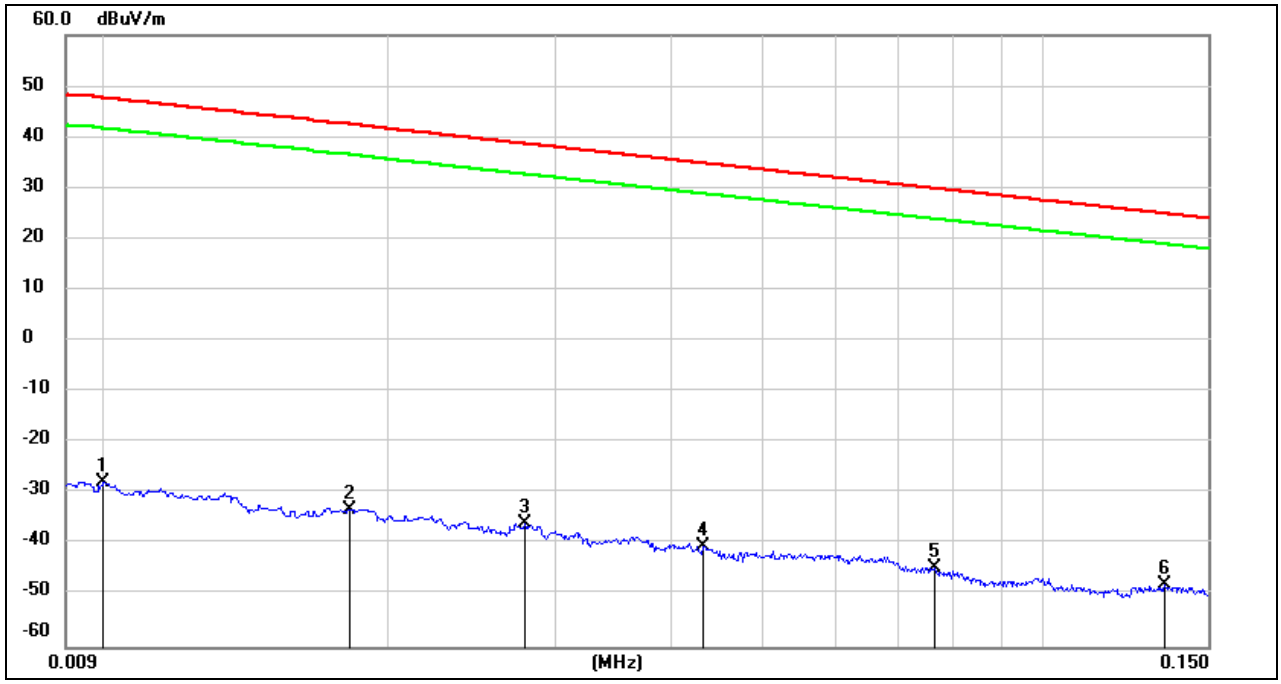
8.7. SPURIOUS EMISSIONS BELOW 30 MHz

8.7.1. 802.11n HT40 MODE

SPURIOUS EMISSIONS (UNII-2C BAND HIGH CHANNEL, LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)

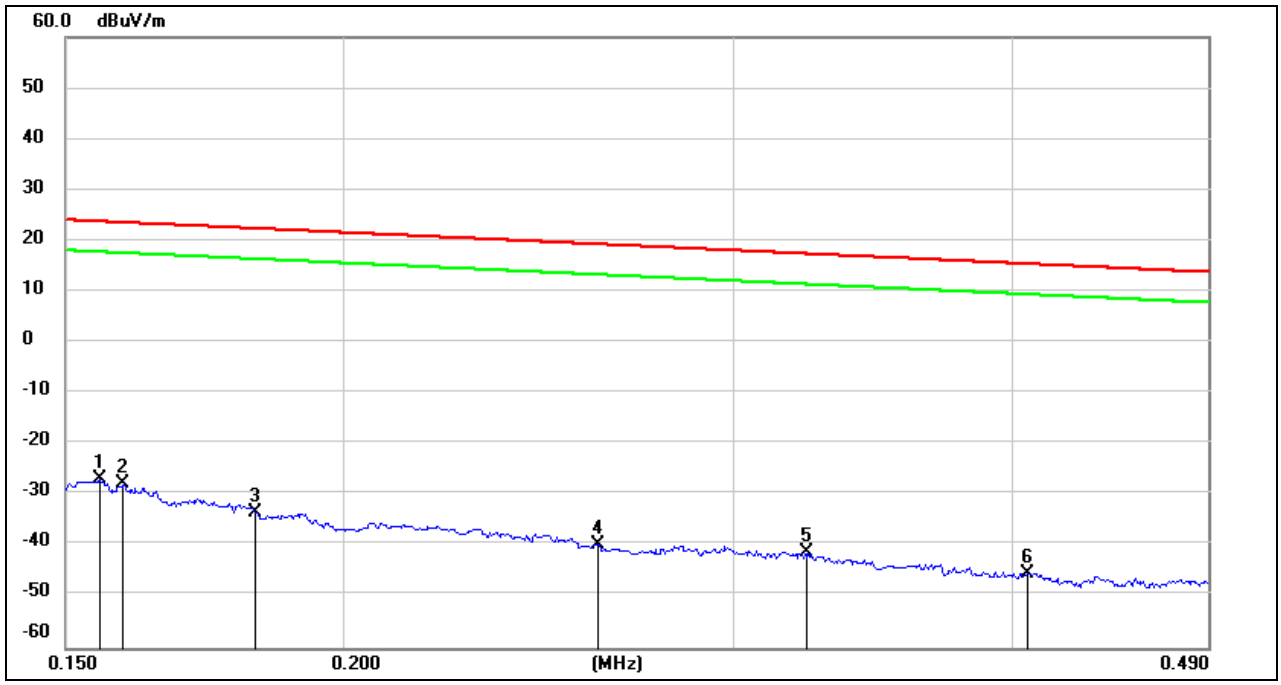
9 kHz~ 150 kHz



No.	Frequency	Reading	Correct	FCC Result	FCC Limit	ISED Result	ISED Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuA/m)	(dBuA/m)	(dB)	
1	0.0100	73.72	-101.40	-27.68	47.6	-79.18	-3.90	-75.28	peak
2	0.0181	68.35	-101.36	-33.01	42.45	-84.51	-9.05	-75.46	peak
3	0.0279	65.67	-101.38	-35.71	38.69	-87.21	-12.81	-74.40	peak
4	0.0432	61.07	-101.45	-40.38	34.89	-91.88	-16.61	-75.27	peak
5	0.0767	57.09	-101.61	-44.52	29.91	-96.02	-21.59	-74.43	peak
6	0.1348	53.91	-101.68	-47.77	25.01	-99.27	-26.49	-72.78	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.
4. dBuA/m = dBuV/m – 20log10(120π) = dBuV/m -51.5.

