



# TESTREPORT

No.I19N01990-EMC

for

**TCL Communication Ltd.**

**MOVETIME FAMILY WATCH**

**Model Name: MT40A**

**FCC ID: 2ACCJB112**

**Hardware Version: PIO**

**Software Version: V1.0**

**Issued Date: 2019-10-18**

**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.

**Test Laboratory:**

Shenzhen Academy of Information and Communications Technology

Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China 518026.

Tel:+86(0)755-33322000, Fax:+86(0)755-33322001 Email:yewu@caict.ac.cn [www.cszit.com](http://www.cszit.com)

## **REPORT HISTORY**

<b>Report Number</b>	<b>Revision</b>	<b>Description</b>	<b>Issue Date</b>
I19N01990-EMC	Rev.0	1st edition	2019-10-18

## **CONTENTS**

<b>1. SUMMARY OF TEST REPORT</b> .....	<b>4</b>
<b>1.1. TEST ITEMS</b> .....	<b>4</b>
<b>1.2. TEST STANDARDS</b> .....	<b>4</b>
<b>1.3. TEST RESULT</b> .....	<b>4</b>
<b>1.4. TESTING LOCATION</b> .....	<b>4</b>
<b>1.5. PROJECT DATA</b> .....	<b>4</b>
<b>1.6. SIGNATURE</b> .....	<b>4</b>
<b>2. CLIENT INFORMATION</b> .....	<b>5</b>
<b>2.1. APPLICANT INFORMATION</b> .....	<b>5</b>
<b>2.2. MANUFACTURER INFORMATION</b> .....	<b>5</b>
<b>3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)</b> .....	<b>6</b>
<b>3.1. ABOUT EUT</b> .....	<b>6</b>
<b>3.2. INTERNAL IDENTIFICATION OF EUT</b> .....	<b>6</b>
<b>3.3. INTERNAL IDENTIFICATION OF AE</b> .....	<b>6</b>
<b>3.4. EUT SET-UPS</b> .....	<b>6</b>
<b>4. REFERENCE DOCUMENTS</b> .....	<b>7</b>
<b>4.1. REFERENCE DOCUMENTS FOR TESTING</b> .....	<b>7</b>
<b>5. LABORATORY ENVIRONMENT</b> .....	<b>8</b>
<b>6. SUMMARY OF TEST RESULTS</b> .....	<b>9</b>
<b>6.1. TESTING ENVIRONMENT</b> .....	<b>9</b>
<b>6.2. SUMMARY OF MEASUREMENT RESULTS</b> .....	<b>9</b>
<b>6.3. STATEMENT</b> .....	<b>9</b>
<b>7. MEASUREMENT UNCERTAINTY</b> .....	<b>10</b>
<b>8. TEST FACILITIES UTILIZED</b> .....	<b>10</b>
<b>ANNEX A: MEASUREMENT RESULTS</b> .....	<b>11</b>
<b>A.1 RADIATED EMISSION ( §15.109(A))</b> .....	<b>11</b>
<b>B.2 CONDUCTED EMISSION ( §15.107(A))</b> .....	<b>19</b>

## 1. Summary of Test Report

### 1.1. Test Items

Description	MOVETIME FAMILY WATCH
Model Name	MT40A
Applicant's name	TCL Communication Ltd.
Manufacturer's Name	TCL Communication Ltd.

### 1.2. Test Standards

Please refer to "4. Reference Documents"

### 1.3. Test Result

Please refer to "6.2 Test Results"

### 1.4. Testing Location

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

### 1.5. Project data

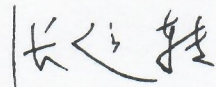
Testing Start Date:	2019-10-08
Testing End Date:	2019-10-17

### 1.6. Signature



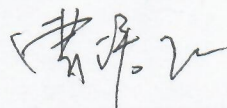
---

Liang Yong  
(Prepared this test report)



---

Zhang Yunzhan  
(Reviewed this test report)



---

Cao Junfei  
Director of the laboratory  
(Approved this test report)

## **2. ClientInformation**

### **2.1. Applicant Information**

Company Name: TCL Communication Ltd.  
Address: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science  
Park, Shatin, NT, Hong Kong  
Contact: Gong Zhizhou  
E-mail: zhizhou.gong@tcl.com  
Tel: 0086-755-36611722

### **2.2. Manufacturer Information**

Company Name: TCL Communication Ltd.  
Address: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science  
Park, Shatin, NT, Hong Kong  
Contact: Gong Zhizhou  
E-mail: zhizhou.gong@tcl.com  
Tel: 0086-755-36611722

### 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

#### 3.1. About EUT

Description	MOVETIME FAMILY WATCH
Model Name	MT40A
FCC ID	2ACCJB112
Condition of EUT as received	No obvious damage in appearance

The Equipment Under Test (EUT) are a model of Tracker with integrated antenna.

Remark: The above EUT's information is declared by manufacturer. Please refer to the specifications or user's manual for more detailed information.

