



Montech Titan Gold 1000W

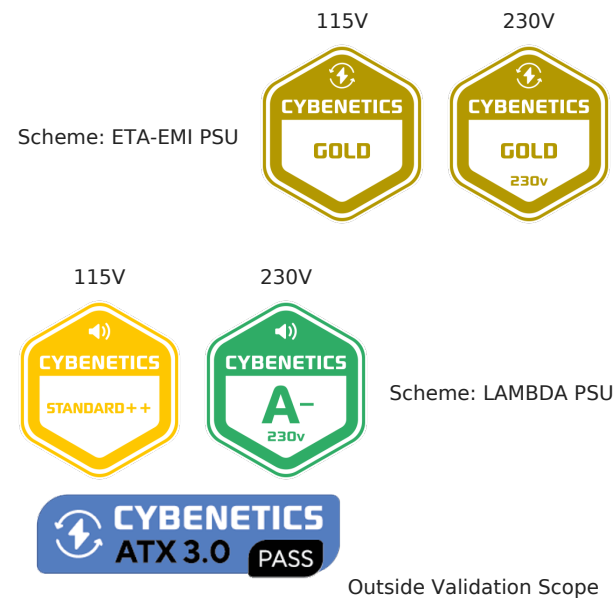
□ TITAN1000221100186

Lab ID MT10002119

Certification ID 252119

Test Result Report ID: 23PS2119A

Certificate Issue Date: Jan 27, 2023



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		Montech
Model		Titan Gold 1000W
OEM/ODM		CWT
Serial Number		TITAN1000221100186
Product Specifications		
Manufacturer-Provided Information		
Vrms	100-240	
Arms	6.5-15	

□□□□ (Hz)	50-60
□□□□ (W)	1000
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	MT10002119
Date of receipt	Jan 20, 2023
Testing Date	Jan 25, 2023
Report Issued Date	Jan 27, 2023
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	16-18AWG	□
4+4 pin EPS 12V □□ (700mm)	1	1	16AWG	□
8 pin EPS 12V □□ (700mm)	1	1	16AWG	□
6+2pin PCIe□□ (500mm+150mm)	2	4	16-18AWG	□
6+2pin PCIe□□ (600mm)	1	1	16AWG	□
12+4 pin PCIe (600mm) (600W)	1	1	16-24AWG	□
SATA□□ (500mm+150mm+150mm+150mm)	3	12	18AWG	□

4-pin Molex (500mm+120mm+120mm+120mm)	1	4	18AWG	□
AC Power Cord (1400mm) - C13 coupler	1	1	18AWG	-

Protection Features(Manufacturer)

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

□□□□

□		3.3V	5V	12V	5VSB	-12V
□□□	□□	22	22	83.5	3	0.3
	□	120		1000	15	3.6
□□□□ (W)		1000				

Parts Description

General Data	
Manufacturer (OEM)	CWT
Platform	CSZ
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-207R0 (7 Ohm) & Relay
Bridge Rectifier(s)	2x GBJ2510 (600V, 25A @ 100°C)
APFC MOSFETs	2x Vishay SiHA105N60EF (650V, 19A @ 100°C, Rds(on): 0.125Ohm)
APFC Boost Diode	1x Infineon IDH10G65C6 (650V, 10A @ 140°C)
Bulk Cap(s)	2x Rubycon (420V, 680uF, 2,000h @ 105°C, MXE)
Main Switchers	2x On Semiconductor NTPF110N65S3HF (650V, 19.5A @ 100°C, Rds(on): 0.110Ohm)

APFC Controller	Champion CM6500UNX
Resonant Controller	Champion CU6901VAC
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	8x Infineon BSC014N04LS (40V, 125A @ 100°C, Rds(on): 1.4mOhm)
5V & 3.3V	DC-DC Converters: 2x UBIQ QN3107M6N (30V, 70A @ 100°C, Rds(on): 2.6mOhm) & 2x UBIQ QM3054M6 (30V, 61A @ 100°C, Rds(on): 4.8mOhm) PWM Controller(s): uPI-SemiuP3861P
Filtering Capacitors	Electrolytic: 3x Nichicon (2-5,000h @ 105°C, HD) 1x Nichicon (5-6,000h @ 105°C HV) 2x Nichicon (4-10,000h @ 105°C, HE) 1x Nippon Chemi-Con (2-5,000h @ 105°C, KZE) 1x Nippon Chemi-Con (4-10,000h @ 105°C, KYA) 1x Rubycon (2-10,000h @ 105°C, YXF) Polymer: 19x FPCAP, 3x Chemi-Con
Supervisor IC	Weltrend WT7502R
Fan Controller	Microchip PIC16F1503
Fan Model	Hong Hua HA13525H12SF-Z (135mm, 12V, 0.5A, Fluid Dynamic Bearing Fan)
5VSB Circuit	-
Rectifier	1x D10S45L 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	✓
ATX v3.0 Compliance	✓

Performance Summary

115V	
Accredited	
□□□□ (>1450 load combinations)	88.950%
Average Noise Output (>1450 Load Combinations)	30.93dBA
PF□□□ (>1450 Load Combinations)	0.989

