

# FCC Maximum Permissible RF Exposure (MPE) Estimation Report

In accordance with the requirements of  
FCC 47 CFR Part 2(2.1091), ANSI/IEEE C95.1-1992 and  
KDB 447498 D01

**Product Name:** AX6000 Tri-band Mesh Wi-Fi 6 Router

**Trademark:** ELFKS

**Model Name:** ELF1

**Family Model:** N/A

**Report No.:** S21031503702002

**FCC ID:** 2AUUX-ELF1

**Prepared for**

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### TEST RESULT CERTIFICATION

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**Manufacturer's Name** ..... : Fusung (Huizhou)Innovation Electronic Technology Co., Ltd  
Address ..... : 44\45 building, the seventh zone, Daxin Group, Shuguang Road, Chengjiang

**Product description**

Product name ..... : AX6000 Tri-band Mesh Wi-Fi 6 Router  
Trademark ..... : ELFKS  
Model and/or type reference : ELF1  
Family Model ..... : N/A

**Standards** ..... : FCC 47 CFR Part 1(1.1310)  
FCC 47 CFR Part 2(2.1091)  
ANSI/IEEE C95.1-1992  
KDB 447498 D01

This device described above has been tested by Shenzhen NTEK. Testing has shown that this device is capable of compliance with MPE specified in FCC 47 CFR Part 2(2.1091) and ANSI/IEEE C95.1-1992. The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

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**Date of Test**

Date (s) of performance of tests..... : 15 Mar. 2021 ~ 13 Apr. 2021

Date of Issue ..... : 14 Apr, 2021

Test Result ..... : **Pass**

Prepared By : Cheng Jiawen  
(Test Engineer) :  
(Cheng Jiawen)

Approved By : Alex  
(Lab Manager) :  
(Alex Li)

※ ※ Revision History ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	Apr. 14, 2021	Cheng Jiawen

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# 1 General Information

## 1.1 RF Exposure Requirements

### 1.1.1 RF Exposure Limits

**Table - Limits For Maximum Permissible Exposure (MPE)**

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f <sup>2</sup>	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz \* = Plane-wave equivalent power density

A rough estimation of the expected exposure in power flux density on a given point can be made with the following equation:

$$S = \frac{P_t * G_t}{4 * \pi * R^2}$$

Where:

S = Power density (mW/cm<sup>2</sup>)

P<sub>t</sub> = Conducted output power (dBm)

G<sub>t</sub> = numeric gain of the antenna in the direction of interest relative to an isotropic radiator (dBi)

R = distance to the centre of radiation of the antenna (cm)

EIRP = P<sub>t</sub> \* G<sub>t</sub>

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user. Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. Therefore, the S of the device is calculated with R=20cm, and if it is below the limit S, then we can conclude the device complies with the rules.

### 1.1.2 Additional Description

An estimation of MPE in this application for product is used to ensure if it complies to the rules of the standard in the regulation list above.

Maximum permissible exposure (MPE) refers to the RF energy that is acceptable for human exposure. It is broken down into two categories, Occupational/controlled and General population/uncontrolled.

Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

We analysis if it comply with the limits for General population/uncontrolled exposure. The FCC's MPE limits for field strength and power density are given in 47CFR 1.1310(Table below).These limits are generally based on recommended exposure guidelines published by the National Council on Radiation Protection and Measurements (NCRP), and also partly based on guidelines recommended by the American National Standards Institute (ANSI) in Section 4.1 of ANSI/IEEE C95.1.

## 1.2 EUT Description

Device Information			
Product Name	AX6000 Tri-band Mesh Wi-Fi 6 Router		
Trade Name	ELFKS		
Model Name	ELF1		
Family Model	N/A		
FCC ID	2AUUX-ELF1		
Device Phase	Identical Prototype		
Exposure Category	General population / Uncontrolled environment		
Antenna Type	Reference Note 1/2/3		
Antenna Gain	Reference Note 1/2/3		
Device Operating Configurations			
Supporting Mode(s)	WLAN 2.4G/5.2G/5.8G		
Test Modulation	WLAN(DSSS/OFDM)		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	WLAN 2.4G	2412-2462	
	WLAN 5.2G	5180-5240	
	WLAN 5.8G	5745-5825	

