

TEST REPORT

Applicant: Quectel Wireless Solutions Co., Ltd.
EUT Description: Wi-Fi & Bluetooth Module
Model: FCU865R
Brand: QUECTEL
FCC ID: XMR2025FCU865R
Standards: FCC 47 CFR Part 15 Subpart E
Date of Receipt: 2025/11/06
Date of Test: 2025/11/06 to 2025/11/24
Date of Issue: 2025/11/24

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 "Jim Huang".

Jim Huang
Approved By:

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

Carey Chen
Reviewed By:

Revision History

Rev.	Issue Date	Description	Revised by
01	2025/11/24	Original	Carey Chen

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	§15.407(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".

Table of Contents

1	General Description	5
1.1	Lab Information	5
1.1.1	Testing Location	5
1.1.2	Test Facility / Accreditations	5
1.2	Client Information	5
1.2.1	Applicant	5
1.2.2	Manufacturer	5
1.3	Product Information	6
2	Test Configuration	6
2.1	Test Channel	8
2.2	Worst-case configuration and Mode	10
2.3	Support Unit used in test	10
2.4	Test Environment	10
2.5	Test RF Cable	10
2.6	Modifications	10
2.7	Test Setup Diagram	11
2.7.1	Conducted Configuration	11
2.7.2	Radiated Configuration	12
3	Equipment and Measurement Uncertainty	13
3.1	Test Equipment List	13
3.2	Measurement Uncertainty	14
4	Test Results	15
4.1	Antenna Requirement	15
4.2	Frequency Stability	15
4.3	Maximum Conducted Output Power	16
4.4	Emission Bandwidth	17
4.5	Minimum Emission Bandwidth	18
4.6	Occupied Bandwidth	19
4.7	Maximum Power Spectral Density	20
4.8	Unwanted Emissions	21
5	Test Setup Photos	23
	Appendix	24

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

1.3 Product Information

EUT Description:	Wi-Fi & Bluetooth Module			
Model No.:	FCU865R			
Brand:	QUECTEL			
Hardware Version:	R1.0			
Software Version:	NA			
SN.:	RF Conducted	D1M24KC0F000123		
	RSE	D1M24KC0F000110		
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		
Smart System:	☒ SISO	802.11a/n/ac/ax	/	
	☐ MIMO	802.11n/ac/ax	()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		
Partial RU:	☐ Support		☒ No Support	
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
	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
	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
Antenna Type:	☒ External, ☐ Integrated			
Antenna Gain:	Frequency Range	Ant (dBi)		
	U-NII-1:	-0.7		
	U-NII-2A:	-0.8		
	U-NII-2C:	-1.2		
	U-NII-3:	-1.5		

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

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/ax20		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		The Lowest channel (CH38)		5190MHz			
		The Highest channel (CH46)		5230MHz			
Modulation Type		Test Channel		Test Frequency			
802.11 ac80/ax80		The Middle channel (CH42)		5210MHz			

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	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	The Lowest channel (CH54)		5270MHz				
	The Highest channel (CH62)		5310MHz				
Modulation Type	Test Channel		Test Frequency				
802.11 ac80/ax80	The Middle channel (CH58)		5290MHz				

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	The Lowest channel (CH100)	5500MHz
	The Middle channel (CH116)	5580MHz
	The Highest channel (CH140)	5700MHz
Modulation Type	Test Channel	Test Frequency
802.11n40 /ac40/ax40	The Lowest channel (CH102)	5510MHz
	The Middle channel (CH118)	5590MHz
	The Highest channel (CH134)	5670MHz
Modulation Type	Test Channel	Test Frequency
802.11 ac80/ax80	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/ax20	The Lowest channel (CH149)	5745MHz
	The Middle channel (CH157)	5785MHz
	The Highest channel (CH165)	5825MHz
Modulation Type	Test Channel	Test Frequency
802.11n40 /ac40/ax40	The Lowest channel (CH151)	5755MHz
	The Highest channel (CH159)	5795MHz
Modulation Type	Test Channel	Test Frequency
802.11 ac80/ax80	The Middle channel (CH155)	5775MHz

2.2 Worst-case configuration and Mode

Modulation Type	SISO - Data Rate	CDD/MIMO()TX()RX Data Rate
802.11a	6 Mbps	N/A
802.11n20	MCS0 (6.5 Mbps)	N/A
802.11n40	MCS0 (13.5 Mbps)	N/A
802.11ac20	MCS0 (6.5 Mbps)	N/A
802.11ac40	MCS0 (13.5 Mbps)	N/A
802.11ac80	MCS0 (29.3 Mbps)	N/A
802.11ax20	MCS0 (8.6 Mbps)	N/A
802.11ax40	MCS0 (17.2 Mbps)	N/A
802.11ax80	MCS0 (36.0 Mbps)	N/A
Transmitting mode:	Keep the EUT was programmed to be in continuously transmitting mode.	
Normal Link:	Keep the EUT operation to normal function.	