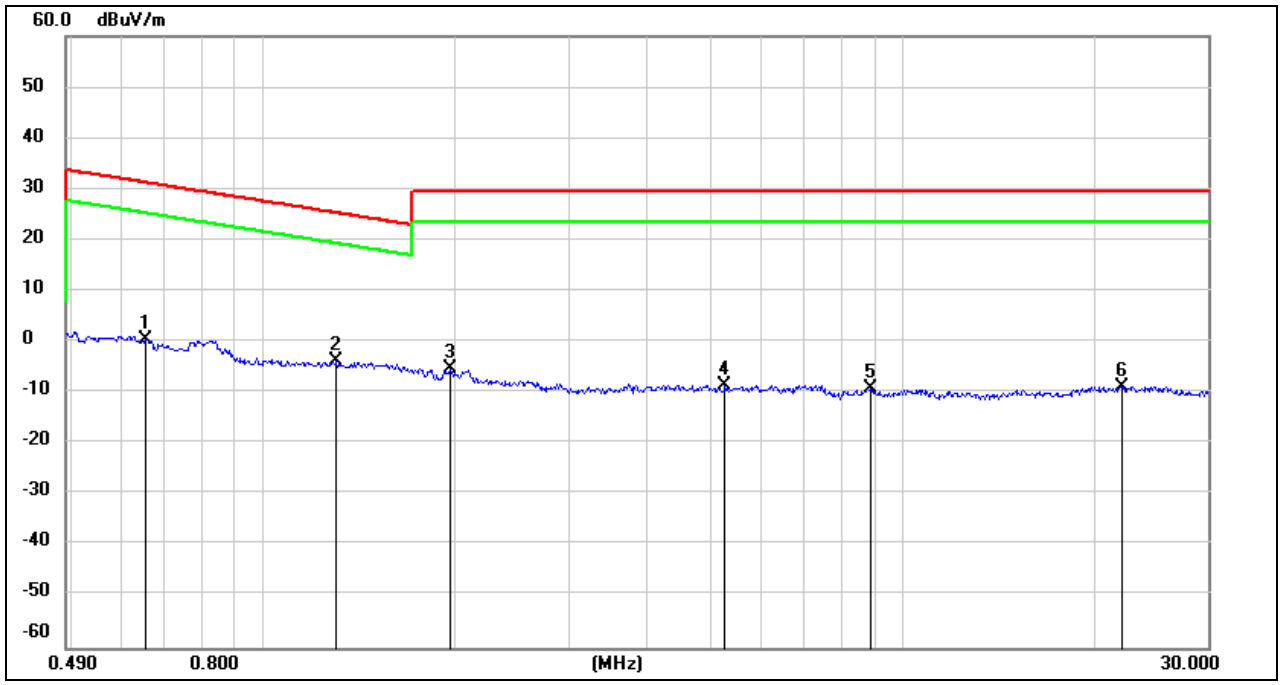
150 kHz ~ 490 kHz



No.	Frequency	Reading	Correct	FCC Result	FCC Limit	ISED Result	ISED Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuA/m)	(dBuA/m)	(dB)	
1	0.1554	74.77	-101.65	-26.88	23.77	-78.38	-27.73	-50.65	peak
2	0.1592	73.85	-101.65	-27.8	23.56	-79.30	-27.94	-51.36	peak
3	0.1826	68.26	-101.69	-33.43	22.38	-84.93	-29.12	-55.81	peak
4	0.2605	62.14	-101.81	-39.67	19.28	-91.17	-32.22	-58.95	peak
5	0.3234	60.48	-101.88	-41.4	17.41	-92.90	-34.09	-58.81	peak
6	0.4062	56.64	-101.96	-45.32	15.43	-96.82	-36.07	-60.75	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.
4. dBuA/m = dBuV/m – 20log10(120π) = dBuV/m -51.5.

490 kHz ~ 30 MHz



No.	Frequency	Reading	Correct	FCC Result	FCC Limit	ISED Result	ISED Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuA/m)	(dBuA/m)	(dB)	
1	0.6532	62.48	-62.10	0.38	31.3	-51.12	-20.20	-30.92	peak
2	1.2983	58.41	-62.14	-3.73	25.34	-55.23	-26.16	-29.07	peak
3	1.9516	56.61	-61.84	-5.23	29.54	-56.73	-21.96	-34.77	peak
4	5.2705	53.04	-61.45	-8.41	29.54	-59.91	-21.96	-37.95	peak
5	8.9001	51.91	-60.95	-9.04	29.54	-60.54	-21.96	-38.58	peak
6	22.0320	51.90	-60.68	-8.78	29.54	-60.28	-21.96	-38.32	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.
4. dBuA/m = dBuV/m – 20log10(120π) = dBuV/m -51.5.

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

9. AC POWER LINE CONDUCTED EMISSIONS

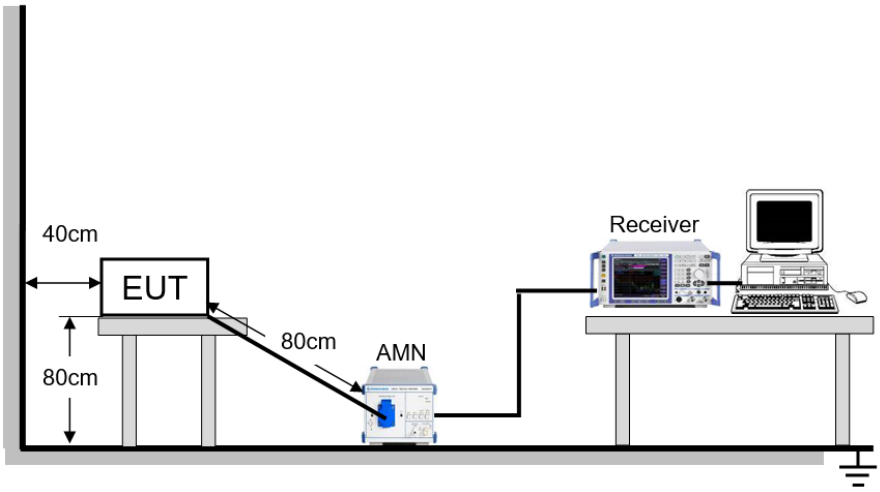
LIMITS

Please refer to CFR 47 FCC §15.207 (a) and ISED RSS-Gen Clause 8.8

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

TEST SETUP AND PROCEDURE

Refer to ANSI C63.10-2013 clause 6.2.



The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

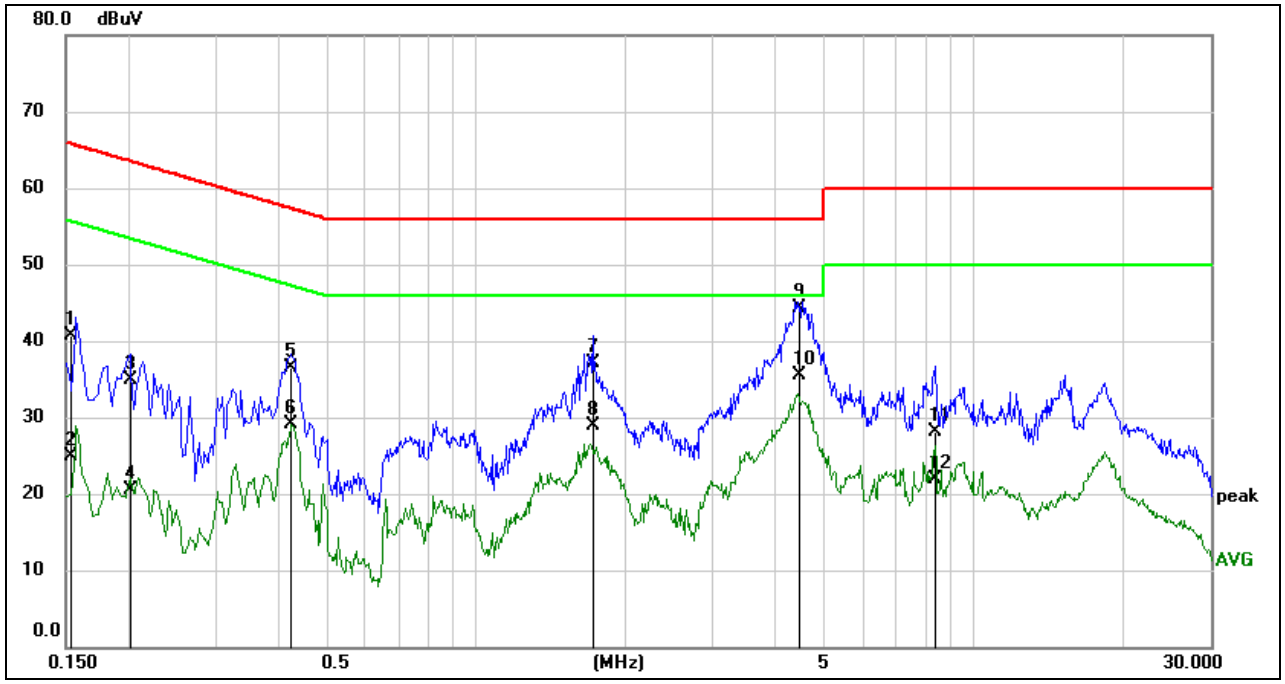
TEST ENVIRONMENT

Temperature	21.5 °C	Relative Humidity	48.1 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

