



Radio Exposure Evaluation Report

FCC ID : 2AHBN-AP24
Equipment : 802.11ax WiFi6E 2+2+2 Indoor AP
Brand Name : Juniper
Model Name : AP24
Applicant : Juniper Networks, Inc.
1133 Innovation Way, Sunnyvale, CA 94089, USA
Manufacturer : Juniper Networks, Inc.
1133 Innovation Way, Sunnyvale, CA 94089, USA
Standard : 47 CFR FCC Part 2 Subpart J, section 2.1091

The product was received on Nov. 25, 2022, and testing was started from Dec. 16, 2022 and completed on Mar. 27, 2023. 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: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory
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Table of Contents

HISTORY OF THIS TEST REPORT3

1 GENERAL DESCRIPTION5

1.1 Information.....5

1.2 Applicable Standards7

1.3 Testing Location7

2 MAXIMUM PERMISSIBLE EXPOSURE8

2.1 Limit of Maximum Permissible Exposure8

2.2 RF Exposure Exempt Measurement9

2.3 Multiple RF Sources Exposure10

2.4 MPE Calculation Method11

2.5 Calculated Result and Limit.....11

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: Ryan Hsiao

Report Producer: Ann Hou

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) VHT: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5720 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
6GHz WLAN	5925-7125	5955-7095	802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Bluetooth	2400-2483.5	2402-2480	LE: DSSS (GFSK)
Thread	2400-2483.5	2405-2475	DSSS (O-QPSK)
ZigBee	2400-2483.5	2405-2475	DSSS (O-QPSK)

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Remark
1	Juniper	X51209900486_1	PIFA	I-PEX	Radio 1_2.4G+Radio 1_6G
2	Juniper	X51209900486_2	PIFA	I-PEX	Radio 0_5G+ Radio 4_BT/Thread/Zigbee
3	Juniper	X51209900486_3	PIFA	I-PEX	Radio 1_2.4G+Radio 0_5G
4	Juniper	X51209900486_4	PIFA	I-PEX	Radio 2_2.4G+Radio 1_6G
5	Juniper	X51209900486_5	PIFA	I-PEX	Radio 2_2.4G+ Radio 2_5G+Radio 2_6G



Ant.	Gain (dBi)						
	Radio 0	Radio 1		Radio 2			Radio 4
	5G	2.4G	6G	2.4G	5G	6G	BT/Thread/Zigbee
1	-	3.04	5.11	-	-	-	-
2	3.66	-	-	-	-	-	2.21
3	3	2.14	-	-	-	-	-
4	-	-	4.55	2.5	-	-	-
5	-	-	-	2.1	3.34	3.16	-

Composite Gain (dBi)									
	2.4G	UNII-1	UNII-2A	UNII-2C	UNII-3	6.175G	6.475G	6.695G	6.995G
DG [1SS] Ant.1 & Ant.3	3.46	-	-	-	-	-	-	-	-
DG [1SS] Ant.4 & Ant.5	3.71	-	-	-	-	-	-	-	-
DG [1SS] Ant.2 & Ant.3	-	4.12	3.86	4.67	5.22	-	-	-	-
DG [1SS] Ant.1 & Ant.4	-	-	-	-	-	4.39	3.31	4.45	5.16

Note 1: The EUT has five antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax mode (1TX/1RX) (Radio 2)
Ant. 5 could transmit/receive.

For IEEE 802.11 b/g/n/VHT/ax mode (2TX/2RX) (Radio 1)
Ant. 1 and Ant. 3 could transmit/receive simultaneously.

For IEEE 802.11 b/g/n/VHT/ax mode (2TX/2RX) (Radio 2)
Ant. 4 and Ant. 5 could transmit/receive simultaneously.

For 5GHz function:

For IEEE 802.11 a/n/ac/ax mode (1TX/1RX) (Radio 2)
Ant. 5 could transmit/receive.

For IEEE 802.11 a/n/ac/ax mode (2TX/2RX) (Radio 0)
Ant. 2 and Ant. 3 could transmit/receive simultaneously.

For BT function:

For IEEE 802.15.1 Bluetooth mode (1TX/1RX) (Radio 4)
Ant. 2 could transmit/receive.

For 6GHz function:

For IEEE 802.11 a/ax mode (1TX/1RX) (Radio 2)
Ant. 5 could transmit/receive.

For IEEE 802.11 a/ax mode (2TX/2RX) (Radio 1)
Ant. 1 and Ant. 4 could transmit/receive simultaneously.