Remark: For 802.11n20/40 and 802.11ax20/40 mode, the whole testing have assessed only, 802.11ax20/40 by referring to their higher output power.

2.3 Support Unit used in test

Description	Manufacturer	Model	Serial Number
Laptop	Lenovo	Thinkbook 14 G4+IAP	YX05AZ13
Development Board*	QUECTEL	FCU865R-TE-A	E1M24KD0J000031

Remark: *the information is provided by applicant.

2.4 Test Environment

Temperature:	Normal: 15°C ~ 35°C
Humidity:	45 ~ 56 % RH Ambient
Voltage:	DC 3.3V

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.

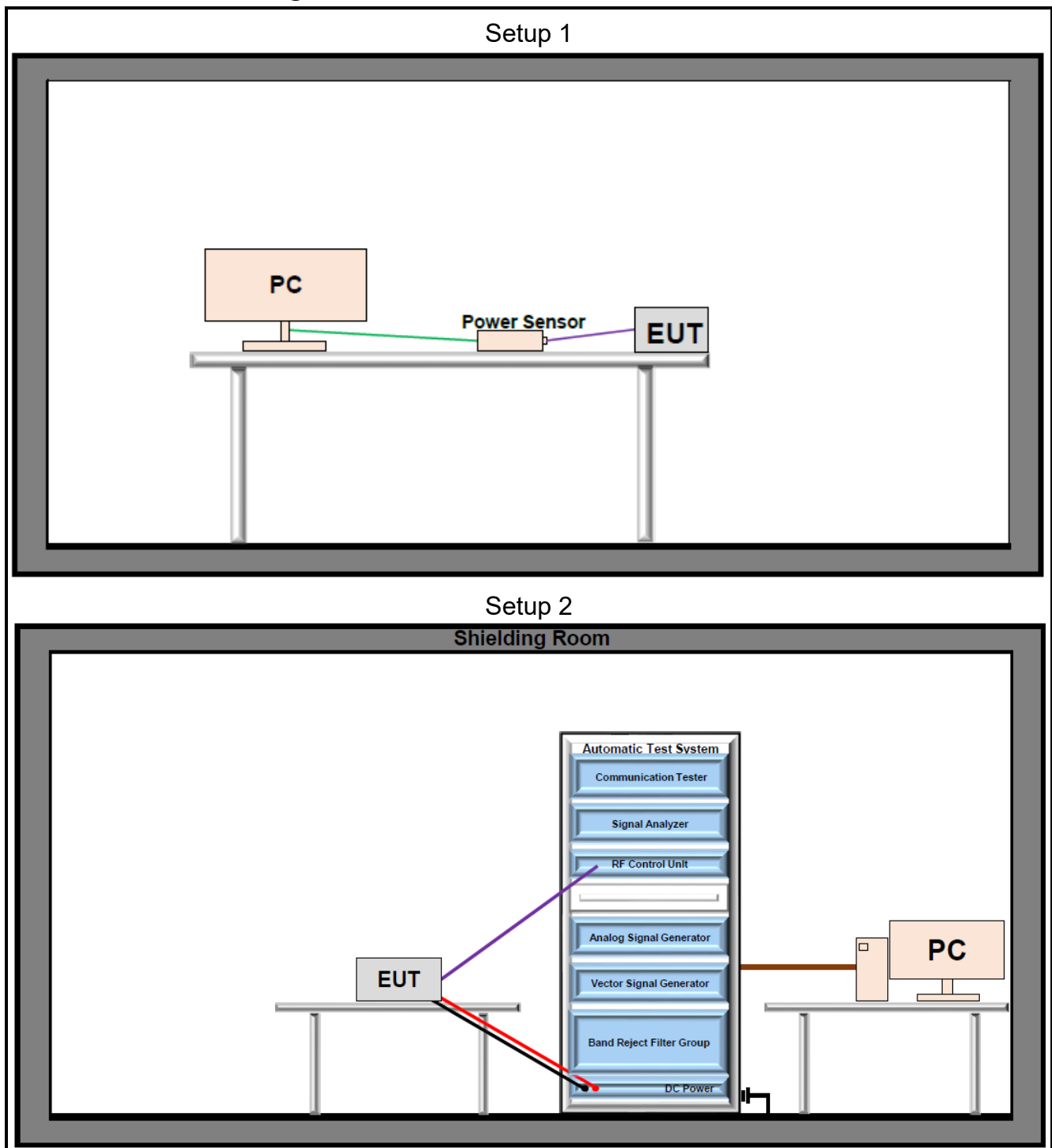
Offset = RF cable loss + attenuator factor.