RESULTS

9.1. 802.11a MODE

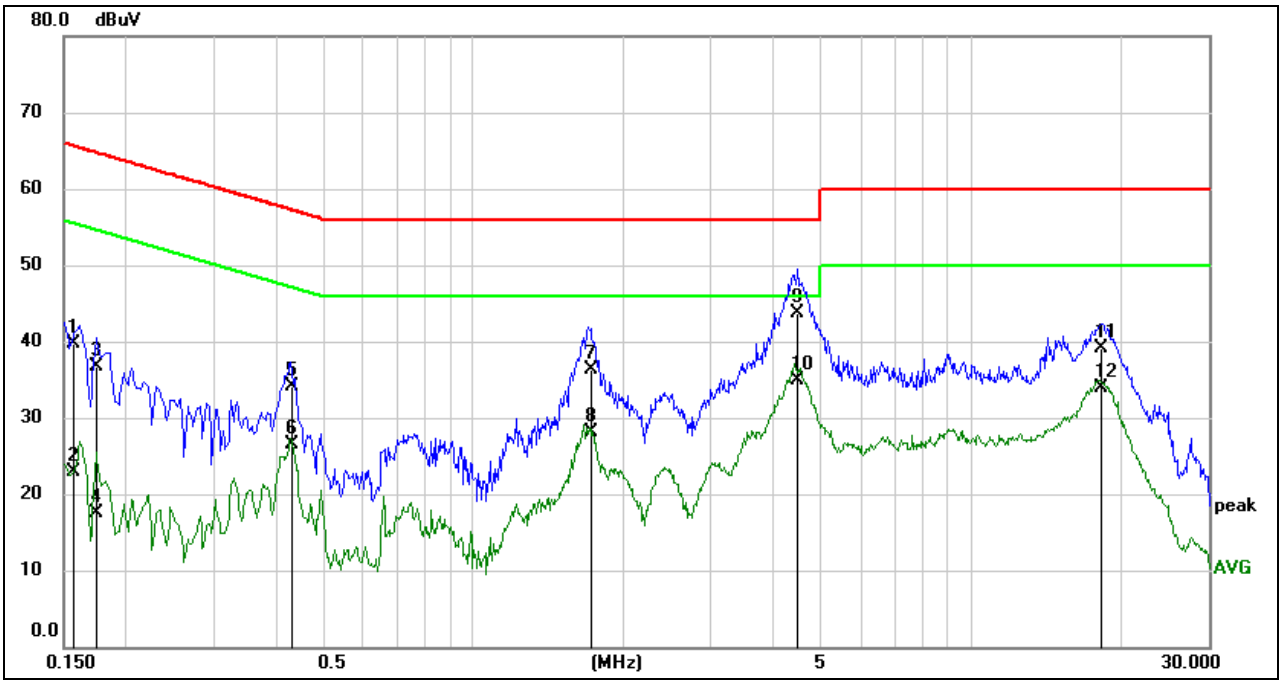
LINE N RESULTS (UNII-2C BAND HIGH CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1538	31.09	9.59	40.68	65.79	-25.11	QP
2	0.1538	15.27	9.59	24.86	55.79	-30.93	AVG
3	0.2029	25.22	9.59	34.81	63.49	-28.68	QP
4	0.2029	10.97	9.59	20.56	53.49	-32.93	AVG
5	0.4266	26.85	9.60	36.45	57.32	-20.87	QP
6	0.4266	19.46	9.60	29.06	47.32	-18.26	AVG
7	1.7182	27.53	9.62	37.15	56.00	-18.85	QP
8	1.7182	19.36	9.62	28.98	46.00	-17.02	AVG
9	4.4659	34.78	9.61	44.39	56.00	-11.61	QP
10	4.4659	25.94	9.61	35.55	46.00	-10.45	AVG
11	8.4011	18.49	9.61	28.10	60.00	-31.90	QP
12	8.4011	12.31	9.61	21.92	50.00	-28.08	AVG

Note: 1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

LINE L RESULTS (UNII-2C BAND HIGH CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1580	30.13	9.59	39.72	65.57	-25.85	QP
2	0.1580	13.33	9.59	22.92	55.57	-32.65	AVG
3	0.1743	27.20	9.59	36.79	64.75	-27.96	QP
4	0.1743	7.86	9.59	17.45	54.75	-37.30	AVG
5	0.4305	24.42	9.60	34.02	57.24	-23.22	QP
6	0.4305	16.94	9.60	26.54	47.24	-20.70	AVG
7	1.7173	26.70	9.62	36.32	56.00	-19.68	QP
8	1.7173	18.42	9.62	28.04	46.00	-17.96	AVG
9	4.4692	34.18	9.61	43.79	56.00	-12.21	QP
10	4.4692	25.28	9.61	34.89	46.00	-11.11	AVG
11	18.2560	29.28	9.78	39.06	60.00	-20.94	QP
12	18.2560	24.11	9.78	33.89	50.00	-16.11	AVG

Note: 1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes had been tested, but only the worst data was recorded in the report.

10. FREQUENCY STABILITY

LIMITS

The frequency of the carrier signal shall be maintained within band of operation.

TEST PROCEDURE

1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between 0 °C ~ 40 °C (declared by customer).

2. The temperature was incremented by 10 °C intervals and the unit allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.

3. The primary supply voltage is varied from 85 % to 115 % of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

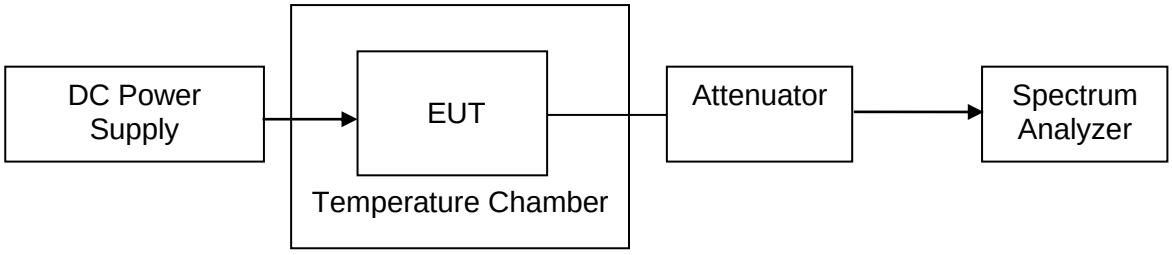
Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	10 kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

4. While maintaining a constant temperature inside the environmental chamber, turn the EUT on and record the operating frequency at startup, and at 2 minutes, 5minutes, and 10 minutes after the EUT is energized.

5. Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

TEST SETUP



TEST ENVIRONMENT

	Normal Test Conditions	Extreme Test Conditions
Relative Humidity	20 % - 75 %	/
Atmospheric Pressure	100 kPa ~102 kPa	/
Temperature	T_N (Normal Temperature): 22 °C – 28 °C	T_L (Low Temperature): 0 °C
		T_H (High Temperature): 40 °C
Supply Voltage	V_N (Normal Voltage): DC 5 V	V_L (Low Voltage): DC 4.25 V
		V_H (High Voltage): DC 5.75 V

RESULTS

Please refer to Appendix D.

11. DYNAMIC FREQUENCY SELECTION

APPLICABILITY OF DFS REQUIREMENTS

A U-NII network will employ a DFS function to detect signals from radar systems and to avoid co-channel operation with these systems. This applies to the 5250-5350 MHz and/or 5470-5725 MHz bands.
Within the context of the operation of the DFS function, a U-NII device will operate in either Master Mode or Client Mode. U-NII devices operating in Client Mode can only operate in a network controlled by a U-NII device operating in Master Mode.

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	☐ Master	☒ Client Without Radar Detection	☐ Client With Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	☐ Master Device or Client with Radar Detection	☒ Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	☐ Master Device or Client with Radar Detection	☒ Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

LIMITS

(1) DFS Detection Thresholds

Table 3: DFS Detection Thresholds for Master Devices and Client Devices With Radar Detection

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	

(2) DFS Response Requirements

Table 4: DFS Response Requirement Values

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required facilitating a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

PARAMETERS OF RADAR TEST WAVEFORMS

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

Table 5 Short Pulse Radar Test Waveforms

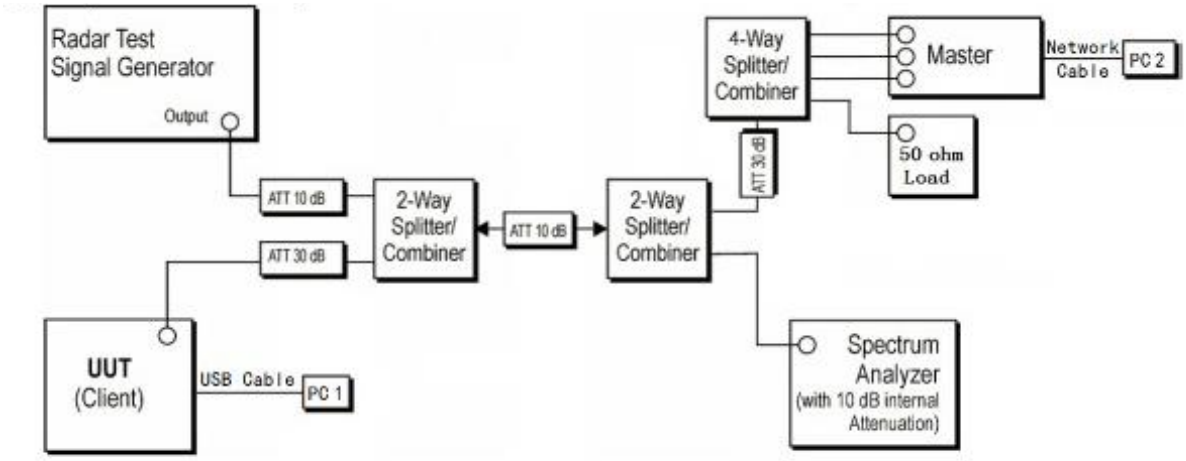
Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{\text{PRI}_{\mu\text{sec}}}\right)\right\}$	60%	30
		Test B			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.
Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a
Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B. Test aggregate is average of the percentage of successful detections of short pulse radar types 1-4.

TEST SETUP

Setup for Client with injection at the Master



TEST ENVIRONMENT

Temperature	23 °C	Relative Humidity	43.1 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

RESULTS

Please refer to Appendix F.

12. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to FCC §15.203
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 shall be considered sufficient to comply with the provisions of this section. 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.

