TEST REPORT

No.I20N01960-EMC

for

Spectralink. Corporation

Mobile Phone

Model Name：VC9253

With

Hardware Version: DVT1

Software Version: V138

FCC ID: IYG9253

IC number: 2128B-9253

Issued Date: 2020-08-28

Designation Number: CN1210

ISED Assigned Code: 23289

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

Test Laboratory:

SAICT, Shenzhen Academy of Information and Communications Technology

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I20N01960-EMC	Rev.0	1st edition	**2020-08-28**

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

CONTENTS

1. Summary of Test Report

1.1. Test Items

Description	Mobile Phone
Model Name	VC9253
Applicant's name	Spectralink Corporation
Manufacturer's Name	Spectralink Corporation

1.2. Test Standards

FCC Part 15, Subpart B 10-1-2019 Edition; ANSI C63.4 2014; ICES-003 Issue 6.

1.3. Test Result

Total test 2 items, pass 2 items. Please refer to "6.2 Summary of Measurement Results"

1.4. Testing Location

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

1.5. Project data

Testing Start Date: 2020-07-17 Testing End Date: 2020-08-18

1.6. Signature

Ma Shoujian
(Prepared this test report)

Zhang Yunzhuan
(Reviewed this test report)

Cao Junfei
(Approved this test report)

2. ClientInformation

2.1. Applicant Information

Company Name:	Spectralink Corporation
Address:	2560 55th Street, Boulder CO 80301, USA
Contact:	Paul Hampton
E-mail	Paul.Hampton@spectralink.com
Tel:	+1 303-441-7593

2.2. Manufacturer Information

Company Name:	Spectralink Corporation
Address:	2560 55th Street, Boulder CO 80301, USA
Contact:	Paul Hampton
E-mail	Paul.Hampton@spectralink.com
Tel:	+1 303-441-7593

3. Equipment UnderTest (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	Mobile Phone
Model Name	VC9253
FCC ID	IYG9253
IC number	2128B-9253
Antenna Type	Internal Antenna
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
UT01aa	velc02bdcjd00aw	DVT1	V138	2020-07-22

*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
AE3	Cable

AE1

Model	BLI9200100
Manufacturer	Ningbo Veken Battery Co., Ltd.
Capacity	3040mAh
Nominal Voltage	3.85v

AE2-1

Model	IN-CA-310Q
Manufacturer	INNO VISION INTERNATIONAL HOLDINGS LTD.

AE3-1

Model	XG-US008
Manufacturer	Xunguang Electronics Co.,Ltd.

*AE ID is used to identify the test sample in the lab internally.
AE: ancillary equipment
AE2: There is just one internal circuit of charger, and the plug of the charger can be replaced to meet worldwide country's requirement.

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE
Set.1	UT01aa +AE1+AE2-1+AE3-1
Set.2	UT01aa +AE1+AE3-1+PC ;

3.5. General Description

The Equipment Under Test (EUT) is a model of Mobile Phone with internal antenna.
It has Camera, Video Player, USB Data Transfer, Bluetooth, NFC,Wi-Fi, and Scan functions.
It consists of normal options: Battery, Charger 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.

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	10-1-2019 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
ICES-003	Information Technology Equipment(ITE)-Limits and methods of measurement	Issue 6

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber did not exceed following limits along the EMC testing:
9.10m×6.10m×5.60m (L×W×H)

Temperature	Min. = 15 ℃, Max. = 35℃
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz,>60dB; 1MHz-18000MHz,>90dB
Electrical insulation	>2MΩ
Ground system resistance	<4Ω
Normalised site attenuation (NSA)	<±4 dB, 3 m distance, from 30 to 1000 MHz

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

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. =20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz,>60dB; 1MHz-10000MHz,>90dB
Electrical insulation	>2MΩ
Ground system resistance	<4Ω

Fully-anechoic chamber did not exceed following limits along the EMC testing:
9.10m×6.10m×5.60m (L×W×H)

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

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 uncertaint
Radiated Emission	30MHz-1GHz	4.90dB(k=2)
	1GHz-18GHz	4.60dB(k=2)
	18GHz-40GHz	4.10dB(k=2)
Conducted Emission	150kHz-30MHz	3.00dB(k=2)

8. Test Facilities Utilized

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER	CALDUE DATE	CAL PERIOD
1.	Test Receiver	ESR7	101676	R&S	2020.11.27	1 year
2.	Test Receiver	ESCI	100701	R&S	2021.08.09	1 year
3.	Spectrum Analyzer	FSV40	101192	R&S	2021.01.14	1 year
4.	BiLog Antenna	3142E	00224831	ETS-Lindgren	2021.05.17	3 years
5.	LISN	ENV216	102067	R&S	2021.07.16	1 year
6.	Horn Antenna	3117	00066577	ETS-Lindgren	2022.04.02	3 years
7.	Horn Antenna	QSH-SL-18-26 -S-20	17013	Q-par	2023.01.06	3 years
8.	Horn Antenna	QSH-SL-8-26-40-K-20	17014	Q-par	2023.01.06	3 years
9.	Chamber	FACT3-2.0	1285	ETS-Lindgren	2021.07.19	2 years
10.	Software	EMC32	V10.01.00	R&S	/	/
11.	PC	ThinkPad T480	PF-13LW0C	Lenovo	/	/
12.	Printer	P1008	VNF6C12491	HP	/	/
13.	Mouse	MOEUUOA	44NY517	Lenovo	/	/
14.	Filter	HPF_3G18G-SMA	/	SKET	/	/
15.	Filter	HPF_6.3G21G -SMA	/	SKET	/	/

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission (§15.109(a))

Reference

FCC: CFR Part 15.109(a)

IC: ICES-003 section 6.2

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (Data transfer mode of EUT and charging mode of EUT) at a distance of 3 meters 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. The measurement antenna was placed at a distance of 3 meters from the EUT. 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:

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.

Scanner: 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 scanning.

Video Player: The EUT is connected to a charger for charging and keeping on playing mp3.

Data Transfer: The model of the PC is Lenovo ThinkPad T480, and the serial number of the PC is PF-13LW0C. The EUT is connected to a PC for transmitting data. The software is used to let the PC keep on copying data to EUT or TF Card, reading and erasing the data after copy action was finished.

This device does not contain the receivers which tune and operate between 30MHz-960MHz.

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.

A.1.3 Measurement Limit

Limit from CFR Part 15.109(a)

Frequency range (MHz)	Field strength limit (μV/m)		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

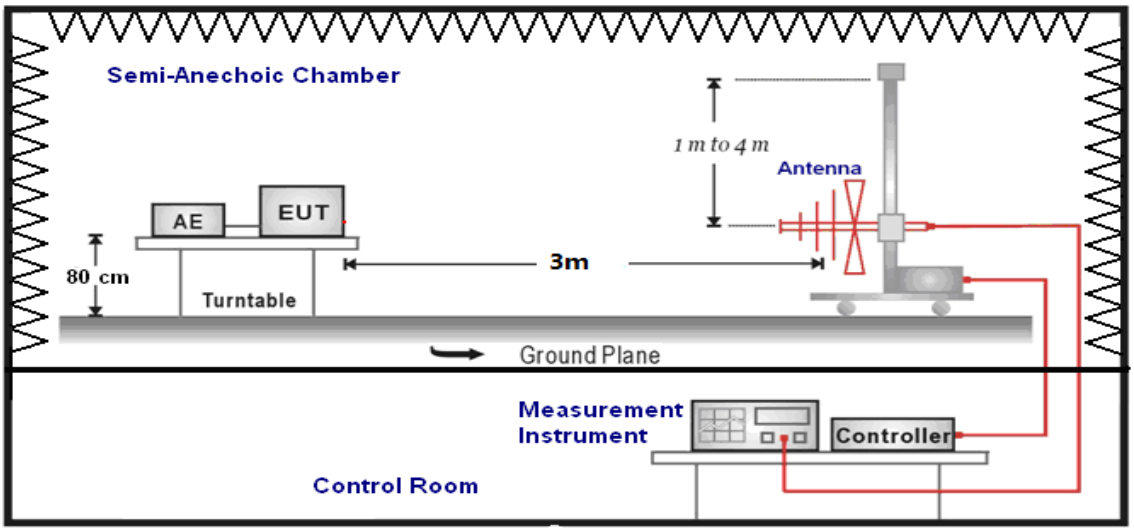
*Note: The original limit is defined at 10m test distance. This limit is calculated according to CISPR requirements.

A.1.4 Test Condition

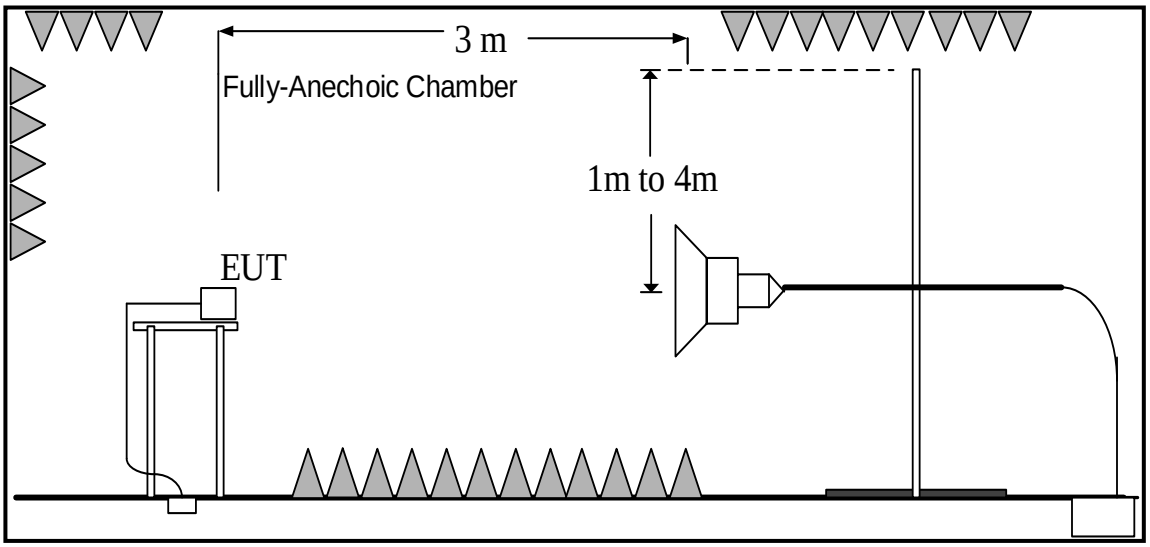
Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	120kHz (IF bandwidth)	5
Above 1000	1MHz/3MHz	15

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:

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

Where

G_A: Antenna factor of receive antenna

G_{PL}:PathLoss

P_{Mea}: Measurement result on receiver.

