80 PLUS Verification and Testing Report

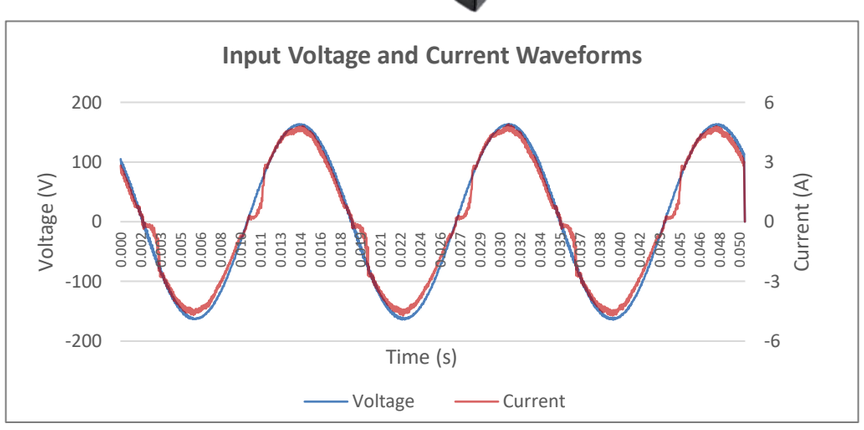
TYPICAL EFFICIENCY (50% Load):	**90.70%**
AVERAGE EFFICIENCY :	**82.11%**
AVERAGE STANDBY EFFICIENCY :	**73.16%**
80 PLUS COMPLIANT:	**Gold**



ID Number	7776
Manufacturer	Micro-Star International Co., Ltd.
Model Number	MS-7ZPKZ
Sample 1 S/N:	N/A
Sample 2 S/N:	N/A
Type	ATX12V
Test Date	3/27/25

Rated	**Value**	**Units**
Input Voltage	100-240	**Volts**
Input Current	10-5	**Amps**
Input Frequency	50-60	**Hz**
Rated Output Power	650	**Watts**

Note: All measurements were taken with input voltage at 115 V nominal at 60 Hz.



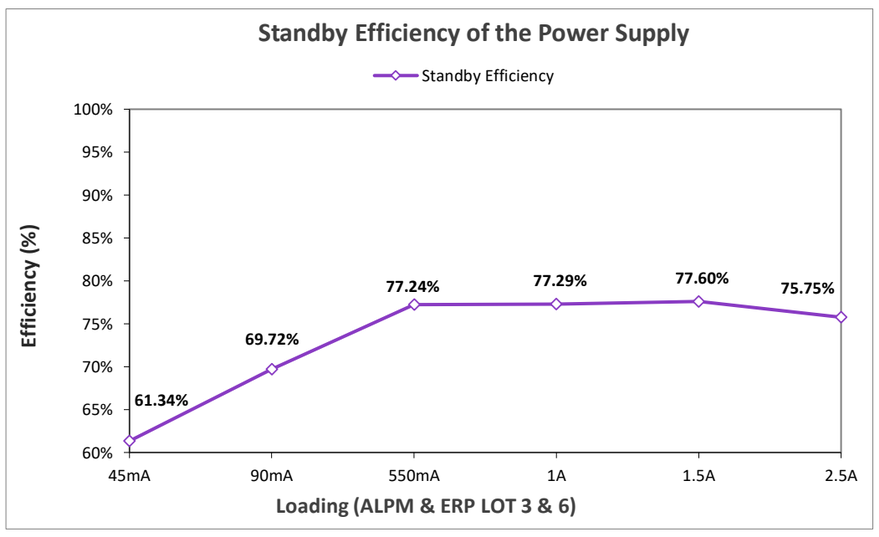
Input AC Current Waveform (ITHD = 9.44%, 50% Load)

