TEST REPORT

Applicant:	Quectel Wireless Solutions Co., Ltd.
EUT Description:	Smart Module with Wi-Fi 5G & Bluetooth
Model:	SG555D-WF
Brand:	QUECTEL
FCC ID:	XMR2025SG555DWF
Standards:	FCC 47 CFR Part 15 Subpart E
Date of Receipt:	2025/03/06
Date of Test:	2025/03/06 to 2025/05/14
Date of Issue:	2025/05/14

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.

ACCREDITED
CERTIFICATE #7088.01

Huang Kun
Approved By:

Chen Chengfu
Reviewed By:

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Revision History

Rev.	Issue Date	Description	Revised by
01	2025/05/14	Original	Chen Chengfu

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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	N/A
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:
1. Pass is EUT meets standard requirements.
2. The EUT is DC power supply, “N/A” denotes “not applicable”.

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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 3rd 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:	Quectel Wireless Solutions Co., Ltd.
Address:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233

1.2.2 Manufacturer

Manufacturer:	Quectel Wireless Solutions Co., Ltd.
Address:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233

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1.3 Product Information

EUT Description:	Smart Module with Wi-Fi 5G & Bluetooth			
Model:	SG555D-WF			
Brand:	QUECTEL			
Hardware Version:	V1.0			
Software Version:	SG5X5DWFPARL1A04			
SN:	RF Conducted	E1Y24K13V000039		
	RSE	E1Y24K13V000067		
Modulation Type:	802.11a/n:	OFDM-BPSK, QPSK, 16QAM, 64QAM		
	802.11ac:	OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM		
Smart System:	☒SISO:	802.11a/n/ac	/	
	☐MIMO:	802.11n/ac	( )TX( )RX	
	☐CDD:	802.11a	( )TX( )RX	
EUT Function	☒Client	☐Outdoor AP	☐Indoor AP	☐Fixed P2P AP
DFS Function:	☐Master ☐Slave with radar detection ☒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
Antenna Type:	☒ External, ☐ Integrated			
Antenna Gain:	Frequency Range	Ant0 (dBi)		
	U-NII-1:	-0.67		
	U-NII-2A:	-0.19		
	U-NII-2C:	1.28		
	U-NII-3:	1.1		

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Remark: The above EUT's information was declared by applicant, please refer to the specifications or user's manual for more detailed description.

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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	/	

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	The Lowest channel (CH36)	5180MHz
	The Middle channel (CH40)	5200MHz
	The Highest channel (CH48)	5240MHz
Modulation Type	**Test Channel**	**Test Frequency**
802.11n40 /ac40	The Lowest channel (CH38)	5190MHz
	The Highest channel (CH46)	5230MHz
Modulation Type	**Test Channel**	**Test Frequency**
802.11ac80	The Middle channel (CH42)	5210MHz

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

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	The Lowest channel (CH52)	5260MHz
	The Middle channel (CH60)	5300MHz
	The Highest channel (CH64)	5320MHz
Modulation Type	**Test Channel**	**Test Frequency**
802.11n40 /ac40	The Lowest channel (CH54)	5270MHz
	The Highest channel (CH62)	5310MHz
Modulation Type	**Test Channel**	**Test Frequency**
802.11ac80	The Middle channel (CH58)	5290MHz

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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	The Lowest channel (CH100)	5500MHz
	The Middle channel (CH116)	5580MHz
	The Highest channel (CH140)	5700MHz
Modulation Type	**Test Channel**	**Test Frequency**
802.11n40 /ac40	The Lowest channel (CH102)	5510MHz
	The Middle channel (CH118)	5590MHz
	The Highest channel (CH134)	5670MHz
Modulation Type	**Test Channel**	**Test Frequency**
802.11ac80	The Lowest channel (CH106)	5530MHz
	The Highest channel (CH122)	5610MHz

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	The Lowest channel (CH149)	5745MHz
	The Middle channel (CH157)	5785MHz
	The Highest channel (CH165)	5825MHz
Modulation Type	**Test Channel**	**Test Frequency**
802.11n40 /ac40	The Lowest channel (CH151)	5755MHz
	The Highest channel (CH159)	5795MHz
Modulation Type	**Test Channel**	**Test Frequency**
802.11ac80	The Middle channel (CH155)	5775MHz

