

**45W USB PD Adaptor with
5V ~ 21V PPS
Using WT7162RHUG24C
/WT7131A/WT6633P**

Test Report

Rev. 0.2

June 2024

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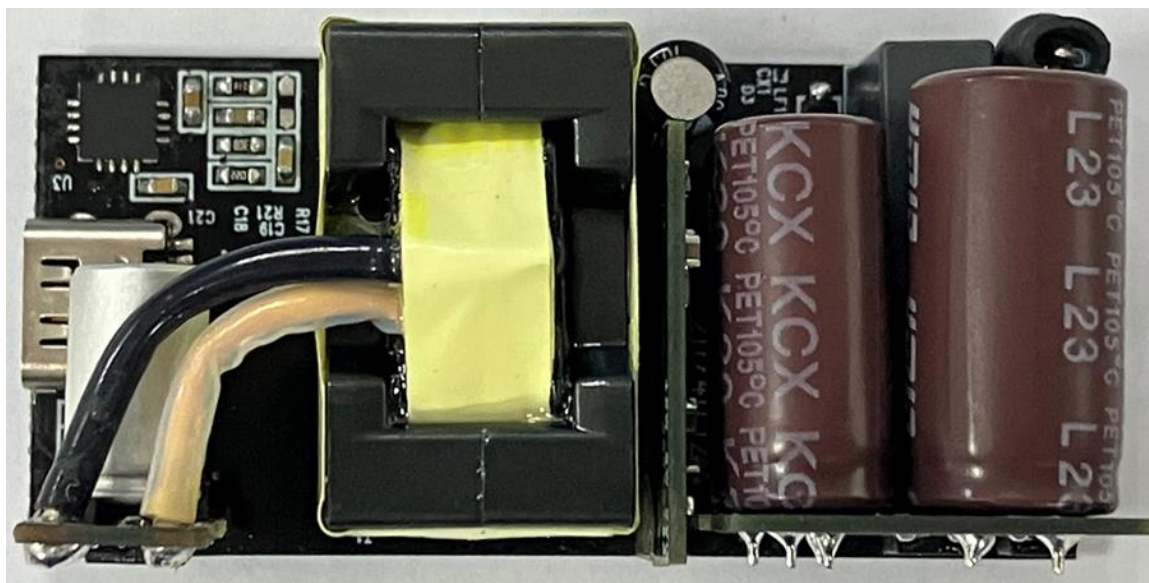
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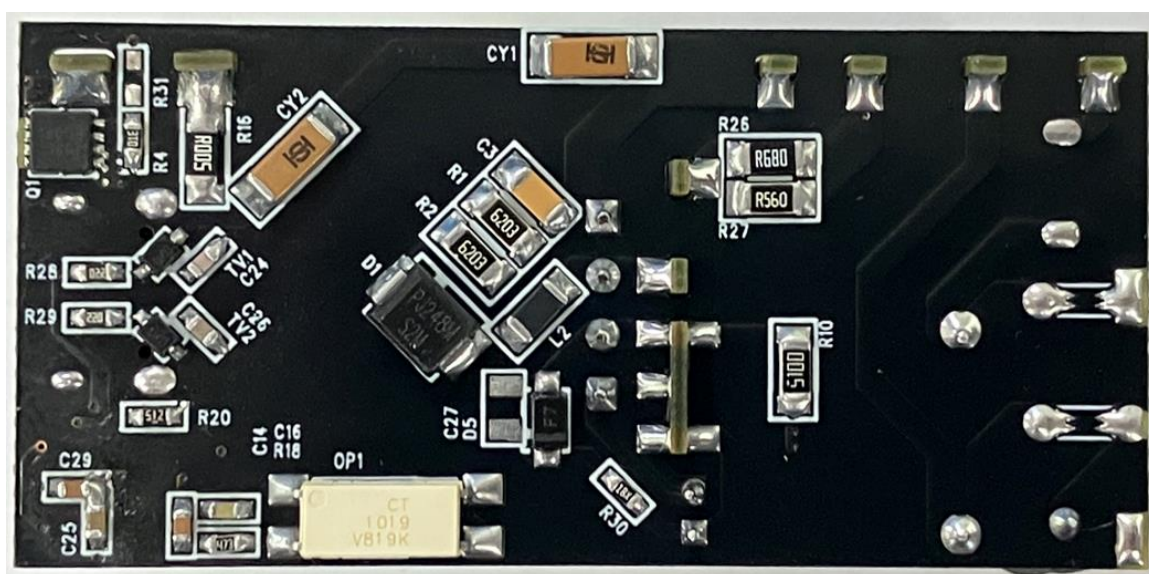
1 Features

- Small Factor: 55.5mm x 26.5mm x 26mm.
- Topology: Flyback QR mode/valley-switching multi-mode operation.
- WT7162RHUG24C SiP IC and WT7131A SR controller work with WT6633P USB PD controller to be a total solution with cost effectiveness and high performance.
- Peak power efficiency: > 92.47%@115VAC
- Power density: 19.5W/in³
- Wide output voltage operation: USB-C PD3.0 and PPS 5V~21V
- No load input power < 75mW@264Vac.

2 Demo Board Photographs



A. Top-view



B. Bottom-view

3 Test Facilities

Name	Mark
AC Source	Chroma 61601
Oscilloscope	RIGOL DS1104
Power Meter	Chroma 66202
Electronic Load	Chroma 63630
True RMS Multimeter	Picotest M3500A

4 Demo Board Specification

Parameter	Specification
Input Voltage	90Vac to 264Vac
Input Frequency	47Hz to 63Hz
Output Voltage and Current	5V/3A; 9V/3A; 15V/3A; 20V/2.25A PPS: 5V~21V/2.25A
Output Power	15W@ 5V/3A 27W@9V/3A 45W@15V/3A 45W@20V/2.25A
Output Ripple & Noise	150mV @5V/9V 200mV @15V/20V
Efficiency Measured On the Board (CoC V5 Tier2)	> 81.84% @5V/3A > 87.30% @9V/3A > 88.85% @15V/3A > 89% @20V/2.25A

5 Demo Board Test Items

All test conditions are at the ambient temperature 25°C.

Test item	Specification	Result
Standby power measured at 90V/47Hz, 115V/60Hz, 230V/50Hz, 264V/50Hz.	< 75mW@ Detaching Type-C Connector	PASS
Brown-in	75Vac to 85Vac	PASS
Brown-out	68Vac to 78Vac	PASS
Average Efficiency (CoC V5 Tier 2)	> 81.84% @5V/3A > 87.30% @9V/3A > 88.85% @15V/3A > 89% @20V/2.25A	PASS
Ripple & Noise	< 150mV@5V/9V < 200mV@15V/20V	PASS
Line regulation	< 1%	PASS
Load regulation	< 5%	PASS
Dynamic (Peak-Peak, I _{load} =10%-100%)	< 10% @5V/9V < 5% @15V/20V	PASS
Overshoot	< 5%	PASS
Turn on time	< 0.5s	PASS
Hold up time	> 8.3ms	PASS
Voltage stress on GaN_FET	< 650V	PASS
Voltage stress on secondary rectifiers	< 100V	PASS
Over voltage protection	< 27V	PASS
Current limit	< 130%	PASS
ESD	±16KV by Air Discharge ±8.8KV by Contact Discharge Class A	PASS
SURGE	L to N ±1kV/ 2Ω; L to GND & N to GND ±2kV/12Ω; (0°/90°/270°) 3 Times, Class A	PASS

6 Performance Measurements

6.1 No-load Power Consumption

AC IN	Pout (W)	Vout (V)	Iin (mA)	Pin (mW)	Spec.	Result
90V _{AC} /60Hz	0	5	11.7	30.3	< 75mW	PASS
115V _{AC} /60Hz	0	5	14.6	37.3		
230V _{AC} /50Hz	0	5	24.7	43.9		
264V _{AC} /50Hz	0	5	27.6	47.6		

6.2 Brown-in/Brown-Out

Item	AC-In	Spec.	Result
Brown-In (Vac)	82.4	75Vac to 85Vac	PASS
Brown-Out (Vac)	75.3	68Vac to 78Vac	

6.3 Average Efficiency and Efficiency at 10% Load (PCB Side)

5V3A

AC IN \ I_Load	10%	25%	50%	75%	100%	AVG (%)	Spec.	Result
90V _{AC} /60Hz	87.58%	91.77%	92.61%	92.85%	92.83%	92.51%	81.84%	PASS
115V _{AC} /60Hz	86.09%	91.35%	92.64%	92.95%	93.11%	92.51%		PASS
230V _{AC} /50Hz	79.01%	88.30%	91.17%	91.63%	92.09%	90.80%		PASS
264V _{AC} /50Hz	76.11%	86.72%	90.18%	90.93%	91.40%	89.81%		PASS

