



# TEST REPORT

**Report Reference No.**..... : **TRE1809004201** R/C.....: 65120

**FCC ID**..... : **A2HRCT6A03W**

**Applicant's name**..... : **Alco Electronics Ltd**

Address.....: 11/F Metropole Square, 2 On Yiu Street, Sha Tin, New Territories, Hong Kong

Manufacturer.....: Alco Electronics Ltd

Address.....: 11/F Metropole Square, 2 On Yiu Street, Sha Tin, New Territories, Hong Kong

**Test item description** ..... : **Tablet**

Trade Mark .....: Venturer / RCA

Model/Type reference.....: CT9A03W13

Listed Model(s) .....: CT9B03W13, RCT6A03W13 , RCT6B03W13

**Standard** ..... : **FCC CFR Title 47 Part 15 Subpart C Section 15.247**

Date of receipt of test sample.....: Sep.12,2018

Date of testing.....: Sep.12,2018 ~ Sep.20,2018

Date of issue.....: Sep.20,2018

**Result**.....: **PASS**

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*Tom ouyang*

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**Testing Laboratory Name** ..... : **Shenzhen Huatongwei International Inspection Co., Ltd.**

Address.....: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

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*The test report merely correspond to the test sample.*

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## 1. TEST STANDARDS AND REPORT VERSION

### 1.1. Test Standards

The tests were performed according to following standards:

[FCC Rules Part 15.247](#): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

[ANSI C63.10:2013](#): American National Standard for Testing Unlicensed Wireless Devices

[KDB 558074 D01 DTS Meas Guidance v05](#): Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating under §15.247

### 1.2. Report version

Revision No.	Date of issue	Description
N/A	2018-09-20	Original

## **2. TEST DESCRIPTION**

<b>Test Item</b>	<b>FCC Rule</b>	<b>Result</b>	<b>Test Engineer</b>
Antenna requirement	15.203/15.247(c)	PASS	Xiaokang Tan
Line Conducted Emissions (AC Main)	15.207	PASS	Tony Duan
Conducted Peak Output Power	15.247(b)(3)	PASS	Xiaokang Tan
Power Spectral Density	15.247(e)	PASS	Xiaokang Tan
6dB Bandwidth	15.247(a)(2)	PASS	Xiaokang Tan
Restricted band	15.247(d)/15.205	PASS	Xiaokang Tan
Spurious Emissions	15.247(d)/15.209	PASS	Xiaokang Tan

Note: The measurement uncertainty is not included in the test result.

### 3. SUMMARY

#### 3.1. Client Information

Applicant:	Alco Electronics Ltd
Address:	11/F Metropole Square, 2 On Yiu Street, Sha Tin, New Territories, Hong Kong
Manufacturer:	Alco Electronics Ltd
Address:	11/F Metropole Square, 2 On Yiu Street, Sha Tin, New Territories, Hong Kong

#### 3.2. Product Description

Name of EUT:	Tablet
Trade Mark:	Venturer / RCA
Model No.:	CT9A03W13
Listed Model(s):	CT9B03W13, RCT6A03W13 , RCT6B03W13
Power supply:	3.7V from battery
Adapter information 1:	Model:APS-V010050150W-G Input:100-240Va.c.50/60Hz 0.35A Max. Output:5Vd.c.1.5A
Adapter information 2:	Model:ZL-A006WB0501000 Input:100-240Va.c.50/60Hz 0.15A Max Output:5Vd.c.1000mA
Hardware version:	-
Software version:	-
<b>WIFI</b>	
Supported type:	802.11b/802.11g/802.11n(HT20)/802.11n(HT40)
Modulation:	DSSS for 802.11b OFDM for 802.11g/802.11n(HT20)/802.11n(HT40)
Operation frequency:	2412MHz~2462MHz for 802.11b/802.11g/802.11n(HT20) 2422MHz~2452MHz for 802.11n(HT40)
Channel number:	11 for 802.11b/802.11g/802.11n(HT20) 7 for 802.11n(HT40)
Channel separation:	5MHz
Antenna type:	build in Antenna
Antenna gain:	0.9dBi

### 3.3. Operation state

#### ➤ Test frequency list

According to section 15.31(m), regards to the operating frequency range over 10 MHz, must select three channel which were tested. the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, please see the above gray bottom.

802.11b/g/n(HT20)		802.11n(HT40)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	01	-
02	2417	02	-
03	2422	03	2422
04	2427	04	2427
05	2432	05	2432
06	2437	06	2437
07	2442	07	2442
08	2447	08	2447
09	2452	09	2452
10	2457	10	-
11	2462	11	-

#### ➤ Test mode

For RF test items
The engineering test program was provided and enabled to make EUT continuous transmit (duty cycle>98%).
For AC power line conducted emissions:
The EUT was set to connect with the WLAN AP under large package sizes transmission.
For Radiated suprious emissions test item:
The engineering test program was provided and enabled to make EUT continuous transmit(duty cycle>98%). The EUT in each of three orthogonal axis emissions had been tested ,but only the worst case (X axis) data Recorded in the report.

### 3.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

○ /	Manufacturer:	/
	Model No.:	/
○ /	Manufacturer:	/
	Model No.:	/

### 3.5. Modifications

No modifications were implemented to meet testing criteria.

## **4. TEST ENVIRONMENT**

### **4.1. Address of the test laboratory**

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.

Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

### **4.2. Test Facility**

#### **CNAS-Lab Code: L1225**

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

#### **A2LA-Lab Cert. No.: 3902.01**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

#### **FCC-Registration No.: 762235**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files.

#### **IC-Registration No.:5377B-1**

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No.: 5377B-1.

#### **ACA**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

### 4.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050mba

### 4.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors in calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd. quality system according to ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Here after the best measurement capability for Shenzhen Huatongwei International Inspection Co., Ltd. is reported:

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.57 dB	(1)
Transmitter power Radiated	2.20 dB	(1)
Conducted spurious emissions 9kHz~40GHz	1.60 dB	(1)
Radiated spurious emissions 9kHz~40GHz	2.20 dB	(1)
Conducted Emissions 9kHz~30MHz	3.39 dB	(1)
Radiated Emissions 30~1000MHz	4.24 dB	(1)
Radiated Emissions 1~18GHz	5.16 dB	(1)
Radiated Emissions 18~40GHz	5.54 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.



#### 4.5. Equipments Used during the Test

Conducted Emissions						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. (mm-dd-yy)	Next Cal. (mm-dd-yy)
1	EMI Test Receiver	R&S	ESCI	101247	11/11/2017	11/10/2018
2	Artificial Mains	SCHWARZBECK	NNLK 8121	573	11/11/2017	11/10/2018
3	2-Line V-Network	R&S	ESH3-Z5	100049	11/11/2017	11/10/2018
4	Pulse Limiter	R&S	ESH3-Z2	101488	11/11/2017	11/10/2018
5	RF Connection Cable	HUBER+SUHNER	EF400	N/A	11/21/2017	11/20/2018
6	Test Software	R&S	ES-K1	N/A	N/A	N/A

Radiated Emissions						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. (mm-dd-yy)	Next Cal. (mm-dd-yy)
1	Semi-Anechoic Chamber	Albatross projects	SAC-3m-01	C11121	10/16/2016	10/15/2019
2	EMI Test Receiver	R&S	ESCI	100900	11/11/2017	11/10/2018
3	Loop Antenna	R&S	HFH2-Z2	100020	11/20/2017	11/19/2020
4	Ultra-Broadband Antenna	SCHWARZBECK	VULB9163	538	4/5/2017	4/4/2020
5	Horn Antenna	SCHWARZBECK	9120D	1011	3/27/2017	3/26/2020
6	Broadband Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170 472	3/27/2017	3/26/2020
7	Pre-amplifier	SCHWARZBECK	BBV 9743	9743-0022	10/18/2017	10/17/2018
8	Broadband Pre-amplifier	SCHWARZBECK	BBV 9718	9718-248	10/18/2017	10/17/2018
9	Spectrum Analyzer	R&S	FSP40	100597	11/11/2017	11/10/2018
10	RF Connection Cable	HUBER+SUHNER	RE-7-FL	N/A	11/21/2017	11/20/2018
11	RF Connection Cable	HUBER+SUHNER	RE-7-FH	N/A	11/21/2017	11/20/2018
12	Test Software	Audix	E3	N/A	N/A	N/A
13	Test Software	R&S	ES-K1	N/A	N/A	N/A
14	Turntable	Maturo Germany	TT2.0-1T	N/A	N/A	N/A
15	Antenna Mast	Maturo Germany	CAM-4.0-P-12	N/A	N/A	N/A

<b>RF Conducted Test</b>						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. (mm-dd-yy)	Next Cal. (mm-dd-yy)
1	Spectrum Analyzer	R&S	FSV40	100048	11/11/2017	11/10/2018
2	EXA Signal Analyzer	Agilent	N9020A	184247	9/22/2018	9/21/2019
3	Power Meter	Anritsu	ML249A	N/A	9/22/2018	9/21/2019
4	OSP	R&S	OSP120	101317	N/A	N/A

## 5. TEST CONDITIONS AND RESULTS

### 5.1. Antenna requirement

#### REQUIREMENT:

#### **FCC CFR Title 47 Part 15 Subpart C Section 15.203:**

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

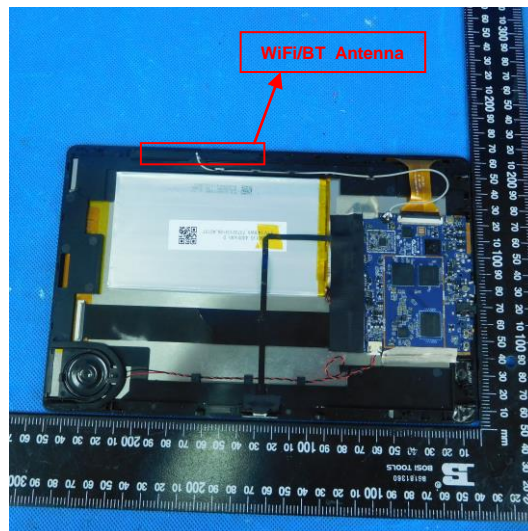
#### **FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):**

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

#### TEST RESULTS

Passed       Not Applicable

The directional gain of the antenna less than 6 dBi, please refer to the below antenna photo.



## 5.2. Conducted Emissions (AC Main)

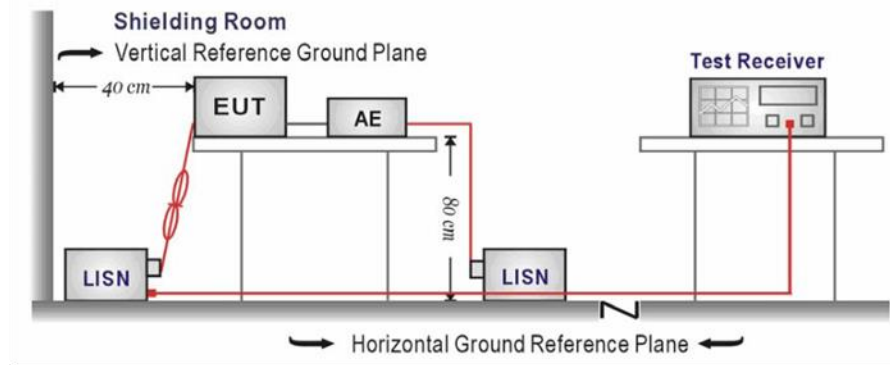
### LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207:

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\* Decreases with the logarithm of the frequency.

### TEST CONFIGURATION



### TEST PROCEDURE

1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

### TEST MODE:

Please refer to the clause 3.3

### TEST RESULTS

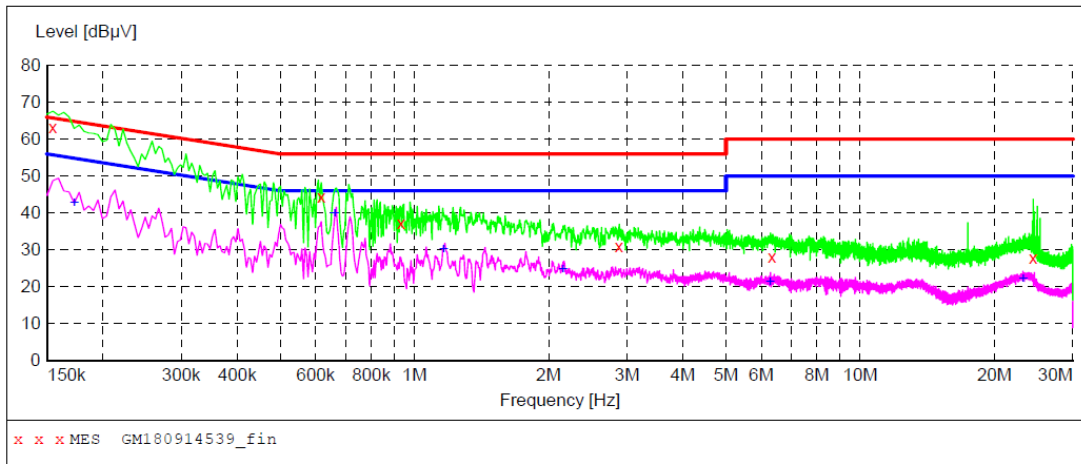
Passed       Not Applicable

Note:

- 1) Transd=Cable lose+ Pulse Limiter Factor + Artificial Mains Factor
- 2) Margin= Limit -Level

Test Line:

L



**MEASUREMENT RESULT: "GM180914539\_fin"**

9/14/2018 1:44PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154500	63.20	10.1	66	2.6	QP	L1	GND
0.618000	44.40	10.0	56	11.6	QP	L1	GND
0.933000	37.30	10.0	56	18.7	QP	L1	GND
2.877000	31.00	10.1	56	25.0	QP	L1	GND
6.337500	28.20	10.1	60	31.8	QP	L1	GND
24.405000	27.80	10.5	60	32.2	QP	L1	GND

