

Anex Deepcool PN750M

Lab ID#: DC75002316

Receipt Date: Dec 12, 2023

Test Date: Jan 2, 2024

Report: 23PS2316A

Report Date: Jan 4, 2024

DUT INFORMATION	
Brand	Deepcool
Manufacturer (OEM)	CWT
Series	PN-M
Model Number	PN750M-FC
Serial Number	
DUT Notes	

DUT SPECIFICATION	ONS
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	50-60
Rated Power (W)	750
Туре	ATX12V
Cooling	120mm Rifle Bearing Fan (DF1202512SEHN)
Semi-Passive Operation	х
Cable Design	Fully Modular

TEST EQUIPMENT	
Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 63640-80-80 x10 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P
Power Analyzers	RS HMC8015, N4L PPA1530, N4L PPA5530
Oscilloscopes	Picoscope 4444, Rigol DS7014, 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, Keithley 2015 - THD
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Isolation Transformer	4kVA

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RESULTS	
Temperature Range (°C/°F)	30-32 / 86-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.1 PSU Power Excursion	✓

115V	
Average Efficiency	88.673%
Efficiency With 10W (≤500W) or 2% (>500W)	63.165
Average Efficiency 5VSB	78.653%
Standby Power Consumption (W)	0.0565000
Average PF	0.978
Avg Noise Output	36.74 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard+

230V	
Average Efficiency	90.470%
Average Efficiency 5VSB	78.151%
Standby Power Consumption (W)	0.1152000
Average PF	0.930
Avg Noise Output	35.40 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard+

POWER SPECIFICAT	WER SPECIFICATIONS					
Rail		3.3V	5V	12V	5VSB	-12V
Mary Davier	Amps	20	20	62.5	3	0.3
Max. Power	Watts	110		750	15	3.6
Total Max. Power (W)		750				

HOLD-UP TIME & POWER OK SIGNAL (230V)	
Hold-Up Time (ms)	18.2
AC Loss to PWR_OK Hold Up Time (ms)	16.9
PWR_OK Inactive to DC Loss Delay (ms)	1.3

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CABLES AND CONNECTORS				
Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (550mm)	1	1	18AWG	No
4+4 pin EPS12V (700mm)	2	2	18AWG	No
6+2 pin PCle (550mm)	3	3	18AWG	No
12+4 pin PCle (600mm) (450W)	1	1	16-24AWG	No
SATA (460mm+120mm+120mm+120mm) / 4-pin Molex (+120mm)	2	8/2	18AWG	No

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General Data	-
Manufacturer (OEM)	CWT
Platform Model	GPX
PCB Type	Double-Sided
Primary Side	-
Transient Filter	2x Y caps, 1x X caps, 2x CM chokes, 1x MOV, 1x CAP200DG (Discharge IC)
Inrush Protection	NTC Thermistor SCK056 (5 Ohm @ 25°C) & Relay
Bridge Rectifier(s)	1x Yangjie Electronic GBU1506 (600V, 15A @ 100°C)
APFC MOSFETs	2x Great Power GP28S50 (500V, 28A, Rds(on): 0.1250hm) & 1x SPN5003 FET (for reduced no-load consumption)
APFC Boost Diode	1x CRXI06D065G2
Bulk Cap(s)	1x Nippon Chemi-Con (400V, 560uF, 2000h @ 100°C, KMR)
Main Switchers	4x Silan Microelectronics SVF13N50F (500V, 8.2A @ 100°C, Rds(on): 0.52Ohm)
APFC Controller	Champion 6500UNX
Resonant Controller	Champion CM6901X
Topology	Primary side: APFC, Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	6x IPS 014N04SA
5V & 3.3V	DC-DC Converters: 4x UBIQ QM3054M6 (30V, 97A @ 25°C, Rds(on): 4.8mOhm) PWM Controller(s): ANPEC APW7159C
Filtering Capacitors	Electrolytic: 14x Chengx (2,000 @ 105°C, GR) Polymer: 27x FCAP
Supervisor IC	IN1S429I - DCG
Fan Model	MARTECH DF1202512SEHN (120mm, 12V, 0.42A, Rifle Bearing Fan)
5VSB Circuit	-
Standby PWM Controller	Power Integrations TNY287PG

