Gamer Storm PN750D

Serial Number

Lab ID GA75002338

Certification ID 252338

Test Result Report ID: 24PS2338A

Certificate Issue Date: Sep 23, 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	Gamer Storm
Model	PN750D
OEM/ODM	CWT
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5

Rated Frequency (Hz)	50-60
Rated Power (W)	750
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fixed cables
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	120mm Rifle Bearing Fan (DF1202512SEHN)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	GA75002338
Date of receipt	Aug 27, 2024
Testing Date	Sep 18, 2024
Report Issued Date	Sep 23, 2024
DUT Notes	CWT GPW platform
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Captive Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (540mm)	1	1	18-20AWG	No
4+4 pin EPS12V (720mm)	2	2	18AWG	No
6+2 pin PCIe (580mm)	2	2	18AWG	No
12+4 pin PCIe (610mm) (450W)	1	1	16-24AWG	No
SATA (450mm+120mm+120mm+120mm) / 4-pin Molex (+120mm)	2	8 / 2	18AWG	No

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	62.5	3	0.3
	Watts	110		750	15	3.6
Total Max. Power (W)		750				

Parts Description

General Data	
Manufacturer (OEM)	CWT
Platform	GPW
PCB Type	Single-Sided
Primary Side	
Transient Filter	2x Y caps, 1x X caps, 2x CM chokes, 1x MOV. 1x CAP200DG (Discharge IC
Inrush Protection	1x NTC Thermistor SCK-056 (5 Ohm @25°C) & Relay
Bridge Rectifier(s)	1x GBU1506 (800V, 15A @ 150°C)
APFC MOSFETs	2x Way-On WML28N50C4 (500V, 16A @ 100°C, Rds(on): 0.125Ohm)
APFC Boost Diode	1x CRMICRO CRXI06D065G2 (600V, 6A @ 167°C)
Bulk Cap(s)	1x Chengx (400V, 560uF, 2000h @ 85°C ,AP)
Main Switchers	4x Silan Microelectronics SVF13N50F (500V, 8.2A @ 100°C, Rds(on): 0.52Ohm)
Resonant Controller	Champion CM6901X
APFC Controller	Champion 6500UNX
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	6 x IPS 014N04SA
5V & 3.3V	DC-DC Converters: 4x SPN3006 (30V, 57A @ 100°C, Rds(on): 5.5mOhm) PWM Controller(s): 1x ANPEC APW7159
Filtering Capacitors	Electrolytic: 11x Chengx (2-4,000 @ 105°C, GR), Polymer: 9x CapXon , 3x Chengx , 3x Elite
Supervisor IC	INI1S429I - DCG
Fan Model	Martech DF1202512SEHN (120mm, 12V, 0.42A, Fluid Dynamic Bearing Fan)

5VSB Circuit	
Standby PWM Controller	Power Integrations TNY290

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)	88.569%
Average Noise Output (>1450 Load Combinations)	36.82dBA
Average PF (>1450 Load Combinations)	0.978
Efficiency With 10W (≤500W) or 2% (>500W) Load	64.403%
Standby Power Consumption	0.0408W
Non-Accredited	
12V Ripple (Full Load)	47.24mV
5V Ripple (Full Load)	29.92mV
3.3V Ripple (Full Load)	32.85mV
5VSB Ripple (Full Load)	26.91mV
12V Load Regulation	0.52%
5V Load Regulation	0.32%
3.3V Load Regulation	0.60%
5VSB Load Regulation	5.40%
Inrush Current	56.250A

230V

Accredited		
Average Efficiency (>1450 load combinations)		90.713%
Average Noise Output (>1450 Load Combinations)		36.20dBA
Average PF (>1450 Load Combinations)		0.931
Efficiency With 10W (≤500W) or 2% (>500W) Load		64.062%
Standby Power Consumption		0.1126W
Non-Accredited		
12V Ripple (Full Load)		48.70mV
5V Ripple (Full Load)		34.16mV
3.3V Ripple (Full Load)		33.98mV
5VSB Ripple (Full Load)		30.54mV
12V Load Regulation		0.53%
5V Load Regulation		0.34%
3.3V Load Regulation		0.60%
5VSB Load Regulation		5.38%
Inrush Current		91.390A
12V Transient Response (200%)		11.19V
5V Transient Response (200%)		4.967V
3.3V Transient Response (200%)		3.209V
5VSB Transient Response (200%)		4.975V
Hold-Up Time & PWR_OK Signal		16.90ms
AC Loss to PWR_OK Hold Up Time		15.80ms
PWR_OK Inactive to DC Loss Delay		1.10ms
PSU Timings: T1 (20% / 100%)	21.0ms	21.0ms
PSU Timings: T3 (20% / 100%)	111.0ms	111.0ms
OPP (26.56°C / 42.34°C)	132.09%	114.02%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	16.9
AC Loss to PWR_OK Hold Up Time (ms)	15.8
PWR_OK Inactive to DC Loss Delay (ms)	1.1

