O								
11AX160MIMO	Ant4	6825	NV	25	0.00	0.000000	20	PASS
11AX160MIMO	Ant4	6825	NV	30	0.00	0.000000	20	PASS
11AX160MIMO	Ant4	6825	NV	40	0.00	0.000000	20	PASS
11AX160MIMO	Ant4	6825	NV	45	0.00	0.000000	20	PASS
11AX160MIMO	Ant1	6985	NV	0	0.00	0.000000	20	PASS
11AX160MIMO	Ant1	6985	NV	5	0.00	0.000000	20	PASS
11AX160MIMO	Ant1	6985	NV	10	0.00	0.000000	20	PASS
11AX160MIMO	Ant1	6985	NV	15	0.00	0.000000	20	PASS
11AX160MIMO	Ant1	6985	NV	20	0.00	0.000000	20	PASS
11AX160MIMO	Ant1	6985	NV	25	0.00	0.000000	20	PASS
11AX160MIMO	Ant1	6985	NV	30	0.00	0.000000	20	PASS
11AX160MIMO	Ant1	6985	NV	40	0.00	0.000000	20	PASS
11AX160MIMO	Ant1	6985	NV	45	0.00	0.000000	20	PASS
11AX160MIMO	Ant2	6985	NV	0	0.00	0.000000	20	PASS
11AX160MIMO	Ant2	6985	NV	5	0.00	0.000000	20	PASS
11AX160MIMO	Ant2	6985	NV	10	0.00	0.000000	20	PASS
11AX160MIMO	Ant2	6985	NV	15	0.00	0.000000	20	PASS
11AX160MIMO	Ant2	6985	NV	20	0.00	0.000000	20	PASS
11AX160MIMO	Ant2	6985	NV	25	0.00	0.000000	20	PASS
11AX160MIMO	Ant2	6985	NV	30	0.00	0.000000	20	PASS
11AX160MIMO	Ant2	6985	NV	40	0.00	0.000000	20	PASS
11AX160MIM	Ant2	6985	NV	45	0.00	0.000000	20	PASS

O								
11AX160MIMO	Ant3	6985	NV	0	0.00	0.000000	20	PASS
11AX160MIMO	Ant3	6985	NV	5	0.00	0.000000	20	PASS
11AX160MIMO	Ant3	6985	NV	10	0.00	0.000000	20	PASS
11AX160MIMO	Ant3	6985	NV	15	0.00	0.000000	20	PASS
11AX160MIMO	Ant3	6985	NV	20	0.00	0.000000	20	PASS
11AX160MIMO	Ant3	6985	NV	25	0.00	0.000000	20	PASS
11AX160MIMO	Ant3	6985	NV	30	0.00	0.000000	20	PASS
11AX160MIMO	Ant3	6985	NV	40	0.00	0.000000	20	PASS
11AX160MIMO	Ant3	6985	NV	45	0.00	0.000000	20	PASS
11AX160MIMO	Ant4	6985	NV	0	0.00	0.000000	20	PASS
11AX160MIMO	Ant4	6985	NV	5	0.00	0.000000	20	PASS
11AX160MIMO	Ant4	6985	NV	10	0.00	0.000000	20	PASS
11AX160MIMO	Ant4	6985	NV	15	0.00	0.000000	20	PASS
11AX160MIMO	Ant4	6985	NV	20	0.00	0.000000	20	PASS
11AX160MIMO	Ant4	6985	NV	25	0.00	0.000000	20	PASS
11AX160MIMO	Ant4	6985	NV	30	0.00	0.000000	20	PASS
11AX160MIMO	Ant4	6985	NV	40	0.00	0.000000	20	PASS
11AX160MIMO	Ant4	6985	NV	45	0.00	0.000000	20	PASS

3.6 Contention Based Protocol Measurement

3.6.1 Test Limit

Unlicensed indoor low power device must detect co-channel radio frequency power that is at least -62dBm (The threshold is referenced to a 0dBi antenna gain.) or low.

Indoor low power device must detect an AWGN signal with 90% (or better) level of certainty.

3.6.2 Test Procedure

Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

Test was performed in accordance with method of KDB 987594 D02v01- Section I

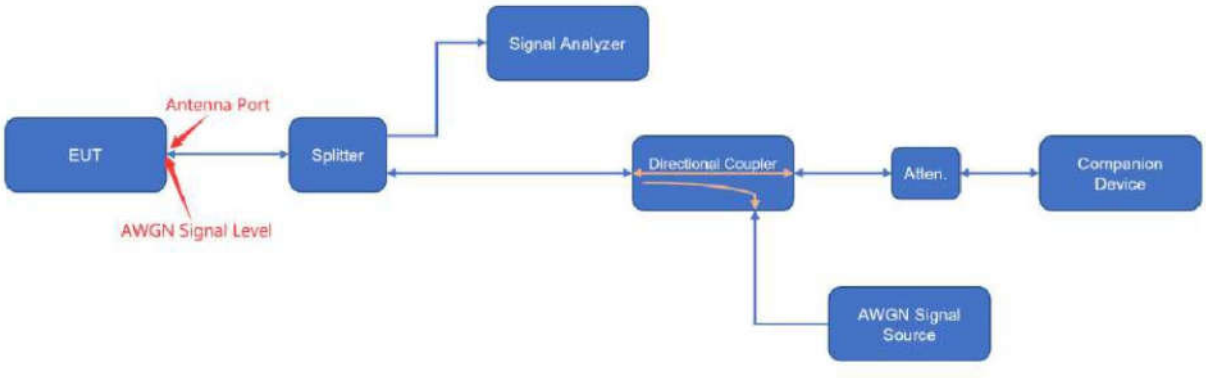
3.6.3 Test Setting

1. Configure the EUT to transmit with a constant duty cycle.
2. Set the operating parameters of the EUT including power level, operating frequency, modulation and bandwidth.
3. Set the signal analyzer center frequency to the nominal EUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of the EUT.

Connect the output port of the EUT to the signal analyzer 2. Ensure that the attenuator 2 provides enough attenuation to not overload the signal analyzer 2 receiver.

4. Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the parameters set at step two.
5. Using an AWGN signal source, generate a 10 MHz-wide AWGN signal. Use Table 1 of KDB 987594 to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.
6. Set the AWGN signal power to an extremely low level. Connect the AWGN signal source, via a 3-dB splitter, to the signal analyzer 1 and the EUT as shown in below figure.
7. Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.
8. Monitor the signal analyzer 2 to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
9. Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.
10. Refer to Table 1 to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step 5, choose a different center frequency for the AWGN signal and repeat the process.

