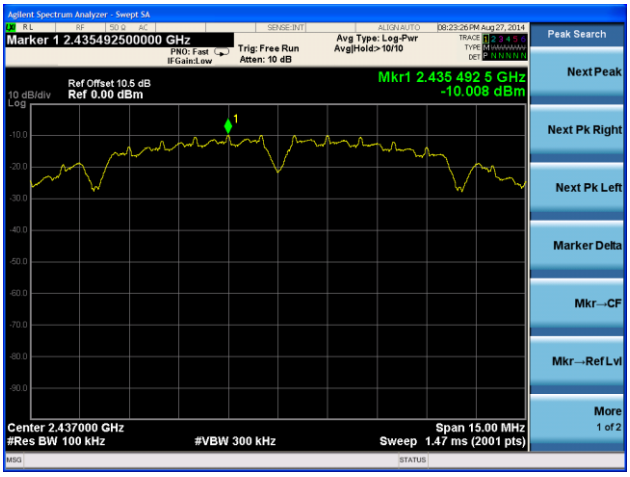
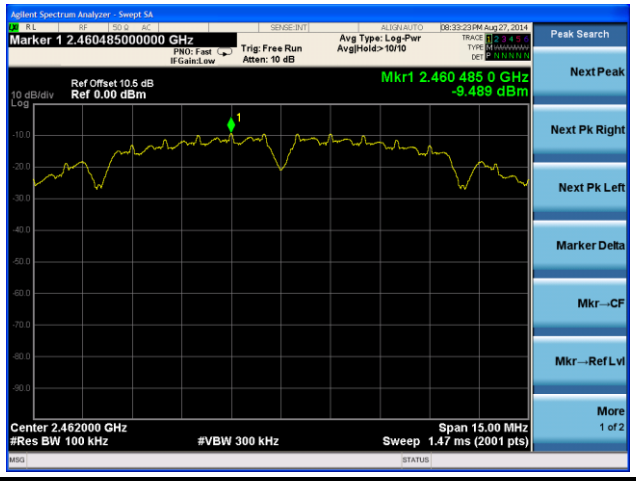
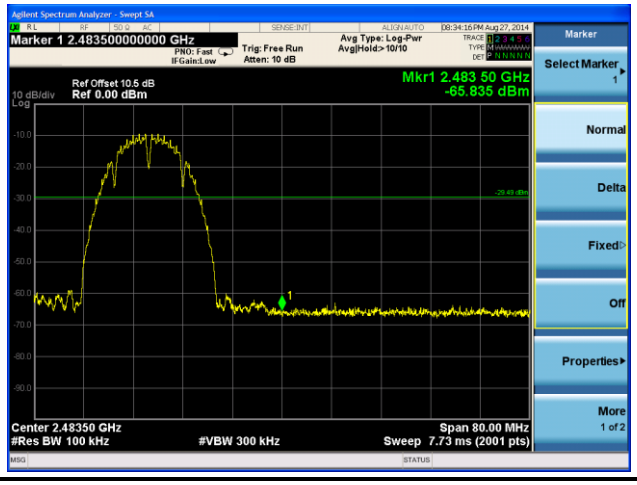
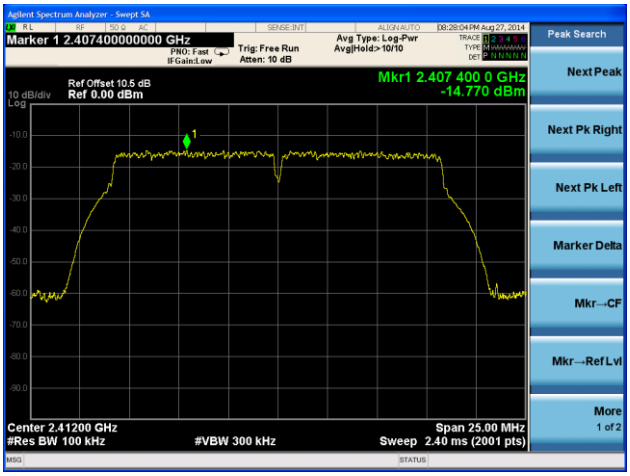
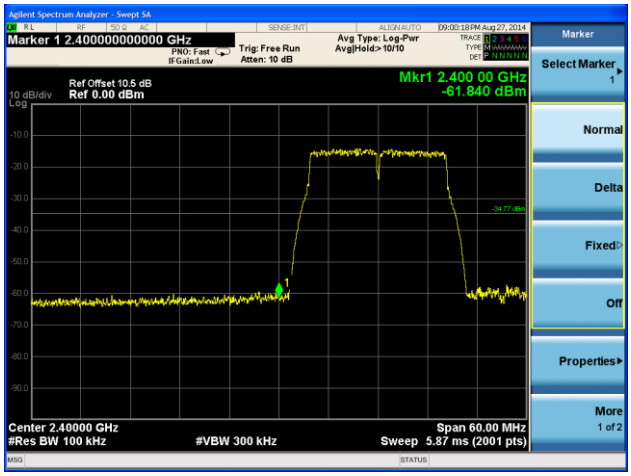
Spurious Emission 30MHz ~ 25GHz	
	

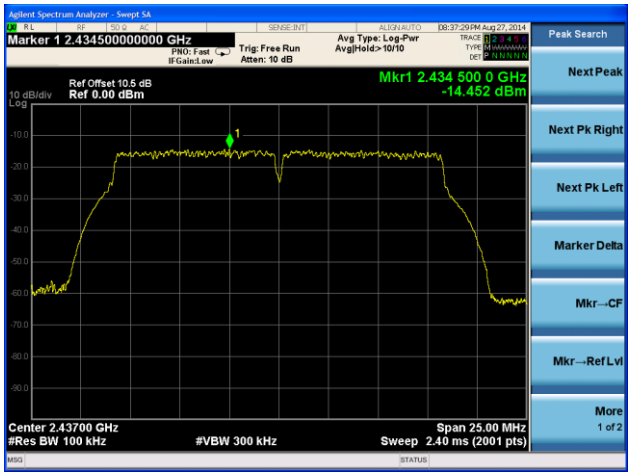
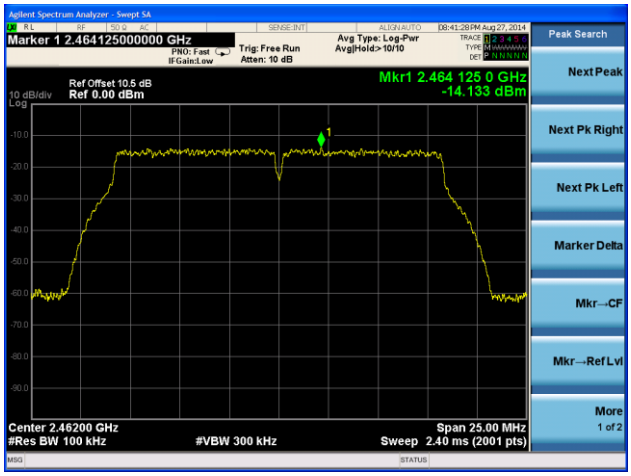
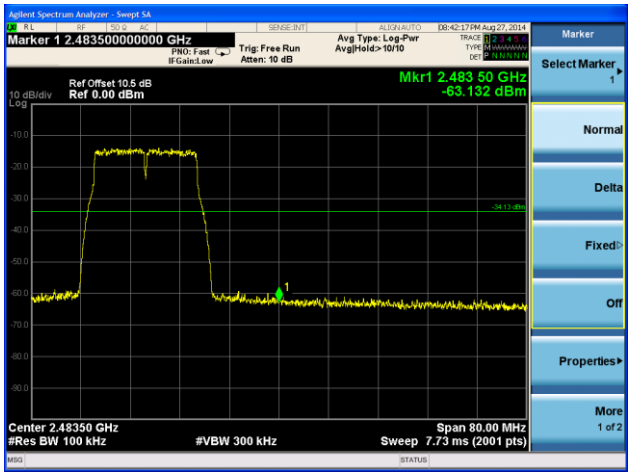
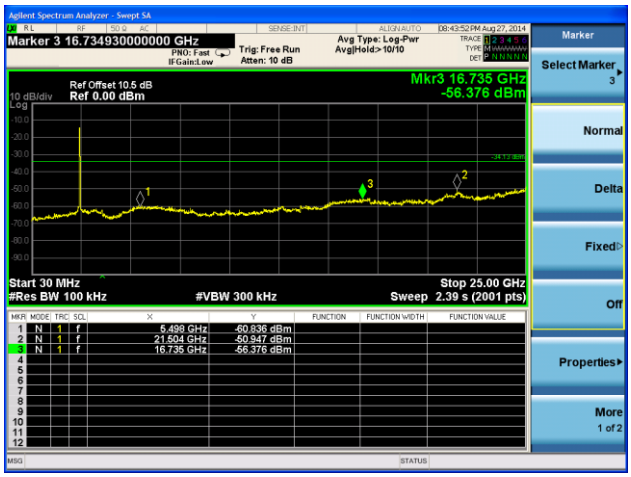
Channel 06 (2437MHz)	
100kHz PSD reference Level	Spurious Emission 30MHz ~ 25GHz
	

Channel 11 (2462MHz)	
100kHz PSD reference Level	High Band Edge
	

Spurious Emission 30MHz ~ 25GHz	
	

802.11g Out-of-Band Emissions	
Channel 01 (2412MHz)	
100kHz PSD reference Level	Low Band Edge
	

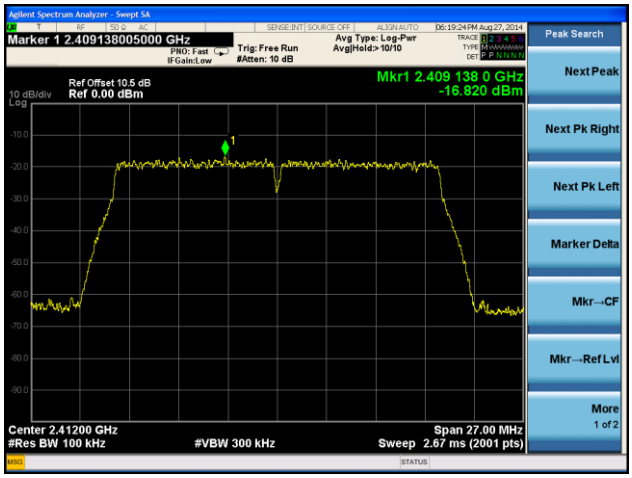
Spurious Emission 30MHz ~ 25GHz	
	

Channel 06 (2437MHz)	
100kHz PSD reference Level	**Spurious Emission 30MHz ~ 25GHz**
	
