

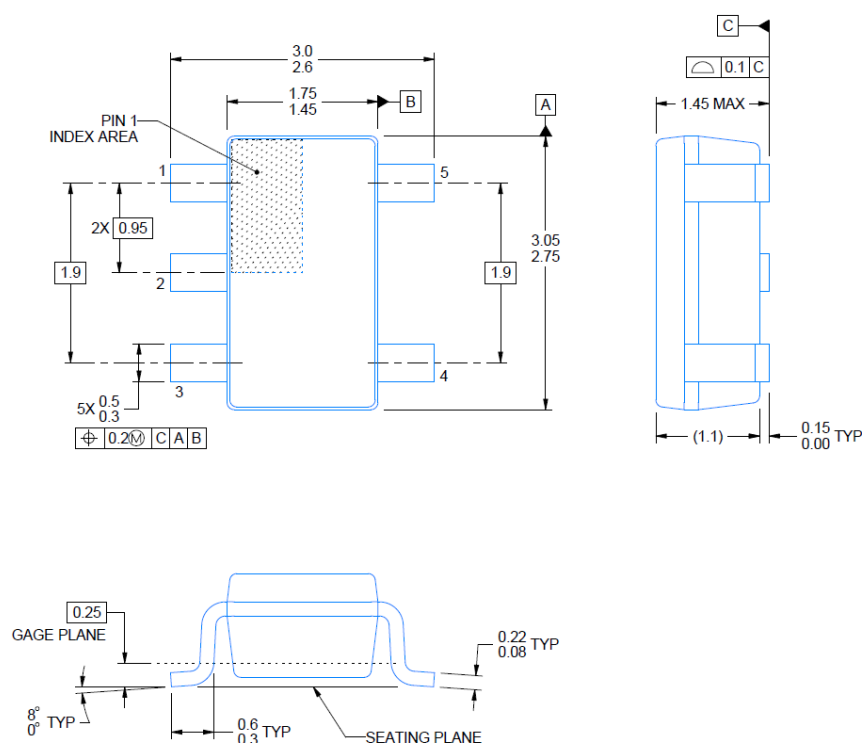
Comparison of Main source and 2nd source

Test Report

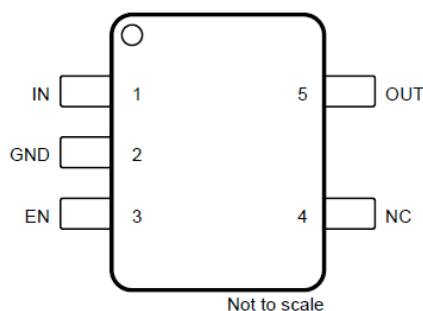
Hardware version	FW version	Main source P/N	2 ND source MFG	2 ND source P/N
V025	4.9.113 #1MonFeb 1122:40:43 CST 2019	TLV755XXPDBVR	3PEAK	TPL740FXX-5TR

Main Source(TLV755XXPDBVR) spec:

		MIN	NOM	MAX	UNIT
I_{OUT}	Output current	0		500	mA



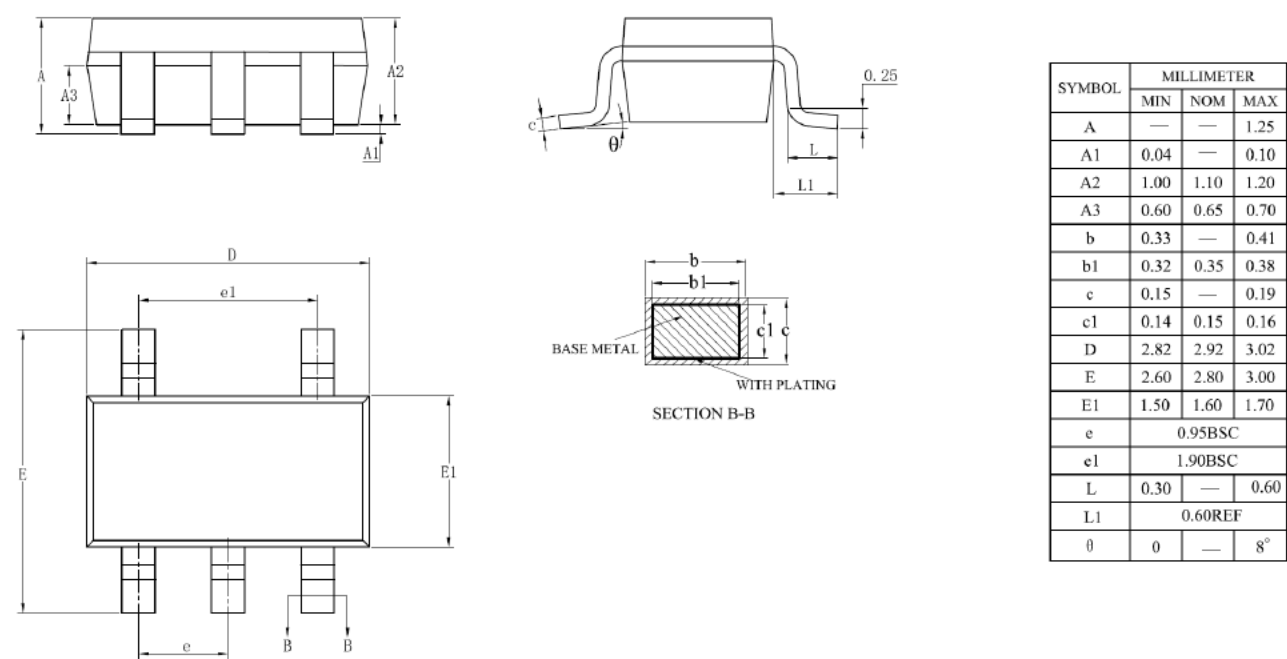
DBV Package
5-Pin SOT-23
Top View



Not to scale

2nd Source(TPL740FXX-5TR) spec:

