

**65W USB PD Adaptor with
3.3V ~ 21V PPS
Using WT7162RHUG24A
/WT7131A/WT6633P**

Test Report

Rev. 0.2

March 2023

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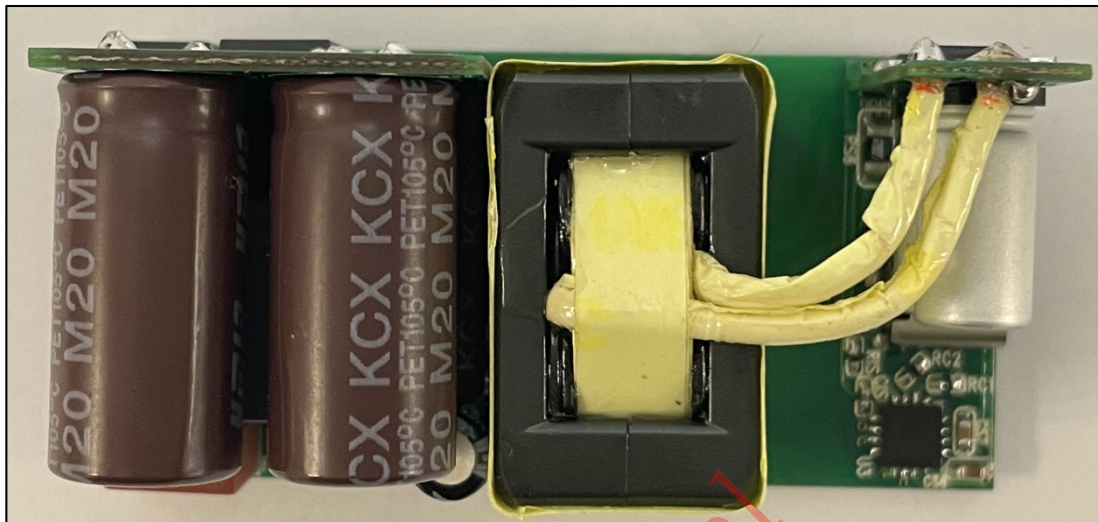
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1 Features

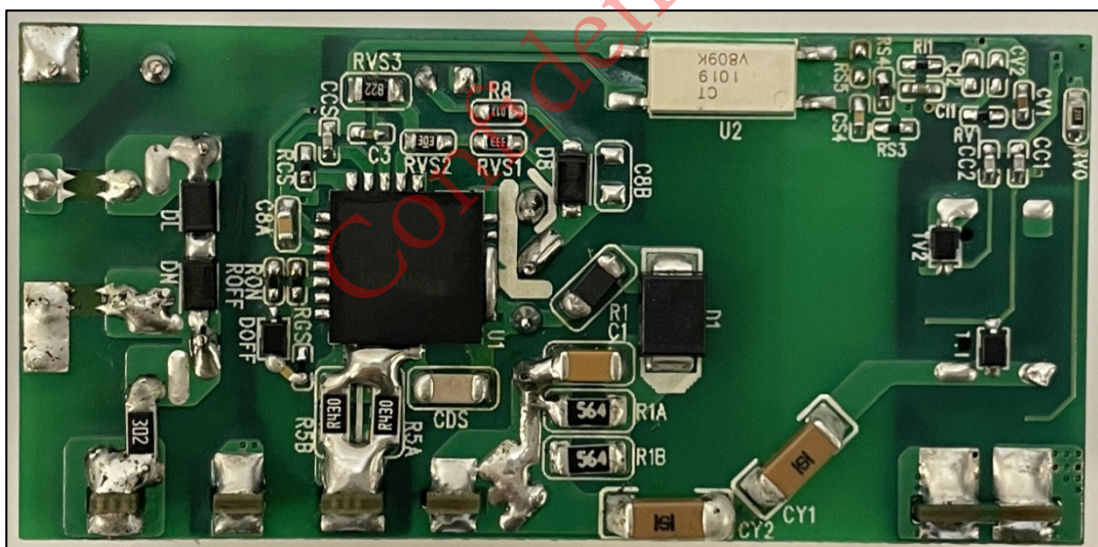
- Small Factor: 56mm x 27mm x 27mm.
- Topology: Flyback QR mode/valley-switching multi-mode operation.
- WT7162RHUG24A SiP IC (PWM controller +Transphorm_SuperGaN[®] FET) and WT7131A SR controller work with WT6633P USB PD controller to be a total solution with cost effectiveness and high performance.
- Peak power efficiency: > 93%
- Power density: 26W/in³
- Wide output voltage operation: USB-C PD3.0 and PPS 3.3V~21V
- No load input power < 50mW@230Vac.

Confidential

2 Demo Board Photographs



A. Top-view



B. Bottom-view

3 Test Facilities

Name	Mark
AC Source	Chroma 61502
Oscilloscope	Tektronix MDO3024
Power Meter	Chroma 66205
Electronic Load	Chroma 63600
True RMS Multimeter	Fluke 287

4 Demo Board Specification

Parameter	Specification
Input Voltage	90Vac to 264Vac
Input Frequency	47Hz to 63Hz
Output Voltage and Current	5V/3A; 9V/3A; 12V/3A; 15V/3A; 20V/3.25A PPS: 3.3V~21V/3A
Output Power	15W@ 5V/3A 27W@9V/3A 36W@12V/3A 45W@15V/3A 65W@20V/3.25A
Output Ripple & Noise	150mV @5V/9V 200mV @12/15V/20V
Efficiency Measured On the Board (CoC V5 Tier2)	> 81.84% @5V/3A > 87.30% @9V/3A > 88.3% @12V3A > 88.85% @15V/3A > 89% @20V/3.25A

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 > 88.3% @12V/3A > 88.85% @15V/3A > 89% @20V/3.25A	PASS
Ripple & Noise	< 150mV@5V/9V < 200mV@12/15V/20V	PASS
Line regulation	< 1%	PASS
Load regulation	< 5%	PASS
Dynamic (Peak-Peak, I _{load} =10%-100%)	< 10% @5V/9V < 5% @12/15V/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 Standby Power

AC IN	Pout (W)	Vout (V)	Iin (mA)	Pin (mW)	Spec.	Result
90V _{AC} /60Hz	0	5		30	< 75mW	PASS
115V _{AC} /60Hz	0	5		37		
230V _{AC} /50Hz	0	5		45		
264V _{ac} /50Hz	0	5		49		

6.2 Brown-in/Brown-Out

Item	AC-In	Spec.	Result
Brown-In (Vac)	82.0	75Vac to 85Vac	PASS
Brown-Out (Vac)	75.0	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					92.17%		81.84%	
115V _{AC} /60Hz	85.35%	90.55%	91.91%	92.22%	92.35%	91.76%		PASS
230V _{AC} /50Hz	75.52%	86.91%	89.58%	90.33%	90.73%	89.39%		PASS
264V _{AC} /50Hz					89.83%			

9V3A

AC IN \ I _{Load}	10%	25%	50%	75%	100%	AVG (%)	Spec.	Result
90V _{AC} /60Hz					92.88%		87.3%	
115V _{AC} /60Hz	88.56%	91.80%	92.99%	93.33%	93.34%	92.86%		PASS
230V _{AC} /50Hz	81.84%	89.43%	91.08%	91.80%	92.18%	91.12%		PASS
264V _{AC} /50Hz					91.57%			

12V3A

I_Load AC IN	10%	25%	50%	75%	100%	AVG (%)	Spec.	Result
90V _{AC} /60Hz					93.22%		88.3%	
115V _{AC} /60Hz	90.00%	92.64%	93.60%	93.75%	93.65%	93.41%		PASS
230V _{AC} /50Hz	86.50%	90.34%	91.95%	92.68%	93.00%	91.99%		PASS
264V _{AC} /50Hz					92.53%			

15V3A

I_Load AC IN	10%	25%	50%	75%	100%	AVG (%)	Spec.	Result
90V _{AC} /60Hz					93.22%		88.85%	
115V _{AC} /60Hz	89.49%	92.53%	93.58%	93.68%	93.87%	93.42%		
230V _{AC} /50Hz	86.83%	90.53%	92.31%	93.02%	93.34%	92.30%		
264V _{AC} /50Hz					92.89%			

20V3.25A

I_Load AC IN	10%	25%	50%	75%	100%	AVG (%)	Spec.	Result
90V _{AC} /60Hz	89.51%	92.25%	92.93%	93.21%	92.35%	92.68%	89%	
115V _{AC} /60Hz	88.85%	92.36%	93.40%	93.76%	93.63%	93.29%		
230V _{AC} /50Hz	86.58%	90.86%	92.73%	93.45%	93.79%	92.71%		
264V _{AC} /50Hz	85.50%	90.03%	92.18%	93.03%	93.40%	92.16%		

6.4 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	24	< 150mV	-	PASS
		Full Load	57.6		-	
264V _{AC} /50Hz		No Load	38.4		-	
		Full Load	61.6		-	
90V _{AC} /47Hz	9V	No Load	25.6	< 150mV	-	PASS
		Full Load	51.2		-	
264V _{AC} /50Hz		No Load	24.8		-	
		Full Load	49.6		-	
90V _{AC} /47Hz	12V	No Load	28	< 200mV	-	PASS
		Full Load	42.4		-	
264V _{AC} /50Hz		No Load	25.6		-	
		Full Load	49.6		-	
90V _{AC} /47Hz	15V	No Load	27.2	< 200mV	-	PASS
		Full Load	57.6		-	
264V _{AC} /50Hz		No Load	28		-	
		Full Load	60.8		-	
90V _{AC} /47Hz	20V	No Load	32	< 200mV	Figure 1	PASS
		Full Load	136		Figure 2	
264V _{AC} /50Hz		No Load	30		Figure 3	
		Full Load	66		Figure 4	

