



## MEASUREMENT REPORT

### FCC PART 15.231(e)

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**FCC ID:** 2ANAK-MRC01

**APPLICANT:** MightyRC CO.,LTD.

**Application Type:** Certification

**Product:** Multimedia Controller

**Model Number:** MRC01

**Brand Name:** MightyRC

**FCC Classification:** FCC Part 15 Remote Control/Security Device Transceiver (DSR)

**FCC Rule Part(s):** Part 15.231(e)

**Test Procedure(s):** ANSI C63.10-2013

**Test Date:** July 21 ~ August 10, 2017

Test By : *Kevin Ker*  
( Kevin Ker )

Reviewed By : *Paddy Chen*  
( Paddy Chen )

Approved By : *Chenz Ker*  
( Chenz Ker )



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Taiwan) Co., Ltd.

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## Revision History

Report No.	Version	Description	Issue Date	Note
1707TW0503-U3	1.0	Original report	2017-08-11	

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## §2.1033 General Information

<b>Applicant</b>	MightyRC CO.,LTD.
<b>Applicant Address</b>	1F., No.2, Aly. 5, Ln. 129, Ershizhang Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)
<b>Manufacturer</b>	Might Electronic Co., Ltd
<b>Manufacturer Address</b>	No 40, 2nd Neighborhood, Yuanshan Vlg., Xinfeng Township, Hsinchu County 30441, Taiwan, R.O.C
<b>Test Site</b>	MRT Technology (Taiwan) Co., Ltd
<b>Test Site Address</b>	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
<b>MRT FCC Registration No.</b>	153292
<b>Test Device Serial No.:</b>	N/A <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering

## Test Facility / Accreditations

1. MRT facility is a FCC registered ( Reg. No. 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Film.
2. MRT facility is an IC registered (MRT Reg. No. 21723) test laboratory with the site description on file at Industry Canada.
3. MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC, Industry Taiwan, EU and TELEC Rules.

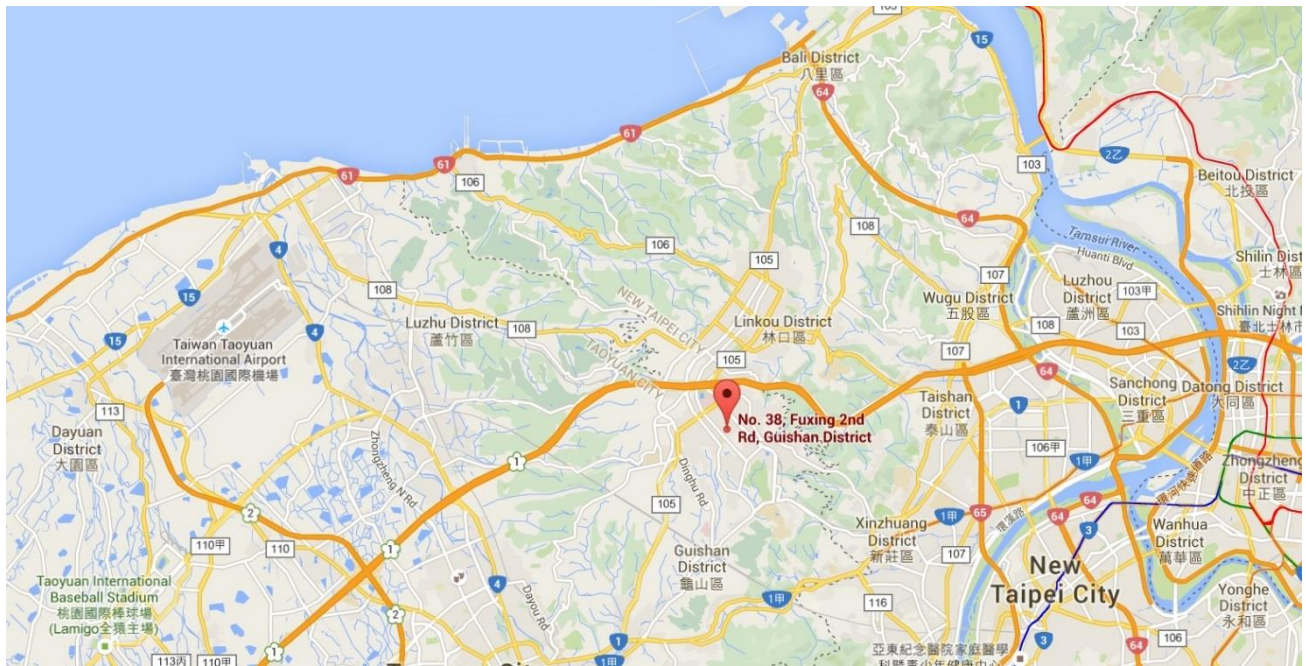
## 1. INTRODUCTION

### 1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

### 1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



## 2. PRODUCT INFORMATION

### 2.1. Equipment Description

Product Name	Multimedia Controller
Model No.	MRC01
Frequency Range	433.92 MHz
Type of modulation	ASK
Antenna Type	Helical

### 2.2. Test Standards

The following report is prepared on behalf of the **MightyRC CO.,LTD.** in accordance with FCC Part 15, Subpart C, and section 15.231, 15.203, 15.205 and 15.209 of the Federal Communication Commission rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.231, 15.203, 15.205 and 15.209 of the Federal Communication Commission rules.

**Maintenance of compliance** is the responsibility of the manufacturer. Any modification of the product, which results in lowering the emission/immunity, should be checked to ensure compliance has been maintained.

### 2.3. Test Methodology

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013).

**Deviation from measurement procedure.....None**

## 2.4. EUT Setup and Test Mode

The EUT was operated at continuous transmitting mode that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest possible emissions level, more detailed description as follows:

Test Mode	
Mode 1	Transmitting with ASK Modulation



### 3. DESCRIPTION OF TEST

#### 3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance provided in KDB 558074 D01v04 were used in the measurement of this device.

**Deviation from measurement procedure.....None**

#### 3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 9'x4'x3' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment which determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

Line conducted emissions test results are shown in Section 7.6

### 3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, which produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

Radiated emissions test results are shown in Section 7.2

## 4. ANTENNA REQUIREMENTS

### Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antenna of the **Multimedia Controller** is permanently attached.
- There are no provisions for connection to an external antenna.

### Conclusion:

The Multimedia Controller unit complies with the requirement of §15.203.