Vampire Power

Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.88 V	114.83 V	113.85 V	114.92 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.98 Hz	59.40 Hz	60.02 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.417	1.416	1.340	1.419	1.490	PASS
Mains Voltage THD:	0.14 %	0.11 %	N/A	0.20 %	2.00 %	PASS
Real Power:	0.041 W	-0.002 W	N/A	0.070 W	N/A	N/A
Apparent Power:	11.180 W	11.151 W	N/A	11.216 W	N/A	N/A
Power Factor:	0.004	N/A	N/A	N/A	N/A	N/A

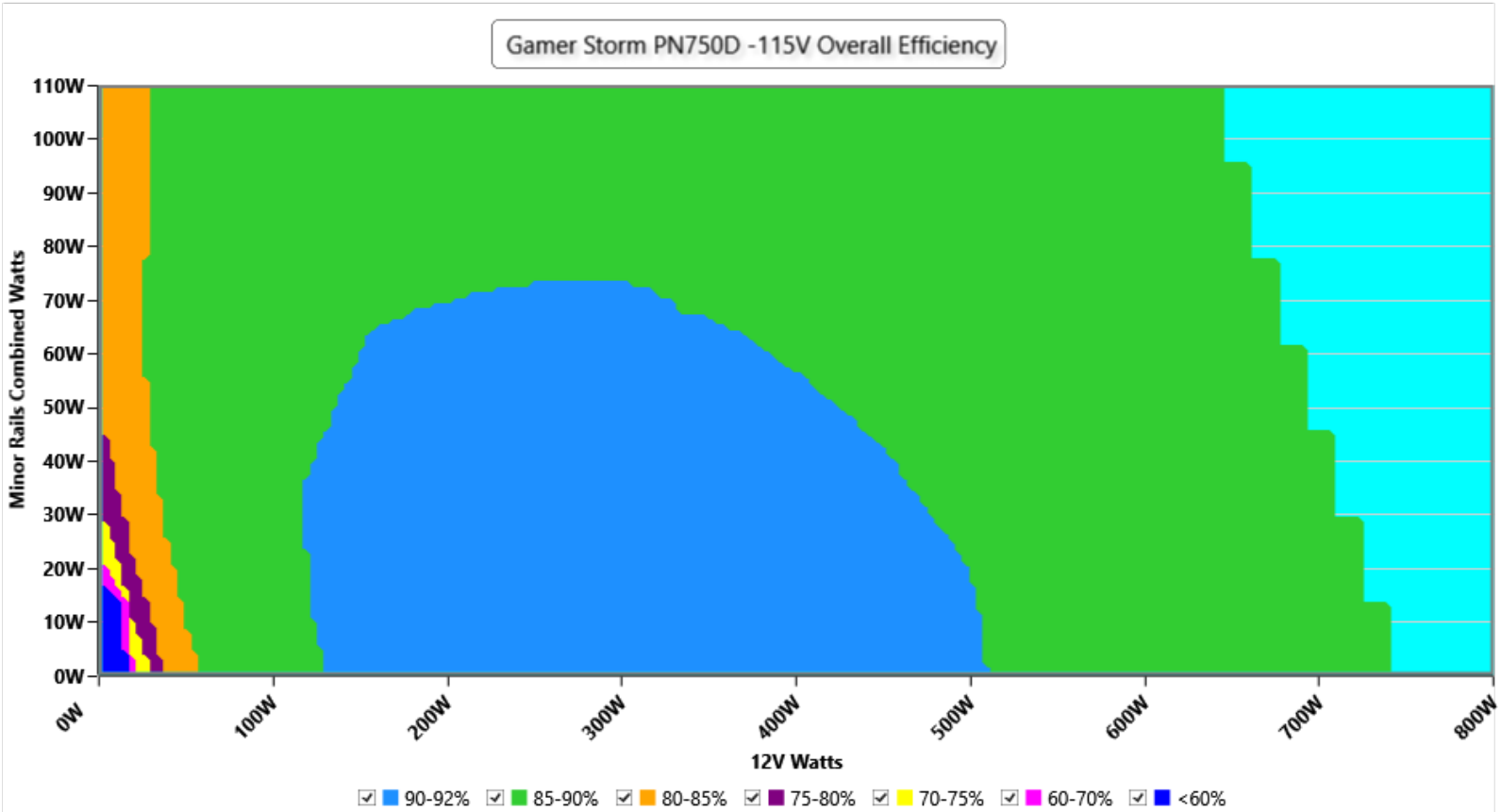
230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	229.97 V	229.90 V	227.70 V	230.01 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:	1.416	1.416	1.340	1.417	1.490	PASS
Mains Voltage THD:	0.17 %	0.15 %	N/A	0.20 %	2.00 %	PASS
Real Power:	0.113 W	0.062 W	N/A	0.166 W	N/A	N/A
Apparent Power:	38.318 W	38.278 W	N/A	38.361 W	N/A	N/A