9V3A

AC IN \ I_Load	10%	25%	50%	75%	100%	AVG (%)	Spec.	Result
90V _{AC} /60Hz	87.28%	91.12%	92.23%	92.47%	92.52%	92.08%	87.3%	PASS
115V _{AC} /60Hz	86.81%	91.10%	92.40%	92.81%	92.96%	92.32%		PASS
230V _{AC} /50Hz	82.83%	89.85%	91.48%	92.02%	92.33%	91.42%		PASS
264V _{AC} /50Hz	80.94%	88.83%	90.67%	91.27%	91.66%	90.60%		PASS

15V3A

I_Load AC IN	10%	25%	50%	75%	100%	AVG (%)	Spec.	Result
90V _{AC} /60Hz	85.68%	90.45%	91.92%	92.28%	91.80%	91.62%	88.85%	PASS
115V _{AC} /60Hz	85.70%	90.65%	92.32%	92.83%	92.95%	92.19%		PASS
230V _{AC} /50Hz	84.18%	89.85%	91.70%	92.38%	92.81%	91.68%		PASS
264V _{AC} /50Hz	82.86%	88.84%	90.89%	91.74%	92.30%	90.94%		PASS

20V2.25A

I_Load AC IN	10%	25%	50%	75%	100%	AVG (%)	Spec.	Result
90V _{AC} /60Hz	80.91%	88.01%	90.73%	91.54%	91.61%	90.47%	89%	PASS
115V _{AC} /60Hz	80.33%	87.97%	91.05%	92.02%	92.47%	90.88%		PASS
230V _{AC} /50Hz	79.61%	87.45%	90.48%	91.64%	92.30%	90.47%		PASS
264V _{AC} /50Hz	78.13%	86.34%	89.69%	90.94%	91.74%	89.68%		PASS

6.4 Tiny Load 250mW Output Power at 20V

AC Input	90V _{AC} /60Hz	115V _{AC} /60Hz	230V _{AC} /50Hz	264V _{AC} /50Hz
Input Power	382 mW	398 mW	488 mW	436 mW
Efficiency	65.44%	62.81%	51.22%	57.33%

6.5 Output Voltage Ripple (Cable End)

Test Condition:

The oscilloscope uses 20 MHz bandwidth limited.

The oscilloscope probe connects two capacitors in parallel. One is 10 μ F aluminum electrolytic and the other is 0.1 μ F ceramic type.

AC IN	Load		mV (p-p)	Spec.	Note	Result
	Vout	Iout				
90V _{AC} /47Hz	5V	No Load	44	< 150mV	-	PASS
		Full Load	74		-	
264V _{AC} /50Hz		No Load	54		-	
		Full Load	98		-	
90V _{AC} /47Hz	9V	No Load	44	< 150mV	-	PASS
		Full Load	78		-	
264V _{AC} /50Hz		No Load	46		-	
		Full Load	86		-	
90V _{AC} /47Hz	15V	No Load	42	< 200mV	-	PASS
		Full Load	154		-	
264V _{AC} /50Hz		No Load	46		-	
		Full Load	88		-	
90V _{AC} /47Hz	20V	No Load	42	< 200mV	Figure 1	PASS
		Full Load	150		Figure 2	
264V _{AC} /50Hz		No Load	48		Figure 3	
		Full Load	88		Figure 4	

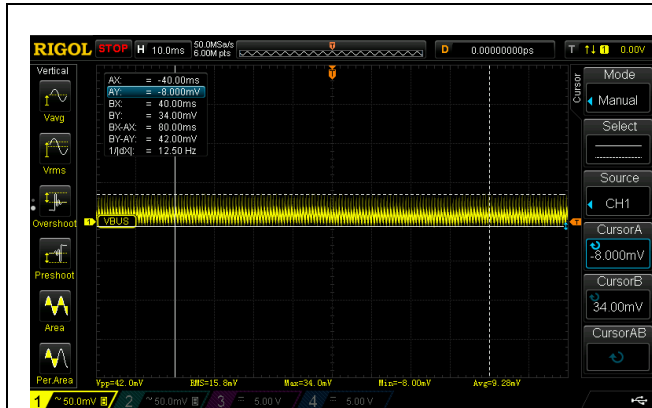


Figure 1 Ripple & Noise at $V_{in} = 90\text{Vac}/47\text{Hz}$
20V No load

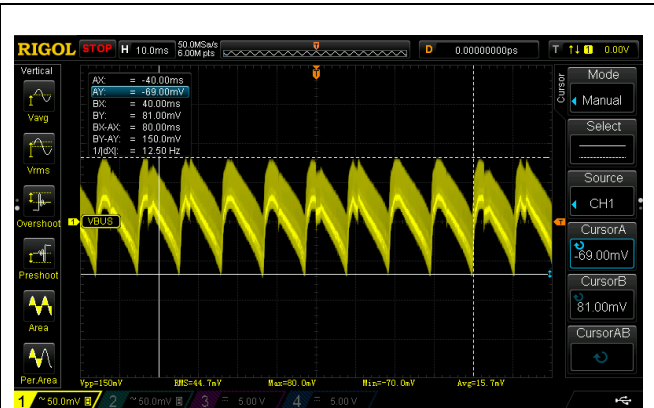


Figure 2 Ripple & Noise at $V_{in} = 90\text{Vac}/47\text{Hz}$
20V 2.25A

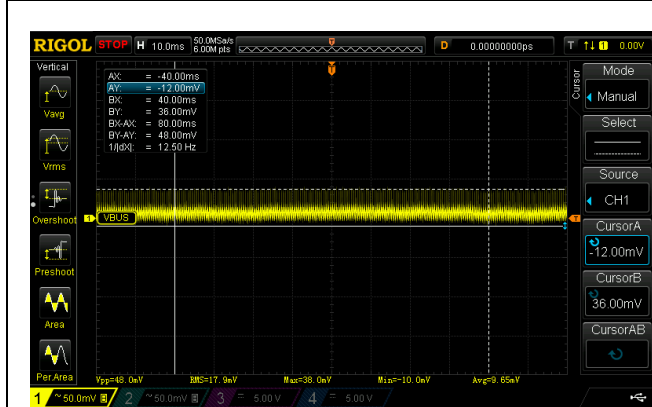


Figure 3 Ripple & Noise at $V_{in} = 264\text{Vac}/50\text{Hz}$
20V No load

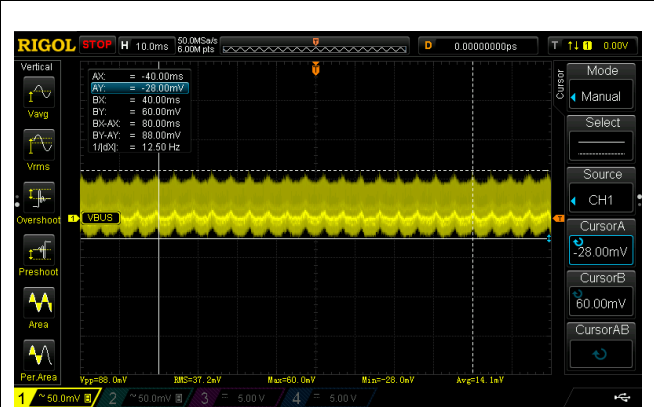


Figure 4 Ripple & Noise at $V_{in} = 264\text{Vac}/50\text{Hz}$
20V 2.25A

6.6 Line Regulation and Load Regulation (Cable End)

AC IN	Vo (V) no load	Vo (V) 25% load	Vo (V) 50% load	Vo (V) 100% load	Spec.	Result
90V _{AC} /60Hz	5.02	5.02	5.02	5.03	4.75V to 5.25V	PASS
115V _{AC} /60Hz	5.02	5.02	5.02	5.02		
230V _{AC} /50Hz	5.02	5.02	5.02	5.02		
264V _{AC} /50Hz	5.02	5.02	5.03	5.03		
90V _{AC} /60Hz	9.06	9.06	9.06	9.06	8.55V to 9.45V	PASS
115V _{AC} /60Hz	9.06	9.06	9.06	9.06		
230V _{AC} /50Hz	9.06	9.06	9.06	9.06		
264V _{AC} /50Hz	9.06	9.06	9.06	9.06		
90V _{AC} /60Hz	15.07	15.07	15.07	15.07	14.25V to 15.75V	PASS
115V _{AC} /60Hz	15.06	15.06	15.06	15.06		
230V _{AC} /50Hz	15.06	15.06	15.06	15.06		
264V _{AC} /50Hz	15.06	15.06	15.06	15.06		
90V _{AC} /60Hz	20.07	20.07	20.06	20.06	19.0V to 21.0V	PASS
115V _{AC} /60Hz	20.04	20.04	20.04	20.04		
230V _{AC} /50Hz	20.04	20.04	20.04	20.04		
264V _{AC} /50Hz	20.04	20.04	20.04	20.04		
Line Regulation	%				1%	PASS
Load Regulation	%				5%	PASS

Note: R Cable=0.126Ω.

6.7 Dynamic Load Response (Cable End)

Test Condition:

Load Change is 10%-100% load step with the slew rate=1A/ μ s and the period is 20ms and the duty is 50%.

R_Cable: 0.126 Ω .