### Note 1

Antenna	Brand	Model Name	Antenna Type	Connector	2.4G Gain (dBi)	NOTE
0	N/A	N/A	Embedded Antenna	IPEX	4.09	Wifi Antenna
1	N/A	N/A	Embedded Antenna	IPEX	4.09	Wifi Antenna
2	N/A	N/A	Embedded Antenna	IPEX	4.09	Wifi Antenna
3	N/A	N/A	Embedded Antenna	IPEX	4.09	Wifi Antenna

### Note 2

Antenna	Brand	Model Name	Connector	5.8G Gain (dBi)	Antenna Type
0	N/A	N/A	IPEX	5.06	Embedded Antenna
1	N/A	N/A	IPEX	5.06	Embedded Antenna
2	N/A	N/A	IPEX	5.06	Embedded Antenna
3	N/A	N/A	IPEX	5.06	Embedded Antenna

### Note 3

Antenna	Brand	Model Name	Connector	5.2G Gain (dBi)	Antenna Type
4	N/A	N/A	IPEX	3.73	Embedded Antenna
5	N/A	N/A	IPEX	3.73	Embedded Antenna
6	N/A	N/A	IPEX	3.73	Embedded Antenna
7	N/A	N/A	IPEX	3.73	Embedded Antenna

### 1.3 Test specification(s)

FCC 47 CFR Part 1(1.1310)
FCC 47 CFR Part 2(2.1091)
ANSI/IEEE C95.1-1992
KDB 447498 D01 General RF Exposure Guidance

### 1.4 Ambient Condition

Ambient temperature	20°C – 24°C
Relative Humidity	30% – 70%



## 2 RF Output Power

### 2.4Gwifi

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	SISO Limit (dBm)	Total Power (dBm)	MIMO Limit (dBm)	Verdict
NVNT	802.11b	2412	Ant 0	22.75	30	--	--	Pass
NVNT	802.11b	2437	Ant 0	22.8	30	--	--	Pass
NVNT	802.11b	2462	Ant 0	22.33	30	--	--	Pass
NVNT	802.11b	2412	Ant 1	22.68	30	--	--	Pass
NVNT	802.11b	2437	Ant 1	22.76	30	--	--	Pass
NVNT	802.11b	2462	Ant 1	22.58	30	--	--	Pass
NVNT	802.11b	2412	Ant 2	23.26	30	--	--	Pass
NVNT	802.11b	2437	Ant 2	23.17	30	--	--	Pass
NVNT	802.11b	2462	Ant 2	23.08	30	--	--	Pass
NVNT	802.11b	2412	Ant 3	22.98	30	--	--	Pass
NVNT	802.11b	2437	Ant 3	22.82	30	--	--	Pass
NVNT	802.11b	2462	Ant 3	23.05	30	--	--	Pass
NVNT	802.11g	2412	Ant 0	23.06	30	--	--	Pass
NVNT	802.11g	2437	Ant 0	23.05	30	--	--	Pass
NVNT	802.11g	2462	Ant 0	21.35	30	--	--	Pass
NVNT	802.11g	2412	Ant 1	22.04	30	--	--	Pass
NVNT	802.11g	2437	Ant 1	22.39	30	--	--	Pass
NVNT	802.11g	2462	Ant 1	21.31	30	--	--	Pass
NVNT	802.11g	2412	Ant 2	22.87	30	--	--	Pass
NVNT	802.11g	2437	Ant 2	22.84	30	--	--	Pass
NVNT	802.11g	2462	Ant 2	22.87	30	--	--	Pass
NVNT	802.11g	2412	Ant 3	23.03	30	--	--	Pass
NVNT	802.11g	2437	Ant 3	22.82	30	--	--	Pass
NVNT	802.11g	2462	Ant 3	22.95	30	--	--	Pass
NVNT	802.11n(HT20)	2412	Ant 0	19.38	30	25.41	25.89	Pass
NVNT	802.11n(HT20)	2412	Ant 1	19.52	30		25.89	Pass
NVNT	802.11n(HT20)	2412	Ant 2	19.31	30		25.89	Pass
NVNT	802.11n(HT20)	2412	Ant 3	19.33	30		25.89	Pass
NVNT	802.11n(HT20)	2437	Ant 0	19.43	30	25.38	25.89	Pass
NVNT	802.11n(HT20)	2437	Ant 1	19.49	30		25.89	Pass
NVNT	802.11n(HT20)	2437	Ant 2	19.38	30		25.89	Pass
NVNT	802.11n(HT20)	2437	Ant 3	19.13	30		25.89	Pass
NVNT	802.11n(HT20)	2462	Ant 0	19.28	30	25.42	25.89	Pass
NVNT	802.11n(HT20)	2462	Ant 1	19.49	30		25.89	Pass

