

Anex

FSP Technology Advan GM 1000W

Lab ID#: FS10002425 Receipt Date: Apr 9, 2024 Test Date: Apr 23, 2024

Report: 24PS2425A

Report Date: Apr 24, 2024

FSP Technology
FSP
Advan GM
ADVAN-1000GM
S3161030004

DUT SPECIFICATIONS						
Rated Voltage (Vrms)	100-240					
Rated Current (Arms)	12-6					
Rated Frequency (Hz)	50-60					
Rated Power (W)	1000					
Туре	ATX12V					
Cooling	120mm Rifle Bearing Fan (D12SH-12)					
Semi-Passive Operation	✓ (selectable)					
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	/

115V	
Average Efficiency	87.736%
Efficiency With 10W (≤500W) or 2% (>500W)	64.459
Average Efficiency 5VSB	79.963%
Standby Power Consumption (W)	0.0663000
Average PF	0.991
Avg Noise Output	31.98 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	Standard++

230V	
Average Efficiency	89.888%
Average Efficiency 5VSB	77.421%
Standby Power Consumption (W)	0.2110000
Average PF	0.959
Avg Noise Output	32.16 dB(A)
Efficiency Rating (ETA)	SILVER
Noise Rating (LAMBDA)	Standard++

POWER SPECIFICATIONS							
Rail		3.3V	5V	12V	5VSB	-12V	
	Amps	20	20	83.33	3	0.3	
Max. Power	Watts	100		1000	15	3.6	
Total Max. Power (W)		1000					

HOLD-UP TIME & POWER OK SIGNAL (230V)			
Hold-Up Time (ms)	18.3		
AC Loss to PWR_OK Hold Up Time (ms)	17.6		
PWR_OK Inactive to DC Loss Delay (ms)	0.7		

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CABLES AND CONNECTORS				
Modular Cables				
Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (600mm)	1	1	18-22AWG	No
4+4 pin EPS12V (700mm)	2	2	18AWG	No
6+2 pin PCle (650mm+155mm)	1	2	16-18AWG	No
6+2 pin PCle (500mm+150mm)	1	2	16-18AWG	No
12+4 pin PCle (700mm) (600W)	1	1	16-28AWG	No
SATA (500mm+155mm+155mm+155mm)	2	8	18AWG	No
SATA (500mm+155mm) / 4-pin Molex (+155mm+100mm)	1	2/2	18AWG	No

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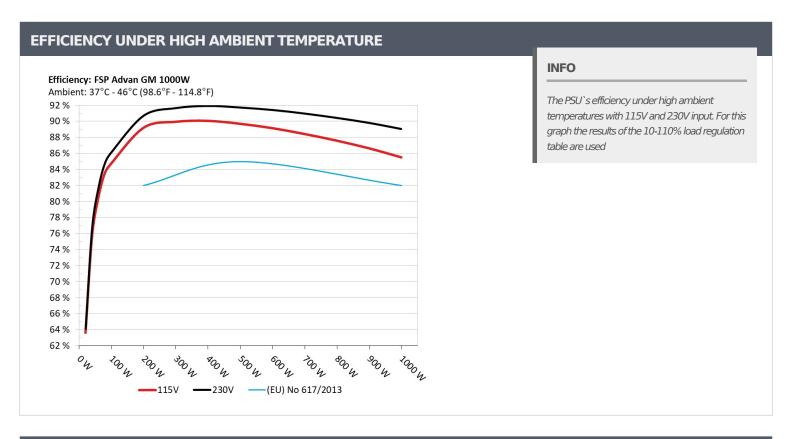
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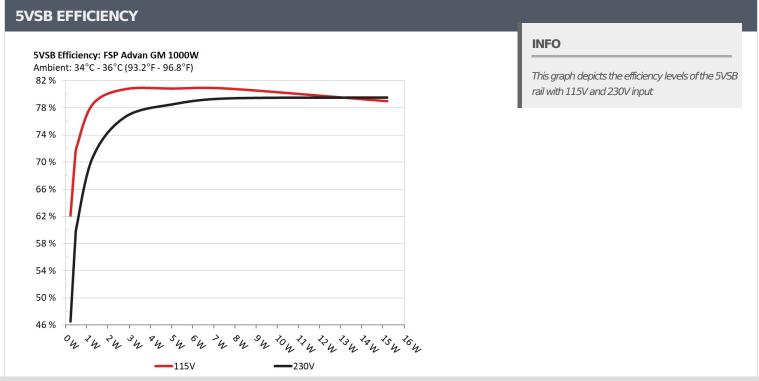
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5VSB EFFI	CIENCY -115V (ERF	P LOT 3/6 & CEC)		
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.23W	62.1170/	0.036
1	5.12V	0.371W	62.117%	114.85V
2	0.09A	0.461W	77.0070/	0.062
2	5.119V	0.648W	71.201%	114.84V
2	0.55A	2.811W	00.7550/	0.262
3	5.11V	3.481W	80.756%	114.84V
4	1A	5.102W	00.050/	0.346
4	5.101V	6.311W	80.85%	114.84V
_	1.5A	7.638W	00.0400/	0.406
5	5.092V	9.447W	80.848%	114.83V
	3A	15.19W	70.0070/	0.479
6	5.063V	19.231W	78.987%	114.84V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)						
Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts		
1	0.045A	0.23W	46 5300/	0.014		
1	5.12V	0.495W	46.538%	229.84V		
2	0.09A	0.461W	E0.0420/	0.022		
2	5.119V	0.783W	58.842%	229.85V		
	0.55A	2.811W	76.650/	0.101		
3	5.11V	3.668W	76.65%	229.85V		
	1A	5.102W	70.5300/	0.167		
4	5.101V	6.496W	78.538%	229.84V		
_	1.5A	7.638W	70.2700/	0.208		
5	5.092V	9.623W	79.379%	229.84V		
	3A	15.19W	70.51.40/	0.318		
6	5.063V	19.104W	79.514%	229.85V		