AC IN	Vo (Max.)	Vo (Min.)	Spec.	Note	Result
90V _{AC} /60Hz	5.46	4.61	<10%	Figure 5	PASS
264V _{AC} /50Hz	5.45	4.53		Figure 6	
90V _{AC} /60Hz	9.52	8.69	<10%	-	PASS
264V _{AC} /50Hz	9.5	8.63		-	
90V _{AC} /60Hz	15.59	14.7	<5%	-	PASS
264V _{AC} /50Hz	15.53	14.65		-	
90V _{AC} /60Hz	20.49	19.78	<5%	Figure 7	PASS
264V _{AC} /50Hz	20.49	19.75		Figure 8	

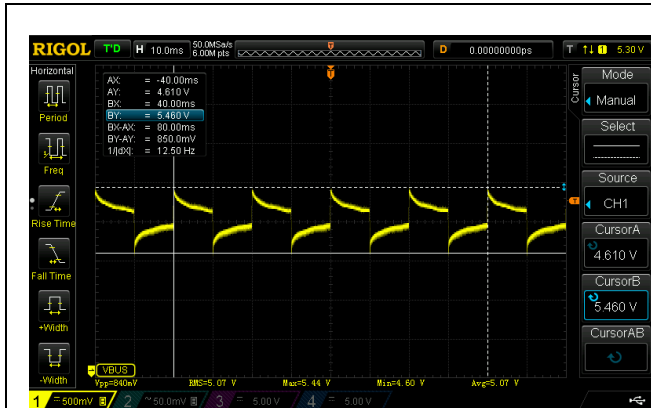


Figure 5 Dynamic Response at $V_{in} = 90\text{Vac}/60\text{Hz}$, 5V0.3A to 3A load step.

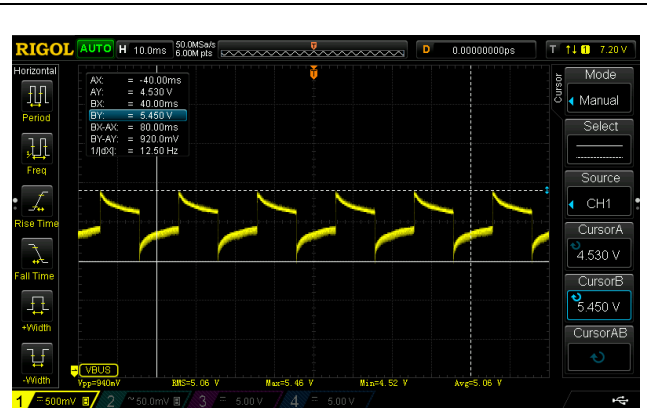


Figure 6 Dynamic Response at $V_{in} = 264\text{Vac}/50\text{Hz}$, 5V0.3A to 3A load step.

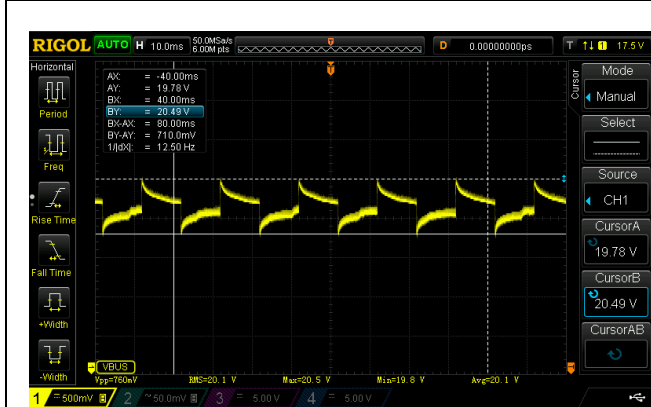


Figure 7 Dynamic Response at $V_{in} = 90\text{Vac}/60\text{Hz}$, 20V0.225A to 2.25A load step.

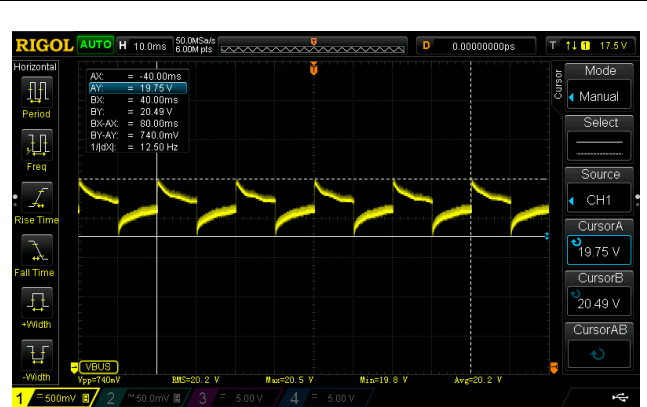


Figure 8 Dynamic Response at $V_{in} = 264\text{Vac}/50\text{Hz}$, 20V0.225A to 2.25A load step.

6.8 Output Over-shoot (Cable End)

AC IN	Load	Test Data (%)	Spec.	Note	Result
90V _{AC} /60Hz	No Load	0	< 5%	Figure 9	PASS
	Full Load	0		Figure 10	
264V _{AC} /50Hz	No Load	0		Figure 11	
	Full Load	0		Figure 12	



Figure 9 The start up waveform of Output at Vin = 90Vac/60Hz, 5V No-load

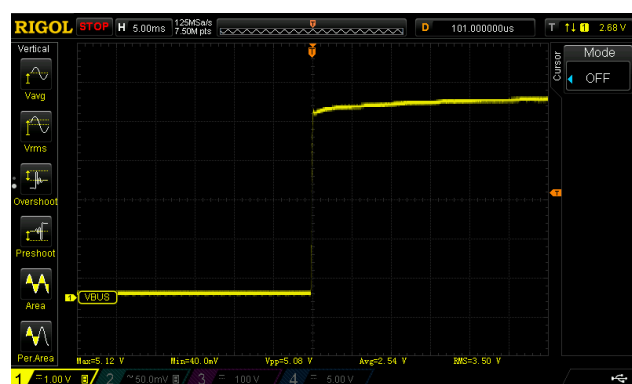


Figure 10 The start up waveform of Output at Vin = 90Vac/60Hz, 5V3A

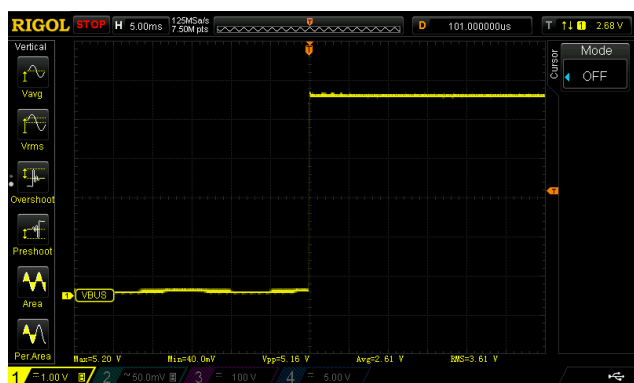


Figure 11 The start up waveform of Output at Vin = 264Vac/50Hz, 5V No-load

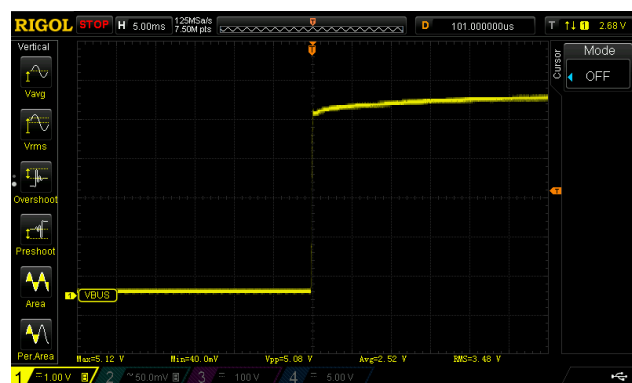


Figure 12 The start up waveform of Output at Vin = 264Vac/50Hz, 5V3A

6.9 Start Up Time and Hold Up Time

Test Condition:

Start Up time and Hold Up time are measured at full load.

Item	AC IN	Time	Spec.	Note	Result
Start Up time	90V _{AC} /47Hz	360ms	<0.5s	Figure 13	PASS
Hold Up time	100V _{AC} /60Hz	10.6ms	>8.3ms	Figure 14	

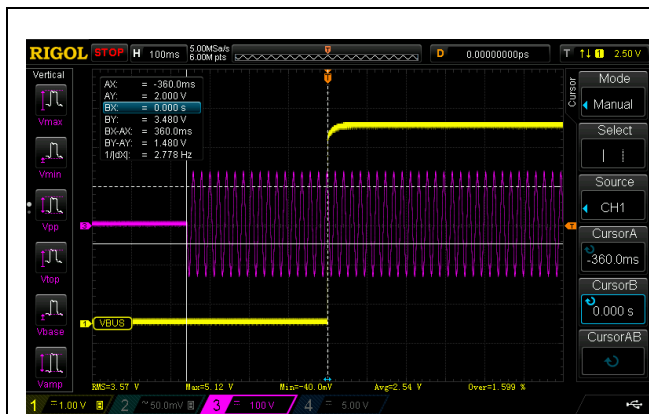


Figure 13 Start Up time at Vin=90Vac/47Hz 5V3A, where Vin (CH3) and Vout (CH1).

