



TESTREPORT

No.I21N04037-EMC

HMD Global Oy

Smart Phone

Model Name: TA-1339

With

Hardware Version:V01

Software Version: 000T_0_513

FCC ID: 2AJOTTA-1339

Issued Date: 2022-01-22

Designation Number: CN1210

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.

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No.I21N04037-EMC

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I21N04037-EMC	Rev.0	1st edition	2022-01-22

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	Smart Phone
Model Name	TA-1339
Applicant's name	HMD Global Oy
Manufacturer's Name	HMD Global Oy

1.2. Test Standards

FCC Part 15, Subpart B (10-1-2020 Edition); ANSI C63.4-2014.

1.3. Test Result

Pass

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: 2021-01-11

Testing End Date: 2021-01-22

1.6. Signature

Liang Yong
(Prepared this test report)

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(Reviewed this test report)

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(Approved this test report)



2. ClientInformation

2.1. Applicant Information

Company Name: HMD Global Oy
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Contact: Rosario Casillo
Email: rosario.casillo@hmdglobal.com
Tel. +393 31 6272922

2.2. Manufacturer Information

Company Name: HMD Global Oy
Address: Bertel Jungin aukio 9, 02600 Espoo, Finland
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3. Equipment UnderTest (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	Smart Phone
Model Name	TA-1339
FCC ID	2AJOTTA-1339
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
UT03aa	357321211570105	V01	000T_0_513	2022-01-05

*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	USB Cable
AE4	Headset

AE1

Model	BL-29CI
Manufacturer	Fenghua Battery Co.,Ltd.
Capacity	2950mAh
Nominal Voltage	3.8V

AE2

Model	A18A-050100U-US2
Manufacturer	Dongguan Aohai Technology Co.,Ltd.

AE3

Model	MO34B1000100
Manufacturer	FKY-QY Electronic Technology Co. Ltd

AE4

Model	JWEP1199-M01H (178210504)
Manufacturer	JUWEI ELECTRONICS CO.,LTD

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

AE: ancillary equipment



3.4. EUT set-ups

EUT set-up No.

Set.1

Combination of EUT and AE

EUT+AE1+AE2+AE3+AE4

3.5. General Description

The Equipment Under Test (EUT) is a model of Multi-band GSM/WCDMA/LTE Smart Phone with Bluetooth, WLAN with internal antenna.

It supports GSM 850/900/1800/1900MHz, WCDMA Bands 1/2/4/5/8, and LTE Bands 1/2/3/4/5/7/8/12/17/28/66.

It has Camera, Video Player, FM Receiver, USB Data Transfer, Bluetooth, Wi-Fi and GNSS functions.

It consists of normal options: Battery, Charger and USB Cable and Headset

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

This report serves as a record of TA-1339 manufactured by HMD Global Oy. The tables below show the details of the declaration of differences by manufacturer;

Model Differences	TA-1339 (Initial Model)	TA-1339 (Record Model)
Camera	5M+5M FF	5M+8M AF
Software Version	00WW_0_070	000T_0_513
Fingerprint	Not support fingerprint	Support fingerprint
Mechanical	Rear housing and battery cover modified to satisfy fingerprint	
Battery	The battery IC had been changed	

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

NO.	Test item	EUT ID	Operating mode
1	Conducted Emission	UT03aa	Camera
2	Radiated Emission	UT03aa	Camera

Other results of are cited from the initial model TA-1339.

The report number for initial model is I21N00548-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	10-1-2019 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

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 °C, Max. = 35°C
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 °C, Max. = 35 °C
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 °C, Max. = 35°C
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 rules	Section in this report	Verdict
1	Radiated Emission	15.109(a)	A.1	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	4.86dB(k=2)
	1GHz-18GHz	4.82dB(k=2)
Conducted Emission	150kHz-30MHz	2.62dB(k=2)