#### 3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version	Receive Date
UT14aa	352213110000182	PIO	V1.0	2019-10-08

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

#### 3.3. Internal Identification of AE

AE ID*	Description	SN
AE1	Battery	/
AE2	Data Cable	

AE1

Model	ZWD602531V
Manufacturer	ZWD
Capacitance	600mAh
Nominal Voltage	3.8 v

AE2

Model	Micro USB Cable
Manufacturer	JUWEI

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

#### 3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	UT15aa+AE1+AE2	Charging mode

## **4. Reference Documents**

### **4.1. Reference Documents for testing**

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

<b>Reference</b>	<b>Title</b>	<b>Version</b>
FCC Part 15, Subpart B	Radio frequency devices	10-1-2018 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. = 15 %, 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. = 30 °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. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz,>60dB; 1MHz-18000MHz,>90dB
Electrical insulation	>2MΩ
Ground system resistance	<4Ω
VoltageStandingWaveRatio (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
2	Conducted Emission	15.107(a)	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
RE	30MHz-1GHz	4.9dB
	1GHz-18GHz	4.6dB
CE	150kHz-30MHz	3dB

## 8. Test Facilities Utilized

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER	CALDUE DATE	CAL PERIOD
1.	Test Receiver	ESR7	101676	R&S	2019.11.28	1 year
2.	Test Receiver	ESCI	100702	R&S	2020.06.19	1 year
3.	Spectrum Analyzer	FSV40	101192	R&S	2020.05.19	1 year
4.	BiLog Antenna	3142E	00224831	ETS-Lindgren	2021.05.17	3 years
5.	LISN	ENV216	102067	R&S	2020.07.17	1 year
6.	Horn Antenna	3117	00066577	ETS-Lindgren	2022.04.02	3 years
7.	Universal Radio Communication Tester	CMU200	114545	R&S	2020.05.16	1 year
8.	Chamber	FACT3-2.0	1285	ETS-Lindgren	2021.07.19	2 years
9.	Software	EMC32	V10.01.00	R&S	/	/

## **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 MS and charging mode of MS) 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:**

**Charging mode:** The EUT is synchronized to System Simulator (SS), and able to respond to paging messages and incoming call. An established call has been released. The EUT is connected to a charger.

**Camera mode/Charging mode:** The EUT is keeping on taking photos. The MS is connected to a charger.

#### **A.1.3 Measurement Limit**

Limit from CFR Part 15.109(a)

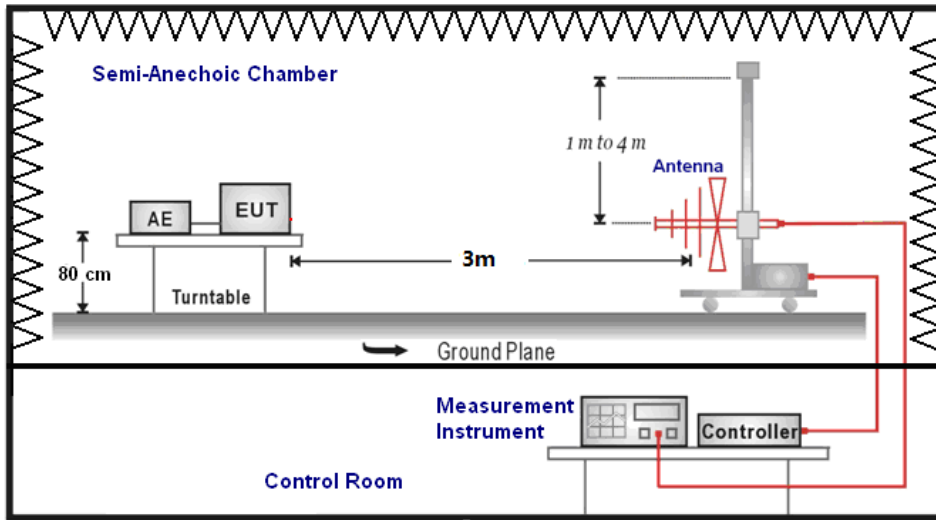
Frequency range (MHz)	Field strength limit ( $\mu\text{V}/\text{m}$ )		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

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

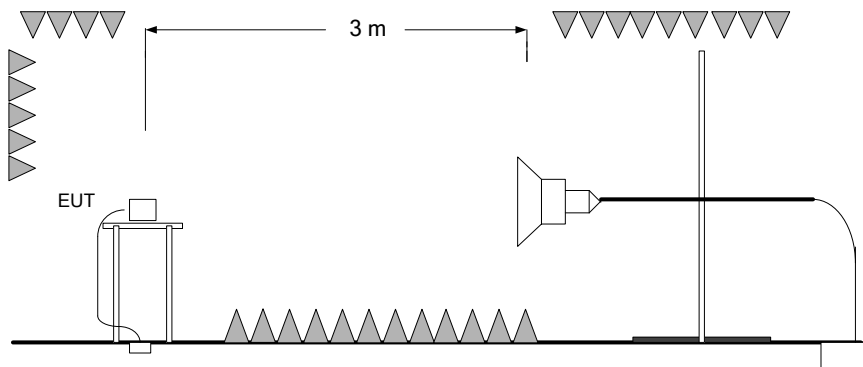
#### **A.1.4 Test Condition**

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

$G_{PL}$ : PathLoss

$P_{\text{Mea}}$ : Measurement result on receiver.