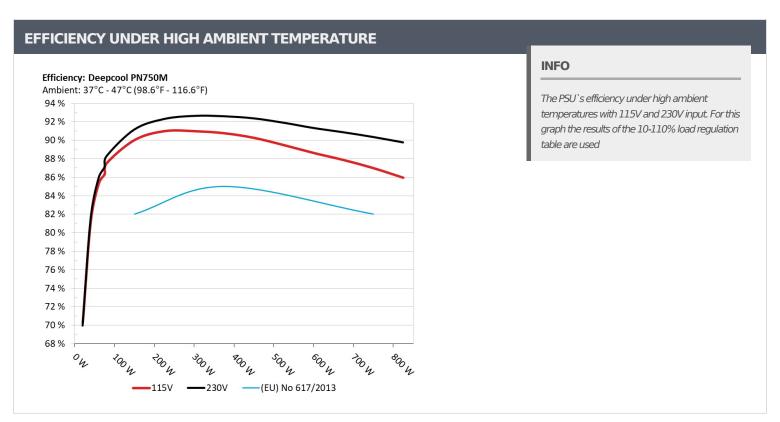
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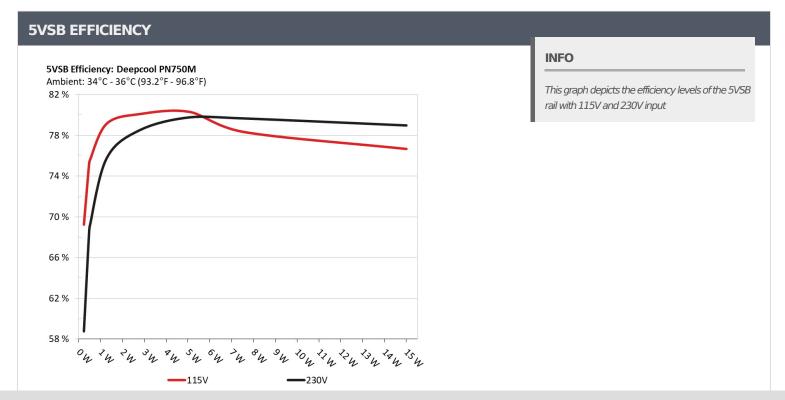
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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)				
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	CO 7070/	0.032
1	5.1V	0.335W	68.727%	114.86V
•	0.09A 0.459W	74.40207	0.058	
2	5.099V	0.616W	74.493%	114.86V
3	0.55A	2.796W	70.5040/	0.26
	5.084V	3.513W	79.594%	114.85V
	1A	5.069W	70.0070/	0.358
4	5.069V	6.351W	79.807%	114.85V
_	1.5A	7.576W		0.404
5	5.05V	9.736W	77.823%	114.85V
6	ЗА	15.003W	76.1600/	0.475
	5.001V	19.699W	76.162%	114.85V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)				
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
	0.045A	0.23W	E0 2010/	0.011
1	5.1V	0.395W	58.281%	229.86V
2	0.09A	0.459W	67.651%	0.019
2	5.099V	0.678W		229.86V
2	0.55A	2.796W	78.013%	0.098
3	5.083V	3.583W		229.86V
	1A	5.069W	79.261%	0.163
4	5.068V	6.395W		229.86V
_	1.5A	7.577W		0.205
5	5.051V	9.573W	79.152%	229.86V
•	3A	15W		0.316
6	5V	19.117W	78.469%	229.86V

