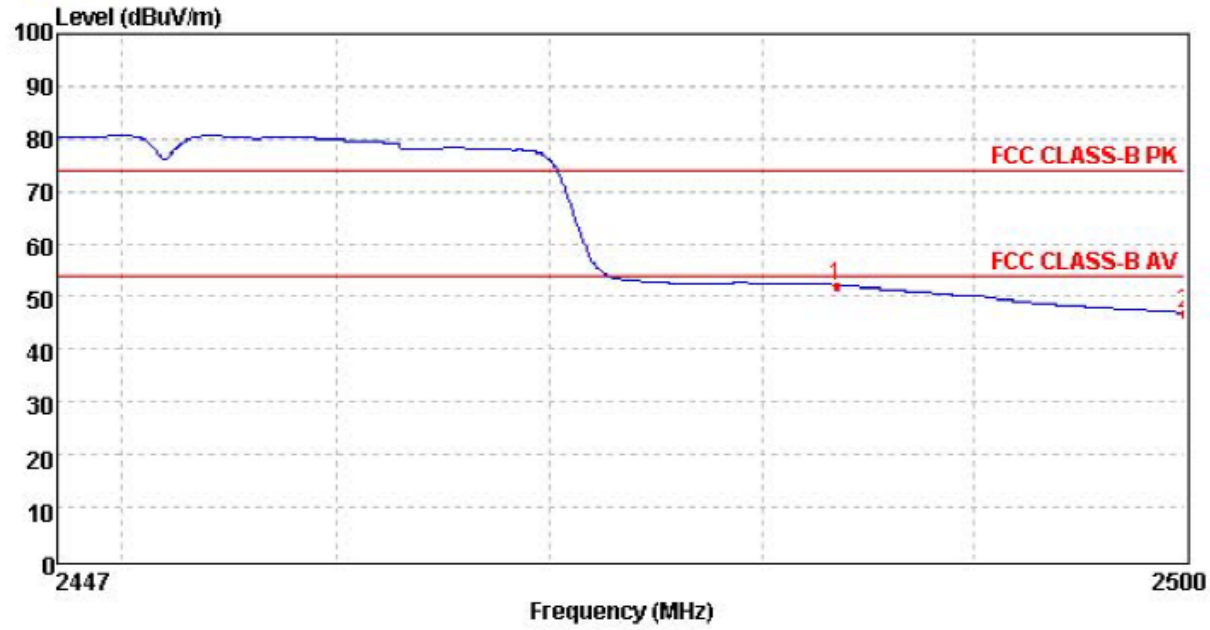
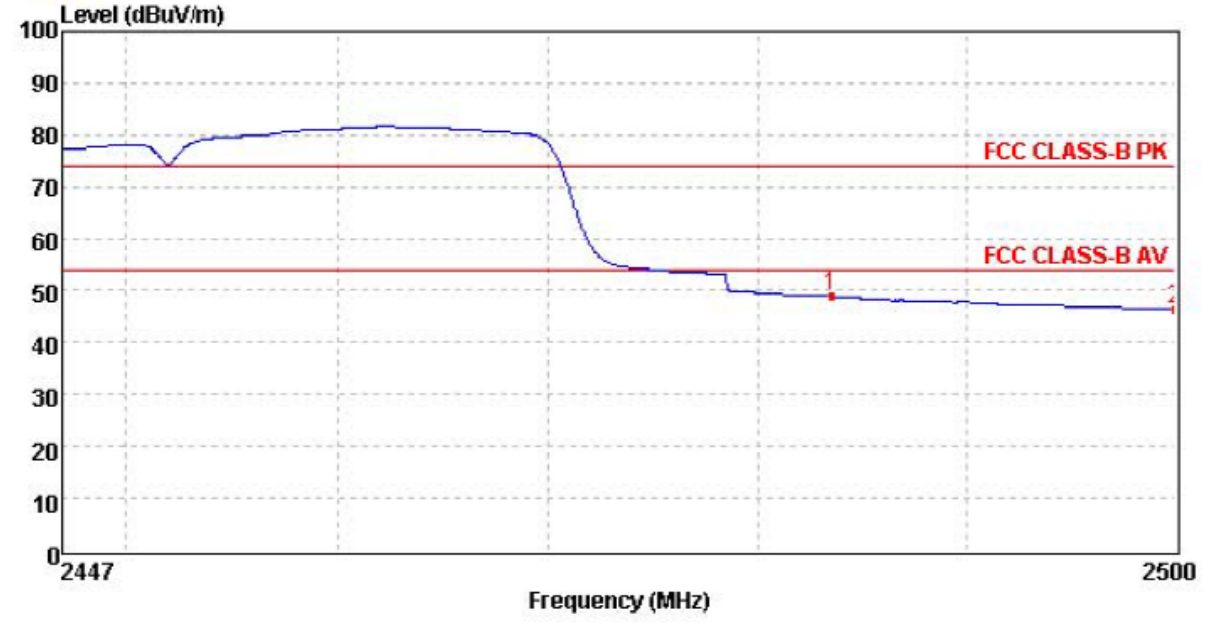
802.11n(HT40)-2452MHz Average:

Polarization:	Vertical



Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2483.50	18.09	27.26	6.83	0.00	52.18	54.00	-1.82	Average
2	2500.00	12.91	27.20	6.84	0.00	46.95	54.00	-7.05	Average

Polarization:	Horizontal



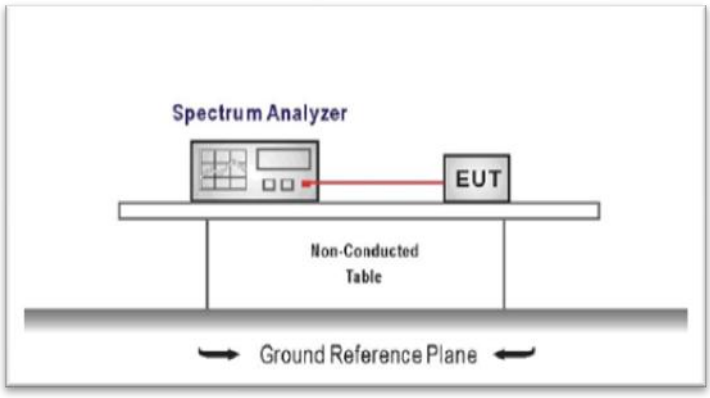
Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2483.50	14.81	27.26	6.83	0.00	48.90	54.00	-5.10	Average
2	2500.00	12.33	27.20	6.84	0.00	46.37	54.00	-7.63	Average

5.7. Band edge and Spurious Emissions (conducted)

LIMIT

FCC CFR Title 47 Part 15 Subpart C Section15.247 (d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

TEST CONFIGURATION



TEST PROCEDURE

1. Connect the antenna port(s) to the spectrum analyzer input.
2. Establish a reference level by using the following procedure
   Center frequency=DTS channel center frequency
   The span = 1.5 times the DTS bandwidth.
   RBW = 100 kHz, VBW ≥ 3 x RBW
   Detector = peak, Sweep time = auto couple, Trace mode = max hold
   Allow trace to fully stabilize
   Use the peak marker function to determine the maximum PSD level

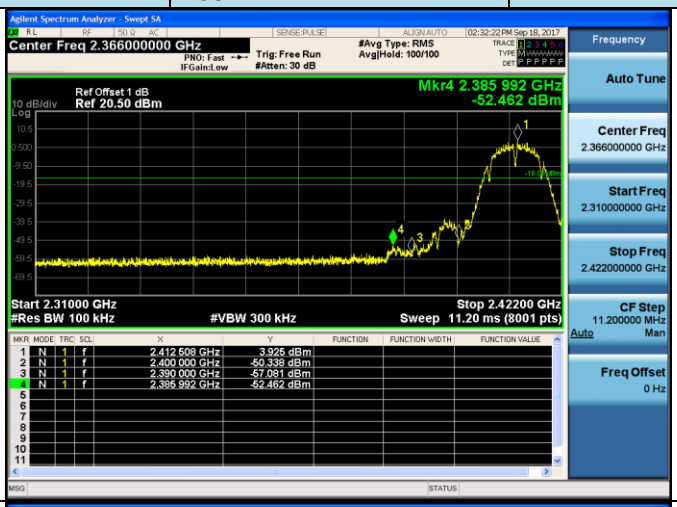
   Note: the channel found to contain the maximum PSD level can be used to establish the reference level.
3. Emission level measurement
   Set the center frequency and span to encompass frequency range to be measured
   RBW = 100 kHz, VBW ≥ 3 x RBW
   Detector = peak, Sweep time = auto couple, Trace mode = max hold
   Allow trace to fully stabilize
   Use the peak marker function to determine the maximum amplitude level.
4. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter waveform on the spectrum analyzer.
5. Ensure that the amplitude of all unwanted emission outside of the authorized frequency band excluding restricted frequency bands) are attenuated by at least the minimum requirements specified (at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz). Report the three highest emission relative to the limit.