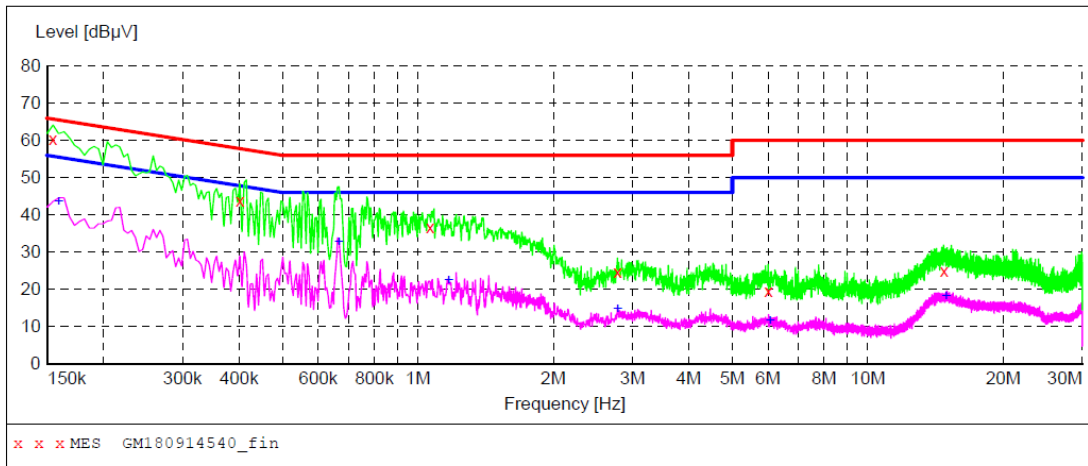
**MEASUREMENT RESULT: "GM180914539\_fin2"**

9/14/2018 1:44PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.172500	42.70	10.1	55	12.1	AV	L1	GND
0.663000	39.80	10.0	46	6.2	AV	L1	GND
1.162500	30.20	10.0	46	15.8	AV	L1	GND
2.152500	24.60	10.1	46	21.4	AV	L1	GND
6.283500	21.30	10.1	50	28.7	AV	L1	GND
23.203500	22.20	10.5	50	27.8	AV	L1	GND

Test Line:

N



**MEASUREMENT RESULT: "GM180914540\_fin"**

9/14/2018 1:54PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154500	60.40	10.1	66	5.4	QP	N	GND
0.402000	43.90	10.1	58	13.9	QP	N	GND
1.063500	36.80	10.0	56	19.2	QP	N	GND
2.778000	24.70	10.1	56	31.3	QP	N	GND
6.018000	19.60	10.1	60	40.4	QP	N	GND
14.788500	25.10	10.3	60	34.9	QP	N	GND

**MEASUREMENT RESULT: "GM180914540\_fin2"**

9/14/2018 1:54PM

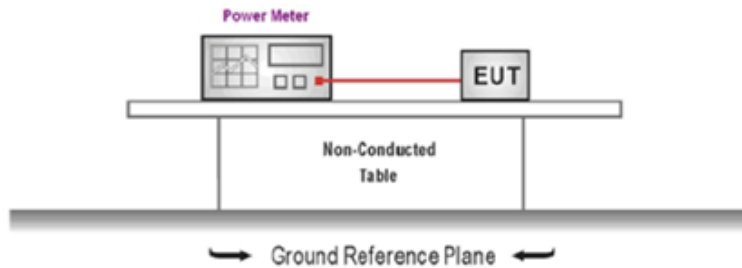
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.159000	43.50	10.1	56	12.0	AV	N	GND
0.667500	32.60	10.0	46	13.4	AV	N	GND
1.171500	22.30	10.0	46	23.7	AV	N	GND
2.778000	14.60	10.1	46	31.4	AV	N	GND
6.063000	11.60	10.1	50	38.4	AV	N	GND
14.928000	18.00	10.3	50	32.0	AV	N	GND

### 5.3. Conducted Peak Output Power

#### LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(3): 30dBm

#### TEST CONFIGURATION



#### TEST PROCEDURE

1. The EUT was tested according to ANSI C63.10: 2013 and KDB 558074 D01 for compliance to FCC 47 CFR 15.247 requirements.
2. The maximum peak conducted output power may be measured using a broadband peak RF power meter.
3. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector
4. Record the measurement data.

#### TEST MODE:

Please refer to the clause 3.3

#### TEST RESULTS

Passed       Not Applicable

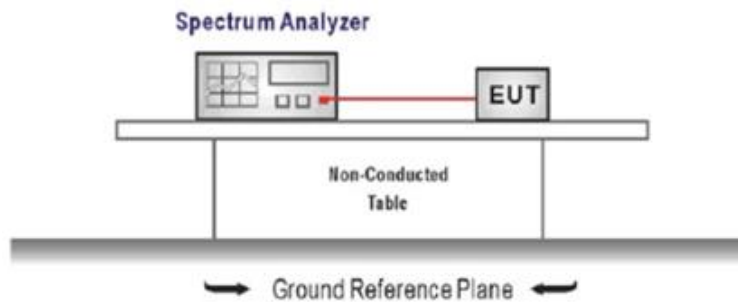
Type	Channel	Output power (dBm)	Limit (dBm)	Result
802.11b	01	13.45	≤30.00	Pass
	06	13.91		
	11	14.16		
802.11g	01	18.38	≤30.00	Pass
	06	18.49		
	11	18.87		
802.11n(HT20)	01	18.15	≤30.00	Pass
	06	18.08		
	11	19.06		
802.11n(HT40)	03	18.31	≤30.00	Pass
	06	18.10		
	09	18.75		

## 5.4. Power Spectral Density

### LIMIT

**FCC CFR Title 47 Part 15 Subpart C Section 15.247 (e):**For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

### TEST CONFIGURATION



### TEST PROCEDURE

1. Connect the antenna port(s) to the spectrum analyzer input,
2. Configure the spectrum analyzer as shown below:  
Center frequency=DTS channel center frequency  
Span =1.5 times the DTS bandwidth  
RBW = 3 kHz ≤ RBW ≤ 100 kHz, VBW ≥ 3 × RBW  
Sweep time = auto couple  
Detector = peak  
Trace mode = max hold
3. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter wave form on the spectrum analyzer.
4. Use the peak marker function to determine the maximum amplitude level within the RBW.
5. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### TEST MODE:

Please refer to the clause 3.3

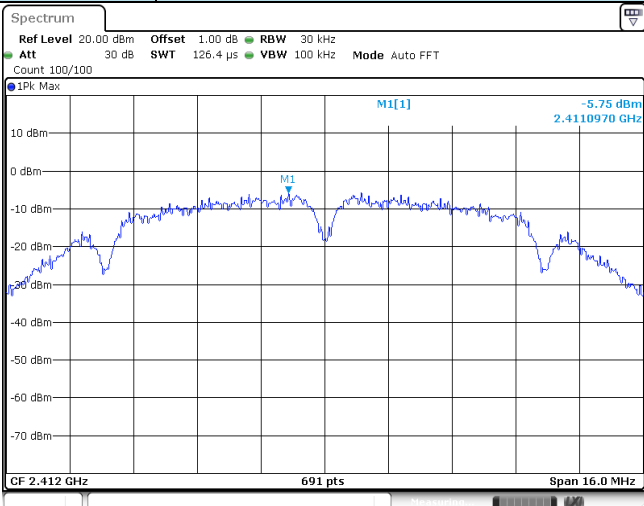
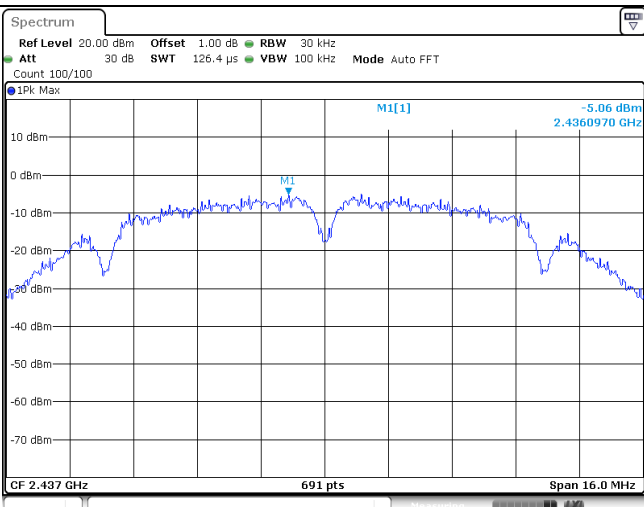
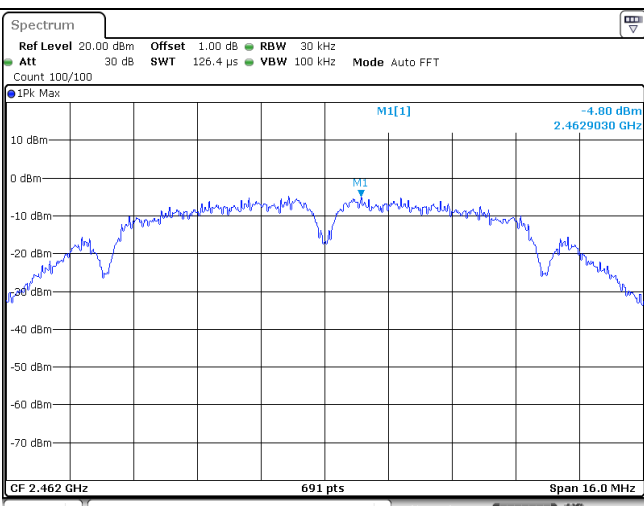
### TEST RESULTS

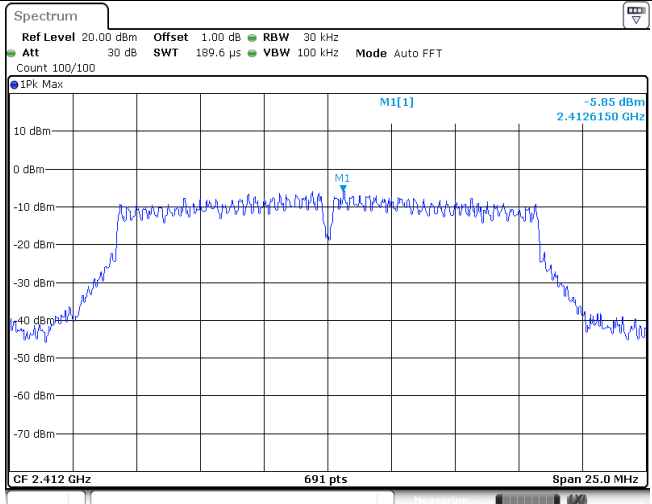
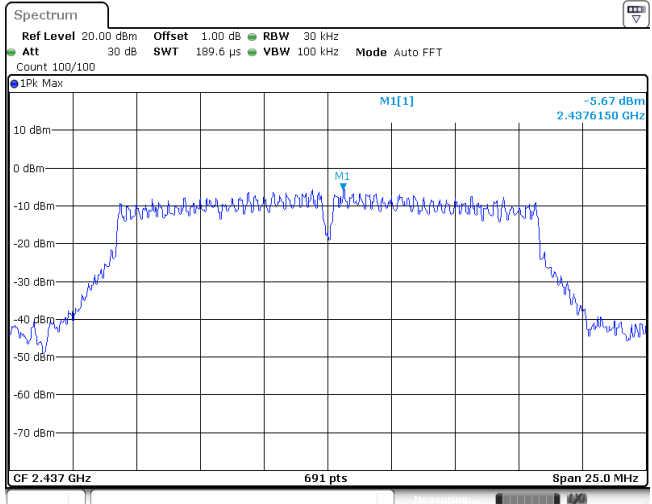
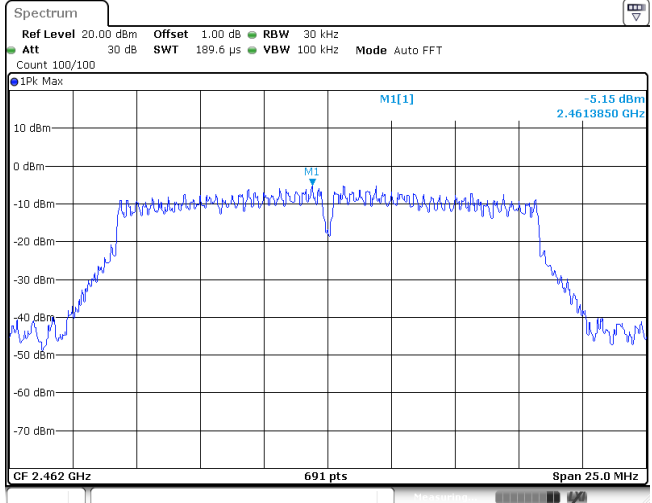
Passed       Not Applicable

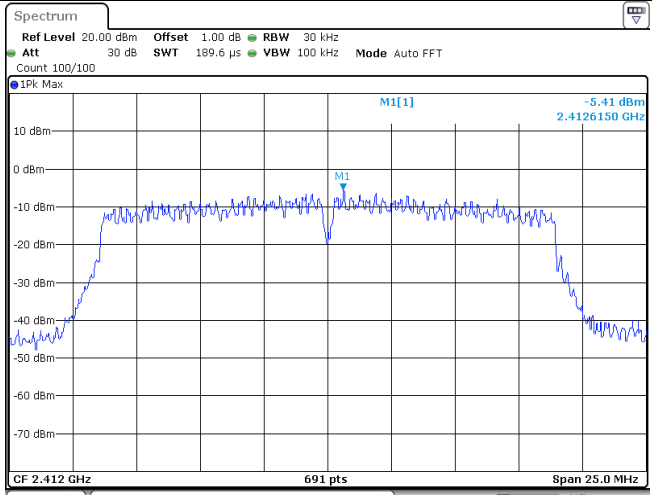
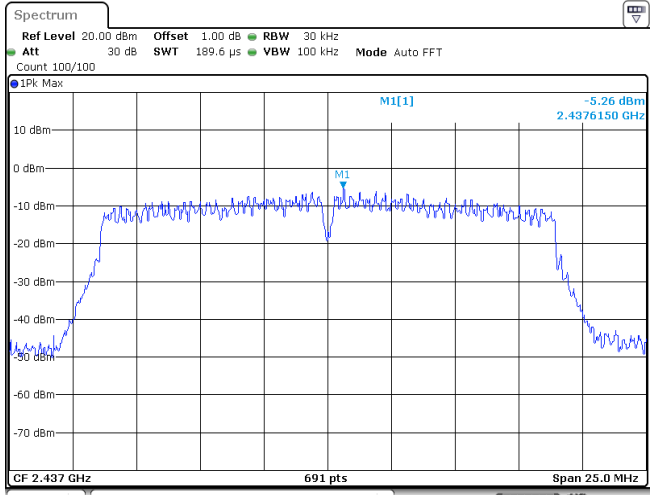
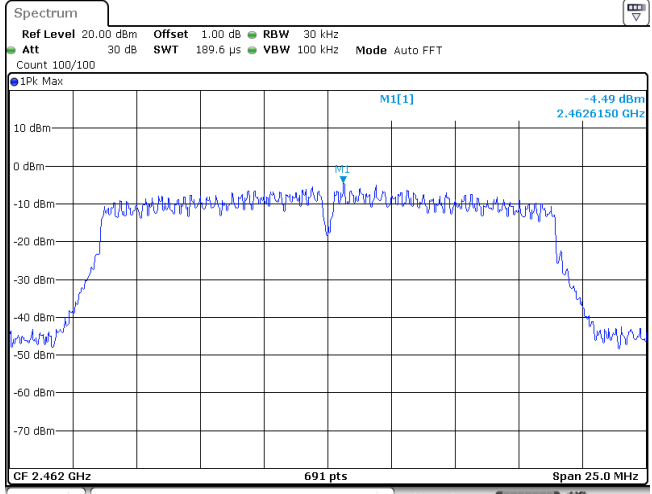


