



FCC RADIO EXPOSURE TEST REPORT

FCC ID : QXO-AP510E
Equipment : 802.11ax Access Point
Brand Name : Extreme Networks
Model Name : AP510e
Applicant : Extreme Networks, Inc.
6480 Via Del Oro, San Jose, CA 95119
Manufacturer : Extreme Networks, Inc.
6480 Via Del Oro, San Jose, CA 95119
Standard : 47 CFR Part 2.1091

The product was received on Nov. 09, 2018, and testing was started from Nov. 22, 2018 and completed on Mar. 15, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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



Approved by: Sam Chen

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Photographs of EUT v01



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Report Template No.: CB Ver1.0



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:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Vicky Huang

1 General Description

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: 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) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Bluetooth	2400-2483.5	2402-2480	LE: DSSS (GFSK)
Thread	2400-2483.5	2405-2480	Thread: O-QPSK (250kbps)

1.2 Table for EUT support function

The EUT has three radios, the information as following table:

Radio	Function		
	WLAN 2.4GHz	WLAN 5GHz	Bluetooth/Thread
1	V	V	-
2	-	V	-
3	-	-	V

Function	Radio	Support Type	Support Band
AP	1,2,3	Master	WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1~4
Client	1	Slave without Radar Detection (Sensor Mode)	WLAN 2.4GHz/WLAN 5GHz Band 1+4
Bridge	1,2,3	Master	WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1+4
Mesh	1,2,3	Master	WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1+4

Note: The above information was declared by manufacturer.



1.3 Table for EUT operation function

Mode	Radio 1	Radio 2	Radio 3
1	2.4G(Master-AP)	5G-Full Band(Master-AP)	Bluetooth/Thread
2	5G Band 1+4 / 2.4G Slave without Radar Detection (Sensor Mode)	5G-Full Band(Master-AP)	Bluetooth/Thread
3	5G-Low Band(Master-AP)	5G-High Band(Master-AP)	Bluetooth/Thread

Note: 1. The above information was declared by manufacturer.

2. The Mode 2 was same as client function of section 1.2.

1.4 Testing Location

Testing Location		
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086B with Industry Canada.

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)*	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)*	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

2.2 MPE Calculation Method

The MPE was calculated at 26 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

For WLAN Function:

For 2.4GHz:

Mode 1: (Ant. 4 Omni antenna / 3 dBi)

For Non-beamforming / 1T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	3.00	23.34	26.34	0.50	26.84	0.48306	26	0.05686	1
2.4G;D1D	3.00	20.84	23.84	0.50	24.34	0.27164	26	0.03198	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	3.00	22.46	25.46	0.50	25.96	0.39446	26	0.04643	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	3.00	28.78	31.78	0.50	32.28	1.69044	26	0.19899	1
2.4G;D1D	3.00	24.28	27.28	0.50	27.78	0.59979	26	0.07060	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	9.02	25.28	34.30	0.50	34.80	3.01995	26	0.35549	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	3.00	24.69	27.69	0.50	28.19	0.65917	26	0.07759	1

**Mode 2: (Ant. 7 Omni antenna / 4 dBi)****For Non-beamforming / 1T1S mode**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	4.00	23.43	27.43	0.50	27.93	0.62087	26	0.07309	1
2.4G;D1D	4.00	21.32	25.32	0.50	25.82	0.38194	26	0.04496	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	4.00	23.30	27.30	0.50	27.80	0.60256	26	0.07093	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	4.00	28.78	32.78	0.50	33.28	2.12814	26	0.25051	1
2.4G;D1D	4.00	25.54	29.54	0.50	30.04	1.00925	26	0.11880	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	10.02	25.09	35.11	0.50	35.61	3.63915	26	0.42838	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	4.00	25.36	29.36	0.50	29.86	0.96828	26	0.11398	1

**Mode 3: (Ant. 11 Panel antenna / 6.8 dBi)****For Non-beamforming / 1T1S mode**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	6.80	22.51	29.31	0.50	29.81	0.95719	26	0.11268	1
2.4G;D1D	6.80	20.56	27.36	0.50	27.86	0.61094	26	0.07192	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	6.80	22.46	29.26	0.50	29.76	0.94624	26	0.11139	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	6.80	28.50	35.30	0.50	35.80	3.80189	26	0.44754	1
2.4G;D1D	6.80	24.51	31.31	0.50	31.81	1.51705	26	0.17858	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	12.82	23.05	35.87	0.12	35.99	3.97192	26	0.46756	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	6.80	24.69	31.49	0.50	31.99	1.58125	26	0.18614	1

