



Montech Titan PLA 750W



Lab ID MT75002311

Certification ID 252311

Test Result Report ID: 23PS2311A

Certificate Issue Date: Dec 22, 2023

Scheme: ETA-EMI PSU

115V

230V

115V

230V

Scheme: LAMBDA PSU

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		Montech
Model		Titan PLA 750W
OEM/ODM		Seasonic
Serial Number		
Product Specifications		
Manufacturer-Provided Information		
Vrms	100-240	
Arms	10-5	

□□□□ (Hz)	50-60
□□□□ (W)	750
Operating Temperature (Continuous Full Load) (°C)	
□□	ATX12V
□□□□	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
□□	135mm Fluid Dynamic Bearing Fan (HA13525H12F-Z)
□□□□	✓ (selectable)
Cybenetics Testing Information	
Lab ID	MT75002311
Date of receipt	Nov 30, 2023
Testing Date	Dec 21, 2023
Report Issued Date	Dec 22, 2023
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

□□□□ (Non-accredited measurements)

□□□□				
□□	□□□□	□□□□□	Gauge	In Cable Capacitors
ATX □□ 20+4 pin (630mm)	1	1	16-18AWG	□
4+4 pin EPS 12V □□ (710mm)	2	2	16AWG	□
6+2pin PCIe□□ (760mm)	2	2	16-18AWG	□
12+4 pin PCIe (760mm) (600W)	1	1	16-28AWG	□
SATA□□ 3.3 (410mm+155mm)	1	2	18AWG	□
SATA□□ (510mm+155mm+155mm+155mm)	4	16	18AWG	□
4-pin Molex (460mm+125mm+125mm)	1	3	18AWG	No



□		3.3V	5V	12V	5VSB	-12V
□□□□	□□	20	20	62	3	0.3
	□	100		744	15	3.6
□□□□ (W)		750				

Parts Description

General Data	
Manufacturer (OEM)	Seasonic
PCB Type	Double-Sided
Primary Side	
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	1x NTC Thermistor MF72 5D-20 (5 Ohm) & Relay
Bridge Rectifier(s)	2x
APFC MOSFETs	2x InfineonIPA60R190P6 (600V, 12.7A @ 100°C, Rds(on): 0.190Ohm)
APFC Boost Diode	1x IDH08G65C6 (650V, 8A @ 145°C)
Bulk Cap(s)	2x Nippon Chemi-con (420V, 330uF each or 660uF combined, 2,000h @ 105°C, KMR)
Main Switchers	4x Infineon IPA60R230P6 (600V, 10.7A @ 100°C, Rds(on): 0.230Ohm)
APFC Controller	Champion CM6500UNX
Resonant Controller	Champion CU6901VPA
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETs	6x Nexperia PSMN1R4-40YLD (40V, 240A @ 25°C, Rds(on): 1.4mOhm)
5V & 3.3V	DC-DC Converters: 6x Nexperia PSMN4R0-30YLD (30V, 95A @ 25°C, Rds(on): 4mOhm) PWM Controller(s): ANPEC APW7159C
Filtering Capacitors	Electrolytic: 1x Nichicon (2-5,000h @ 105°C, HD), 4x Nippon Chemi-Con (5-6,000h @ 105°C, KZH), 3x Nippon Chemi-Con (2-5,000h @ 105°C, KZE) 4x Rubycon (3-6,000h @ 105°C, YXG), Polymer: 22x FPCAP
Supervisor IC	Weltrend WT7527RA (OCP, OVP, UVP, SCP, PG)

Fan Controller	Nuvoton M031
Fan Model	Hong Hua HA13525H12F-Z (135mm, 12V, 0.5A, Fluid Dynamic Bearing Fan)
5VSB Circuit	
Rectifier	1x
Standby PWM Controller	Excelliance MOS EM85690

Test Results

Temperature & Compliance Info

温度 (°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)	90.326%
Average Noise Output (>1450 Load Combinations)	18.35dBA
PF (>1450 Load Combinations)	0.977
Efficiency With 10W (≤500W) or 2% (>500W) Load	67.176%
	0.0445W
Non-Accredited	
12V Ripple (Full Load)	26.41mV
5V Ripple (Full Load)	15.25mV
3.3V Ripple (Full Load)	14.48mV
5VSB Ripple (Full Load)	28.77mV
12V Load Regulation	0.16%
5V Load Regulation	0.44%

3.3V Load Regulation	0.72%
5VSB Load Regulation	2.01%
Inrush Current	31.700A

230V

Accredited		
□□□□ (>1450 load combinations)		92.284%
Average Noise Output (>1450 Load Combinations)		17.91dBA
PF□□□ (>1450 Load Combinations)		0.935
Efficiency With 10W (≤500W) or 2% (>500W) Load		66.365%
□□□□□		0.1252W
Non-Accredited		
12V Ripple (Full Load)		27.98mV
5V Ripple (Full Load)		15.23mV
3.3V Ripple (Full Load)		14.84mV
5VSB Ripple (Full Load)		28.40mV
12V Load Regulation		0.16%
5V Load Regulation		0.44%
3.3V Load Regulation		0.69%
5VSB Load Regulation		2.01%
Inrush Current		64.900A
12V Transient Response (200%)		11.73V
5V Transient Response (200%)		4.948V
3.3V Transient Response (200%)		3.213V
5VSB Transient Response (200%)		5.014V
□□□□ & PG□□		21.80ms
AC Loss to PWR_OK Hold Up Time		17.00ms
PWR_OK Inactive to DC Loss Delay		4.80ms
PSU Timings: T1 (20% / 100%)	70.0ms	71.0ms
PSU Timings: T3 (20% / 100%)	126.0ms	128.0ms
12V OCP (22.6°C / 39.2°C)	84.20A (135.80%), 12.216V	84.20A (135.81%), 12.246V
5V OCP (22.6°C / 39.2°C)	29.1A (145.50%), 4.99V	29A (145.00%), 4.99V