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Straddle Channel		
Modulation Type	**Test Channel**	**Test Frequency**
802.11a/n20 /ac20	The channel (CH144)	5720MHz
Modulation Type	**Test Channel**	**Test Frequency**
802.11n40/ac40	The channel (CH142)	5710MHz
Modulation Type	**Test Channel**	**Test Frequency**
802.11ac80	The channel (CH138)	5690MHz

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2.2 Worst-case configuration and Mode

Modulation Type	SISO - Data Rate	MIMO - Data Rate
802.11a	6 Mbps	NA
802.11n20	MCS0 (6.5 Mbps)	NA
802.11n40	MCS0 (13.5 Mbps)	NA
802.11ac20	MCS0 (6.5 Mbps)	NA
802.11ac40	MCS0 (13.5 Mbps)	NA
802.11ac80	MCS0 (29.3 Mbps)	NA
Transmitting mode:	Keep the EUT was programmed to be in continuously transmitting mode.	
Normal Link:	Keep the EUT operation to normal function.	

2.3 Support Unit used in test

Description	Manufacturer	Model	Serial Number
Development Board*	Quectel	SMART-5G-EVB	E1Q22HV3A000015
Development Board*	Quectel	SG555D-WF-TE-A	E1Y24KM4M000002
Remark: *the information are provided by applicant.			

2.4 Test Environment

Temperature:	Normal: 15℃ ~ 35℃
Humidity:	45-56 % RH Ambient
Voltage:	DC 4.00V (Module Input)
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.

