SAMA 先马

SAMA GT650W

Serial Number

Lab ID SM65002570

Certification ID 252570

Test Result Report ID: 24PS2570A

Certificate Issue Date: Sep 17, 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	SAMA
Model	GT650W
OEM/ODM	RSY
Serial Number	
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240

Rated Current (Arms)	10
Rated Frequency (Hz)	50-60
Rated Power (W)	650
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 (S1202512L)
Semi-Passive Operation	✗
Cybenetics Testing Information	
Lab ID	SM65002570
Date of receipt	Sep 4, 2024
Testing Date	Sep 16, 2024
Report Issued Date	Sep 17, 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 (550mm)	1	1	16-24AWG	No
4+4 pin EPS12V (600mm+150mm)	1	2	18AWG	No
6+2 pin PCIe (550mm+150mm)	1	2	18AWG	No
12+2 pin PCIe (600mm) (450W)	1	1	16-24AWG	No
SATA (460mm+150mm+150mm) / 4-pin Molex (+150mm)	2	6 / 2	18AWG	No

Protection Features

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	54.1	2.5	0.4
	Watts	100		649.2	12.5	4.8
Total Max. Power (W)		650				

Parts Description

General Data	
Manufacturer (OEM)	RSY
PCB Type	Double-Sided
Primary Side	
Transient Filter	6x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	1x NTC Thermistor MF72 2.5-D11 (2.5 ohm) & Relay
Bridge Rectifier(s)	1x GBU1006 (600V, 10A @ 100°C)
APFC MOSFETs	4x Shenzhen SIF13N50C (500V, 8A @ 100°C, Rds(on): 0.55Ohm)
APFC Boost Diode	1x STMicronics STTH8R06FP (600V, 8A @ 85°C)
Bulk Cap(s)	1x Rubycon (420V, 270uF, 3,000h @ 105°C, MXK)

Main Switchers	2x Convert CS25N50FF (500V, 25A @ 25°C, Rds(on): 0.24Ohm) & 1x Sync Power Corp SPN5003 (For no load consumption)
Resonant Controller	Texas Instrument UCC25600
APFC Controller	Texas Instrument UCC28180
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	4x Maplesemi SLP130N04T (40V, 84A @ 100°C, Rds(on): 3.0mOhm)
5V & 3.3V	DC-DC Converters: 4x Infineon BSC0906NS (30V, 40A @ 100°C, Rds(on): 4.5mOhm) PWM Controller(s): 2x Anpec APW7164
Filtering Capacitors	Electrolytic: 15x Teapo (2-6,000h @105°C, SY) 5x Teapo (2-6,000h @105°C, SJ) 1x Teapo (2,000h @105°C, SC) 1x Teapo (2,000h @105°C, H7) Polymer: 6x
Supervisor IC	IN1S313I-SAG
Fan Model	Globe Fan S1202512L (120mm, 12V, 0.18A, Fluid Dynamic Bearing Fan)
5VSB	
Rectifier	US1D
Standby PWM Controller	First Semiconductor FIR4N70L VDMOSFET (700V, 2.5A)

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)	88.531%
Average Noise Output (>1450 Load Combinations)	33.94dBA
Average PF (>1450 Load Combinations)	0.989
Efficiency With 10W (≤500W) or 2% (>500W) Load	64.681%
Standby Power Consumption	0.0550W
Non-Accredited	
12V Ripple (Full Load)	29.52mV
5V Ripple (Full Load)	16.98mV
3.3V Ripple (Full Load)	16.67mV
5VSB Ripple (Full Load)	19.15mV
12V Load Regulation	0.10%
5V Load Regulation	1.75%
3.3V Load Regulation	3.33%
5VSB Load Regulation	2.81%
Inrush Current	53.690A

230V

Accredited	
Average Efficiency (>1450 load combinations)	90.600%
Average Noise Output (>1450 Load Combinations)	34.58dBA
Average PF (>1450 Load Combinations)	0.960
Efficiency With 10W (≤500W) or 2% (>500W) Load	62.376%
Standby Power Consumption	0.1251W
Non-Accredited	
12V Ripple (Full Load)	30.63mV
5V Ripple (Full Load)	16.41mV
3.3V Ripple (Full Load)	15.52mV

5VSB Ripple (Full Load)		18.46mV
12V Load Regulation		0.09%
5V Load Regulation		1.79%
3.3V Load Regulation		3.36%
5VSB Load Regulation		2.85%
Inrush Current		94.850A
12V Transient Response (200%)		11.48V
5V Transient Response (200%)		4.965V
3.3V Transient Response (200%)		3.163V
5VSB Transient Response (200%)		4.940V
Hold-Up Time & PWR_OK Signal		16.60ms
AC Loss to PWR_OK Hold Up Time		14.50ms
PWR_OK Inactive to DC Loss Delay		2.10ms
PSU Timings: T1 (20% / 100%)	123.0ms	126.0ms
PSU Timings: T3 (20% / 100%)	113.0ms	114.0ms
12V OCP (28.6°C / 44.2°C)	85.60A (158.23%), 12.158V	86.40A (159.70%), 12.168V
5V OCP (28.6°C / 44.2°C)	35.8A (179.00%), 5.046V	35.3A (176.50%), 5.047V
3.3V OCP (28.6°C / 44.2°C)	35.5A (177.50%), 3.275V	34.2A (171.00%), 3.274V
5VSB OCP (28.6°C / 44.2°C)	4A (160.00%), 5.019V	3.9A (156.00%), 5.017V
OPP (26.65°C / 44.78°C)	149.80%	149.80%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	16.6
AC Loss to PWR_OK Hold Up Time (ms)	14.5
PWR_OK Inactive to DC Loss Delay (ms)	2.1