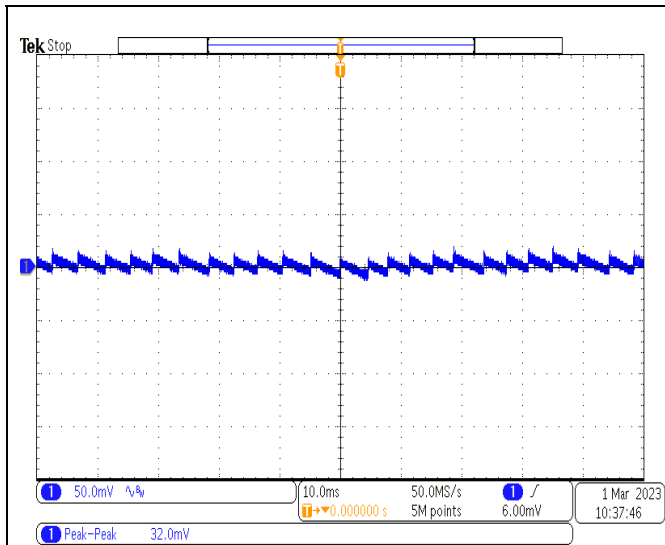


Figure 1 Ripple & Noise at Vin = 90Vac/47Hz
20V No load

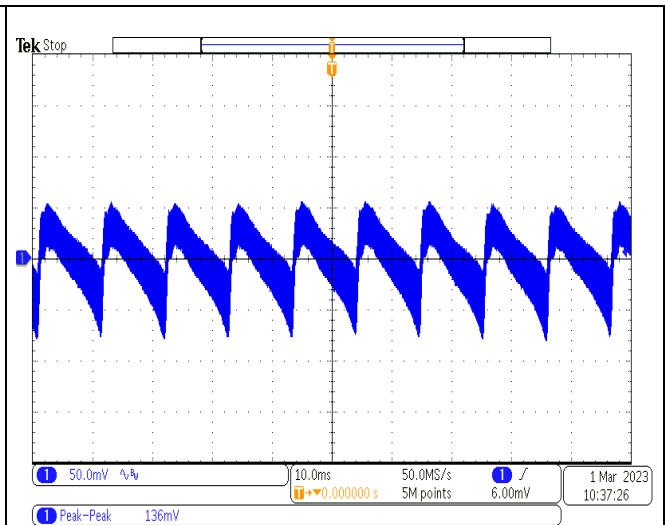


Figure 2 Ripple & Noise at Vin = 90Vac/47Hz
20V 3.25A

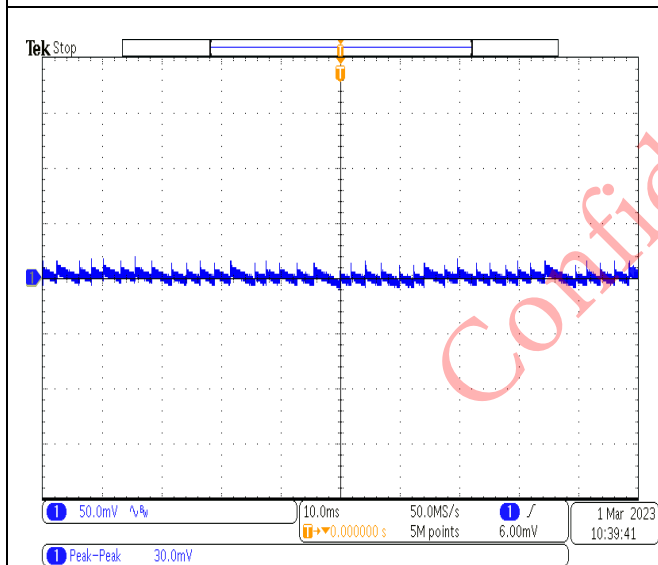


Figure 3 Ripple & Noise at Vin = 264Vac/50Hz
20V No load

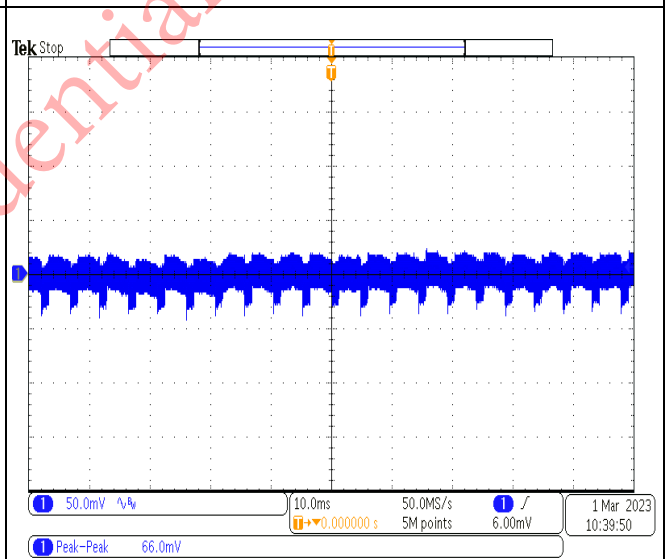


Figure 4 Ripple & Noise at Vin = 264Vac/50Hz
20V 3.25A

6.5 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	4.993	4.969	4.946	4.899	4.75V to 5.25V	PASS
115V _{AC} /60Hz	4.995	4.970	4.947	4.900		
230V _{AC} /50Hz	4.995	4.970	4.947	4.899		
264V _{AC} /50Hz	4.995	4.970	4.947	4.898		
90V _{AC} /60Hz	9.026	9.000	8.978	8.928	8.55V to 9.45V	PASS
115V _{AC} /60Hz	9.026	9.000	8.976	8.927		
230V _{AC} /50Hz	9.025	9.001	8.979	8.927		
264V _{AC} /50Hz	9.024	9.000	8.977	8.928		
90V _{AC} /60Hz	12.053	12.028	12.009	11.955	11.4V to 12.6V	PASS
115V _{AC} /60Hz	12.054	12.027	12.007	11.956		
230V _{AC} /50Hz	12.054	12.027	12.007	11.958		
264V _{AC} /50Hz	12.055	12.028	12.007	11.959		
90V _{AC} /60Hz	15.090	15.063	15.038	14.978	14.25V to 15.75V	PASS
115V _{AC} /60Hz	15.090	15.064	15.038	14.980		
230V _{AC} /50Hz	15.090	15.065	15.036	14.978		
264V _{AC} /50Hz	15.090	15.064	15.035	14.984		
90V _{AC} /60Hz	20.035	20.012	19.988	19.915	19.0V to 21.0V	PASS
115V _{AC} /60Hz	20.031	20.015	19.984	19.918		
230V _{AC} /50Hz	20.033	20.013	19.986	19.924		
264V _{AC} /50Hz	20.034	20.013	19.979	19.927		
Line Regulation	%				1%	PASS
Load Regulation	%				5%	PASS

Note: R Cable=0.12Ω.

6.6 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: 0.12 Ω .

AC IN	Vo (max)	Vo (min)	Spec.	Note	Result
90V _{AC} /60Hz	5.30	4.54	<10%	Figure 5	PASS
264V _{AC} /50Hz	5.34	4.50		Figure 6	
90V _{AC} /60Hz	9.38	8.58	<10%	-	PASS
264V _{AC} /50Hz	9.38	8.54		-	
90V _{AC} /60Hz	12.5	11.6	<5%	-	PASS
264V _{AC} /50Hz	12.5	11.6		-	
90V _{AC} /60Hz	15.5	14.6	<5%	-	PASS
264V _{AC} /50Hz	15.5	14.6		-	
90V _{AC} /60Hz	20.6	19.5	<5%	Figure 7	PASS
264V _{AC} /50Hz	20.5	19.5		Figure 8	

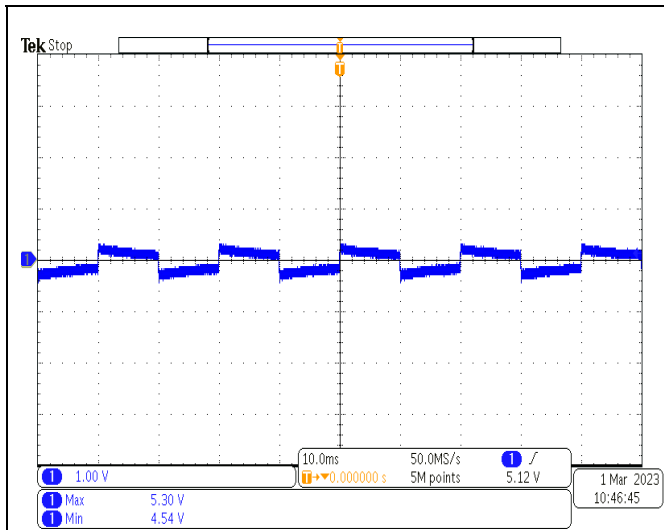


Figure 5 Dynamic Response at $V_{in} = 90\text{Vac}/60\text{Hz}$, 5V0.3A to 3A load step.

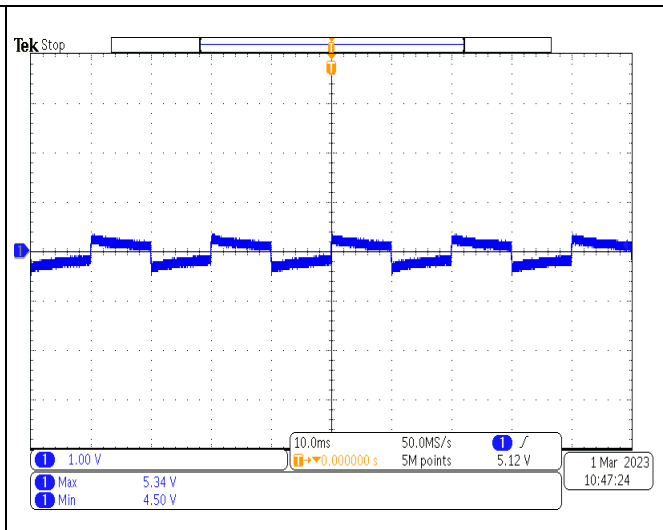


Figure 6 Dynamic Response at $V_{in} = 264\text{Vac}/50\text{Hz}$, 5V0.3A to 3A load step.

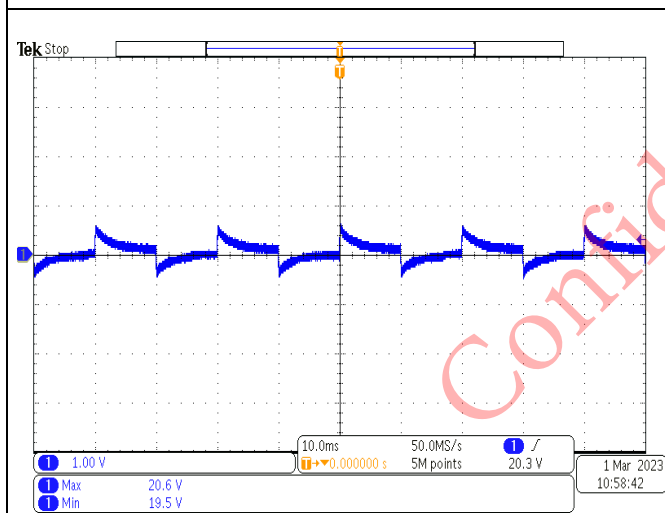


Figure 7 Dynamic Response at $V_{in} = 90\text{Vac}/60\text{Hz}$, 20V0.325A to 3.25A load step.

