

# FCC Co-Location Test Report

**FCC ID** : XNAWPM06  
**Equipment** : Withings BPM Connect Pro  
**Model No.** : WPM06  
**Brand Name** : Withings  
**Applicant** : Withings SA  
**Address** : 2 rue Maurice Hartmann  
92130 Issy-Les-Moulineaux  
France  
**Standard** : 47 CFR FCC Part 15.247  
47 CFR FCC Part 24 Subpart E  
47 CFR FCC Part 27  
**Received Date** : Mar. 31, 2021  
**Tested Date** : Apr. 20 ~ Apr. 21, 2021

We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:

  
\_\_\_\_\_  
Along Chen / Assistant Manager

Approved by:

  
\_\_\_\_\_  
Gary Chang / Manager



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## Table of Contents

<b>1</b>	<b>GENERAL DESCRIPTION .....</b>	<b>5</b>
1.1	Information.....	5
1.2	The Equipment List .....	6
1.3	Test Standards .....	6
1.4	Reference Guidance .....	6
1.5	Deviation from Test Standard and Measurement Procedure.....	7
1.6	Measurement Uncertainty .....	7
<b>2</b>	<b>TEST CONFIGURATION.....</b>	<b>8</b>
2.1	Testing Facility .....	8
2.2	The Worst Test Modes and Channel Details .....	8
<b>3</b>	<b>TRANSMITTER TEST RESULTS .....</b>	<b>9</b>
3.1	Unwanted Emissions into Restricted Frequency Bands .....	9
<b>4</b>	<b>TEST LABORATORY INFORMATION .....</b>	<b>29</b>

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## Release Record

Report No.	Version	Description	Issued Date
FR133101CO	Rev. 01	Initial issue	May 11, 2021

## Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.247(d) 15.209 2.1053 24.238(a) 27.53(g) 27.53(h)	Radiated Emissions	[dBuV/m at 3m]: 46.49MHz 35.62 (Margin -4.38dB) - PK	Pass

### Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

### Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

# 1 General Description

## 1.1 Information

### 1.1.1 Specification of the Equipment under Test (EUT)

WLAN	
Operating Frequency	802.11b/g/n: 2412 MHz ~ 2462 MHz
Modulation Type	802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM)
BT	
Operating Frequency	2402 MHz ~ 2480 MHz
Modulation Type	Bluetooth 4.1 LE: GFSK Bluetooth BR(1Mbps): GFSK Bluetooth EDR (2Mbps): $\pi/4$ -DQPSK Bluetooth EDR (3Mbps): 8-DPSK

The device contains a certified module as below information

FCC ID	2AAGMGM02SA
Operating Frequency	Band 02: 1850 MHz ~ 1910 MHz Band 04: 1710 MHz ~ 1755 MHz Band 12: 699 MHz ~ 716 MHz
Modulation Type	QPSK, 16QAM
Category	M1
Release Version	13

### 1.1.2 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	From battery Brand: CEL ; Model: 652265, 1000mAh, 3.7V
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### 1.1.3 Antenna Details

BT / Wi-Fi

Ant. No.	Brand / Model	Type	Connector	Gain (dBi)
1	Brand: BROADCOM Model: BCM9Fractal	PCB	NA	2.8

LTE

Type	Connector	Gain (dBi)	Remarks
FRACTUS ANTENNAS NN02-224	NA	3	Band 2
		3	Band 4
		1.6	Band 12

### 1.1.4 Test Sample Information

<b>MAC Number of Test Sample</b>	Radiated Emission: 024E4C52360
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## 1.2 The Equipment List

<b>Test Item</b>	Radiated Emission				
<b>Test Site</b>	966 chamber1 / (03CH01-WS)				
<b>Tested Date</b>	Apr. 20 ~ Apr. 21, 2021				
<b>Instrument</b>	<b>Brand</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Calibration Date</b>	<b>Calibration Until</b>
Receiver	R&S	ESR3	101657	Mar. 12, 2021	Mar. 11, 2022
Spectrum Analyzer	R&S	FSV40	101498	Dec. 04, 2020	Dec. 03, 2021
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 17, 2020	Nov. 16, 2021
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 10, 2020	Jul. 09, 2021
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 11, 2020	Dec. 10, 2021
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 06, 2020	Nov. 05, 2021
Preamplifier	EMC	EMC02325	980225	Jul. 03, 2020	Jul. 02, 2021
Preamplifier	Agilent	83017A	MY39501308	Sep. 26, 2020	Sep. 25, 2021
Preamplifier	EMC	EMC184045B	980192	Jul. 21, 2020	Jul. 20, 2021
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 06, 2020	Oct. 05, 2021
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 06, 2020	Oct. 05, 2021
LF cable 11M	EMC	EMCCFD400-NW-N W-11000	200801	Oct. 06, 2020	Oct. 05, 2021
LF cable 1M	EMC	EMCCFD400-NM-N M-1000	160502	Oct. 06, 2020	Oct. 05, 2021
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 06, 2020	Oct. 05, 2021
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Oct. 06, 2020	Oct. 05, 2021
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

## 1.3 Test Standards

47 CFR FCC Part 15.247  
 47 CFR FCC Part 24 Subpart E  
 47 CFR FCC Part 27  
 ANSI C63.10-2013

## 1.4 Reference Guidance

FCC KDB 558074 D01 15.247 Meas Guidance v05r02  
 FCC KDB 412172 D01 Determining ERP and EIRP v01r01

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## 1.5 Deviation from Test Standard and Measurement Procedure

None

## 1.6 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ( $k=2$ )).

Measurement Uncertainty	
Parameters	Uncertainty
Radiated emission $\leq$ 1GHz	$\pm 3.41$ dB
Radiated emission $>$ 1GHz	$\pm 4.59$ dB

## 2 Test Configuration

### 2.1 Testing Facility

<b>Test Laboratory</b>	International Certification Corporation
<b>Test Site</b>	03CH01-WS
<b>Address of Test Site</b>	No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- ISED#: 10807A
- CAB identifier: TW2732