8. Test Facilities Utilized

No.	Name	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1.	Test Receiver	ESR7	101676	R&S	2022.11.24	1 year
2.	Test Receiver	ESCI	100702	R&S	2022.01.13	1 year
3.	Spectrum Analyzer	FSV40	101192	R&S	2022.01.13	1 year
4.	BiLog Antenna	3142E	0224831	ETS-Lindgren	2024.05.27	3 years
5.	Horn Antenna	3117	00066577	ETS-Lindgren	2022.04.02	3 years
6.	LISN	ENV216	102067	R&S	2022.07.15	1 year
7.	Chamber	FACT3-2.0	1285	ETS-Lindgren	2023.05.29	2 years
8.	Software	EMC32	V10.50.40	R&S	/	/

Note: CAL.: Calibration

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission (§15.109(a))

Reference

FCC: CFR Part 15.109(a)

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.

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)

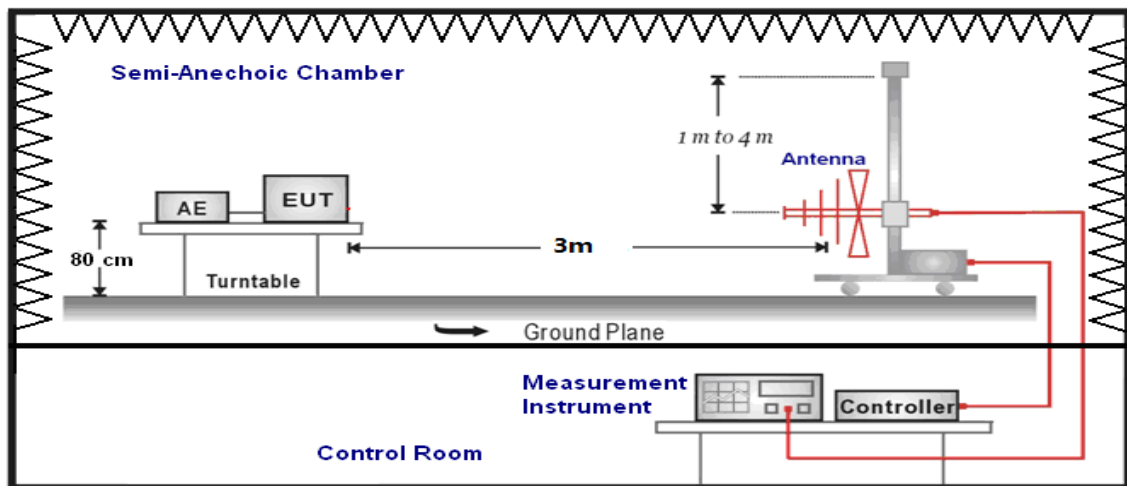
Frequency range (MHz)	Field strength limit ($\mu\text{V/m}$)		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

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

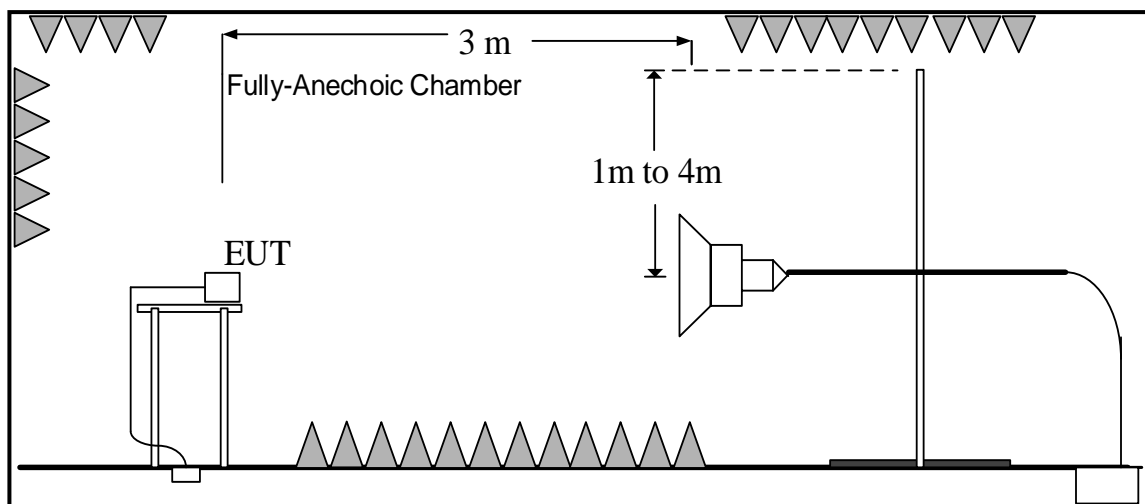
A.1.4 Test Condition

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-18GHz



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(dBμV/m) / Average(dBμV/m)/Peak(dBμV/m)

