



Certificate #4312.01

# RF EXPOSURE EVALUATION REPORT

**Product Name:** IP Phone  
**Trade Mark:** GRANDSTREAM  
**Model No.:** GRP2650  
**HVIN:** GRP2650V2  
**Report Number:** 24032510301RFC-5  
**Test Standards:** FCC 47 CFR Part 1 Subpart I  
 RSS-102 Issue 6  
**FCC ID:** YZZGRP2650V2  
**IC:** 11964A-GRP2650V2  
**Test Result:** PASS  
**Date of Issue:** July 25, 2024

Prepared for:

**Grandstream Networks, Inc.**  
**126 Brookline Ave., 3rd Floor Boston, MA 02215, USA**

Prepared by:

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**Shenzhen UnionTrust Quality and Technology Co., Ltd.**

**Version**

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# 1. GENERAL INFORMATION

## 1.1 CLIENT INFORMATION

<b>Applicant:</b>	Grandstream Networks, Inc.
<b>Address of Applicant:</b>	126 Brookline Ave., 3rd Floor Boston, MA 02215, USA
<b>Manufacturer:</b>	Grandstream Networks, Inc.
<b>Address of Manufacturer:</b>	126 Brookline Ave., 3rd Floor Boston, MA 02215, USA

## 1.2 EUT INFORMATION

<b>Product Name:</b>	IP Phone		
<b>Model No.:</b>	GRP2650		
<b>HVIN:</b>	GRP2650V2		
<b>Trade Mark:</b>	GRANDSTREAM		
<b>DUT Stage:</b>	Production Unit		
<b>EUT Supports Function:</b> (Provided by the customer)	2.4 GHz ISM Band:	IEEE 802.11b/g/n/ax	
		Bluetooth V5.0	
	5 GHz U-NII Bands:	5 150 MHz to 5 250 MHz	IEEE 802.11a/n/ac/ax
		5 250 MHz to 5 350 MHz	IEEE 802.11a/n/ac/ax
		5 470 MHz to 5 725 MHz	IEEE 802.11a/n/ac/ax
	5 725 MHz to 5 850 MHz	IEEE 802.11a/n/ac/ax	
<b>Sample Received Date:</b>	March 23, 2024		

**Remark:** The above EUT's information was provided by customer. Please refer to the specifications or user's manual for more detailed description.

## 1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

For BT_LE	
<b>Frequency Band:</b>	2400 MHz to 2483.5 MHz
<b>Frequency Range:</b>	2402 MHz to 2480 MHz
<b>Bluetooth Version:</b>	Bluetooth LE/2LE/LE Code
<b>Type of Modulation:</b>	GFSK
<b>Number of Channels:</b>	40
<b>Channel Separation:</b>	2 MHz
<b>Antenna Type:</b>	Dipole Antenna
<b>Antenna Gain:</b> (Provided by the customer)	4.5 dBi
<b>Maximum Peak Power:</b>	7.37 dBm

For BT_EDR	
<b>Frequency Band:</b>	2400 MHz to 2483.5 MHz
<b>Frequency Range:</b>	2402 MHz to 2480 MHz
<b>Bluetooth Version:</b>	Bluetooth BR + EDR
<b>Modulation Technique:</b>	Frequency Hopping Spread Spectrum(FHSS)
<b>Type of Modulation:</b>	GFSK, $\pi/4$ DQPSK, 8DPSK
<b>Number of Channels:</b>	79
<b>Channel Separation:</b>	1 MHz
<b>Antenna Type:</b>	Dipole Antenna

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<b>Antenna Gain:</b> (Provided by the customer)	4.5 dBi
<b>Maximum Peak Power:</b>	12.13 dBm

