Radio Exposure Evaluation Report

FCC ID	:	**TVE-5108TQ56462**
Equipment	:	**Secured Wireless Access Point**
Brand Name	:	**FORTINET**
Model Name	:	**FortiAP 432Gxxxxxx, FAP-432Gxxxxxx, FORTIAP-432Gxxxxxx (Where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only)**
Applicant	:	**Fortinet, Inc. 899 Kifer Road, Sunnyvale, CA 94086, USA**
Manufacturer	:	**Fortinet, Inc. 899 Kifer Road, Sunnyvale, CA 94086, USA**
Standard	:	**47 CFR FCC Part 2 Subpart J, section 2.1091**

The product was received on Aug. 14, 2023, and testing was started from Nov. 19, 2023 and completed on Mar. 25, 2024. 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
No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)

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History of this test report

Report No.	Version	Description	Issued Date
FA362304	01	Initial issue of report	Apr. 29, 2024

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: Terry Chang
Report Producer: Julie Tseng

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 5725-5850	5180-5240 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Bluetooth	2400-2483.5	2402-2480	LE: DSSS (GFSK)
ZigBee	2400-2483.5	2405-2480	DSSS (O-QPSK)

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Support
1	1	SENAO	5718A0729300	Dipole	N-type	2.4G+5G
2	2	SENAO	5718A0729300	Dipole	N-type	2.4G+5G
3	1	SENAO	5718A0729300	Dipole	N-type	2.4G+5G
4	2	SENAO	5718A0729300	Dipole	N-type	2.4G+5G
5	1	SENAO	5718A0727300	Dipole	N-type	2.4G+5G+6G
6	2	SENAO	5718A0727300	Dipole	N-type	2.4G+5G+6G
7	3	SENAO	5718A0727300	Dipole	N-type	2.4G+5G+6G
8	4	SENAO	5718A0727300	Dipole	N-type	2.4G+5G+6G
9	1	SENAO	5718A0618300	Dipole	N-type	BT&Zigbee
10	1	Quectel	7102A0652000	Patch	I-Pex	GPS

Gain (dBi)							Remark		
Ant.	Port	2.4G	5G	6G	BT& Zigbee	GPS			
1	1	4.82	5.89	-	-	-	Radio 1_ 2.4G 4*4	Radio 2_ 5G 4*4	Radio 2 (Low Band) (5G Band1/2) 4*4
2	2	4.76	6.01	-	-	-			
3	3	5.03	6.4	-	-	-			
4	4	4.78	6.14	-	-	-			
5	1	4.26	5.75	5.8	-	-	Radio 3_ 6G 4*4	Radio 3 2.4G/5G/6G 2*2 Scan Radio	Radio 3 (High Band) (5G Band3/4) 4*4
6	2	4.45	5.54	5.95	-	-		-	
7	3	4.81	5.5	5.65	-	-		Radio 3 2.4G/5G/6G 2*2 Scan Radio	
8	4	4.86	5.72	5.8	-	-		-	
9	1	-	-	-	4.71	-	-		
10	1	-	-	-	-	2	-		

Note 1: The EUT has ten antennas.
Note 2: Directional gain information

	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$
BF	$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$	$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

For 2.4GHz function:

< Radio 1 >

For IEEE 802.11b/g/n/VHT/ax mode (4TX/4RX)

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

< Radio 3 > < Scan >

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

Ant.5 (port 1), Ant.7 (port 3) can be used as receiving.

For 5GHz function:

< Radio 2 >

For IEEE 802.11a/n/ac/ax mode (4TX/4RX)

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

< Radio 3 > < Scan >

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

Ant.5 (port 1), Ant.7 (port 3) can be used as receiving.

< Radio 2 > < Low Band >

For IEEE 802.11a/n/ac/ax mode (4TX/4RX)

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

< Radio 3 > < High Band >

For IEEE 802.11a/n/ac/ax mode (4TX/4RX)

Ant.5 (port 1), Ant.6 (port 2), Ant.7 (port 3), Ant.8 (port 4) could transmit/receive simultaneously.

For 6GHz function:

< Radio 3 >

For IEEE 802.11a/ax mode (4TX/4RX)

Ant.5 (port 1), Ant.6 (port 2), Ant.7 (port 3), Ant.8 (port 4) could transmit/receive simultaneously.

< Radio 3 > < Scan >

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

Ant.5 (port 1), Ant.7 (port 3) can be used as receiving.

For Bluetooth function:

For Bluetooth mode (1TX/1RX)

Only Ant.9 can be used as transmitting/receiving.

For GPS function:

For GPS mode (1RX)

Only Ant.10 can be used as receiving.

1.1.3 Table for Multiple Listing

The brand/model names in the following table are all refer to the identical product.

Brand Name	Model Name	Description
FORTINET	FortiAP 432Gxxxxxx, FAP-432Gxxxxxx, FORTIAP-432Gxxxxxx (Where "x" can be used as "A-Z", or "0-9", or “-", or blank for software changes or marketing purposes only)	All the models are identical, the difference model served as marketing strategy.