Result:Quasi-Peak(dBμV/m) /Average(dBμV/m)/Peak(dBμV/m)

Note: the result contains vertical part and Horizontal part

Camera

Frequency range (MHz)	Quasi-Peak Limit (dBμV/m)	Result (dBμV/m) Set.1	Conclusion
30-88	40	See Figure A.1	P
88-216	44		
216-960	46		
960-1000	54		

Frequency range (MHz)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)	Result (dBμV/m) Set.1	Conclusion
1000 to 18000	54	74	See Figure A.2	P
18000 to 26500			See Figure A.3	
26500 to 40000			See Figure A.4	

Video Player

Frequency range (MHz)	Quasi-Peak Limit (dBμV/m)	Result (dBμV/m) Set.1	Conclusion
30-88	40	See Figure A.5	P
88-216	44		
216-960	46		
960-1000	54		

Frequency range (MHz)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)	Result (dBμV/m) Set.1	Conclusion
1000 to 18000	54	74	See Figure A.6	P
18000 to 26500			See Figure A.7	
26500 to 40000			See Figure A.8	

Scanner

Frequency range (MHz)	Quasi-Peak Limit (dBμV/m)	Result (dBμV/m) Set.1	Conclusion
30-88	40	See Figure A.9	P
88-216	44		
216-960	46		
960-1000	54		

Frequency range (MHz)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)	Result (dBμV/m) Set.1	Conclusion
1000 to 18000	54	74	See Figure A.10	P
18000 to 26500			See Figure A.11	
26500 to 40000			See Figure A.12	

Data Transfer: EUT to PC

Frequency range (MHz)	Quasi-Peak Limit (dBμV/m)	Result (dBμV/m) Set.2	Conclusion
30-88	40	See Figure A.13	P
88-216	44		
216-960	46		
960-1000	54		

Frequency range (MHz)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)	Result (dBμV/m) Set.2	Conclusion
1000 to 18000	54	74	See Figure A.14	P
18000 to 26500			See Figure A.15	
26500 to 40000			See Figure A.16	

Data Transfer:PC to EUT

Frequency range (MHz)	Quasi-Peak Limit (dBμV/m)	Result (dBμV/m) Set.2	Conclusion
30-88	40	See Figure A.17	P
88-216	44		
216-960	46		
960-1000	54		

Frequency range (MHz)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)	Result (dBμV/m) Set.2	Conclusion
1000 to 18000	54	74	See Figure A.18	P
18000 to 26500			See Figure A.19	
26500 to 40000			See Figure A.20	

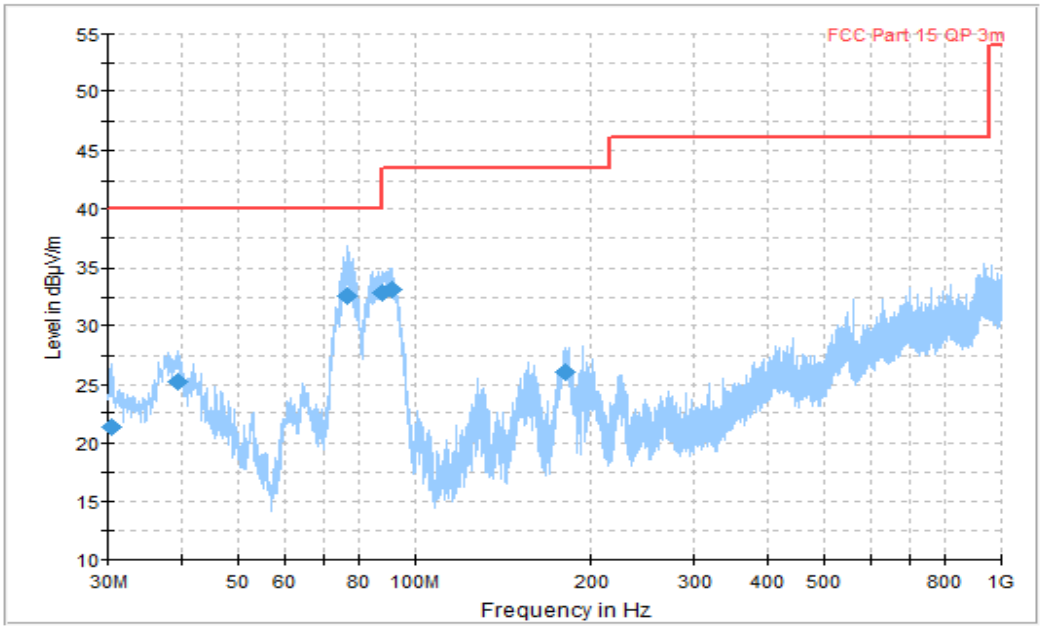


Figure A.1 Radiated Emission (Set.1,Camera , 30MHz to 1GHz)

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	ARpl (dB/m)	P_{Mea} (dBµV)
30.538889	21.35	40	18.65	V	-6.4	27.75
39.322778	25.24	40	14.76	V	-11.5	36.74
76.452222	32.54	40	7.46	V	-14.9	47.44
87.876667	32.89	40	7.11	V	-15.5	48.39
91.217778	33.10	43.5	10.4	V	-15	48.10
180.51167	25.99	43.5	17.51	V	-11.9	37.89

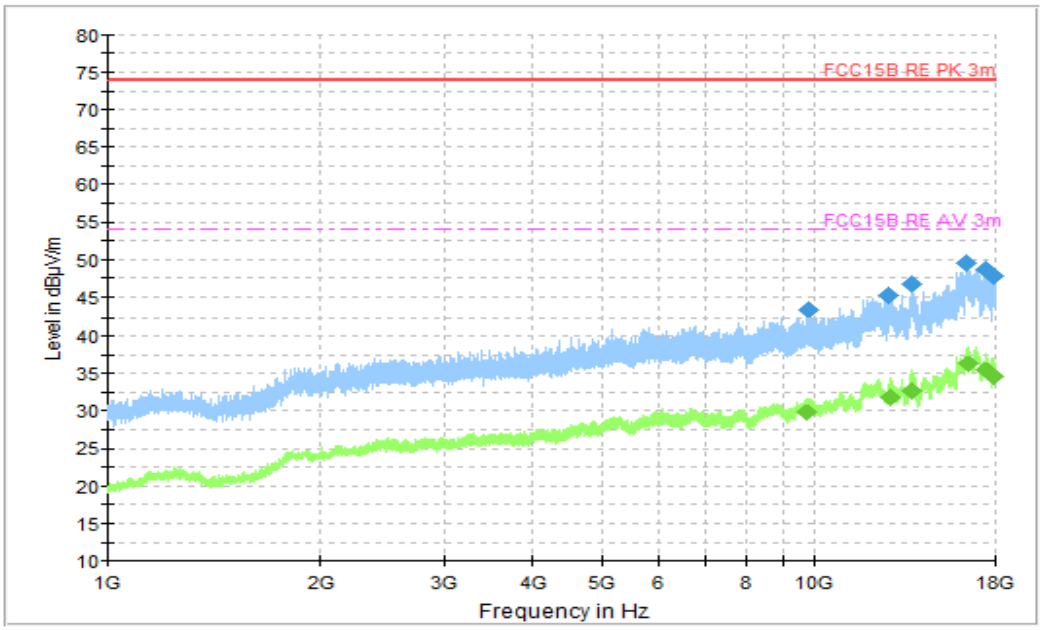


Figure A.2 Radiated Emission (Set.1, Camera , 1GHz to 18GHz)

Final_Results_PK

Frequency(MHz)	Peak (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	P_{Mea} (dBµV)
9811.5	43.44	74	30.56	H	6.4	37.04
12724	45.32	74	28.68	V	8.8	36.52
13709.5	46.84	74	27.16	V	8.9	37.94
16447.5	49.65	74	24.35	H	14.7	34.95
17491	48.92	74	25.08	V	14.1	34.82
17910	47.88	74	26.12	V	13.2	34.68

Final_Results_AVG

Frequency(MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	P_{Mea} (dBµV)
9744	29.70	54	24.30	H	6.4	23.30
12776.5	31.81	54	22.19	V	8.8	23.01
13709	32.56	54	21.44	V	8.9	23.66
16532	36.27	54	17.73	V	14.8	21.47
17435	35.35	54	18.65	V	14.1	21.25
17855	34.42	54	19.58	H	13.4	21.02

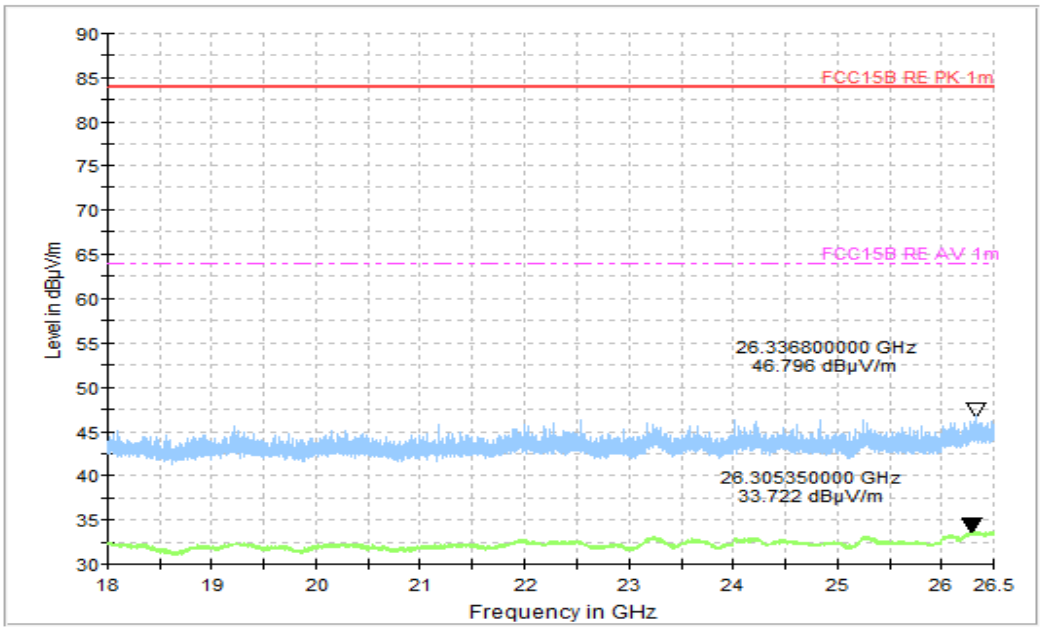


Figure A.3 Radiated Emission (Set.1, Camera , 18GHz to 26.5GHz)

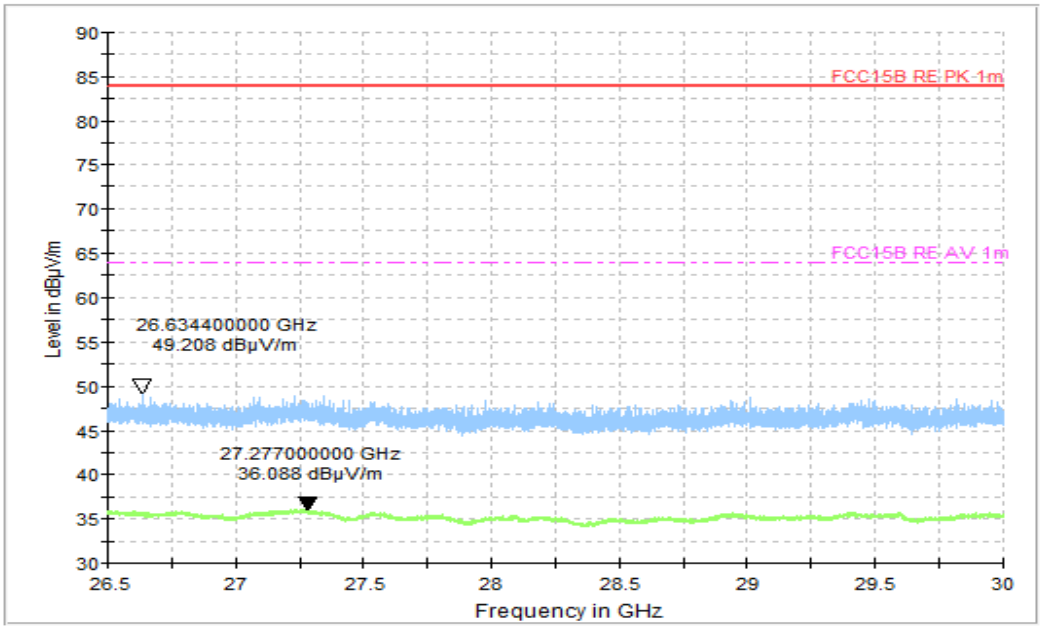


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Figure A.4 Radiated Emission (Set.1, Camera , 26.5GHz to 30GHz)

