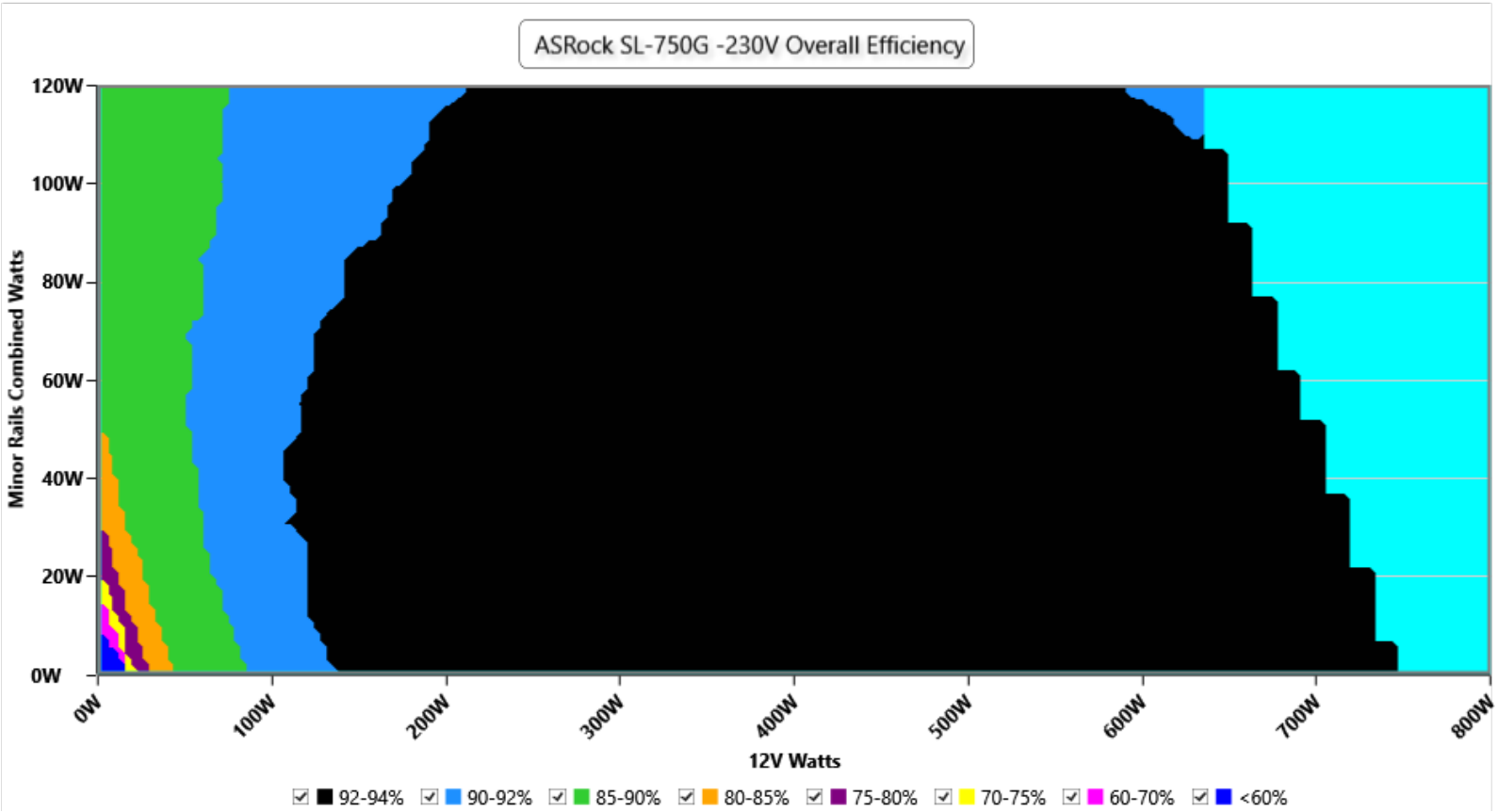
115V



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

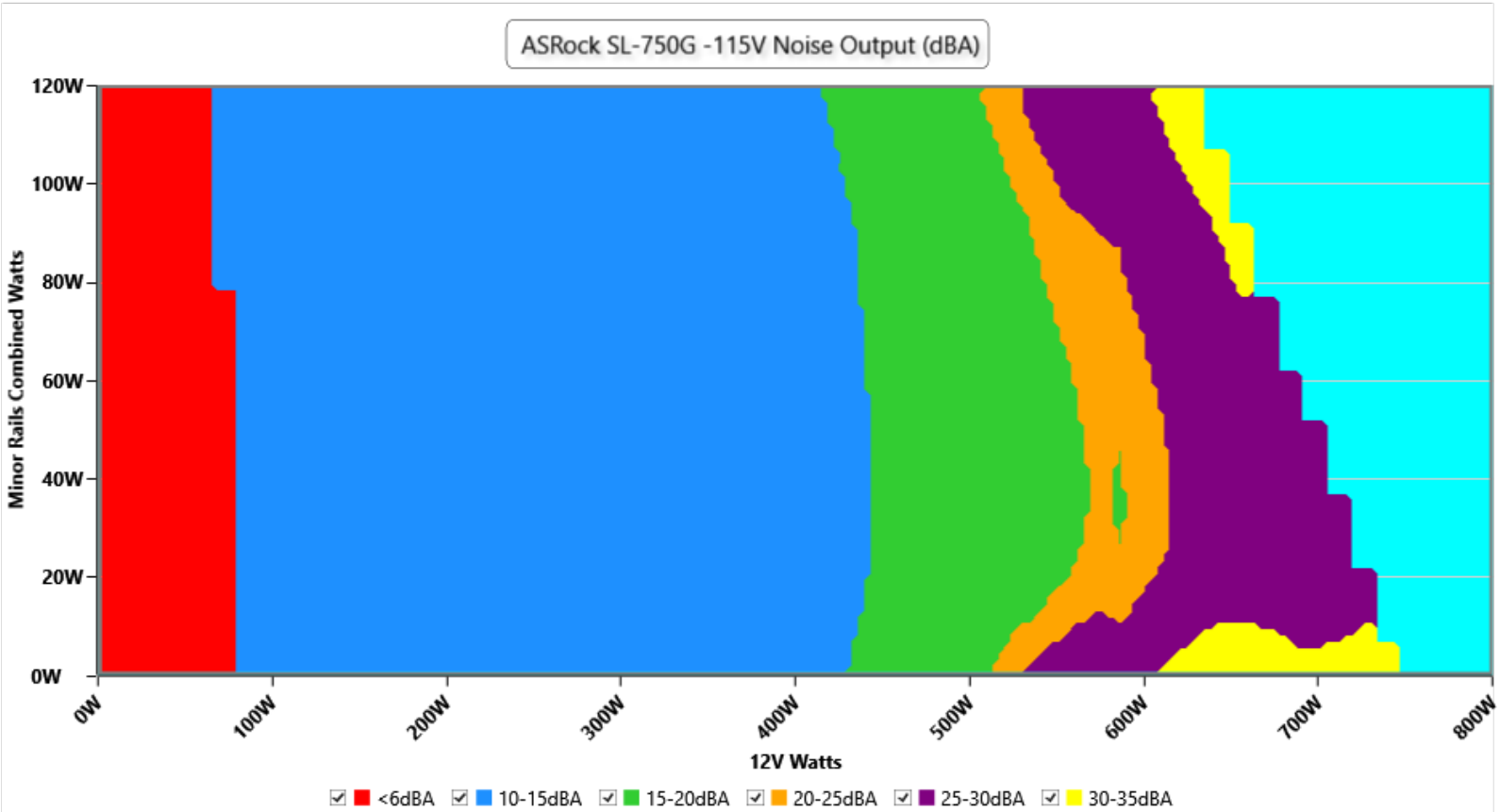


INFO

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

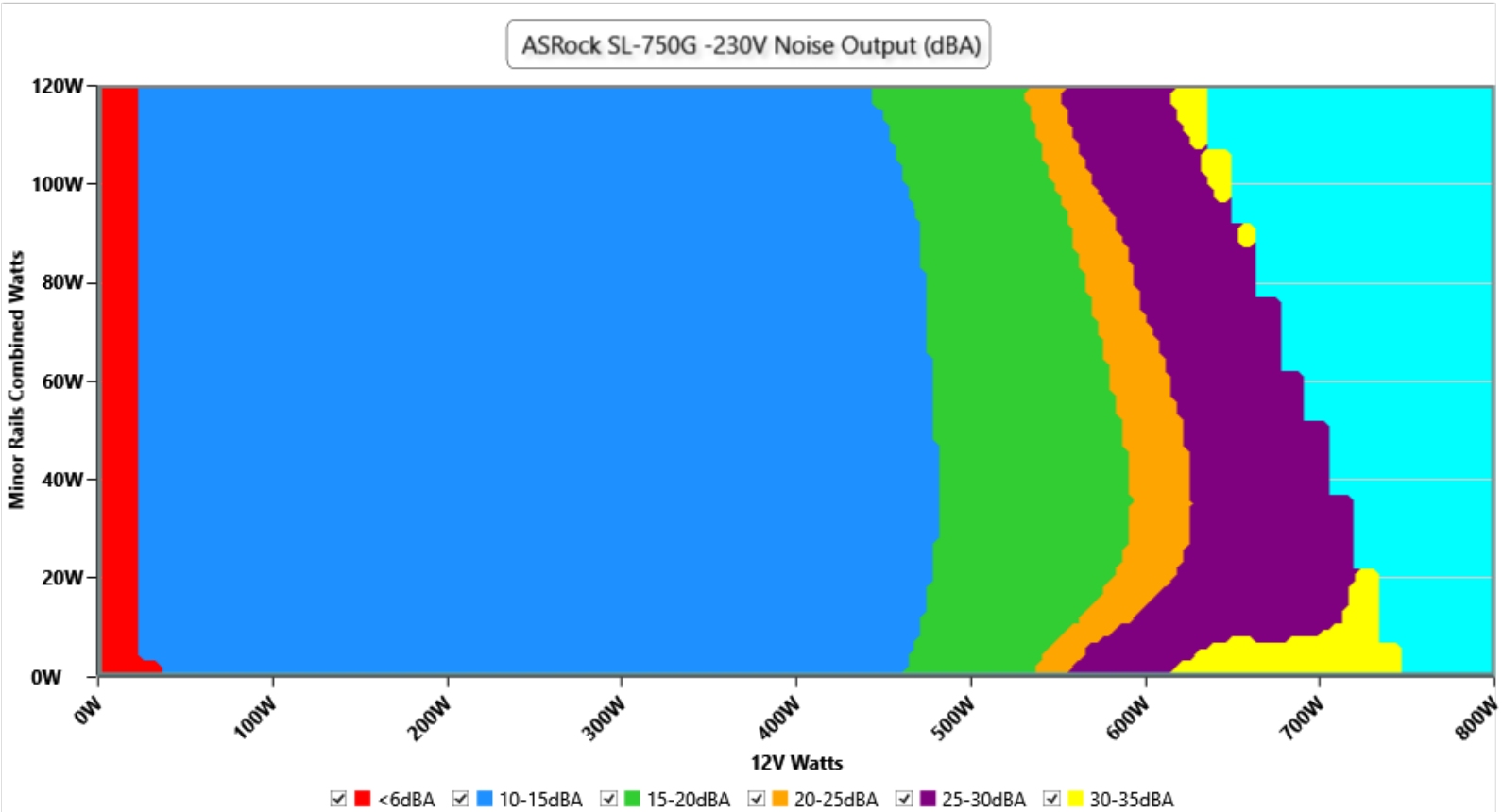
115V



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

230V

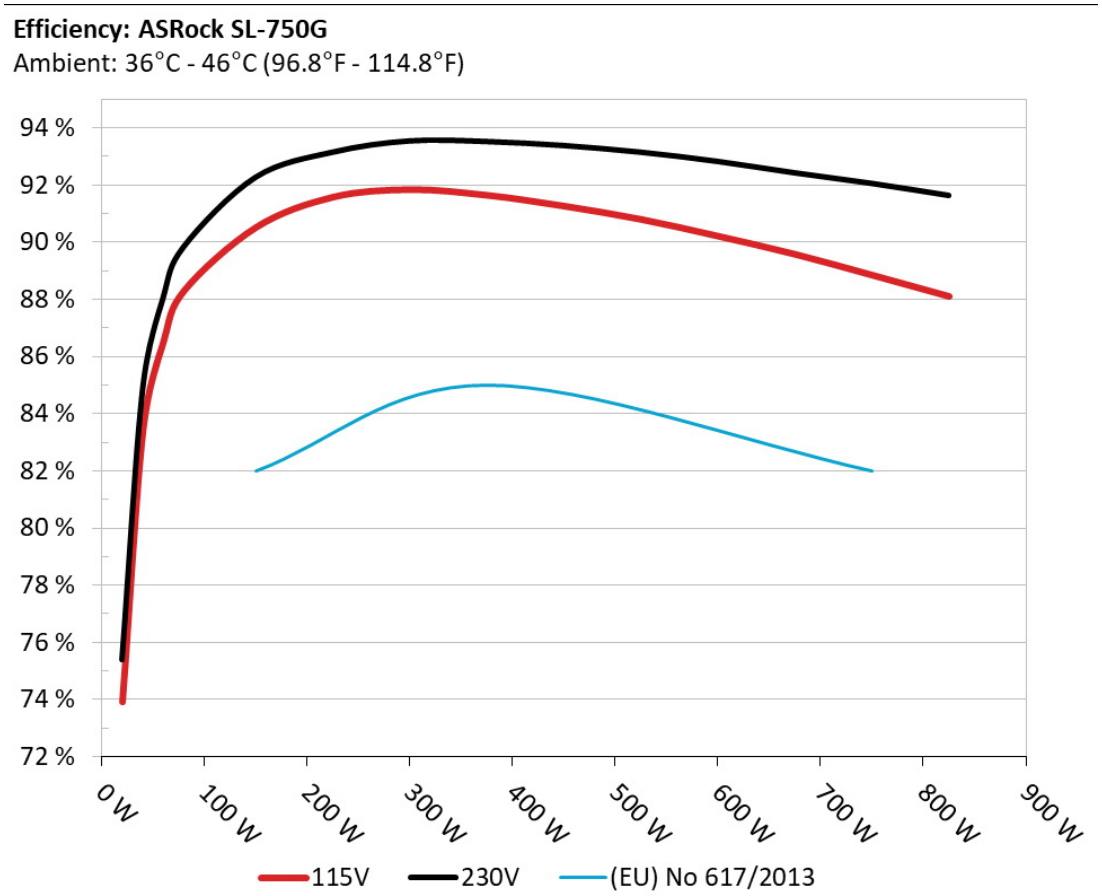


INFO