From the above models, model: FAP-432G was selected as representative model for the test and its data was recorded in this report.

1.1.4 Accessories

Accessories				
PoE Adapter	Brand Name	Senao Inc.	Model Name	PIN060-54PR
	Power Rating	I/P: 100 - 240 Vac, 1.5 A, 50-60 Hz,O/P: 54 Vdc, 1.11 A		
AC CORD	Brand Name	I-SHENG	Model Name	AC CORD 600mm
	Signal Line	0.5 meter, shielded cable, w/o ferrite core		
BRACKET POLE MOUNT	Brand Name	CUN SHENG	Model Name	BRACKET POLE MOUNT LFP
BRACKET WALL MOUNT	Brand Name	Enrack	Model Name	BRACKET WALL MOUNT
Pole Mount Bracket	Brand Name	CUN SHENG	Model Name	6301A2873010
Ground Wire	Brand Name	BO YAO	Model Name	WIRE GEN AWG10 180cm
	Signal Line	1.8 meter, shielded cable, w/o ferrite core		

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			
☒	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/ cm²)	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 / f²)*	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/ cm²)	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/f²)*	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 1:2.4G + Radio 2:5G full + BT 2. Radio 1:2.4G + Radio 2:5G Low band(Band1/2) + Radio 3: 5G High band(Band3/4) + BT 3. Radio 1:2.4G + Radio 2:5G full + Zigbee 4. Radio 1:2.4G + Radio 2:5G Low band(Band1/2) + Radio 3: 5G High band(Band3/4) + Zigbee

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)	$\mathrm{P}th(mW)=\begin{cases} ERP_{20cm}(d/20cm)^{x} \rightarrow d \le 20cm \\ ERP_{20cm} \rightarrow 20cm < d \le 40cm \end{cases}$ $x=-\log_{10}\left(\frac{60}{ERP_{20cm}\sqrt{f}}\right)$ and f is in GHz $\begin{cases} ERP_{20cm}: 0.3GHz \le f < 1.5GHz \rightarrow 2040\ f\,(mW) \\ ERP_{20cm}: 1.5GHz \le f \le 6GHz \rightarrow 3060\,(mW) \end{cases}$
C	§1.1307(b)(3)(i)(C)	$\begin{cases} 0.3 \sim 1.34MHz \rightarrow ERP(\mathrm{W}) = 1920R^2 \\ 1.34 \sim 30MHz \rightarrow ERP(\mathrm{W}) = 3450R^2 / f^2 \\ 30 \sim 300MHz \rightarrow ERP(\mathrm{W}) = 3.83R^2 \\ 300 \sim 1500MHz \rightarrow ERP(\mathrm{W}) = 0.0128R^2 f \\ 1500 \sim 100000MHz \rightarrow ERP(\mathrm{W}) = 19.2R^2 \end{cases}$ f is in MHz; R is in m; $\mathrm{R} > \lambda/2\pi$

2.3 Multiple RF Sources Exposure

Refer Std.	Exemption Exposure Thresholds (TL)
§1.1307(b)(3)(ii)(A)	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)
§1.1307(b)(3)(ii)(B)	$\sum_{i=1}^{a}\frac{P_i}{P_{th,i}}+\sum_{j=1}^{b}\frac{ERP_j}{ERP_{th,j}}+\sum_{k=1}^{c}\frac{Evaluated_k}{ExposureLimit_k}\le 1$ 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. 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. c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters. 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). $P_{th,i}$ = 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. ERP_j = the ERP of fixed, mobile, or portable RF source j. $ERP_{th,j}$ = 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. $Evaluated_k$ = 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. $Evaluated\ Limit_k$ = 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.

2.4 MPE Calculation Method

The MPE was calculated at 61 cm to show compliance with the power density limit.
The following formula was used to calculate the Power Density:

E (V/m) $= \frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) $= \frac{E^2}{377}$

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	5.03	29.54	34.57	0.50	1959.34	61	0.06873	1.00000	C	7144.320	0.27425
2.4G;D1D	5.03	29.98	35.01	0.50	2168.25	61	0.07606	1.00000	C	7144.320	0.30349

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	10.87	21.67	32.54	0.50	1227.75	61	0.04307	1.00000	C	7144.320	0.17185

5GHz WLAN_Non-Beamforming_Indoor

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	6.40	25.86	32.26	0.50	1151.09	61	0.04038	1.00000	C	7144.320	0.16112
5.8G;D1D	6.40	28.99	35.39	0.50	2366.52	61	0.08301	1.00000	C	7144.320	0.33124

Radio 2 Low Band (Band1/2)

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	6.40	26.62	33.02	0.50	1371.23	61	0.04810	1.00000	C	7144.320	0.19193

Radio 3 High Band (Band3/4)

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
5.8G;D1D	5.75	29.71	35.46	0.50	2404.97	61	0.08436	1.00000	C	7144.320	0.33663

5GHz WLAN_Beamforming_Indoor

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	12.13	22.92	35.05	0.50	2188.32	61	0.07676	1.00000	C	7144.320	0.30630
5.8G;D1D	12.13	23.30	35.43	0.50	2388.42	61	0.08378	1.00000	C	7144.320	0.33431