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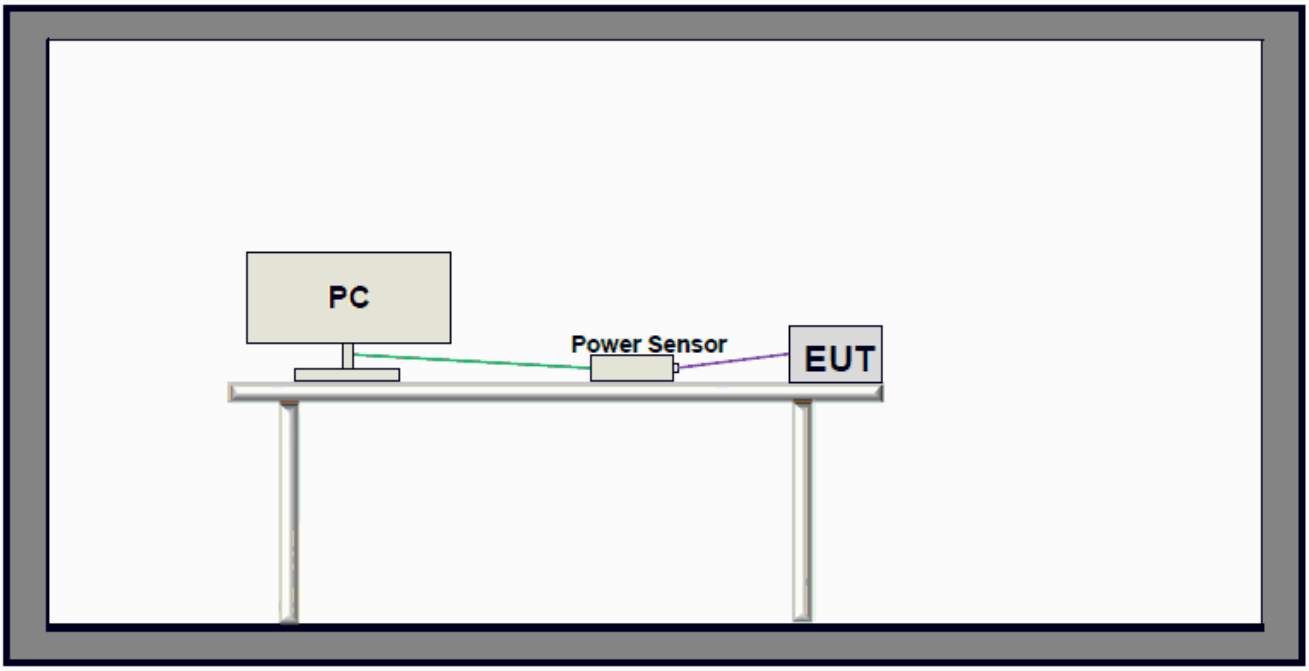
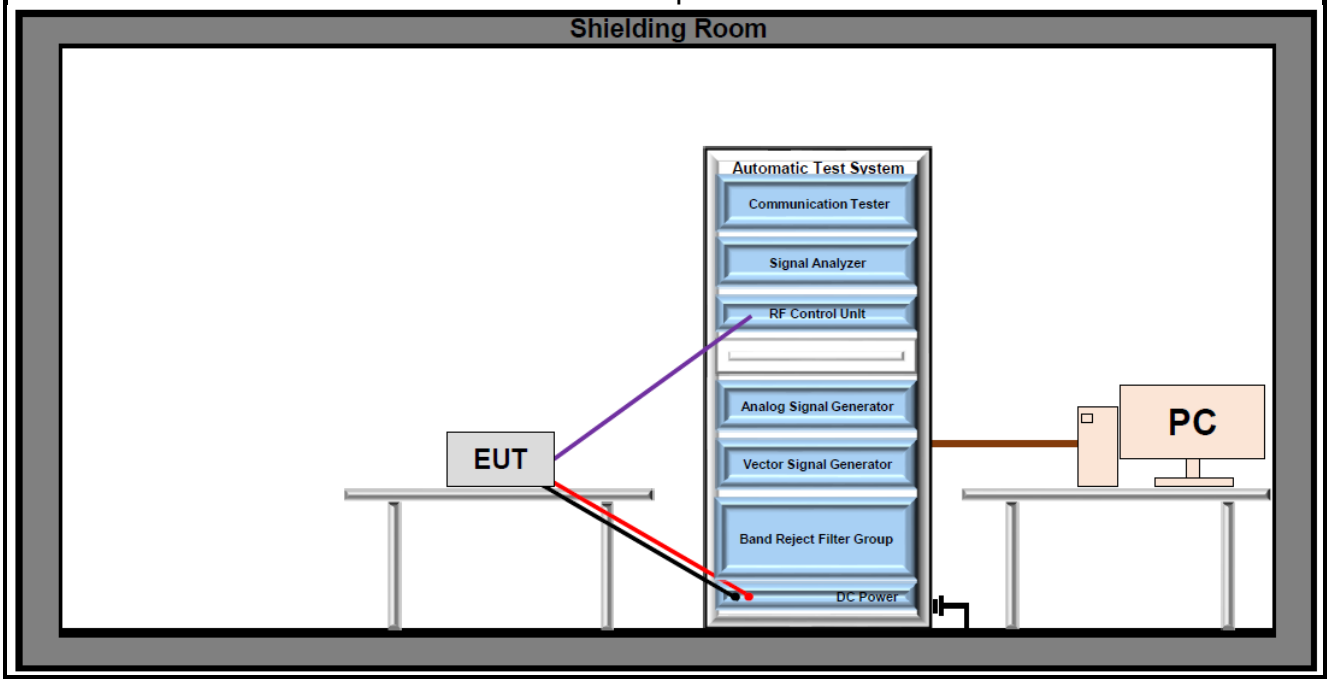
2.7 Test Setup Diagram