For 2.4 GHz ISM Band of Wi-Fi	
<b>Frequency Band:</b>	2400 MHz to 2483.5 MHz
<b>Frequency Range:</b>	2412 MHz to 2462 MHz
<b>Support Standards:</b>	IEEE 802.11b/g/n-HT20/n-HT40/ax-HE20/ax-HE40
<b>Type of Modulation:</b>	IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM(64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT20: OFDM(64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT40: OFDM(64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11ax:OFDM/ OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
<b>Data Rate:</b>	IEEE 802.11b: Up to 11 Mbps IEEE 802.11g: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS7 IEEE 802.11n-HT40: Up to MCS7 IEEE 802.11ax-HE20/ HE40: Up to MCS11
<b>Number of Channels:</b>	IEEE 802.11b: 11 IEEE 802.11g: 11 IEEE 802.11n-HT20/ax-HE20: 11 IEEE 802.11n-HT40/ax-HE40: 7
<b>Channel Separation:</b>	5 MHz
<b>Antenna Type:</b>	Dipole Antenna
<b>Antenna Gain:</b> (Provided by the customer)	4.5 dBi
<b>Maximum Peak Power:</b>	IEEE 802.11b: 17.56 dBm IEEE 802.11g: 25.60 dBm IEEE 802.11n-HT20: 25.70 dBm IEEE 802.11n-HT40: 25.41 dBm IEEE 802.11ax-HE20: 26.32 dBm IEEE 802.11ax-HE40: 24.98 dBm
<b>Maximum e.i.r.p</b>	IEEE 802.11b: 22.06 dBm IEEE 802.11g: 30.10 dBm IEEE 802.11n-HT20: 30.20 dBm IEEE 802.11n-HT40: 29.91 dBm IEEE 802.11ax-HE20: 30.82 dBm IEEE 802.11ax-HE40: 29.48 dBm

For 5 GHz U-NII Bands of Wi-Fi	
<b>Frequency Bands:</b>	5150 MHz to 5250 MHz (U-NII-1)
	5250 MHz to 5350 MHz (U-NII-2A)
	5470 MHz to 5725 MHz (U-NII-2C)
	5 725 MHz to 5 850 MHz (U-NII-3)
<b>Frequency Ranges:</b>	5180 MHz to 5240 MHz
	5260 MHz to 5320 MHz
	5500 MHz to 5700 MHz
	5745 MHz to 5825 MHz
<b>Support Standards:</b>	IEEE 802.11a/n/ac/ax
<b>TPC Function:</b>	Not Support
<b>DFS Operational mode:</b>	Slave without radar Interference detection function
<b>Type of Modulation:</b>	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK)

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	IEEE 802.11n: OFDM(64QAM, 16QAM, QPSK, BPSK)				
	IEEE 802.11ac: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)				
	IEEE 802.11ax: OFDM/OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)				
<b>Channel Spacing:</b>	IEEE 802.11a/n-HT20/ac-VHT20/ax-HE20: 20 MHz				
	IEEE 802.11n-HT40/ac-VHT40/ax-HE40: 40 MHz				
<b>Data Rate:</b>	IEEE 802.11a: Up to 54 Mbps				
	IEEE 802.11n-HT20: Up to MCS7				
	IEEE 802.11n-HT40: Up to MCS7				
	IEEE 802.11ac-VHT20: Up to MCS8				
	IEEE 802.11ac-VHT40: Up to MCS9				
	IEEE 802.11ax-HE20/HE40: Up to MCS11				
<b>Number of Channels:</b>	5150 MHz to 5250 MHz: 4 for IEEE 802.11a/n-HT20/ac-VHT20/ax-HE20 2 for IEEE 802.11n-HT40/ac-VHT40/ax-HE40				
	5250 MHz to 5350 MHz: 4 for IEEE 802.11a/n-HT20/ac-VHT20/ax-HE20 2 for IEEE 802.11n-HT40/ac-VHT40/ax-HE40				
	5470 MHz to 5725 MHz: 12 for IEEE 802.11a/n-HT20/ac-VHT20/ax-HE20 6 for IEEE 802.11n-HT40/ac-VHT40/ax-HE40				
	5725 MHz to 5850 MHz: 5 for IEEE 802.11a/n-HT20/ac-VHT20/ax-HE20 2 for IEEE 802.11n-HT40/ac-VHT40/ax-HE40				
<b>Antenna Type:</b>	Dipole Antenna				
<b>Antenna Gain:</b> (Provided by the customer)	5150 MHz to 5250 MHz: 4.0 dBi				
	5250 MHz to 5350 MHz: 4.0 dBi				
	5470 MHz to 5725 MHz: 4.0 dBi				
	5725 MHz to 5850 MHz: 4.0 dBi				
<b>Maximum conducted output power (dBm):</b>		<b>U-NII-1</b>	<b>U-NII-2A</b>	<b>U-NII-2C</b>	<b>U-NII-3</b>
	IEEE 802.11a:	15.18	14.46	13.76	14.19
	IEEE 802.11n-HT20:	15.14	14.44	13.79	14.23
	IEEE 802.11n-HT40:	14.67	14.16	14.09	14.09
	IEEE 802.11ac-VHT20	15.14	14.45	13.78	14.25
	IEEE 802.11ac-VHT40	14.66	14.12	14.03	14.02
	IEEE 802.11ax-HE20	15.17	14.46	13.79	14.23
	IEEE 802.11ax-HE40	14.73	14.16	14.13	14.13
<b>Maximum EIRP (dBm):</b>		<b>U-NII-1</b>	<b>U-NII-2A</b>	<b>U-NII-2C</b>	<b>U-NII-3</b>
	IEEE 802.11a:	19.18	18.46	17.76	18.19
	IEEE 802.11n-HT20:	19.14	18.44	17.79	18.23
	IEEE 802.11n-HT40:	18.67	18.16	18.09	18.09
	IEEE 802.11ac-VHT20	19.14	18.45	17.78	18.25
	IEEE 802.11ac-VHT40	18.66	18.12	18.03	18.02
	IEEE 802.11ax-HE20	19.17	18.46	17.79	18.23
	IEEE 802.11ax-HE40	18.73	18.16	18.13	18.13