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

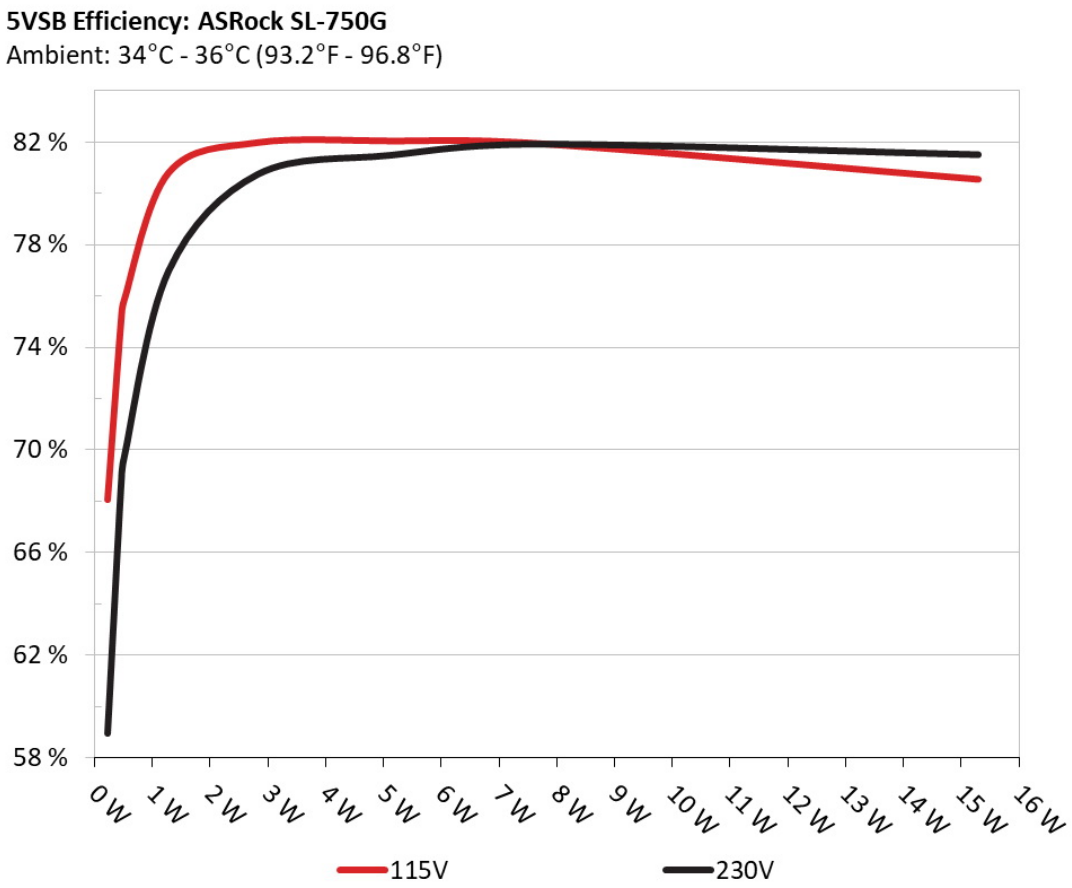
Efficiency under high ambient temperature



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**	0.232W	68.049%	0.039
	5.157V	0.341W		114.91V
2	**0.09A**	0.464W	75.023%	0.07
	5.156V	0.619W		114.92V
3	**0.55A**	2.831W	81.969%	0.289
	5.146V	3.454W		114.92V
4	**1A**	5.138W	82.029%	0.364