Please refer to FCC §15.247(b)(4)
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RESULTS

Complies

Appendix

Appendix A1: Emission Bandwidth

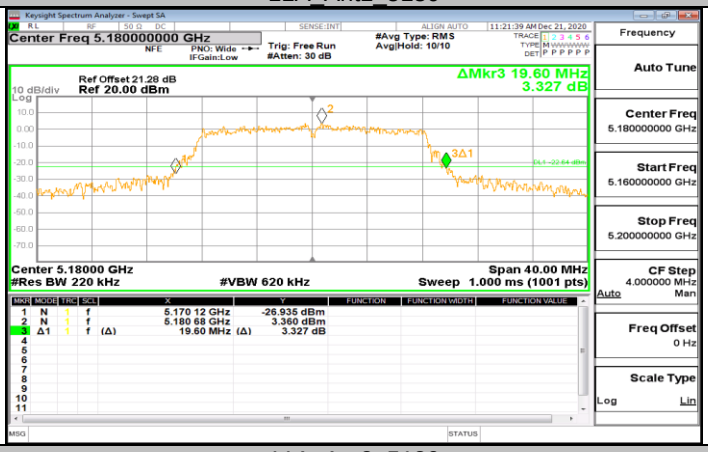
Test Result

Test Mode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	19.560	5170.240	5189.800	---	PASS
	Ant2	5180	19.600	5170.120	5189.720	---	PASS
	Ant1	5200	19.640	5190.000	5209.640	---	PASS
	Ant2	5200	19.640	5190.160	5209.800	---	PASS
	Ant1	5240	19.520	5230.200	5249.720	---	PASS
	Ant2	5240	19.400	5230.160	5249.560	---	PASS
	Ant1	5260	19.320	5250.440	5269.760	---	PASS
	Ant2	5260	20.000	5249.800	5269.800	---	PASS
	Ant1	5280	19.400	5270.320	5289.720	---	PASS
	Ant2	5280	19.960	5269.640	5289.600	---	PASS
	Ant1	5320	19.720	5310.120	5329.840	---	PASS
	Ant2	5320	19.560	5310.120	5329.680	---	PASS
	Ant1	5500	19.040	5490.680	5509.720	---	PASS
	Ant2	5500	19.320	5490.320	5509.640	---	PASS
	Ant1	5580	21.840	5567.800	5589.640	---	PASS
	Ant2	5580	19.160	5570.360	5589.520	---	PASS
	Ant1	5700	19.640	5690.040	5709.680	---	PASS
	Ant2	5700	19.080	5690.280	5709.360	---	PASS
	Ant1	5720	19.440	5710.120	5729.560	---	PASS
	Ant2	5720	19.320	5710.240	5729.560	---	PASS
	Ant1	5720_UNII-2C	14.88	5710.120	5725	---	PASS
	Ant2	5720_UNII-2C	14.76	5710.240	5725	---	PASS
	Ant1	5720_UNII-3	4.56	5725	5729.560	---	PASS
	Ant2	5720_UNII-3	4.56	5725	5729.560	---	PASS
	Ant1	5745	19.760	5735.120	5754.880	---	PASS
	Ant2	5745	19.320	5735.200	5754.520	---	PASS
	Ant1	5785	19.280	5775.320	5794.600	---	PASS
	Ant2	5785	19.480	5775.200	5794.680	---	PASS
	Ant1	5825	19.320	5815.160	5834.480	---	PASS
	Ant2	5825	19.400	5815.480	5834.880	---	PASS
11N20MIMO	Ant1	5180	40.000	5160.000	5200.000	---	PASS
	Ant2	5180	19.760	5170.040	5189.800	---	PASS
	Ant1	5200	20.120	5189.880	5210.000	---	PASS
	Ant2	5200	19.800	5190.160	5209.960	---	PASS
	Ant1	5240	19.920	5230.120	5250.040	---	PASS
	Ant2	5240	20.360	5229.560	5249.920	---	PASS
	Ant1	5260	19.800	5250.160	5269.960	---	PASS
	Ant2	5260	20.280	5249.800	5270.080	---	PASS
	Ant1	5280	19.920	5270.040	5289.960	---	PASS
	Ant2	5280	19.960	5269.960	5289.920	---	PASS
	Ant1	5320	20.000	5310.000	5330.000	---	PASS
	Ant2	5320	20.120	5309.960	5330.080	---	PASS
	Ant1	5500	20.080	5490.120	5510.200	---	PASS
	Ant2	5500	19.680	5490.200	5509.880	---	PASS
	Ant1	5580	21.440	5568.440	5589.880	---	PASS
	Ant2	5580	19.640	5570.200	5589.840	---	PASS
	Ant1	5700	20.040	5690.080	5710.120	---	PASS
	Ant2	5700	19.560	5690.120	5709.680	---	PASS

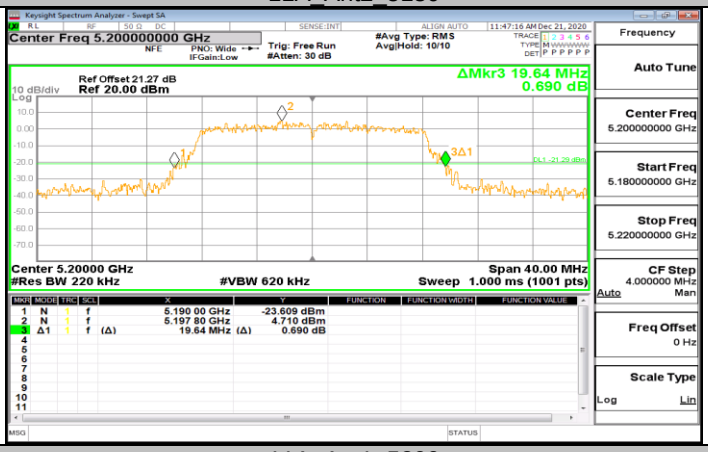
	Ant1	5720	20.120	5709.960	5730.080	---	PASS
	Ant2	5720	19.960	5710.240	5730.200	---	PASS
	Ant1	5720_UNII-2C	15.04	5709.960	5725	---	PASS
	Ant2	5720_UNII-2C	14.76	5710.240	5725	---	PASS
	Ant1	5720_UNII-3	5.08	5725	5730.080	---	PASS
	Ant2	5720_UNII-3	5.2	5725	5730.200	---	PASS
	Ant1	5745	19.800	5735.280	5755.080	---	PASS
	Ant2	5745	19.760	5735.160	5754.920	---	PASS
	Ant1	5785	19.840	5775.040	5794.880	---	PASS
	Ant2	5785	20.080	5775.200	5795.280	---	PASS
	Ant1	5825	20.080	5815.000	5835.080	---	PASS
	Ant2	5825	19.720	5815.040	5834.760	---	PASS
11N40MIMO	Ant1	5190	40.160	5170.000	5210.160	---	PASS
	Ant2	5190	40.480	5169.760	5210.240	---	PASS
	Ant1	5230	40.160	5210.000	5250.160	---	PASS
	Ant2	5230	39.920	5210.320	5250.240	---	PASS
	Ant1	5270	39.600	5250.480	5290.080	---	PASS
	Ant2	5270	39.520	5250.240	5289.760	---	PASS
	Ant1	5310	40.080	5290.080	5330.160	---	PASS
	Ant2	5310	40.000	5290.160	5330.160	---	PASS
	Ant1	5510	39.920	5489.920	5529.840	---	PASS
	Ant2	5510	39.600	5490.320	5529.920	---	PASS
	Ant1	5590	40.880	5569.680	5610.560	---	PASS
	Ant2	5590	39.360	5570.800	5610.160	---	PASS
	Ant1	5670	40.560	5649.760	5690.320	---	PASS
	Ant2	5670	39.680	5650.160	5689.840	---	PASS
	Ant1	5710	40.880	5690.000	5730.880	---	PASS
	Ant2	5710	39.760	5690.160	5729.920	---	PASS
	Ant1	5710_UNII-2C	35	5690.000	5725	---	PASS
	Ant2	5710_UNII-2C	34.84	5690.160	5725	---	PASS
	Ant1	5710_UNII-3	5.88	5725	5730.880	---	PASS
	Ant2	5710_UNII-3	4.92	5725	5729.920	---	PASS
	Ant1	5755	40.320	5734.600	5774.920	---	PASS
	Ant2	5755	40.400	5735.000	5775.400	---	PASS
	Ant1	5795	40.000	5774.760	5814.760	---	PASS
	Ant2	5795	39.840	5775.000	5814.840	---	PASS

