

# TEST REPORT

**Applicant:** Sony Corporation

**EUT Description:** GSM/WCDMA/LTE/NR Phone with BT, DTS/UNII a/b/g/n/ac/ax/be, NFC, GNSS and WPT

**Brand:** Sony

**FCC ID:** PY7-50337X

**Standards:** FCC 47 CFR Part 15 Subpart E

**Date of Receipt:** 2024/12/01

**Date of Test:** 2024/12/01 to 2025/03/05

**Date of Issue:** 2025/03/05

TOWE. Tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of the model are manufactured with identical electrical and mechanical components. All sample tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise. Without written approval of TOWE, the test report shall not be reproduced except in full.



A handwritten signature in black ink, appearing to read "Huang Kun".

**Huang Kun**  
Approved By:

A handwritten signature in black ink, appearing to read "Chen Chengfu".

**Chen Chengfu**  
Reviewed By:

## Revision History

<b>Rev.</b>	<b>Issue Date</b>	<b>Description</b>	<b>Revised by</b>
01	2025/03/05	Original	Chen Chengfu

## Summary of Test Results

Clause	FCC Part	Test Items	Test Bands	Result
4.1	§15.203	Antenna Requirement	---	PASS
4.2	§15.407(g)	Frequency Stability	---	---
4.3	§15.207	AC Power Line Conducted Emission	Section 2.2	PASS
4.4	§15.407(a)(1)(iv) §15.407(a)(2) §15.407(a)(3)(i)	Maximum Conducted Output Power	U-NII-1 U-NII-2A U-NII-2C U-NII-3	PASS
4.5	§KDB 789033 II.C.1	Emission Bandwidth	U-NII-1 U-NII-2A U-NII-2C	Reporting purposes only
4.6	§15.407(e)	Minimum Emission Bandwidth	U-NII-3	PASS
4.7	§KDB 789033 II.D	Occupied Bandwidth	U-NII-1 U-NII-2A U-NII-2C U-NII-3	Reporting purposes only
4.8	§5.407(a)(1)(iv) §15.407(a)(2) §15.407(a)(3)(i)	Maximum Power Spectral Density	U-NII-1 U-NII-2A U-NII-2C U-NII-3	PASS
4.9	§15.407(b) §15.209(d)	Unwanted Emissions	U-NII-1 U-NII-2A U-NII-2C U-NII-3	PASS
Test Method: ANSI C63.10:2020, KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Remark: Pass is EUT meets standard requirements.				

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# 1 General Description

## 1.1 Lab Information

### 1.1.1 Testing Location

These measurements tests were conducted at the Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. Facility located at F401 and F101, Building E, Hongwei Industrial Zone, Liuxian 3<sup>rd</sup> Road, Bao'an District, Shenzhen, China. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014  
Tel.: +86-755-27212361  
Contact Email: info@towewireless.com

### 1.1.2 Test Facility / Accreditations

#### A2LA (Certificate Number: 7088.01)

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

#### FCC Designation No.: CN1353

Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. Has been recognized as an accredited testing laboratory. Designation Number: CN1353.

#### ISED CAB identifier: CN0152

Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. Has been recognized by ISED as an accredited testing laboratory.  
CAB identifier: CN0152  
Company Number: 31000

## 1.2 Client Information

### 1.2.1 Applicant

Applicant:	Sony Corporation
Address:	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

### 1.2.2 Manufacturer

Manufacturer:	Sony Corporation
Address:	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

### 1.3 Product Information

EUT Description:	GSM/WCDMA/LTE/NR Phone with BT, DTS/UNII a/b/g/n/ac/ax/be, NFC, GNSS and WPT			
Brand:	Sony			
Hardware Version:	A			
Software Version:	0.553 (for RF Conducted) 0.483 (for RSE & AC power line)			
SN.:	RF Conducted	HQ64B60283 HQ64B6029F		
	RSE & AC power line	HQ64CC08F7 HQ64CA0013		
Modulation Type:	802.11a&n:	OFDM-BPSK, QPSK, 16QAM, 64QAM		
	802.11ac:	OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM		
	802.11ax:	OFDM/OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM		
	802.11be:	OFDM/OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM		
Smart System:	<input type="checkbox"/> SISO	802.11a/n/ac/ax/be	/	
	<input checked="" type="checkbox"/> MIMO	802.11n/ac/ax/be	( 2 )TX( 2 )RX	
	<input checked="" type="checkbox"/> CDD	802.11a	( 2 )TX( 2 )RX	
EUT Function	<input checked="" type="checkbox"/> Client	<input type="checkbox"/> Outdoor AP	<input type="checkbox"/> Indoor AP <input type="checkbox"/> Fixed P2P AP	
DFS Function:	<input type="checkbox"/> Master <input type="checkbox"/> Slave with radar detection <input checked="" type="checkbox"/> Slave without radar detection			
Frequency Range:	U-NII-1:	5150 ~ 5250MHz		
	U-NII-2A:	5250 ~ 5350MHz		
	U-NII-2C:	5470 ~ 5725MHz		
	U-NII-3:	5725 ~ 5850MHz		
Channel Frequency:	20M BWch.:	U-NII-1:	5180 ~ 5240MHz	4 Channels
		U-NII-2A:	5260 ~ 5320MHz	4 Channels
		U-NII-2C:	5500 ~ 5700MHz	11 Channels
		U-NII-3:	5745 ~ 5825MHz	5 Channels
		Straddle Channel:	5720MHz	1 Channel
	40M BWch.:	U-NII-1:	5190 ~ 5230MHz	2 Channels
		U-NII-2A:	5270 ~ 5310MHz	2 Channels
		U-NII-2C:	5510 ~ 5670MHz	5 Channels
		U-NII-3:	5755 ~ 5795MHz	2 Channels
		Straddle Channel:	5710MHz	1 Channel
	80M BWch.:	U-NII-1:	5210MHz	1 Channel
		U-NII-2A:	5290MHz	1 Channel
		U-NII-2C:	5530 ~ 5610MHz	2 Channels
		U-NII-3:	5775MHz	1 Channel
Straddle Channel:		5690MHz	1 Channel	
160M BWch.:	U-NII-2A:	5250MHz	1 Channel	

		U-NII-2C:	5570MHz	1 Channel
Antenna Type:	LOOP Antenna (for Ant5) PIFA Antenna (for Ant8)			
Antenna Gain:	Frequency Range	Ant5 (dBi)	Ant8 (dBi)	
	5150 ~ 5250MHz	-2.9	-4.7	
	5250 ~ 5350MHz	-2.8	-4.4	
	5470 ~ 5725MHz	-4	-4	
	5725 ~ 5850MHz	-2.7	-3.3	
Remark:				
<ol style="list-style-type: none"> <li>1. The above EUT's information was declared by applicant, please refer to the specifications or user's manual for more detailed description.</li> <li>2. For 802.11ax20/40/80/160 and 802.11be20/40/80/160 mode, the whole testing have assessed only, 802.11be20/40/80/160 by referring to their higher output power.</li> </ol>				

## 2 Test Configuration

### 2.1 Test Channel

Frequency Channels for U-NII-1							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz
38	5190MHz	42	5210MHz	46	5230MHz	50	5250MHz

Remark:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Modulation Type	Test Channel	Test Frequency
802.11a/n20 /ac20/ax20/be20	The Lowest channel (CH36)	5180MHz
	The Middle channel (CH40)	5200MHz
	The Highest channel (CH48)	5240MHz
Modulation Type	Test Channel	Test Frequency
802.11n40 /ac40/ax40/be40	The Lowest channel (CH38)	5190MHz
	The Highest channel (CH46)	5230MHz
Modulation Type	Test Channel	Test Frequency
802.11 ac80/ax80/be80	The Middle channel (CH42)	5210MHz
Modulation Type	Test Channel	Test Frequency
802.11 ac160/ax160/be160	The Middle channel (CH50)	5250MHz

Frequency Channels for U-NII-2A							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
50	5250MHz	54	5270MHz	58	5290MHz	62	5310MHz
52	5260MHz	56	5280MHz	60	5300MHz	64	5320MHz

