

RF Exposure Report

Report No.: SABCYA-WTW-P21030934

FCC ID: YAIWB17

Test Model: WB17

Received Date: Mar. 25, 2021

Test Date: June 16, 2021

Issued Date: July 21, 2021

Applicant: InnoComm Mobile Technology Corporation

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**FCC Registration /
Designation Number:** 723255 / TW2022



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Release Control Record

Issue No.	Description	Date Issued
SBCYA-WTW-P21030934	Original release.	July 21, 2021

1 Certificate of Conformity

Product: Wireless Audio Module

Brand: InnoComm

Test Model: WB17

Sample Status: Engineering sample

Applicant: InnoComm Mobile Technology Corporation

Test Date: June 16, 2021

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

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Vivian Huang / Specialist

Approved by : Clark Lin , **Date:** July 21, 2021
Clark Lin / Technical Manager

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

$$Pd = (P_{out} * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Antenna Set	RF Chain No.	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Length (mm)
Ant. Set 1	0	5.26	2.4~2.4835GHz	PCB	i-pex(MHF)	172
		6.27	5.15~5.85GHz			
	1	5.26	2.4~2.4835GHz	PCB	i-pex(MHF)	172
		6.27	5.15~5.85GHz			
	BT	5.26	2.4~2.4835GHz	PCB	i-pex(MHF)	172
Ant. Set 2	0	5	2.4~2.4835GHz	Dipole	i-pex(MHF)	NA
		5	5.15~5.85GHz			
	1	5	2.4~2.4835GHz	Dipole	i-pex(MHF)	NA
		5	5.15~5.85GHz			
	BT	5	2.4~2.4835GHz	PCB	i-pex(MHF)	NA
Ant. Set 3	0	-0.96	2.4~2.4835GHz	PCB	i-pex(MHF)	520
		-1.35	5.15~5.85GHz			
	1	-0.96	2.4~2.4835GHz	PCB	i-pex(MHF)	520
		-1.35	5.15~5.85GHz			
	BT	-0.96	2.4~2.4835GHz	PCB	i-pex(MHF)	520
Ant. Set 4	0	4.56	2.4~2.4835GHz	PCB	i-pex(MHF)	210
		2.09	5.15~5.85GHz			
	1	4.56	2.4~2.4835GHz	PCB	i-pex(MHF)	210
		2.09	5.15~5.85GHz			
	BT	4.56	2.4~2.4835GHz	PCB	i-pex(MHF)	210
Ant. Set 5	0	2.9	2.4~2.4835GHz	PCB	i-pex(MHF)	250
		2.77	5.15~5.85GHz			
	1	2.9	2.4~2.4835GHz	PCB	i-pex(MHF)	250
		2.77	5.15~5.85GHz			
	BT	2.9	2.4~2.4835GHz	PCB	i-pex(MHF)	250
Ant. Set 6	0	0.94	2.4~2.4835GHz	PCB	i-pex(MHF)	300
		2.91	5.15~5.85GHz			
	1	0.94	2.4~2.4835GHz	PCB	i-pex(MHF)	300
		2.91	5.15~5.85GHz			
	BT	0.94	2.4~2.4835GHz	PCB	i-pex(MHF)	300
Ant. Set 7	0	4.42	2.4~2.4835GHz	PCB	i-pex(MHF)	387
		3.76	5.15~5.85GHz			
	1	4.42	2.4~2.4835GHz	PCB	i-pex(MHF)	387
		3.76	5.15~5.85GHz			
	BT	4.42	2.4~2.4835GHz	PCB	i-pex(MHF)	387
Ant. Set 8	0	2.76	2.4~2.4835GHz	PCB	i-pex(MHF)	245
		-	5.15~5.85GHz			
	1	2.76	2.4~2.4835GHz	PCB	i-pex(MHF)	24
		-	5.15~5.85GHz			
	BT	2.66	2.4~2.4835GHz	PCB	i-pex(MHF)	245
Ant. Set 9	0	5.13	2.4~2.4835GHz	PCB	i-pex(MHF)	228
		-	5.15~5.85GHz			
	1	5.13	2.4~2.4835GHz	PCB	i-pex(MHF)	228
		-	5.15~5.85GHz			
	BT	5.13	2.4~2.4835GHz	PCB	i-pex(MHF)	228

Note: Antenna Set. 1 & 2 was selected for final test.

Note: The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2.5 Calculation Result of Maximum Conducted Power

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN 2.4GHz (1TX)	2412~2462	217.771	5.26	20	0.14546	1
WLAN 2.4GHz (2TX)	2412~2462	61.38	8.27	20	0.08199	1
WLAN 5GHz (1TX)	5180~5825	83.56	6.27	20	0.07043	1
WLAN 5GHz (2TX)	5180~5825	60.509	9.28	20	0.10199	1
Bluetooth (BT-EDR)	2412~2480	12.677	5.26	20	0.00847	1
Bluetooth (BT-LE)	2402~2480	8.054	5.26	20	0.00538	1

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- WLAN 2.4GHz & Bluetooth: Directional gain = 5.26 dBi
Directional gain = 5.26 dBi + 10log(2) = 8.27dBi
- 5GHz: Directional gain = 6.27 dBi
Directional gain = 6.27dBi + 10log(2) = 9.28dBi

Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$\text{WLAN 2.4GHz} + \text{Bluetooth} = 0.14546 / 1 + 0.00847 / 1 = 0.15393$$

$$\text{WLAN 5GHz} + \text{Bluetooth} = 0.10199 / 1 + 0.00847 / 1 = 0.11046$$

Therefore the maximum calculations of above situations are less than the “1” limit.

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