Cover Page

RF Exposure Evaluation Report

Application No.:	KSCR2210001894AT
FCC ID:	UCZ-B862AJ-Z1
IC:	8575A-B862AJZ1
Applicant:	LOREX Technology Inc.
Address of Applicant:	250 Royal Crest Court, Markham, ON L3R 3S1 Canada
Manufacturer:	LOREX Technology Inc.
Address of Manufacturer:	250 Royal Crest Court, Markham, ON L3R 3S1 Canada
Equipment Under Test (EUT):	
EUT Name:	4K Video Doorbell
Model No.:	B862AJ; B862AJ-Z; B451AJ; B451AJ-Z
HVIN:	B862AJ; B862AJ-Z1; B451AJ; B451AJ-Z3
Standard(s) :	FCC Rules 47 CFR §2.1091 KDB 447498 D04 interim General RF Exposure Guidance v01 RSS-102 Issue 5 Amendment 1 (February 2, 2021)
Date of Receipt:	2022-10-10
Date of Test:	2022-10-12 to 2022-10-19
Date of Issue:	2022-10-20
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Eric Lin
Laboratory Manager

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Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2022-10-20	/

Authorized for issue by:				
		Damon zhou **Damon_Zhou /Project Engineer**		
		Eric Lin **Eric Lin/Reviewer**		

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Contents

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General Information

General Description of E.U.T.

Power supply:	DC 3.7V by rechargeable lithium battery charged by 16-24 VAC or DC 5V 2A by USB port Battery Model: 1S1P 652023P Rated Voltage: 3.7V Capacity: 0.2Ah Energy: 0.74Wh Charging Voltage: 4.2V
S/N:	8M0024EPAG430
Firmware Version:	

Details of E.U.T.

2.4G

Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz;802.11n(HT40): 2422MHz to 2452MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK);802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11;802.11n(HT40):7
Channel Spacing:	5MHz
Antenna Type:	Ant 1: FPC Antenna Ant 2: FPC Antenna
Antenna Gain:	Antenna 1: 1.68dBi(Provided by the manufacturer) Antenna 2: 3.42dBi(Provided by the manufacturer) Directional gain:5.60dBi

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5G

Operation Frequency (20MHz):	U-NII-1: 5180-5240MHz; U-NII-2A: 5260-5320MHz; U-NII-2C: 5500-5700MHz; U-NII-3: 5745-5825MHz
Operation Frequency (40MHz):	U-NII-1: 5190-5230MHz; U-NII-2A: 5270-5310MHz; U-NII-2C: 5510-5670MHz; U-NII-3: 5755-5795MHz
Operation Frequency (80MHz):	U-NII-1: 5210MHz; U-NII-2A: 5290MHz; U-NII-2C: 5530-5610MHz; U-NII-3: 5775MHz
Modulation Type:	802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel Spacing:	802.11a/n(HT20)/ac(HT20): 20MHz; 802.11n(HT40)/ac(HT40): 40MHz; 802.11ac(HT80): 80MHz
DFS Function:	Slave without Radar detection
TPC Function:	Without TPC function
Antenna Type:	Ant 1: FPC Antenna Ant 2: FPC Antenna
Antenna Gain:	For U-NII-1 Antenna 1:1.31dBi(Provided by the manufacturer) Antenna 2:1.41dBi (Provided by the manufacturer) Directional gain:4.37dBi For U-NII-2A Antenna 1:1.64dBi(Provided by the manufacturer) Antenna 2:2.63dBi (Provided by the manufacturer) Directional gain:5.17dBi For U-NII-2C Antenna 1:2.99dBi(Provided by the manufacturer) Antenna 2:-0.06dBi (Provided by the manufacturer) Directional gain:4.74dBi For U-NII-3 Antenna 1:1.31dBi Antenna(Provided by the manufacturer) Antenna 2:-1.67dBi(Provided by the manufacturer) Directional gain:3.08dBi

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Test Location

All tests were performed at:
Compliance Certification Services (Kunshan) Inc.
No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.
Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:
1.SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc) is provided by the applicant. (if applicable).
2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).

Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• CNAS (No. CNAS L4354)

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• A2LA (Certificate No. 2541.01)

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC (Designation Number: CN1172)

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory.
Designation Number: CN1172.

• ISED (CAB identifier: CN0072)

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.
Company Number: 2324E

• VCCI (Member No.: 1938)

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

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FCC Radiofrequency radiation exposure limits

Test exemptions apply for devices used in general population/uncontrolled exposure environments, according to the SAR-based, or MPE-based exemption thresholds.

