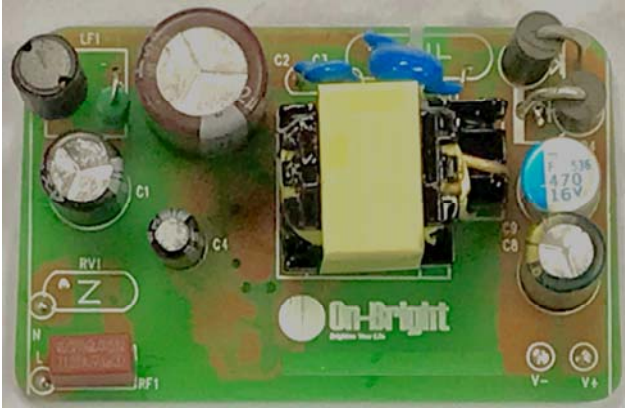
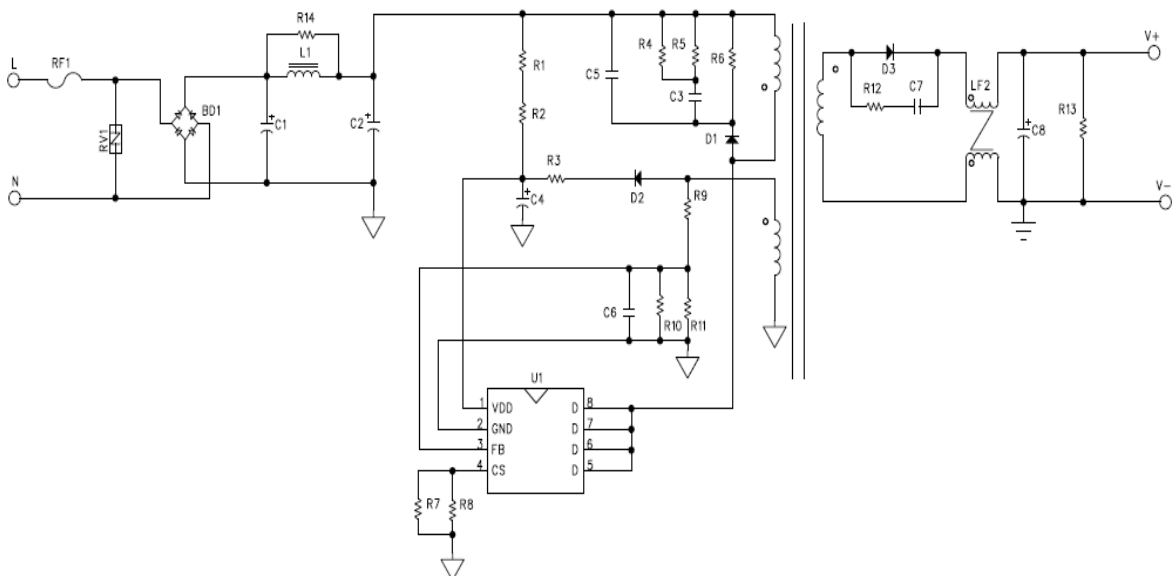


<p><b>Subject</b> <b>OB2573T Demo Board Manual</b></p>	<p>Board Model: CH12V1.5AOB2573T Doc. No.: OB_DOC_DBM_2573T00</p>
	<p><b>Key features:</b></p> <ul style="list-style-type: none"> <li>• Standby power less than 75mW@264Vac</li> <li>• Precise CV/CC regulation</li> <li>• Primary-side sensing cc and cv regulation without TL431 and opto-coupler</li> <li>• Cost effective and simplified system design</li> <li>• Average efficiency meet DOE/COC</li> <li>• Audio noised free operation</li> <li>• Frequency shuffling technology to improve EMI performance</li> </ul>

## Schematic



## Performance Evaluation

This session presents the test results of OB2573T module up to date. Results on inrush current and safety test are not included and will be added when they become available.

Overall, the module meets design specifications. All data was measured at the end of 160ohm output cable.