For Thread function:

For Thread mode (1TX/1RX) (Radio 4)
Ant. 2 could transmit/receive.

For Zigbee function:

For Zigbee mode (1TX/1RX) (Radio 4)
Ant. 2 could transmit/receive.

1.1.3 Accessories

Accessories				
Bracket	Brand Name	JUNIPER	Model Name	APBR-U

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

1.2 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 2 Subpart J, section 2.1091
- ♦ KDB 447498 D04 Interim General RF Exposure Guidance v01

The following reference test guidance is not within the scope of accreditation of TAF.

- ♦ 47 CFR Part 1.1307
- ♦ 47 CFR Part 1.1310

1.3 Testing Location

Test Lab. : Sporton International Inc. Hsinhua Laboratory		
<input checked="" type="checkbox"/>	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.		



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:

1. Radio 1_2.4GHz WLAN + Radio 2_2.4GHz WLAN + Radio 0_5GHz WLAN + Bluetooth
2. Radio 1_2.4GHz WLAN + Radio 2_5GHz WLAN + Radio 0_5GHz WLAN + Bluetooth
3. Radio 1_2.4GHz WLAN + Radio 2_6GHz WLAN + Radio 0_5GHz WLAN + Bluetooth
4. Radio 1_6GHz WLAN + Radio 2_2.4GHz WLAN + Radio 0_5GHz WLAN + Bluetooth
5. Radio 1_6GHz WLAN + Radio 2_5GHz WLAN + Radio 0_5GHz WLAN + Bluetooth
6. Radio 1_6GHz WLAN + Radio 2_6GHz WLAN + Radio 0_5GHz WLAN + Bluetooth
7. Radio 1_2.4GHz WLAN + Radio 2_2.4GHz WLAN + Radio 0_5GHz WLAN + Zigbee
8. Radio 1_2.4GHz WLAN + Radio 2_5GHz WLAN + Radio 0_5GHz WLAN + Zigbee
9. Radio 1_2.4GHz WLAN + Radio 2_6GHz WLAN + Radio 0_5GHz WLAN + Zigbee
10. Radio 1_6GHz WLAN + Radio 2_2.4GHz WLAN + Radio 0_5GHz WLAN + Zigbee
11. Radio 1_6GHz WLAN + Radio 2_5GHz WLAN + Radio 0_5GHz WLAN + Zigbee
12. Radio 1_6GHz WLAN + Radio 2_6GHz WLAN + Radio 0_5GHz WLAN + Zigbee
13. Radio 1_2.4GHz WLAN + Radio 2_2.4GHz WLAN + Radio 0_5GHz WLAN + thread
14. Radio 1_2.4GHz WLAN + Radio 2_5GHz WLAN + Radio 0_5GHz WLAN + Thread
15. Radio 1_2.4GHz WLAN + Radio 2_6GHz WLAN + Radio 0_5GHz WLAN + Thread
16. Radio 1_6GHz WLAN + Radio 2_2.4GHz WLAN + Radio 0_5GHz WLAN + Thread
17. Radio 1_6GHz WLAN + Radio 2_5GHz WLAN + Radio 0_5GHz WLAN + Thread
18. Radio 1_6GHz WLAN + Radio 2_6GHz WLAN + Radio 0_5GHz WLAN + Thread

2.2 RF Exposure Exempt Measurement

Option	Refer Std.	Exemption Exposure Thresholds (TL)
A	§1.1307(b)(3)(i)(A)	Available maximum time-averaged power is no more than 1 mW
B	§1.1307(b)(3)(i)(B)	$P_{th}(mW) = \begin{cases} ERP_{20cm} (d / 20cm)^x \rightarrow d \leq 20cm \\ ERP_{20cm} \rightarrow 20cm < d \leq 40cm \end{cases}$ $x = -\log_{10} \left(\frac{60}{ERP_{20cm} \sqrt{f}} \right) \text{ and } f \text{ is in GHz}$ $\begin{cases} ERP_{20cm} : 0.3GHz \leq f < 1.5GHz \rightarrow 2040 f (mW) \\ ERP_{20cm} : 1.5GHz \leq f \leq 6GHz \rightarrow 3060 (mW) \end{cases}$
C	§1.1307(b)(3)(i)(C)	$\begin{cases} 0.3 \sim 1.34MHz \rightarrow ERP(W) = 1920R^2 \\ 1.34 \sim 30MHz \rightarrow ERP(W) = 3450R^2 / f^2 \\ 30 \sim 300MHz \rightarrow ERP(W) = 3.83R^2 \\ 300 \sim 1500MHz \rightarrow ERP(W) = 0.0128R^2 f \\ 1500 \sim 100000MHz \rightarrow ERP(W) = 19.2R^2 \end{cases}$ <p>f is in MHz; R is in m; $R > \lambda / 2\pi$</p>