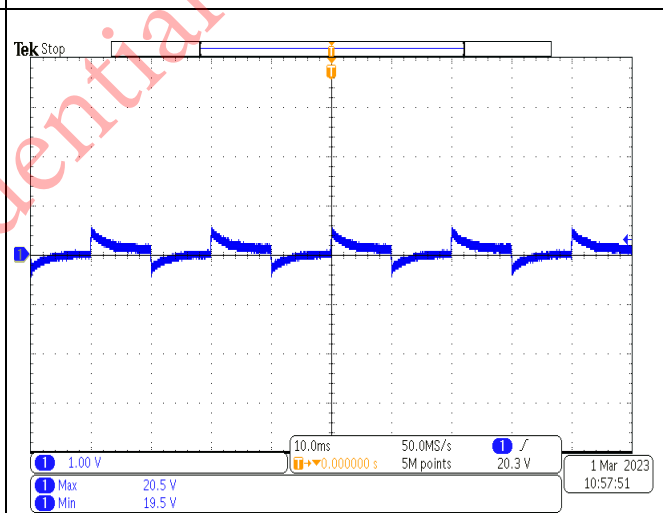


Figure 8 Dynamic Response at $V_{in} = 264\text{Vac}/50\text{Hz}$, 20V0.325A to 3.25A load step.

6.7 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	

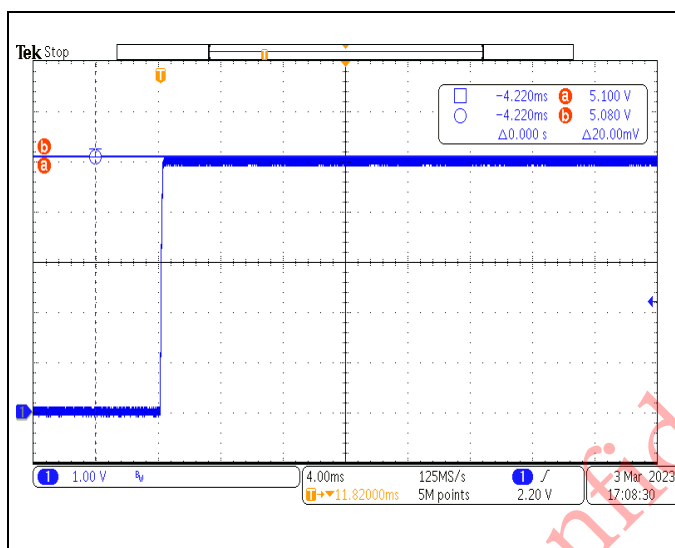


Figure 9 The start up waveform of Output at Vin = 90Vac/60Hz, 5V No-load

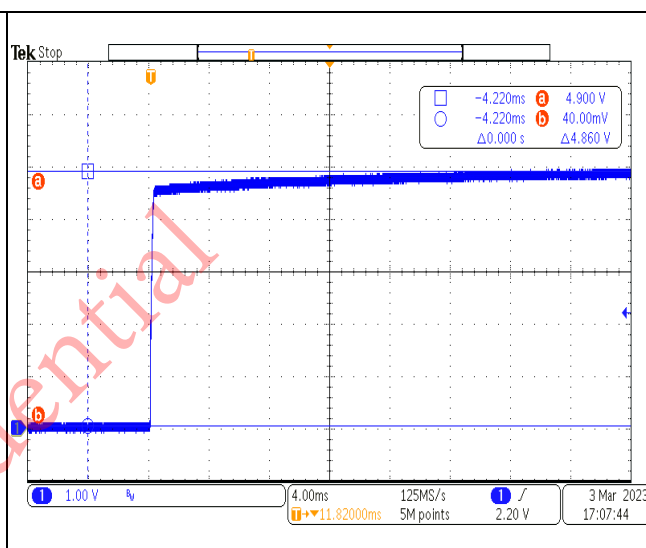


Figure 10 The start up waveform of Output at Vin = 90Vac/60Hz, 5V 3A

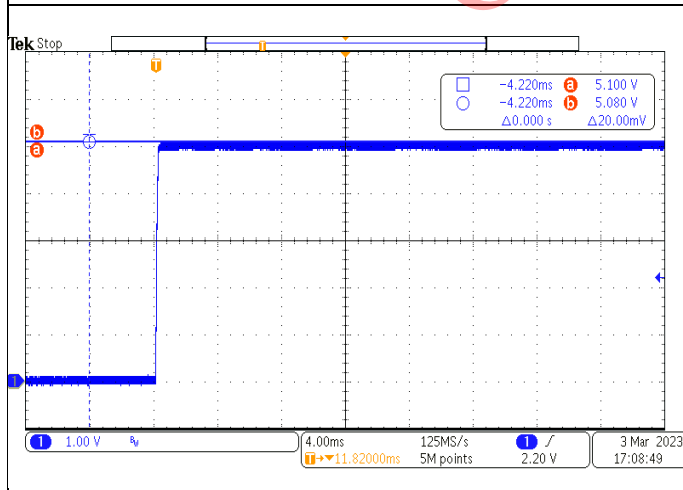


Figure 11 The start up waveform of Output at Vin = 264Vac/50Hz, 5V No-load

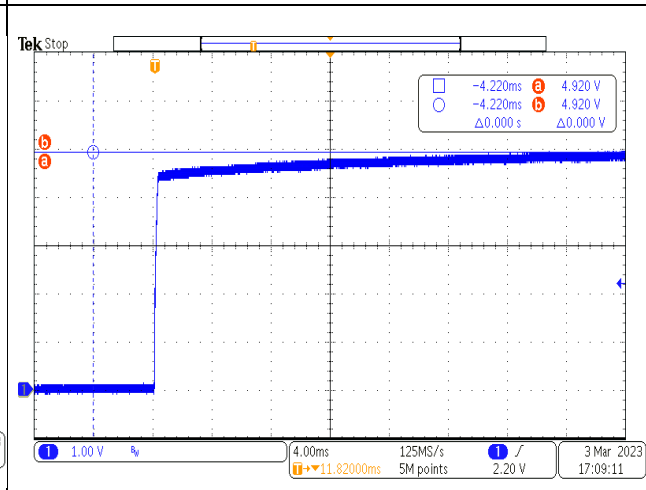


Figure 12 The start up waveform of Output at Vin = 264Vac/50Hz, 5V 3A

6.8 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	366ms	<0.5s	Figure 13	PASS
Hold Up time	100V _{AC} /60Hz	8.9ms	>8.3ms	Figure 14	

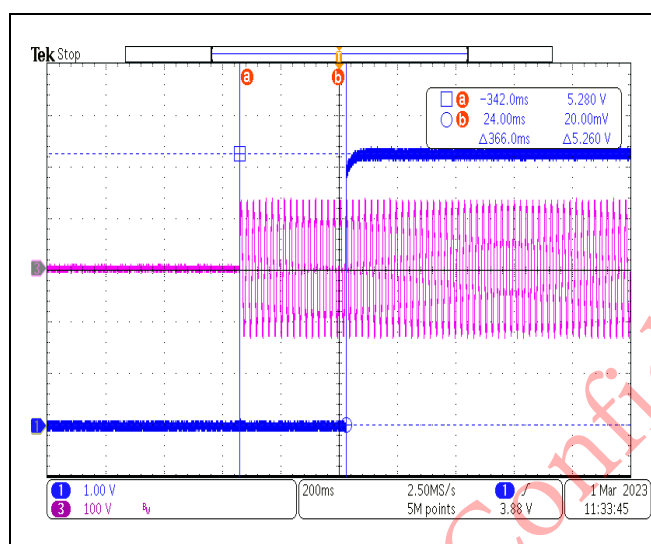


Figure 13 Start Up time at $V_{in}=90V_{ac}/47Hz$ $5V3A$, where V_{in} (CH3) and V_{out} (CH1).

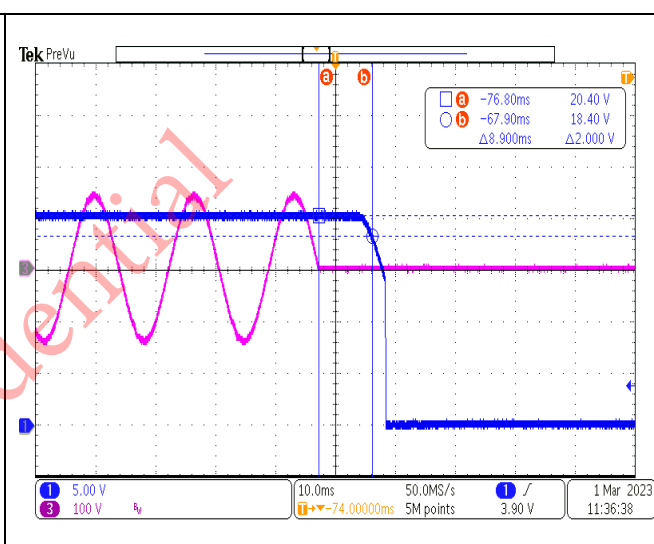


Figure 14 Hold Up time at $V_{in} = 100V_{ac}/60Hz$
20V3.25A, where V_{in} (CH3) and V_{out} (CH1).