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### 1.4 OTHER INFORMATION

Test channels for BT_LE				
Type of Modulation	Tx/Rx Frequency	Test RF Channel Lists		
GFSK	2402 MHz to 2480 MHz	Lowest(L)	Middle(M)	Highest(H)
		Channel 0	Channel 19	Channel 39
		2402 MHz	2440 MHz	2480 MHz

Test channels for BT_EDR				
Mode	Tx/Rx Frequency	Test RF Channel Lists		
GFSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	Lowest(L)	Middle(M)	Highest(H)
		Channel 0	Channel 39	Channel 78
$\pi/4$ DQPSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	2402 MHz	2441 MHz	2480 MHz
		Channel 0	Channel 39	Channel 78
8DPSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	2402 MHz	2441 MHz	2480 MHz
		Channel 0	Channel 39	Channel 78

Test channels for 2.4 GHz ISM Band of Wi-Fi				
Mode	Tx/Rx Frequency	Test RF Channel Lists		
IEEE 802.11b	2412 MHz to 2462 MHz	Lowest(L)	Middle(M)	Highest(H)
		Channel 1	Channel 6	Channel 11
IEEE 802.11g	2412 MHz to 2462 MHz	2412 MHz	2437 MHz	2462 MHz
		Channel 1	Channel 6	Channel 11
IEEE 802.11n-HT20 IEEE 802.11ax-HE20	2412 MHz to 2462 MHz	2412 MHz	2437 MHz	2462 MHz
		Channel 1	Channel 6	Channel 11
IEEE 802.11n-HT40 IEEE 802.11ax-HE40	2422 MHz to 2452 MHz	2422 MHz	2437 MHz	2452 MHz
		Channel 3	Channel 6	Channel 9

Test channels for 5 GHz U-NII Bands of Wi-Fi					
Mode	Tx/Rx Frequency	Test RF Channel Lists			
IEEE 802.11a	5150 MHz to 5250 MHz	Lowest(L)	Middle(M)	Highest(H)	Straddle band
		Channel 36	Channel 44	Channel 48	--
IEEE 802.11n-HT20	5250 MHz to 5350 MHz	5180 MHz	5220 MHz	5240 MHz	--
		Channel 52	Channel 60	Channel 64	--
IEEE 802.11ac-VHT20	5470 MHz to 5725 MHz	5260 MHz	5300 MHz	5320 MHz	--
		Channel 100	Channel 116	Channel 140	Channel 144
IEEE 802.11ax-HE20	5725 MHz to 5850 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
		Channel 149	Channel 157	Channel 165	--
IEEE 802.11n-HT40	5150 MHz to 5250 MHz	5745 MHz	5785 MHz	5825 MHz	--
		Channel 38	--	Channel 46	--
IEEE 802.11ac-VHT40	5250 MHz to 5350 MHz	5190 MHz	--	5230 MHz	--
		Channel 54	--	Channel 62	--
IEEE 802.11ax-HE40	5470 MHz to 5725 MHz	5270 MHz	--	5310 MHz	--
		Channel 102	Channel 110	Channel 134	Channel 142

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		5510 MHz	5550 MHz	5670 MHz	5710 MHz
	5725 MHz to 5850 MHz	Channel 151	--	Channel 159	--
		5755 MHz	--	5795 MHz	--
		--	5775 MHz	--	--

## 1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

**FCC 47 CFR Part 1 Subpart I**  
**RSS-102 Issue 6**

All test items have been performed and recorded as per the above standards

## 1.6 DEVIATION FROM STANDARDS

None.