### Performance Highlights

- Standby power less than 75mW@264V
- Precise CV/CC regulation
- The average efficiency meet DOE Level 6/COC
- EMI passed EN55022 and FCC15 Class B test with more than 6dB margin

### System Electrical Specification

Description	Symbol	Min	Typ.	Max	Units	Comment
<b>Input Section</b>						
Input Voltage	$V_{IN}$	90		264	V	2 Wire
Line Frequency	$f_{LINE}$	47	50/60	63	Hz	
Standby Power				75	mW	230V
<b>Output characteristics</b>						
CV Section	Output Voltage	$V_{OUT CV}$	12		V	
	Output Current	$I_{OUT CV}$	0	1.5	A	
CC Section	Output Voltage	$V_{OUT CC}$	6.0		V	
	Output Current	$I_{OUT CC}$	1.65	1.95	A	
Ripple & Noise	$V_{RIPPLE}$			150	mV <sub>P-P</sub>	
Continuous Output Power	$P_{OUT}$		18		W	
Over Current Protection	$I_{OUT MAX}$			1.95	A	
Active Mode Efficiency	$\eta$	85.45			%	Measured at Line End, $V_{IN}=115V/230V(COC)$
<b>Time sequence</b>						
Turn on delay time				2	s	
<b>Environmental</b>						
Conducted/Radiation EMI	Meets EN55032\FCC 15					
Safety	Meets IEC950,UL1950,Class II					
ESD		18			kV	

### Test Equipments

Item	Vender	Module
AC Source	WEST	WEW1010
Digital Power Meter	YOKOGAWA	WT210
Electrical Load	Chroma	63030
Oscilloscope	LeCroy	WS424
Multimeter	VICTORY	VC9807A

# 1. Input Characteristics

## 1.1 Standby power

Table. 1 Standby power

Input voltage	Pin(mW)	Vo(V)	Specification	Test result
90V/60HZ	32.5	12.083	<75mW	Pass
115V/60HZ	34.8	12.081		
230V/50HZ	60.0	12.093		
264V/50HZ	72.1	12.093		

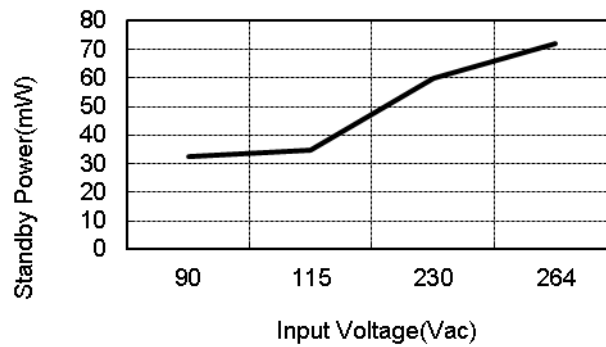


Fig. 1 Standby Power vs. Input Voltage

## 1.2 Efficiency

Table. 2 Efficiency Line end with 22# 1.5M (160mΩ) output line.

Input voltage	10%	25%	50%	75%	100%	25%~100% Load Aver. Eff.	Standards		Test Result
							DOE	COC	
115V/60Hz	82.30	86.05	86.94	87.18	86.90	86.76	85.0%	85.45%	Pass
230V/50Hz	81.00	85.48	86.72	86.84	86.94	86.49		75.45% (10%Load)	