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115V

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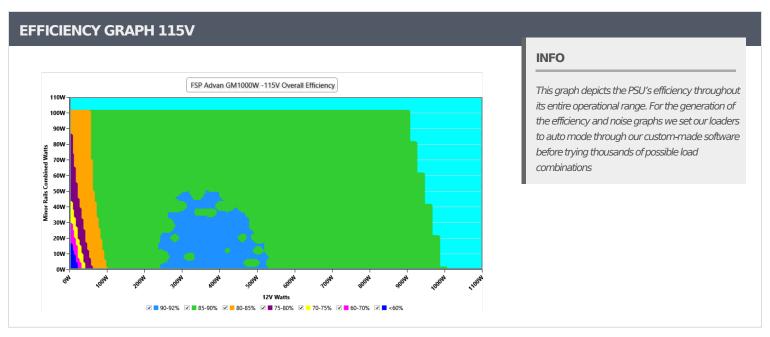
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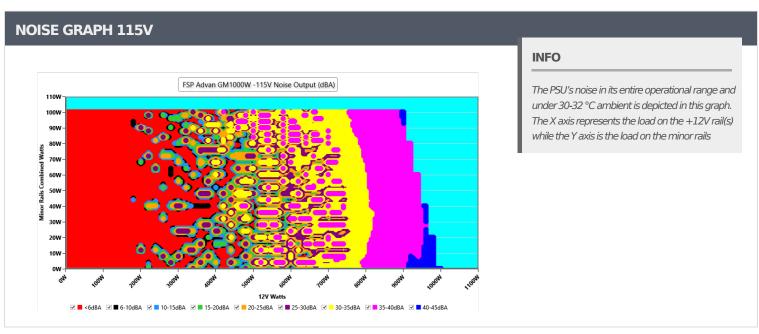
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VAMPIRE POWER -115V								
Detailed Results								
	Average	Min	Limit Min	Мах	Limit Max	Result		
Mains Voltage RMS:	114.84 V	114.78 V	113.85 V	114.90 V	116.15 V	PASS		
Mains Frequency:	60.01 Hz	59.99 Hz	59.40 Hz	60.03 Hz	60.60 Hz	PASS		
Mains Voltage CF:	1.420	1.419	1.340	1.423	1.490	PASS		
Mains Voltage THD:	0.15 %	0.09 %	N/A	0.25 %	2.00 %	PASS		
Real Power:	0.066 W	0.016 W	N/A	0.097 W	N/A	N/A		
Apparent Power:	10.317 W	10.296 W	N/A	10.337 W	N/A	N/A		
Power Factor:	0.008	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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TO-T	.10% LOA									
Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100/	6.498A	1.976A	1.976A	0.982A	99.996	04.7200/	0		44.3°C	0.979
10%	12.064V	5.062V	3.339V	5.09V	118.006	84.739%		<6.0	40.03°C	114.82\
200/	14.054A	2.971A	2.976A	1.182A	199.95	89.191%	0	-6.0	45.22°C	0.995
20%	12.029V	5.049V	3.326V	5.077V	224.181	89.191%	0	<6.0	40.66°C	114.78\
200/	21.961A	3.474A	3.484A	1.382A	300.008	- 00.0200/	1000	20.0	41.36°C	0.993
30%	12.019V	5.038V	3.315V	5.065V	333.568	89.939%	1002	29.0	46.55°C	114.75\
400/	29.846A	3.979A	3.996A	1.584A	399.591	00.0510/	1007	20.7	41.76°C	0.994
40%	12.008V	5.027V	3.304V	5.053V	443.746	90.051%	1027	29.7	47.26°C	114.72\
F00/	37.420A	4.988A	5.014A	1.786A	499.32	00.0000/	1100	22.2	42.34°C	0.995
50%	11.994V	5.013V	3.291V	5.041V	556.726	89.686%	1135	32.2	48.37°C	114.69\
600/	45.083A	6.002A	6.041A	1.989A	599.867	89.139%	1401	27.1	42.85°C	0.995
60%	11.979V	11.979V 4.999V	3.278V	5.028V	672.962			37.1	49.35°C	114.65\
700/	52.694A	7.022A	7.077A	2.193A	699.584	00.4060/	1207	35.2	43.4°C	0.994
70%	11.965V	4.985V	3.265V	5.017V	791.332	88.406%	1287		50.45°C	114.61\
000/	60.387A	8.045A	8.12A	2.297A	799.556	— 07 E7E0/	1.410	37.4	43.79°C	0.994
80%	11.951V	4.971V	3.251V	5.007V	912.994	87.575%	1419		51.93°C	114.58\
000/	68.427A	8.568A	8.644A	2.402A	899.322	06 6210/	1701	41.7	44.59°C	0.993
90%	11.938V	4.959V	3.239V	4.997V	1038.229	86.621%	1721	41.7	53.63°C	114.53\
1000/	76.288A	9.096A	9.203A	3.015A	999.33	— OF 40E0/	2026	4E D	45.67°C	0.992
100%	11.924V	4.947V	3.227V	4.976V	1168.873	85.495%	2036	45.3	55.61°C	114.49\
Cl 1	0.115A	11.984A	12.024A	0A	101.279	90.0120/	061	20.4	41.48°C	0.98
CL1	12.045V	5.023V	3.302V	5.104V	125.176	80.912%	961	28.4	50.06°C	114.81\
CI 2	0.115A	19.9A	0A	0A	101.326	70.460/	045	20.0	40.8°C	0.981
CL2	12.043V	5.022V	3.318V	5.106V	127.517	79.46%	945	28.0	49.65°C	114.81\
CI 2	0.113A	0A	19.993A	0A	67.379	72.0000/	OFO.	24.0	40.25°C	0.969
CL3	12.151V	5.045V	3.301V	5.106V	91.186	73.898%	859	24.9	50.41°C	114.83\
CL 4	83.822A	0A	0A	0A	999.879	06.270/	2002	44.0	44.7°C	0.992
CL4	11.929V	4.986V	3.262V	5.043V	1159.018	86.27%	2002	44.9	54.35°C	114.5V

