



Certificate #4312.01

RF EXPOSURE EVALUATION REPORT

Product Name: IP Phone
Trade Mark: GRANDSTREAM
Model No. / HVIN: GRP2670
Report Number: 200829040RFC-5
Test Standards: FCC 47 CFR Part 1 Subpart I
RSS-102 Issue 5
FCC ID: YZZGRP2670
IC: 11964A-GRP2670
Test Result: PASS
Date of Issue: October 18, 2021

Prepared for:

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

Prepared by:

Shenzhen UnionTrust Quality and Technology Co., Ltd.
**Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and
technology park, Longhua district, Shenzhen, China**

TEL: +86-755-2823 0888**FAX: +86-755-2823 0886**

Prepared by:



Henry Lu
Team Leader

Reviewed by:



Kevin Liang
Assistant Manager

Approved by:



Billy Li
Technical Director

Date:

October 18, 2021

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com<http://www.uttlab.com>UTTR-RF-RSS102-V1.1

Version

Version No.	Date	Description
V1.0	October 18, 2021	Original

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

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com<http://www.uttlab.com>UTTR-RF-RSS102-V1.1

CONTENTS

1. GENERAL INFORMATION	4
1.1 CLIENT INFORMATION	4
1.2 EUT INFORMATION	4
1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD	4
1.4 OTHER INFORMATION.....	6
1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	8
1.6 DEVIATION FROM STANDARDS	8
1.7 ABNORMALITIES FROM STANDARD CONDITIONS.....	8
1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER	8
2. EQUIPMENT LIST	8
3. MPE EVALUATION	9
3.1 REFERENCE DOCUMENTS FOR EVALUATION	9
3.2 MPE COMPLIANCE REQUIREMENT	9
3.2.1 LIMITS	9
3.2.2 TEST PROCEDURE	10
3.3 MPE CALCULATION METHOD	10
3.4 MPE CALCULATION RESULTS	10
3.4.1 FOR WLAN	10
3.4.2 FOR BT	15
3.4.3 SIMULTANEOUS MULTI-BAND TRANSMISSION MPE ANALYSIS.....	16
APPENDIX 1 PHOTOS OF TEST SETUP	17
APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS	17

1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

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

1.2 EUT INFORMATION

Product Name:	IP Phone		
Model No. / HVIN:	GRP2670		
Trade Mark:	GRANDSTREAM		
DUT Stage:	Identical Prototype		
EUT Supports Function:	2.4 GHz ISM Band:	IEEE 802.11b/g/n	
		Bluetooth 5.0	
	5 GHz U-NII Bands:	5 150 MHz to 5 250 MHz	IEEE 802.11a/n/ac
		5 250 MHz to 5 350 MHz	IEEE 802.11a/n/ac
		5 470 MHz to 5 725 MHz	IEEE 802.11a/n/ac
		5 725 MHz to 5 850 MHz	IEEE 802.11a/n/ac
Sample Received Date:	August 21, 2021		

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

For BT_LE		
Frequency Band:	2400 MHz to 2483.5 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Bluetooth Version:	Bluetooth LE/2LE	
Type of Modulation:	GFSK	
Number of Channels:	40	
Channel Separation:	2 MHz	
Antenna Type:	Dipole Antenna	
Antenna Gain:	4.5 dBi	
Maximum Peak Power:	LE	1.89 dBm
	2LE	2.49 dBm

For BT_EDR		
Frequency Band:	2400 MHz to 2483.5 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Bluetooth Version:	Bluetooth BR + EDR	
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)	
Type of Modulation:	GFSK, $\pi/4$ DQPSK, 8DPSK	
Number of Channels:	79	
Channel Separation:	1 MHz	
Antenna Type:	Dipole Antenna	
Antenna Gain:	4.5 dBi	
Maximum Peak Power:	5.758 dBm	

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

UTTR-RF-RSS102-V1.1

For 2.4 GHz ISM Band of Wi-Fi	
Frequency Band:	2400 MHz to 2483.5 MHz
Frequency Range:	2412 MHz to 2462 MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n-HT20
Type of Modulation:	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)
Data Rate:	IEEE 802.11b: Up to 11 Mbps IEEE 802.11g: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS7
Number of Channels:	IEEE 802.11b: 11 IEEE 802.11g: 11 IEEE 802.11n-HT20: 11
Channel Separation:	5 MHz
Antenna Type:	Dipole Antenna
Antenna Gain:	4.5 dBi
Maximum EIRP (dBm):	IEEE 802.11b: 26.75 dBm IEEE 802.11g: 27.23 dBm IEEE 802.11n-HT20: 27.42 dBm
Maximum Peak Power:	IEEE 802.11b: 22.25 dBm IEEE 802.11g: 22.73 dBm IEEE 802.11n-HT20: 22.92 dBm