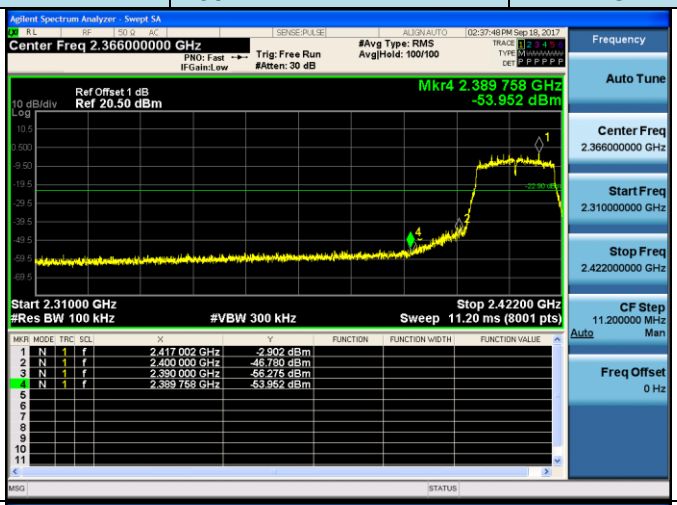
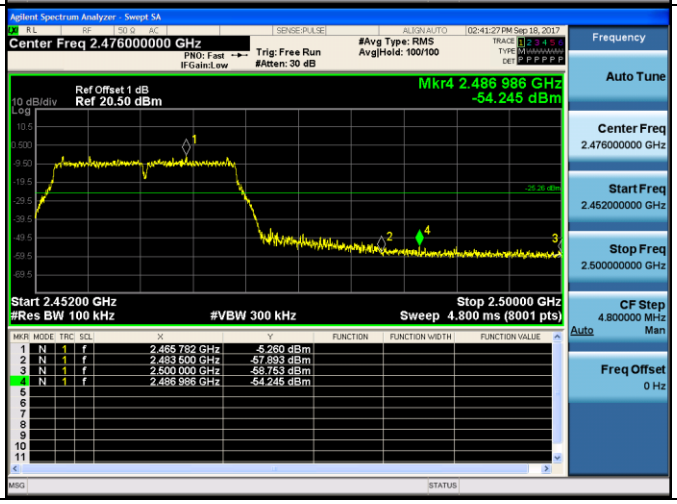
TEST MODE:

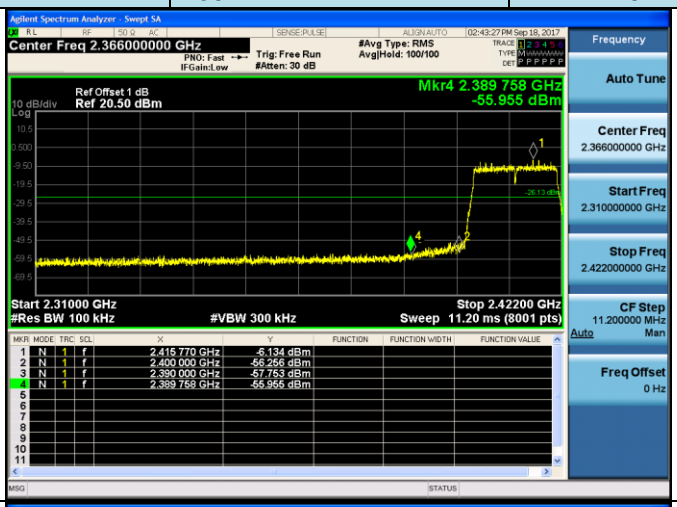
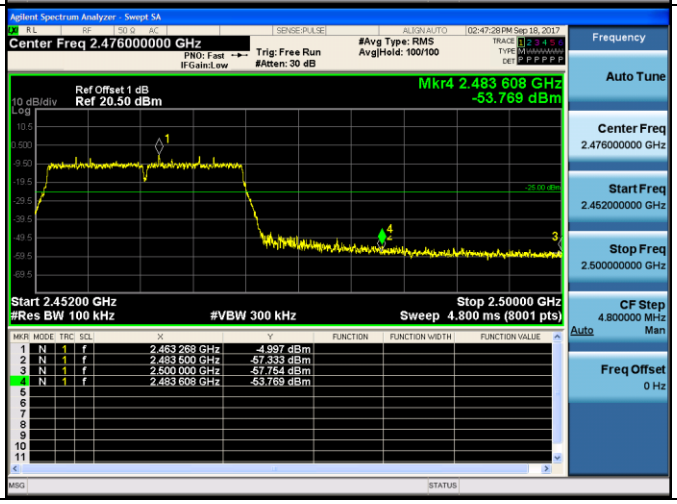
Please refer to the clause 3.3

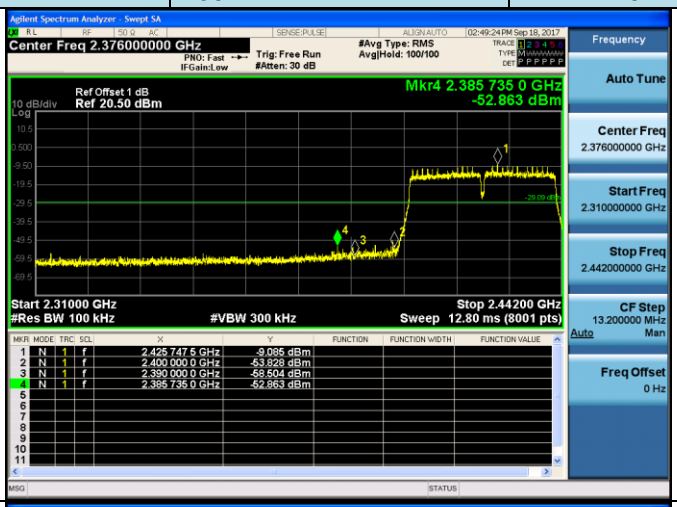
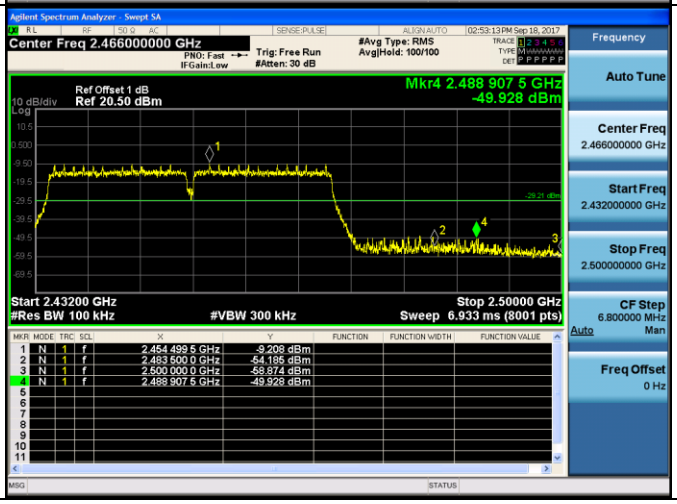
TEST RESULTS