Efficiency With 10W ($\leq 500W$) or 2% ($> 500W$) Load	83.377%
□□□□	0.0170W
Non-Accredited	
12V Ripple (Full Load)	20.64mV
5V Ripple (Full Load)	10.42mV
3.3V Ripple (Full Load)	13.97mV
5VSB Ripple (Full Load)	12.53mV
12V Load Regulation	1.05%
5V Load Regulation	0.66%
3.3V Load Regulation	1.11%
5VSB Load Regulation	1.39%
Inrush Current	23.190A

230V

Accredited	
□□□ (>1450 load combinations)	90.954%
Average Noise Output (>1450 Load Combinations)	29.11dBA
PF□□ (>1450 Load Combinations)	0.964
Efficiency With 10W ($\leq 500W$) or 2% ($> 500W$) Load	75.544%
□□□□	0.0563W
Non-Accredited	
12V Ripple (Full Load)	23.07mV
5V Ripple (Full Load)	10.71mV
3.3V Ripple (Full Load)	14.28mV
5VSB Ripple (Full Load)	12.01mV
12V Load Regulation	1.08%
5V Load Regulation	0.66%
3.3V Load Regulation	1.08%
5VSB Load Regulation	1.43%
Inrush Current	46.050A
12V Transient Response (200%)	11.28V
5V Transient Response (200%)	4.949V

3.3V Transient Response (200%)	3.163V	
5VSB Transient Response (200%)	4.919V	
□□□□ & PG□□	20.30ms	
AC Loss to PWR_OK Hold Up Time	17.80ms	
PWR_OK Inactive to DC Loss Delay	2.50ms	
PSU Timings: T1 (20% / 100%)	58.0ms	58.0ms
PSU Timings: T3 (20% / 100%)	124.0ms	125.0ms
OPP (27.86°C / 37.75°C)	126.42%	126.71%

□□□□ & PG□□

Hold-Up Time (ms)	20.3
AC Loss to PWR_OK Hold Up Time (ms)	17.8
PWR_OK Inactive to DC Loss Delay (ms)	2.5

□□□□

Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.87 V	114.84 V	113.85 V	114.91 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.93 Hz	59.40 Hz	60.02 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.417	1.416	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.14 %	0.12 %	N/A	0.19 %	2.00 %	PASS
Real Power:	0.017 W	0.015 W	N/A	0.019 W	N/A	N/A
Apparent Power:	9.987 W	9.962 W	N/A	10.009 W	N/A	N/A
Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A