Remark:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Modulation Type	Test Channel	Test Frequency
802.11a/n20 /ac20/ax20/be20	The Lowest channel (CH52)	5260MHz
	The Middle channel (CH60)	5300MHz
	The Highest channel (CH64)	5320MHz
Modulation Type	Test Channel	Test Frequency
802.11n40 /ac40/ax40/be40	The Lowest channel (CH54)	5270MHz
	The Highest channel (CH62)	5310MHz
Modulation Type	Test Channel	Test Frequency
802.11 ac80/ax80/be80	The Middle channel (CH58)	5290MHz
Modulation Type	Test Channel	Test Frequency
802.11 ac160/ax160/be160	The Middle channel (CH50)	5250MHz

Frequency Channels for U-NII-2C							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
100	5500MHz	110	5550MHz	120	5600MHz	132	5660MHz
102	5510MHz	112	5560MHz	122	5610MHz	134	5670MHz
104	5520MHz	114	5570MHz	124	5620MHz	136	5680MHz
106	5530MHz	116	5580MHz	126	5630MHz	140	5700MHz
108	5540MHz	118	5590MHz	128	5640MHz	/	

Remark:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Modulation Type	Test Channel	Test Frequency
802.11a/n20 /ac20/ax20/be20	The Lowest channel (CH100)	5500MHz
	The Middle channel (CH120)	5600MHz
	The Highest channel (CH140)	5700MHz
802.11n40 /ac40/ax40/be40	The Lowest channel (CH102)	5510MHz
	The Middle channel (CH118)	5590MHz
	The Highest channel (CH134)	5670MHz
802.11 ac80/ax80/be80	The Lowest channel (CH106)	5530MHz
	The Highest channel (CH122)	5610MHz
802.11 ac160/ax160/be160	The Middle channel (CH114)	5570MHz

Frequency Channels for U-NII-3							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	153	5765MHz	157	5785MHz	161	5805MHz
151	5755MHz	155	5775MHz	159	5795MHz	165	5825MHz

Remark:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Modulation Type	Test Channel	Test Frequency
802.11a/n20 /ac20/ax20/be20	The Lowest channel (CH149)	5745MHz
	The Middle channel (CH157)	5785MHz
	The Highest channel (CH165)	5825MHz
802.11n40 /ac40/ax40/be40	The Lowest channel (CH151)	5755MHz
	The Highest channel (CH159)	5795MHz
802.11 ac80/ax80/be80	The Middle channel (CH155)	5775MHz

Straddle Channel		
Modulation Type	Test Channel	Test Frequency
802.11a/n20 /ac20/ax20/be20	The channel (CH144)	5720MHz
Modulation Type	Test Channel	Test Frequency
802.11n40 /ac40/ax40/be40	The channel (CH142)	5710MHz
Modulation Type	Test Channel	Test Frequency
802.11 ac80/ax80/be80	The channel (CH138)	5690MHz
Modulation Type	Test Channel	Test Frequency
802.11 ac160/ax160/be160	The channel (CH50)	5250MHz

## 2.2 Worst-case configuration and Mode

Modulation Type	SISO - Data Rate	CDD/MIMO( 2 )TX( 2 )RX Data Rate
802.11a	N/A	12 Mbps
802.11n20	N/A	MCS0 (13 Mbps)
802.11n40	N/A	MCS0 (27 Mbps)
802.11ac20	N/A	MCS0 (13 Mbps)
802.11ac40	N/A	MCS0 (27 Mbps)
802.11ac80	N/A	MCS0 (58.6 Mbps)
802.11ac160	N/A	MCS0 (117 Mbps)
802.11ax20	N/A	MCS0 (17.2 Mbps)
802.11ax40	N/A	MCS0 (34.4 Mbps)
802.11ax80	N/A	MCS0 (72.1 Mbps)
802.11ax160	N/A	MCS0 (144.1 Mbps)
802.11be20	N/A	MCS0 (17.2 Mbps)
802.11be40	N/A	MCS0 (34.4 Mbps)
802.11be80	N/A	MCS0 (72.1 Mbps)
802.11be160	N/A	MCS0 (144.1 Mbps)
Transmitting mode:	Keep the EUT was programmed to be in continuously transmitting mode.	
Normal Link:	Keep the EUT operation to normal function.	

### Test RU Types & Channel Bandwidth:

RU Types	be20	be40	be80	be160
26-tone RU	26 tone_0 26 tone_8	/	/	/
52-tone RU	52 tone_37 52 tone_40	/	/	/
106-tone RU	106 tone_53 106 tone_54	/	/	/
242-tone RU	/	242 tone 61 242 tone 62	/	/
484-tone RU	/	/	484 tone 65 484 tone 66	/
996-tone RU	/	/	/	996 tone 67 996 tone 68

**Test MRU Types & Channel Bandwidth:**

Test Mode	Description	Ru Size	Ru Index
be20	52+26_MRU1_L	52+26_OFDMA	1
	52+26_MRU3_H	52+26_OFDMA	3
	106+26_MRU1_L	106+26_OFDMA	1
	106+26_MRU2_H	106+26_OFDMA	2
be40	52+26_MRU1_L	52+26_OFDMA	1
	52+26_MRU6_H	52+26_OFDMA	6
	106+26_MRU1_L	106+26_OFDMA	1
	106+26_MRU4_H	106+26_OFDMA	4
be80	Gap(20M)+242+484_MRU1	484+242_Non-OFDMA	1
	242+Gap(20M)+484_MRU2	484+242_Non-OFDMA	2
	484+Gap(20M)+242_MRU3	484+242_Non-OFDMA	3
	484+242+Gap(20M)_MRU4	484+242_Non-OFDMA	4
be160	Gap(40M)+484+996_MRU1	996+484_Non-OFDMA	1
	484+Gap(40M)+996_MRU2	996+484_Non-OFDMA	2
	996+Gap(40M)+484_MRU3	996+484_Non-OFDMA	3
	996+484+Gap(40M)_MRU4	996+484_Non-OFDMA	4
	Gap(20M)+242+484+996_MRU1	996+484+242_Non-OFDMA	1
	242+Gap(20M)+484+996_MRU2	996+484+242_Non-OFDMA	2
	484+Gap(20M)+242+996_MRU3	996+484+242_Non-OFDMA	3
	484+242+Gap(20M)+996_MRU4	996+484+242_Non-OFDMA	4
	996+Gap(20M)+242+484_MRU5	996+484+242_Non-OFDMA	5
	996+242+Gap(20M)+484_MRU6	996+484+242_Non-OFDMA	6
	996+484+Gap(20M)+242_MRU7	996+484+242_Non-OFDMA	7
	996+484+242+Gap(20M)_MRU8	996+484+242_Non-OFDMA	8

## 2.3 Support Unit used in test

The EUT has been tested as an independent unit.

## 2.4 Test Environment

<b>Temperature:</b>	Normal: 15°C ~ 35°C
<b>Humidity:</b>	45-56 % RH Ambient
<b>Voltage:</b>	DC 3.89V
<b>AC Voltage</b>	AC 120V/60Hz
Remark: The testing environment is within the scope of the EUT user manual and meets the requirements of the standard testing environment.	