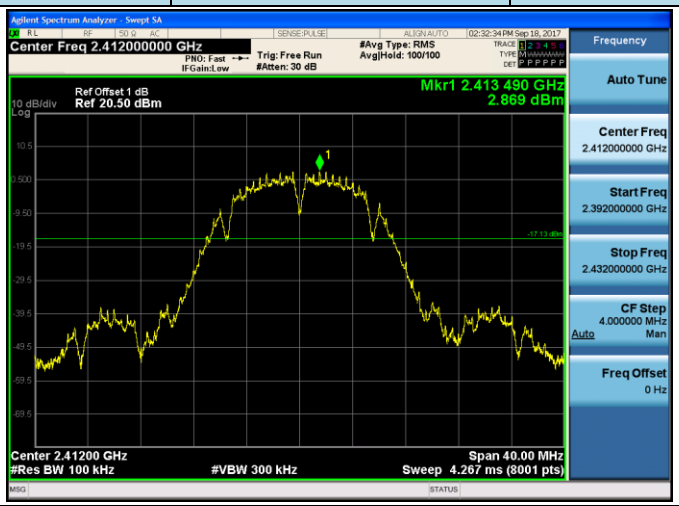
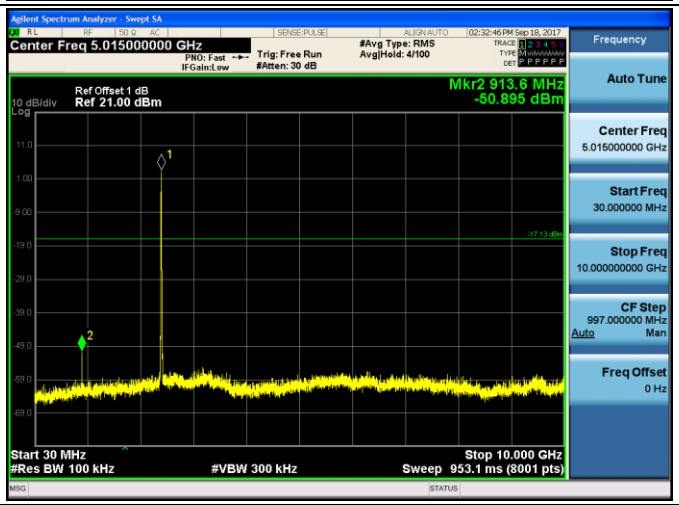
☒ **Passed** ☐ **Not Applicable**

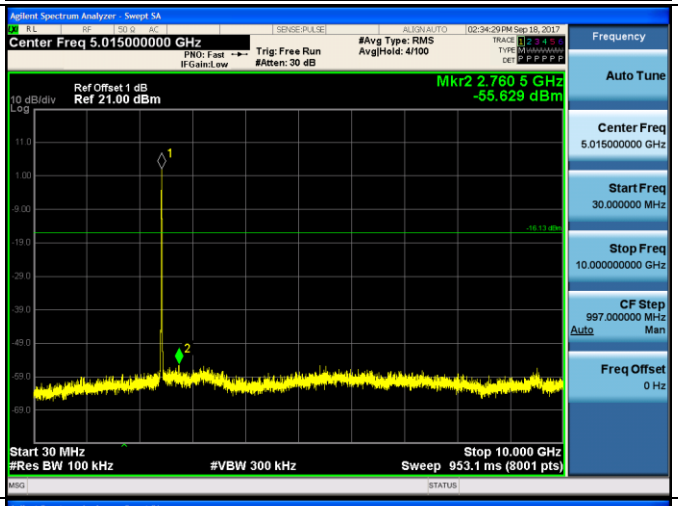
Test Item:	Bandedge	Type:	802.11 b
CH01			
CH11			

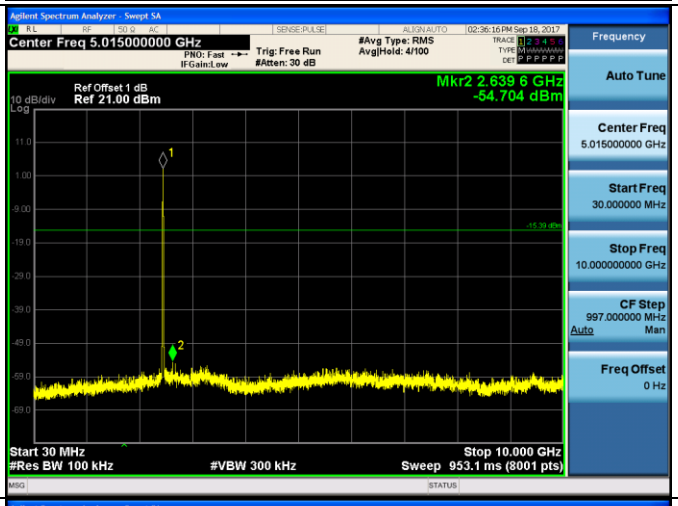
Test Item:	Bandedge	Type:	802.11 g
CH01			
CH11			

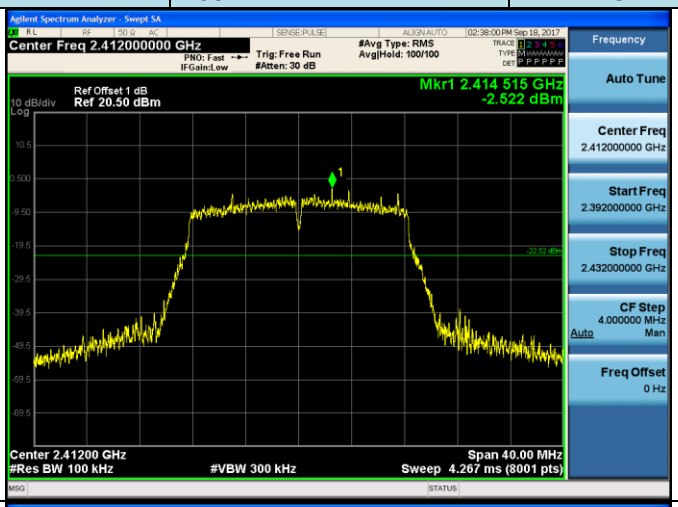
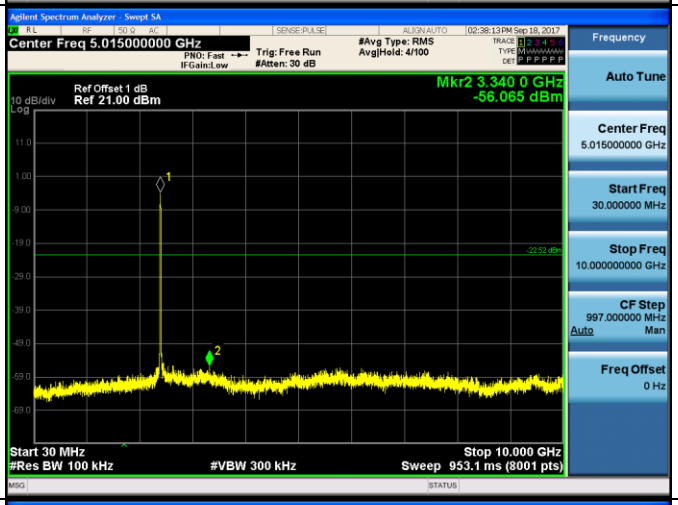
Test Item:	Bandedge	Type:	802.11 n(HT20)
CH01			
CH11			

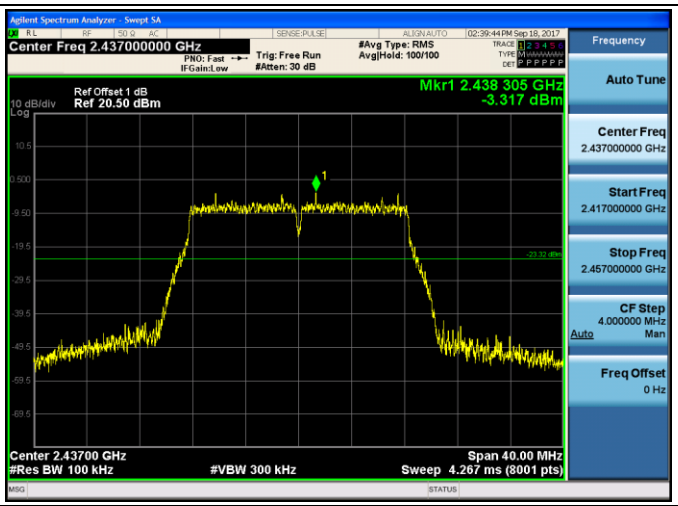
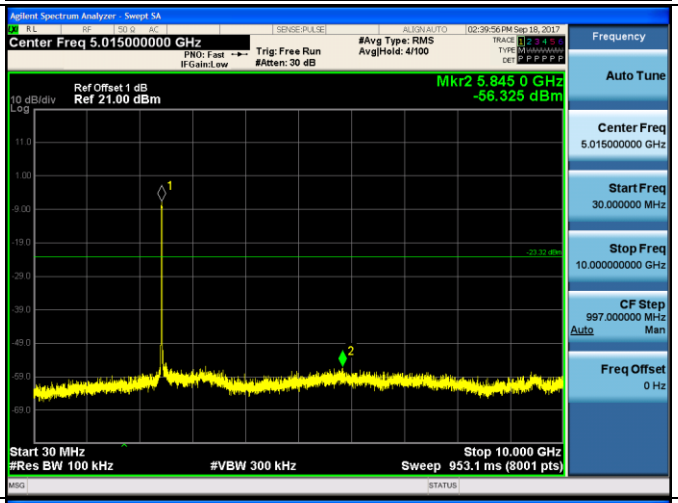
Test Item:	Bandedge	Type:	802.11 n(HT40)
CH03			
CH09			