Channel 11 (2462MHz)	
100kHz PSD reference Level	**High Band Edge**
	
Spurious Emission 30MHz ~ 25GHz	
	

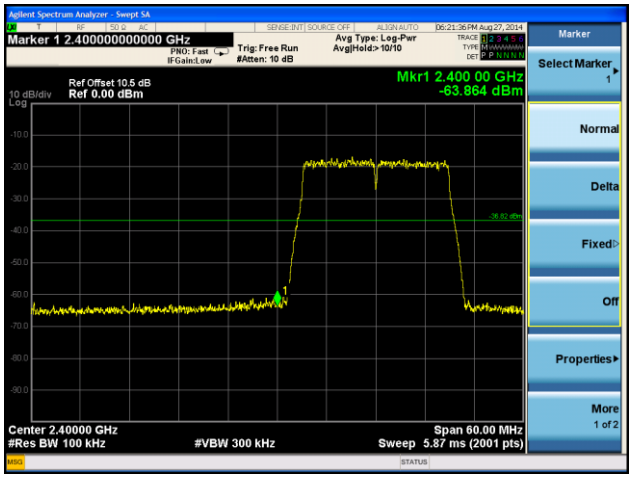
802.11n-HT20 Out-of-Band Emissions

Channel 01 (2412MHz)

100kHz PSD reference Level



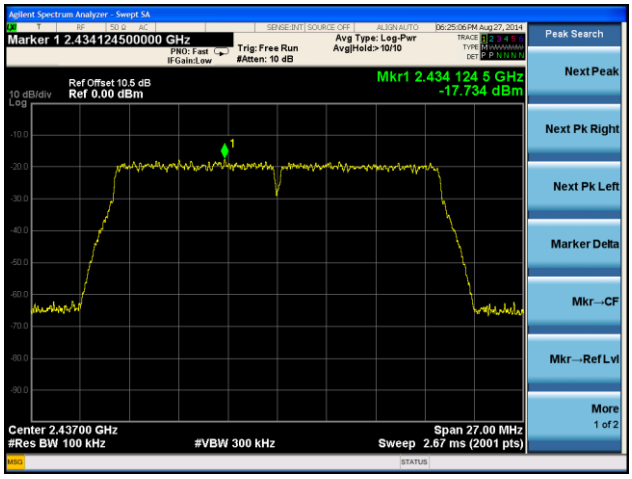
Low Band Edge



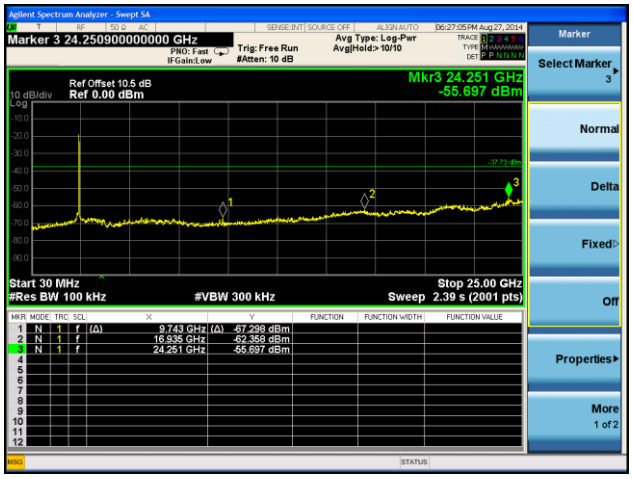
Spurious Emission 30MHz ~ 25GHz

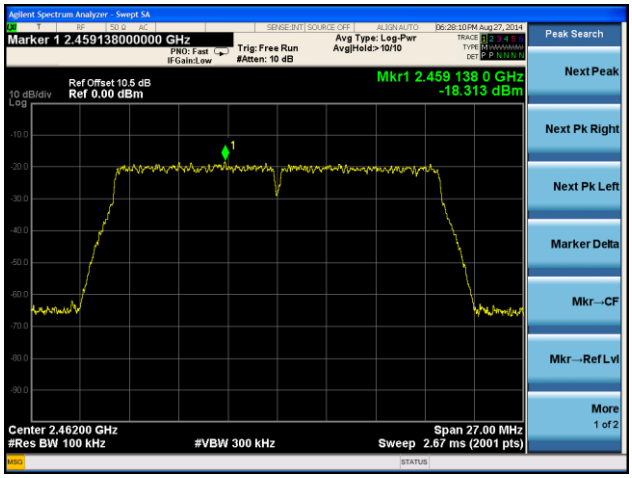
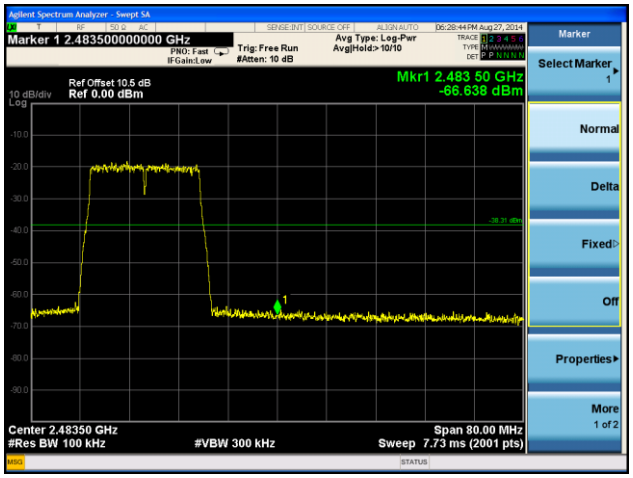
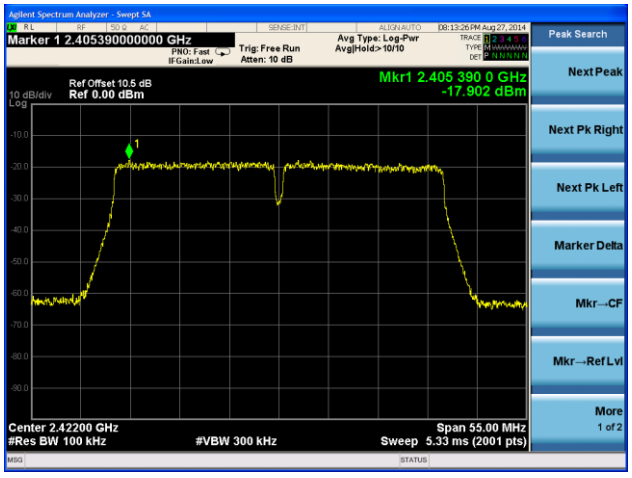
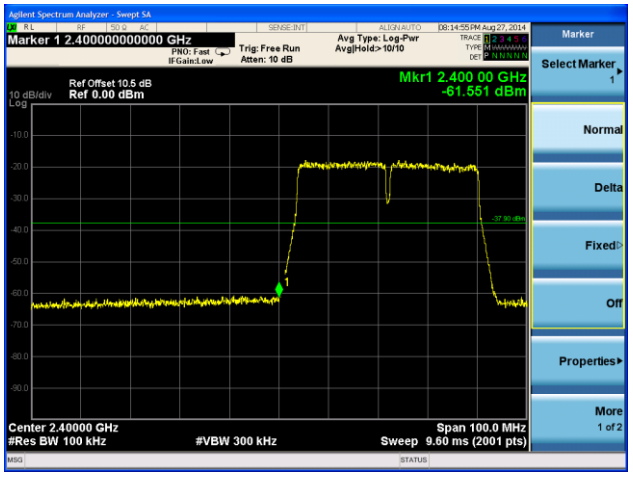
Channel 06 (2437MHz)

100kHz PSD reference Level

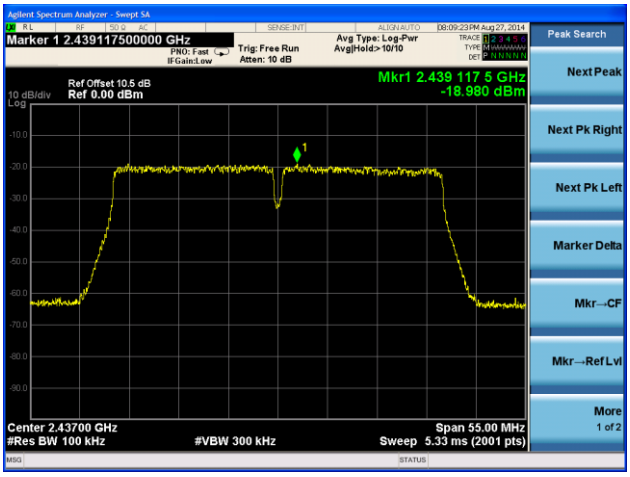


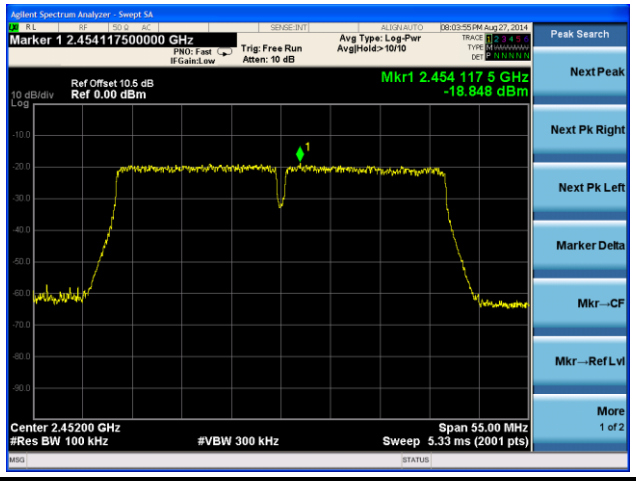
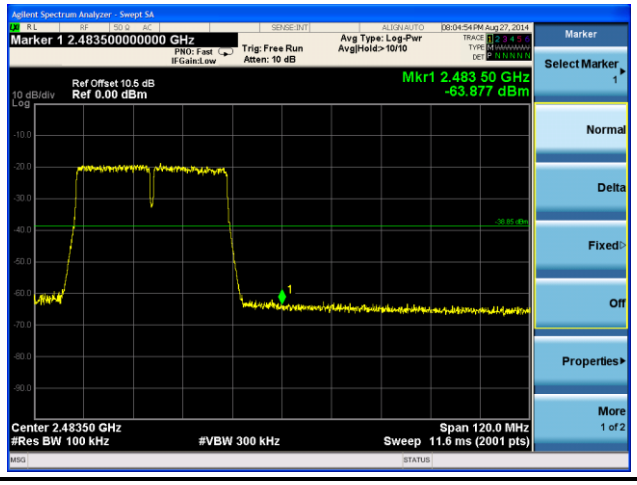
Spurious Emission 30MHz ~ 25GHz