## 5. TEST EQUIPMENT CALIBRATION DATA

### Conducted Emissions – SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Two-Line V-Network	R&S	ENV216	MRTTWA00019	1 year	2018.03.15
Cable	Rosnol	N1C50-RG400-B 1C50-500CM	MRTTWE00013	1 year	2018.05.19
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2018.03.16

### Radiated Emissions – AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00001	1 year	2018.05.14
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2018.03.16
Active Loop Antenna	Schwarzbeck	FMZB 1519B	MRTTWA00002	1 year	2018.04.13
Broadband Horn antenna	SCHWARZBECK	BBHA 9120D	MRTTWA00003	1 year	2018.04.17
Breitband Hornantenna	Schwarzbeck	BBHA 9170	MRTTWA00004	1 year	2018.04.24
Broadband Amplifier	Schwarzbeck	BBV 9721	MRTTWA00006	1 year	2018.04.24
Broadband Preamplifier	SCHWARZBECK	BBV 9718	MRTTWA00005	1 year	2018.04.19
Cable	HUBERSUHNER	SF106	MRTTWA00010	1 year	2018.05.19
Cable	Rosnol	K1K50-UP0264- K1K50-4M	MRTTWA00012	1 year	2018.05.19

### Conducted Test Equipment – SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2018.07.24
USB Wideband Power Sensor	KEYSIGHT	U2021XA	MRTTWA00015	1 year	2018.03.19

### Test Software

Software	Version	Function
e3	9.160520a	EMI Test Software
EMI	V3	EMI Test Software

## 6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

<b>AC Conducted Emission Measurement – SR2</b>	
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ):	
150kHz~30MHz: 2.42dB	
<b>Conducted Measurement– SR1</b>	
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ): 1.3dB	
<b>Radiated Emission Measurement – AC1</b>	
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ):	
Horizontal:	9K~30MHz: 4.14dB
	30MHz~1GHz: 4.22dB
	1GHz~40GHz: 4.05dB
Vertical:	9K~30MHz: 4.14dB
	30MHz~1GHz: 3.37dB
	1GHz~40GHz: 4.08dB

## 7. TEST RESULT

### 7.1. Summary

**Product Name:** Multimedia Controller

**Applicant:** MightyRC CO.,LTD.

FCC Part Section(s)	Test Description	Test Condition	Test Result
15.205 15.231(e)	Radiated Spurious Emissions	Radiated	Pass
15.231(c)	20dB Bandwidth		Pass
15.231(e)	Transmission Time		Pass
15.231(e)	Duty Cycle		N/A
15.207	AC Conducted Emissions 150kHz - 30MHz	Line Conducted	N/A

#### Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 3) The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

## 7.2. Radiated Emissions

### 7.2.1. Standard Applicable

According to §15.231(e), the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emission (microvolts/meter)
40.66-40.70	1,000	100
70-130	500	50
130-174	500 to 1,500 <sup>1</sup>	50 to 150 <sup>1</sup>
174-260	1,500	150
260-470	1,500 to 5,000 <sup>1</sup>	150 to 500 <sup>1</sup>
Above 470	5,000	500

The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements start below or at the lowest crystal frequency.

Compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.

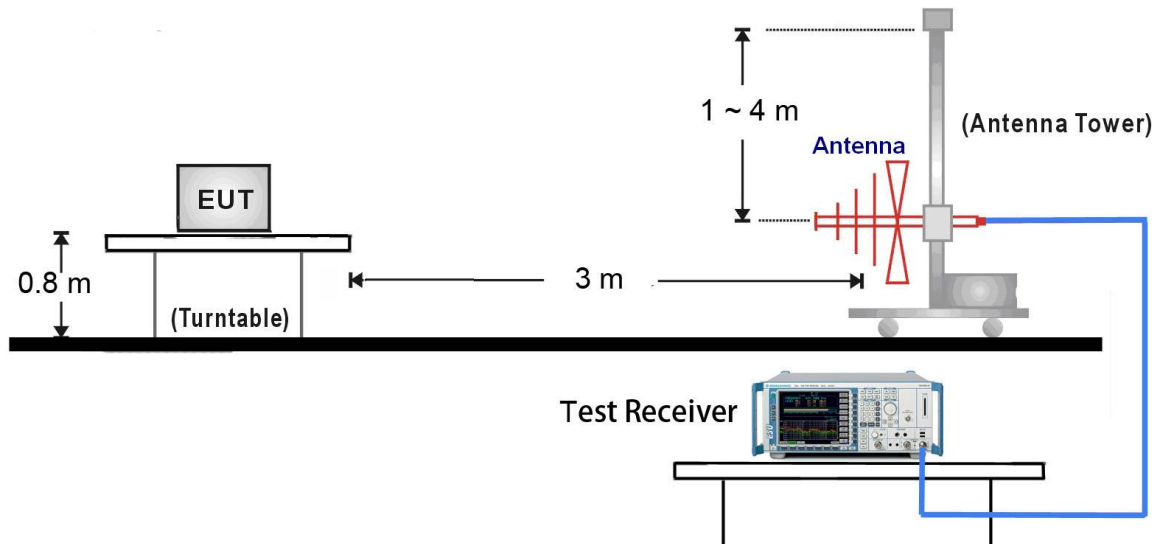
### 7.2.2. Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.231(e) and FCC Part 15.209 Limit.

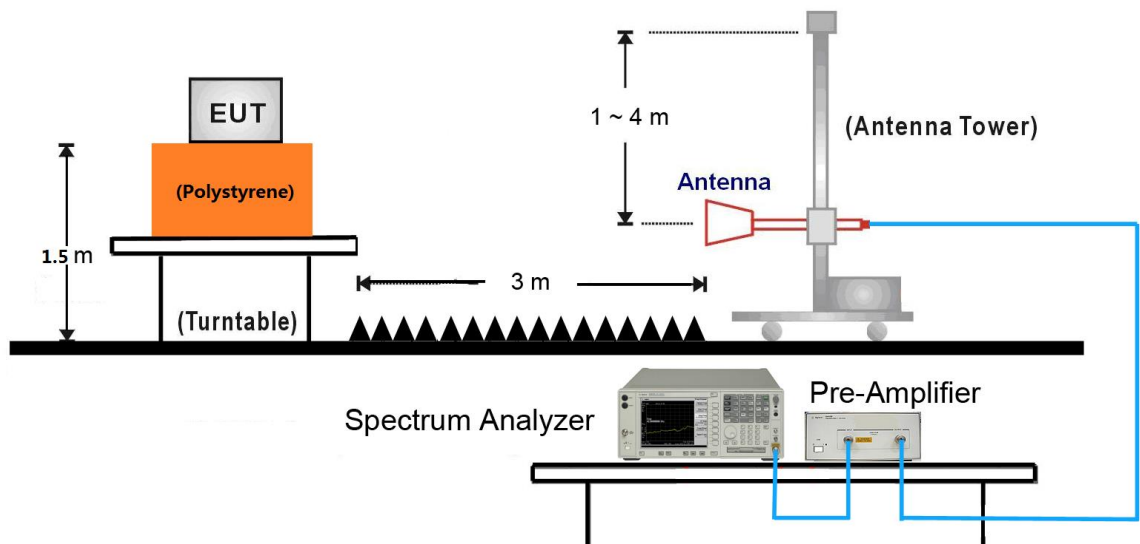
### 7.2.3. Test Setup

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.231(e) and FCC Part 15.209 Limit.