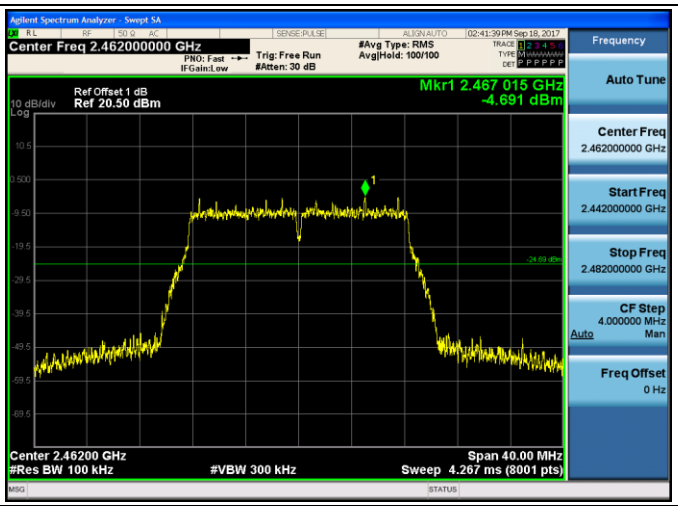
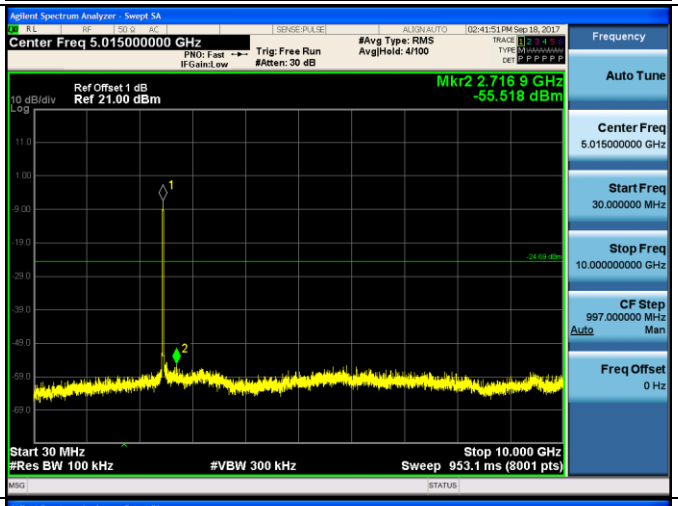
Test Item:	SE	Type:	802.11 b
CH01 Reference Level	
CH01 30MHz~10GHz	
CH01 10GHz~26GHz	

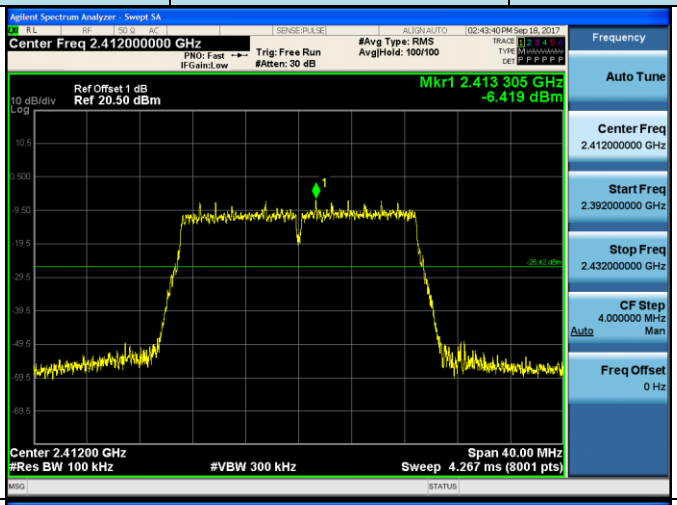
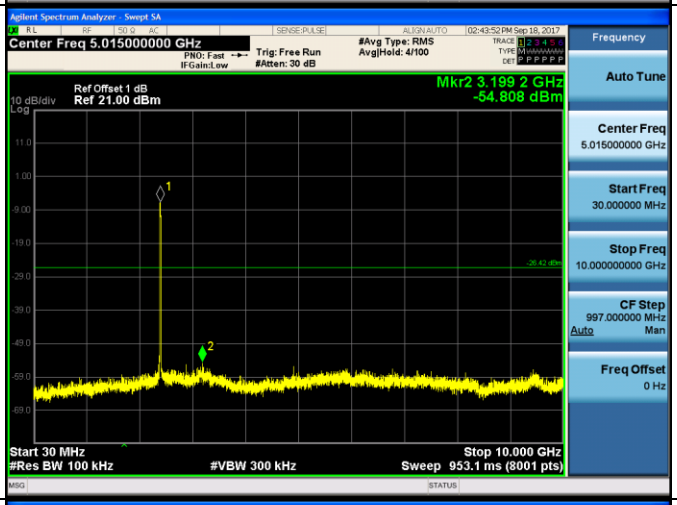
CH06 Reference Level		
CH06 30MHz~10GHz		
CH06 10GHz~26GHz		

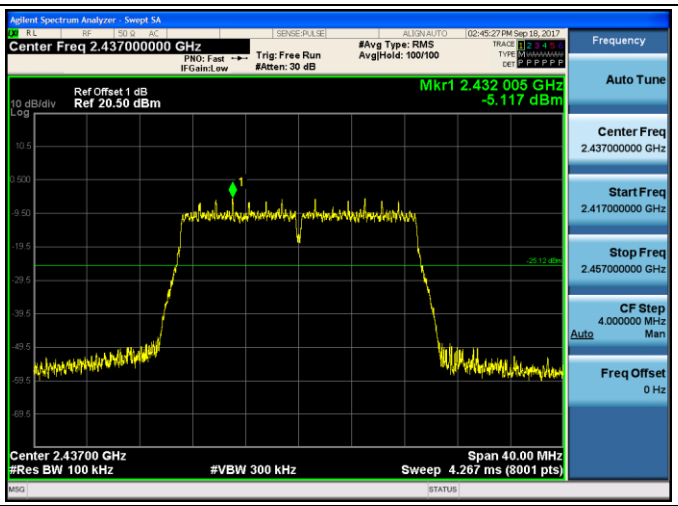
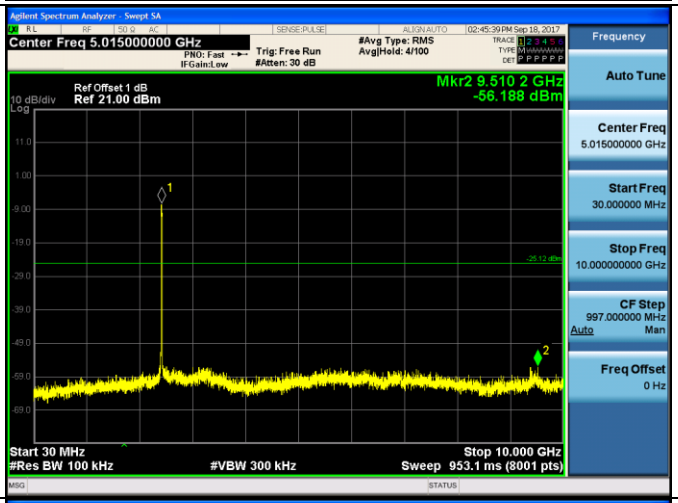
CH11 Reference Level		
CH11 30MHz~10GHz		
CH11 10GHz~26GHz		

