



TEST REPORT

No.I23N01197-EMC

for

Shanghai Sunmi Technology Co.,Ltd.

Wireless data POS System

Model Name: T5711

With

Hardware Version: Bgf6d

Software Version: SP6610A_V003_20230409_sunmi_CS

FCC ID:2AH25V3MIX

Issued Date: 2023-07-18

Designation Number: CN1210

Note:

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No.I23N01197-EMC

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I23N01197-EMC	Rev.0	1st edition	2023-07-18

Note: the latest revision of the test report supersedes all previous version.

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1. SUMMARY OF TEST REPORT

1.1. Test Items

Description	Wireless data POS System
Model Name	T5711
Applicant's name	Shanghai Sunmi Technology Co.,Ltd.
Manufacturer's Name	Shanghai Sunmi Technology Co.,Ltd.

1.2. Test Standards

FCC Part 15, Subpart B (10-1-2021 Edition); ANSI C63.4-2014.

1.3. Test Result

Total test 2 items, pass 2 items. Please refer to "6.2 Test Results".

1.4. Testing Location

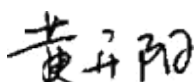
Address: EMC Lab,Building G, Shenzhen International Innovation Center,
No.1006 Shennan Road, Futian District, Shenzhen, Guangdong,
China

1.5. Project data

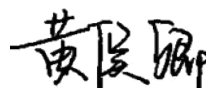
Testing Start Date: 2023-07-03

Testing End Date: 2023-07-07

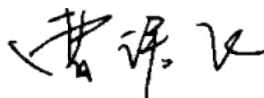
1.6. Signature



Huang Kaiyang
(Prepared this test report)



Huang Yuqing
(Reviewed this test report)



Cao Junfei
(Approved this test report)



2. CLIENT INFORMATION

2.1. Applicant Information

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2.2. Manufacturer Information

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Fax /

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT

(AE)

3.1. About EUT

Description	Wireless data POS System
Model Name	T5711
FCC ID	2AH25V3MIX
Condition of EUT as received	No obvious damage in appearance

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Shenzhen Academy of Information and Communications Technology.

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version	Receive Date
UT07aa	868189060008648	Bgf6d	SP6610A_V003_20230409_sunmi_CS	2023-05-20

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE

AE ID*	Description
AE1	Battery
AE2	Charger

AE1-1

Model	LKPA
Manufacturer	Guangdong Pow-Tech New Power Co., Ltd.
Capacity	2500mAh
Nominal Voltage	7.2 V

AE1-2

Model	CR2032
Manufacturer	POWER GLORY BATTERY TECH(HK) CO LTD
Capacity	220mAh
Nominal Voltage	3 V

AE1-3

Model	CR2032
Manufacturer	JHIH HONG TECHNOLOGY CO LTD
Capacity	220mAh
Nominal Voltage	3 V

AE2-1

Model	TPA-23A050200UU01
Manufacturer	SHENZHEN TIANYIN ELECTRONICS CO., LTD.



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AE2-2

Model	UC13US
Manufacturer	Jiangsu Chenyang Electron Co., Ltd.

AE3-1

Model	SSM-A001A
Manufacturer	Saibao (Jiangxi) Industry Co., LTD

3.4. EUT Set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT+AE1-1+AE2-1+AE3-1	

3.5. General Description

The Equipment Under Test (EUT) is a model of Wireless data POS System with internal antenna. It supports GSM 850/900/1800MHz, WCDMA Bands 1/2/4/5/8, LTE Bands 1/2/3/4/5/7/12/13/14/17/18/19/25/26/28/30/38/41/66/71.

It has MP3, NFC, Camera, USB memory, Bluetooth, Wi-Fi. Scanner, printer and GNSS functions. It consists of normal options: Battery, Charge and Data Cable.

Manual and specifications of the EUT were provided to fulfill the test.

Samples (EUT+AE) undergoing test were selected by the Client. Relevant information is provided by the client.

Wireless data POS System T5711 is a variant model based on Smart POS Terminal T6721, According to client's description, the table below shows the difference:

Model Differences	T6721	T5711
PCB	have KB board	no KB board
NFC	PN5190B0EV/C107Y	PN557A1EV/C101
Mechanical	Front cover has magnetic card swiping slot and IC card inserting slot	Front cover does not has magnetic card swiping slot and IC card inserting slot
Product Name	Smart POS Terminal	Wireless data POS System

According to the declaration of differences by manufacturer, the following tests need to be performed:

NO.	Test item	EUT set-ups	Operating mode
1	Conducted Emission	Set.1	Camera
2	Radiated Emission	Set.1	Video Player

Other results are cited from the initial report.