3.3V OCP (22.6°C / 39.2°C)	29.1A (145.50%), 3.315V	29A (145.00%), 3.318V
5VSB OCP (22.6°C / 39.2°C)	6.3A (210.00%), 5V	6.3A (210.00%), 5V
OPP (26.85°C / 39.94°C)	139.29%	136.60%

|||| & PG||

Hold-Up Time (ms)	21.8
AC Loss to PWR_OK Hold Up Time (ms)	17
PWR_OK Inactive to DC Loss Delay (ms)	4.8

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Tables

115V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	114.87 V	114.83 V	113.85 V	114.91 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.02 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.416	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.14 %	0.11 %	N/A	0.18 %	2.00 %	PASS
Real Power:	0.044 W	-0.002 W	N/A	0.080 W	N/A	N/A
Apparent Power:	10.293 W	10.265 W	N/A	10.328 W	N/A	N/A
Power Factor:	0.007	N/A	N/A	N/A	N/A	N/A

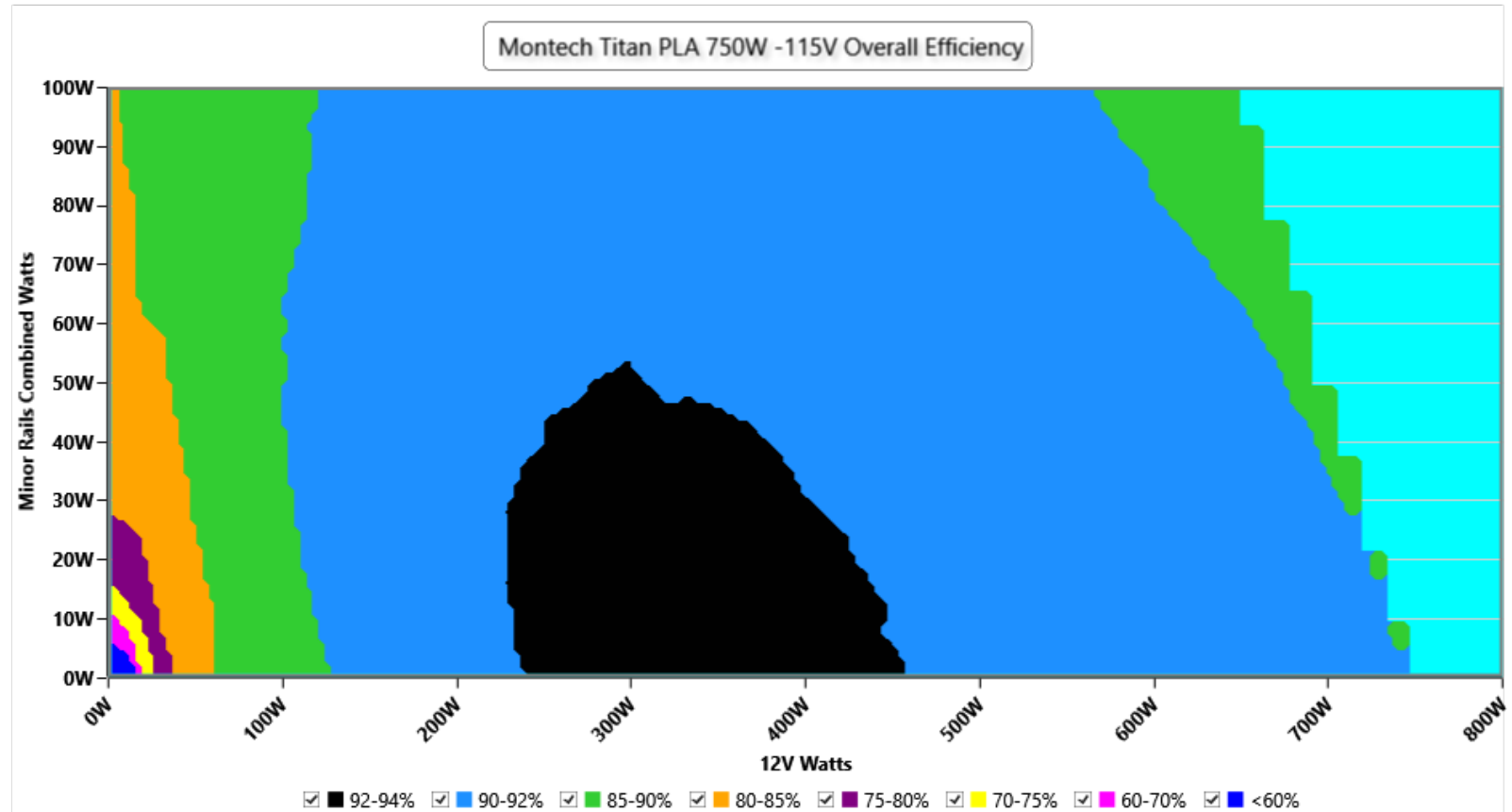
230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	229.99 V	229.92 V	227.70 V	230.02 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	50.00 Hz	49.50 Hz	50.00 Hz	50.50 Hz	PASS