Channel 11 (2462MHz)	
100kHz PSD reference Level	**High Band Edge**
	
Spurious Emission 30MHz ~ 25GHz	
	
802.11n-HT40 Out-of-Band Emissions	
Channel 03 (2422MHz)	
100kHz PSD reference Level	**Low Band Edge**
	

Spurious Emission 30MHz ~ 25GHz	
	

Channel 06 (2437MHz)	
100kHz PSD reference Level	Spurious Emission 30MHz ~ 25GHz
	

Channel 09 (2452MHz)	
100kHz PSD reference Level	High Band Edge
	

Spurious Emission 30MHz ~ 25GHz	
	

7.6. Radiated Spurious Emission Measurement

7.6.1. Test Limit

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

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [V/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

7.6.2. Test Procedure Used

KDB 558074 D01v03r02 – Section 12.2.3 (quasi-peak measurements)

KDB 558074 D01v03r02 – Section 12.2.4 (peak power measurements)

KDB 558074 D01v03r02 – Section 12.2.5 (average power measurements)

7.6.3. Test Setting

Peak Field Strength Measurements per Section 12.2.4 of KDB 558074 D01v03r02

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple

6. Trace mode = max hold
7. Trace was allowed to stabilize

Table 1—RBW as a function of frequency

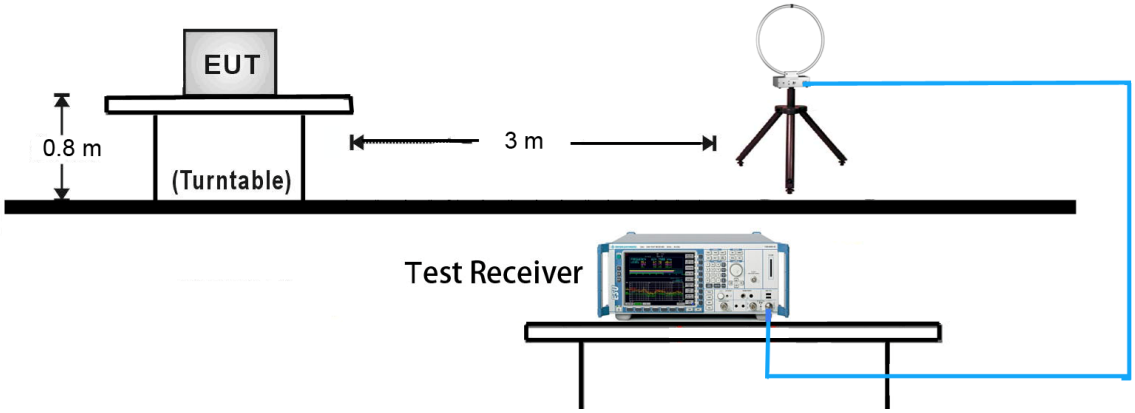
Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements per Section 12.2.5.1 of KDB 558074 D01v03r02

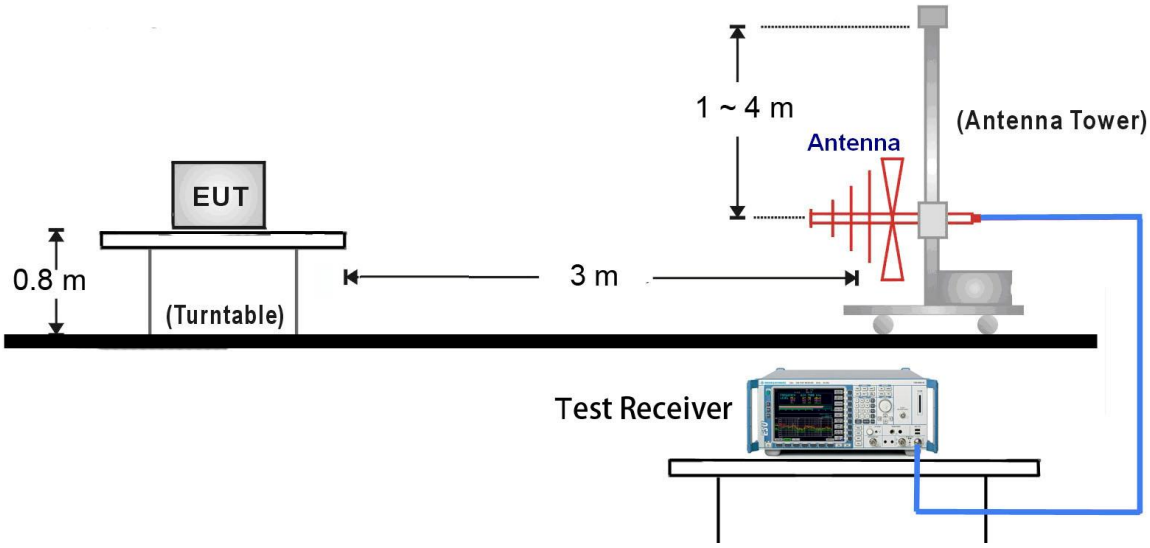
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW ≥ 1/T
4. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to “Voltage” regardless of the display mode
5. Detector = Peak
6. Sweep time = auto
7. Trace mode = max hold
8. Allow max hold to run for at least 50 times (1/duty cycle) traces

7.6.4. Test Setup

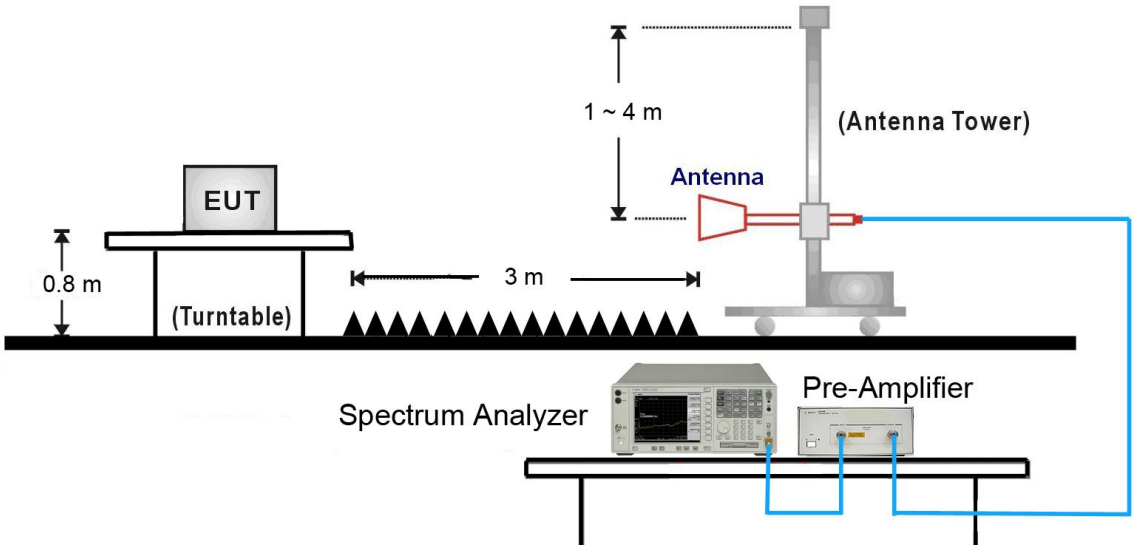
9kHz ~ 30MHz Test Setup:



30MHz ~ 1GHz Test Setup:



1GHz ~ 25GHz Test Setup:



7.6.5. Test Result

Test Mode:	802.11g	Test Site:	AC1
Test Channel:	01	Test Engineer:	Milo Li
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. **The worst case of Radiated Spurious Emission.** 3. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	3516.0	36.0	3.9	39.9	78.9	-39.0	Peak	Horizontal
*	4442.5	37.2	5.5	42.7	78.9	-36.2	Peak	Horizontal
	4924.0	36.9	6.7	43.6	74.0	-30.4	Peak	Horizontal
	7386.0	34.2	14.1	48.3	74.0	-25.7	Peak	Horizontal
*	3490.5	37.5	3.8	41.3	78.9	-37.6	Peak	Vertical
*	4485.0	37.5	5.6	43.1	78.9	-35.8	Peak	Vertical
	4824.0	37.0	6.4	43.4	74.0	-30.6	Peak	Vertical
	7236.0	34.9	13.8	48.7	74.0	-25.3	Peak	Vertical