### 2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test mode
Radiated Emissions	LTE-M1 Band 2 CH1852 + BLE CH2402	1
	LTE-M1 Band 4 CH1711.45 + BLE CH2402	2
	LTE-M1 Band 12 CH705.5 + BLE CH2402	3

**NOTE:**

1. The selected channels are the maximum power channel of Bluetooth / LTE-M1 mode.
2. The device can be operated under battery mode and adapter mode. Each mode was selected for related test items as below configuration.  
 Below 1GHz: Battery mode & adapter mode  
 Above 1GHz: Battery mode



## 3 Transmitter Test Results

### 3.1 Unwanted Emissions into Restricted Frequency Bands

#### 3.1.1 Limit of Unwanted Emissions into Restricted Frequency Bands

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

**Note 1:**  
Quasi-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit

**Note 2:**  
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

#### 3.1.2 Test Procedures

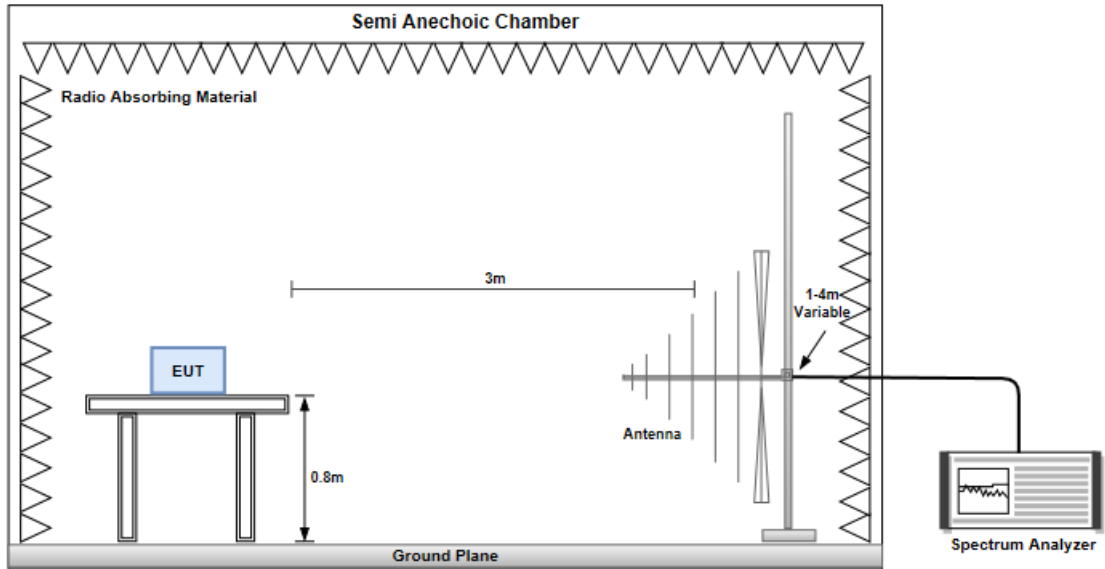
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m.
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

**Note:**

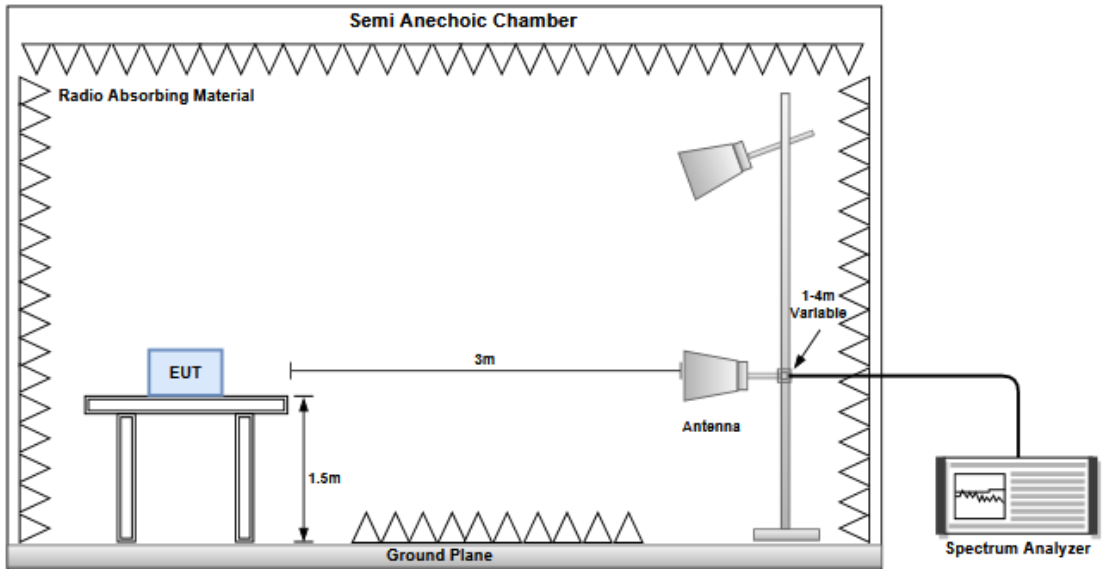
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