## 1.7 ABNORMALITIES FROM STANDARD CONDITIONS

None.

## 1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

## 2. EQUIPMENT LIST

Please refer to the RF test report.



### 3. MPE EVALUATION

#### 3.1 REFERENCE DOCUMENTS FOR EVALUATION

No.	Identity	Document Title
1	FCC 47 CFR Part 1 Subpart I	PROCEDURES IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969
2	RSS-102 Issue 6	Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
3	KDB 447498 D01 General RF Exposure Guidance v06	RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES

#### 3.2 MPE COMPLIANCE REQUIREMENT

##### 3.2.1 Limits

##### 3.2.1.1 FCC 47 CFR Part 1 Subpart I

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

##### 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 <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> 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
1500-100000	/	/	5	6

##### 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 <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> 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
1500-100000	/	/	1	30

**Note:** f = frequency in MHz; \* = Plane-wave equivalent power density.

### 3.2.1.2 RSS-102 Issue 6

According to RSS-102 Issue 6, field reference level (FRL) 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 (i.e. mobile devices), except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum EIRP 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 EIRP 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 EIRP 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 EIRP 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 EIRP of the device is equal to or less than 5 W (adjusted for tune-up tolerance)

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the EIRP was derived.

### 3.2.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

## 3.3 MPE CALCULATION METHOD

### FCC 47 CFR Part 1 Subpart I

$$S = PG/4\pi R^2 = EIRP/4\pi R^2$$

S = power density (in appropriate units, e.g., mw/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = 20cm, distance to the center of radiation of the antenna (in appropriate units, e.g., cm )

## 3.4 MPE CALCULATION RESULTS

**Note:** For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

### 3.4.1 For WLAN

For Wi-Fi function, operating at 2412MHz to 2462 MHz for IEEE802.11b/g/n/ax and  
 operating at 5150 MHz to 5250 MHz for IEEE802.11a/n/ac/ax and  
 operating at 5250 MHz to 5350 MHz for IEEE802.11a/n/ac/ax and  
 operating at 5470 MHz to 5725 MHz for IEEE802.11a/n/ac/ax and  
 operating at 5725 MHz to 5850 MHz for IEEE802.11a/n/ac/ax.