Test Graphs

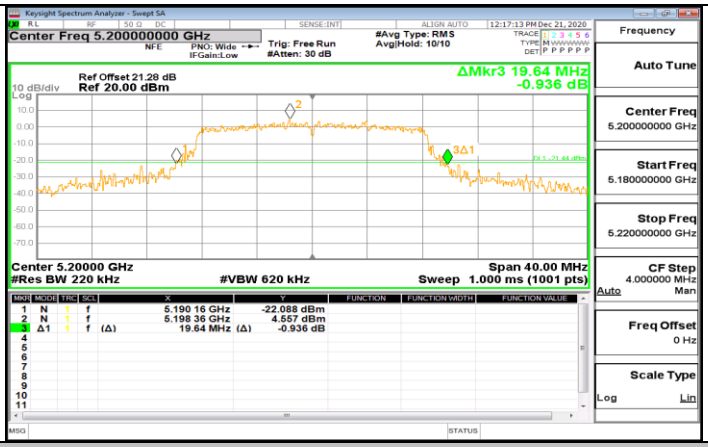
11A_Ant1_5180



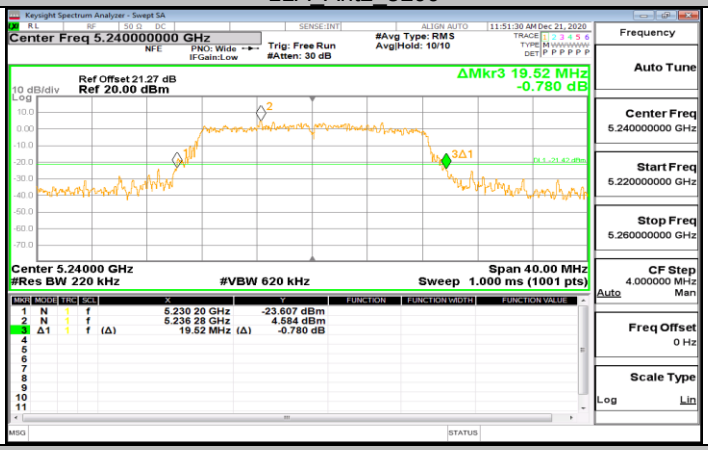
11A_Ant2_5180



11A_Ant1_5200

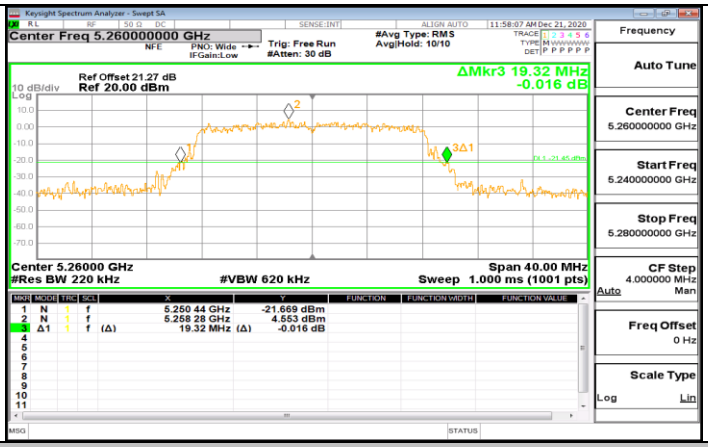


11A_Ant2_5200

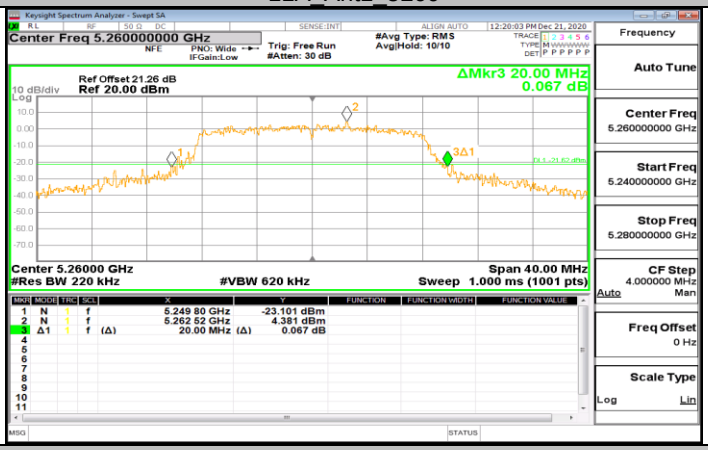


11A_Ant1_5240

11A_Ant2_5240

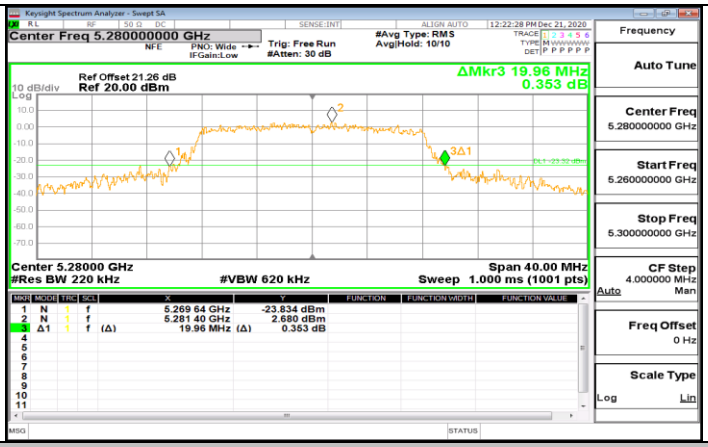


11A_Ant1_5260

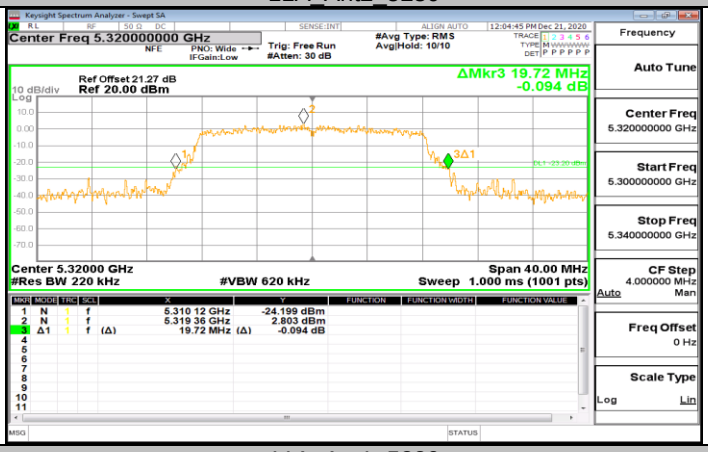


11A_Ant2_5260

11A_Ant1_5280

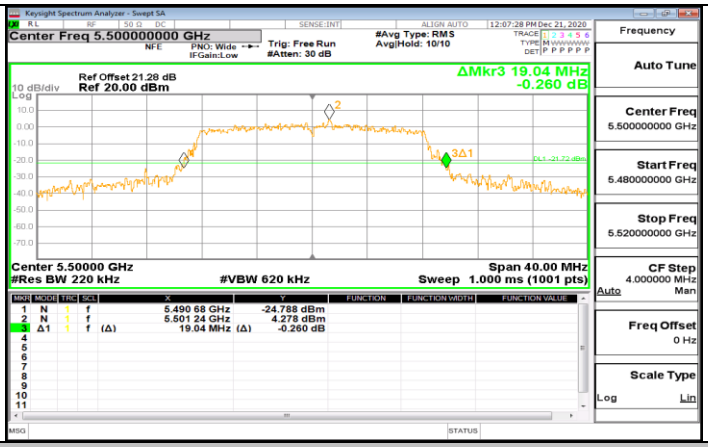


11A_Ant2_5280

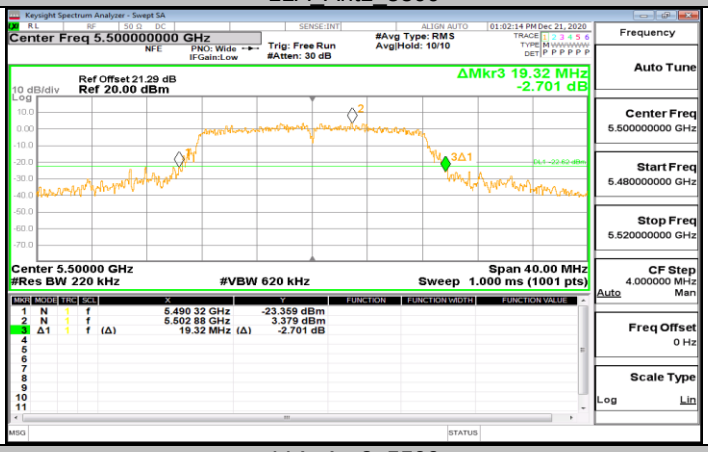


11A_Ant1_5320

11A_Ant2_5320

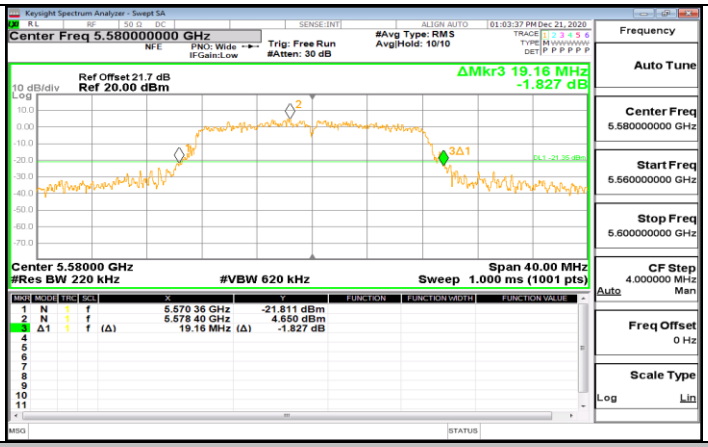