Blanket 1 mW Blanket Exemption

The 1 mW Blanket Exemption of §1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

The 1-mW blanket exemption applies at separation distances less than 0.5 cm, including where there is no separation. This exemption shall not be used in conjunction with other exemption criteria other than those for multiple RF sources in paragraph §1.1307(b)(3)(ii)(A).

The 1-mW exemption is independent of service type and covers the full range of 100 kHz to 100 GHz, but it shall not be used in conjunction with other exemption criteria or in devices with higher-power transmitters operating in the same time-averaging period. Exposure from such higher-power transmitters would invalidate the underlying assumption that exposure from the lower-power transmitter is the only contributor to SAR in the relevant volume of tissue.

MPE-based Exemption

General frequency and separation-distance dependent MPE-based effective radiated power (ERP) thresholds are in Table B.1 [Table 1 of §1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

Table B.1—Thresholds For Single RF Sources Subject to Routine Environmental Evaluation

RF Source Frequency			Minimum Distance			Threshold ERP
f_L MHz		f_H MHz	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	W
0.3	–	1.34	159 m	–	35.6 m	1,920 R^2
1.34	–	30	35.6 m	–	1.6 m	3,450 R^2/f^2
30	–	300	1.6 m	–	159 mm	3.83 R^2
300	–	1,500	159 mm	–	31.8 mm	0.0128 R^2f
1,500	–	100,000	31.8 mm	–	0.5 mm	19.2R^2
Subscripts L and H are low and high; λ is wavelength. From §1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.						

The table applies to any RF source (i.e. single fixed, mobile, and portable transmitters) and specifies power and distance criteria for each of the five frequency ranges used for the MPE limits. These criteria apply at separation distances from any part of the radiating structure of at least λ/2π. The thresholds are

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based on the general population MPE limits with a single perfect reflection, outside of the reactive near-field, and in the main beam of the radiator.

For mobile devices that are not exempt per Table B.1 [Table 1 of §1.1307(b)(1)(i)(C)] at distances from 20 cm to 40 cm and in 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in §1.1310 is necessary if the ERP of the device is greater than ERP_{20cm} in Formula (B.1) [repeated from §2.1091(c)(1); also in §1.1307(b)(1)(i)(B)].

$$P_{\text{th}}\ (\text{mW}) = ERP_{20\ \text{cm}}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases} \qquad (\text{B.1})$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i.e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of λ/4 or if the antenna gain is less than that of a half-wave dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

Limit calculation			
Frequency range	Frequency(MHz)	R(λ/2π)(m)	Threshold ERP(W)
300~1500MHz	**915**	0.0522	0.032
1500~100000MHz	**2462**	0.0194	0.007

SAR-based Exemption

SAR-based thresholds are derived based on frequency, power, and separation distance of the RF source. The formula defines the thresholds in general for either available maximum time-averaged power or maximum time-averaged ERP, whichever is greater.

If the ERP of a device is not easily determined, such as for a portable device with a small form factor, the applicant may use the available maximum time-averaged power exclusively if the device antenna or radiating structure does not exceed an electrical length of λ/4.

As for devices with antennas of length greater than λ/4 where the gain is not well defined, but always less than that of a half-wave dipole (length λ/2), the available maximum time-averaged power generated by the device may be used in place of the maximum time-averaged ERP, where that value is not known.

The separation distance is the smallest distance from any part of the antenna or radiating structure for all persons, during operation at the applicable ERP. In the case of mobile or portable devices, the separation distance is from the outer housing of the device where it is closest to the antenna.

程恒电子科技（昆山）有限公司 检验检测专用章 Inspection & Testing Services Compliance Certification Services (Kunshan) Inc. EMC Laboratory

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The SAR-based exemption formula of §1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula (B.2).

$$P_{\text{th}}\,(\text{mW}) = \begin{cases} ERP_{20\text{ cm}}(d/20\text{ cm})^{x} & d \le 20\text{ cm} \\ ERP_{20\text{ cm}} & 20\text{ cm} < d \le 40\text{ cm} \end{cases} \qquad \text{(B.2)}$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\text{ cm}}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and ERP_{20cm} is per Formula (B.1).