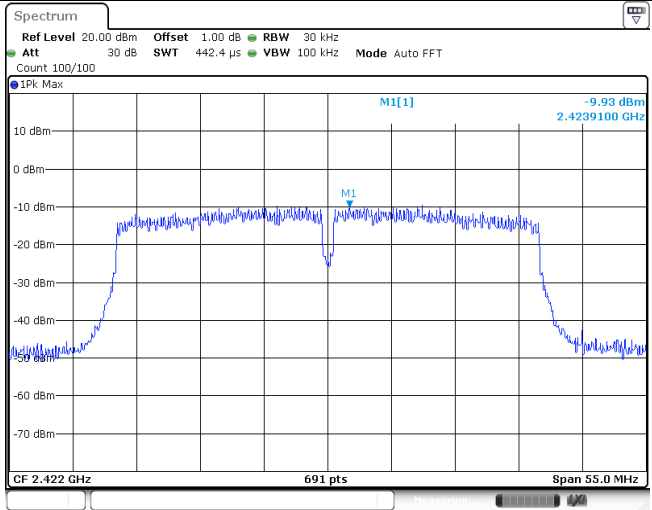
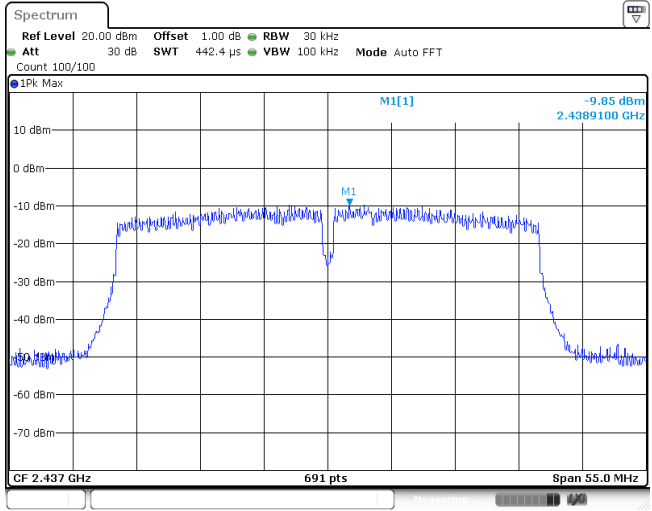
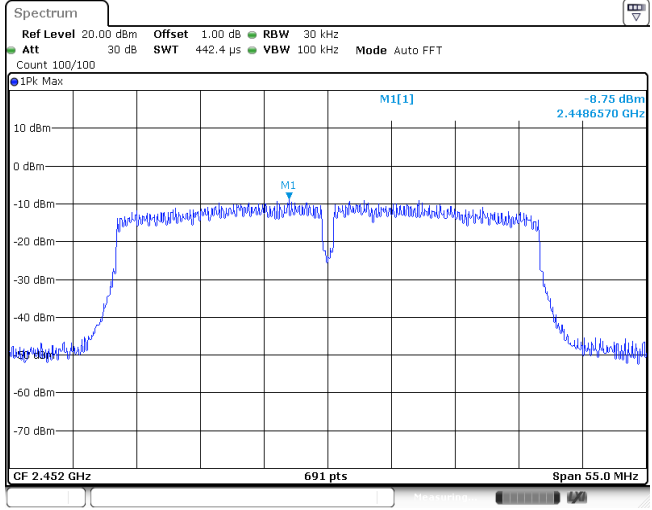
Type	Channel	Power Spectral Density (dBm/30KHz)	Limit (dBm/3KHz)	Result
802.11b	01	-5.75	≤8.00	Pass
	06	-5.06		
	11	-4.80		
802.11g	01	-5.85	≤8.00	Pass
	06	-5.67		
	11	-5.15		
802.11n(HT20)	01	-5.41	≤8.00	Pass
	06	-5.26		
	11	-4.49		
802.11n(HT40)	03	-9.93	≤8.00	Pass
	06	-9.85		
	09	-8.75		

Test plot as follows:

Type:		802.11b
CH01		
CH06		
CH11		

Type:		802.11g
CH01		
CH06		
CH11		

Type:		802.11n(HT20)
CH01		
CH06		
CH11		

Type:		802.11n(HT40)
CH03		
CH06		
CH09		

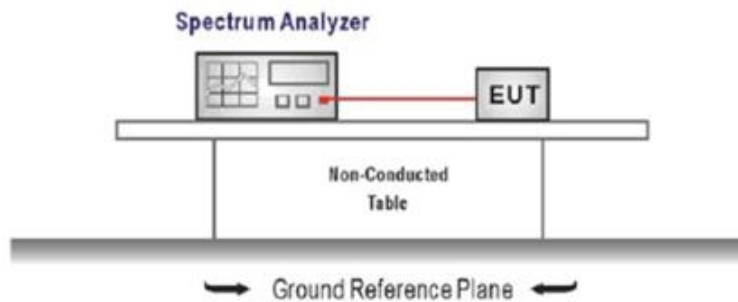
## 5.5. 6dB bandwidth

### LIMIT

#### **FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(2):**

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

### TEST CONFIGURATION



### TEST PROCEDURE

1. Connect the antenna port(s) to the spectrum analyzer input.
2. Configure the spectrum analyzer as shown below (enter all losses between the transmitter output and the spectrum analyzer).  
Center Frequency = DTS channel center frequency  
Span = 2 x DTS bandwidth  
RBW = 100 kHz, VBW ≥ 3 x RBW  
Sweep time = auto couple  
Detector = Peak  
Trace mode = max hold
3. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter wave form on the spectrum analyzer.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission, and record the pertinent measurements.

