



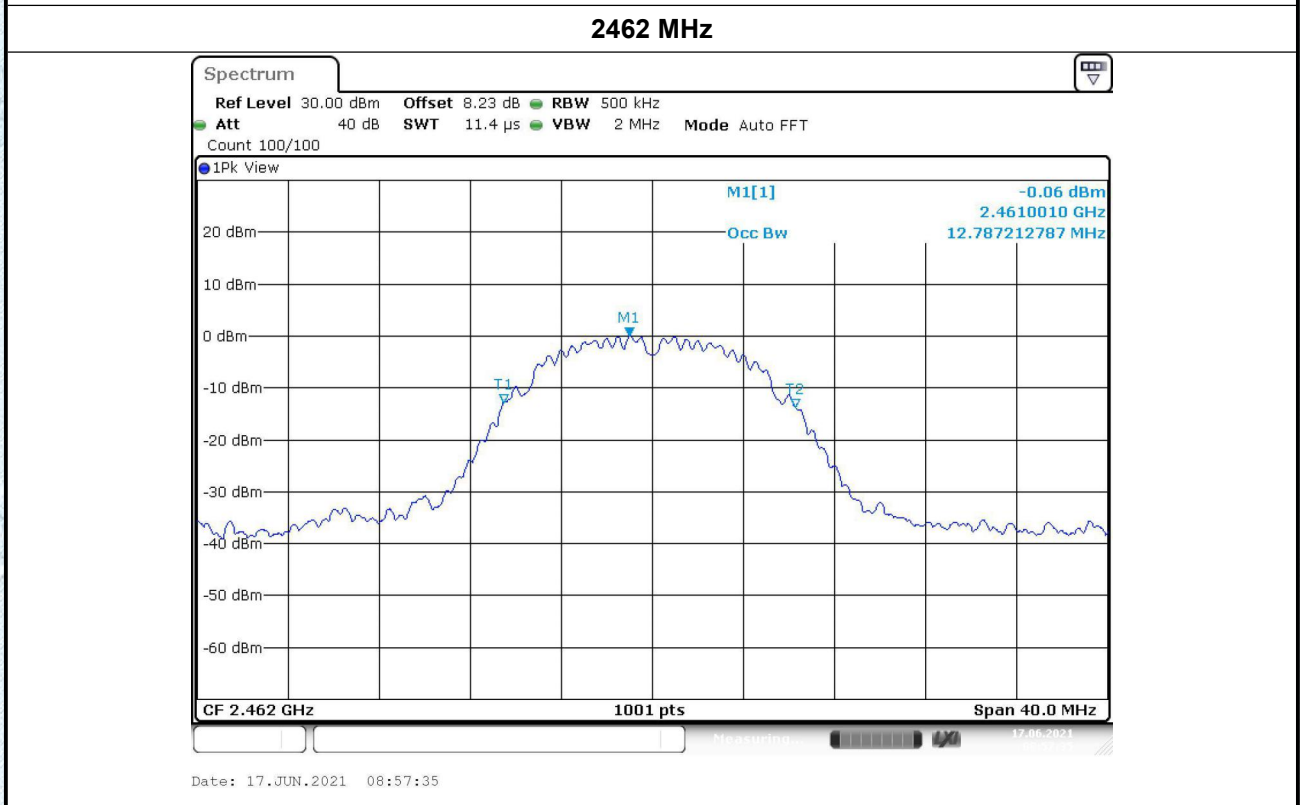
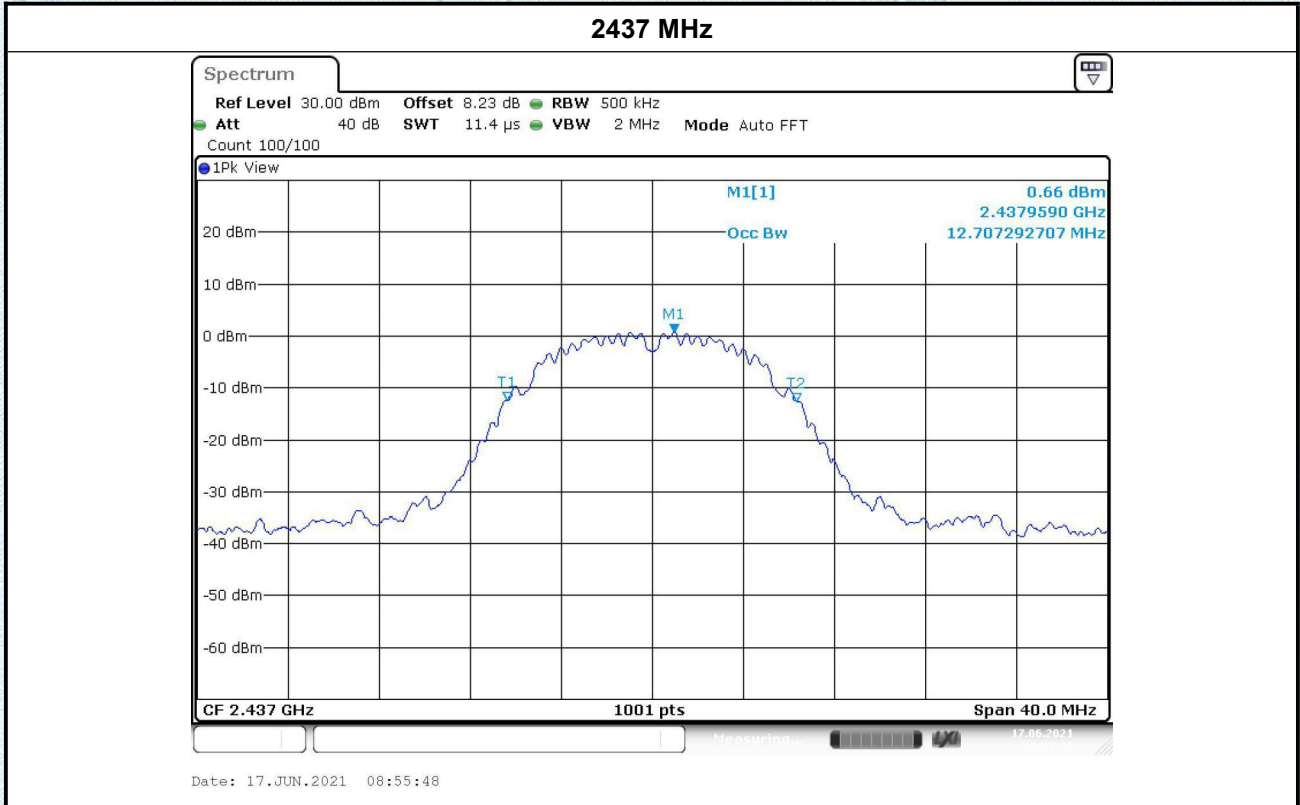
Test Mode:	802.11b Mode	
Channel frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2412	12.667	>=0.5
2437	12.707	
2462	12.787	