6.9 Voltage Stress on Primary GaN_FET and SR MOSFET

Test Condition:

Primary GaN FET's Drain Voltage (Oscilloscope Probe: Tektronix TPP0850)

AC IN	State	Stress on GaN FET	Spec.	Note	Result
264V _{AC} /50Hz	Normal (20V)	594V	<650V	Figure 15	PASS
264V _{AC} /50Hz	Start Up (5V)	470V		Figure 16	

SR MOSFET Voltage: (Oscilloscope Probe: Tektronix TPP0250)

AC IN	State	Stress on Rectifier	Spec.	Note	Result
264V _{AC} /50Hz	Normal (20V)	87.6V	<100V	Figure 17	PASS
264V _{AC} /50Hz	Start Up (5V)	90V		Figure 18	

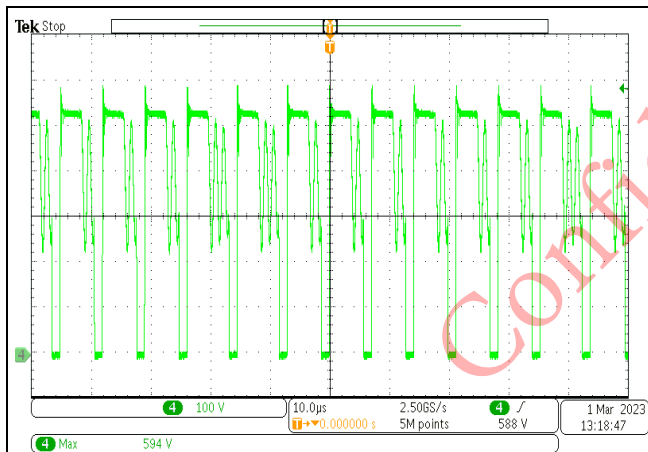


Figure 15 The waveform of Drain at Vin = 264Vac/50Hz, 20V3.25A

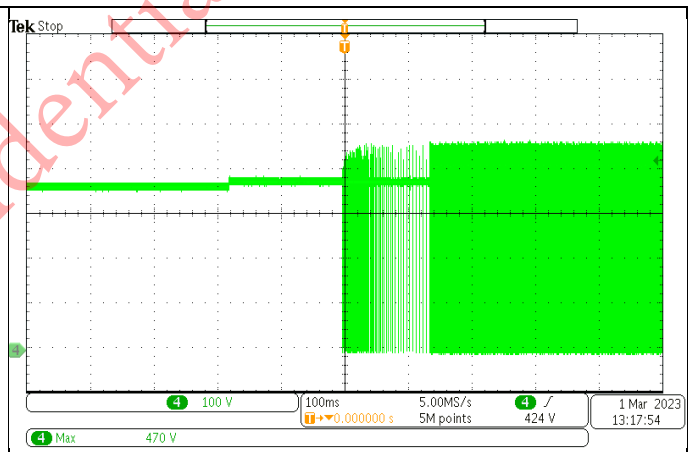


Figure 16 The waveform of Drain at Vin = 264Vac/50Hz, 5V3A Start up

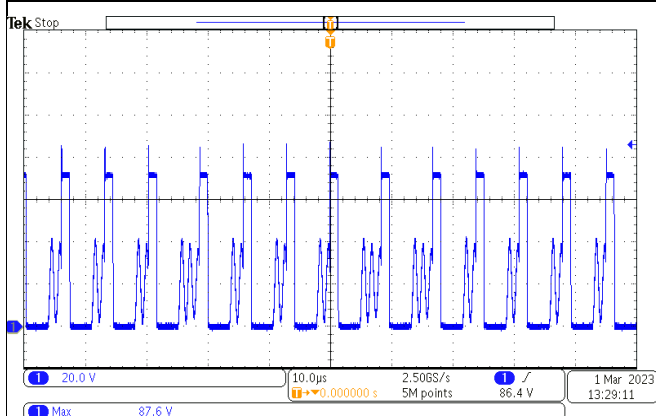


Figure 17 The waveform of rectifier at Vin = 264Vac/50Hz, 20V3.25A

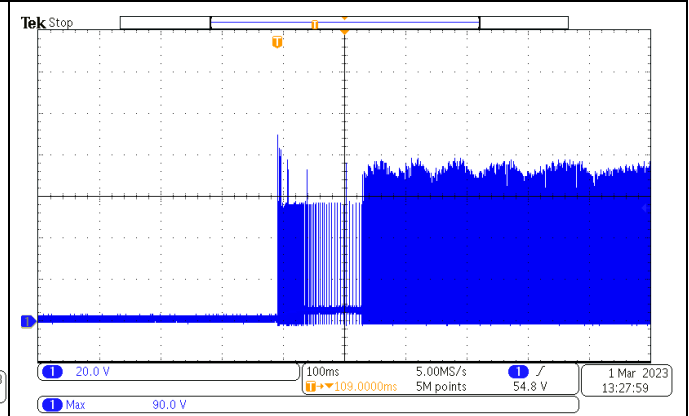


Figure 18 The waveform of rectifier at Vin = 264Vac/50Hz, 5V3A Start up

6.10 Secondary Side Over Current Protection

AC IN	Vout	Current Limit Value (A)	Spec.	Result
90V _{AC} /60Hz	5V	3.57	< 3.9A	PASS
115V _{AC} /60Hz		3.57		
230V _{AC} /50Hz		3.57		
264V _{AC} /50Hz		3.57		
90V _{AC} /60Hz	9V	3.57	< 3.9A	PASS
115V _{AC} /60Hz		3.56		
230V _{AC} /50Hz		3.56		
264V _{AC} /50Hz		3.55		
90V _{AC} /60Hz	12V	3.56	< 3.9A	PASS
115V _{AC} /60Hz		3.56		
230V _{AC} /50Hz		3.56		
264V _{AC} /50Hz		3.56		
90V _{AC} /60Hz	15V	3.56	< 3.9A	PASS
115V _{AC} /60Hz		3.57		
230V _{AC} /50Hz		3.57		
264V _{AC} /50Hz		3.57		
90V _{AC} /60Hz	20V	3.84	< 4.2A	PASS
115V _{AC} /60Hz		3.84		
230V _{AC} /50Hz		3.84		
264V _{AC} /50Hz		3.85		

6.11 Primary Side Over Load Protection

AC IN	Vout	Current Limit Value (A)	Note
90V _{AC} /60Hz	5V	6.6	<8A, <100W
115V _{AC} /60Hz		6.5	
230V _{AC} /50Hz		5.4	
264V _{AC} /50Hz		5.5	
90V _{AC} /60Hz	9V	6.0	<8A, <100W
115V _{AC} /60Hz		6.5	
230V _{AC} /50Hz		5.8	
264V _{AC} /50Hz		6.1	
90V _{AC} /60Hz	12V	5.4	<8A, <100W
115V _{AC} /60Hz		5.7	
230V _{AC} /50Hz		5.3	
264V _{AC} /50Hz		5.5	
90V _{AC} /60Hz	15V	4.8	<100W
115V _{AC} /60Hz		5.2	
230V _{AC} /50Hz		5.0	
264V _{AC} /50Hz		5.2	
90V _{AC} /60Hz	20V	4.1	<5A, <100W
115V _{AC} /60Hz		4.5	
230V _{AC} /50Hz		4.4	
264V _{AC} /50Hz		4.6	

6.12 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	26.6	6.76	26.6	6.52	<27V	Figure 22	Figure 23	PASS
264V _{AC} /50Hz		26.6	6.76	26.6	6.52		Figure 24	Figure 25	
90V _{AC} /60Hz	9V	26.2	11.3	26.6	11.3	<27V	-	-	PASS
264V _{AC} /50Hz		26.2	11.1	26.2	11.1		-	-	
90V _{AC} /60Hz	12V	26.6	14.9	26.2	14.9	<27V			PASS
264V _{AC} /50Hz		26.6	14.9	25.8	14.9				
90V _{AC} /60Hz	15V	26.2	18.5	26.6	18.3	<27V	-	-	PASS
264V _{AC} /50Hz		26.2	18.5	26.2	18.3		-	-	
90V _{AC} /60Hz	20V	26.2	24.5	26.6	24.3	<27V	Figure 26	Figure 27	PASS
264V _{AC} /50Hz		26.2	24.7	26.6	24.3		Figure 28	Figure 29	

