80 PLUS Verification and Testing Report

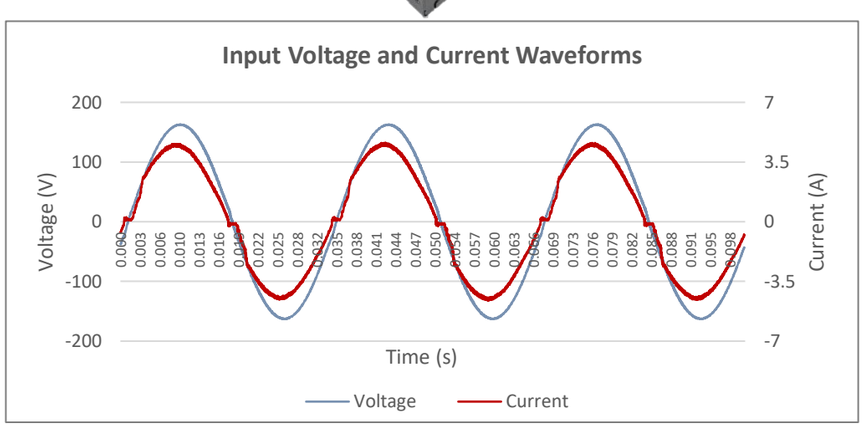
TYPICAL EFFICIENCY (50% Load):	**90.68%**
AVERAGE EFFICIENCY :	**82.30%**
AVERAGE STANDBY EFFICIENCY :	**77.10%**
80 PLUS COMPLIANT:	**Gold**



ID Number	8239
Manufacturer	Channel Well Technology Co.
Model Number	HPQ650S-CB
Sample 1 S/N:	N/A
Sample 2 S/N:	N/A
Type	ATX 3.1
Test Date	7/31/26

Rated	**Value**	**Units**
Input Voltage	100-240	**Volts**
Input Current	10	**Amps**
Input Frequency	47-63	**Hz**
Rated Output Power	650	**Watts**

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



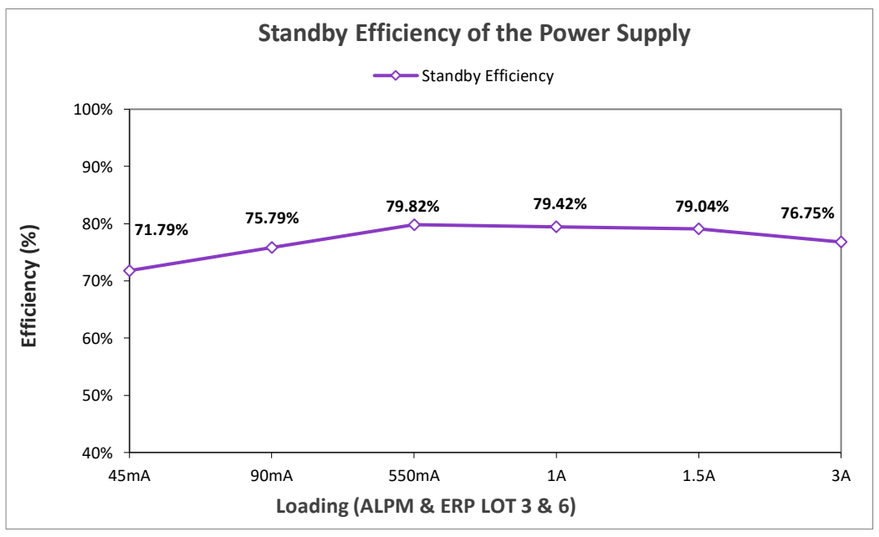
Input AC Current Waveform (ITHD = 6.41%, 50% Load)

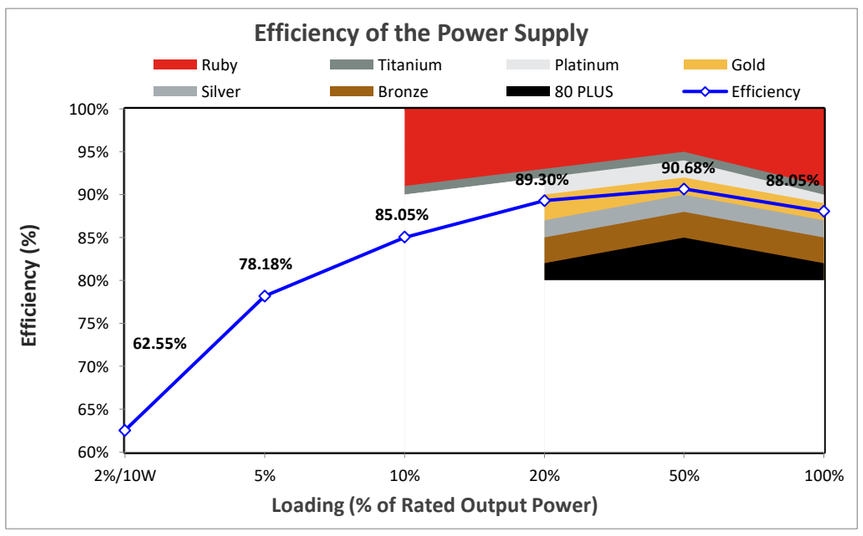
$I_{RMS\ (A)}$	PF	$I_{THD\ (\%)}$	Load	Input Watts	DC Terminal Voltage (V)/ DC Load Current (A)					Output Watts	Efficiency
					12V (cumulative of 12V1, 12V2, etc.)	-12V	3.3V	5V	5VSB		
0.121	0.2806	40.42	0%	**3.92**	**No-Load**						
0.230	**0.7922**	25.89	2%/10W	**20.92**	12.076/0.917	12.020/0.005	3.299/0.204	5.057/0.204	5.090/0.051	**13.09**	**62.55%**
0.398	**0.9134**	24.57	5%	**41.84**	12.074/2.290	12.018/0.013	3.300/0.511	5.057/0.511	5.086/0.127	**32.71**	**78.18%**
0.707	**0.9456**	26.10	10%	**76.89**	12.072/4.579	12.014/0.025	3.301/1.019	5.057/1.019	5.078/0.255	**65.39**	**85.05%**
1.285	**0.9905**	10.63	20%	**146.39**	12.066/9.157	12.022/0.051	3.302/2.040	5.057/2.040	5.063/0.509	**130.73**	**89.30%**
3.146	**0.9948**	6.41	50%	**359.95**	12.046/22.896	12.037/0.127	3.304/5.105	5.056/5.105	5.019/1.272	**326.39**	**90.68%**
6.485	**0.9978**	5.21	100%	**739.28**	12.012/45.788	12.071/0.254	3.307/10.213	5.051/10.213	4.943/2.543	**650.91**	**88.05%**

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		
0.083	0.0036	3.65	0mA	**0.04**	**Vampire Load**		
0.083	**0.0332**	10.69	45mA	**0.32**	5.080/0.045	**0.23**	**71.79%**
0.085	**0.0617**	17.52	90mA	**0.60**	5.079/0.090	**0.46**	**75.79%**
0.112	**0.2718**	60.42	550mA	**3.49**	5.061/0.550	**2.78**	**79.82%**
0.150	**0.3681**	74.58	1A	**6.35**	5.045/1.000	**5.05**	**79.42%**
0.194	**0.4265**	79.85	1.5A	**9.54**	5.028/1.500	**7.54**	**79.04%**
0.342	**0.4921**	83.53	3A	**19.43**	4.971/3.000	**14.92**	**76.75%**

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. *https://www.clearesult.com/80plus/ [clearesult.com]*