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Example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance(mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

For 2.4G WiFi

Limit calculation				
Frequency range(GHz)	Frequency(GHz)	X	Distance(cm)	Pth (mW)
1.5~6	**2.462**	1.903	**20**	**3060.000**

For 5G WiFi

Limit calculation				
Frequency range(GHz)	Frequency(GHz)	X	Distance(cm)	Pth (mW)
1.5~6	**5.825**	2.090	**20**	**3060.000**

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IC Radiofrequency radiation exposure limits:

According to RSS-102 section 2.5.2, RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);

• at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;

• at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);

• at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2}\ f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

• at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

For 2.4G device, the limit of worse case is 2.68W

For 5G device,the limit of worse case is 4.53W

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Measurement and Calculation

Maximum transmit power

The Power Data is based on the RF Test Report KSCR221000189401, KSCR221000189402

2.4G WiFi

Test Mode	Test Frequency (MHz)	Antenna 1 Power (dBm)	Antenna 2 Power (dBm)	MIMO Power (dBm)	Antenna 1 Power (mW)	Antenna 2 Power (mW)	MIMO Power (mW)
11B	2412	17.53	17.70	/	56.62	**58.88**	/
	2437	17.49	17.70	/	56.10	58.88	/
	2462	17.66	17.53	/	**58.34**	56.62	/
11G	2412	14.58	14.42	/	28.71	27.67	/
	2437	16.56	16.43	/	45.29	43.95	/
	2462	16.23	16.11	/	41.98	40.83	/
11N20MIMO	2412	13.02	13.63	16.35	20.04	23.07	43.15
	2437	14.88	15.59	18.26	30.76	36.22	66.99
	2462	15.65	15.71	18.69	36.73	37.24	**73.96**
11N40MIMO	2422	11.02	10.89	13.97	12.65	12.27	24.95
	2437	12.43	12.78	15.62	17.50	18.97	36.48
	2452	12.58	12.92	15.76	18.11	19.59	37.67

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5G WiFi

Test Mode	Test Frequency (MHz)	Antenna 1 Power (dBm)	Antenna 2 Power (dBm)	MIMO Power (dBm)	Antenna 1 Power (mW)	Antenna 2 Power (mW)	MIMO Power (mW)
11A	5180	15.02	14.75	/	31.77	29.85	/
	5200	14.60	14.48	/	28.84	28.05	/
	5240	15.10	15.35	/	32.36	34.28	/
	5260	15.40	15.23	/	34.67	33.34	/
	5300	14.71	14.95	/	29.58	31.26	/
	5320	14.51	14.84	/	28.25	30.48	/
	5500	14.68	14.52	/	29.38	28.31	/
	5580	15.80	15.41	/	**38.02**	34.75	/
	5700	14.94	14.96	/	31.19	31.33	/
	5745	14.39	14.85	/	27.48	30.55	/
	5785	14.78	15.35	/	30.06	34.28	/
	5825	15.12	15.77	/	32.51	**37.76**	/
11N20 MIMO	5180	13.71	13.35	16.54	23.50	21.63	45.08
	5200	13.32	13.20	16.27	21.48	20.89	42.36
	5240	13.65	14.18	16.93	23.17	26.18	49.32
	5260	14.07	14.14	17.12	25.53	25.94	51.52
	5300	13.35	13.75	16.56	21.63	23.71	45.29
	5320	13.99	13.55	16.79	25.06	22.65	47.75
	5500	14.31	14.26	17.30	26.98	26.67	53.70
	5580	14.18	14.08	17.14	26.18	25.59	51.76
	5700	13.60	13.75	16.69	22.91	23.71	46.67
	5745	13.45	13.64	16.56	22.13	23.12	45.29
	5785	14.02	14.25	17.15	25.23	26.61	51.88
	5825	14.09	13.73	16.92	25.64	23.60	49.20
11N40 MIMO	5190	13.61	13.59	16.61	22.96	22.86	45.81
	5230	13.68	14.01	16.86	23.33	25.18	48.53
	5270	13.96	14.27	17.13	24.89	26.73	51.64
	5310	13.44	13.85	16.66	22.08	24.27	46.34
	5510	13.52	13.56	16.55	22.49	22.70	45.19
	5550	14.15	14.27	17.22	26.00	26.73	52.72