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Anex

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115V

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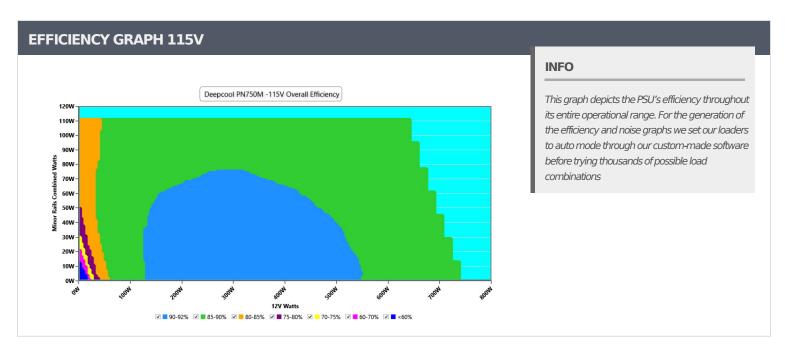
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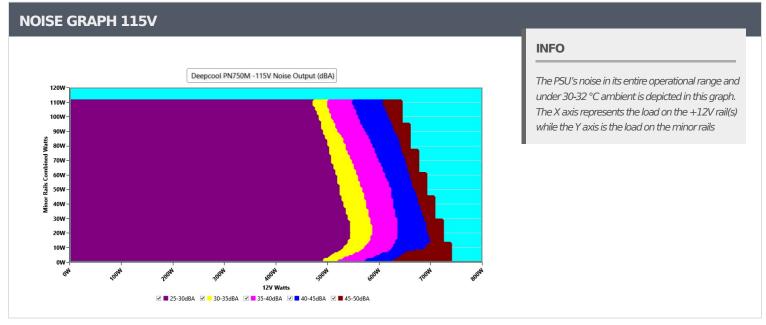
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VAMPIRE POWER -115V											
Detailed Results											
	Average	Min	Limit Min	Max	Limit Max	Result					
Mains Voltage RMS:	114.86 V	114.79 V	113.85 V	114.91 V	116.15 V	PASS					
Mains Frequency:	60.00 Hz	59.98 Hz	59.40 Hz	60.03 Hz	60.60 Hz	PASS					
Mains Voltage CF:	1.420	1.418	1.340	1.422	1.490	PASS					
Mains Voltage THD:	0.15 %	0.10 %	N/A	0.26 %	2.00 %	PASS					
Real Power:	0.056 W	0.036 W	N/A	0.079 W	N/A	N/A					
Apparent Power:	11.263 W	11.234 W	N/A	11.304 W	N/A	N/A					
Power Factor:	0.005	N/A	N/A	N/A	N/A	N/A					

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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Test	12V	5V	3.3V	5VSB	DC/AC	Efficiency	Fan Speed	PSU Noise	Temps	PF/AC
	4.2004	24	1.074	0.0004	(Watts)		(RPM)	(dB[A])	(In/Out)	Volts
10%	4.399A	2A	1.97A	0.989A	75.001	86.344%	1104	26.7	40.22°C	0.953
	12.139V	4.999V	3.351V	5.056V	86.866				44.46°C	114.84\
20%	9.812A	3.002A	2.956A	1.191A	149.931	90.035%	1107	26.7	40.87°C	0.972
	12.131V	4.997V	3.349V	5.039V	166.524				45.39°C	114.81\
30%	15.579A	3.503A	3.451A	1.394A	224.929	90.997%	1111	26.7	41.05°C	0.978
	12.124V	4.996V	3.347V	5.024V	247.185				46.15°C	114.79\
40%	21.361A	4.004A	3.946A	1.598A	300.014	90.995%	1115	26.7	41.92°C	0.98
	12.116V	4.995V	3.345V	5.008V	329.703				47.47°C	114.76\
50%	26.750A	5.006A	4.934A	1.804A	374.395	90.777%	1121	26.8	42.38°C	0.982
	12.108V	4.994V	3.344V	4.991V	412.438				48.38°C	114.74
60%	32.191A	6.007A	5.924A	2A	449.272	90.277%	1130	27.0	42.95°C	0.981
	12.101V	4.994V	3.343V	4.973V	497.658				49.48°C	114.71
70%	37.639A	7.01A	6.916A	2.22A	524.259	89.495%	1550	37.2	43.02°C	0.982
	12.093V	4.993V	3.341V	4.955V	585.801				50.12°C	114.68
80%	43.162A	8.016A	7.91A	2.327A	599.466	88.64%	2109	45.2	43.73°C	0.983
	12.084V	4.989V	3.337V	4.942V	676.292				51.78°C	114.66
90%	49.026A	8.521A	8.395A	2.435A	674.497	87.88%	2329	47.7	44.8°C	0.984
	12.075V	4.988V	3.335V	4.929V	767.52				54.02°C	114.63\
100%	54.695A	9.023A	8.907A	3.064A	749.728	87%	2327	47.6	45.94°C	0.986
10070	12.067V	4.987V	3.334V	4.897V	861.756	37 70	2327	1710	55.98°C	114.6V
110%	60.240A	10.027A	9.992A	3.071A	824.754	85.956%	2329	47.7	46.79°C	0.987
11070	12.059V	4.986V	3.332V	4.885V	959.503				57.72°C	114.57
CL1	0.114A	13.246A	13.081A	0A	111.295	82.559%	1150	27.5	40.67°C	0.968
CLI	12.134V	4.998V	3.34V	5.072V	134.811	02.55970	1150	27.5	46.15°C	114.82
CL2	0.114A	19.935A	0A	0A	101.339	— 00 2570/	1159	27.7	41.48°C	0.966
CLZ	12.141V	5.014V	3.354V	5.079V	126.11	80.357%	1109	21.1	48.55°C	114.84
CI 2	0.114A	0A	19.727A	0A	67.383	75.587%	1117	26.0	40.12°C	0.955
CL3	12.140V	5.014V	3.346V	5.08V	89.145	/ɔ.ɔఠ/%	1117	26.8	49.14°C	114.84
CI 4	62.062A	0A	0A	0A	749.547	00.000/	2222	47.8	45.46°C	0.986
CL4	12.077V	5.005V	3.352V	5.012V	851.186	88.06%	2333		56.4°C	114.61\