The report number for initial model is I23N00836-EMC.

4. REFERENCE DOCUMENTS

4.1. Reference Documents for Testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices	(10-1-2021 Edition)
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014

5. LABORATORY ENVIRONMENT

Anechoic chamber (FACT3-2.0) did not exceed following limits along the EMC testing:

9.10m×6.10m×5.60m (L×W×H)

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4Ω
Normalised site attenuation (NSA)	< ± 4 dB, 3 m distance, from 30 to 1000 MHz
Voltage Standing Wave Ratio (VSWR)	≤ 6 dB, from 1 to 18 GHz, 3 m distance
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

Shielded room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. =20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4Ω

6. SUMMARY OF TEST RESULTS

6.1. Testing Environment

Normal Temperature: 15~35℃
Relative Humidity: 20~75%
Atmospheric pressure 86~106kPa

6.2. Summary of Measurement Results

Abbreviations used in this clause:	
P	Pass
NA	Not applicable
F	Fail

Items	Test Name	Clause in FCC/IC rules	Section in this report	Verdict
1	Radiated Emission	15.109(a)/ Section 6.2	A.1	P
2	Conducted Emission	15.107(a)/ Section 6.1	A.2	P

6.3. Statement

6.3.1 Statements of conformity

This report takes measured values as criterion of test conclusion. The test conclusion meets the limit requirements.

7. MEASUREMENT UNCERTAINTY

Test item	Frequency ranges	Measurement uncertainty
Radiated Emission	30MHz-1GHz	4.80dB(k=2)
	1GHz-18GHz	4.62dB(k=2)
Conducted Emission	150kHz-30MHz	2.68dB(k=2)

8. MEASURING APPARATUS UTILIZED

No.	Name	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1.	Test Receiver	ESR7	101676	R&S	2023.11.23	1 year
2.	Test Receiver	ESCI	100702	R&S	2024.01.11	1 year
3.	Spectrum Analyzer	FSV40	101192	R&S	2024.01.11	1 year
4.	BiLog Antenna	3142E	0224831	ETS-Lindgren	2024.05.27	3 years
5.	Horn Antenna	3117	00066577	ETS-Lindgren	2025.04.17	3 years
6.	LISN	ENV216	102067	R&S	2023.09.06	1 year
7.	Anechoic Chamber	FACT3-2.0	1285	ETS-Lindgren	2025.05.28	2 years
8.	Software	EMC32	V10.50.40	R&S	/	/

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission (§15.109(a))

Reference

FCC: Part 15.109(a)

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator at a distance of 3 meters or 1 meter is tested. Tested in accordance with the procedures of ANSI C63.4 -2014, section 8.3. The EUT was placed on a non-conductive table. Below 18GHz the measurement antenna was placed at a distance of 3 meters from the EUT. Above 18GHz the measurement antenna was placed at a distance of 1 meters from the EUT. (According to Part 15.31(f)(1), 1m limit is calculated by extrapolation factor of 20 dB/decade) During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

A.1.2 EUT Operating Mode:

Video Player: At the beginning of measurement, the battery is completely discharged. The battery and charger are installed so that the EUT works well and keeping on playing MP3.

All equipment is placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions. For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

A.1.3 Measurement Limit

Limit from Part 15.109(a)

Frequency range (MHz)	Field strength limit ($\mu\text{V/m}$)		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