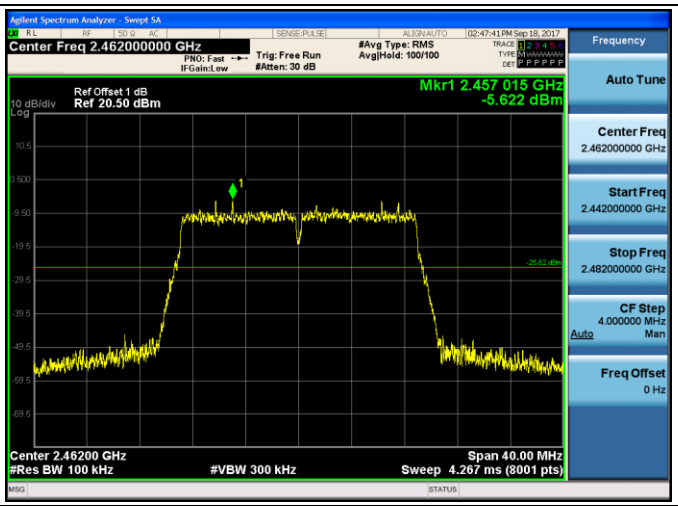
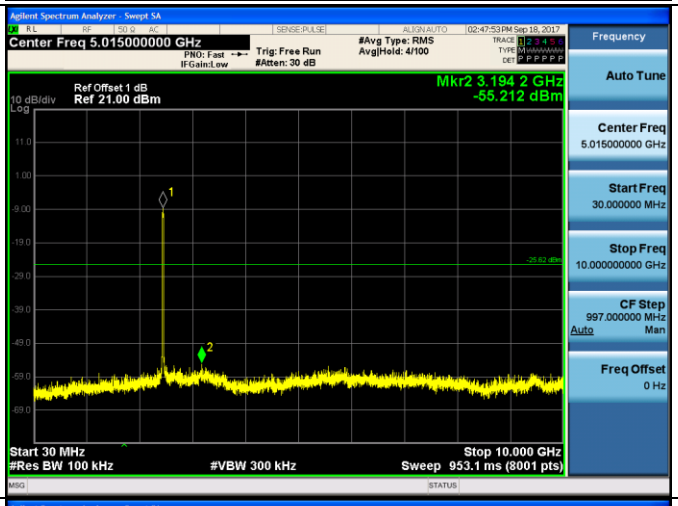
Test Item:	SE	Type:	802.11 g
CH01 Reference Level		
CH01 30MHz~10GHz		
CH01 10GHz~26GHz		

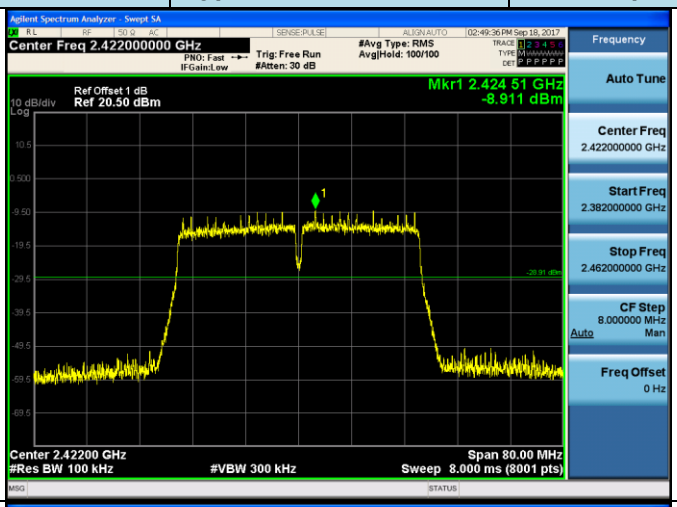
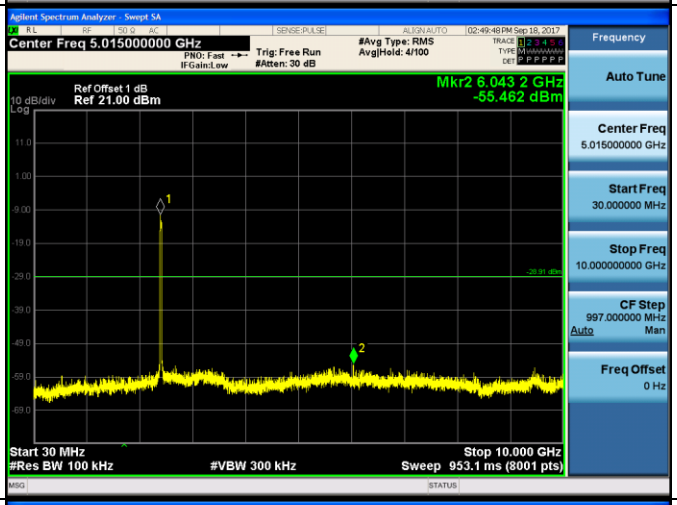
CH06 Reference Level		
CH06 30MHz~10GHz		
CH06 10GHz~26GHz		

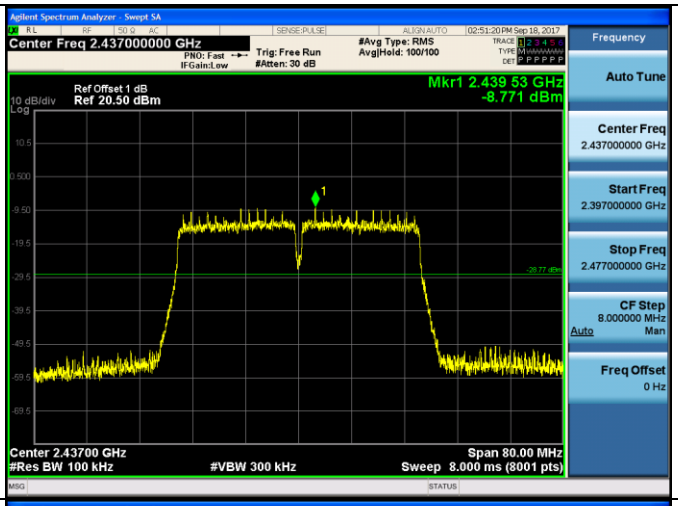
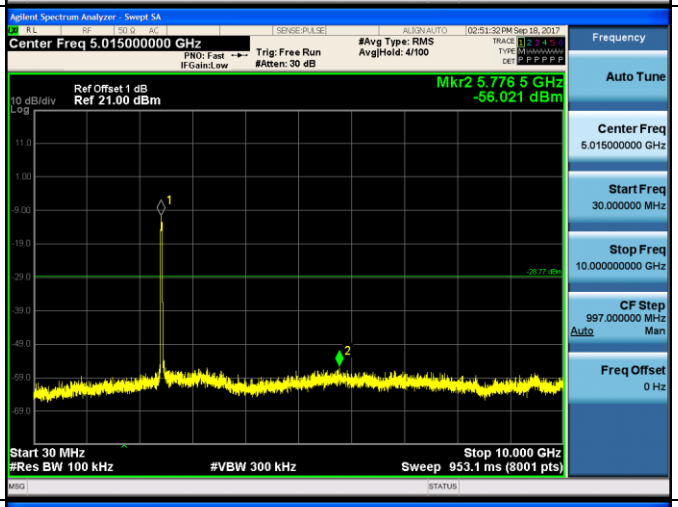
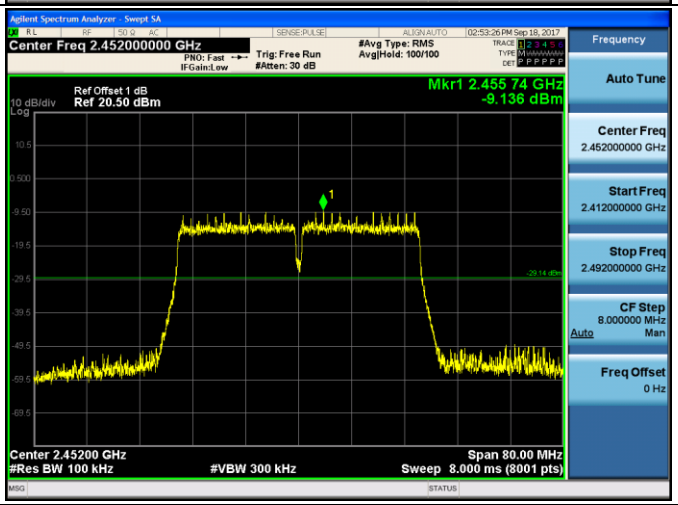
CH11 Reference Level		
CH11 30MHz~10GHz		
CH11 10GHz~26GHz		