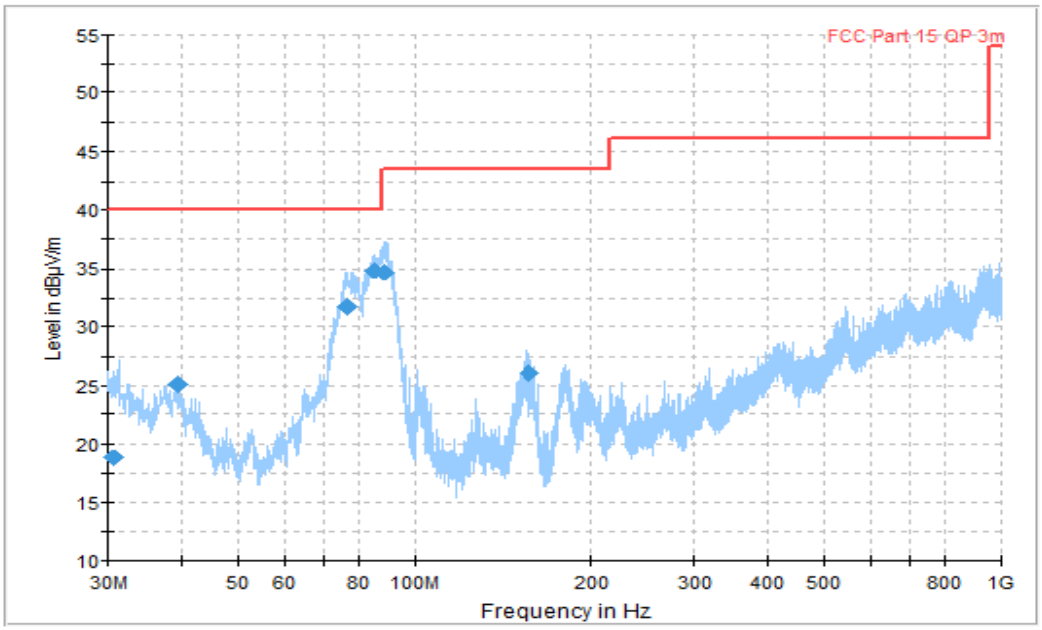


Figure A.5 Radiated Emission (Set.1,Video Player , 30MHz to 1GHz)

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	ARpl (dB/m)	P_{Mea} (dBµV)
30.693333	18.80	40	21.2	V	-6.5	25.30
39.418333	25.10	40	14.9	V	-11.5	36.60
76.536111	31.73	40	8.27	V	-14.9	46.63
85.68	34.90	40	5.1	V	-15.3	50.20
88.494444	34.66	43.5	8.84	V	-15.4	50.06
156.27389	25.96	43.5	17.54	H	-12.1	38.06

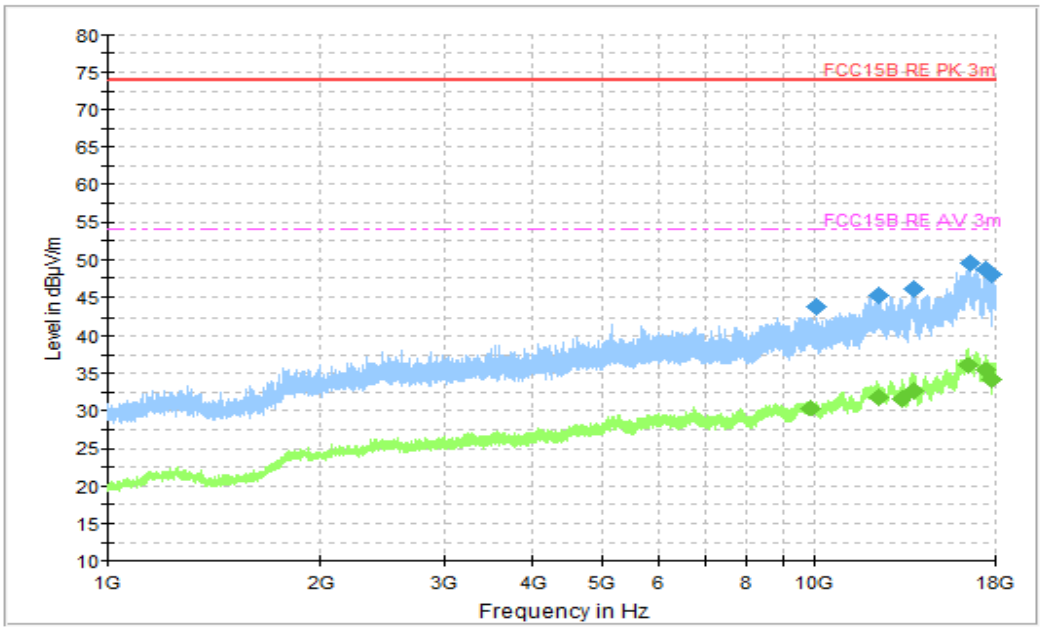


Figure A.6 Radiated Emission (Set.1, Video Player , 1GHz to 18GHz)

Final_Results_PK

Frequency(MHz)	Peak (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	P_{Mea} (dBµV)
10056.5	43.79	74	30.21	H	6.2	37.59
12290	45.27	74	28.73	H	8.3	36.97
13855.5	46.18	74	27.82	H	9	37.18
16573.5	49.75	74	24.25	V	14.8	34.95
17445	48.81	74	25.19	H	14.1	34.71
17802.5	47.97	74	26.03	V	13.7	34.27

Final_Results_AVG

Frequency(MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	P_{Mea} (dBµV)
9887.5	30.36	54	23.64	H	6.4	23.96
12306.5	31.81	54	22.19	V	8.4	23.41
13262.5	31.50	54	22.50	H	8.2	23.30
13865	32.54	54	21.46	V	9	23.54
16530	36.06	54	17.94	V	14.8	21.26
17436	35.25	54	18.75	V	14.1	21.15

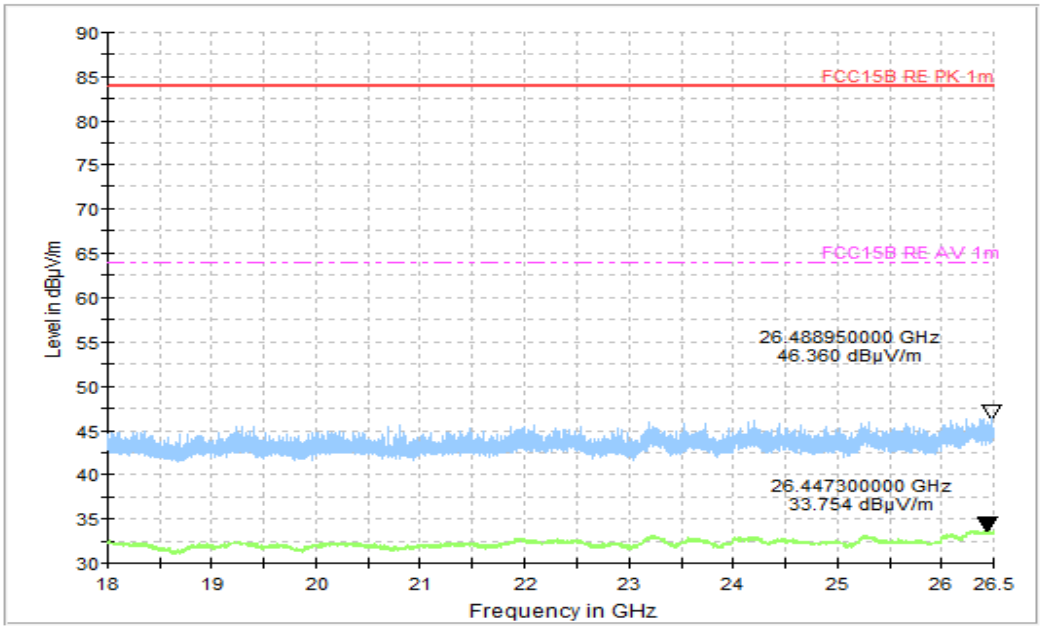


Figure A.7 Radiated Emission (Set.1, Video Player , 18GHz to 26.5GHz)

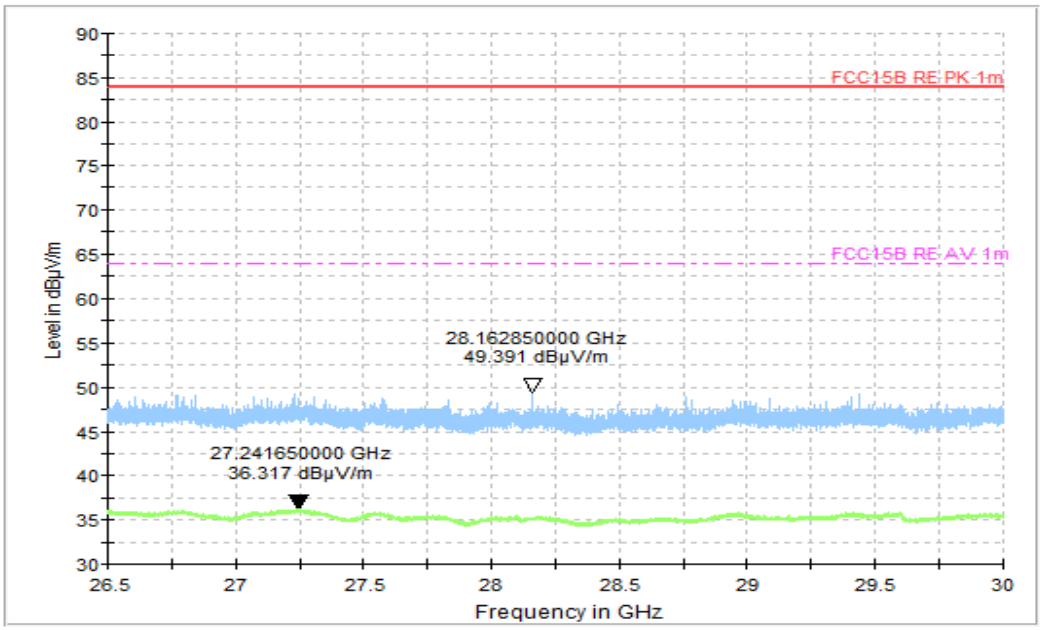


Figure A.8 Radiated Emission (Set.1, Video Player , 26.5GHz to 30GHz)

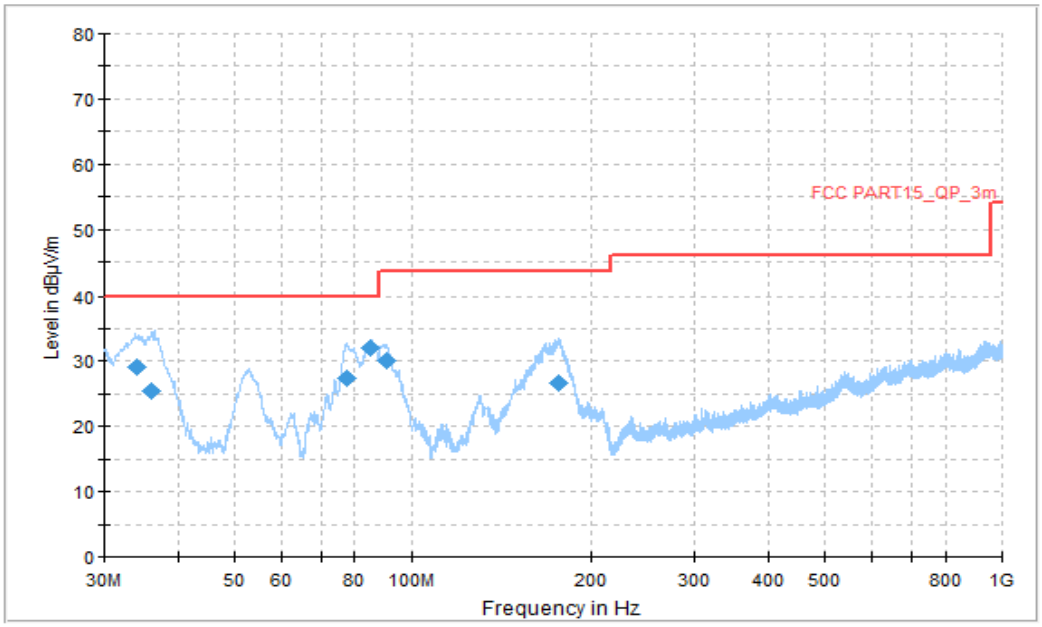


Figure A.9 Radiated Emission (Set.1,Scanner , 30MHz to 1GHz)