#### 30MHz ~ 1GHz Test Setup:



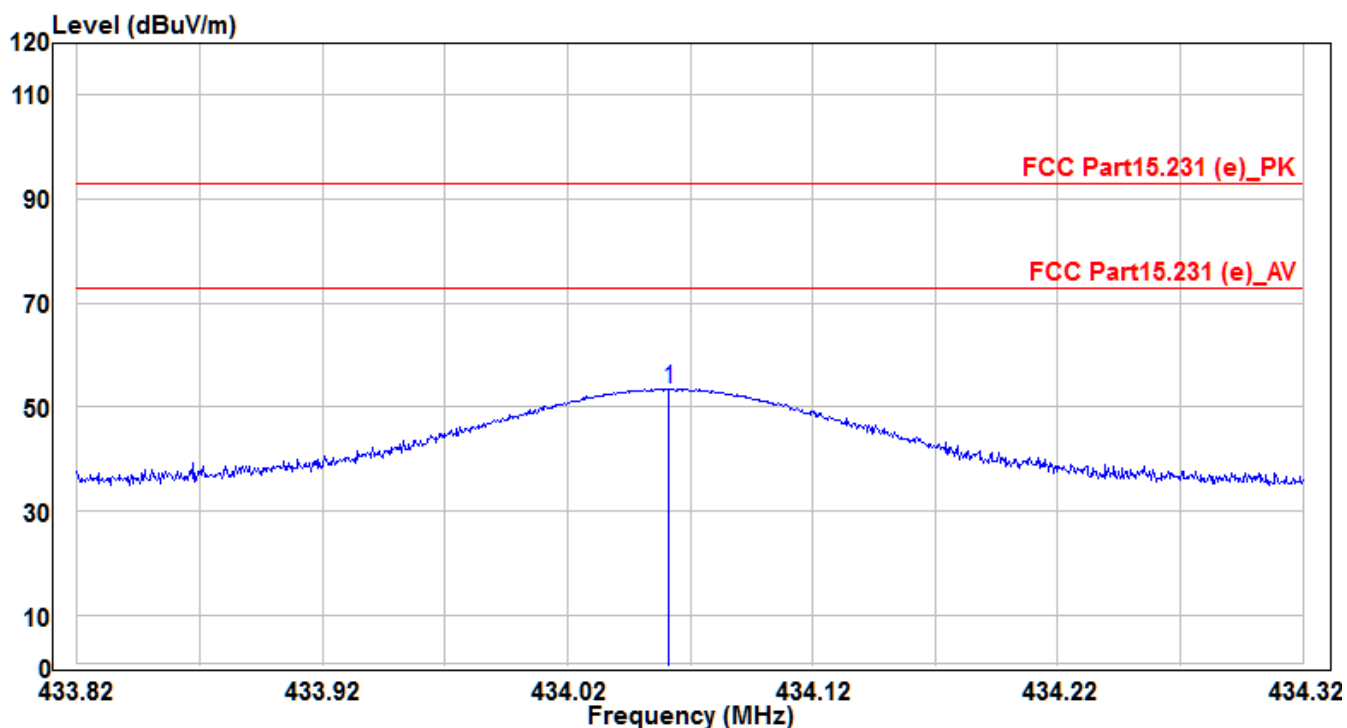
#### 1GHz ~ 5GHz Test Setup:





## 7.2.4. Test Results

EUT	Multimedia Controller	Test Date	2017/08/10
Factor	VULB 9162 (30MHz~8GHz)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE1	Test Voltage	By Battery

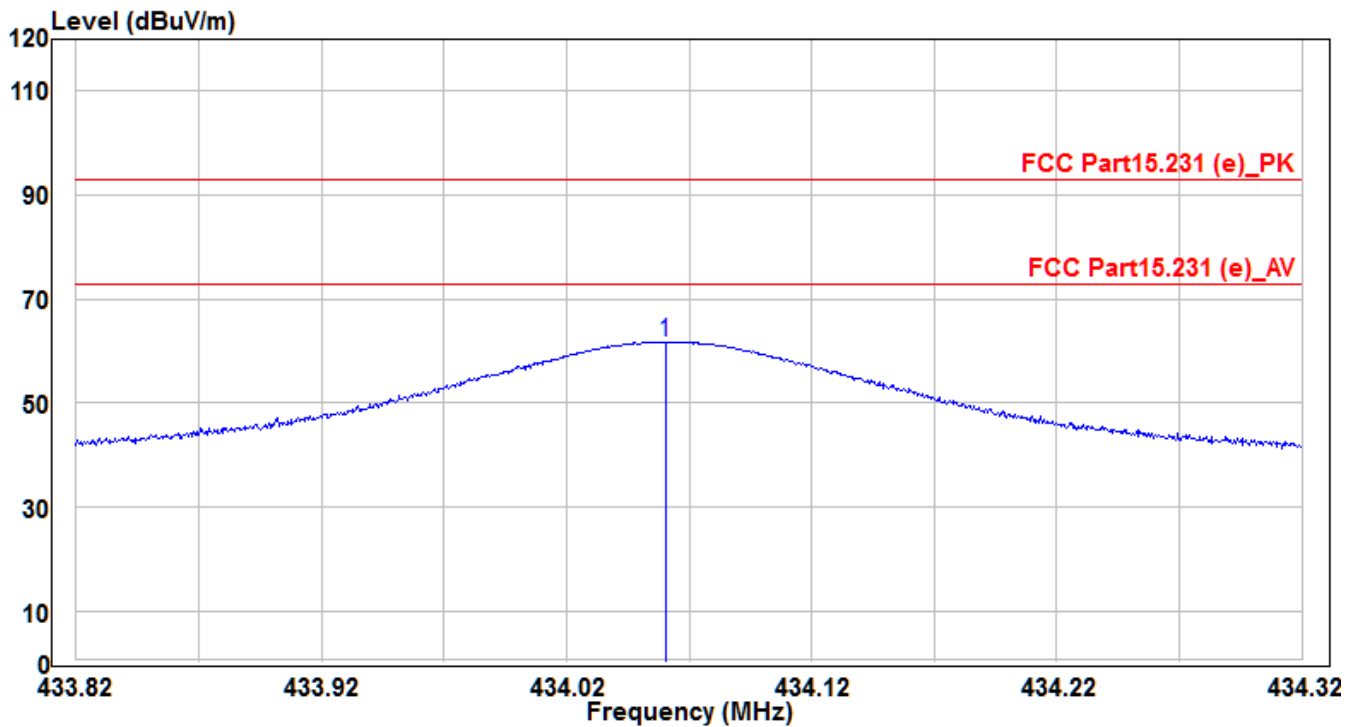


No		Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	434.062	28.72	24.79	53.51	-39.36	92.87	100	400	Peak