2.7.1 Conducted Configuration

Setup 1



Setup 2



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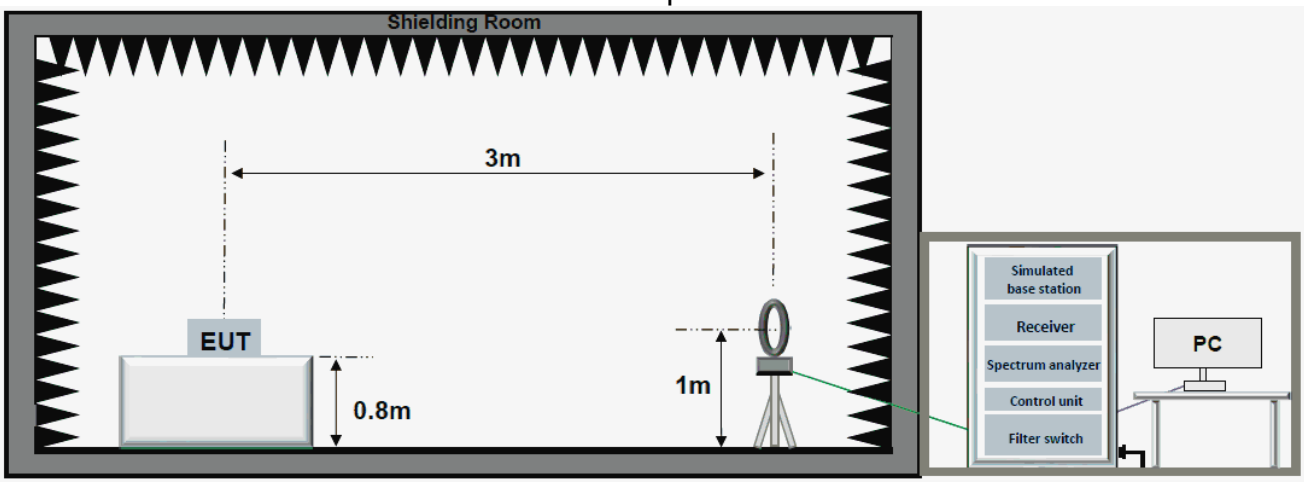
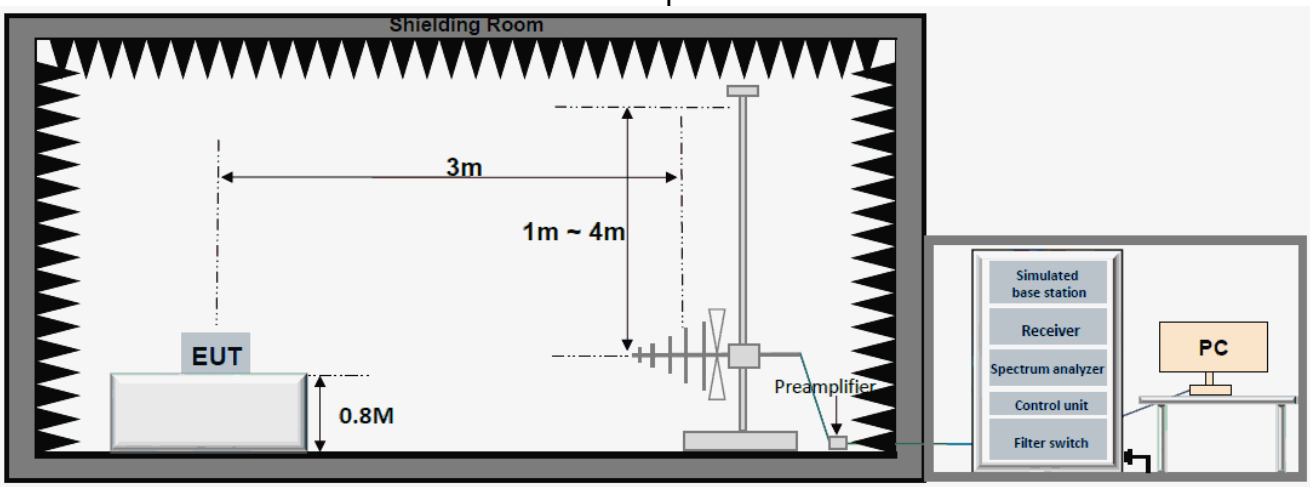
2.7.2 Radiated Configuration