2412 MHz

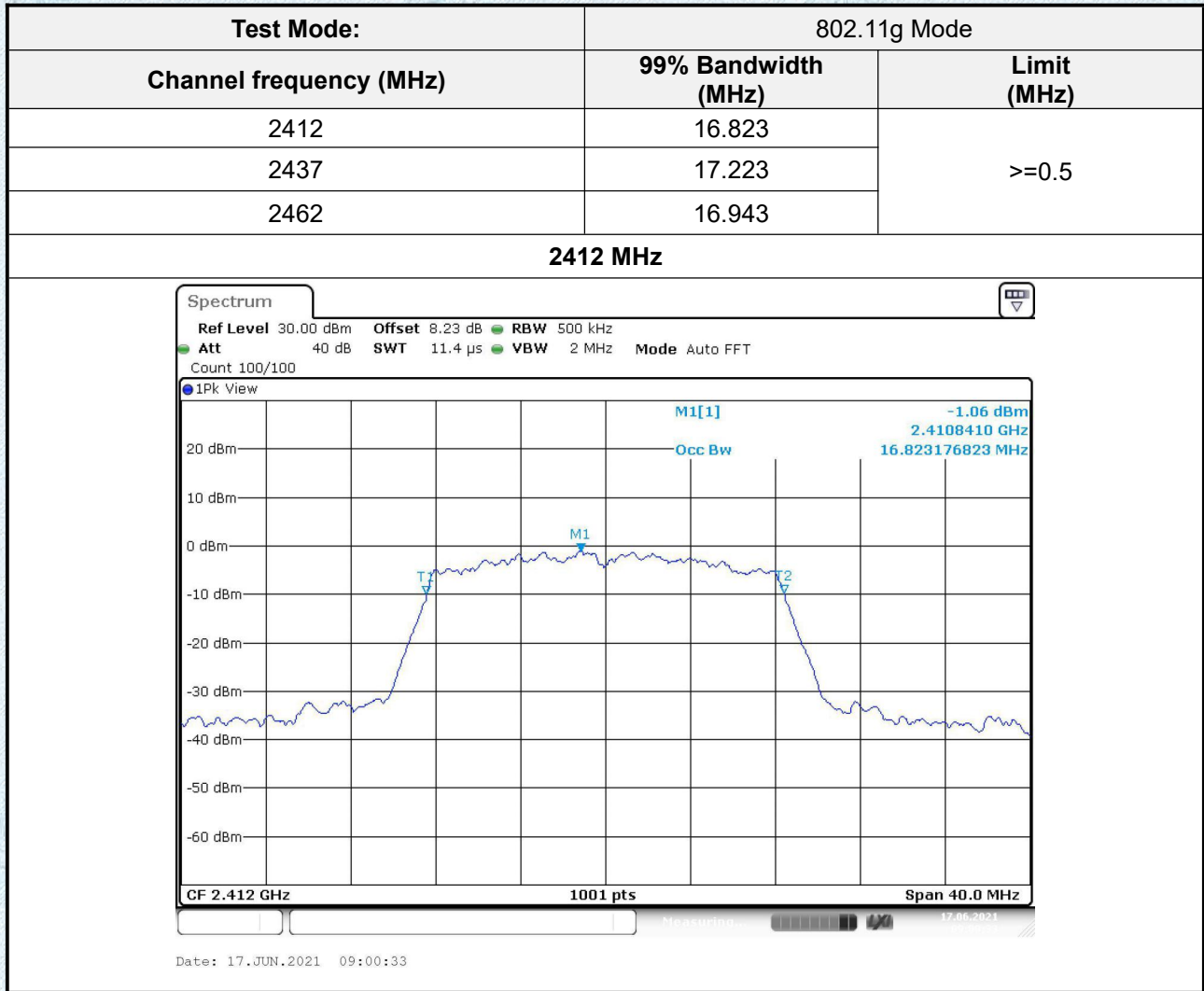


Date: 17.JUN.2021 08:52:58

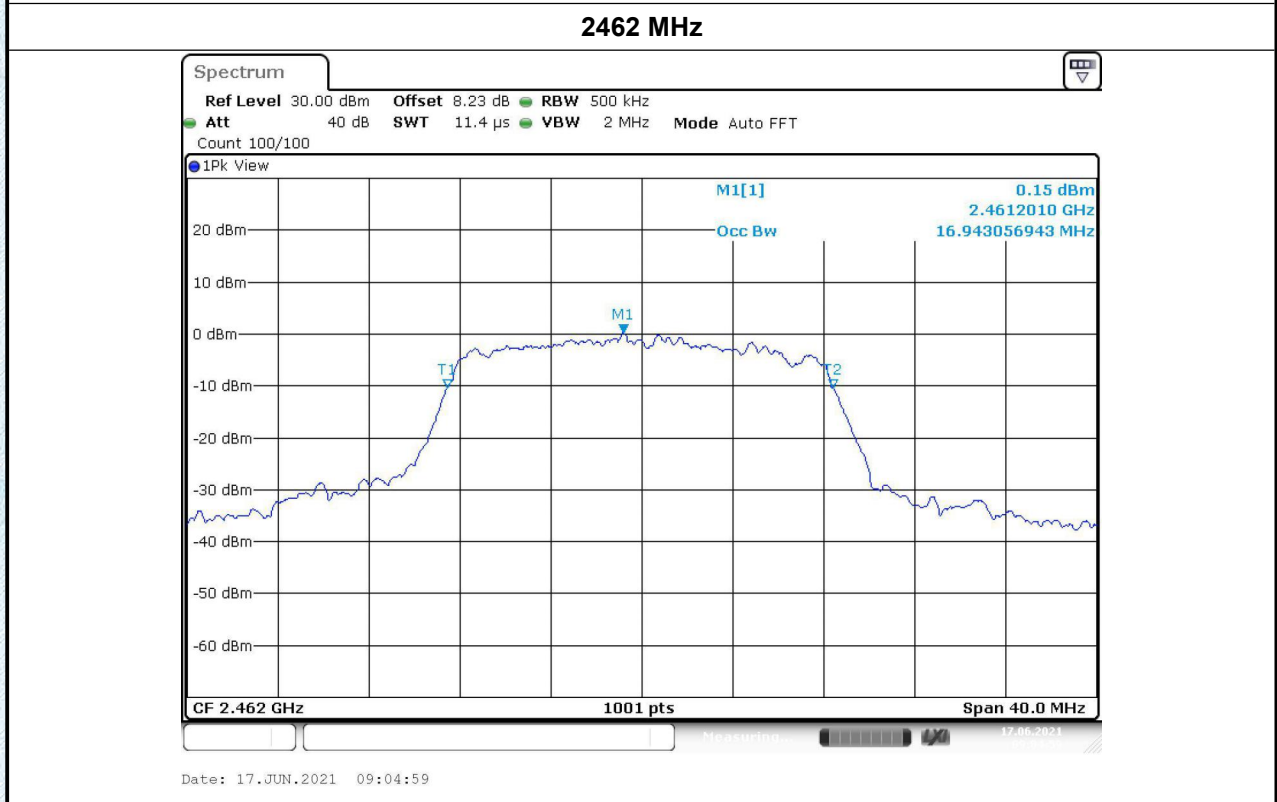
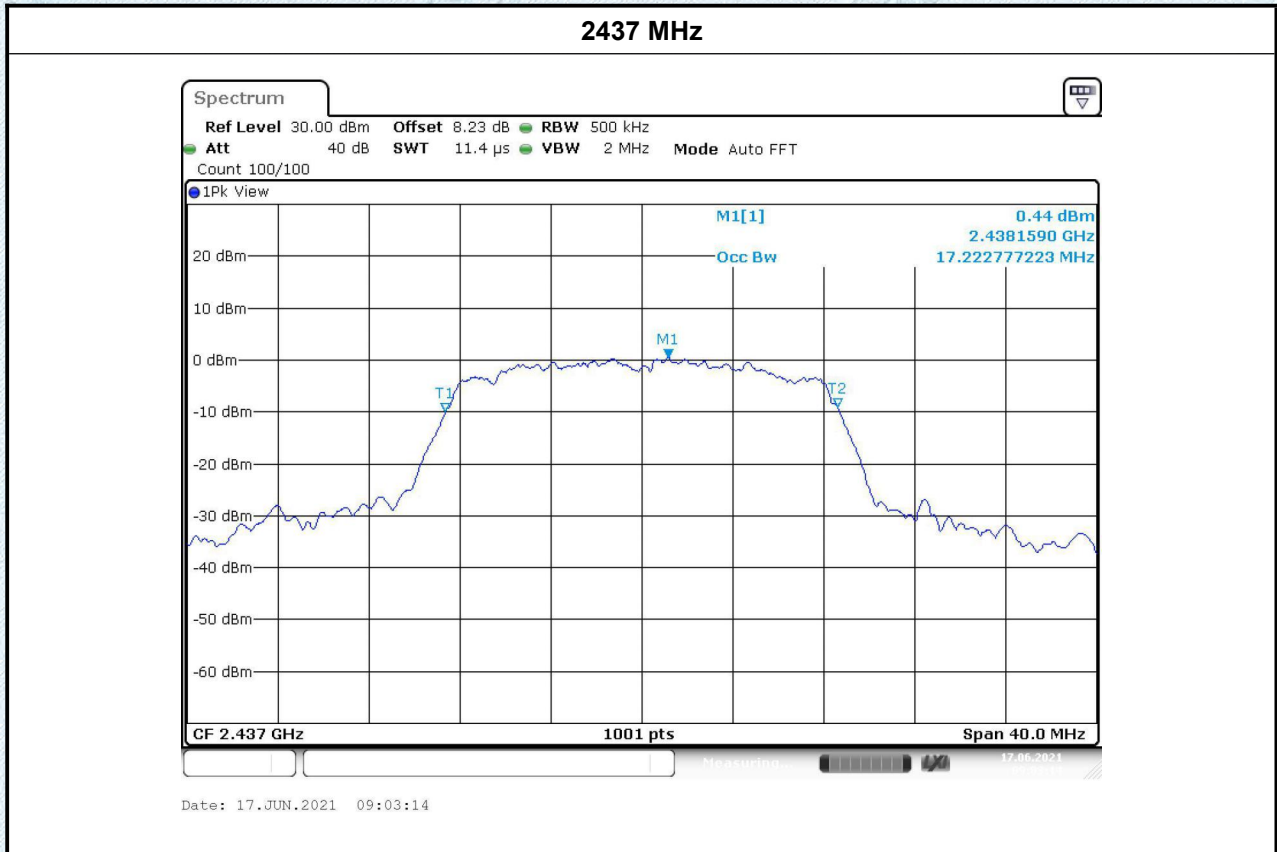








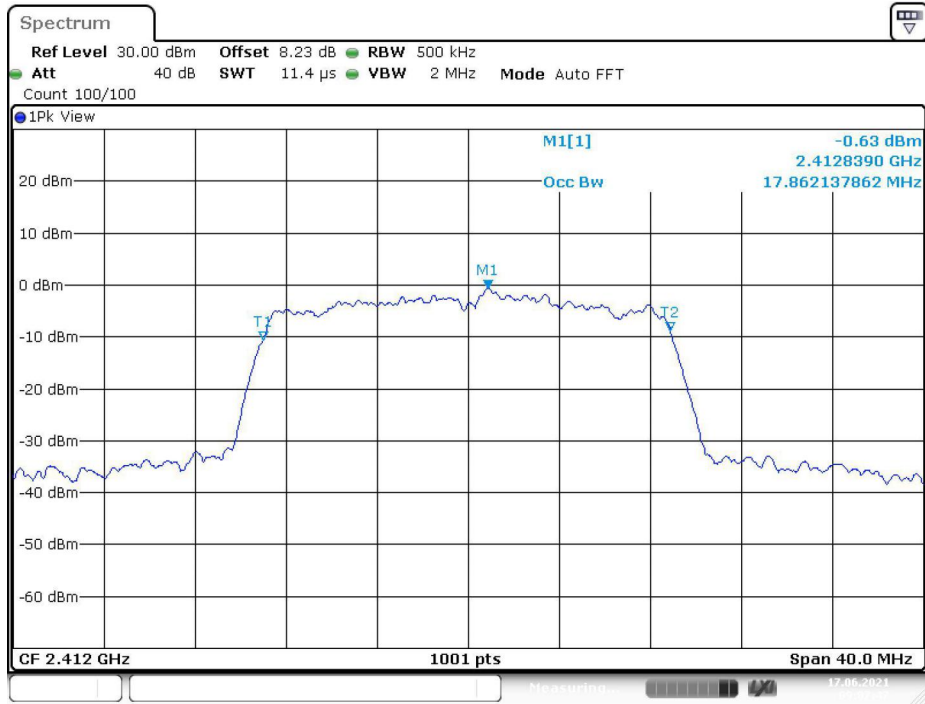




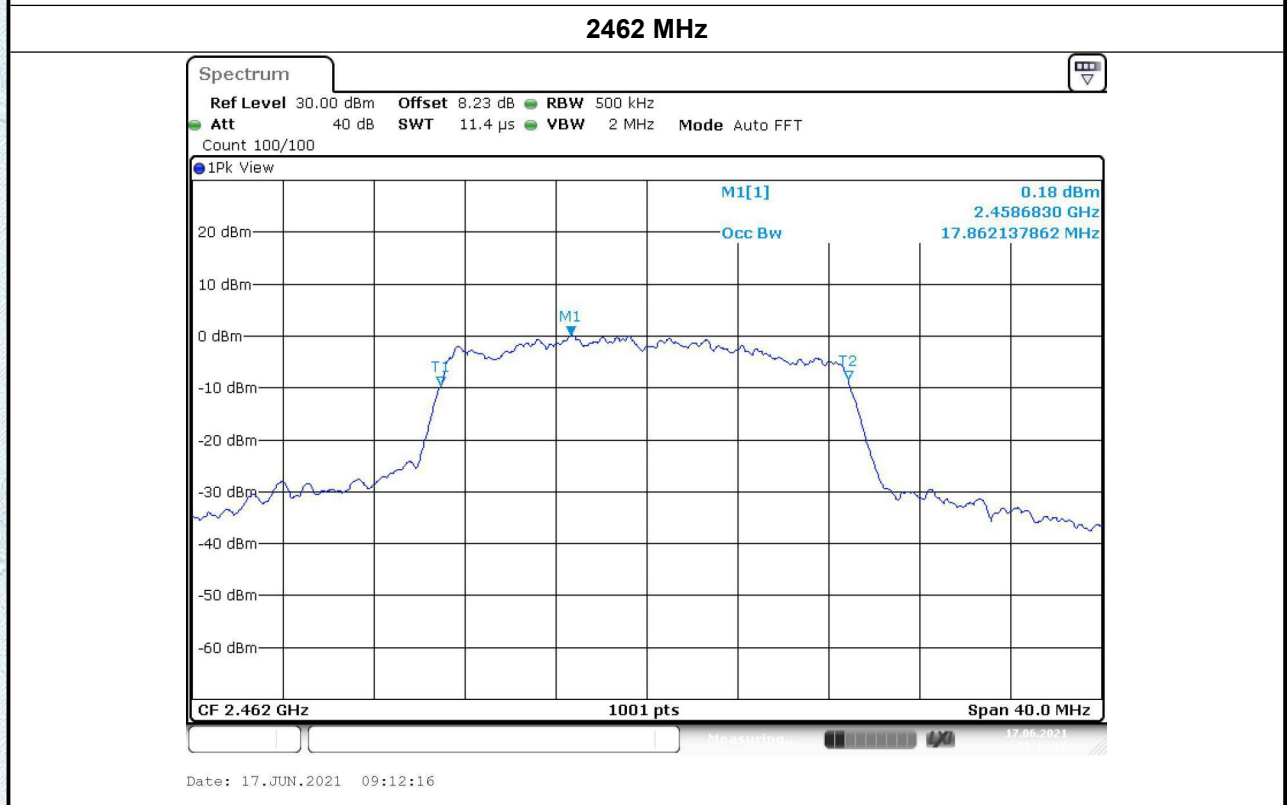
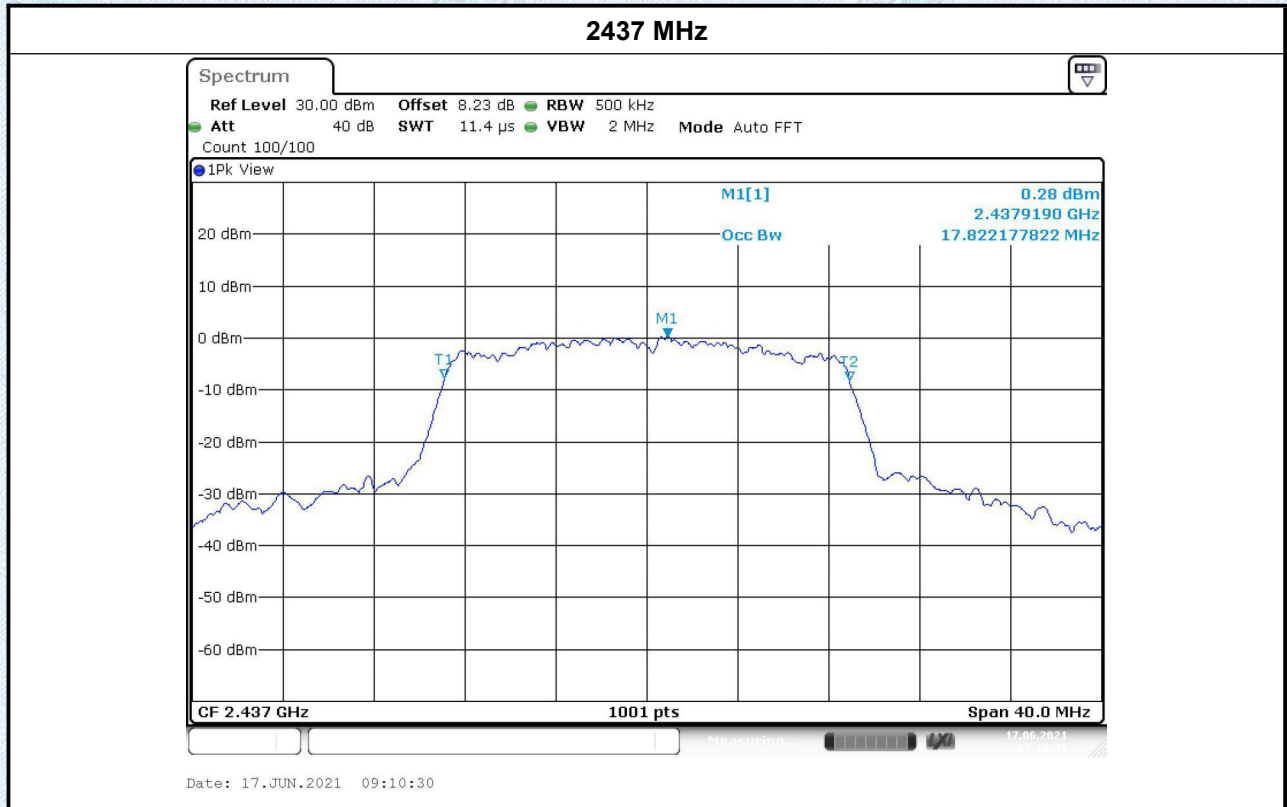


Test Mode:	802.11n(HT20) Mode	
Channel frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2412	17.862	>=0.5
2437	17.822	
2462	17.862	