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20-80W 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
2014	1.224A	0.5A	0.492A	0.196A	19.996	70.2040/	1077	200	36.76°C	0.833
20W	12.132V	5.001V	3.353V	5.091V	28.449	70.284%	1077	26.0	39.82°C	114.85V
40147	2.694A	0.7A	0.689A	0.295A	39.997	01.01.00/	1070	26.0	37.27°C	0.914
40W	12.131V	4.999V	3.352V	5.085V	49.249	81.212%	1072		40.52°C	114.84V
60144	4.163A	0.9A	0.886A	0.394A	59.997	05 2150/	1000	26.1	38.34°C	0.941
60W	12.137V	4.999V	3.352V	5.079V	70.321	85.315%	1082		41.98°C	114.83V
00147	5.627A	1.1A	1.083A	0.493A	79.938	07.5070/		26.6	39.22°C	0.957
80W	12.139V	5V	3.352V	5.073V	91.329	87.527%	1097	26.6	43.2°C	114.83V

RIPPLE MEA	SUREMENTS 115V				
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	25.47mV	14.78mV	17.39mV	11.29mV	Pass
20% Load	25.93mV	15.04mV	17.96mV	10.98mV	Pass
30% Load	25.52mV	15.96mV	21.60mV	12.47mV	Pass
40% Load	24.96mV	14.83mV	18.83mV	10.83mV	Pass
50% Load	22.09mV	14.47mV	19.24mV	13.39mV	Pass
60% Load	21.53mV	14.52mV	18.83mV	14.42mV	Pass
70% Load	20.76mV	15.04mV	18.88mV	19.14mV	Pass
80% Load	20.92mV	15.24mV	19.39mV	14.93mV	Pass
90% Load	20.92mV	16.47mV	20.27mV	13.50mV	Pass
100% Load	31.42mV	16.47mV	23.19mV	15.88mV	Pass
110% Load	32.74mV	15.88mV	24.50mV	17.94mV	Pass
Crossload1	38.60mV	14.71mV	23.27mV	10.01mV	Pass
Crossload2	26.24mV	21.45mV	24.93mV	10.62mV	Pass
Crossload3	25.62mV	14.63mV	21.70mV	9.54mV	Pass
Crossload4	29.90mV	16.24mV	21.26mV	12.75mV	Pass