Note :

1. " \* " means the worst value in this measurement data °
2. Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB) °
3. Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) °
4. The emission levels of other frequencies are very lower than the limit and not show in test report °
5. Other channel/mode was also verified. The test results shown represent the worst case emissions °
6. No emission found between lowest internal used/generated frequency to 30MHz °

EUT	Multimedia Controller	Test Date	2017/08/10
Factor	VULB 9162 (30MHz~8GHz)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE1	Test Voltage	By Battery

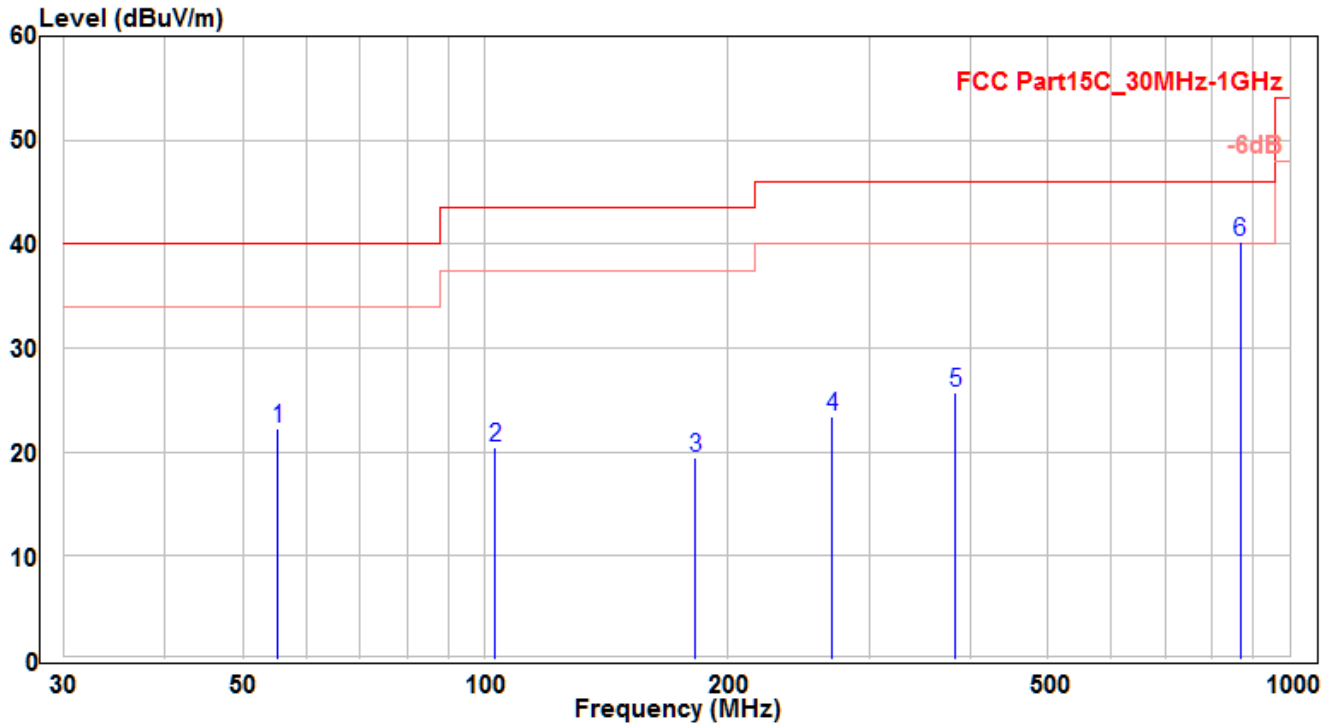


No		Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	434.061	37.02	24.79	61.81	-31.06	92.87	100	400	Peak

Note :

- " \* " means the worst value in this measurement data °
- Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB) °
- Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) °
- The emission levels of other frequencies are very lower than the limit and not show in test report °
- Other channel/mode was also verified. The test results shown represent the worst case emissions °
- No emission found between lowest internal used/generated frequency to 30MHz °

EUT	Multimedia Controller	Test Date	2017/08/10
Factor	VULB 9162 (30MHz~8GHz)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE1	Test Voltage	By Battery