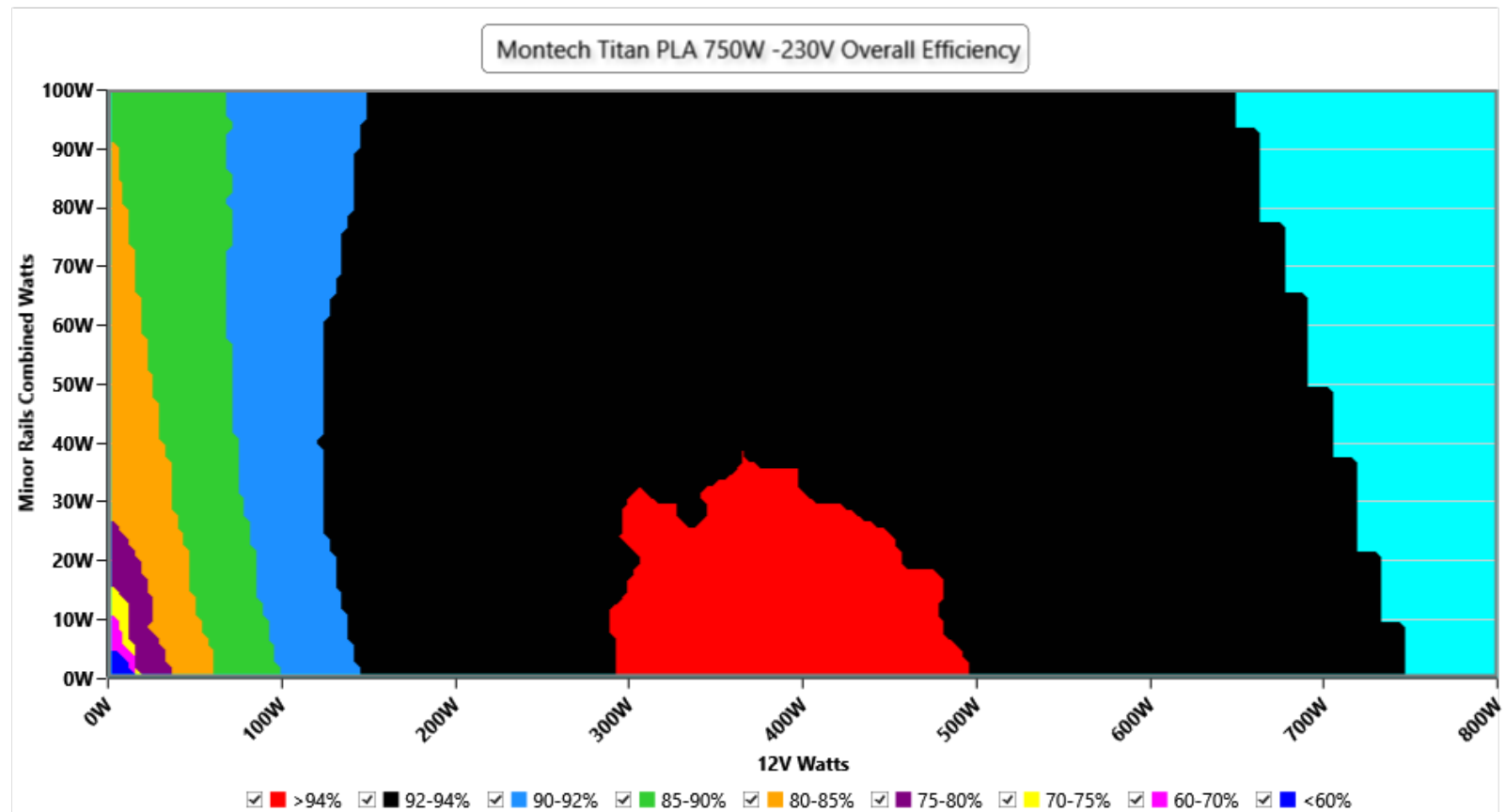
Mains Voltage CF:	1.416	1.415	1.340	1.417	1.490	PASS
Mains Voltage THD:	0.13 %	0.11 %	N/A	0.15 %	2.00 %	PASS
Real Power:	0.125 W	0.068 W	N/A	0.196 W	N/A	N/A
Apparent Power:	34.743 W	34.689 W	N/A	34.797 W	N/A	N/A
Power Factor:	0.003	N/A	N/A	N/A	N/A	N/A