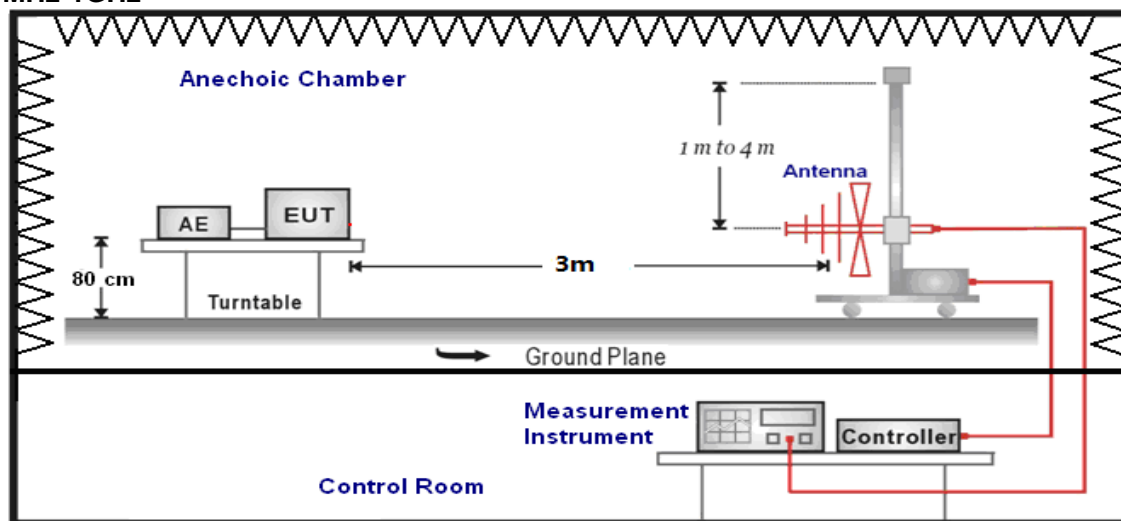
*Note: The original limit is defined at 10m test distance. This limit is calculated according to CISPR requirements.

A.1.4 Test Condition

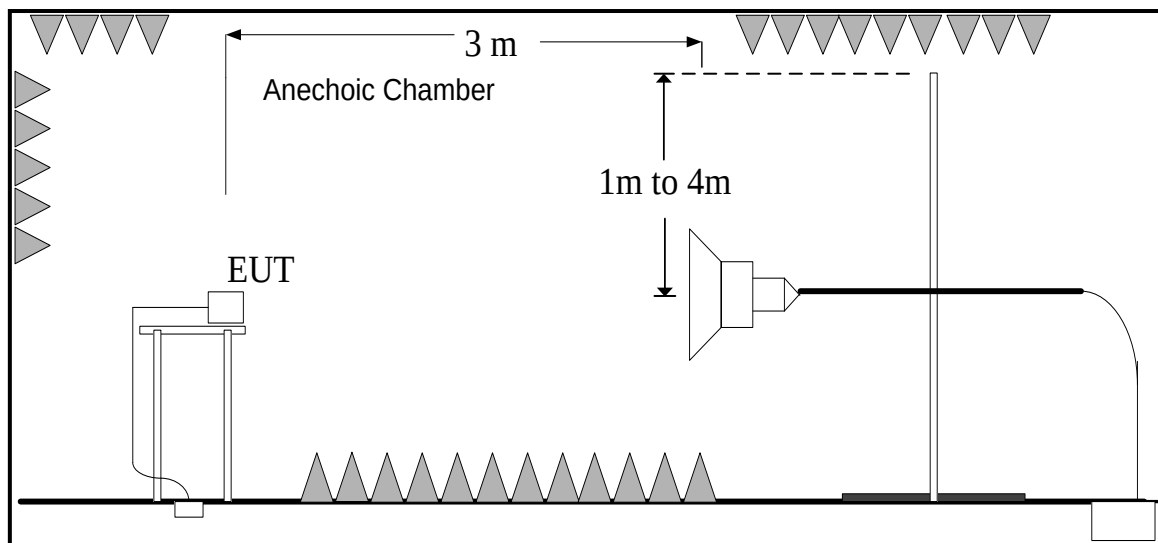
Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	120kHz (IF bandwidth)	5
Above 1000	1MHz/3MHz	15

A.1.5 Test set-up:

30MHz-1GHz



1GHz-40GHz



A.1.6 Measurement Results

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss". It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{Rpl} = P_{\text{Mea}} + G_A + G_{PL}$$

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Result: Quasi-Peak(dB μ V/m) / Average(dB μ V/m)/Peak(dB μ V/m)

Note: the result contains vertical part and Horizontal part

Video Player

Frequency range (MHz)	Quasi-Peak Limit (dB μ V/m)	Result (dB μ V/m)	Conclusion
		UT07aa/Set.1	
30-88	40.00	See Figure A.1.1.	P
88-216	43.52		
216-960	46.02		
960-1000	54.00		

Frequency range (MHz)	Average Limit (dB μ V/m)	Peak Limit (dB μ V/m)	Result (dB μ V/m)	Conclusion
			UT07aa/Set.1	
1000 to 18000	54.00	74.00	See Figure A.1.2.	P
18000 to 26500	63.54	83.54	See Figure A.1.3.	
26500 to 40000	63.54	83.54	See Figure A.1.4.	