3.6.4 Test Setup



3.6.5 Test Result

Test Channel	Bandwidth (MHz)	Freq. (MHz)	Interference Freq.(MHz)	Incumbent Signal Level (Refer to 0dBi Antenna) (dBm)	Antenna Gain (dBi)	AWGN Signal Level (at Antenna Port) (dBm)	Detected Number	Detection Probability (%)	Limit (%)	Test Result
Operation Band: U-NII 5										
37	20	6135	6135	-75.41	6.55	-68.86	10	100	90	Pass
39	160	6185	6110	-74.37	6.55	-67.82	10	100	90	Pass
39	160	6185	6185	-73.71	6.55	-67.16	10	100	90	Pass
39	160	6185	6260	-72.99	6.55	-66.44	10	100	90	Pass
Operation Band: U-NII 6										
101	20	6455	6455	-77.87	6.55	-71.32	10	100	90	Pass
103	80	6465	6430	-74.63	6.55	-68.08	10	100	90	Pass
103	80	6465	6465	-74.42	6.55	-67.87	10	100	90	Pass
103	80	6465	6500	-74.45	6.55	-67.90	10	100	90	Pass
Operation Band: U-NII 7										
149	20	6695	6695	-76.13	6.55	-69.58	10	100	90	Pass
151	160	6665	6590	-74.39	6.55	-67.84	10	100	90	Pass
151	160	6665	6665	-74.42	6.55	-67.87	10	100	90	Pass
151	160	6665	6740	-75.99	6.55	-69.44	10	100	90	Pass
Operation Band: U-NII 8										
213	20	7015	7015	-74.13	6.55	-67.58	10	100	90	Pass
215	160	6985	6910	-75.79	6.55	-69.24	10	100	90	Pass
215	160	6985	6985	-75.19	6.55	-68.64	10	100	90	Pass
215	160	6985	7060	-75.22	6.55	-68.67	10	100	90	Pass

Note 1: Incumbent Signal Level = AWGN Signal Level (at Antenna port) – Antenna Gain, it's equivalent to incumbent signal level with reference to a 0dBi antenna gain, and this power level is less than or equal to the detection threshold (-62 dBm).

Note 2: AWGN Signal Level at antenna port is the actual injected level at antenna port

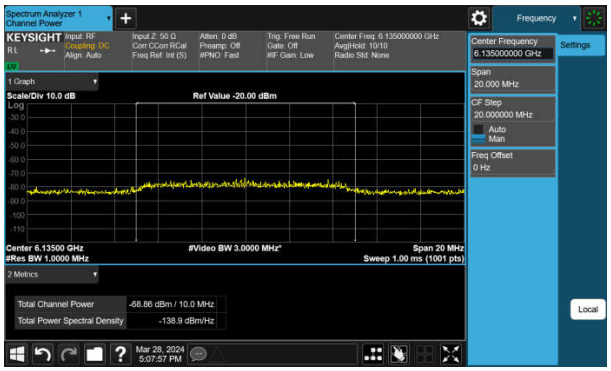
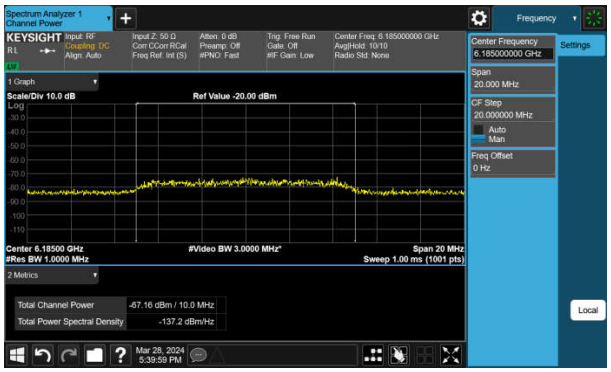
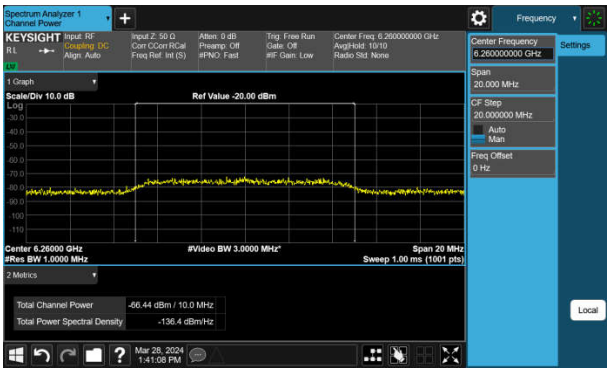
Note 3: Unequal antenna gains, with equal transmit powers. For antenna gains given by G_1, G_2, …, G_N dBi

If transmit signals are correlated, then Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}$] dBi

Directional gain =6.55dBi

Test Channel	Bandwidth (MHz)	Freq. (MHz)	Interference Freq. (MHz)	AWGN Signal Level (at Antenna Port) (dBm)	EUT Status
Operation Band: U-NII 5					
37	20	6135	6135	-68.86	Stop transmission
				-70.78	Stop but with Beacon signal
39	160	6185	6110	-67.82	Stop transmission
				-69.49	Stop but with Beacon signal
39	160	6185	6185	-67.16	Stop transmission
				-69.53	Stop but with Beacon signal
39	160	6185	6260	-66.44	Stop transmission
				-68.61	Stop but with Beacon signal
Operation Band: U-NII 6					
101	20	6455	6455	-71.32	Stop transmission
				-73.46	Stop but with Beacon signal
103	80	6465	6430	-68.08	Stop transmission
				-70.24	Stop but with Beacon signal
103	80	6465	6465	-67.87	Stop transmission
				-69.79	Stop but with Beacon signal
103	80	6465	6500	-67.90	Stop transmission
				-69.85	Stop but with Beacon signal
Operation Band: U-NII 7					
149	20	6695	6695	-69.58	Stop transmission
				-71.63	Stop but with Beacon signal
151	160	6665	6590	-67.84	Stop transmission
				-69.76	Stop but with Beacon signal
151	160	6665	6665	-67.87	Stop transmission
				-69.82	Stop but with Beacon signal
151	160	6665	6740	-69.44	Stop transmission
				-71.50	Stop but with Beacon signal

Operation Band: U-NII 8					
213	20	7015	7015	-67.58	Stop transmission
				-69.43	Stop but with Beacon signal
215	160	6985	6910	-69.24	Stop transmission
				-71.43	Stop but with Beacon signal
215	160	6985	6985	-68.64	Stop transmission
				-70.58	Stop but with Beacon signal
215	160	6985	7060	-68.67	Stop transmission
				-70.22	Stop but with Beacon signal

AWGN Signal Level (at Antenna Port) Calibration Plots (NII-5 Band)	
802.11ax-HE20 / CH37	802.11ax-HE160 / CH47 (Low Edge)
	
802.11ax-HE160 / CH47 (Middle)	802.11ax-HE160 / CH47 (High Edge)
	