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	ARpl (dB/m)	P_{Mea} (dBµV)
34.183125	29.03	40.00	10.97	V	-15	44.03
36.001875	25.37	40.00	14.63	V	-16	41.37
77.287500	27.32	40.00	12.68	V	-22	49.32
85.229375	32.14	40.00	7.86	V	-22	54.14
90.625000	30.21	43.52	13.31	V	-21	51.21
176.288125	26.70	43.52	16.82	V	-18	44.70

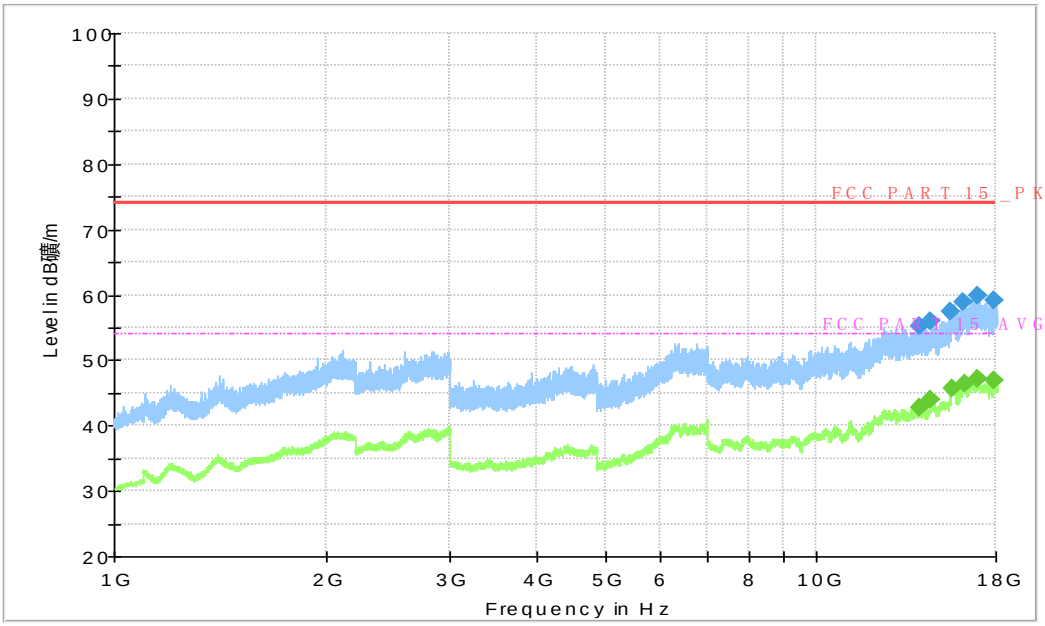


Figure A.10 Radiated Emission (Set.1, Scanner , 1GHz to 18GHz)

Final_Results_PK

Frequency(MHz)	Peak (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	P_{Mea} (dBµV)
14002.250000	55.11	74.00	18.89	H	17	38.11
14538.500000	56.05	74.00	17.95	H	18	38.05
15539.500000	57.46	74.00	16.54	H	19	38.46
16163.750000	58.88	74.00	15.12	H	21	37.88
17001.750000	59.82	74.00	14.19	H	23	36.82
17852.500000	59.18	74.00	14.82	H	23	36.18

Final_Results_AVG

Frequency(MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	P_{Mea} (dBµV)
14017.000000	42.86	54.00	11.14	H	17	25.86
14565.500000	43.90	54.00	10.10	V	18	25.90
15576.000000	45.75	54.00	8.25	H	20	25.75
16259.500000	46.51	54.00	7.49	H	21	25.51
17002.250000	47.06	54.00	6.94	H	23	24.06
17892.000000	46.88	54.00	7.12	H	24	22.88

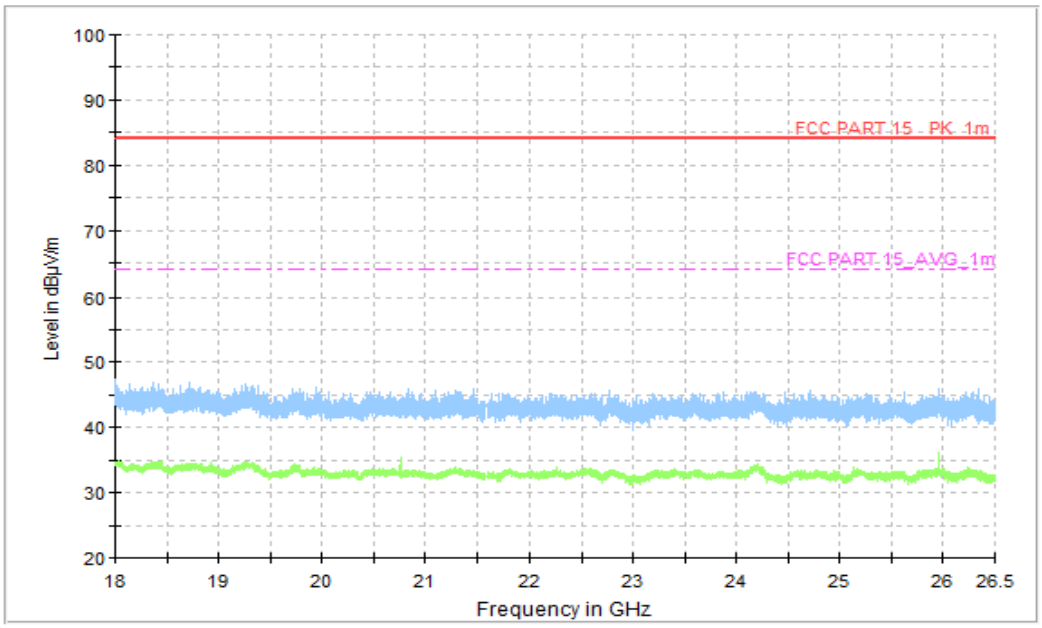
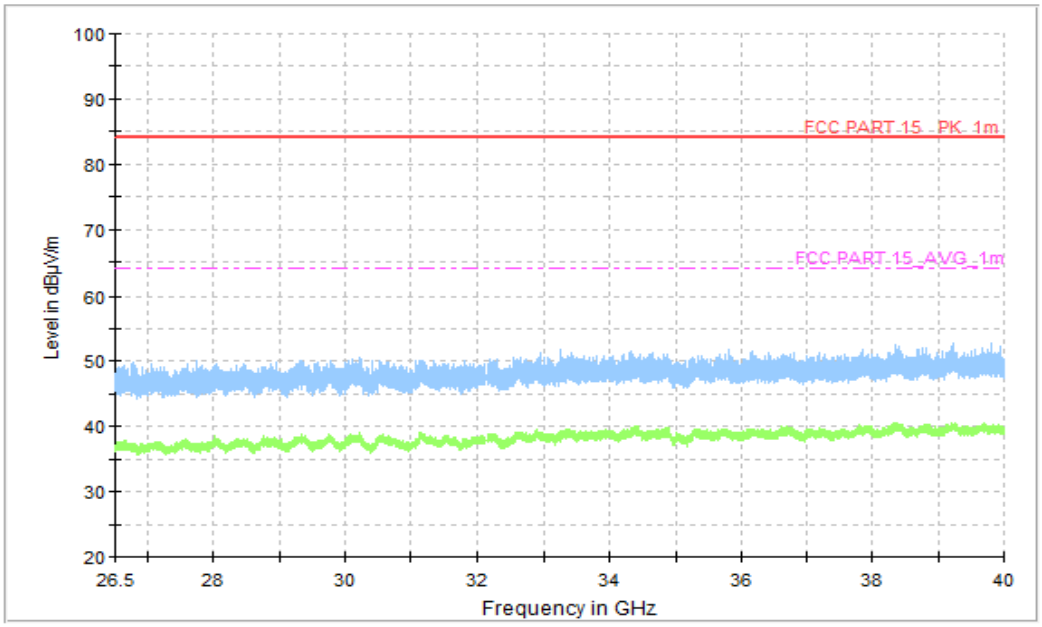


Figure A.11 Radiated Emission (Set.1, Scanner , 18GHz to 26.5GHz)



Radiated Emission (Set.1, Scanner , 26.5GHz to 30GHz)

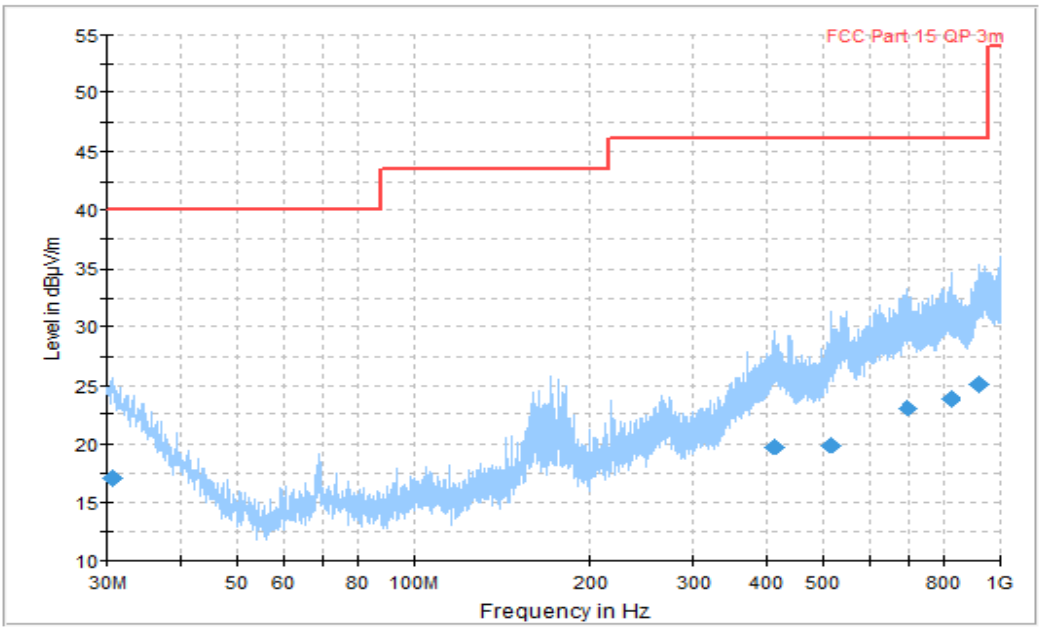


Figure A.12 Radiated Emission (Set.2, Data Transfer : EUT to PC, 30MHz to 1GHz)

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	ARpl (dB/m)	P_{Mea} (dBµV)
30.664444	17.13	40	22.87	H	-6.4	23.53
412.49778	19.72	46	26.28	V	-3.6	23.32
513.76778	19.88	46	26.12	V	-1.8	21.68
697.82722	23.11	46	22.89	H	1.1	22.01
823.00556	23.94	46	22.06	H	1.4	22.54
924.27333	25.15	46	20.85	V	2.6	22.55