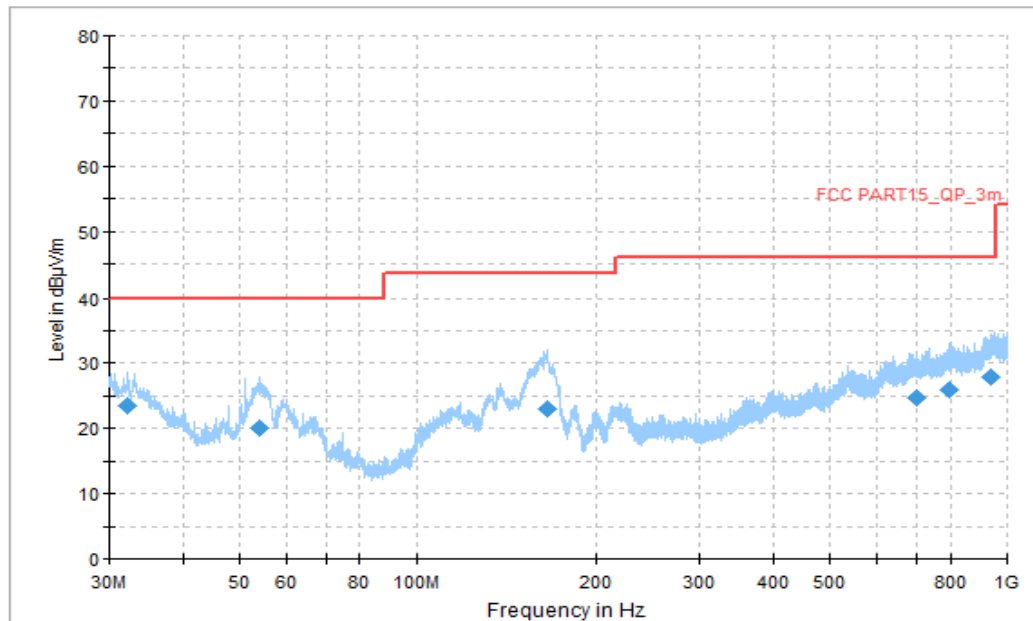


Figure A.1.1. Radiated Emission (Video Player, 30MHz to 1GHz)

Final_Results

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	ARpl (dB/m)	PMea (dBμV)
32.263333	23.39	40.00	16.61	V	-13	36.39
53.980556	19.99	40.00	20.01	V	-21	40.99
165.099444	22.90	43.52	20.62	V	-17	39.90
702.425556	24.73	46.02	21.29	H	-1	25.73
794.629444	25.97	46.02	20.05	H	0	25.97
940.937778	28.01	46.02	18.01	V	3	25.01