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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	1.205A	05A 0.493A 0.492A 0.196A 19.996 63.603% 0	0		39.82°C	0.864				
20W	12.321V	5.074V	3.353V 5.113V 31.439	<6.0	36.69°C	114.84V				
40)44	2.666A	0.69A	0.69A	0.294A	39.998	75 5 400/	0	-6 O	40.66°C	0.936
40W	12.262V	5.071V	3.35V	5.11V	52.944	75.548%	0	<6.0	37.33°C	114.83V
COM	4.140A	0.888A	0.887A	0.392A	59.998	00 5010/	0	<6.0	42.18°C	0.959
60W	12.206V	5.069V	3.347V	5.106V	74.531	80.501%	0		38.57°C	114.83V
00144	5.632A	1.085A	1.085A	0.49A	79.942	02.5200/	0		43.11°C	0.972
80W	12.129V	5.067V	3.345V	5.102V	95.696	83.538%	0	<6.0	39.12°C	114.83V

RIPPLE MEAS	SUREMENTS 115V	_			
Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	21.69mV	12.42mV	12.93mV	7.64mV	Pass
20% Load	20.66mV	13.75mV	14.21mV	7.75mV	Pass
30% Load	21.74mV	13.50mV	14.62mV	8.01mV	Pass
40% Load	19.18mV	16.01mV	14.67mV	8.21mV	Pass
50% Load	31.35mV	15.45mV	16.36mV	8.77mV	Pass
60% Load	35.70mV	14.98mV	15.44mV	11.59mV	Pass
70% Load	32.48mV	16.89mV	16.83mV	11.80mV	Pass
80% Load	25.78mV	19.96mV	18.88mV	13.08mV	Pass
90% Load	22.66mV	19.29mV	19.50mV	15.19mV	Pass
100% Load	44.84mV	22.97mV	22.70mV	18.83mV	Pass
110% Load	0.00mV	0.00mV	0.00mV	0.00mV	Pass
Crossload1	35.72mV	16.93mV	22.18mV	8.87mV	Pass
Crossload2	27.31mV	22.99mV	18.42mV	8.67mV	Pass
Crossload3	36.57mV	15.76mV	25.34mV	8.36mV	Pass
Crossload4	40.29mV	20.13mV	16.00mV	9.85mV	Pass