**For 5GHz:****For Radio 1:****For Indoor use for 5G Band 1 and Indoor/Outdoor use for 5G Band 4:****Mode 1: (Ant. 5 Panel antenna / 3 dBi)****For Non-beamforming / 1T1S mode**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	21.87	24.87	0.50	25.37	0.34435	26	0.04054	1
5.8G;D1D	3.00	21.96	24.96	0.50	25.46	0.35156	26	0.04138	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	23.99	26.99	0.50	27.49	0.56105	26	0.06604	1
5.8G;D1D	3.00	24.09	27.09	0.50	27.59	0.57412	26	0.06758	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	26.82	29.82	0.50	30.32	1.07647	26	0.12672	1
5.8G;D1D	3.00	26.45	29.45	0.50	29.95	0.98855	26	0.11637	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	9.02	26.53	35.55	0.44	35.99	3.97192	26	0.46756	1
5.8G;D1D	9.02	26.90	35.92	0.07	35.99	3.97192	26	0.46756	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	26.77	29.77	0.50	30.27	1.06414	26	0.12527	1
5.8G;D1D	3.00	26.43	29.43	0.50	29.93	0.98401	26	0.11583	1

**Mode 2: (Ant. 6 Omni antenna / 6 dBi)****For Non-beamforming / 1T1S mode**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	21.66	27.66	0.50	28.16	0.65464	26	0.07706	1
5.8G;D1D	6.00	22.00	28.00	0.50	28.50	0.70795	26	0.08334	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	24.42	30.42	0.50	30.92	1.23595	26	0.14549	1
5.8G;D1D	6.00	24.61	30.61	0.50	31.11	1.29122	26	0.15200	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	25.09	31.09	0.50	31.59	1.44212	26	0.16976	1
5.8G;D1D	6.00	27.43	33.43	0.50	33.93	2.47172	26	0.29096	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	12.02	23.77	35.79	0.50	36.29	4.25598	26	0.50099	1
5.8G;D1D	12.02	23.97	35.99	0.00	35.99	3.97192	26	0.46756	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	27.00	33.00	0.50	33.50	2.23872	26	0.26353	1
5.8G;D1D	6.00	27.67	33.67	0.50	34.17	2.61216	26	0.30749	1

**Mode 3: (Ant. 11 Panel antenna / 8.7 dBi)****For Non-beamforming / 1T1S mode**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	21.37	30.07	0.50	30.57	1.14025	26	0.13422	1
5.8G;D1D	8.70	21.98	30.68	0.50	31.18	1.31220	26	0.15447	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	23.54	32.24	0.50	32.74	1.87932	26	0.22122	1
5.8G;D1D	8.70	24.19	32.89	0.50	33.39	2.18273	26	0.25694	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	23.43	32.13	0.50	32.63	1.83231	26	0.21569	1
5.8G;D1D	8.70	27.23	35.93	0.06	35.99	3.97192	26	0.46756	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	14.72	21.16	35.88	0.11	35.99	3.97192	26	0.46756	1
5.8G;D1D	14.72	21.26	35.98	0.01	35.99	3.97192	26	0.46756	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	26.40	35.10	0.50	35.60	3.63078	26	0.42740	1
5.8G;D1D	8.70	26.71	35.41	0.50	35.91	3.89942	26	0.45902	1



For Outdoor use for 5G Band 1:

Mode 1: (Ant. 5 Panel antenna / 3 dBi)

For Non-beamforming / 1T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	15.72	18.72	0.50	19.22	0.08356	26	0.00984	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	15.72	18.72	0.50	19.22	0.08356	26	0.00984	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	15.72	18.72	0.50	19.22	0.08356	26	0.00984	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	9.02	9.70	18.72	0.50	19.22	0.08356	26	0.00984	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	15.72	18.72	0.50	19.22	0.08356	26	0.00984	1

**Mode 2: (Ant. 6 Omni antenna / 6 dBi)****For Non-beamforming / 1T1S mode**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	21.66	27.66	0.50	28.16	0.65464	26	0.07706	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	24.42	30.42	0.50	30.92	1.23595	26	0.14549	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	25.09	31.09	0.50	31.59	1.44212	26	0.16976	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	12.02	20.83	32.85	0.50	33.35	2.16272	26	0.25459	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	27.00	33.00	0.50	33.50	2.23872	26	0.26353	1