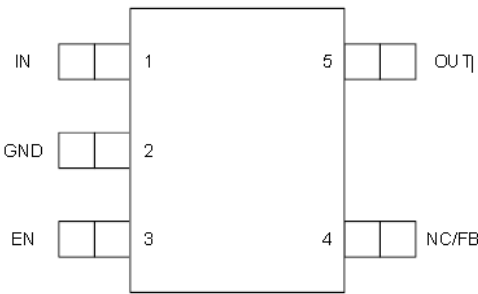
Parameters		Min	Max	Unit
I_{OUT}	Output Current	0	500	mA



TPL740 Series

5-Pin SOT23 Package

Top View



T99X171T00 2nd source introduce TPL740FXX-5TR

1. Test Item

If want to introduce 2nd source, still need to test the following items:

- a. Vin
- b. Vout
- c. AC ripple
- d. Power on sequence
- e. Short test
- f. Power Consumption
- g. EMI test

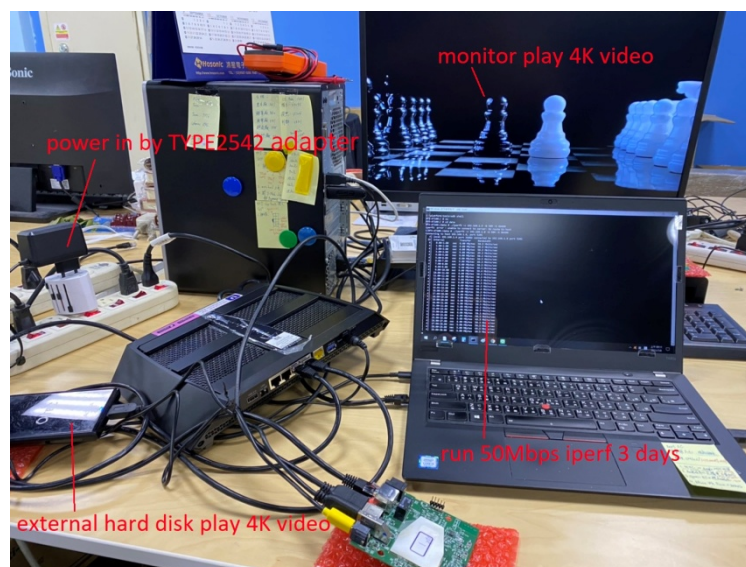
2. Power Test Setup

The measure test point is LDO_P2V5 and the capacitor C334

Emmc_VDDQ and the capacitor C322

P1V8 and the capacitor C337

3. Power Test Setup



1.1 Test Condition

- BOX play 4K video by using external hard disk.
- Ethernet is connected to AP WIFI and run iperf base on 50Mbps to server.
- HDMI output port connects to TV through the HDMI cable.
- DC Power cable is also connected.
- The temperature is about 25 degrees. The results are meeting +/-5%.

a. Vin:

Measure U307 pin1(Vin), U303 pin1(Vin) and U306 pin1(Vin).

b. Vout:

Measure U307 pin5(Vout), U303 pin5(Vout) and U306 pin5(Vout).

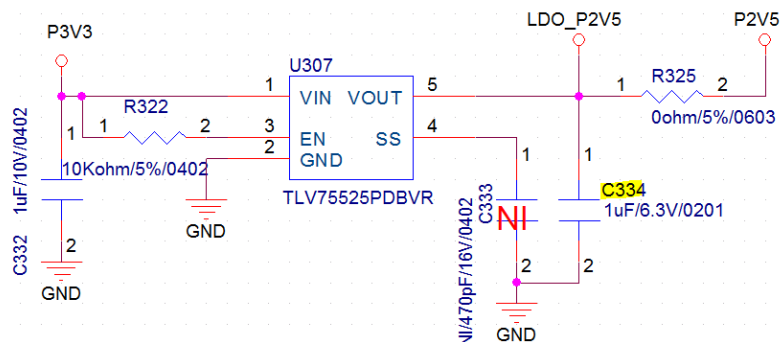
c. Ripple test:

T99X171T00 2nd source introduce TPL740FXX-5TR

Setting Oscilloscope parameter to AC, and measure C334, C322 and C337 to check ripple is under specification ($\pm 5\%$)