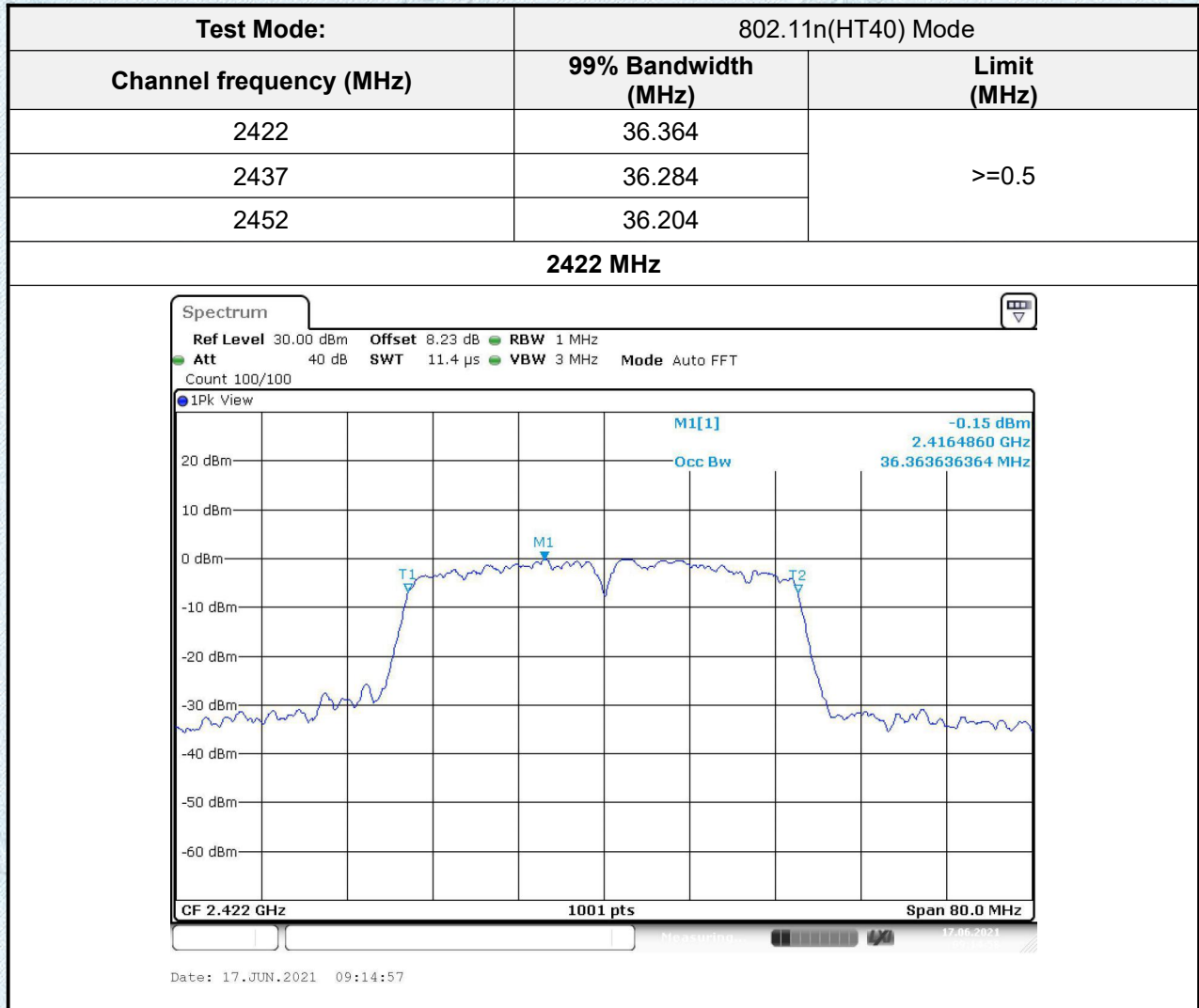
**2412 MHz**



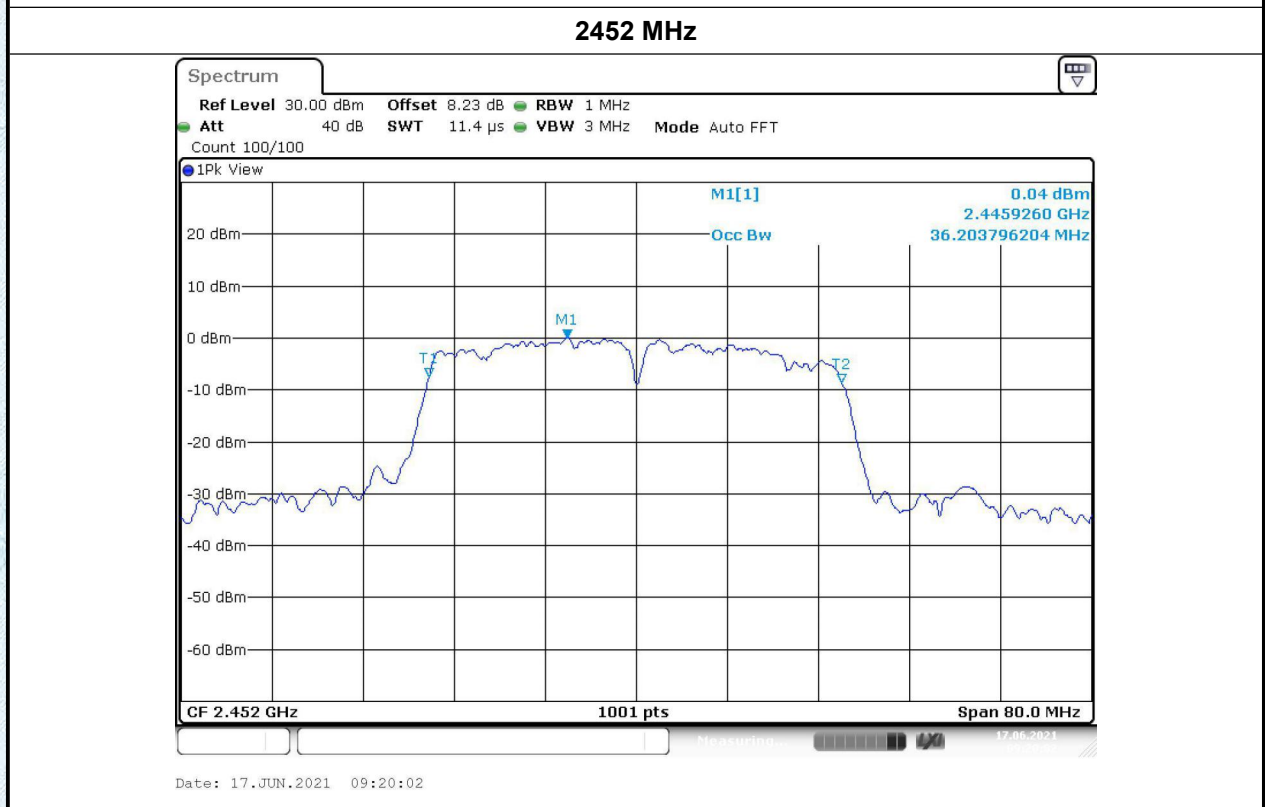
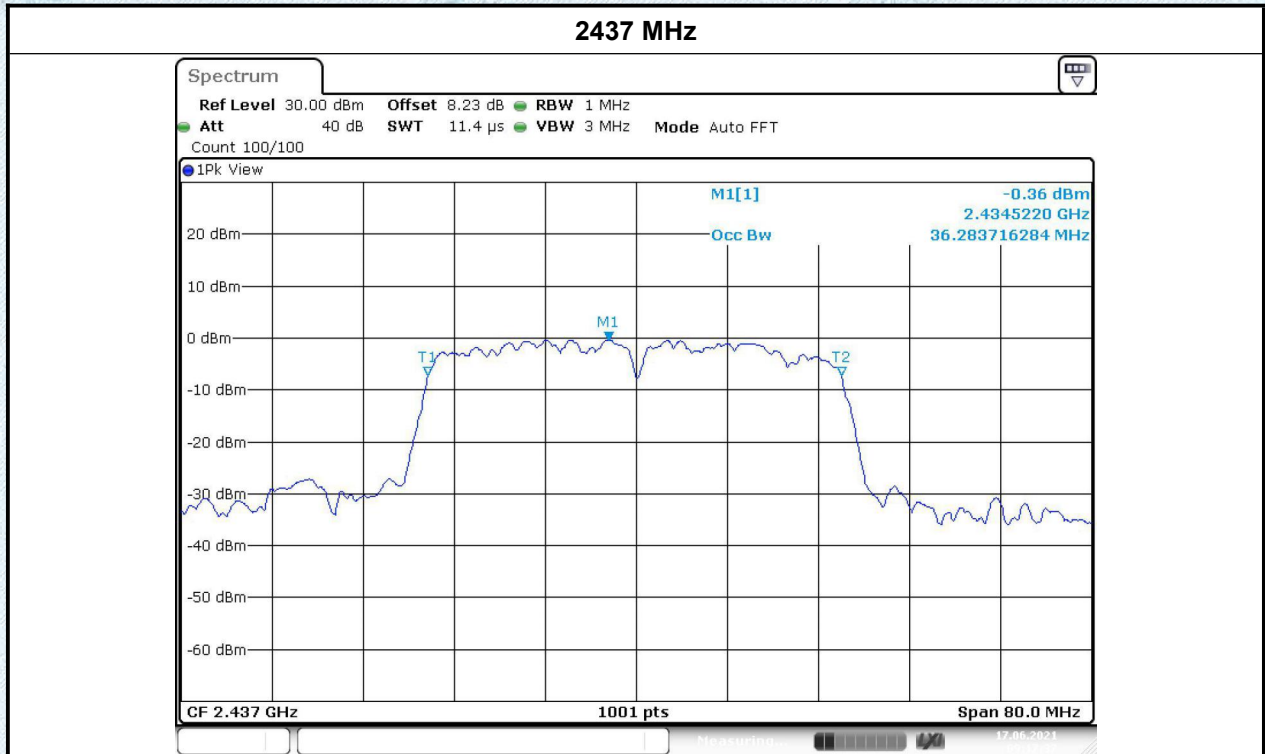














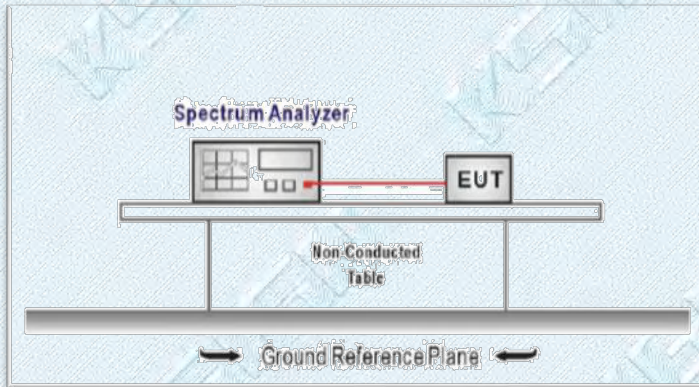
### 3.5. Band edge and Spurious Emission (Conducted)

#### Limit

#### **FCC CFR Title 47 Part 15 Subpart C Section 15.247 (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 EUT RF Output port to the Spectrum Analyzer through an RF attenuator.
2. Spectrum Setting:
  - RBW=100KHz
  - VBW=300KHz.
  - Detector function: Peak.
  - Trace: Max hold.
  - Sweep = Auto couple.

Allow the trace to stabilize.

#### **Test Mode**

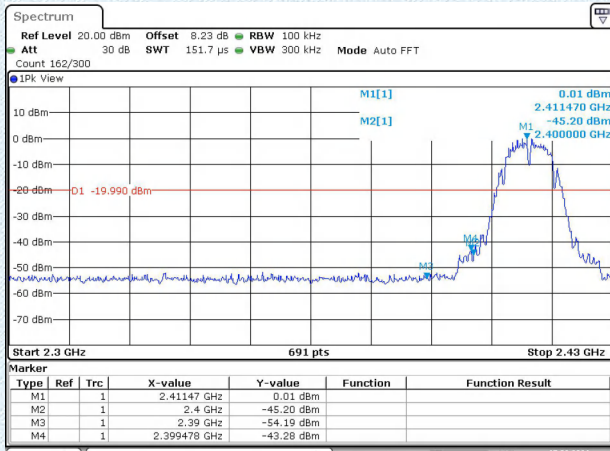
Please refer to the clause 2.2.