Stromverbrauch im Ruhezustand

Tables

115V

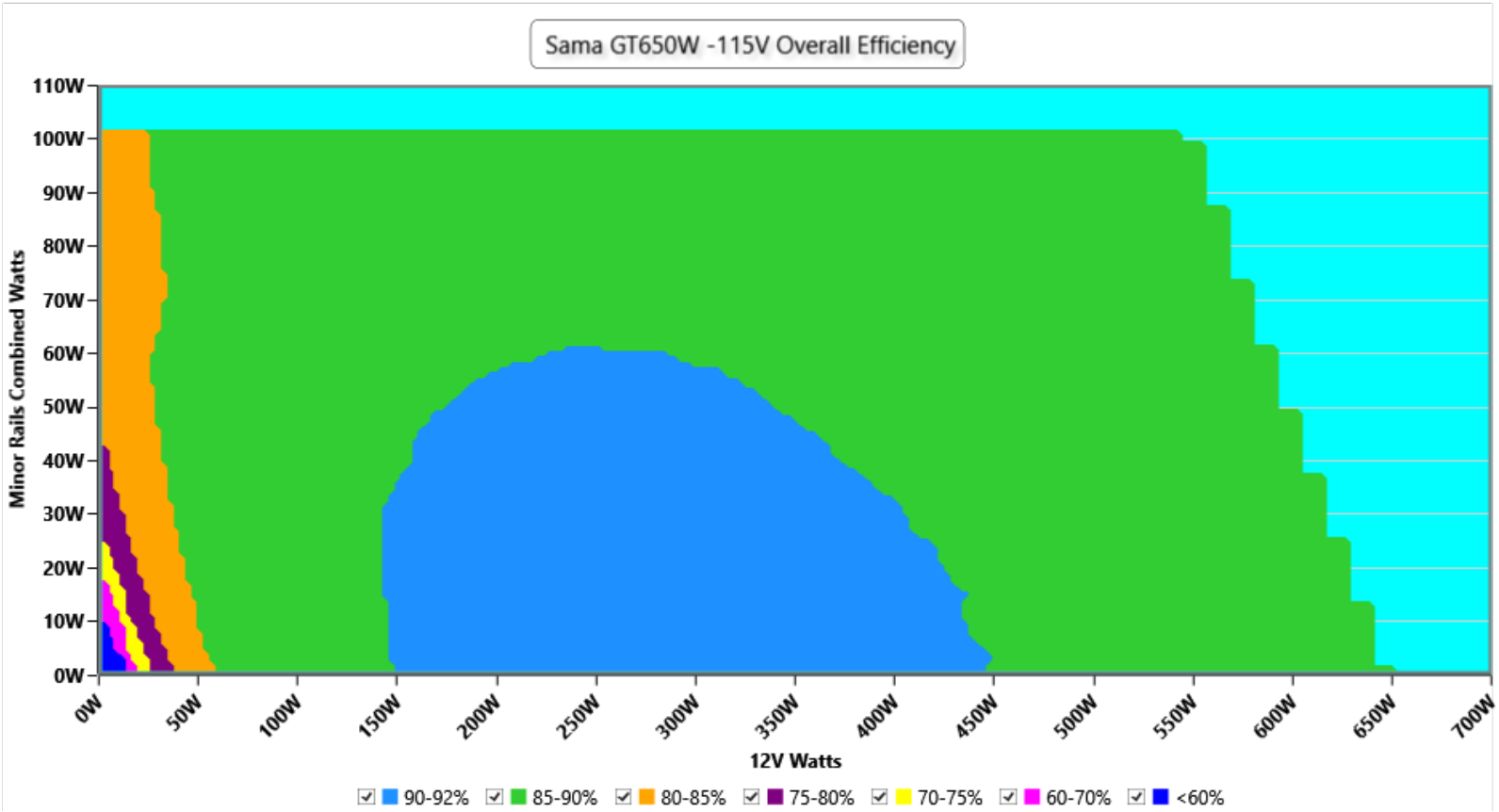
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.08 V	115.04 V	113.85 V	115.12 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.13 %	0.09 %	N/A	0.19 %	2.00 %	PASS
Real Power:	0.055 W	0.004 W	N/A	0.090 W	N/A	N/A
Apparent Power:	3.739 W	3.620 W	N/A	3.844 W	N/A	N/A
Power Factor:	0.019	N/A	N/A	N/A	N/A	N/A

230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	231.04 V	230.92 V	227.70 V	231.09 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	1.419	1.490	PASS
Mains Voltage THD:	0.17 %	0.15 %	N/A	0.26 %	2.00 %	PASS
Real Power:	0.125 W	0.086 W	N/A	0.180 W	N/A	N/A
Apparent Power:	12.405 W	12.182 W	N/A	12.588 W	N/A	N/A
Power Factor:	0.011	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