NVNT	802.11n(HT20)	2462	Ant 2	19.46	30		25.89	Pass
NVNT	802.11n(HT20)	2462	Ant 3	19.38	30		25.89	Pass
NVNT	802.11n(HT40)	2422	Ant 0	19.26	30	25.37	25.89	Pass
NVNT	802.11n(HT40)	2422	Ant 1	19.53	30		25.89	Pass
NVNT	802.11n(HT40)	2422	Ant 2	19.18	30		25.89	Pass
NVNT	802.11n(HT40)	2422	Ant 3	19.41	30		25.89	Pass
NVNT	802.11n(HT40)	2437	Ant 0	19.08	30		25.23	25.89
NVNT	802.11n(HT40)	2437	Ant 1	19.33	30	25.89		Pass
NVNT	802.11n(HT40)	2437	Ant 2	19.18	30	25.89		Pass
NVNT	802.11n(HT40)	2437	Ant 3	19.26	30	25.89		Pass
NVNT	802.11n(HT40)	2452	Ant 0	19.25	30	25.40	25.89	Pass
NVNT	802.11n(HT40)	2452	Ant 1	19.61	30		25.89	Pass
NVNT	802.11n(HT40)	2452	Ant 2	19.3	30		25.89	Pass
NVNT	802.11n(HT40)	2452	Ant 3	19.36	30		25.89	Pass
NVNT	802.11ax(HT20)	2412	Ant 0	19.13	30	25.36	25.89	Pass
NVNT	802.11ax(HT20)	2412	Ant 1	19.25	30		25.89	Pass
NVNT	802.11ax(HT20)	2412	Ant 2	19.38	30		25.89	Pass
NVNT	802.11ax(HT20)	2412	Ant 3	19.59	30		25.89	Pass
NVNT	802.11ax(HT20)	2437	Ant 0	19.2	30	25.34	25.89	Pass
NVNT	802.11ax(HT20)	2437	Ant 1	19.39	30		25.89	Pass
NVNT	802.11ax(HT20)	2437	Ant 2	19.39	30		25.89	Pass
NVNT	802.11ax(HT20)	2437	Ant 3	19.31	30		25.89	Pass
NVNT	802.11ax(HT20)	2462	Ant 0	19.09	30	25.43	25.89	Pass
NVNT	802.11ax(HT20)	2462	Ant 1	19.43	30		25.89	Pass
NVNT	802.11ax(HT20)	2462	Ant 2	19.47	30		25.89	Pass
NVNT	802.11ax(HT20)	2462	Ant 3	19.62	30		25.89	Pass
NVNT	802.11ax(HT40)	2422	Ant 0	19.45	30	25.51	25.89	Pass
NVNT	802.11ax(HT40)	2422	Ant 1	19.56	30		25.89	Pass
NVNT	802.11ax(HT40)	2422	Ant 2	19.35	30		25.89	Pass
NVNT	802.11ax(HT40)	2422	Ant 3	19.6	30		25.89	Pass
NVNT	802.11ax(HT40)	2437	Ant 0	19.27	30	25.46	25.89	Pass
NVNT	802.11ax(HT40)	2437	Ant 1	19.51	30		25.89	Pass

NVNT	802.11ax(HT40)	2437	Ant 2	19.53	30	25.59	25.89	Pass
NVNT	802.11ax(HT40)	2437	Ant 3	19.44	30		25.89	Pass
NVNT	802.11ax(HT40)	2452	Ant 0	19.45	30		25.89	Pass
NVNT	802.11ax(HT40)	2452	Ant 1	19.73	30		25.89	Pass
NVNT	802.11ax(HT40)	2452	Ant 2	19.49	30		25.89	Pass
NVNT	802.11ax(HT40)	2452	Ant 3	19.6	30		25.89	Pass