#### **Test Results**



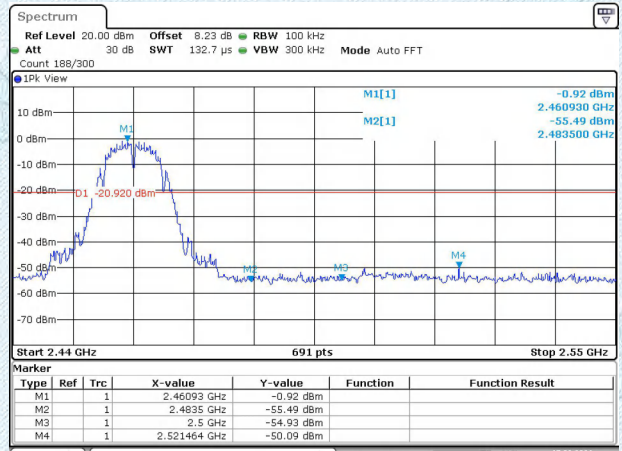
802.11b

CH01-Bandedge



Date: 17 JUN 2021 08:53:21

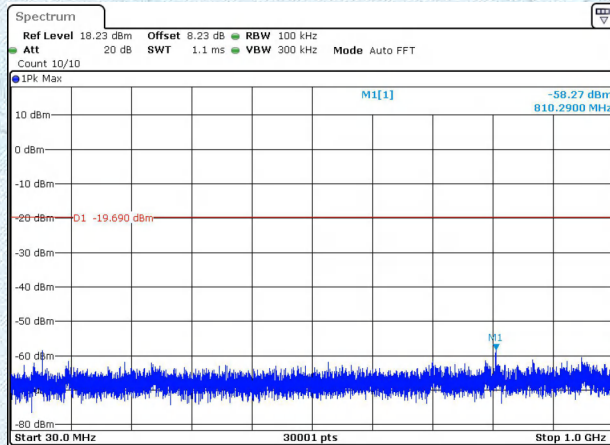
CH11-Bandedge



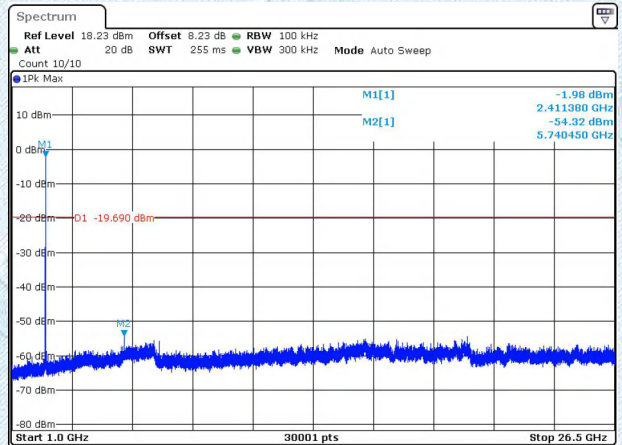
Date: 17 JUN 2021 08:57:57

802.11b

CH01-SE



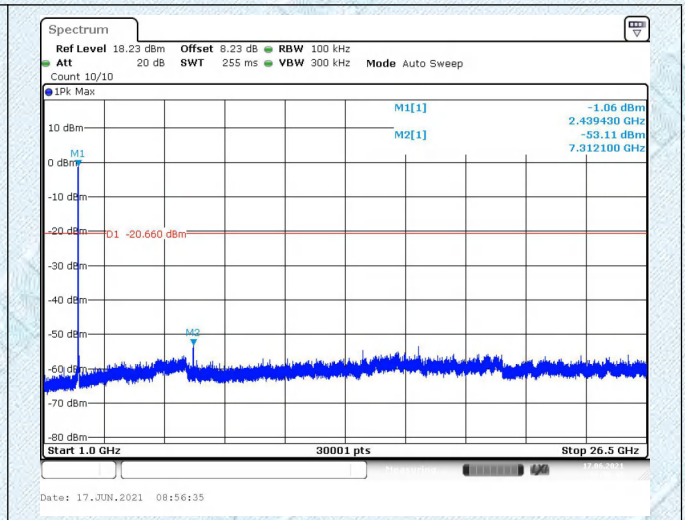
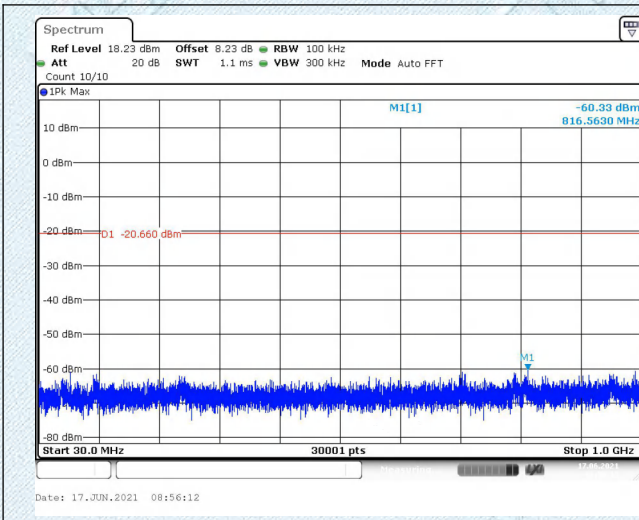
Date: 17 JUN 2021 08:54:25



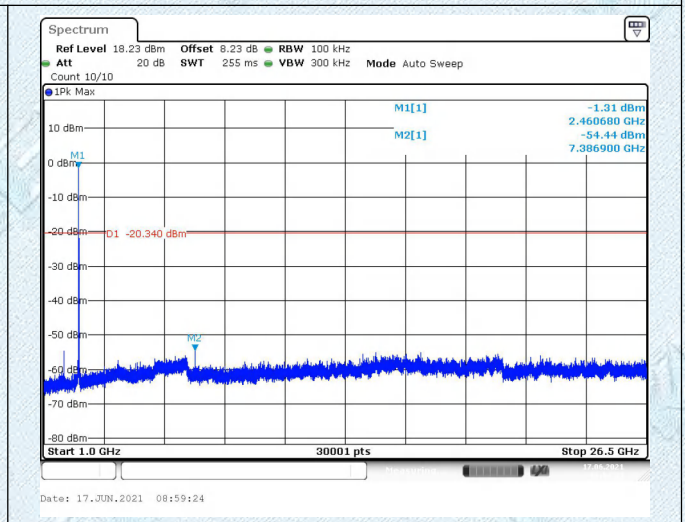
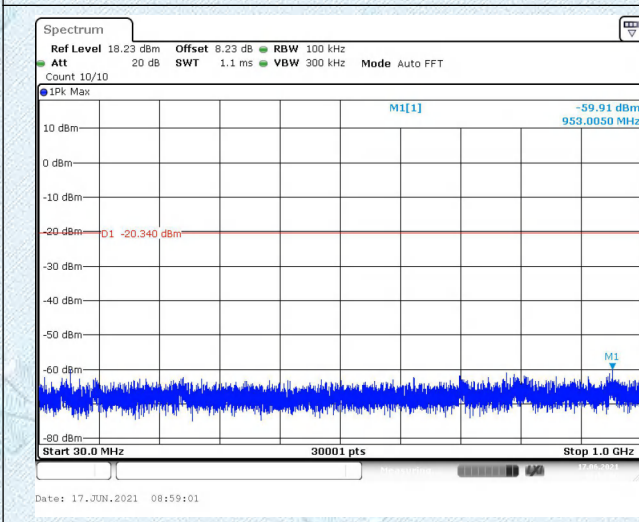
Date: 17 JUN 2021 08:54:48

CH06-SE



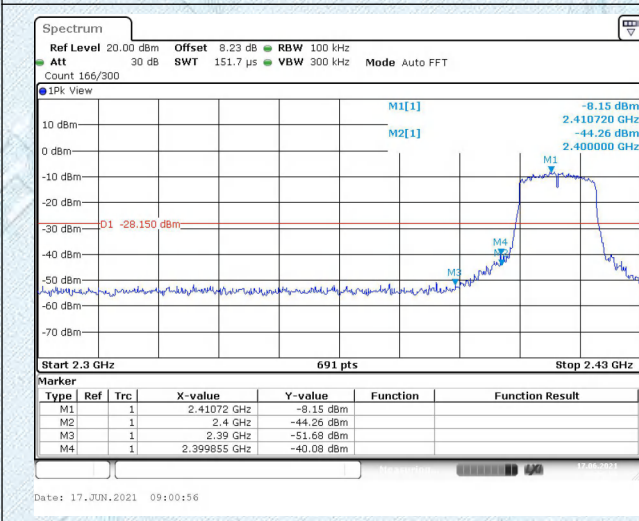


CH11-SE

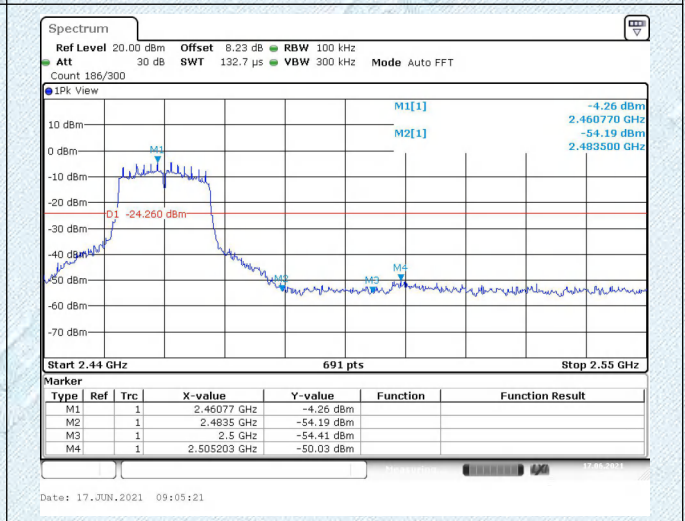


802.11g

CH01-Bandedge



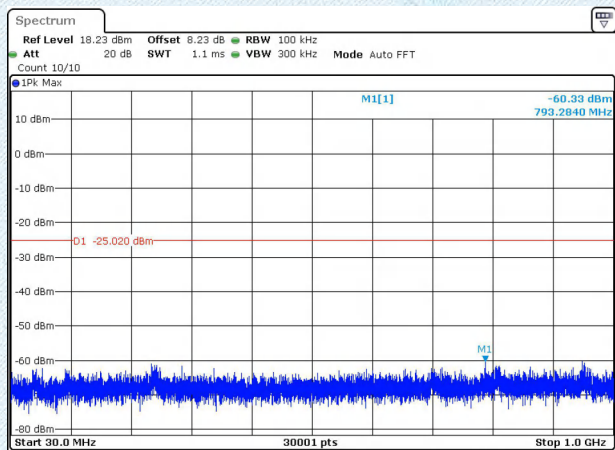
CH11-Bandedge



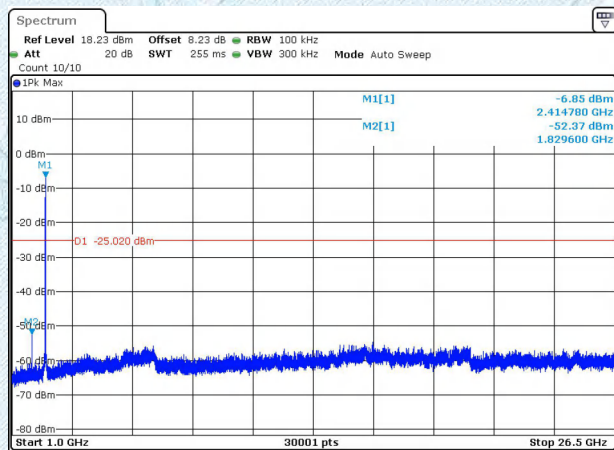


802.11g

CH01-SE

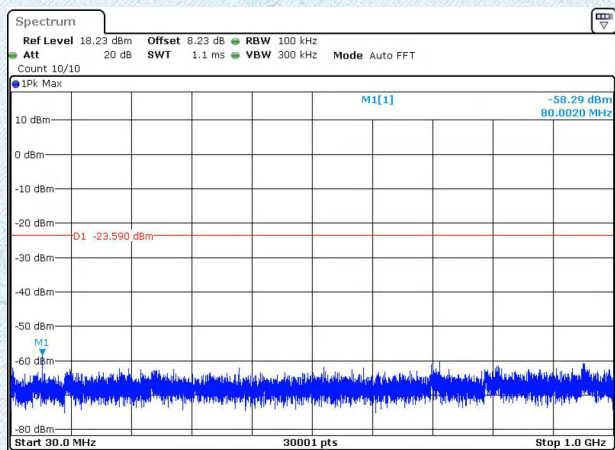


Date: 17 JUN 2021 09:01:59

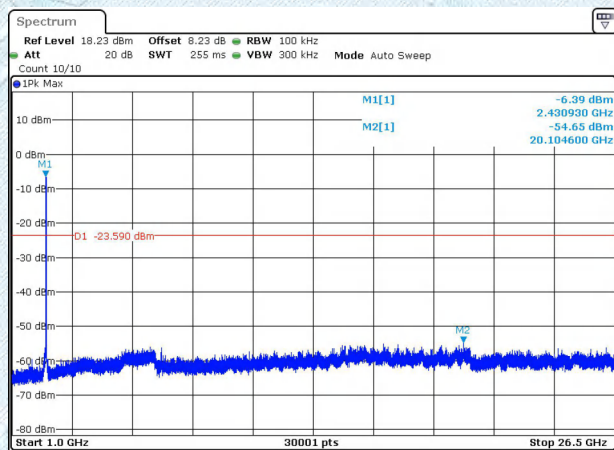


Date: 17 JUN 2021 09:02:22

CH06-SE

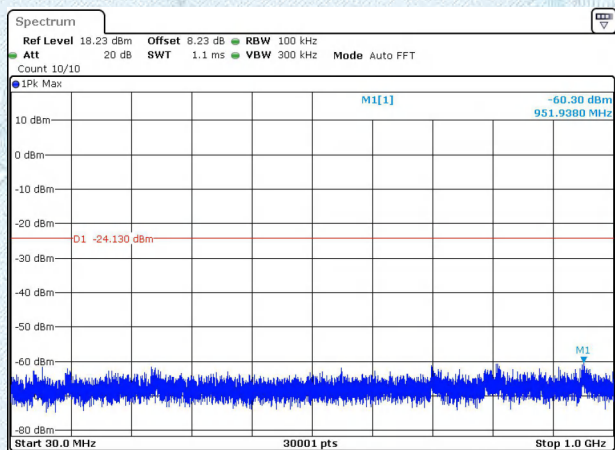


Date: 17 JUN 2021 09:03:38

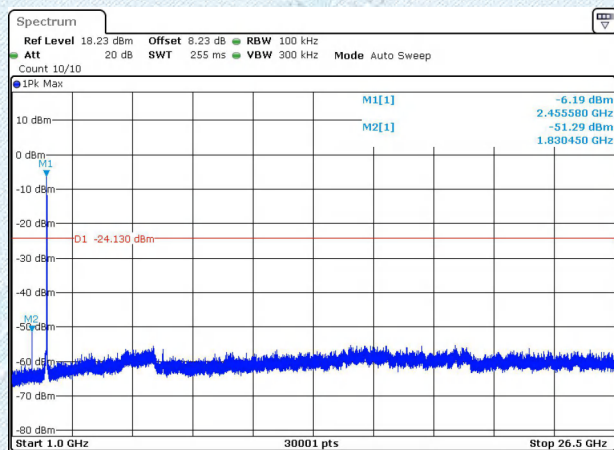


Date: 17 JUN 2021 09:04:01

CH11-SE



Date: 17 JUN 2021 09:06:25

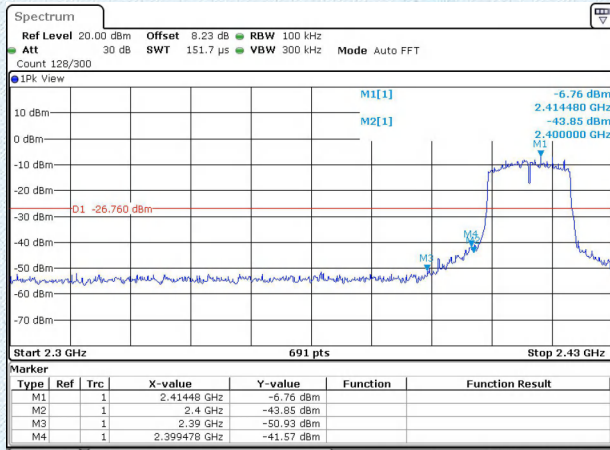


Date: 17 JUN 2021 09:06:48



802.11n(HT20)