## 2.5 Test RF Cable

**For all conducted test items:** The offset level is set spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

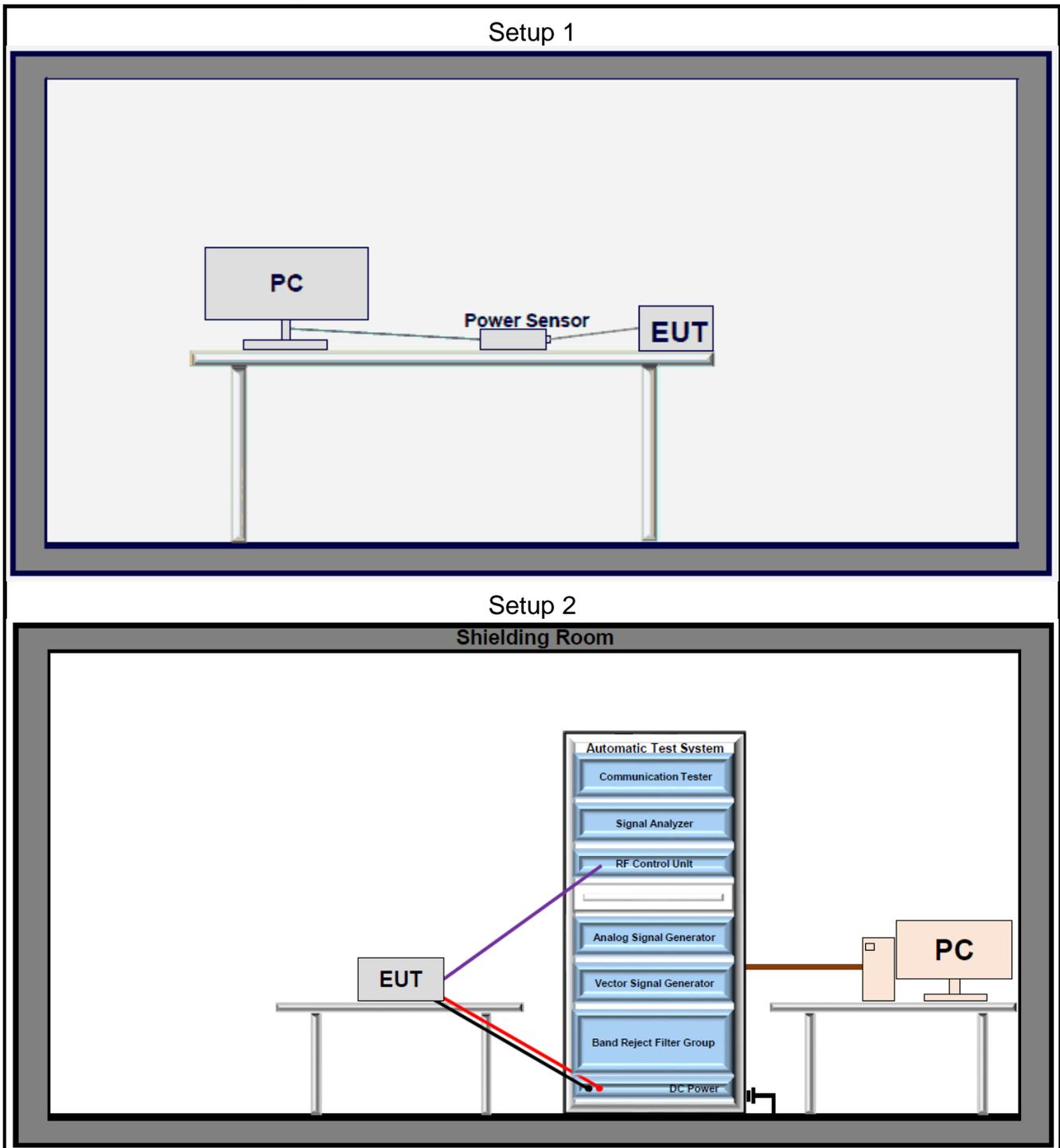
Offset = RF cable loss + attenuator factor.

## 2.6 Modifications

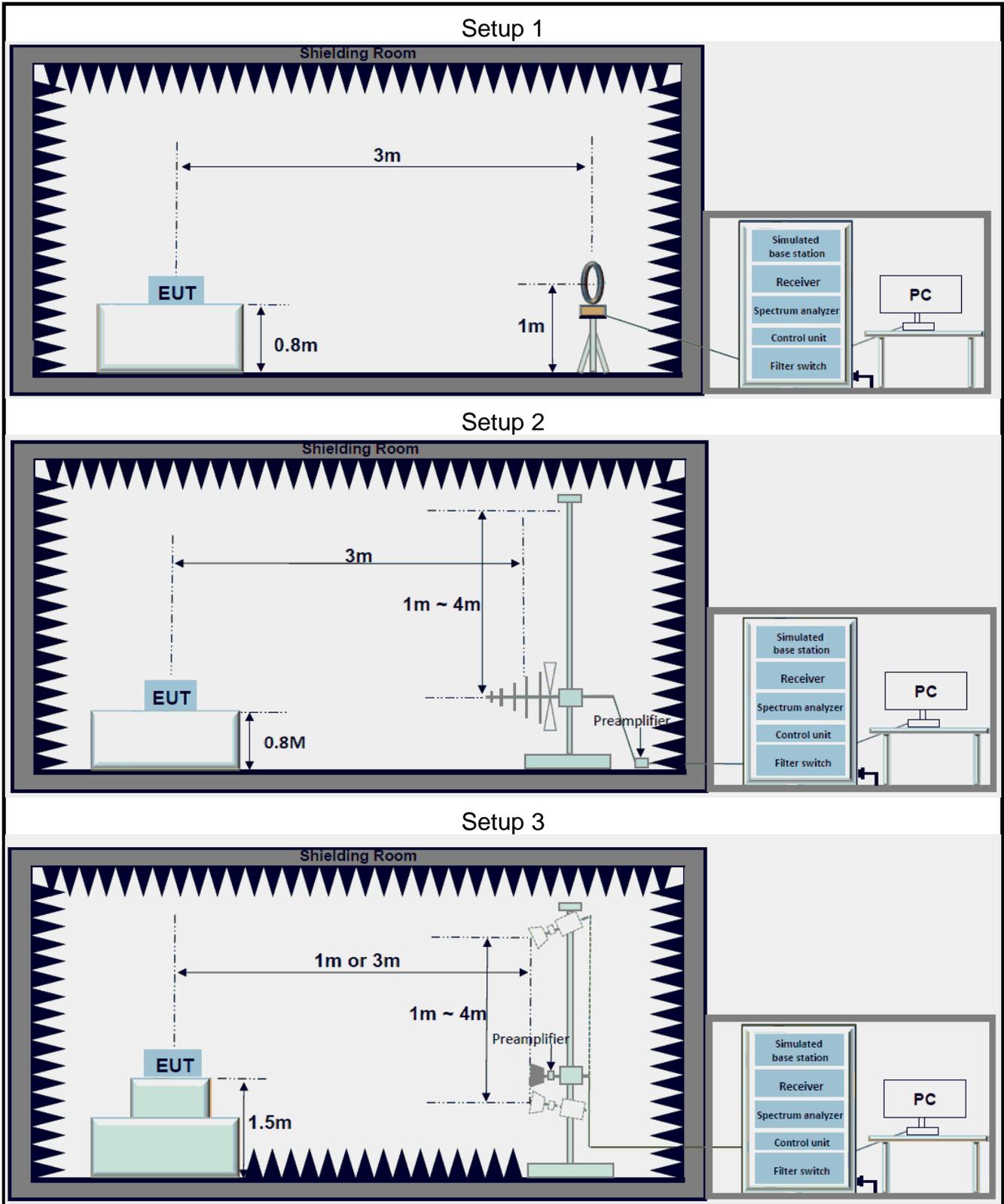
No modifications were made during testing.

## 2.7 Test Setup Diagram

### 2.7.1 Conducted Configuration



## 2.7.2 Radiated Configuration



**2.8 Accessory**

<b>Name</b>	<b>Model</b>	<b>Length (cm)</b>	<b>Shielded (Y/N)</b>	<b>Manufacturer</b>
Adapter	XQZ-UC1	/	/	Sony Corporation
USB Cable	XQZ-UB1	100	Y	Sony Corporation
Earphone	MDR-EX15AP	125	/	Sony Corporation

## Directional gain calculations:

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

If all antennas have the same gain,  $G_{ANT}$ , Directional gain =  $G_{ANT}$  + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices

$$\text{Array Gain} = 10 \log(N_{ANT}/N_{SS}=1) \text{ dB}$$

- For power measurements on IEEE 802.11 devices:

$$\text{Array Gain} = 0 \text{ dB (i.e., no array gain) for } N_{ANT} \leq 4;$$

$$\text{Array Gain} = 0 \text{ dB (i.e., no array gain) for channel widths } \geq 40 \text{ MHz for any } N_{ANT};$$

$$\text{Array Gain} = 5 \log(N_{ANT}/N_{SS}=1) \text{ dB or } 3 \text{ dB, whichever is less, for } 20\text{-MHz channel widths with } N_{ANT} \geq 5.$$

Directional gain may be calculated by using the formulas applicable to equal gain antennas with  $G_{ANT}$  set equal to the gain of the antenna having the highest gain.