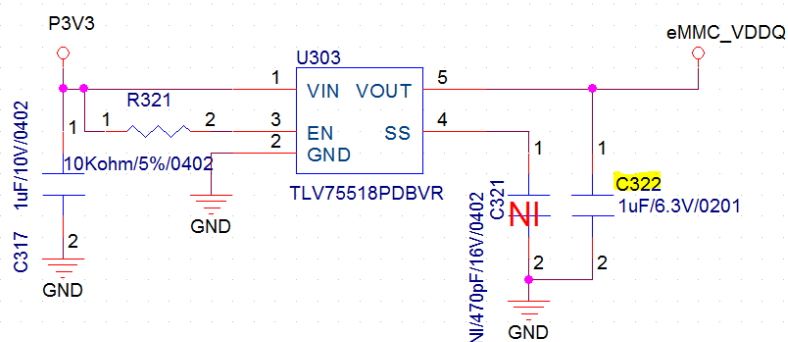
P3V3 to P2V5

Design Max: 500mA



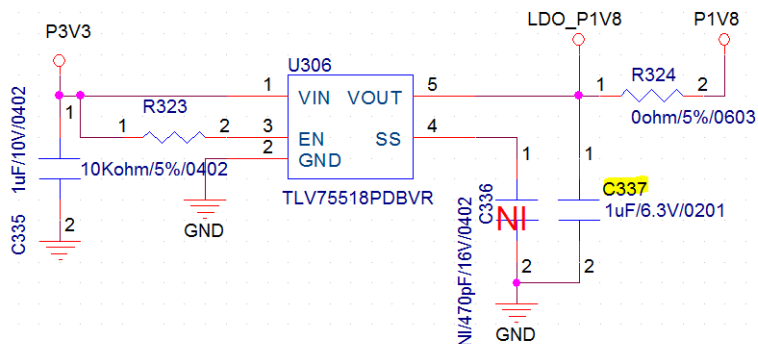
P3V3 to eMMC_VDDQ

Design Max: 500mA



P3V3 to P1V8

Design Max: 500mA



4. Result and Picture

Power Rail	Power IC / MOSFET P/N	Spec	Measurement point	Result	Picture	Result Pass/Fail
Main_LDO_P2V5_Vin Vout	TLV75525PDBVR	3.14V-3.46V 2.38V-2.62V	U307 pin1 U307 pin5	3.32V 2.48V	Fig. 1	Pass
Main_LDO_P2V5_ripple	TLV75525PDBVR	<125mV	C334	53.6mV	Fig. 2	Pass
Main_eMMC_VDDQ_Vin Vout	TLV75518PDBVR	3.14V-3.46V 1.71V-1.89V	C303 pin1 C303 pin5	3.32V 1.8V	Fig. 3	Pass
Main_eMMC_VDDQ_ripple	TLV75518PDBVR	<90mV	C322	46mV	Fig. 4	Pass
Main_LDO_P1V8_Vin Vout	TLV75518PDBVR	3.14V-3.46V 1.71V-1.89V	U306 pin1 U306 pin5	3.32V 1.8V	Fig. 5	Pass
Main_LDO_P1V8_ripple	TLV75518PDBVR	<90mV	C337	43.2mV	Fig. 6	Pass

Power Rail	Power IC / MOSFET P/N	Spec	Measurement point	Result	Picture	Result Pass/Fail
2 nd _LDO_P2V5_Vin Vout	TPL740F25-5TR	3.14V-3.46V 2.38V-2.62V	U307 pin1 U307 pin5	3.323V 2.514V	Fig. 7	Pass
2 nd _LDO_P2V5_ripple	TPL740F25-5TR	<125mV	C334	37.48mV	Fig. 8	Pass
2 nd _eMMC_VDDQ_Vin Vout	TPL740F18-5TR	3.14V-3.46V 1.71V-1.89V	C303 pin1 C303 pin5	3.33V 1.822V	Fig. 9	Pass
2 nd _eMMC_VDDQ_ripple	TPL740F18-5TR	<90mV	C322	24.46mV	Fig. 10	Pass
2 nd _LDO_P1V8_Vin Vout	TPL740F18-5TR	3.14V-3.46V 1.71V-1.89V	U306 pin1 U306 pin5	3.328V 1.814V	Fig. 11	Pass
2 nd _LDO_P1V8_ripple	TPL740F18-5TR	<90mV	C337	28.95mV	Fig. 12	Pass