CH01-Bandedge



Date: 17.JUN.2021 09:08:10

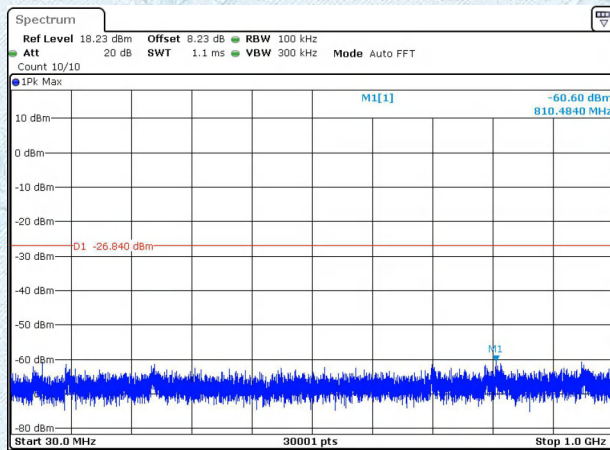
CH11-Bandedge



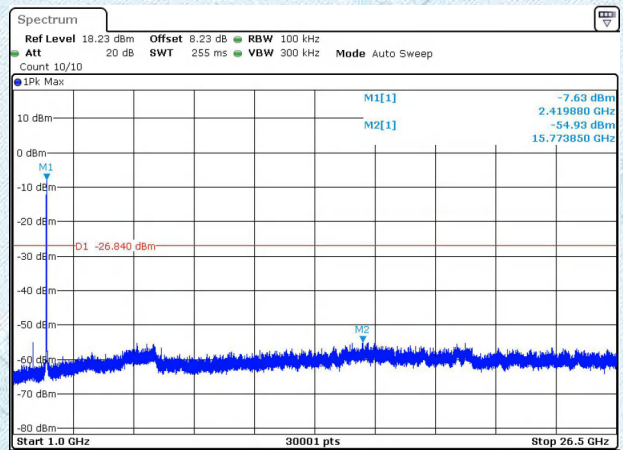
Date: 17.JUN.2021 09:12:38

802.11n(HT20)

CH01-SE



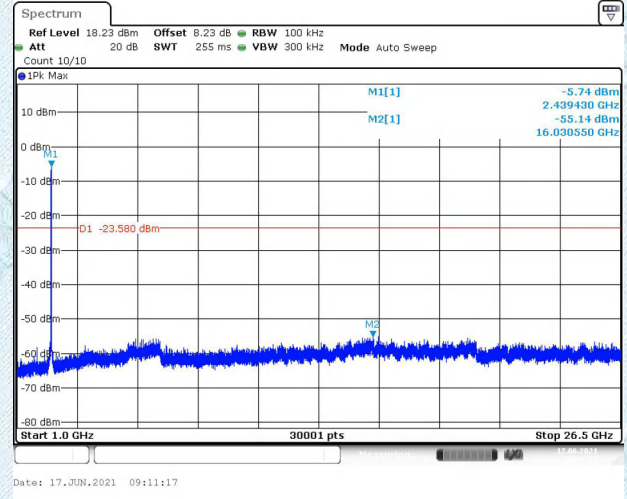
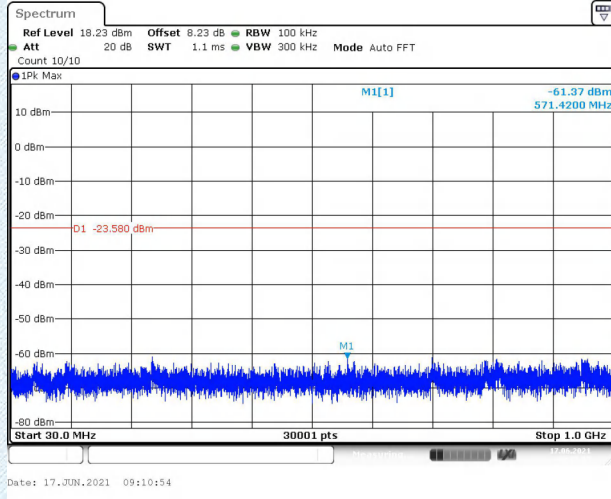
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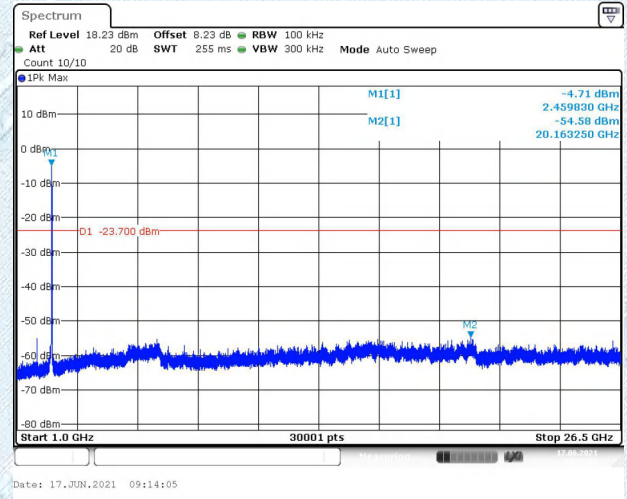
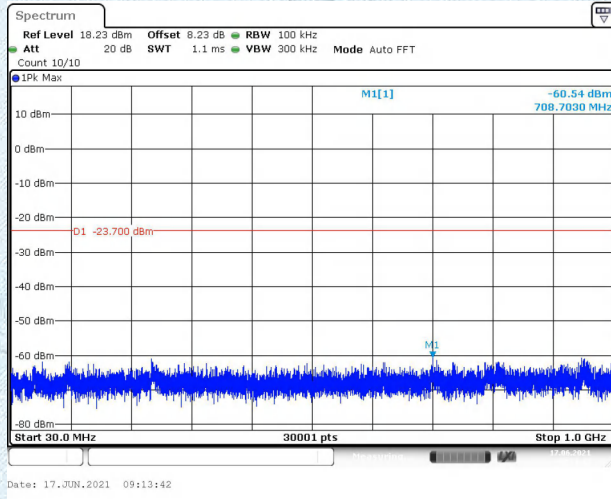
Date: 17.JUN.2021 09:09:36



### CH06-SE



### CH11-SE

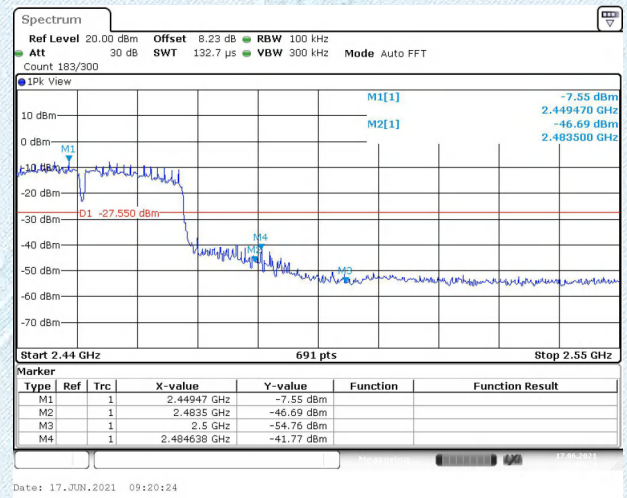


### 802.11n(HT40)

#### CH03-Bandedge



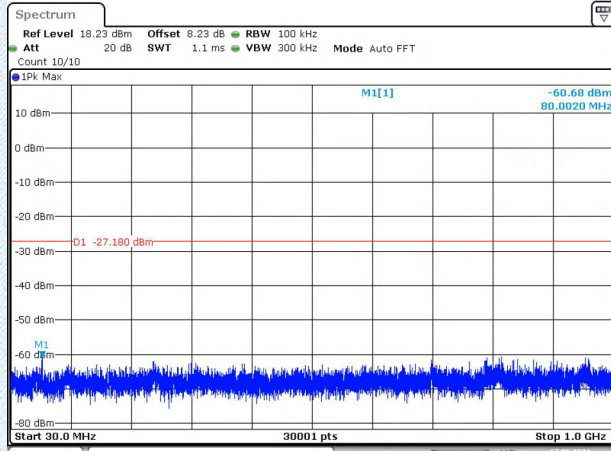
#### CH09-Bandedge



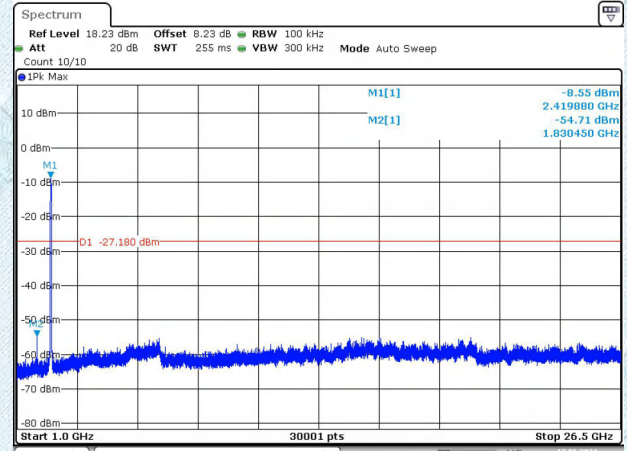


### 802.11n(HT40)

#### CH03-SE

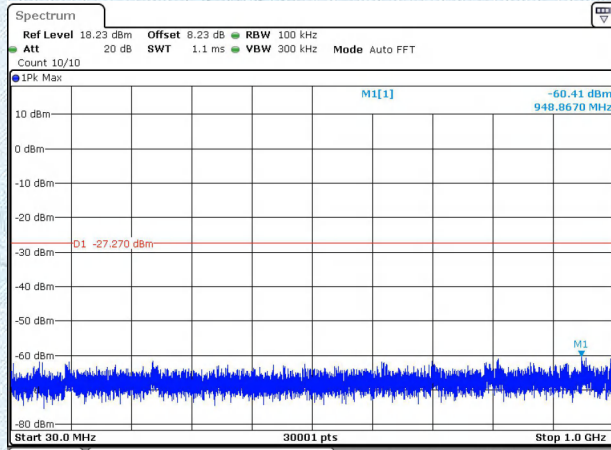


Date: 17.JUN.2021 09:16:23

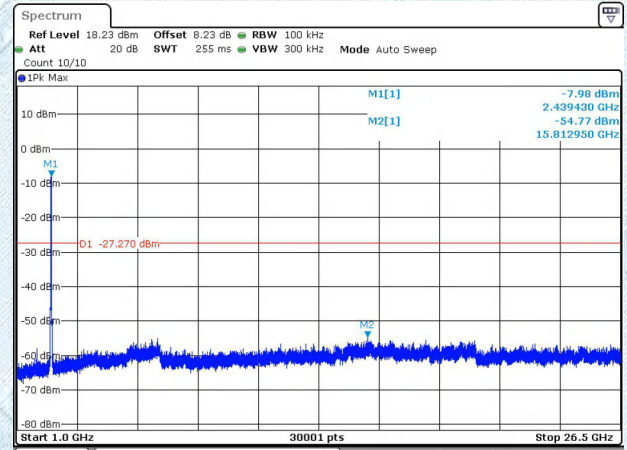


Date: 17.JUN.2021 09:16:46

#### CH06-SE

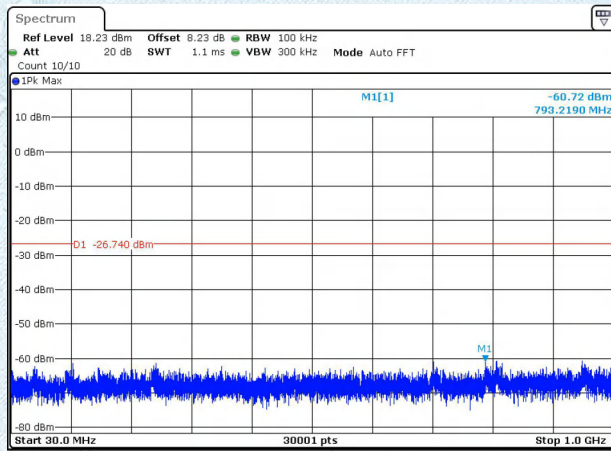


Date: 17.JUN.2021 09:18:01

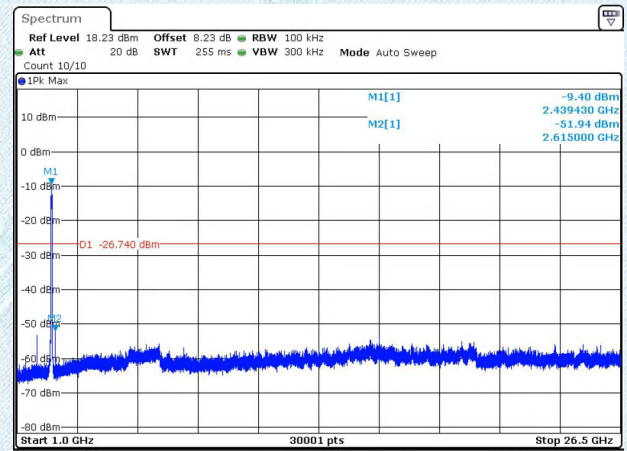


Date: 17.JUN.2021 09:18:24

#### CH09-SE



Date: 17.JUN.2021 09:21:28



Date: 17.JUN.2021 09:21:51



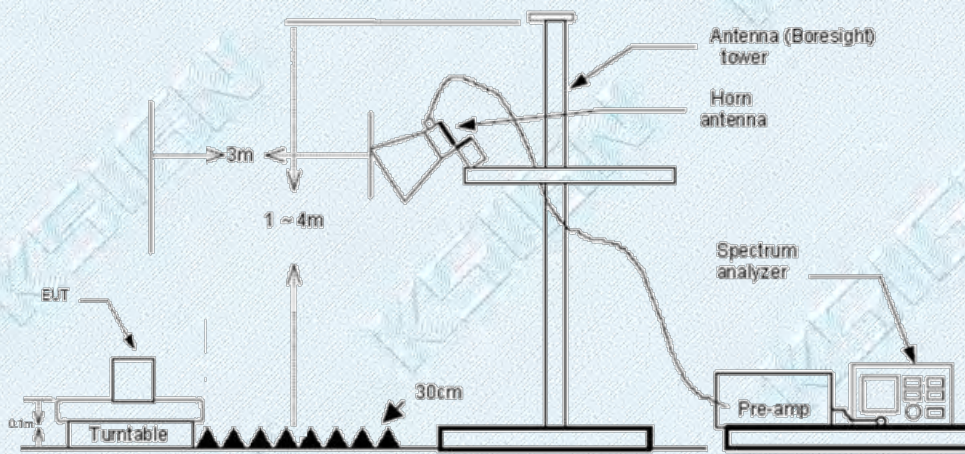
### 3.6. Band Edge Emissions(Radiated)

**Limit**

Restricted Frequency Band (MHz)	(dBuV/m)(at 3m)	
	Peak	Average
2310 ~2390	74	54
2483.5 ~2500	74	54

**Note: All restriction bands have been tested, only the worst case is reported.**

**Test Configuration**



**Test Procedure**

1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
2. The EUT is placed on a turn table which is 1.5 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. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
5. The receiver set as follow:  
 RBW=1MHz, VBW=3MHz PEAK detector for Peak value.  
 RBW=1MHz, VBW=10Hz with PEAK detector for Average Value.