Note: the result contains vertical part and Horizontal part

#### Set.1 Charging mode / Peak detector

Frequency(MHz)	Result(dBuV/m)	Limit (dBμV/m)	Margin(dB)	Polarity	ARpl (dB/m)	$P_{\text{Mea}}$ (dBμV)
10266.5	45.92	74	28.08	H	5.1	40.82
11628.5	46.35	74	27.65	H	6.9	39.45
12776	47.31	74	26.69	V	7.8	39.51
14492	48.44	74	25.56	H	11.4	37.04
16196.5	50.97	74	23.03	H	14.4	36.57
17943.5	51.4	74	22.6	H	16	35.4

#### Set.1 Charging mode / Average detector

Frequency(MHz)	Result(dBuV/m)	Limit (dBμV/m)	Margin(dB)	Polarity	ARpl (dB/m)	$P_{\text{Mea}}$ (dBμV)
10025	35.61	54	18.39	V	4.8	30.81
10880.5	35.92	54	18.08	V	5.2	30.72
12525	37.64	54	16.36	H	8	29.64
14476	39.27	54	14.73	V	11.3	27.97
15901.5	40.98	54	13.02	H	13.2	27.78
16820.5	42.05	54	11.95	H	14.6	27.45

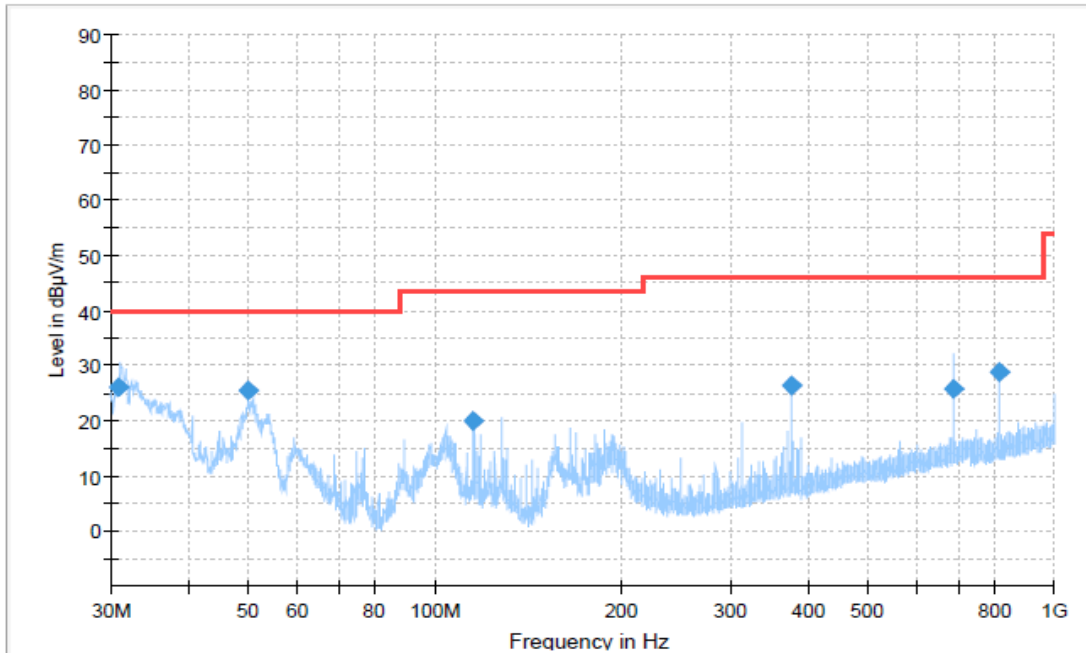
**Set.1 Camera mode/Charging mode / Peak detector**

Frequency(MHz)	Result(dBuV/m)	Limit (dB $\mu$ V/m)	Margin(dB)	Polarity	ARpl (dB/m)	P <sub>Mea</sub> (dB $\mu$ V)
10452.5	45.91	74	28.09	V	5	40.91
11695	46.72	74	27.28	V	7	39.72
12540.5	47.49	74	26.51	V	8	39.49
14175.5	48.6	74	25.4	H	10.8	37.8
15559	49.22	74	24.78	V	11.8	37.42
17569	52.02	74	21.98	H	15.4	36.62

**Set.1 Camera mode/Charging mode / Average detector**

Frequency(MHz)	Result(dBuV/m)	Limit (dB $\mu$ V/m)	Margin(dB)	Polarity	ARpl (dB/m)	P <sub>Mea</sub> (dB $\mu$ V)
10312.5	35.92	54	18.08	V	5	30.92
11540	37.14	54	16.86	V	6.3	30.84
12498.5	37.69	54	16.31	V	8	29.69
13959	38.09	54	15.91	V	9.5	28.59
15306.5	38.91	54	15.09	H	11.6	27.31
16890	41.97	54	12.03	V	15	26.97

**Charging mode: Set 1**



**Figure A.1 Radiated Emission from 30MHz to 1GHz**

**Final\_Result**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	ARpl (dB/m)	P <sub>Mea</sub> (dBµV)
30.951667	26.19	40	13.81	V	-25.2	51.39
50.012778	25.33	40	14.67	V	-36.6	61.93
115.635556	19.95	43.5	23.55	V	-31.6	51.55
375.016667	26.29	46	19.71	V	-26.8	53.09
687.518333	25.89	46	20.11	V	-19.9	45.79
812.540556	28.95	46	17.05	V	-18.6	47.55