2.6 Modifications

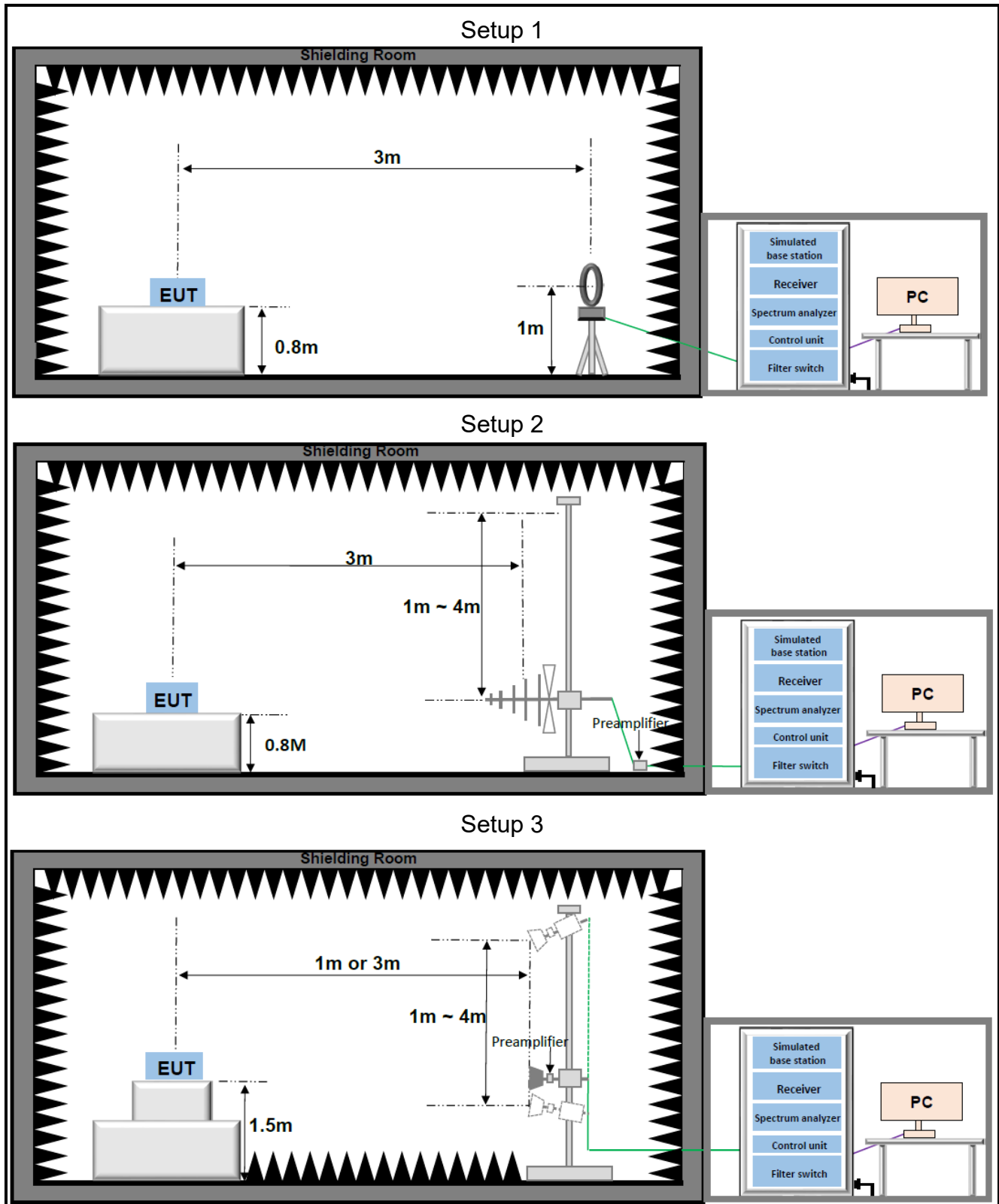
No modifications were made during testing.