Note: the result contains vertical part and Horizontal part

Camera

Frequency range (MHz)	Quasi-Peak Limit (dB μ V/m)	Result (dB μ V/m)	Conclusion
		UT03aa/Set.1	
30-88	40.00	See Fugure A.1.1.	P
88-216	43.50		
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
			UT03aa/Set.1	
1000 to 18000	54	74	See Fugure A.1.2.	P

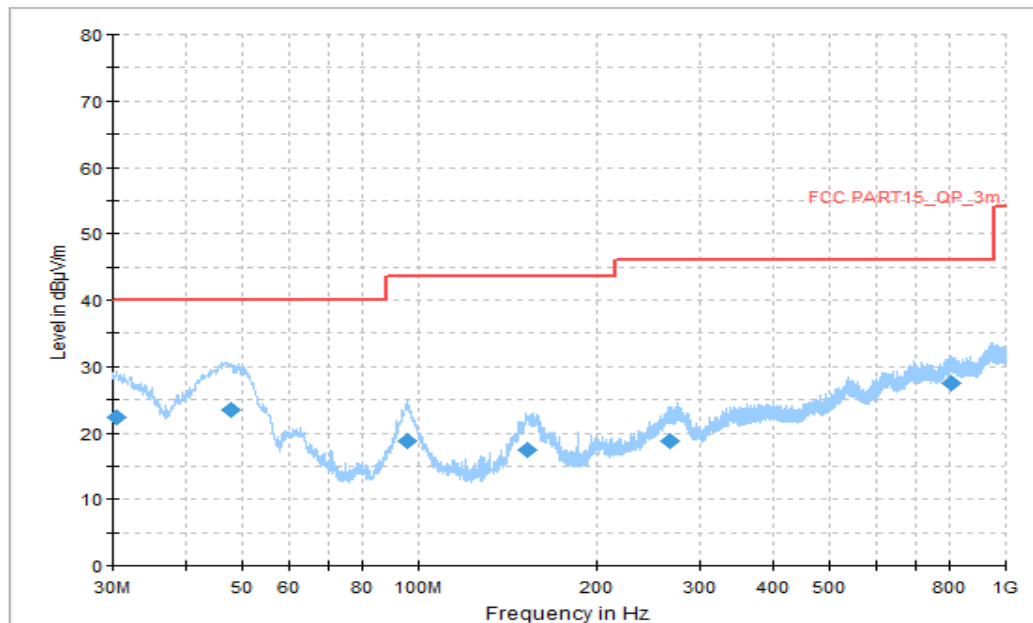


Figure A.1.1. Radiated Emission (Camera, 30MHz to 1GHz)

Final_Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	ARpl (dB/m)	PMea (dBμV)
30.485000	22.26	40.00	17.74	V	-22	44.26
47.729444	23.56	40.00	16.44	V	-22	45.56
95.715000	18.88	43.52	24.64	V	-22	40.88
151.681111	17.49	43.52	26.03	V	-18	35.49
266.302778	18.74	46.02	27.28	H	-14	32.74
807.660556	27.46	46.02	18.56	V	-18	45.46