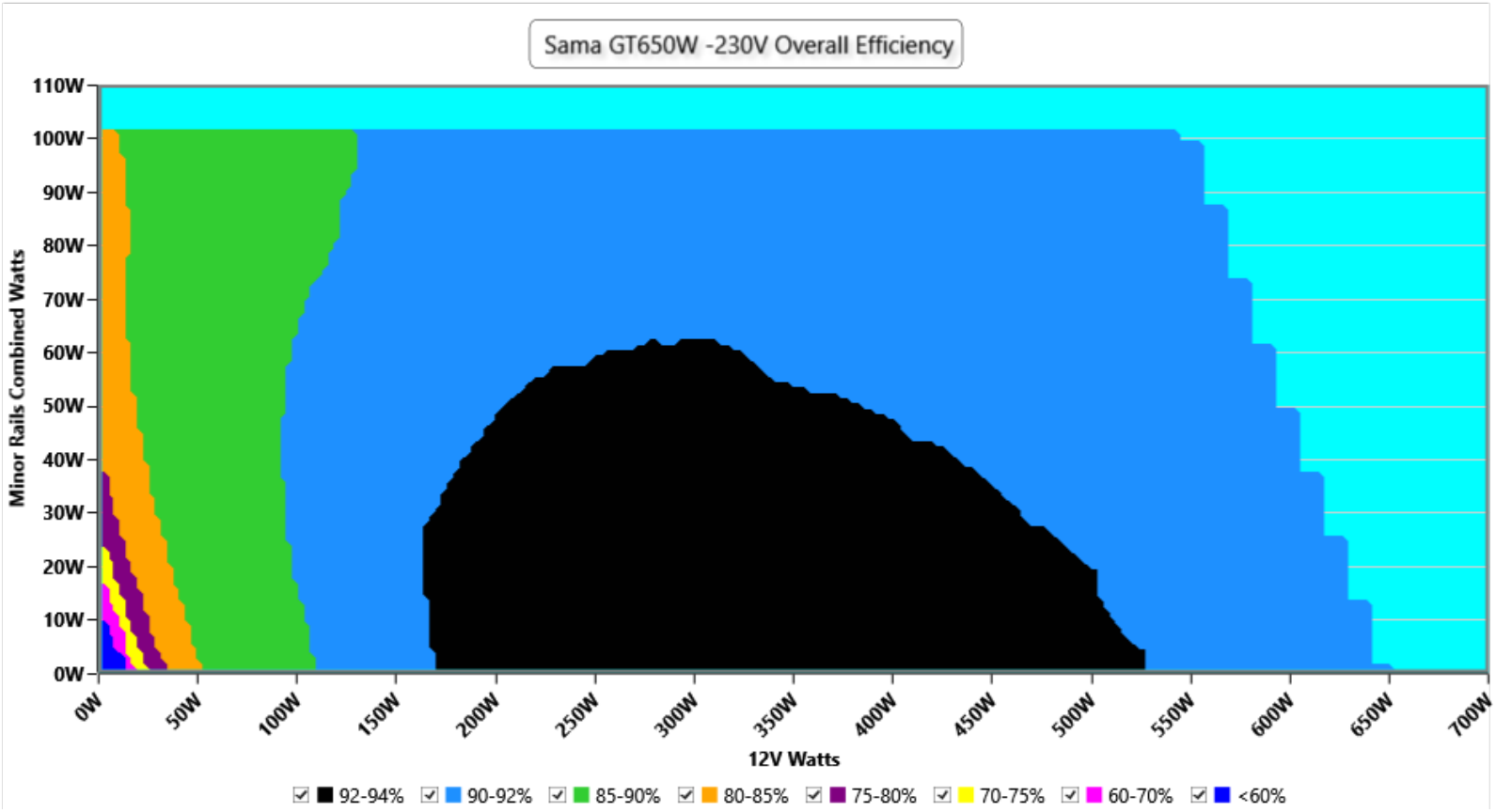
115V



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

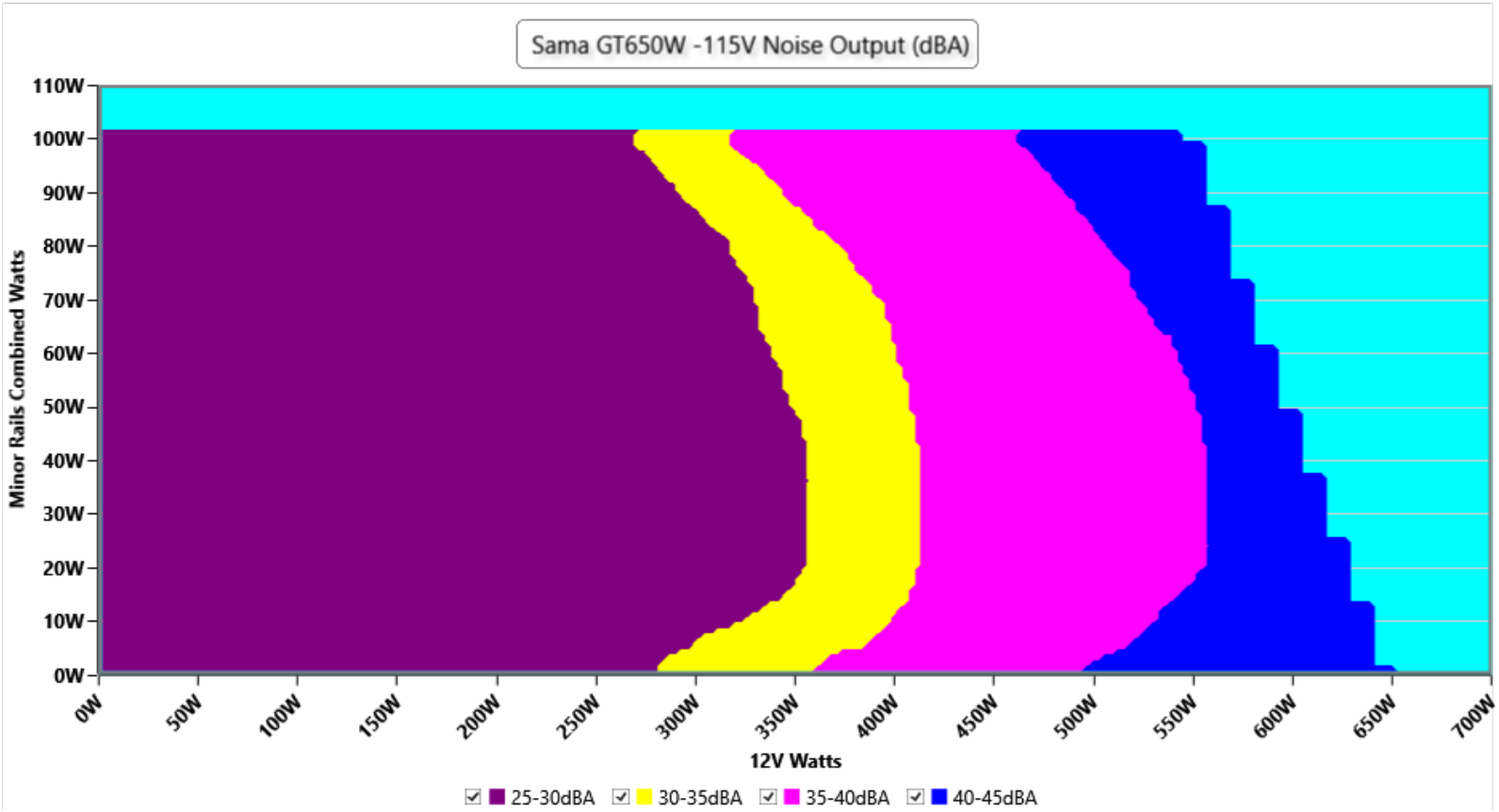


INFO

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