115V



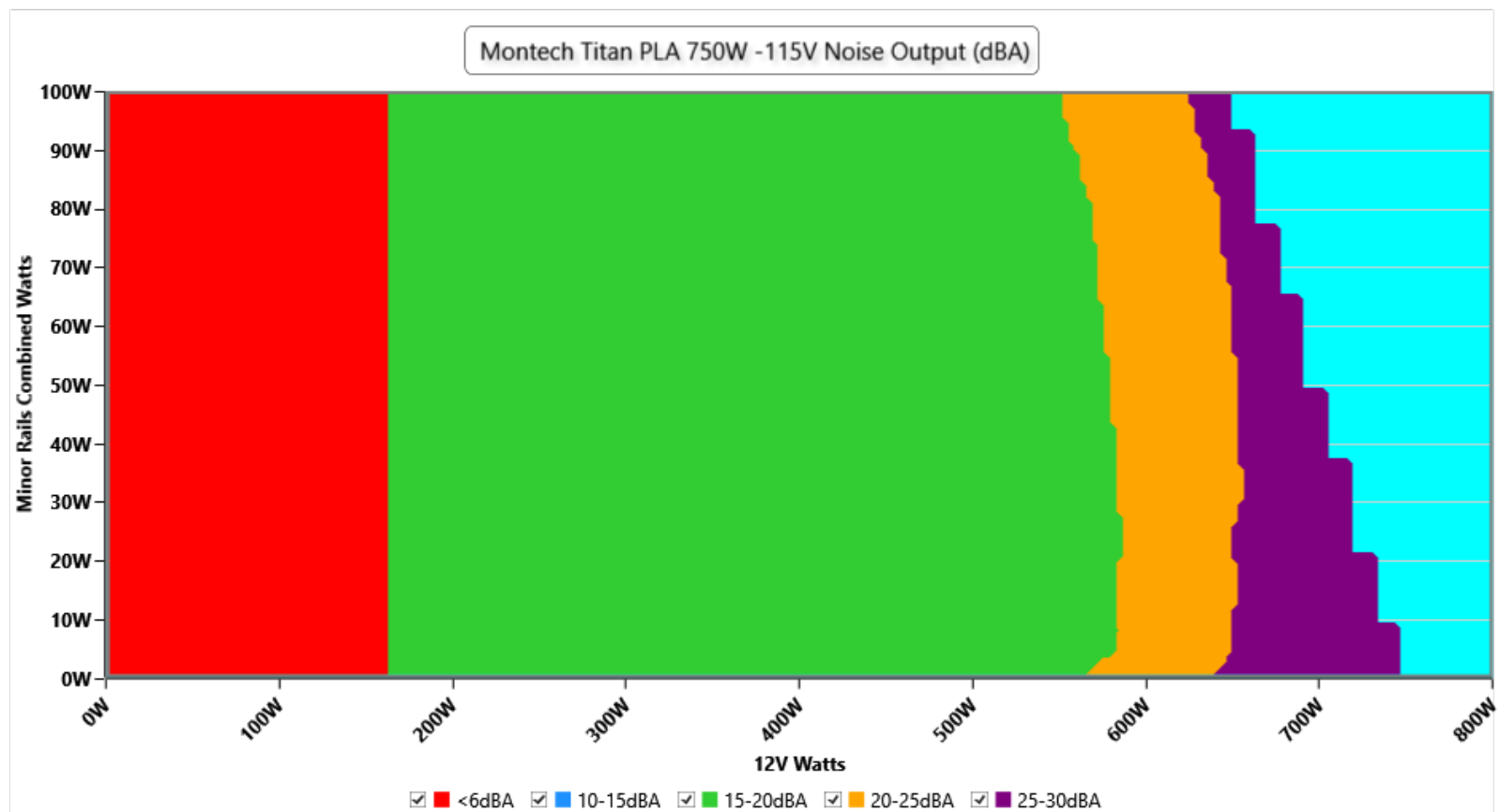
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