## 5.2Gwifi

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Calculate Conducted Power (dBm)	SISO Limit (dBm)	Total Power (dBm)	MIMO Limit (dBm)	Verdict
NVNT	802.11a	5180	Ant 4	19.7	0	19.7	30	--	30	Pass
NVNT	802.11a	5200	Ant 4	20.44	0	20.44	30	--	30	Pass
NVNT	802.11a	5240	Ant 4	20.98	0	20.98	30	--	30	Pass
NVNT	802.11a	5180	Ant 5	19.2	0	19.2	30	--	30	Pass
NVNT	802.11a	5200	Ant 5	20.44	0	20.44	30	--	30	Pass
NVNT	802.11a	5240	Ant 5	20.06	0	20.06	30	--	30	Pass
NVNT	802.11a	5180	Ant 6	19.83	0	19.83	30	--	30	Pass
NVNT	802.11a	5200	Ant 6	20.39	0	20.39	30	--	30	Pass
NVNT	802.11a	5240	Ant 6	19.94	0	19.94	30	--	30	Pass
NVNT	802.11a	5180	Ant 7	20.18	0	20.18	30	--	30	Pass
NVNT	802.11a	5200	Ant 7	20.69	0	20.69	30	--	30	Pass
NVNT	802.11a	5240	Ant 7	20.25	0	20.25	30	--	30	Pass
NVNT	802.11ac20	5180	Ant 4	10.43	0	10.43	30	16.84	26.25	Pass
NVNT	802.11ac20	5180	Ant 5	10.5	0	10.5	30		26.25	Pass
NVNT	802.11ac20	5180	Ant 6	10.83	0	10.83	30		26.25	Pass
NVNT	802.11ac20	5180	Ant 7	11.45	0	11.45	30		26.25	Pass
NVNT	802.11ac20	5200	Ant 4	9.44	0	9.44	30	16.47	26.25	Pass
NVNT	802.11ac20	5200	Ant 5	9.28	0	9.28	30		26.25	Pass
NVNT	802.11ac20	5200	Ant 6	11.31	0	11.31	30		26.25	Pass
NVNT	802.11ac20	5200	Ant 7	11.32	0	11.32	30		26.25	Pass
NVNT	802.11ac20	5240	Ant 4	9.53	0	9.53	30	16.38	26.25	Pass
NVNT	802.11ac20	5240	Ant 5	9.22	0	9.22	30		26.25	Pass
NVNT	802.11ac20	5240	Ant 6	11.24	0	11.24	30		26.25	Pass
NVNT	802.11ac20	5240	Ant 7	11.07	0	11.07	30		26.25	Pass
NVNT	802.11ac40	5190	Ant 4	13.67	0	13.67	30	19.47	26.25	Pass
NVNT	802.11ac40	5190	Ant 5	13.61	0	13.61	30		26.25	Pass
NVNT	802.11ac40	5190	Ant 6	13.16	0	13.16	30		26.25	Pass
NVNT	802.11ac40	5190	Ant 7	13.33	0	13.33	30		26.25	Pass
NVNT	802.11ac40	5230	Ant 4	13.41	0	13.41	30	19.31	26.25	Pass
NVNT	802.11ac40	5230	Ant 5	13.51	0	13.51	30		26.25	Pass
NVNT	802.11ac40	5230	Ant 6	13.19	0	13.19	30		26.25	Pass
NVNT	802.11ac40	5230	Ant 7	13.02	0	13.02	30		26.25	Pass