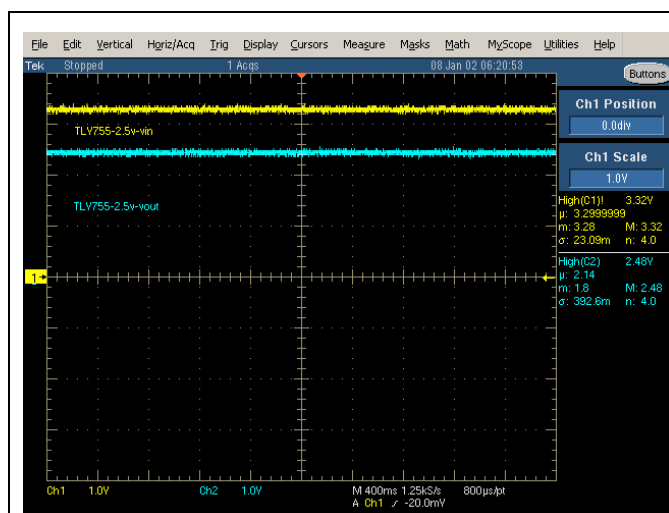


Fig. 1: Main_LDO_P2V5_Vin Vout

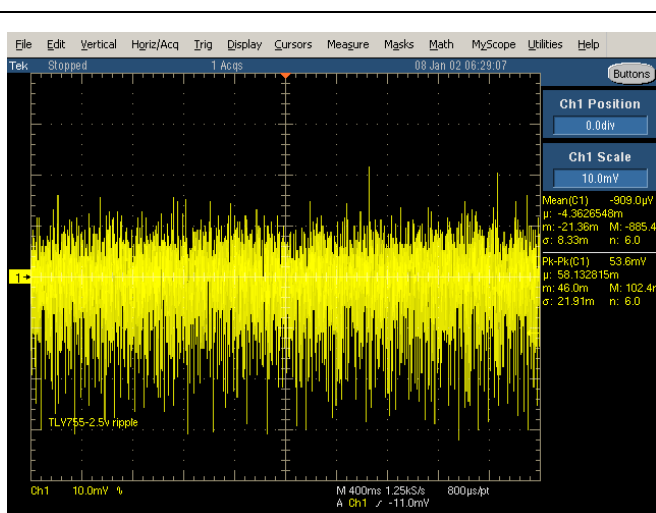


Fig. 2: Main_LDO_P2V5_ripple

T99X171T00 2nd source introduce TPL740FXX-5TR

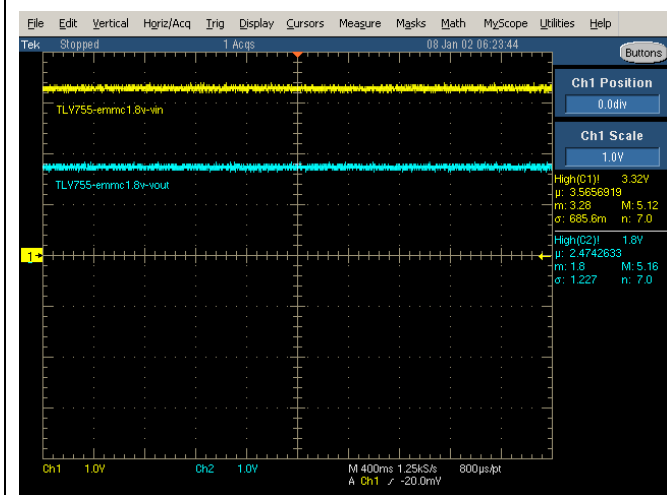


Fig. 3: Main_eMMC_VDDQ_Vin Vout

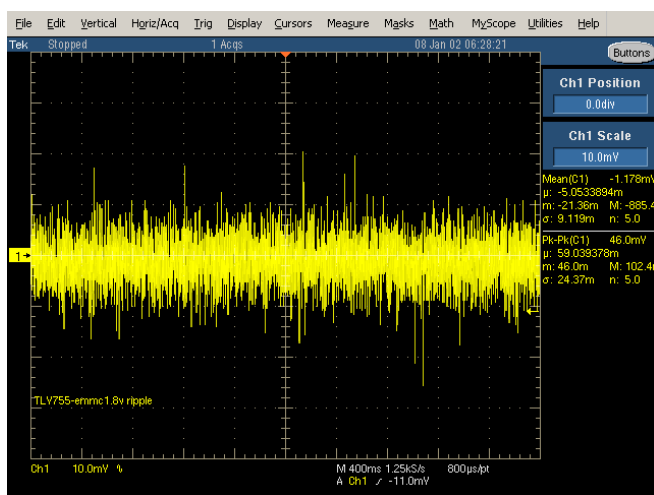


Fig. 4: Main_eMMC_VDDQ_ripple

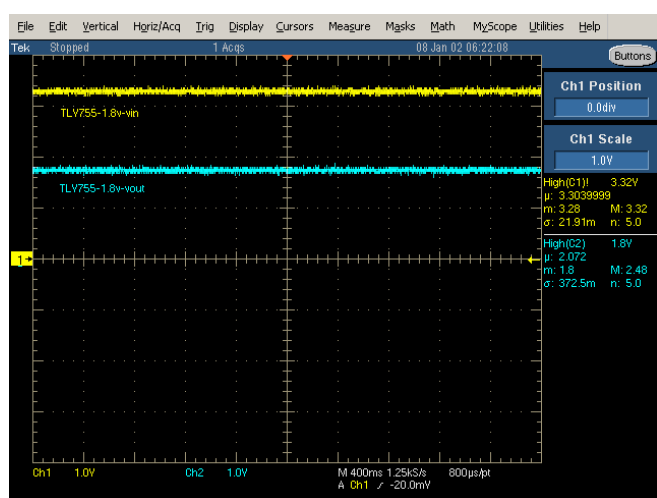