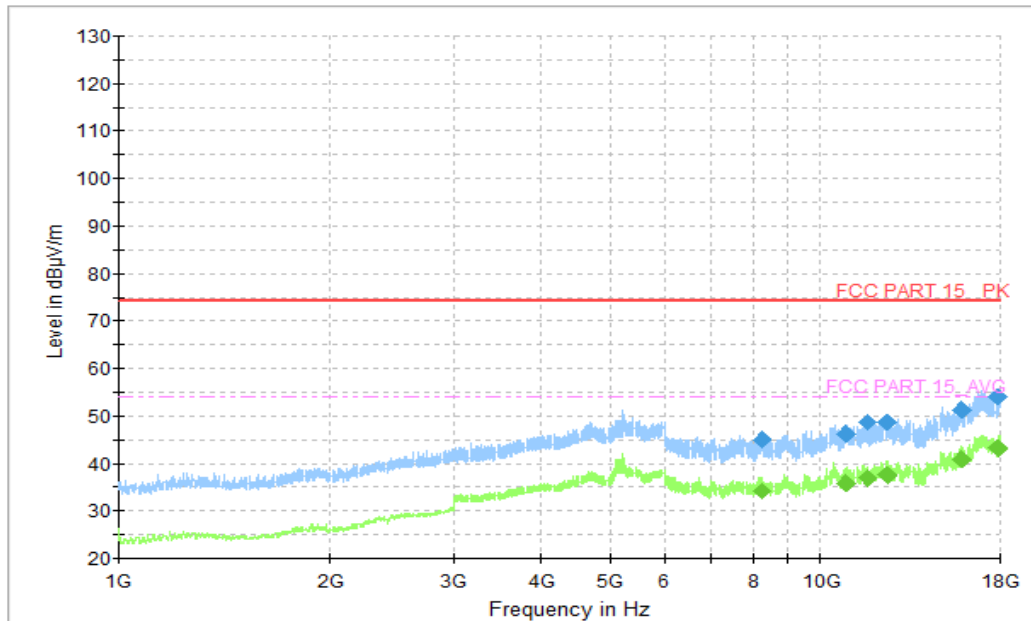


Figure A.1.2. Radiated Emission (Video Player, 1GHz to 18GHz)

Final_Results_PK

Frequency(MHz)	Peak (dBμV/m)	Limit (dBμV/m)	Margin(dB)	Polarity	ARpl (dB/m)	PMea (dBμV)
8269.846154	45.01	74.00	29.11	H	5.9	39.11
10870.153846	46.19	74.00	27.93	V	9.3	36.89
11644.615385	48.68	74.00	25.44	V	9.9	38.78
12434.769231	48.64	74.00	25.48	H	11.4	37.24
15911.538462	51.41	74.00	22.71	H	14.1	37.31
17922.461539	53.87	74.00	20.25	V	18.9	34.97

Final_Results_AVG

Frequency(MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin(dB)	Polarity	ARpl (dB/m)	PMea (dBμV)
8269.846154	34.29	54.00	19.83	H	5.9	28.39
10870.153846	35.95	54.00	18.17	V	9.3	26.65
11644.615385	36.88	54.00	17.24	V	9.9	26.98
12434.769231	37.34	54.00	16.78	H	11.4	25.94
15911.538462	40.80	54.00	13.32	H	14.1	26.7
17922.461539	43.35	54.00	10.77	V	18.9	24.45

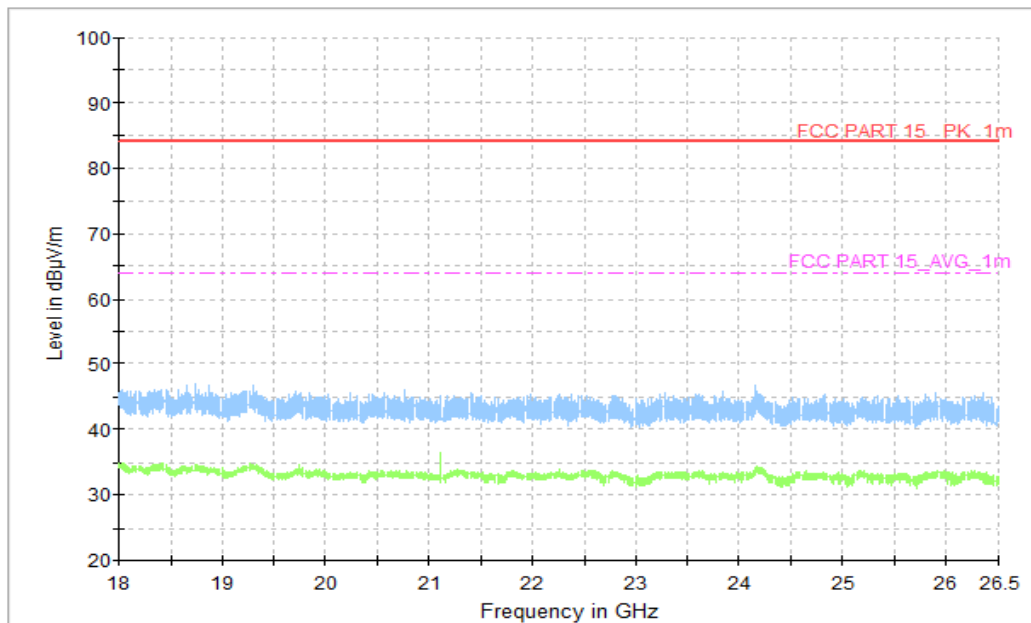


Figure A.1.3. Radiated Emission (Video Player , 18GHz to 26.5GHz)