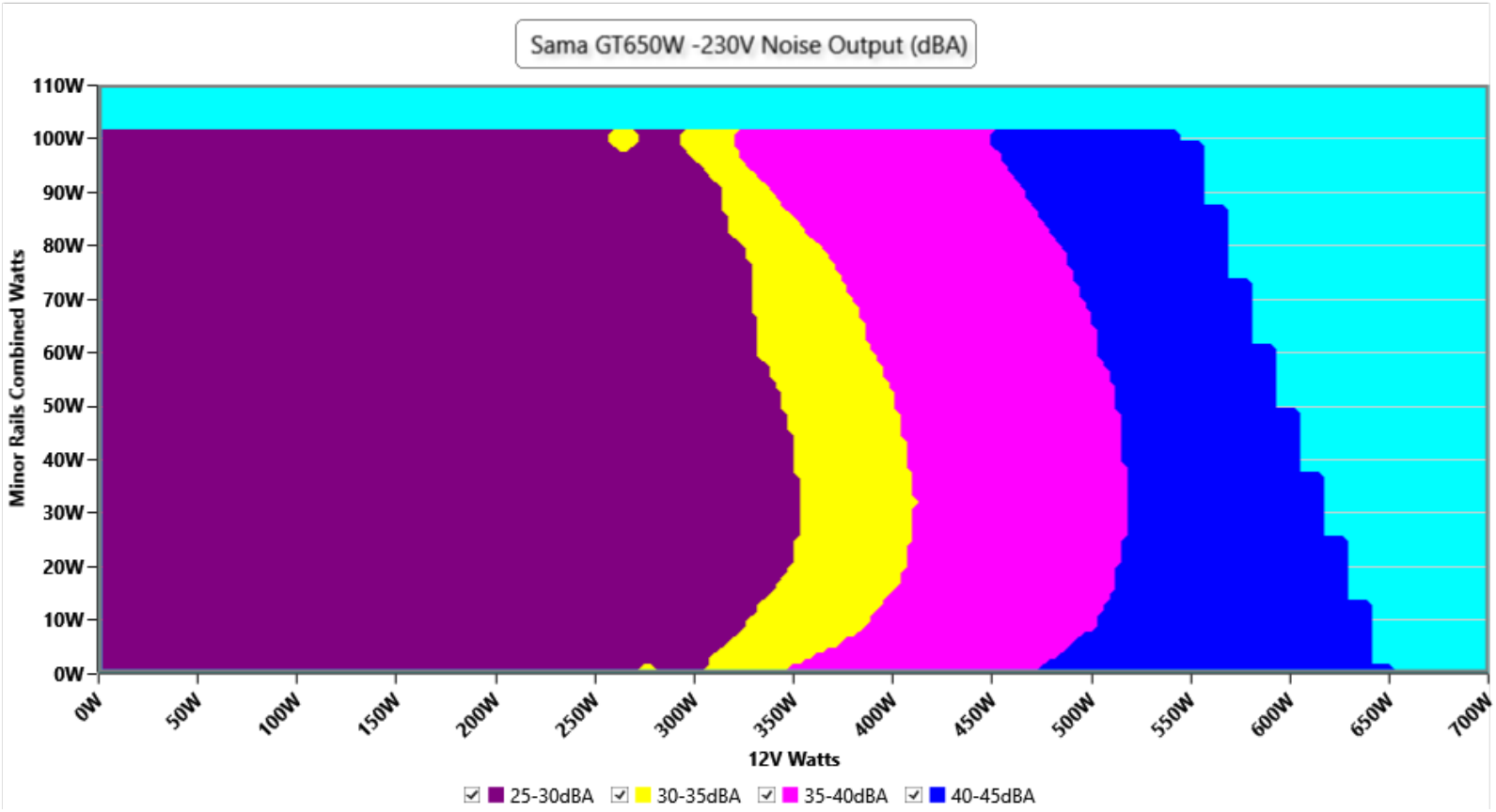
115V



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

Noise under high ambient temperature (indicative)