	5.137V	6.264W		114.91V
5	**1.5A**	7.693W	81.932%	0.418
	5.128V	9.389W		114.92V
6	**3A**	15.296W	80.536%	0.485
	5.099V	18.993W		114.91V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.232W	58.938%	0.013
	5.157V	0.394W		229.89V
2	**0.09A**	0.464W	68.617%	0.023
	5.156V	0.677W		229.89V
3	**0.55A**	2.831W	80.755%	0.113
	5.147V	3.506W		229.89V
4	**1A**	5.138W	81.501%	0.186
	5.138V	6.304W		229.88V
5	**1.5A**	7.693W	81.931%	0.222
	5.128V	9.389W		229.89V
6	**3A**	15.297W	81.52%	0.332
	5.099V	18.765W		229.89V

Protection Features

OCP (Normal @ 29.1°C)	12V: 78.80A (126.08%), 12.013V 5V: 29A (145.00%), 5.076V 3.3V: 29.2A (146.00%), 3.315V 5VSB: 3.9A (130.00%), 5.084V
OCP (Hot @ 44.0°C)	12V: 78.60A (125.76%), 12.022V 5V: 28.1A (140.50%), 5.077V 3.3V: 28.2A (141.00%), 3.318V 5VSB: 3.9A (130.00%), 5.088V
OPP (Normal @ 29.3°C)	1048.70W (139.83%)
OPP (Hot @ 43.6°C)	1042.68W (139.02%)
OTP	✓ (125°C @ Secondary Side)
SCP	12V to Earth: ✓ 5V to Earth: ✓ 3.3V to Earth: ✓ 5VSB to Earth: ✓ -12V to Earth: ✓
PWR_OK	Proper Operation
NLO	✓
Fan Failure Protection	✗
SIP	Surge: MOV Inrush: NTC & Bypass Relay