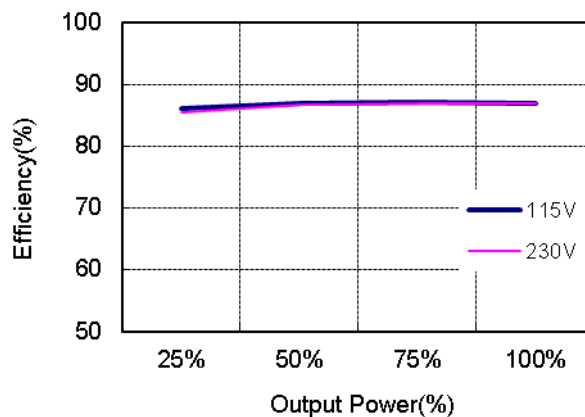


Fig. 2 Efficiency vs. Percent of Rated Output Power

## 2. Output Characteristics

### 2.1 Line Regulation & Load Regulation

Table. 3 Line Regulation & Load Regulation

Input voltage	No load(V)	Half load(V)	Full load(V)	Specification(V)	Test result
90V/60Hz	12.083	12.124	12.026	11.4-12.6	<b>Pass</b>
115V/60Hz	12.081	12.115	12.047	11.4-12.6	
230V/50Hz	12.093	12.084	12.072	11.4-12.6	
264V/50Hz	12.090	12.079	12.068	11.4-12.6	
Line Regulation	$\pm 0.18\%$			$< \pm 2\%$	<b>Pass</b>
Load Regulation	$\pm 0.41\%$			$< \pm 5\%$	<b>Pass</b>

### 2.2 Ripple & Noise

Table. 4 Ripple & Noise

Input voltage	R&N (mV)		
	No load	Full load	Remark
90V/60Hz	10mV	120mV	Fig. 3,4
115V/60Hz	12mV	50mV	
230V/50Hz	12mV	60mV	
264V/50Hz	13mV	63mV	Fig. 5,6

Note: Ripple&noise was measured at line end without probe cap and ground clip, meanwhile with ceramic cap 0.1uF/100V and electrolytic cap 10uF/50V. Measurement bandwidth was limited to 20MHz.