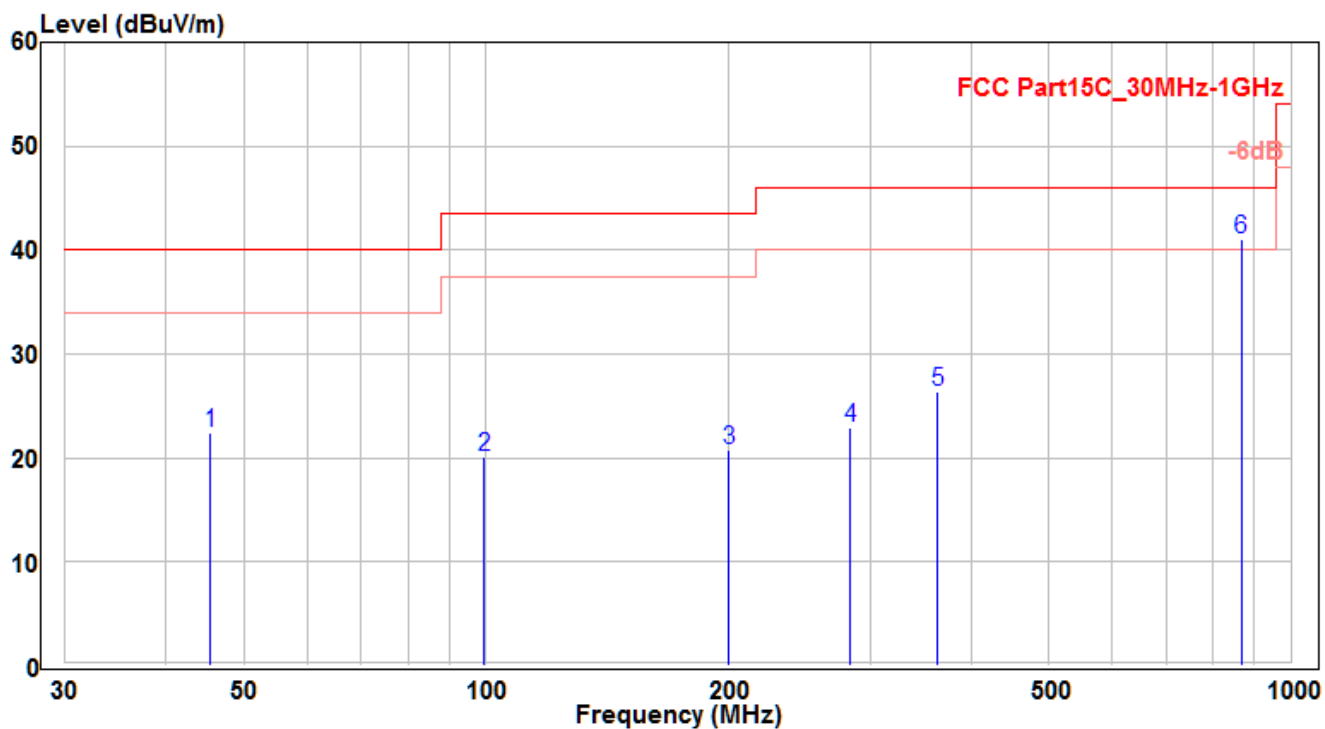


No		Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1		55.25	1.58	20.63	22.21	-17.79	40	100	400	QP
2		102.811	1.16	19.22	20.38	-23.12	43.5	150	225	QP
3		182.29	1.91	17.63	19.54	-23.96	43.5	160	320	QP
4		270.348	2.74	20.72	23.46	-22.54	46	175	40	QP
5		383.989	1.79	23.96	25.75	-20.25	46	185	390	QP
6	*	868.141	8.47	31.79	40.26	-5.74	46	250	210	QP

Note :

- " \* " means the worst value in this measurement data °
- Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB) °
- Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) °
- The emission levels of other frequencies are very lower than the limit and not show in test report °
- Other channel/mode was also verified. The test results shown represent the worst case emissions °
- No emission found between lowest internal used/generated frequency to 30MHz °

EUT	Multimedia Controller	Test Date	2017/08/10
Factor	VULB 9162 (30MHz~8GHz)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE1	Test Voltage	By Battery

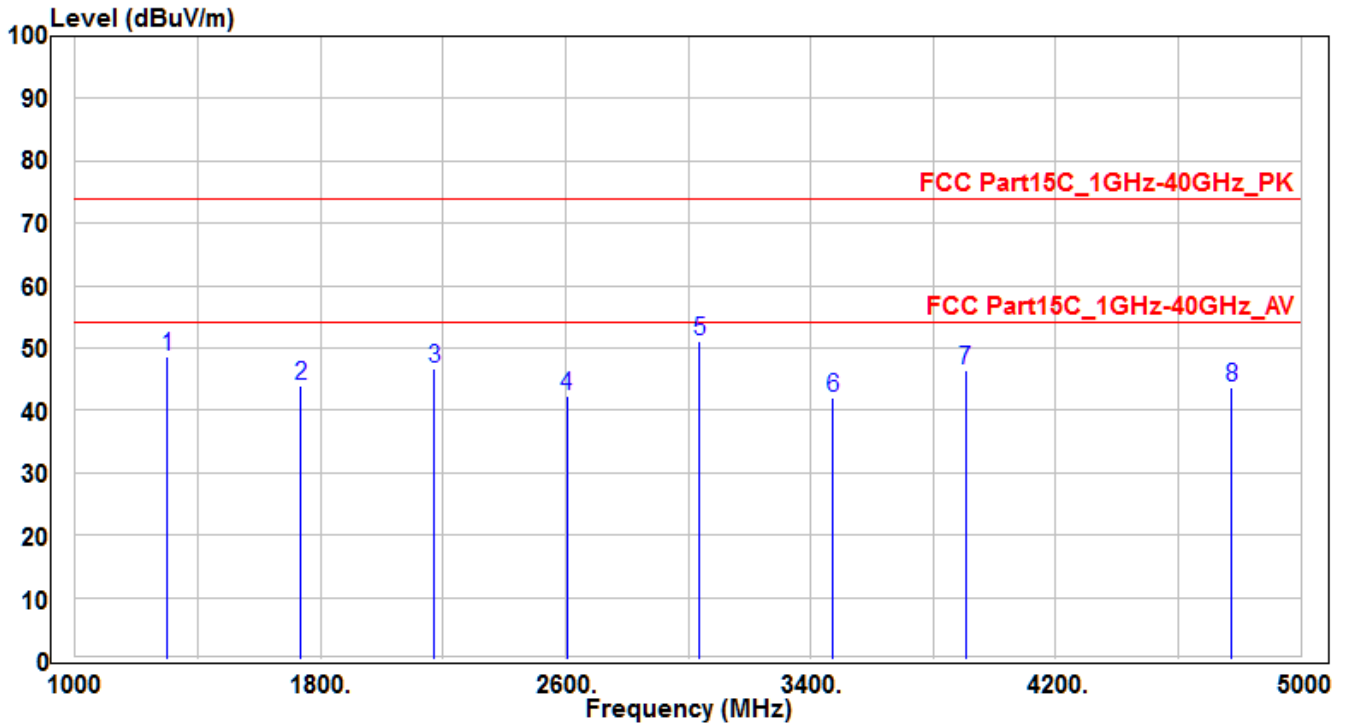


No		Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1		45.49	1.03	21.42	22.45	-17.55	40	100	400	QP
2		99.537	0.77	19.28	20.05	-23.45	43.5	150	360	QP
3		200.144	1.59	19.14	20.73	-22.77	43.5	175	225	QP
4		283.685	1.83	21.12	22.95	-23.05	46	130	335	QP
5		363.619	2.61	23.71	26.32	-19.68	46	155	250	QP
6	*	868.141	9.2	31.79	40.99	-5.01	46	250	225	QP

Note :

- " \* " means the worst value in this measurement data °
- Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB) °
- Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) °
- The emission levels of other frequencies are very lower than the limit and not show in test report °
- Other channel/mode was also verified. The test results shown represent the worst case emissions °
- No emission found between lowest internal used/generated frequency to 30MHz °