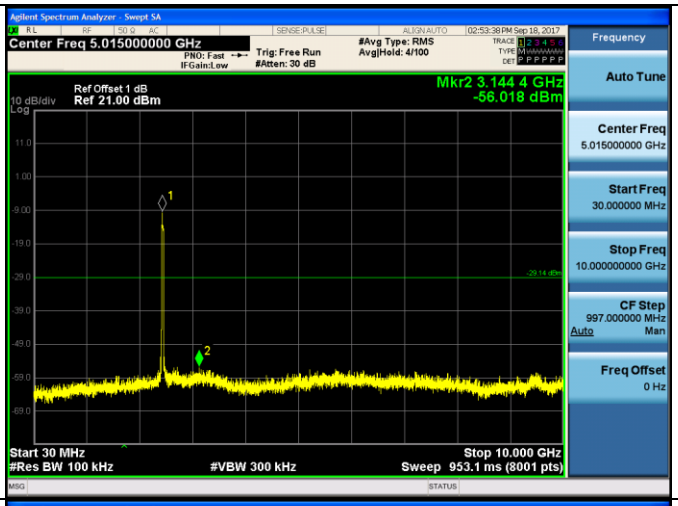
Test Item:	SE	Type:	802.11 n(HT20)
CH01 Reference Level		
CH01 30MHz~10GHz		
CH01 10GHz~26GHz		

CH06 Reference Level		
CH06 30MHz~10GHz		
CH06 10GHz~26GHz		

CH11 Reference Level		
CH11 30MHz~10GHz		
CH11 10GHz~26GHz		

Test Item:	SE	Type:	802.11 n(HT40)
CH03 Reference Level		
CH03 30MHz~10GHz		
CH01 10GHz~26GHz		

CH06 Reference Level		
CH06 30MHz~10GHz		
CH06 10GHz~26GHz		
CH09 Reference Level		

CH09 30MHz~10GHz			
CH09 10GHz~26GHz			

5.8. Spurious Emissions (radiated)

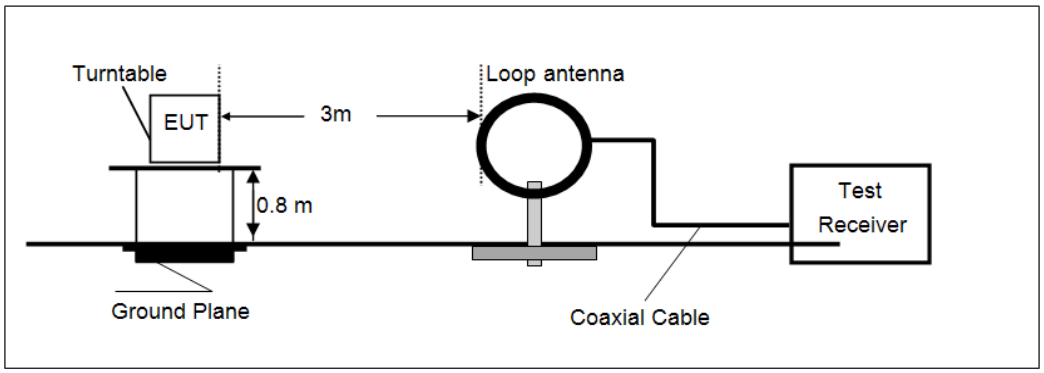
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.209

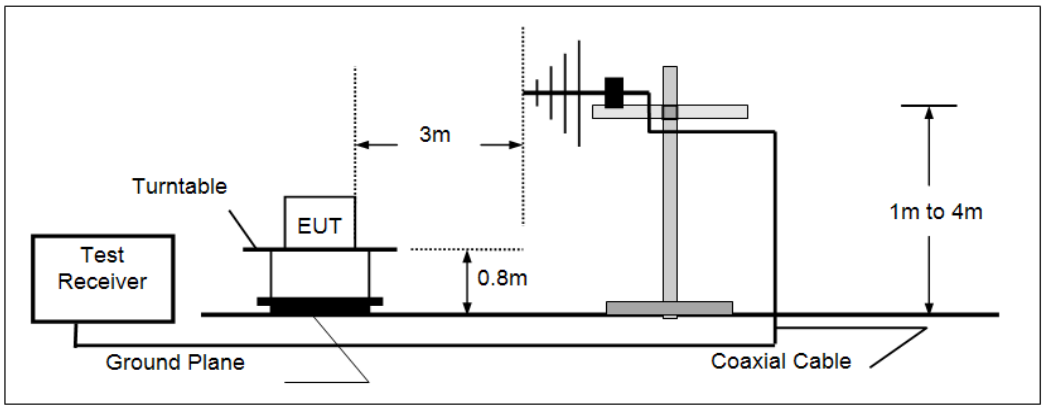
Frequency	Limit (dBuV/m @3m)	Value
30MHz-88MHz	40.00	Quasi-peak
88MHz-216MHz	43.50	Quasi-peak
216MHz-960MHz	46.00	Quasi-peak
960MHz-1GHz	54.00	Quasi-peak
Above 1GHz	54.00	Average
	74.00	Peak

TEST CONFIGURATION

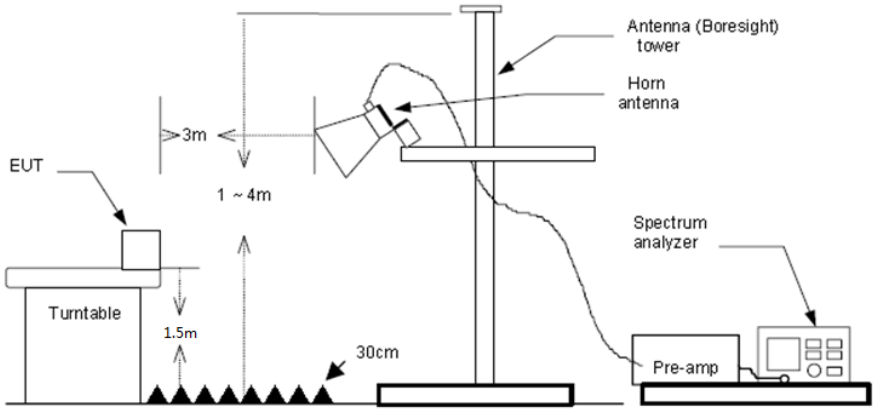
➢ 9kHz ~30MHz



➢ 30MHz ~ 1GHz



➢ Above 1GHz



TEST PROCEDURE

1. The EUT was tested according to ANSI C63.10:2013 for compliance to FCC 47CFR 15.247 requirements.
2. The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna.
5. Use the following spectrum analyzer settings
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Below 1GHz, RBW=120kHz, VBW=300kHz, Sweep=auto, Detector function=peak, Trace=max hold;
   If the emission level of the EUT measured by the peak detectoris 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
   (3) Above 1GHz, RBW=1MHz, VBW=3MHz PEAK detector for Peak value.
   RBW=1MHz, VBW=3MHz RMS detector for Average value.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

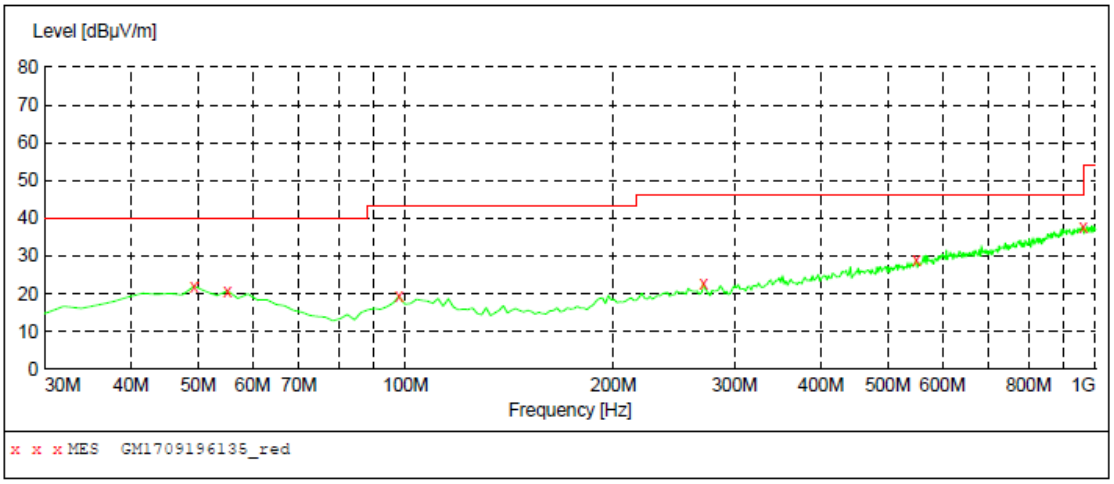
Note:
1) Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2) The emission levels of other frequencies are very lower than the limit and not show in test report.

- **9kHz ~ 30MHz**
  The EUT was pre-scanned the frequency band (9kHz~30MHz), found the radiated level lower than the limit, so don't show on the report.