2.3 Multiple RF Sources Exposure

Refer Std.	Exemption Exposure Thresholds (TL)
§1.1307(b)(3)(ii)(A)	<p>The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required)</p>
§1.1307(b)(3)(ii)(B)	$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{ExposureLimit_k} \leq 1$ <p>a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(B) of this section for P , including existing exempt transmitters and those being added.</p> <p>b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.</p> <p>c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.</p> <p>P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).</p> <p>P_{th,i} = the exemption threshold power (P_{th}) according to paragraph §1.1307(b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i.</p> <p>ERP_j = the ERP of fixed, mobile, or portable RF source j.</p> <p>ERP_{th,j} = exemption threshold ERP for fixed, mobile, or portable RF source j, at a distance of at least λ/2π according to the applicable formula of paragraph §1.1307 (b)(3)(i)(C) of this section.</p> <p>Evaluated_k = the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.</p> <p>Evaluated Limit_k = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k, as applicable from § 1.1310 of this chapter.</p>

2.4 MPE Calculation Method

The MPE was calculated at 20 cm to show compliance with the power density limit. The following formula was used to calculate the Power Density:

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

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

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

2.5 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

2.4GHz WLAN_Non-Beamforming_Radio 1

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;G1D	3.04	23.14	26.18	0.50	283.8638	20.00	0.09263	1.00000	B	3060	0.0928
2.4G;D1D	3.04	23.16	26.20	0.50	285.1740	20.00	0.09305	1.00000	B	3060	0.0932

2.4GHz WLAN_Non-Beamforming_Radio 2

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;G1D	2.50	22.73	25.23	0.50	228.0920	20.00	0.07443	1.00000	B	3060	0.0745
2.4G;D1D	2.50	22.86	25.36	0.50	235.0228	20.00	0.07669	1.00000	B	3060	0.0768

2.4GHz WLAN_Beamforming_Radio 1

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	3.46	23.15	26.61	0.50	313.4079	20.00	0.10227	1.00000	B	3060	0.1024

5GHz WLAN_Non-Beamforming_Radio 0

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
5.2G;D1D	3.66	23.60	27.26	0.50	364.0072	20.00	0.11878	1.00000	B	3060	0.1190
5.3G;D1D	3.66	23.44	27.10	0.50	350.8407	20.00	0.11448	1.00000	B	3060	0.1147
5.6G;D1D	3.66	23.30	26.96	0.50	339.7113	20.00	0.11085	1.00000	B	3060	0.1110
5.8G;D1D	3.66	23.33	26.99	0.50	342.0661	20.00	0.11162	1.00000	B	3060	0.1118



5GHz WLAN_Non-Beamforming_Radio 2

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
5.2G;D1D	3.34	19.99	23.33	0.50	147.2685	20.00	0.04805	1.00000	B	3060	0.0481
5.3G;D1D	3.34	19.95	23.29	0.50	145.9184	20.00	0.04761	1.00000	B	3060	0.0477
5.6G;D1D	3.34	20.31	23.65	0.50	158.5295	20.00	0.05173	1.00000	B	3060	0.0518
5.8G;D1D	3.34	20.28	23.62	0.50	157.4382	20.00	0.05137	1.00000	B	3060	0.0515

5GHz WLAN_Beamforming_Radio 0

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
5.2G;D1D	4.12	23.49	27.61	0.50	394.5572	20.00	0.12874	1.00000	B	3060	0.1290
5.3G;D1D	3.86	23.31	27.17	0.50	356.5414	20.00	0.11634	1.00000	B	3060	0.1165
5.6G;D1D	4.67	23.16	27.83	0.50	415.0592	20.00	0.13543	1.00000	B	3060	0.1357
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.00000	B	3060	0.1550