### TEST MODE:

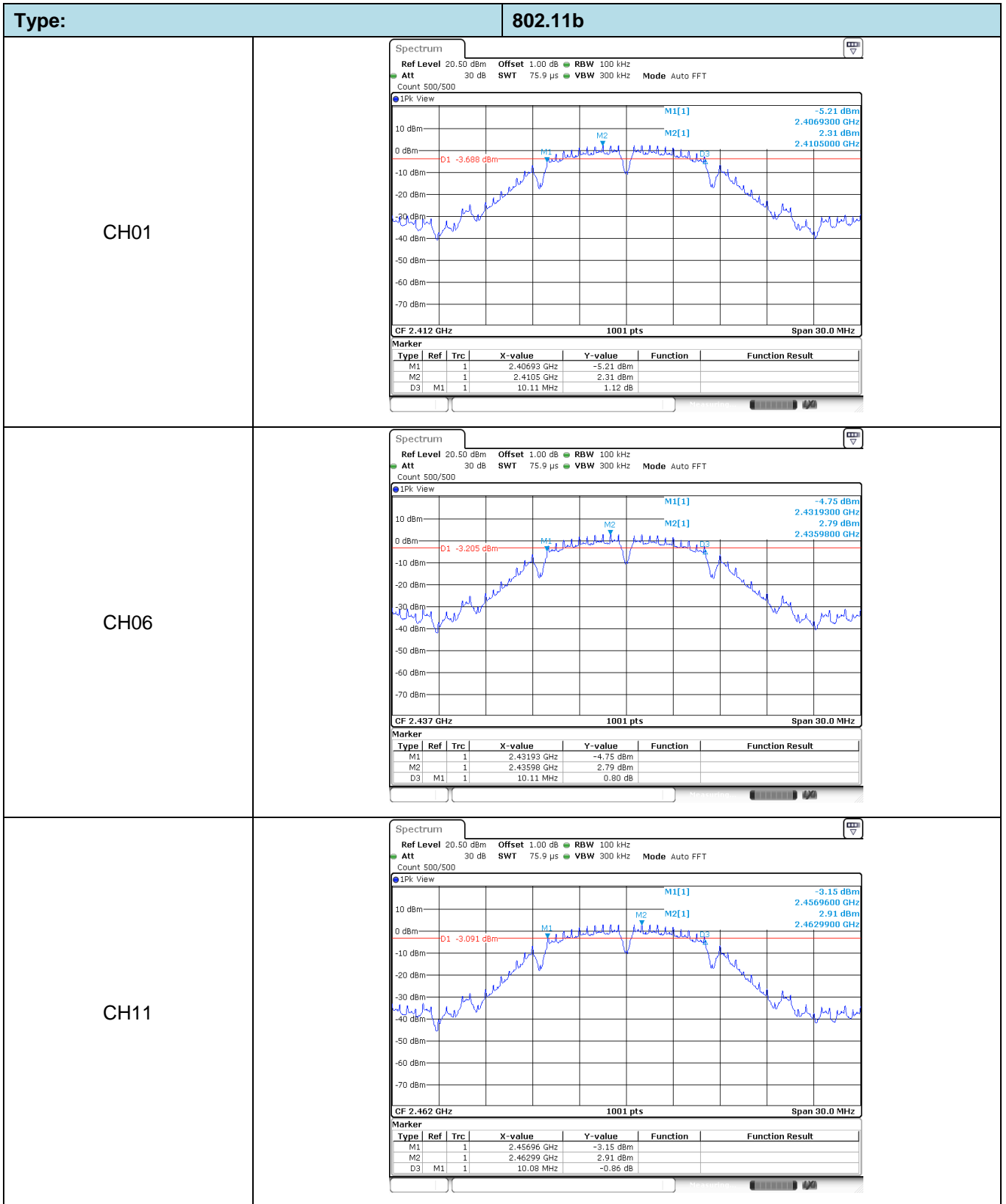
Please refer to the clause 3.3

### TEST RESULTS

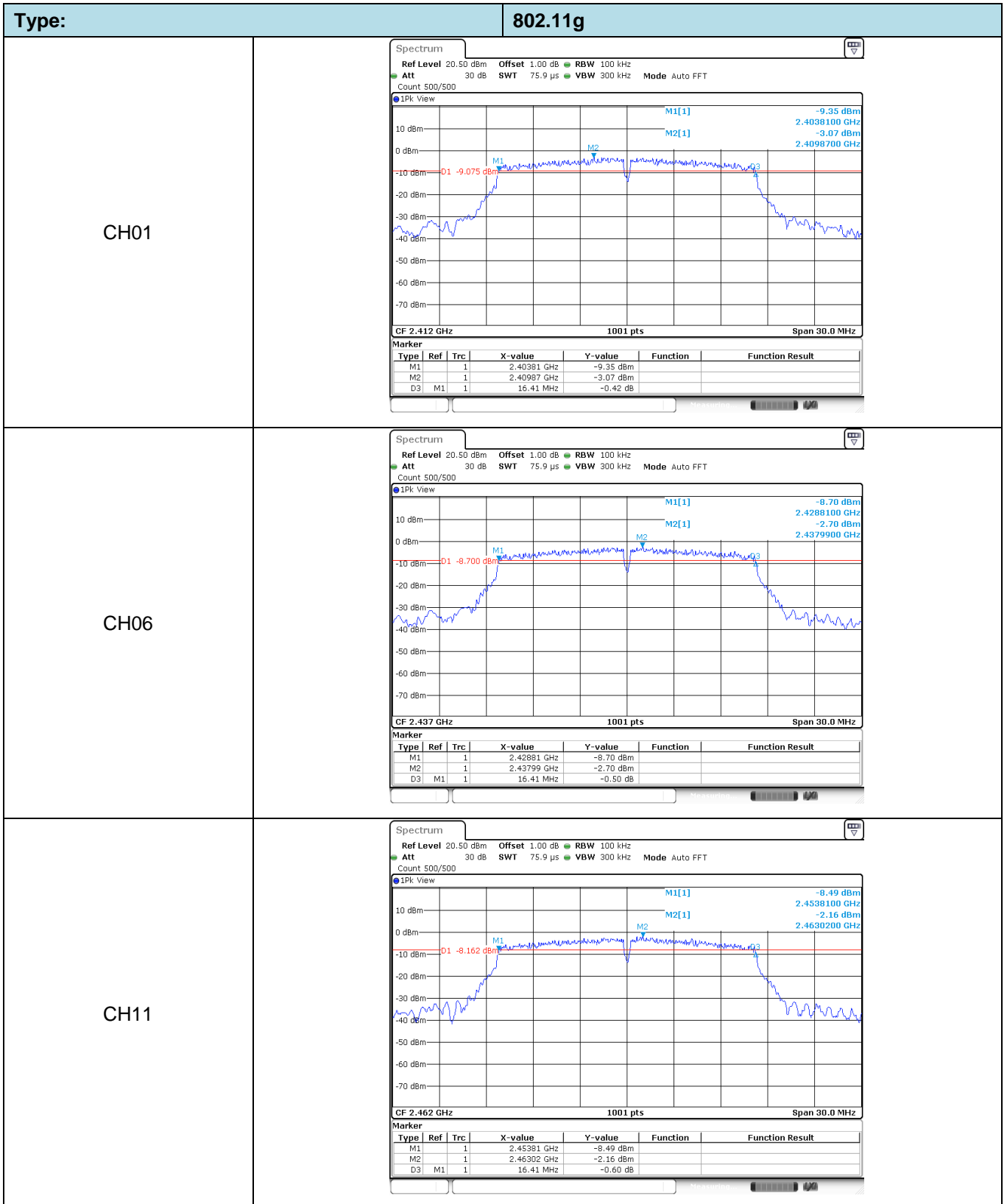
Passed       Not Applicable

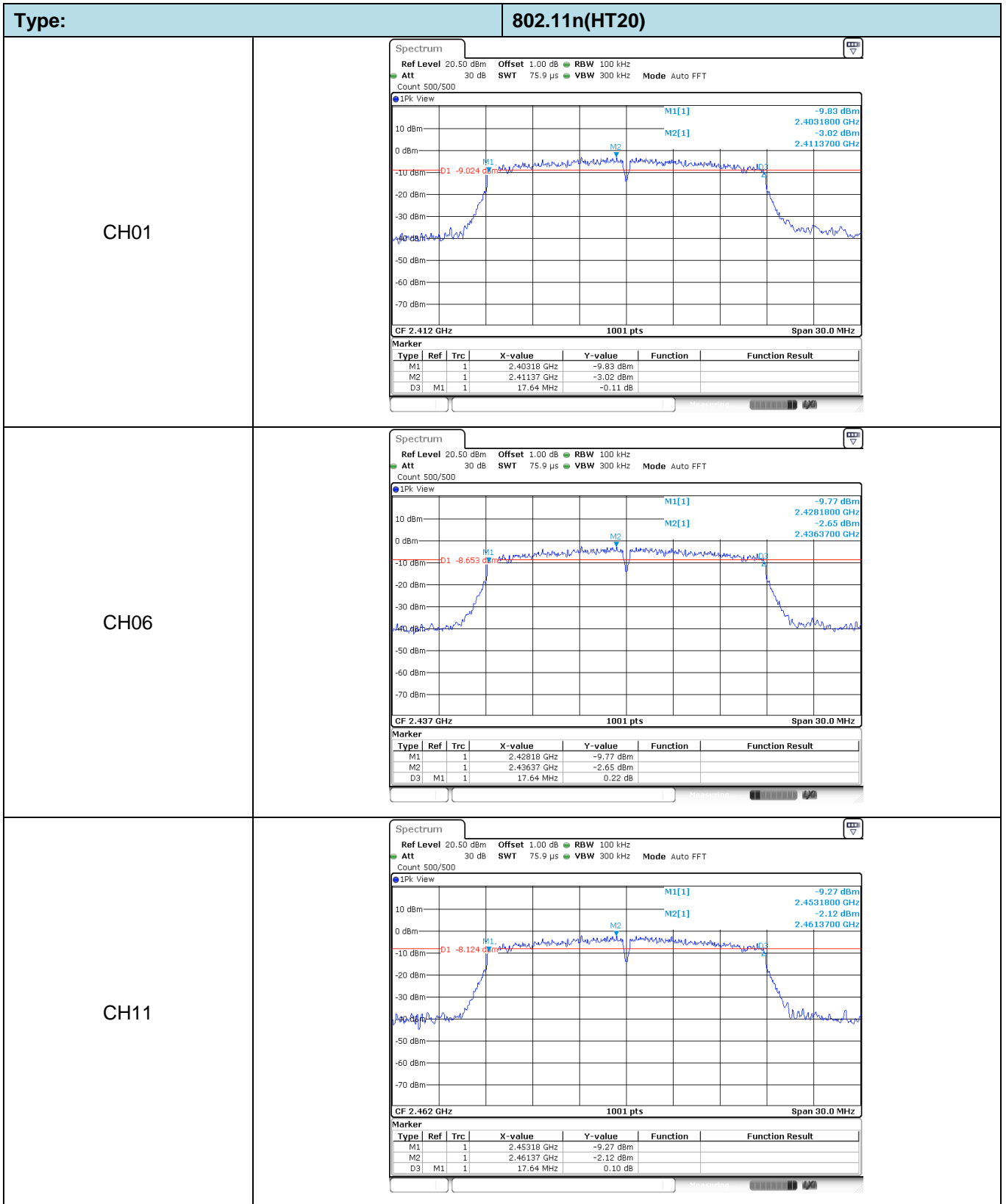
Type	Channel	6dB Bandwidth (MHz)	Limit (kHz)	Result
802.11b	01	10.11	≥500	Pass
	06	10.11		
	11	10.08		
802.11g	01	16.41	≥500	Pass
	06	16.41		
	11	16.41		
802.11n(HT20)	01	17.64	≥500	Pass
	06	17.64		
	11	17.64		
802.11n(HT40)	03	36.48	≥500	Pass
	06	36.48		
	09	36.48		

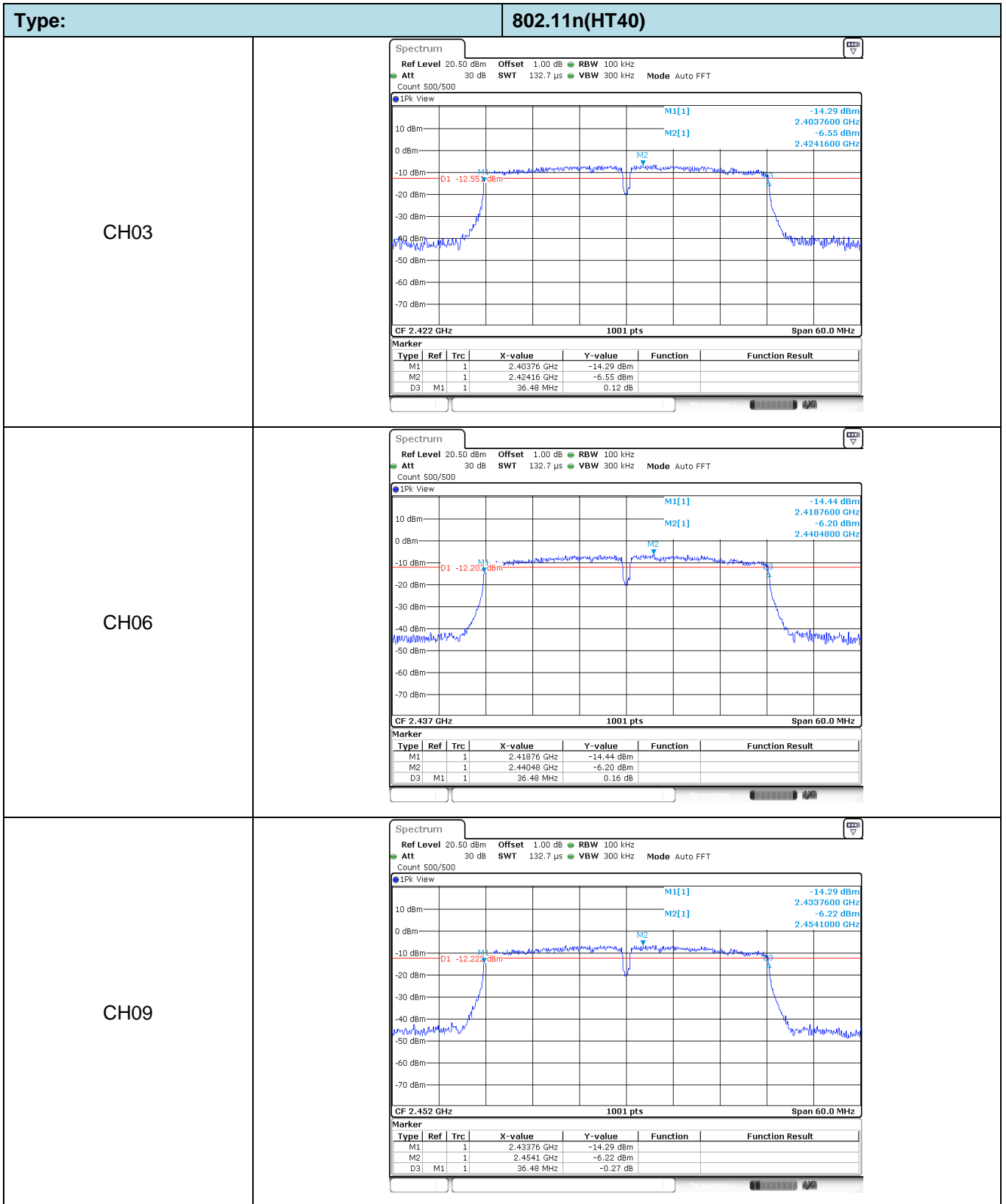
Test plot as follows:











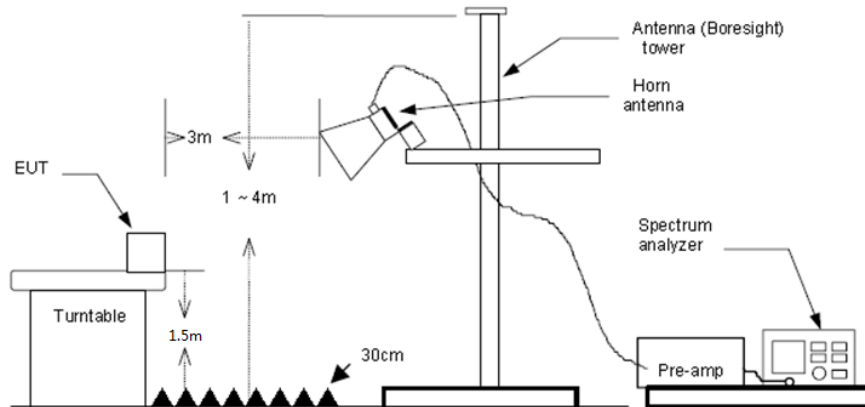
## 5.6. Restricted band

### 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 or digitally modulated intentional radiator is operating, Radiated Emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the Radiated Emissions limits specified in §15.209(a) (see §15.205(c)).

### TEST CONFIGURATION



### TEST PROCEDURE

- 1) The EUT was setup and 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 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=3MHz RMS detector for Average value.

### TEST MODE:

Please refer to the clause 3.3

### TEST RESULTS

Passed       Not Applicable

Note:

- 1) Final level= Read level + Antenna Factor+ Cable Loss- Preamp Factor

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
2310.00	28.63	28.05	6.62	0.00	63.30	74.00	-10.70	Vertical	Peak
2390.01	26.82	27.65	6.75	0.00	61.22	74.00	-12.78	Vertical	Peak
2310.00	26.38	28.05	6.62	0.00	61.05	74.00	-12.95	Horizontal	Peak
2390.01	25.09	27.65	6.75	0.00	59.49	74.00	-14.51	Horizontal	Peak
2310.00	12.80	28.05	6.62	0.00	47.47	54.00	-6.53	Vertical	Average
2390.01	12.86	27.65	6.75	0.00	47.26	54.00	-6.74	Vertical	Average
2310.00	12.78	28.05	6.62	0.00	47.45	54.00	-6.55	Horizontal	Average
2390.01	13.66	27.65	6.75	0.00	48.06	54.00	-5.94	Horizontal	Average

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
2483.49	26.55	27.26	6.83	0.00	60.64	74.00	-13.36	Vertical	Peak
2500.00	25.93	27.20	6.84	0.00	59.97	74.00	-14.03	Vertical	Peak
2483.49	25.68	27.26	6.83	0.00	59.77	74.00	-14.23	Horizontal	Peak
2500.00	26.68	27.20	6.84	0.00	60.72	74.00	-13.28	Horizontal	Peak
2483.49	12.49	27.26	6.83	0.00	46.58	54.00	-7.42	Vertical	Average
2500.00	12.43	27.20	6.84	0.00	46.47	54.00	-7.53	Vertical	Average
2483.49	12.66	27.26	6.83	0.00	46.75	54.00	-7.25	Horizontal	Average
2500.00	12.45	27.20	6.84	0.00	46.49	54.00	-7.51	Horizontal	Average

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
2310.18	26.71	28.05	6.62	0.00	61.38	74.00	-12.62	Vertical	Peak
2390.05	27.10	27.65	6.75	0.00	61.50	74.00	-12.50	Vertical	Peak
2310.18	27.14	28.05	6.62	0.00	61.81	74.00	-12.19	Horizontal	Peak
2390.05	26.85	27.65	6.75	0.00	61.25	74.00	-12.75	Horizontal	Peak
2310.18	12.80	28.05	6.62	0.00	47.47	54.00	-6.53	Vertical	Average
2390.05	14.85	27.65	6.75	0.00	49.25	54.00	-4.75	Vertical	Average
2310.18	12.82	28.05	6.62	0.00	47.49	54.00	-6.51	Horizontal	Average
2390.05	13.99	27.65	6.75	0.00	48.39	54.00	-5.61	Horizontal	Average

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
2483.49	26.47	27.26	6.83	0.00	60.56	74.00	-13.44	Vertical	Peak
2500.00	28.43	27.20	6.84	0.00	62.47	74.00	-11.53	Vertical	Peak
2483.49	25.32	27.26	6.83	0.00	59.41	74.00	-14.59	Horizontal	Peak
2500.00	27.10	27.20	6.84	0.00	61.14	74.00	-12.86	Horizontal	Peak
2483.49	13.32	27.26	6.83	0.00	47.41	54.00	-6.59	Vertical	Average
2500.00	12.49	27.20	6.84	0.00	46.53	54.00	-7.47	Vertical	Average
2483.49	14.91	27.26	6.83	0.00	49.00	54.00	-5.00	Horizontal	Average
2500.00	12.67	27.20	6.84	0.00	46.71	54.00	-7.29	Horizontal	Average

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
2310.00	26.53	28.05	6.62	0.00	61.20	74.00	-12.80	Vertical	Peak
2390.01	25.70	27.65	6.75	0.00	60.10	74.00	-13.90	Vertical	Peak
2310.00	26.53	28.05	6.62	0.00	61.20	74.00	-12.80	Horizontal	Peak
2390.01	26.72	27.65	6.75	0.00	61.12	74.00	-12.88	Horizontal	Peak
2310.00	12.80	28.05	6.62	0.00	47.47	54.00	-6.53	Vertical	Average
2390.01	15.08	27.65	6.75	0.00	49.48	54.00	-4.52	Vertical	Average
2310.00	12.81	28.05	6.62	0.00	47.48	54.00	-6.52	Horizontal	Average
2390.01	19.01	27.65	6.75	0.00	53.41	54.00	-0.59	Horizontal	Average