AWGN Signal Level (at Antenna Port) Calibration Plots (NII-6 Band)	
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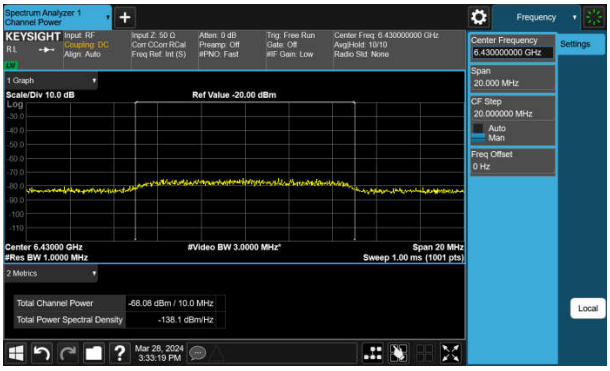
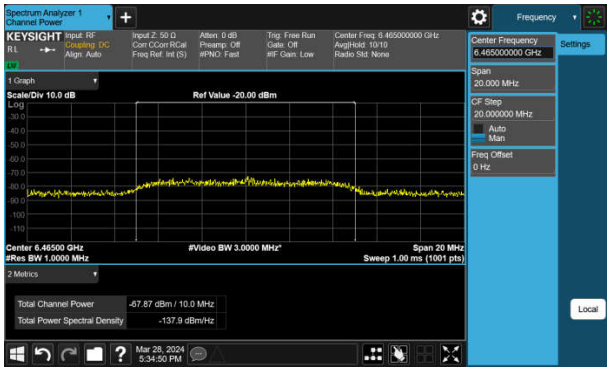
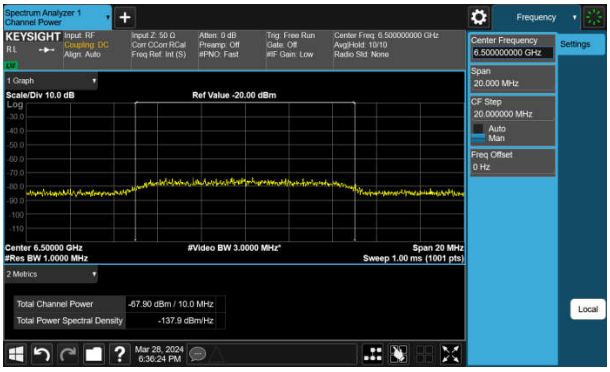
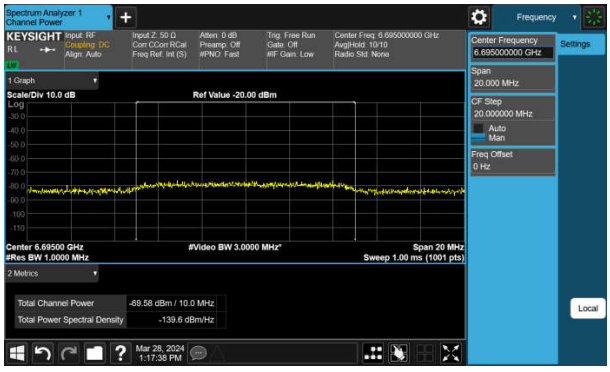
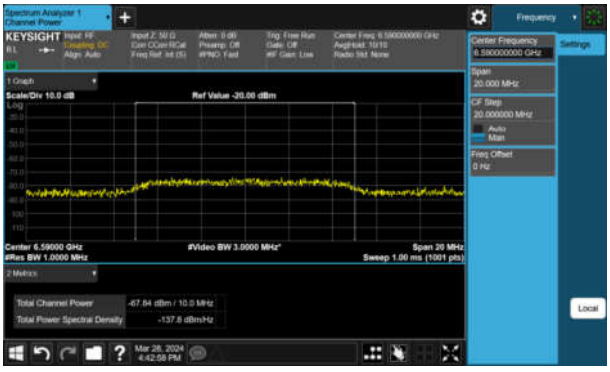
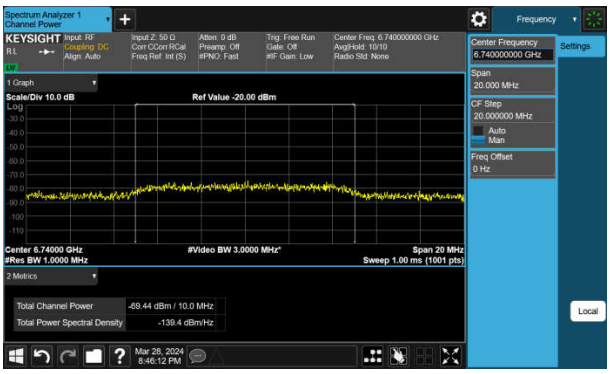
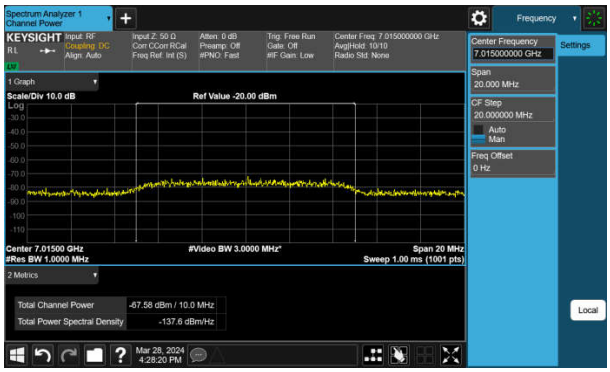
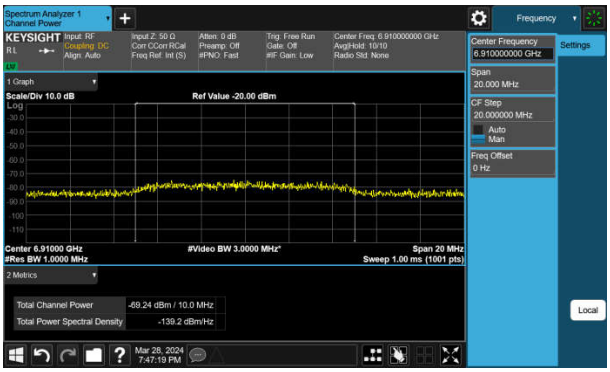
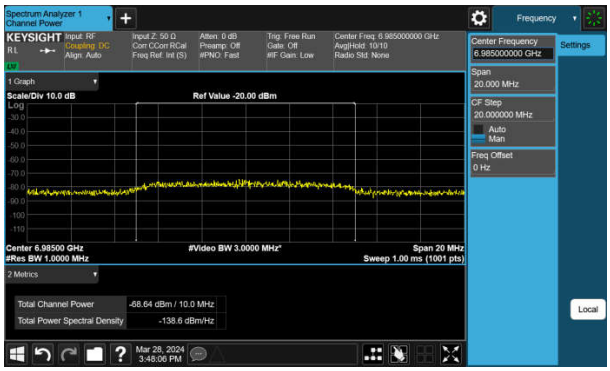
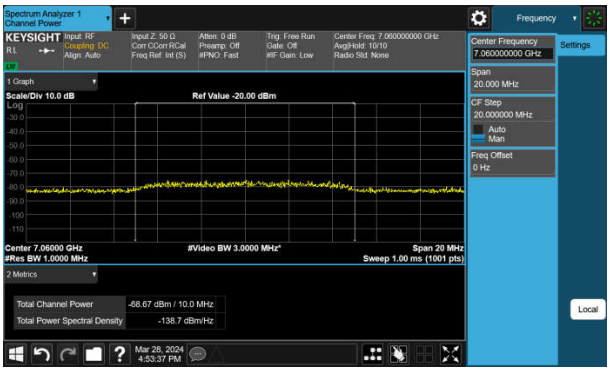
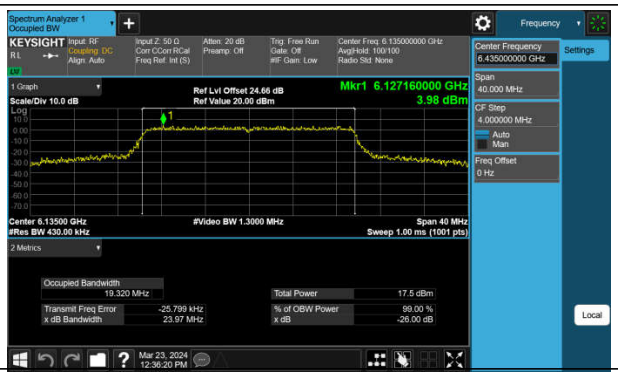
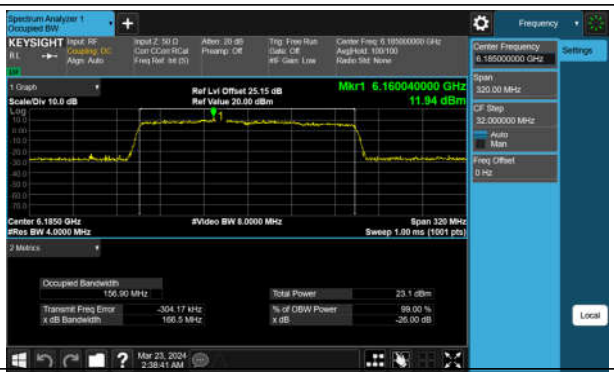
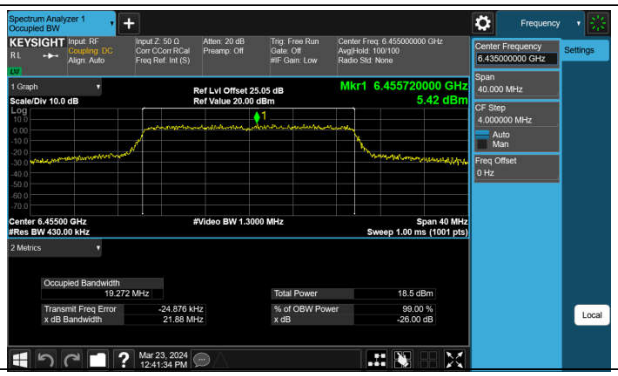
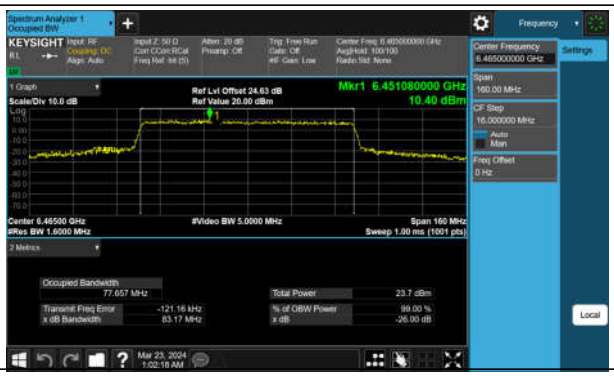
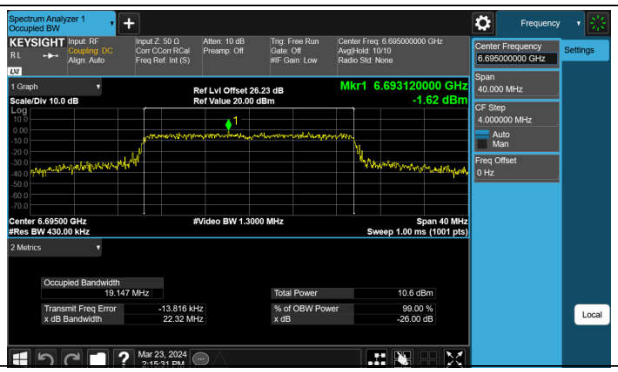
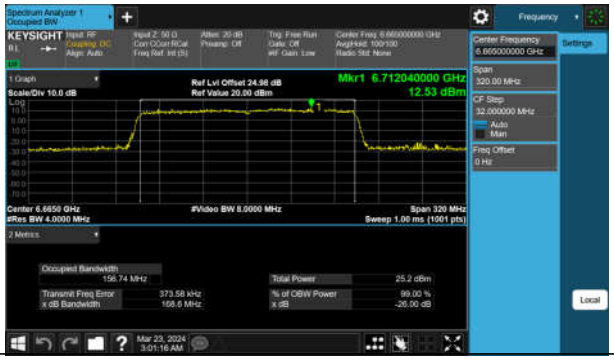
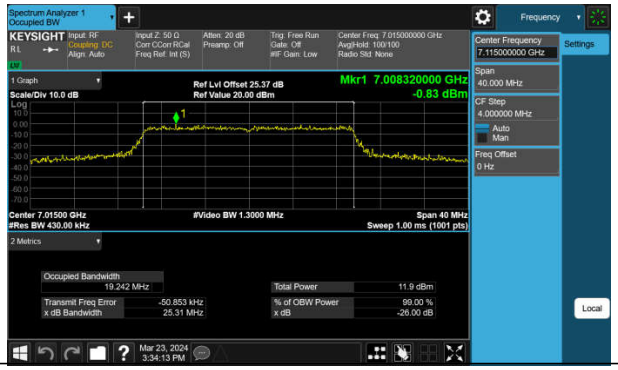
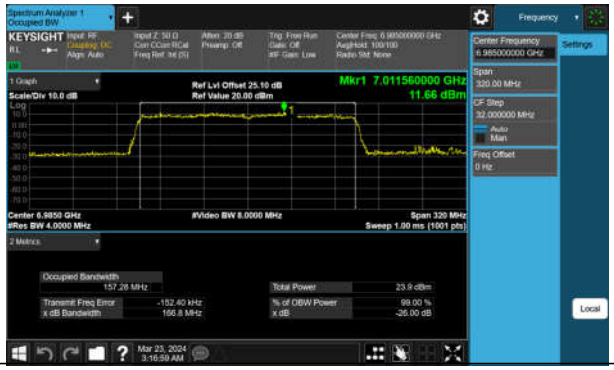
	