NVNT	802.11ac80	5210	Ant 4	8.01	0	16.11	30	22.24	26.25	Pass
NVNT	802.11ac80	5210	Ant 5	8.36	0	16.18	30		26.25	Pass
NVNT	802.11ac80	5210	Ant 6	7.97	0	16.14	30		26.25	Pass
NVNT	802.11ac80	5210	Ant 7	8.11	0	16.44	30		26.25	Pass
NVNT	802.11ax20	5180	Ant 4	8.1	0	8.1	30	14.62	26.25	Pass
NVNT	802.11ax20	5180	Ant 5	8.14	0	8.14	30		26.25	Pass
NVNT	802.11ax20	5180	Ant 6	9.04	0	9.04	30		26.25	Pass
NVNT	802.11ax20	5180	Ant 7	9.02	0	9.02	30		26.25	Pass
NVNT	802.11ax20	5200	Ant 4	8.26	0	8.26	30	14.95	26.25	Pass
NVNT	802.11ax20	5200	Ant 5	8.14	0	8.14	30		26.25	Pass
NVNT	802.11ax20	5200	Ant 6	9.46	0	9.46	30		26.25	Pass
NVNT	802.11ax20	5200	Ant 7	9.66	0	9.66	30		26.25	Pass
NVNT	802.11ax20	5240	Ant 4	8.07	0	8.07	30	14.70	26.25	Pass
NVNT	802.11ax20	5240	Ant 5	7.93	0	7.93	30		26.25	Pass
NVNT	802.11ax20	5240	Ant 6	9.58	0	9.58	30		26.25	Pass
NVNT	802.11ax20	5240	Ant 7	8.94	0	8.94	30		26.25	Pass
NVNT	802.11ax40	5190	Ant 4	12.06	0	12.06	30	17.74	26.25	Pass
NVNT	802.11ax40	5190	Ant 5	11.2	0	11.2	30		26.25	Pass
NVNT	802.11ax40	5190	Ant 6	11.28	0	11.28	30		26.25	Pass
NVNT	802.11ax40	5190	Ant 7	12.24	0	12.24	30		26.25	Pass
NVNT	802.11ax40	5230	Ant 4	11.94	0	11.94	30	17.80	26.25	Pass
NVNT	802.11ax40	5230	Ant 5	11.16	0	11.16	30		26.25	Pass
NVNT	802.11ax40	5230	Ant 6	11.83	0	11.83	30		26.25	Pass
NVNT	802.11ax40	5230	Ant 7	12.14	0	12.14	30		26.25	Pass
NVNT	802.11ax80	5210	Ant 4	14.26	0	14.26	30	20.56	26.25	Pass
NVNT	802.11ax80	5210	Ant 5	14.66	0	14.66	30		26.25	Pass
NVNT	802.11ax80	5210	Ant 6	14.48	0	14.48	30		26.25	Pass
NVNT	802.11ax80	5210	Ant 7	14.75	0	14.75	30		26.25	Pass
NVNT	802.11n(HT20)	5180	Ant 4	9.85	0	9.85	30	16.38	26.25	Pass
NVNT	802.11n(HT20)	5180	Ant 5	9.7	0	9.7	30		26.25	Pass
NVNT	802.11n(HT20)	5180	Ant 6	10.3	0	10.3	30		26.25	Pass
NVNT	802.11n(HT20)	5180	Ant 7	11.39	0	11.39	30		26.25	Pass
NVNT	802.11n(HT20)	5200	Ant 4	10.11	0	10.11	30	16.65	26.25	Pass
NVNT	802.11n(HT20)	5200	Ant 5	10.04	0	10.04	30		26.25	Pass
NVNT	802.11n(HT20)	5200	Ant 6	10.82	0	10.82	30		26.25	Pass
NVNT	802.11n(HT20)	5200	Ant 7	11.41	0	11.41	30		26.25	Pass
NVNT	802.11n(HT20)	5240	Ant 4	9.98	0	9.98	30	16.47	26.25	Pass
NVNT	802.11n(HT20)	5240	Ant 5	9.95	0	9.95	30		26.25	Pass
NVNT	802.11n(HT20)	5240	Ant 6	10.71	0	10.71	30		26.25	Pass
NVNT	802.11n(HT20)	5240	Ant 7	11.04	0	11.04	30		26.25	Pass
NVNT	802.11n(HT40)	5190	Ant 4	13.79	0	13.79	30	19.51	26.25	Pass
NVNT	802.11n(HT40)	5190	Ant 5	13.57	0	13.57	30		26.25	Pass
NVNT	802.11n(HT40)	5190	Ant 6	13.13	0	13.13	30		26.25	Pass
NVNT	802.11n(HT40)	5190	Ant 7	13.43	0	13.43	30		26.25	Pass
NVNT	802.11n(HT40)	5230	Ant 4	12.86	0	12.86	30	19.17	26.25	Pass
NVNT	802.11n(HT40)	5230	Ant 5	13.58	0	13.58	30		26.25	Pass

NVNT	802.11n(HT40)	5230	Ant 6	13.16	0	13.16	30		26.25	Pass
NVNT	802.11n(HT40)	5230	Ant 7	12.96	0	12.96	30		26.25	Pass