Unequal antenna gains, with equal transmit powers. For antenna gains given by  $G_1, G_2, \dots, G_N$  dBi

- If transmit signals are correlated, then

$$\text{Directional gain} = 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}] \text{ dBi [Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]}$$

- If all transmit signals are completely uncorrelated, then

$$\text{Directional gain} = 10 \log[(10^{G_1/10} + 10^{G_2/10} + \dots + 10^{G_N/10}) / N_{ANT}] \text{ dBi}$$

**The Power and PSD limit should be modified if the directional gain of EUT is over 6dBi.**

The EUT supports CDD System.

Transmit signals are completely correlated						
Operation Band	ANT Gain5 (dBi)	ANT Gain8 (dBi)	Directional gain For Power (dBi)	Directional gain For PSD (dBi)	Power Limit Reduction (dBm)	PSD Limit Reduction (dBm)
5150~5250MHz	-2.9	-4.7	-2.9	-0.74	0	0
5250~5350MHz	-2.8	-4.4	-2.8	-0.55	0	0
5470~5725MHz	-4	-4	-4	-0.99	0	0
5725~5850MHz	-2.7	-3.3	-2.7	0.02	0	0

### 3 Equipment and Measurement Uncertainty

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, whichever is less, and where applicable is traceable to recognized national standards.

#### 3.1 Test Equipment List

RF					
Description	Manufacturer	Model	S.N.	Last Due	Cal Due
Signal Analyzer	Keysight	N9020A	US46470429	2024/03/25	2025/03/24
Signal Generator	R&S	SMR20	101027	2024/03/25	2025/03/24
Vector Signal Generator	R&S	SMM100A	549353	2024/05/30	2025/05/29
Power Sensor	Anritsu	MA24408A	12520	2024/05/30	2025/05/29
RF Control Unit	Tonscend	JS0806-2	23C80620671	2024/05/30	2025/05/29
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY63440541	2024/05/30	2025/05/29
Measurement Software	Tonscend	TS1120-3	10659	N/A	N/A

Radiated Emission					
Description	Manufacturer	Model	S.N.	Last Due	Cal Due
Biconic Logarithmic Periodic Antennas	Schwarzbeck	VULB9163	1643	2023/06/25	2025/06/24
Double-Ridged Horn Antennas	Schwarzbeck	BBHA 9120D	2809	2023/06/25	2025/06/24
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	1290	2023/06/25	2025/06/24
Loop Antenna	Schwarzbeck	FMZB 1519C	1519C-028	2023/06/29	2025/06/28
Signal Analyzer	Keysight	N9020A	MY49100252	2024/03/25	2025/03/24
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY63440541	2024/05/30	2025/05/29
Wideband Radio Communication Tester	R&S	CMW500	150645	2024/03/25	2025/03/24
Low Noise Amplifier	Tonscend	TAP9K3G40	AP23A8060273	2023/04/08	2025/04/07
Low Noise Amplifier	Tonscend	TAP01018050	AP22G806258	2023/04/08	2025/04/07
Low Noise Amplifier	Tonscend	TAP18040048	AP22G806247	2023/04/08	2025/04/07
Hygrometer	BINGYU	HTC-1	N/A	2023/06/01	2025/05/31
Band Reject Filter Group	Townshend	JS0806-F	23A806F0652	N/A	N/A
Test Software	Tonscend	TS+	Version: 5.0.0	N/A	N/A

Conducted Emission					
Description	Manufacturer	Model	S.N.	Last Due	Cal Due
EMI Tester Receiver	Rohde & Schwarz	ESR3	103108	2024/05/31	2025/05/30
LISN	Rohde & Schwarz	ENV 216	102836	2024/01/10	2025/01/09
				2025/01/04	2026/01/03
Test software	Rohde & Schwarz	ELEKTRA V4.61	N/A	N/A	N/A

### 3.2 Measurement Uncertainty

Parameter	U <sub>lab</sub>
Frequency Error	679.98Hz
Output Power	0.76dB
Conducted Spurious Emissions	2.22dB
Conducted Emissions(150kHz~30MHz)	2.43dB
Radiated Emissions(9kHz~30MHz)	2.40dB
Radiated Emissions(30MHz~1000MHz)	4.66dB
Radiated Emissions(1GHz~18GHz)	5.42dB
Radiated Emissions(18GHz~40GHz)	5.46dB

Uncertainty figures are valid to a confidence level of 95%

## 4 Test Results

### 4.1 Antenna Requirement

<b>Standard Applicable:</b>	47 CFR Part 15C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
The antenna gain and type as provided by the manufacturer are as follows: The antenna Type is LOOP Antenna (for Ant5) and PIFA Antenna (for Ant8). 5150 ~ 5250MHz: -2.9dBi(Ant5); -4.7dBi(Ant8); 5250 ~ 5350MHz: -2.8dBi(Ant5); -4.4dBi(Ant8); 5470 ~ 5725MHz: -4dBi(Ant5); -4dBi(Ant8); 5725 ~ 5850MHz: -2.7dBi(Ant5); -3.3dBi(Ant8); Antenna Anti-Replacement Construction: An embedded-in antenna design is used.	

### 4.2 Frequency Stability

<b>Standard Applicable:</b>	47 CFR Part 15C Section 15.407(g)
Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.	

### 4.3 AC Power Line Conducted Emissions

**Limits**

Frequency range (MHz)	Limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\* Decreases with the logarithm of the frequency.

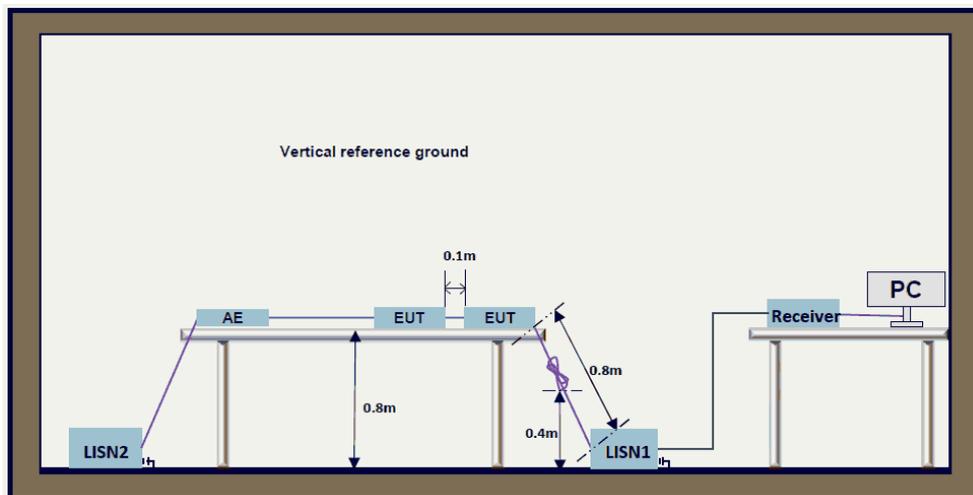
**Test Procedure**

ANSI C63.10:2020, Section 6.2.

