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

Cooler Master V750 Gold

Lab ID#: 572
Receipt Date: Dec 13, 2018
Test Date: Dec 20, 2018

Report: 19PS572A
Report Date: Dec 22, 2018

DUT INFORMATION

Brand	Cooler Master
Manufacturer (OEM)	Chicony Electronics
Series	V Gold Series
Model Number	
Serial Number	MPY7501AFAAGV1184300027
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10
Rated Frequency (Hz)	50-60
Rated Power (W)	750
Type	ATX12V
Cooling	135mm Fluid Dynamic Bearing Fan (APISTEK SAC4H2H)
Semi-Passive Operation	✓ (selectable)
Cable Design	Fully Modular

TEST EQUIPMENT

Electronic Loads	Chroma 6314A x2 63123A x6 63102A 63101A	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Chroma 61604, Keysight AC6804B	
Power Analyzers	N4L PPA1530 x2, N4L PPA5530	
Oscilloscopes	Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A	
Voltmeter	Keithley 2015 THD 6.5 Digit	
Sound Analyzer	Bruel & Kjaer 2250-L G4	
Microphone	Bruel & Kjaer Type 4955-A, Bruel & Kjaer Type 4189	
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV 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	88.825%
Efficiency With 10W (≤500W) or 2% (>500W)	63.266
Average Efficiency 5VSB	78.430%
Standby Power Consumption (W)	0.0765154
Average PF	0.991
Avg Noise Output	34.02 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard++

230V

Average Efficiency	90.638%
Average Efficiency 5VSB	77.002%
Standby Power Consumption (W)	0.1644650
Average PF	0.966
Avg Noise Output	33.76 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard++

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	62	3	0.3
	Watts	130		744	15	3.6
Total Max. Power (W)		750				

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (650mm)	1	1	18-22AWG	No
4+4 pin EPS12V (650mm)	1	1	18AWG	No
8 pin EPS12V (650mm)	1	1	18AWG	No
6+2 pin PCIe (560mm+120mm)	2	4	18AWG	No
SATA (500mm+120mm+120mm+120mm)	3	12	18AWG	No
4 pin Molex (500mm+120mm+120mm+120mm)	1	4	18AWG	No
FDD Adapter (125mm)	1	1	22AWG	No
AC Power Cord (1350mm) - C13 coupler	1	1	18AWG	-

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General Data	-
Manufacturer (OEM)	Chicony Electronics
PCB Type	Single Side
Primary Side	**-**
Transient Filter	5x Y caps, 2x X caps, 2x CM chokes
Inrush Protection	-
Bridge Rectifier(s)	2x Lite-On GBU15JL (600V, 15A @ 115°C)
APFC MOSFETS	2x Infineon IPP60R120P7 (650V, 16A @ 100°C, 0.12Ohm)
APFC Boost Diode	1x CREE C3D08060A (600 V, 8 A @ 152 °C)
Hold-up Cap(s)	1x Nichicon (450V, 560uF, 2,000h @ 105°C, GL)
Main Switchers	2x Toshiba TK16A60W (600V, 15.8A @ 150°C, 0.19Ohm)
APFC Controller	Infineon ICE3PCS03G
Resonant Controllers	MPS HR1000A & 2x MPS MP6903 (Installed on the secondary side)
Topology	Primary side: Half Bridge & LLC resonant converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	**-**
+12V MOSFETS	6x Nexperia PSMN2R6-40YS (40V, 100A @ 100°C, 5.3mOhm @ 175°C)
5V & 3.3V	DC-DC Converters:4x Advanced Power AP0403GH (30V, 50A @ 100°C, 4.5mOhm) & 2x Advanced Power AP3N4R0H (30V, 56A @ 100°C, 4mOhm) PWM Controllers: 2x APW7160A
Filtering Capacitors	Electrolytics: 4x Rubycon (6 - 10,000h @ 105°C, ZLH), Nippon Chemi-con (5 - 6,000h @ 105°C, KZH), Nippon Chemi-con (4 - 10,000h @ 105°C, KY), Nichicon (5 - 6,000h @ 105°C, HV) Polymers: FPCAP, Nichicon (LG), Nippon Chemi-con
Supervisor IC	CP006WD
Fan Model	Apistek SAC4H2H (135 mm, 0.5 A, Fluid Dynamic Bearing Fan)
5VSB Circuit	**-**
Rectifier	On Semiconductor MBR20100CT SBR (100V, 10A @ 133°C) & STMicroelectronics STD4N80K5 FET (800V, 1.7A @ 100°C)
Standby PWM Controller	400BBBBB2 PAJH