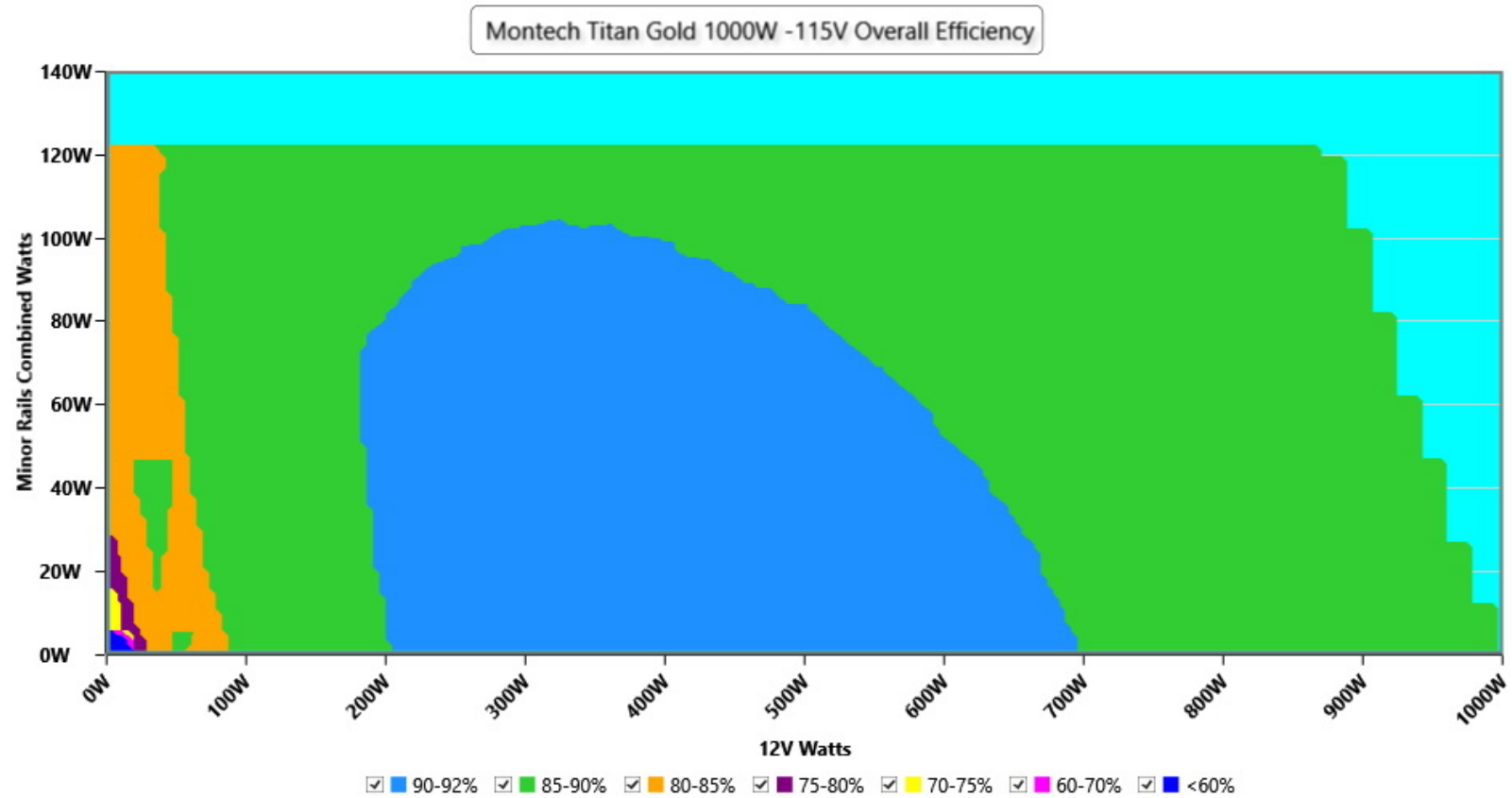
230V

Detailed Results

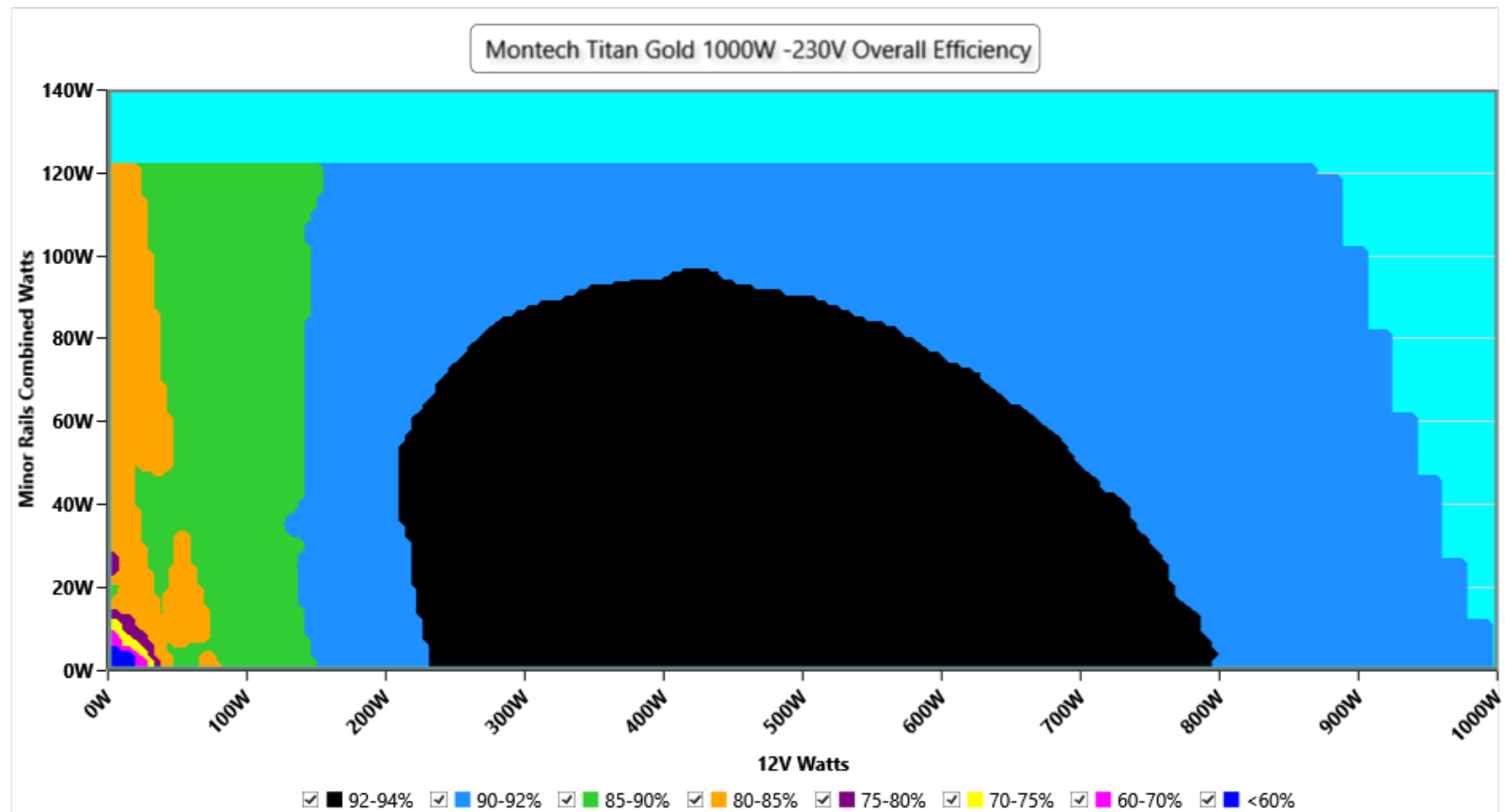
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	229.88 V	229.82 V	227.70 V	229.91 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	50.00 Hz	49.50 Hz	50.00 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.417	1.490	PASS
Mains Voltage THD:	0.14 %	0.12 %	N/A	0.16 %	2.00 %	PASS
Real Power:	0.056 W	0.053 W	N/A	0.060 W	N/A	N/A
Apparent Power:	33.608 W	33.584 W	N/A	33.632 W	N/A	N/A
Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A



