RF Exposure Report

Report No.:	SABGTL-WTW-P20100273
FCC ID:	RX3-WBU053VZBT
Test Model:	WBU053-VZBT
Received Date:	Oct. 21, 2020
Date of Evaluation:	Nov. 02, 2020
Issued Date:	Nov. 06, 2020
Applicant:	Hon Hai Precision Industry Co., Ltd.
Address:	No.151, Sec. 1, Nankan Rd., Lujhu Dist., Taoyuan County 33859, Taiwan (R.O.C.)
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
SABGTL-WTW-P20100273	Original Release	Nov. 06, 2020

1   Certificate of Conformity

Product:	802.11a/b/g/n 2T2R with Bluetooth combo wireless module
Brand:	Foxconn
Test Model:	WBU053-VZBT
Sample Status:	Engineering Sample
Applicant:	Hon Hai Precision Industry Co., Ltd.
Date of Evaluation:	Nov. 02, 2020
Standards:	FCC Part 2 (Section 2.1091)
References Test Guidance :	KDB 447498 D01 General RF Exposure Guidance v06
	IEEE C95.3 -2002

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 RF characteristics under the conditions specified in this report.

Prepared by : _Gina Liu_ , **Date:** Nov. 06, 2020

Gina Liu / Specialist

Approved by : _Dylan Chiou_ , **Date:** Nov. 06, 2020

Dylan Chiou / Senior Project Engineer

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

$$Pd = (Pout*G) / (4*pi*r^2)$$

where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

pi = 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 20 cm away from the body of the user.
So, this device is classified as **Mobile Device**.

2.4 Calculation Result of Maximum Conducted Power

Mode A

Band	Frequency Band (MHz)	Average Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm²)	Limit (mW/cm²)
WLAN	2412-2462	17.88	3.80	20	0.029	1.00
	5180-5240	16.82	3.89	20	0.023	1.00
	5260-5320	16.87	3.89	20	0.024	1.00
	5500-5700	16.89	5.99	20	0.039	1.00
	5745-5825	16.81	5.17	20	0.031	1.00
BT	2402-2480	5.46	2.27	20	0.001	1.00

Mode B

Band	Frequency Band (MHz)	Average Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm²)	Limit (mW/cm²)
WLAN	2412-2462	17.88	3.80	20	0.029	1.00
	5180-5240	16.82	3.89	20	0.023	1.00
	5260-5320	16.87	3.89	20	0.024	1.00
	5500-5700	16.89	5.99	20	0.039	1.00
	5745-5825	16.81	5.17	20	0.031	1.00
BT	2402-2480	5.46	2.47	20	0.001	1.00

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2. 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

3. **2.4GHz:**
Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ = 3.80 dBi
U-NII-1, U-NII-2A Band:

Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ = 3.89 dBi

U-NII-2C Band:

Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ = 5.99 dBi

U-NII-3 Band:

Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}]$ = 5.17 dBi

4. There're 2 configurations for the EUT listed as below.

   Mode A: BT Ant. 1

   Mode B: BT Ant. 2

5. Refer to original report (Report No.: RF191030C08 & RF191030C08-1) for the value of WLAN power.

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN + BT = 0.039/1 + 0.001/1 = 0.040

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

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