- **30MHz ~1000MHz**
  Have pre-scan all modulation mode, found the 802.11b mode CH01 which it was worst case, so only the worst case's data on the test report.

➢ **30MHz ~ 1GHz**

Polarization:	Vertical

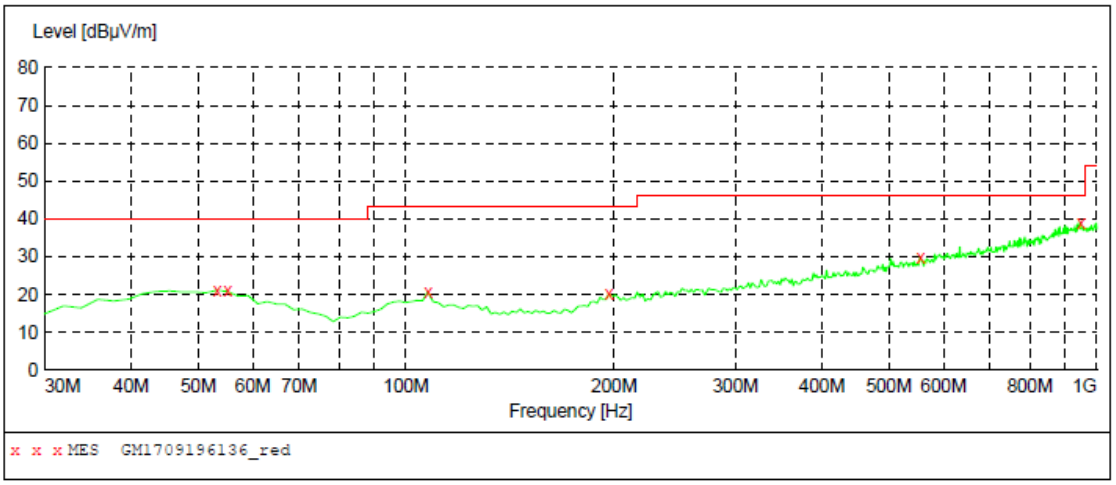


MEASUREMENT RESULT: "GM1709196135_red"

9/19/2017 8:39PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
49.400000	22.00	-8.7	40.0	18.0	QP	100.0	333.00	VERTICAL
55.220000	20.80	-9.2	40.0	19.2	QP	100.0	100.00	VERTICAL
97.900000	19.40	-10.8	43.5	24.1	QP	100.0	217.00	VERTICAL
270.560000	22.60	-8.0	46.0	23.4	QP	100.0	268.00	VERTICAL
549.920000	28.80	-0.8	46.0	17.2	QP	100.0	268.00	VERTICAL
959.260000	37.70	7.3	46.0	8.3	QP	100.0	14.00	VERTICAL

Polarization:	Horizontal



MEASUREMENT RESULT: "GM1709196136_red"

9/19/2017 8:42PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
53.280000	21.20	-9.0	40.0	18.8	QP	300.0	200.00	HORIZONTAL
55.220000	20.90	-9.2	40.0	19.1	QP	100.0	0.00	HORIZONTAL
107.600000	20.70	-10.6	43.5	22.8	QP	100.0	3.00	HORIZONTAL
196.840000	20.10	-9.8	43.5	23.4	QP	100.0	78.00	HORIZONTAL
555.740000	29.90	-0.6	46.0	16.1	QP	300.0	122.00	HORIZONTAL
947.620000	39.00	7.2	46.0	7.0	QP	100.0	208.00	HORIZONTAL

➢ **Above 1 GHz**

802.11b					CH01				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1225.86	36.80	26.27	4.70	36.56	31.21	74.00	-42.79	Vertical	Peak
3104.22	35.85	28.80	7.61	38.21	34.05	74.00	-39.95	Vertical	Peak
4821.76	35.86	31.56	9.55	36.90	40.07	74.00	-33.93	Vertical	Peak
7135.98	32.55	35.82	11.86	34.99	45.24	74.00	-28.76	Vertical	Peak
1719.78	36.62	25.24	5.80	36.97	30.69	74.00	-43.31	Horizontal	Peak
3151.99	36.50	28.80	7.66	38.21	34.75	74.00	-39.25	Horizontal	Peak
4821.76	37.31	31.56	9.55	36.90	41.52	74.00	-32.48	Horizontal	Peak
7154.17	31.95	35.93	11.86	35.01	44.73	74.00	-29.27	Horizontal	Peak

802.11b					CH06				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1746.25	36.54	25.29	5.86	37.03	30.66	74.00	-43.34	Vertical	Peak
3168.08	36.52	28.80	7.68	38.20	34.80	74.00	-39.20	Vertical	Peak
4871.10	34.62	31.46	9.59	36.76	38.91	74.00	-35.09	Vertical	Peak
6283.16	33.07	33.07	11.00	35.30	41.84	74.00	-32.16	Vertical	Peak
1750.70	34.79	25.30	5.86	37.04	28.91	74.00	-45.09	Horizontal	Peak
3480.97	35.28	28.85	8.09	38.44	33.78	74.00	-40.22	Horizontal	Peak
4871.10	33.47	31.46	9.59	36.76	37.76	74.00	-36.24	Horizontal	Peak
6833.77	31.66	34.24	11.64	34.96	42.58	74.00	-31.42	Horizontal	Peak

802.11b					CH11				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1948.25	38.84	25.79	6.19	37.26	33.56	74.00	-40.44	Vertical	Peak
3151.99	35.68	28.80	7.66	38.21	33.93	74.00	-40.07	Vertical	Peak
5164.81	32.88	31.64	9.80	36.24	38.08	74.00	-35.92	Vertical	Peak
7585.53	32.22	36.19	12.67	34.97	46.11	74.00	-27.89	Vertical	Peak
2258.20	35.56	27.85	6.54	37.50	32.45	74.00	-41.55	Horizontal	Peak
4570.77	33.07	30.84	9.41	37.28	36.04	74.00	-37.96	Horizontal	Peak
6267.19	32.19	33.03	11.00	35.30	40.92	74.00	-33.08	Horizontal	Peak
8145.93	32.44	36.86	12.64	34.54	47.40	74.00	-26.60	Horizontal	Peak

Remark:

1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

802.11g					CH01				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1663.80	35.72	25.09	5.69	36.85	29.65	74.00	-44.35	Vertical	Peak
3192.37	36.02	28.80	7.71	38.20	34.33	74.00	-39.67	Vertical	Peak
4055.37	37.10	29.81	8.82	37.98	37.75	74.00	-36.25	Vertical	Peak
6645.07	31.80	34.20	11.41	35.28	42.13	74.00	-31.87	Vertical	Peak
1561.22	35.64	25.24	5.46	36.67	29.67	74.00	-44.33	Horizontal	Peak
3104.22	35.19	28.80	7.61	38.21	33.39	74.00	-40.61	Horizontal	Peak
4664.81	32.89	31.10	9.49	37.14	36.34	74.00	-37.66	Horizontal	Peak
6299.18	32.31	33.10	11.00	35.30	41.11	74.00	-32.89	Horizontal	Peak

802.11g					CH06				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1889.63	40.31	25.31	6.10	37.21	34.51	74.00	-39.49	Vertical	Peak
3088.45	35.67	28.78	7.59	38.22	33.82	74.00	-40.18	Vertical	Peak
4377.20	35.57	30.43	9.11	37.57	37.54	74.00	-36.46	Vertical	Peak
6478.05	31.01	33.85	11.13	35.33	40.66	74.00	-33.34	Vertical	Peak
1476.19	35.50	25.82	5.22	36.56	29.98	74.00	-44.02	Horizontal	Peak
3128.01	34.88	28.80	7.63	38.21	33.10	74.00	-40.90	Horizontal	Peak
5125.52	33.68	31.80	9.77	36.27	38.98	74.00	-35.02	Horizontal	Peak
6428.77	31.84	33.50	11.04	35.32	41.06	74.00	-32.94	Horizontal	Peak

802.11g					CH11				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1585.25	35.79	25.03	5.53	36.70	29.65	74.00	-44.35	Vertical	Peak
3184.25	35.64	28.80	7.70	38.20	33.94	74.00	-40.06	Vertical	Peak
4772.91	32.53	31.49	9.53	37.00	36.55	74.00	-37.45	Vertical	Peak
6219.51	31.85	32.94	11.01	35.29	40.51	74.00	-33.49	Vertical	Peak
1800.42	35.28	25.40	5.96	37.14	29.50	74.00	-44.50	Horizontal	Peak
3026.20	35.95	28.65	7.51	38.23	33.88	74.00	-40.12	Horizontal	Peak
4883.52	33.12	31.43	9.59	36.73	37.41	74.00	-36.59	Horizontal	Peak
7045.74	31.74	35.44	11.85	34.86	44.17	74.00	-29.83	Horizontal	Peak