**Test Mode**

Please refer to the clause 2.2.

**Test Results**

Note:

1.Measurement = Reading level + Correct Factor

Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor

2.Pre-scan 802.11b, 802.11g, 802.11n(HT20) and 802.11n(HT40) mode, and found the 802.11n20 mode which it is worse case, so only show the test data for worse case.

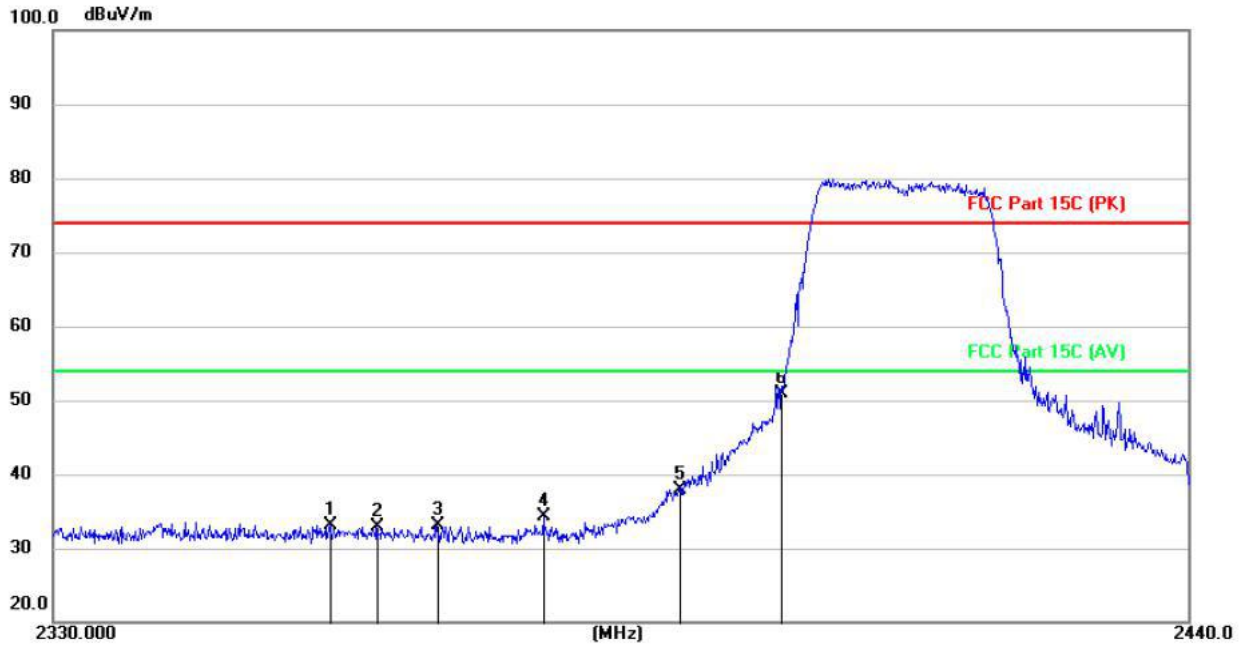
TRF No. Part 15 Subpart C Section 15.247\_R1

Add : West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

Tel : +(86) 0755-2985 2678 Fax: +(86) 0755-2985 2397 E-mail : info@gdkesign.cn Web: www.gdkesign.com



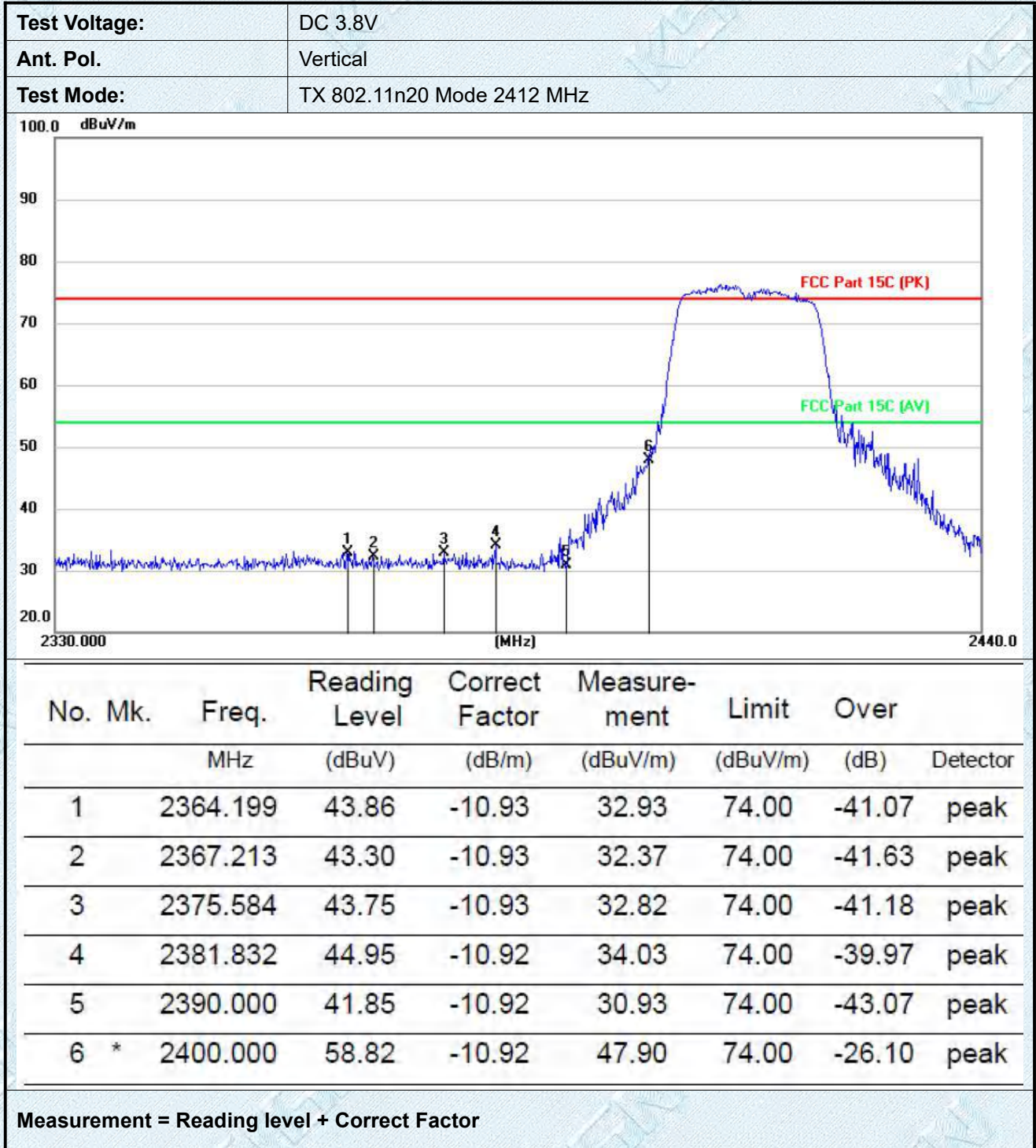
Test Voltage:	DC 3.8V
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n20 Mode 2412MHz



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		2356.477	44.04	-10.92	33.12	74.00	-40.88	peak
2		2360.921	43.82	-10.93	32.89	74.00	-41.11	peak
3		2366.696	44.09	-10.93	33.16	74.00	-40.84	peak
4		2376.926	45.16	-10.93	34.23	74.00	-39.77	peak
5		2390.000	48.79	-10.92	37.87	74.00	-36.13	peak
6	*	2400.000	61.84	-10.92	50.92	74.00	-23.08	peak

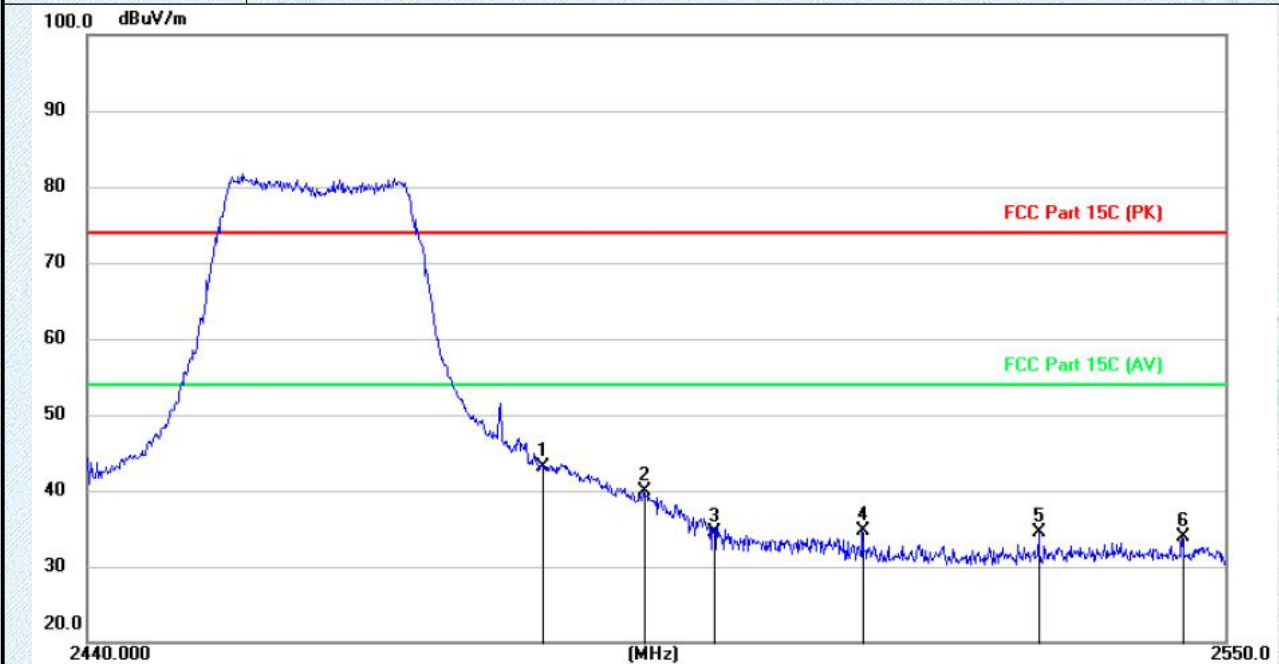
Measurement = Reading level + Correct Factor







Test Voltage:	DC 3.8V
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n20 Mode 2462MHz

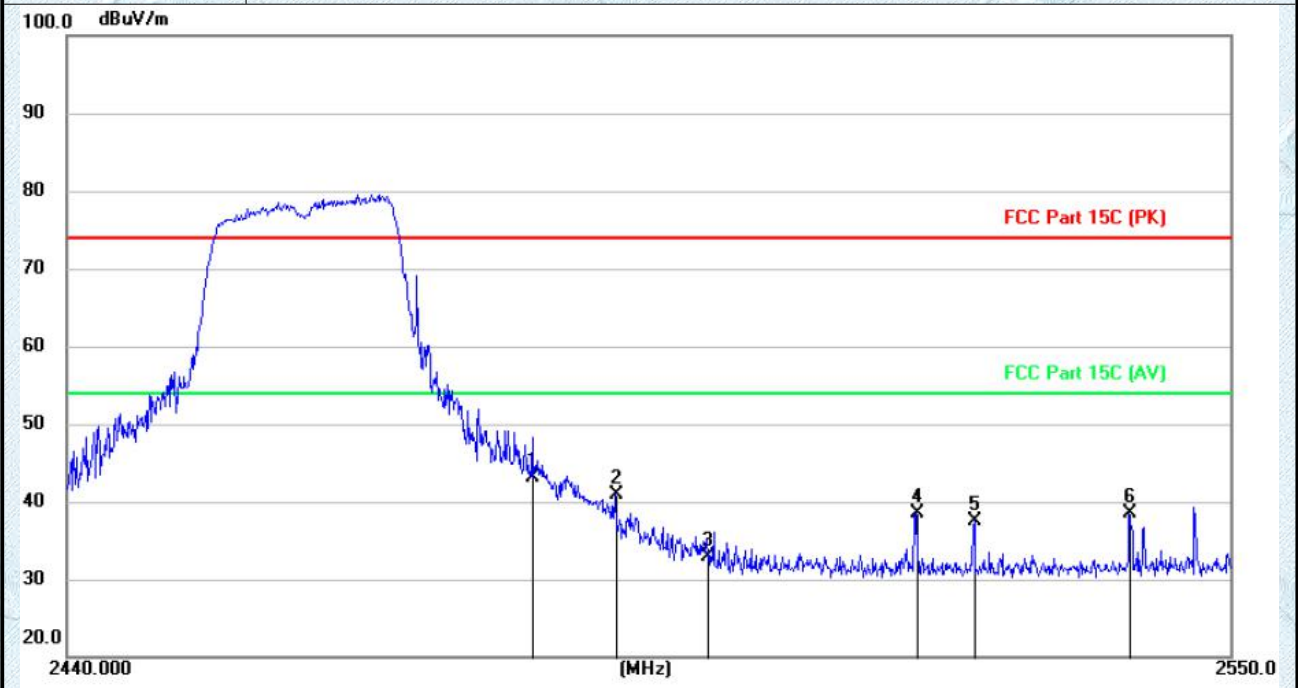


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1	*	2483.500	54.05	-10.88	43.17	74.00	-30.83	peak
2		2493.240	50.77	-10.89	39.88	74.00	-34.12	peak
3		2500.000	45.40	-10.88	34.52	74.00	-39.48	peak
4		2514.415	45.53	-10.88	34.65	74.00	-39.35	peak
5		2531.641	45.35	-10.86	34.49	74.00	-39.51	peak
6		2545.765	44.67	-10.85	33.82	74.00	-40.18	peak