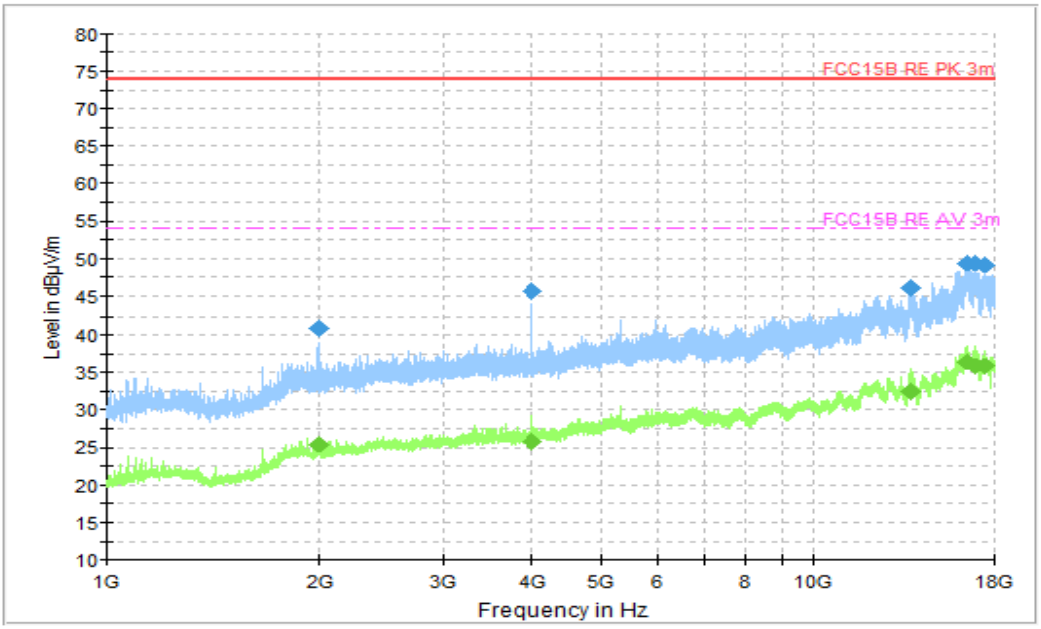


Figure A.13 Radiated Emission (Set.2, Data Transfer : EUT to PC, 1GHz to 18GHz)

Final_Results_PK

Frequency(MHz)	Peak (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	P_{Mea} (dBµV)
1999	40.81	74	33.19	V	-5.9	46.71
3999	45.77	74	28.23	V	-1.8	47.57
13761.5	46.07	74	27.93	H	9	37.07
16518	49.45	74	24.55	V	14.7	34.75
16945	49.43	74	24.57	V	14.8	34.63
17475.5	49.19	74	24.81	H	14.1	35.09

Final_Results_AVG

Frequency(MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	P_{Mea} (dBµV)
1992	25.29	54	28.71	V	-5.9	31.19
3988.5	25.82	54	28.18	V	-1.8	27.62
13744.5	32.50	54	21.50	H	8.9	23.60
16479.5	36.35	54	17.65	H	14.7	21.65
16913	35.85	54	18.15	V	14.8	21.05
17465.5	35.70	54	18.30	H	14.1	21.60

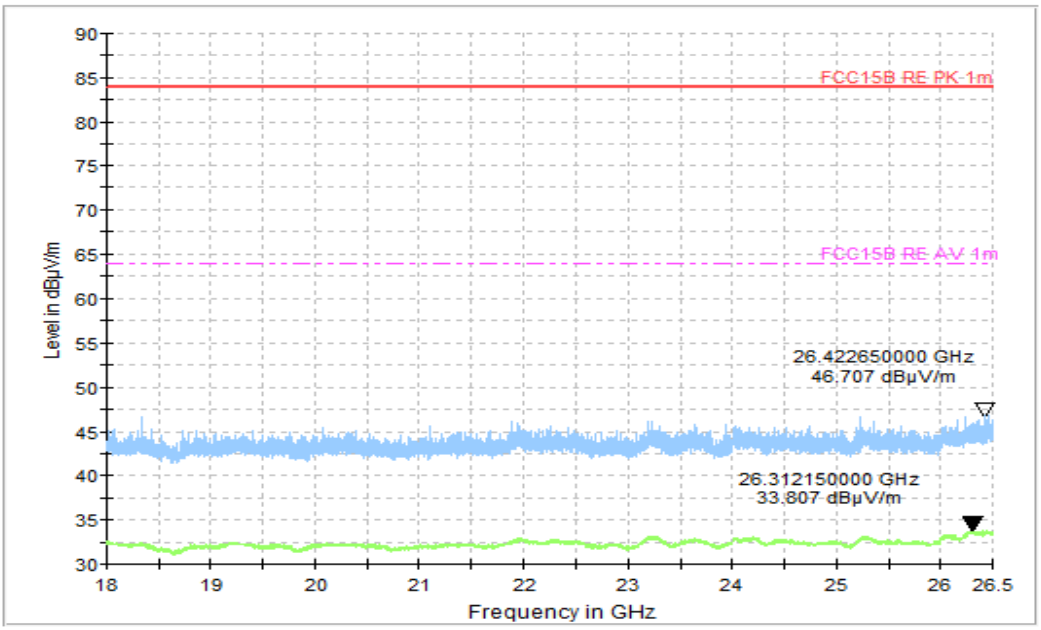


Figure A.14 Radiated Emission (Set.2, Data Transfer : EUT to PC, 18GHz to 26.5GHz)

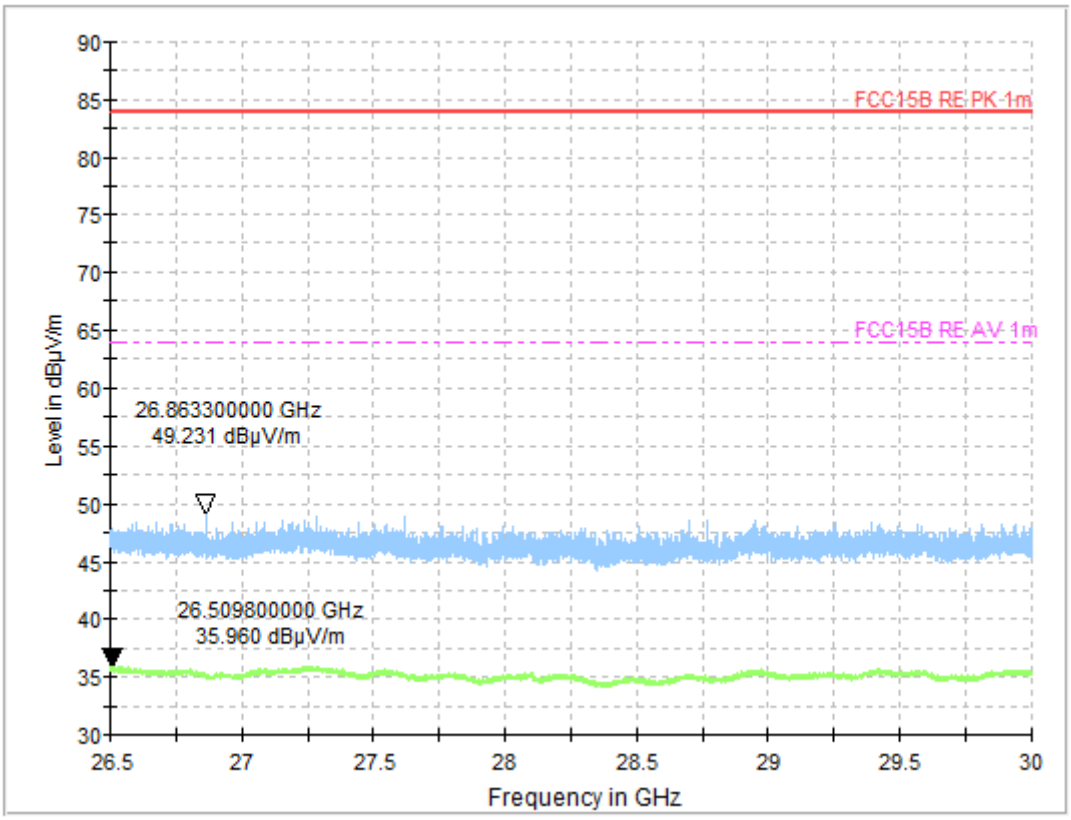


Figure A.15 Radiated Emission (Set.2, Data Transfer : EUT to PC, 26.5GHz to 30GHz)

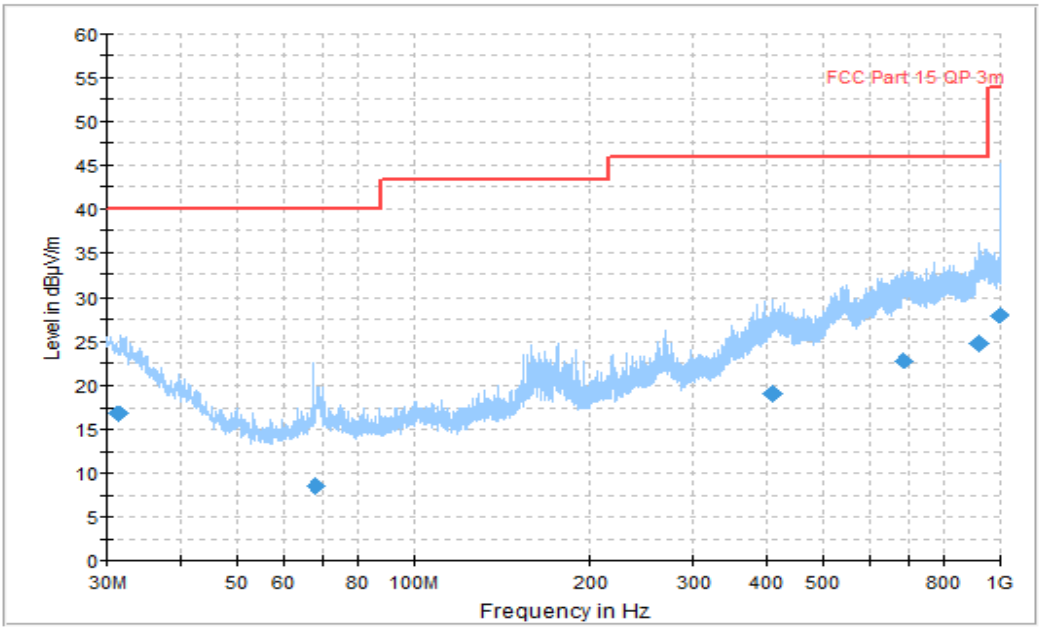


Figure A.16 Radiated Emission (Set.2, Data Transfer : PC to EUT, 30MHz to 1GHz)

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	ARpl (dB/m)	P_{Mea} (dBµV)
31.286667	16.72	40	23.28	H	-6.7	23.42
67.980556	8.47	40	31.53	V	-14.9	23.37
408.335	18.98	46	27.02	V	-3.7	22.68
685.93611	22.79	46	23.21	V	0.8	21.99
919.68778	24.78	46	21.22	H	2.2	22.58
999.80833	28.00	54	26	V	2.3	25.70