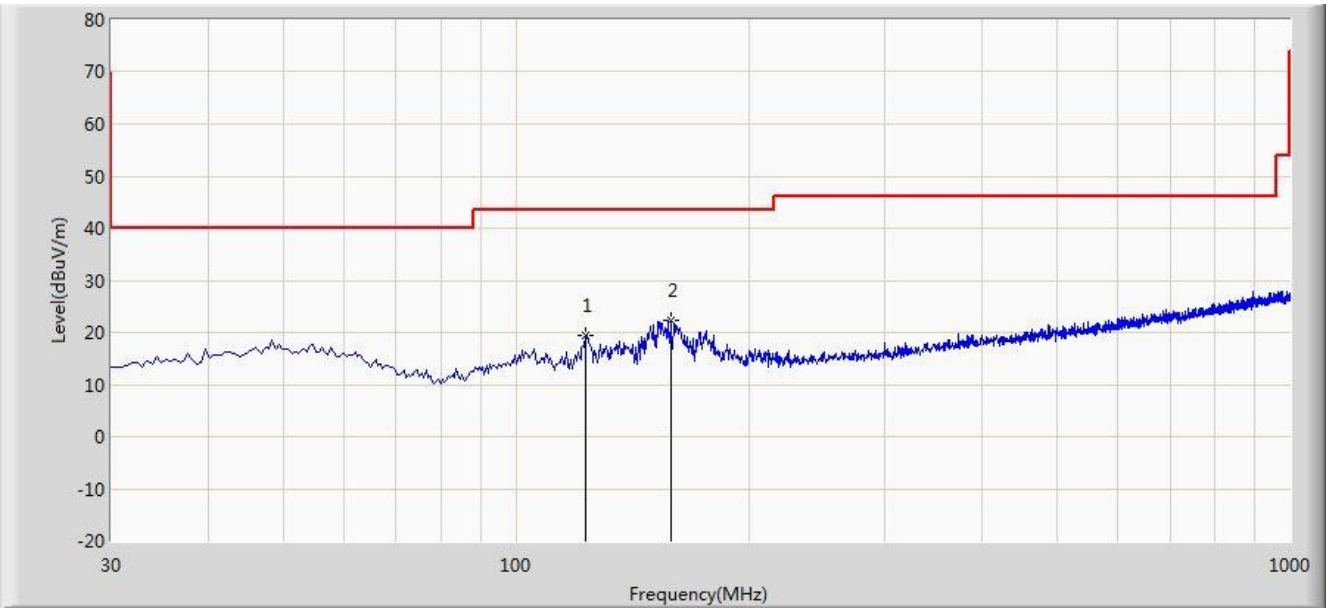
Note 1: “*” is not in restricted band, its limit is 20dBc of the fundamental emission level (98.9dBμV/m).

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

The worst case of Radiated Emission below 1GHz:

Engineer: Milo Li	
Site: AC1	Time: 2014/09/01 - 15:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Worst Case Mode: 802.11n-HT20 channel 2437MHz	

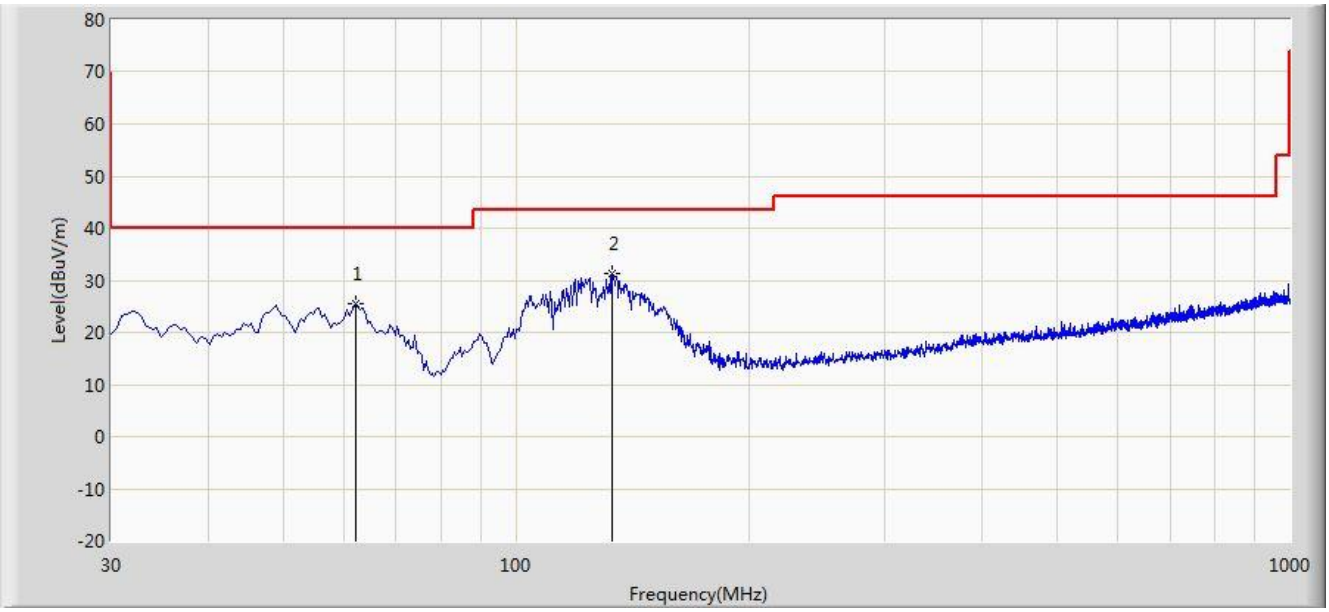


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			123.120	19.543	8.995	-23.957	43.500	10.548	QP
2		*	158.525	22.425	12.962	-21.075	43.500	9.463	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Engineer: Milo Li	
Site: AC1	Time: 2014/09/01 - 15:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Worst Case Mode: 802.11n-HT20 channel 2437MHz	

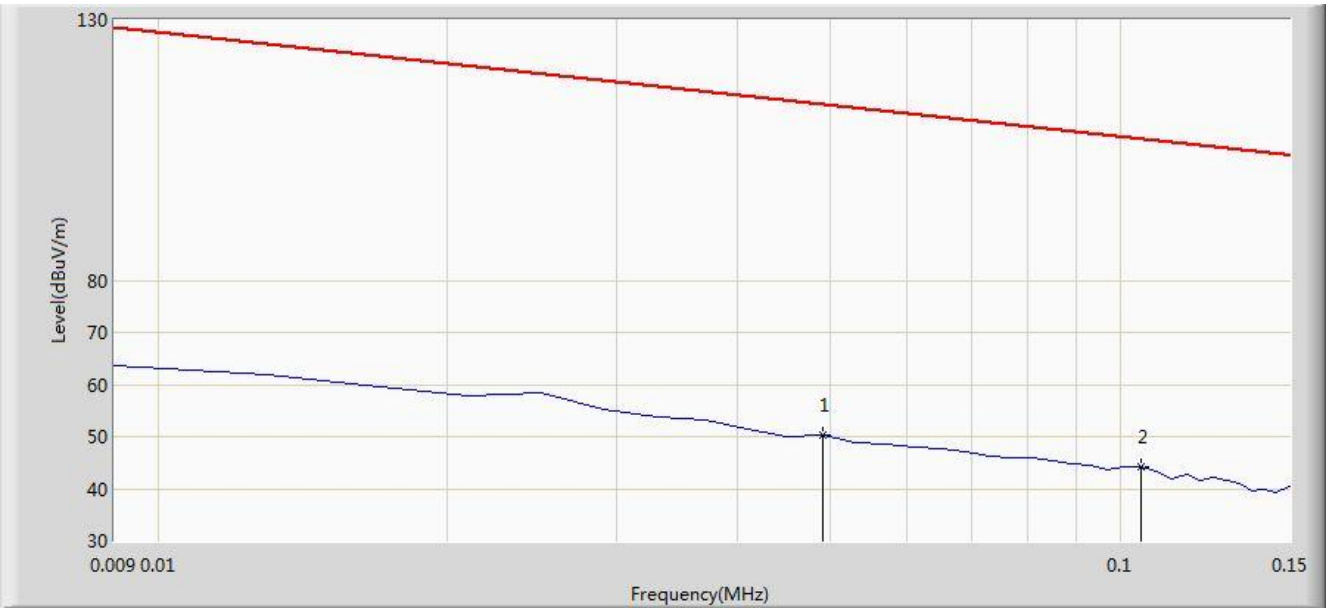


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			62.010	25.598	12.263	-14.402	40.000	13.335	QP
2		*	133.305	31.298	21.787	-12.202	43.500	9.511	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Engineer: Roy Cheng	
Site: AC1	Time: 2014/09/03 - 16:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: FMZB1519_0.009-30MHz	Polarity: Face On
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 9kHz~30MHz.	

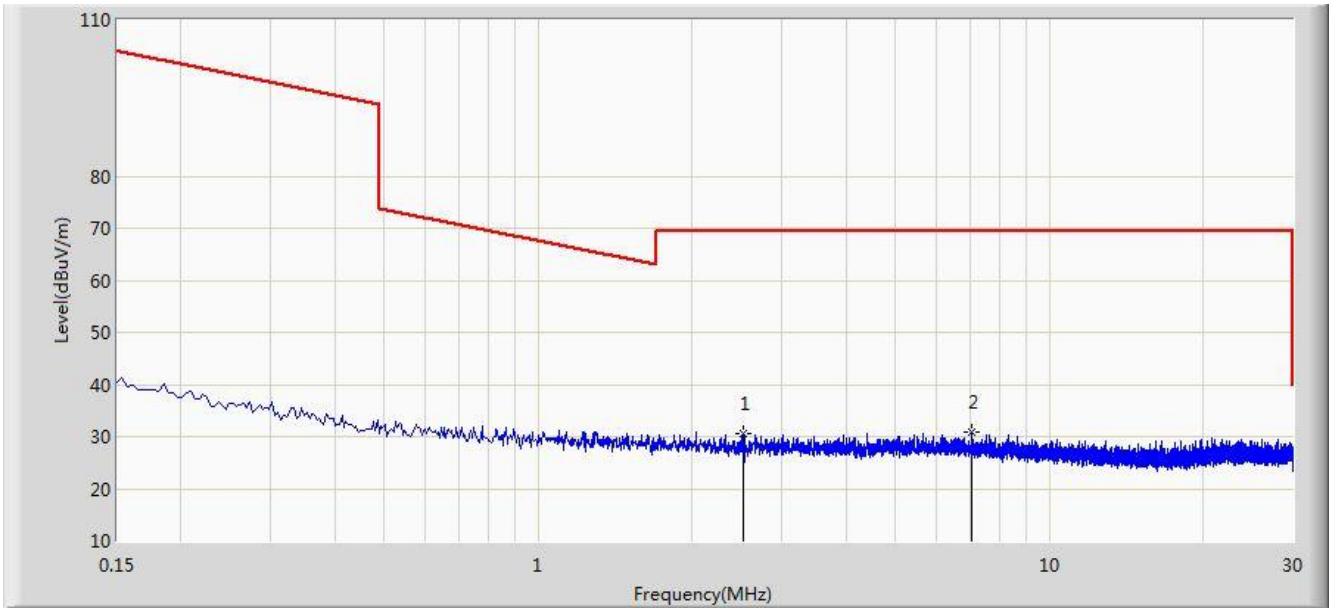


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			0.049	50.367	29.861	-63.422	113.789	20.505	QP
2		*	0.105	44.143	23.996	-63.029	107.173	20.147	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Engineer: Roy Cheng	
Site: AC1	Time: 2014/09/03 - 16:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: FMZB1519_0.009-30MHz	Polarity: Face On
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 9kHz~30MHz.	