2.7 Test Setup Diagram

2.7.1 Conducted Configuration



2.7.2 Radiated Configuration



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	2025/03/14	2026/03/13
Signal Generator	R&S	SMR20	101027	2025/03/11	2026/03/10
Vector Signal Generator	R&S	SMM100A	549353	2025/05/29	2026/05/28
Power Sensor	Anritsu	MA24408A	12520	2025/05/29	2026/05/28
RF Control Unit	Tonscend	JS0806-2	23C80620671	2025/05/29	2026/05/28
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY63440541	2025/05/29	2026/05/28
Attenuator	Yin Saige	SMA-10dBm	N/A	N/A	N/A
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	2026/06/24
Double-Ridged Horn Antennas	Schwarzbeck	BBHA 9120D	2809	2023/06/25	2026/06/24
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	1290	2023/06/25	2026/06/24
Loop Antenna	Schwarzbeck	FMZB 1519C	1519C-028	2023/06/29	2026/06/28
Signal Analyzer	Keysight	N9020A	MY49100252	2025/03/11	2026/03/10
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY63440541	2025/05/29	2026/05/28
Wideband Radio Communication Tester	R&S	CMW500	150645	2025/03/11	2026/03/10
Low Noise Amplifier	Tonscend	TAP9K3G40	AP23A8060273	2025/03/11	2027/03/10
Low Noise Amplifier	Tonscend	TAP01018050	AP22G806258	2025/03/11	2027/03/10
Low Noise Amplifier	Tonscend	TAP18040048	AP22G806247	2025/03/11	2027/03/10
Hygrometer	BINGYU	HTC-1	N/A	2025/07/25	2026/07/24
Band Reject Filter Group	Townshend	JS0806-F	23A806F0652	N/A	N/A
Test Software	Tonscend	TS+	Version: 5.0.0	N/A	N/A

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%

4 Test Results

4.1 Antenna Requirement

Standard Applicable:	47 CFR Part 15E 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 Antenna gain is U-NII-1: -0.7dBi; U-NII-2A: -0.8dBi; U-NII-2C: -1.2dBi; U-NII-3: -1.5dBi; Antenna Anti-Replacement Construction: An embedded-in antenna design is used.	

4.2 Frequency Stability

Standard Applicable:	47 CFR Part 15E 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 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.3.b (Other Channel)

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section II.E.2.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 an attenuator connected to a power sensor. Output power was read directly from the power sensor.
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**.

4.4 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**.

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**.

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**.

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, 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**.

4.8 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 - 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 ($\mu\text{V/m}$)	Limit (dB $\mu\text{V/m}$)	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) + Factor(dB):
Factor = Cable Factor(dB) + AF(dB/m) - Preamplifier gain(dB)
AF = Antenna Factor(dB/m)
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 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. These frequencies which near "-" should be ignored because they are Fundamental frequency.