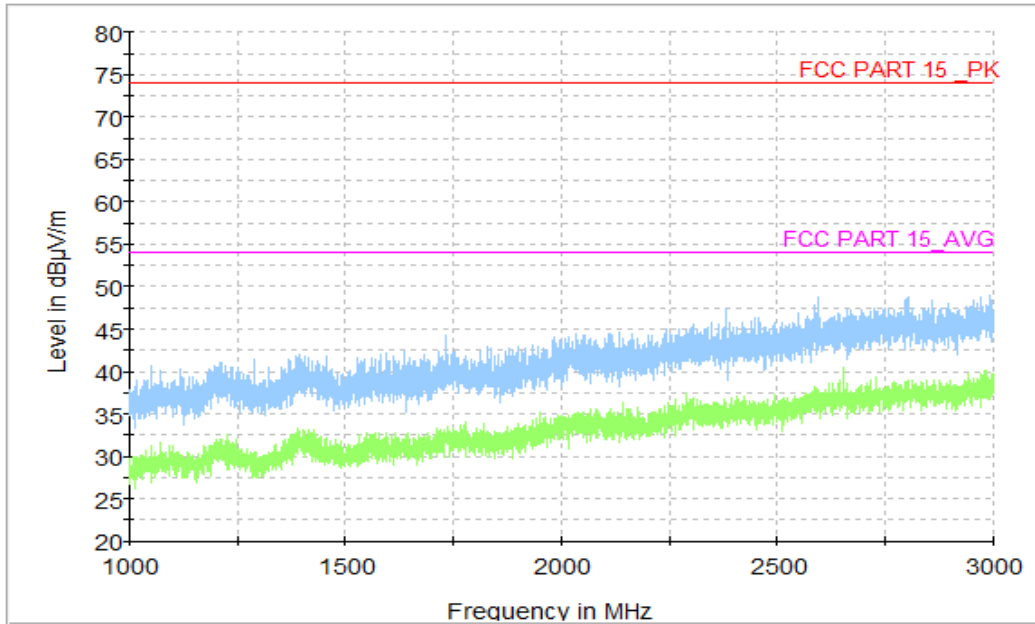


Figure A.2 Radiated Emission from 1GHz to 3GHz

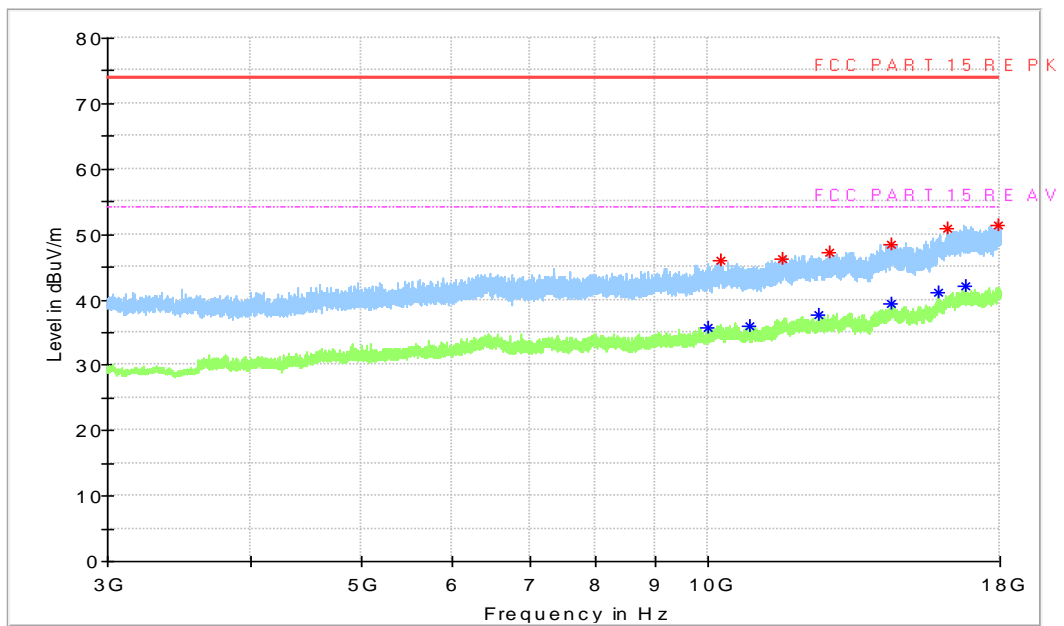


Figure A.3 Radiated Emission from 3GHz to 18GHz



Camera mode/Charging mode: Set 1

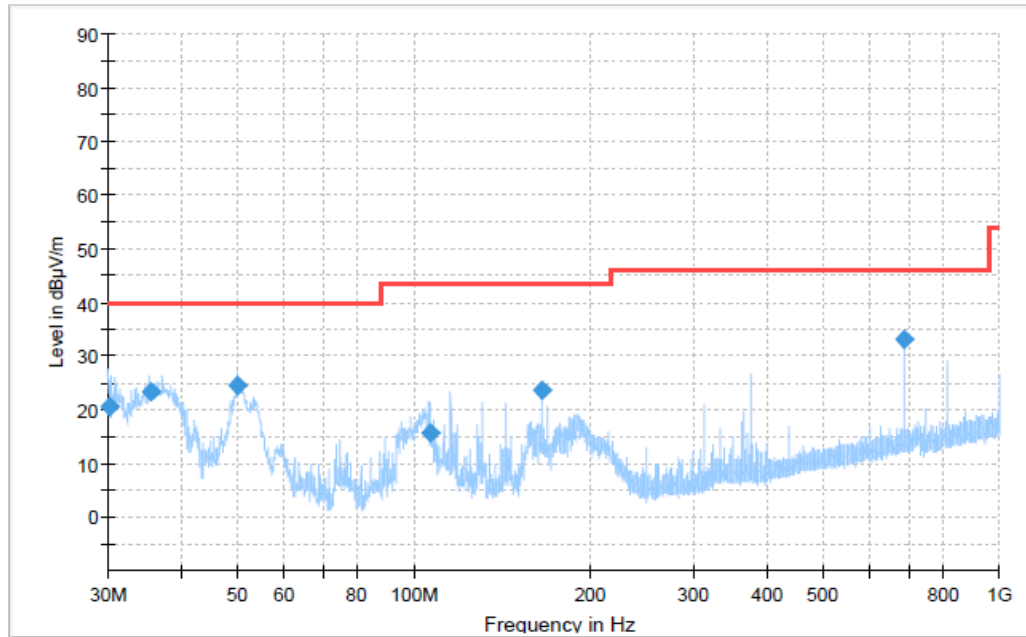


Figure A.4 Radiated Emission from 30MHz to 1GHz

Final\_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	ARpl (dB/m)	P <sub>Mea</sub> (dBµV)
30.24	20.71	40	19.29	V	-24.4	45.11
35.515	23.46	40	16.54	V	-27.4	50.86
50.012778	24.48	40	15.52	V	-36.6	61.08
106.298889	15.74	43.5	27.76	V	-32.3	48.04
165.618333	23.53	43.5	19.97	V	-32.5	56.03
687.532222	33.21	46	12.79	V	-19.9	53.11