### 3.1.3 Test Setup

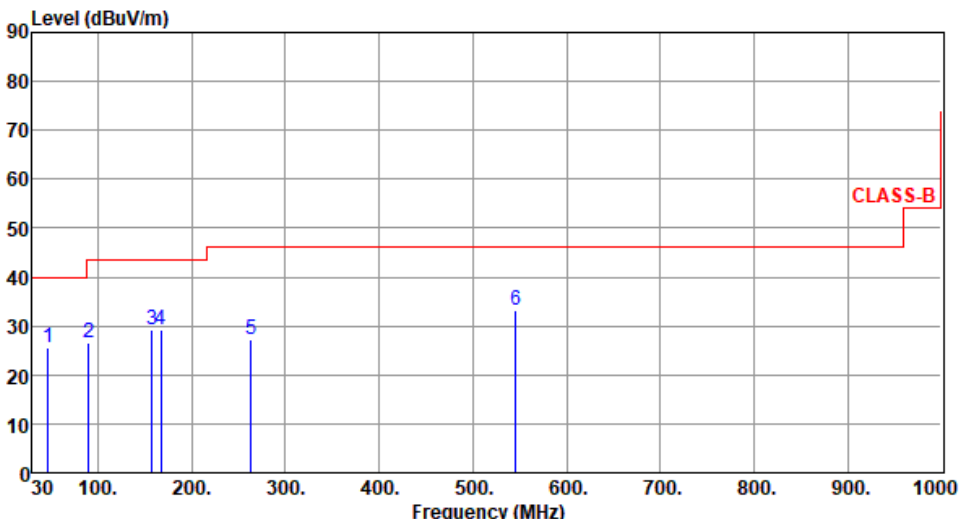
#### Radiated Emissions below 1 GHz

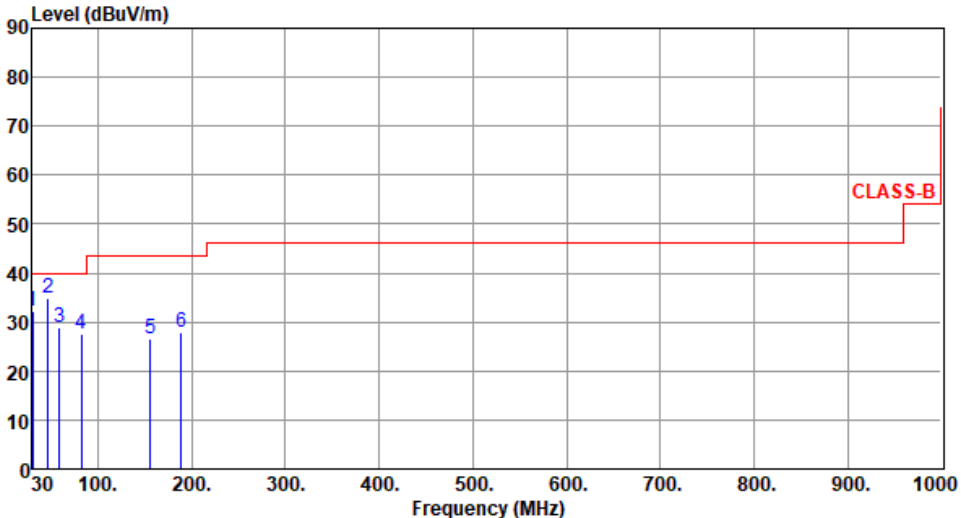


#### Radiated Emissions above 1 GHz

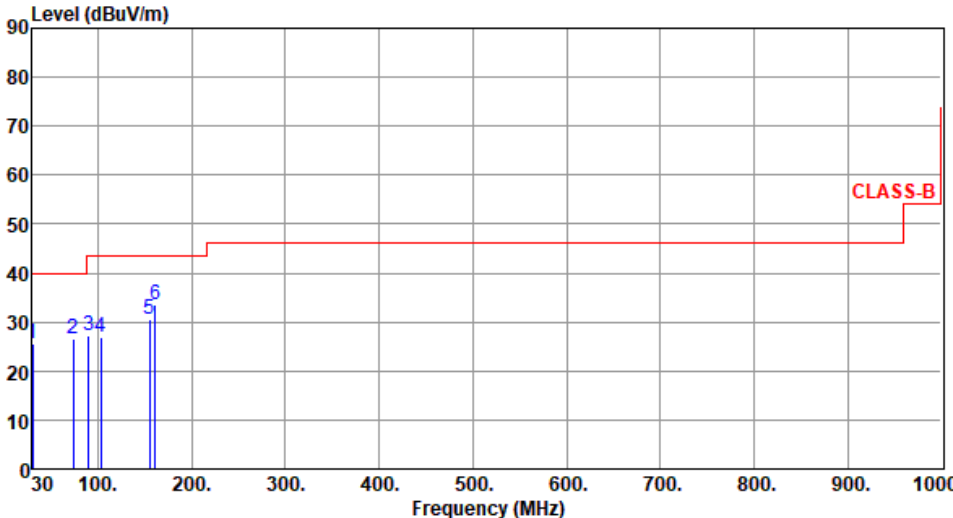


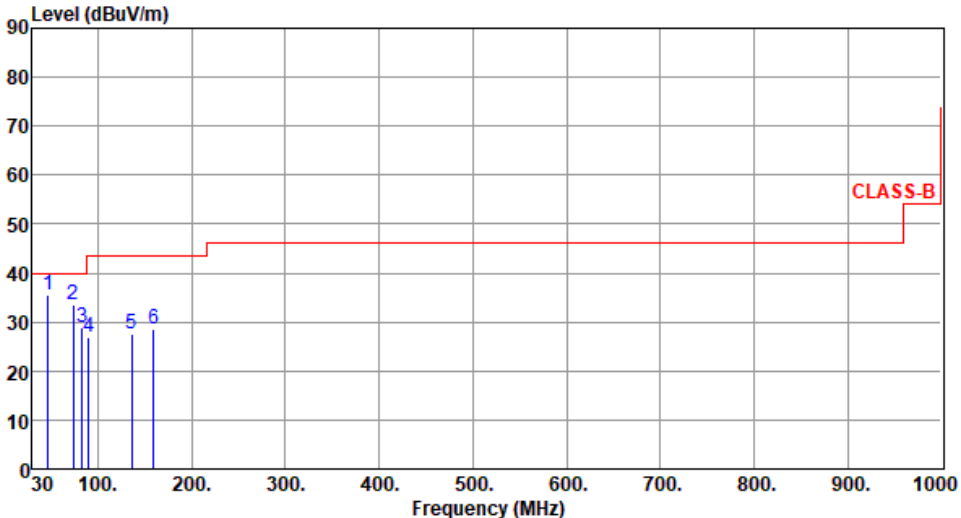
### 3.1.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)\_Battery mode

<b>Test Mode</b>	Mode 1: LTE-M1 Band 2 CH1852 + BLE CH2402									
<b>Polarization</b>	Horizontal									
Test By : Akun Chung			Temperature(°C): 24			Humidity(%): 64				
										