Remark:

1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

802.11n(HT20)					CH01				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1417.28	35.50	25.88	5.05	36.48	29.95	74.00	-44.05	Vertical	Peak
3192.37	36.02	28.80	7.71	38.20	34.33	74.00	-39.67	Vertical	Peak
4055.37	37.10	29.81	8.82	37.98	37.75	74.00	-36.25	Vertical	Peak
5791.65	32.53	32.06	10.58	35.34	39.83	74.00	-34.17	Vertical	Peak
1283.34	35.53	26.22	4.80	36.52	30.03	74.00	-43.97	Horizontal	Peak
3616.45	34.77	29.30	8.29	38.27	34.09	74.00	-39.91	Horizontal	Peak
4821.76	32.83	31.56	9.55	36.90	37.04	74.00	-36.96	Horizontal	Peak
6299.18	32.31	33.10	11.00	35.30	41.11	74.00	-32.89	Horizontal	Peak

802.11n(HT20)					CH06				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1823.48	35.41	25.38	6.00	37.16	29.63	74.00	-44.37	Vertical	Peak
3088.45	35.67	28.78	7.59	38.22	33.82	74.00	-40.18	Vertical	Peak
4377.20	35.57	30.43	9.11	37.57	37.54	74.00	-36.46	Vertical	Peak
6203.70	31.94	32.91	11.01	35.29	40.57	74.00	-33.43	Vertical	Peak
1476.19	35.50	25.82	5.22	36.56	29.98	74.00	-44.02	Horizontal	Peak
3128.01	34.88	28.80	7.63	38.21	33.10	74.00	-40.90	Horizontal	Peak
4076.07	33.99	29.85	8.84	37.94	34.74	74.00	-39.26	Horizontal	Peak
6992.14	31.87	35.25	11.84	34.80	44.16	74.00	-29.84	Horizontal	Peak

802.11n(HT20)					CH11				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1585.25	35.79	25.03	5.53	36.70	29.65	74.00	-44.35	Vertical	Peak
3184.25	35.64	28.80	7.70	38.20	33.94	74.00	-40.06	Vertical	Peak
4772.91	32.53	31.49	9.53	37.00	36.55	74.00	-37.45	Vertical	Peak
6219.51	31.85	32.94	11.01	35.29	40.51	74.00	-33.49	Vertical	Peak
1800.42	35.28	25.40	5.96	37.14	29.50	74.00	-44.50	Horizontal	Peak
3026.20	35.95	28.65	7.51	38.23	33.88	74.00	-40.12	Horizontal	Peak
4883.52	33.12	31.43	9.59	36.73	37.41	74.00	-36.59	Horizontal	Peak
7045.74	31.74	35.44	11.85	34.86	44.17	74.00	-29.83	Horizontal	Peak

Remark:

1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

802.11n(HT40)					CH03				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1904.12	37.18	25.34	6.12	37.22	31.42	74.00	-42.58	Vertical	Peak
3552.58	34.45	29.16	8.20	38.34	33.47	74.00	-40.53	Vertical	Peak
4933.50	33.68	31.43	9.63	36.59	38.15	74.00	-35.85	Vertical	Peak
6577.75	31.79	34.16	11.32	35.35	41.92	74.00	-32.08	Vertical	Peak
1904.12	43.37	25.34	6.12	37.22	37.61	74.00	-36.39	Horizontal	Peak
3003.17	35.57	28.61	7.48	38.23	33.43	74.00	-40.57	Horizontal	Peak
5177.97	32.67	31.59	9.81	36.22	37.85	74.00	-36.15	Horizontal	Peak
7045.74	32.63	35.44	11.85	34.86	45.06	74.00	-28.94	Horizontal	Peak

802.11n(HT40)					CH06				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1693.72	35.61	25.18	5.75	36.92	29.62	74.00	-44.38	Vertical	Peak
3216.84	35.51	28.70	7.74	38.23	33.72	74.00	-40.28	Vertical	Peak
4256.33	33.99	30.11	8.99	37.62	35.47	74.00	-38.53	Vertical	Peak
6140.85	31.79	32.66	10.91	35.34	40.02	74.00	-33.98	Vertical	Peak
1755.16	35.20	25.31	5.87	37.05	29.33	74.00	-44.67	Horizontal	Peak
3096.33	35.77	28.79	7.60	38.22	33.94	74.00	-40.06	Horizontal	Peak
4958.68	32.27	31.46	9.64	36.52	36.85	74.00	-37.15	Horizontal	Peak
6696.01	31.81	34.20	11.48	35.18	42.31	74.00	-31.69	Horizontal	Peak

802.11n(HT40)					CH09				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1732.97	35.42	25.27	5.83	37.00	29.52	74.00	-44.48	Vertical	Peak
3033.91	35.17	28.67	7.52	38.22	33.14	74.00	-40.86	Vertical	Peak
4310.85	33.79	30.23	9.05	37.60	35.47	74.00	-38.53	Vertical	Peak
6219.51	31.64	32.94	11.01	35.29	40.30	74.00	-33.70	Vertical	Peak
1702.36	35.83	25.20	5.77	36.93	29.87	74.00	-44.13	Horizontal	Peak
3018.50	35.81	28.64	7.50	38.23	33.72	74.00	-40.28	Horizontal	Peak
4234.72	35.35	30.07	8.97	37.63	36.76	74.00	-37.24	Horizontal	Peak
5762.24	33.56	31.91	10.53	35.42	40.58	74.00	-33.42	Horizontal	Peak

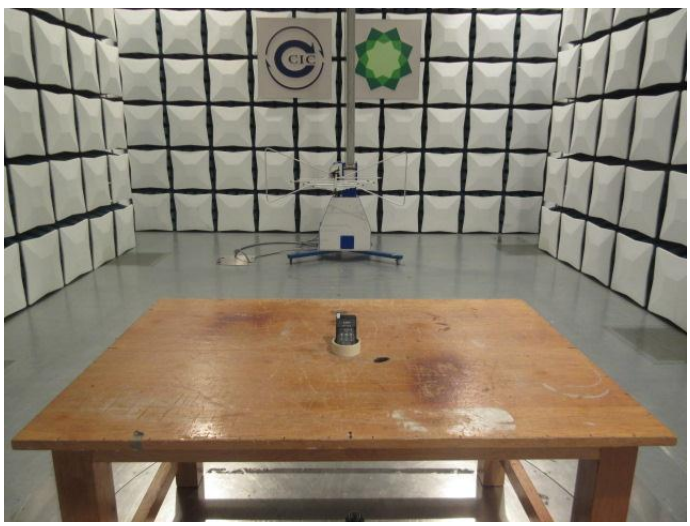
Remark:

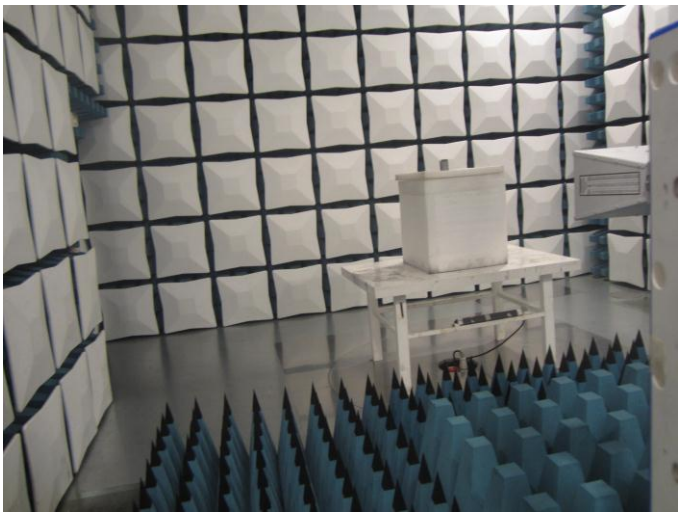
1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

6. TEST SETUP PHOTOS

Conducted Emissions

Radiated Emissions





7. EXTERANAL AND INTERNAL PHOTOS

Reference to Test Report No.: TRE1709005801.

.....End of Report.....