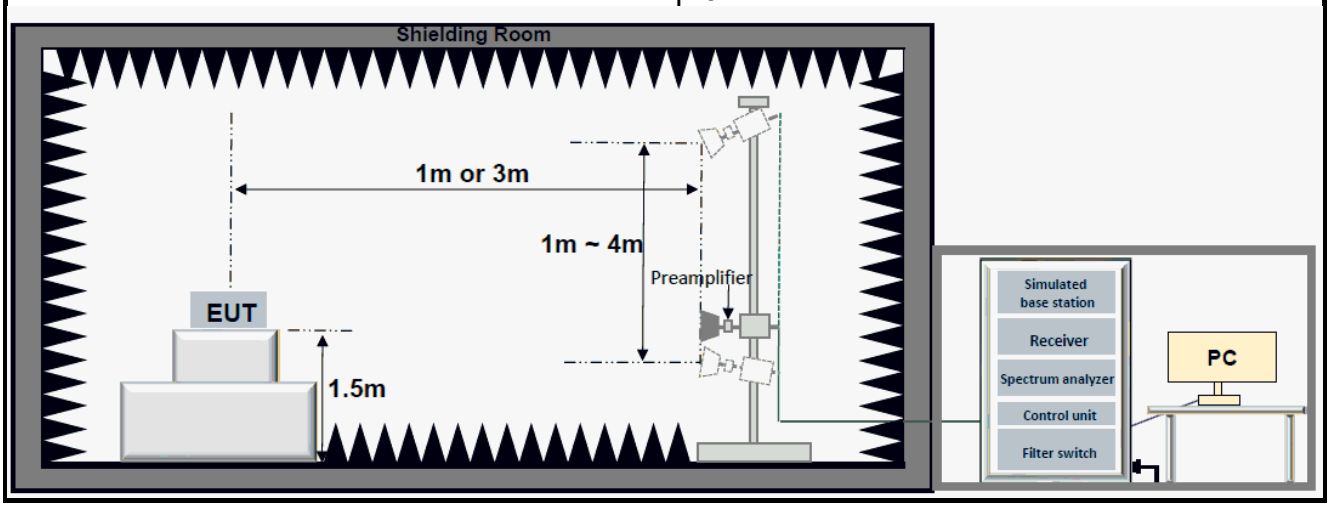
Setup 1



Setup 2



Setup 3



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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 Conducted					
Description	**Manufacturer**	**Model**	**S.N.**	**Last Due**	**Cal Due**
Signal Analyzer	Keysight	N9020A	US46470429	2024/03/25	2025/03/24
				2025/03/14	2026/03/13
Signal Generator	R&S	SMR20	101027	2024/03/25	2025/03/24
				2025/03/11	2026/03/10
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
				2025/03/11	2026/03/10
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
				2025/03/11	2026/03/10
Low Noise Amplifier	Tonscend	TAP9K3G40	AP23A8060273	2023/04/08	2025/04/07
				2025/03/11	2027/03/10
Low Noise Amplifier	Tonscend	TAP01018050	AP22G806258	2023/04/08	2025/04/07
				2025/03/11	2027/03/10
Low Noise Amplifier	Tonscend	TAP18040048	AP22G806247	2023/04/08	2025/04/07
				2025/03/11	2027/03/10
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

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3.2 Measurement Uncertainty

Parameter	U_{lab}
Frequency Error	679.98Hz
Output Power	0.76dB
Conducted Spurious Emissions	2.22dB
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%

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4 Test Results

4.1 Antenna Requirement

Standard Applicable:	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 External. With maximum gain is U-NII-1: -0.67dBi; U-NII-2A: -0.19dBi; U-NII-2C: 1.28dBi; U-NII-3: 1.1dBi; Antenna Anti-Replacement Construction: An embedded-in antenna design is used.	

4.2 Frequency Stability

Standard Applicable:	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.	

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4.3 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 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 ≥ 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.**

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4.4 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.**

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4.5 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.**

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4.6 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.**

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4.7 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, he 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 ≥ 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.**

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4.8 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 - 1252025	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.