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**

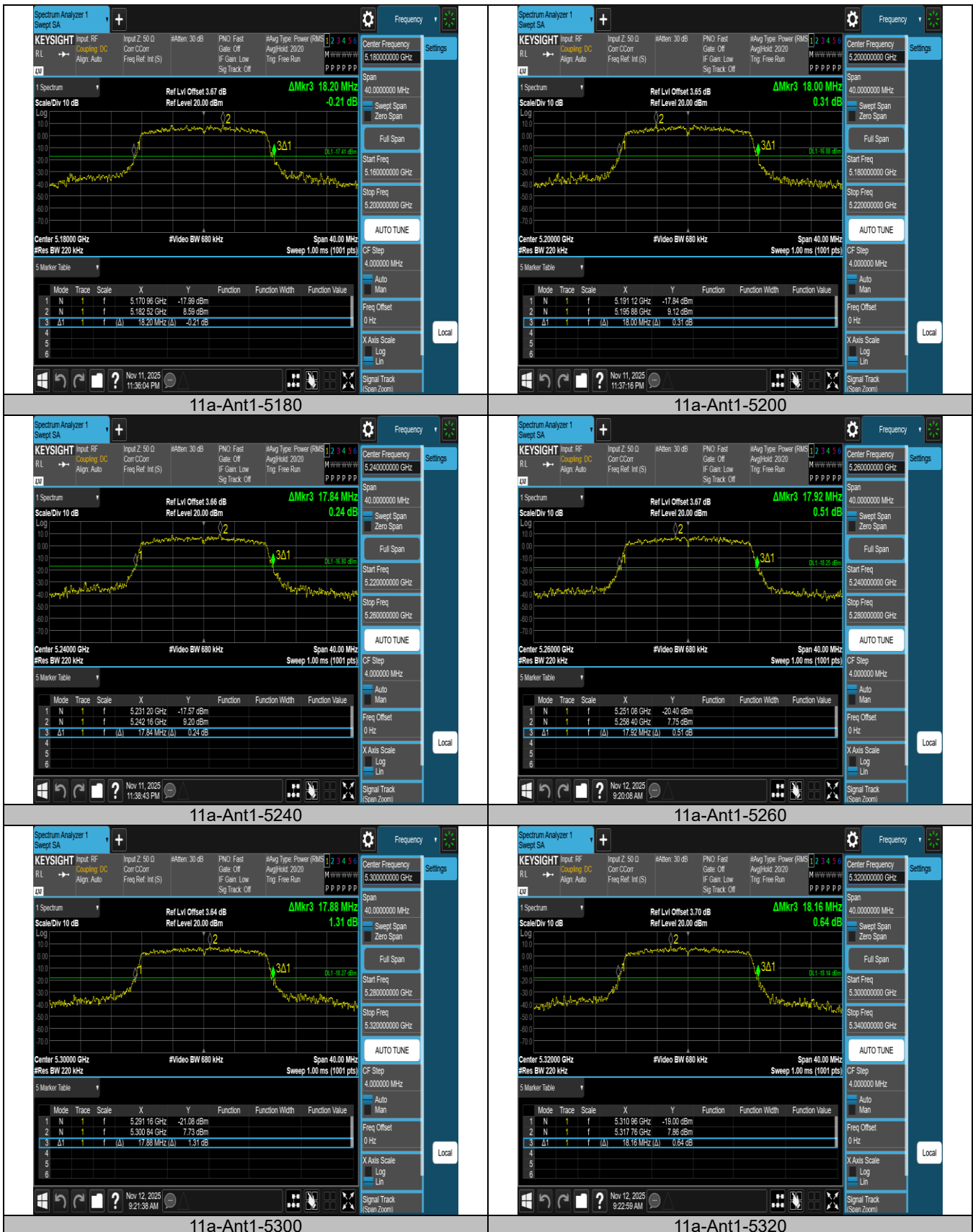
Appendix

Emission Bandwidth Test Result

TestMode	Antenna	Frequency[MHz]	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11a	Ant1	5180	18.200	5170.960	5189.160	---	---
11a	Ant1	5200	18.000	5191.120	5209.120	---	---
11a	Ant1	5240	17.840	5231.200	5249.040	---	---
11a	Ant1	5260	17.920	5251.080	5269.000	---	---
11a	Ant1	5300	17.880	5291.160	5309.040	---	---
11a	Ant1	5320	18.160	5310.960	5329.120	---	---
11a	Ant1	5500	17.920	5491.160	5509.080	---	---
11a	Ant1	5600	17.720	5591.200	5608.920	---	---
11a	Ant1	5700	17.960	5691.080	5709.040	---	---
11a	Ant1	5745	18.040	5735.960	5754.000	---	---
11a	Ant1	5785	17.840	5776.160	5794.000	---	---
11a	Ant1	5825	18.000	5816.120	5834.120	---	---
11ac20SISO	Ant1	5180	18.840	5170.560	5189.400	---	---
11ac20SISO	Ant1	5200	19.000	5190.520	5209.520	---	---
11ac20SISO	Ant1	5240	19.040	5230.320	5249.360	---	---
11ac20SISO	Ant1	5260	18.960	5250.520	5269.480	---	---
11ac20SISO	Ant1	5300	19.240	5290.440	5309.680	---	---
11ac20SISO	Ant1	5320	18.960	5310.440	5329.400	---	---
11ac20SISO	Ant1	5500	19.080	5490.440	5509.520	---	---
11ac20SISO	Ant1	5600	18.880	5590.600	5609.480	---	---
11ac20SISO	Ant1	5700	19.040	5690.400	5709.440	---	---
11ac20SISO	Ant1	5745	18.920	5735.520	5754.440	---	---
11ac20SISO	Ant1	5785	18.880	5775.600	5794.480	---	---
11ac20SISO	Ant1	5825	19.040	5815.440	5834.480	---	---
11ac40SISO	Ant1	5190	38.400	5170.640	5209.040	---	---
11ac40SISO	Ant1	5230	38.240	5210.960	5249.200	---	---
11ac40SISO	Ant1	5270	38.400	5250.800	5289.200	---	---