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
2483.49	26.07	27.26	6.83	0.00	60.16	74.00	-13.84	Vertical	Peak
2500.00	25.92	27.20	6.84	0.00	59.96	74.00	-14.04	Vertical	Peak
2483.49	26.10	27.26	6.83	0.00	60.19	74.00	-13.81	Horizontal	Peak
2500.00	26.61	27.20	6.84	0.00	60.65	74.00	-13.35	Horizontal	Peak
2483.49	13.54	27.26	6.83	0.00	47.63	54.00	-6.37	Vertical	Average
2500.00	12.57	27.20	6.84	0.00	46.61	54.00	-7.39	Vertical	Average
2483.49	14.21	27.26	6.83	0.00	48.30	54.00	-5.70	Horizontal	Average
2500.00	12.55	27.20	6.84	0.00	46.59	54.00	-7.41	Horizontal	Average

802.11n(HT40)					CH03				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
2310.00	26.69	28.05	6.62	0.00	61.36	74.00	-12.64	Vertical	Peak
2389.99	27.78	27.65	6.75	0.00	62.18	74.00	-11.82	Vertical	Peak
2310.00	26.08	28.05	6.62	0.00	60.75	74.00	-13.25	Horizontal	Peak
2389.99	26.54	27.65	6.75	0.00	60.94	74.00	-13.06	Horizontal	Peak
2310.00	12.82	28.05	6.62	0.00	47.49	54.00	-6.51	Vertical	Average
2389.99	15.25	27.65	6.75	0.00	49.65	54.00	-4.35	Vertical	Average
2310.00	12.79	28.05	6.62	0.00	47.46	54.00	-6.54	Horizontal	Average
2389.99	17.15	27.65	6.75	0.00	51.55	54.00	-2.45	Horizontal	Average

802.11n(HT40)					CH09				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
2483.50	26.24	27.26	6.83	0.00	60.33	74.00	-13.67	Vertical	Peak
2500.00	26.81	27.20	6.84	0.00	60.85	74.00	-13.15	Vertical	Peak
2483.50	26.27	27.26	6.83	0.00	60.36	74.00	-13.64	Horizontal	Peak
2500.00	25.92	27.20	6.84	0.00	59.96	74.00	-14.04	Horizontal	Peak
2483.50	12.92	27.26	6.83	0.00	47.01	54.00	-6.99	Vertical	Average
2500.00	12.62	27.20	6.84	0.00	46.66	54.00	-7.34	Vertical	Average
2483.50	13.89	27.26	6.83	0.00	47.98	54.00	-6.02	Horizontal	Average
2500.00	13.21	27.20	6.84	0.00	47.25	54.00	-6.75	Horizontal	Average



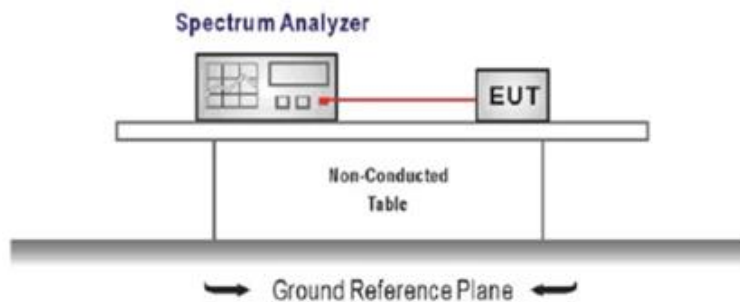
## 5.7. Band edge and Spurious Emissions (conducted)

### 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

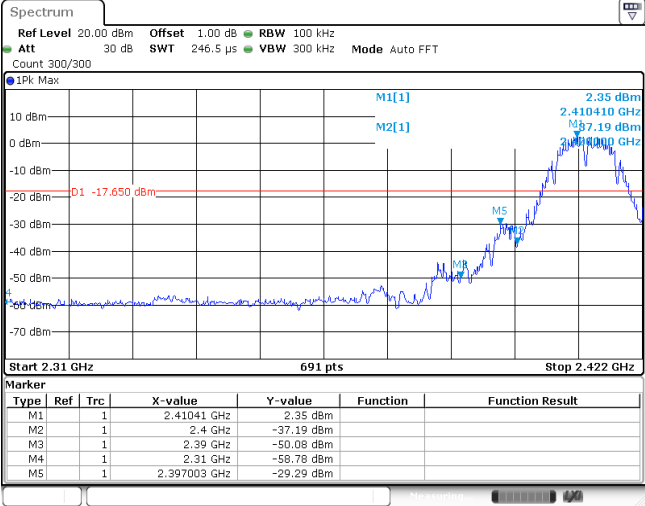

1. Connect the antenna port(s) to the spectrum analyzer input.
2. Establish a reference level by using the following procedure  
 Center frequency=DTS channel center frequency  
 The span = 1.5 times the DTS bandwidth.  
 RBW = 100 kHz, VBW  $\geq 3 \times$  RBW  
 Detector = peak, Sweep time = auto 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  $\geq 3 \times$  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:

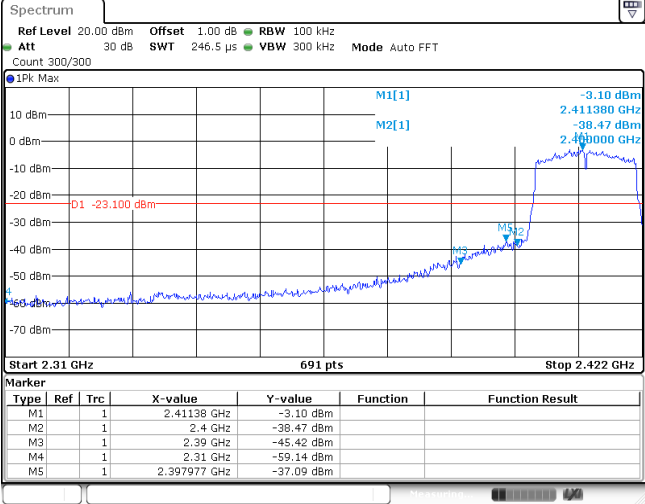
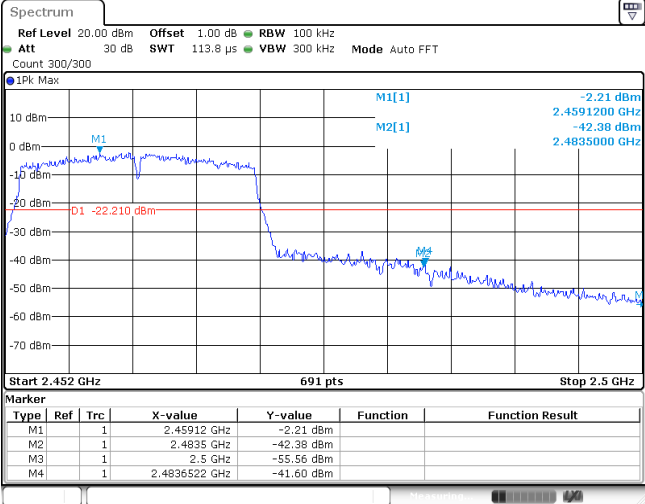
Please refer to the clause 3.3

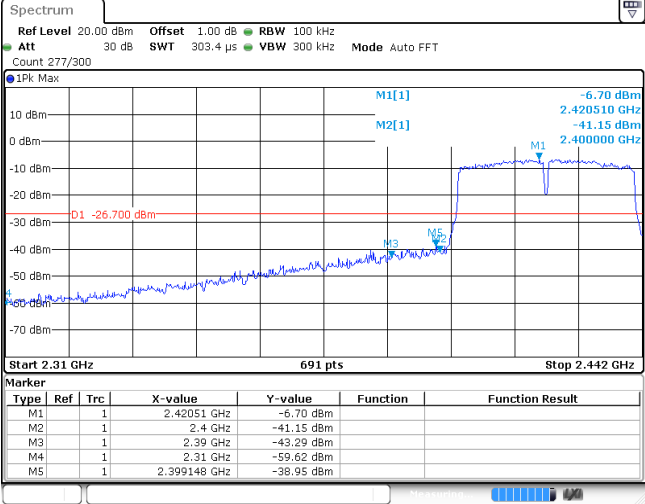
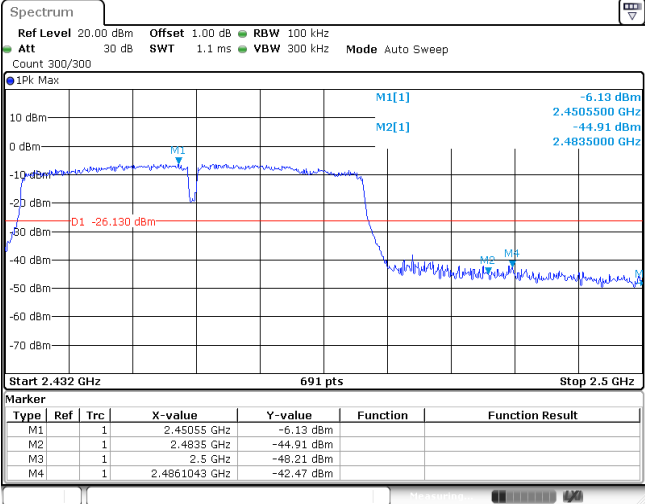
### TEST RESULTS

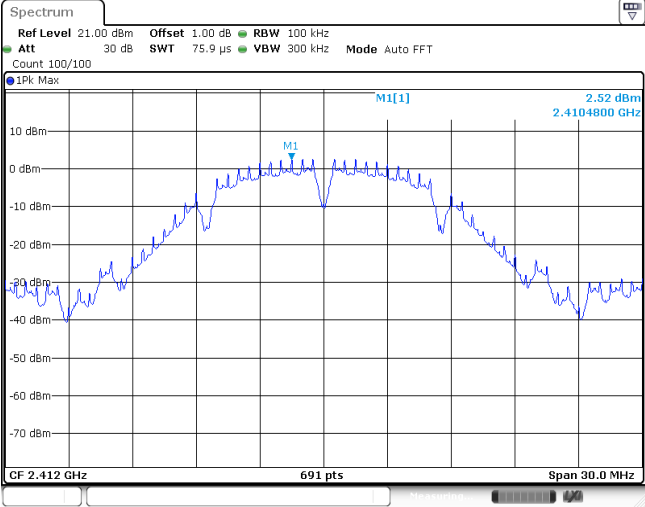
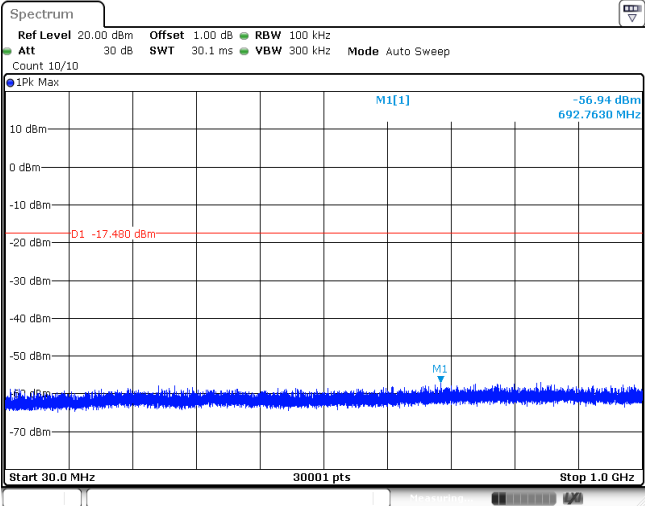
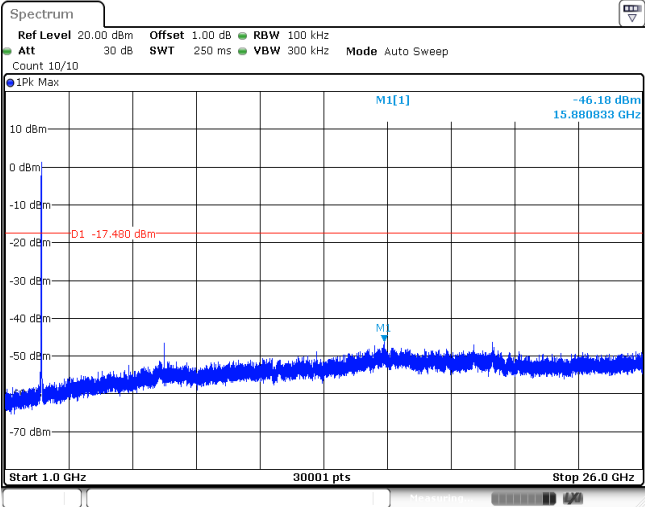
Passed       Not Applicable