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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.**

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5 Test Setup Photos

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

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Appendix

Emission Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11a	Ant0	5180	21.360	5169.760	5191.120	---	---
11a	Ant0	5200	22.640	5189.760	5212.400	---	---
11a	Ant0	5240	21.720	5229.680	5251.400	---	---
11a	Ant0	5260	24.160	5249.360	5273.520	---	---
11a	Ant0	5300	22.000	5289.960	5311.960	---	---
11a	Ant0	5320	22.000	5309.640	5331.640	---	---
11a	Ant0	5500	34.920	5482.440	5517.360	---	---
11a	Ant0	5580	33.880	5563.680	5597.560	---	---
11a	Ant0	5700	31.440	5685.520	5716.960	---	---
11a	Ant0	5720	29.400	5706.640	5736.040	---	---
11a	Ant0	5720_UNII-2C	18.36	5706.640	5725	---	---
11a	Ant0	5720_UNII-3	11.04	5725	5736.040	---	---
11a	Ant0	5745	30.440	5731.200	5761.640	---	---
11a	Ant0	5785	26.080	5773.080	5799.160	---	---
11a	Ant0	5825	24.760	5814.120	5838.880	---	---
11n20SISO	Ant0	5180	20.280	5170.120	5190.400	---	---
11n20SISO	Ant0	5200	20.080	5190.160	5210.240	---	---
11n20SISO	Ant0	5240	20.560	5229.760	5250.320	---	---
11n20SISO	Ant0	5260	22.080	5249.640	5271.720	---	---
11n20SISO	Ant0	5300	21.000	5289.520	5310.520	---	---
11n20SISO	Ant0	5320	20.640	5309.800	5330.440	---	---
11n20SISO	Ant0	5500	21.160	5489.600	5510.760	---	---
11n20SISO	Ant0	5580	25.440	5567.720	5593.160	---	---
11n20SISO	Ant0	5700	21.160	5689.640	5710.800	---	---
11n20SISO	Ant0	5720	21.720	5709.960	5731.680	---	---
11n20SISO	Ant0	5720_UNII-2C	15.04	5709.960	5725	---	---
11n20SISO	Ant0	5720_UNII-3	6.68	5725	5731.680	---	---
11n20SISO	Ant0	5745	21.360	5734.680	5756.040	---	---
11n20SISO	Ant0	5785	21.680	5774.040	5795.720	---	---
11n20SISO	Ant0	5825	21.040	5814.680	5835.720	---	---
11n40SISO	Ant0	5190	41.440	5169.040	5210.480	---	---
11n40SISO	Ant0	5230	43.840	5208.880	5252.720	---	---
11n40SISO	Ant0	5270	42.240	5249.280	5291.520	---	---
11n40SISO	Ant0	5310	44.640	5288.320	5332.960	---	---
11n40SISO	Ant0	5510	56.480	5485.040	5541.520	---	---
11n40SISO	Ant0	5590	74.240	5552.000	5626.240	---	---
11n40SISO	Ant0	5670	65.680	5638.320	5704.000	---	---
11n40SISO	Ant0	5710	67.680	5676.240	5743.920	---	---
11n40SISO	Ant0	5710_UNII-2C	48.76	5676.240	5725	---	---
11n40SISO	Ant0	5710_UNII-3	18.92	5725	5743.920	---	---
11n40SISO	Ant0	5755	56.160	5722.360	5778.520	---	---
11n40SISO	Ant0	5795	47.120	5771.160	5818.280	---	---
11ac20SISO	Ant0	5180	20.800	5169.640	5190.440	---	---
11ac20SISO	Ant0	5200	20.800	5189.680	5210.480	---	---
11ac20SISO	Ant0	5240	21.160	5229.720	5250.880	---	---
11ac20SISO	Ant0	5260	20.640	5249.760	5270.400	---	---
11ac20SISO	Ant0	5300	20.640	5289.920	5310.560	---	---
11ac20SISO	Ant0	5320	20.880	5309.560	5330.440	---	---
11ac20SISO	Ant0	5500	21.960	5489.640	5511.600	---	---
11ac20SISO	Ant0	5580	26.120	5569.040	5595.160	---	---
11ac20SISO	Ant0	5700	25.560	5689.560	5715.120	---	---
11ac20SISO	Ant0	5720	20.720	5710.120	5730.840	---	---
11ac20SISO	Ant0	5720_UNII-2C	14.88	5710.120	5725	---	---
11ac20SISO	Ant0	5720_UNII-3	5.84	5725	5730.840	---	---
11ac20SISO	Ant0	5745	20.800	5734.720	5755.520	---	---
11ac20SISO	Ant0	5785	20.360	5775.120	5795.480	---	---