Radio 2 Low Band (Band1/2)

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	12.13	23.18	35.31	0.50	2323.33	61	0.08149	1.00000	C	7144.320	0.32520

Radio 3 High Band (Band3/4)

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
5.8G;D1D	11.65	23.81	35.46	0.50	2404.97	61	0.08436	1.00000	C	7144.320	0.33663

5GHz WLAN_Non-Beamforming_Outdoor

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	6.40	23.70	30.10	0.50	700.02	61	0.02455	1.00000	C	7144.320	0.09798
5.8G;D1D	6.40	28.99	35.39	0.50	2366.52	61	0.08301	1.00000	C	7144.320	0.33124

Radio 2 Low Band (Band1/2)

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	6.40	25.18	31.58	0.50	984.26	61	0.03452	1.00000	C	7144.320	0.13777

Radio 3 High Band (Band3/4)

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
5.8G;D1D	5.75	29.71	35.46	0.50	2404.97	61	0.08436	1.00000	C	7144.320	0.33663

5GHz WLAN_Beamforming_Outdoor

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	12.13	22.60	34.73	0.50	2032.87	61	0.07131	1.00000	C	7144.320	0.28454
5.8G;D1D	12.13	23.30	35.43	0.50	2388.42	61	0.08378	1.00000	C	7144.320	0.33431

Radio 2 Low Band (Band1/2)

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	12.13	23.10	35.23	0.50	2280.92	61	0.08001	1.00000	C	7144.320	0.31926

Radio 3 High Band (Band3/4)

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
5.8G;D1D	11.65	23.81	35.46	0.50	2404.97	61	0.08436	1.00000	C	7144.320	0.33663

Bluetooth_LE

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm²)	S Limit (mW/cm²)	Option	TL ERP (mW)	TL Ratio
2.4G;BT-LE	4.71	7.45	12.16	0.50	11.25	61	0.00039	1.00000	C	7144.320	0.00157

Zigbee

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm²)	S Limit (mW/cm²)	Option	TL ERP (mW)	TL Ratio
2.4G;G1D	4.71	9.51	14.22	0.50	11.25	61	0.00063	1.00000	C	7144.320	0.00253

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 1:2.4G + Radio 2:5G full + BT

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm²)	S Limit (mW/cm²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	5.03	29.98	35.01	0.50	2168.25	61	0.07606	1.00000	C	7144.320	0.30349
5.8G;D1D	12.13	23.30	35.43	0.50	2388.42	61	0.08378	1.00000	C	7144.320	0.33431
2.4G;BT-LE	4.71	7.45	12.16	0.50	11.25	61	0.00039	1.00000	C	7144.320	0.00157
Sum Ratio	0.63937										
Ratio Limit	1.00000										

Radio 1:2.4G + Radio 2:5G Low band(Band1/2) + Radio 3: 5G High band(Band3/4) + BT

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm²)	S Limit (mW/cm²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	5.03	29.98	35.01	0.50	2168.25	61	0.07606	1.00000	C	7144.320	0.30349
5.2G;D1D	12.13	23.18	35.31	0.50	2323.33	61	0.08149	1.00000	C	7144.320	0.32520
5.8G;D1D	11.65	23.81	35.46	0.50	2404.97	61	0.08436	1.00000	C	7144.320	0.33663
2.4G;BT-LE	4.71	7.45	12.16	0.50	11.25	61	0.00039	1.00000	C	7144.320	0.00157
Sum Ratio	0.96689										
Ratio Limit	1.00000										

Radio 1:2.4G + Radio 2:5G full + Zigbee

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm²)	S Limit (mW/cm²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	5.03	29.98	35.01	0.50	2168.25	61	0.07606	1.00000	C	7144.320	0.30349
5.8G;D1D	12.13	23.30	35.43	0.50	2388.42	61	0.08378	1.00000	C	7144.320	0.33431
2.4G;G1D	4.71	9.51	14.22	0.50	18.08	61	0.00063	1.00000	C	7144.320	0.00253
Sum Ratio	0.64033										
Ratio Limit	1.00000										

Radio 1:2.4G + Radio 2:5G Low band(Band1/2) + Radio 3: 5G High band(Band3/4) + Zigbee

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up ERP (mW)	Distance (cm)	S (mW/cm²)	S Limit (mW/cm²)	Option	TL ERP (mW)	TL Ratio
2.4G;D1D	5.03	29.98	35.01	0.50	2168.25	61	0.07606	1.00000	C	7144.320	0.30349
5.2G;D1D	12.13	23.18	35.31	0.50	2323.33	61	0.08149	1.00000	C	7144.320	0.32520
5.8G;D1D	11.65	23.81	35.46	0.50	2404.97	61	0.08436	1.00000	C	7144.320	0.33663
2.4G;G1D	4.71	9.51	14.22	0.50	18.08	61	0.00063	1.00000	C	7144.320	0.00253
Sum Ratio	0.96785										
Ratio Limit	1.00000										

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———