#### 3.4.1.1 Antenna Type:

Dipole Antenna

#### 3.4.1.2 Antenna Gain:

2412MHz to 2462 MHz: 4.5 dBi

5150 MHz to 5250 MHz: 4.0 dBi

5250 MHz to 5350 MHz: 4.0 dBi

5470 MHz to 5725 MHz: 4.0 dBi

5725 MHz to 5850 MHz: 4.0 dBi

**3.4.1.3 Results for FCC 47 CFR Part 1 Subpart I**

Operating Mode	Freq.	Declared maximum conducted output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Declared maximum EIRP	MPE Limit	MPE Value
	(MHz)	(dBm)		(dBi)	(dBm)	(mW)	(mw/cm <sup>2</sup> )	
IEEE 802.11b	2412	17	1	4.5	22.5	177.8279	1	0.0354
	2437	18	1	4.5	23.5	223.8721	1	0.0445
	2462	18	1	4.5	23.5	223.8721	1	0.0445
IEEE 802.11g	2412	25	1	4.5	30.5	1122.0185	1	0.2232
	2437	25	1	4.5	30.5	1122.0185	1	0.2232
	2462	25	1	4.5	30.5	1122.0185	1	0.2232
IEEE 802.11n-HT20 IEEE 802.11ax-HE20	2412	26	1	4.5	31.5	1412.5375	1	0.2810
	2437	26	1	4.5	31.5	1412.5375	1	0.2810
	2462	26	1	4.5	31.5	1412.5375	1	0.2810
IEEE 802.11n-HT40 IEEE 802.11ax-HE40	2422	25	1	4.5	30.5	1122.0185	1	0.2232
	2437	25	1	4.5	30.5	1122.0185	1	0.2232
	2452	25	1	4.5	30.5	1122.0185	1	0.2232
IEEE 802.11a	5180	15	1	4	20	100.0000	1	0.0199
	5220	14	1	4	19	79.4328	1	0.0158
	5240	14	1	4	19	79.4328	1	0.0158
	5260	14	1	4	19	79.4328	1	0.0158
	5300	14	1	4	19	79.4328	1	0.0158
	5320	14	1	4	19	79.4328	1	0.0158
	5500	13	1	4	18	63.0957	1	0.0126
	5580	13	1	4	18	63.0957	1	0.0126
	5700	13	1	4	18	63.0957	1	0.0126
	5720	13	1	4	18	63.0957	1	0.0126
	5745	14	1	4	19	79.4328	1	0.0158
	5785	14	1	4	19	79.4328	1	0.0158
	5825	14	1	4	19	79.4328	1	0.0158
IEEE 802.11n-HT20 802.11ac-VHT20 IEEE 802.11ax-HE20	5180	14	1	4	19	79.4328	1	0.0158
	5220	14	1	4	19	79.4328	1	0.0158
	5240	14	1	4	19	79.4328	1	0.0158
	5260	14	1	4	19	79.4328	1	0.0158
	5300	14	1	4	19	79.4328	1	0.0158
	5320	13	1	4	18	63.0957	1	0.0126
	5500	13	1	4	18	63.0957	1	0.0126
	5580	13	1	4	18	63.0957	1	0.0126
	5700	13	1	4	18	63.0957	1	0.0126
	5720	14	1	4	19	79.4328	1	0.0158
	5745	14	1	4	19	79.4328	1	0.0158
	5785	14	1	4	19	79.4328	1	0.0158
	5825	14	1	4	19	79.4328	1	0.0158
IEEE 802.11n-HT40 IEEE 802.11ac-VHT40 IEEE 802.11ax-HE40	5190	14	1	4	19	79.4328	1	0.0158
	5230	14	1	4	19	79.4328	1	0.0158
	5270	14	1	4	19	79.4328	1	0.0158
	5310	14	1	4	19	79.4328	1	0.0158
	5510	12	1	4	17	50.1187	1	0.0100
	5550	12	1	4	17	50.1187	1	0.0100
	5670	14	1	4	19	79.4328	1	0.0158
	5710	14	1	4	19	79.4328	1	0.0158
	5755	14	1	4	19	79.4328	1	0.0158
	5795	14	1	4	19	79.4328	1	0.0158

3.4.1.4 Results for RSS-102 Issue 6

Operating Mode	Freq.	Declared maximum conducted output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Declared maximum EIRP	Declare Limit
	(MHz)	(dBm)		(dBi)	(dBm)	(W)	(W)
SIS IEEE 802.11b  IEEE 802.11g  IEEE 802.11n-HT20 IEEE 802.11ax-HE20  IEEE 802.11n-HT40 IEEE 802.11ax-HE40	2412	17	1	4.5	22.5	0.1778	2.6840
	2437	18	1	4.5	23.5	0.2239	2.7030
	2462	18	1	4.5	23.5	0.2239	2.7219
	2412	25	1	4.5	30.5	1.1220	2.6840
	2437	25	1	4.5	30.5	1.1220	2.7030
	2462	25	1	4.5	30.5	1.1220	2.7219
	2412	26	1	4.5	31.5	1.4125	2.6840
	2437	26	1	4.5	31.5	1.4125	2.7030
	2462	26	1	4.5	31.5	1.4125	2.7219
	2422	25	1	4.5	30.5	1.1220	2.6916
	2437	25	1	4.5	30.5	1.1220	2.7030
	2452	25	1	4.5	30.5	1.1220	2.7144
SIS IEEE 802.11a	5180	15	1	4	20	0.1000	4.5253
	5220	14	1	4	19	0.0794	4.5491
	5240	14	1	4	19	0.0794	4.5610
	5260	14	1	4	19	0.0794	4.5729
	5300	14	1	4	19	0.0794	4.5966
	5320	14	1	4	19	0.0794	4.6085
	5500	13	1	4	18	0.0631	4.7145
	5580	13	1	4	18	0.0631	4.7613
	5700	13	1	4	18	0.0631	4.8310
	5720	13	1	4	18	0.0631	4.8426
	5745	14	1	4	19	0.0794	4.8570
	5785	14	1	4	19	0.0794	4.8801
	5825	14	1	4	19	0.0794	4.9031
	5180	14	1	4	19	0.0794	4.5253
	5220	14	1	4	19	0.0794	4.5491
	5240	14	1	4	19	0.0794	4.5610
	5260	14	1	4	19	0.0794	4.5729
	5300	14	1	4	19	0.0794	4.5966
	5320	13	1	4	18	0.0631	4.6085
	5500	13	1	4	18	0.0631	4.7145
	5580	13	1	4	18	0.0631	4.7613
5700	13	1	4	18	0.0631	4.8310	
5720	14	1	4	19	0.0794	4.8426	
5745	14	1	4	19	0.0794	4.8570	
5785	14	1	4	19	0.0794	4.8801	
5825	14	1	4	19	0.0794	4.9031	
IEEE 802.11n-HT40 802.11ac-VHT40 IEEE 802.11ax-HE40	5190	14	1	4	19	0.0794	4.5312
	5230	14	1	4	19	0.0794	4.5551
	5270	14	1	4	19	0.0794	4.5789
	5310	14	1	4	19	0.0794	4.6026
	5510	12	1	4	17	0.0501	4.7204
	5550	12	1	4	17	0.0501	4.7437
	5670	14	1	4	19	0.0794	4.8136
	5710	14	1	4	19	0.0794	4.8368
	5755	14	1	4	19	0.0794	4.8628
	5795	14	1	4	19	0.0794	4.8859