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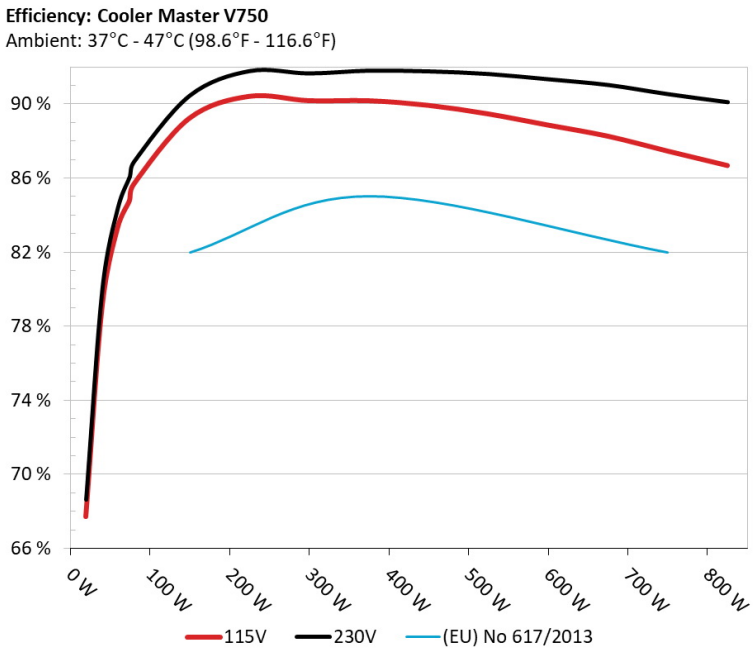
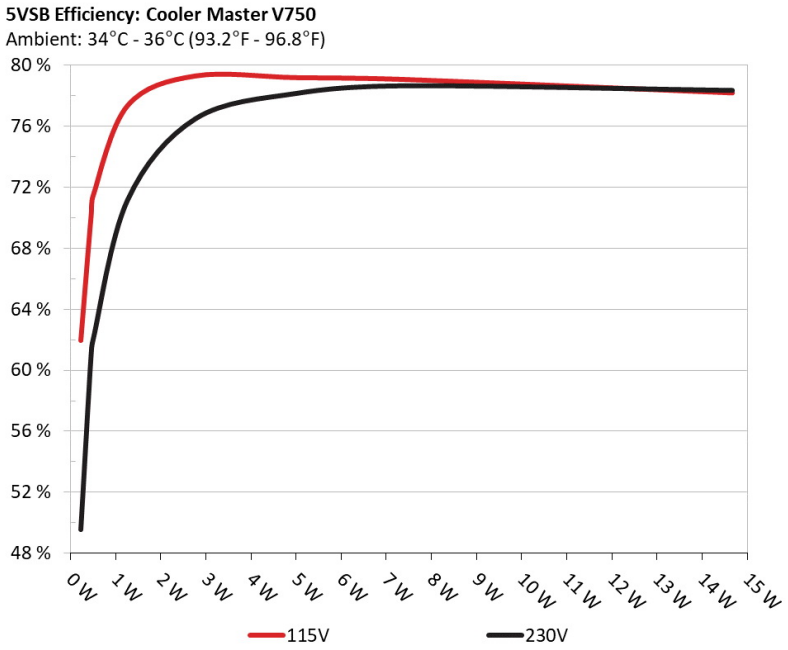
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228	61.957%	0.053
	5.069V	0.368		115.09V
2	0.090A	0.456	70.154%	0.090
	5.066V	0.650		115.09V
3	0.550A	2.771	79.307%	0.274
	5.038V	3.494		115.11V
4	1.000A	5.013	79.194%	0.325
	5.012V	6.330		115.11V
5	1.500A	7.475	79.067%	0.350
	4.983V	9.454		115.10V
6	2.999A	14.676	78.193%	0.388
	4.893V	18.769		115.09V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.228	49.565%	0.020
	5.070V	0.460		230.24V
2	0.090A	0.456	61.044%	0.032
	5.066V	0.747		230.24V
3	0.550A	2.771	76.505%	0.138
	5.037V	3.622		230.25V
4	1.000A	5.012	78.166%	0.206
	5.011V	6.412		230.25V
5	1.500A	7.473	78.663%	0.253
	4.981V	9.500		230.25V
6	3.000A	14.671	78.358%	0.320
	4.890V	18.723		230.25V