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn	
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table	
		dBuV/m			dBuV			cm	deg	
1	46.49	25.70	40.00	-14.30	34.03	-8.33	Peak	---	---	
2	90.14	26.63	43.50	-16.87	41.20	-14.57	Peak	---	---	
3	158.04	29.24	43.50	-14.26	38.17	-8.93	Peak	---	---	
4	166.77	29.08	43.50	-14.42	38.19	-9.11	Peak	---	---	
5	263.77	27.34	46.00	-18.66	36.91	-9.57	Peak	---	---	
6	546.04	33.11	46.00	-12.89	35.53	-2.42	Peak	---	---	
<p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)            *Factor includes antenna factor , cable loss and amplifier gain            Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).            Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.</p>										

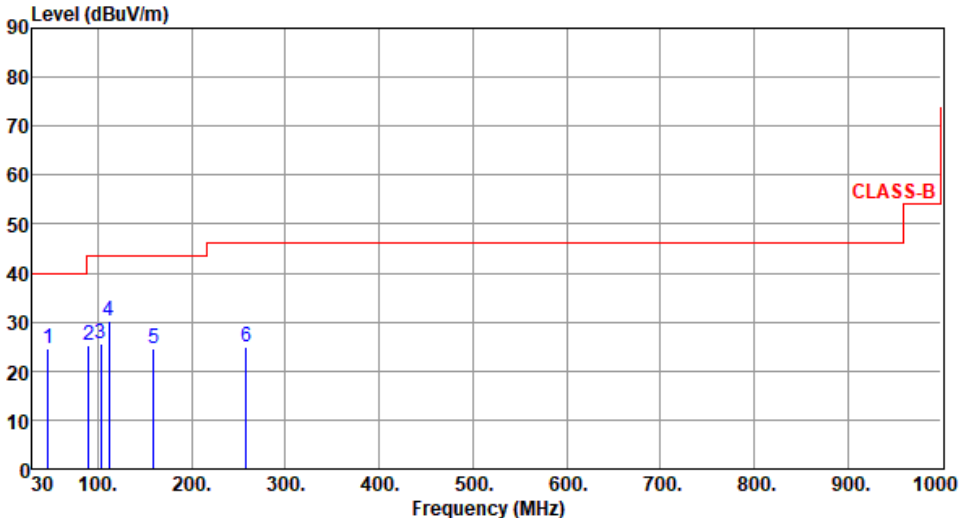
<b>Test Mode</b>	Mode 1: LTE-M1 Band 2 CH1852 + BLE CH2402									
<b>Polarization</b>	Vertical									
Test By : Akun Chung			Temperature(°C): 24			Humidity(%): 64				
										
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn	
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table	
		dBuV/m			dBuV			cm	deg	
1	30.00	32.24	40.00	-7.76	41.72	-9.48	Peak	---	---	
2	46.49	34.90	40.00	-5.10	43.23	-8.33	Peak	---	---	
3	59.10	29.00	40.00	-11.00	38.13	-9.13	Peak	---	---	
4	82.38	27.63	40.00	-12.37	41.37	-13.74	Peak	---	---	
5	156.10	26.55	43.50	-16.95	35.39	-8.84	Peak	---	---	
6	189.08	27.90	43.50	-15.60	39.27	-11.37	Peak	---	---	

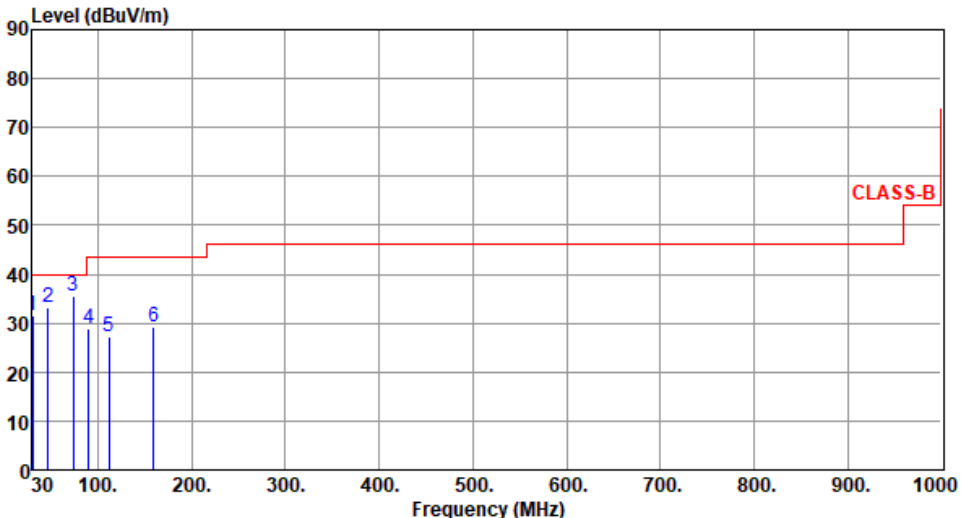
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).  
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

<b>Test Mode</b>	Mode 2: LTE-M1 Band 4 CH1711.45 + BLE CH2402										
<b>Polarization</b>	Horizontal										
Test By : Akun Chung			Temperature(°C): 24			Humidity(%): 64					
											
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table		
		dBuV/m			dBuV			cm	deg		
1	30.00	25.60	40.00	-14.40	35.08	-9.48	Peak	---	---		
2	73.65	26.64	40.00	-13.36	38.45	-11.81	Peak	---	---		
3	90.14	27.33	43.50	-16.17	41.90	-14.57	Peak	---	---		
4	102.75	26.76	43.50	-16.74	39.74	-12.98	Peak	---	---		
5	155.13	30.44	43.50	-13.06	39.19	-8.75	Peak	---	---		
6	160.95	33.56	43.50	-9.94	42.48	-8.92	Peak	---	---		
<p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)            *Factor includes antenna factor , cable loss and amplifier gain            Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).            Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.</p>											

<b>Test Mode</b>	Mode 2: LTE-M1 Band 4 CH1711.45 + BLE CH2402								
<b>Polarization</b>	Vertical								
Test By	:Akun Chung	Temperature(°C)	:24	Humidity(%)	:64				
									