Power Factor:	0.003	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

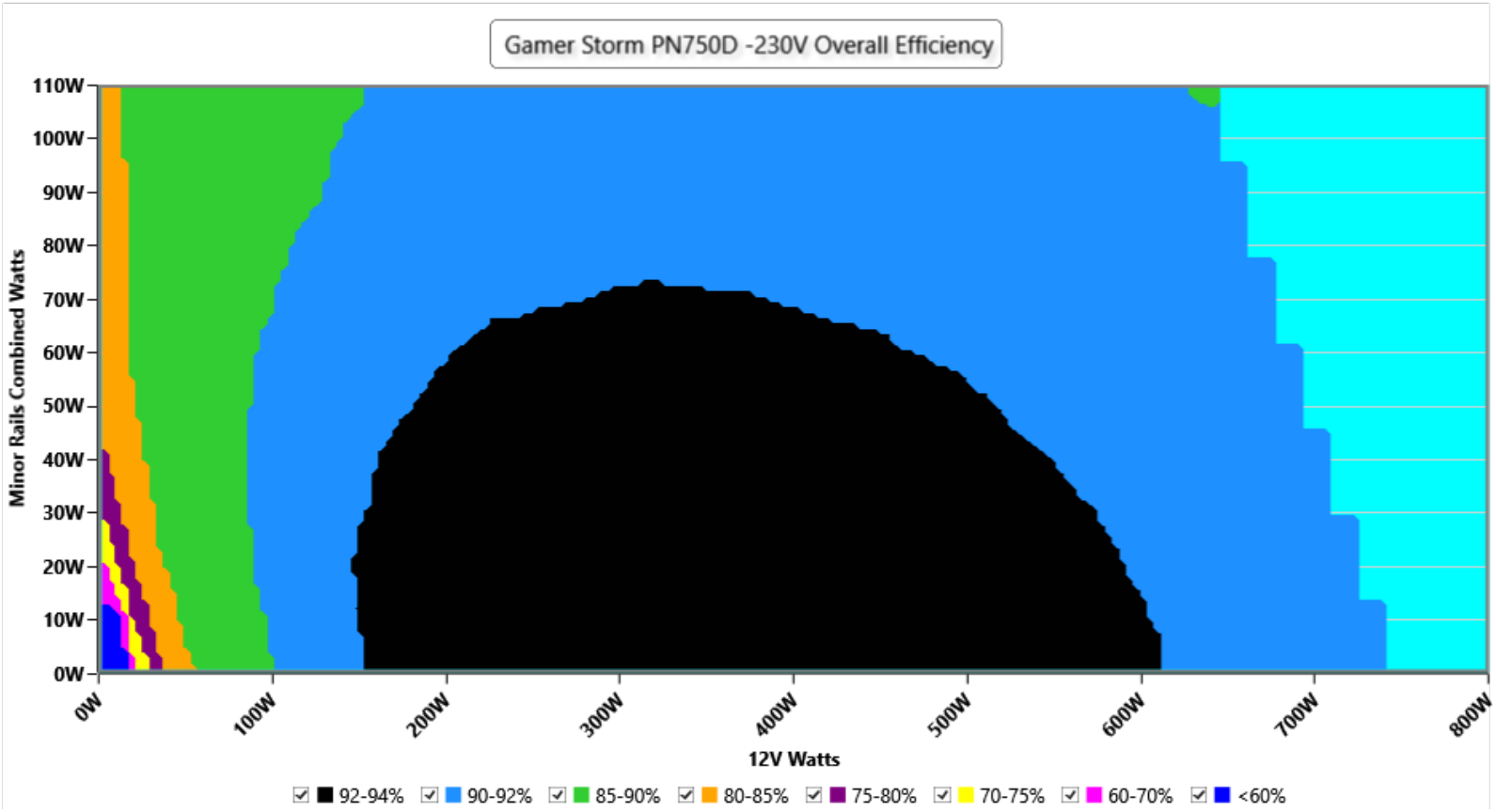
115V



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

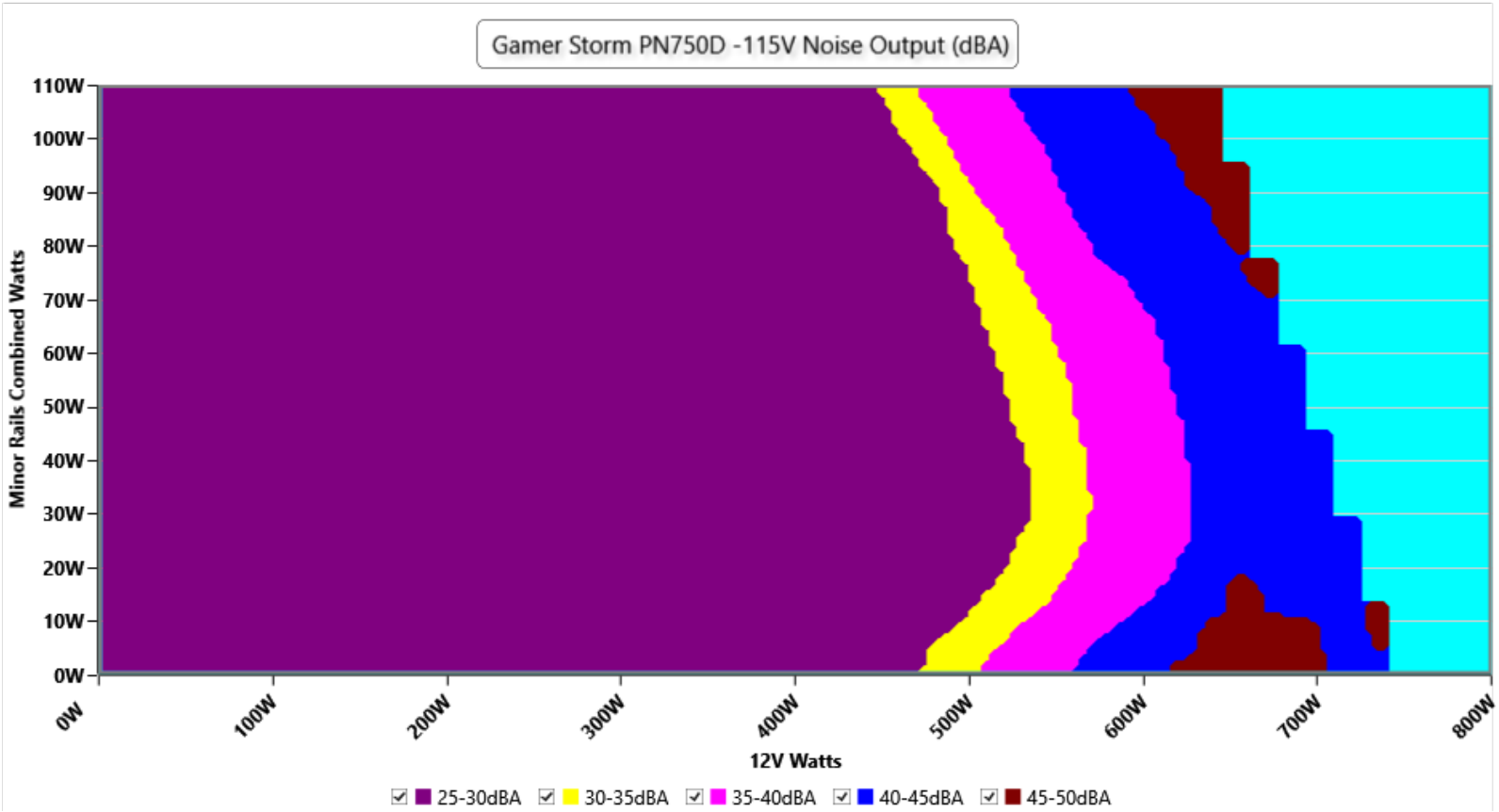


INFO

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

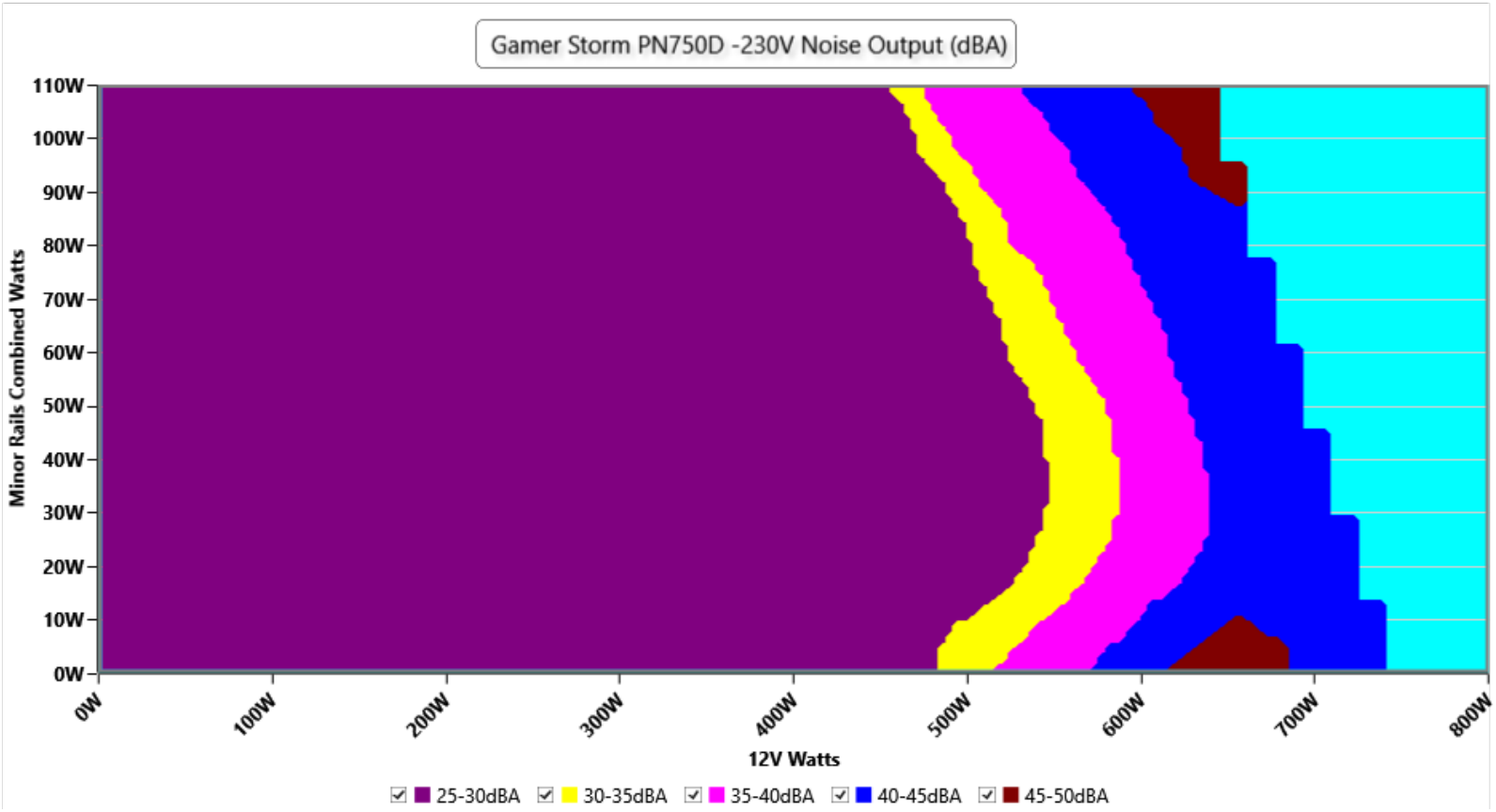