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115V

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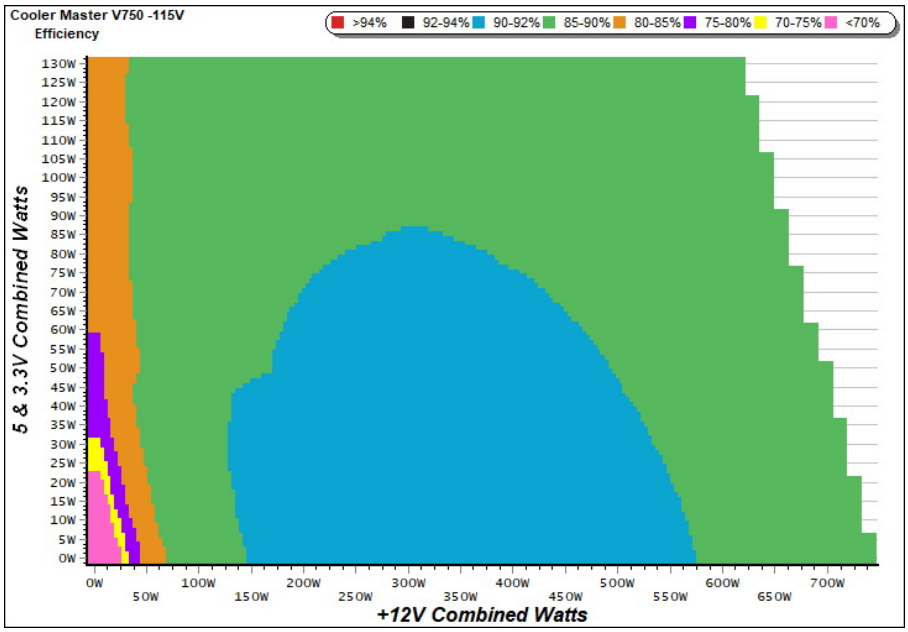
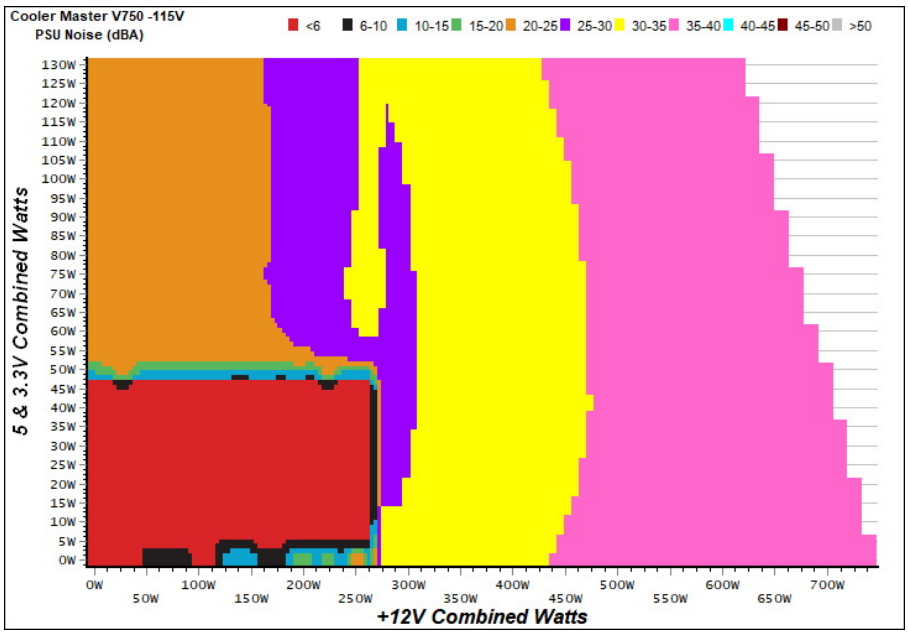
EFFICIENCY GRAPH 115V