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table
		dBuV/m			dBuV			cm	deg
1	46.49	35.62	40.00	-4.38	43.95	-8.33	Peak	---	---
2	73.65	33.60	40.00	-6.40	45.41	-11.81	Peak	---	---
3	83.35	28.77	40.00	-11.23	42.71	-13.94	Peak	---	---
4	90.14	26.90	43.50	-16.60	41.47	-14.57	Peak	---	---
5	135.73	27.51	43.50	-15.99	36.95	-9.44	Peak	---	---
6	159.01	28.41	43.50	-15.09	37.24	-8.83	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).  
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

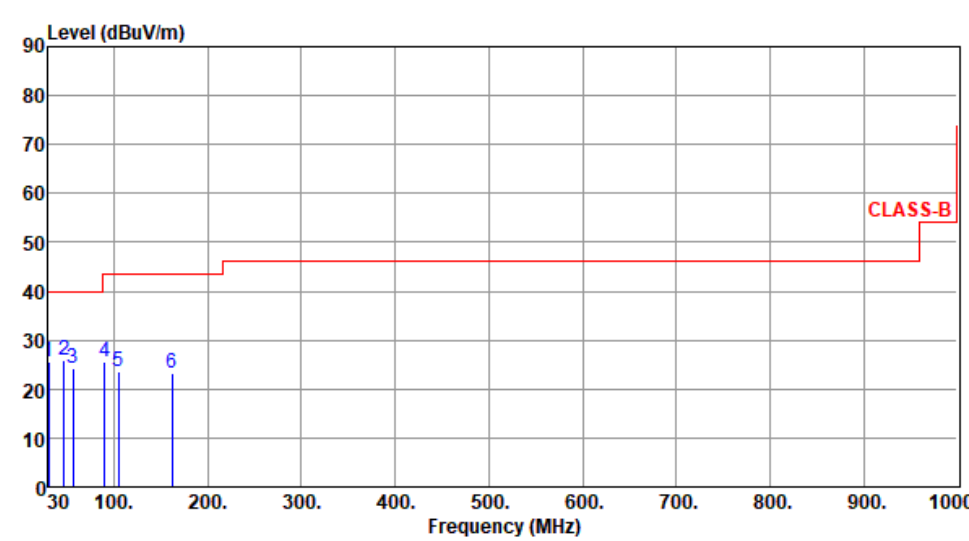
<b>Test Mode</b>	Mode 3: LTE-M1 Band 12 CH705.5 + BLE CH2402								
<b>Polarization</b>	Horizontal								
Test By	:Akun Chung	Temperature(°C)	:24	Humidity(%)	:64				
									
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg
1	46.49	24.64	40.00	-15.36	32.97	-8.33	Peak	---	---
2	90.14	25.11	43.50	-18.39	39.68	-14.57	Peak	---	---
3	102.75	25.60	43.50	-17.90	38.58	-12.98	Peak	---	---
4	111.48	30.37	43.50	-13.13	42.08	-11.71	Peak	---	---
5	159.01	24.74	43.50	-18.76	33.57	-8.83	Peak	---	---
6	257.95	24.92	46.00	-21.08	34.78	-9.86	Peak	---	---
<p>Note 1: Emission Level (dBUV/m) = SA Reading (dBUV) + Factor* (dB/m)            *Factor includes antenna factor , cable loss and amplifier gain            Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).            Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.</p>									

<b>Test Mode</b>	Mode 3: LTE-M1 Band 12 CH705.5 + BLE CH2402									
<b>Polarization</b>	Vertical									
Test By : Akun Chung			Temperature(°C): 24			Humidity(%): 64				
										
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn	
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table	
		dBuV/m			dBuV			cm	deg	
1	30.00	31.53	40.00	-8.47	41.01	-9.48	Peak	---	---	
2	46.49	33.28	40.00	-6.72	41.61	-8.33	Peak	---	---	
3	73.65	35.55	40.00	-4.45	47.36	-11.81	Peak	---	---	
4	90.14	28.90	43.50	-14.60	43.47	-14.57	Peak	---	---	
5	111.48	27.14	43.50	-16.36	38.85	-11.71	Peak	---	---	
6	159.01	29.37	43.50	-14.13	38.20	-8.83	Peak	---	---	

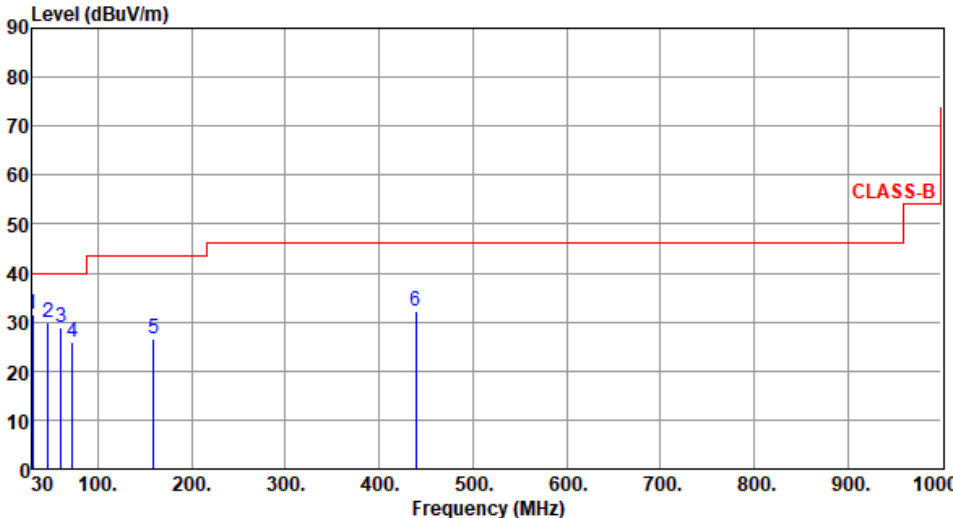
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).  
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