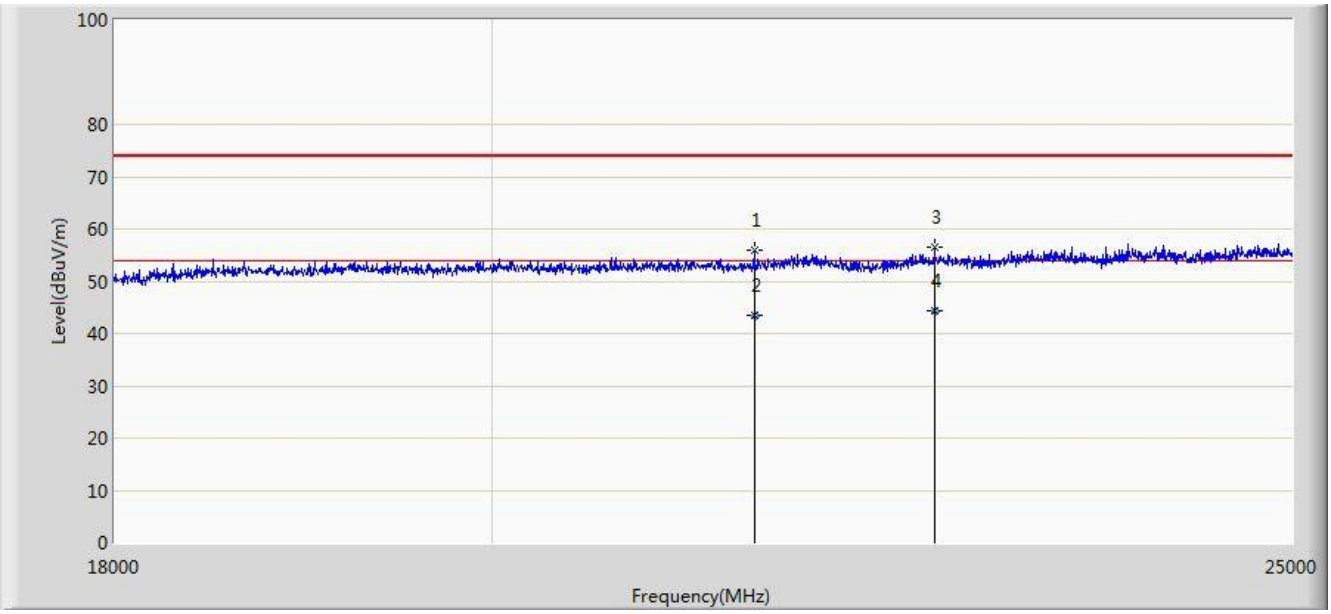


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2.513	30.495	10.336	-39.005	69.500	20.159	QP
2		*	7.041	30.974	10.579	-38.526	69.500	20.395	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Engineer: Roy Cheng	
Site: AC1	Time: 2014/09/03 - 17:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9170_18-40GHz	Polarity: Horizontal
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 18 ~ 25GHz.	

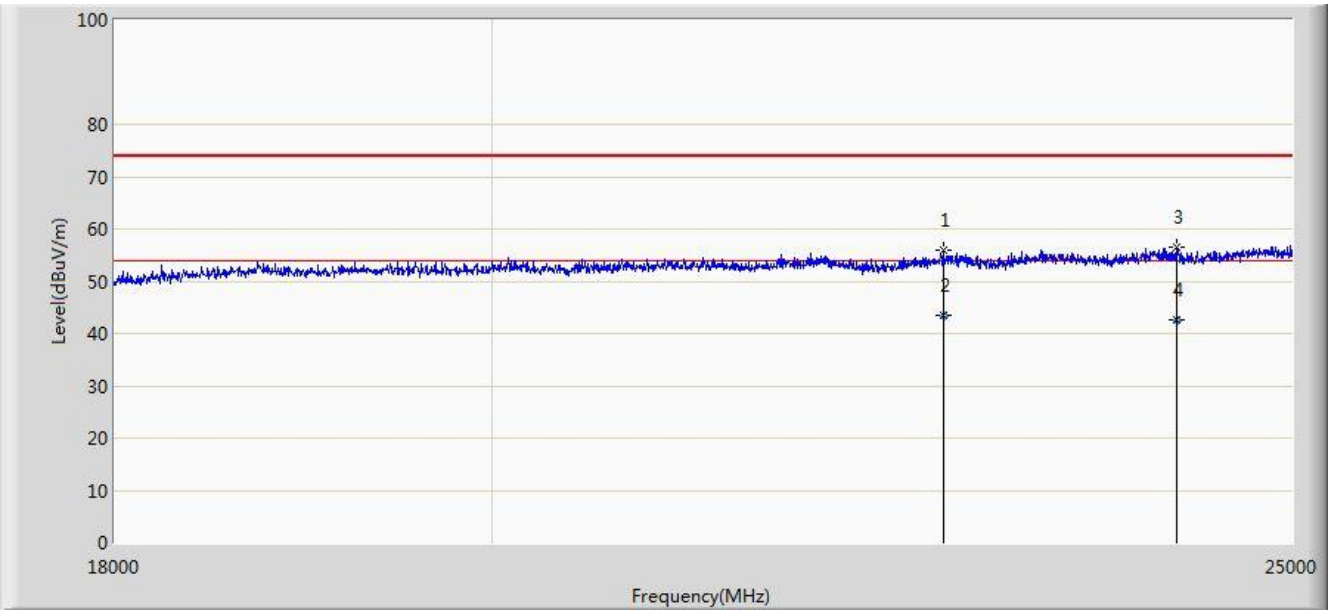


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			21517.500	55.869	17.883	-18.131	74.000	37.986	PK
2			21517.650	43.351	5.365	-10.649	54.000	37.986	AV
3			22630.500	56.509	18.223	-17.491	74.000	38.286	PK
4		*	22630.540	44.310	6.024	-9.690	54.000	38.286	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Engineer: Roy Cheng	
Site: AC1	Time: 2014/09/03 - 17:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9170_18-40GHz	Polarity: Vertical
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 18 ~ 25GHz.	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			22686.500	55.811	17.457	-18.189	74.000	38.354	PK
2		*	22686.540	43.598	5.244	-10.402	54.000	38.354	AV
3			24205.500	56.430	17.607	-17.570	74.000	38.823	PK
4			24205.658	42.518	3.695	-11.482	54.000	38.823	AV

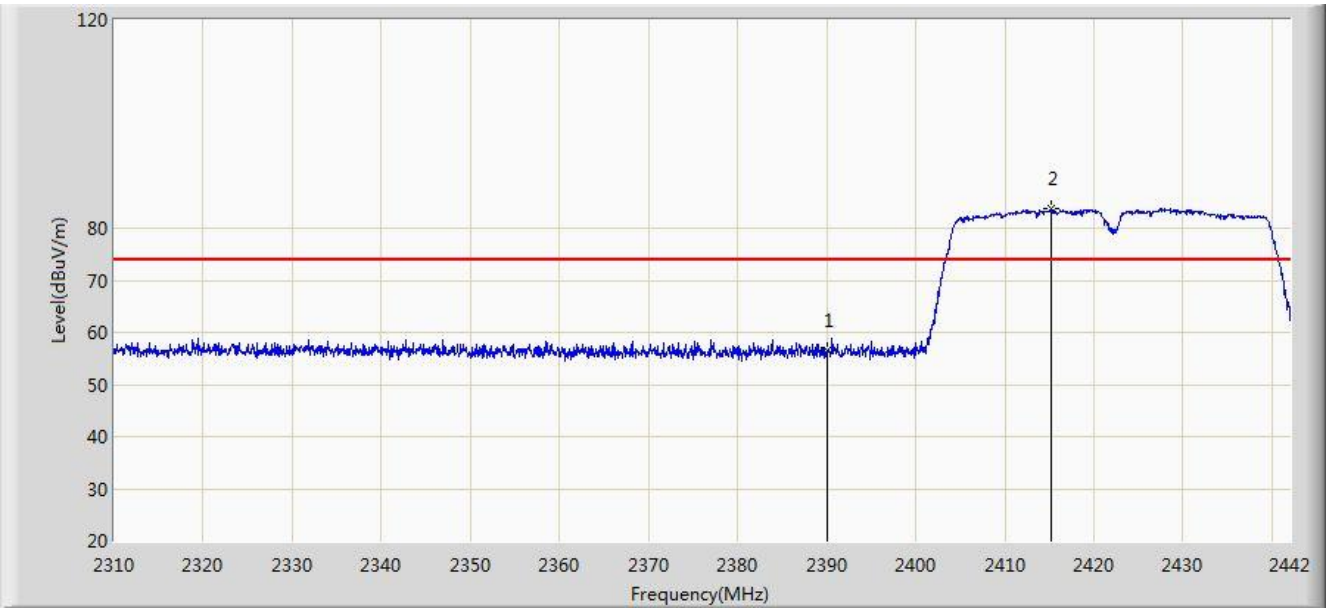
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

7.7. Radiated Restricted Band Edge Measurement

7.7.1. Test Result

Engineer: Milo Li	
Site: AC1	Time: 2014/09/01 - 17:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Worst Case Mode: 802.11n-HT40 channel 2422MHz	