6GHz WLAN_Non-Beamforming_Radio 1

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	5.11	22.88	27.99	0.50	430.6357	20.00	0.14052	1.00000	C	768	0.5608
6.4G;D1D	5.11	22.71	27.82	0.50	414.1045	20.00	0.13512	1.00000	C	768	0.5393
6.7G;D1D	5.11	22.46	27.57	0.50	390.9399	20.00	0.12756	1.00000	C	768	0.5091
7.0G;D1D	5.11	21.76	26.87	0.50	332.7438	20.00	0.10858	1.00000	C	768	0.4333

6GHz WLAN_Non-Beamforming_Radio 2

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	3.16	19.59	22.75	0.50	128.8576	20.00	0.04205	1.00000	C	768	0.1678
6.4G;D1D	3.16	19.31	22.47	0.50	120.8120	20.00	0.03942	1.00000	C	768	0.1573
6.7G;D1D	3.16	19.55	22.71	0.50	127.6762	20.00	0.04166	1.00000	C	768	0.1663
7.0G;D1D	3.16	19.21	22.37	0.50	118.0620	20.00	0.03852	1.00000	C	768	0.1537

6GHz WLAN_Beamforming_Radio 1

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	4.39	22.83	27.22	0.50	360.6700	20.00	0.11769	1.00000	C	768	0.4697
6.4G;D1D	3.31	22.66	25.97	0.50	270.4643	20.00	0.08825	1.00000	C	768	0.3522
6.7G;D1D	4.45	22.41	26.86	0.50	331.9785	20.00	0.10833	1.00000	C	768	0.4323
7.0G;D1D	5.16	20.45	25.61	0.50	248.9488	20.00	0.08123	1.00000	C	768	0.3242

Bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;BT-LE	2.21	4.80	7.01	0.50	3.4364	20.00	0.00112	1.00000	B	3060	0.0011

Zigbee

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;G1D	2.21	7.92	10.13	0.50	7.0487	20.00	0.00230	1.000	B	3060	0.0023



Thread

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	2.21	6.86	9.07	0.50	5.5222	20.00	0.00180	1.000	B	3060	0.0018

Note 1: Option A, B and C refer as clause 2.2

Note 2: For option B, Pth(mW) convert to TL ERP(mW); For option C, ERP(W) convert to TL ERP(mW)

Note 3: TL Ratio=Tune-up ERP(mW)/TL ERP(mW)

Simultaneous Transmission Analysis Mode:

Radio 1_2.4GHz WLAN + Radio 2_2.4GHz WLAN + Radio 0_5GHz WLAN + Bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	3.46	23.15	26.61	0.50	313.4079	20.00	0.10227	1.000	B	3060	0.1024
2.4G;D1D	2.50	22.86	25.36	0.50	235.0228	20.00	0.07669	1.000	B	3060	0.0768
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;BT-LE	2.21	4.80	7.01	0.50	3.4364	20.00	0.00112	1.000	B	3060	0.0011
										Sum Ratio	0.3354
										Ratio Limit	1

Radio 1_2.4GHz WLAN + Radio 2_5GHz WLAN + Radio 0_5GHz WLAN + Bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	3.46	23.15	26.61	0.50	313.4079	20.00	0.10227	1.000	B	3060	0.1024
5.6G;D1D	3.34	20.31	23.65	0.50	158.5295	20.00	0.05173	1.000	B	3060	0.0518
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;BT-LE	2.21	4.80	7.01	0.50	3.4364	20.00	0.00112	1.000	B	3060	0.0011
										Sum Ratio	0.3104
										Ratio Limit	1

Radio 1_2.4GHz WLAN + Radio 2_6GHz WLAN + Radio 0_5GHz WLAN + Bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	3.46	23.15	26.61	0.50	313.4079	20.00	0.10227	1.000	B	3060	0.1024
6.2G;D1D	3.16	19.59	22.75	0.50	128.8576	20.00	0.04205	1.000	C	768	0.1678
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;BT-LE	2.21	4.80	7.01	0.50	3.4364	20.00	0.00112	1.000	B	3060	0.0011
										Sum Ratio	0.4263
										Ratio Limit	1



Radio 1_6GHz WLAN + Radio 2_2.4GHz WLAN + Radio 0_5GHz WLAN + Bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	5.11	22.88	27.99	0.50	430.6357	20.00	0.14052	1.000	C	768	0.5607
2.4G;D1D	2.50	22.86	25.36	0.50	235.0228	20.00	0.07669	1.000	B	3060	0.0768
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;BT-LE	2.21	4.80	7.01	0.50	3.4364	20.00	0.00112	1.000	B	3060	0.0011
										Sum Ratio	0.7936
										Ratio Limit	1