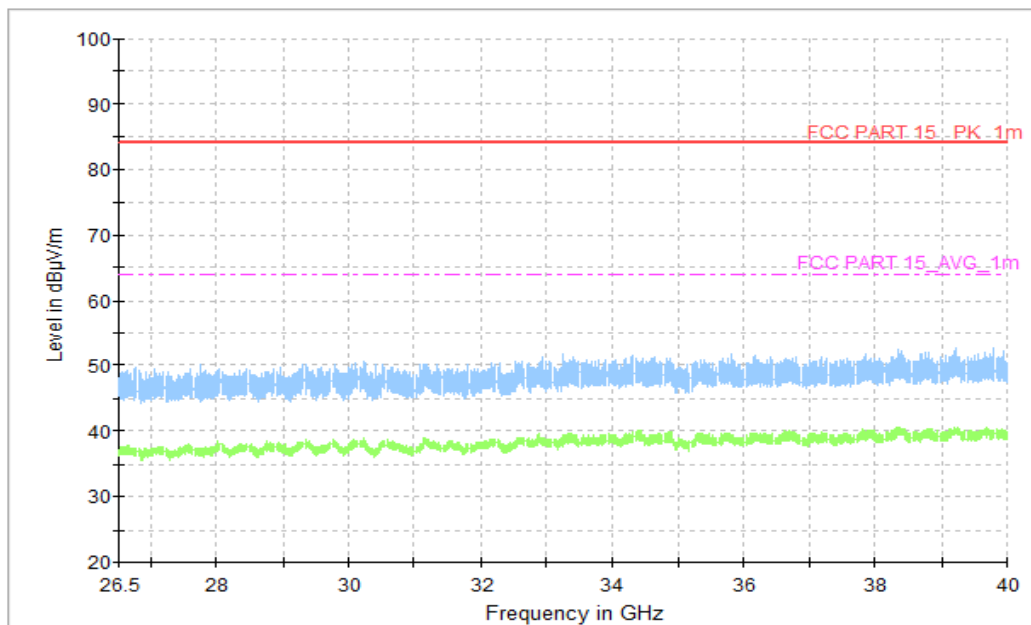


Figure A.1.4. Radiated Emission (Video Player , 26.5GHz to 40GHz)

A.2 Conducted Emission (§15.107(a))**Reference**

FCC: Part 15.107(a)

A.2.1 Method of measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 -2014, section 7.3.

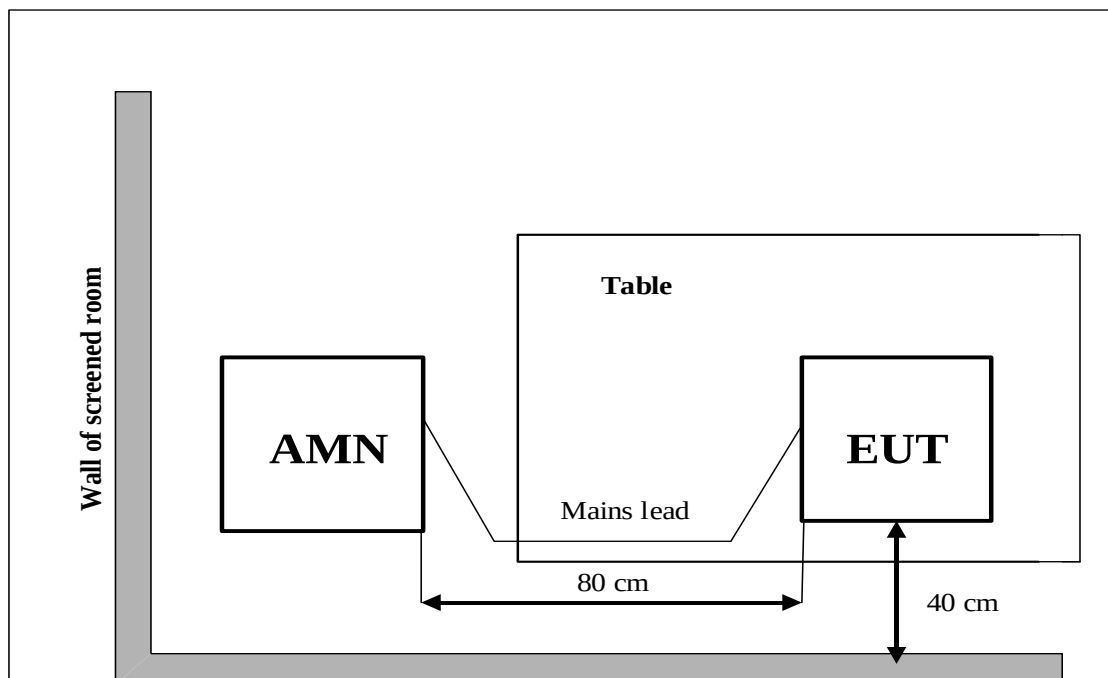
A.2.2 EUT Operating Mode:

Camera: At the beginning of measurement, the battery is completely discharged. The battery and charger are installed so that the EUT works well and keeping on taking photos.