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11ac20SISO	Ant0	5825	20.920	5814.920	5835.840	---	---
11ac40SISO	Ant0	5190	43.920	5168.880	5212.800	---	---
11ac40SISO	Ant0	5230	44.240	5206.640	5250.880	---	---
11ac40SISO	Ant0	5270	44.640	5247.360	5292.000	---	---
11ac40SISO	Ant0	5310	50.560	5282.720	5333.280	---	---
11ac40SISO	Ant0	5510	62.160	5473.920	5536.080	---	---
11ac40SISO	Ant0	5590	71.840	5554.160	5626.000	---	---
11ac40SISO	Ant0	5670	72.240	5633.760	5706.000	---	---
11ac40SISO	Ant0	5710	77.600	5671.680	5749.280	---	---
11ac40SISO	Ant0	5710_UNII-2C	53.32	5671.680	5725	---	---
11ac40SISO	Ant0	5710_UNII-3	24.28	5725	5749.280	---	---
11ac40SISO	Ant0	5755	60.160	5723.960	5784.120	---	---
11ac40SISO	Ant0	5795	54.160	5764.120	5818.280	---	---
11ac80SISO	Ant0	5210	83.200	5167.920	5251.120	---	---
11ac80SISO	Ant0	5290	83.040	5248.240	5331.280	---	---
11ac80SISO	Ant0	5530	83.040	5488.240	5571.280	---	---
11ac80SISO	Ant0	5610	86.400	5566.800	5653.200	---	---
11ac80SISO	Ant0	5690	82.560	5648.080	5730.640	---	---
11ac80SISO	Ant0	5690_UNII-2C	76.92	5648.080	5725	---	---
11ac80SISO	Ant0	5690_UNII-3	5.64	5725	5730.640	---	---
11ac80SISO	Ant0	5775	81.760	5734.200	5815.960	---	---

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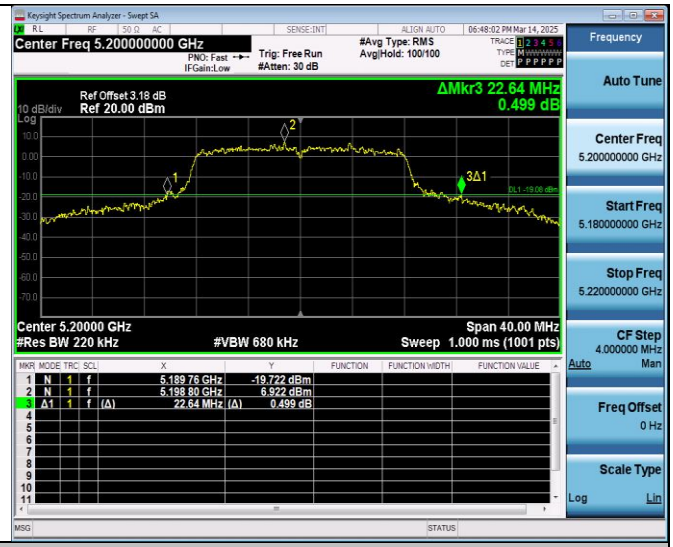
Test Graphs