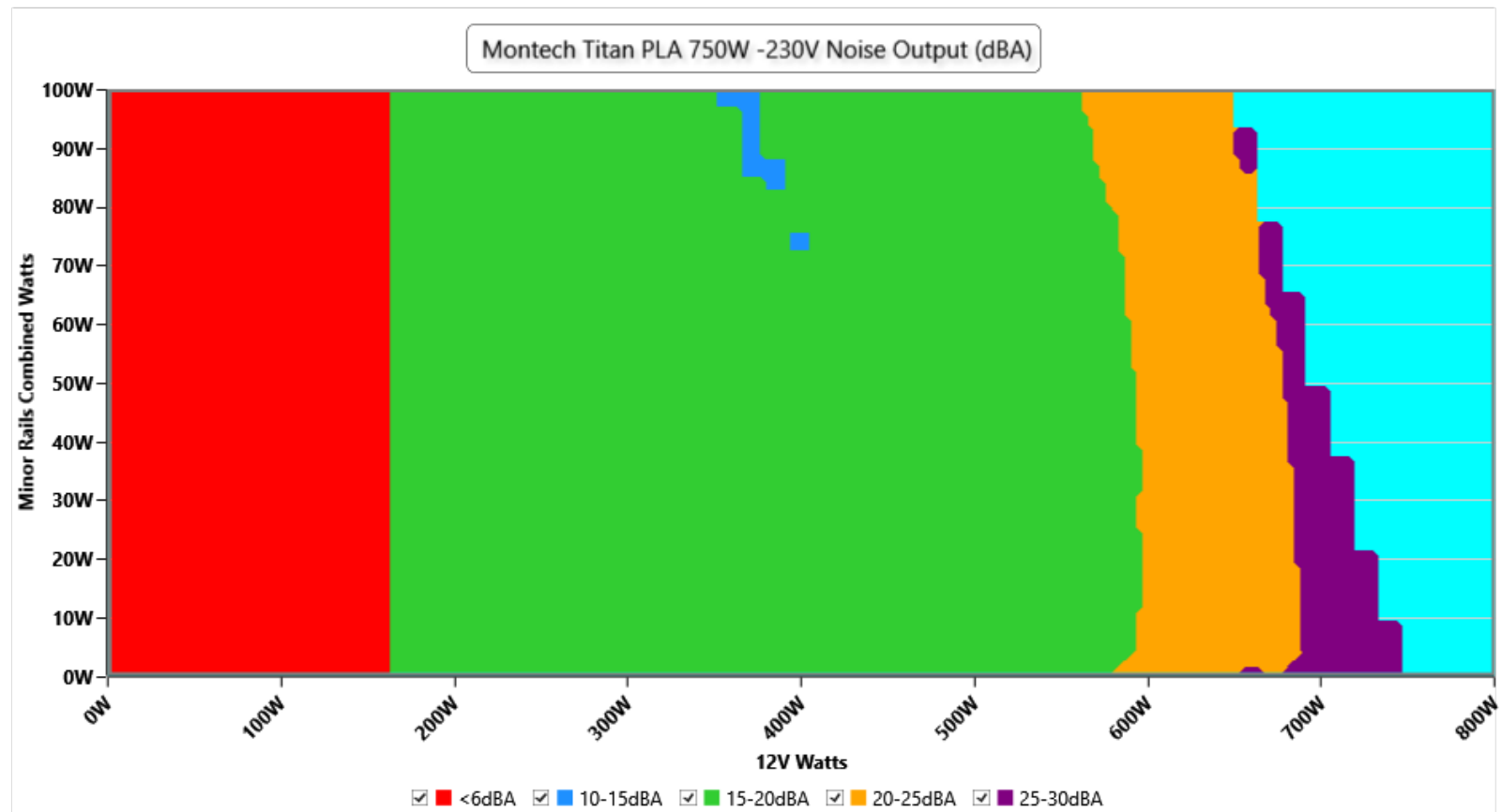
This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations



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



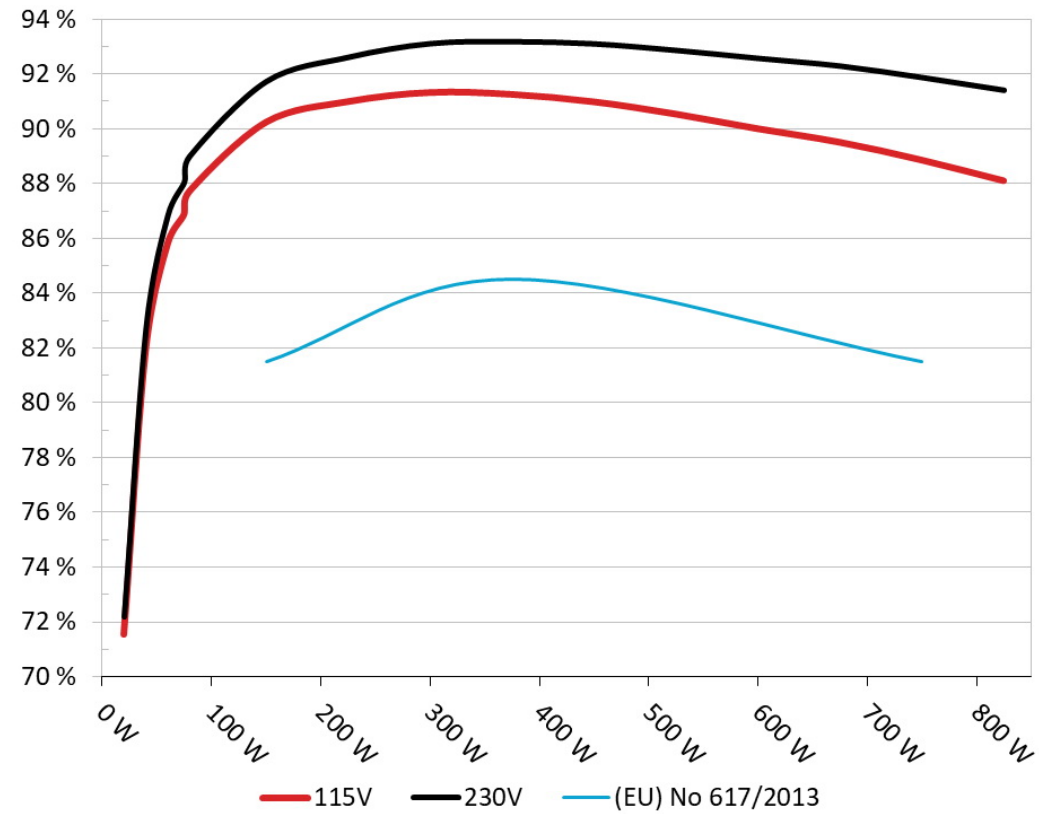
The PSU's noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