EUT	Multimedia Controller	Test Date	2017/06/01
Factor	BBHA 9120D (1GHz~18GHz)	Temp. / Humidity	25°C / 60%
Polarity	Horizontal	Site / Engineer	AC1 / Peter
Test Mode	MODE1	Test Voltage	AC 120V/60Hz

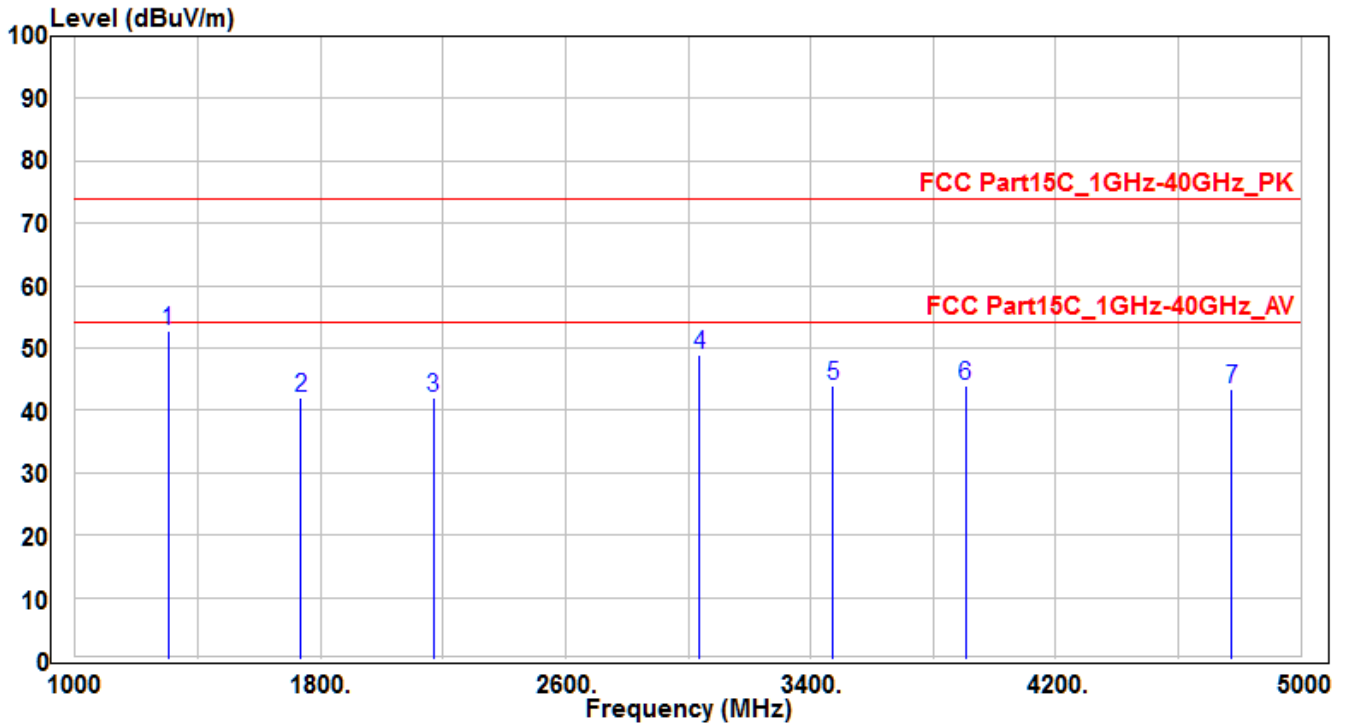


No		Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	1302.18	55.45	-6.81	48.64	-25.36	74	150	400	Peak
2		1736.37	49.47	-5.52	43.95	-30.05	74	150	400	Peak
3		2170.49	50.41	-3.74	46.67	-27.33	74	150	400	Peak
4		2604.47	44.49	-2.21	42.28	-31.72	74	150	400	Peak
5		3038.21	53.9	-2.83	51.07	-22.93	74	150	400	Peak
6		3472.7	43.92	-1.8	42.12	-31.88	74	150	400	Peak
7		3906.98	46.6	-0.18	46.42	-27.58	74	150	400	Peak
8		4774.48	41.14	2.64	43.78	-30.22	74	150	400	Peak

Note :

1. " \* " means the worst value in this measurement data °
2. Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB) °
3. Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) °
4. The emission levels of other frequencies are very lower than the limit and not show in test report °

EUT	Multimedia Controller	Test Date	2017/06/01
Factor	BBHA 9120D (1GHz~18GHz)	Temp. / Humidity	25°C / 60%
Polarity	Vertical	Site / Engineer	AC1 / Peter
Test Mode	MODE1	Test Voltage	AC 120V/60Hz



No		Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	1302.3	59.45	-6.81	52.64	-21.36	74	150	400	Peak
2		1736.54	47.69	-5.52	42.17	-31.83	74	150	400	Peak
3		2170.03	45.67	-3.74	41.93	-32.07	74	150	400	Peak
4		3038.25	51.61	-2.83	48.78	-25.22	74	150	400	Peak
5		3472.86	45.75	-1.8	43.95	-30.05	74	150	400	Peak
6		3906.35	44.27	-0.18	44.09	-29.91	74	150	400	Peak
7		4774.57	40.65	2.64	43.29	-30.71	74	150	400	Peak

Note :

- " \* " means the worst value in this measurement data °
- Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB) °
- Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) °
- The emission levels of other frequencies are very lower than the limit and not show in test report °

