Texas Instruments

PMP4448 Test Procedure

China Power Reference Design

REV A

12/14/2014

1 GENERAL

1.1 PURPOSE

To provide detailed data for evaluating and verifying the PMP4448.

1.2 REFERENCE DOCUMENTATION

Schematic: PMP4448_SCH_RevA
Assembly: PMP4448_PCB_RevA
BOM

1.3 TEST EQUIPMENTS

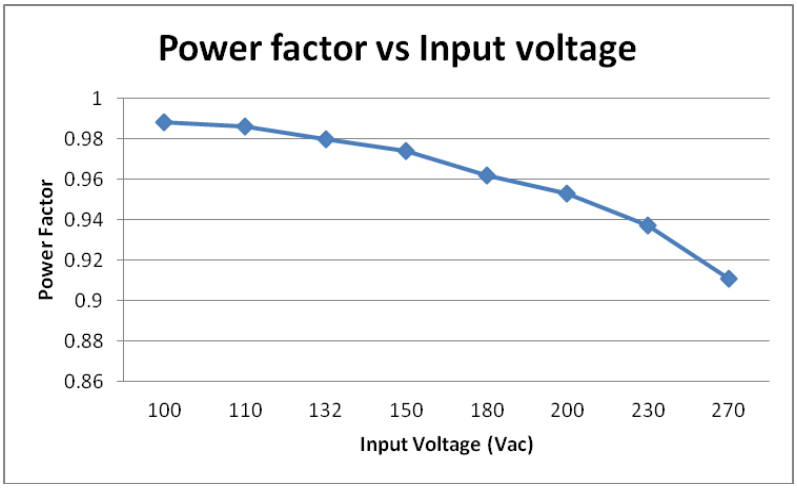
Power-meter: YOKOGAWA WT210
Multi-meter(current): Fluke 3345A
Multi-meter(voltage): Fluke 187
AC Source: Chroma 61530
LED load: Chroma 63110A module

2 INPUT CHARACTERISTICS

Otherwise Specified, the test is under the condition With LED electric Load (Chroma 63310A, 29V, 0.23A).

2.1 POWER FACTOR

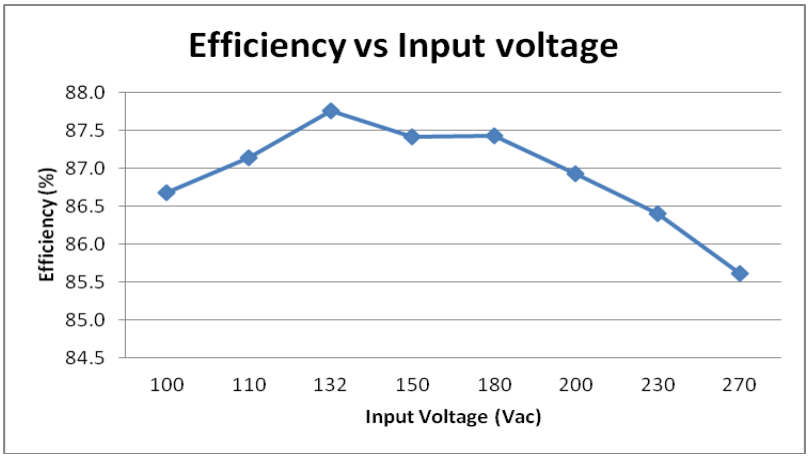
Vin(Vac)	Freq(Hz)	Io(Arms)	PF	Pass/Fail
100	60	**0.23**	**0.988**	
110	60	**0.23**	**0.986**	
132	60	**0.228**	**0.98**	
150	60	**0.23**	**0.974**	
180	50	**0.228**	**0.962**	
200	50	**0.229**	**0.953**	
230	50	**0.230**	**0.937**	
270	50	**0.231**	**0.911**	



2.2 EFFICIENCY

Pass/Fail criteria:

Vin(Vac)	Freq(Hz)	Pin(W)	Vo(Vrms)	Io(Arms)	Eff(%)	Pass/Fail
100	**60**	**7.7**	**29.02**	**0.23**	**86.7**	
110	**60**	**7.66**	**29.02**	**0.23**	**87.1**	
132	**60**	**7.54**	**29.02**	**0.228**	**87.8**	
150	**60**	**7.63**	**29.00**	**0.23**	**87.4**	
180	**50**	**7.56**	**28.99**	**0.228**	**87.4**	
200	**50**	**7.64**	**29.00**	**0.229**	**86.9**	
230	**50**	**7.72**	**29.00**	**0.230**	**86.4**	
270	**50**	**7.83**	**29.02**	**0.231**	**85.6**	



2.3 INPUT CURRENT

Pass/Fail criteria: XX Amps RMS maximum at low line, full load.