Test Item:	Bandedge	Type:	802.11b																																																
CH01	 <p><b>Spectrum</b>                  Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz                  Att 30 dB SWT 246.5 μs VBW 300 kHz Mode Auto FFT                  Count 300/300</p> <p>Start 2.31 GHz 691 pts Stop 2.422 GHz</p> <table border="1"> <thead> <tr> <th>Marker</th> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td></td> <td>2.41041 GHz</td> <td>2.35 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td></td> <td>2.4 GHz</td> <td>-37.19 dBm</td> <td></td> <td></td> </tr> <tr> <td>M3</td> <td>1</td> <td></td> <td></td> <td>2.39 GHz</td> <td>-50.08 dBm</td> <td></td> <td></td> </tr> <tr> <td>M4</td> <td>1</td> <td></td> <td></td> <td>2.31 GHz</td> <td>-58.78 dBm</td> <td></td> <td></td> </tr> <tr> <td>M5</td> <td>1</td> <td></td> <td></td> <td>2.397003 GHz</td> <td>-29.29 dBm</td> <td></td> <td></td> </tr> </tbody> </table>			Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1			2.41041 GHz	2.35 dBm			M2	1			2.4 GHz	-37.19 dBm			M3	1			2.39 GHz	-50.08 dBm			M4	1			2.31 GHz	-58.78 dBm			M5	1			2.397003 GHz	-29.29 dBm		
Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result																																												
M1	1			2.41041 GHz	2.35 dBm																																														
M2	1			2.4 GHz	-37.19 dBm																																														
M3	1			2.39 GHz	-50.08 dBm																																														
M4	1			2.31 GHz	-58.78 dBm																																														
M5	1			2.397003 GHz	-29.29 dBm																																														
CH11	 <p><b>Spectrum</b>                  Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz                  Att 30 dB SWT 113.8 μs VBW 300 kHz Mode Auto FFT                  Count 300/300</p> <p>Start 2.452 GHz 691 pts Stop 2.5 GHz</p> <table border="1"> <thead> <tr> <th>Marker</th> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td></td> <td>2.460509 GHz</td> <td>2.79 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td></td> <td>2.4835 GHz</td> <td>-50.28 dBm</td> <td></td> <td></td> </tr> <tr> <td>M3</td> <td>1</td> <td></td> <td></td> <td>2.5 GHz</td> <td>-53.39 dBm</td> <td></td> <td></td> </tr> <tr> <td>M4</td> <td>1</td> <td></td> <td></td> <td>2.4890348 GHz</td> <td>-48.49 dBm</td> <td></td> <td></td> </tr> </tbody> </table>			Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1			2.460509 GHz	2.79 dBm			M2	1			2.4835 GHz	-50.28 dBm			M3	1			2.5 GHz	-53.39 dBm			M4	1			2.4890348 GHz	-48.49 dBm										
Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result																																												
M1	1			2.460509 GHz	2.79 dBm																																														
M2	1			2.4835 GHz	-50.28 dBm																																														
M3	1			2.5 GHz	-53.39 dBm																																														
M4	1			2.4890348 GHz	-48.49 dBm																																														

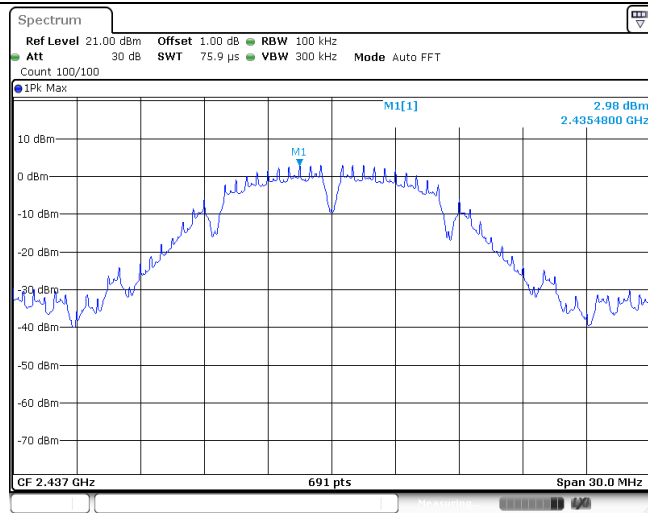
Test Item:	Bandedge	Type:	802.11g																																																
CH01	<p>Spectrum</p> <p>Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz          Att 30 dB SWT 246.5 <math>\mu</math>s VBW 300 kHz Mode Auto FFT          Count 300/300</p> <p>Start 2.31 GHz 691 pts Stop 2.422 GHz</p> <table border="1"> <thead> <tr> <th>Marker</th> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td></td> <td>2.40992 GHz</td> <td>-3.15 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td></td> <td>2.4 GHz</td> <td>-34.94 dBm</td> <td></td> <td></td> </tr> <tr> <td>M3</td> <td>1</td> <td></td> <td></td> <td>2.39 GHz</td> <td>-44.88 dBm</td> <td></td> <td></td> </tr> <tr> <td>M4</td> <td>1</td> <td></td> <td></td> <td>2.31 GHz</td> <td>-58.77 dBm</td> <td></td> <td></td> </tr> <tr> <td>M5</td> <td>1</td> <td></td> <td></td> <td>2.399438 GHz</td> <td>-32.86 dBm</td> <td></td> <td></td> </tr> </tbody> </table>			Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1			2.40992 GHz	-3.15 dBm			M2	1			2.4 GHz	-34.94 dBm			M3	1			2.39 GHz	-44.88 dBm			M4	1			2.31 GHz	-58.77 dBm			M5	1			2.399438 GHz	-32.86 dBm		
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M4	1			2.31 GHz	-58.77 dBm																																														
M5	1			2.399438 GHz	-32.86 dBm																																														
CH11	<p>Spectrum</p> <p>Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz          Att 30 dB SWT 113.8 <math>\mu</math>s VBW 300 kHz Mode Auto FFT          Count 300/300</p> <p>Start 2.452 GHz 691 pts Stop 2.5 GHz</p> <table border="1"> <thead> <tr> <th>Marker</th> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td></td> <td>2.46301 GHz</td> <td>-2.37 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td></td> <td>2.4835 GHz</td> <td>-44.59 dBm</td> <td></td> <td></td> </tr> <tr> <td>M3</td> <td>1</td> <td></td> <td></td> <td>2.5 GHz</td> <td>-54.81 dBm</td> <td></td> <td></td> </tr> <tr> <td>M4</td> <td>1</td> <td></td> <td></td> <td>2.484487 GHz</td> <td>-43.28 dBm</td> <td></td> <td></td> </tr> </tbody> </table>			Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1			2.46301 GHz	-2.37 dBm			M2	1			2.4835 GHz	-44.59 dBm			M3	1			2.5 GHz	-54.81 dBm			M4	1			2.484487 GHz	-43.28 dBm										
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Test Item:	Bandedge	Type:	802.11n(HT20)																																										
CH01	 <p>                     Spectrum                      Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz                      Att 30 dB SWT 246.5 μs VBW 300 kHz Mode Auto FFT                      Count 300/300                      Start 2.31 GHz 691 pts Stop 2.422 GHz                 </p> <table border="1"> <thead> <tr> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td>2.41138 GHz</td> <td>-3.10 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td>2.4 GHz</td> <td>-38.47 dBm</td> <td></td> <td></td> </tr> <tr> <td>M3</td> <td>1</td> <td></td> <td>2.39 GHz</td> <td>-45.42 dBm</td> <td></td> <td></td> </tr> <tr> <td>M4</td> <td>1</td> <td></td> <td>2.31 GHz</td> <td>-59.14 dBm</td> <td></td> <td></td> </tr> <tr> <td>M5</td> <td>1</td> <td></td> <td>2.397977 GHz</td> <td>-37.09 dBm</td> <td></td> <td></td> </tr> </tbody> </table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.41138 GHz	-3.10 dBm			M2	1		2.4 GHz	-38.47 dBm			M3	1		2.39 GHz	-45.42 dBm			M4	1		2.31 GHz	-59.14 dBm			M5	1		2.397977 GHz	-37.09 dBm		
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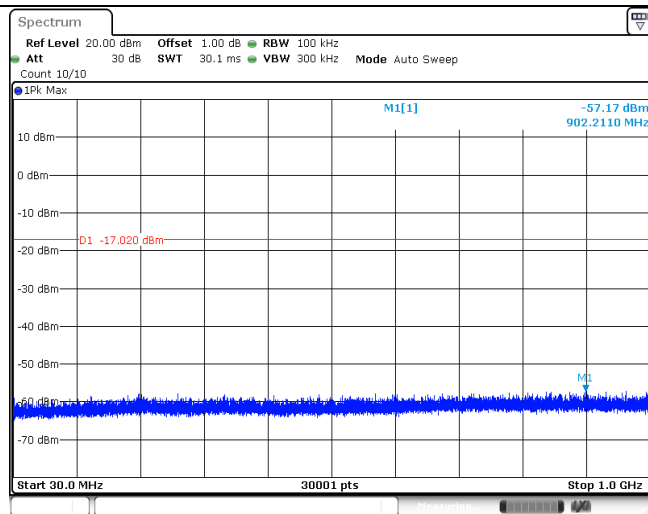
Test Item:	Bandedge	Type:	802.11n(HT40)																																																
CH03	 <p><b>Spectrum</b>                  Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz                  Att 30 dB SWT 303.4 μs VBW 300 kHz Mode Auto FFT                  Count 277/300</p> <p>Start 2.31 GHz 691 pts Stop 2.442 GHz</p> <table border="1"> <thead> <tr> <th>Marker</th> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td></td> <td>2.42051 GHz</td> <td>-6.70 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td></td> <td>2.4 GHz</td> <td>-41.15 dBm</td> <td></td> <td></td> </tr> <tr> <td>M3</td> <td>1</td> <td></td> <td></td> <td>2.39 GHz</td> <td>-43.29 dBm</td> <td></td> <td></td> </tr> <tr> <td>M4</td> <td>1</td> <td></td> <td></td> <td>2.31 GHz</td> <td>-59.62 dBm</td> <td></td> <td></td> </tr> <tr> <td>M5</td> <td>1</td> <td></td> <td></td> <td>2.399148 GHz</td> <td>-38.95 dBm</td> <td></td> <td></td> </tr> </tbody> </table>			Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1			2.42051 GHz	-6.70 dBm			M2	1			2.4 GHz	-41.15 dBm			M3	1			2.39 GHz	-43.29 dBm			M4	1			2.31 GHz	-59.62 dBm			M5	1			2.399148 GHz	-38.95 dBm		
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CH09	 <p><b>Spectrum</b>                  Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz                  Att 30 dB SWT 1.1 ms VBW 300 kHz Mode Auto Sweep                  Count 300/300</p> <p>Start 2.432 GHz 691 pts Stop 2.5 GHz</p> <table border="1"> <thead> <tr> <th>Marker</th> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td></td> <td>2.45055 GHz</td> <td>-6.13 dBm</td> <td></td> <td></td> </tr> <tr> <td>M2</td> <td>1</td> <td></td> <td></td> <td>2.4835 GHz</td> <td>-44.91 dBm</td> <td></td> <td></td> </tr> <tr> <td>M3</td> <td>1</td> <td></td> <td></td> <td>2.5 GHz</td> <td>-46.21 dBm</td> <td></td> <td></td> </tr> <tr> <td>M4</td> <td>1</td> <td></td> <td></td> <td>2.4861043 GHz</td> <td>-42.47 dBm</td> <td></td> <td></td> </tr> </tbody> </table>			Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1			2.45055 GHz	-6.13 dBm			M2	1			2.4835 GHz	-44.91 dBm			M3	1			2.5 GHz	-46.21 dBm			M4	1			2.4861043 GHz	-42.47 dBm										
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M4	1			2.4861043 GHz	-42.47 dBm																																														

Test Item:	SE	Type:	802.11b
CH01 Reference level		 <p>Spectrum</p> <p>Ref Level 21.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 75.9 <math>\mu</math>s VBW 300 kHz Mode Auto FFT Count 100/100</p> <p>IPk Max</p> <p>M1[1] 2.52 dBm 2.4104800 GHz</p> <p>CF 2.412 GHz 691 pts Span 30.0 MHz</p>	
CH01 30MHz~1000MHz		 <p>Spectrum</p> <p>Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 30.1 ms VBW 300 kHz Mode Auto Sweep Count 10/10</p> <p>IPk Max</p> <p>M1[1] -56.94 dBm 692.7630 MHz</p> <p>D1 -17.480 dBm</p> <p>Start 30.0 MHz 30001 pts Stop 1.0 GHz</p>	
CH01 1GHz~26GHz		 <p>Spectrum</p> <p>Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 250 ms VBW 300 kHz Mode Auto Sweep Count 10/10</p> <p>IPk Max</p> <p>M1[1] -46.18 dBm 15.880833 GHz</p> <p>D1 -17.480 dBm</p> <p>Start 1.0 GHz 30001 pts Stop 26.0 GHz</p>	