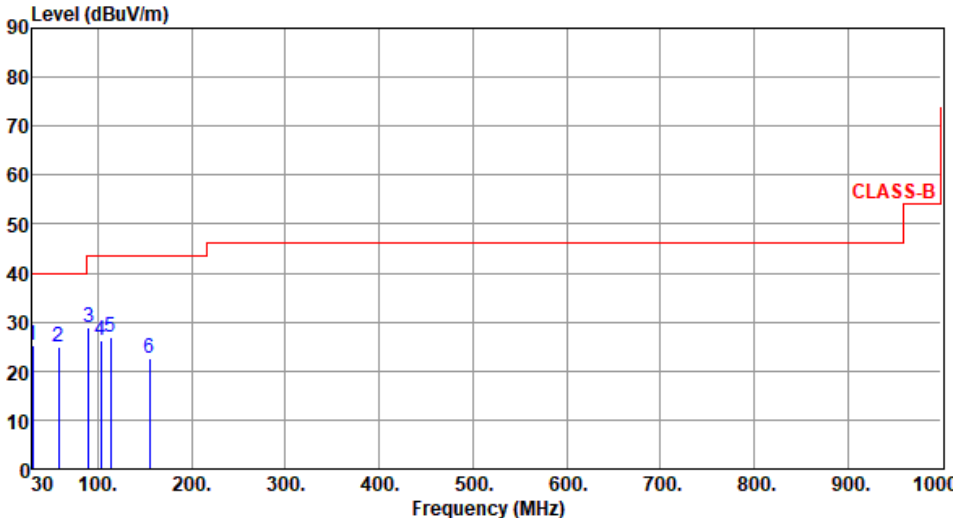


### 3.1.5 Transmitter Radiated Unwanted Emissions (Below 1GHz)\_Adapter mode

<b>Test Mode</b>	Mode 1: LTE-M1 Band 2 CH1852 + BLE CH2402									
<b>Polarization</b>	Horizontal									
Test By : Akun Chung			Temperature(°C): 24			Humidity(%): 64				
										
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn	
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table	
								cm	deg	
1	30.00	25.46	40.00	-14.54	34.94	-9.48	Peak	---	---	
2	46.49	25.84	40.00	-14.16	34.17	-8.33	Peak	---	---	
3	56.19	24.35	40.00	-15.65	33.21	-8.86	Peak	---	---	
4	90.14	25.54	43.50	-17.96	40.11	-14.57	Peak	---	---	
5	104.69	23.60	43.50	-19.90	36.10	-12.50	Peak	---	---	
6	161.92	23.15	43.50	-20.35	32.07	-8.92	Peak	---	---	

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)  
 \*Factor includes antenna factor , cable loss and amplifier gain  
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).  
 Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

<b>Test Mode</b>	Mode 1: LTE-M1 Band 2 CH1852 + BLE CH2402								
<b>Polarization</b>	Vertical								
Test By	:Akun Chung	Temperature(°C)	:24	Humidity(%)	:64				
									
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg
1	30.00	31.67	40.00	-8.33	41.15	-9.48	Peak	---	---
2	46.49	30.02	40.00	-9.98	38.35	-8.33	Peak	---	---
3	61.04	28.86	40.00	-11.14	38.02	-9.16	Peak	---	---
4	72.68	26.00	40.00	-14.00	37.42	-11.42	Peak	---	---
5	159.01	26.64	43.50	-16.86	35.47	-8.83	Peak	---	---
6	439.34	32.07	46.00	-13.93	36.65	-4.58	Peak	---	---
<p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)            *Factor includes antenna factor , cable loss and amplifier gain            Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).            Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.</p>									

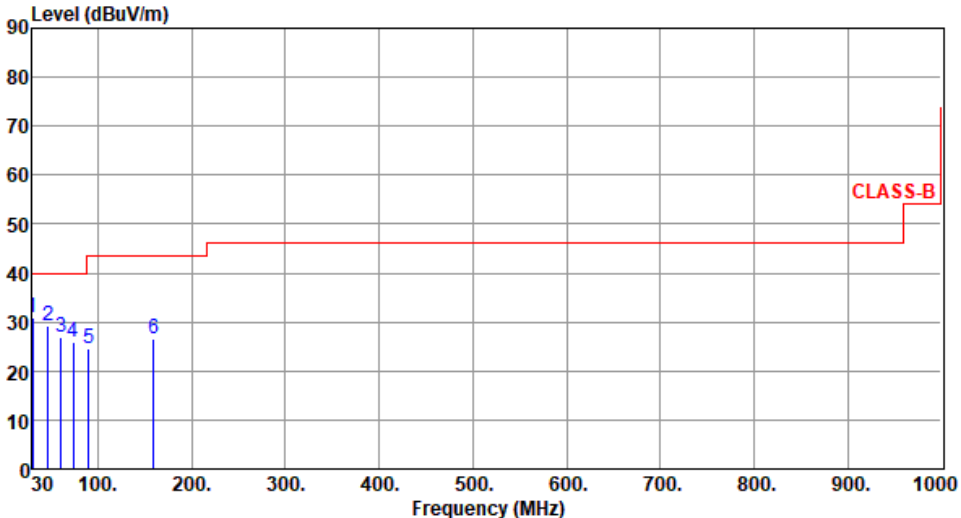
<b>Test Mode</b>	Mode 2: LTE-M1 Band 4 CH1711.45 + BLE CH2402									
<b>Polarization</b>	Horizontal									
Test By : Akun Chung			Temperature(°C): 24			Humidity(%): 64				
										
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn	
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table	
		dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg	
1	30.00	25.25	40.00	-14.75	34.73	-9.48	Peak	---	---	
2	58.13	24.91	40.00	-15.09	33.88	-8.97	Peak	---	---	
3	90.14	28.74	43.50	-14.76	43.31	-14.57	Peak	---	---	
4	102.75	26.35	43.50	-17.15	39.33	-12.98	Peak	---	---	
5	113.42	26.83	43.50	-16.67	38.20	-11.37	Peak	---	---	
6	155.13	22.72	43.50	-20.78	31.47	-8.75	Peak	---	---	