Measurement = Reading level + Correct Factor



<b>Test Voltage:</b>	DC 3.8V
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11n20 Mode 2462MHz



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1	*	2483.500	53.94	-10.88	43.06	74.00	-30.94	peak
2		2491.216	51.83	-10.89	40.94	74.00	-33.06	peak
3		2500.000	43.73	-10.88	32.85	74.00	-41.15	peak
4		2519.838	49.45	-10.87	38.58	74.00	-35.42	peak
5		2525.481	48.41	-10.86	37.55	74.00	-36.45	peak
6		2540.265	49.38	-10.85	38.53	74.00	-35.47	peak

Measurement = Reading level + Correct Factor



### 3.7. Spurious Emission (Radiated)

Limit

**Radiated Emission Limits (9 kHz~1000 MHz)**

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

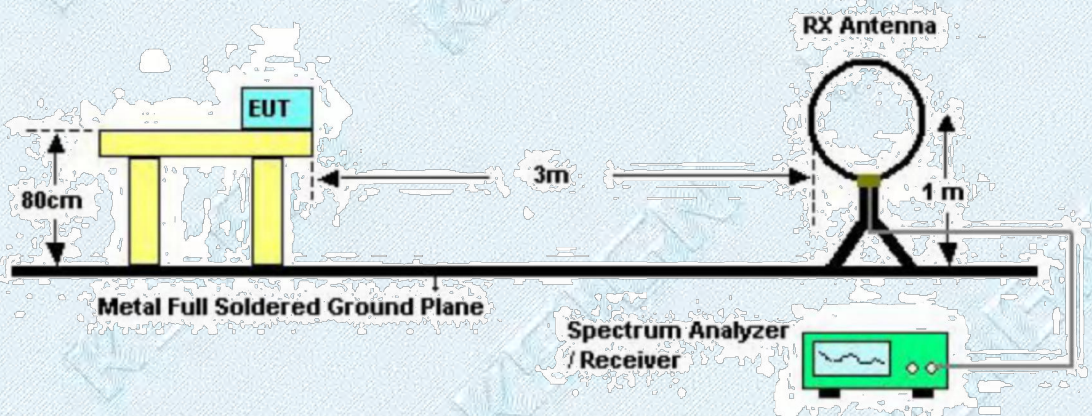
**Radiated Emission Limit (Above 1000MHz)**

Frequency (MHz)	Distance Meters(at 3m)	
	Peak	Average
Above 1000	74	54

**Note:**

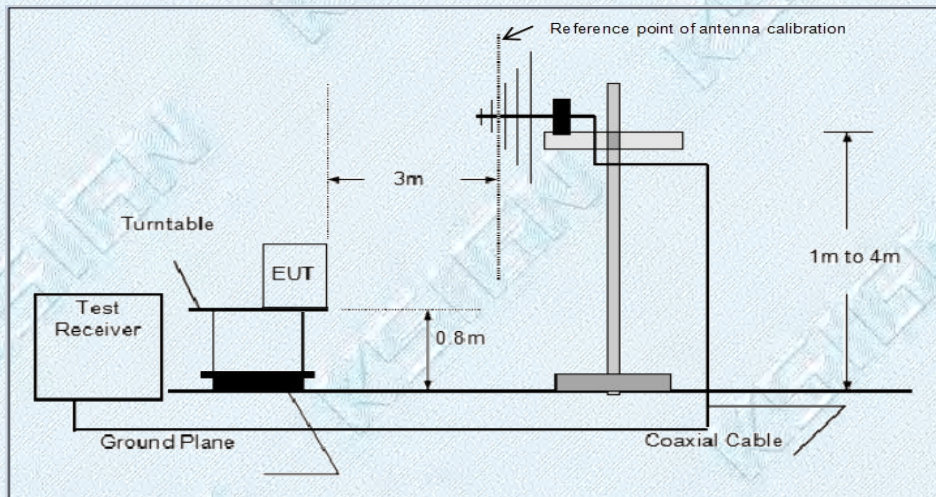
- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

Test Configuration

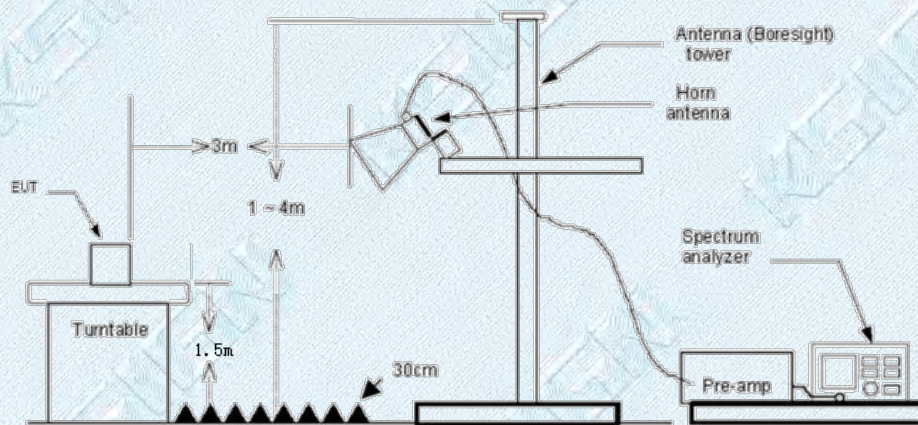


Below 30MHz Test Setup





Below 1000MHz Test Setup



Above 1GHz Test Setup

**Test Procedure**

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Below 1 GHz:  
RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;  
If the emission level of the EUT measured by the peak detector is 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) From 1 GHz to 10<sup>th</sup> harmonic:



RBW=1MHz, VBW=1MHz Peak detector for Peak value.  
RBW=1MHz, VBW=10Hz Peak detector for Average value.

### **Test Mode**

Please refer to the clause 2.2

### **Test Result**

#### **9 KHz~30 MHz and 18GHz~25GHz**

From 9 KHz~30 MHz and 18GHz~25GHz: Conclusion: PASS

Note:

- 1) Measurement = Reading level + Correct Factor  
Correct Factor=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.
- 4) The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
- 5) Pre-scan 802.11b/g/n(HT20/HT40) modulation, found 802.11n20\_2412MHz which it is worse case for 30MHz-1GHz , the 802.11n20 modulation which it is worse case for above 1GHz, so only show the test data for worse case.

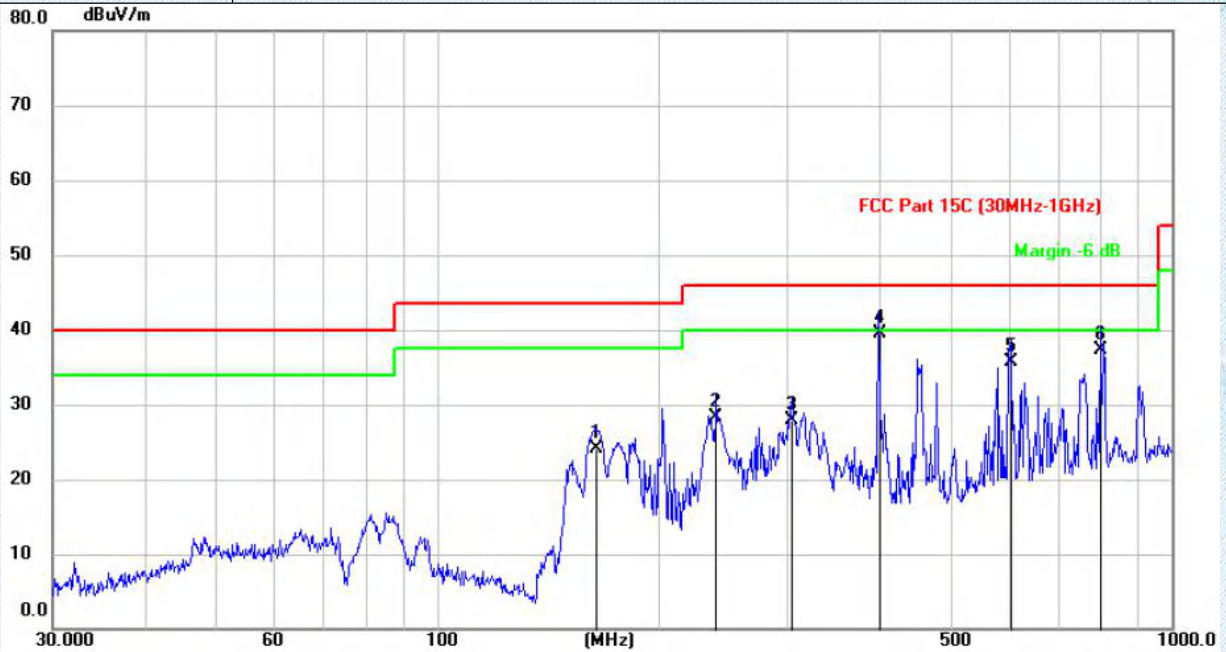
### **BELOW 30MHZ**

No emission found between lowest internal used/generated frequencies to 30MHz.



30MHz-1GHz

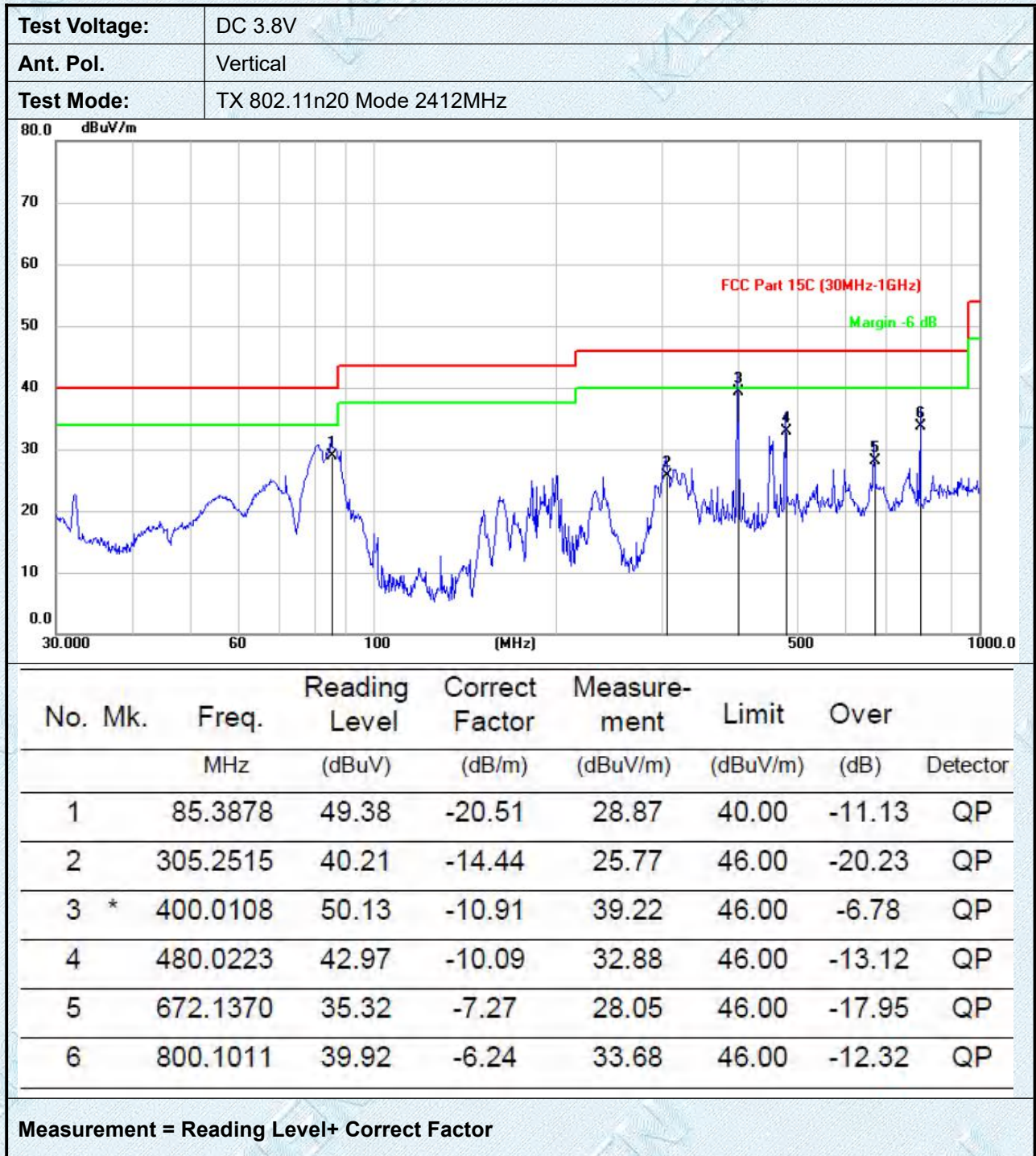
Test Voltage:	DC 3.8V
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n20 Mode 2412MHz



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		164.7340	45.07	-21.03	24.04	43.50	-19.46	QP
2		239.9873	44.38	-16.13	28.25	46.00	-17.75	QP
3		304.0763	42.38	-14.49	27.89	46.00	-18.11	QP
4	*	400.0108	50.48	-10.91	39.57	46.00	-6.43	QP
5		604.5982	43.30	-7.64	35.66	46.00	-10.34	QP
6		800.1011	43.50	-6.24	37.26	46.00	-8.74	QP