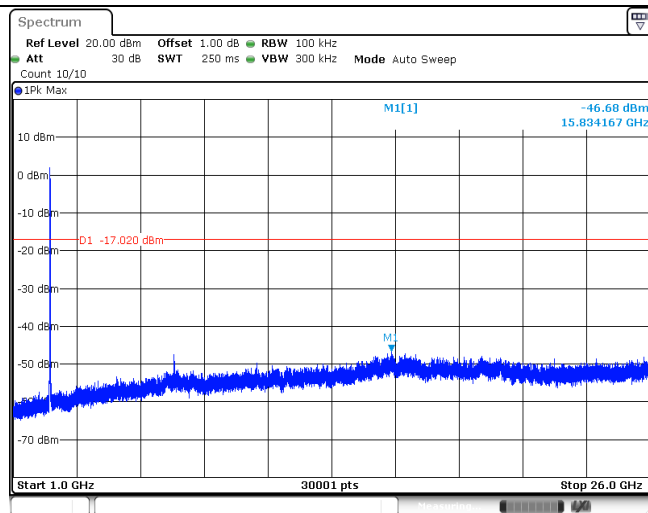
CH06  
Reference level



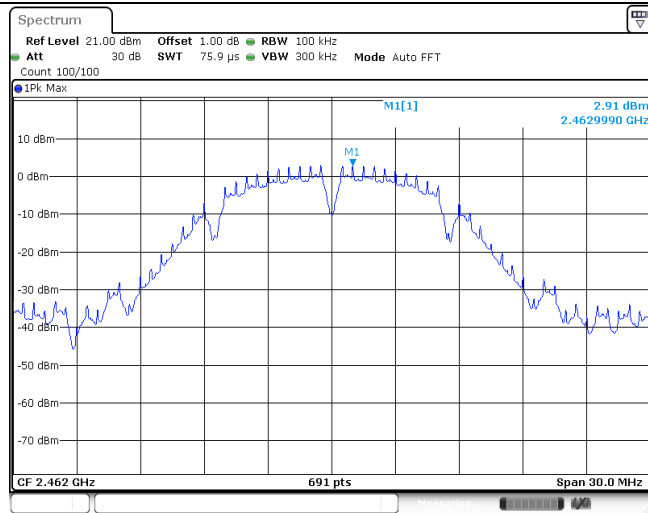
CH06  
30MHz~1000MHz



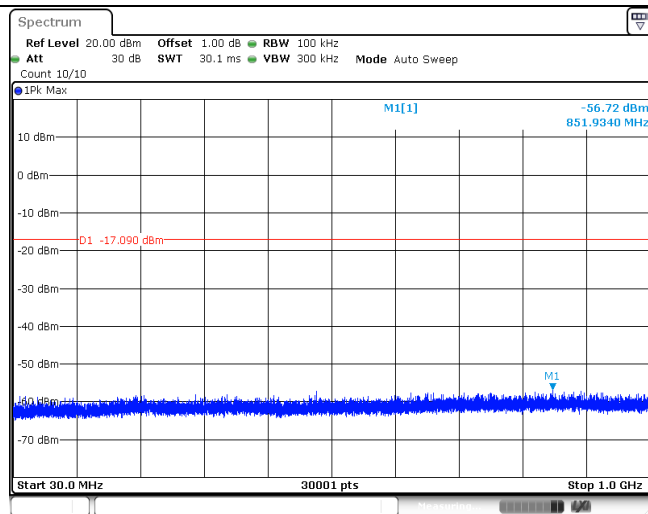
CH06  
1GHz~26GHz



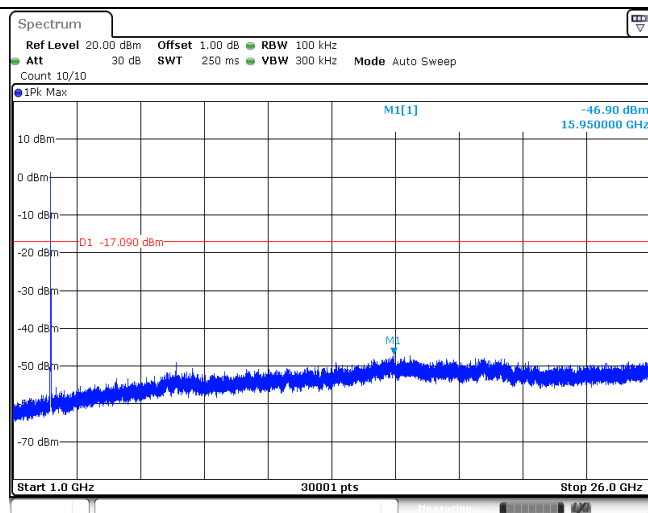
CH11  
Reference level



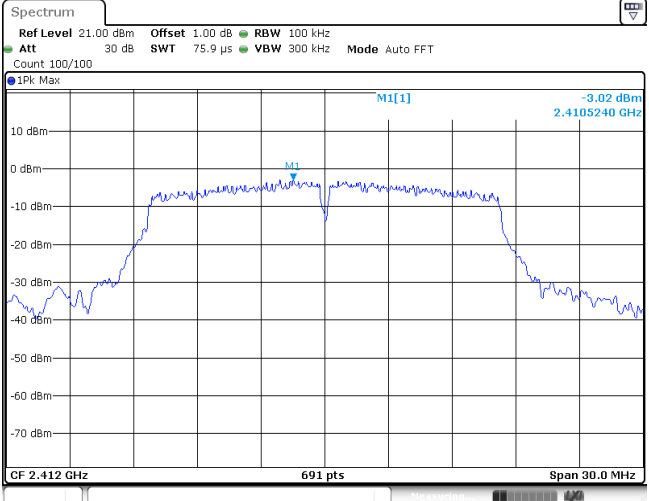
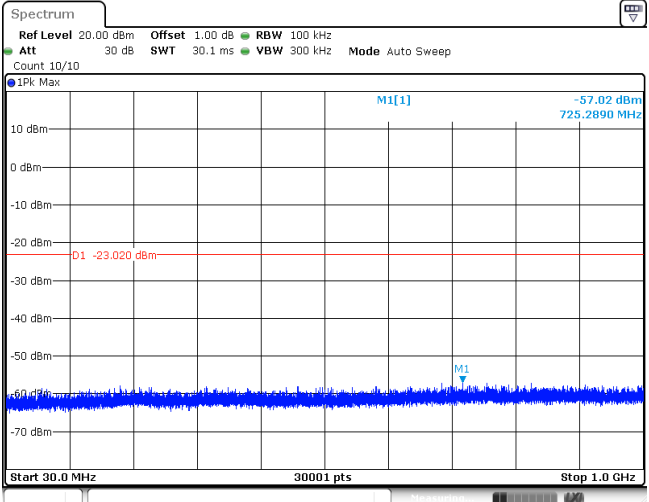
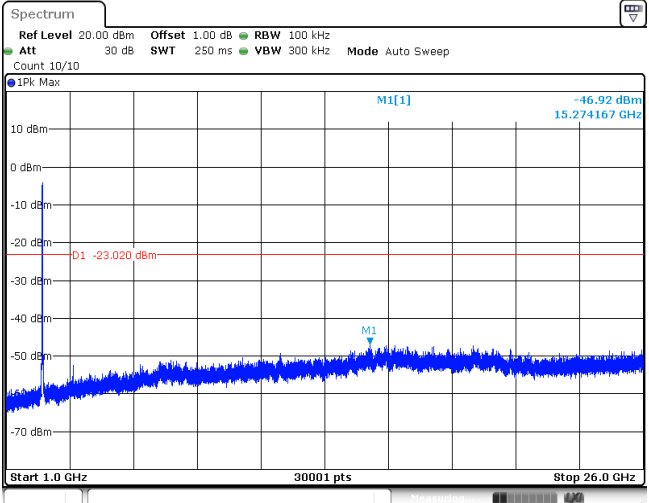
CH11  
30MHz~1000MHz



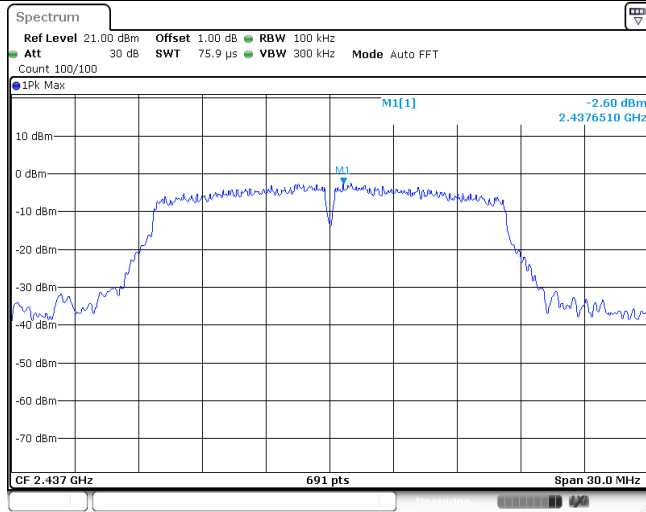
CH11  
1GHz~26GHz



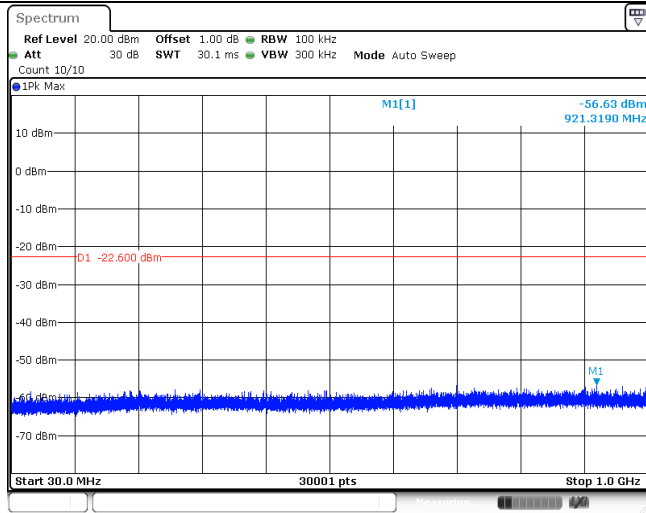


Test Item:	SE	Type:	802.11g
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CH01 1GHz~26GHz			

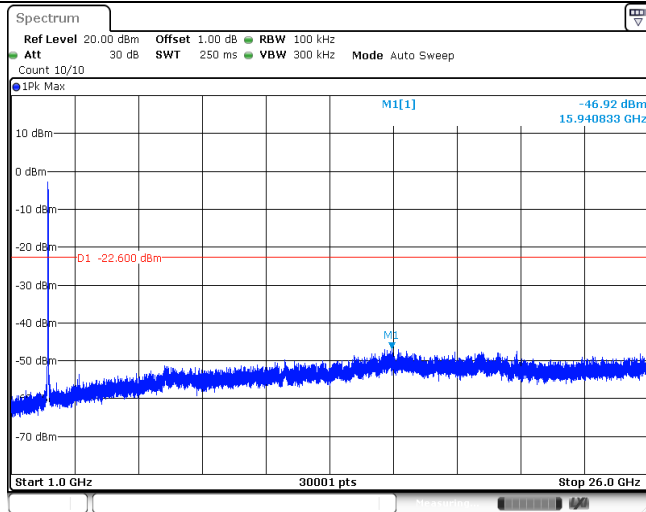
CH06  
Reference level



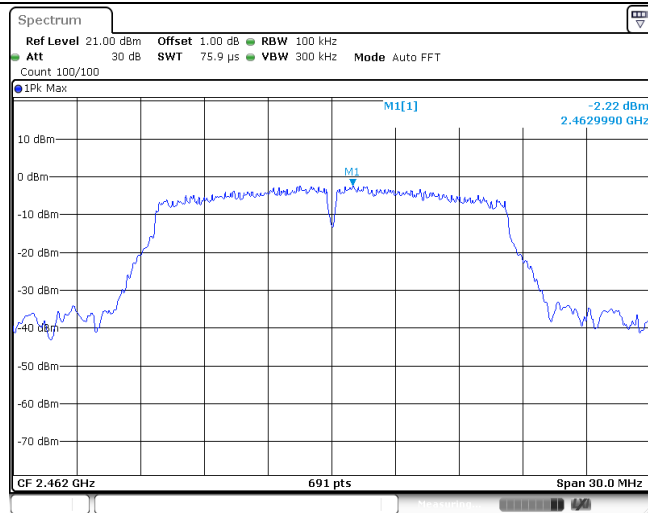
CH06  
30MHz~1000MHz



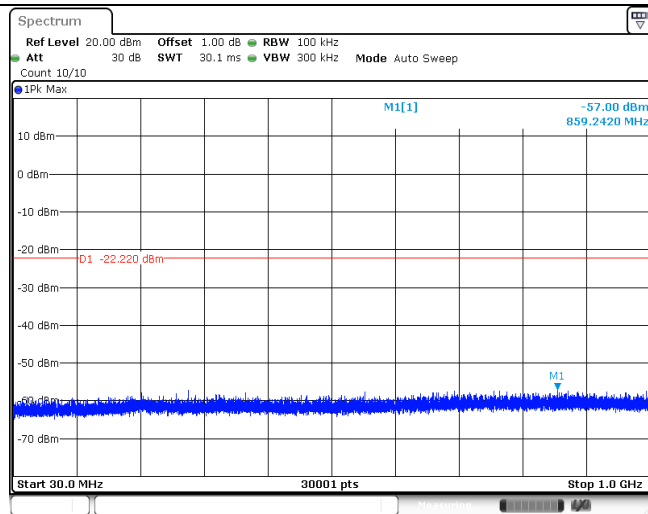
CH06  
1GHz~26GHz



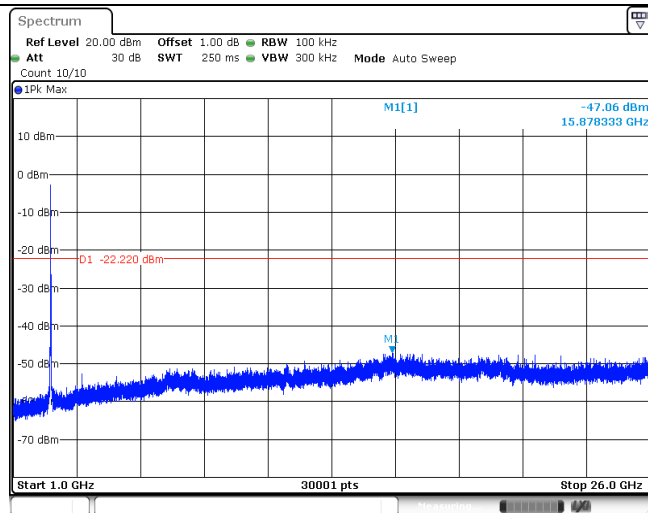
CH11  
Reference level



CH11  
30MHz~1000MHz

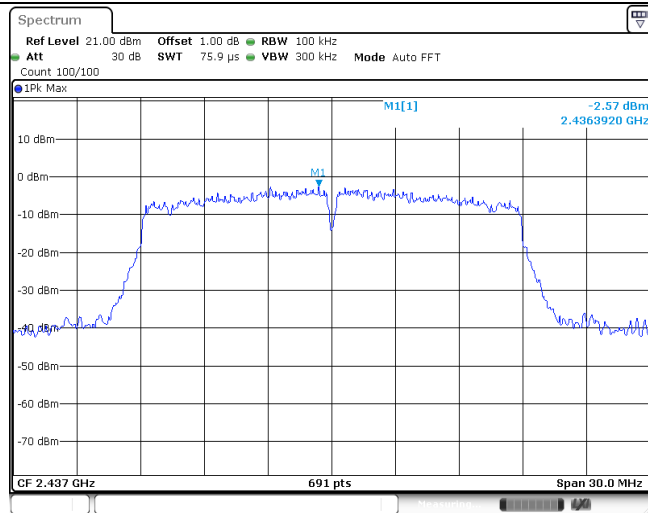


CH11  
1GHz~26GHz

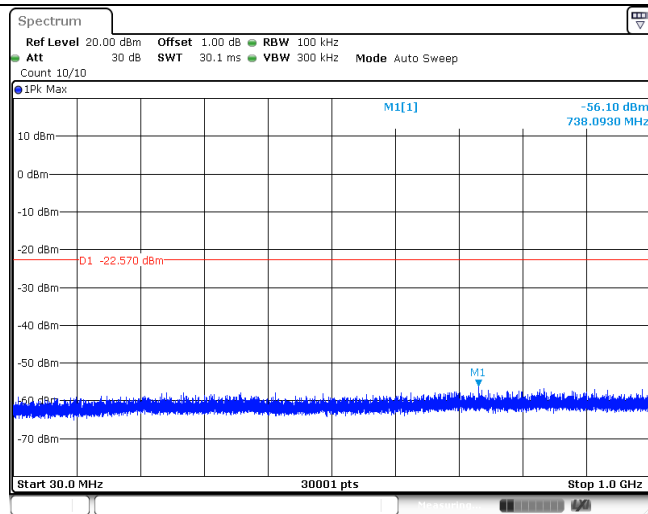


Test Item:	SE	Type:	802.11n(HT20)
<p>CH01 Reference level</p>			
<p>CH01 30MHz~1000MHz</p>			
<p>CH01 1GHz~26GHz</p>			