**Test Settings**

1. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50 $\Omega$ /50 $\mu$ H + 5 $\Omega$  linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
2. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.
3. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
4. Set the test-receiver system to Peak detect function and specified bandwidth (if bandwidth =9kHz) with maximum hold mode. Then measurement is also conducted by average detector and Quasi-Peak detector function respectively
5. Both sides of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

**Test Setup**

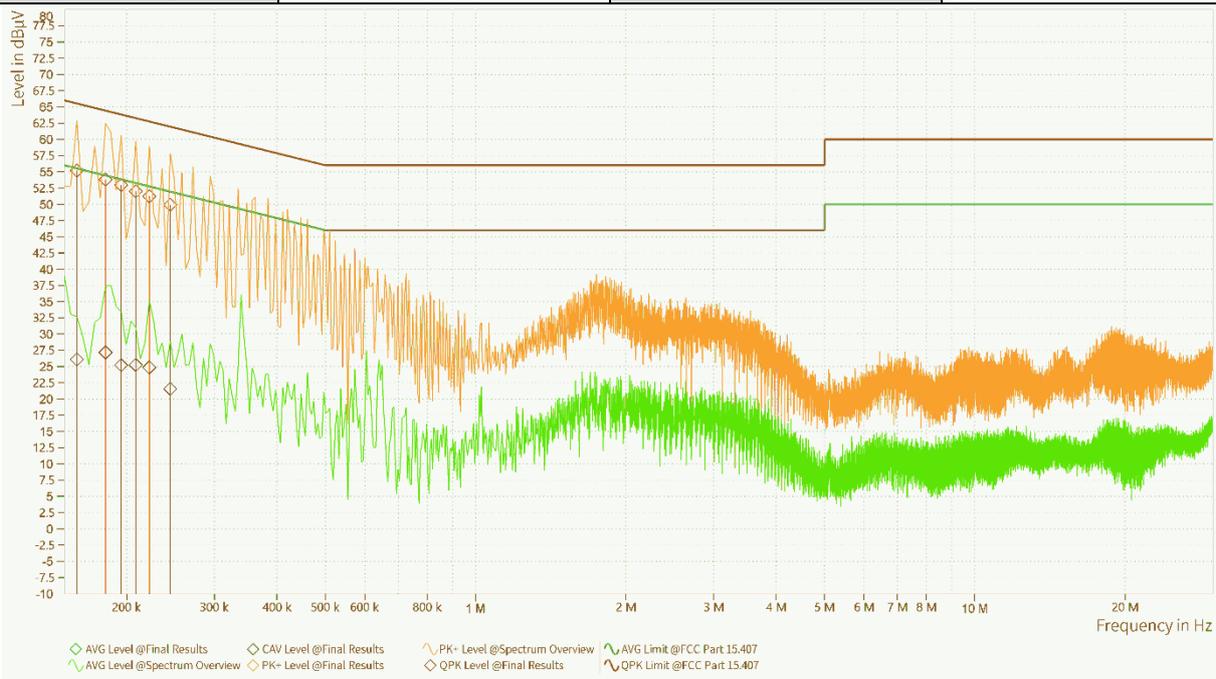


**Measuring Instruments**

The measuring equipment is listed in the section 3.1 of this test report.

**Test Result:**

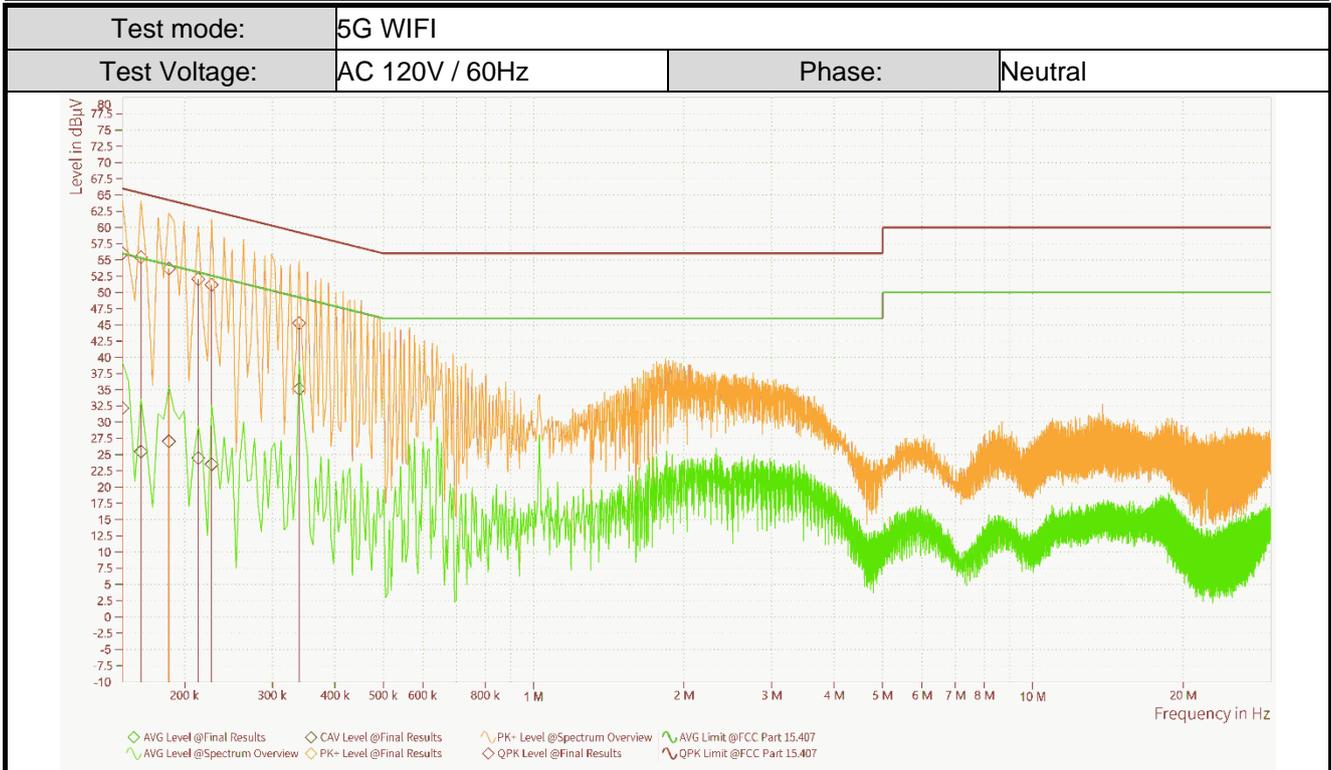
Test mode:	5G WIFI		
Test Voltage:	AC 120V / 60Hz	Phase:	Line



Rg	Frequency [MHz]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	CAV Raw Lvl [dBµV]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	QPK Raw Lvl [dBµV]	Correction [dB]	Line
1	0.159	26.11	55.52	29.41	15.66	55.20	65.52	10.32	44.75	10.45	L1
1	0.182	27.18	54.42	27.24	16.72	53.78	64.42	10.64	43.32	10.46	L1
1	0.195	25.19	53.82	28.63	14.73	52.95	63.82	10.87	42.48	10.46	L1
1	0.209	25.26	53.26	28.00	14.77	51.99	63.26	11.27	41.50	10.49	L1
1	0.222	24.87	52.74	27.87	14.33	51.23	62.74	11.51	40.69	10.54	L1
1	0.245	21.54	51.94	30.40	10.92	49.92	61.94	12.02	39.30	10.62	L1

**Note:**

- The following Quasi-Peak and Average measurements were performed on the EUT:
- Margin[dB] = Limit[dBµV] - Level[dBµV]



Rg	Frequency [MHz]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	CAV Raw Lvl [dBµV]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	QPK Raw Lvl [dBµV]	Correction [dB]	Line
1	0.150	32.17	56.00	23.83	21.53	56.02	66.00	9.98	45.38	10.64	N
1	0.164	25.48	55.28	29.80	14.83	55.42	65.28	9.86	44.77	10.65	N
1	0.186	27.07	54.21	27.14	16.39	53.68	64.21	10.53	43.00	10.68	N
1	0.213	24.47	53.09	28.62	13.78	52.03	63.09	11.06	41.34	10.69	N
1	0.227	23.50	52.58	29.08	12.81	51.16	62.58	11.42	40.47	10.69	N
1	0.339	35.13	49.23	14.10	24.41	45.25	59.23	13.97	34.54	10.71	N

Note:  
 1. The following Quasi-Peak and Average measurements were performed on the EUT:  
 2. Margin[dB] = Limit[dBµV] - Level[dBµV]

## 4.4 Maximum Conducted Output Power

### Limits

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

### Test Procedure

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section II.E.2.b (Other Channel)

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section II.E.3.b(Straddle Channel)

### Test Settings

1. PM-G:

Set to the maximum power setting and enable the EUT transmit continuously.