Vin(Vac)	Freq(Hz)	Iin(Arms)	Pass/Fail
110	60	**0.0705**	
230	50	**0.036**	

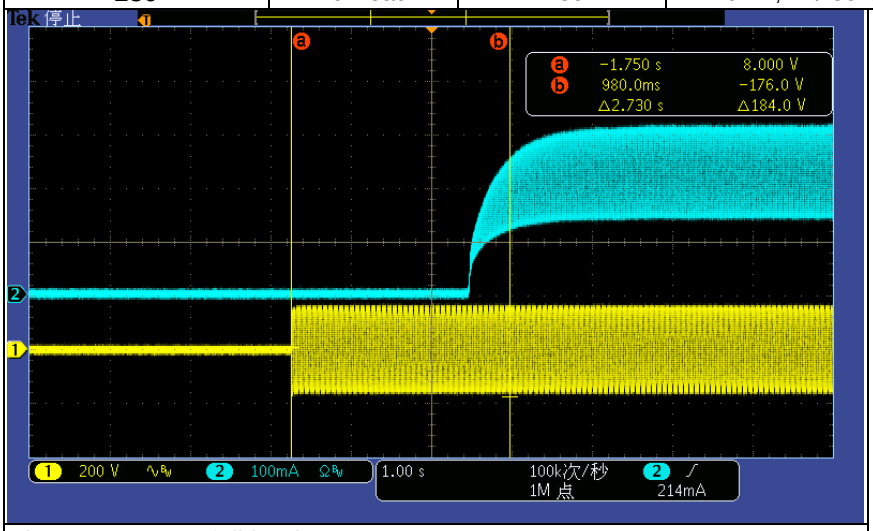
3 OUTPUT CHARACTERISTICS

3.1 OUTPUT VOLTAGE RANGE（22Vdc-29Vdc）

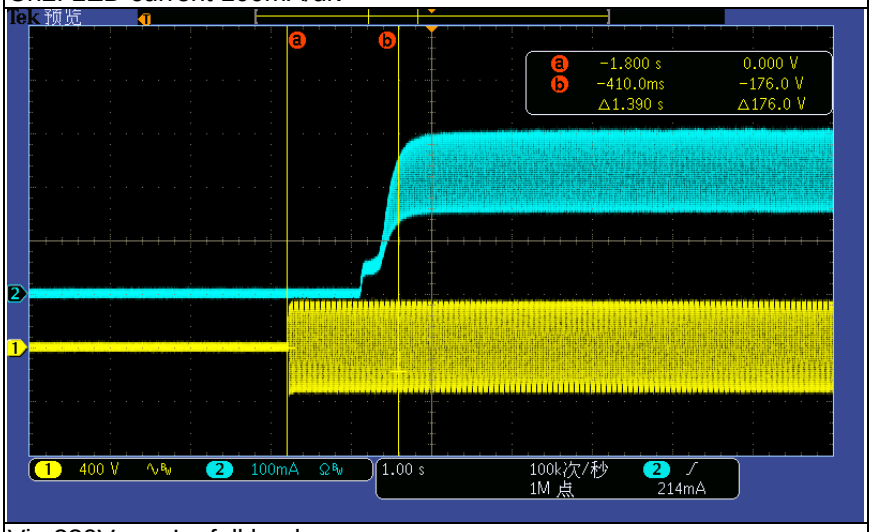
ITEM	Vout (V)	Iout(A)	Pass/Fail
Vin=110Vac	22	0.222	
	29	0.229	
Vin=230Vac	22	0.225	
	29	0.230	