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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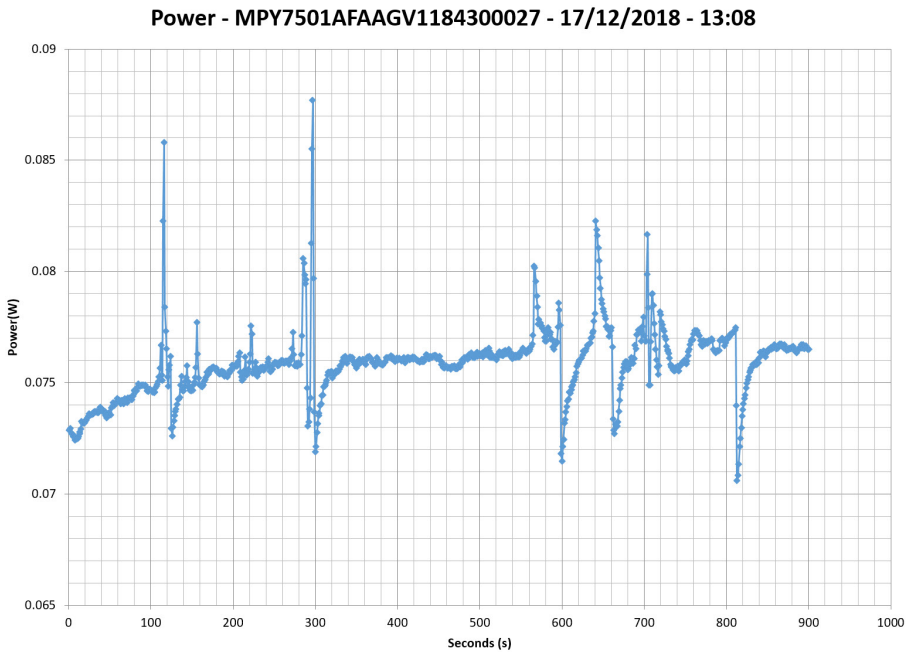
VAMPIRE POWER -115V



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

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230V

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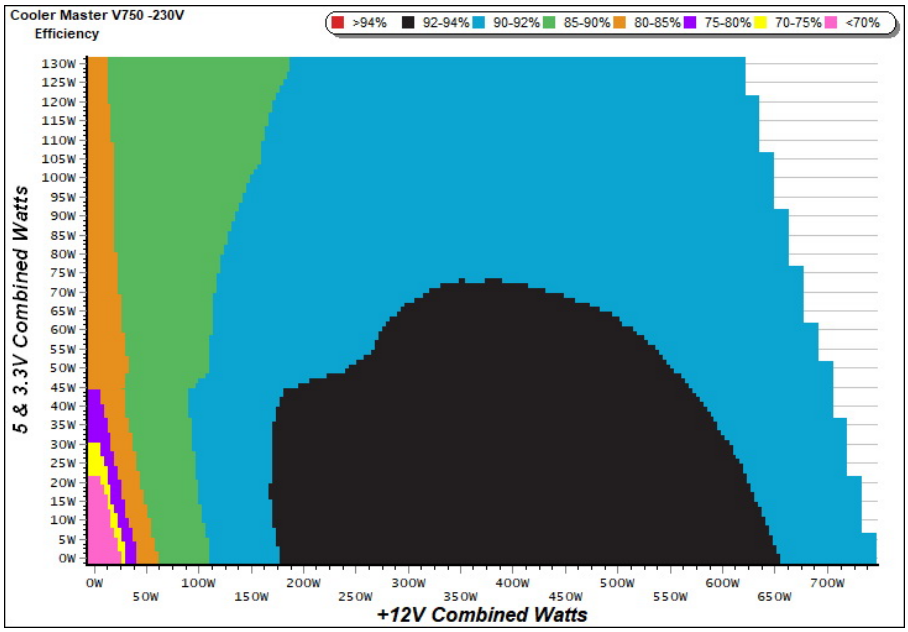
EFFICIENCY GRAPH 230V