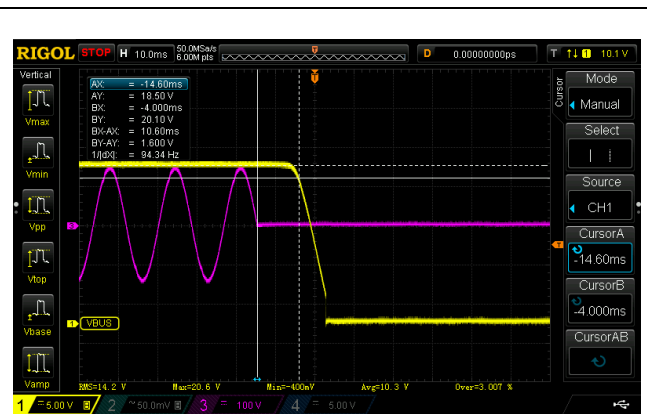


Figure 14 Hold Up time at Vin = 100Vac/60Hz 20V2.25A, where Vin (CH3) and Vout (CH1).

6.10 Voltage Stress on Primary GaN_FET and SR MOSFET

Test Condition:

Primary GaN_FET's Drain Voltage (Oscilloscope Probe: Sapphire Instruments SI-9010)

AC IN	State	Stress on GaN_FET	Spec.	Note	Result
264V _{AC} /50Hz	Normal (20V)	584V	<650V	Figure 15	PASS
264V _{AC} /50Hz	Start Up (5V)	496V		Figure 16	

SR MOSFET Voltage: (Oscilloscope Probe: Sapphire Instruments SI-9010)

AC IN	State	Stress on Rectifier	Spec.	Note	Result
264V _{AC} /50Hz	Normal (20V)	88.8V	<100V	Figure 17	PASS
264V _{AC} /50Hz	Start Up (5V)	84V		Figure 18	

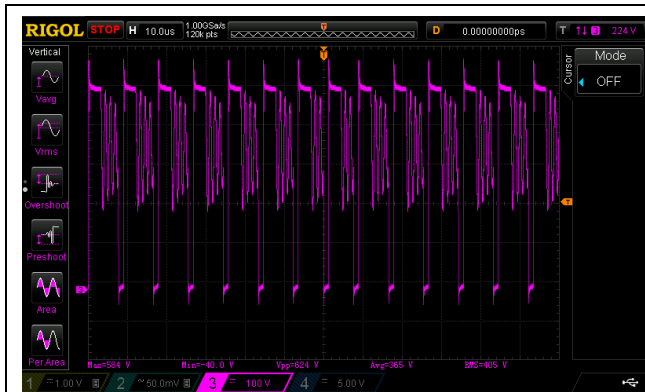


Figure 15 The waveform of Drain at Vin = 264Vac/50Hz, 20V2.25A

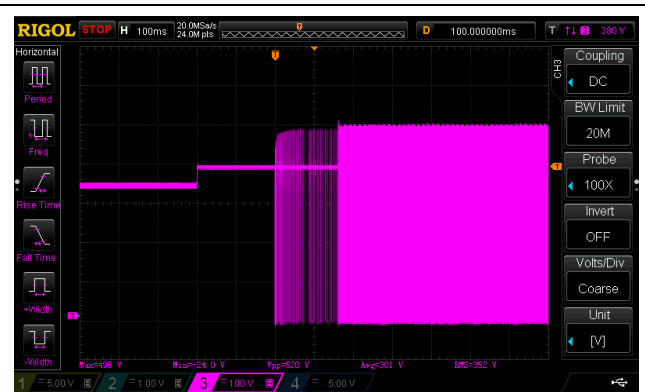


Figure 16 The waveform of Drain at Vin = 264Vac/50Hz, 5V3A Start up

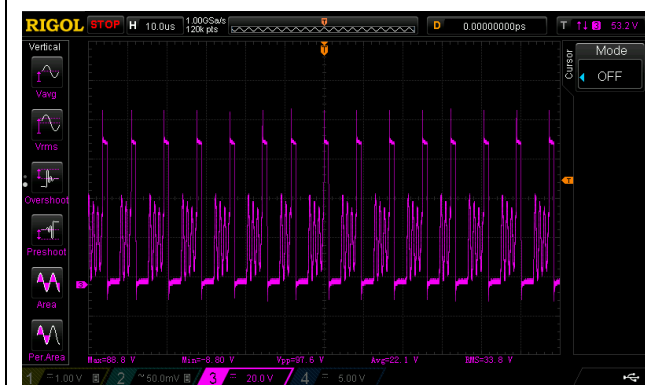


Figure 17 The waveform of rectifier at Vin = 264Vac/50Hz, 20V2.25A

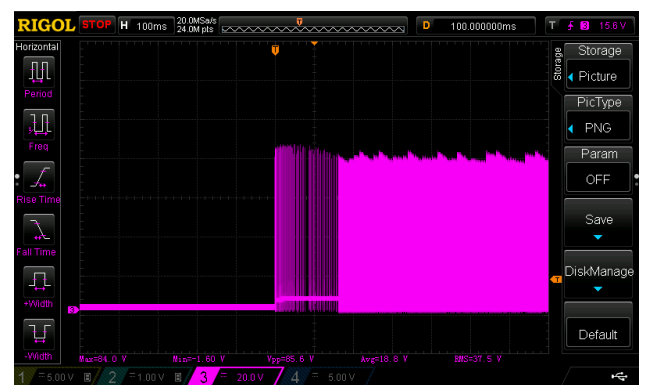


Figure 18 The waveform of rectifier at Vin = 264Vac/50Hz, 5V3A Start up

6.11 Secondary Side Over Current Protection

AC IN	Vout	Current Limit Value (A)	Spec.	Result
90V _{AC} /60Hz	5V	3.31	< 3.9A	PASS
115V _{AC} /60Hz		3.31		
230V _{AC} /50Hz		3.31		
264V _{AC} /50Hz		3.31		
90V _{AC} /60Hz	9V	3.31	< 3.9A	PASS
115V _{AC} /60Hz		3.31		
230V _{AC} /50Hz		3.31		
264V _{AC} /50Hz		3.31		
90V _{AC} /60Hz	15V	3.32	< 3.9A	PASS
115V _{AC} /60Hz		3.32		
230V _{AC} /50Hz		3.32		
264V _{AC} /50Hz		3.32		
90V _{AC} /60Hz	20V	2.51	< 2.9A	PASS
115V _{AC} /60Hz		2.51		
230V _{AC} /50Hz		2.51		
264V _{AC} /50Hz		2.51		

6.12 Primary Side Over Load Protection

AC IN	Vout	Current Limit Value (A)	Note
90V _{AC} /60Hz	5V	5.13	<8A, <100W
115V _{AC} /60Hz		5.38	
230V _{AC} /50Hz		5.58	
264V _{AC} /50Hz		5.73	
90V _{AC} /60Hz	9V	4.72	<8A, <100W
115V _{AC} /60Hz		5.12	
230V _{AC} /50Hz		5.70	
264V _{AC} /50Hz		5.86	
90V _{AC} /60Hz	15V	3.68	<100W
115V _{AC} /60Hz		4.13	
230V _{AC} /50Hz		4.92	
264V _{AC} /50Hz		5.05	
90V _{AC} /60Hz	20V	3.08	<100W
115V _{AC} /60Hz		3.55	
230V _{AC} /50Hz		4.35	
264V _{AC} /50Hz		3.81	

6.13 Over Voltage Protection

AC IN	Vout	No load (V)		Full load (V)		Spec.	Note		Result
		E-Cap.	V _{BUS}	E-Cap.	V _{BUS}		No load	Full load	
90V _{AC} /60Hz	5V	26.2	6.32	26.4	6.16	<27V	Figure 22	Figure 23	PASS
264V _{AC} /50Hz		26.0	6.32	25.8	6.24		Figure 24	Figure 25	
90V _{AC} /60Hz	9V	26.2	10.7	26.2	10.5	<27V	-	-	PASS
264V _{AC} /50Hz		26.0	10.7	26.0	10.6		-	-	
90V _{AC} /60Hz	15V	26.2	18.0	26.0	18.2	<27V	-	-	PASS
264V _{AC} /50Hz		26.0	18.2	25.8	18.2		-	-	
90V _{AC} /60Hz	20V	26.2	24.2	26.4	24.2	<27V	Figure 26	Figure 27	PASS
264V _{AC} /50Hz		25.8	24.0	25.8	24.0		Figure 28	Figure 29	