5.8Gwifi

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Calculate Conducted Power (dBm)	SISO Limit (dBm)	Total Power (dBm)	MIMO Limit (dBm)	Verdict
NVNT	802.11a	5745	Ant 0	23.1	0	23.1	30	--	--	Pass
NVNT	802.11a	5785	Ant 0	22.62	0	22.62	30	--	--	Pass
NVNT	802.11a	5825	Ant 0	22	0	22	30	--	--	Pass
NVNT	802.11a	5745	Ant 1	22.47	0	22.47	30	--	--	Pass
NVNT	802.11a	5785	Ant 1	21.78	0	21.78	30	--	--	Pass
NVNT	802.11a	5825	Ant 1	22.86	0	22.86	30	--	--	Pass
NVNT	802.11a	5745	Ant 2	22.37	0	22.37	30	--	--	Pass
NVNT	802.11a	5785	Ant 2	21.71	0	21.71	30	--	--	Pass
NVNT	802.11a	5825	Ant 2	23.19	0	23.19	30	--	--	Pass
NVNT	802.11a	5745	Ant 3	22.68	0	22.68	30	--	--	Pass
NVNT	802.11a	5785	Ant 3	21.45	0	21.45	30	--	--	Pass
NVNT	802.11a	5825	Ant 3	22.57	0	22.57	30	--	--	Pass
NVNT	802.11ac20	5745	Ant 0	16.19	0	16.19	30	22.70	24.92	Pass
NVNT	802.11ac20	5745	Ant 1	16.71	0	16.71	30			Pass
NVNT	802.11ac20	5745	Ant 2	16.73	0	16.73	30			Pass
NVNT	802.11ac20	5745	Ant 3	17.06	0	17.06	30			Pass
NVNT	802.11ac20	5785	Ant 0	16.98	0	16.98	30	21.82	24.92	Pass
NVNT	802.11ac20	5785	Ant 1	15.67	0	15.67	30			Pass
NVNT	802.11ac20	5785	Ant 2	15.08	0	15.08	30			Pass
NVNT	802.11ac20	5785	Ant 3	15.21	0	15.21	30			Pass
NVNT	802.11ac20	5825	Ant 0	16.4	0	16.4	30	22.09	24.92	Pass
NVNT	802.11ac20	5825	Ant 1	16.33	0	16.33	30			Pass
NVNT	802.11ac20	5825	Ant 2	15.36	0	15.36	30			Pass
NVNT	802.11ac20	5825	Ant 3	16.13	0	16.13	30			Pass
NVNT	802.11ac40	5755	Ant 0	17.89	0	15.63	30	22.73	24.92	Pass
NVNT	802.11ac40	5755	Ant 1	16.75	0	16.75	30			Pass
NVNT	802.11ac40	5755	Ant 2	16.89	0	16.89	30			Pass
NVNT	802.11ac40	5755	Ant 3	17.37	0	17.37	30			Pass
NVNT	802.11ac40	5795	Ant 0	16.96	0	16.96	30	21.81	24.92	Pass
NVNT	802.11ac40	5795	Ant 1	14.98	0	14.98	30			Pass
NVNT	802.11ac40	5795	Ant 2	14.95	0	14.95	30			Pass
NVNT	802.11ac40	5795	Ant 3	15.94	0	15.94	30			Pass
NVNT	802.11ac80	5775	Ant 0	17.28	0	17.28	30	22.30	24.92	Pass
NVNT	802.11ac80	5775	Ant 1	15.88	0	15.88	30			Pass
NVNT	802.11ac80	5775	Ant 2	15.7	0	15.7	30			Pass
NVNT	802.11ac80	5775	Ant 3	16.09	0	16.09	30			Pass