802.11ax-HE80 / CH103 (Middle)	802.11ax-HE80 / CH103 (High Edge)
	

AWGN Signal Level (at Antenna Port) Calibration Plots (NII-7 Band)	
802.11ax-HE20 / CH149	802.11ax-HE160 / CH143 (Low Edge)
	

802.11ax-HE160 / CH143 (Middle)	802.11ax-HE160 / CH143 (High Edge)
	

AWGN Signal Level (at Antenna Port) Calibration Plots (NII-8 Band)	
802.11ax-HE20 / CH213	802.11ax-HE160 / CH207 (Low Edge)
	
802.11ax-HE160 / CH207 (Middle)	802.11ax-HE160 / CH207 (High Edge)
	

EUT TX stop	
802.11ax-HE20 / CH37	802.11ax-HE160 / CH47
	
802.11ax-HE20 / CH101	802.11ax-HE80 / CH103
	
802.11ax-HE20 / CH149	802.11ax-HE160 / CH143
	
802.11ax-HE20 / CH213	802.11ax-HE160 / CH207
	

EUT TX Waveform	
802.11ax-HE20 / CH37	802.11ax-HE160 / CH47
	
802.11ax-HE20 / CH101	802.11ax-HE80 / CH103
	
802.11ax-HE20 / CH149	802.11ax-HE160 / CH143
	
802.11ax-HE20 / CH213	802.11ax-HE160 / CH207
	

3.7 Radiated Spurious Emission Measurement

3.7.1 Test Limit

For 15.407(b)(6) requirement

For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of -27 dBm/MHz.