11A_Ant1_5500

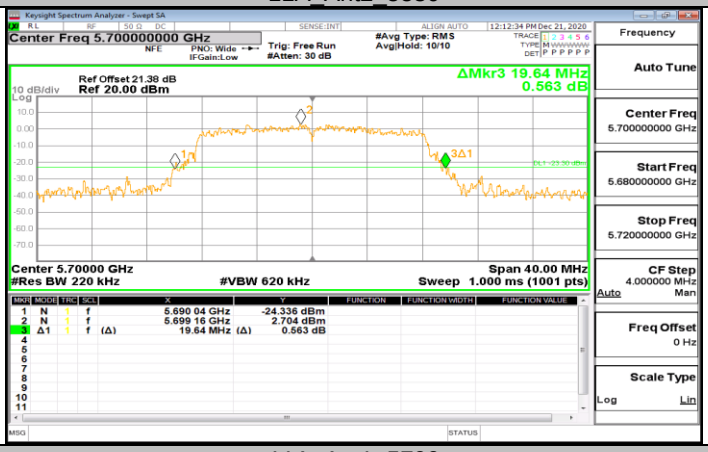


11A_Ant2_5500

11A_Ant1_5580



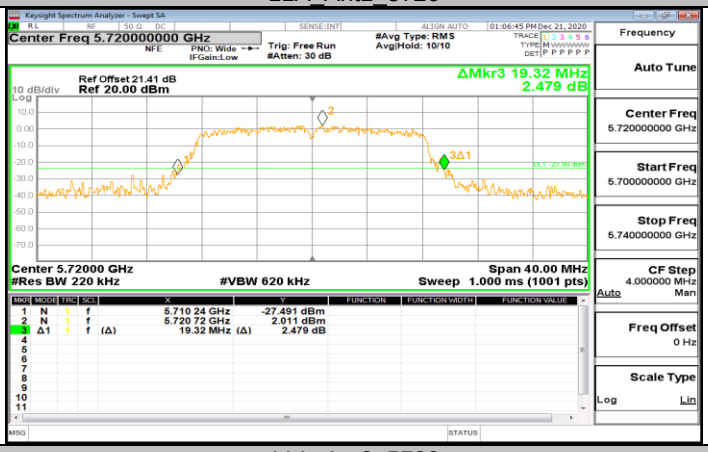
11A_Ant2_5580



11A_Ant1_5700

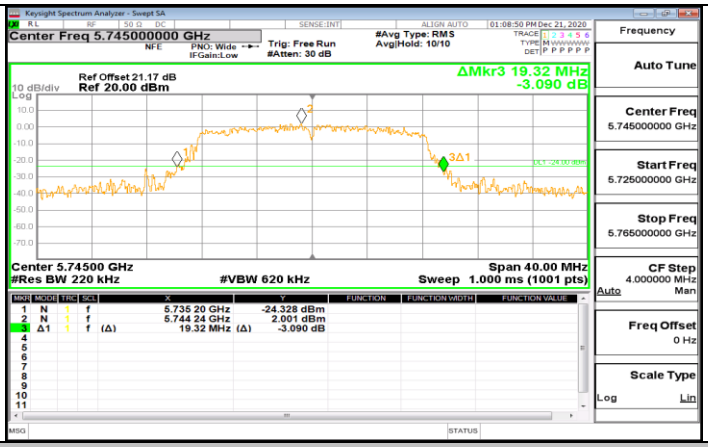
11A_Ant2_5700

11A_Ant1_5720

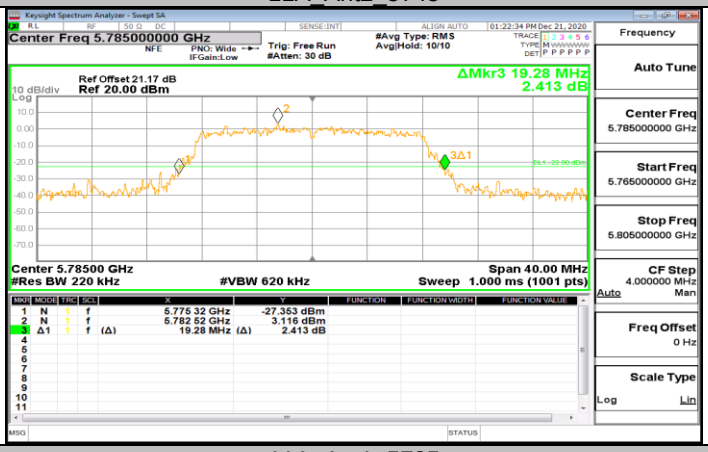


11A_Ant2_5720

11A_Ant1_5745

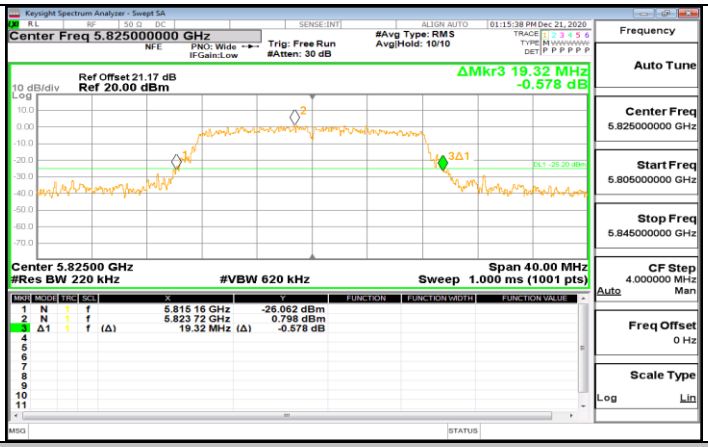


11A_Ant2_5745

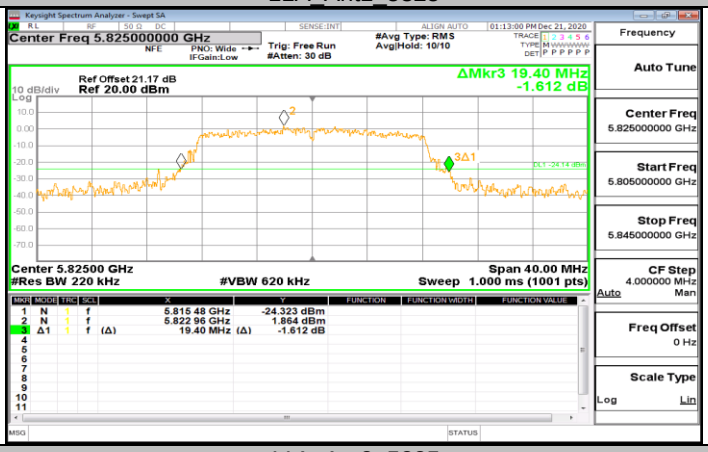


11A_Ant1_5785

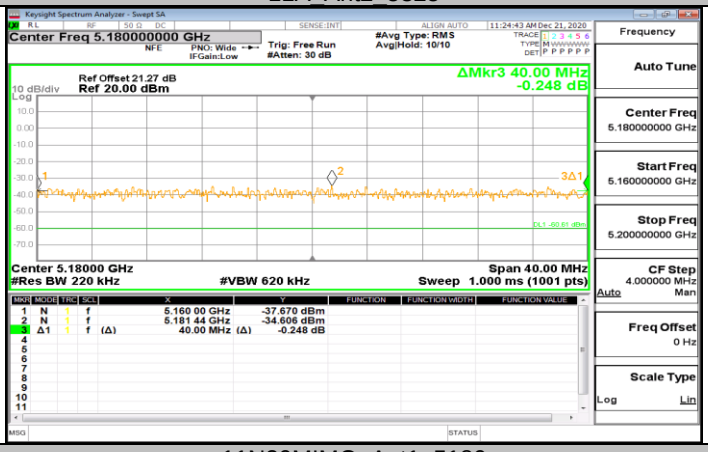
11A_Ant2_5785



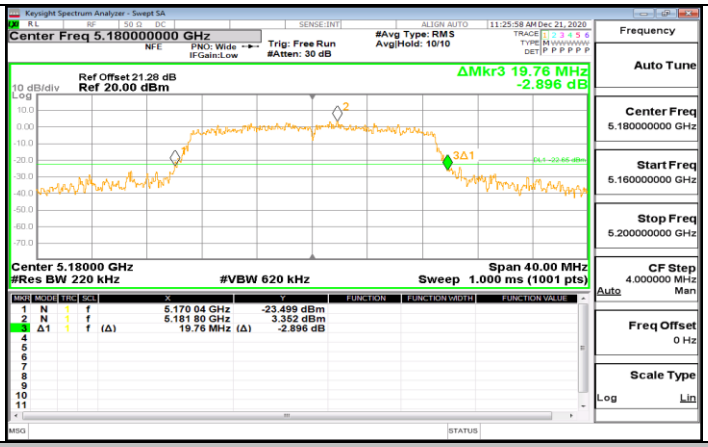
11A_Ant1_5825



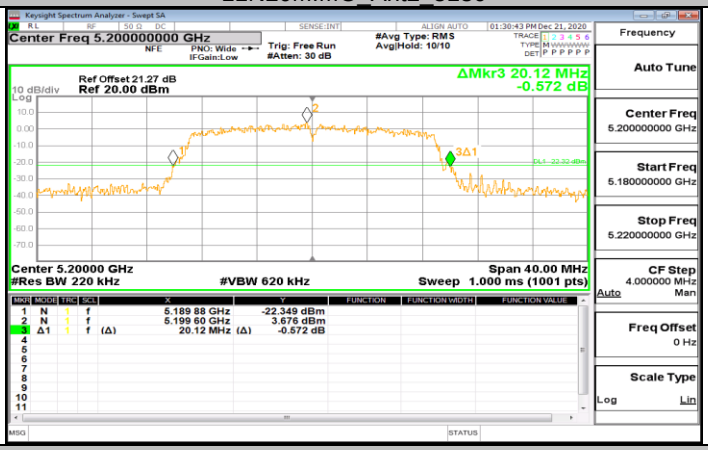
11A_Ant2_5825