115V

Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	970 RPM · 26.3 dB(A) · 30.4 °C	992 RPM · 26.3 dB(A) · 40.2 °C	**+0.0 dB(A)**
20%	974 RPM · 26.4 dB(A) · 30.5 °C	996 RPM · 26.8 dB(A) · 40.8 °C	**+0.4 dB(A)**
50%	980 RPM · 26.2 dB(A) · 30.6 °C	1571 RPM · 39.3 dB(A) · 42.2 °C	**+13.1 dB(A)**
100%	1936 RPM · 43.5 dB(A) · 30.5 °C	2044 RPM · 44.9 dB(A) · 45.2 °C	**+1.4 dB(A)**

230V

Load	Normal ambient fan · noise · intake	High ambient fan · noise · intake	Noise change
10%	973 RPM · 26.4 dB(A) · 30.2 °C	995 RPM · 26.4 dB(A) · 40.1 °C	**+0.0 dB(A)**
20%	976 RPM · 26.2 dB(A) · 30.4 °C	998 RPM · 26.9 dB(A) · 41.0 °C	**+0.7 dB(A)**
50%	982 RPM · 26.0 dB(A) · 30.6 °C	1636 RPM · 38.4 dB(A) · 42.5 °C	**+12.4 dB(A)**
100%	1927 RPM · 43.4 dB(A) · 30.1 °C	2039 RPM · 44.8 dB(A) · 45.6 °C	**+1.4 dB(A)**

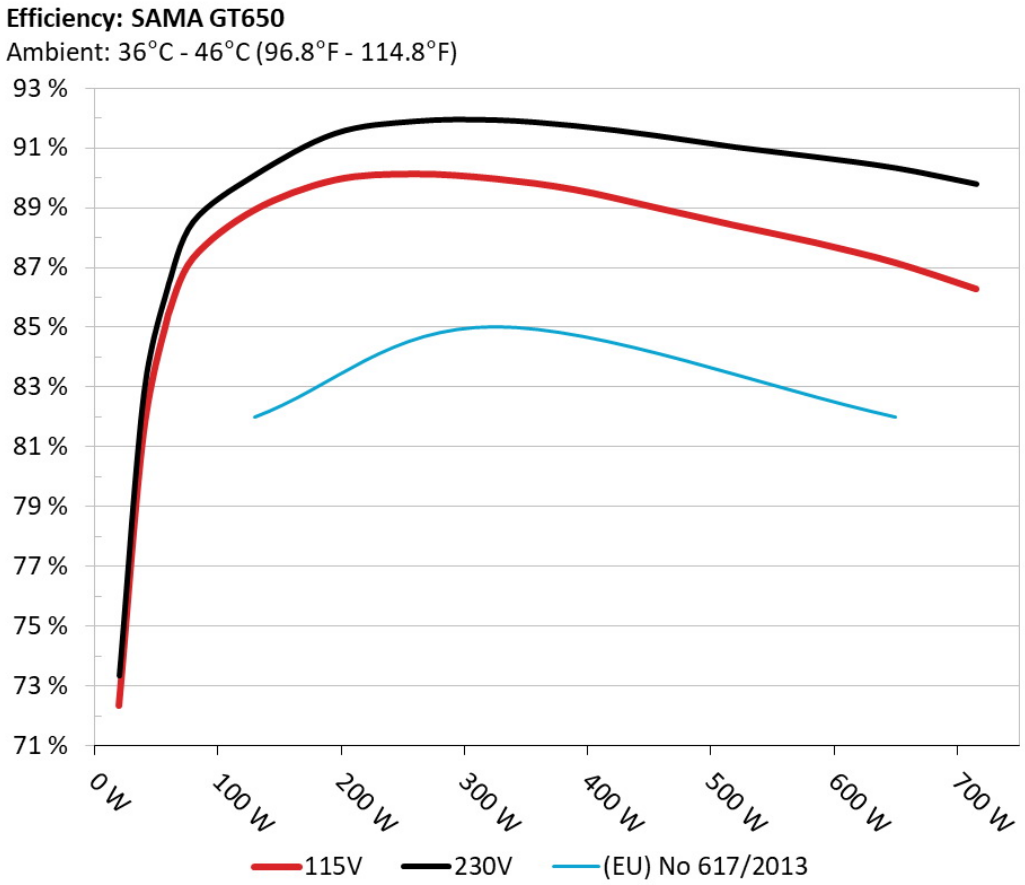
INFO

Fan speed, noise and the measured intake temperature at 10, 20, 50 and 100 % load, from the two load regulation tests: at normal ambient (about 30-32 °C) and at high ambient (about 40-47 °C). These are stabilized readings at fixed loads, not averages over the certification sweep, so they are indicative of how the fan behaves when it is hot. "<6.0" is the floor of our sound meter: the fan is stopped or too quiet to measure (the fan speed column says which); with the fan stopped, the intake sensor can read higher than the chamber air.

Informational. Not part of the ETA or LAMBDA rating.