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%	**4.430A**	**1.95A**	**1.976A**	**0.973A**	75.006	87.428%	593	17.4	40.27°C	0.978
	12.057V	5.128V	3.341V	5.14V	85.791				42.71°C	114.88V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20%	**9.879A**	**2.926A**	**2.965A**	**1.169A**	149.95	90.515%	595	17.5	40.77°C	0.986
	12.050V	5.126V	3.339V	5.131V	165.665				44.61°C	114.86V
30%	**15.683A**	**3.415A**	**3.461A**	**1.367A**	224.957	91.575%	599	14.5	41.19°C	0.979
	12.044V	5.124V	3.337V	5.123V	245.656				46.43°C	114.83V
40%	**21.501A**	**3.905A**	**3.957A**	**1.565A**	300.05	91.836%	639	9.4	41.89°C	0.983
	12.039V	5.123V	3.336V	5.114V	326.727				48.32°C	114.81V
50%	**26.926A**	**4.883A**	**4.95A**	**1.763A**	374.494	91.64%	701	12.8	42.09°C	0.986
	12.033V	5.12V	3.334V	5.105V	408.658				50.29°C	114.78V
60%	**32.395A**	**5.863A**	**5.943A**	**1.963A**	449.4	91.264%	792	17.1	42.78°C	0.989
	12.026V	5.118V	3.332V	5.096V	492.42				52.57°C	114.75V
70%	**37.870A**	**6.843A**	**6.938A**	**2.162A**	524.316	90.8%	1063	26.8	43.21°C	0.991
	12.020V	5.115V	3.33V	5.087V	577.443				51.06°C	114.73V
80%	**43.421A**	**7.822A**	**7.934A**	**2.264A**	599.506	90.213%	1375	34.3	43.68°C	0.993
	12.013V	5.113V	3.328V	5.079V	664.545				51.45°C	114.69V
90%	**49.314A**	**8.314A**	**8.419A**	**2.366A**	674.551	89.579%	1619	38.9	44.14°C	0.994
	12.006V	5.111V	3.326V	5.072V	753.027				50.97°C	114.67V
100%	**55.009A**	**8.806A**	**8.935A**	**2.967A**	749.774	88.85%	1785	42	45.21°C	0.995
	11.999V	5.109V	3.324V	5.055V	843.873				51.28°C	114.65V
110%	**60.580A**	**9.79A**	**10.024A**	**2.971A**	824.785	88.106%	1787	42.1	45.67°C	0.996
	11.992V	5.107V	3.322V	5.05V	936.142				53.4°C	114.61V
CL1	**0.116A**	**14.137A**	**14.348A**	**0A**	121.293	85.118%	733	15.2	41.17°C	0.987
	12.054V	5.106V	3.325V	5.15V	142.502				49.43°C	114.88V
CL2	**0.115A**	**19.583A**	**0A**	**0A**	101.366	84.123%	681	11.6	40.8°C	0.983
	12.058V	5.105V	3.337V	5.156V	120.498				48.12°C	114.89V
CL3	**0.115A**	**0A**	**19.837A**	**0A**	67.399	79.353%	650	10.2	40.44°C	0.978
	12.059V	5.117V	3.328V	5.155V	84.936				47°C	114.89V
CL4	**62.436A**	**0A**	**0A**	**0A**	749.573	89.551%	1791	42.2	45.02°C	0.995
	12.005V	5.121V	3.338V	5.122V	837.036				52.33°C	114.66V