11ac40SISO	Ant1	5310	38.160	5291.040	5329.200	---	---
11ac40SISO	Ant1	5510	38.400	5490.880	5529.280	---	---
11ac40SISO	Ant1	5590	37.920	5571.120	5609.040	---	---
11ac40SISO	Ant1	5670	38.800	5650.720	5689.520	---	---
11ac40SISO	Ant1	5755	38.160	5735.880	5774.040	---	---
11ac40SISO	Ant1	5795	38.320	5775.880	5814.200	---	---
11ac80SISO	Ant1	5210	78.720	5170.800	5249.520	---	---
11ac80SISO	Ant1	5290	78.880	5250.640	5329.520	---	---
11ac80SISO	Ant1	5530	79.040	5490.480	5569.520	---	---
11ac80SISO	Ant1	5610	78.720	5570.640	5649.360	---	---
11ac80SISO	Ant1	5775	78.720	5735.640	5814.360	---	---
11ax20SISO	Ant1	5180	20.080	5170.040	5190.120	---	---
11ax20SISO	Ant1	5200	20.080	5190.000	5210.080	---	---
11ax20SISO	Ant1	5240	20.000	5229.960	5249.960	---	---
11ax20SISO	Ant1	5260	19.800	5250.120	5269.920	---	---
11ax20SISO	Ant1	5300	19.960	5290.120	5310.080	---	---
11ax20SISO	Ant1	5320	19.640	5310.240	5329.880	---	---
11ax20SISO	Ant1	5500	19.880	5490.160	5510.040	---	---
11ax20SISO	Ant1	5600	19.800	5590.240	5610.040	---	---
11ax20SISO	Ant1	5700	19.960	5690.080	5710.040	---	---
11ax20SISO	Ant1	5745	20.080	5735.000	5755.080	---	---
11ax20SISO	Ant1	5785	19.720	5775.160	5794.880	---	---
11ax20SISO	Ant1	5825	19.720	5815.160	5834.880	---	---
11ax40SISO	Ant1	5190	39.440	5170.400	5209.840	---	---
11ax40SISO	Ant1	5230	39.280	5210.480	5249.760	---	---
11ax40SISO	Ant1	5270	39.280	5250.400	5289.680	---	---
11ax40SISO	Ant1	5310	39.360	5290.320	5329.680	---	---
11ax40SISO	Ant1	5510	39.520	5490.320	5529.840	---	---
11ax40SISO	Ant1	5590	39.360	5570.320	5609.680	---	---
11ax40SISO	Ant1	5670	39.200	5650.480	5689.680	---	---