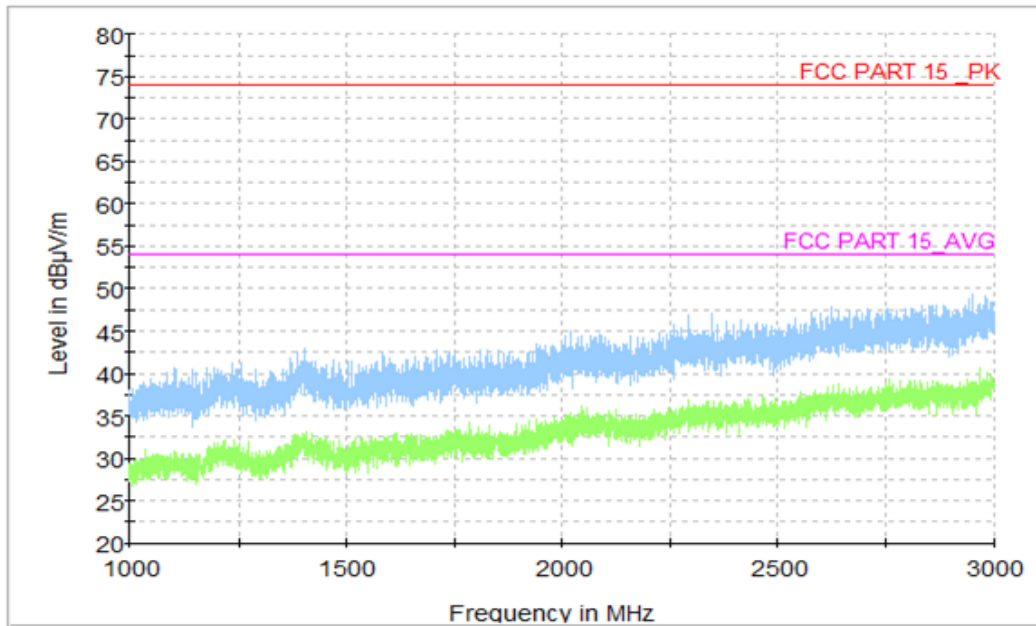


Figure A.5 Radiated Emission from 1GHz to 3GHz

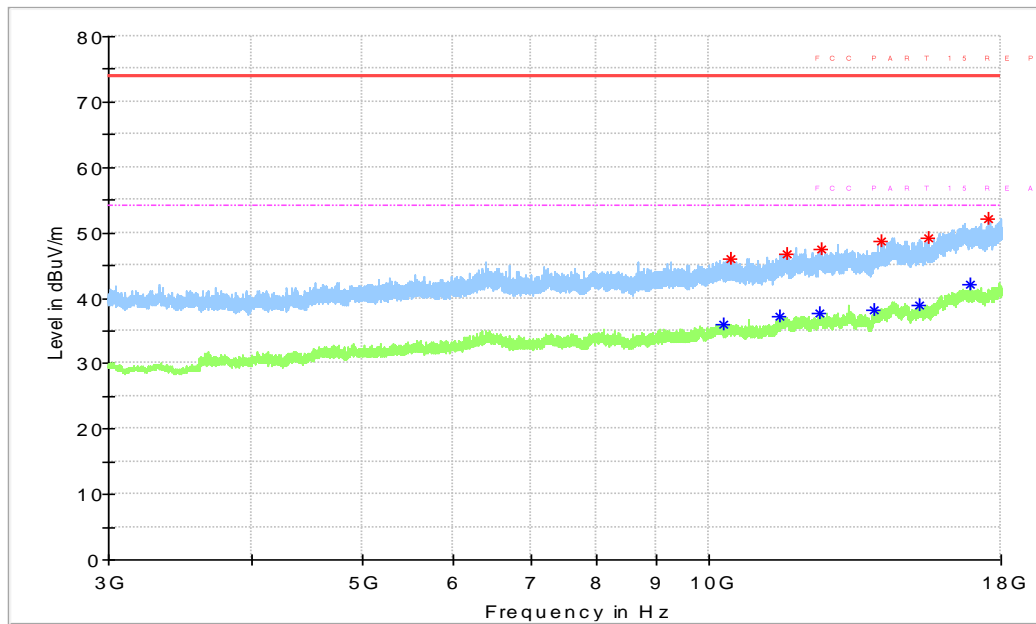


Figure A.6 Radiated Emission from 3GHz to 18GHz

## B.2 Conducted Emission (§15.107(a))

### Reference

FCC: CFR Part 15.107(a)

### B.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.

### B.2.2 EUT Operating Mode:

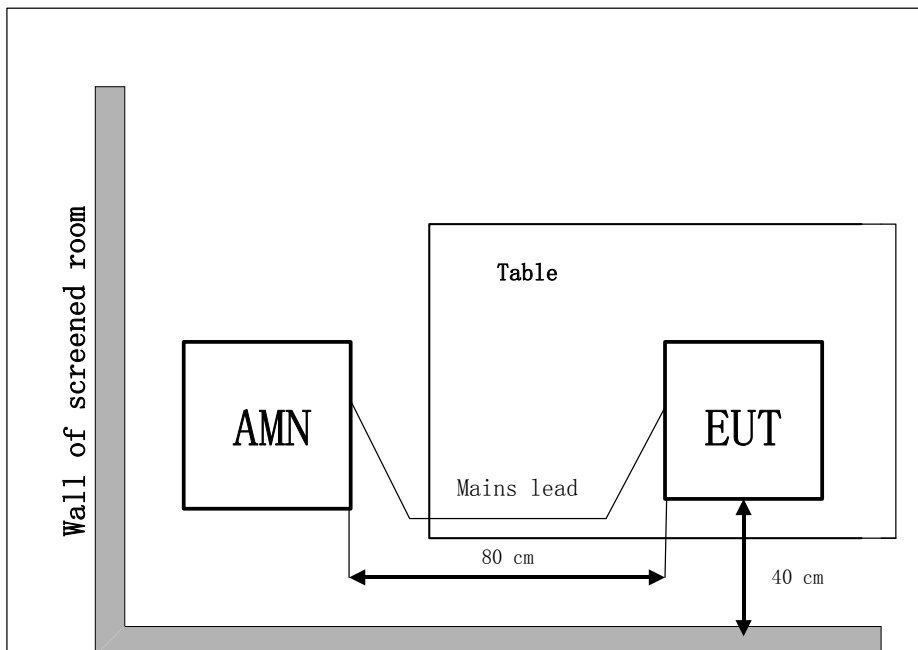
**Charging mode:** The EUT is synchronized to System Simulator (SS), and able to respond to paging messages and incoming call. An established call has been released. The EUT is connected to a charger.