115V



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

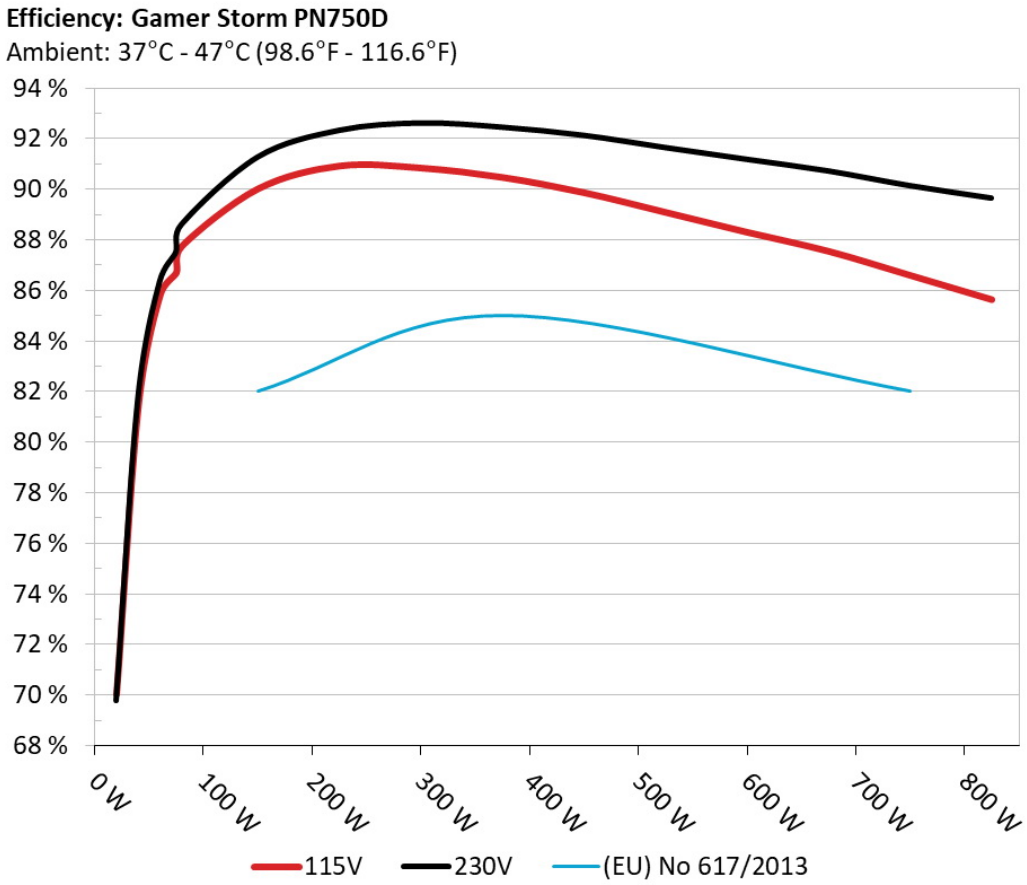


INFO

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

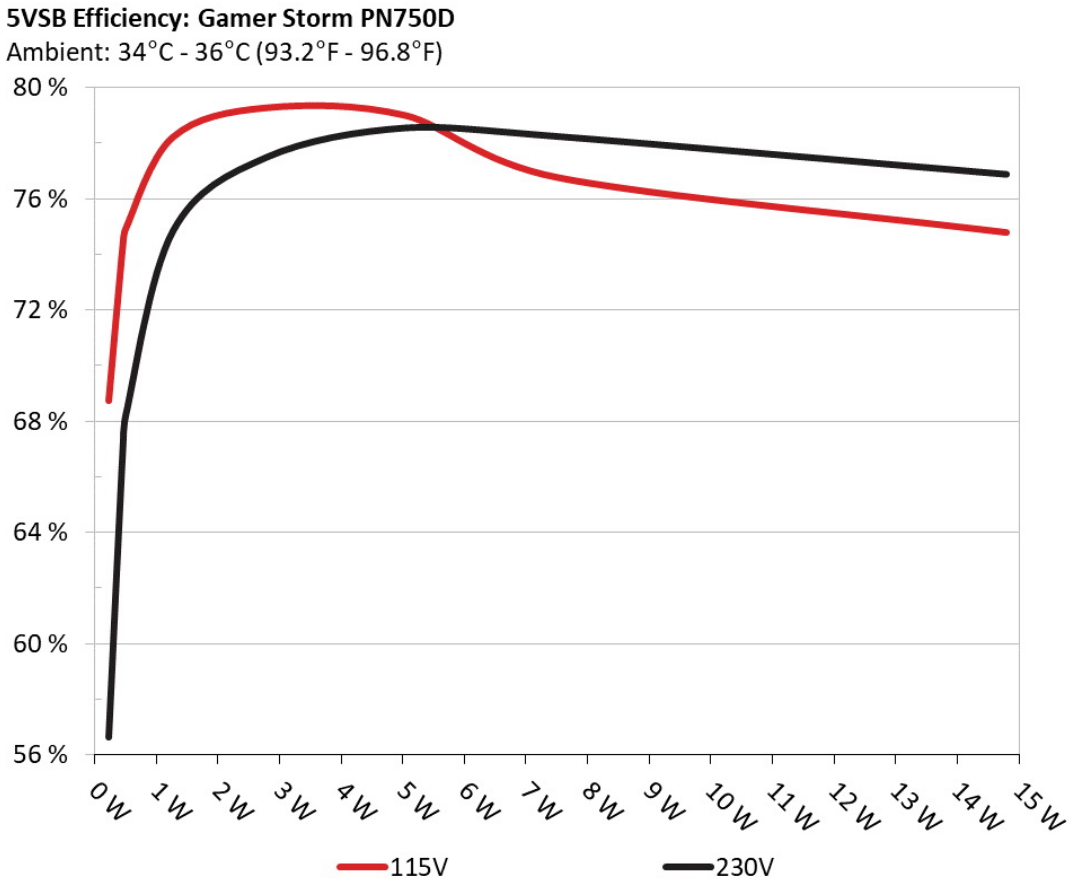
Efficiency under high ambient temperature



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	0.23W	68.459%	0.032
	5.104V	0.336W		114.89V
2	0.09A	0.459W	74.071%	0.058
	5.101V	0.62W		114.89V
3	0.55A	2.79W	78.993%	0.262
	5.074V	3.532W		114.87V
4	1A	5.046W	78.718%	0.363
	5.047V	6.41W		114.87V
5	1.5A	7.526W	76.48%	0.413
	5.018V	9.841W		114.87V
6	3A	14.8W	74.509%	0.477
	4.934V	19.863W		114.87V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	56.356%	0.012
	5.104V	0.409W		229.95V
2	0.09A	0.459W	66.754%	0.019
	5.101V	0.688W		229.95V
3	0.55A	2.791W	77.207%	0.098
	5.075V	3.616W		229.95V
4	1A	5.05W	78.265%	0.164
	5.05V	6.452W		229.95V
5	1.5A	7.534W	77.952%	0.21
	5.022V	9.665W		229.95V
6	3A	14.799W	76.594%	0.321
	4.933V	19.321W		229.95V