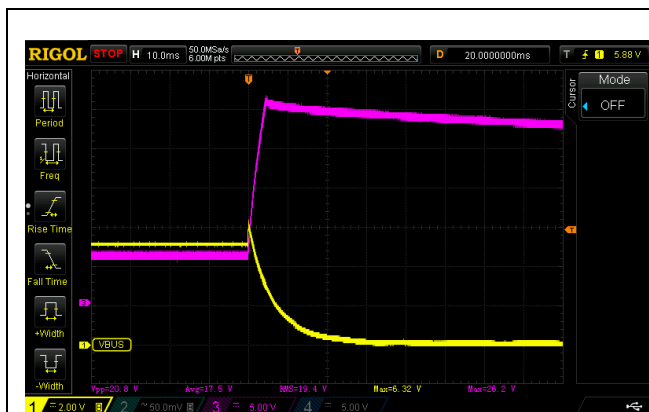


Figure 19 The waveform of OVP at Vin = 90Vac/60Hz, 5V No-load

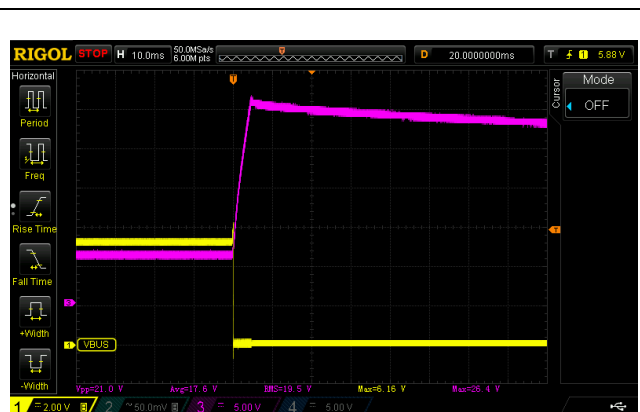


Figure 20 The waveform of OVP at Vin = 90Vac/60Hz, 5V3A

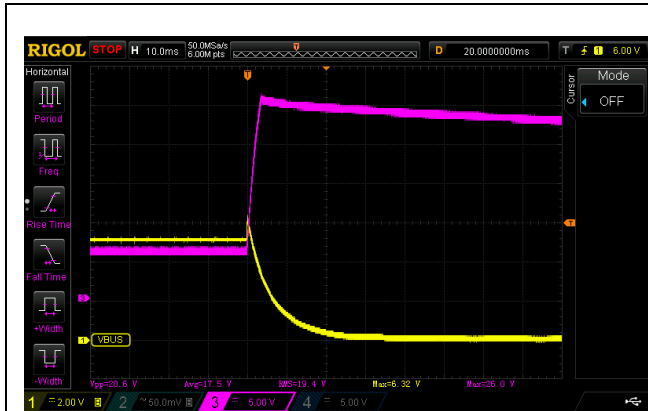


Figure 21 The waveform of OVP at Vin = 264Vac/50Hz, 5VNo-load

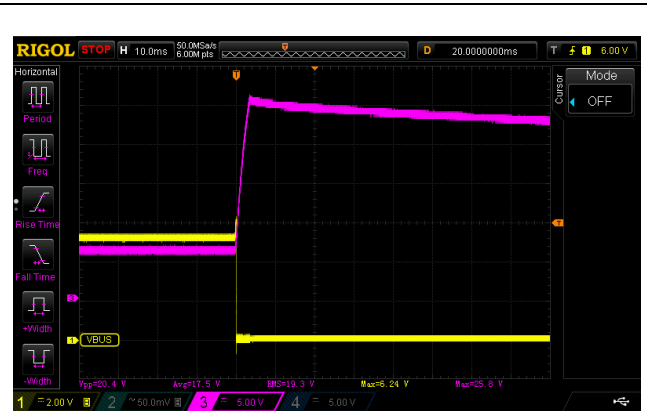


Figure 22 The waveform of OVP at Vin = 264Vac/50Hz, 5V3A

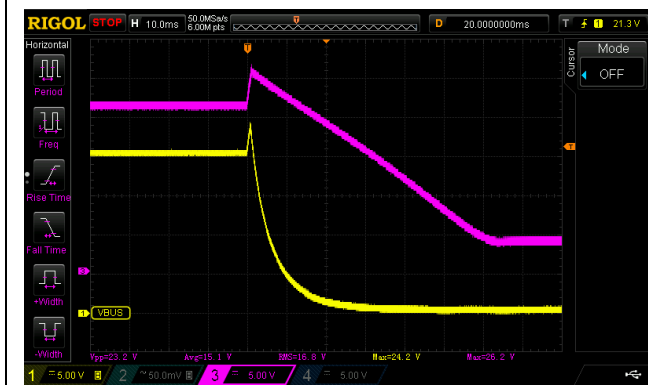


Figure 23 The waveform of OVP at Vin = 90Vac/60Hz, 20VNo-load

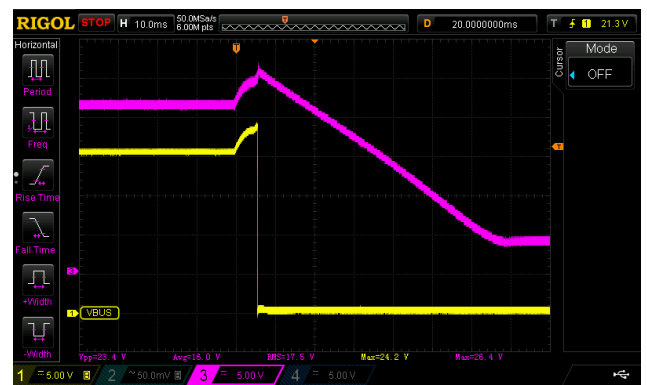


Figure 24 The waveform of OVP at Vin = 90Vac/60Hz, 20V2.25A

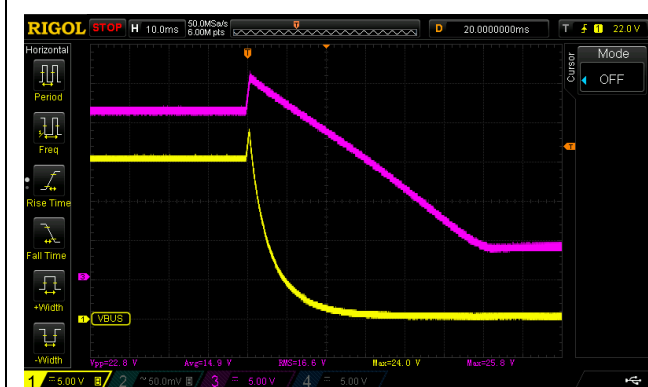


Figure 25 The waveform of OVP at Vin = 264Vac/50Hz, 20VNo-load

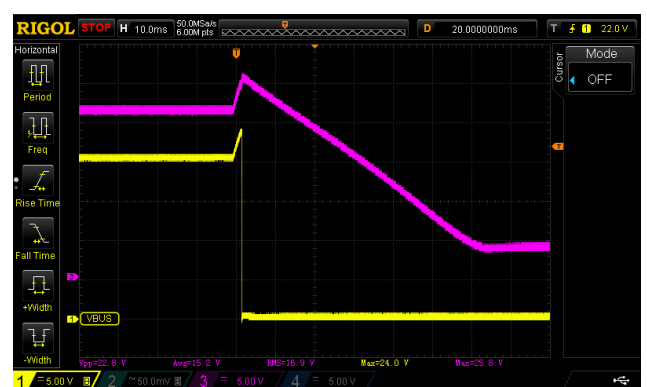


Figure 26 The waveform of OVP at Vin = 264Vac/50Hz, 20V2.25A

6.14 ESD Test

(Open frame)

Test Conditions: $V_{in}=230V_{ac}$; 5V3A, 20V2.25A

Air Discharge: $\pm 16KV$

Sample	Number of Strikes	Test Result
No. G1	20	PASS
No. G2		

Contact Discharge: $\pm 8.8KV$

Sample	Number of Strikes	Test Result
No. G1	20	PASS
No. G2		

6.15 SURGE Test

(Open frame)