### B.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

**B.2.4 Test set-up:**



**B.2.5 Test Condition in charging mode**

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

RBW	Sweep Time(s)
9kHz	1

**B.2.6 Measurement Results**

$$\text{QuasiPeak(dB}\mu\text{V) / Average(dB}\mu\text{V) = PMea + Corr}$$

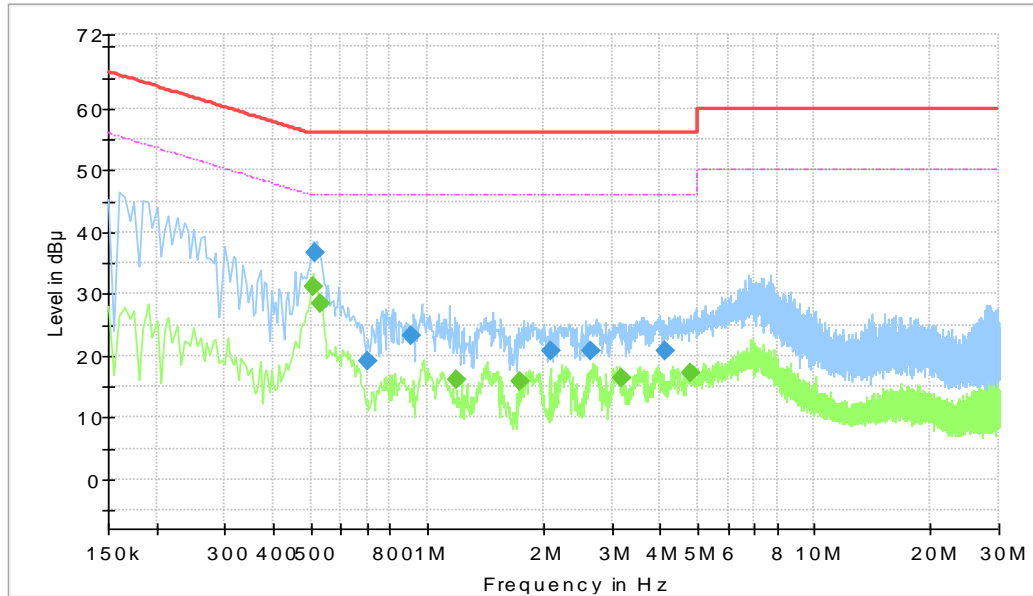
Where

Corr: PathLoss + Voltage Division Factor

PMea: Measurement result on receiver.