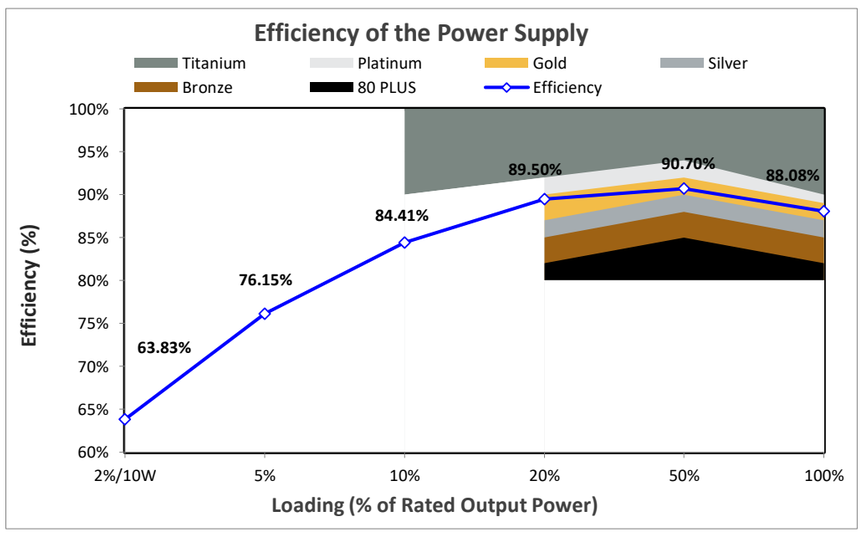
$I_{RMS\ (A)}$	PF	$I_{THD\ (\%)}$	Load	Input Watts	DC Terminal Voltage (V)/ DC Load Current (A)					Output Watts	Efficiency
					12V (cumulative of 12V1, 12V2, etc.)	-12V	3.3V	5V	5VSB		
0.130	0.3111	46.28	0%	**4.64**	**No-Load**						
0.239	**0.7597**	40.03	2%/10W	**20.88**	12.324/0.921	11.999/0.005	3.322/0.205	5.086/0.205	5.044/0.043	**13.33**	**63.83%**
0.402	**0.9455**	17.99	5%	**43.74**	12.322/2.299	11.999/0.013	3.322/0.512	5.086/0.512	5.040/0.106	**33.31**	**76.15%**
0.711	**0.9650**	11.95	10%	**78.88**	12.320/4.595	11.999/0.026	3.323/1.023	5.087/1.023	5.034/0.213	**66.58**	**84.41%**
1.312	**0.9857**	11.76	20%	**148.75**	12.315/9.190	12.000/0.051	3.322/2.048	5.087/2.047	5.022/0.425	**133.12**	**89.50%**
3.202	**0.9952**	9.44	50%	**366.53**	12.301/22.971	12.008/0.128	3.322/5.123	5.090/5.122	4.986/1.064	**332.45**	**90.70%**
6.573	**0.9971**	5.78	100%	**753.89**	12.284/45.939	12.021/0.255	3.320/10.246	5.095/10.246	4.924/2.126	**664.03**	**88.08%**

Note: Efficiency data was obtained from Sample 1 (Serial Number: N/A)

$I_{RMS\ (A)}$	PF	$I_{THD\ (\%)}$	Load	Input Watts	DC Terminal Voltage (V)/ DC Load Current (A)	Output Watts	Standby Efficiency
					5VSB		
0.056	0.0123	5.26	0mA	**0.08**	**Vampire Load**		
0.054	**0.0593**	21.63	45mA	**0.37**	5.055/0.045	**0.23**	**61.34%**
0.056	**0.1005**	34.60	90mA	**0.65**	5.054/0.090	**0.46**	**69.72%**
0.091	**0.3436**	78.70	550mA	**3.59**	5.040/0.550	**2.77**	**77.24%**
0.133	**0.4234**	84.12	1A	**6.51**	5.027/1.000	**5.03**	**77.29%**
0.184	**0.4533**	85.66	1.5A	**9.69**	5.013/1.500	**7.52**	**77.60%**
0.288	**0.4893**	85.59	2.5A	**16.46**	4.983/2.503	**12.47**	**75.75%**

Note: Standby efficiency data was obtained from Sample 2 (Serial Number: N/A)





These tests were conducted by a third party independent testing firm on behalf of the 80 PLUS Program. 80 PLUS is a certification program to promote highly-efficient power supplies (greater than 80% efficiency in the active mode) in technology applications.
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