**Mode 3: (Ant. 11 Panel antenna / 8.7 dBi)****For Non-beamforming / 1T1S mode**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	13.07	21.77	0.50	22.27	0.16866	26	0.01985	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	13.03	21.73	0.50	22.23	0.16711	26	0.01967	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	13.06	21.76	0.50	22.26	0.16827	26	0.01981	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	14.72	7.00	21.72	0.11	21.83	0.15241	26	0.01794	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	13.07	21.77	0.50	22.27	0.16866	26	0.01985	1

**For Radio 2:****For Indoor use for 5G Band 1 and Indoor/Outdoor use for 5G Band 4:****Mode 1: (Ant. 5 Panel antenna / 3 dBi)****For Non-beamforming / 1T1S mode**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	21.38	24.38	0.50	24.88	0.30761	26	0.03621	1
5.8G;D1D	3.00	22.92	25.92	0.50	26.42	0.43853	26	0.05162	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	23.43	26.43	0.50	26.93	0.49317	26	0.05805	1
5.8G;D1D	3.00	25.55	28.55	0.50	29.05	0.80353	26	0.09459	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	26.54	29.54	0.50	30.04	1.00925	26	0.11880	1
5.8G;D1D	3.00	28.58	31.58	0.50	32.08	1.61436	26	0.19003	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	9.02	25.87	34.89	0.50	35.39	3.45939	26	0.40722	1
5.8G;D1D	9.02	26.92	35.94	0.05	35.99	3.97192	26	0.46756	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	26.24	29.24	0.50	29.74	0.94189	26	0.11087	1
5.8G;D1D	3.00	28.43	31.43	0.50	31.93	1.55955	26	0.18358	1

**Mode 2: (Ant. 6 Omni antenna / 6 dBi)****For Non-beamforming / 1T1S mode**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	19.29	25.29	0.50	25.79	0.37931	26	0.04465	1
5.8G;D1D	6.00	21.76	27.76	0.50	28.26	0.66988	26	0.07886	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	22.66	28.66	0.50	29.16	0.82414	26	0.09701	1
5.8G;D1D	6.00	24.27	30.27	0.50	30.77	1.19399	26	0.14055	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	24.19	30.19	0.50	30.69	1.17220	26	0.13799	1
5.8G;D1D	6.00	27.20	33.20	0.50	33.70	2.34423	26	0.27595	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	12.02	23.79	35.81	0.50	36.31	4.27563	26	0.50331	1
5.8G;D1D	12.02	23.97	35.99	0.00	35.99	3.97192	26	0.46756	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	25.15	31.15	0.50	31.65	1.46218	26	0.17212	1
5.8G;D1D	6.00	27.06	33.06	0.50	33.56	2.26986	26	0.26720	1

**Mode 3: (Ant. 11 Panel antenna / 8.7 dBi)****For Non-beamforming / 1T1S mode**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	21.23	29.93	0.50	30.43	1.10408	26	0.12997	1
5.8G;D1D	8.70	23.46	32.16	0.50	32.66	1.84502	26	0.21719	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	23.05	31.75	0.50	32.25	1.67880	26	0.19762	1
5.8G;D1D	8.70	24.77	33.47	0.50	33.97	2.49459	26	0.29365	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	23.34	32.04	0.50	32.54	1.79473	26	0.21127	1
5.8G;D1D	8.70	27.25	35.95	0.04	35.99	3.97192	26	0.46756	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	14.72	21.25	35.97	0.02	35.99	3.97192	26	0.46756	1
5.8G;D1D	14.72	21.22	35.94	0.05	35.99	3.97192	26	0.46756	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	25.90	34.60	0.50	35.10	3.23594	26	0.38092	1
5.8G;D1D	8.70	27.10	35.80	0.19	35.99	3.97192	26	0.46756	1



For Outdoor use for 5G Band 1:

Mode 1: (Ant. 5 Panel antenna / 3 dBi)

For Non-beamforming / 1T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	15.72	18.72	0.50	19.22	0.08356	26	0.00984	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	15.71	18.71	0.50	19.21	0.08337	26	0.00981	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	15.72	18.72	0.50	19.22	0.08356	26	0.00984	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	9.02	9.69	18.71	0.50	19.21	0.08337	26	0.00981	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	3.00	15.71	18.71	0.50	19.21	0.08337	26	0.00981	1