115V



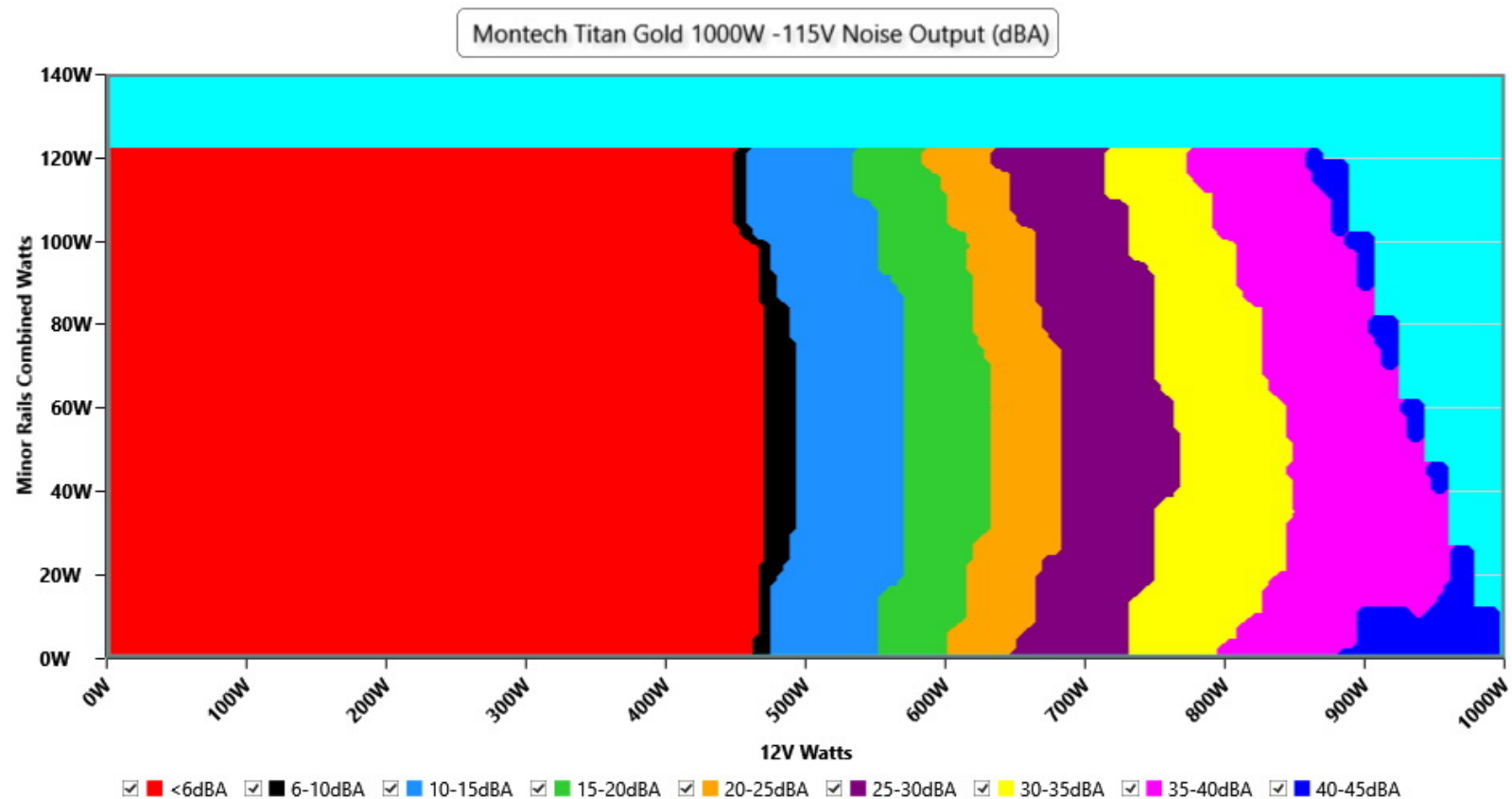
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