### 7.3. 20dB Bandwidth

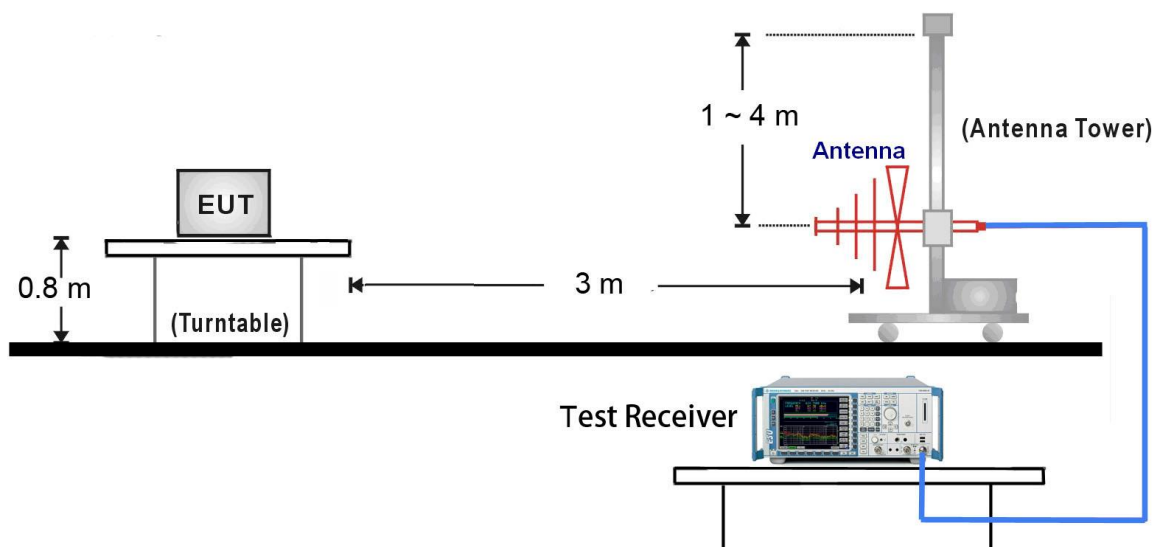
#### 7.3.1. Standard Applicable

According to FCC Part 15.231(c), the bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70MHz and below 900MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

#### 7.3.2. Test Procedure

With the EUT's antenna attached, the EUT's 20dB Bandwidth power was received by the test antenna, which was connected to the spectrum analyzer with the START, and STOP frequencies set to the EUT's operation band.

#### 7.3.3. Test Setup



### 7.3.4. Test Result

Test Frequency (MHz)	Modulation Type	20dB Bandwidth (KHz)	Limit (KHz)	Result
433.92	ASK	48.23	≤ 1084.8	Pass

Limit = Fundamental Frequency \* 0.25% = 433.92 MHz \* 0.25% = 1084.8kHz

#### 433.92MHz



Date: 20.JUL.2017 22:56:13



## 7.4. Transmission Time

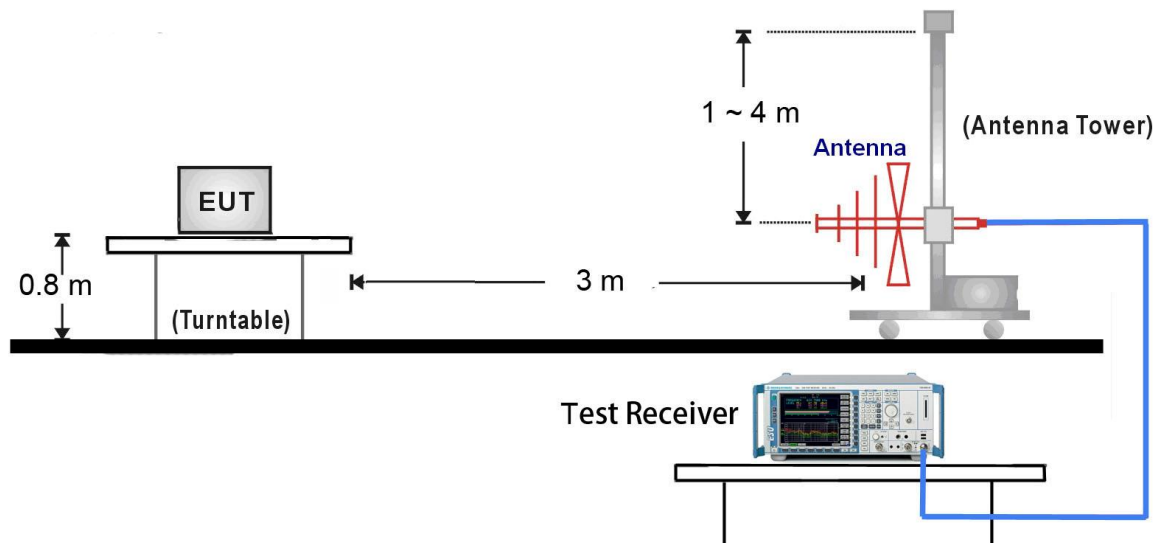
### 7.4.1. Standard Applicable

According to FCC 15.231(e), devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

### 7.4.2. Test Procedure

With the EUT's antenna attached, the EUT's output signal was received by the test antenna, which was connected to the spectrum analyzer. Set the center frequency to 433.92MHz, then set the spectrum analyzer to Zero Span for the release time reading. During the testing, the switch was released then the EUT automatically deactivated.

### 7.4.3. Test Setup

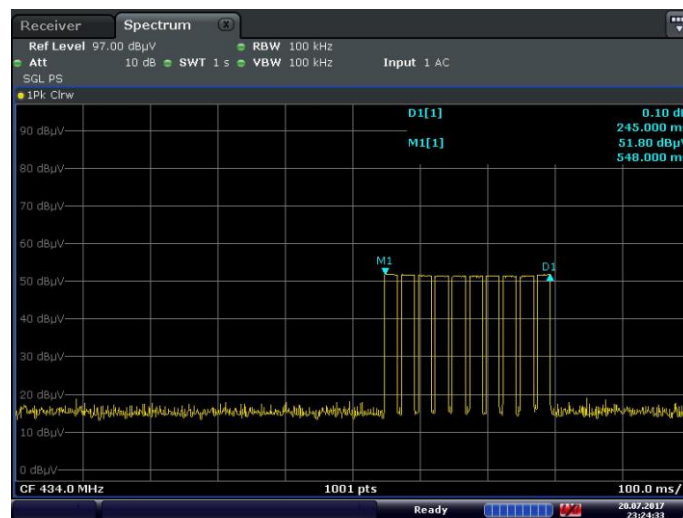


#### 7.4.4. Test Result

Test Item	Frequency (MHz)	Measurement (s)	Limit (s)	Result
Transmission Time	433.92	0.245	< 1	Pass
Silent Time	433.92	18.48	> 10	Pass
Silent Time <sup>*1</sup>	433.92	18.48	> 7.35	Pass