Test Conditions: $V_{in}=230V_{ac}$; 20V2.25A

L to N $\pm 1KV/2\Omega$ ($0^\circ/90^\circ/270^\circ$) 3 Times

Sample	Number of Strikes	Test Result
No. G1	18	PASS
No. G2		

L to GND $\pm 2KV/12\Omega$ ($0^\circ/90^\circ/270^\circ$) 3 Times

Sample	Number of Strikes	Test Result
No. G1	18	PASS
No. G2		

N to GND $\pm 2KV/12\Omega$ ($0^\circ/90^\circ/270^\circ$) 3 Times

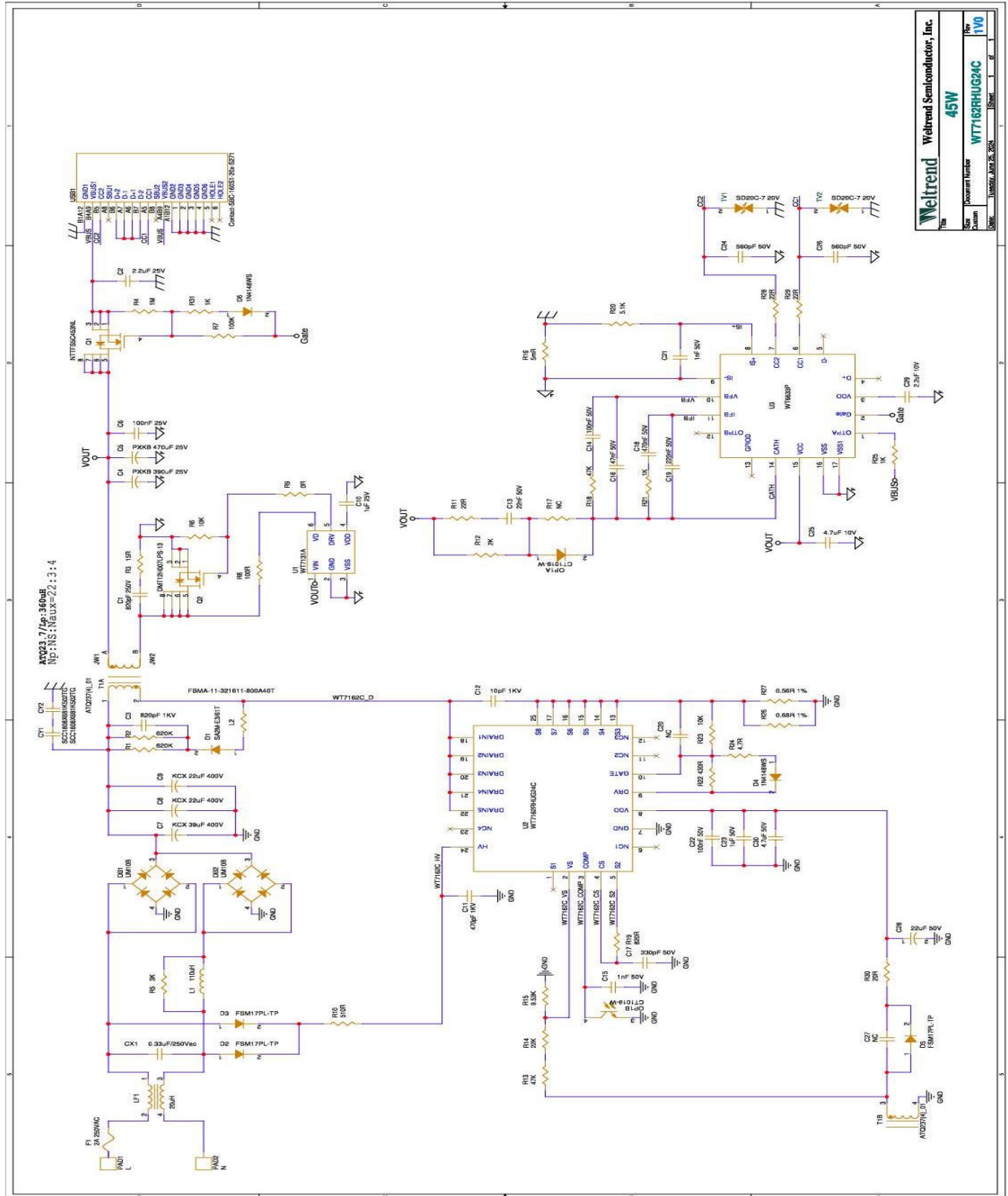
Sample	Number of Strikes	Test Result
No. G1	18	PASS
No. G2		

6.16 Thermal Test

Item	90Vac/60Hz 20V2.25A Open frame (°C)	264Vac/50Hz 20V2.25A Open frame (°C)
WT7162RHUG24C	78.8	97.5
WT7131A	58	64.8
SR Mosfet	61.8	72.3
Transformer	61.7	72
Ambient temperature	25	25

Note: Burn In 30 mins.

7 Schematic



8 Bill of Materials

Location	Description	Q'ty	Vendor	Remark
CX1	0.33uF/250Vac	1		
CY1,CY2	SCC1808X681K502TG	2	Holy Stone	
C1	820pF 250V	1		
C2	2.2uF 25V	1		
C3	820pF 1KV	1		
C4	PXKB 330uF 25V	1	Ymin	
C5	PXKB 470uF 25V	1	Ymin	
C6	100nF 25V	1		
C7	KCX 39uF 400V	1	Ymin	
C8,C9	KCX 22uF 400V	2	Ymin	
C10	1uF 25V	1		
C11	470pF 1KV	1		
C12	10pF 1KV	1		
C13	22nF 50V	1		
C14,C22	100nF 50V	2		
C15,C21	1nF 50V	2		
C16	47nF 50V	1		
C17	330pF 50V	1		
C18	470nF 50V	1		
C19	220nF 50V	1		
C20	NC	1		

Location	Description	Q'ty	Vendor	Remark
C23	1uF 50V	1		
C24,C26	560pF 50V	2		
C25	4.7uF 10V	1		
C27	NC	1		
C28	22uF 50V	1		
C29	2.2uF 10V	1		
C30	4.7uF 50V	1		
DB1,DB2	UM10B	2	Blue Rocket	
D1	SA2M-E3/61T	1	Vishay	61T
D2,D3,D5	FSM17PL-TP	3	MCC	F7
D4,D6	1N4148WS	2	Onsemi	T4
F1	2A 250VAC	1	Conquer	2A 250Vac
JW1	Jump_Wire_A	1		
JW2	Jump_Wire_B	1		
LF1	20uH	1		
L1	110uH	1		
L2	FBMA-11-321611-800A40T	1	King Core	
OP1	CT1019-W	1	CT Micro	CT1019W
PAD1	L	1		
PAD2	N	1		
Q1	NTTFS5C453NL	1	Onsemi	5C453NL

Location	Description	Q'ty	Vendor	Remark
Q2	DMT12H007LPS-13	1	Diodes	DMT12H007LS
R1,R2	620K	2		
R3	15R	1		
R4	1M	1		
R5	3K	1		
R6,R23	10K	2		
R7	100K	1		
R8	100R	1		
R9	0R	1		
R10	510R	1		
R11,R28,R29	22R	3		
R12	2K	1		
R13,R18	47K	2		
R14	22K	1		
R15	9.53K	1		
R16	5mR	1		
R17	NC	1		
R19	820R	1		
R20	5.1K	1		
R21,R25,R31	1K	3		
R22	430R	1		

Location	Description	Q'ty	Vendor	Remark
R24	4.7R	1		
R26	0.68R 1%	1		
R27	0.56R 1%	1		
R30	20R	1		
TV1,TV2	SD20C-7 20V	2	Diodes	
T1	ATQ237(4)_01	1	Fontaine	ATQ23V-361J
USB1	Contact-SBC-160S1-20x-S271	1	Contact	SBC-160S1-20x-S271
U1	WT7131A	1	Weltrend	
U2	WT7162RHUG24C	1	Weltrend	
U3	WT6633P	1	Weltrend	

9 Conducted EMI under 6db margin (2-Pin Test)

(Open frame)

110Vac/60Hz 20V2.25A (Neutral)

Site: CON 1

Test Voltage: 110Vac/60Hz

M/N: WT7162RHUG24C_20V

Mode: Full Load

POL: NEUTRAL

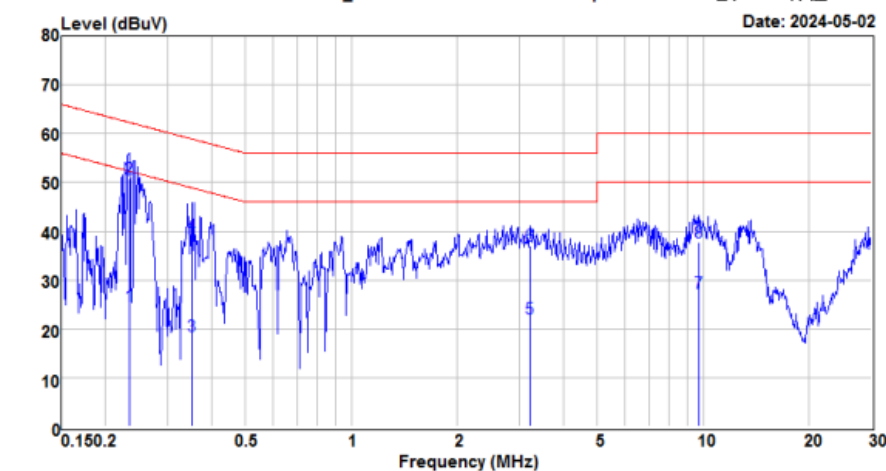
Engineer: Peter.Chu

Temp: 24.2

Humidity: 56%

REMARK: 45W #2 20V

Data: 97 File: C:\Users\Weici_Lo.TWPCCTP0001224\Desktop\3\Test Data\客戶\ITE偉詮\WT7162RHUG2



Freq MHz	Reading Level dBuV	C.F dB	Result dBuV	Limit dBuV	Over Limit dB	Detector
0.234	14.19	10.45	24.64	52.30	-27.66	Average
0.234	40.46	10.45	50.91	62.30	-11.39	QP
0.352	8.13	10.45	18.58	48.91	-30.33	Average
0.352	28.75	10.45	39.20	58.91	-19.71	QP
3.224	11.38	10.66	22.04	46.00	-23.96	Average
3.224	26.32	10.66	36.98	56.00	-19.02	QP
9.705	15.05	12.19	27.24	50.00	-22.76	Average
9.705	25.66	12.19	37.85	60.00	-22.15	QP