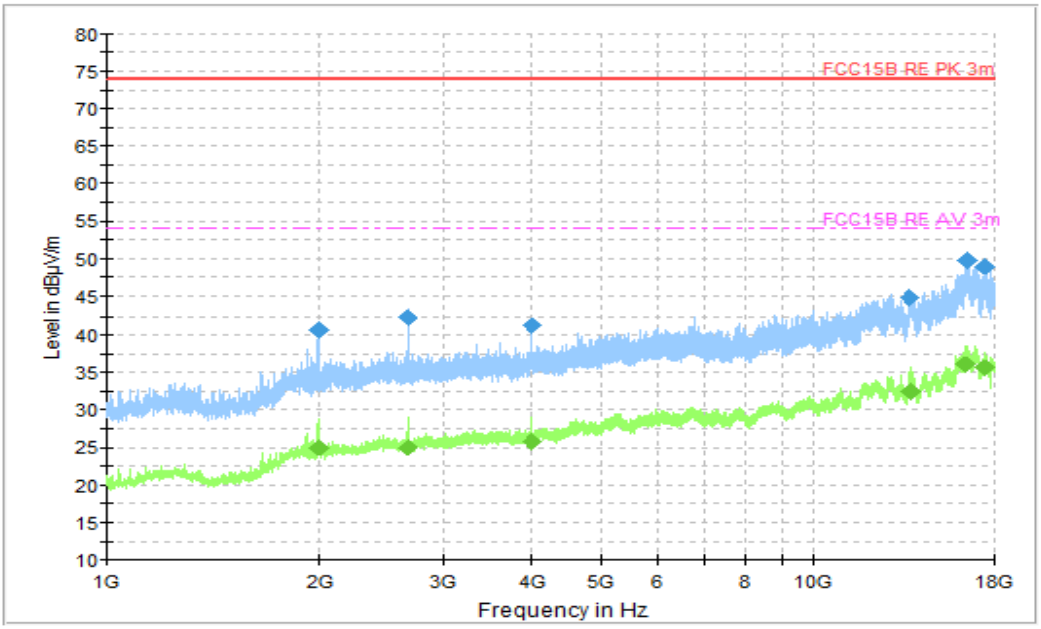


Figure A.17 Radiated Emission (Set.2, Data Transfer : PC to EUT, 1GHz to 18GHz)

Final_Results_PK

Frequency(MHz)	Peak (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	P_{Mea} (dBµV)
1992	40.51	74	33.49	V	-5.9	46.41
2662	42.28	74	31.72	V	-4.1	46.38
3986.5	41.20	74	32.80	V	-1.8	43.00
13653	44.91	74	29.09	H	9	35.91
16480	49.92	74	24.08	H	14.7	35.22
17482.5	49.02	74	24.98	V	14.1	34.92

Final_Results_AVG

Frequency(MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	PMea (dBµV)
1992	25.04	54	28.96	V	-5.9	30.94
2661.5	24.93	54	29.07	V	-4.1	29.03
3984.5	25.88	54	28.12	V	-1.8	27.68
13777.5	32.53	54	21.47	V	9	23.53
16450	35.96	54	18.04	H	14.7	21.26
17488.5	35.46	54	18.54	V	14.1	21.36

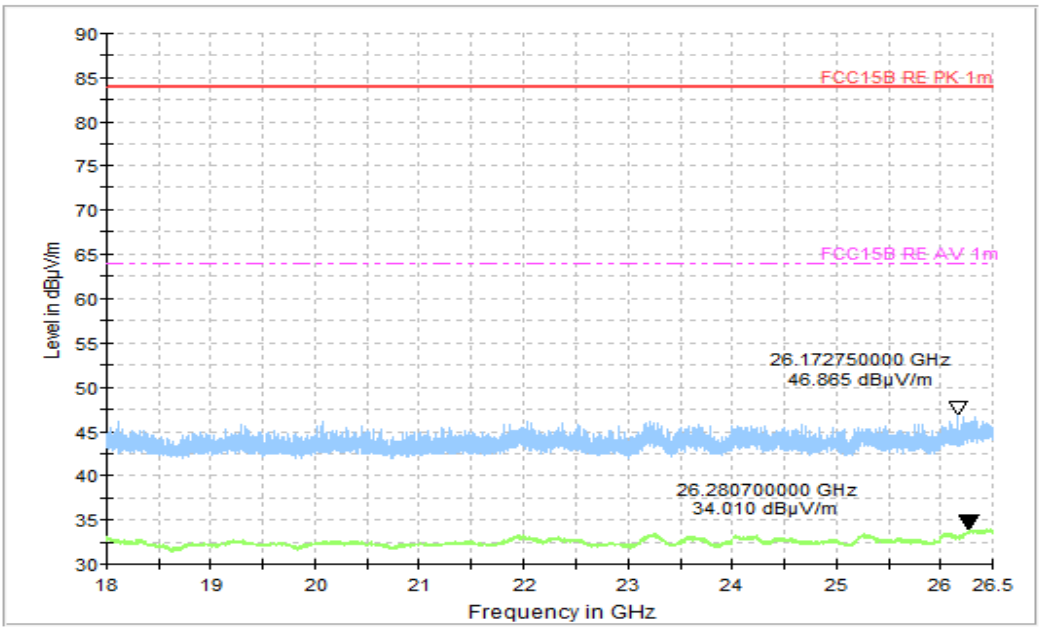


Figure A.18 Radiated Emission (Set.2, Data Transfer : PC to EUT, 18GHz to 26.5GHz)

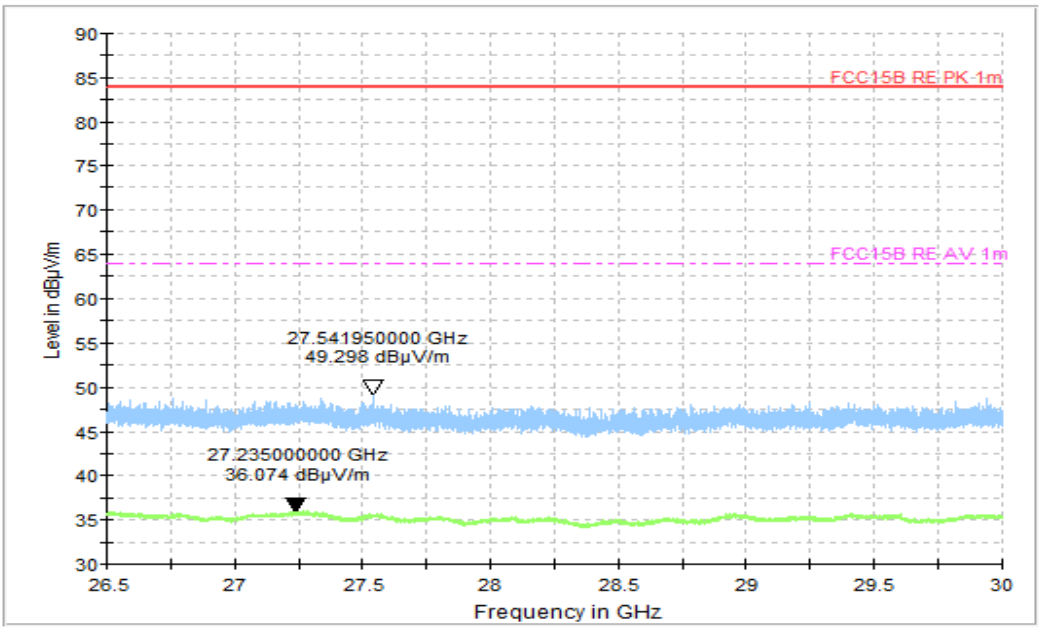


Figure A.19 Radiated Emission (Set.2, Data Transfer : PC to EUT, 26.5GHz to 30GHz)

A.2 Conducted Emission (§15.107(a))

Reference

FCC: CFR Part 15.107(a)

IC: ICES-003 section 6.1.

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.

Scanner: 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 scaning.

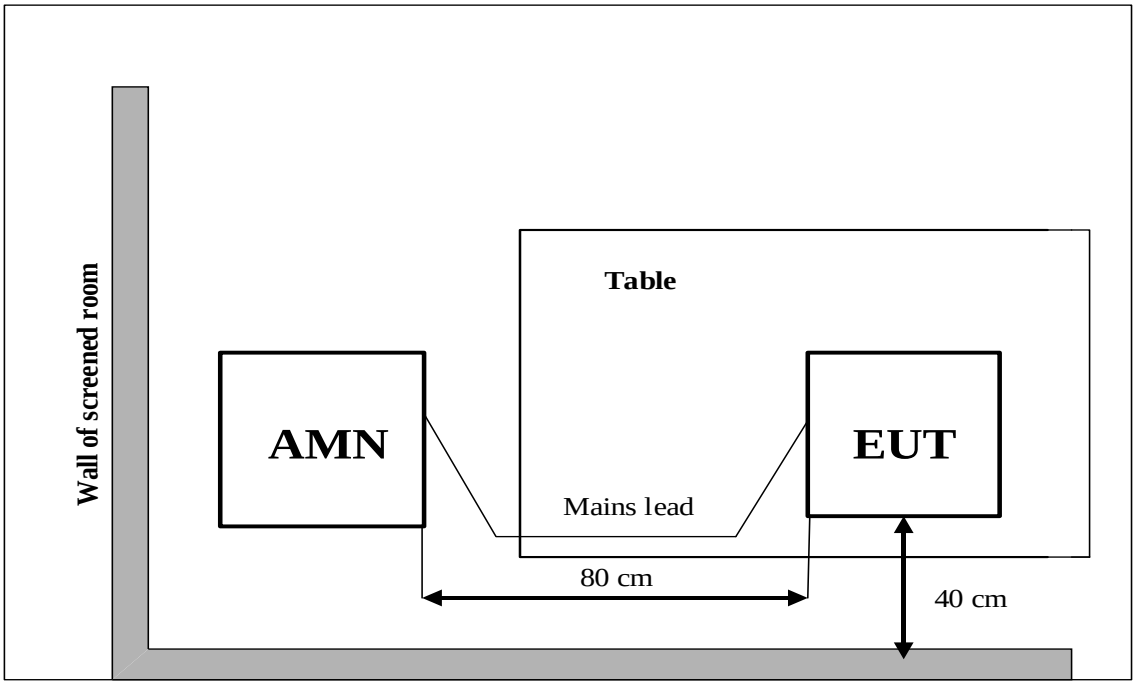
Video Player: The EUT is connected to a charger for charging and keeping on playing mp3.

Data Transfer: The model of the PC is Lenovo ThinkPad T480, and the serial number of the PC is PF-13LW0C. The EUT is connected to a PC for transmitting data. The software is used to let the PC keep on copying data to EUT or TF Card, reading and erasing the data after copy action was finished.

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.2.4Test 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
			Set.1	
0.15 to 0.5	66 to 56	56 to 46	See Figure B.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.				

Video Player

AC Input Port/ Voltage: 120V/60Hz

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Average Limit (dBμV)	Result (dBμV)	Conclusion
			Set.1	
0.15 to 0.5	66 to 56	56 to 46	See Figure B.2	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.				

Data Transfer

AC Input Port/ Voltage: 120V/60Hz

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Average Limit (dBμV)	Result (dBμV)	Conclusion
			Set.2	
0.15 to 0.5	66 to 56	56 to 46	See Figure B.3	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.				

Camera

AC Input Port/ Voltage: 240V/60Hz

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Average Limit (dBμV)	Result (dBμV)	Conclusion
			Set.1	
0.15 to 0.5	66 to 56	56 to 46	See Figure B.4	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.				

Video Player

AC Input Port/ Voltage: 240V/60Hz

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Average Limit (dBμV)	Result (dBμV)	Conclusion
			Set.1	
0.15 to 0.5	66 to 56	56 to 46	See Figure B.5	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.				