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230V

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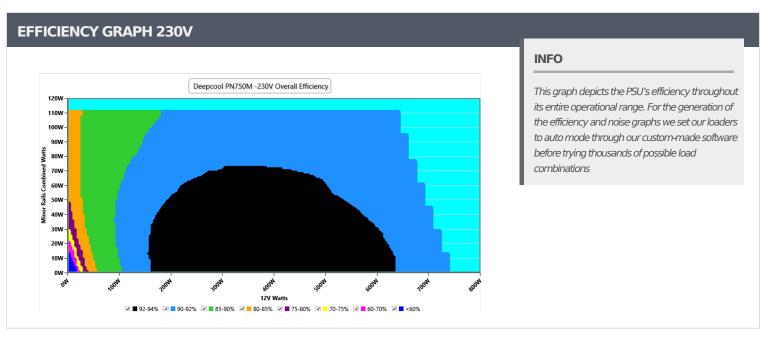
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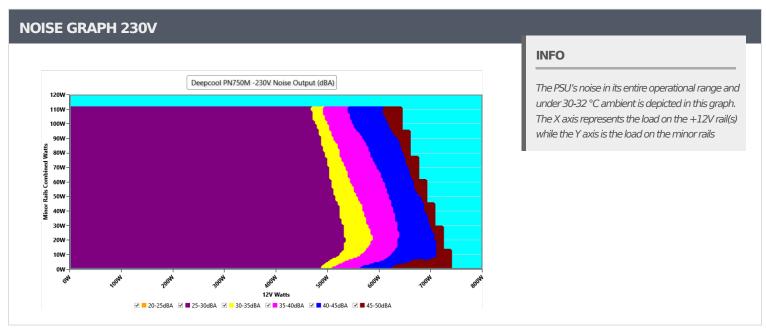
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VAMPIRE POWER -230V											
Detailed Results											
	Average	Min	Limit Min	Мах	Limit Max	Result					
Mains Voltage RMS:	229.88 V	229.80 V	227.70 V	229.98 V	232.30 V	PASS					
Mains Frequency:	50.00 Hz	49.99 Hz	49.50 Hz	50.01 Hz	50.50 Hz	PASS					
Mains Voltage CF:	1.418	1.417	1.340	1.419	1.490	PASS					
Mains Voltage THD:	0.17 %	0.13 %	N/A	0.22 %	2.00 %	PASS					
Real Power:	0.115 W	0.075 W	N/A	0.165 W	N/A	N/A					
Apparent Power:	38.997 W	38.939 W	N/A	39.044 W	N/A	N/A					
Power Factor:	0.003	N/A	N/A	N/A	N/A	N/A					

INFO

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Test	12V	5V	3.3V	5VSB	DC/AC	Efficiency	Fan Speed	PSU Noise	Temps	PF/AC
					(Watts)		(RPM)	(dB[A])	(In/Out)	Volts
10%	4.399A	2A	1.97A	0.989A	75.003	87.094%	1103	26.7	40.15°C	0.785
	12.139V	4.999V	3.35V	5.056V	86.116				44.35°C	229.85\
20%	9.813A	3.002A	2.957A	1.191A	149.938	91.171%	1107	26.7	40.63°C	0.889
	12.131V	4.997V	3.348V	5.039V	164.456				45.21°C	229.84
30%	15.581A	3.503A	3.452A	1.394A	224.94	92.307%	1112	26.7	41.28°C	0.923
3070	12.124V	4.996V	3.346V	5.024V	243.687			20.7	46.31°C	229.83
40%	21.362A	4.004A	3.947A	1.598A	300.027	92.642%	1117	26.8	41.69°C	0.938
4070	12.116V	4.995V	3.345V	5.008V	323.857	92.0 4 270		20.0	47.22°C	229.81
50%	26.753A	5.006A	4.937A	1.804A	374.442	92.603%	1123	26.9	42.17°C	0.948
JU /0	12.108V	4.994V	3.343V	4.991V	404.35	92.00370		20.9	48.2°C	229.8V
600/	32.195A	6.007A	5.927A	2A	449.314	92.377%	1120	27.0	42.7°C	0.954
60%	12.100V	4.994V	3.341V	4.974V	486.391	92.377%	1130	27.0	49.21°C	229.79
700/	37.643A	7.01A	6.919A	2.22A	524.298	01.0060/	1500	26.6	43.28°C	0.959
70%	12.092V	4.993V	3.339V	4.956V	570.474	91.906%	1529	36.6	50.38°C	229.78
80%	43.166A	8.016A	7.915A	2.327A	599.507	91.337%	2116	45.3	43.77°C	0.963
0070	12.084V	4.99V	3.335V	4.942V	656.373	91.557%	2110	45.5	51.82°C	229.76
000/	49.029A	8.52A	8.4A	2.435A	674.536	- 00.0760/	2221	47.0	44.07°C	0.965
90%	12.075V	4.988V	3.333V	4.929V	742.266	90.876%	2331	47.8	53.15°C	229.75
7.000/	54.699A	9.023A	8.915A	3.063A	749.765	00.2620/	2222	47.0	45.01°C	0.967
100%	12.067V	4.987V	3.331V	4.897V	829.727	90.363%	2332	47.8	55.02°C	229.74\
7.7.00/	60.244A	10.027A	10.003A	3.071A	824.788	00.7700/	2222	47.0	46.79°C	0.969
110%	12.059V	4.986V	3.329V	4.886V	918.684	89.779%	2332	47.8	57.71°C	229.72\
CI 1	0.115A	13.246A	13.093A	0A	111.297	02.50004	1150	07.5	40.95°C	0.863
CL1	12.133V	4.998V	3.337V	5.072V	133.151	83.588%	1150	27.5	46.48°C	229.84
a. a	0.114A	19.937A	0A	0A	101.34	0			40.51°C	0.853
CL2	12.140V	5.013V	3.354V	5.079V	124.749	81.237%	1157	27.6	47.54°C	229.84
	0.114A	0A	19.756A	0A	67.384				40.2°C	0.79
CL3	12.139V	5.013V	3.341V 5.08V 88.508 76.132% 1114	1114	26.7	49.27°C	229.85			
	62.067A	0A	0A	0A	749.585				45.43°C	0.967
CL4	12.077V	5.004V	3.352V	5.013V	820.272	91.383%	2333	47.8	56.41°C	229,74\