A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency		

A.2.4 Test set-up:



A.2.5 Test Condition in charging mode

Voltage (V)	Frequency (Hz)
120	60
240	60

RBW	Sweep Time(s)
9kHz	1

A.2.6 Measurement Results

QuasiPeak(dBμV) /Average(dBμV) =PMea+Corr

Where

Corr: PathLoss + Voltage Division Factor

PMea: Measurement result on receiver.

Camera

AC Input Port/ Voltage: 120V/60Hz

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Average Limit (dBμV)	Result (dBμV)	Conclusion
			UT07aa/Set.1	
0.15 to 0.5	66 to 56	56 to 46	See Figure A.2.1.	P
0.5 to 5	56	46		
5 to 30	60	50		
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

AC Input Port/ Voltage: 120V/60Hz

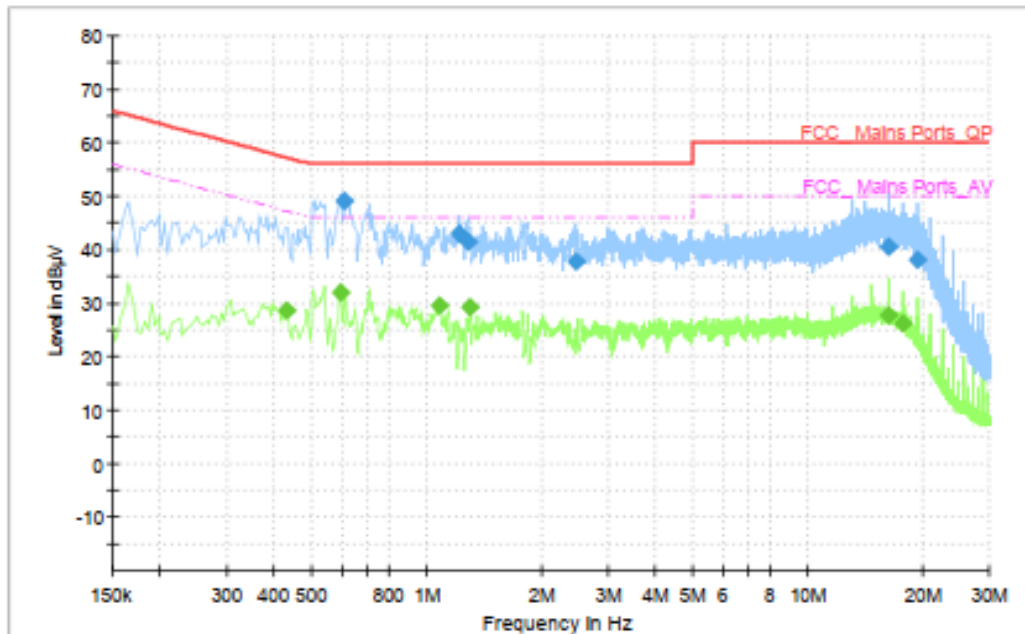


Figure A.2.1. Conducted Emission(Camera)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	PMea (dBμV)
0.610000	49.14	56.00	6.86	N	10	39.14
1.222000	42.98	56.00	13.02	N	10	32.98
1.282000	41.50	56.00	14.50	N	10	31.50
2.458000	37.82	56.00	18.18	N	10	27.82
16.286000	40.41	60.00	19.59	N	11	29.41
19.402000	38.18	60.00	21.82	N	11	27.18

Final_Result_AVG

Frequency (MHz)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	PMea (dBμV)
0.430000	28.48	47.25	18.77	N	10	18.48
0.598000	32.08	46.00	13.92	N	10	22.08
1.082000	29.44	46.00	16.56	N	10	19.44
1.302000	29.28	46.00	16.72	N	10	19.28
16.286000	27.68	50.00	22.32	N	11	16.68
17.846000	26.20	50.00	23.80	N	11	15.20

****END OF REPORT****