NVNT	802.11ax20	5745	Ant 0	15.73	0	15.73	30	22.74	24.92	Pass
NVNT	802.11ax20	5745	Ant 1	16.88	0	16.88	30			Pass
NVNT	802.11ax20	5745	Ant 2	16.85	0	16.85	30			Pass
NVNT	802.11ax20	5745	Ant 3	17.27	0	17.27	30			Pass
NVNT	802.11ax20	5785	Ant 0	17.27	0	17.27	30	22.09	24.92	Pass
NVNT	802.11ax20	5785	Ant 1	15.94	0	15.94	30			Pass
NVNT	802.11ax20	5785	Ant 2	15.33	0	15.33	30			Pass
NVNT	802.11ax20	5785	Ant 3	15.44	0	15.44	30			Pass
NVNT	802.11ax20	5825	Ant 0	16.67	0	16.67	30	22.30	24.92	Pass
NVNT	802.11ax20	5825	Ant 1	16.49	0	16.49	30			Pass
NVNT	802.11ax20	5825	Ant 2	15.61	0	15.61	30			Pass
NVNT	802.11ax20	5825	Ant 3	16.27	0	16.27	30			Pass
NVNT	802.11ax40	5755	Ant 0	18.08	0	14.91	30	22.71	24.92	Pass
NVNT	802.11ax40	5755	Ant 1	16.9	0	16.9	30			Pass
NVNT	802.11ax40	5755	Ant 2	17.02	0	17.02	30			Pass
NVNT	802.11ax40	5755	Ant 3	17.51	0	17.51	30			Pass
NVNT	802.11ax40	5795	Ant 0	17.07	0	17.07	30	21.94	24.92	Pass
NVNT	802.11ax40	5795	Ant 1	15.16	0	15.16	30			Pass
NVNT	802.11ax40	5795	Ant 2	15.11	0	15.11	30			Pass
NVNT	802.11ax40	5795	Ant 3	16.02	0	16.02	30			Pass
NVNT	802.11ax80	5775	Ant 0	17.59	0	17.59	30	22.56	24.92	Pass
NVNT	802.11ax80	5775	Ant 1	16.12	0	16.12	30			Pass
NVNT	802.11ax80	5775	Ant 2	15.91	0	15.91	30			Pass
NVNT	802.11ax80	5775	Ant 3	16.34	0	16.34	30			Pass
NVNT	802.11n(HT20)	5745	Ant 0	17.54	0	16.11	30	22.67	24.92	Pass
NVNT	802.11n(HT20)	5745	Ant 1	16.69	0	16.69	30			Pass
NVNT	802.11n(HT20)	5745	Ant 2	16.66	0	16.66	30			Pass
NVNT	802.11n(HT20)	5745	Ant 3	17.09	0	17.09	30			Pass
NVNT	802.11n(HT20)	5785	Ant 0	17.03	0	17.03	30	21.84	24.92	Pass
NVNT	802.11n(HT20)	5785	Ant 1	15.7	0	15.7	30			Pass
NVNT	802.11n(HT20)	5785	Ant 2	15.06	0	15.06	30			Pass
NVNT	802.11n(HT20)	5785	Ant 3	15.2	0	15.2	30			Pass
NVNT	802.11n(HT20)	5825	Ant 0	16.46	0	16.46	30	22.10	24.92	Pass
NVNT	802.11n(HT20)	5825	Ant 1	16.31	0	16.31	30			Pass
NVNT	802.11n(HT20)	5825	Ant 2	15.38	0	15.38	30			Pass
NVNT	802.11n(HT20)	5825	Ant 3	16.11	0	16.11	30			Pass
NVNT	802.11n(HT40)	5755	Ant 0	15.87	0	15.87	30	22.74	24.92	Pass
NVNT	802.11n(HT40)	5755	Ant 1	16.78	0	16.78	30			Pass
NVNT	802.11n(HT40)	5755	Ant 2	16.79	0	16.79	30			Pass
NVNT	802.11n(HT40)	5755	Ant 3	17.3	0	17.3	30			Pass

NVNT	802.11n(HT40)	5795	Ant 0	16.95	0	16.95	30	21.78	24.92	Pass
NVNT	802.11n(HT40)	5795	Ant 1	14.98	0	14.98	30			Pass
NVNT	802.11n(HT40)	5795	Ant 2	14.95	0	14.95	30			Pass
NVNT	802.11n(HT40)	5795	Ant 3	15.86	0	15.86	30			Pass

### 3 RF Exposure Evaluation

#### 3.1 Operation in WLAN 2.4G

##### SISO

Antenna	Maximum output power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )	Conclusion
Ant 0	23.06	4.09	27.15	518.80	20	0.10321	1	Pass
Ant 1	22.76	4.09	26.85	484.17	20	0.09632	1	Pass
Ant 2	23.26	4.09	27.35	543.25	20	0.10807	1	Pass
Ant 3	23.05	4.09	27.14	517.61	20	0.10297	1	Pass