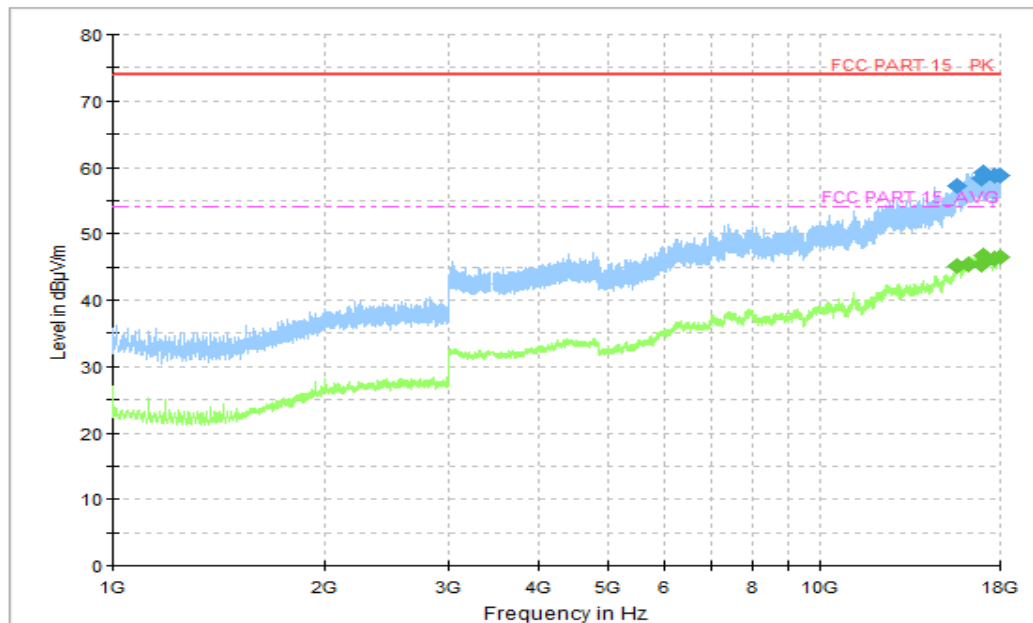


Figure A.1.2. Radiated Emission (Camera,18GHz to 30GHz)

Final_Results_PK

Frequency(MHz)	Peak (dBμV/m)	Limit (dBμV/m)	Margin(dB)	Polarity	ARpl (dB/m)	PMea (dBμV)
15624.750000	57.30	74.00	16.70	V	20	37.30
16259.750000	58.28	74.00	15.72	H	21	37.28
16906.500000	58.40	74.00	15.60	V	22	36.40
17044.500000	59.24	74.00	14.76	H	22	37.24
17720.000000	58.69	74.00	15.31	V	23	35.69
17967.750000	58.71	74.00	15.29	V	24	34.71

Final_Results_AVG

Frequency(MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin(dB)	Polarity	ARpl (dB/m)	PMea (dBμV)
15624.750000	44.80	54.00	9.20	V	20	24.80
16259.750000	45.07	54.00	8.93	H	21	24.07
16906.500000	45.08	54.00	8.92	V	22	23.08
17044.500000	46.44	54.00	7.56	H	22	24.44
17720.000000	45.93	54.00	8.07	V	23	22.93
17967.750000	46.11	54.00	7.89	V	24	22.11

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

FCC: CFR 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.