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%	**4.429A**	**1.95A**	**1.976A**	**0.973A**	75.009	88.882%	593	17.4	40.02°C	0.881
	12.058V	5.127V	3.341V	5.14V	84.391				41.3°C	229.88V
20%	**9.879A**	**2.927A**	**2.966A**	**1.17A**	149.961	92.256%	596	17.5	40.53°C	0.949
	12.052V	5.125V	3.339V	5.131V	162.55				42.55°C	229.87V
30%	**15.684A**	**3.416A**	**3.461A**	**1.367A**	224.97	93.132%	604	11.4	41.37°C	0.961
	12.045V	5.123V	3.337V	5.122V	241.558				43.48°C	229.86V
40%	**21.501A**	**3.905A**	**3.958A**	**1.565A**	300.068	93.528%	650	10.2	41.96°C	0.97
	12.039V	5.122V	3.336V	5.113V	320.831				44.03°C	229.84V
50%	**26.929A**	**4.884A**	**4.95A**	**1.764A**	374.544	93.505%	710	13.4	42.31°C	0.974
	12.033V	5.12V	3.334V	5.104V	400.562				45.4°C	229.83V
60%	**32.398A**	**5.864A**	**5.944A**	**1.963A**	449.437	93.366%	775	16.6	42.75°C	0.978
	12.026V	5.117V	3.332V	5.095V	481.373				46.25°C	229.82V
70%	**37.876A**	**6.845A**	**6.94A**	**2.163A**	524.376	93.135%	1041	26.3	43.21°C	0.98
	12.020V	5.114V	3.33V	5.086V	563.013				46.64°C	229.8V
80%	**43.425A**	**7.824A**	**7.935A**	**2.265A**	599.558	92.813%	1331	33.4	43.83°C	0.982
	12.013V	5.112V	3.327V	5.078V	645.989				46.87°C	229.79V
90%	**49.320A**	**8.316A**	**8.42A**	**2.367A**	674.624	92.413%	1701	40.1	44.97°C	0.984
	12.005V	5.11V	3.326V	5.071V	730.039				48.7°C	229.78V
100%	**55.015A**	**8.808A**	**8.936A**	**2.968A**	749.818	92.043%	1787	42.1	45.58°C	0.986
	11.999V	5.108V	3.324V	5.054V	814.635				48.62°C	229.76V
110%	**60.586A**	**9.792A**	**10.026A**	**2.972A**	824.837	91.626%	1790	42.2	46.18°C	0.987
	11.992V	5.106V	3.322V	5.048V	900.216				51.28°C	229.75V
CL1	**0.116A**	**14.14A**	**14.349A**	**0A**	121.299	86.748%	756	17	42.98°C	0.939
	12.054V	5.105V	3.325V	5.149V	139.827				48.68°C	229.87V
CL2	**0.116A**	**19.588A**	**0A**	**0A**	101.375	85.697%	707	13.2	43.12°C	0.925
	12.059V	5.104V	3.336V	5.155V	118.297				47.58°C	229.88V
CL3	**0.115A**	**0A**	**19.837A**	**0A**	67.404	80.657%	674	11.4	42.25°C	0.881
	12.059V	5.116V	3.327V	5.154V	83.563				46.77°C	229.88V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL4	**62.447A**	**0A**	**0A**	**0A**	749.645	92.625%	1743	40.9	44.68°C	0.986
	12.004V	5.121V	3.337V	5.12V	809.336				46.72°C	229.76V

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	**1.232A**	**0.487A**	**0.494A**	**0.194A**	20.007	73.936%	586	8.8	36.01°C	0.912
	12.053V	5.132V	3.343V	5.16V	27.055				39.9°C	114.91V
40W	**2.711A**	**0.682A**	**0.691A**	**0.291A**	40.005	83.438%	589	12.2	37.85°C	0.96
	12.061V	5.132V	3.343V	5.156V	47.945				40.26°C	114.89V
60W	**4.190A**	**0.877A**	**0.888A**	**0.388A**	60.004	86.526%	590	13.9	38.16°C	0.972
	12.059V	5.131V	3.343V	5.153V	69.347				40.48°C	114.89V
80W	**5.667A**	**1.072A**	**1.086A**	**0.485A**	79.956	88.3%	591	15	39.29°C	0.978
	12.057V	5.13V	3.342V	5.15V	90.55				42.19°C	114.88V