11a-Ant0-5180



11a-Ant0-5200

11a-Ant0-5240

11a-Ant0-5260

11a-Ant0-5300

11a-Ant0-5320

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11a-Ant0-5500

11a-Ant0-5580

11a-Ant0-5700

11a-Ant0-5720

11a-Ant0-5745

11a-Ant0-5785

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11a-Ant0-5825

11n20SISO-Ant0-5180

11n20SISO-Ant0-5200

11n20SISO-Ant0-5240

11n20SISO-Ant0-5260

11n20SISO-Ant0-5300

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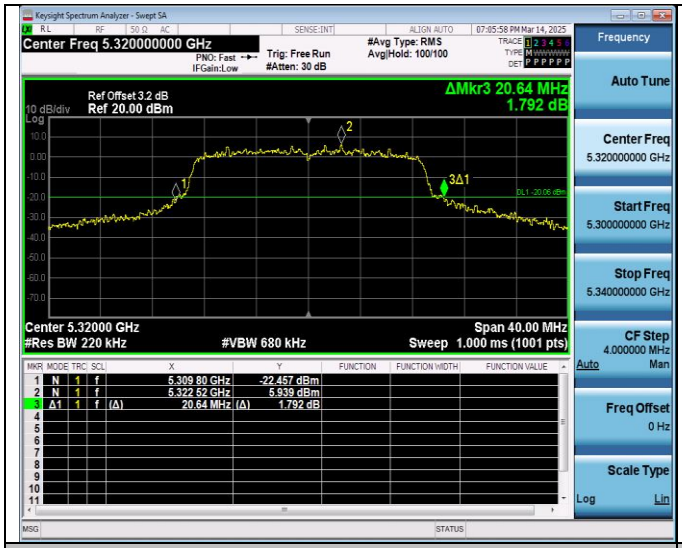

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11n20SISO-Ant0-5500

11n20SISO-Ant0-5580

11n20SISO-Ant0-5700

11n20SISO-Ant0-5720

11n20SISO-Ant0-5745

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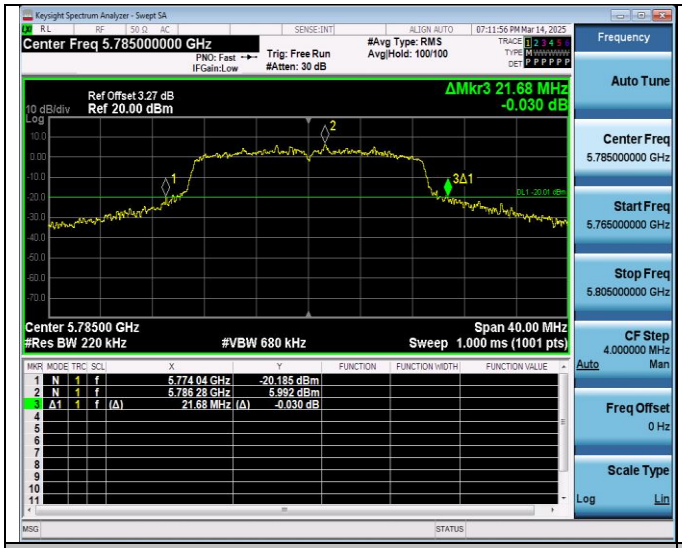

11n20SISO-Ant0-5785

11n20SISO-Ant0-5825

11n40SISO-Ant0-5190

11n40SISO-Ant0-5230

11n40SISO-Ant0-5270

11n40SISO-Ant0-5310

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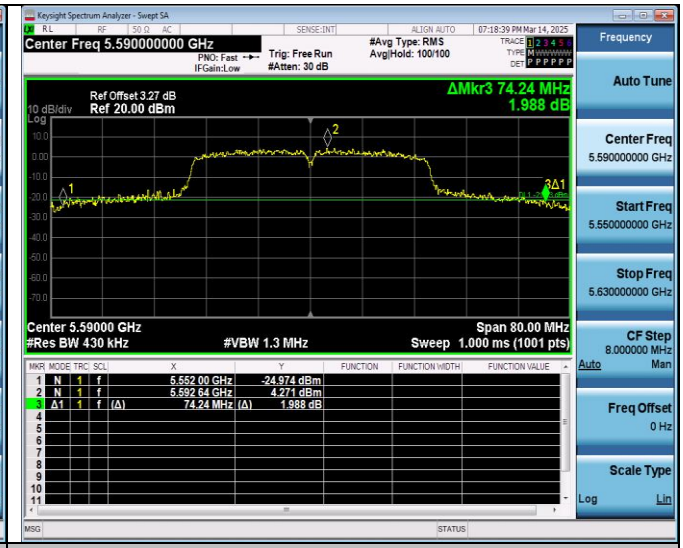
11n40SISO-Ant0-5510



11n40SISO-Ant0-5590

11n40SISO-Ant0-5670

11n40SISO-Ant0-5710

11n40SISO-Ant0-5755

11n40SISO-Ant0-5795

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11ac20SISO-Ant0-5180

11ac20SISO-Ant0-5200

11ac20SISO-Ant0-5240

11ac20SISO-Ant0-5260

11ac20SISO-Ant0-5300

11ac20SISO-Ant0-5320

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