110Vac/60Hz 20V2.25A (Line)

Site: CON 1

Test Voltage: 110Vac/60Hz

M/N: WT7162RHUG24C_20V

Mode: Full Load

POL: LINE

Engineer: Peter.Chu

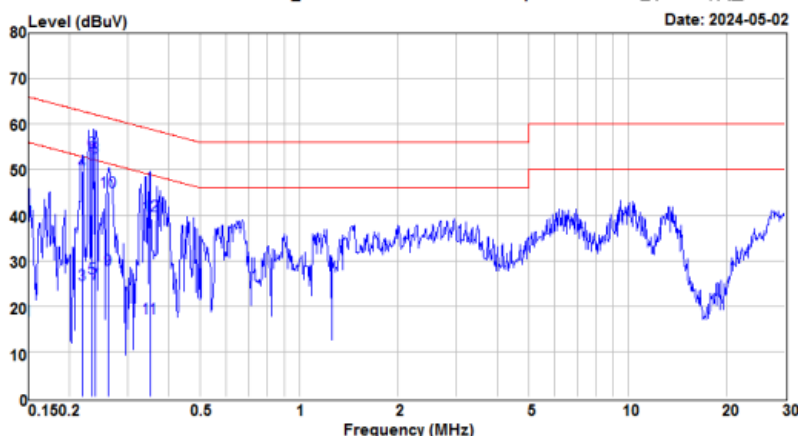
Temp: 24.2

Humidity: 56%

REMARK: 45W #2 20V

Data: 96 File: C:\Users\Weici_Lo.TWPCCTP0001224\Desktop\3\Test Data\客戶\ITE\偉詮\WT7162RHUG2

Date: 2024-05-02



Freq	Reading	C.F	Result	Limit	Over	Detector
MHz	Level				Limit	
	dBuV	dB	dBuV	dBuV	dB	
0.150	6.32	10.49	16.81	55.99	-39.18	Average
0.150	28.53	10.49	39.02	65.99	-26.97	QP
0.220	14.15	10.43	24.58	52.83	-28.25	Average
0.220	39.10	10.43	49.53	62.83	-13.30	QP
0.234	15.64	10.43	26.07	52.32	-26.25	Average
0.234	43.47	10.43	53.90	62.32	-8.42	QP
0.240	14.53	10.43	24.96	52.08	-27.12	Average
0.240	42.20	10.43	52.63	62.08	-9.45	QP
0.263	17.56	10.43	27.99	51.34	-23.35	Average
0.263	34.64	10.43	45.07	61.34	-16.27	QP
0.352	6.78	10.44	17.22	48.91	-31.69	Average
0.352	29.34	10.44	39.78	58.91	-19.13	QP

230Vac/50Hz 20V2.25A (Neutral)

Site: CON 1

Test Voltage: 230Vac/50Hz

M/N: WT7162RHUG24C 20V

Mode:Full Load

POL: NEUTRAL

Engineer:Peter.Chu

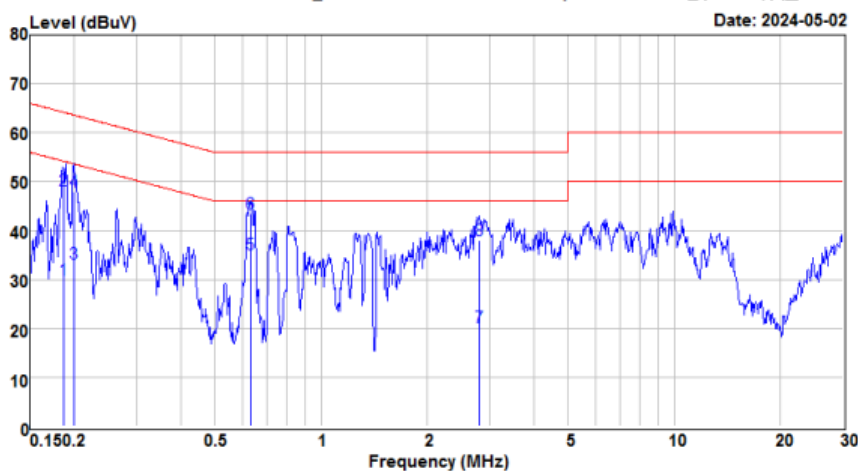
Temp:24.2

Humidity: 56%

REMARK: 45W #2 20V

Data: 99 File: C:\Users\Weici_Lo.TW\PCCTP0001224\Desktop\le3\Test Data\客戶\ITE\偉詮\WT7162RHUG2

Date: 2024-05-02

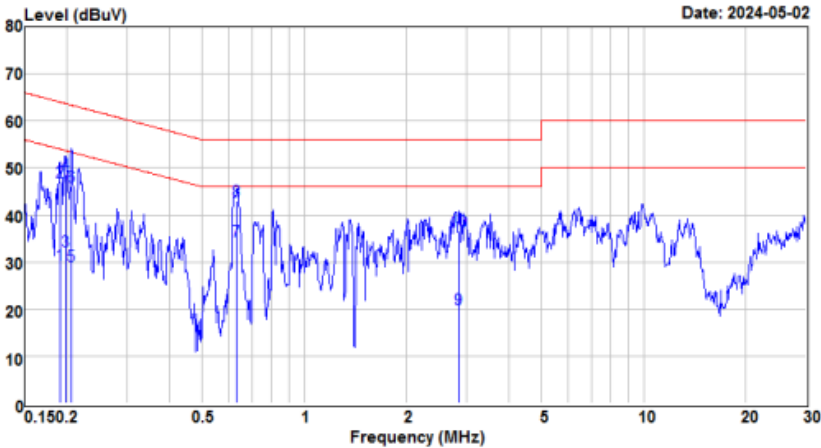


Freq	Reading	C.F	Result	Limit	Over	Detector
MHz	Level				Limit	
	dBuV	dB	dBuV	dBuV	dB	
0.187	19.57	10.46	30.03	54.16	-24.13	Average
0.187	37.74	10.46	48.20	64.16	-15.96	QP
0.200	22.70	10.45	33.15	53.62	-20.47	Average
0.200	37.46	10.45	47.91	63.62	-15.71	QP
0.634	24.59	10.57	35.16	46.00	-10.84	Average
0.634	32.99	10.57	43.56	56.00	-12.44	QP
2.809	9.58	10.64	20.22	46.00	-25.78	Average
2.809	27.44	10.64	38.08	56.00	-17.92	QP

230Vac/50Hz 20V2.25A (Line)

Site: CON 1 Test Voltage:230Vac/50Hz
M/N: WT7162RHUG24C_20V Mode:Full Load
POL: LINE Engineer:Peter.Chu Temp:24.2 Humidity:56%
REMARK:45W #2 20V

Data: 98 File: C:\Users\Weici_Lo.TWPCCTP0001224\Desktop\3\Test Data\客戶\ITE\偉詮\WT7162RHUG2



Freq	Reading	C.F	Result	Limit	Over	Detector
MHz	Level				Limit	
	dBuV	dB	dBuV	dBuV	dB	
0.190	18.92	10.44	29.36	54.02	-24.66	Average
0.190	36.69	10.44	47.13	64.02	-16.89	QP
0.198	21.82	10.43	32.25	53.71	-21.46	Average
0.198	38.31	10.43	48.74	63.71	-14.97	QP
0.206	18.76	10.43	29.19	53.36	-24.17	Average
0.206	35.67	10.43	46.10	63.36	-17.26	QP
0.634	23.77	10.55	34.32	46.00	-11.68	Average
0.634	32.38	10.55	42.93	56.00	-13.07	QP
2.839	9.45	10.62	20.07	46.00	-25.93	Average
2.839	26.03	10.62	36.65	56.00	-19.35	QP

10 Radiated EMI under 6db margin (2-Pin Test)

(Open frame)

110Vac/60Hz 20V2.25A(Vertical)

Site : CB1166

Test voltage : 110 Vac/ 60 Hz

M/N : WT7162RHUG24C 45W

Test Mode : Full Load-20V

Polarity : VERTICAL

Engineer : Ted.Huang

Temp : 22.3

Humidity : 56%

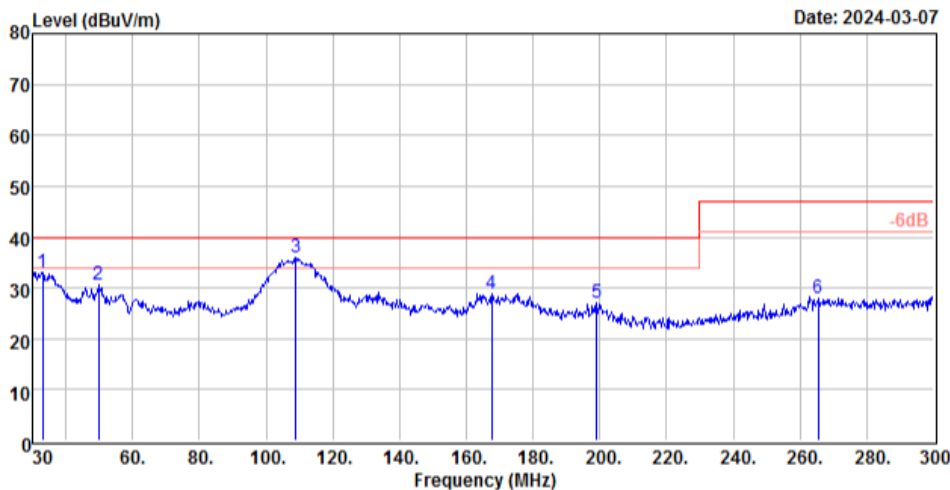
Remark1 : #2

Remark2 :