#### 3.2 Operation in WLAN 5.2G

##### SISO

Antenna	Maximum output power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )	Conclusion
Ant 4	20.98	5.06	26.04	401.79	20	0.07993	1	Pass
Ant 5	20.44	5.06	25.5	354.81	20	0.07059	1	Pass
Ant 6	20.39	5.06	25.45	350.75	20	0.06978	1	Pass
Ant 7	20.69	5.06	25.75	375.84	20	0.07477	1	Pass

#### 3.3 Operation in WLAN 5.8G

##### SISO

Antenna	Maximum output power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )	Conclusion
Ant 0	23.10	3.73	26.83	481.95	20	0.09588	1	Pass
Ant 1	22.86	3.73	26.59	456.04	20	0.09072	1	Pass
Ant 2	23.19	3.73	26.92	492.04	20	0.09789	1	Pass
Ant 3	22.68	3.73	26.41	437.52	20	0.08704	1	Pass

#### 4 Exposure calculations for multiple sources

When a number of sources at different frequencies, and/or broadband sources, contribute to the total exposure, it becomes necessary to weigh each contribution relative to the MPE in accordance with the provisions of Table (A) and Table (B). To comply with the MPE, the fraction of the MPE in terms of  $E^2$ ,  $H^2$  (or power density) incurred within each frequency interval should be determined and the sum of all such fractions should not exceed unity.

In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unity. That is

$$\sum_{i=1}^n \frac{S_i}{MPE_i}$$

The product also has multiple transmitters The Simultaneous Transmission Possibilities are as below:

Simultaneous Tx Combination	Configuration
1	WLAN 2.4G MIMO
2	WLAN 5.2G MIMO
3	WLAN 5.8G MIMO



#### 4.1 Estimation for WLAN2.4G MIMO

Antenna	Maximum output power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )	Calculation result	Conclusion
Ant 0	19.45	4.09	23.54	225.94	20	0.04495	1	0.18478	Pass
Ant 1	19.73	4.09	23.82	240.99	20	0.04794	1		
Ant 2	19.49	4.09	23.58	228.03	20	0.04536	1		
Ant 3	19.60	4.09	23.69	233.88	20	0.04653	1		

#### 4.2 Estimation for WLAN5.2G MIMO

Antenna	Maximum output power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )	Calculation result	Conclusion
Ant 4	16.11	5.06	21.17	130.92	20	0.02604	1	0.10684	Pass
Ant 5	16.18	5.06	21.24	133.05	20	0.02647	1		
Ant 6	16.14	5.06	21.2	131.83	20	0.02623	1		
Ant 7	16.44	5.06	21.5	141.25	20	0.02810	1		

#### 4.3 Estimation for WLAN5.8G MIMO

Antenna	Maximum output power (dBm)	Gain (dBi)	EIRP (dBm)	EIRP (mW)	R(cm)	S (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )	Calculation result	Conclusion
Ant 0	15.73	3.73	19.46	88.31	20	0.01757	1	0.08824	Pass
Ant 1	16.88	3.73	20.61	115.08	20	0.02289	1		
Ant 2	16.85	3.73	20.58	114.29	20	0.02274	1		
Ant 3	17.27	3.73	21	125.89	20	0.02504	1		

Measurement Result For multiple Transmitting:

Because:

The 2.4Gwifi module has the maximum Power Density value 0.18478 mW/cm<sup>2</sup> in 2.4G MIMO transmitting mode;  
 The 5.2Gwifi module has the maximum Power Density value 0.10684 mW/cm<sup>2</sup> in 5G MIMO transmitting mode;  
 The 5.8Gwifi module has the maximum Power Density value 0.08824 mW/cm<sup>2</sup> in 5G MIMO transmitting mode;

So:

Because WIFI 2.4G and 5.8G are the same module, there is no simultaneous transmission, so evaluate the simultaneous transmission mode of WIFI 2.4G and WIFI 5.2G:

Transmitting Mode	R(cm)	S (mW/cm <sup>2</sup> )	Total S (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )	Conclusion
Wifi 2.4G MIMO Mode	20	0.18478	0.29162	1.000	Pass
Wifi 5.2G MIMO Mode		0.10684			

According to the Table above, we can conclude that the calculation results of all simultaneous transmission possibilities are less than 1, so it is into compliance.

Therefore the product also meets the requirements under multiple sources condition.

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