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	5670	14.14	14.13	17.15	25.94	25.88	51.88
	5755	14.33	14.15	17.25	27.10	26.00	53.09
	5795	13.86	13.92	16.90	24.32	24.66	48.98
11AC20 MIMO	5180	13.85	13.63	16.75	24.27	23.07	47.32
	5200	13.38	13.34	16.37	21.78	21.58	43.35
	5240	13.71	13.91	16.82	23.50	24.60	48.08
	5260	13.83	13.88	16.87	24.15	24.43	48.64
	5300	13.44	13.48	16.47	22.08	22.28	44.36
	5320	14.02	13.51	16.78	25.23	22.44	47.64
	5500	14.25	14.21	17.24	26.61	26.36	52.97
	5580	14.34	14.18	17.27	27.16	26.18	53.33
	5700	13.75	13.85	16.81	23.71	24.27	47.97
	5745	13.57	13.76	16.68	22.75	23.77	46.56
	5785	14.16	14.43	17.31	26.06	27.73	53.83
	5825	13.97	13.83	16.91	24.95	24.15	49.09
11AC40 MIMO	5190	13.60	13.48	16.55	22.91	22.28	45.19
	5230	13.53	13.87	16.71	22.54	24.38	46.88
	5270	14.14	14.17	17.17	25.94	26.12	52.12
	5310	13.72	13.79	16.77	23.55	23.93	47.53
	5510	13.66	13.51	16.60	23.23	22.44	45.71
	5550	14.34	14.24	17.30	27.16	26.55	53.70
	5670	14.09	14.18	17.15	25.64	26.18	51.88
	5755	14.46	14.27	17.38	27.93	26.73	**54.70**
	5795	13.97	13.79	16.89	24.95	23.93	48.87
11AC80 MIMO	5210	12.44	12.55	15.51	17.54	17.99	35.56
	5290	12.75	13.10	15.94	18.84	20.42	39.26
	5530	12.04	12.53	15.30	16.00	17.91	33.88
	5610	12.86	12.86	15.87	19.32	19.32	38.64
	5775	12.89	13.27	16.09	19.45	21.23	40.64

程恒电子科技（昆山）有限公司 检验检测专用章 Inspection & Testing Services Compliance Certification Services (Kunshan) Inc. EMC Laboratory

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RF Exposure Calculation

For FCC:

2.4G WiFi

The Max Conducted Peak Output Power is 58.34 mW for antenna1,. 58.88 mW for antenna2, 73.96 mW for Mimo.
The best case gain of the antenna is 1.31dBi for antenna1 and 1.41dBi for antenna2.
Directional gain:4.37dBi.
1.31dBi logarithmic terms convert to numeric result is nearly 1.35.
1.41dBi logarithmic terms convert to numeric result is nearly 1.38.
4.37dBi logarithmic terms convert to numeric result is nearly 2.74.
According to the formula. calculate the EIRP test result:
Antenna1: EIRP= P x G = 58.34 mW x 1.35= 78.76mW
Antenna2: EIRP= P x G = 58.88 mW x 1.38 = 81.25mW
In MIMO mode: EIRP= P x G = 73.96 mW x 2.74= 202.65mW

5G WiFi

The Max Conducted Peak Output Power is 38.02 mW for antenna1,. 37.76 mW for antenna2, 54.7mW for Mimo.
For U-NII-1 The best case gain of the antenna is 1.31dBi for antenna1 and 1.41dBi for antenna2.
Directional gain:4.37dBi.
For U-NII-2A The best case gain of the antenna is 1.64dBi for antenna1 and 2.63dBi for antenna2.
Directional gain:5.17dBi
For U-NII-2C The best case gain of the antenna is 2.99dBi for antenna1 and -0.06dBi for antenna2.
Directional gain:4.74dBi
For U-NII-3 The best case gain of the antenna is 1.31dBi for antenna1 and -1.67dBi for antenna2.
Directional gain:3.08dBi
1.31dBi logarithmic terms convert to numeric result is nearly 1.35.
1.41dBi logarithmic terms convert to numeric result is nearly 1.38.
1.64dBi logarithmic terms convert to numeric result is nearly 1.46.
2.63dBi logarithmic terms convert to numeric result is nearly 1.83.
2.99dBi logarithmic terms convert to numeric result is nearly 1.99.
-0.06dBi logarithmic terms convert to numeric result is nearly 0.99.
1.31dBi logarithmic terms convert to numeric result is nearly 1.35.
-1.67dBi logarithmic terms convert to numeric result is nearly 0.68.
4.37dBi logarithmic terms convert to numeric result is nearly 2.74.
5.17dBi logarithmic terms convert to numeric result is nearly 3.29.