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Anex

Deepcool PN750M

20-80W LOAD TESTS 230V										
Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
2014	1.224A	0.5A	0.492A	0.196A	19.999	60.0070/	1000	26.1	36.87°C	0.476
20W	12.130V	5V	3.353V	5.091V	28.581	69.987%	1080	26.1	39.93°C	229.86V
40)44	2.695A	0.7A	0.689A	0.295A	40	01.4020/	1004	26.1	37.16°C	0.64
40W	12.130V	5V	3.352V	5.085V	49.09	81.483%	1084	26.1	40.48°C	229.85V
	4.164A	0.9A	0.886A	0.394A	60	0= 0==0/		26.5	38.07°C	0.736
60W	12.136V	5V	3.352V	5.079V	69.836	85.915%	1091		41.61°C	229.85V
	5.628A	1.1A	1.083A	0.493A	79.943	00.0004			39.02°C	0.796
80W	12.138V	5V	3.352V	5.074V	90.554	88.283%	1096	26.6	42.88°C	229.85V

RIPPLE MEA	SUREMENTS 230\				
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	25.78mV	14.88mV	17.60mV	10.88mV	Pass
20% Load	26.86mV	14.68mV	17.96mV	11.70mV	Pass
30% Load	27.06mV	15.19mV	18.37mV	12.11mV	Pass
40% Load	25.63mV	14.52mV	18.11mV	11.24mV	Pass
50% Load	20.05mV	14.73mV	17.91mV	13.24mV	Pass
60% Load	19.74mV	14.63mV	18.62mV	14.37mV	Pass
70% Load	19.43mV	15.24mV	19.50mV	19.04mV	Pass
80% Load	20.51mV	15.60mV	19.55mV	15.34mV	Pass
90% Load	21.12mV	16.06mV	20.37mV	14.16mV	Pass
100% Load	31.40mV	15.42mV	22.14mV	16.55mV	Pass
110% Load	32.71mV	15.04mV	22.66mV	16.81mV	Pass
Crossload1	38.77mV	15.25mV	23.99mV	10.34mV	Pass
Crossload2	25.88mV	20.94mV	23.19mV	10.16mV	Pass
Crossload3	25.32mV	14.47mV	21.03mV	9.80mV	Pass
Crossload4	29.94mV	15.93mV	20.02mV	12.26mV	Pass

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Anex

Deepcool PN750M













Aristeidis Bitziopoulos Lab Director

CERTIFICATIONS 230V





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