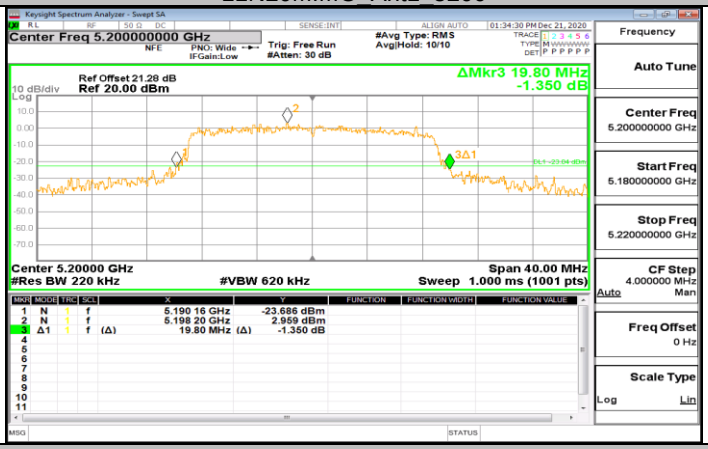
11N20MIMO_Ant1_5180



11N20MIMO_Ant2_5180

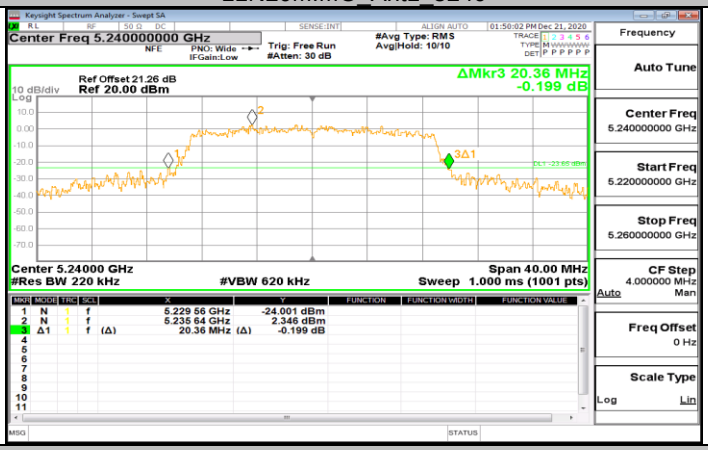


11N20MIMO_Ant1_5200

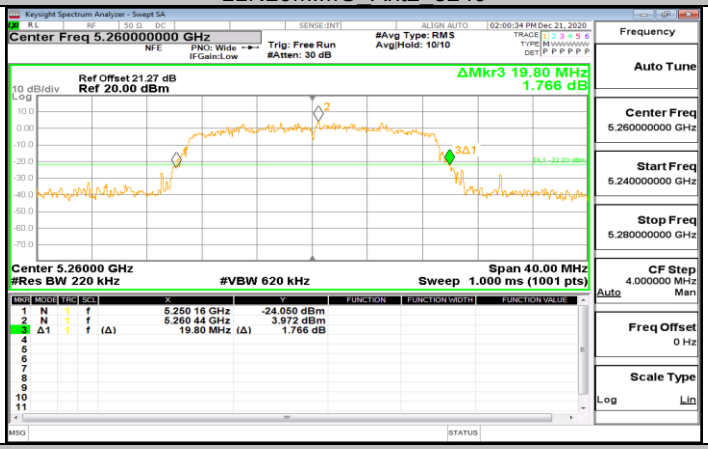


11N20MIMO_Ant2_5200

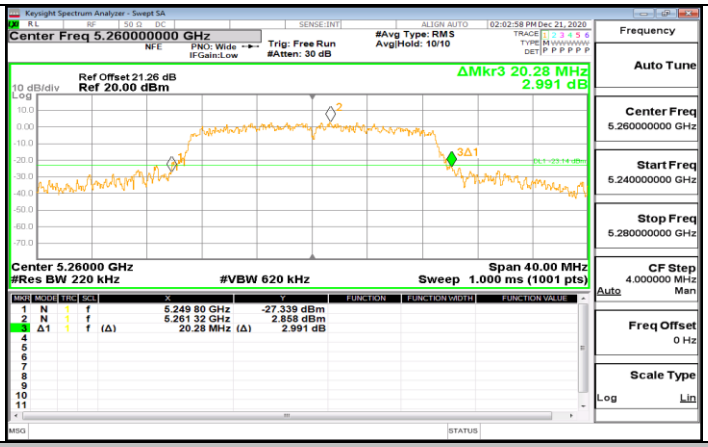
11N20MIMO_Ant1_5240



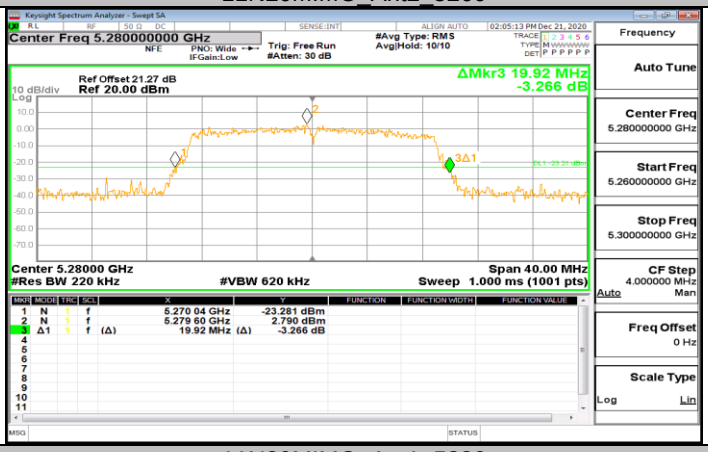
11N20MIMO_Ant2_5240



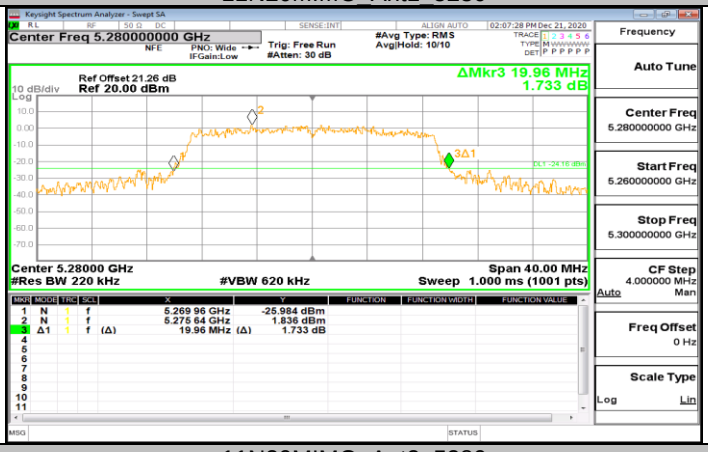
11N20MIMO_Ant1_5260



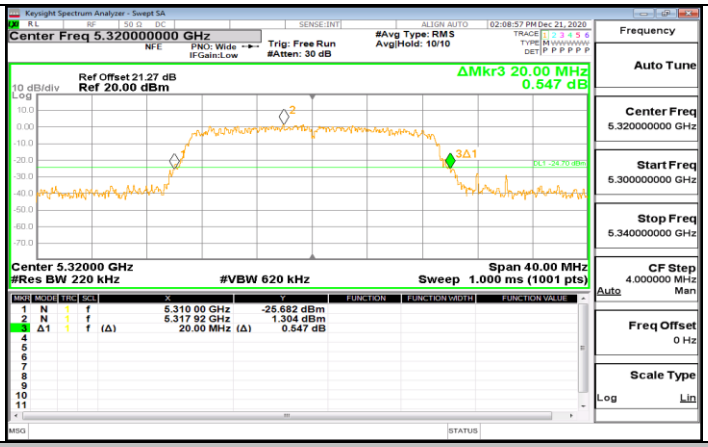
11N20MIMO_Ant2_5260



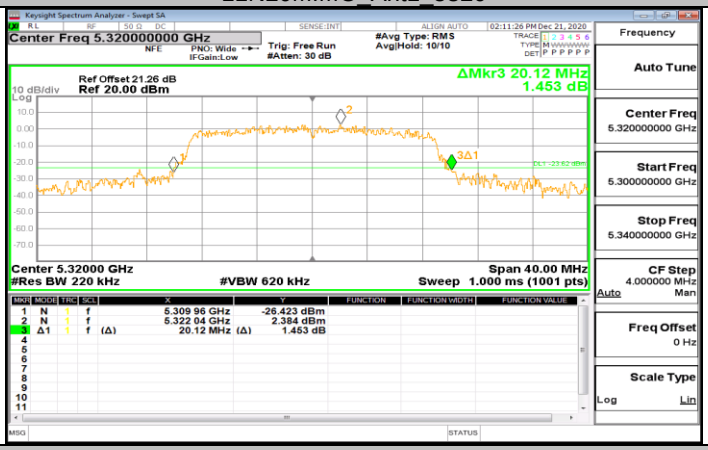
11N20MIMO_Ant1_5280



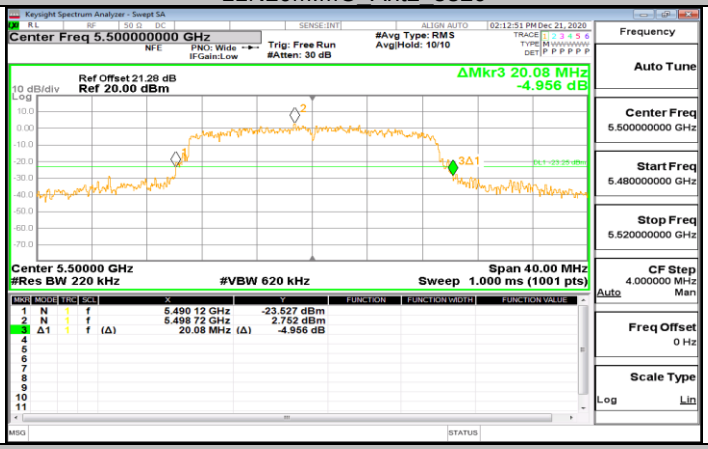