**Charging mode: Set 1**  
**Voltage: 120V**

Full Spectrum



**Figure B.1 Conducted Emission**

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB/m)	P <sub>Mea</sub> (dBµV)
0.515	36.74	56	19.26	L1	9.6	27.14
0.7	19.25	56	36.75	N	9.6	9.65
0.905	23.33	56	32.67	L1	9.7	13.63
2.085	20.76	56	35.24	L1	9.7	11.06
2.66	20.83	56	35.17	L1	9.7	11.13
4.13	20.86	56	35.14	L1	9.7	11.16

**Final Measurement Detector 2**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB/m)	P <sub>Mea</sub> (dBµV)
0.51	31.18	46	14.82	L1	9.6	21.58
0.53	28.5	46	17.5	L1	9.6	18.9
1.19	15.99	46	30.01	L1	9.7	6.29
1.745	15.87	46	30.13	L1	9.7	6.17
3.17	16.26	46	29.74	L1	9.7	6.56
4.78	17.22	46	28.78	L1	9.7	7.52

Camera mode/Charging mode: Set 1  
Voltage: 120V

Full Spectrum

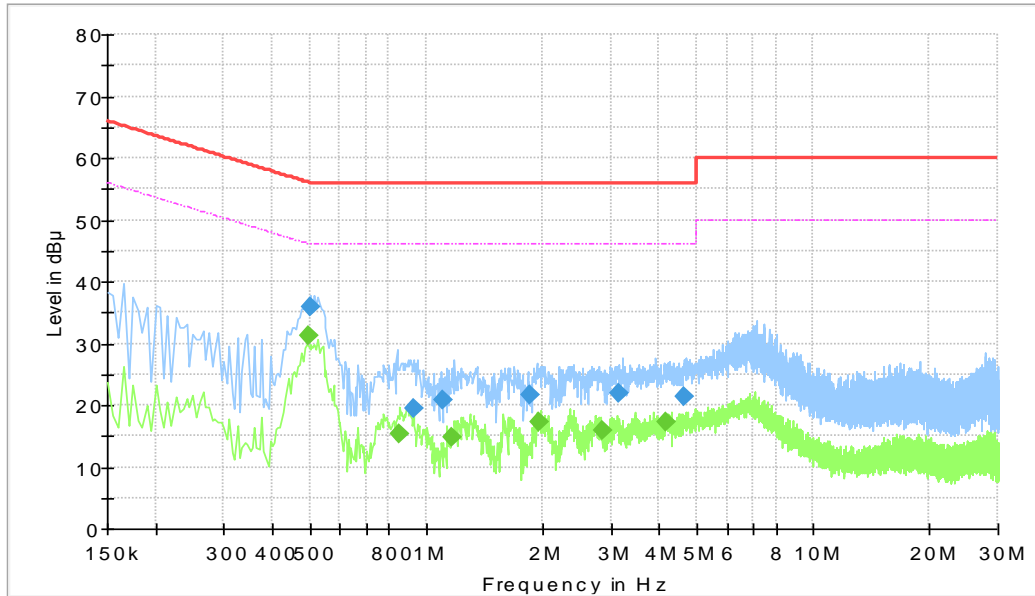


Figure B.2 Conducted Emission

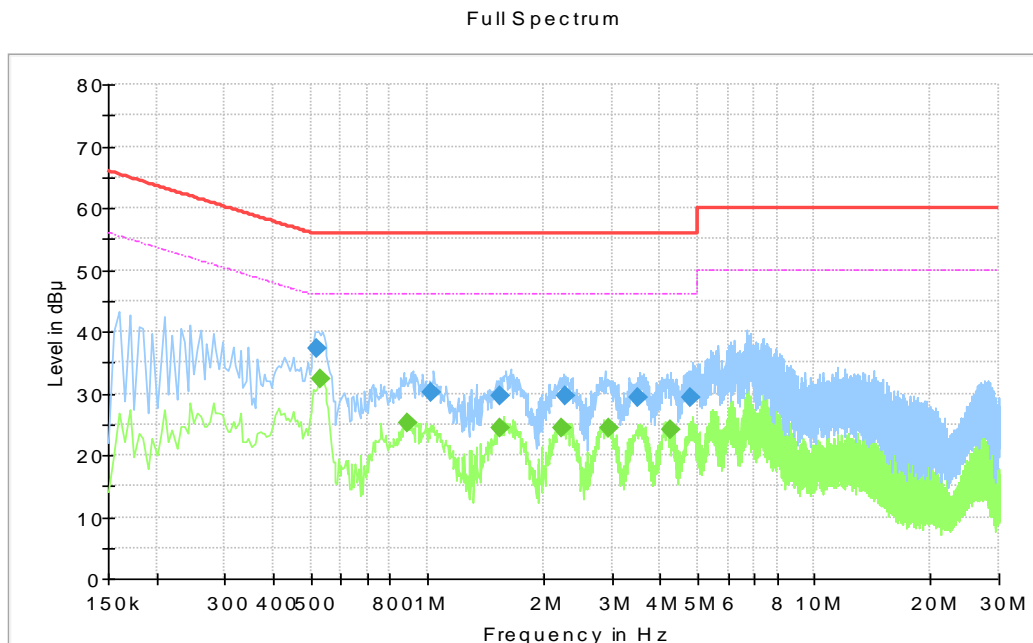
**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB/m)	P <sub>Mea</sub> (dBµV)
0.505	35.76	56	20.24	L1	9.6	26.16
0.925	19.38	56	36.62	L1	9.7	9.68
1.105	20.75	56	35.25	L1	9.7	11.05
1.845	21.55	56	34.45	L1	9.7	11.85
3.155	21.8	56	34.2	L1	9.7	12.1
4.625	21.42	56	34.58	L1	9.7	11.72