11ax40SISO	Ant1	5755	39.440	5735.320	5774.760	---	---
11ax40SISO	Ant1	5795	39.280	5775.480	5814.760	---	---
11ax80SISO	Ant1	5210	80.480	5169.680	5250.160	---	---
11ax80SISO	Ant1	5290	80.160	5250.000	5330.160	---	---
11ax80SISO	Ant1	5530	80.000	5490.000	5570.000	---	---
11ax80SISO	Ant1	5610	80.160	5569.840	5650.000	---	---
11ax80SISO	Ant1	5775	79.840	5735.160	5815.000	---	---

Test Graphs





11a-Ant1-5500



11a-Ant1-5600



11a-Ant1-5700



11a-Ant1-5745



11a-Ant1-5785



11a-Ant1-5825



11ac20SISO-Ant1-5180



11ac20SISO-Ant1-5200



11ac20SISO-Ant1-5240



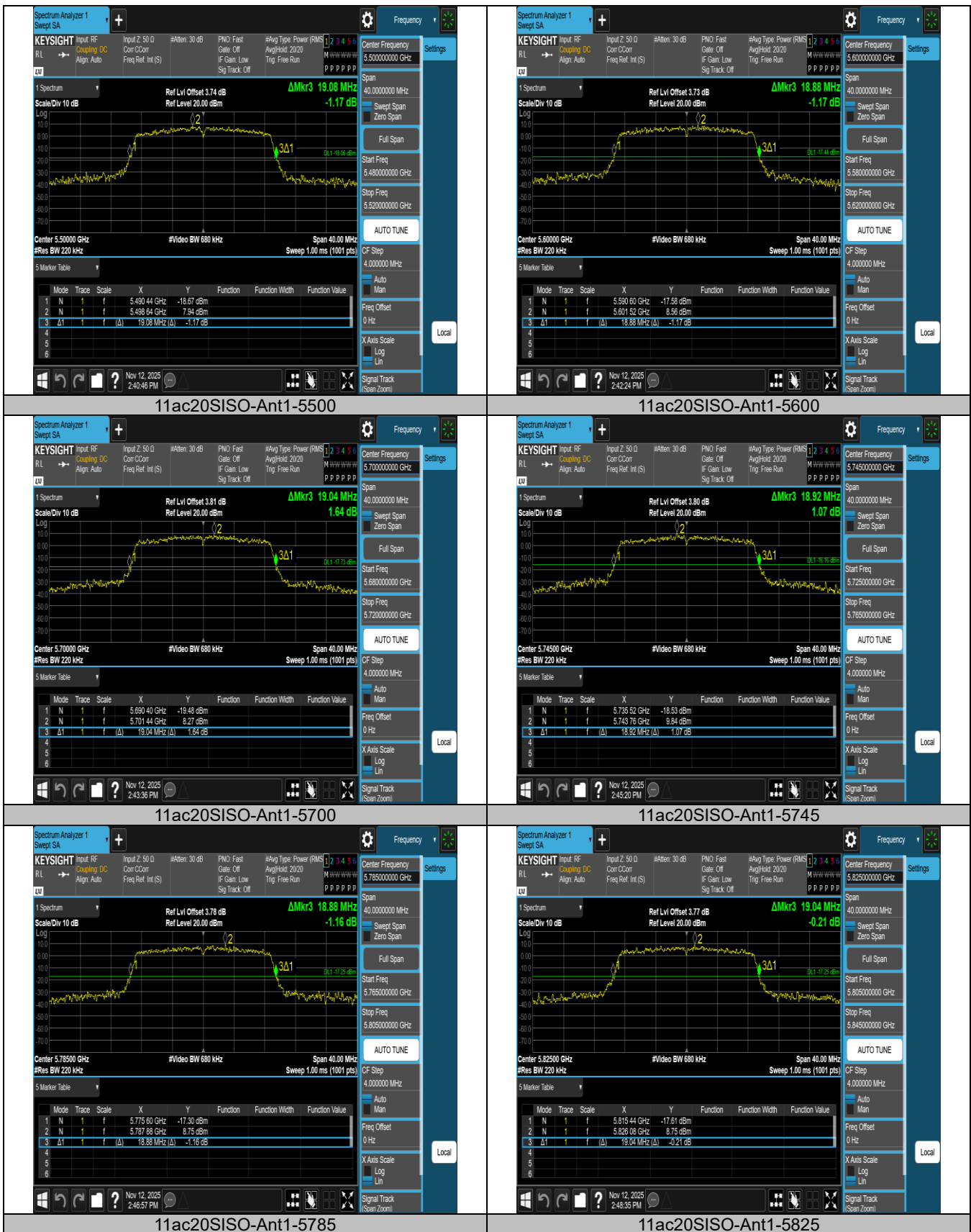
11ac20SISO-Ant1-5260



11ac20SISO-Ant1-5300



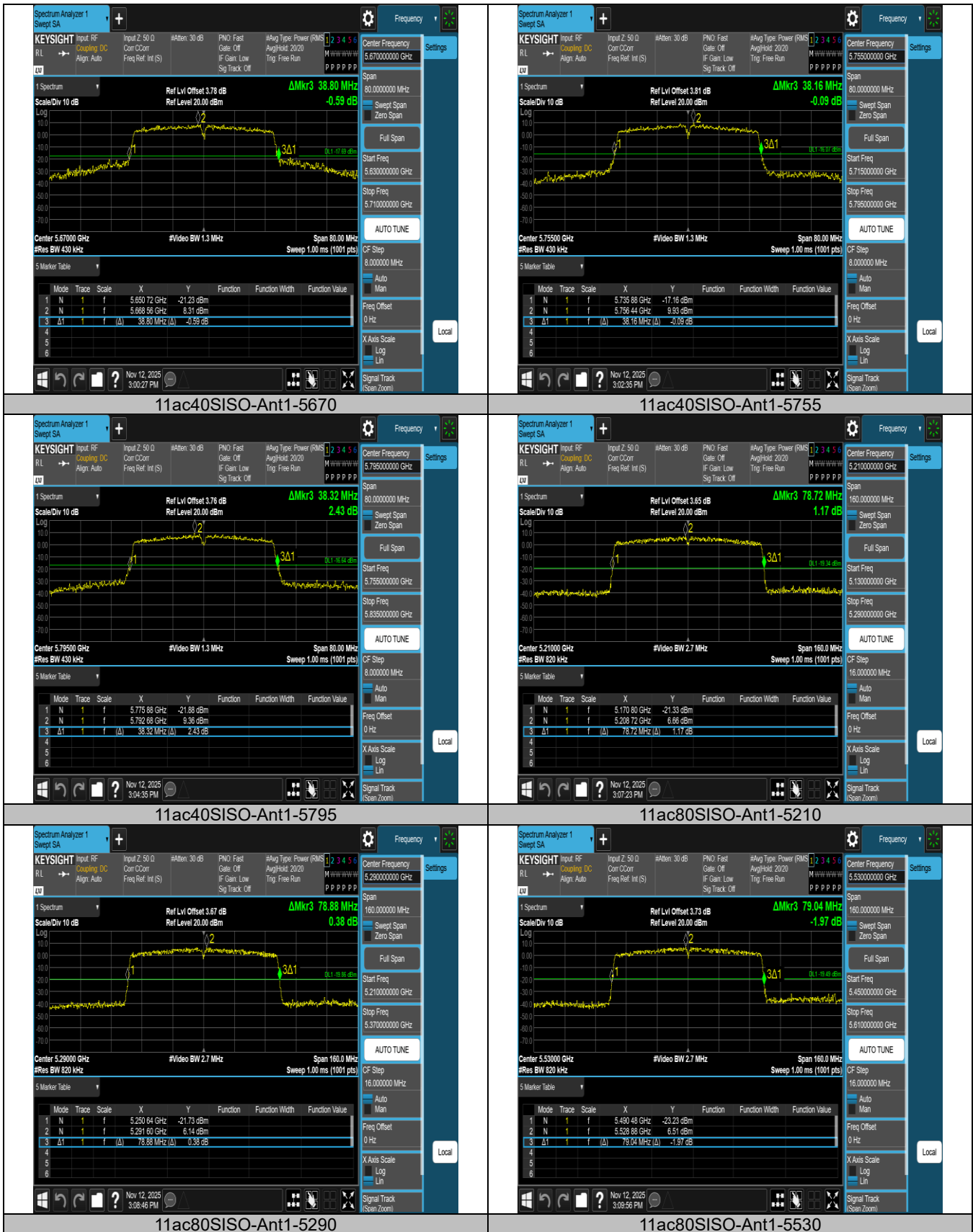
11ac20SISO-Ant1-5320

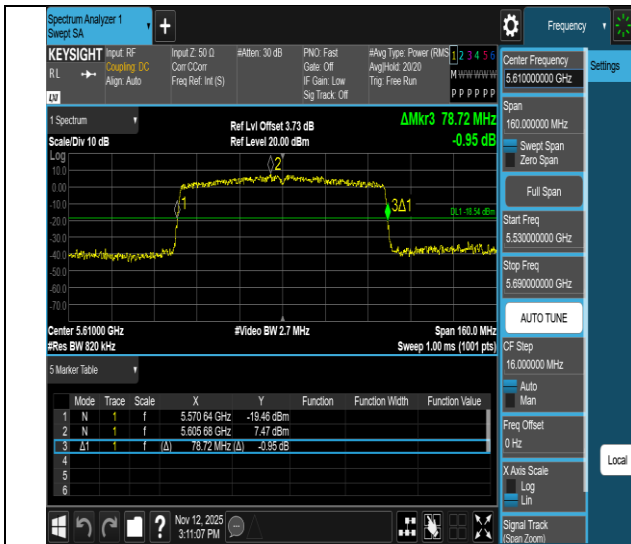




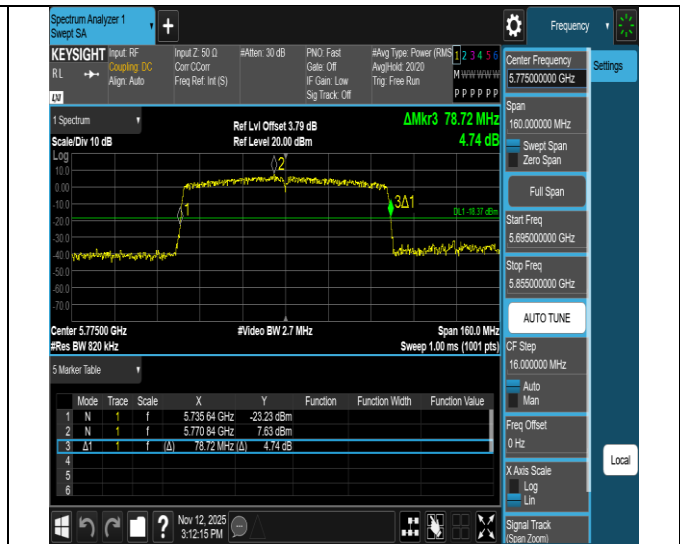
11ac40SISO-Ant1-5510

11ac40SISO-Ant1-5590





11ac80SISO-Ant1-5610



11ac80SISO-Ant1-5775



11ax20SISO-Ant1-5180



11ax20SISO-Ant1-5200



11ax20SISO-Ant1-5240



11ax20SISO-Ant1-5260