Indicative Performance



Efficiency: Montech Titan PLA 750W

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

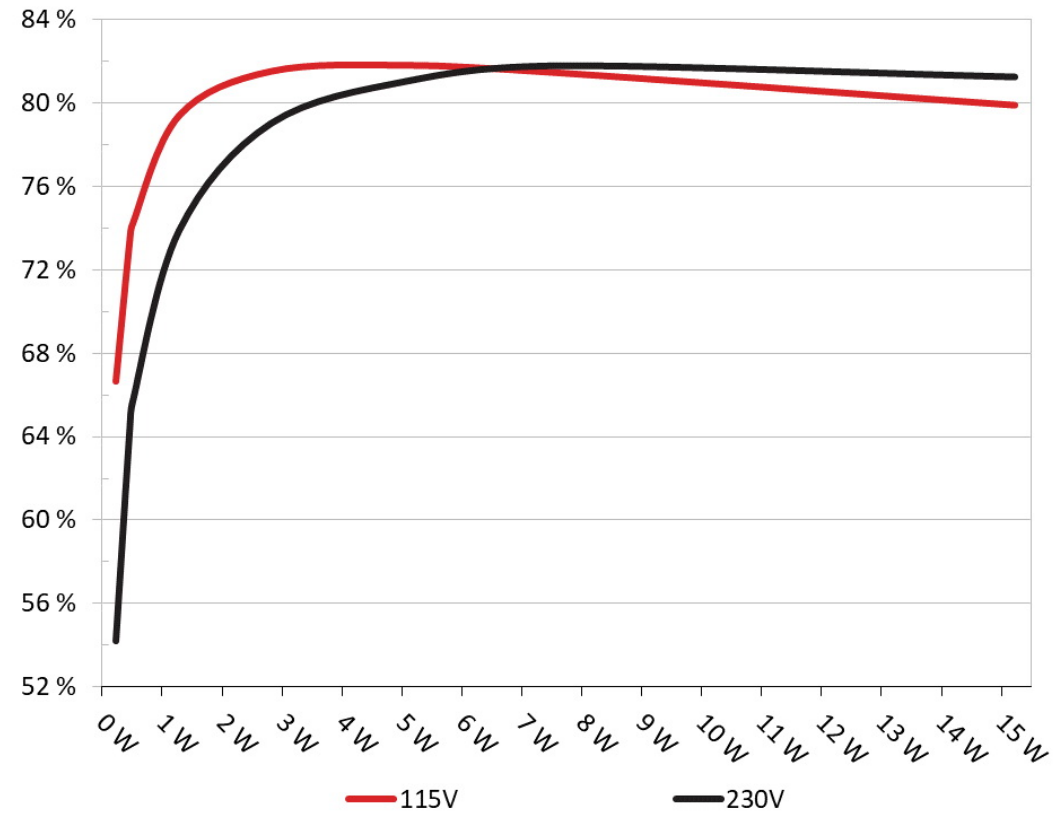


The PSU's efficiency under high ambient temperatures with 115V and 230V input. For this graph the results of the 10-110% load regulation table are used

5Vsb

5VSB Efficiency: Montech Titan PLA 750W

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	0.231W	66.671%	0.034
	5.136V	0.347W		114.88V
2	0.09A	0.462W	73.445%	0.061
	5.135V	0.629W		114.88V
3	0.55A	2.819W	81.538%	0.267
	5.125V	3.457W		114.88V
4	1A	5.116W	81.824%	0.371
	5.116V	6.252W		114.88V
5	1.5A	7.658W	81.456%	0.426
	5.105V	9.401W		114.87V
6	3A	15.217W	79.911%	0.503
	5.072V	19.043W		114.87V

230V

#	5VSB	DC/AC ()		PF/AC
1	0.045A	0.231W	54.227%	0.013
	5.137V	0.426W		229.95V
2	0.09A	0.462W	64.421%	0.021
	5.135V	0.718W		229.95V
3	0.55A	2.819W	79.045%	0.1
	5.125V	3.567W		229.94V
4	1A	5.116W	81.086%	0.167
	5.116V	6.31W		229.94V
5	1.5A	7.658W	81.806%	0.227
	5.105V	9.361W		229.94V
6	3A	15.221W	81.27%	0.337
	5.073V	18.73W		229.94V

Protection Features

OCP (Normal @ 22.6°C)	12V: 84.20A (135.80%), 12.216V 5V: 29.1A (145.50%), 4.99V 3.3V: 29.1A (145.50%), 3.315V 5VSB: 6.3A (210.00%), 5V
OCP (Hot @ 39.2°C)	12V: 84.20A (135.81%), 12.246V 5V: 29A (145.00%), 4.99V 3.3V: 29A (145.00%), 3.318V 5VSB: 6.3A (210.00%), 5V
OPP (Normal @ 26.9°C)	1044.68W (139.29%)
OPP (Hot @ 39.9°C)	1024.53W (136.60%)
OTP	✓ (135°C @ Primary Heatsink)
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)

