

Lab ID#: CM65001832
Receipt Date: Apr 5, 2021
Test Date: Apr 16, 2021

Report: 21PS1832A
Report Date: Apr 20, 2021

DUT INFORMATION	
Brand	Cooler Master
Manufacturer (OEM)	Gospower
Series	V Gold SFX Series
Model Number	MPY-6501-SFHAGV-EU
Serial Number	MPY6501SFHAGVEU1210500001
DUT Notes	

DUT SPECIFICATIONS	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	8-4
Rated Frequency (Hz)	50-60
Rated Power (W)	650
Type	SFX
Cooling	92mm Fluid Dynamic Bearing Fan (HA9215VH12FD-F00)
Semi-Passive Operation	✓
Cable Design	Fully Modular

TEST EQUIPMENT	
Electronic Loads	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Keysight AC6804B
Power Analyzers	N4L PPA1530 x2
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2
Tachometer	UNI-T UT372 x2
Digital Multimeter	Keysight U1273AX, Fluke 289, Keithley 2015 - THD
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

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RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	88.712%
Efficiency With 10W (≤500W) or 2% (>500W)	48.150
Average Efficiency 5VSB	78.665%
Standby Power Consumption (W)	0.0446807
Average PF	0.972
Avg Noise Output	33.08 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard++

230V

Average Efficiency	90.692%
Average Efficiency 5VSB	78.927%
Standby Power Consumption (W)	0.0841151
Average PF	0.930
Avg Noise Output	37.19 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard+

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	54.1	3	0.3
	Watts	120		649.2	15	3.6
Total Max. Power (W)		650				

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (300mm)	1	1	18-22AWG	No
4+4 pin EPS12V (460mm)	1	1	18AWG	No
8 pin EPS12V (460mm)	1	1	18AWG	No
6+2 pin PCIe (400mm+120mm)	2	4	18AWG	No
SATA (100mm+110mm+110mm+110mm)	2	8	18AWG	No
4 pin Molex (100mm+110mm+110mm+110mm)	1	4	18AWG	No
AC Power Cord (1380mm) - C13 coupler	1	1	18AWG	-

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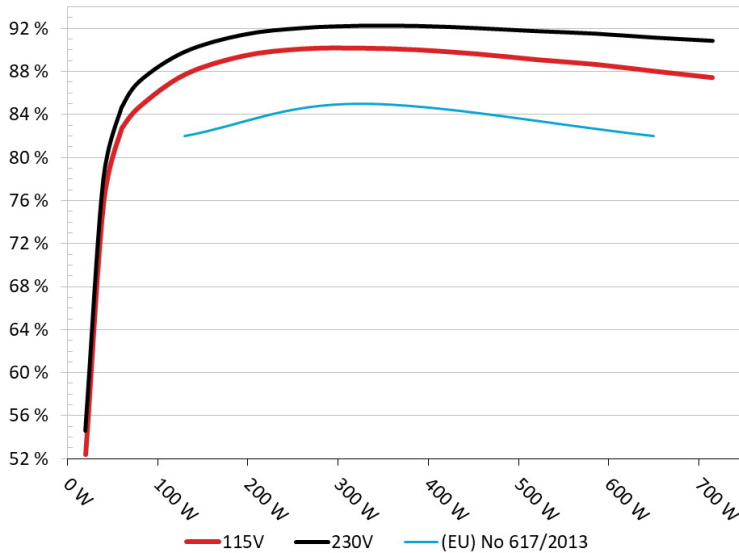
General Data	-
Manufacturer (OEM)	Gospower
PCB Type	Double Sided
Primary Side	-
Transient Filter	4x Y caps, 2x X caps, 2x CM chokes, 1x MOV, 1x MPS HF81 (Discharge IC)
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	1x GBU2508 (800V, 25A @ 98°C)
APFC MOSFETs	2x STMicroelectronics STF33N60DM2 (650V, 15.5A @ 100°C, Rds(on): 0.130hm)
APFC Boost Diode	1x
Bulk Cap(s)	1x Rubycon (450V, 470uF, 3,000h @ 105°C, MXK)
Main Switchers	2x Sanrise Tech SRC60R140BTFE (630V, 11.2A @ 125°C, Rds(on): 0.140hm)
APFC Controller	Champion CM6500UNX & CM03AX
Resonant Controller	Champion CU6901VAC
Topology	Primary side: APFC, Half-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	6x NCE Power NCEP40T15GU (40V, 106A @ 100°C, Rds(on): 1.35mOhm)
5V & 3.3V	DC-DC Converters: 6x On Semiconductor NTMFS4C022N (30V, 136A, Rds(on): 1.7mOhm) PWM Controller(s): ANPEC APW7159C
Filtering Capacitors	Electrolytic: 4x Rubycon (4-10,000h @ 105°C, YXF) Polymer: 29x FPCAP
Supervisor IC	-
Fan Model	Hong Hua HA9215VH12FD-F00 (92mm, 12V, 0.36A, Fluid Dynamic Bearing Fan)
5VSB Circuit	-
Standby PWM Controller	On-Bright OB2365SP