The power output was measured on the EUT antenna port using RF Cable with attenuator connected to a power meter via wideband power sensor. Peak output power was read directly from power meter.

Measure and record the results in the test report.

2. SA:

RBW = 1MHz

VBW  $\geq$  3MHz

Span = Encompass the EBW (or, alternatively, the entire 99% occupied bandwidth)

Sweep = Auto

Detector = power averaging (rms)

### Test Setup

Refer to section 2.7.1 Setup 1 for details.

### Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

### Test Result

The detailed test data see: **Appendix**.

## 4.5 Emission Bandwidth

### Limits

None, for reporting purposes only.

### Test Procedure

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section II.C.1.

### Test Settings

1. Set to the maximum power setting and enable the EUT transmit continuously.
2. The transmitter output is connected to a spectrum analyzer:
3. RBW = 1% - 5%(99%BW)
4. VBW = 3 times the RBW
5. Sweep = Auto
6. Detector = Peak
7. Trace = Max hold
8. The trace was allowed to stabilize
9. Measure and record the results in the test report.

### Test Notes

The signal analyzers' automatic bandwidth measurement capability of the spectrum analyzer was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to X= 26. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.

### Test Setup

Refer to section 2.7.1 Setup 2 for details.

### Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

### Test Result

The detailed test data see: **Appendix**.

## 4.6 Minimum Emission Bandwidth

### Limits

Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

### Test Procedure

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section II.C.2.

### Test Settings

1. Set to the maximum power setting and enable the EUT transmit continuously.
2. The transmitter output is connected to a spectrum analyzer:
3. RBW = 100kHz(DTS)
4. VBW = 3 times the RBW
5. Sweep = Auto
6. Detector = Peak
7. Trace = Max hold
8. The trace was allowed to stabilize
9. Measure and record the results in the test report.

### Test Notes

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### Test Setup

Refer to section 2.7.1- Setup 2 for details.

### Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

### Test Result

The detailed test data see: **Appendix**.

## 4.7 Occupied Bandwidth

### Limits

None, for reporting purposes only.

### Test Procedure

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section II.D.

### Test Settings

1. Set to the maximum power setting and enable the EUT transmit continuously.
2. The transmitter output is connected to a spectrum analyzer:
3. RBW = 1% - 5%(99%BW)
4. VBW = 3 times the RBW
5. Sweep = Auto
6. Detector = Peak
7. Trace = Max hold
8. The trace was allowed to stabilize
9. Measure and record the results in the test report.

### Test Setup

Refer to section 2.7.1- Setup 2 for details.

### Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

### Test Result

The detailed test data see: **Appendix**.

## 4.8 Maximum Power Spectral Density

### Limits

For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1-megahertz band.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1-megahertz band.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

### Test Procedure

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section II.F

### Test Settings

1. Set to the maximum power setting and enable the EUT transmit continuously
2. The transmitter output is connected to a spectrum analyzer
3. RBW = 1MHz (for 5.15–5.25 GHz, 5.25–5.35 GHz, and 5.47–5.725 GHz)
4. RBW = 500kHz (for 5.725–5.85 GHz)
5. VBW  $\geq$  3 times RBW
6. Sweep = Auto
7. Detector = Peak
8. Trace = Max hold
9. The trace was allowed to stabilize
10. Measure and record the results in the test report.

### Test Setup

Refer to section 2.7.1- Setup 2 for details.

### Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

### Test Result

The detailed test data see: **Appendix**.

## 4.9 Unwanted Emissions

### Limits

Spurious emissions are permitted in an of the frequency bands:

MHz	MHz	MHz	MHz	GHz	GHz
0.090 - 0.110	12.29 - 12.293	149.9 - 150.05	1660 - 1710	4.5 - 5.15	14.47 - 14.5
0.495 - 0.505	12.51975 - 12.52025	156.52475 - 156.52525	1718.8 - 1722.2	5.35 - 5.46	15.35 - 16.2
2.1735 - 2.1905	12.5767 - 12.57725	156.7 - 156.9	2200 - 2300	7.25 - 7.75	17.7 - 21.4
4.125 - 128	13.36 - 13.41	162.0125 - 167.17	2310 - 2390	8.025 - 8.5	22.01 - 23.12
4.17725 - 4.17775	16.42 - 16.423	167.72 - 173.2	2483.5 - 2500	9.0 - 9.2	23.6 - 24.0
4.20725 - 4.20775	16.69475 - 16.69525	240 - 285	2655 - 2900	9.3 - 9.5	31.2 - 31.8
6.215 - 6.218	1680425 - 1680475	322 - 335.4	3260 - 3267	10.6 - 12.7	36.43 - 36.5
6.26775 - 6.26825	25.5 - 25.67	399.9 - 410	3332 - 3339	13.25 - 13.4	
6.31175 - 6.31225	37.5 - 38.25	608 - 614	3345.8 - 3358		
8.291 - 8.294	73 - 74.6	960 - 1240	3600 - 4400		
8.362 - 8.366	74.8 - 75.2	1300 - 1427			
8.37625 - 8.38675	108 - 121.94	1435 - 1626.5			
8.41425 - 8.41475	123 - 138	1645.5 - 1646.5			

Radiated disturbance of an intentional radiator:

Frequency	Field strength (μV/m)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	74.0	Peak	3
		54.0	Average	

Un-restricted band emissions above 1GHz limit:

For transmitters operating in the 5.15-5.25 GHz band:

All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.25-5.35 GHz band:

All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band:

All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating solely in the 5.725-5.850 GHz band:

All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

### Test Procedure

ANSI C63.10:2020 Section 6.4 & 6.5 & 6.6.

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section II.G.3 ~ 6.

### Test Settings

1. For radiated emissions measurements performed at frequencies less than or equal to 1GHz, the EUT shall be placed on a RF-transparent table or support at a nominal height of 80cm above the reference ground plane.
2. For radiated emissions measurements performed at frequencies above 1GHz, the EUT shall be placed on a RF-transparent table or support at a nominal height of 80cm above the ground plane.
3. Radiated measurements shall be made with the measurement antenna positioned in both horizontal and vertical polarization. The measurement antenna shall be varied from 1m to 4m in height above the reference ground in a search for the relative positioning that produces the maximum radiated signal level (i.e, field strength or received power), when orienting the measurement antenna in vertical polarization, the minimum height of the lowest element of the antenna shall clear the site reference ground plane by at least 25cm.
4. For each suspected emission, the EUT was ranged its worst case and then tune the antenna tower(from 1~4m) and turntable(from 0~360°) find the maximum reading. Preamplifier and a high pass filter are used for the test in order get better signal level comply with the guidelines.
5. The simulated base station was set to force the EUT to its maximum transmitting power.
6. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
7. spectrum analyzer setting:  
Measurements Below 1000MHz: RBW = 120 kHz; VBW ≥ 300 kHz; Detector = Peak  
Measurements Above 1000MHz: RBW = 1 MHz; VBW ≥ 3 MHz; Detector = Peak  
Average Measurements Above 1000MHz:  
RBW = 1 MHz, VBW ≥ 1/T, with peak detector for average measurements.
8. The field strength is calculated by adding the Antenna Factor, Cable Factor. The basic equation with a sample calculation is as follows:  
Level = Reading(dBμV) + AF(dB/m) + Factor(dB):  
AF = Antenna Factor(dB/m)  
Factor = Cable Factor(dB) - Preamplifier gain(dB)  
Margin = Limit(dBμV/m) – Level(dBμV/m)
9. Repeat above procedures until all frequencies measured was complete.
10. Measure and record the results in the test report.

### Test Notes

1. Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1-meter test distance with the application of a distance correction factor.
2. Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. the disturbance between 9kHz to 30MHz, 30MHz-1GHz and 18GHz to 40GHz was very low. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be recorded, so only the harmonics had been displayed.
3. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

### Test Setup

Refer to section 2.7.2 for details.

### Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

### Test Result

The detailed test data see: **Appendix**.