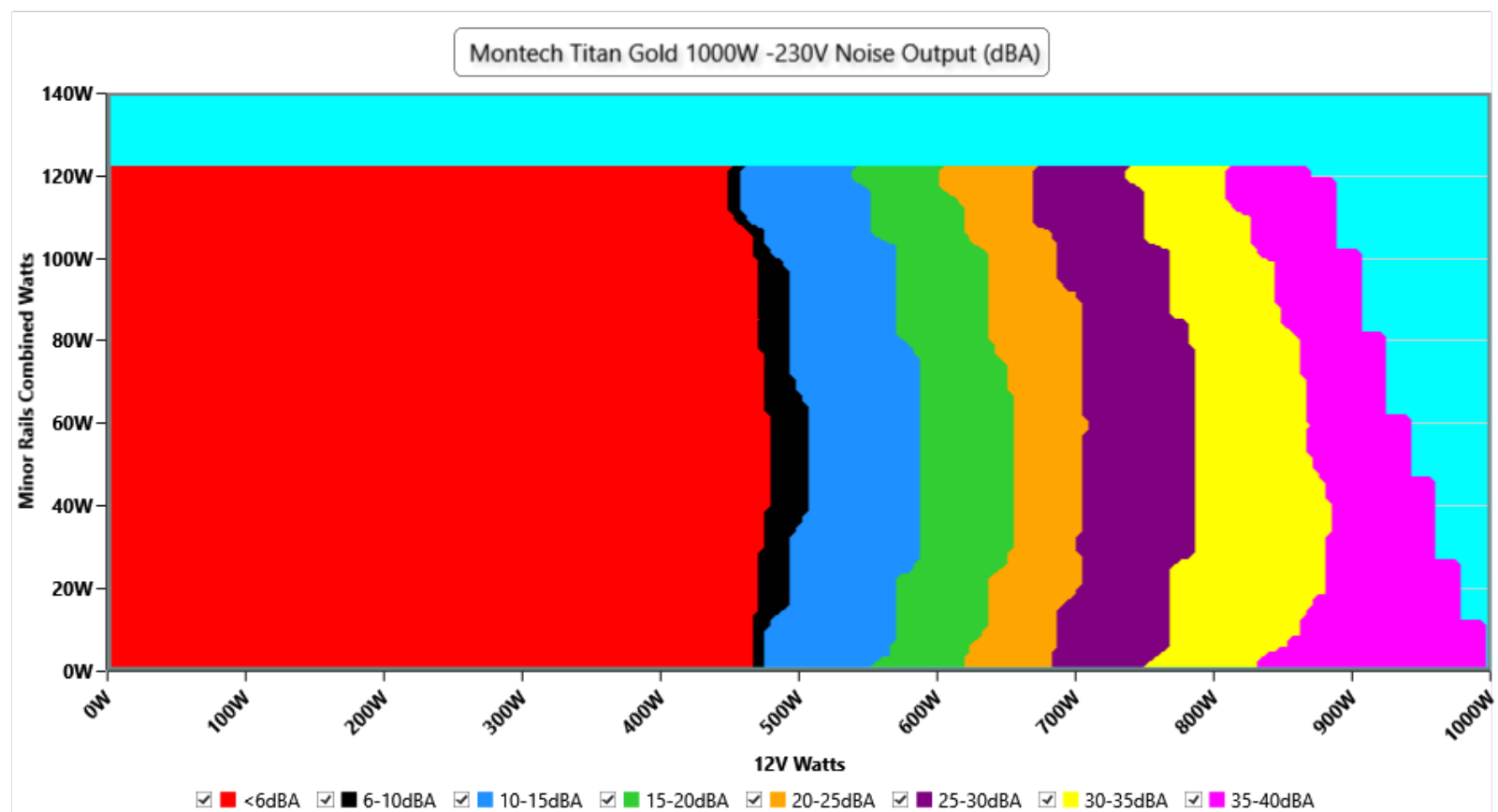
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



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



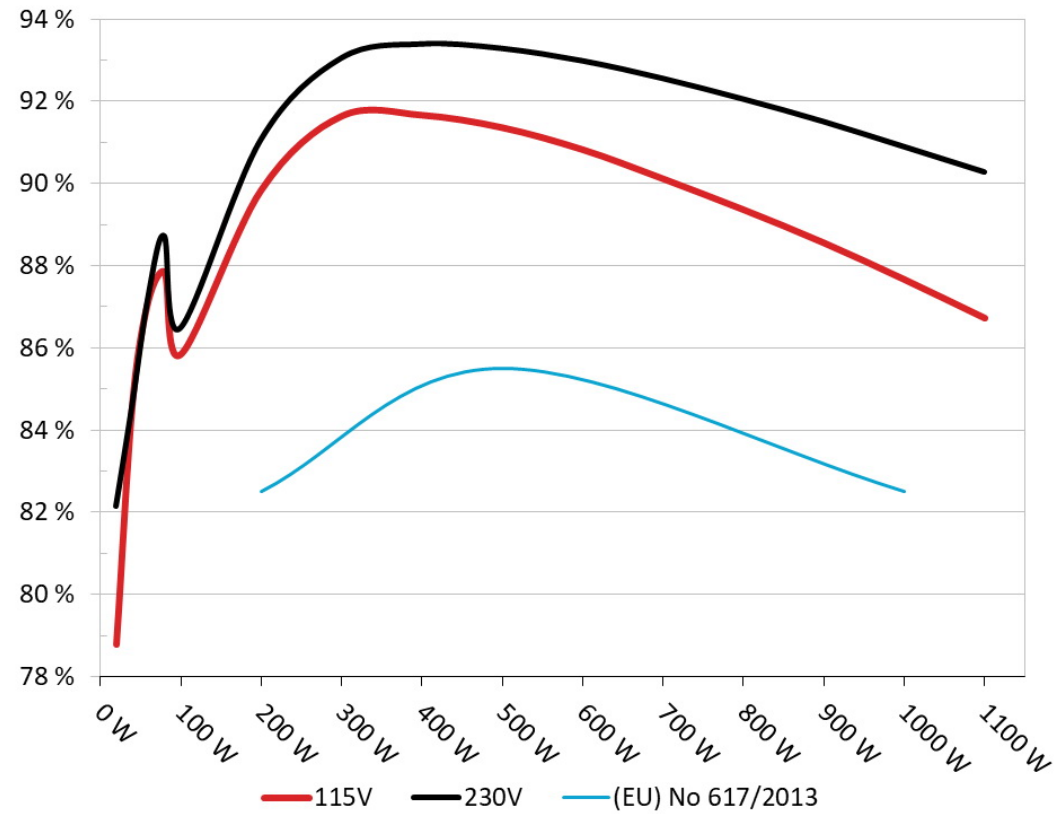
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance



Efficiency: Montech Titan Gold 1000W

Ambient: 37°C - 47°C (98.6°F - 116.6°F)

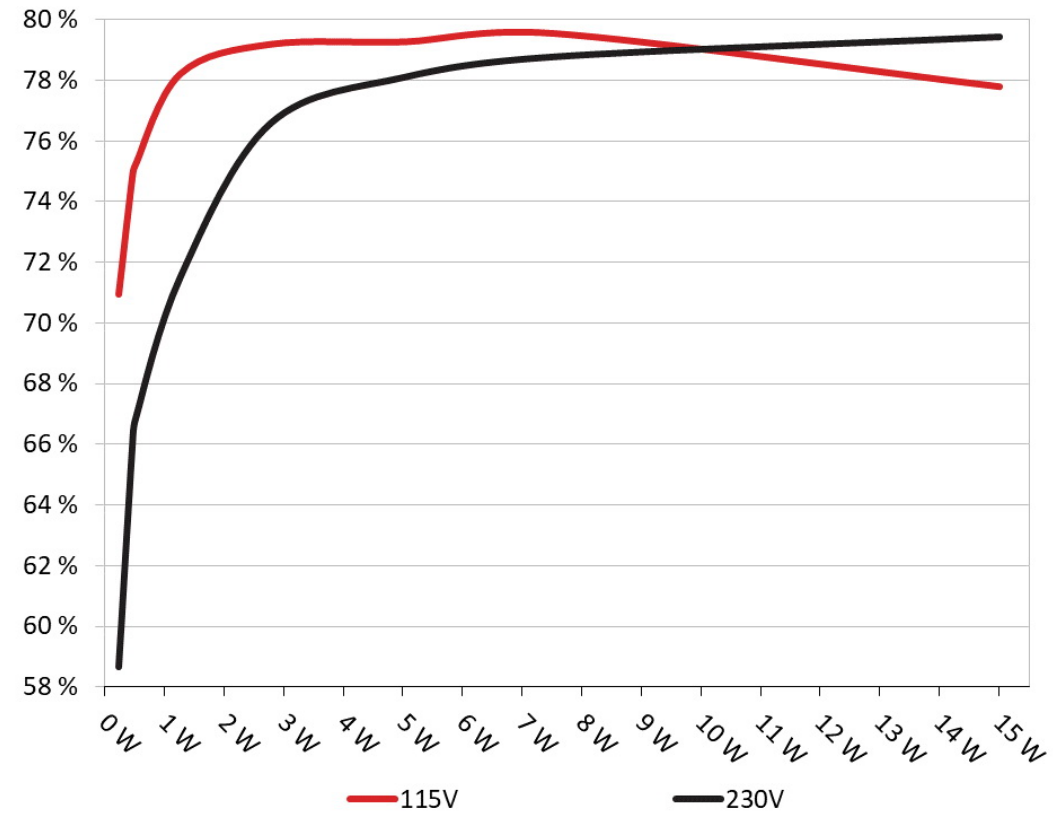


The PSU's efficiency under high ambient temperatures with 115V and 230V input. For this graph the results of the 10-110% load regulation table are used

5Vsb

5VSB Efficiency: Montech Titan Gold 1000W

Ambient: 34°C - 36°C (93.2°F - 96.8°F)



□

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	0.228W	71.234%	0.032
	5.057V	0.32W		114.87V
2	0.09A	0.455W	75.085%	0.06
	5.056V	0.606W		114.86V
3	0.55A	2.775W	79.492%	0.27
	5.047V	3.491W		114.87V
4	1A	5.038W	79.573%	0.361
	5.038V	6.331W		114.87V
5	1.5A	7.544W	79.848%	0.422
	5.029V	9.448W		114.86V
6	3A	15.006W	78.093%	0.5
	5.002V	19.215W		114.86V

230V

#	5VSB	DC/AC ()		PF/AC
1	0.045A	0.227W	58.961%	0.011
	5.055V	0.385W		229.88V
2	0.09A	0.455W	66.241%	0.02
	5.054V	0.687W		229.88V
3	0.55A	2.775W	76.885%	0.103
	5.045V	3.61W		229.87V
4	1A	5.037W	78.412%	0.172
	5.037V	6.424W		229.88V
5	1.5A	7.542W	79.08%	0.233
	5.028V	9.537W		229.88V
6	3A	15.003W	79.734%	0.334
	5.001V	18.816W		229.88V

Supplementary Tests (For Reference)