For 5 GHz U-NII Bands of Wi-Fi	
Frequency Bands:	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)
Frequency Ranges:	5180 MHz to 5240 MHz
	5260 MHz to 5320 MHz
	5500 MHz to 5700 MHz
	5 745 MHz to 5 825 MHz
Support Standards:	IEEE 802.11a/n/ac
TPC Function:	Not Support
DFS Operational mode:	Slave without radar Interference detection function
Type of Modulation:	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK)
	IEEE 802.11n: OFDM(64QAM, 16QAM, QPSK, BPSK)
	IEEE 802.11ac: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)
Channel Spacing:	IEEE 802.11a/n-HT20/ac-VHT20: 20 MHz
	IEEE 802.11n-HT40/ac-VHT40: 40 MHz
	IEEE 802.11ac-VHT80: 80 MHz
Data Rate:	IEEE 802.11a: Up to 54 Mbps
	IEEE 802.11n-HT20: Up to MCS15
	IEEE 802.11n-HT40: Up to MCS15
	IEEE 802.11ac-VHT20: Up to MCS8
	IEEE 802.11ac-VHT40: Up to MCS9
Number of Channels:	IEEE 802.11ac-VHT80: Up to MCS9
	5150 MHz to 5250 MHz: 4 for IEEE 802.11a/n-HT20/ac-VHT20

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

UTTR-RF-RSS102-V1.1

	2 for IEEE 802.11n-HT40)/ac-VHT40 1 for IEEE 802.11ac-VHT80				
	5250 MHz to 5350 MHz: 4 for IEEE 802.11a/n-HT20/ac-VHT20 2 for IEEE 802.11n-HT40)/ac-VHT40 1 for IEEE 802.11ac-VHT80				
	5470 MHz to 5725 MHz: 11 for IEEE 802.11a/n-HT20/ac-VHT20 5 for IEEE 802.11n-HT40)/ac-VHT40 2 for IEEE 802.11ac-VHT80				
	5725 MHz to 5850 MHz: 5 for IEEE 802.11a/n-HT20/ac-VHT20 2 for IEEE 802.11n-HT40)/ac-VHT40 1 for IEEE 802.11ac-VHT80				
Antenna Type:	Dipole Antenna				
Antenna Gain:	5150 MHz to 5250 MHz: 4.5 dBi				
	5250 MHz to 5350 MHz: 4.5 dBi				
	5470 MHz to 5725 MHz: 4.5 dBi				
	5725 MHz to 5850 MHz: 4.5 dBi				
Maximum EIRP (dBm):	Chain 0		U-NII-1		
	IEEE 802.11a:		18.88		
	IEEE 802.11n-HT20:		18.51		
	IEEE 802.11n-HT40:		19.50		
	IEEE 802.11ac-VHT20:		18.48		
	IEEE 802.11ac-VHT40:		19.53		
	IEEE 802.11ac-VHT80:		17.28		
Maximum conducted output power (dBm):		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
	IEEE 802.11a:	14.38	14.53	14.59	20.14
	IEEE 802.11n-HT20:	14.01	14.26	14.03	19.16
	IEEE 802.11n-HT40:	15.00	15.13	13.44	19.49
	IEEE 802.11ac-VHT20	13.98	14.29	14.08	19.07
	IEEE 802.11ac-VHT40	15.03	15.04	13.13	19.53
	IEEE 802.11ac-VHT80:	12.78	12.92	11.48	18.82

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
		2402 MHz	2441 MHz	2480 MHz

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

UTTR-RF-RSS102-V1.1

$\pi/4$ DQPSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	Channel 0	Channel 39	Channel 78
		2402 MHz	2441 MHz	2480 MHz
8DPSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	Channel 0	Channel 39	Channel 78
		2402 MHz	2441 MHz	2480 MHz