Fig. 5: Main_LDO_P1V8_Vin Vout

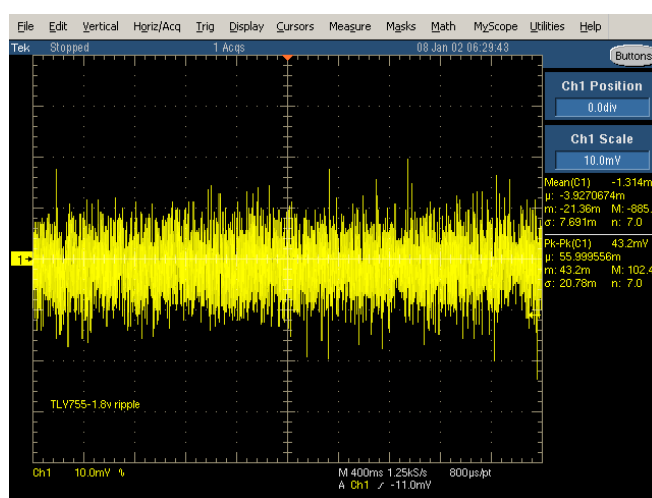


Fig. 6: Main_LDO_P1V8_ripple

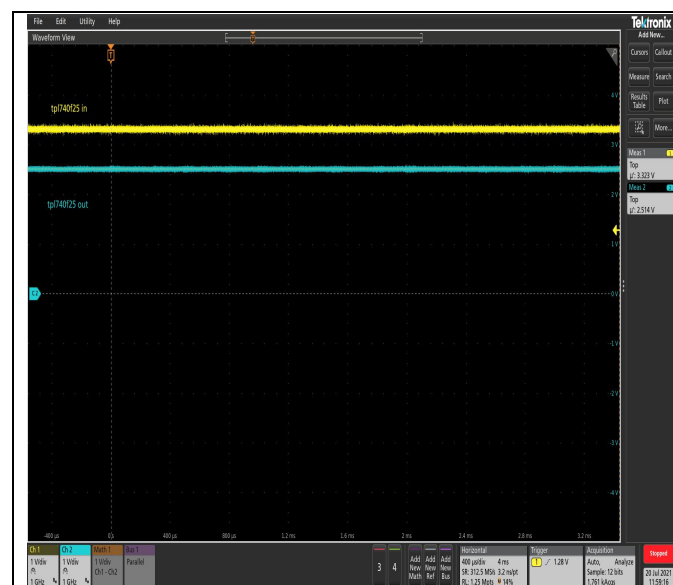


Fig. 7: 2nd_LDO_P2V5_Vin Vout

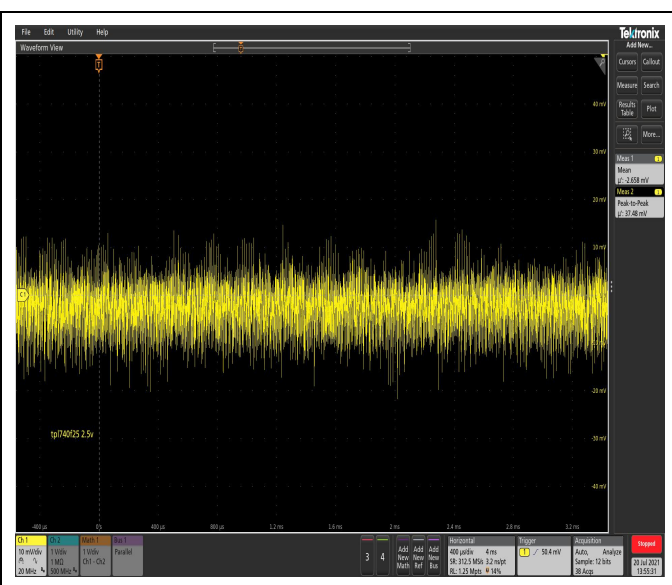


Fig. 8: 2nd_LDO_P2V5_ripple

T99X171T00 2nd source introduce TPL740FXX-5TR

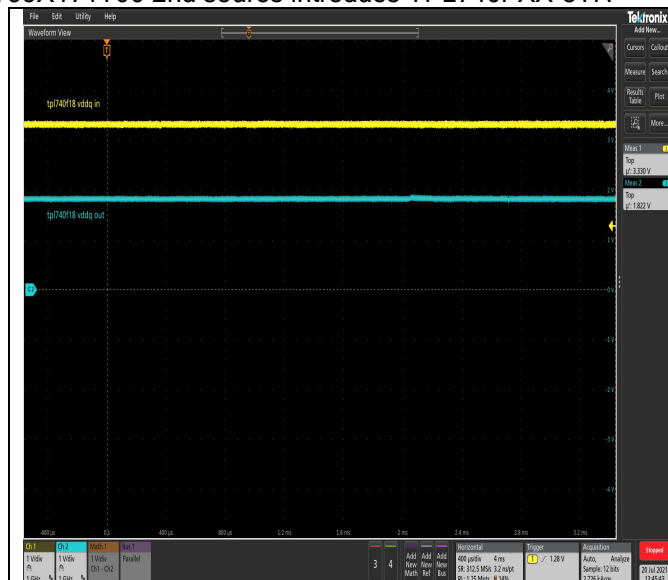


Fig. 9: 2nd_eMMC_VDDQ_Vin Vout