Indicative Performance

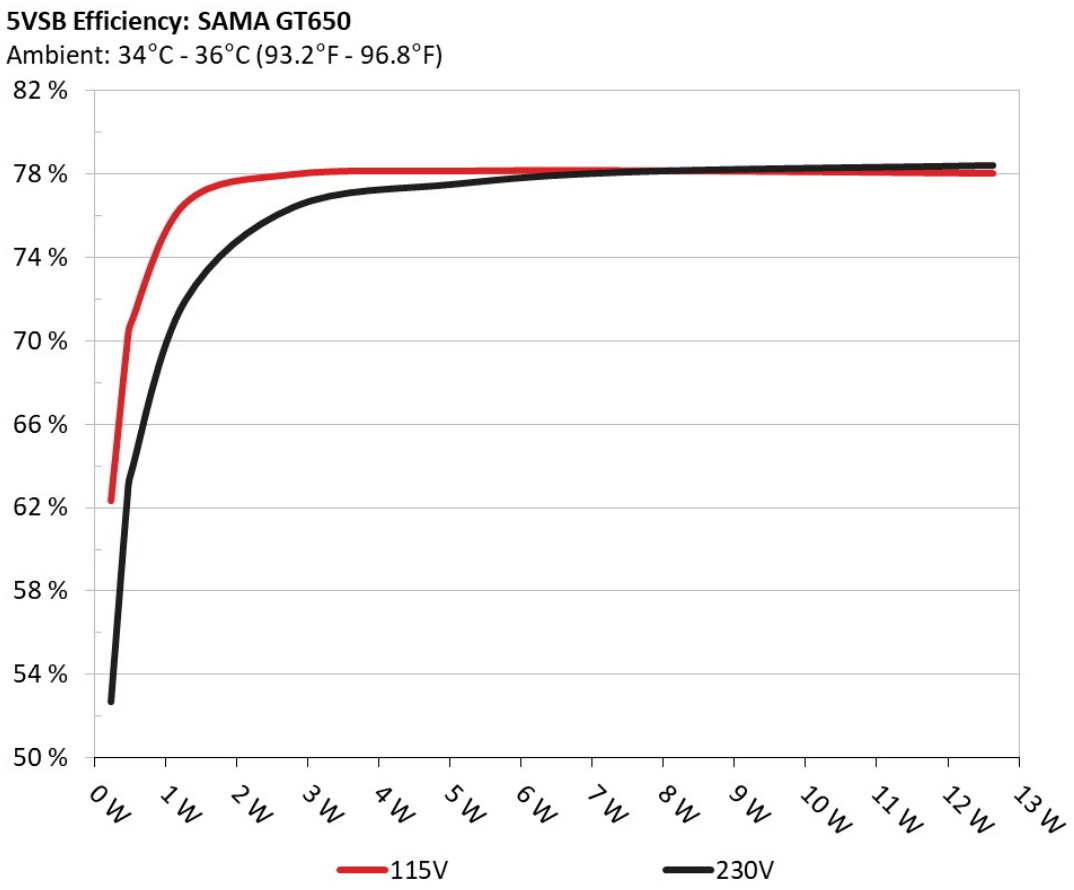
Efficiency under high ambient temperature



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**	0.229W	62.344%	0.076
	5.097V	0.322W		115.17V
2	**0.09A**	0.459W	69.968%	0.145
	5.095V	0.656W		115.17V
3	**0.55A**	2.799W	78.002%	0.365
	5.087V	3.589W		115.17V
4	**1A**	5.081W	78.155%	0.418
	5.079V	6.5W		115.17V
5	**1.5A**	7.608W	78.178%	0.438
	5.071V	9.731W		115.17V
6	**2.501A**	12.633W	78.046%	0.47
	5.052V	16.186W		115.16V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.229W	52.689%	0.033
	5.096V	0.435W		230.39V
2	**0.09A**	0.459W	62.484%	0.055
	5.095V	0.735W		230.39V
3	**0.55A**	2.8W	76.39%	0.213
	5.089V	3.669W		230.41V
4	**1A**	5.081W	77.495%	0.289
	5.08V	6.556W		230.39V
5	**1.5A**	7.609W	78.08%	0.325
	5.071V	9.744W		230.41V
6	**2.501A**	12.635W	78.382%	0.367
	5.053V	16.121W		230.4V