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

Test channels for 5 GHz U-NII Bands of Wi-Fi				
Mode	Tx/Rx Frequency	Test RF Channel Lists		
		Lowest(L)	Middle(M)	Highest(H)
IEEE 802.11a IEEE 802.11n-HT20 IEEE 802.11ac-VHT20	5150 MHz to 5250 MHz	Channel 36	Channel 44	Channel 48
		5180 MHz	5220 MHz	5240 MHz
	5250 MHz to 5350 MHz	Channel 52	Channel 60	Channel 64
		5260 MHz	5300 MHz	5320 MHz
	5470 MHz to 5725 MHz	Channel 100	Channel 116	Channel 140
		5500 MHz	5580 MHz	5700 MHz
IEEE 802.11n-HT40 IEEE 802.11ac-VHT40	5150 MHz to 5250 MHz	Channel 149	Channel 157	Channel 165
		5745 MHz	5785 MHz	5825 MHz
	5150 MHz to 5250 MHz	Channel 38	--	Channel 46
		5190 MHz	--	5230 MHz
	5250 MHz to 5350 MHz	Channel 54	--	Channel 62
		5270 MHz	--	5310 MHz
IEEE 802.11ac-VHT80	5470 MHz to 5725 MHz	Channel 102	Channel 110	Channel 134
		5510 MHz	5550 MHz	5670 MHz
	5725 MHz to 5850 MHz	Channel 151	--	Channel 159
		5755 MHz	--	5795 MHz
	5150 MHz to 5250 MHz	--	Channel 42	--
		--	5210 MHz	--
IEEE 802.11ac-VHT80	5250 MHz to 5350 MHz	--	Channel 58	--
		--	5290 MHz	--
	5470 MHz to 5725 MHz	Channel 106	--	--
		5530 MHz	--	--
	5725 MHz to 5850 MHz	--	Channel 155	--
		--	5775 MHz	--

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

UTTR-RF-RSS102-V1.1

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 5

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 5	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 ²)	Averaging Times 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
1500-100000	/	/	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 ²)	Averaging Times 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
1500-100000	/	/	1	30

Note: f = frequency in MHz: * = Plane-wave equivalents power density.

3.2.1.2 RSS-102 Issue 5

According to RSS-102 Issue 5, 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.

According to RSS-102 Issue 5, 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.

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 MHz⁶ 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).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. 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/cm²)

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 = 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 and
operating at 5150 MHz to 5250 MHz for IEEE802.11a/n/ac and
operating at 5250 MHz to 5350 MHz for IEEE802.11a/n/ac and
operating at 5470 MHz to 5725 MHz for IEEE802.11a/n/ac and
operating at 5725 MHz to 5850 MHz for IEEE802.11a/n/ac.

3.4.1.1 Antenna Type:

Chain 0: Dipole Antenna

3.4.1.2 Antenna Gain:

Chain 0: 2412MHz to 2462 MHz: 4.5 dBi
5150 MHz to 5250 MHz: 4.5 dBi

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

UTTR-RF-RSS102-V1.1

5250 MHz to 5350 MHz: 4.5 dBi
5470 MHz to 5725 MHz: 4.5 dBi
5725 MHz to 5850 MHz: 4.5 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	MP E Li mit	MPE Value
		(MHz)	(dBm)		(dBi)	(dBm)	(mW)	(mw/cm²)	
SISO	IEEE 802.11b	2412	22	1	4.5	27.5	562.3413	1	0.1119
		2437	22	1	4.5	27.5	562.3413	1	0.1119
		2462	22	1	4.5	27.5	562.3413	1	0.1119
	IEEE 802.11g	2412	22	1	4.5	27.5	562.3413	1	0.1119
		2437	22	1	4.5	27.5	562.3413	1	0.1119
		2462	22	1	4.5	27.5	562.3413	1	0.1119
	IEEE 802.11n-HT20	2412	22	1	4.5	27.5	562.3413	1	0.1119
		2437	22	1	4.5	27.5	562.3413	1	0.1119
		2462	22	1	4.5	27.5	562.3413	1	0.1119
	IEEE 802.11a	5180	14	1	4.5	19.5	89.1251	1	0.0177
		5220	14	1	4.5	19.5	89.1251	1	0.0177
		5240	14	1	4.5	19.5	89.1251	1	0.0177
		5260	14	1	4.5	19.5	89.1251	1	0.0177
		5300	14	1	4.5	19.5	89.1251	1	0.0177
		5320	14	1	4.5	19.5	89.1251	1	0.0177
		5500	14	1	4.5	19.5	89.1251	1	0.0177
		5580	14	1	4.5	19.5	89.1251	1	0.0177
		5700	14	1	4.5	19.5	89.1251	1	0.0177
		5745	20	1	4.5	25.5	354.8134	1	0.0706
		5785	20	1	4.5	25.5	354.8134	1	0.0706
		5805	20	1	4.5	25.5	354.8134	1	0.0706
	IEEE 802.11n-HT20	5180	14	1	4.5	19.5	89.1251	1	0.0177
		5220	14	1	4.5	19.5	89.1251	1	0.0177
		5240	14	1	4.5	19.5	89.1251	1	0.0177
		5260	14	1	4.5	19.5	89.1251	1	0.0177
		5300	14	1	4.5	19.5	89.1251	1	0.0177
		5320	14	1	4.5	19.5	89.1251	1	0.0177
		5500	14	1	4.5	19.5	89.1251	1	0.0177
		5580	14	1	4.5	19.5	89.1251	1	0.0177
		5700	14	1	4.5	19.5	89.1251	1	0.0177
		5745	19	1	4.5	24.5	281.8383	1	0.0561
		5785	19	1	4.5	24.5	281.8383	1	0.0561
		5805	19	1	4.5	24.5	281.8383	1	0.0561