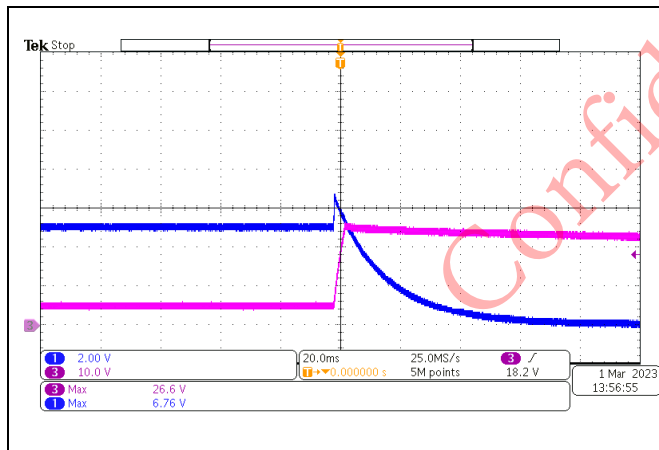


Figure 19 The waveform of OVP at Vin = 90Vac/60Hz, 5V No-load

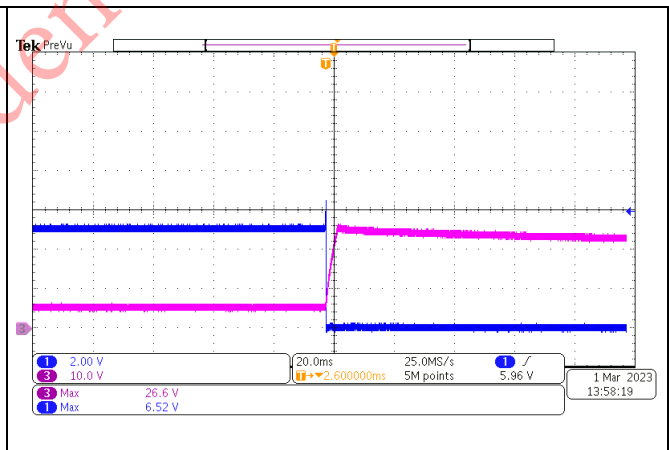


Figure 20 The waveform of OVP at Vin = 90Vac/60Hz, 5V3A

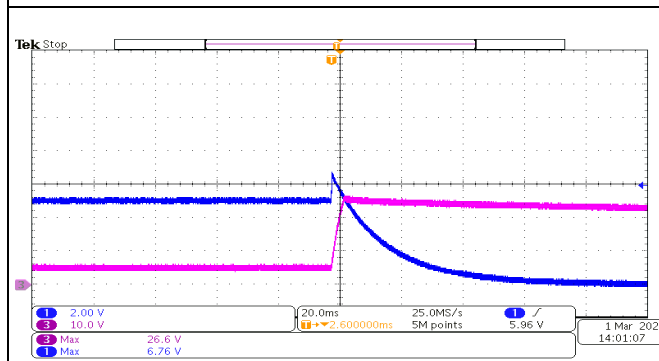


Figure 21 The waveform of OVP at Vin = 264Vac/50Hz, 5V No-load

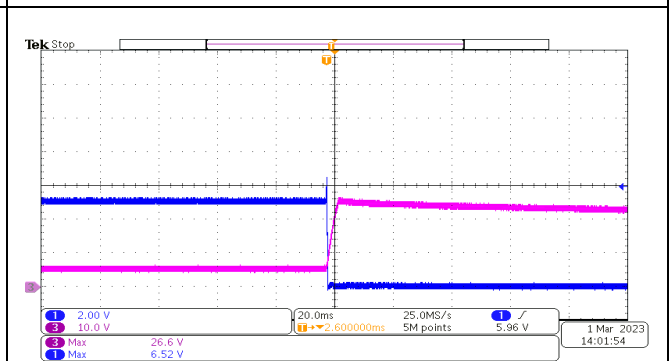


Figure 22 The waveform of OVP at Vin = 264Vac/50Hz, 5V3A

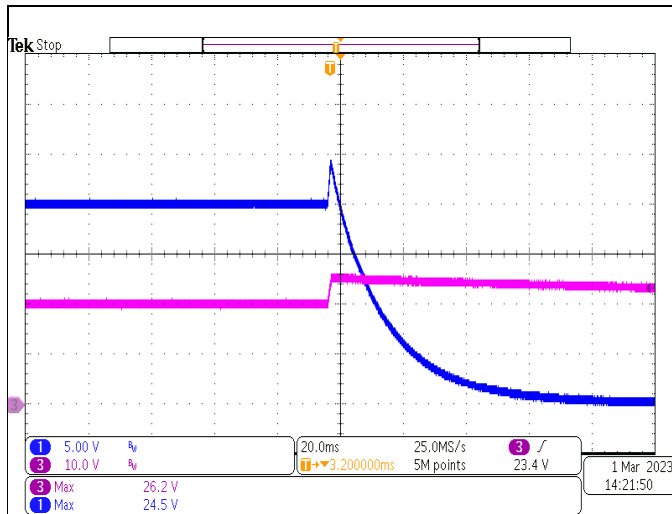


Figure 23 The waveform of OVP at Vin = 90Vac/60Hz, 20VNo-load

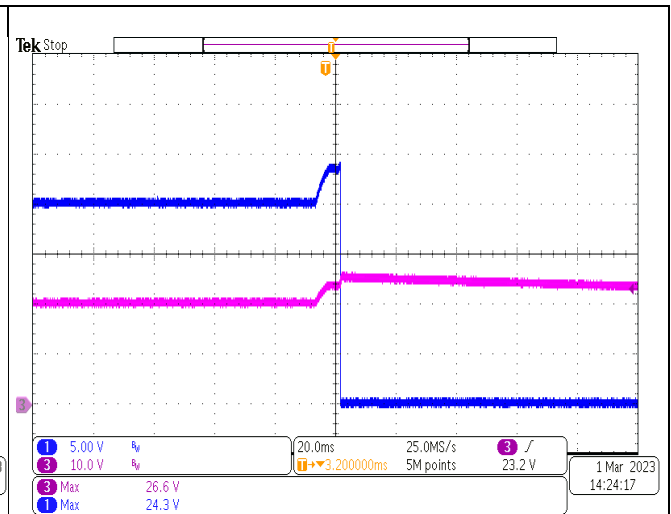


Figure 24 The waveform of OVP at Vin = 90Vac/60Hz, 20V3.25A

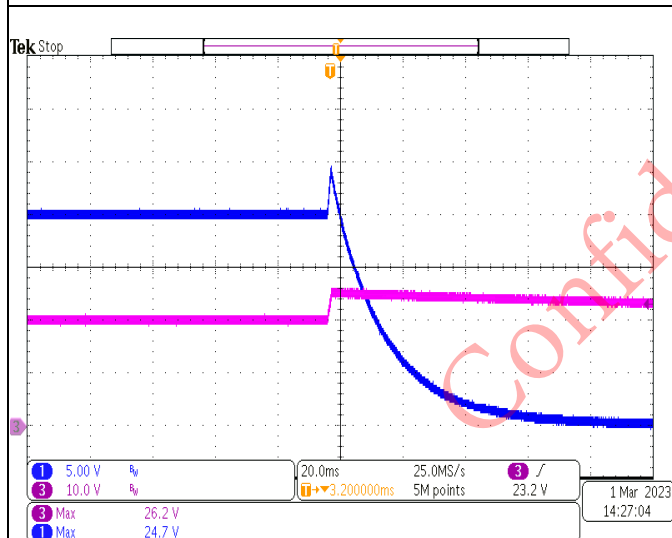


Figure 25 The waveform of OVP at Vin = 264Vac/50Hz, 20VNo-load

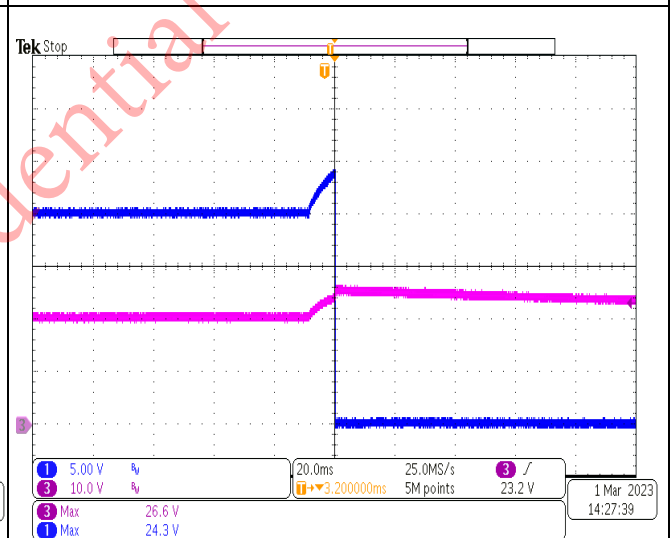


Figure 26 The waveform of OVP at Vin = 264Vac/50Hz, 20V3.25A

6.13 ESD Test

Test Conditions: $V_{in}=230V_{ac}$; 5V3A, 20V3.25A

Air Discharge: $\pm 16KV$

Sample	Number of Strikes	Test Result
No. 11	20	PASS
No. 12		

Contact Discharge: $\pm 8.8KV$

Sample	Number of Strikes	Test Result
No. 11	20	PASS
No. 12		

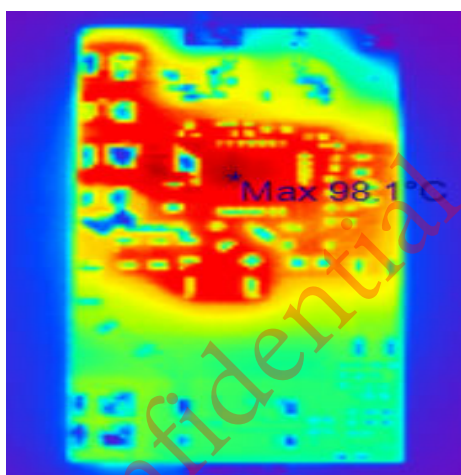
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6.14 Thermal Test

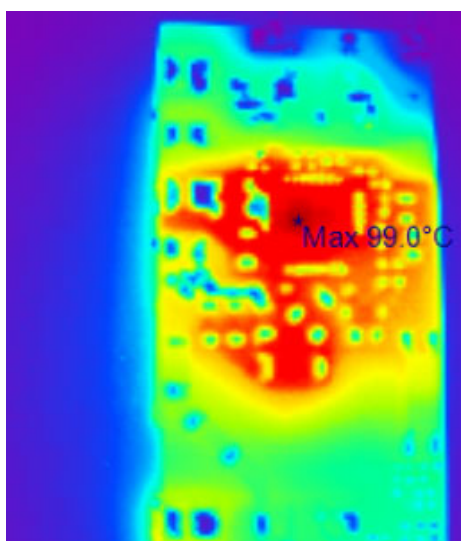
Item	90Vac/60Hz 20V3.25A Open frame (°C)	264Vac/50Hz 20V3.25A Open frame (°C)
WT7162RHUG24A	98.1	99
Ambient temperature	21	21

Note: burn In 30mins.