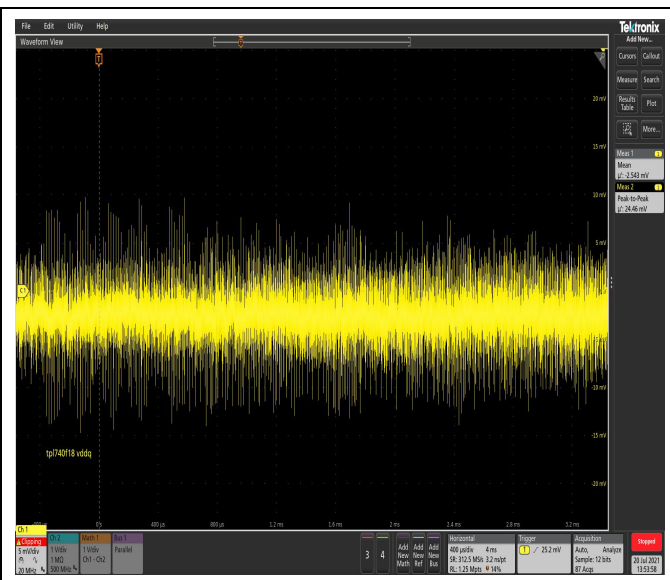


Fig. 10: 2nd_eMMC_VDDQ_ripple

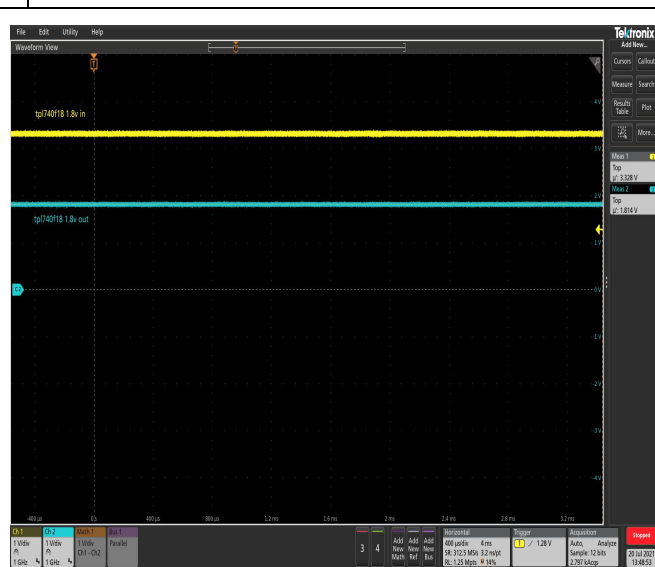


Fig. 11: 2nd_LDO_P1V8_Vin Vout

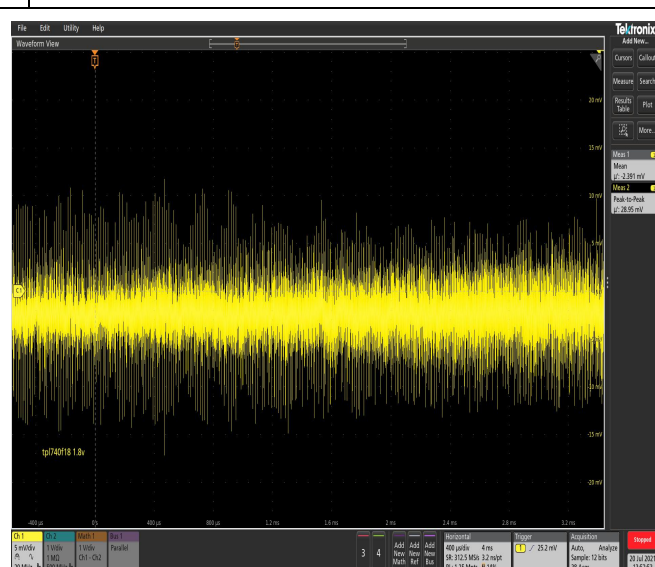
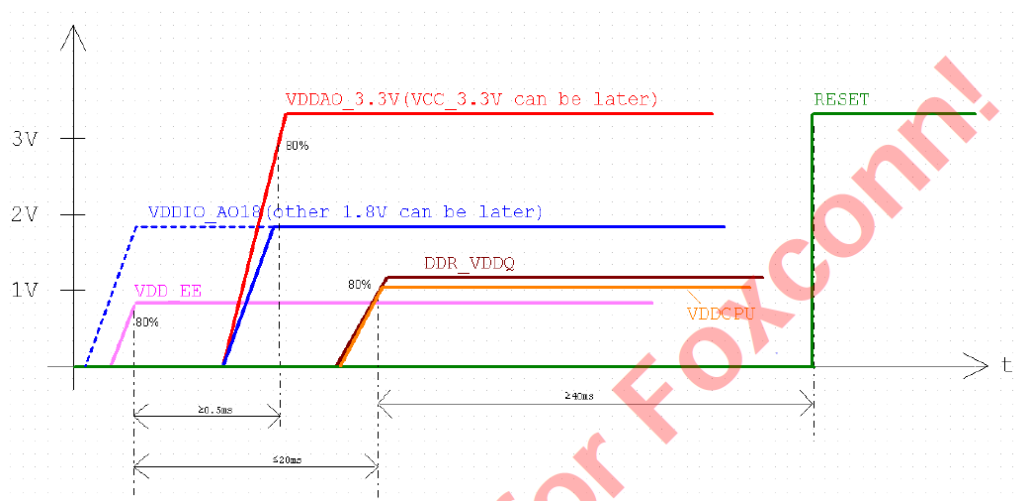


Fig. 12: 2nd_LDO_P1V8_ripple

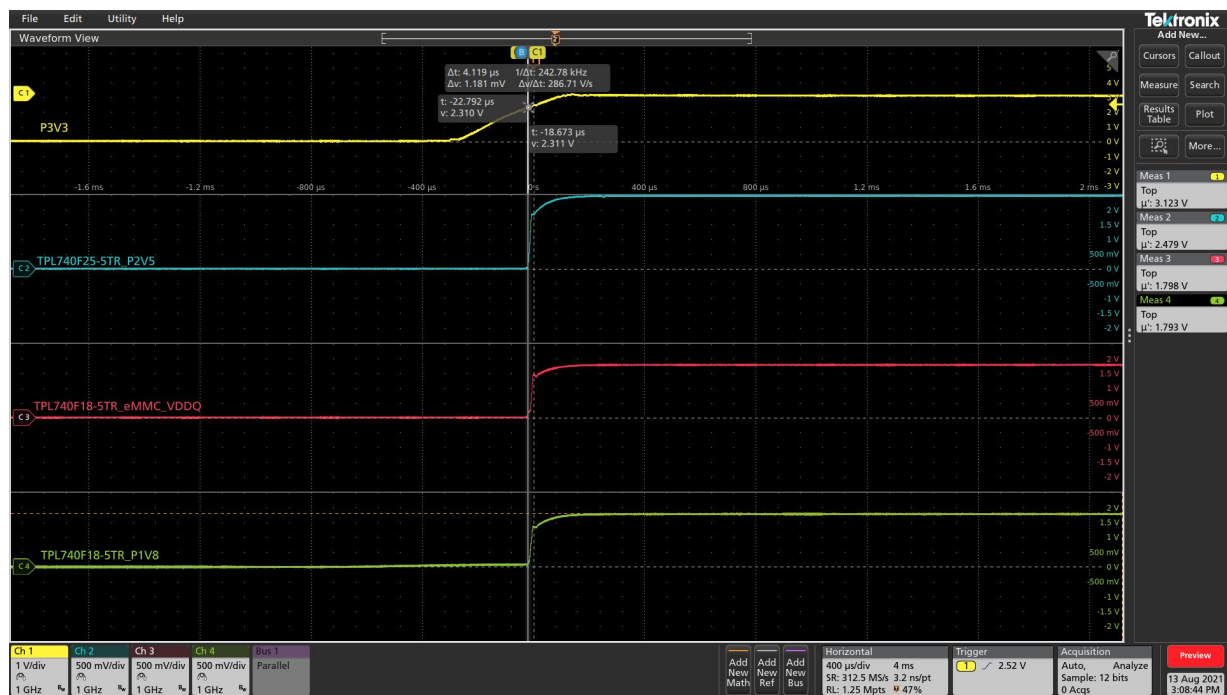
T99X171T00 2nd source introduce TPL740FXX-5TR

5. Power on sequence

Amlogic S905X2 datasheet:

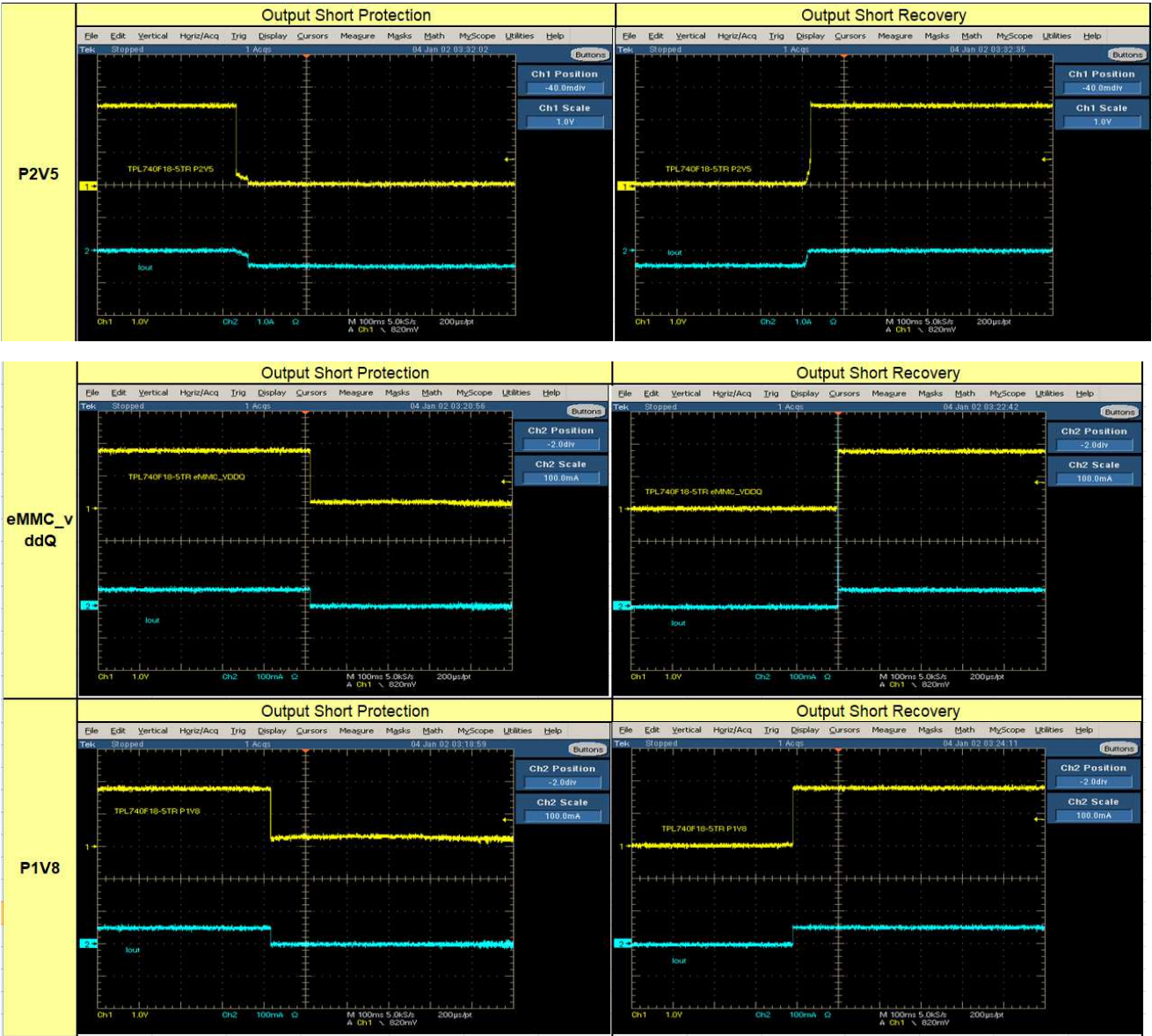


5-1. Power on sequence test result:

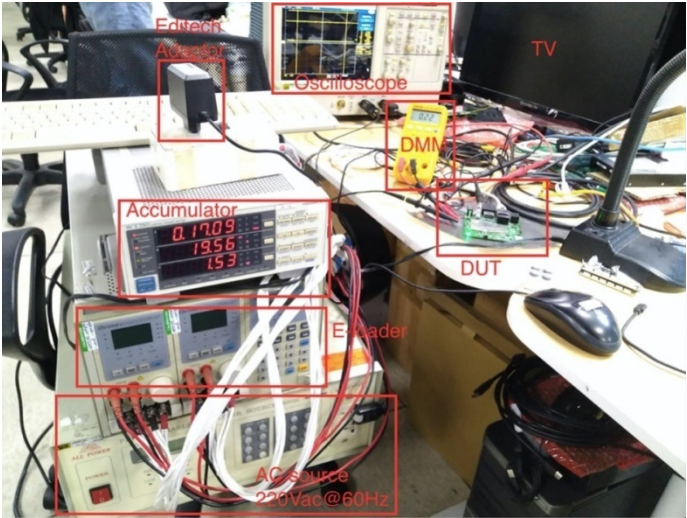


6. Short test

Specification:	IC	TPL740FXX-5TR	Vin	3.3V	L	NA	Conclusion:	Pass (function normal)
			Cin	1uF	Cout			



7. Power Consumption



T99X171T00 2nd source introduce TPL740FXX-5TR

7.1 [Adaptor: Editech TYPE2541 5V/2A]: Operation mode (4KP60 on USB hard disk + iperf 50Mbps)

Test Results of power consumption: F/W version: 4.9.113 #1MonFeb 1122:40:43 CST 2019 H/W version: V025			
Item No.	AC port	DC port	Remark
TPL740FXX-5TR	220Vac/36.4mA @60Hz, 2.95W	5.05Vdc/454mA, 2.292W	

7.2 [Adaptor: Editech TYPE2541 5V/2A]: Active standby mode(log in SKB UI and power of by RCU)

Test Results of power consumption: F/W version: 4.9.113 #1MonFeb 1122:40:43 CST 2019 H/W version: V025			
Item No.	AC port	DC port	Remark
TPL740FXX-5TR	220Vac/25.60mA @60Hz, 1.956W	5.08Vdc/283mA, 1.4376W	