11N20MIMO_Ant2_5280



11N20MIMO_Ant1_5320

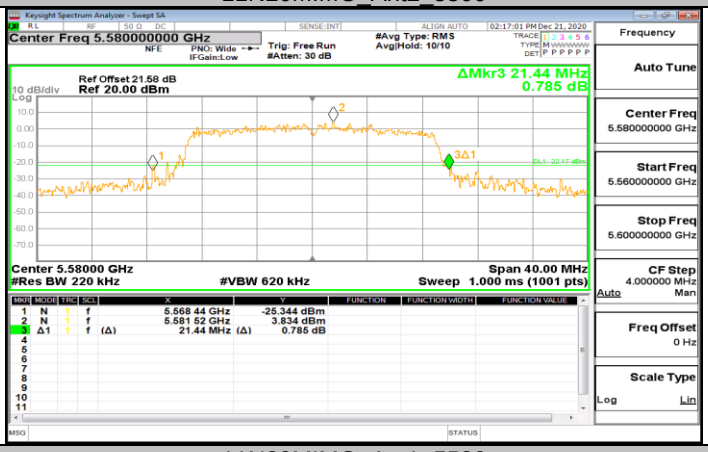


11N20MIMO_Ant2_5320



11N20MIMO_Ant1_5500

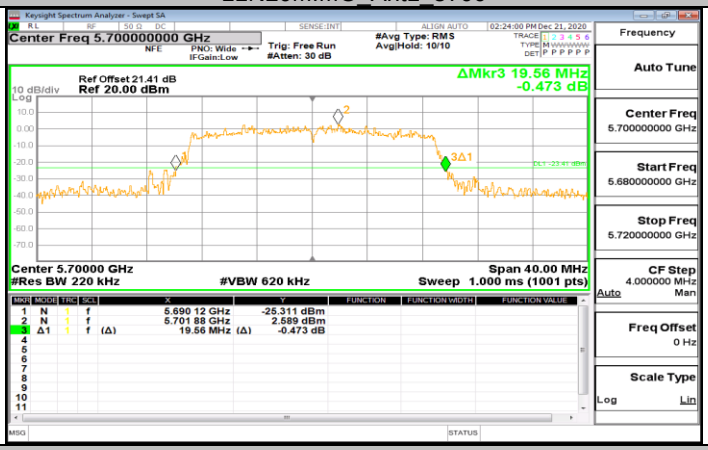
11N20MIMO_Ant2_5500



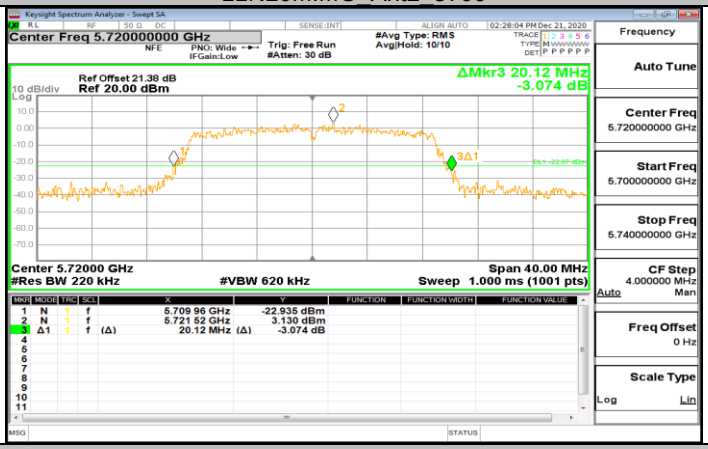
11N20MIMO_Ant1_5580

11N20MIMO_Ant2_5580

11N20MIMO_Ant1_5700

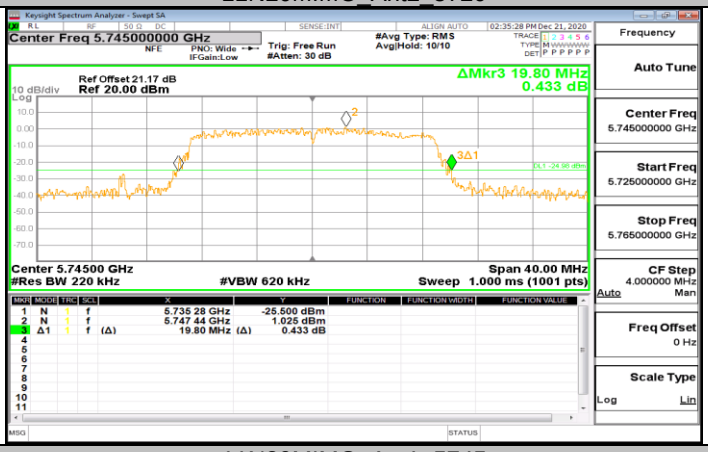


11N20MIMO_Ant2_5700



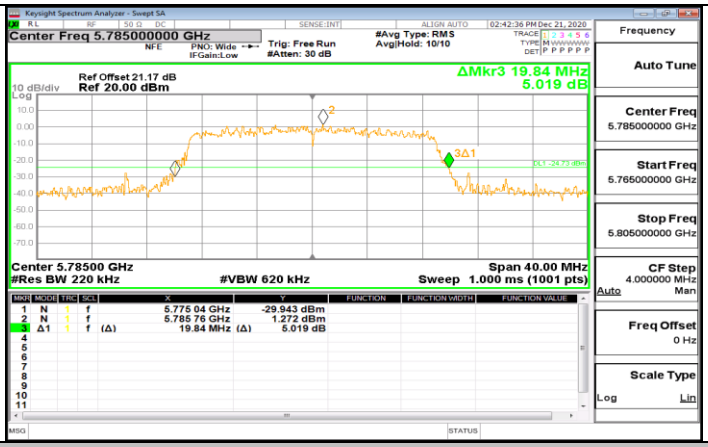
11N20MIMO_Ant1_5720

11N20MIMO_Ant2_5720

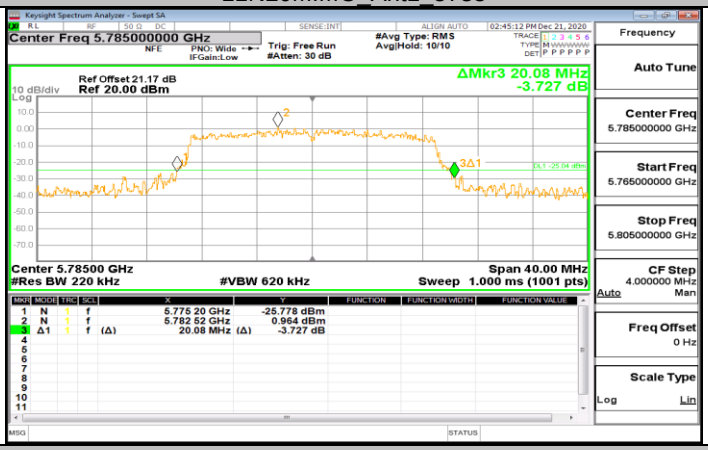


11N20MIMO_Ant1_5745

11N20MIMO_Ant2_5745



11N20MIMO_Ant1_5785



11N20MIMO_Ant2_5785

11N20MIMO_Ant1_5825