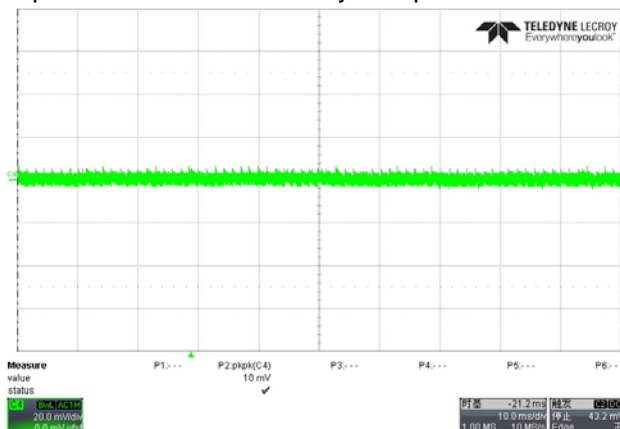


Fig. 3 Measured ripple& noise waveform @90V/60Hz, no load

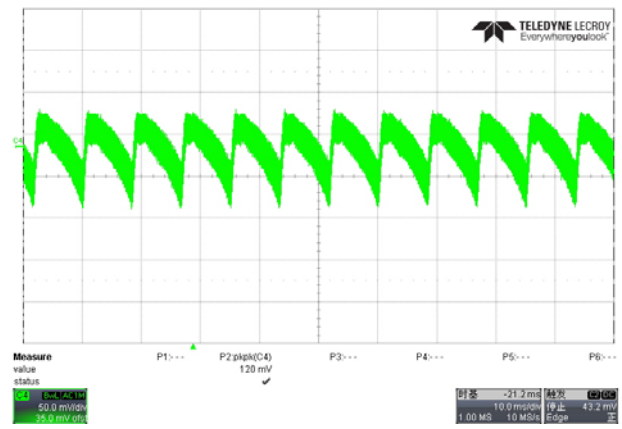


Fig. 4 Measured ripple& noise waveform @90V/60Hz, full load

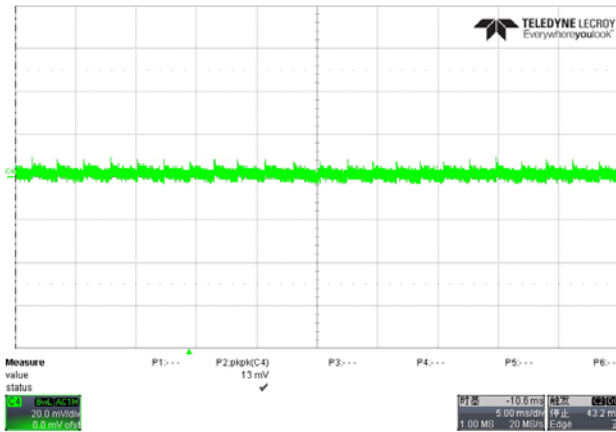


Fig. 5 Measured ripple&amp; noise waveform @264V/50Hz, no load

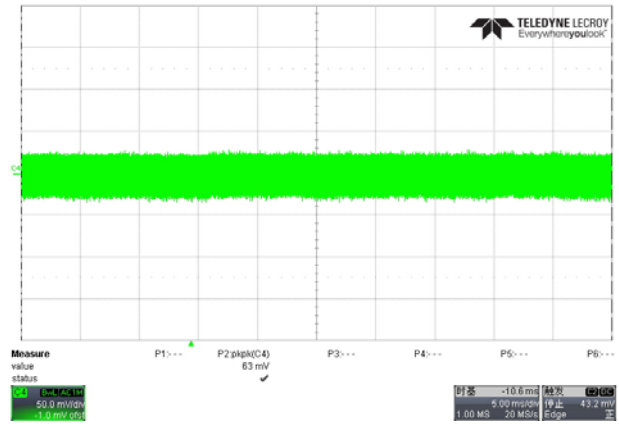


Fig. 6 Measured ripple&amp; noise waveform @264V/50Hz, full load

### 2.3 Dynamic Test

A dynamic loading with low load lasting for 10ms/20ms and high load lasting for 10ms/20ms is added to output. The high load is 1.5A and the low load is 0A. The ramp is set at 0.125A/ $\mu$ s at transient. Measurement was taken at line end (Same as R&N measurement)

Table. 5 Output voltage under dynamic test(1.5A lasting for 10ms,0A lasting for 10ms)

Input	Vomin-Vomax(v)	Remark
90V/60Hz	11.41-12.74	
115V/60Hz	11.35-12.74	
230V/50Hz	11.41-12.88	
264V/50Hz	11.41-12.81	

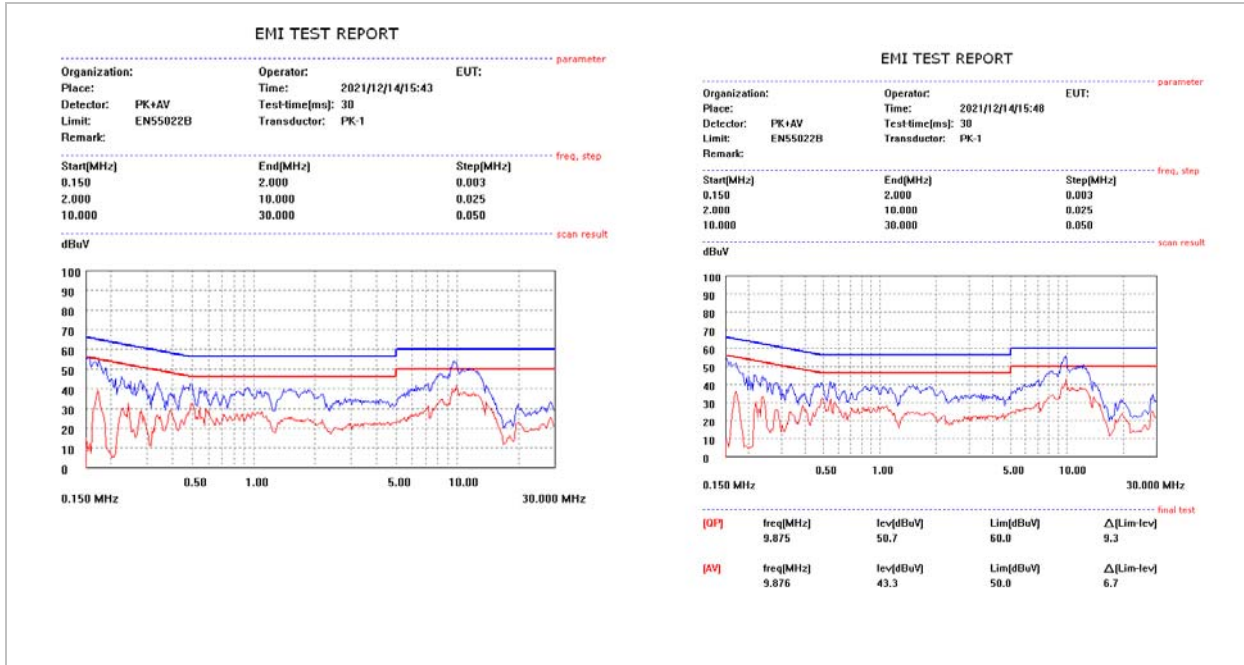
(1.5A lasting for 20ms,0A lasting for 20ms)