10-110%

115V

□	12V	5V	3.3V	5VSB	DC/AC (□)	□	□□□ (RPM)	□□□□□ (dB[A])	□ (□□ /□□)	PF/AC □
10%	6.440A	1.989A	2.014A	0.992A	99.961	85.348%	0	<6.0	44.36°C	0.983
	12.169V	5.026V	3.277V	5.039V	117.121				40.04°C	114.83V
20%	13.889A	2.985A	3.024A	1.193A	199.899	89.341%	0	<6.0	45.79°C	0.99
	12.168V	5.024V	3.273V	5.031V	223.75				41°C	114.8V
30%	21.732A	3.484A	3.531A	1.372A	299.935	91.141%	0	<6.0	46.73°C	0.991
	12.143V	5.022V	3.271V	5.101V	329.086				41.52°C	114.77V
40%	29.552A	3.984A	4.039A	1.57A	399.35	91.166%	0	<6.0	47.33°C	0.988
	12.119V	5.019V	3.268V	5.097V	438.047				41.76°C	114.73V
50%	37.062A	4.981A	5.055A	1.768A	499.142	90.864%	412	<6.0	42.28°C	0.99
	12.105V	5.018V	3.264V	5.09V	549.329				48.23°C	114.71V
60%	44.648A	5.978A	6.071A	1.968A	599.684	90.328%	668	15.8	42.72°C	0.992
	12.092V	5.018V	3.262V	5.083V	663.901				49.17°C	114.66V
70%	52.187A	6.975A	7.088A	2.167A	699.437	89.62%	989	28.6	43.51°C	0.993
	12.078V	5.018V	3.259V	5.075V	780.445				50.57°C	114.62V
80%	59.823A	7.974A	8.105A	2.269A	799.461	88.868%	1351	38.8	43.75°C	0.994
	12.062V	5.017V	3.257V	5.067V	899.606				52.01°C	114.59V
90%	67.797A	8.474A	8.604A	2.372A	899.273	88.064%	1649	43.4	44.67°C	0.994
	12.048V	5.015V	3.254V	5.06V	1021.159				53.74°C	114.55V
100%	75.537A	8.976A	9.134A	2.975A	999.312	87.174%	1989	48.4	45.58°C	0.995
	12.042V	5.013V	3.251V	5.043V	1146.349				55.61°C	114.52V
110%	83.215A	9.978A	10.251A	2.978A	1099.934	86.229%	2161	50.3	46.51°C	0.995
	12.037V	5.011V	3.248V	5.037V	1275.607				57.42°C	114.47V
CL1	1.972A	14.391A	14.596A	0.496A	146.418	84.454%	496	8.4	40.39°C	0.989
	12.176V	5.018V	3.268V	5.041V	173.369				45.85°C	114.81V

CL2	1.970A	21.272A	1.007A	0.495A	136.415	83.331%	419	<6.0	40.66°C	0.988
	12.182V	5.012V	3.276V	5.047V	163.703				47.68°C	114.82V
CL3	1.970A	0.995A	20.728A	0.496A	99.1	79.22%	419	<6.0	42.01°C	0.985
	12.181V	5.024V	3.261V	5.042V	125.097				51.03°C	114.83V
CL4	82.082A	0.996A	1.013A	0.491A	999.499	87.762%	1996	48.5	45.77°C	0.995
	12.045V	5.019V	3.257V	5.095V	1138.883				56.62°C	114.52V

The results above are not used in the certification process

230V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□ (RPM)	□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
10%	6.439A	1.99A	2.015A	0.992A	99.974	85.994%	0	<6.0	44.67°C	0.876
	12.172V	5.026V	3.276V	5.039V	116.256				40.34°C	229.87V
20%	13.888A	2.986A	3.025A	1.193A	199.918	90.567%	0	<6.0	45.63°C	0.951
	12.169V	5.023V	3.272V	5.03V	220.741				40.89°C	229.86V
30%	21.732A	3.485A	3.532A	1.372A	299.962	92.556%	0	<6.0	46.25°C	0.97
	12.144V	5.022V	3.27V	5.102V	324.094				41.09°C	229.84V
40%	29.539A	3.983A	4.04A	1.569A	399.446	92.901%	0	<6.0	47.29°C	0.978
	12.128V	5.021V	3.268V	5.099V	429.968				41.6°C	229.83V
50%	37.057A	4.981A	5.054A	1.768A	499.178	92.795%	415	<6.0	41.95°C	0.981
	12.108V	5.019V	3.265V	5.09V	537.94				47.85°C	229.81V
60%	44.648A	5.979A	6.069A	1.968A	599.729	92.492%	751	19.7	42.54°C	0.983
	12.093V	5.018V	3.262V	5.082V	648.414				48.83°C	229.79V
70%	52.197A	6.976A	7.086A	2.168A	699.478	92.065%	991	28.6	43.39°C	0.985
	12.077V	5.017V	3.26V	5.073V	759.765				50.43°C	229.77V
80%	59.835A	7.975A	8.104A	2.27A	799.511	91.565%	1367	38.9	43.74°C	0.986
	12.060V	5.016V	3.257V	5.066V	873.168				51.82°C	229.76V
90%	67.805A	8.475A	8.603A	2.372A	899.321	91.018%	1759	45.6	44.55°C	0.987
	12.047V	5.015V	3.254V	5.059V	988.076				53.65°C	229.74V
100%	75.543A	8.977A	9.133A	2.975A	999.351	90.409%	2003	48.6	45.01°C	0.988
	12.042V	5.013V	3.252V	5.042V	1105.372				55.02°C	229.72V