IEEE 802.11ac-VHT20	5180	13	1	4.5	18.5	70.7946	1	0.0141
	5220	13	1	4.5	18.5	70.7946	1	0.0141
	5240	13	1	4.5	18.5	70.7946	1	0.0141
	5260	14	1	4.5	19.5	89.1251	1	0.0177
	5300	14	1	4.5	19.5	89.1251	1	0.0177
	5320	14	1	4.5	19.5	89.1251	1	0.0177
	5500	14	1	4.5	19.5	89.1251	1	0.0177
	5580	14	1	4.5	19.5	89.1251	1	0.0177
	5700	14	1	4.5	19.5	89.1251	1	0.0177
	5745	19	1	4.5	24.5	281.8383	1	0.0561
	5785	19	1	4.5	24.5	281.8383	1	0.0561
	5805	19	1	4.5	24.5	281.8383	1	0.0561
IEEE 802.11n-HT40	5190	15	1	4.5	20.5	112.2018	1	0.0177
	5230	15	1	4.5	20.5	112.2018	1	0.0177
	5270	15	1	4.5	20.5	112.2018	1	0.0223
	5310	15	1	4.5	20.5	112.2018	1	0.0223
	5510	13	1	4.5	18.5	70.7946	1	0.0141
	5550	13	1	4.5	18.5	70.7946	1	0.0141
	5670	13	1	4.5	18.5	70.7946	1	0.0141
	5755	19	1	4.5	24.5	281.8383	1	0.0561
	5795	19	1	4.5	24.5	281.8383	1	0.0561
IEEE 802.11ac-VHT40	5190	15	1	4.5	20.5	112.2018	1	0.0199
	5230	15	1	4.5	20.5	112.2018	1	0.0199
	5270	15	1	4.5	20.5	112.2018	1	0.0199
	5310	15	1	4.5	20.5	112.2018	1	0.0126
	5510	13	1	4.5	18.5	70.7946	1	0.0126
	5550	13	1	4.5	18.5	70.7946	1	0.0126
	5670	13	1	4.5	18.5	70.7946	1	0.0126
	5755	19	1	4.5	24.5	281.8383	1	0.0561
	5795	19	1	4.5	24.5	281.8383	1	0.0561
IEEE 802.11ac-VHT80	5210	12	1	4.5	17.5	56.2341	1	0.0112
	5290	12	1	4.5	17.5	56.2341	1	0.0112
	5530	11	1	4.5	16.5	44.6684	1	0.0089
	5775	18	1	4.5	23.5	223.8721	1	0.0445

3.4.1.4 Results for RSS-102 Issue 5

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)
SISO	IEEE 802.11b	2412	22	1	4.5	27.5	0.5623	2.6840
		2437	22	1	4.5	27.5	0.5623	2.7030
		2462	22	1	4.5	27.5	0.5623	2.7219
	IEEE 802.11g	2412	22	1	4.5	27.5	0.5623	2.6840
		2437	22	1	4.5	27.5	0.5623	2.7030
		2462	22	1	4.5	27.5	0.5623	2.7219
	IEEE 802.11n-HT20	2412	22	1	4.5	27.5	0.5623	2.6840
		2437	22	1	4.5	27.5	0.5623	2.7030
		2462	22	1	4.5	27.5	0.5623	2.7219