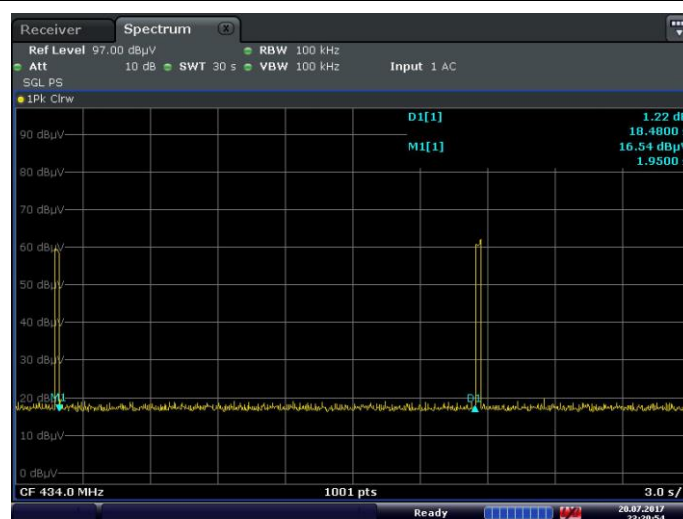
Note : 1. Silent Time shall be at least 30 times the duration of the transmission  
(Transmitter times 0.245s\*30=7.35s)

#### 433.92MHz-Transmission Time(T<sub>on</sub>)



Date: 20 JUL 2017 23:24:34

#### 433.92MHz-Silent Time



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## 7.5. Duty Cycle

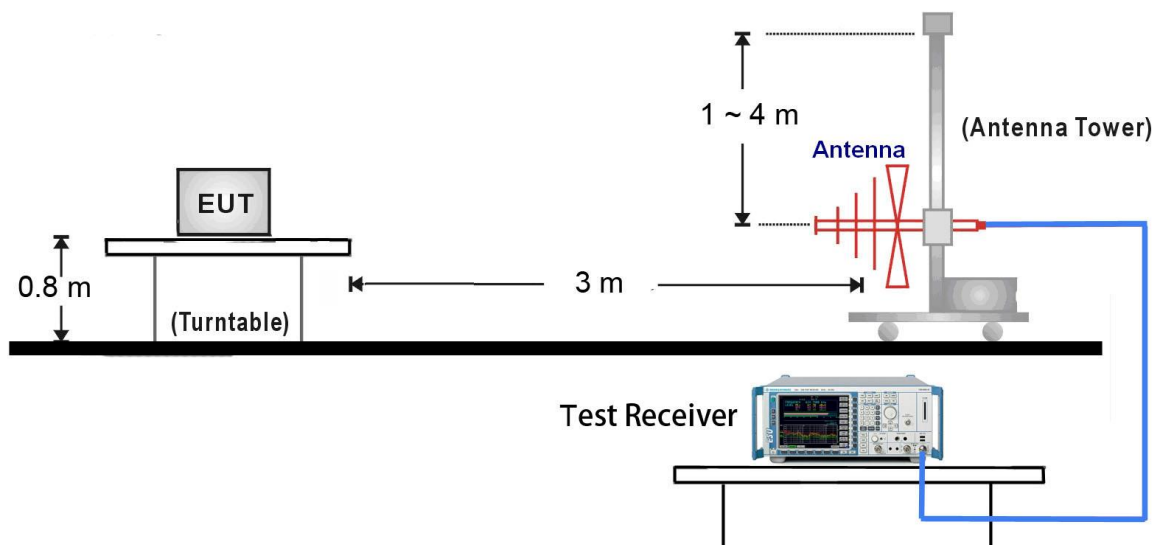
### 7.5.1. Standard Applicable

According to FCC Part 15.231(e) and 15.35(c), for pulse operation transmitter, the averaging pulsed emissions are calculated by peak value of measured emission plus duty cycle factor.

### 7.5.2. Test Procedure

With the EUT's antenna attached, the EUT's output signal was received by the test antenna, which was connected to the spectrum analyzer. Set the center frequency to 433.92MHz, then set the spectrum analyzer to Zero Span for the release time reading. During the testing, the switch was released then the EUT automatically deactivated.

### 7.5.3. Test Setup



#### **7.5.4. Test Result**

The duty cycle evaluation and AV measurement is not required, because all PK results are lower than AV limit already.

## 7.6. AC Conducted Emissions Measurement

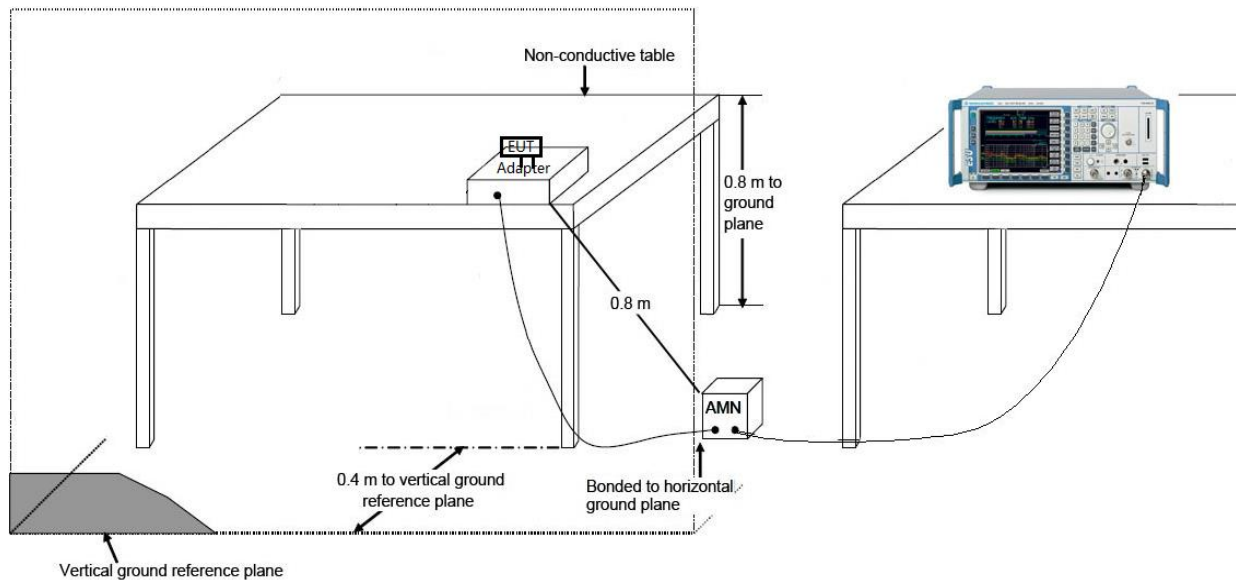
### 7.6.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 / RSS-Gen Limits		
Frequency (MHz)	QP (dB $\mu$ V)	Average (dB $\mu$ V)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

### 7.6.2. Test Setup



### **7.6.3. Test Result**

The EUT Power by battery, so do not need to test.

## 8. CONCLUSION

The data collected relate only the item(s) tested and show that the **Multimedia Controller** is in compliance with FCC Part 15.231(e) of the FCC Rules.

\_\_\_\_\_ The End \_\_\_\_\_