110%	83.225A	9.979A	10.25A	2.979A	1099.965	89.789%	2162	50.3	46.5°C	0.989
	12.036V	5.011V	3.248V	5.035V	1225.059				57.36°C	229.7V
CL1	1.972A	14.392A	14.595A	0.496A	146.421	85.165%	514	9.2	42.17°C	0.93
	12.176V	5.017V	3.268V	5.04V	171.922				47.65°C	229.86V
CL2	1.970A	21.272A	1.007A	0.495A	136.425	83.996%	422	<6.0	42°C	0.924
	12.183V	5.012V	3.276V	5.046V	162.419				49.06°C	229.86V
CL3	1.970A	0.995A	20.728A	0.496A	99.102	80.169%	420	<6.0	42.37°C	0.887
	12.183V	5.024V	3.261V	5.042V	123.619				51.41°C	229.87V
CL4	82.088A	0.996A	1.013A	0.491A	999.533	90.994%	1993	48.5	45.86°C	0.988
	12.045V	5.019V	3.257V	5.094V	1098.466				56.74°C	229.73V

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	1.224A	0.495A	0.502A	0.198A	19.983	78.294%	0	<6.0	39.57°C	0.802
	12.125V	5.046V	3.287V	5.055V	25.522				36.5°C	114.86V
40W	2.696A	0.694A	0.703A	0.297A	39.985	84.194%	0	<6.0	41.11°C	0.927
	12.121V	5.045V	3.287V	5.053V	47.49				37.78°C	114.85V
60W	4.166A	0.894A	0.905A	0.396A	59.984	86.687%	0	<6.0	42.44°C	0.959
	12.127V	5.034V	3.28V	5.05V	69.2				38.68°C	114.85V
80W	5.632A	1.093A	1.107A	0.495A	79.911	87.336%	0	<6.0	43.19°C	0.974
	12.126V	5.029V	3.278V	5.048V	91.499				39.28°C	114.83V

The results above are not used in the certification process

230V

□□	12V	5V	3.3V	5VSB	DC/AC (□□)	□□	□□□□ (RPM)	□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
20W	0.399A	0.495A	0.502A	0.198A	9.988	71.098%	0	<6.0	39.58°C	0.269
	12.128V	5.046V	3.287V	5.057V	14.052				36.53°C	229.89V
40W	1.046A	0.694A	0.703A	0.297A	19.988	81.035%	0	<6.0	40.59°C	0.43
	12.128V	5.045V	3.287V	5.054V	25.393				37.24°C	229.89V
60W	1.692A	0.894A	0.905A	0.396A	29.987	81.449%	0	<6.0	41.75°C	0.529
	12.128V	5.034V	3.281V	5.052V	36.819				38.26°C	229.89V
80W	2.339A	1.093A	1.107A	0.495A	39.988	83.788%	0	<6.0	42.85°C	0.625
	12.125V	5.029V	3.279V	5.05V	47.735				39.04°C	229.89V

The results above are not used in the certification process



115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	11.87mV	8.16mV	9.23mV	6.57mV	Pass
20% Load	10.38mV	8.83mV	9.13mV	7.13mV	Pass
30% Load	14.63mV	8.67mV	10.31mV	7.95mV	Pass
40% Load	15.60mV	9.03mV	10.16mV	7.54mV	Pass
50% Load	14.52mV	9.70mV	10.62mV	7.60mV	Pass
60% Load	15.70mV	9.60mV	11.49mV	7.49mV	Pass
70% Load	14.37mV	10.62mV	17.08mV	8.83mV	Pass
80% Load	14.78mV	9.96mV	12.78mV	9.60mV	Pass
90% Load	15.96mV	9.75mV	13.80mV	9.44mV	Pass
100% Load	20.64mV	10.42mV	13.97mV	12.53mV	Pass
110% Load	21.24mV	10.11mV	14.32mV	12.92mV	Pass
Crossload1	12.37mV	10.19mV	14.35mV	6.98mV	Pass
Crossload2	18.92mV	19.24mV	9.90mV	7.60mV	Pass

Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	11.87mV	8.57mV	15.70mV	7.08mV	Pass
Crossload4	19.50mV	9.38mV	11.60mV	7.77mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	13.66mV	7.90mV	8.98mV	6.57mV	Pass
20% Load	12.33mV	8.62mV	9.70mV	6.57mV	Pass
30% Load	14.99mV	9.24mV	10.42mV	8.05mV	Pass
40% Load	15.75mV	9.44mV	10.21mV	7.59mV	Pass
50% Load	14.42mV	8.88mV	10.36mV	7.34mV	Pass
60% Load	12.63mV	8.93mV	12.88mV	7.80mV	Pass
70% Load	14.47mV	12.83mV	17.08mV	9.29mV	Pass
80% Load	14.37mV	9.29mV	12.52mV	9.29mV	Pass
90% Load	15.70mV	9.70mV	13.49mV	8.98mV	Pass
100% Load	23.07mV	10.71mV	14.28mV	12.01mV	Pass
110% Load	23.60mV	11.48mV	15.49mV	11.68mV	Pass
Crossload1	13.74mV	10.62mV	13.64mV	7.79mV	Pass
Crossload2	16.11mV	18.02mV	10.16mV	7.18mV	Pass
Crossload3	13.76mV	8.83mV	15.49mV	7.59mV	Pass
Crossload4	22.77mV	10.67mV	11.47mV	8.62mV	Pass

The results above are not used in the certification process

CYBENETICS LTD Syrou 6, Latsia, 2231, Nicosia Cyprus



ETA[] [] [] [] []
DELTA[] [] [] [] [] [] [] []

SAFE

www.cybenetics.com - info@cybenetics.com