**3.4.2 For BT**

For BT\_LE/2LE/ LE Code function, operating at 2402MHz to 2480 MHz for GFSK and  
 For BT\_EDR function, operating at 2402MHz to 2480 MHz for GFSK,  $\pi/4$  DQPSK, 8DPSK

**3.4.2.1 Antenna Type:**

Dipole Antenna

**3.4.2.2 Antenna Gain:**

2402MHz to 2480 MHz: 4.5 dBi

**3.4.2.3 Results for FCC 47 CFR Part 1 Subpart I**

Operating Mode	Freq.	Declared maximum conducted output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Declared maximum EIRP	MPE Limit	MPE Value
	(MHz)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)	(mW /cm <sup>2</sup> )	
LE/2LE/ LE Code	2402-2480	7	1	4.5	12.5	17.7828	1	0.0035
EDR	2402-2480	10	2.5	4.5	17.0	50.1187	1	0.0100

**3.4.2.4 Results for RSS-102 Issue 6**

Operating Mode	Freq.	Declared maximum conducted output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Declared maximum EIRP	Limit
	(MHz)	(dBm)	(dBm)	(dBi)	(dBm)	(W)	(W)
LE/2LE/ LE Code	2402-2480	7	1	4.5	12.5	0.0178	2.6764
EDR	2402-2480	10	2.5	4.5	17.0	0.0501	2.6764

### 3.4.3 Simultaneous Multi-band Transmission MPE Analysis

#### 3.4.4.1 List of Mode for Simultaneous Multi-band Transmission

No.	Configurations	Support/Not Support
1	2.4G_WLAN + BT	Support
2	5G_WLAN + BT	Support
3	2.4G_WLAN + 5G_WLAN	Not Support

#### 3.4.4.1 Results for transmit simultaneously

##### FCC 47 CFR Part 1 Subpart I

No.	Configurations	Maximum MPE Value			Limits
		WLAN (mw/cm <sup>2</sup> )	BT (mw/cm <sup>2</sup> )	Transmit simultaneously	
1	2.4G_WLAN + BT	0.2232	0.0100	0.2332	1
2	5G_WLAN + BT	0.0199	0.0100	0.0299	1

**Note:**

According to KDB 447498 D01 General RF Exposure Guidance v06, At the transmit simultaneously calculation method is as follows:

$$\text{Transmit simultaneously MPE} = \Sigma \text{ of MPE ratios}$$

$$\text{MPE ratios} = \text{Field strengths or power density} / \text{MPE limit at the test frequency}$$

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No.	Configurations	Declared maximum EIRP		Maximum MPE Value	Limits
		WLAN	BT		
		W	W	Transmit simultaneously	
1	2.4G_WLAN + BT	1.4125	0.0501	0.5450	1
2	5G_WLAN + BT	0.1000	0.0501	0.0408	1

**Note:**

According to KDB 447498 D01 General RF Exposure Guidance v06, At the transmit simultaneously calculation method is as follows:

$$\text{Transmit simultaneously MPE} = \Sigma \text{ of MPE ratios}$$

$$\text{MPE ratios} = \text{Field strengths or power density} / \text{MPE limit at the test frequency}$$

## APPENDIX 1 PHOTOS OF TEST SETUP

N/A

## APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal Photos.

\*\*\* End of Report \*\*\*

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