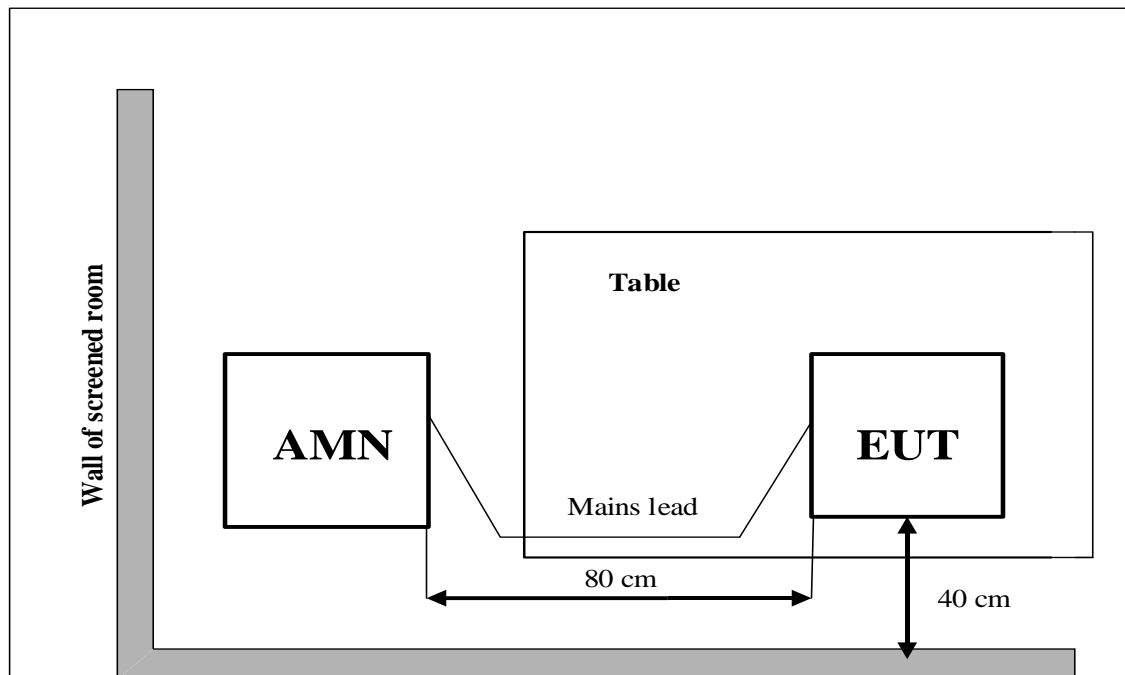
A.2.2 EUT Operating Mode:

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
			UT04aa/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.				

Camera

AC Input Port/ Voltage: 240V/60Hz

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Average Limit (dBμV)	Result (dBμV)	Conclusion
			UT04aa/Set.1	
0.15 to 0.5	66 to 56	56 to 46	See Figure A.2.2	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.				

AC Input Port/ Voltage: 120V/60Hz

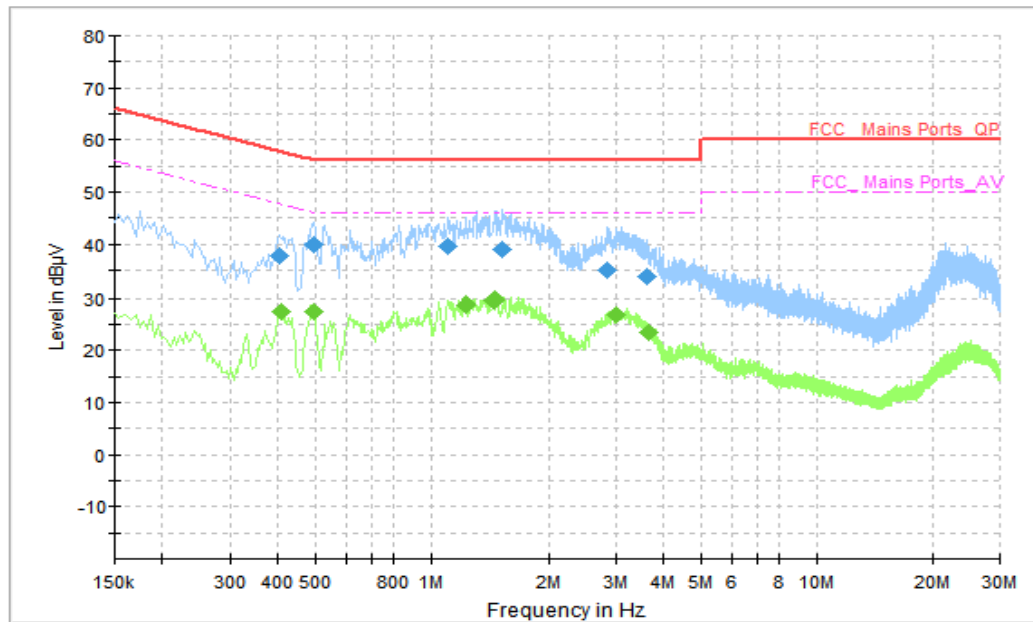


Figure A.2.1 Conducted Emission(Camera)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	PMea (dBμV)
0.402000	37.72	57.81	20.09	L1	10	27.72
0.494000	39.97	56.10	16.13	L1	10	29.97
1.110000	39.60	56.00	16.40	L1	10	29.60
1.518000	39.17	56.00	16.83	L1	10	29.17
2.838000	34.98	56.00	21.02	N	10	24.98
3.626000	33.67	56.00	22.33	L1	10	23.67