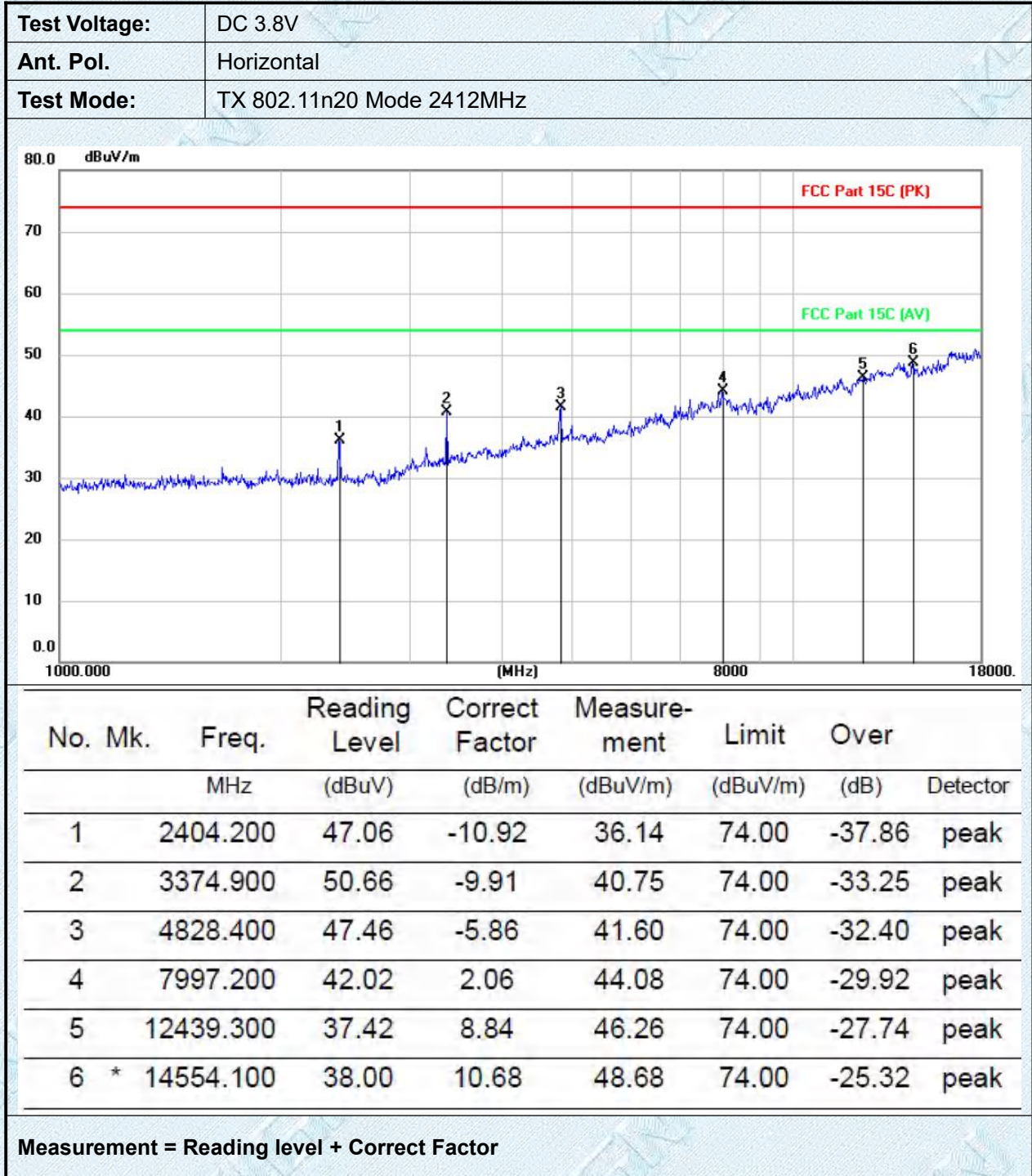
Measurement = Reading Level+ Correct Factor





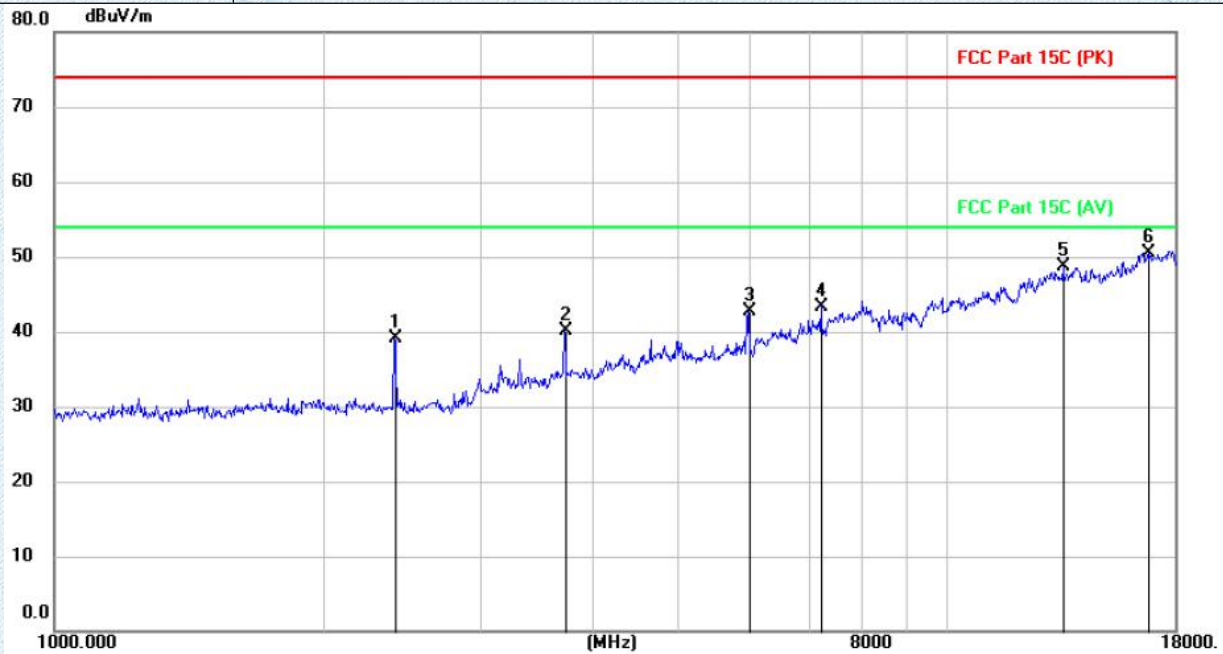


Adobe 1GHz





<b>Test Voltage:</b>	DC 3.8V
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11n20 Mode 2412MHz

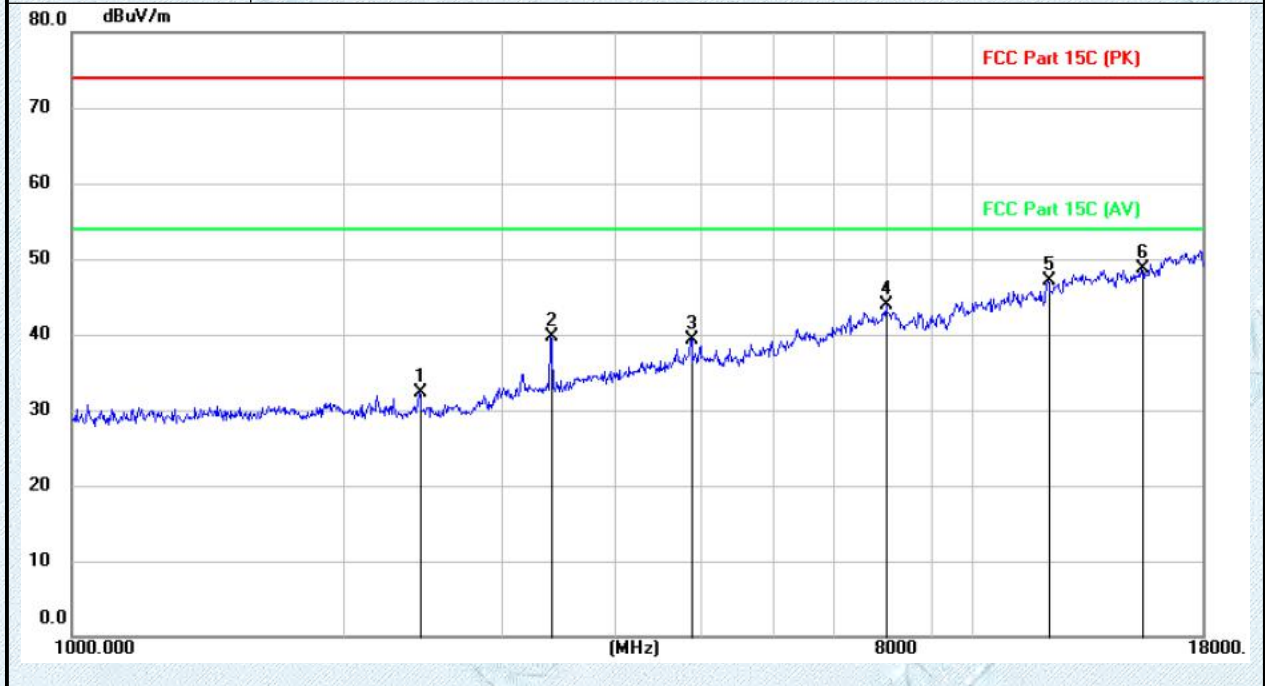


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		2404.200	49.98	-10.92	39.06	74.00	-34.94	peak
2		3731.900	49.27	-9.09	40.18	74.00	-33.82	peak
3		5989.500	46.51	-3.82	42.69	74.00	-31.31	peak
4		7240.700	43.38	0.02	43.40	74.00	-30.60	peak
5		13483.100	38.17	10.59	48.76	74.00	-25.24	peak
6	*	16840.600	37.18	13.28	50.46	74.00	-23.54	peak

Measurement = Reading level + Correct Factor



<b>Test Voltage:</b>	DC 3.8V
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	TX 802.11n20 Mode 2437MHz

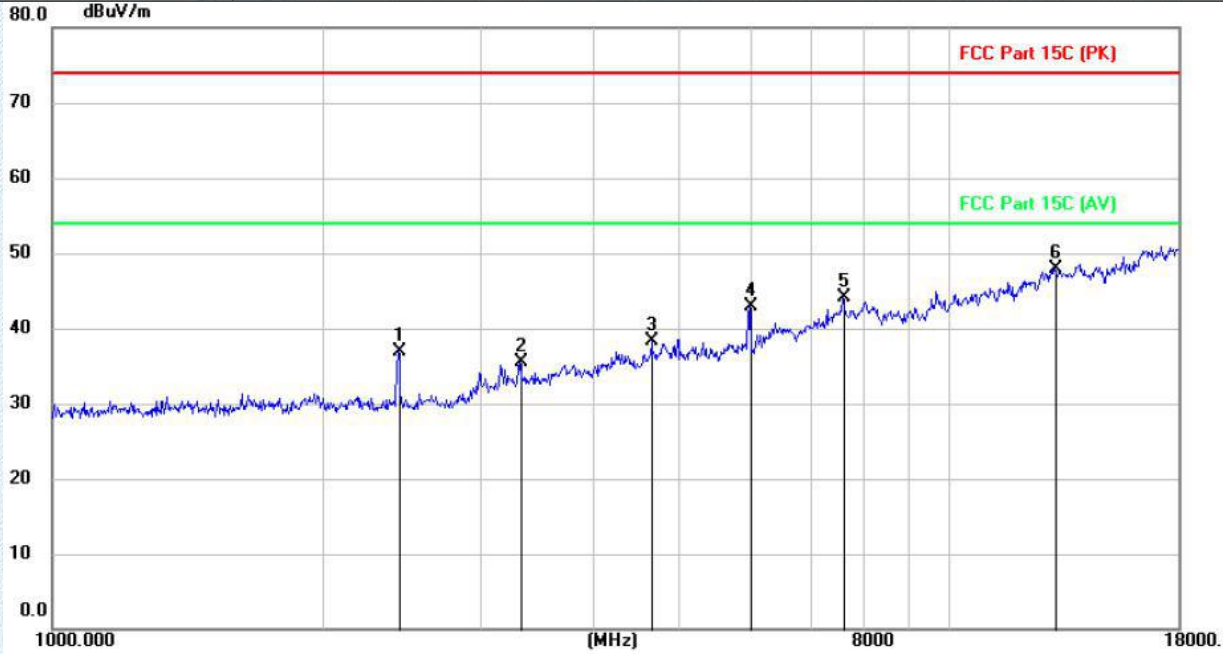


No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		2433.100	43.11	-10.90	32.21	74.00	-41.79	peak
2		3405.500	49.55	-9.86	39.69	74.00	-34.31	peak
3		4869.200	45.06	-5.75	39.31	74.00	-34.69	peak
4		8027.800	41.80	2.06	43.86	74.00	-30.14	peak
5		12121.400	38.91	8.13	47.04	74.00	-26.96	peak
6	*	15399.000	36.84	11.95	48.79	74.00	-25.21	peak

**Measurement = Reading level + Correct Factor**



<b>Test Voltage:</b>	DC 3.8V
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11n20 Mode 2437MHz



No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measure- ment (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1		2433.100	47.72	-10.90	36.82	74.00	-37.18	peak
2		3323.900	45.49	-10.01	35.48	74.00	-38.52	peak
3		4663.500	44.65	-6.31	38.34	74.00	-35.66	peak
4		5991.200	46.70	-3.81	42.89	74.00	-31.11	peak
5		7607.900	43.11	1.08	44.19	74.00	-29.81	peak
6	*	13114.200	37.89	10.08	47.97	74.00	-26.03	peak

Measurement = Reading level + Correct Factor