**Final Measurement Detector 2**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB/m)	P <sub>Mea</sub> (dBµV)
0.495	31.17	46.08	14.92	L1	9.6	21.57
0.855	15.28	46	30.72	L1	9.7	5.58
1.16	14.87	46	31.13	L1	9.7	5.17
1.95	17.24	46	28.76	L1	9.7	7.54
2.845	15.96	46	30.04	L1	9.7	6.26
4.155	17.15	46	28.85	L1	9.7	7.45

Charging mode: Set 1  
Voltage: 240V



**Figure B.3 Conducted Emission**

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB/m)	P <sub>Mea</sub> (dBμV)
0.52	37.22	56	18.78	L1	9.6	27.62
1.02	30.15	56	25.85	L1	9.7	20.45
1.535	29.7	56	26.3	L1	9.7	20
2.275	29.56	56	26.44	L1	9.7	19.86
3.505	29.34	56	26.66	L1	9.7	19.64
4.805	29.25	56	26.75	N	9.7	19.55

**Final Measurement Detector 2**

Frequency (MHz)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB/m)	P <sub>Mea</sub> (dBμV)
0.53	32.29	46	13.71	L1	9.6	22.69
0.89	25.22	46	20.78	L1	9.7	15.52
1.55	24.35	46	21.65	L1	9.7	14.65
2.22	24.5	46	21.5	L1	9.7	14.8
2.94	24.4	46	21.6	L1	9.7	14.7
4.245	24.1	46	21.9	L1	9.7	14.4

Camera mode/Charging mode: Set 1  
Voltage: 240V

Full Spectrum

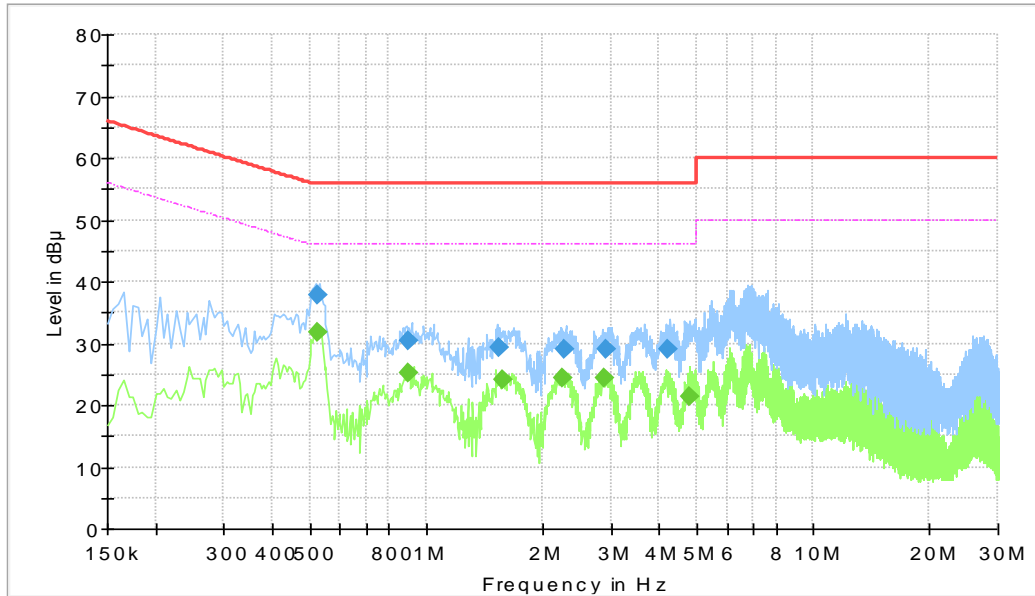


Figure B.4 Conducted Emission

**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB/m)	P <sub>Mea</sub> (dBµV)
0.525	37.87	56	18.13	L1	9.6	28.27
0.895	30.32	56	25.68	L1	9.7	20.62
1.535	29.36	56	26.64	L1	9.7	19.66
2.27	29.16	56	26.84	L1	9.7	19.46
2.925	29.16	56	26.84	L1	9.7	19.46
4.23	29.14	56	26.86	L1	9.7	19.44

**Final Measurement Detector 2**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB/m)	P <sub>Mea</sub> (dBµV)
0.525	31.82	46	14.18	L1	9.6	22.22
0.895	25.12	46	20.88	L1	9.7	15.42
1.575	24.16	46	21.84	L1	9.7	14.46
2.255	24.26	46	21.74	L1	9.7	14.56
2.875	24.31	46	21.69	L1	9.7	14.61
4.805	21.25	46	24.75	N	9.7	11.55

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