Data Transfer

AC Input Port/ Voltage: 240V/60Hz

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Average Limit (dBμV)	Result (dBμV)	Conclusion
			Set.2	
0.15 to 0.5	66 to 56	56 to 46	See Figure B.6	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

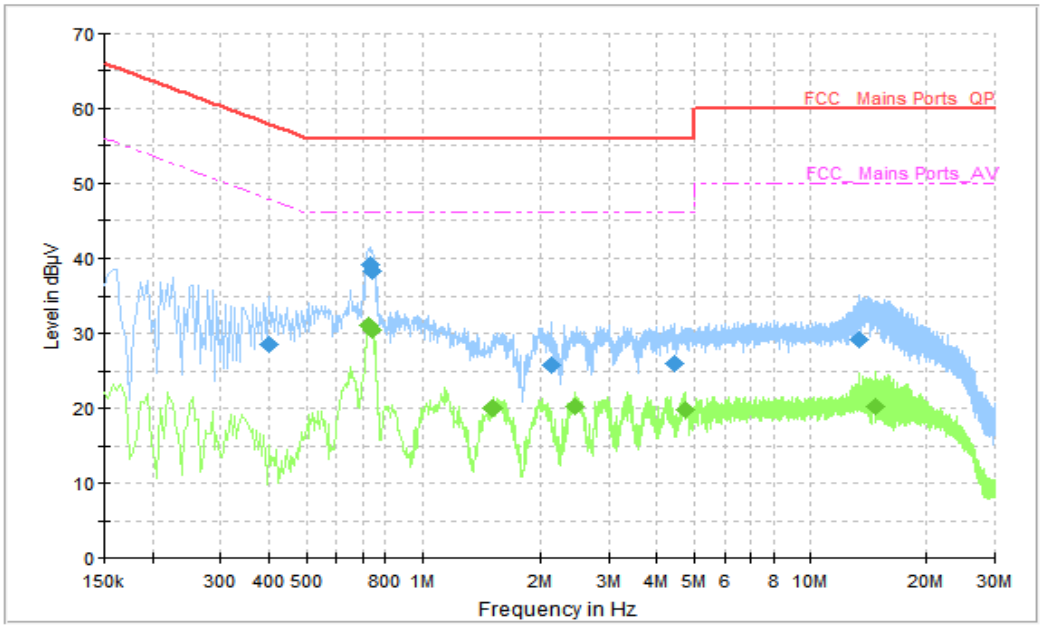


Figure B.1 Conducted Emission(Set.1, Camera)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.402	28.53	57.81	29.28	N	10	18.53
0.73	39.06	56	16.94	L1	10	29.06
0.738	38.22	56	17.78	N	10	28.22
2.134	25.91	56	30.09	L1	10	15.91
4.426	25.95	56	30.05	L1	10	15.95
13.314	29.3	60	30.7	L1	10	19.30

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.726	31.14	46	14.86	N	10	21.14
0.738	30.61	46	15.39	N	10	20.61
1.518	20.1	46	25.9	L1	10	10.10
2.446	20.35	46	25.65	L1	10	10.35
4.738	19.91	46	26.09	N	10	9.91
14.754	20.37	50	29.63	N	10	10.37

AC Input Port/ Voltage: 120V/60Hz

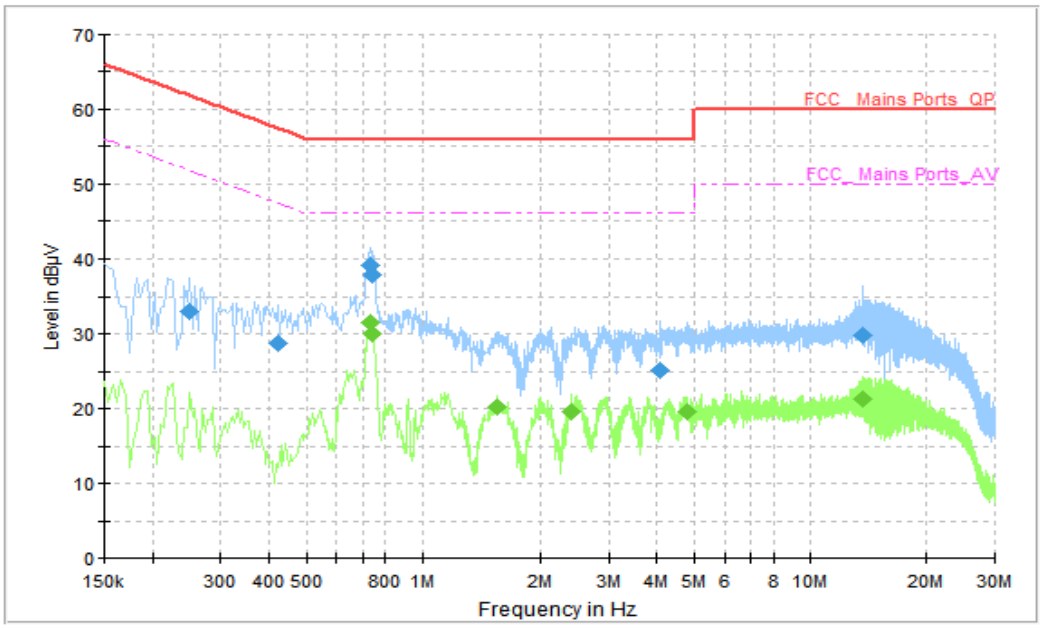


Figure B.2 Conducted Emission(Set.1, Video Player)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.25	33.01	61.76	28.75	N	10	23.01
0.422	28.91	57.41	28.5	N	10	18.91
0.73	39.14	56	16.86	L1	10	29.14
0.742	37.75	56	18.25	N	10	27.75
4.062	25.22	56	30.78	L1	10	15.22
13.658	29.81	60	30.19	L1	10	19.81

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.734	31.48	46	14.52	L1	10	21.48
0.742	30.1	46	15.9	N	10	20.10
1.55	20.37	46	25.63	L1	10	10.37
2.41	19.55	46	26.45	L1	10	9.55
4.778	19.59	46	26.41	L1	10	9.59
13.666	21.24	50	28.76	L1	10	11.24

AC Input Port/ Voltage: 120V/60Hz

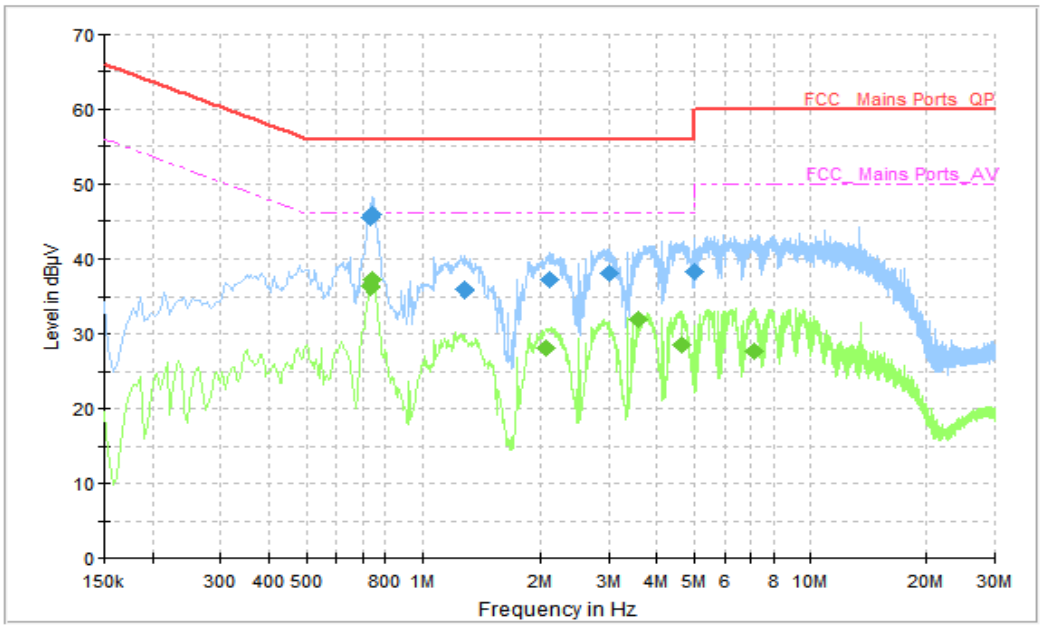


Figure B.3 Conducted Emission(Set.1, Scanner)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.734000	45.47	56.00	10.53	L1	10	35.47
0.742000	45.78	56.00	10.22	L1	10	35.78
1.282000	35.83	56.00	20.17	L1	10	25.83
2.118000	37.07	56.00	18.93	L1	10	27.07
3.006000	37.98	56.00	18.02	L1	10	27.98
4.978000	38.30	56.00	17.70	L1	10	28.30

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.734000	36.20	46.00	9.80	L1	10	26.20
0.738000	37.18	46.00	8.82	N	10	27.18
2.062000	28.12	46.00	17.88	N	10	18.12
3.562000	32.02	46.00	13.98	L1	10	22.02
4.614000	28.63	46.00	17.37	L1	10	18.63
7.114000	27.78	50.00	22.22	N	10	17.78

AC Input Port/ Voltage: 120V/60Hz

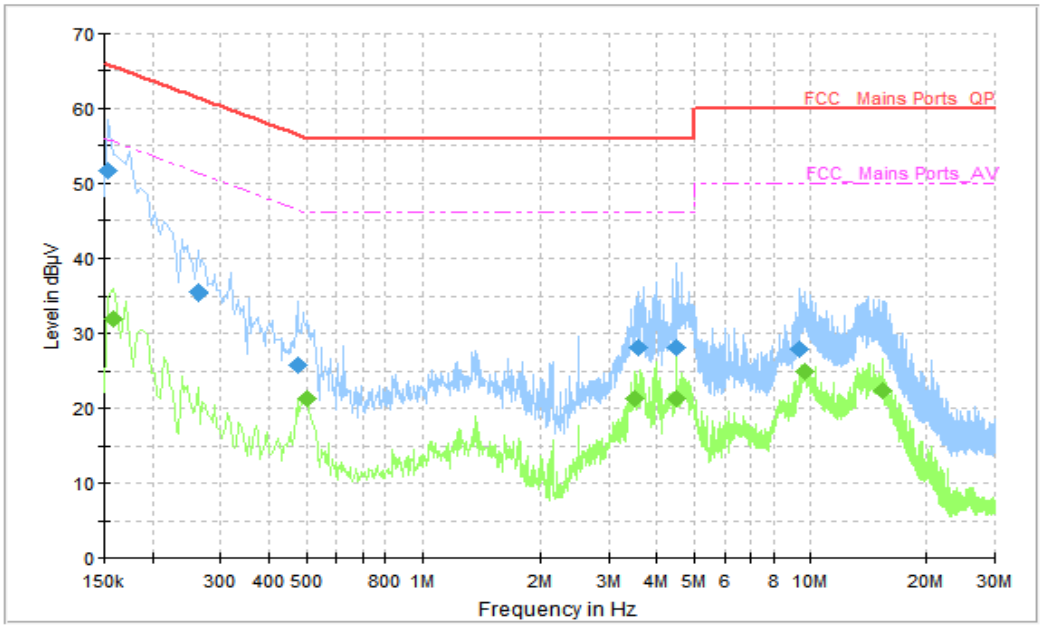


Figure B.4 Conducted Emission(Set.2, Data Transfer)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.154	51.72	65.78	14.06	N	10	41.72
0.262	35.52	61.37	25.85	L1	10	25.52
0.474	25.9	56.44	30.54	N	10	15.90
3.578	28.18	56	27.82	N	10	18.18
4.486	28.09	56	27.91	L1	10	18.09
9.358	28.02	60	31.98	L1	10	18.02

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.158	32.03	55.57	23.54	L1	10	22.03
0.502	21.37	46	24.63	N	10	11.37
3.518	21.35	46	24.65	L1	10	11.35
4.486	21.27	46	24.73	L1	10	11.27
9.662	25.06	50	24.94	L1	10	15.06
27.650000	29.37	50.00	20.63	L1	10.0	19.37