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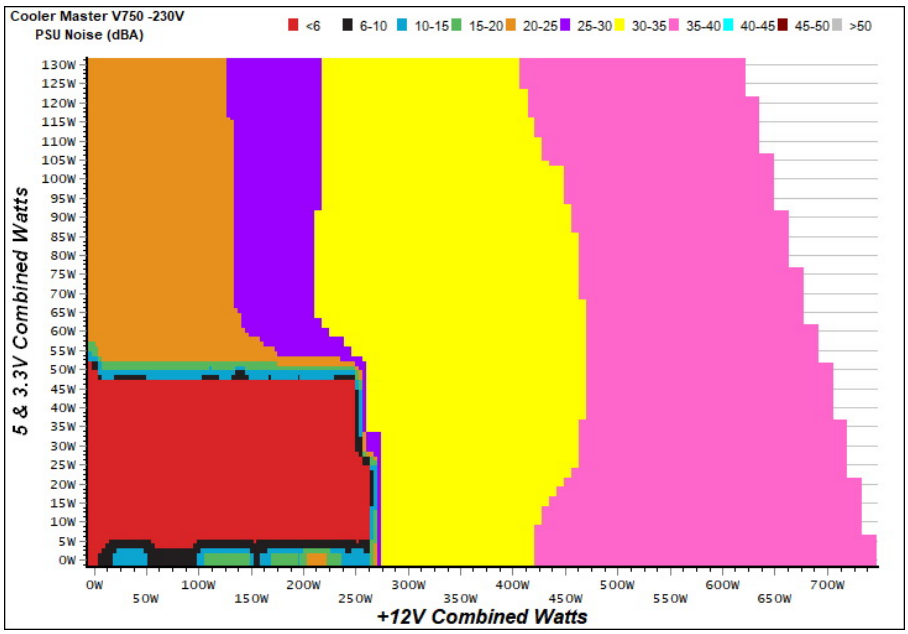
NOISE GRAPH 230V



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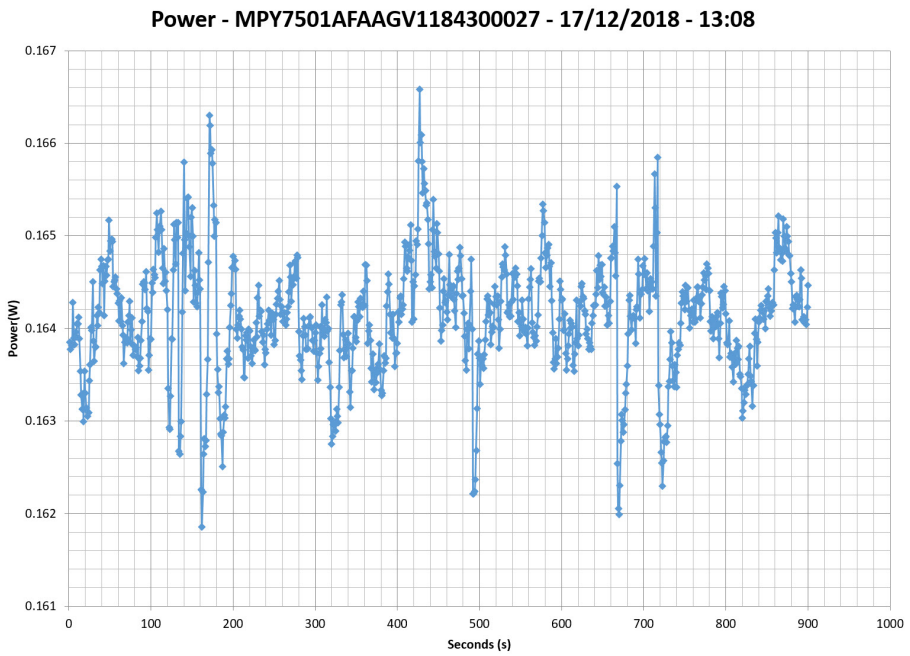
VAMPIRE POWER -230V



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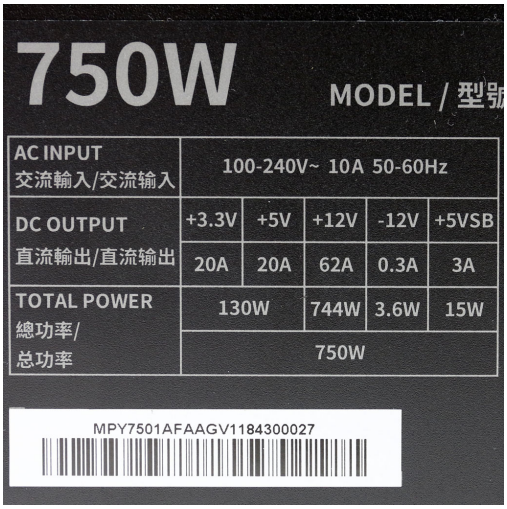
Cooler Master V750 Gold

Top side



Power specifications label

CERTIFICATIONS 115V

CERTIFICATIONS 230V

Aristeidis Bitziopoulos
Lab Director

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