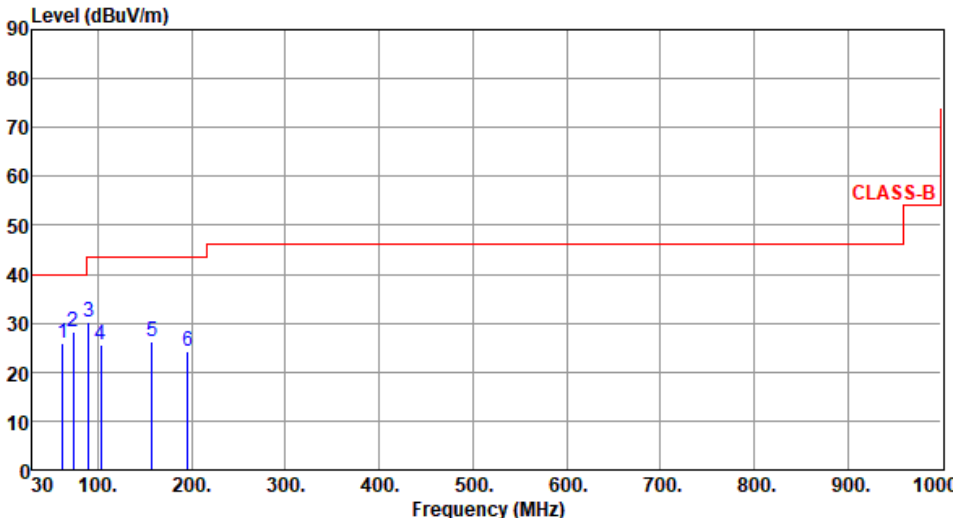
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV) + Factor\* (dB/m)

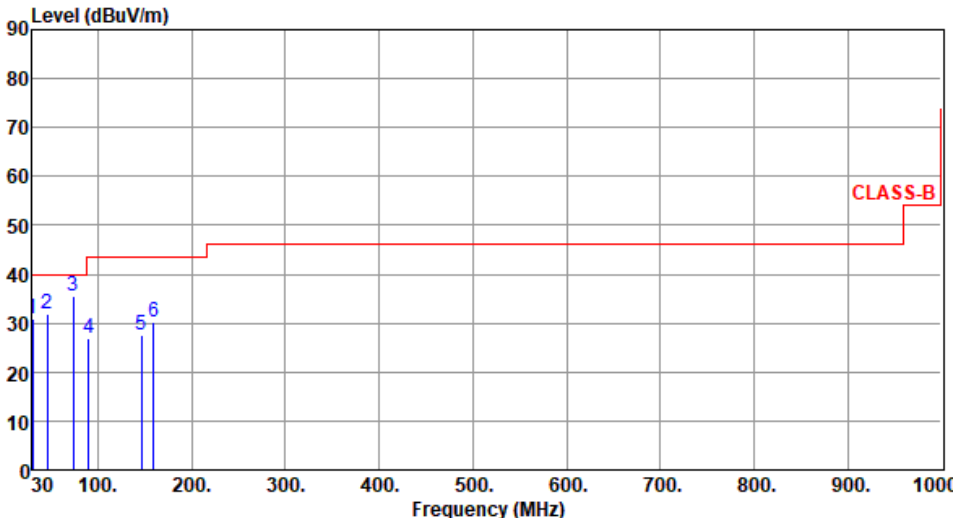
\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

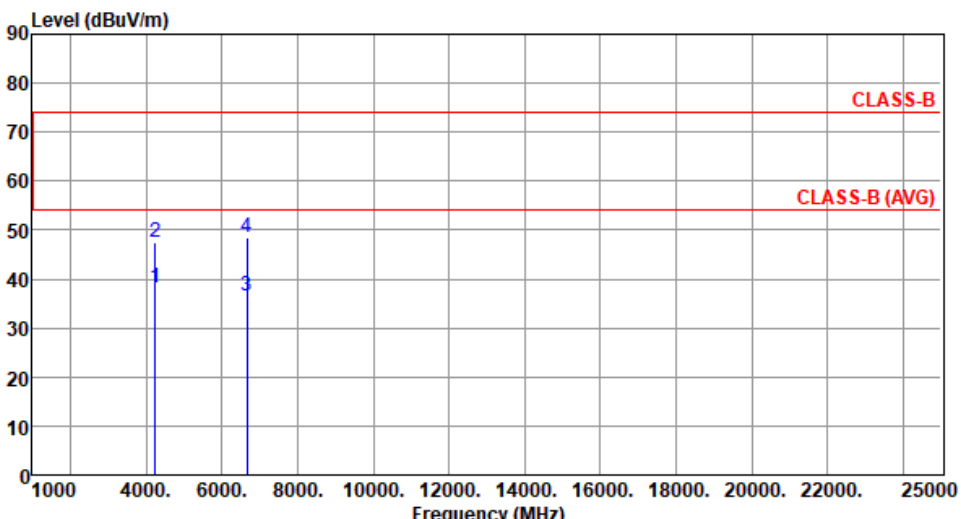
<b>Test Mode</b>	Mode 2: LTE-M1 Band 4 CH1711.45 + BLE CH2402								
<b>Polarization</b>	Vertical								
Test By	:Akun Chung	Temperature(°C)	:24	Humidity(%)	:64				
									
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg
1	30.00	30.74	40.00	-9.26	40.22	-9.48	Peak	---	---
2	46.49	29.20	40.00	-10.80	37.53	-8.33	Peak	---	---
3	61.04	26.96	40.00	-13.04	36.12	-9.16	Peak	---	---
4	73.65	25.76	40.00	-14.24	37.57	-11.81	Peak	---	---
5	90.14	24.66	43.50	-18.84	39.23	-14.57	Peak	---	---
6	159.01	26.43	43.50	-17.07	35.26	-8.83	Peak	---	---
<p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)            *Factor includes antenna factor , cable loss and amplifier gain            Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).            Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.</p>									

<b>Test Mode</b>	Mode 3: LTE-M1 Band 12 CH705.5 + BLE CH2402										
<b>Polarization</b>	Horizontal										
Test By : Akun Chung			Temperature(°C): 24			Humidity(%): 64					
											