Protection Features

OCP (Normal @ 28.6°C)	12V: 85.6A (158.23%), 12.158V 5V: 35.8A (179%), 5.046V 3.3V: 35.5A (177.5%), 3.275V 5VSB: 4A (160%), 5.019V
OCP (Hot @ 44.2°C)	12V: 86.4A (159.7%), 12.168V 5V: 35.3A (176.5%), 5.047V 3.3V: 34.2A (171%), 3.274V 5VSB: 3.9A (156%), 5.017V
OPP (Normal @ 26.6°C)	973.7W (149.8%)
OPP (Hot @ 44.8°C)	973.72W (149.8%)
OTP	✓ (153°C @ Heat Sink)
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%	**3.570A**	**1.957A**	**1.973A**	**0.987A**	65.005	84.96%	992	26.3	40.16°C	0.957
	12.157V	5.11V	3.345V	5.069V	76.513				41.91°C	115.14V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20%	**8.147A**	**2.941A**	**2.97A**	**1.187A**	129.95	88.94%	996	26.8	40.8°C	0.987
	12.157V	5.102V	3.334V	5.056V	146.109				42.67°C	115.11V
30%	**13.070A**	**3.437A**	**3.475A**	**1.388A**	194.96	89.942%	1001	27.1	41.06°C	0.988
	12.158V	5.094V	3.324V	5.043V	216.757				43.75°C	115.1V
40%	**17.999A**	**3.934A**	**3.984A**	**1.591A**	260.045	90.144%	1342	33.8	41.89°C	0.991
	12.158V	5.085V	3.314V	5.031V	288.477				44.4°C	115.08V
50%	**22.578A**	**4.927A**	**4.997A**	**1.794A**	325.041	89.984%	1571	39.3	42.21°C	0.993
	12.160V	5.076V	3.302V	5.017V	361.222				44.36°C	115.06V
60%	**27.116A**	**5.923A**	**6.017A**	**1.999A**	389.566	89.62%	1799	40.7	42.71°C	0.994
	12.160V	5.067V	3.291V	5.003V	434.69				45.78°C	115.04V
70%	**31.717A**	**6.924A**	**7.047A**	**2.206A**	454.881	89.024%	1984	44.5	43.26°C	0.995
	12.163V	5.057V	3.278V	4.988V	510.967				46.45°C	115.02V
80%	**36.319A**	**7.927A**	**8.082A**	**2.312A**	519.678	88.422%	2031	44.8	43.96°C	0.995
	12.164V	5.047V	3.266V	4.976V	587.727				47.72°C	115V
90%	**41.319A**	**8.438A**	**8.601A**	**2.418A**	585.122	87.843%	2037	44.8	44.37°C	0.995
	12.165V	5.038V	3.255V	4.964V	666.098				48.85°C	114.98V
100%	**46.252A**	**8.949A**	**9.154A**	**2.525A**	649.861	87.172%	2044	44.9	45.15°C	0.995
	12.165V	5.029V	3.244V	4.952V	745.496				50.49°C	114.96V
110%	**50.918A**	**9.963A**	**10.306A**	**2.531A**	715.291	86.297%	2048	45	46.32°C	0.995
	12.166V	5.019V	3.231V	4.94V	828.878				52.13°C	114.95V
CL1	**0.115A**	**11.84A**	**11.98A**	**0A**	101.307	81.949%	1726	39.9	40.57°C	0.979
	12.166V	5.085V	3.314V	5.065V	123.62				44.1°C	115.13V
CL2	**0.115A**	**19.671A**	**0A**	**0A**	101.396	81.615%	1546	37.9	40.65°C	0.979
	12.165V	5.084V	3.33V	5.073V	124.236				42.7°C	115.13V
CL3	**0.115A**	**0A**	**19.931A**	**0A**	67.39	74.9%	1441	35.2	40.83°C	0.968
	12.161V	5.099V	3.311V	5.069V	89.973				42.79°C	115.13V
CL4	**53.466A**	**0A**	**0A**	**0A**	649.724	88.278%	2042	44.9	45.55°C	0.995
	12.152V	5.054V	3.271V	5.015V	735.994				49.8°C	114.96V

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%	**3.570A**	**1.957A**	**1.974A**	**0.987A**	65.01	86.212%	995	26.4	40.07°C	0.83
	12.156V	5.111V	3.344V	5.069V	75.408				41.71°C	230.39V
20%	**8.149A**	**2.941A**	**2.971A**	**1.187A**	129.969	90.084%	998	26.9	40.96°C	0.917
	12.157V	5.102V	3.333V	5.055V	144.279				42.76°C	230.39V
30%	**13.072A**	**3.437A**	**3.476A**	**1.389A**	194.977	91.476%	1243	32.1	41.14°C	0.952
	12.157V	5.094V	3.323V	5.043V	213.145				43.09°C	230.38V
40%	**18.002A**	**3.934A**	**3.985A**	**1.591A**	260.069	91.884%	1442	35.5	41.5°C	0.97
	12.157V	5.085V	3.313V	5.03V	283.039				43.61°C	230.37V
50%	**22.581A**	**4.927A**	**4.998A**	**1.795A**	325.067	91.925%	1636	38.4	42.49°C	0.979
	12.159V	5.076V	3.302V	5.016V	353.621				44.71°C	230.36V
60%	**27.121A**	**5.924A**	**6.019A**	**2A**	389.612	91.732%	1833	42.5	42.61°C	0.983
	12.160V	5.066V	3.29V	5.002V	424.727				45.04°C	230.35V
70%	**31.723A**	**6.925A**	**7.048A**	**2.206A**	454.929	91.406%	1993	44.7	43.51°C	0.986
	12.161V	5.056V	3.278V	4.988V	497.7				46.01°C	230.33V
80%	**36.322A**	**7.928A**	**8.084A**	**2.312A**	519.71	91.018%	2036	44.8	43.76°C	0.988
	12.163V	5.047V	3.265V	4.975V	570.995				47.03°C	230.32V
90%	**41.321A**	**8.437A**	**8.602A**	**2.419A**	585.141	90.689%	2034	44.9	44.3°C	0.988
	12.164V	5.038V	3.254V	4.963V	645.215				48.59°C	230.3V
100%	**46.256A**	**8.95A**	**9.156A**	**2.525A**	649.872	90.321%	2039	44.8	45.57°C	0.987
	12.164V	5.029V	3.243V	4.95V	719.515				50.17°C	230.29V
110%	**50.921A**	**9.965A**	**10.307A**	**2.532A**	715.299	89.785%	2039	44.8	46.39°C	0.986
	12.166V	5.018V	3.23V	4.938V	796.679				51.58°C	230.28V
CL1	**0.115A**	**11.84A**	**11.981A**	**0A**	101.306	83.473%	1712	39.2	40.8°C	0.898
	12.165V	5.085V	3.313V	5.065V	121.364				44.25°C	230.38V
CL2	**0.115A**	**19.672A**	**0A**	**0A**	101.398	82.904%	1590	39.5	40.16°C	0.899
	12.165V	5.083V	3.33V	5.072V	122.306				42.64°C	230.38V
CL3	**0.115A**	**0A**	**19.931A**	**0A**	67.39	76.004%	1418	35.4	40.62°C	0.857
	12.160V	5.098V	3.311V	5.069V	88.668				42.41°C	230.38V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL4	**53.473A**	**0A**	**0A**	**0A**	649.736	91.423%	2037	44.8	45.83°C	0.987
	12.151V	5.054V	3.271V	5.015V	710.691				49.18°C	230.3V