Refer to 987594 D02 U-NII 6GHz EMC Measurement v01 clause G

Use guidance in KDB 789033 for measurements below 1000 MHz and above 1000 MHz. Unwanted emissions outside of restricted bands are measured with a RMS detector. In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

3.7.2 Test Procedure

Test Method	
○Conducted Measurement	●Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

3.7.3 Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000MHz	1MHz

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

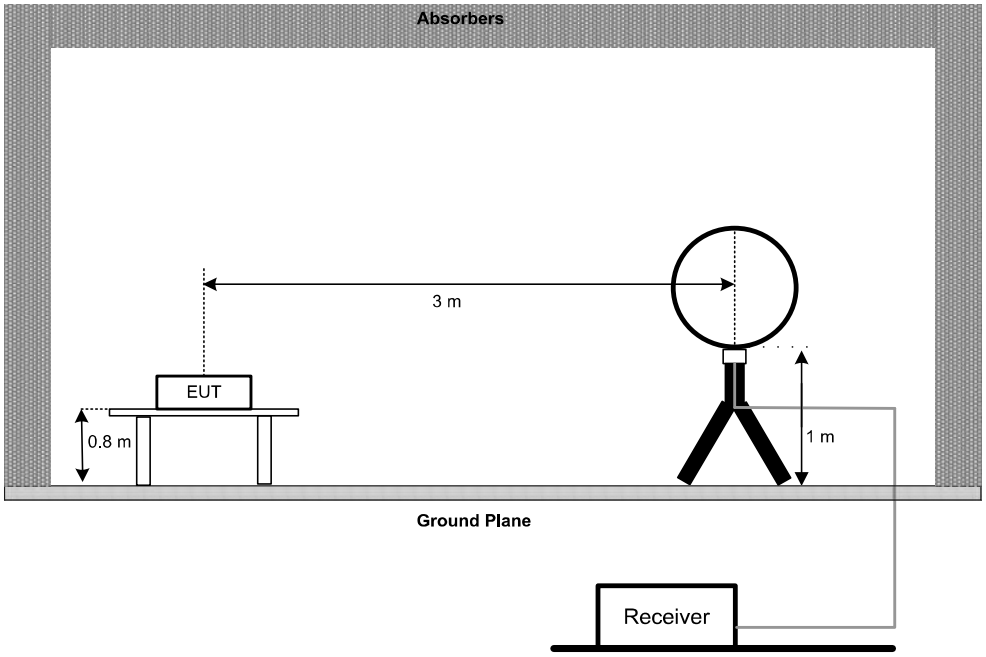
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10 Hz.

If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.

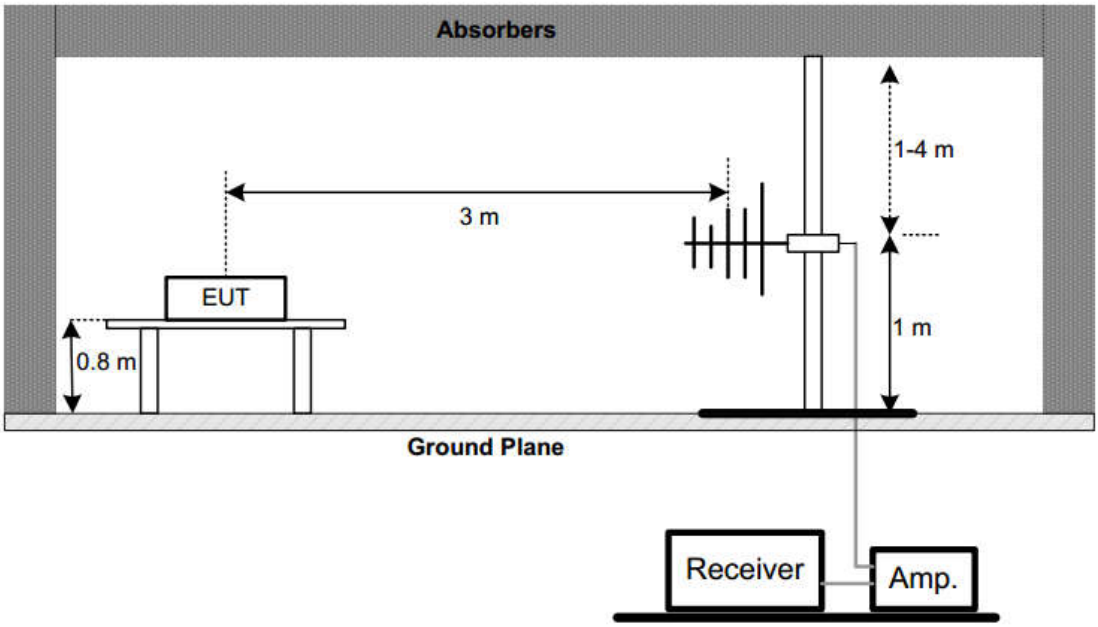
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

3.7.4 Test Setup

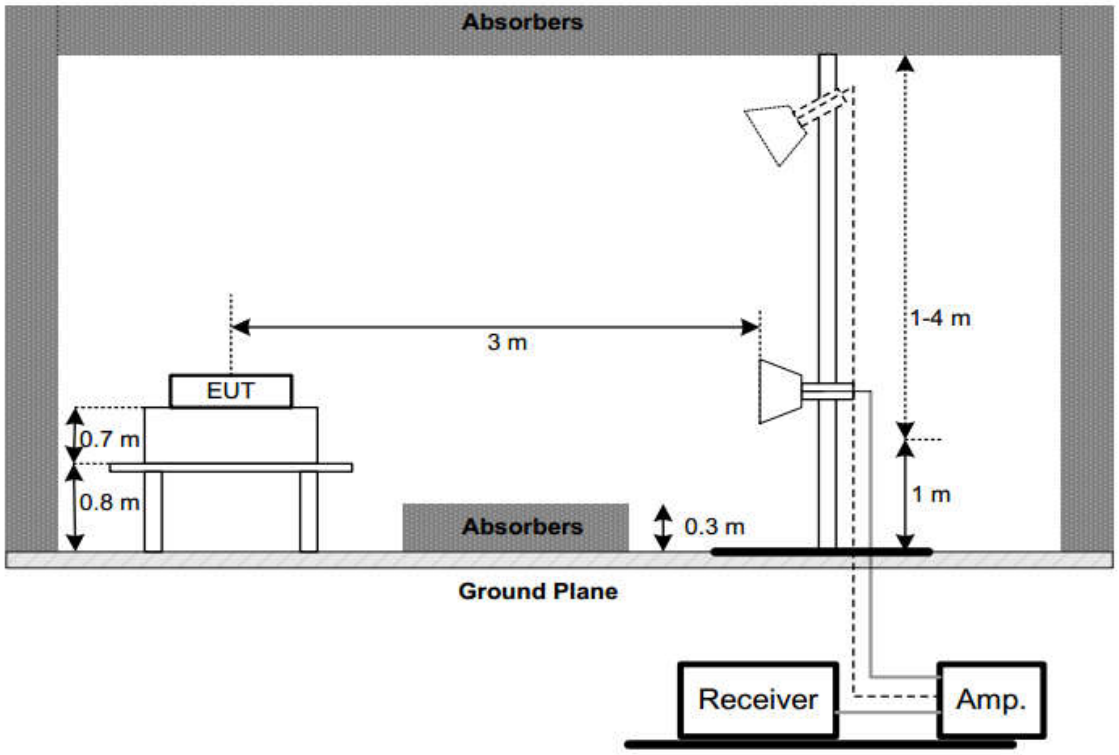
(A) Radiated Emission Test Set-Up Frequency Below 30 MHz