3.2 TURN ON DELAY AND RIPPLE CURRENT

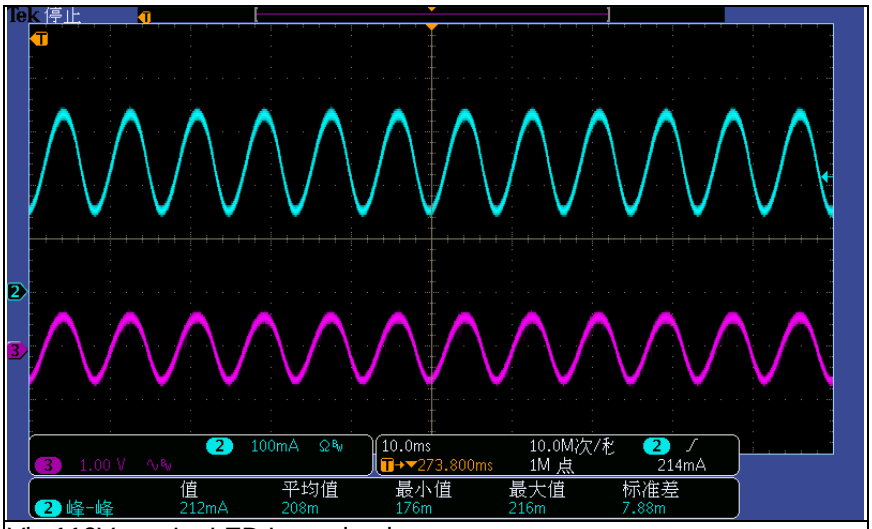
CONDITIONS		Delay time (S)	Ripple current （mA）	Pass/Fail
Vin (Vac)	Load			
110	Full load	2.73	212mA, <+/-50%	
230	Full load	1.39	176mA, <+/-50%	



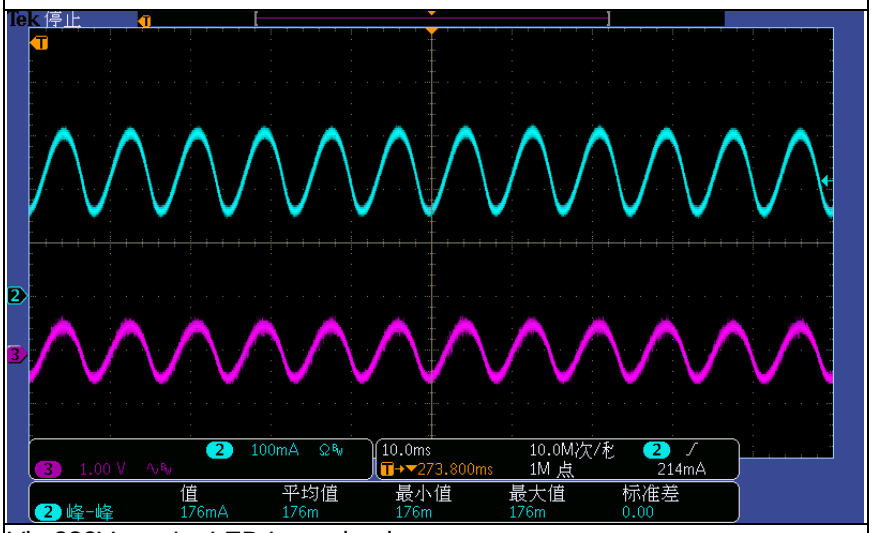
Vin:110Vac Io: full load
Ch1:Input voltage, 200Vac/div
Ch2: LED current 100mA/div



Vin:230Vac Io: full load
Ch1: Input voltage, 400Vac/div
Ch2: LED current, 100mA/div