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	**1.222A**	**0.489A**	**0.492A**	**0.196A**	20.004	72.346%	980	26.2	36.41°C	0.885
	12.154V	5.117V	3.352V	5.091V	27.65				38.12°C	115.14V
40W	**2.690A**	**0.684A**	**0.69A**	**0.295A**	40.002	81.486%	985	26.4	37.11°C	0.927
	12.153V	5.116V	3.35V	5.087V	49.09				39.13°C	115.14V
60W	**4.157A**	**0.88A**	**0.887A**	**0.394A**	60.001	85.445%	987	26.4	38.41°C	0.951
	12.155V	5.113V	3.348V	5.082V	70.221				40.06°C	115.14V
80W	**5.622A**	**1.076A**	**1.085A**	**0.493A**	79.958	87.322%	988	26.4	39.51°C	0.969
	12.155V	5.111V	3.345V	5.077V	91.566				41.2°C	115.13V

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	**1.222A**	**0.488A**	**0.492A**	**0.196A**	20.007	73.346%	984	26.5	36.82°C	0.712
	12.154V	5.119V	3.352V	5.091V	27.279				37.65°C	230.37V
40W	**2.690A**	**0.684A**	**0.69A**	**0.295A**	40.007	82.819%	987	26.4	37.44°C	0.797
	12.153V	5.117V	3.349V	5.086V	48.306				38.86°C	230.39V
60W	**4.158A**	**0.88A**	**0.887A**	**0.394A**	60.007	86.459%	988	26.4	38.72°C	0.819
	12.154V	5.114V	3.348V	5.082V	69.407				39.82°C	230.41V
80W	**5.623A**	**1.076A**	**1.085A**	**0.493A**	79.977	88.53%	992	26.3	39.22°C	0.86
	12.154V	5.112V	3.345V	5.077V	90.341				40.19°C	230.4V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	8.04mV	9.34mV	5.70mV	8.66mV	Pass
20% Load	9.16mV	10.97mV	7.17mV	9.93mV	Pass
30% Load	11.54mV	10.15mV	6.20mV	10.50mV	Pass
40% Load	14.32mV	11.12mV	7.38mV	12.84mV	Pass
50% Load	14.89mV	11.43mV	8.04mV	13.14mV	Pass
60% Load	14.94mV	12.04mV	8.60mV	13.86mV	Pass
70% Load	17.27mV	13.21mV	9.51mV	15.08mV	Pass
80% Load	18.64mV	14.28mV	12.61mV	16.05mV	Pass
90% Load	17.26mV	15.05mV	13.32mV	16.66mV	Pass
100% Load	29.52mV	16.98mV	16.67mV	19.15mV	Pass
110% Load	33.30mV	18.14mV	16.77mV	18.99mV	Pass
Crossload1	14.52mV	10.06mV	11.19mV	10.62mV	Pass
Crossload2	11.50mV	10.66mV	8.39mV	9.99mV	Pass
Crossload3	10.53mV	6.63mV	10.22mV	9.53mV	Pass
Crossload4	26.97mV	10.56mV	11.68mV	15.30mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	7.22mV	9.03mV	5.49mV	8.71mV	Pass
20% Load	8.29mV	11.37mV	7.17mV	9.53mV	Pass
30% Load	11.48mV	10.35mV	6.51mV	10.45mV	Pass
40% Load	14.08mV	11.07mV	7.22mV	12.33mV	Pass
50% Load	14.28mV	11.32mV	7.88mV	12.79mV	Pass
60% Load	15.33mV	13.93mV	8.90mV	13.96mV	Pass

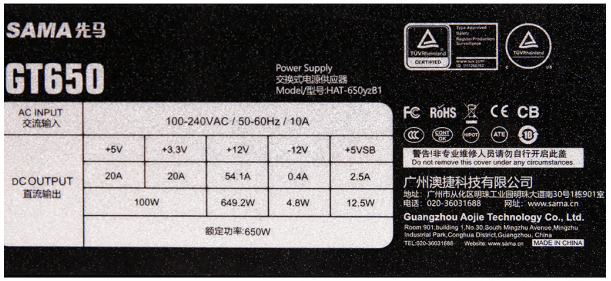
Test	12V	5V	3.3V	5VSB	Pass/Fail
70% Load	16.96mV	13.26mV	9.00mV	13.81mV	Pass
80% Load	19.25mV	14.13mV	12.16mV	15.23mV	Pass
90% Load	17.77mV	14.79mV	12.66mV	15.74mV	Pass
100% Load	30.63mV	16.41mV	15.52mV	18.46mV	Pass
110% Load	34.16mV	18.32mV	17.71mV	18.63mV	Pass
Crossload1	14.24mV	10.07mV	11.00mV	10.50mV	Pass
Crossload2	10.58mV	11.22mV	8.09mV	9.83mV	Pass
Crossload3	10.82mV	6.63mV	9.92mV	9.32mV	Pass
Crossload4	27.32mV	11.45mV	11.94mV	15.68mV	Pass

The results above are not used in the certification process

SAMA GT650W



Top side



Power specifications label

Cybenetics bietet freiwillige Zertifizierungsprogramme für Netzteile – ETA für Effizienz, LAMBDA für Lautstärke und SAFE für Sicherheit und korrekten Betrieb – sowie für Kühlprodukte mit DELTA für die Schalldämmung von Gehäusen und PHI für Luftstrom und statischen Druck von Lüftern