Radio 1_6GHz WLAN + Radio 2_5GHz WLAN + Radio 0_5GHz WLAN + Bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	5.11	22.88	27.99	0.50	430.6357	20.00	0.14052	1.000	C	768	0.5607
5.6G;D1D	3.34	20.31	23.65	0.50	158.5295	20.00	0.05173	1.000	B	3060	0.0518
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;BT-LE	2.21	4.80	7.01	0.50	3.4364	20.00	0.00112	1.000	B	3060	0.0011
										Sum Ratio	0.7686
										Ratio Limit	1

Radio 1_6GHz WLAN + Radio 2_6GHz WLAN + Radio 0_5GHz WLAN + Bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	5.11	22.88	27.99	0.50	430.6357	20.00	0.14052	1.000	C	768	0.5607
6.2G;D1D	3.16	19.59	22.75	0.50	128.8576	20.00	0.04205	1.000	C	768	0.1678
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;BT-LE	2.21	4.80	7.01	0.50	3.4364	20.00	0.00112	1.000	B	3060	0.0011
										Sum Ratio	0.8846
										Ratio Limit	1

Radio 1_2.4GHz WLAN + Radio 2_2.4GHz WLAN + Radio 0_5GHz WLAN + Zigbee

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	3.46	23.15	26.61	0.50	313.4079	20.00	0.10227	1.000	B	3060	0.1024
2.4G;D1D	2.50	22.86	25.36	0.50	235.0228	20.00	0.07669	1.000	B	3060	0.0768
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;G1D	2.21	7.92	10.13	0.50	7.0487	20.00	0.00230	1.000	B	3060	0.0023
										Sum Ratio	0.3365
										Ratio Limit	1



Radio 1_2.4GHz WLAN + Radio 2_5GHz WLAN + Radio 0_5GHz WLAN + Zigbee

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	3.46	23.15	26.61	0.50	313.4079	20.00	0.10227	1.000	B	3060	0.1024
5.6G;D1D	3.34	20.31	23.65	0.50	158.5295	20.00	0.05173	1.000	B	3060	0.0518
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;G1D	2.21	7.92	10.13	0.50	7.0487	20.00	0.00230	1.000	B	3060	0.0023
										Sum Ratio	0.3115
										Ratio Limit	1

Radio 1_2.4GHz WLAN + Radio 2_6GHz WLAN + Radio 0_5GHz WLAN + Zigbee

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	3.46	23.15	26.61	0.50	313.4079	20.00	0.10227	1.000	B	3060	0.1024
6.2G;D1D	3.16	19.59	22.75	0.50	128.8576	20.00	0.04205	1.000	C	768	0.1678
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;G1D	2.21	7.92	10.13	0.50	7.0487	20.00	0.00230	1.000	B	3060	0.0023
										Sum Ratio	0.4275
										Ratio Limit	1

Radio 1_6GHz WLAN + Radio 2_2.4GHz WLAN + Radio 0_5GHz WLAN + Zigbee

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	5.11	22.88	27.99	0.50	430.6357	20.00	0.14052	1.000	C	768	0.5607
2.4G;D1D	2.50	22.86	25.36	0.50	235.0228	20.00	0.07669	1.000	B	3060	0.0768
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;G1D	2.21	7.92	10.13	0.50	7.0487	20.00	0.00230	1.000	B	3060	0.0023
										Sum Ratio	0.7948
										Ratio Limit	1

Radio 1_6GHz WLAN + Radio 2_5GHz WLAN + Radio 0_5GHz WLAN + Zigbee

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	5.11	22.88	27.99	0.50	430.6357	20.00	0.14052	1.000	C	768	0.5607
5.6G;D1D	3.34	20.31	23.65	0.50	158.5295	20.00	0.05173	1.000	B	3060	0.0518
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;G1D	2.21	7.92	10.13	0.50	7.0487	20.00	0.00230	1.000	B	3060	0.0023
										Sum Ratio	0.7698
										Ratio Limit	1



Radio 1_6GHz WLAN + Radio 2_6GHz WLAN + Radio 0_5GHz WLAN + Zigbee

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	5.11	22.88	27.99	0.50	430.6357	20.00	0.14052	1.000	C	768	0.5607
6.2G;D1D	3.16	19.59	22.75	0.50	128.8576	20.00	0.04205	1.000	C	768	0.1678
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;G1D	2.21	7.92	10.13	0.50	7.0487	20.00	0.00230	1.000	B	3060	0.0023
										Sum Ratio	0.8858
										Ratio Limit	1