Final_Result_AVG

Frequency (MHz)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	PMea (dBμV)
0.406000	27.53	47.73	20.20	L1	10	17.53
0.494000	27.35	46.10	18.75	N	10	17.35
1.226000	28.52	46.00	17.48	L1	10	18.52
1.458000	29.52	46.00	16.48	L1	10	19.52
3.018000	26.87	46.00	19.13	L1	10	16.87
3.666000	23.44	46.00	22.56	L1	10	13.44

AC Input Port/ Voltage: 240V/60Hz

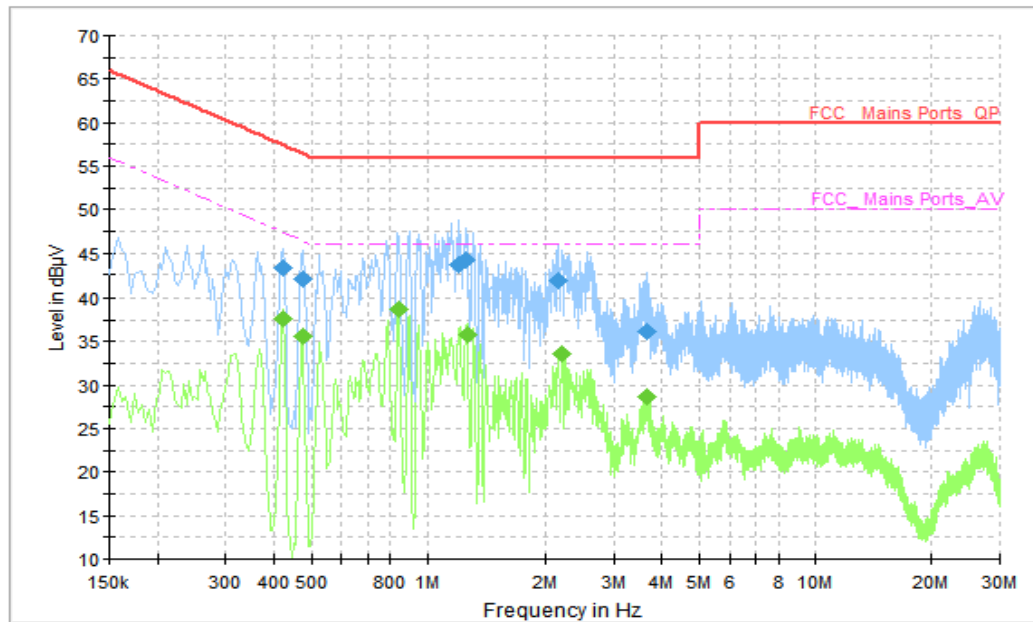


Figure A.2.2 Conducted Emission(Camera)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	PMea (dBμV)
0.410000	40.75	57.65	16.90	N	10	30.75
0.534000	43.03	56.00	12.97	N	10	33.03
1.246000	42.61	56.00	13.39	N	10	32.61
1.426000	42.83	56.00	13.17	N	10	32.83
2.374000	38.61	56.00	17.39	N	10	28.61
3.786000	34.47	56.00	21.53	N	10	24.47

Final_Result_AVG

Frequency (MHz)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	PMea (dBμV)
0.414000	34.84	47.57	12.73	N	10	24.84
0.478000	44.30	46.37	13.07	N	10	34.30
0.954000	33.59	46.00	12.41	N	10	23.59
1.426000	32.93	46.00	13.07	N	10	22.93
2.438000	28.91	46.00	17.09	N	10	18.91
3.606000	26.62	46.00	19.38	N	10	16.62

END OF REPORT