**Mode 2: (Ant. 6 Omni antenna / 6 dBi)****For Non-beamforming / 1T1S mode**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	19.29	25.29	0.50	25.79	0.37931	26	0.04465	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	22.66	28.66	0.50	29.16	0.82414	26	0.09701	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	24.19	30.19	0.50	30.69	1.17220	26	0.13799	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	12.02	20.98	33.00	0.50	33.50	2.23872	26	0.26353	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	6.00	25.15	31.15	0.50	31.65	1.46218	26	0.17212	1

**Mode 3: (Ant. 11 Panel antenna / 8.7 dBi)****For Non-beamforming / 1T1S mode**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	13.07	21.77	0.50	22.27	0.16866	26	0.01985	1

For Non-beamforming / 2T2S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	13.08	21.78	0.50	22.28	0.16904	26	0.01990	1

For Non-beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	13.07	21.77	0.50	22.27	0.16866	26	0.01985	1

For Beamforming / 4T1S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	14.72	7.06	21.78	0.50	22.28	0.16904	26	0.01990	1

For Non-beamforming / 4T4S mode

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
5.2G;D1D	8.70	13.08	21.78	0.50	22.28	0.16904	26	0.01990	1

**For Bluetooth Function:****Mode 1: (Ant. 11 Panel antenna / 6.8 dBi)**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;BT-LE	6.80	1.33	8.13	0.50	8.63	0.00729	26	0.00086	1

Mode 2: (Ant. 12 Omni antenna / 7 dBi)

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;BT-LE	7.00	1.33	8.33	0.50	8.83	0.00764	26	0.00090	1

For Thread Function:**Mode 1: (Ant. 11 Panel antenna / 6.8 dBi)**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	6.80	1.08	7.88	0.50	8.38	0.00689	26	0.00081	1

Mode 2: (Ant. 12 Omni antenna / 7 dBi)

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	7.00	1.08	8.08	0.50	8.58	0.00721	26	0.00085	1

Simultaneous Transmission Analysis Mode:**Mode 1: WLAN 2.4GHz (Radio 1) + WLAN 5GHz (Radio 2) + Bluetooth (Radio 3)**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;G1D	12.82	23.05	35.87	0.12	35.99	3.97192	26	0.46756	1	0.46756
5.8G;D1D	12.02	23.97	35.99	0.00	35.99	3.97192	26	0.46756	1	0.46756
2.4G;BT-LE	7.00	1.33	8.33	0.50	8.83	0.00764	26	0.00090	1	0.00090
									Sum Ratio	0.93602
									Ratio Limit	1

**Mode 2: WLAN 5GHz (Radio 1) + WLAN 5GHz (Radio 2) + Bluetooth (Radio 3)**

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
5.8G;D1D	12.02	23.97	35.99	0.00	35.99	3.97192	26	0.46756	1	0.46756
5.8G;D1D	12.02	23.97	35.99	0.00	35.99	3.97192	26	0.46756	1	0.46756
2.4G;BT-LE	7.00	1.33	8.33	0.50	8.83	0.00764	26	0.00090	1	0.00090
									Sum Ratio	0.93602
									Ratio Limit	1

Mode 3: WLAN 2.4GHz (Radio 1) + WLAN 5GHz (Radio 2) + Thread (Radio 3)

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;G1D	12.82	23.05	35.87	0.12	35.99	3.97192	26	0.46756	1	0.46756
5.8G;D1D	12.02	23.97	35.99	0.00	35.99	3.97192	26	0.46756	1	0.46756
2.4G;G1D	7.00	1.08	8.08	0.50	8.58	0.00721	26	0.00085	1	0.00085
									Sum Ratio	0.93597
									Ratio Limit	1

Mode 4: WLAN 5GHz (Radio 1) + WLAN 5GHz (Radio 2) + Thread (Radio 3)

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
5.8G;D1D	12.02	23.97	35.99	0.00	35.99	3.97192	26	0.46756	1	0.46756
5.8G;D1D	12.02	23.97	35.99	0.00	35.99	3.97192	26	0.46756	1	0.46756
2.4G;G1D	7.00	1.08	8.08	0.50	8.58	0.00721	26	0.00085	1	0.00085
									Sum Ratio	0.93597
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

————THE END————