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Anex

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230V

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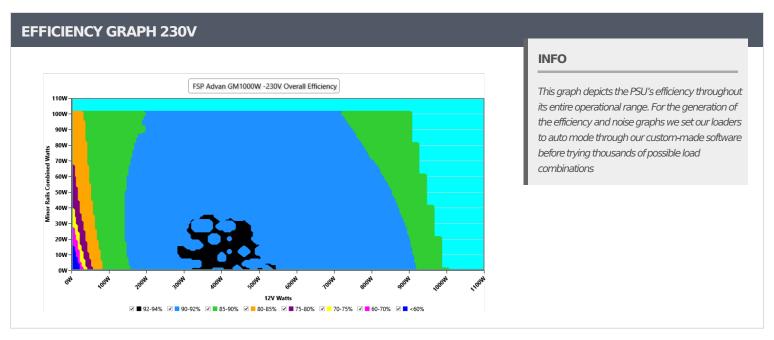
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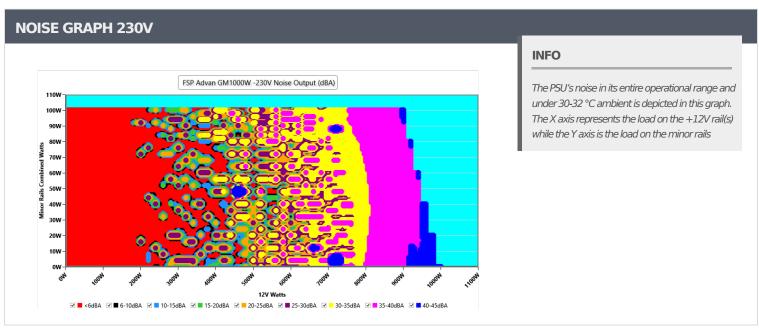
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VAMPIRE POWER -230V											
Detailed Results											
	Average	Min	Limit Min	Max	Limit Max	Result					
Mains Voltage RMS:	229.87 V	229.78 V	227.70 V	229.94 V	232.30 V	PASS					
Mains Frequency:	50.00 Hz	49.98 Hz	49.50 Hz	50.01 Hz	50.50 Hz	PASS					
Mains Voltage CF:	1.419	1.418	1.340	1.420	1.490	PASS					
Mains Voltage THD:	0.16 %	0.12 %	N/A	0.21 %	2.00 %	PASS					
Real Power:	0.211 W	0.171 W	N/A	0.249 W	N/A	N/A					
Apparent Power:	34.878 W	34.853 W	N/A	34.902 W	N/A	N/A					
Power Factor:	0.007	N/A	N/A	N/A	N/A	N/A					