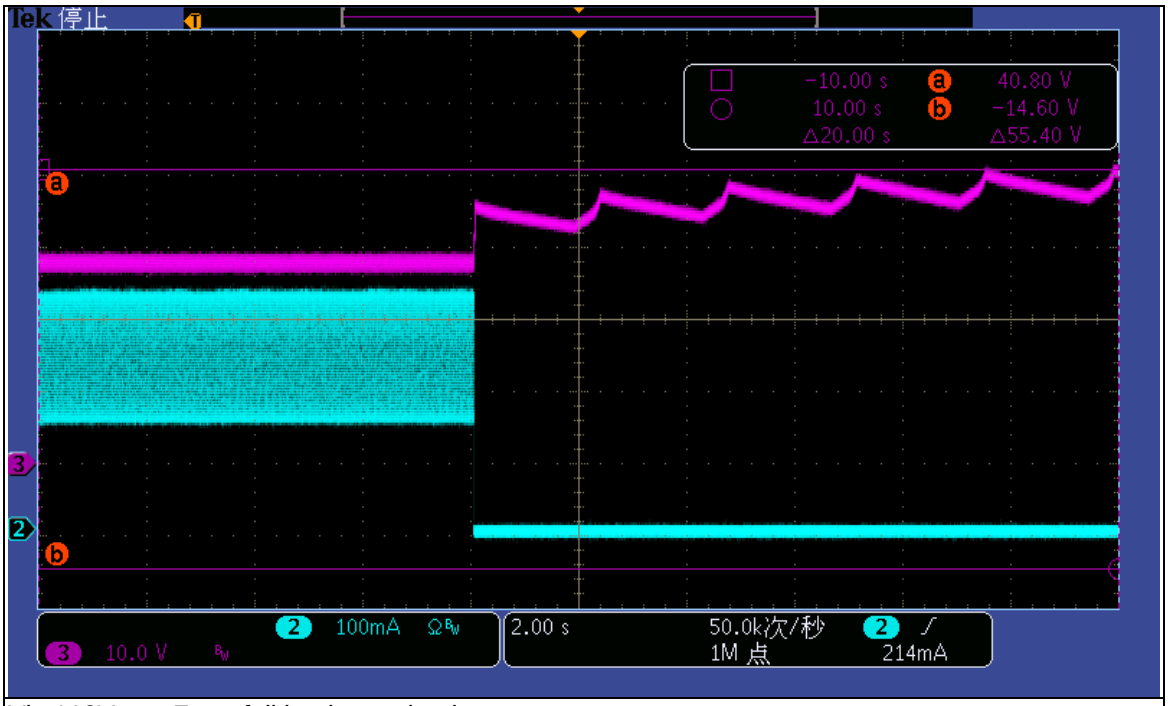
Vin:110Vac Io: LED Lamp load
Ch2: LED current 100mA/div
Ch3: LED ripple voltage 1V/div



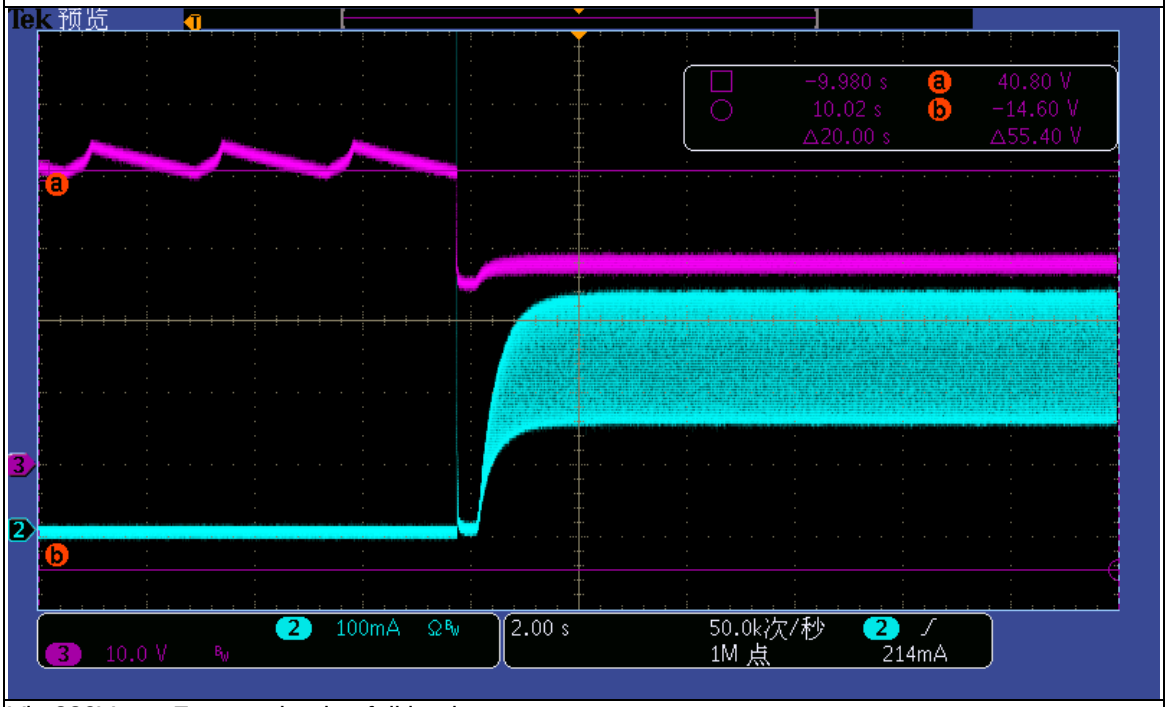
Vin:230Vac Io: LED Lamp load
Ch2: LED current 100mA/div
Ch3: LED ripple voltage 1V/div