10-110%□□□□

115V

□□	12V	5V	3.3V	5VSB	DC/AC (□)	□□	□□□□ (RPM)	□□□□□□ (dB[A])	□□ (□□ /□□)	PF/AC □□
10%	4.364A	1.993A	1.979A	0.977A	74.992	87.348%	0	<6.0	44.31°C	0.93
	12.236V	5.016V	3.334V	5.115V	85.855				40.03°C	114.85V

20%	9.738A	2.992A	2.971A	1.175A	149.913	90.716%	0	<6.0	44.97°C	0.956
	12.221V	5.014V	3.332V	5.107V	165.258				40.47°C	114.83V
30%	15.458A	3.492A	3.47A	1.373A	224.909	91.471%	700	15.4	41.25°C	0.97
	12.219V	5.012V	3.329V	5.099V	245.878				46.27°C	114.8V
40%	21.183A	3.992A	3.968A	1.572A	299.992	91.804%	697	15.1	41.95°C	0.975
	12.217V	5.01V	3.327V	5.09V	326.771				47.51°C	114.77V
50%	26.505A	4.992A	4.964A	1.771A	374.373	91.737%	693	15.0	42.43°C	0.979
	12.219V	5.008V	3.324V	5.081V	408.089				48.45°C	114.75V
60%	31.871A	5.993A	5.96A	1.971A	449.294	91.466%	694	15.1	42.82°C	0.981
	12.221V	5.006V	3.322V	5.073V	491.211				49.38°C	114.72V
70%	37.227A	6.995A	6.958A	2.172A	524.236	91.02%	798	19.7	43.06°C	0.984
	12.226V	5.004V	3.32V	5.064V	575.961				50.11°C	114.69V
80%	42.656A	7.998A	7.957A	2.274A	599.421	90.484%	902	23.7	43.64°C	0.986
	12.226V	5.002V	3.318V	5.057V	662.458				51.84°C	114.67V
90%	48.396A	8.5A	8.444A	2.376A	674.454	89.989%	985	26.4	44.36°C	0.987
	12.232V	5V	3.315V	5.051V	749.481				53.44°C	114.64V
100%	53.943A	9.004A	8.964A	2.98A	749.683	89.339%	1313	35.3	45.2°C	0.989
	12.235V	4.998V	3.313V	5.033V	839.152				55.29°C	114.6V
110%	59.371A	10.008A	10.057A	2.983A	824.705	88.582%	1753	42.9	46.61°C	0.99
	12.236V	4.996V	3.31V	5.028V	931.011				57.54°C	114.58V
CL1	0.113A	12.03A	11.934A	0A	101.278	85.527%	697	15.1	41.36°C	0.945
	12.244V	5.004V	3.326V	5.129V	118.418				46.77°C	114.83V
CL2	0.113A	19.999A	0A	0A	101.361	84.134%	812	20.3	40.54°C	0.945
	12.249V	4.999V	3.336V	5.133V	120.477				47.58°C	114.83V
CL3	0.113A	0A	19.848A	0A	67.377	79.013%	810	20.2	40.19°C	0.93
	12.245V	5.017V	3.325V	5.13V	85.275				49.27°C	114.84V
CL4	61.318A	0A	0A	0A	749.49	90.167%	996	26.8	45.06°C	0.988
	12.223V	5.01V	3.323V	5.103V	831.23				55.99°C	114.61V

The results above are not used in the certification process

230V

項目	12V	5V	3.3V	5VSB	DC/AC (W)	項目	回転数 (RPM)	騒音レベル (dB[A])	温度 (中心 / 表面)	PF/AC 項目
10%	4.363A	1.994A	1.979A	0.977A	74.998	88.533%	0	<6.0	44.22°C	0.778
	12.239V	5.016V	3.335V	5.115V	84.711				40°C	229.94V
20%	9.736A	2.992A	2.971A	1.175A	149.925	92.2%	0	<6.0	45.44°C	0.883
	12.225V	5.014V	3.332V	5.107V	162.608				40.89°C	229.92V
30%	15.454A	3.492A	3.469A	1.373A	224.922	93.083%	698	15.3	41.3°C	0.923
	12.221V	5.012V	3.329V	5.099V	241.635				46.36°C	229.91V
40%	21.180A	3.992A	3.968A	1.572A	300.005	93.584%	696	15.2	41.95°C	0.942
	12.220V	5.01V	3.327V	5.09V	320.573				47.51°C	229.9V
50%	26.507A	4.992A	4.963A	1.771A	374.4	93.656%	693	15.1	42.03°C	0.953
	12.220V	5.008V	3.324V	5.081V	399.762				48.05°C	229.89V
60%	31.868A	5.994A	5.96A	1.971A	449.325	93.576%	693	15.1	42.78°C	0.961
	12.222V	5.006V	3.322V	5.073V	480.175				49.32°C	229.87V
70%	37.222A	6.996A	6.958A	2.172A	524.273	93.338%	788	19.3	43.41°C	0.966
	12.228V	5.004V	3.32V	5.064V	561.698				50.44°C	229.88V
80%	42.648A	7.999A	7.958A	2.274A	599.454	93.047%	912	24.0	43.96°C	0.97
	12.229V	5.001V	3.317V	5.057V	644.254				52.01°C	229.85V
90%	48.395A	8.5A	8.445A	2.376A	674.483	92.767%	993	26.7	44.12°C	0.973
	12.232V	5V	3.315V	5.051V	727.071				53.18°C	229.84V
100%	53.946A	9.003A	8.963A	2.98A	749.705	92.346%	1312	35.3	45.2°C	0.975
	12.235V	4.998V	3.313V	5.033V	811.839				55.24°C	229.83V
110%	59.379A	10.008A	10.058A	2.983A	824.728	91.884%	1731	42.6	46.78°C	0.978
	12.234V	4.995V	3.31V	5.028V	897.573				57.72°C	229.81V
CL1	0.113A	12.03A	11.937A	0A	101.28	86.817%	698	15.3	40.5°C	0.837
	12.236V	5.004V	3.325V	5.129V	116.659				45.97°C	229.94V
CL2	0.113A	19.998A	0A	0A	101.359	85.367%	812	20.3	40.21°C	0.84
	12.243V	4.999V	3.336V	5.133V	118.734				47.27°C	229.93V
CL3	0.113A	0A	19.849A	0A	67.378	80.05%	811	20.3	40.06°C	0.777
	12.242V	5.016V	3.325V	5.129V	84.169				49.07°C	229.94V

