

Radio Exposure Evaluation Report

FCC ID : Z8H89FT0066

Equipment : XV2-2T Outdoor Wi-Fi 6 Access point

Brand Name : Cambium Networks

Model Name : XV2-2T

Applicant : Cambium Networks Inc.
3800 Golf Road Suite 360 Rolling Meadows IL United States 60008

Manufacturer : Lite-On Network Communication (Dongguan) Limited
No.30 QingXi-Keji Road, QingXi Town, DongGuan City, Guangdong Province, P.R. China

Standard : 47 CFR FCC Part 2 Subpart J, section 2.1091

The product was received on Apr. 09, 2021, and testing was started from Apr. 09, 2021 and completed on Aug. 03, 2021. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR FCC Part 2 Subpart J, section 2.1091 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. Hsinhua Laboratory
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Photographs of EUT V01





Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2	-	Exposure evaluation	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:

None

Reviewed by: Sam Tsai

Report Producer: Debby Hung

1 General Description

1.1 Information

1.1.1 EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ax/VHT: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
5GHz WLAN	5150-5250 5725-5850	5180-5240 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Bluetooth	2400-2483.5	2402-2480	BR / EDR: FHSS (GFSK / $\pi/4$ -DQPSK / 8DPSK) LE: DSSS (GFSK)

1.2 Table for Explanation of Flash and 2nd Source

Object/part	Main source (Sku 1)	2nd source (Sku 2)
Description (location)		
MOSFET (QB5)	Brand: Fairchild	Brand: APEC
	Model: FET N 150V	Model : FET N 150V
MOSFET (QB10,QB13)	Brand: Fairchild	Brand : APEC
	Model: FET N 100V	Model : FET N 100V
MOSFET (QB7)	Brand:TI	Brand : APEC
	Model: FET N 60V	Model : FET N 60V
FLASH MEMORY (U5)	FLASH MEMORY : 2G bit	FLASH MEMORY :2G bit
	Flash Brand: MICRON	Flash Brand: MXIC
	Flash Model: Nand flash	Flash Model: Nand flash

From the above Skus, Main source (Sku 1) was selected as representative model for the test and its data was recorded in this report.

1.3 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Support
1	LYNwave	Snow Leopard	PIFA antenna	I-PEX	2.4G
2	LYNwave	Snow Leopard	PIFA antenna	I-PEX	2.4G
3	LYNwave	Snow Leopard	PIFA antenna	I-PEX	5G
4	LYNwave	Snow Leopard	PIFA antenna	I-PEX	5G
5	LYNwave	Snow Leopard	PIFA antenna	I-PEX	BT

Ant.	Port	Gain (dBi)					
		2.4G	5G				BT
			U-NII-1	U-NII-2A	U-NII-2C	U-NII-3	
1	1	5.2	-	-	-	-	-
2	2	5.3	-	-	-	-	-
3	1	-	8.1	8.1	9.3	9.0	-
4	2	-	8.6	8.6	8.9	8.6	-
5	1	-	-	-	-	-	5.6

Note 1: The EUT has five antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax mode (2TX/2RX)

Ant. 1 (port 1) and Ant. 2 (port 2) could transmit/receive simultaneously.

For BT function:

For IEEE 802.15.1 Bluetooth mode (1TX/1RX)

Ant. 5 (port 1) could transmit/receive.

For 5GHz function:

For IEEE 802.11 a/n/ac/ax mode (2TX/2RX)

Ant. 3 (port 1) and Ant. 4 (port 2) could transmit/receive simultaneously.

1.4 Accessories

Accessories				
Mount kit	Brand Name	-	Model Name	-

Reminder: Regarding to more detail and other information, please refer to user manual.

1.5 Testing Location

Test Lab. : Sporton International Inc. Hsinhua Laboratory		
☒	Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)
		TEL: 886-3-327-3456 FAX: 886-3-327-0973
Test site Designation No. TW3785 with FCC.		
☐	Wen 33rd.St. (TAF: 3785)	ADD: No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)
		TEL: 886-3-318-0787 FAX: 886-3-318-0287
Test site Designation No. TW0008 with FCC.		

2 Maximum Permissible Exposure

2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	F/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
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

Note: f = frequency in MHz ; *Plane-wave equivalent power density

Multiple Transmitters Condition

Co-location as simultaneously transmitting (co-transmitting) and the evaluation shall be consider that simultaneous transmissions from co-located devices the individual transmitters are evaluated separately. After sum of the individual value (basic restriction / reference level) are measured/calculated also have to under basic restriction / reference level.

Co-transmitting mode: 2.4GHz WLAN+5GHz WLAN Mode +Bluetooth

2.2 MPE Calculation Method

The MPE was calculated at 23 cm to show compliance with the power density limit.
The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$



2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm2)	Limit (mW/cm2)	Ratio (S/Limit)
2.4G;D1D	8.26	25.03	33.29	0.50	33.79	2.39332	23	0.36003	1.00000	0.36003
5.8G;D1D	9.00	26.49	35.49	0.50	35.99	3.97192	23	0.5975	1.00000	0.5975
2.4G;BT-LE	5.60	7.71	13.31	0.50	13.81	0.02404	23	0.00362	1.00000	0.00362
									Sum Ratio	0.96115
									Ratio Limit	1

————THE END————