

# Efficiency & Power Factor & Ripple & Energy Star Test Report

MODEL : HP1-O21300GD-F14C

Test Date: 28-Nov-22

Test Item: Efficiency, Power Factor, Ripple, Energy Star

Test Equipment : Chroma6560, 6630, 63123A, 63102A, 6314A, Fluke45, Tektronix-DPO3034

Test Result : PASS

Efficiency, Power Factor, Ripple

Typical Efficiency (50% Load) : 91.86%

Average Efficiency : 90.53%

80 Plus Compliant : Yes

80 Plus Level : GD

Test Result : PASS



## Specification :

Output Rail :	+5V	+3.3V	+12V1	-12V	+5Vs
Maximum load	24.0 A	24.0 A	108.3 A	0.5 A	3.0 A
Minimum load	0.0 A	0.0 A	0.0 A	0.0 A	0.0 A
Ripple Max	30 mV	30 mV	35 mV	80 mV	30 mV
Regulation	± 2.0 %	± 3.0 %	± 2.0 %	± 5 %	± 3 %
Combined Load	120.0 W		1300.0 W	6.0 W	15.0 W
Total Power	1300.0 W				

## Test Loading :

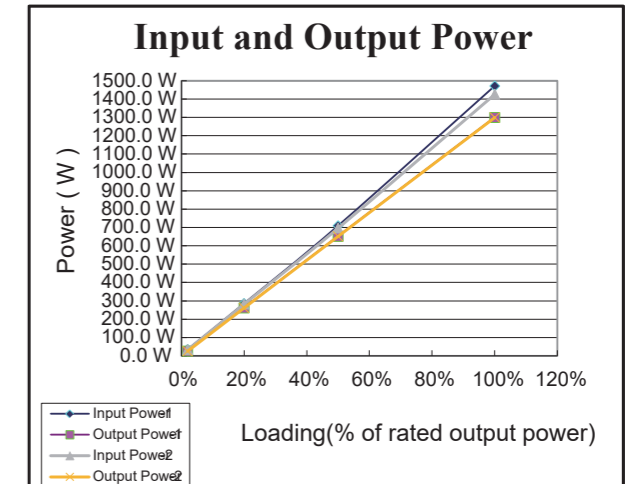
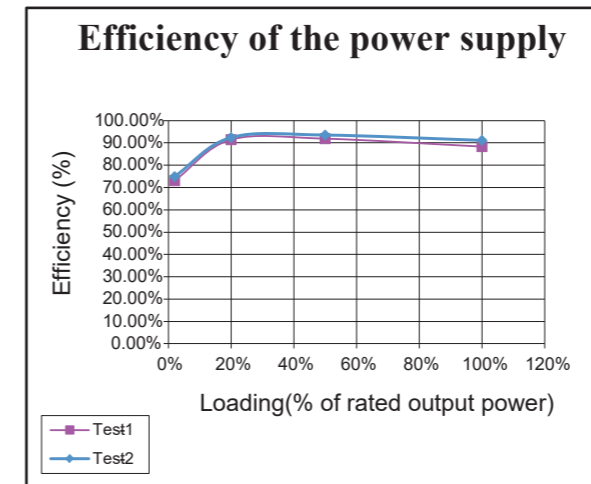
Loading	+5V	+3.3V	+12V1	-12V	+5Vsb	Pout
2%	0.26A	0.26A	1.95A	0.01A	0.05A	26.0 W
20%	2.61A	2.61A	19.55A	0.09A	0.54A	260.0 W
50%	6.52A	6.52A	48.87A	0.23A	1.35A	650.0 W
100%	13.04A	13.04A	97.73A	0.45A	2.71A	1300.0 W

## Test-1 AC Input:115V/60HZ

Loading	Output Voltage Measure Value					Pin (W)	Power Factor	Eff.	Pout (W)
	+5V	+3.3V	+12V1	-12V	+5Vsb				
No Load	5.047V	3.328V	11.941V	12.069V	5.077V	-	-	-	-
2%	5.047V	3.329V	11.926V	12.088V	5.071V	35.4 W	0.8651	73.03%	25.9 W
20%	5.041V	3.322V	12.051V	12.153V	5.036V	285.7 W	0.9939	91.41%	261.2 W
50%	5.028V	3.307V	12.027V	12.187V	4.975V	709.3 W	0.9971	91.86%	651.5 W
100%	5.011V	3.285V	11.995V	12.269V	4.880V	1471.1 W	0.9982	88.32%	1299.3 W
MAX.	0.93%	0.86%	0.42%	2.24%	1.54%				
MIN.	0.22%	-0.45%	-0.62%	0.57%	-2.40%				
Ripple	6 mV	6 mV	12 mV	11 mV	14 mV	No load		Comments :	
Ripple	8 mV	6 mV	10 mV	15 mV	15 mV	2% load		Comments :	
Ripple	10 mV	7 mV	14 mV	22 mV	13 mV	20% load		Comments :	
Ripple	10 mV	8 mV	14 mV	25 mV	17 mV	50% load		Comments :	
Ripple	13 mV	10 mV	18 mV	35 mV	22 mV	100% load		Comments :	

## Test-2 AC Input:230V/50HZ

Loading	Output Voltage Measure Value					Pin (W)	Power Factor	Eff.	Pout (W)
	+5V	+3.3V	+12V1	-12V	+5Vsb				
No Load	5.047V	3.329V	11.941V	12.073V	5.077V	-	-	-	-
2%	5.048V	3.329V	11.926V	12.092V	5.071V	34.6 W	0.4929	74.88%	25.9 W
20%	5.041V	3.323V	12.048V	12.155V	5.035V	282.6 W	0.9584	92.41%	261.1 W
50%	5.028V	3.307V	12.028V	12.189V	4.973V	696.8 W	0.9902	93.51%	651.6 W
100%	5.010V	3.285V	11.996V	12.270V	4.879V	1425.9 W	0.9977	91.12%	1299.3 W
MAX.	0.95%	0.88%	0.40%	2.25%	1.54%				
MIN.	0.20%	-0.45%	-0.62%	0.61%	-2.43%				
Ripple	6 mV	6 mV	11 mV	10 mV	14 mV	No load		Comments :	
Ripple	8 mV	6 mV	10 mV	14 mV	14 mV	2% load		Comments :	
Ripple	10 mV	6 mV	14 mV	22 mV	13 mV	20% load		Comments :	
Ripple	10 mV	8 mV	14 mV	23 mV	18 mV	50% load		Comments :	
Ripple	14 mV	10 mV	18 mV	33 mV	22 mV	100% load		Comments :	



## Energy Star

Test Condition : Test the power supply with normal line and the main outputs off (PS\_ON# High state) condition .

Pass/Fail Criteria : The power supply efficiency shall not less than specified limit.

Test Result : PASS

## Test-1

Vin (V)	+5Vs (PS_on# at high state)					Decide
	Current	Voltage	Pin (W)	Efficiency	Require.	
230V/50Hz	0.000A	5.071V	0.138V	-	<0.5W	PASS
	0.045A	5.070V	0.406V	56.2%	≥50%	
	0.090A	5.068V	0.719V	63.4%	≥55%	
	0.550A	5.057V	3.598V	77.3%	≥75%	
	1.000A	5.046V	6.422V	78.6%	≥75%	
	3.000A	4.995V	18.991V	78.9%	≥75%	