CL4	61.326A	0A	0A	0A	749.503	93.092%	1001	27.0	45.55°C	0.975
	12.222V	5.01V	3.324V	5.103V	805.123				56.52°C	229.82V

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	1.214A	0.498A	0.494A	0.195A	19.988	72.023%	0	<6.0	39.62°C	0.821
	12.229V	5.02V	3.337V	5.134V	27.753				36.57°C	114.86V
40W	2.672A	0.697A	0.692A	0.292A	39.989	82.427%	0	<6.0	40.35°C	0.887
	12.232V	5.019V	3.336V	5.132V	48.514				37°C	114.86V
60W	4.130A	0.897A	0.89A	0.39A	59.989	86.286%	0	<6.0	41.97°C	0.916
	12.235V	5.018V	3.335V	5.129V	69.523				38.2°C	114.85V
80W	5.585A	1.096A	1.088A	0.488A	79.922	88.196%	0	<6.0	43.39°C	0.932
	12.227V	5.018V	3.335V	5.126V	90.618				39.46°C	114.84V

The results above are not used in the certification process

230V

	12V	5V	3.3V	5VSB	DC/AC ()		(RPM)	(dB[A])	(/)	PF/AC
20W	1.214A	0.498A	0.494A	0.195A	19.994	72.674%	0	<6.0	39.78°C	0.483
	12.229V	5.02V	3.336V	5.134V	27.514				36.72°C	229.94V
40W	2.672A	0.697A	0.693A	0.292A	39.995	83.215%	0	<6.0	40.54°C	0.643
	12.232V	5.018V	3.336V	5.131V	48.063				37.22°C	229.94V
60W	4.130A	0.897A	0.89A	0.39A	59.994	87.329%	0	<6.0	41.68°C	0.734
	12.236V	5.018V	3.335V	5.129V	68.701				38.2°C	229.94V
80W	5.586A	1.096A	1.088A	0.488A	79.934	89.479%	0	<6.0	42.97°C	0.789
	12.228V	5.017V	3.335V	5.126V	89.331				39.16°C	229.93V

The results above are not used in the certification process



115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	19.82mV	8.91mV	8.58mV	10.63mV	Pass
20% Load	25.85mV	9.17mV	8.95mV	11.36mV	Pass
30% Load	24.20mV	11.28mV	11.43mV	25.91mV	Pass
40% Load	18.83mV	12.11mV	10.39mV	26.33mV	Pass
50% Load	16.67mV	11.69mV	10.65mV	26.48mV	Pass
60% Load	15.02mV	12.52mV	10.39mV	26.99mV	Pass
70% Load	15.12mV	12.16mV	11.02mV	26.79mV	Pass
80% Load	15.16mV	12.93mV	13.14mV	26.33mV	Pass
90% Load	16.10mV	14.27mV	13.75mV	26.22mV	Pass
100% Load	26.41mV	15.25mV	14.48mV	28.77mV	Pass
110% Load	27.47mV	16.01mV	15.57mV	29.32mV	Pass
Crossload1	31.45mV	14.12mV	12.42mV	28.17mV	Pass
Crossload2	23.79mV	15.71mV	9.72mV	25.70mV	Pass
Crossload3	21.12mV	13.03mV	13.29mV	25.91mV	Pass
Crossload4	26.49mV	14.52mV	15.23mV	27.92mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	22.77mV	8.76mV	9.15mV	10.58mV	Pass
20% Load	30.54mV	9.58mV	8.79mV	11.10mV	Pass
30% Load	27.19mV	10.72mV	9.78mV	25.71mV	Pass
40% Load	20.18mV	11.59mV	10.14mV	26.48mV	Pass
50% Load	17.13mV	12.00mV	10.34mV	26.69mV	Pass
60% Load	16.67mV	11.49mV	10.91mV	26.17mV	Pass

