

RF Exposure Report

Report No.: MFBHQC-WTW-P22030336

FCC ID: 2AQ68RLP0003

Test Model: RLP0003

Received Date: Mar. 08, 2022

Test Date: May 12 ~ Jun. 23, 2022

Issued Date: Jun. 30, 2022

Applicant: Hon Lin Technology Co., Ltd.

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FCC Registration / 788550 / TW0003
Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
MFBHQC-WTW-P22030336	Original release	Jun. 30, 2022

1 Certificate of Conformity

Product: Wi-Fi 6E BT5.2 WLAN Module

Brand: Foxconn

Test Model: RLP0003

Sample Status: Engineering sample

Applicant: Hon Lin Technology Co., Ltd.

Test Date: May 12 ~ Jun. 23, 2022

FCC Rule Part: FCC Part 2 (Section 2.1091)

Standards: 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 RF characteristics under the conditions specified in this report.

Prepared by : Celine Chou , **Date:** Jun. 30, 2022
Celine Chou / Senior Specialist

Approved by : Jeremy Lin , **Date:** Jun. 30, 2022
Jeremy Lin / 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				
300-1500	F/1500	30
1500-100,000	1.0	30

F = Frequency in MHz

2.2 MPE Calculation Formula

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

where

P_d = 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 Description of Antenna

The antenna gain was declared by client; please refer to the following table:

Antenna Set	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length
1	Chain0/1	HONGBO	260-25094	3.53	2.40~2.4835	0.76	PIFA	i-pex (MHF 4L)	300mm
				3.06	5.150~5.250	1.16			
				3.07	5.250~5.350	1.18			
				4.81	5.470~5.725	1.20			
				4.20	5.725~5.850	1.27			
2	Chain0/1	HONGBO	260-25083	5.09	5.850~5.895	1.29	PIFA	i-pex (MHF 4L)	300mm
				5.14	5.925~6.425	1.32			
				5.09	6.425~6.525	1.35			
				5.16	6.525~6.875	1.40			
				5.12	6.875~7.125	1.45			
3	Chain0/1	HONGBO	260-25084	3.22	2.40~2.4835	0.50	Monopole	i-pex (MHF 4L)	200mm
				3.35	5.150~5.250	0.76			
				3.42	5.250~5.350	0.78			
				4.77	5.470~5.725	0.81			
				4.72	5.725~5.850	0.85			
				4.71	5.850~5.895	0.86			
				4.75	5.925~6.425	0.87			
				4.29	6.425~6.525	0.91			
				4.81	6.525~6.875	0.96			
				4.74	6.875~7.125	0.98			
4	Chain0/1	Auden	ANTRG6U123-1801 / ANTRG6U123-1802	5.13 / 4.64	2.40~2.4835	-	PIFA (Slot)	i-pex (MHF 4L)	460mm / 740mm
				2.70 / 3.36	5.150~5.250				
				2.70 / 3.07	5.250~5.350				
				2.50 / 1.08	5.470~5.725				
				2.68 / 0.42	5.725~5.850				
				2.68 / 0.42	5.850~5.895				
				2.18 / 1.20	5.925~6.425				
				1.98 / 0.59	6.425~6.525				
				2.42 / 1.72	6.525~6.875				
				1.48 / 0.62	6.875~7.125				

Note:

1. Antenna Set 4 is the new antenna to be applied for this time.
2. The above Antenna information refers to the manufacturer's antenna specifications, the laboratory shall not be held responsible.

3 Calculation Result of Maximum Conducted Power

Operation Mode	Max AV Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN 2.4GHz	24.50	7.90	20	0.346	1.00
WLAN 5.0GHz	22.50	7.82	20	0.214	1.00
WLAN 5.9GHz	20.00	8.10	20	0.128	1.00
WLAN 6.0GHz	22.50	8.17	20	0.232	1.00
Bluetooth	16.00	5.13	20	0.026	1.00

Note:

1. This power include tune-up tolerance range that specified in QCNFA765 Tune Up power table.
2. BT-LE and BT-EDR can't transmit simultaneously.
3. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
4. The above Antenna information refers to the manufacturer's antenna specifications, the laboratory shall not be held responsible.

2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 7.90\text{dBi}$

5GHz: Directional gain = $4.81\text{dBi} + 10\log(2) = 7.82\text{dBi}$

5.9GHz: Directional gain = $5.09\text{dBi} + 10\log(2) = 8.10\text{dBi}$

6GHz: Directional gain = $5.16\text{dBi} + 10\log(2) = 8.17\text{dBi}$

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

Simultaneously transmission condition.

Condition	Technology	
1	WLAN (2.4GHz)	WLAN (6GHz)
2	WLAN (2.4GHz)	WLAN (5GHz)
3	WLAN (2.4GHz)	WLAN (5.9GHz)
4	WLAN (6GHz)	Bluetooth
5	WLAN (5GHz)	Bluetooth
6	WLAN (5.9GHz)	Bluetooth

$WLAN\ 2.4GHz + WLAN\ 6GHz = 0.346 / 1 + 0.232 / 1 = 0.578 < 1$

$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.346 / 1 + 0.214 / 1 = 0.560 < 1$

$WLAN\ 2.4GHz + WLAN\ 5.9GHz = 0.346 / 1 + 0.128 / 1 = 0.474 < 1$

$WLAN\ 6GHz + Bluetooth = 0.232 / 1 + 0.026 / 1 = 0.258 < 1$

$WLAN\ 5GHz + Bluetooth = 0.214 / 1 + 0.026 / 1 = 0.240 < 1$

$WLAN\ 5.9GHz + Bluetooth = 0.128 / 1 + 0.026 / 1 = 0.154 < 1$

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