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4.74dBi logarithmic terms convert to numeric result is nearly 2.98.
5.17dBi logarithmic terms convert to numeric result is nearly 2.03.
According to the formula. calculate the EIRP test result:
Antenna1: EIRP= P x G = 38.02 mW x 1.99 = 75.66mW
Antenna2: EIRP= P x G = 37.76mW x 1.83 = 69.10mW
In MIMO mode: EIRP= P x G = 54.7mW x 3.29 = 179.96mW

The 2.4GHz WiFi and 5GHz WiFi can transmit simultaneously, but the maximum rate of MPE is 202.65/3060+179.96/3060=0.1250≤1.
Remark: we used the maximum power between the conducted power and ERP/EIRP to perform RF exposure exemption evaluation.

	Evaluation method	Exempt Limit(mW)	Verdict
☐	Blanket 1 mW Blanket Exemption	1mW	N/A
☐	MPE-based Exemption(ERP)	7mW(ERP) (2.4GHz Band)	N/A
☒	SAR-based Exemption(P_{th})	3060mW(ERP) (1.5GHz~6GHz)	Yes

So, the device is to qualify for SAR test exemption, the exemption report is in lieu of the SAR report

For IC:
2.4G WiFi
2.4G WiFi
The Max Conducted Peak Output Power is 58.34 mW for antenna1,. 58.88 mW for antenna2, 73.96 mW for Mimo.
The best case gain of the antenna is 1.31dBi for antenna1 and 1.41dBi for antenna2.
Directional gain:4.37dBi.
1.31dBi logarithmic terms convert to numeric result is nearly 1.35.
1.41dBi logarithmic terms convert to numeric result is nearly 1.38.
4.37dBi logarithmic terms convert to numeric result is nearly 2.74.
According to the formula. calculate the EIRP test result:
Antenna1: EIRP= P x G = 58.34 mW x 1.35= 0.07876W<2.68W
Antenna2: EIRP= P x G = 58.88 mW x 1.38 = 0.08125W<2.68W
In MIMO mode: EIRP= P x G = 73.96 mW x 2.74= 0.20265W<2.68W

5G WiFi
The Max Conducted Peak Output Power is 38.02 mW for antenna1,. 37.76 mW for antenna2, 54.7mW for Mimo.
For U-NII-1 The best case gain of the antenna is 1.31dBi for antenna1 and 1.41dBi for antenna2.
Directional gain:4.37dBi.

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For U-NII-2A The best case gain of the antenna is 1.64dBi for antenna1 and 2.63dBi for antenna2.
Directional gain:5.17dBi
For U-NII-2C The best case gain of the antenna is 2.99dBi for antenna1 and -0.06dBi for antenna2.
Directional gain:4.74dBi
For U-NII-3 The best case gain of the antenna is 1.31dBi for antenna1 and -1.67dBi for antenna2.
Directional gain:3.08dBi
1.31dBi logarithmic terms convert to numeric result is nearly 1.35.
1.41dBi logarithmic terms convert to numeric result is nearly 1.38.
1.64dBi logarithmic terms convert to numeric result is nearly 1.46.
2.63dBi logarithmic terms convert to numeric result is nearly 1.83.
2.99dBi logarithmic terms convert to numeric result is nearly 1.99.
-0.06dBi logarithmic terms convert to numeric result is nearly 0.99.
1.31dBi logarithmic terms convert to numeric result is nearly 1.35.
-1.67dBi logarithmic terms convert to numeric result is nearly 0.68.
4.37dBi logarithmic terms convert to numeric result is nearly 2.74.
5.17dBi logarithmic terms convert to numeric result is nearly 3.29.
4.74dBi logarithmic terms convert to numeric result is nearly 2.98.
5.17dBi logarithmic terms convert to numeric result is nearly 2.03.
According to the formula. calculate the EIRP test result:
Antenna1: EIRP= P x G = 38.02 mW x 1.99 = 0.07566<4.53W
Antenna2: EIRP= P x G = 37.76mW x 1.83 = 0.06910<4.53W
In MIMO mode: EIRP= P x G = 54.7mW x 3.29 = 0.17996<4.53W

The 2.4GHz WiFi and 5GHz WiFi can transmit simultaneously, but the maximum rate of MPE is 0.20265/2.68+0.17996/4.53=0.1153≤1.
So the device is exclusion from SAR test.

--End of the Report--

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