## 5 Test Setup Photos

The detailed test data see: **Appendix A - BTWIFI Setup Photos**

# Appendix

## Emission Bandwidth Test Result

TestMode	Antenna	Frequency[MHz]	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11a-CDD	Ant5	5180	20.840	5169.560	5190.400	---	---
11a-CDD	Ant8	5180	21.120	5169.400	5190.520	---	---
11a-CDD	Ant5	5200	21.440	5189.280	5210.720	---	---
11a-CDD	Ant8	5200	22.040	5189.080	5211.120	---	---
11a-CDD	Ant5	5240	21.640	5229.520	5251.160	---	---
11a-CDD	Ant8	5240	21.640	5229.200	5250.840	---	---
11a-CDD	Ant5	5260	22.200	5248.680	5270.880	---	---
11a-CDD	Ant8	5260	22.000	5249.040	5271.040	---	---
11a-CDD	Ant5	5300	22.080	5288.760	5310.840	---	---
11a-CDD	Ant8	5300	21.560	5289.040	5310.600	---	---
11a-CDD	Ant5	5320	21.560	5309.160	5330.720	---	---
11a-CDD	Ant8	5320	21.440	5309.080	5330.520	---	---
11a-CDD	Ant5	5500	22.120	5489.080	5511.200	---	---
11a-CDD	Ant8	5500	21.960	5489.200	5511.160	---	---
11a-CDD	Ant5	5600	21.560	5589.280	5610.840	---	---
11a-CDD	Ant8	5600	21.400	5589.240	5610.640	---	---
11a-CDD	Ant5	5700	21.360	5689.320	5710.680	---	---
11a-CDD	Ant8	5700	21.600	5689.200	5710.800	---	---
11a-CDD	Ant5	5720	22.080	5708.680	5730.760	---	---
11a-CDD	Ant8	5720	21.320	5709.320	5730.640	---	---
11a-CDD	Ant5	5720 UNII-2C	16.32	5708.680	5725	---	---
11a-CDD	Ant8	5720 UNII-2C	15.68	5709.320	5725	---	---
11a-CDD	Ant5	5720 UNII-3	5.76	5725	5730.760	---	---
11a-CDD	Ant8	5720 UNII-3	5.64	5725	5730.640	---	---
11a-CDD	Ant5	5745	21.760	5733.840	5755.600	---	---
11a-CDD	Ant8	5745	21.440	5734.280	5755.720	---	---
11a-CDD	Ant5	5785	21.440	5774.120	5795.560	---	---
11a-CDD	Ant8	5785	21.960	5774.200	5795.160	---	---
11a-CDD	Ant5	5825	22.000	5813.720	5835.720	---	---
11a-CDD	Ant8	5825	21.520	5814.160	5835.680	---	---
11n20MIMO	Ant5	5180	22.320	5168.680	5191.000	---	---
11n20MIMO	Ant8	5180	21.880	5169.080	5190.960	---	---
11n20MIMO	Ant5	5200	22.080	5189.040	5211.120	---	---
11n20MIMO	Ant8	5200	22.240	5188.840	5211.080	---	---
11n20MIMO	Ant5	5240	23.000	5228.320	5251.320	---	---
11n20MIMO	Ant8	5240	23.080	5228.280	5251.360	---	---
11n20MIMO	Ant5	5260	22.040	5248.880	5270.920	---	---
11n20MIMO	Ant8	5260	22.200	5249.000	5271.200	---	---
11n20MIMO	Ant5	5300	22.840	5288.440	5311.280	---	---
11n20MIMO	Ant8	5300	22.160	5288.880	5311.040	---	---
11n20MIMO	Ant5	5320	22.440	5308.880	5331.320	---	---
11n20MIMO	Ant8	5320	22.560	5308.800	5331.360	---	---
11n20MIMO	Ant5	5500	23.080	5488.360	5511.440	---	---
11n20MIMO	Ant8	5500	22.200	5489.000	5511.200	---	---
11n20MIMO	Ant5	5600	22.840	5588.560	5611.400	---	---
11n20MIMO	Ant8	5600	21.760	5589.080	5610.840	---	---
11n20MIMO	Ant5	5700	22.800	5688.480	5711.280	---	---
11n20MIMO	Ant8	5700	22.160	5688.760	5710.920	---	---
11n20MIMO	Ant5	5720	21.920	5709.040	5730.960	---	---
11n20MIMO	Ant8	5720	22.280	5708.760	5731.040	---	---
11n20MIMO	Ant5	5720 UNII-2C	15.96	5709.040	5725	---	---
11n20MIMO	Ant8	5720 UNII-2C	16.24	5708.760	5725	---	---
11n20MIMO	Ant5	5720 UNII-3	5.96	5725	5730.960	---	---
11n20MIMO	Ant8	5720 UNII-3	6.04	5725	5731.040	---	---
11n20MIMO	Ant5	5745	22.960	5733.240	5756.200	---	---
11n20MIMO	Ant8	5745	22.160	5733.640	5755.800	---	---
11n20MIMO	Ant5	5785	22.040	5773.960	5796.000	---	---
11n20MIMO	Ant8	5785	22.320	5773.680	5796.000	---	---
11n20MIMO	Ant5	5825	22.800	5813.640	5836.440	---	---
11n20MIMO	Ant8	5825	22.280	5814.160	5836.440	---	---
11n40MIMO	Ant5	5190	43.600	5167.840	5211.440	---	---
11n40MIMO	Ant8	5190	44.400	5167.760	5212.160	---	---
11n40MIMO	Ant5	5230	44.000	5207.920	5251.920	---	---
11n40MIMO	Ant8	5230	43.360	5208.320	5251.680	---	---
11n40MIMO	Ant5	5270	43.520	5248.160	5291.680	---	---