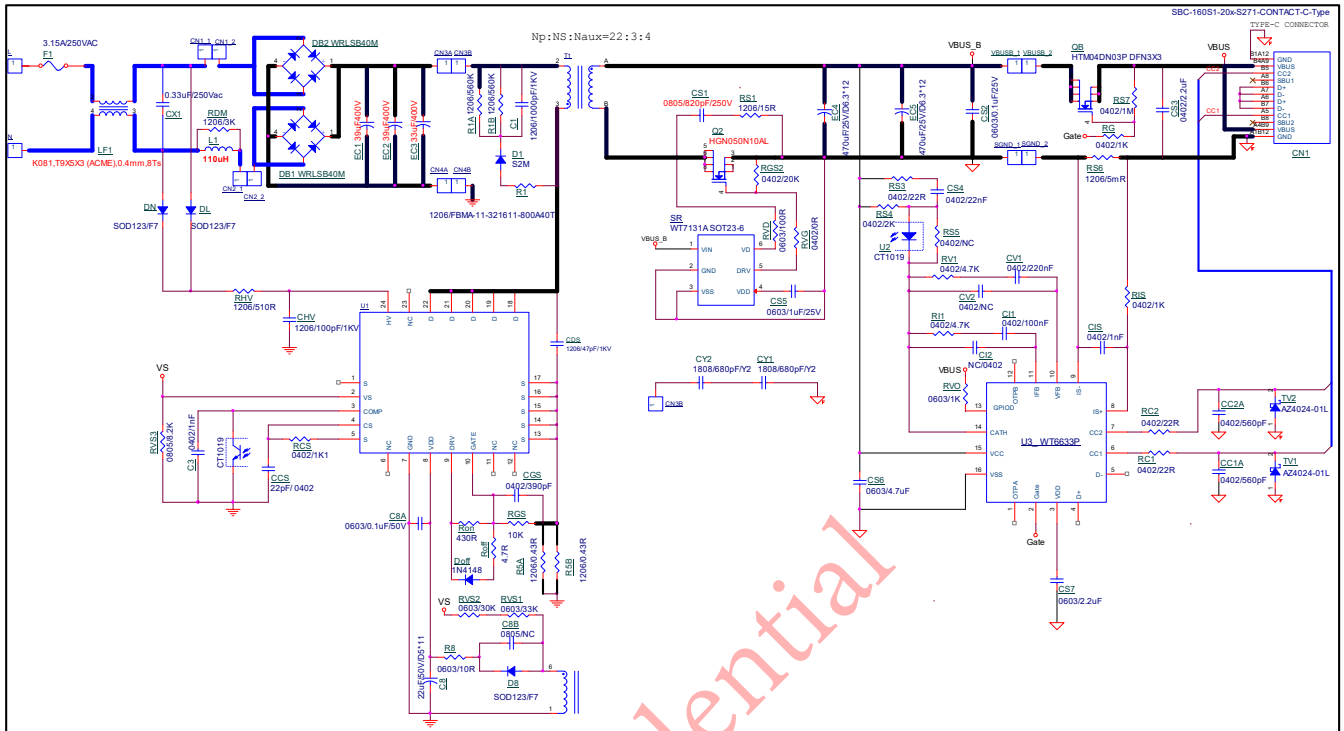
90Vac/60Hz 20V 3.25A



264Vac/50Hz 20V 3.25A



7 Schematic



8 Bill of Materials

Location	Description	Q'ty	Vendor	Remark
MAIN BOARD	PCB_1	1		
F1	3.15A/250V	1		
LFI	K081,T9X5X3 (ACME),0.4mm,8Ts	1		
CX1	MPX334K275AP10T6Y, 0.33uF/250Vac X2	1	DGCX	
RDM	3K, 1/4W, 1206, F	1	WALSIN	
L1	T044-125,110uH	1	KARSON Electronics.	0.35mm,46Ts
T1	ATQ23.7/14.6 ,4+2Pin, ferrite:A-CORE_JPP-95	1		
DN,DL,D8	F7,SOD-123FL	3	PANIT	
R1A,R1B	560K, 1/4W, 1206, F	2	WALSIN	
C1	1000pF/1KV, X7R, 1206	1	WALSIN	
R1	FBMA-11-321611-800A40T	1	KING CORE	
D1	S2M,2A/1000V	1	PANJIT	
CY1,CY2	680pF/250Vac, X7R,1808,Y2	2	Holystone	
RVS1	33K, 1/10W, 0603, F	1	WALSIN	
RVS2	30K, 1/10W, 0603, F	1	WALSIN	
RVS3	8.2K, 1/8W, 0805, F	1	WALSIN	
R8	10R, 1/10W, 0603, F	1	WALSIN	
U1	WT7162RHUG24A	1	Weltrend/Transphorm	
RHV	510R, 1/4W, 1206, F	1	WALSIN	
C8	22uF/50V/D5*11	1	Rubycon	
C8A	0.1uF/50V, X7R, 0603	1	WALSIN	
U2	CT1019-W, 4p,7.62mm	1	CT Micro	
CDS	47pF/1KV, X7R, 1206	1	WALSIN	
R5A,R5B	0.43R, 1/2W, 1206, F	2	WALSIN	
Ron	430R, 1/16W, 0402, F	1	WALSIN	
Roff	4.7R, 1/16W, 0402, F	1	WALSIN	
Doff	1N4148WS	1	PANJIT	
C3	1nF/50V, X7R, 0402	1	MURATA	
RGS	10K, 1/16W, 0402, F	1	WALSIN	
RCS	1.1K, 1/16W, 0402, F	1	WALSIN	
CCS	22pF/50V, COG, 0402	1	MURATA	
CGS	390pF/50V, X7R, 0402	1	MURATA	
RS6	5mR, 1W, 1206, F	1	WALSIN	
QB	HTM040N03P, 30V, 4mR	1	HUNTECK	

Location	Description	Q'ty	Vendor	Remark
RS7	1M, 1/16W, 0402, F	1	WALSIN	
CN1	SBC-160S1-20x-S271-CONTACT-C-Type	1		
U3	WT6633P, QFN16, 4*4	1	Weltrend	
RS4	2K, 1/16W, 0402, F	1	WALSIN	
RS3,RC1,RC2	22R, 1/16W, 0402, F	3	WALSIN	
CS4	22nF/25V, X7R, 0402	1	MURATA	
RV1,RI1	4.7K, 1/16W, 0402, F	2	WALSIN	
CV1	220nF/50V, X5R, 0402	1	MURATA	
CI1	100nF/50V, X7R, 0402	1	MURATA	
CIS	1nF/50V, X7R, 0402	1	MURATA	
CC1A,CC2A	560pF/50V, X7R, 0402	2	MURATA	
CS3	GRM155R6YA225KE11	1	MURATA	
CS6	GRM188R61E475KE11	1	MURATA	
CS7	GRM185R61A225KE43	1	MURATA	
RVO	1K, 1/10W, 0603,F	1	WALSIN	
RIS,RG	1K, 1/16W, 0402, F	2	WALSIN	
TV1,TV2	AZ4024-01L	2	AMAZING	
CHV	100pF/1KV, X7R, 1206	1	WALSIN	
SR Board	PCB_3			
SR	WT7131A, SOT-26	1	Weltrend	
Q2	HGN050N10AL, 100V, DFN5*6	1	HUNTECK	SR_MOS
EC4,EC5	VPX470uF/25V, 6.3*13mm	2	SEN KANG	
CS1	820pF/250V, X7R, 0805	1	WALSIN	
CS2	1uF/25V, X7R, 0603	1	MURATA	
RVG	0R, 1/16W, 0402, F	1	WALSIN	
RVD	100R, 1/10W, 0603, F	1	WALSIN	
RGS2	20K, 1/16W, 0402, F	1	WALSIN	
RS1	15R, 1/4W, 1206, F	1	WALSIN	
Bridge Board	PCB_2			
DB1/DB2	WRMSB40M	2	World international	
EC1,EC2	KCX 39uF/400V 10X20mm	2	SEN KANG	
EC3	KCX 33uF/400V 10X18mm	1	SEN KANG	

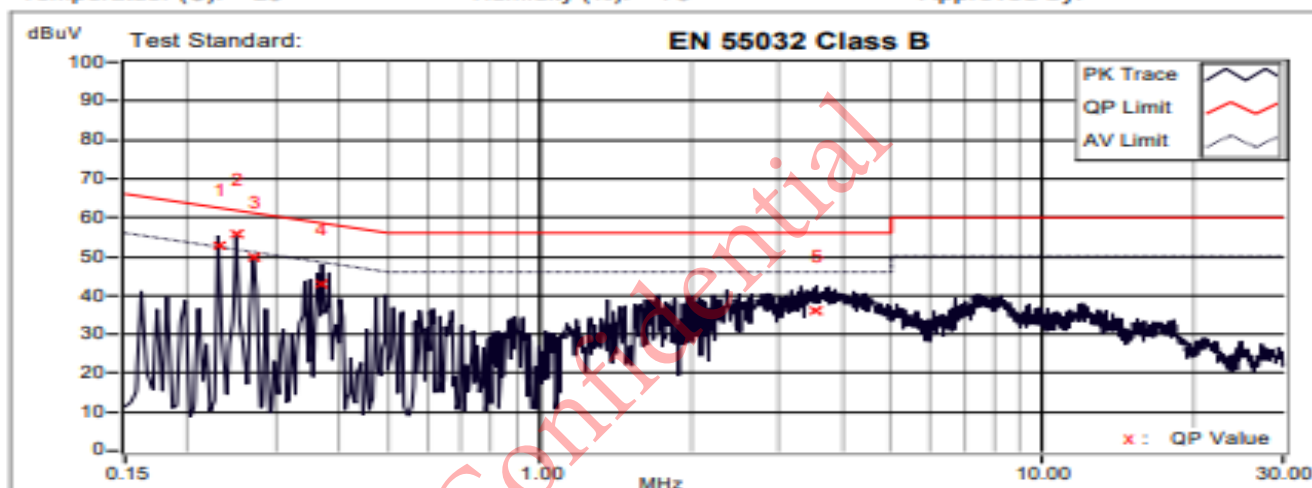
9 Conducted EMI under 6db margin (2-Pin Test)

110Vac/60Hz 20V3.25A (Neutral)

 香港獨立德國國際商品試驗有限公司桃園分公司
Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Brand / Model : SIP T
Test Mode :
Power Source : AC 110V/60Hz
Remark : 20V
Sample No.
Tested by : Nick Lo

Location: HC - Conduction 3	Date: 2023/2/16	Time: 上午 11:52:51	Phase: N
Temperatuer (C): 25	Humidity (%): 75	Approved by:	



This data is for evaluation purposes only. It cannot be used for EMC approvals unless it contains the approved signature.
If you have any questions regarding the test data, you can write your comments to service.adt@tw.bureauveritas.com

[illegible]

110Vac/60Hz 20V3.25A (Line)



 香港商立德國際商品試驗有限公司桃園分公司
Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Brand / Model : SIP T
Test Mode :
Power Source : AC 110V/60Hz
Remark : 20V
Sample No.
Tested by : Nick Lo

Location: HC - Conduction 3

Date: 2023/2/16

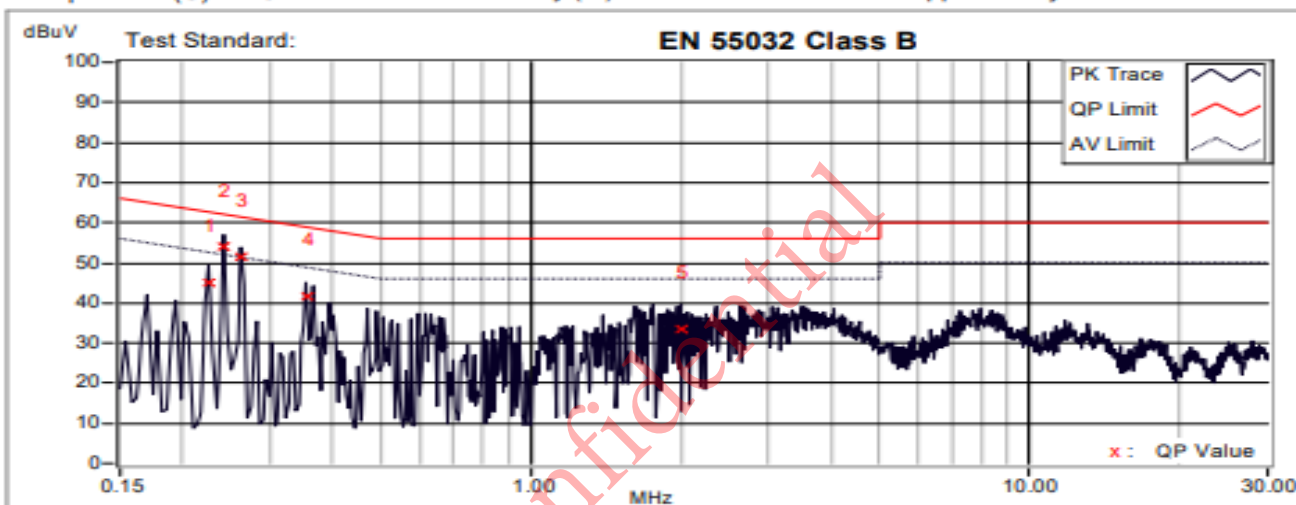
Time: 上午 11:54:05

Phase: L1

Temperatuer (C): 25

Humidity (%): 75

Approved by:



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[illegible]

230Vac/50Hz 20V3.25A (Neutral)



 香港南立德國際商品試驗有限公司桃園分公司
Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Brand / Model : SIP T
Test Mode :
Power Source : AC 230V/50Hz
Remark : 20V
Sample No.
Tested by : Nick Lo

Location: HC - Conduction 3

Date: 2023/2/16

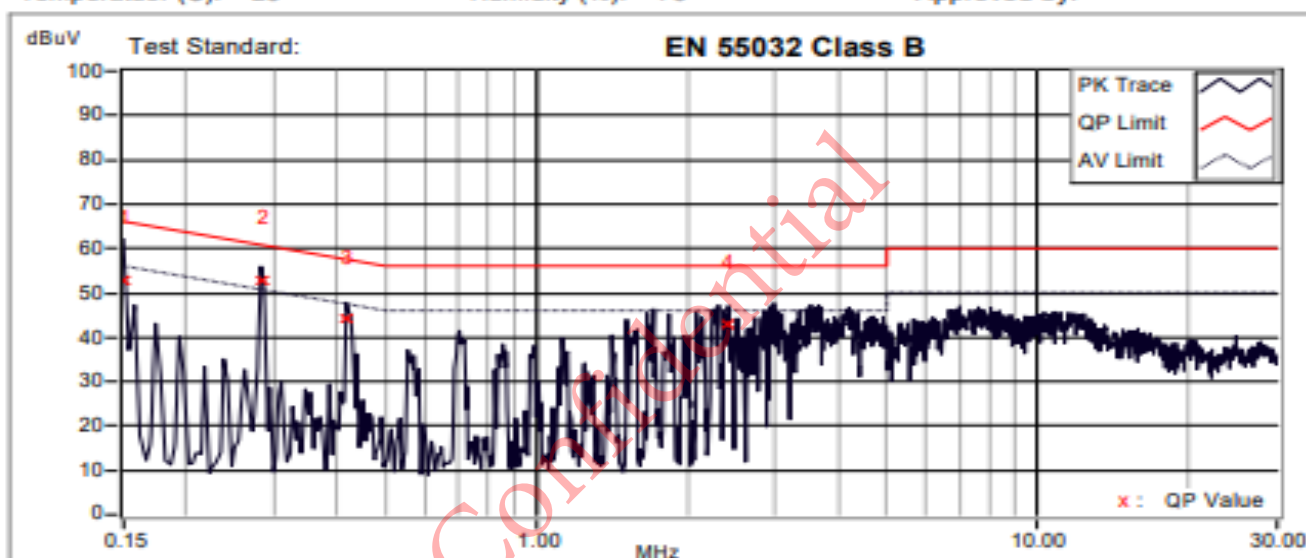
Time: 上午 11:51:47

Phase: N

Temperatur (C): 25

Humidity (%): 75

Approved by:



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VT 374

[illegible]

230Vac/50Hz 20V3.25A (Line)



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香港南立德國際商品試驗有限公司桃園分公司

Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Brand / Model : SIP T

Test Mode :

Power Source : AC 230V/50Hz

Remark : 20V

Sample No.

Tested by : Nick Lo

Location: HC - Conduction 3

Date: 2023/2/16

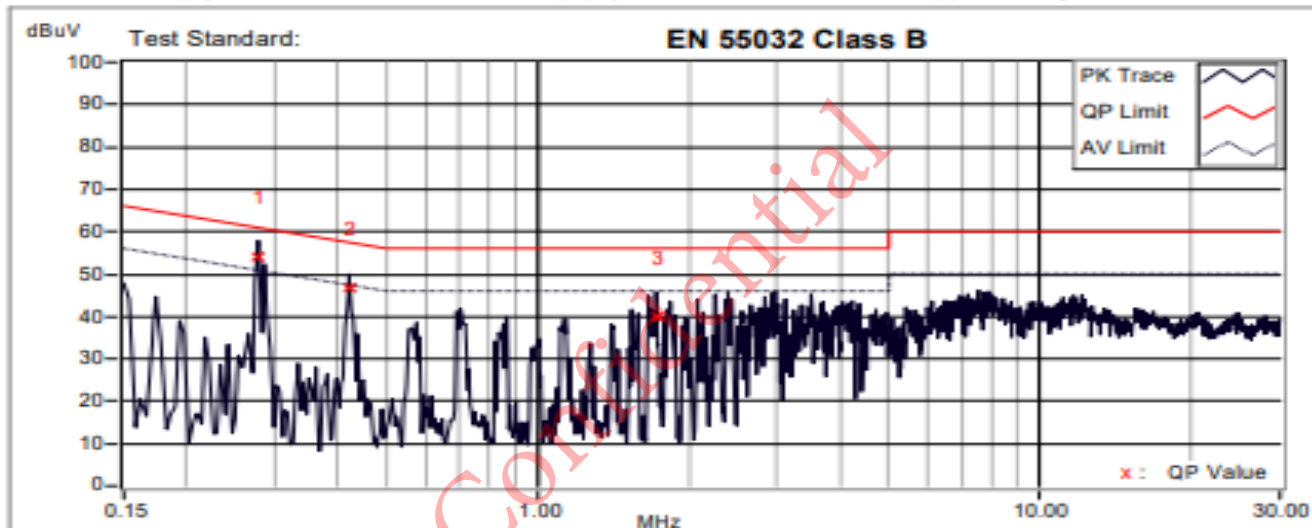
Time: 上午 11:50:30

Phase: L1

Temperatur (C): 25

Humidity (%): 75

Approved by:



This data is for evaluation purposes only. It cannot be used for EMC approvals unless it contains the approved signature.
If you have any questions regarding the test data, you can write your comments to service.adt@tw.bureauveritas.com

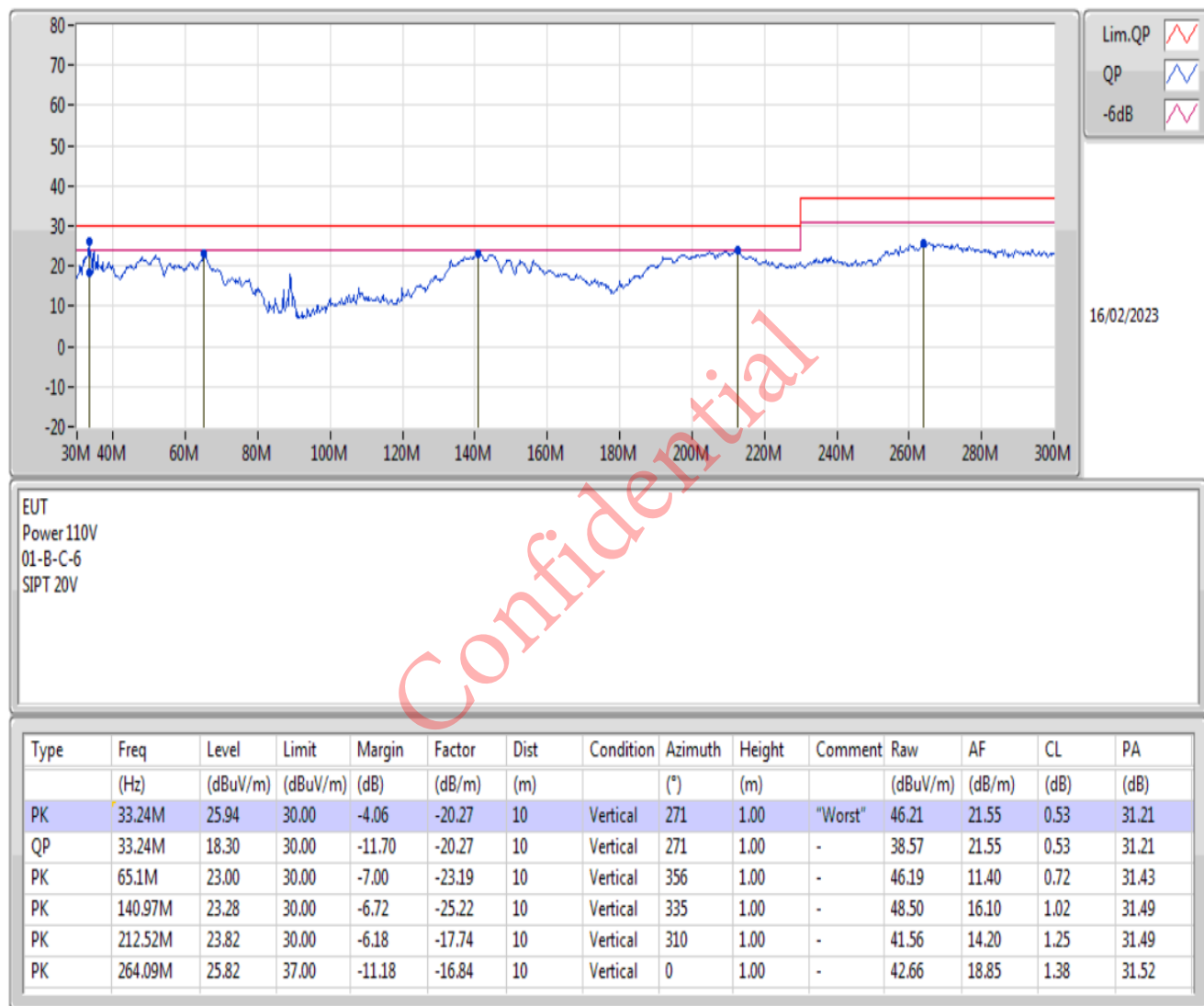
VT 374

[illegible]