(B) Radiated Emission Test Set-Up Frequency 30 MHz-1000 MHz



(C) Radiated Emission Test Set-Up Frequency Above 1 GHz



3.7.5 Test Result

1) Radiated emission: 9kHz-30MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not recorded in this report.

2) Radiated emission: 30MHz-1G

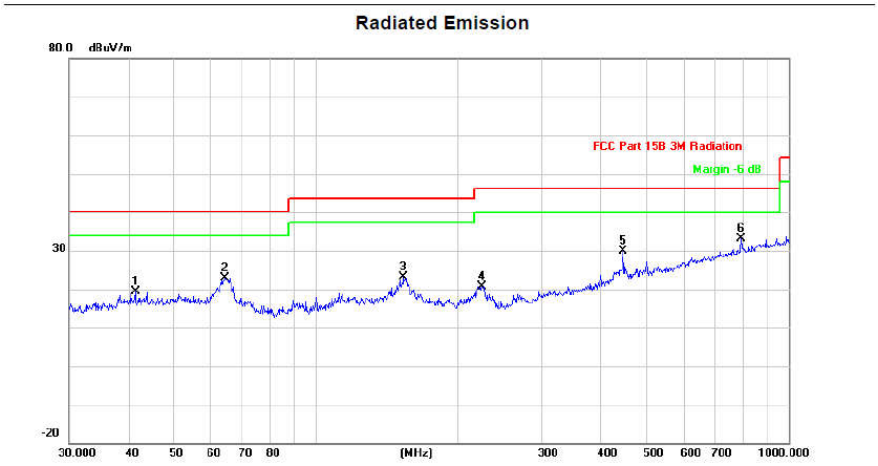
Note:

1. Measurement = Reading + Correct Factor.
2. Over = Measurement – Limit

We only recorded the data of the worst mode. Please see the following:

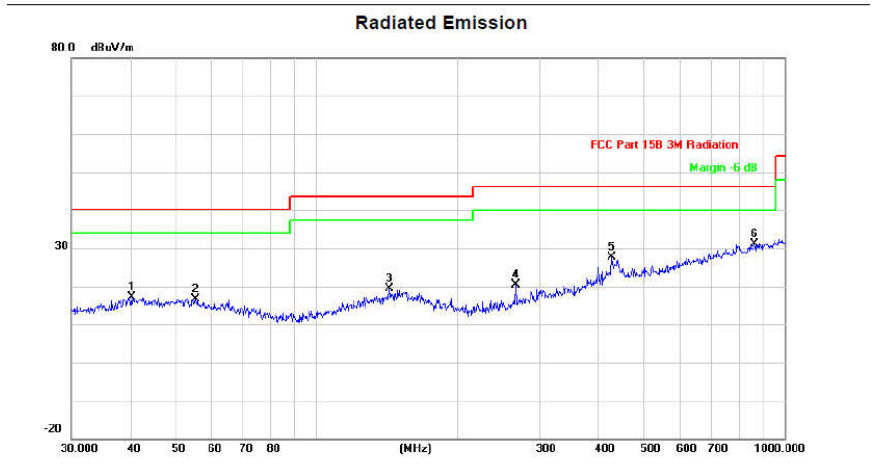
Below 1G (30MHz~1GHz)	Worst Case Operating Mode: AX160MIMO Channel 207

VERTICAL



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		41.4215	28.83	-9.56	19.27	40.00	-20.73	peak			
2		64.2074	33.95	-11.09	22.86	40.00	-17.14	peak			
3		153.2003	31.25	-8.23	23.02	43.50	-20.48	peak			
4		224.5192	32.67	-11.92	20.75	46.00	-25.25	peak			
5		446.4140	34.31	-4.47	29.84	46.00	-16.16	peak			
6	*	793.3960	31.33	1.83	33.16	46.00	-12.84	peak			

HORIZONTAL



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		40.2757	26.94	-9.72	17.22	40.00	-22.78	peak			
2		55.2207	26.45	-9.85	16.60	40.00	-23.40	peak			
3		143.3261	27.66	-8.40	19.26	43.50	-24.24	peak			
4		266.6090	30.67	-10.31	20.36	46.00	-25.64	peak			
5		428.0193	32.95	-5.20	27.75	46.00	-18.25	peak			
6	*	863.0562	28.17	2.86	31.03	46.00	-14.97	peak			

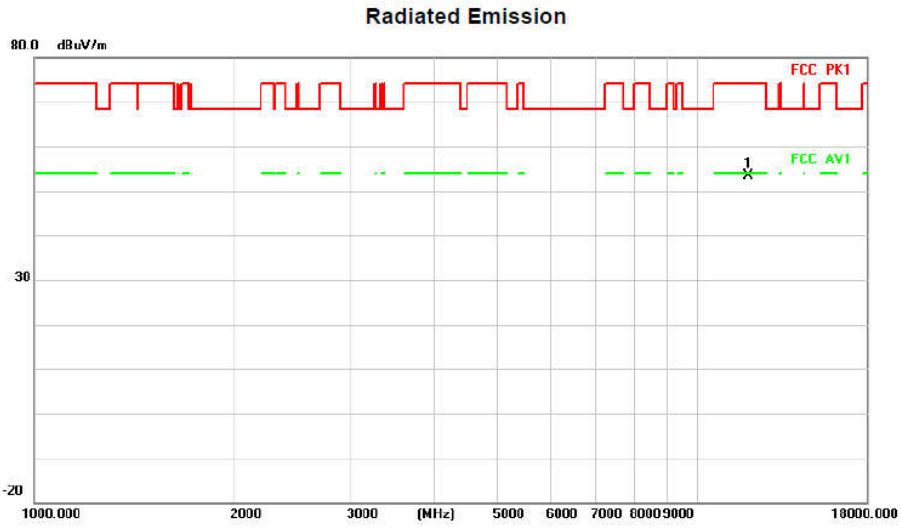
3) Radiated emission: Above 1G

Note:

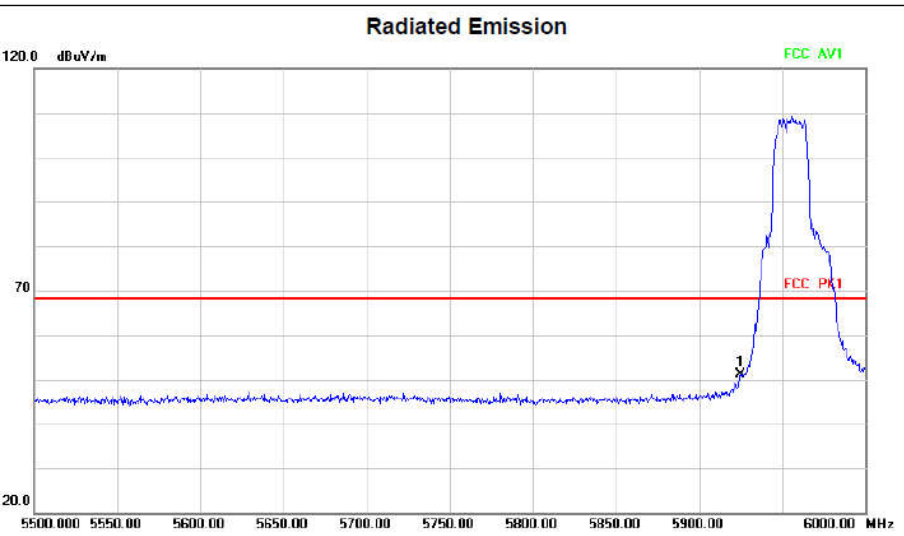
1. Measurement = Reading + Correct Factor.
2. Over = Measurement – Limit

Above 1G (1GHz~18GHz)	Test mode:11AX20MIMO	Test Channel:1

VERTICAL

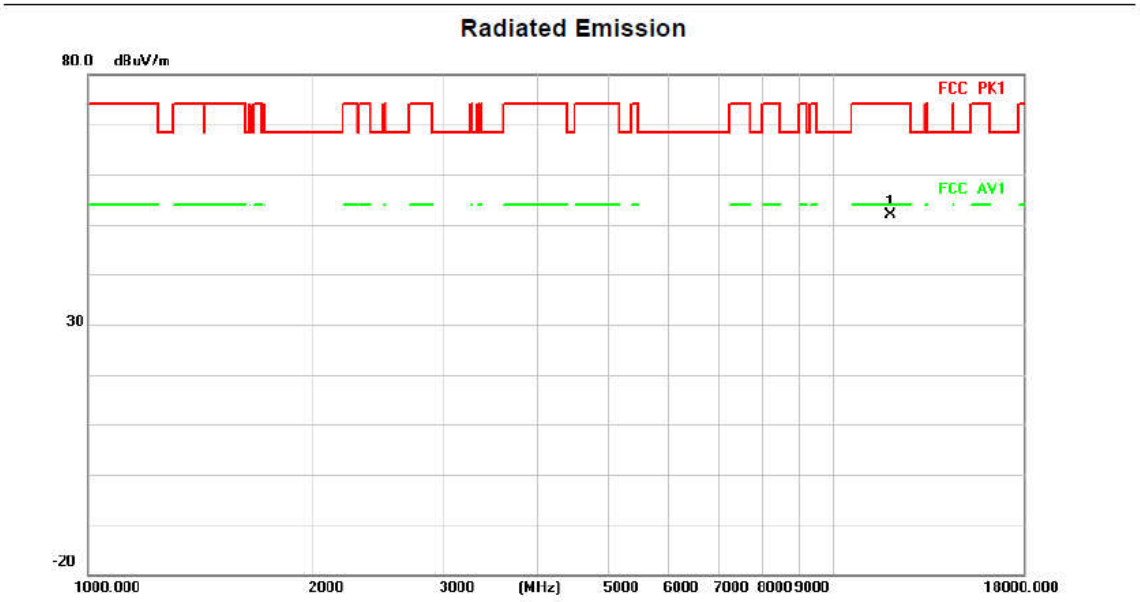


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	11910.000	4.70	48.61	53.31	74.00	-20.69	peak			

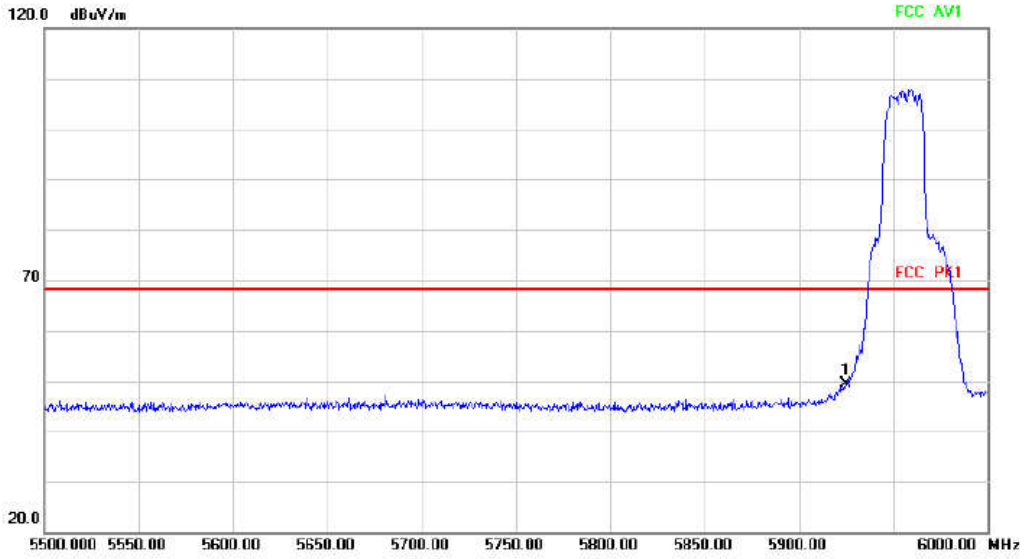


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	5925.000	44.90	6.28	51.18	68.20	-17.02	peak			

HORIZONTA



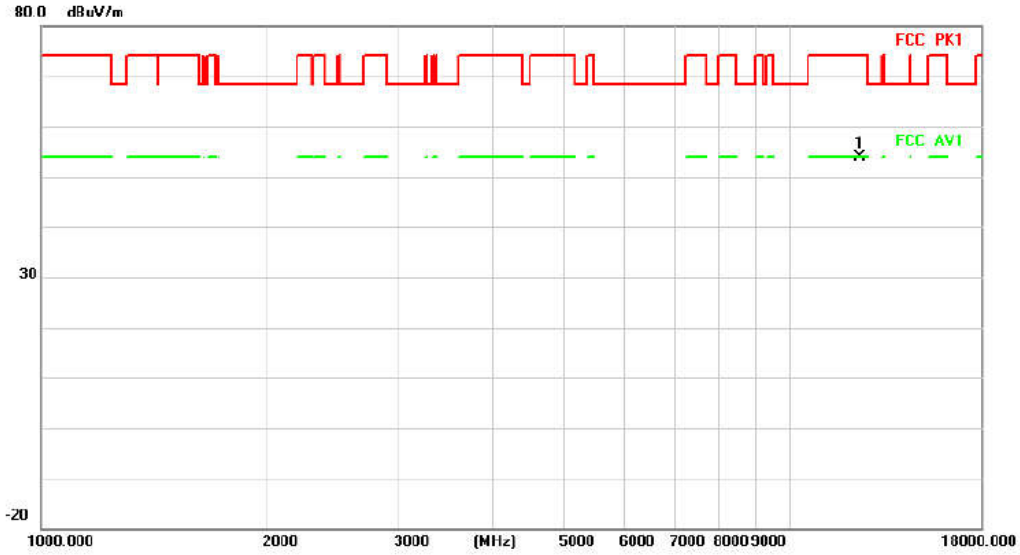
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	11910.000	3.21	48.61	51.82	74.00	-22.18	peak			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	5925.000	43.18	6.28	49.46	68.20	-18.74	peak			