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table		
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg		
1	62.01	25.93	40.00	-14.07	35.47	-9.54	Peak	---	---		
2	73.65	28.19	40.00	-11.81	40.00	-11.81	Peak	---	---		
3	90.14	30.11	43.50	-13.39	44.68	-14.57	Peak	---	---		
4	102.75	25.54	43.50	-17.96	38.52	-12.98	Peak	---	---		
5	158.04	26.28	43.50	-17.22	35.21	-8.93	Peak	---	---		
6	195.87	24.23	43.50	-19.27	36.15	-11.92	Peak	---	---		
<p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)            *Factor includes antenna factor , cable loss and amplifier gain            Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).            Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.</p>											

<b>Test Mode</b>	Mode 3: LTE-M1 Band 12 CH705.5 + BLE CH2402									
<b>Polarization</b>	Vertical									
Test By : Akun Chung			Temperature(°C): 24			Humidity(%): 64				
										
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn	
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table	
		dBuV/m			dBuV			cm	deg	
1	30.00	31.04	40.00	-8.96	40.52	-9.48	Peak	---	---	
2	45.52	31.81	40.00	-8.19	40.10	-8.29	Peak	---	---	
3	73.65	35.56	40.00	-4.44	47.37	-11.81	Peak	---	---	
4	90.14	26.74	43.50	-16.76	41.31	-14.57	Peak	---	---	
5	146.40	27.70	43.50	-15.80	36.73	-9.03	Peak	---	---	
6	159.01	30.10	43.50	-13.40	38.93	-8.83	Peak	---	---	

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).  
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

### 3.1.6 Transmitter Radiated Unwanted Emissions (Above 1GHz)

<b>Test Mode</b>	Mode 1: LTE-M1 Band 2 CH1852 + BLE CH2402										
<b>Polarization</b>	Horizontal										
Test By : Akun Chung			Temperature(°C): 23			Humidity(%): 66					
											
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table		
		dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg		
1	4254.00	38.28	54.00	-15.72	36.50	1.78	Average	108	230		
2	4254.00	47.41	74.00	-26.59	45.63	1.78	Peak	108	230		
3	6656.00	36.69	54.00	-17.31	29.54	7.15	Average	100	244		
4	6656.00	48.62	74.00	-25.38	41.47	7.15	Peak	100	244		
<p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)          *Factor includes antenna factor , cable loss and amplifier gain          Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).</p>											

<b>Test Mode</b>	Mode 1: LTE-M1 Band 2 CH1852 + BLE CH2402								
<b>Polarization</b>	Vertical								
Test By : Akun Chung		Temperature(°C): 23			Humidity(%): 66				
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table
		dBuV/m			dBuV			cm	deg
1	4254.00	39.96	54.00	-14.04	38.18	1.78	Average	176	226
2	4254.00	47.50	74.00	-26.50	45.72	1.78	Peak	176	226
3	6656.00	38.04	54.00	-15.96	30.89	7.15	Average	176	226
4	6656.00	49.00	74.00	-25.00	41.85	7.15	Peak	176	226

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)  
\*Factor includes antenna factor , cable loss and amplifier gain  
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



<b>Test Mode</b>	Mode 2: LTE-M1 Band 4 CH1711.45 + BLE CH2402								
<b>Polarization</b>	Horizontal								
Test By	:Akun Chung	Temperature(°C)	:23	Humidity(%)	:66				
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table
		dBuV/m			dBuV			cm	deg
1	4113.45	36.71	54.00	-17.29	35.28	1.43	Average	110	231
2	4113.45	47.12	74.00	-26.88	45.69	1.43	Peak	110	231
3	6515.45	37.46	54.00	-16.54	30.52	6.94	Average	100	238
4	6515.45	49.36	74.00	-24.64	42.42	6.94	Peak	100	238
<p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)          *Factor includes antenna factor , cable loss and amplifier gain          Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).</p>									

<b>Test Mode</b>	Mode 2: LTE-M1 Band 4 CH1711.45 + BLE CH2402								
<b>Polarization</b>	Vertical								
Test By	:Akun Chung	Temperature(°C)	:23	Humidity(%)	:66				
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table
		dBuV/m			dBuV			cm	deg
1	4113.45	39.93	54.00	-14.07	38.50	1.43	Average	100	217
2	4113.45	47.71	74.00	-26.29	46.28	1.43	Peak	100	217
3	6515.45	37.71	54.00	-16.29	30.77	6.94	Average	100	223
4	6515.45	49.79	74.00	-24.21	42.85	6.94	Peak	100	223
<p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)          *Factor includes antenna factor , cable loss and amplifier gain          Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).</p>									

<b>Test Mode</b>	Mode 3: LTE-M1 Band 12 CH705.5 + BLE CH2402								
<b>Polarization</b>	Horizontal								
Test By : Akun Chung		Temperature(°C): 23			Humidity(%): 66				
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table
		dBuV/m			dBuV			cm	deg
1	1696.50	38.57	54.00	-15.43	45.22	-6.65	Average	318	309
2	1696.50	49.31	74.00	-24.69	55.96	-6.65	Peak	318	309
3	3107.50	40.07	54.00	-13.93	40.87	-0.80	Average	100	123
4	3107.50	46.79	74.00	-27.21	47.59	-0.80	Peak	100	123
<p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)          *Factor includes antenna factor , cable loss and amplifier gain          Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).</p>									

<b>Test Mode</b>	Mode 3: LTE-M1 Band 12 CH705.5 + BLE CH2402								
<b>Polarization</b>	Vertical								
Test By :Akun Chung		Temperature(°C):23			Humidity(%):66				
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBuV/m	dB	reading	dB/m		High	Table
		dBuV/m			dBuV			cm	deg
1	1696.50	39.13	54.00	-14.87	45.78	-6.65	Average	325	69
2	1696.50	47.99	74.00	-26.01	54.64	-6.65	Peak	325	69
3	3107.50	45.47	54.00	-8.53	46.27	-0.80	Average	100	19
4	3107.50	49.71	74.00	-24.29	50.51	-0.80	Peak	100	19
<p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)  *Factor includes antenna factor , cable loss and amplifier gain  Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).</p>									

## 4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corporation (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

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