Data: 36

File: D:\e3\客戶\偉詮\WT7162RHUG24C 45W.EM6 (54)

Date: 2024-03-07



Freq	Reading	C.F	Result	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
32.970	7.68	25.26	32.94	40.00	-7.06	Peak
49.710	15.77	14.82	30.59	40.00	-9.41	Peak
108.840	15.40	20.46	35.86	40.00	-4.14	Peak
167.700	8.95	19.90	28.85	40.00	-11.15	Peak
199.020	5.79	21.20	26.99	40.00	-13.01	Peak
265.440	6.52	21.55	28.07	47.00	-18.93	Peak

110Vac/60Hz 20V2.25A (Horizontal)

Site : CB1166

Test voltage : 110 Vac/ 60 Hz

M/N : WT7162RHUG24C 45W

Test Mode : Full Load-20V

Polarity : HORIZONTAL

Engineer : Ted.Huang

Temp : 22.3

Humidity : 56%

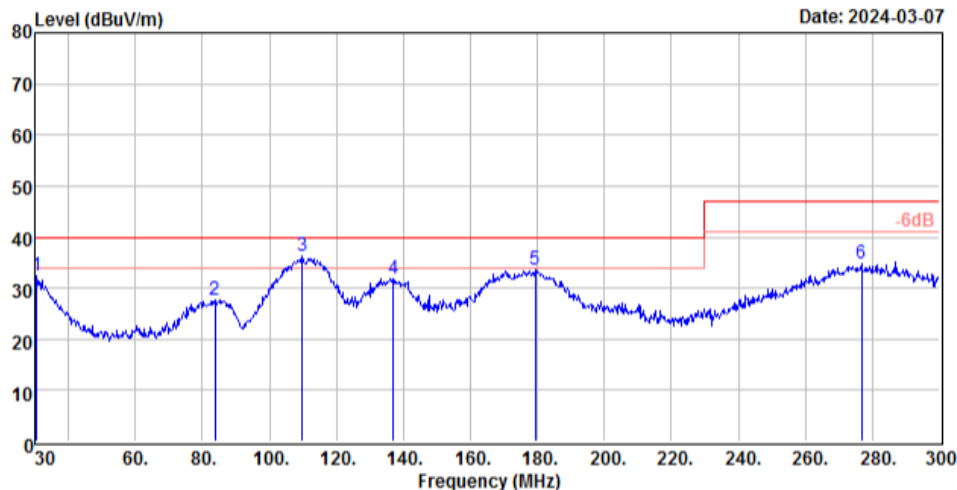
Remark1 : #2

Remark2 :

Data: 35

File: D:\e3\客戶\偉詮\WT7162RHUG24C 45W.EM6 (54)

Date: 2024-03-07



Freq	Reading	C.F	Result	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
30.540	5.31	27.15	32.46	40.00	-7.54	Peak
83.730	12.63	14.94	27.57	40.00	-12.43	Peak
109.920	15.58	20.73	36.31	40.00	-3.69	Peak
136.920	10.55	21.17	31.72	40.00	-8.28	Peak
179.310	14.23	19.46	33.69	40.00	-6.31	Peak
276.780	12.74	21.99	34.73	47.00	-12.27	Peak

230Vac/50Hz 20V2.25A (Vertical)

Site : CB1166

Test voltage : 230 Vac/ 50 Hz

M/N : WT7162RHUG24C 45W

Test Mode : Full Load-20V

Polarity : VERTICAL

Engineer : Ted.Huang

Temp : 22.3

Humidity : 56%

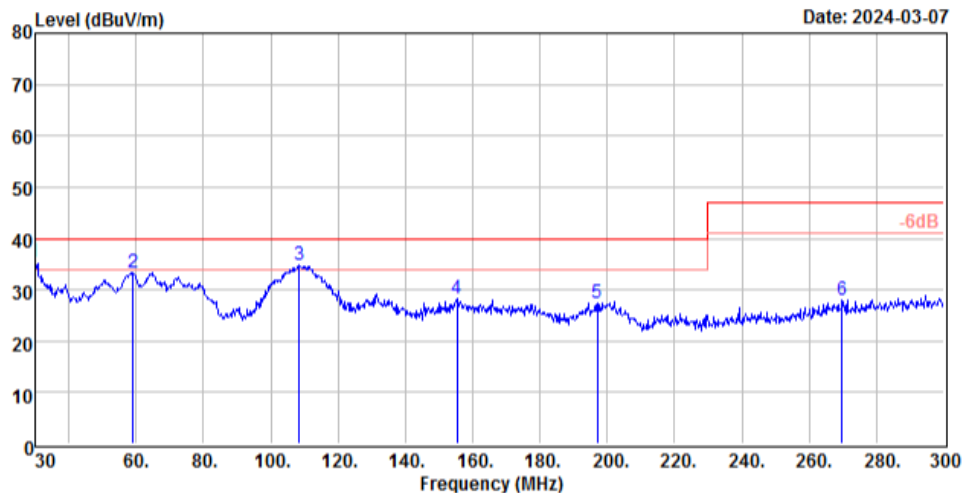
Remark1 : #2

Remark2 :

Data: 37

File: D:\e3\客戶\偉詮\WT7162RHUG24C 45W.EM6 (54)

Date: 2024-03-07



Freq	Reading	C.F	Result	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
30.000	7.72	27.68	35.40	40.00	-4.60	Peak
59.160	18.53	14.84	33.37	40.00	-6.63	Peak
108.570	14.42	20.33	34.75	40.00	-5.25	Peak
155.280	7.78	20.42	28.20	40.00	-11.80	Peak
197.130	6.66	20.73	27.39	40.00	-12.61	Peak
269.760	6.05	21.83	27.88	47.00	-19.12	Peak

230Vac/50Hz 20V2.25A (Horizontal)

Site : CB1166

Test voltage : 230 Vac/ 50 Hz

M/N : WT7162RHUG24C 45W

Test Mode : Full Load-20V

Polarity : HORIZONTAL

Engineer : Ted.Huang

Temp : 22.3

Humidity : 56%

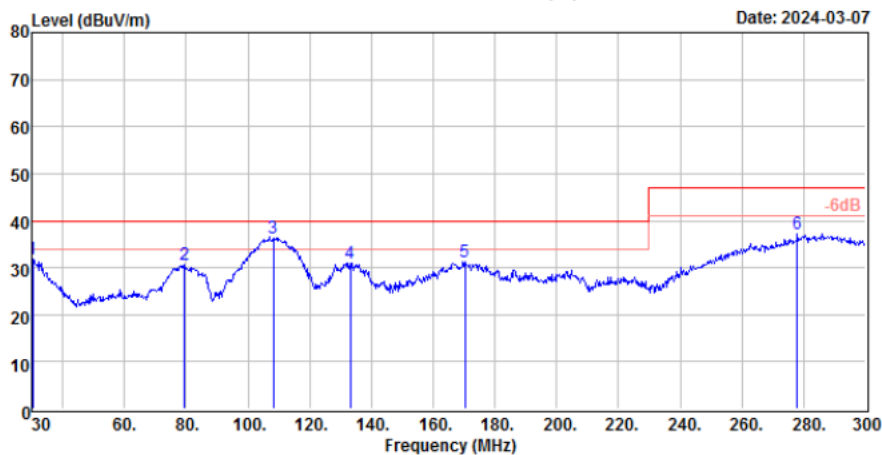
Remark1 : #2

Remark2 :

Data: 38

File: D:\e3\客戶\偉詮\WT7162RHUG24C 45W.EM6 (54)

Date: 2024-03-07



Freq	Reading	C.F	Result	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
30.270	4.35	27.41	31.76	40.00	-8.24	Peak
79.410	15.28	15.24	30.52	40.00	-9.48	Peak
108.300	16.19	20.19	36.38	40.00	-3.62	Peak
133.140	9.40	21.52	30.92	40.00	-9.08	Peak
170.400	11.46	19.83	31.29	40.00	-8.71	Peak
277.860	15.24	21.99	37.23	47.00	-9.77	Peak

11 Revision History

Version	History	Date
0.1	Initial Issue.	May 16, 2024
0.2	Contents Update	June 21, 2024