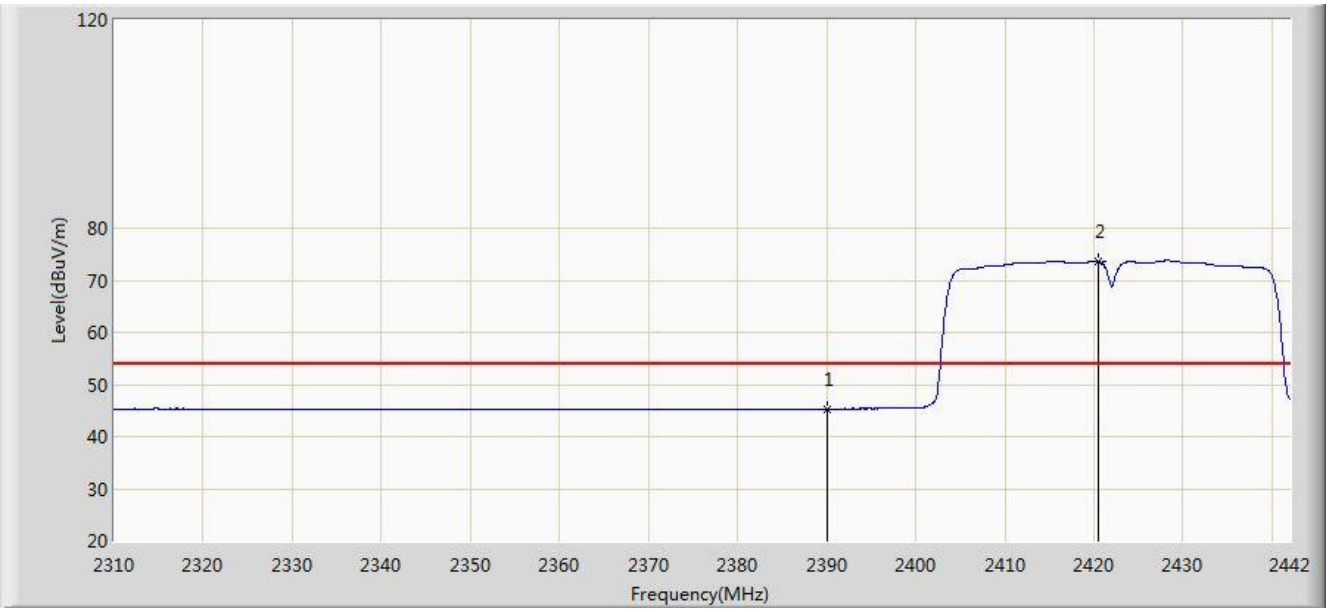


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	56.429	25.745	-17.571	74.000	30.684	PK
2		*	2415.138	83.715	53.075	N/A	N/A	30.639	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Engineer: Milo Li	
Site: AC1	Time: 2014/09/01 - 17:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Worst Case Mode: 802.11n-HT40 channel 2422MHz	

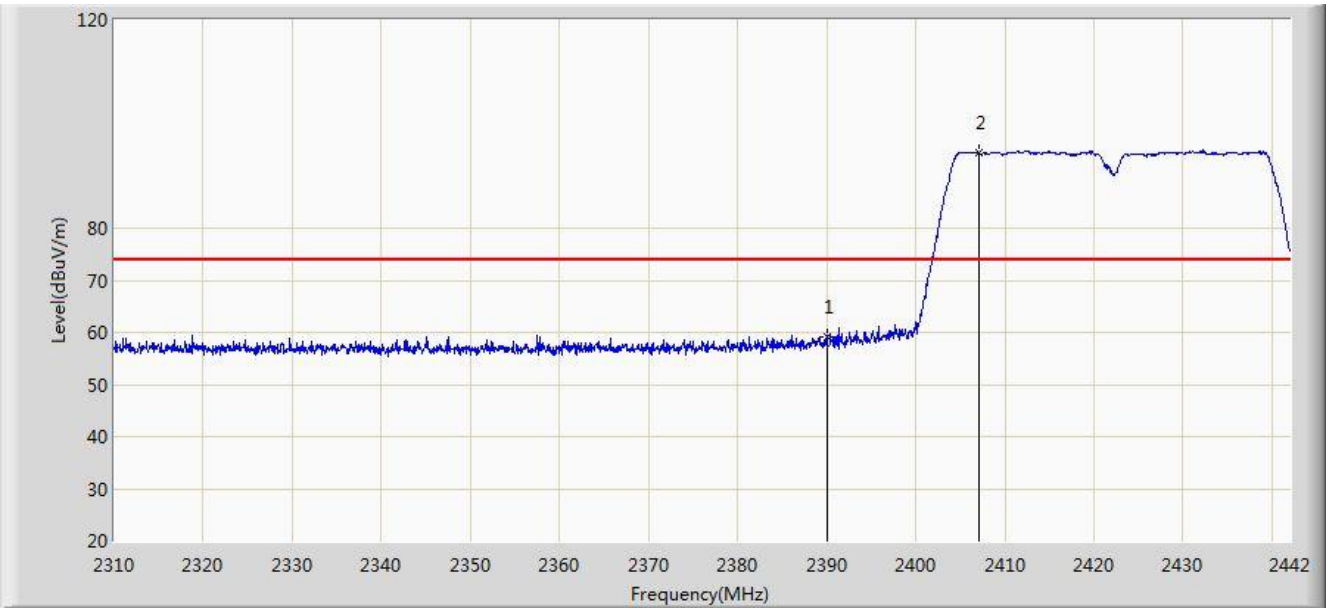


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	45.320	14.636	-8.680	54.000	30.684	AV
2		*	2420.550	73.588	42.957	N/A	N/A	30.632	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Engineer: Milo Li	
Site: AC1	Time: 2014/09/01 - 17:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Worst Case Mode: 802.11n-HT40 channel 2422MHz	

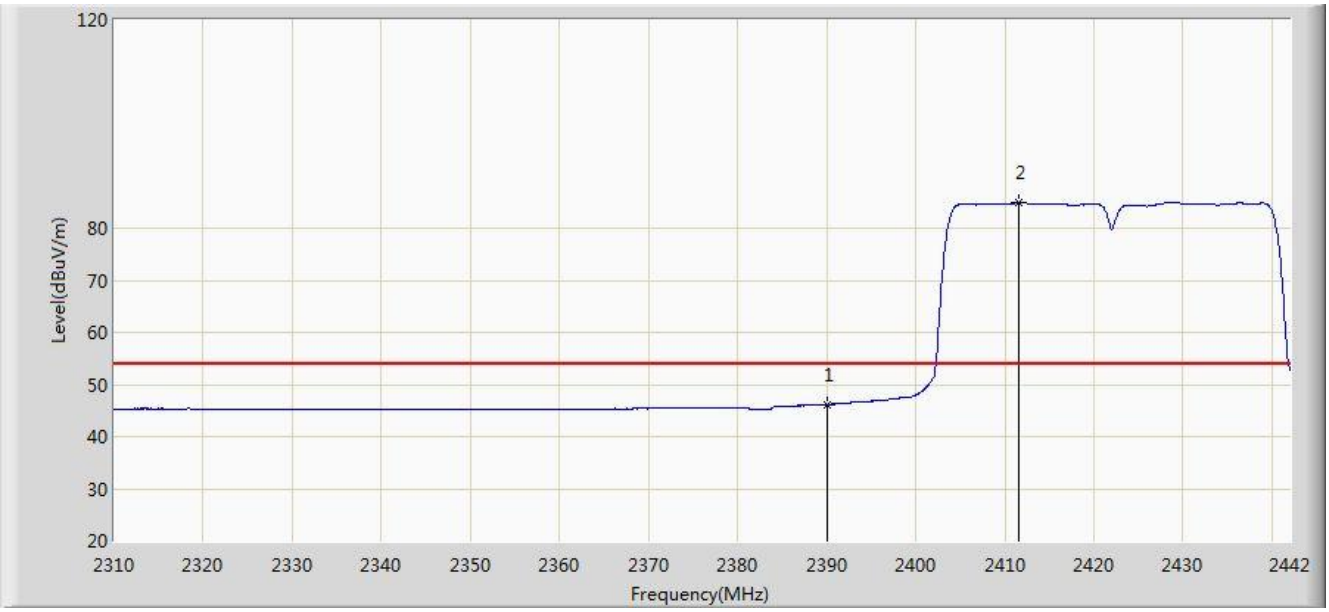


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	59.129	28.445	-14.871	74.000	30.684	PK
2		*	2407.020	94.478	63.825	N/A	N/A	30.653	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Engineer: Milo Li	
Site: AC1	Time: 2014/09/01 - 18:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Worst Case Mode: 802.11n-HT40 channel 2422MHz	

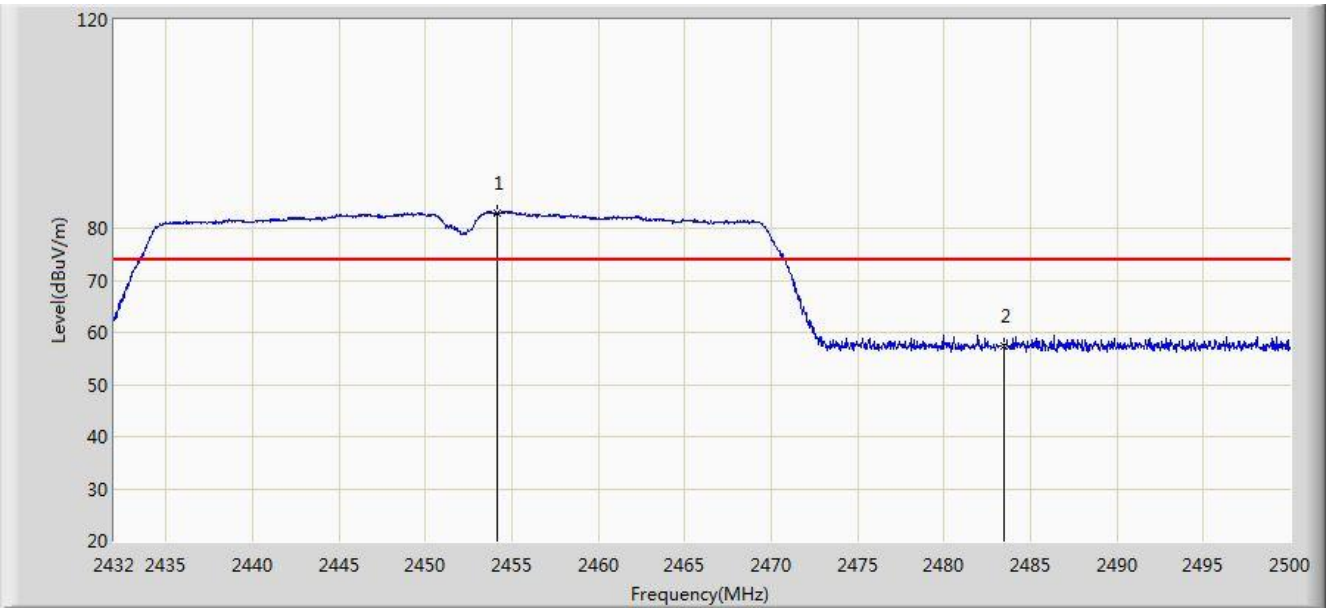


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	46.162	15.478	-7.838	54.000	30.684	AV
2		*	2411.574	84.860	54.215	N/A	N/A	30.645	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Engineer: Milo Li	
Site: AC1	Time: 2014/09/01 - 18:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Worst Case Mode: 802.11n-HT40 channel 2452MHz	