Radio 1_2.4GHz WLAN + Radio 2_2.4GHz WLAN + Radio 0_5GHz WLAN + Thread

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	3.46	23.15	26.61	0.50	313.4079	20.00	0.10227	1.000	B	3060	0.1024
2.4G;D1D	2.50	22.86	25.36	0.50	235.0228	20.00	0.07669	1.000	B	3060	0.0768
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;D1D	2.21	6.86	9.07	0.50	5.5222	20.00	0.00180	1.000	B	3060	0.0018
										Sum Ratio	0.3360
										Ratio Limit	1

Radio 1_2.4GHz WLAN + Radio 2_5GHz WLAN + Radio 0_5GHz WLAN + Thread

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	3.46	23.15	26.61	0.50	313.4079	20.00	0.10227	1.000	B	3060	0.1024
5.6G;D1D	3.34	20.31	23.65	0.50	158.5295	20.00	0.05173	1.000	B	3060	0.0518
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;D1D	2.21	6.86	9.07	0.50	5.5222	20.00	0.00180	1.000	B	3060	0.0018
										Sum Ratio	0.3110
										Ratio Limit	1

Radio 1_2.4GHz WLAN + Radio 2_6GHz WLAN + Radio 0_5GHz WLAN + Thread

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	3.46	23.15	26.61	0.50	313.4079	20.00	0.10227	1.000	B	3060	0.1024
6.2G;D1D	3.16	19.59	22.75	0.50	128.8576	20.00	0.04205	1.000	C	768	0.1678
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;D1D	2.21	6.86	9.07	0.50	5.5222	20.00	0.00180	1.000	B	3060	0.0018
										Sum Ratio	0.4270
										Ratio Limit	1



Radio 1_6GHz WLAN + Radio 2_2.4GHz WLAN + Radio 0_5GHz WLAN + Thread

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	5.11	22.88	27.99	0.50	430.6357	20.00	0.14052	1.000	C	768	0.5607
2.4G;D1D	2.50	22.86	25.36	0.50	235.0228	20.00	0.07669	1.000	B	3060	0.0768
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;D1D	2.21	6.86	9.07	0.50	5.5222	20.00	0.00180	1.000	B	3060	0.0018
										Sum Ratio	0.7943
										Ratio Limit	1

Radio 1_6GHz WLAN + Radio 2_5GHz WLAN + Radio 0_5GHz WLAN + Thread

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	5.11	22.88	27.99	0.50	430.6357	20.00	0.14052	1.000	C	768	0.5607
5.6G;D1D	3.34	20.31	23.65	0.50	158.5295	20.00	0.05173	1.000	B	3060	0.0518
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;D1D	2.21	6.86	9.07	0.50	5.5222	20.00	0.00180	1.000	B	3060	0.0018
										Sum Ratio	0.7693
										Ratio Limit	1

Radio 1_6GHz WLAN + Radio 2_6GHz WLAN + Radio 0_5GHz WLAN + Thread

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Option	TL ERP (mW)	TL Ratio
6.2G;D1D	5.11	22.88	27.99	0.50	430.6357	20.00	0.14052	1.000	C	768	0.5607
6.2G;D1D	3.16	19.59	22.75	0.50	128.8576	20.00	0.04205	1.000	C	768	0.1678
5.8G;D1D	5.22	23.19	28.41	0.50	474.3621	20.00	0.15479	1.000	B	3060	0.1550
2.4G;D1D	2.21	6.86	9.07	0.50	5.5222	20.00	0.00180	1.000	B	3060	0.0018
										Sum Ratio	0.8853
										Ratio Limit	1

Note 1: Option A, B and C refer as clause 2.2

Note 2: For option B, Pth(mW) convert to TL ERP(mW); For option C, ERP(W) convert to TL ERP(mW)

Note 3: TL Ratio=Tune-up ERP(mW)/TL ERP(mW)

Note 4: Refer as clause 2.3 Multiple RF Sources Exposure. Please follow below option and sum TL ration table.

Option	Sum TL Ratio_B	Option	Sum TL Ratio_C	Option	Sum TL Ratio_E
B	$\sum_{i=1}^a \frac{P_i}{P_{th,i}}$	C	$\sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}}$	E	$\sum_{k=1}^c \frac{Evaluated_k}{ExposureLimit_k}$

Note: The above antenna gain was declared by manufacturer.

—————THE END—————