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%	4.436A	1.975A	1.965A	0.991A	74.998	86.726%	1090	26.5	40.04°C	0.949
	12.038V	5.064V	3.358V	5.045V	86.477				44.06°C	114.85V
20%	9.893A	2.963A	2.95A	1.194A	149.926	90.036%	1093	26.5	40.91°C	0.971
	12.031V	5.062V	3.355V	5.025V	166.519				45.22°C	114.82V
30%	15.707A	3.459A	3.445A	1.399A	224.925	90.945%	1097	26.6	41.07°C	0.978
	12.025V	5.06V	3.353V	5.005V	247.317				45.87°C	114.79V
40%	21.534A	3.954A	3.939A	1.605A	300.011	90.864%	1099	26.7	41.7°C	0.979
	12.019V	5.059V	3.351V	4.984V	330.174				46.79°C	114.78V
50%	26.965A	4.944A	4.927A	1.814A	374.41	90.496%	1102	26.7	42.25°C	0.982
	12.012V	5.057V	3.349V	4.962V	413.73				47.73°C	114.74V
60%	32.446A	5.934A	5.915A	2A	449.214	89.895%	1406	33.7	42.84°C	0.982
	12.005V	5.056V	3.348V	4.941V	499.708				48.88°C	114.72V
70%	37.934A	6.926A	6.906A	2.237A	524.26	89.115%	1930	43.0	43.4°C	0.983
	11.998V	5.054V	3.345V	4.918V	588.293				50.49°C	114.69V
80%	43.494A	7.921A	7.898A	2.347A	599.463	88.324%	2253	46.2	43.72°C	0.984
	11.991V	5.051V	3.342V	4.9V	678.71				51.82°C	114.66V
90%	49.394A	8.416A	8.381A	2.457A	674.487	87.57%	2254	46.2	44.37°C	0.985
	11.985V	5.05V	3.341V	4.883V	770.231				53.44°C	114.63V
100%	55.101A	8.913A	8.894A	3.104A	749.71	86.616%	2254	46.2	45.85°C	0.987
	11.978V	5.049V	3.339V	4.833V	865.559				55.91°C	114.6V
110%	60.682A	9.907A	9.979A	3.112A	824.728	85.655%	2255	46.3	46.67°C	0.988
	11.971V	5.047V	3.337V	4.82V	962.841				57.63°C	114.57V
CL1	0.115A	13.094A	13.033A	0A	111.29	83.584%	1115	26.7	40.95°C	0.967
	12.028V	5.055V	3.353V	5.078V	133.148				46.45°C	114.84V

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	19.78A	0.001A	0.001A	101.389	82.23%	1117	26.8	40.03°C	0.964
	12.033V	5.055V	3.365V	5.086V	123.298				47.05°C	114.84V
CL3	0.117A	0A	19.693A	0.001A	67.406	76.809%	1101	26.7	41.17°C	0.951
	12.032V	5.076V	3.351V	5.084V	87.758				50.27°C	114.85V
CL4	62.534A	0A	0A	0A	749.522	87.702%	2259	46.3	45.96°C	0.987
	11.986V	5.066V	3.35V	5.017V	854.634				56.89°C	114.61V

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%	4.436A	1.975A	1.965A	0.991A	75.002	87.519%	1091	26.5	40.22°C	0.785
	12.038V	5.064V	3.358V	5.044V	85.697				44.47°C	229.94V
20%	9.894A	2.964A	2.951A	1.194A	149.937	91.27%	1092	26.5	40.82°C	0.891
	12.031V	5.061V	3.355V	5.024V	164.278				45.32°C	229.92V
30%	15.709A	3.459A	3.445A	1.399A	224.939	92.328%	1097	26.6	41.34°C	0.925
	12.024V	5.059V	3.353V	5.003V	243.626				46.38°C	229.91V
40%	21.536A	3.955A	3.939A	1.606A	300.028	92.619%	1098	26.6	41.6°C	0.94
	12.018V	5.058V	3.351V	4.982V	323.935				47.14°C	229.9V
50%	26.970A	4.946A	4.928A	1.814A	374.452	92.453%	1102	26.7	42.26°C	0.949
	12.011V	5.056V	3.349V	4.961V	405.017				48.27°C	229.89V
60%	32.451A	5.935A	5.915A	2A	449.254	92.133%	1378	33.0	42.79°C	0.956
	12.004V	5.056V	3.348V	4.939V	487.619				49.33°C	229.88V
70%	37.941A	6.928A	6.907A	2.238A	524.304	91.652%	1871	42.5	43.29°C	0.96
	11.997V	5.053V	3.345V	4.916V	572.056				50.36°C	229.87V
80%	43.498A	7.922A	7.898A	2.348A	599.485	91.185%	2252	46.2	43.8°C	0.964
	11.991V	5.051V	3.342V	4.899V	657.444				51.9°C	229.85V
90%	49.398A	8.418A	8.382A	2.458A	674.51	90.725%	2255	46.3	44.6°C	0.966
	11.984V	5.049V	3.34V	4.882V	743.465				53.69°C	229.84V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	55.105A	8.914A	8.895A	3.104A	749.732	90.142%	2254	46.2	45.13°C	0.968
	11.977V	5.048V	3.339V	4.833V	831.729				55.21°C	229.83V
110%	60.681A	9.911A	9.982A	3.111A	824.686	89.65%	2257	46.3	46.77°C	0.97
	11.970V	5.045V	3.336V	4.823V	919.899				57.71°C	229.81V
CL1	0.115A	13.096A	13.034A	0A	111.287	84.72%	1116	26.7	41.64°C	0.862
	12.028V	5.055V	3.352V	5.078V	131.359				47.17°C	229.94V
CL2	0.115A	19.781A	0.001A	0.001A	101.384	83.035%	1116	26.7	40.35°C	0.851
	12.033V	5.055V	3.365V	5.086V	122.098				47.45°C	229.94V
CL3	0.117A	0A	19.694A	0.001A	67.404	77.471%	1098	26.6	40.28°C	0.786
	12.032V	5.076V	3.351V	5.084V	87.004				49.37°C	229.94V
CL4	62.538A	0A	0A	0A	749.517	91.229%	2263	46.4	45.26°C	0.969
	11.985V	5.063V	3.348V	5.017V	821.587				56.17°C	229.82V