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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Cooler Master V650 Gold SFX
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

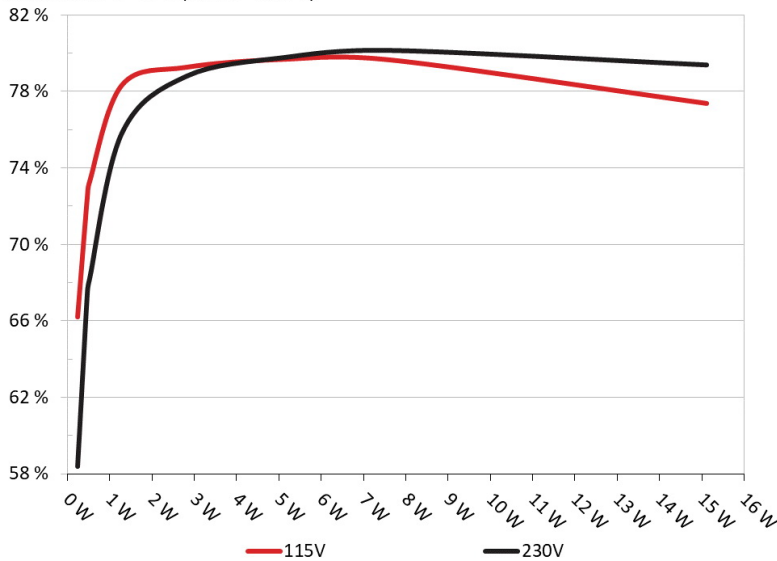


INFO

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

5VSB Efficiency: Cooler Master V650 Gold SFX
Ambient: 34°C - 36°C (93.2°F - 96.8°F)



INFO

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input

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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.231	66.189%	0.039
	5.119V	0.349		115.13V
2	0.090A	0.461	72.484%	0.071
	5.117V	0.636		115.14V
3	0.550A	2.808	79.255%	0.284
	5.105V	3.543		115.13V
4	1.000A	5.094	79.668%	0.373
	5.093V	6.394		115.13V
5	1.500A	7.620	79.640%	0.419
	5.079V	9.568		115.13V
6	3.000A	15.116	77.363%	0.476
	5.038V	19.539		115.14V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	58.376%	0.014
	5.119V	0.394		230.25V
2	0.090A	0.461	67.496%	0.024
	5.117V	0.683		230.26V
3	0.550A	2.808	78.788%	0.115
	5.105V	3.564		230.26V
4	1.000A	5.094	79.756%	0.187
	5.093V	6.387		230.26V
5	1.500A	7.620	80.135%	0.247
	5.080V	9.509		230.26V
6	3.000A	15.118	79.376%	0.348
	5.039V	19.046		230.26V