11n40MIMO	Ant8	5270	42.880	5248.480	5291.360	---	---
11n40MIMO	Ant5	5310	42.960	5288.320	5331.280	---	---
11n40MIMO	Ant8	5310	43.280	5288.480	5331.760	---	---
11n40MIMO	Ant5	5510	43.440	5488.160	5531.600	---	---
11n40MIMO	Ant8	5510	43.120	5488.720	5531.840	---	---
11n40MIMO	Ant5	5590	43.840	5568.000	5611.840	---	---
11n40MIMO	Ant8	5590	43.680	5568.240	5611.920	---	---
11n40MIMO	Ant5	5670	43.120	5648.480	5691.600	---	---
11n40MIMO	Ant8	5670	43.200	5648.240	5691.440	---	---
11n40MIMO	Ant5	5710	44.240	5688.000	5732.240	---	---
11n40MIMO	Ant8	5710	42.720	5688.560	5731.280	---	---
11n40MIMO	Ant5	5710_UNII-2C	37	5688.000	5725	---	---
11n40MIMO	Ant8	5710_UNII-2C	36.44	5688.560	5725	---	---
11n40MIMO	Ant5	5710_UNII-3	7.24	5725	5732.240	---	---
11n40MIMO	Ant8	5710_UNII-3	6.28	5725	5731.280	---	---
11n40MIMO	Ant5	5755	43.360	5733.640	5777.000	---	---
11n40MIMO	Ant8	5755	43.280	5733.320	5776.600	---	---
11n40MIMO	Ant5	5795	43.040	5773.320	5816.360	---	---
11n40MIMO	Ant8	5795	44.240	5772.840	5817.080	---	---
11ac80MIMO	Ant5	5210	86.400	5166.640	5253.040	---	---
11ac80MIMO	Ant8	5210	86.400	5166.320	5252.720	---	---
11ac80MIMO	Ant5	5290	88.160	5246.960	5335.120	---	---
11ac80MIMO	Ant8	5290	86.880	5246.800	5333.680	---	---
11ac80MIMO	Ant5	5530	87.680	5485.840	5573.520	---	---
11ac80MIMO	Ant8	5530	85.760	5487.280	5573.040	---	---
11ac80MIMO	Ant5	5610	89.920	5564.880	5654.800	---	---
11ac80MIMO	Ant8	5610	86.880	5566.640	5653.520	---	---
11ac80MIMO	Ant5	5690	88.480	5645.680	5734.160	---	---
11ac80MIMO	Ant8	5690	88.160	5645.840	5734.000	---	---
11ac80MIMO	Ant5	5690_UNII-2C	79.32	5645.680	5725	---	---
11ac80MIMO	Ant8	5690_UNII-2C	79.16	5645.840	5725	---	---
11ac80MIMO	Ant5	5690_UNII-3	9.16	5725	5734.160	---	---
11ac80MIMO	Ant8	5690_UNII-3	9	5725	5734.000	---	---
11ac80MIMO	Ant5	5775	89.120	5729.880	5819.000	---	---
11ac80MIMO	Ant8	5775	87.840	5730.040	5817.880	---	---
11ac160MIMO	Ant5	5250	172.160	5163.600	5335.760	---	---
11ac160MIMO	Ant8	5250	172.480	5163.600	5336.080	---	---
11ac160MIMO	Ant5	5250_UNII-1	86.4	5163.600	5250	---	---
11ac160MIMO	Ant8	5250_UNII-1	86.4	5163.600	5250	---	---
11ac160MIMO	Ant5	5250_UNII-2A	85.76	5250	5335.760	---	---
11ac160MIMO	Ant8	5250_UNII-2A	86.08	5250	5336.080	---	---
11ac160MIMO	Ant5	5570	170.880	5484.560	5655.440	---	---
11ac160MIMO	Ant8	5570	173.760	5483.600	5657.360	---	---
11be20MIMO	Ant5	5180	22.640	5168.680	5191.320	---	---
11be20MIMO	Ant8	5180	22.480	5168.800	5191.280	---	---
11be20MIMO	Ant5	5200	21.520	5189.040	5210.560	---	---
11be20MIMO	Ant8	5200	22.760	5188.280	5211.040	---	---
11be20MIMO	Ant5	5240	21.600	5229.320	5250.920	---	---
11be20MIMO	Ant8	5240	22.120	5228.720	5250.840	---	---
11be20MIMO	Ant5	5260	21.400	5249.280	5270.680	---	---
11be20MIMO	Ant8	5260	21.520	5249.200	5270.720	---	---
11be20MIMO	Ant5	5300	22.400	5288.800	5311.200	---	---
11be20MIMO	Ant8	5300	22.040	5288.840	5310.880	---	---
11be20MIMO	Ant5	5320	21.240	5309.560	5330.800	---	---
11be20MIMO	Ant8	5320	22.480	5308.400	5330.880	---	---
11be20MIMO	Ant5	5500	23.040	5488.240	5511.280	---	---
11be20MIMO	Ant8	5500	21.320	5489.280	5510.600	---	---
11be20MIMO	Ant5	5600	21.440	5589.200	5610.640	---	---
11be20MIMO	Ant8	5600	22.000	5588.920	5610.920	---	---
11be20MIMO	Ant5	5700	21.800	5689.160	5710.960	---	---
11be20MIMO	Ant8	5700	21.600	5689.360	5710.960	---	---
11be20MIMO	Ant5	5720	21.880	5709.080	5730.960	---	---
11be20MIMO	Ant8	5720	21.480	5709.280	5730.760	---	---
11be20MIMO	Ant5	5720_UNII-2C	15.92	5709.080	5725	---	---
11be20MIMO	Ant8	5720_UNII-2C	15.72	5709.280	5725	---	---
11be20MIMO	Ant5	5720_UNII-3	5.96	5725	5730.960	---	---
11be20MIMO	Ant8	5720_UNII-3	5.76	5725	5730.760	---	---
11be20MIMO	Ant5	5745	22.480	5733.720	5756.200	---	---
11be20MIMO	Ant8	5745	22.200	5734.200	5756.400	---	---
11be20MIMO	Ant5	5785	22.120	5773.720	5795.840	---	---
11be20MIMO	Ant8	5785	22.120	5774.000	5796.120	---	---
11be20MIMO	Ant5	5825	22.000	5814.080	5836.080	---	---
11be20MIMO	Ant8	5825	21.880	5814.040	5835.920	---	---
11be40MIMO	Ant5	5190	42.400	5168.800	5211.200	---	---
11be40MIMO	Ant8	5190	42.240	5168.800	5211.040	---	---
11be40MIMO	Ant5	5230	41.520	5209.280	5250.800	---	---
11be40MIMO	Ant8	5230	42.240	5208.480	5250.720	---	---

11be40MIMO	Ant5	5270	42.480	5248.800	5291.280	---	---
11be40MIMO	Ant8	5270	42.080	5248.960	5291.040	---	---
11be40MIMO	Ant5	5310	41.520	5289.200	5330.720	---	---
11be40MIMO	Ant8	5310	42.720	5288.400	5331.120	---	---
11be40MIMO	Ant5	5510	41.360	5489.360	5530.720	---	---
11be40MIMO	Ant8	5510	41.840	5488.800	5530.640	---	---
11be40MIMO	Ant5	5590	41.520	5569.680	5611.200	---	---
11be40MIMO	Ant8	5590	42.160	5569.360	5611.520	---	---
11be40MIMO	Ant5	5670	43.280	5648.800	5692.080	---	---
11be40MIMO	Ant8	5670	41.200	5649.600	5690.800	---	---
11be40MIMO	Ant5	5710	41.600	5689.040	5730.640	---	---
11be40MIMO	Ant8	5710	42.000	5688.800	5730.800	---	---
11be40MIMO	Ant5	5710 UNII-2C	35.96	5689.040	5725	---	---
11be40MIMO	Ant8	5710 UNII-2C	36.2	5688.800	5725	---	---
11be40MIMO	Ant5	5710 UNII-3	5.64	5725	5730.640	---	---
11be40MIMO	Ant8	5710 UNII-3	5.8	5725	5730.800	---	---
11be40MIMO	Ant5	5755	42.080	5733.960	5776.040	---	---
11be40MIMO	Ant8	5755	42.560	5733.880	5776.440	---	---
11be40MIMO	Ant5	5795	43.440	5772.840	5816.280	---	---
11be40MIMO	Ant8	5795	42.320	5773.480	5815.800	---	---
11be80MIMO	Ant5	5210	84.960	5167.760	5252.720	---	---
11be80MIMO	Ant8	5210	84.480	5167.280	5251.760	---	---
11be80MIMO	Ant5	5290	85.760	5247.440	5333.200	---	---
11be80MIMO	Ant8	5290	84.320	5248.080	5332.400	---	---
11be80MIMO	Ant5	5530	86.400	5487.120	5573.520	---	---
11be80MIMO	Ant8	5530	83.840	5488.240	5572.080	---	---
11be80MIMO	Ant5	5610	84.000	5568.880	5652.880	---	---
11be80MIMO	Ant8	5610	85.120	5566.800	5651.920	---	---
11be80MIMO	Ant5	5690	84.320	5647.760	5732.080	---	---
11be80MIMO	Ant8	5690	84.320	5647.280	5731.600	---	---
11be80MIMO	Ant5	5690 UNII-2C	77.24	5647.760	5725	---	---
11be80MIMO	Ant8	5690 UNII-2C	77.72	5647.280	5725	---	---
11be80MIMO	Ant5	5690 UNII-3	7.08	5725	5732.080	---	---
11be80MIMO	Ant8	5690 UNII-3	6.6	5725	5731.600	---	---
11be80MIMO	Ant5	5775	85.600	5733.400	5819.000	---	---
11be80MIMO	Ant8	5775	83.840	5733.080	5816.920	---	---
11be160MIMO	Ant5	5250	169.920	5165.520	5335.440	---	---
11be160MIMO	Ant8	5250	168.320	5165.200	5333.520	---	---
11be160MIMO	Ant5	5250 UNII-1	84.48	5165.520	5250	---	---
11be160MIMO	Ant8	5250 UNII-1	84.8	5165.200	5250	---	---
11be160MIMO	Ant5	5250 UNII-2A	85.44	5250	5335.440	---	---
11be160MIMO	Ant8	5250 UNII-2A	83.52	5250	5333.520	---	---
11be160MIMO	Ant5	5570	169.280	5485.520	5654.800	---	---
11be160MIMO	Ant8	5570	170.880	5485.840	5656.720	---	---

## Test Graphs