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	1.234A	0.494A	0.491A	0.196A	19.994	70.035%	1076	26.0	36.7°C	0.831
	12.033V	5.063V	3.358V	5.094V	28.548				39.76°C	114.86V
40W	2.716A	0.691A	0.688A	0.295A	39.994	81.448%	1081	26.1	37.26°C	0.912
	12.032V	5.065V	3.359V	5.086V	49.103				40.56°C	114.86V
60W	4.196A	0.888A	0.884A	0.394A	59.994	85.833%	1083	26.1	38.16°C	0.942
	12.040V	5.064V	3.358V	5.078V	69.896				41.94°C	114.85V
80W	5.674A	1.086A	1.081A	0.493A	79.934	87.766%	1086	26.2	39.48°C	0.952
	12.038V	5.065V	3.358V	5.071V	91.076				43.45°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	1.234A	0.494A	0.491A	0.196A	19.997	69.792%	1074	26.0	36.57°C	0.479
	12.033V	5.062V	3.358V	5.093V	28.651				39.68°C	229.95V
40W	2.716A	0.691A	0.688A	0.295A	39.997	81.73%	1080	26.1	37.51°C	0.638
	12.031V	5.064V	3.359V	5.085V	48.937				40.82°C	229.94V
60W	4.196A	0.889A	0.884A	0.394A	59.997	86.355%	1084	26.1	38.36°C	0.738
	12.040V	5.064V	3.358V	5.078V	69.478				41.85°C	229.94V
80W	5.674A	1.086A	1.081A	0.493A	79.941	88.603%	1087	26.2	39.12°C	0.796
	12.038V	5.065V	3.358V	5.07V	90.227				42.98°C	229.94V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	26.72mV	13.03mV	16.91mV	8.31mV	Pass
20% Load	26.04mV	14.17mV	17.63mV	11.51mV	Pass
30% Load	27.74mV	14.94mV	19.70mV	13.94mV	Pass
40% Load	30.42mV	16.79mV	25.13mV	15.12mV	Pass
50% Load	30.88mV	18.86mV	24.46mV	17.08mV	Pass
60% Load	31.40mV	27.97mV	25.39mV	24.93mV	Pass
70% Load	31.91mV	28.59mV	26.22mV	26.69mV	Pass
80% Load	33.67mV	29.16mV	28.70mV	24.62mV	Pass
90% Load	35.47mV	24.73mV	28.86mV	22.14mV	Pass
100% Load	47.24mV	29.92mV	32.85mV	26.91mV	Pass
110% Load	51.81mV	33.30mV	34.22mV	27.47mV	Pass
Crossload1	53.14mV	30.19mV	30.73mV	14.96mV	Pass
Crossload2	36.96mV	38.84mV	24.46mV	16.72mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	39.44mV	20.50mV	35.27mV	16.78mV	Pass
Crossload4	42.07mV	32.33mV	26.42mV	19.29mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	26.73mV	11.75mV	16.08mV	8.57mV	Pass
20% Load	24.66mV	13.19mV	18.00mV	11.10mV	Pass
30% Load	26.04mV	14.73mV	20.01mV	14.25mV	Pass
40% Load	27.63mV	16.43mV	24.30mV	14.50mV	Pass
50% Load	30.16mV	18.19mV	22.80mV	16.52mV	Pass
60% Load	31.35mV	27.72mV	24.62mV	25.65mV	Pass
70% Load	32.63mV	28.49mV	25.86mV	26.22mV	Pass
80% Load	32.89mV	28.85mV	27.41mV	25.39mV	Pass
90% Load	34.90mV	24.42mV	28.85mV	24.77mV	Pass
100% Load	48.70mV	34.16mV	33.98mV	30.54mV	Pass
110% Load	53.52mV	36.67mV	35.24mV	34.30mV	Pass
Crossload1	51.97mV	29.09mV	30.70mV	14.56mV	Pass
Crossload2	35.63mV	38.18mV	24.10mV	16.72mV	Pass
Crossload3	38.36mV	20.45mV	33.87mV	16.62mV	Pass
Crossload4	40.63mV	22.32mV	26.40mV	15.18mV	Pass

The results above are not used in the certification process

Gamer Storm PN750D

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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