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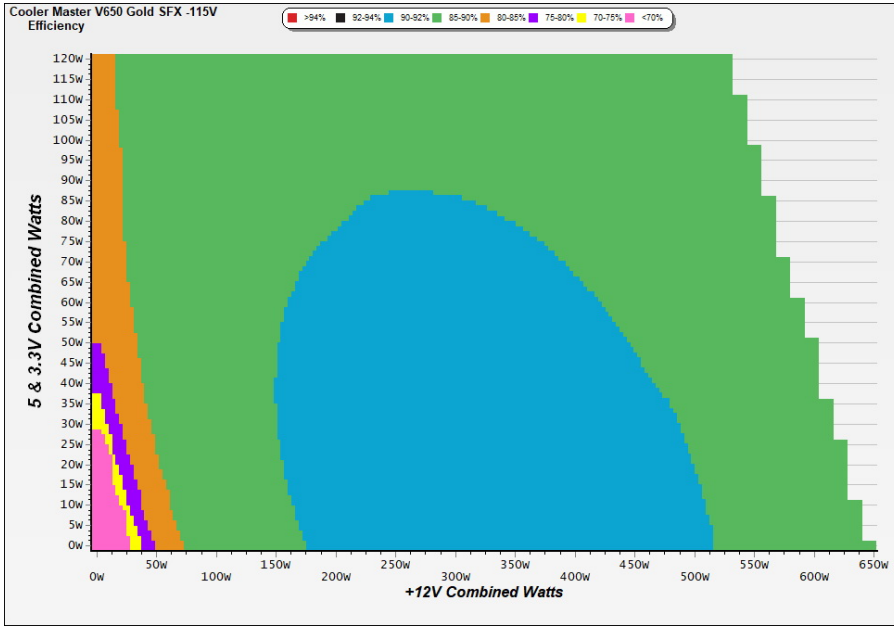
115V

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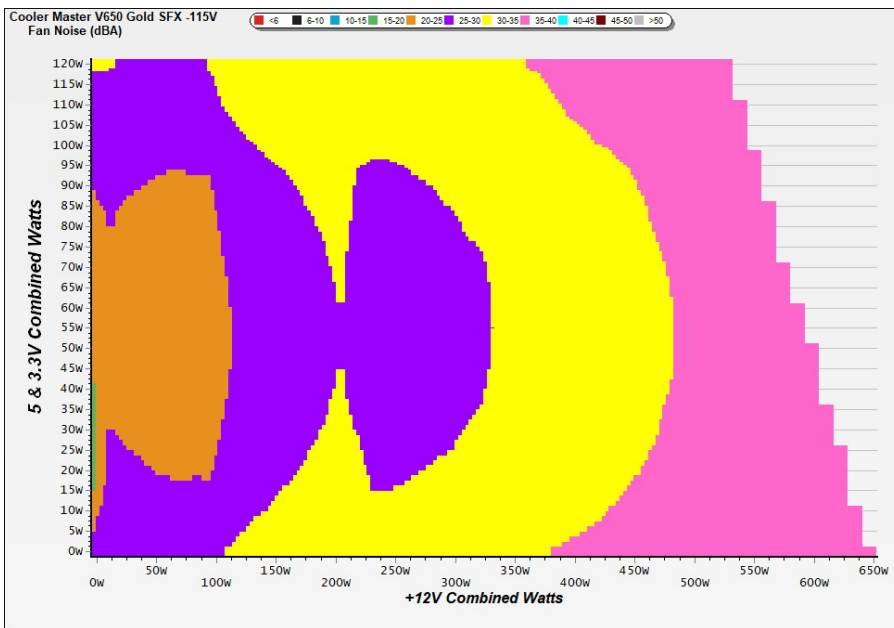
EFFICIENCY GRAPH 115V



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

NOISE GRAPH 115V



INFO

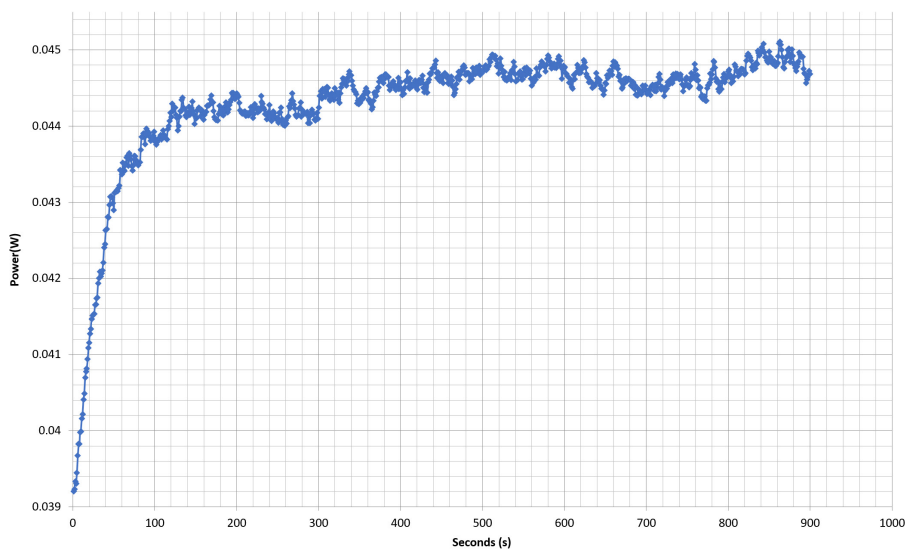
The PSU's noise in its entire operational range and under 30-32 °C (+-2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - MPY6501SFHAGVEU1210500001 - 12/04/2021 - 11:17



INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	3.580A	1.995A	1.962A	0.983A	64.958	82.715%	2296	38.0	39.71°C	0.908
	12.111V	5.010V	3.366V	5.088V	78.532				45.21°C	115.10V
2	8.206A	2.998A	2.945A	1.182A	130.012	87.694%	2435	39.6	40.56°C	0.952
	12.079V	5.003V	3.359V	5.077V	148.256				46.63°C	115.10V
5	22.795A	5.018A	4.942A	1.784A	325.079	90.145%	2780	42.9	42.04°C	0.977
	12.045V	4.983V	3.340V	5.046V	360.616				49.81°C	115.11V
10	46.742A	9.100A	8.984A	3.012A	649.924	88.008%	3081	46.5	45.63°C	0.992
	11.985V	4.947V	3.306V	4.981V	738.482				56.55°C	115.10V

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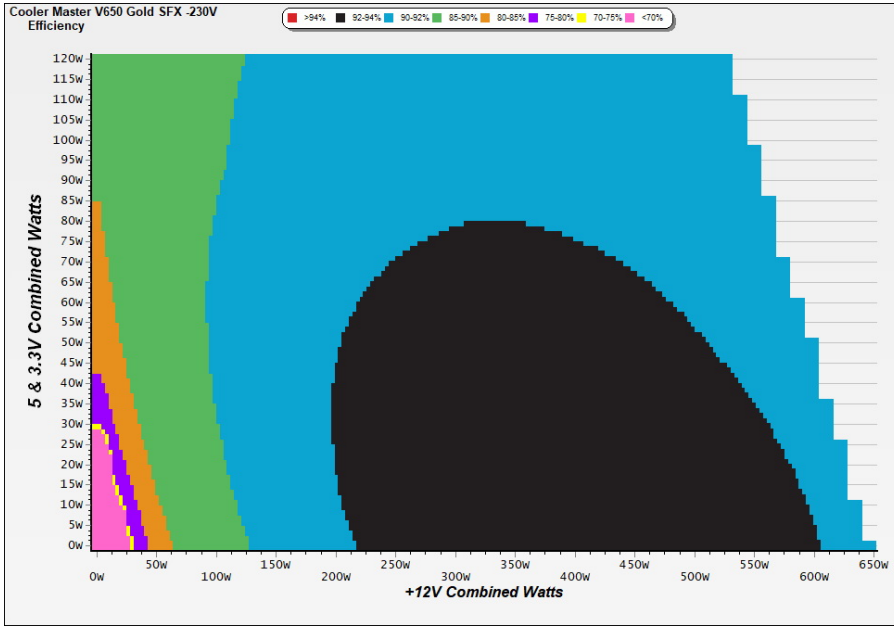
230V

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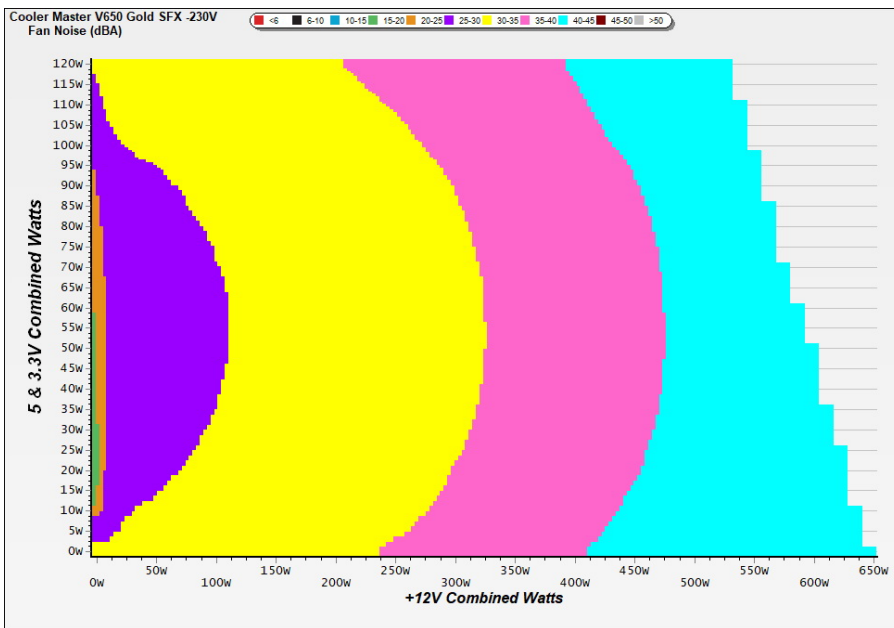
EFFICIENCY GRAPH 230V