T99X171T00 2nd source introduce TPL740FXX-5TR

8. EMI test

8.1 Test Condition

- BOX play 4K video by using external hard disk.
- Ethernet is connected to AP WIFI and run iperf base on 1Gbps to server.
- HDMI output port connects to TV through the HDMI cable.
- MIC input port connects to MIC cable
- DC Power cable is also connected.
- Open site condition

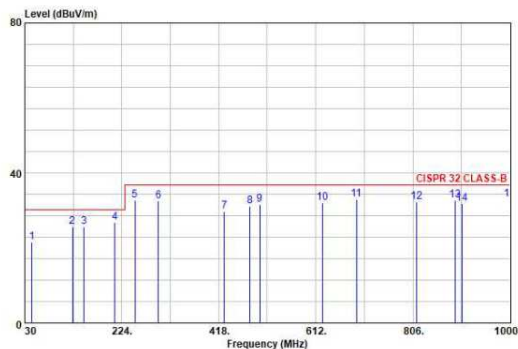


8.2 Test result



International Certification Corp. (全球檢測股份有限公司)
Tel : 886-3-271-8666 Fax : 886-3-318-0155
No.3-1, Lane 6, Wen 33rd Rd., Kwei Shan Hsiang, Tao Yuan Hsein 333, Taiwan (R.O.C.)

Model : T99X171.00
Sample No. : E02 (A)+A01, Ad: SMPS (TYPE2541) 220V/60Hz
Remark : Ping LAN 1Gbps TtGen 950Mbps, BT remote c
ontrol with earphone Play VLC MP4, Audio
Setting Mic ON HDMI 4K/60Hz, DIODES/AP61
30226-7+3PEAK/TPL 740 Series
Test Data : 2021/09/25 Test Site : OS01-LK
Codition : OS01-9168 (20220124) Antenna Pol. : HORIZONTAL
Test By : Alex Tsai Temp. (Degree C) : 32 Humidity (%) : 55

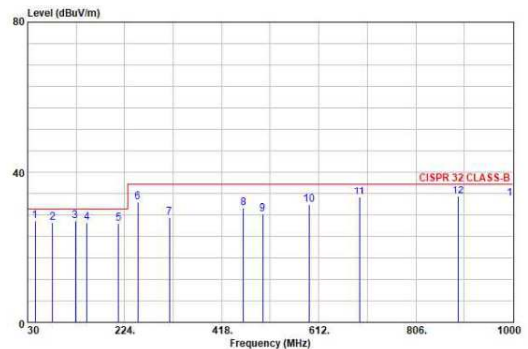


	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table
					dBuV			cm	deg
1	43.89	21.50	30.00	-8.50	29.39	-7.89	QP	400	156
2	125.00	25.50	30.00	-4.50	33.32	-7.82	Peak		
3	148.33	25.55	30.00	-4.45	32.39	-6.84	Peak		
4	210.41	26.75	30.00	-3.25	35.64	-8.89	QP	400	290
5	250.00	32.57	37.00	-4.43	39.55	-6.98	Peak		
6	297.00	32.46	37.00	-4.54	37.66	-5.20	Peak		
7	428.75	29.63	37.00	-7.37	31.95	-2.32	Peak		
8	480.00	30.99	37.00	-6.01	32.56	-1.57	Peak		
9	500.00	31.35	37.00	-5.65	32.62	-1.27	Peak		
10	625.00	31.99	37.00	-5.01	30.72	1.27	Peak		
11	693.26	32.85	37.00	-4.15	30.96	1.89	QP	155	258
12	813.01	32.17	37.00	-4.83	27.55	4.62	Peak		
13	890.10	32.61	37.00	-4.39	26.55	6.06	Peak		
14	904.55	31.78	37.00	-5.22	25.30	6.48	QP	100	211
15	1000.00	32.74	37.00	-4.26	24.90	7.84	QP	100	156



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Setting Mic ON HDMI 4K/60Hz, DIODES/AP61
30226-7+3PEAK/TPL 740 Series
Test Data : 2021/09/25 Test Site : OS01-LK
Codition : OS01-9168 (20220124) Antenna Pol. : VERTICAL
Test By : Alex Tsai Temp. (Degree C) : 32 Humidity (%) : 55



	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table
					dBuV			cm	deg
1	45.10	26.98	30.00	-3.02	34.59	-7.61	QP	100	335
2	79.95	26.55	30.00	-3.45	37.03	-10.48	QP	100	323
3	125.00	26.95	30.00	-3.05	34.77	-7.82	QP	100	323
4	148.33	26.35	30.00	-3.65	33.19	-6.84	Peak		
5	211.53	26.14	30.00	-3.86	35.00	-8.86	QP	100	159
6	250.00	32.00	37.00	-5.00	38.98	-6.98	Peak		
7	313.53	27.79	37.00	-9.21	32.58	-4.79	Peak		
8	461.75	30.43	37.00	-6.57	32.22	-1.79	Peak		
9	500.00	28.73	37.00	-8.27	30.00	-1.27	Peak		
10	593.50	31.16	37.00	-5.84	30.45	0.71	Peak		
11	693.46	33.30	37.00	-3.70	31.41	1.89	QP	272	66
12	890.15	33.55	37.00	-3.45	27.49	6.06	QP	240	260
13	1000.00	32.84	37.00	-4.16	25.00	7.84	QP	205	258

The test result is under specification

T99X171T00 2nd source introduce TPL740FXX-5TR

9. Conclusion

	TLV75518PDBVR (main)	TPL740F18-5TR (2 nd)
Total test Results	PASS	
Can be introduce to 2nd source?	Yes	

	TLV75525PDBVR (main)	TPL740F25-5TR (2 nd)
Total test Results	PASS	
Can be introduce to 2nd source?	Yes	