OSIS	IEEE 802.11a	5180	14	1	4.5	19.5	0.0891	4.5253
		5220	14	1	4.5	19.5	0.0891	4.5491
		5240	14	1	4.5	19.5	0.0891	4.5610
		5260	14	1	4.5	19.5	0.0891	4.5729
		5300	14	1	4.5	19.5	0.0891	4.5966
		5320	14	1	4.5	19.5	0.0891	4.6085
		5500	14	1	4.5	19.5	0.0891	4.7145
		5580	14	1	4.5	19.5	0.0891	4.7613
		5700	14	1	4.5	19.5	0.0891	4.8310
		5745	20	1	4.5	25.5	0.3548	4.8570
		5785	20	1	4.5	25.5	0.3548	4.8801
		5805	20	1	4.5	25.5	0.3548	4.9031
	IEEE 802.11n-HT20	5180	14	1	4.5	19.5	0.0891	4.5253
		5220	14	1	4.5	19.5	0.0891	4.5491
		5240	14	1	4.5	19.5	0.0891	4.5610
		5260	14	1	4.5	19.5	0.0891	4.5729
		5300	14	1	4.5	19.5	0.0891	4.5966
		5320	14	1	4.5	19.5	0.0891	4.6085
		5500	14	1	4.5	19.5	0.0891	4.7145
		5580	14	1	4.5	19.5	0.0891	4.7613
		5700	14	1	4.5	19.5	0.0891	4.8310
		5745	19	1	4.5	24.5	0.2818	4.8570
		5785	19	1	4.5	24.5	0.2818	4.8801
		5805	19	1	4.5	24.5	0.2818	4.9031
	IEEE 802.11ac-VHT20	5180	13	1	4.5	18.5	0.0708	4.5312
		5220	13	1	4.5	18.5	0.0708	4.5551
		5240	13	1	4.5	18.5	0.0708	4.5789
		5260	14	1	4.5	19.5	0.0891	4.6026
		5300	14	1	4.5	19.5	0.0891	4.7204
		5320	14	1	4.5	19.5	0.0891	4.7437
		5500	14	1	4.5	19.5	0.0891	4.8136
		5580	14	1	4.5	19.5	0.0891	4.8628
		5700	14	1	4.5	19.5	0.0891	4.8859
		5745	19	1	4.5	24.5	0.2818	4.5253
		5785	19	1	4.5	24.5	0.2818	4.5491
		5825	19	1	4.5	24.5	0.2818	4.5610
	IEEE 802.11n-HT40	5190	15	1	4.5	20.5	0.1122	4.5729
		5230	15	1	4.5	20.5	0.1122	4.5966
		5270	15	1	4.5	20.5	0.1122	4.6085
		5310	15	1	4.5	20.5	0.1122	4.7145
		5510	13	1	4.5	18.5	0.0708	4.7613
		5550	13	1	4.5	18.5	0.0708	4.8310
		5670	13	1	4.5	18.5	0.0708	4.8570
		5755	19	1	4.5	24.5	0.2818	4.8801
	IEEE 802.11ac-VHT40	5795	19	1	4.5	24.5	0.2818	4.9031
		5190	15	1	4.5	20.5	0.1122	4.5312
		5230	15	1	4.5	20.5	0.1122	4.5551
		5270	15	1	4.5	20.5	0.1122	4.5789
		5310	15	1	4.5	20.5	0.1122	4.6026
		5510	13	1	4.5	18.5	0.0708	4.7204
		5550	13	1	4.5	18.5	0.0708	4.7437
		5670	13	1	4.5	18.5	0.0708	4.8136
		5755	19	1	4.5	24.5	0.2818	4.8628
		5795	19	1	4.5	24.5	0.2818	4.8859

OS	IEEE 802.11ac-VHT80	5210	12	1	4.5	17.5	0.0562	4.5432
		5290	12	1	4.5	17.5	0.0562	4.5907
		5530	11	1	4.5	16.5	0.0447	4.7321
		5775	18	1	4.5	23.5	0.2239	4.8743



3.4.2 For BT

For BT_LE/2LE 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:

Chain 0: Dipole Antenna

3.4.2.2 Antenna Gain:

Chain 0: 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)	(dBm)	(dBm)	(mW)	(mW /cm ²)	
LE	2402-2480	1	1	4.5	6.5	4.4668	1	0.0009
2LE	2402-2480	2	1	4.5	7.5	5.6234	1	0.0011
EDR	2402-2480	5	1	4.5	10.5	11.2202	1	0.0022

3.4.2.4 Results for RSS-102 Issue 5

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)	(dBm)	(dBm)	(W)	(W)
LE	2402-2480	1	1	4.5	6.5	0.0045	2.6764
2LE	2402-2480	2	1	4.5	7.5	0.0056	2.6764
EDR	2402-2480	5	1	4.5	10.5	0.0112	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	Not Support
2	5G_WLAN + BT	Not Support

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 ***

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of UnionTrust, this report can't be reproduced except in full.