INFO

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NOISE GRAPH 230V



INFO

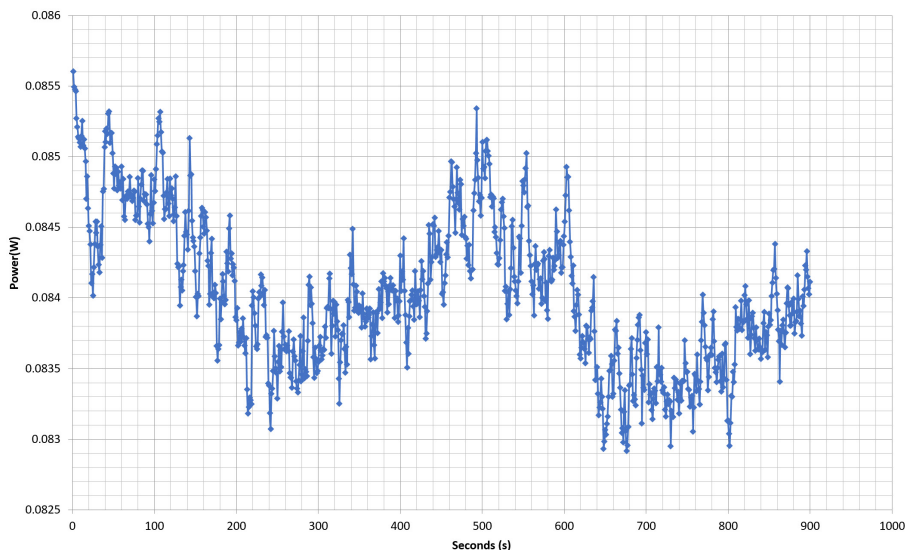
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COMMISSION REGULATION (EU) NO 617/2013 TESTING 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	3.582A	1.996A	1.962A	0.983A	64.973	84.666%	2328	38.3	40.12°C	0.780
	12.108V	5.010V	3.365V	5.088V	76.740				45.41°C	230.27V
2	8.210A	2.999A	2.948A	1.182A	130.048	89.848%	2405	39.5	40.73°C	0.872
	12.076V	5.003V	3.358V	5.077V	144.742				46.56°C	230.27V
5	22.803A	5.016A	4.940A	1.784A	325.099	92.267%	2692	42.5	42.15°C	0.937
	12.042V	4.985V	3.340V	5.046V	352.345				49.80°C	230.26V
10	46.748A	9.094A	8.983A	3.012A	649.901	91.167%	3104	46.9	45.45°C	0.968
	11.983V	4.950V	3.306V	4.982V	712.868				56.47°C	230.24V

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EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH
CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

Cooler Master V650 Gold SFX (2021)

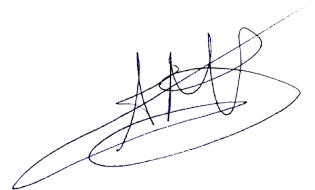


Top side

650W		MODEL / 型				
Switching Power S						
AC INPUT 交流輸入/交流輸入	100-240V~, 8-4A, 50-60Hz					
DC OUTPUT 直流輸出/直流輸出	+5V 20A	+3.3V 20A	+12V 54.1A	-12V 0.3A	+5VSB 3A	
TOTAL POWER 總功率/總功率	120W		649.2W	3.6W	15W	650W
MADE IN CHINA / 中國製造 / 中国製造 ■ Cooler Master Technology Inc. 製造商：酷碼科技股份有限公司 / 制造商：酷碼科技股份有限公司						
						

Power specifications label

CERTIFICATIONS 115V

Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V



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