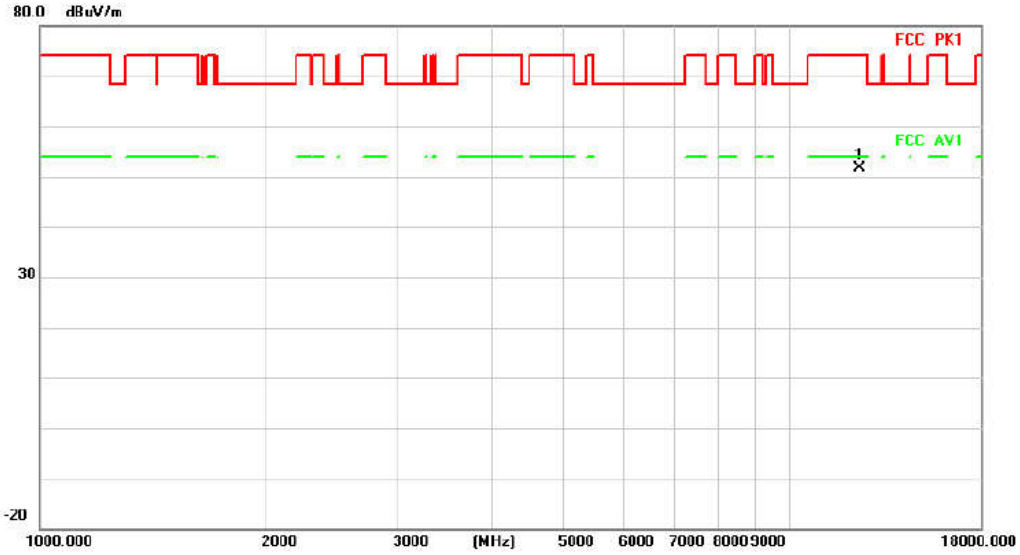
Above 1G (1GHz~18GHz)	Test mode:11AX20MIMO	Test Channel:49

VERTICAL



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	12390.000	4.91	49.01	53.92	74.00	-20.08	peak			

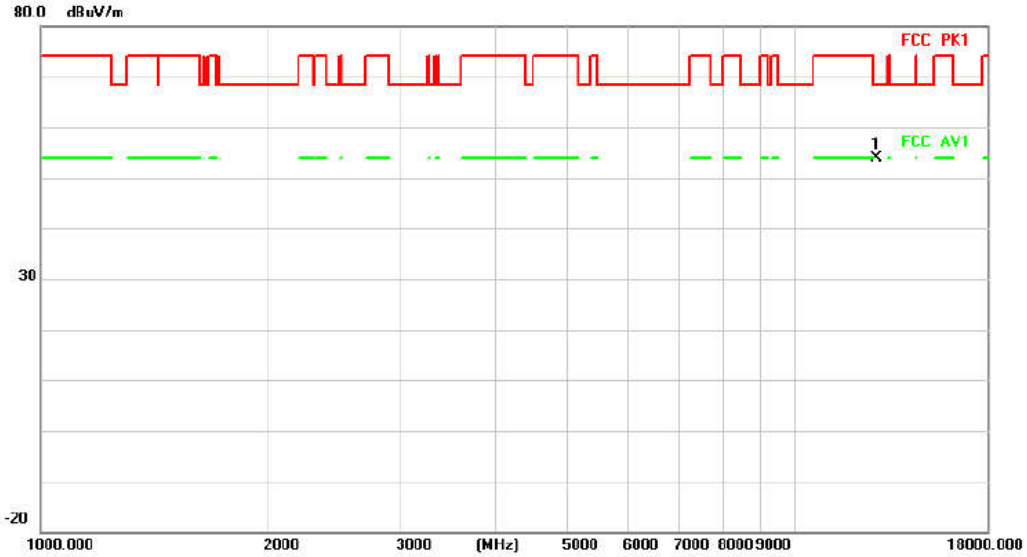
HORIZONTA



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	12390.000	2.59	49.01	51.60	74.00	-22.40	peak			

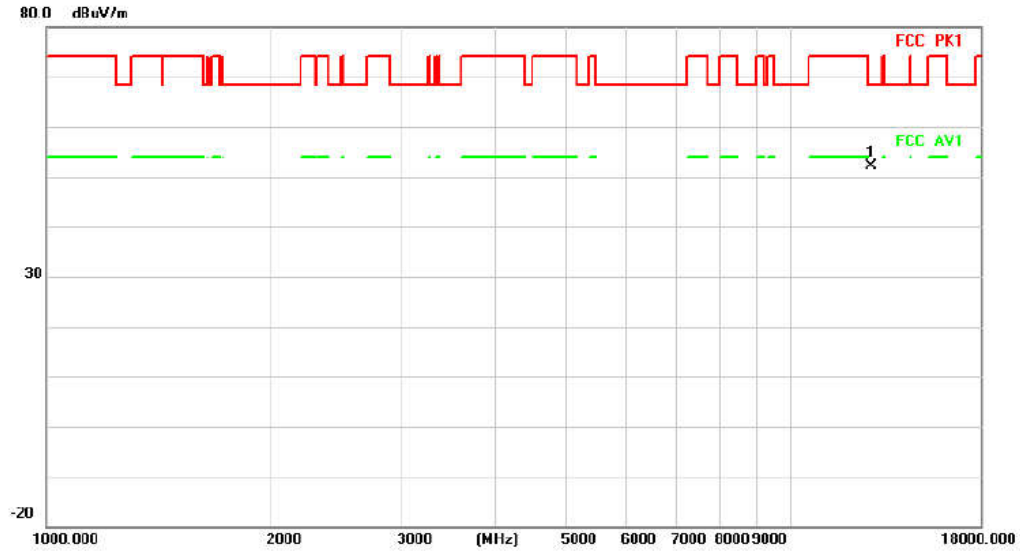
Above 1G (1GHz~18GHz)	Test mode:11AX20MIMO	Test Channel:93

VERTICAL



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	12830.000	5.32	48.57	53.89	68.20	-14.31	peak			

HORIZONTA



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	12830.000	3.62	48.57	52.19	68.20	-16.01	peak			