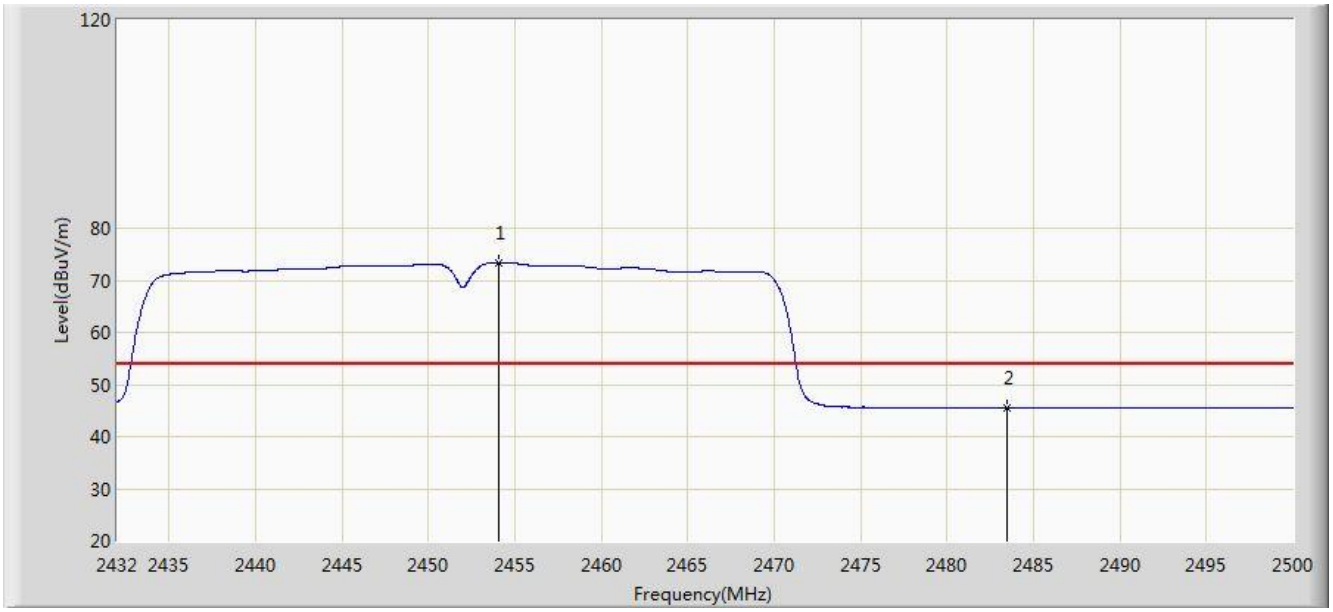


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2454.134	82.943	52.343	N/A	N/A	30.599	PK
2			2483.500	57.372	26.699	-16.628	74.000	30.673	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Engineer: Milo Li	
Site: AC1	Time: 2014/09/01 - 18:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Worst Case Mode: 802.11n-HT40 channel 2452MHz	

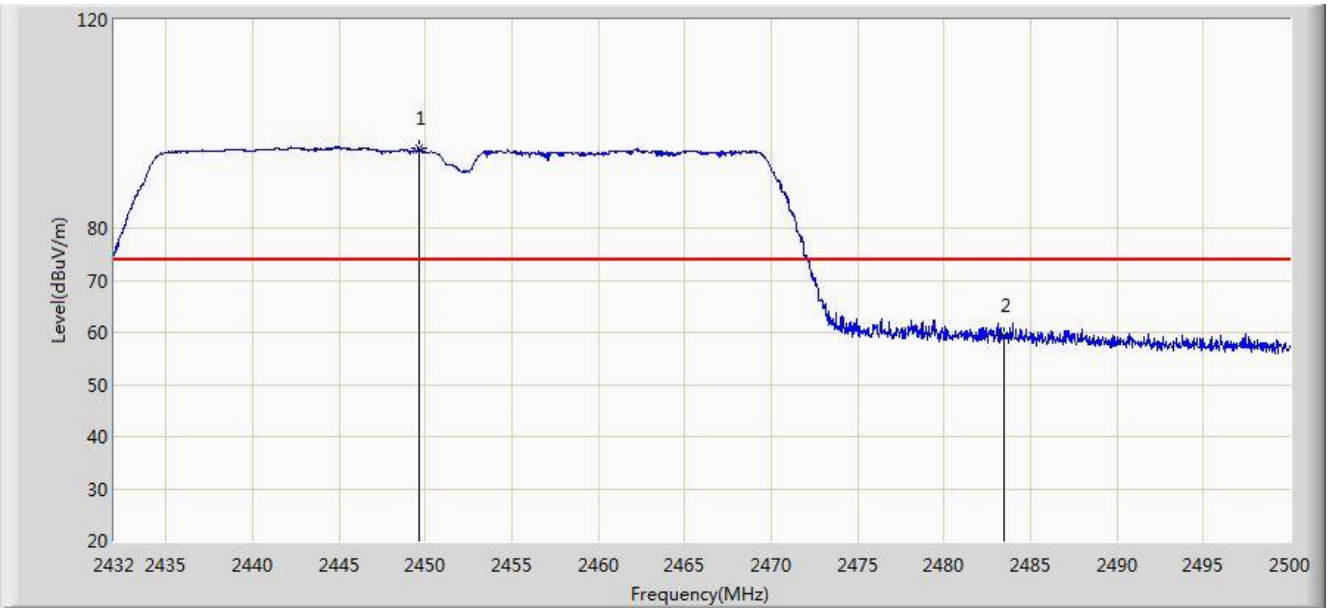


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2454.066	73.460	42.860	N/A	N/A	30.599	AV
2			2483.500	45.522	14.849	-8.478	54.000	30.673	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Engineer: Milo Li	
Site: AC1	Time: 2014/09/01 - 18:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Worst Case Mode: 802.11n-HT40 channel 2452MHz	

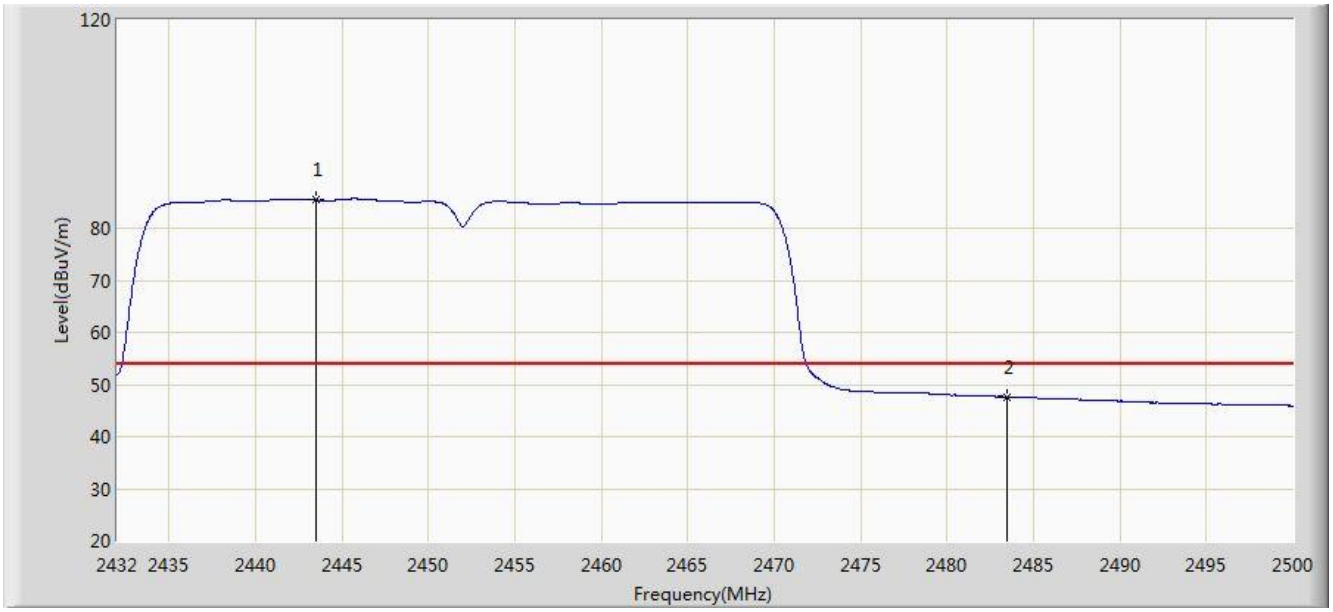


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2449.646	95.461	64.868	N/A	N/A	30.593	PK
2			2483.500	59.314	28.641	-14.686	74.000	30.673	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Engineer: Milo Li	
Site: AC1	Time: 2014/09/01 - 18:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Worst Case Mode: 802.11n-HT40 channel 2452MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2443.492	85.383	54.791	N/A	N/A	30.592	AV
2			2483.500	47.614	16.941	-6.386	54.000	30.673	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