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

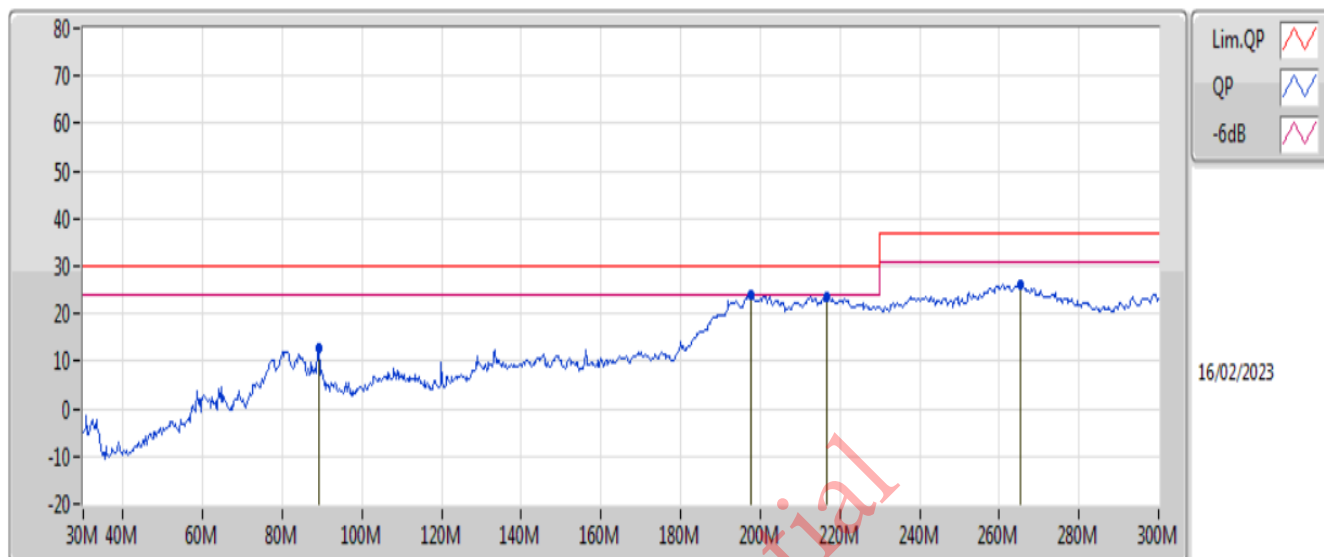
110Vac/60Hz 20V3.25A(Vertical)

Radiated Emissions below 1GHz_Mode 24



110Vac/60Hz 20V3.25A (Horizontal)

Radiated Emissions below 1GHz_Mode 24

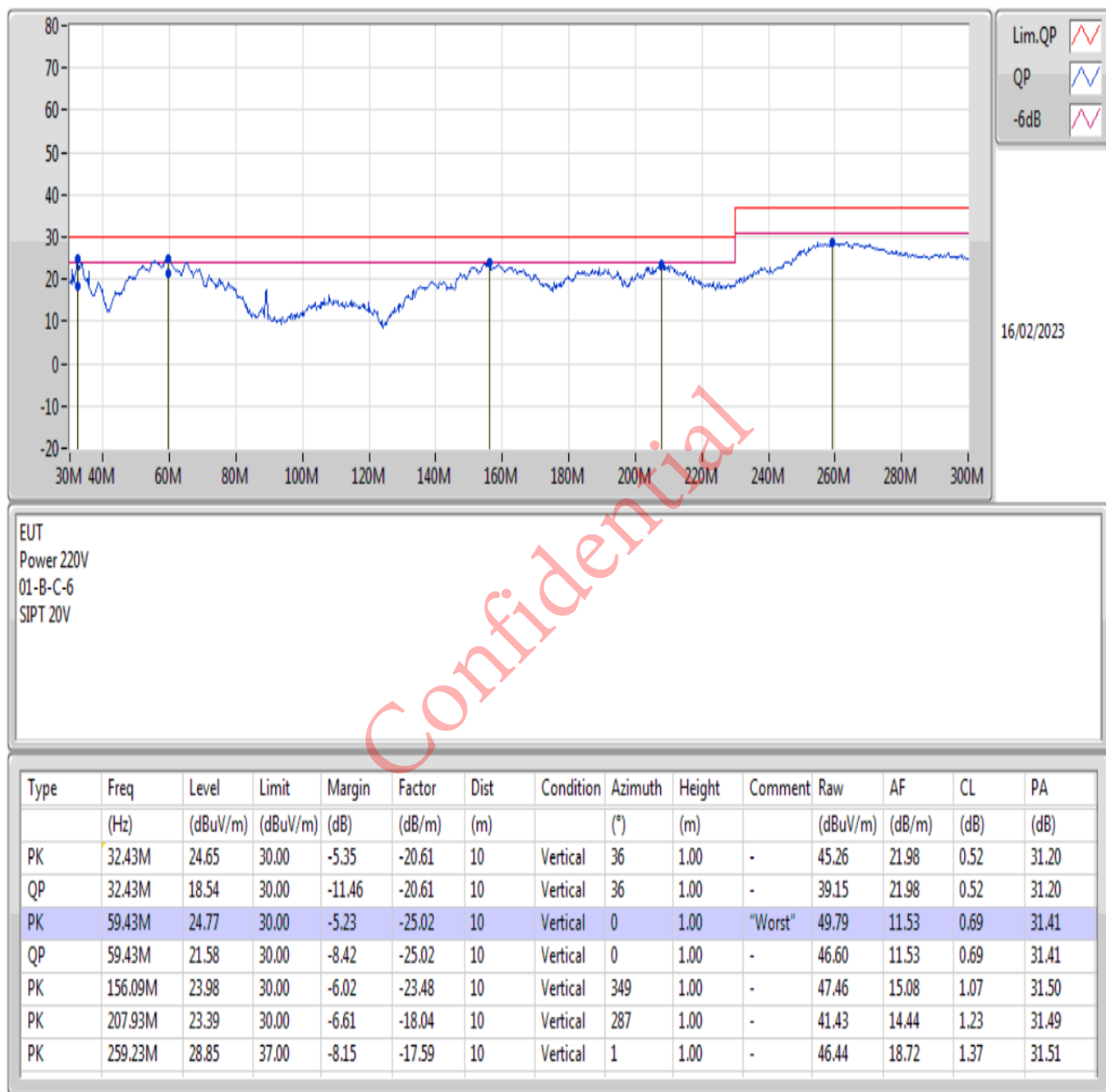


EUT
Power 110V
01-B-C-6
SIPT 20V

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	89.13M	12.89	30.00	-17.11	-29.71	10	Horizontal	256	1.00	-	42.60	13.60	0.82	31.48
PK	197.67M	23.99	30.00	-6.01	-26.26	10	Horizontal	111	1.00	"Worst"	50.25	14.24	1.20	31.49
PK	216.84M	23.74	30.00	-6.26	-25.06	10	Horizontal	100	1.00	-	48.80	14.06	1.26	31.49
PK	265.44M	26.15	37.00	-10.85	-20.44	10	Horizontal	85	1.00	-	46.59	18.79	1.39	31.52

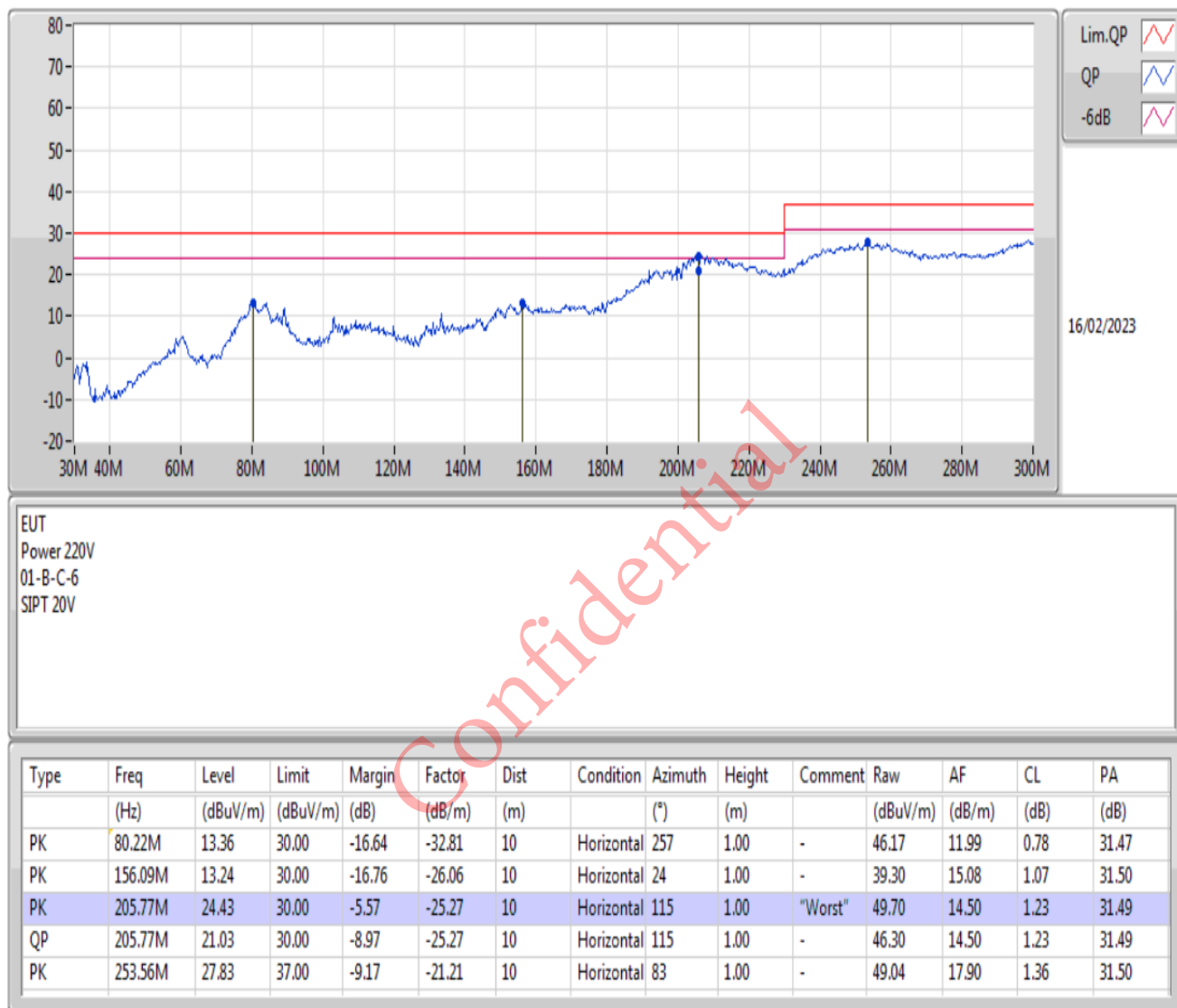
230Vac/50Hz 20V3.25A (Vertical)

Radiated Emissions below 1GHz_Mode 23



230Vac/50Hz 20V3.25A (Horizontal)

Radiated Emissions below 1GHz_Mode 23



11 Revision History

Version	History	Date
0.1	Initial Issue.	March 8, 2023
0.2	1. Add ESD/surge test items & update Schematic/Bill of Materials (page 4/19/21/23) 2. “State” been corrected to “Start Up 5V” (Page 14) 3. Update page numbering	May 15, 2023

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