3.3 OUTPUT OVER VOLTAGE AND NO LOAD PROTECTION

CONDITIONS Vin (Vac)	Protection voltage（V）	Pass/Fail
110&230	40.8	



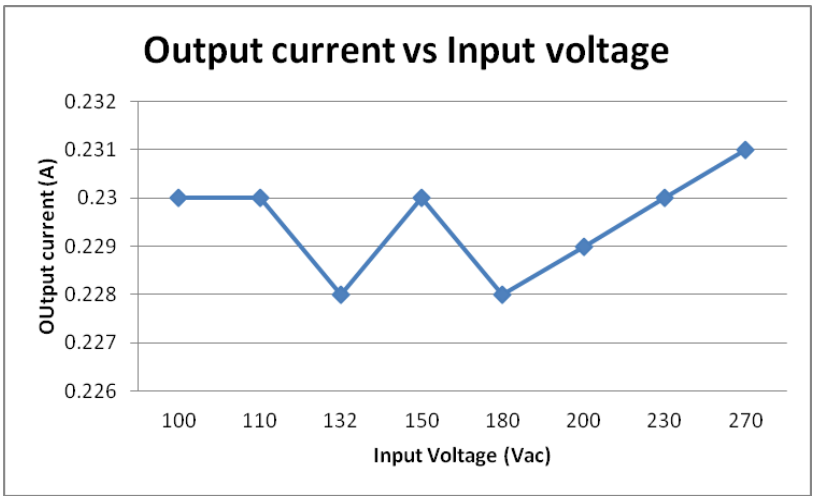
Vin:110Vac From full load to no load
Ch2: LED current, 100mA/div
Ch3: LED voltage, 10V/div



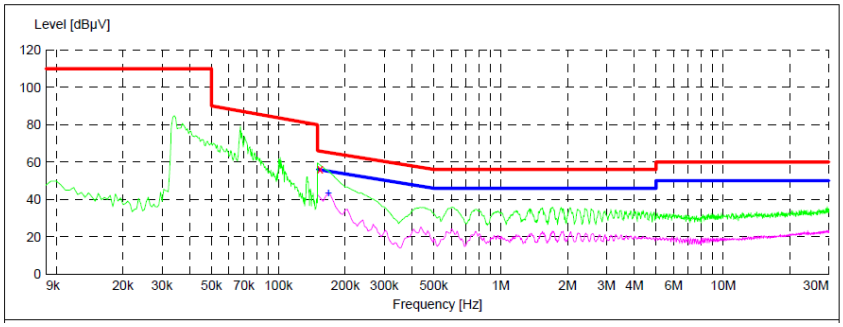
Vin:230Vac From no load to full load
Ch2: LED current, 100mA/div
Ch3: LED voltage, 10V/div

3.4 LINE REGULATION CURVE

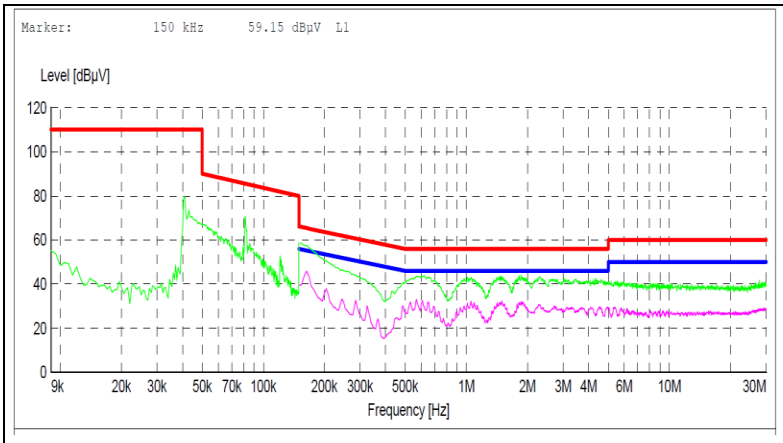
Vin(Vac)	Freq(Hz)	Io(Arms)	Current Regulation(%)	Pass/Fail
100	60	**0.23**	**0**	
110	60	**0.23**	**0**	
132	60	**0.228**	**-0.9**	
150	60	**0.23**	**0**	
180	50	**0.228**	**-0.9**	
200	50	**0.229**	**-0.4**	
230	50	**0.230**	**0**	
270	50	**0.231**	**0.4**	



4 EMI Test



Vin: 110Vac Io: full load



Vin:230Vac Io: full load

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