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	**1.232A**	**0.487A**	**0.494A**	**0.194A**	20.003	75.414%	0	<6.0	41.15°C	0.561
	12.052V	5.133V	3.343V	5.158V	26.522				36.02°C	229.89V
40W	**2.710A**	**0.682A**	**0.691A**	**0.291A**	40.003	84.832%	0	<6.0	42.79°C	0.751
	12.062V	5.132V	3.343V	5.156V	47.156				37.89°C	229.89V
60W	**4.190A**	**0.877A**	**0.888A**	**0.388A**	60.003	88.043%	588	12.2	38.28°C	0.842
	12.060V	5.131V	3.343V	5.153V	68.156				39.16°C	229.88V
80W	**5.666A**	**1.072A**	**1.086A**	**0.486A**	79.957	89.825%	591	15	39.5°C	0.889
	12.058V	5.13V	3.342V	5.15V	89.012				40.77°C	229.88V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	19.85mV	16.81mV	16.32mV	17.24mV	Pass
20% Load	21.03mV	17.98mV	16.88mV	19.59mV	Pass
30% Load	23.23mV	17.16mV	16.78mV	18.31mV	Pass
40% Load	23.94mV	16.40mV	16.47mV	17.90mV	Pass
50% Load	25.32mV	19.16mV	17.75mV	19.44mV	Pass
60% Load	24.05mV	17.27mV	17.03mV	18.62mV	Pass
70% Load	25.38mV	16.96mV	16.78mV	18.57mV	Pass
80% Load	25.58mV	17.62mV	19.23mV	21.74mV	Pass
90% Load	26.96mV	17.88mV	19.44mV	20.00mV	Pass
100% Load	39.29mV	20.04mV	22.37mV	21.94mV	Pass
110% Load	40.75mV	20.38mV	21.35mV	21.82mV	Pass
Crossload1	29.78mV	17.38mV	21.08mV	18.87mV	Pass
Crossload2	22.41mV	19.52mV	22.61mV	18.67mV	Pass
Crossload3	22.15mV	18.19mV	18.98mV	19.64mV	Pass
Crossload4	39.14mV	17.73mV	19.07mV	19.94mV	Pass

The results above are not used in the certification process

230V

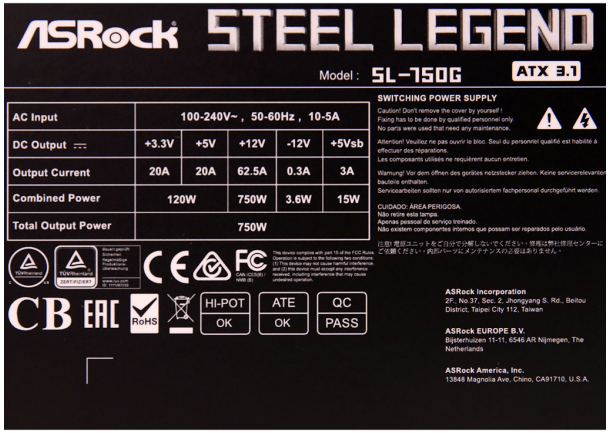
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	17.91mV	15.38mV	14.53mV	15.19mV	Pass
20% Load	20.36mV	15.69mV	14.78mV	16.16mV	Pass
30% Load	21.64mV	15.48mV	14.94mV	16.98mV	Pass
40% Load	23.58mV	17.88mV	15.04mV	16.21mV	Pass
50% Load	23.69mV	16.35mV	15.45mV	16.21mV	Pass
60% Load	22.25mV	16.86mV	15.70mV	16.11mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
70% Load	22.25mV	14.00mV	15.09mV	13.91mV	Pass
80% Load	25.83mV	16.96mV	17.60mV	17.95mV	Pass
90% Load	21.08mV	12.72mV	14.47mV	13.15mV	Pass
100% Load	37.95mV	18.71mV	19.11mV	17.43mV	Pass
110% Load	40.16mV	18.64mV	20.20mV	17.18mV	Pass
Crossload1	29.62mV	17.87mV	21.35mV	15.87mV	Pass
Crossload2	19.70mV	16.71mV	19.85mV	13.55mV	Pass
Crossload3	21.39mV	16.04mV	16.22mV	13.76mV	Pass
Crossload4	37.40mV	16.97mV	15.47mV	15.55mV	Pass

The results above are not used in the certification process

ASRock Steel Legend SL-750G

Top side



Power specifications label

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