AC Input Port/ Voltage: 240V/60Hz

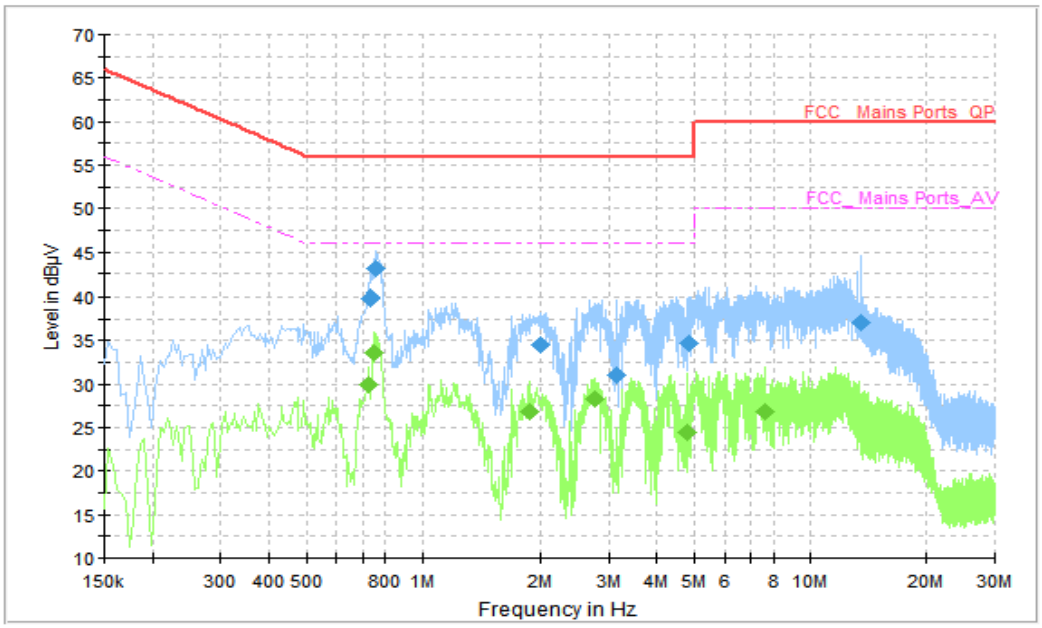


Figure B.5 Conducted Emission(Set.1, Camera)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.734	39.83	56	16.17	L1	10	29.83
0.758	43.17	56	12.83	L1	10	33.17
1.99	34.47	56	21.53	L1	10	24.47
3.162	30.96	56	25.04	L1	10	20.96
4.838	34.63	56	21.37	L1	10	24.63
13.494	37.16	60	22.84	N	10	27.16

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.726	29.86	46	16.14	L1	10	19.86
0.75	33.63	46	12.37	L1	10	23.63
1.866	26.9	46	19.1	L1	10	16.90
2.762	28.24	46	17.76	L1	10	18.24
4.814	24.48	46	21.52	L1	10	14.48
7.59	26.83	50	23.17	L1	10	16.83

AC Input Port/ Voltage: 240V/60Hz

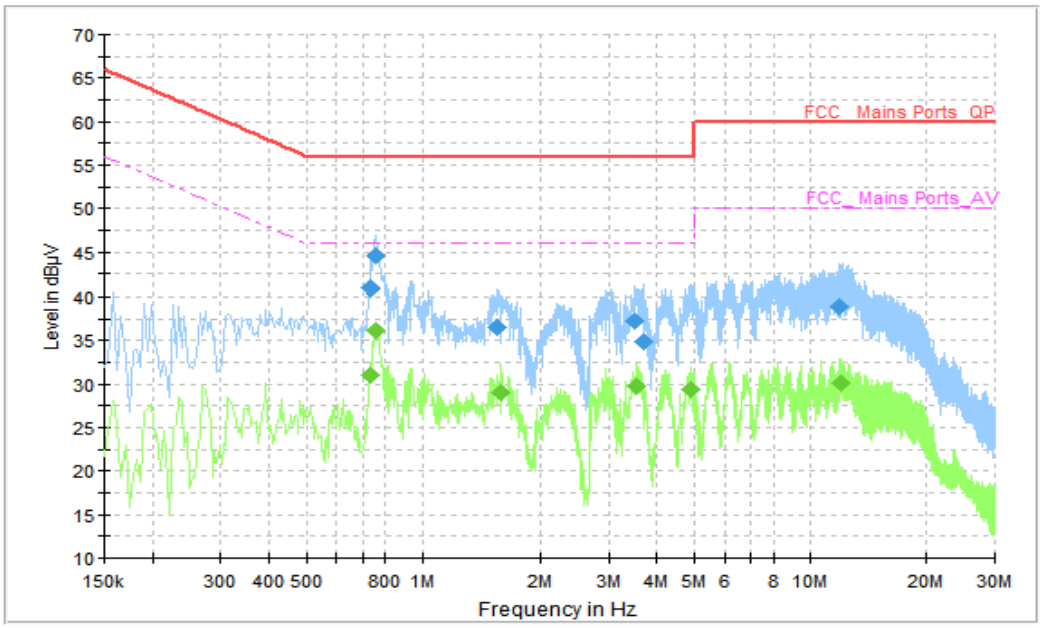


Figure B.6 Conducted Emission(Set.1, Video Player)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.158	50.97	65.57	14.6	N	10	40.97
0.258	38.45	61.5	23.05	L1	10	28.45
0.506	28.57	56	27.43	N	10	18.57
3.602	26.87	56	29.13	N	10	16.87
3.694	28.39	56	27.61	L1	10	18.39
15.166	27.06	60	32.94	N	10	17.06

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.158	32.76	55.57	22.81	N	10	22.76
0.526	20.68	46	25.32	N	10	10.68
3.502	20.27	46	25.73	L1	10	10.27
4.686	22.96	46	23.04	L1	10	12.96
9.058	20.86	50	29.14	N	10	10.86
14.706	21.65	50	28.35	N	10	11.65

AC Input Port/ Voltage: 240V/60Hz

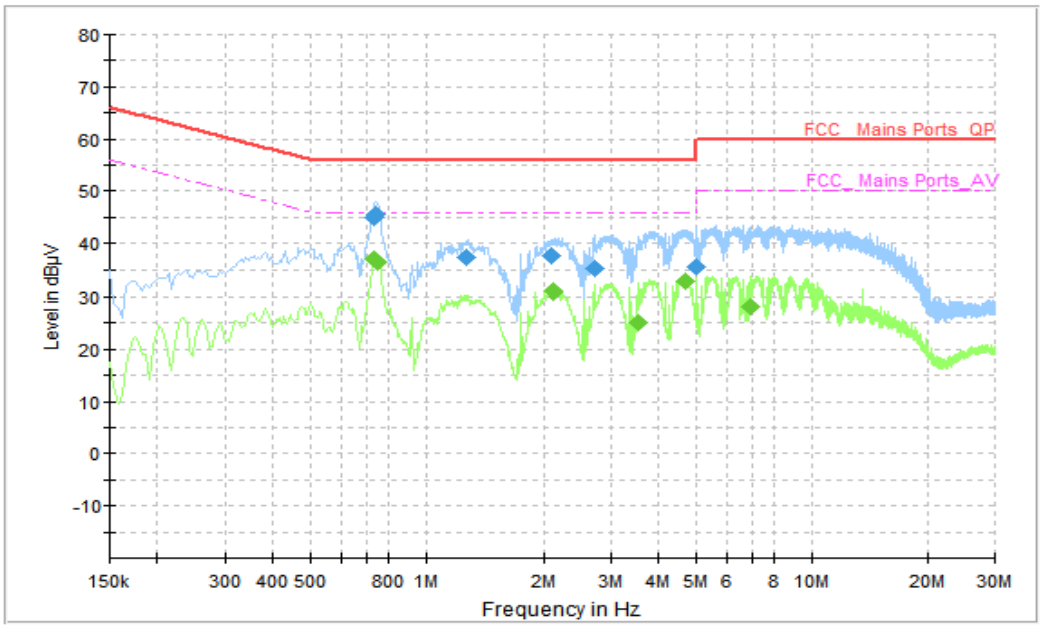


Figure B.7 Conducted Emission(Set.1, Scanner)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.734000	44.98	56.00	11.02	L1	10	34.98
0.738000	45.49	56.00	10.51	L1	10	35.49
1.278000	37.45	56.00	18.55	L1	10	27.45
2.102000	37.63	56.00	18.37	L1	10	27.63
2.710000	35.12	56.00	20.88	L1	10	25.12
4.990000	35.64	56.00	20.36	L1	10	25.64

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.734000	36.93	46.00	9.07	L1	10	26.93
0.750000	36.54	46.00	9.46	N	10	26.54
2.118000	30.81	46.00	15.19	L1	10	20.81
3.518000	25.21	46.00	20.79	N	10	15.21
4.674000	32.62	46.00	13.38	L1	10	22.62
6.914000	28.22	50.00	21.78	L1	10	18.22

AC Input Port/ Voltage: 240V/60Hz

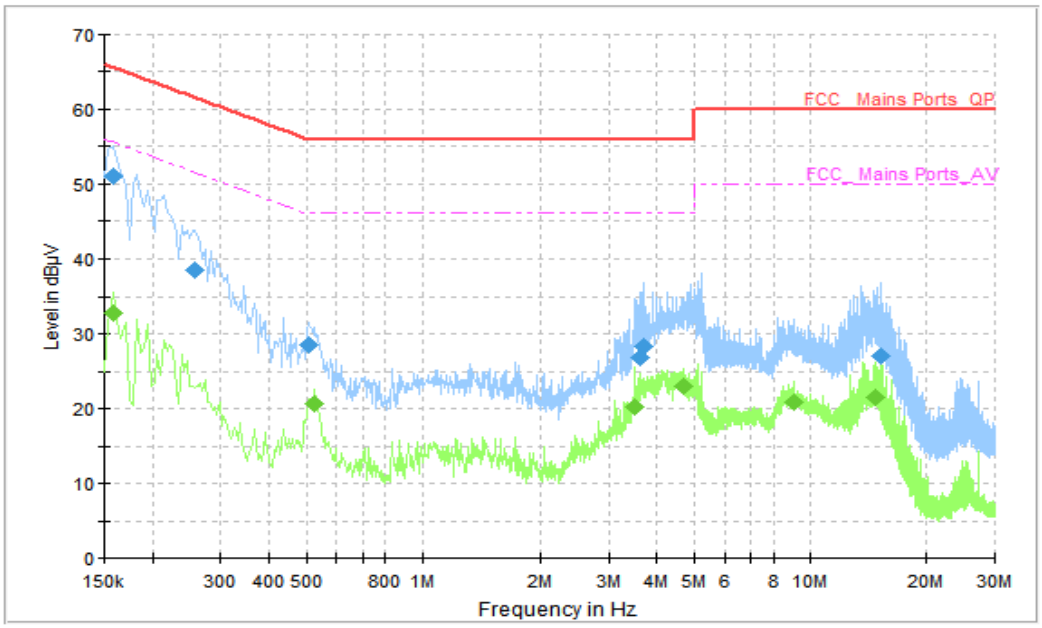


Figure B.8 Conducted Emission(Set.2, Data Transfer)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.158	50.97	65.57	14.6	N	10	40.97
0.258	38.45	61.5	23.05	L1	10	28.45
0.506	28.57	56	27.43	N	10	18.57
3.602	26.87	56	29.13	N	10	16.87
3.694	28.39	56	27.61	L1	10	18.39
15.166	27.06	60	32.94	N	10	17.06

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P_{Mea} (dBµV)
0.158	32.76	55.57	22.81	N	10	22.76
0.526	20.68	46	25.32	N	10	10.68
3.502	20.27	46	25.73	L1	10	10.27
4.686	22.96	46	23.04	L1	10	12.96
9.058	20.86	50	29.14	N	10	10.86
14.706	21.65	50	28.35	N	10	11.65

*****END OF REPORT*****