7.8. AC Conducted Emissions Measurement

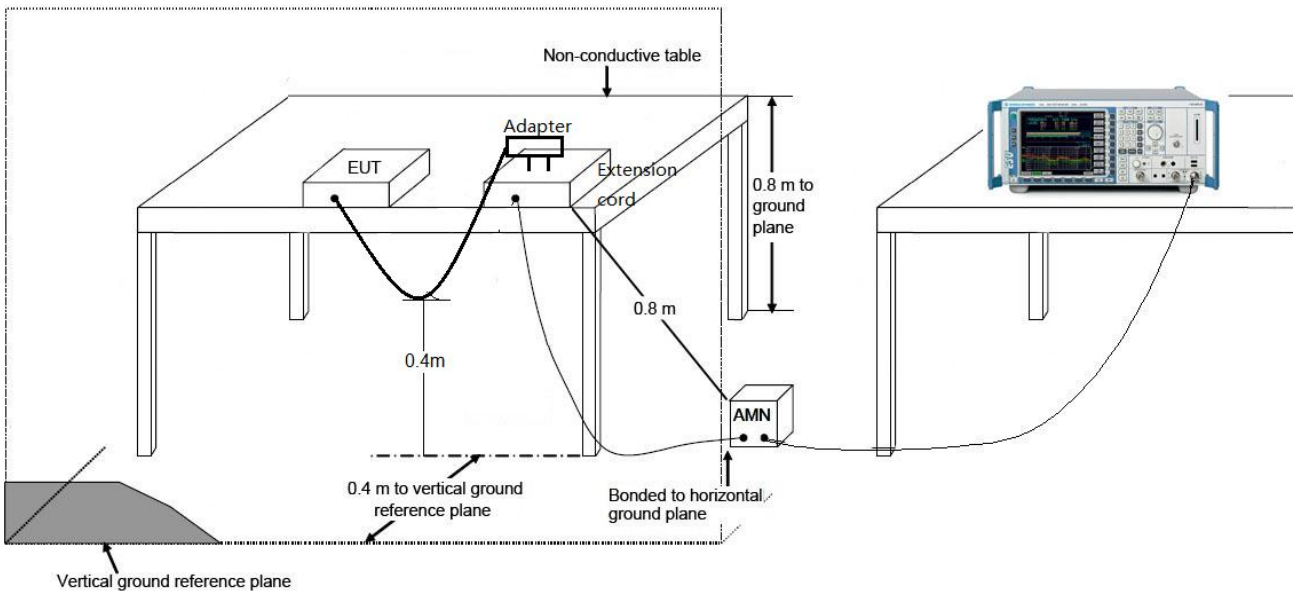
7.8.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 – 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

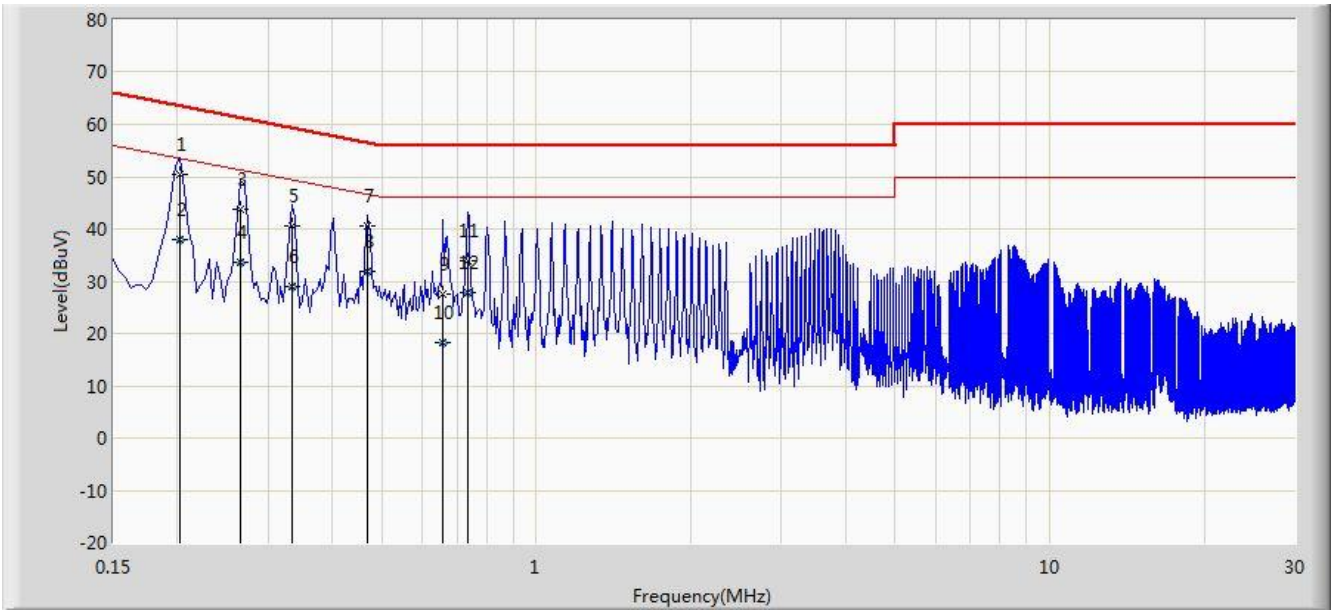
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.8.2. Test Setup



7.8.3. Test Result

Engineer: Milo Li	
Site: SR2	Time: 2014/09/12 - 13:59
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Note: Mode1	

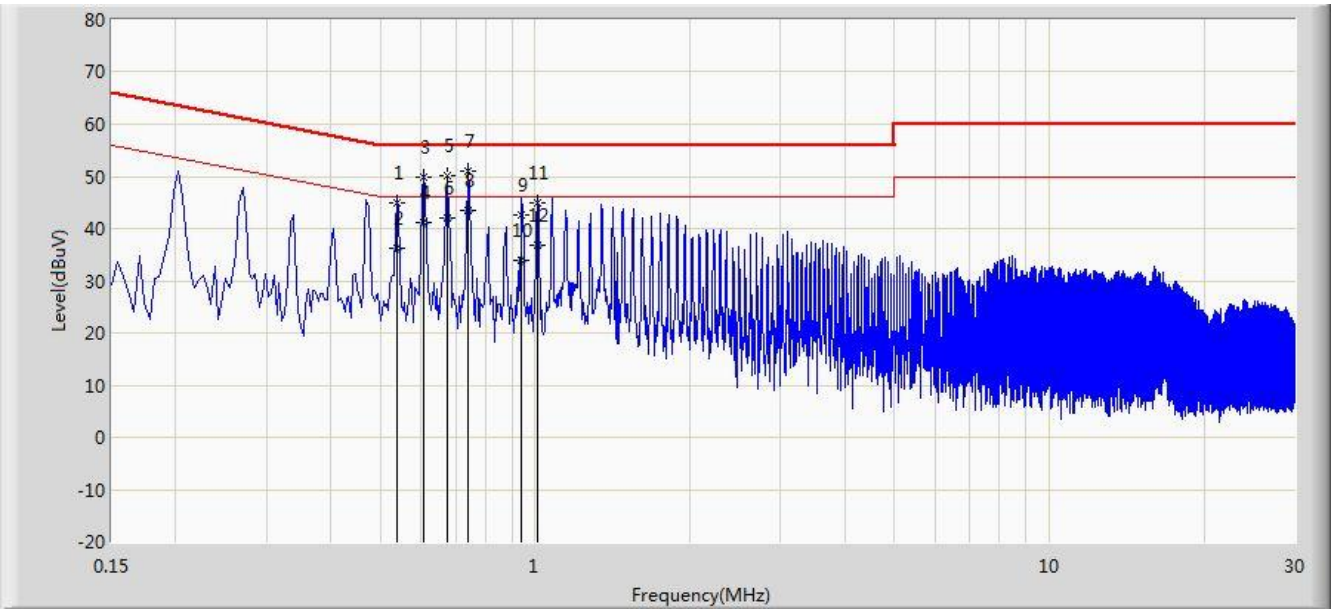


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.202	50.294	40.301	-13.234	63.528	9.993	QP
2			0.202	37.873	27.880	-15.655	53.528	9.993	AV
3			0.266	43.820	33.843	-17.422	61.242	9.977	QP
4			0.266	33.504	23.527	-17.738	51.242	9.977	AV
5			0.334	40.518	30.486	-18.834	59.351	10.031	QP
6			0.334	28.841	18.810	-20.510	49.351	10.031	AV
7			0.470	40.674	30.532	-15.840	56.514	10.142	QP
8			0.470	31.952	21.810	-14.562	46.514	10.142	AV
9			0.658	27.679	17.594	-28.321	56.000	10.085	QP
10			0.658	18.238	8.153	-27.762	46.000	10.085	AV
11			0.734	34.023	23.977	-21.977	56.000	10.046	QP
12			0.734	27.698	17.653	-18.302	46.000	10.046	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Engineer: Milo Li	
Site: SR2	Time: 2014/09/12 - 14:03
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Mobile Data Terminal	Power: AC 120V/60Hz
Note: Mode1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.538	44.985	34.819	-11.015	56.000	10.166	QP
2			0.538	36.306	26.141	-9.694	46.000	10.166	AV
3			0.606	49.743	39.615	-6.257	56.000	10.128	QP
4			0.606	41.081	30.953	-4.919	46.000	10.128	AV
5			0.674	50.084	39.995	-5.916	56.000	10.090	QP
6			0.674	42.171	32.081	-3.829	46.000	10.090	AV
7			0.742	51.027	40.975	-4.973	56.000	10.051	QP
8		*	0.742	43.525	33.473	-2.475	46.000	10.051	AV
9			0.942	42.555	32.614	-13.445	56.000	9.941	QP
10			0.942	33.943	24.002	-12.057	46.000	9.941	AV
11			1.010	44.834	34.925	-11.166	56.000	9.909	QP
12			1.010	36.890	26.982	-9.110	46.000	9.909	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

8. CONCLUSION

The data collected relate only the item(s) tested and show that the **Mobile Data Terminal FCC ID: 2AC6AC4000** is in compliance with Part 15C of the FCC Rules.

The End