INFO

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10-1										
Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100/	6.490A	1.975A	1.976A	0.982A	99.982	06.1220/			44.57°C	0.869
10%	12.077V	5.062V	3.339V	5.089V	116.094	86.123%	0	<6.0	40.29°C	229.83
200/	14.050A	2.97A	2.976A	1.182A	199.925	90.68%	0	-6.0	45.4°C	0.943
20%	12.031V	5.05V	3.327V	5.077V	220.473		0	<6.0	40.86°C	229.81
200/	21.957A	3.473A	3.484A	1.382A	299.966	01 63%	1001	20.5	41.42°C	0.966
30%	12.019V	5.039V	3.315V	5.065V	327.361	91.63%	1021	29.5	46.43°C	229.8V
400/	29.837A	3.978A	3.994A	1.583A	399.46	01.0000/	1022	20.5	41.66°C	0.977
40%	12.007V	5.027V	3.305V	5.054V	434.691	91.896%	1023	29.5	47.27°C	229.78
E00/	37.409A	4.986A	5.012A	1.785A	499.189	01.6000/	1222	26.2	42.27°C	0.981
50%	11.994V	5.014V	3.292V	5.042V	544.382	91.699%	1332	36.2	48.3°C	229.77
600/	45.069A	6A	6.039A	1.988A	599.731	91.396%	1/11	27.2	42.98°C	0.983
60%	11.980V	5V	3.279V	5.03V	656.195		1411	37.3	49.52°C	229.74
700/	52.680A	7.019A	7.074A	2.192A	699.457	- 00.0499/	1284	35.1	43.04°C	0.984
70%	11.966V	4.986V	3.266V	5.018V	769.064	90.948%	1284		50.05°C	229.73
000/	60.377A	8.043A	8.118A	2.296A	799.486	00.4060/	1200	37.1	43.8°C	0.982
80%	11.952V	4.972V	3.252V	5.007V	884.328	90.406%	1398	37.1	51.89°C	229.71
000/	68.420A	8.567A	8.642A	2.401A	899.281	00.7070/	1704	41.4	44.21°C	0.979
90%	11.938V	4.96V	3.24V	4.997V	1001.574	89.787%	1704	41.4	53.36°C	229.7V
1000/	76.285A	9.095A	9.202A	3.014A	999.303	00.0200/	2020	4F O	45.68°C	0.977
100%	11.924V	4.947V	3.227V	4.976V	1122.45	89.029%	2029	45.2	55.62°C	229.68
Cl 1	0.115A	11.985A	12.023A	0A	101.289	92.0050/	909	26.0	40.04°C	0.879
CL1	12.053V	5.023V	3.302V	5.104V	123.399	82.085%	898	26.0	49.72°C	229.83
CLO	0.115A	19.9A	0A	0A	101.331	90.7000/	025	27.1	40.88°C	0.881
CL2	12.048V	5.022V	3.318V	5.106V	125.414	80.799%	925	27.1	50.36°C	229.83
Cl 2	0.113A	0A	19.991A	0A	67.38	75 2000/	707	22.4	41.69°C	0.813
CL3	12.163V	5.045V	3.301V	5.106V	89.591	75.208%	787	22.4	49.96°C	229.83
CL 4	83.814A	0A	0A	0A	999.883	00.720/	2002	44.0	45.88°C	0.977
CL4	11.930V	4.986V	3.262V	5.043V	1114.458	89.72%	2003	44.9	54.7°C	229.68

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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	1.204A	0.493A	0.492A	0.196A	19.996	C4.1100/	0		39.69°C	0.491
20W	12.326V	5.074V	3.353V	5.113V	31.186	64.118%	0	<6.0	36.56°C	229.84V
40144	2.664A	0.69A	0.69A	0.294A	39.998	76.671%	0	<6.0	40.43°C	0.658
40W	12.269V	5.071V	3.35V	5.109V	52.17		0		37.05°C	229.84V
COLL	4.136A	0.888A	0.887A	0.392A	59.998	01.7420/	0		41.76°C	0.763
60W	12.218V	5.069V	81.743% 0 9V 3.347V 5.105V 73.398	0	<6.0	38.26°C	229.83V			
00147	5.625A	1.085A	1.085A	0.49A	79.934		0		42.98°C	0.827
80W	12.143V	5.067V	3.345V	5.102V	94.28	84.783%	0	<6.0	39.27°C	229.83V

RIPPLE MEASUREMENTS 230V 5VSB Pass/Fail **12V 5V** 3.3V **Test** 10% Load 26.39mV 12.88mV 14.01mV 8.77mV Pass 20% Load 20.51mV 14.32mV 14.98mV 8.72mV **Pass** 30% Load 19.28mV 14.42mV 14.52mV 8.88mV Pass 51.96mV 40% Load 17.09mV 16.32mV 8.67mV Pass 18.57mV 50% Load 39.69mV 16.88mV 9.96mV Pass 60% Load 30.12mV 16.01mV 16.26mV 9.39mV **Pass** 70% Load 35.24mV 18.17mV 17.60mV 10.83mV Pass 80% Load 24.19mV 18.68mV 19.03mV 10.57mV Pass 90% Load 21.99mV 19.30mV 19.55mV 12.98mV Pass 34.23mV 100% Load 20.27mV 19.97mV 14.59mV Pass 110% Load 0.00mV 0.00mV 0.00mV 0.00mV **Pass** Crossload1 34.54mV 16.20mV 21.16mV 8.70mV **Pass** Crossload2 24.19mV 22.43mV 18.77mV 7.80mV **Pass** Crossload3 36.21mV 15.30mV 26.11mV 16.11mV Pass 34.51mV Crossload4 20.68mV 14.18mV 9.53mV Pass

All data and graphs included in this test report can be used by any individual on the following conditions:

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> It should be mentioned that the test results are provided by Cybenetics

> The link to the original test results document should be provided in any case





Anex

FSP Technology Advan GM 1000W









Aristeidis BitziopoulosLab Director

CERTIFICATIONS 230V





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