Input	Vomin-Vomax(v)	Remark
90V/60Hz	11.35-12.74	
115V/60Hz	11.35-12.74	
230V/50Hz	11.48-12.88	
264V/50Hz	11.48-12.88	

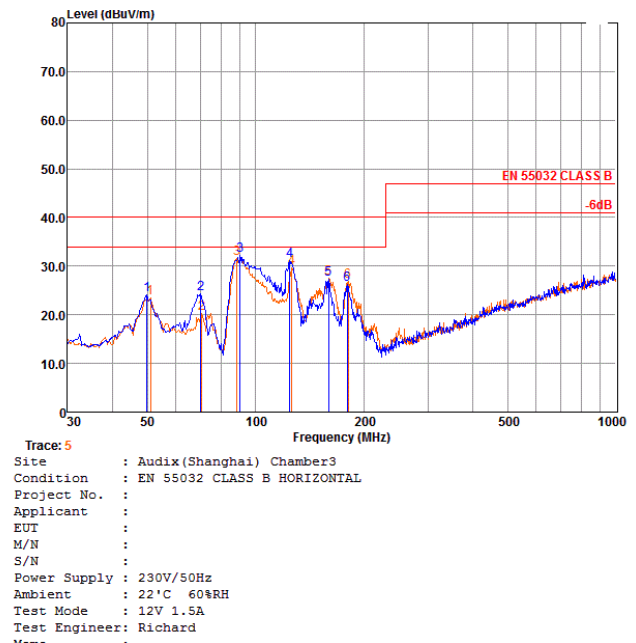
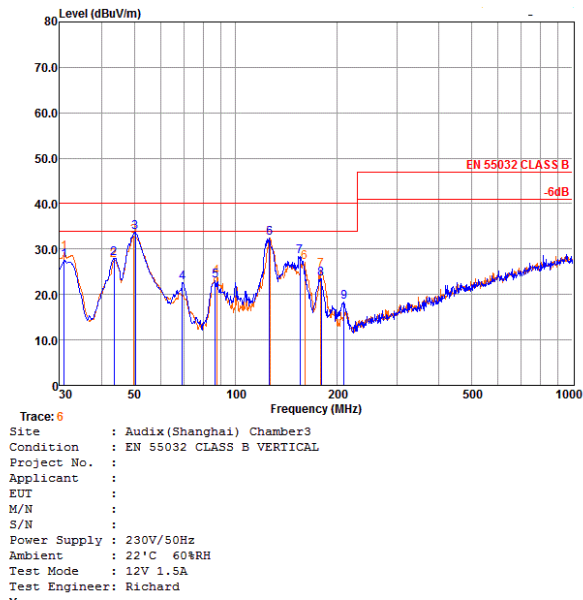
### 3. EMI Test

#### 3.1 Conducted EMI Test

The Power supply passed EN55022 Class B



#### 3.2 Radiation EMI Test



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