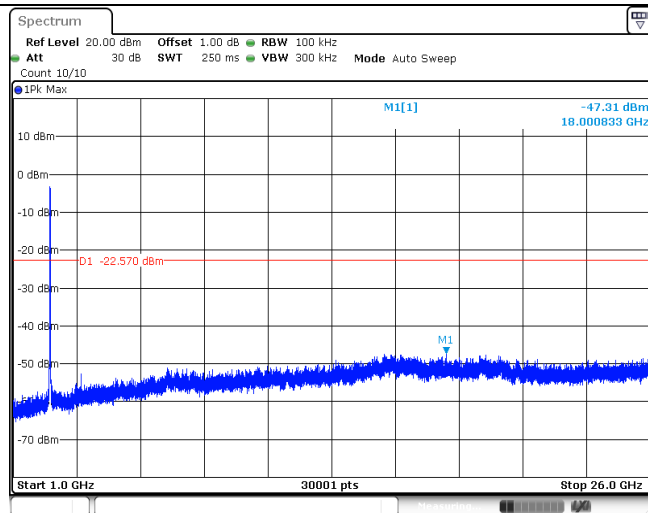
CH06  
Reference level



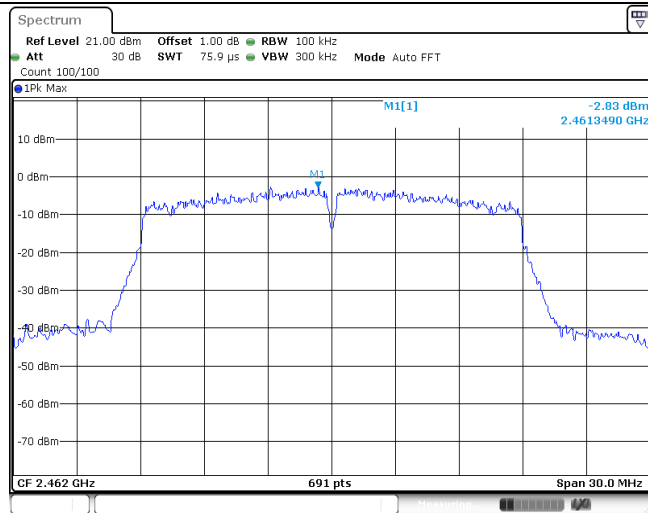
CH06  
30MHz~1000MHz



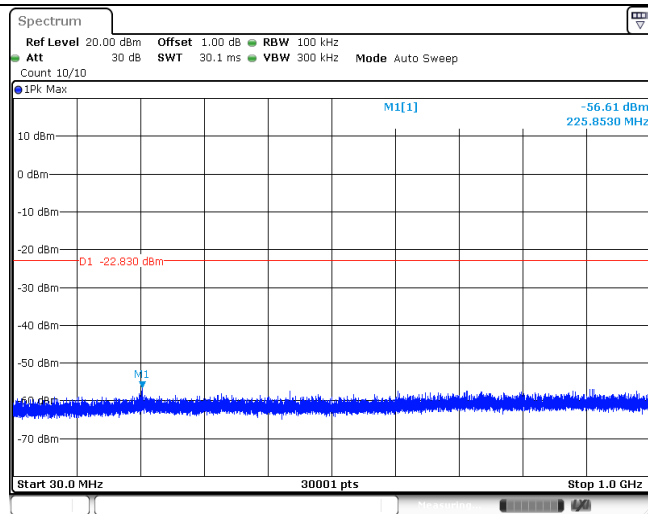
CH06  
1GHz~26GHz



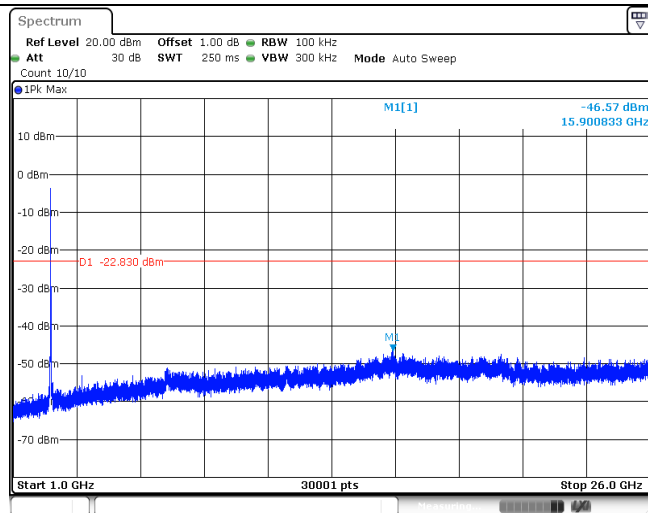
CH11  
Reference level

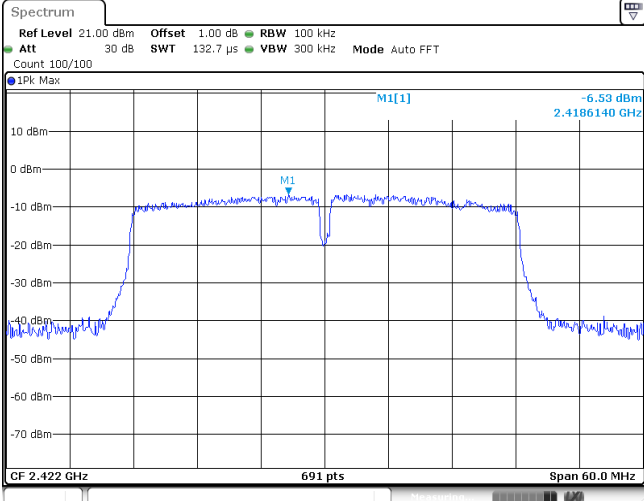
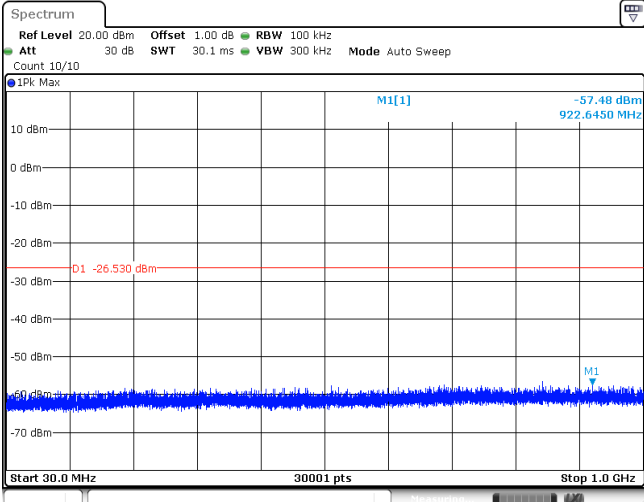
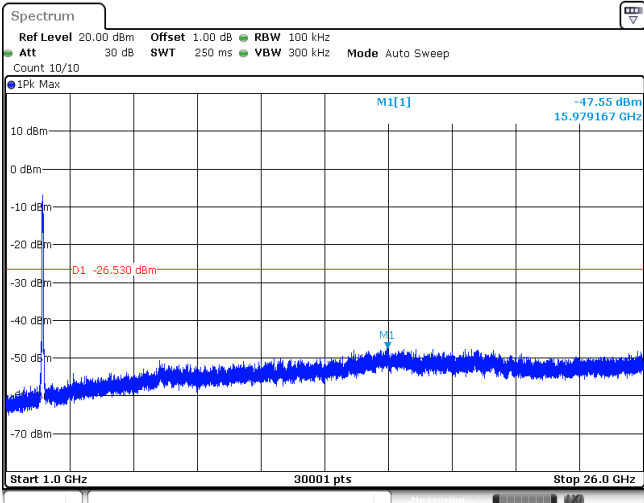


CH11  
30MHz~1000MHz

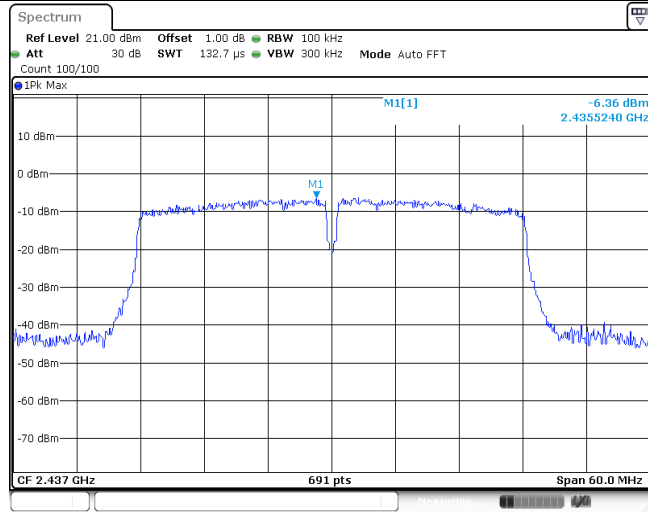


CH11  
1GHz~26GHz

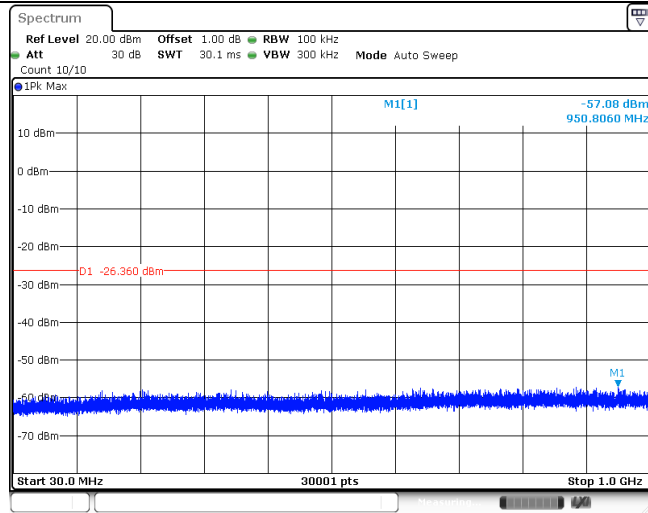


Test Item:	SE	Type:	802.11n(HT40)
CH03 Reference level			
CH03 30MHz~1000MHz			
CH03 1GHz~26GHz			

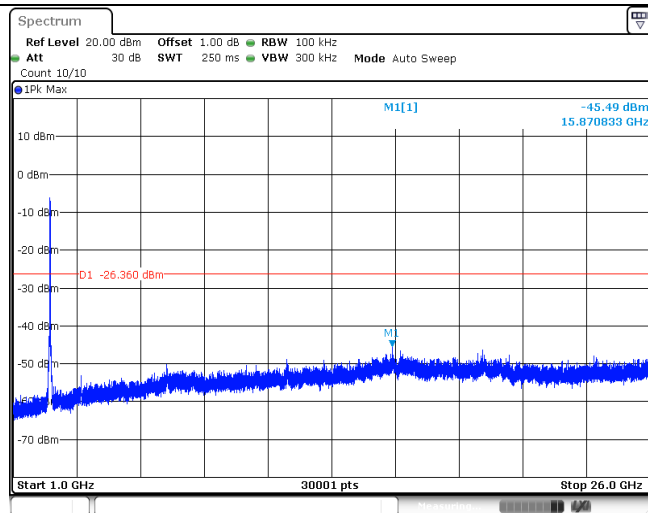
CH06  
Reference level



CH06  
30MHz~1000MHz

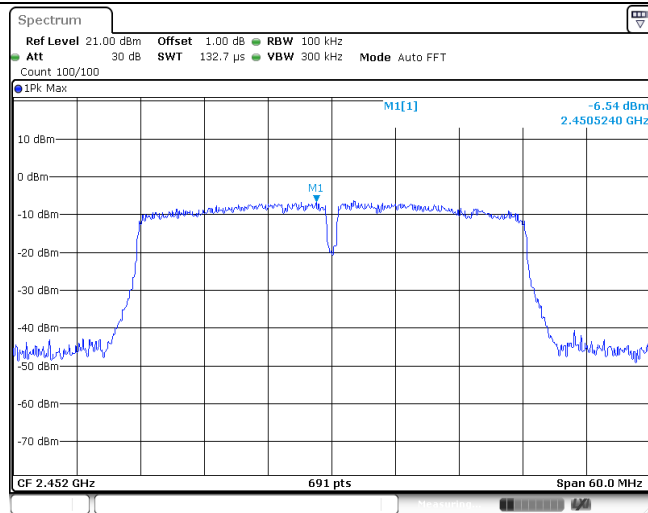


CH06  
1GHz~26GHz

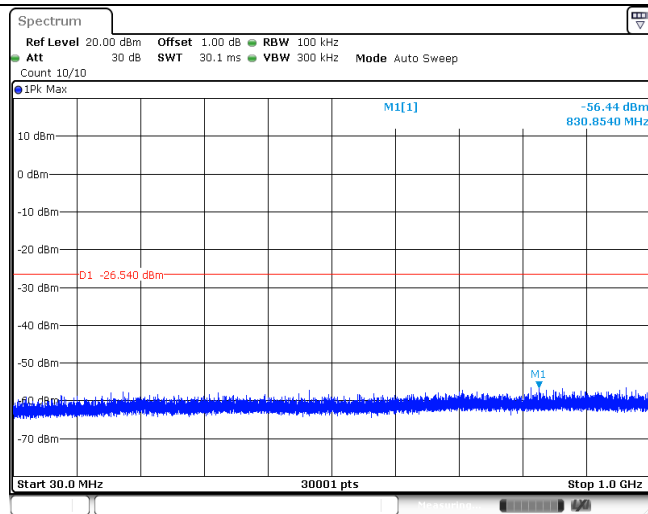




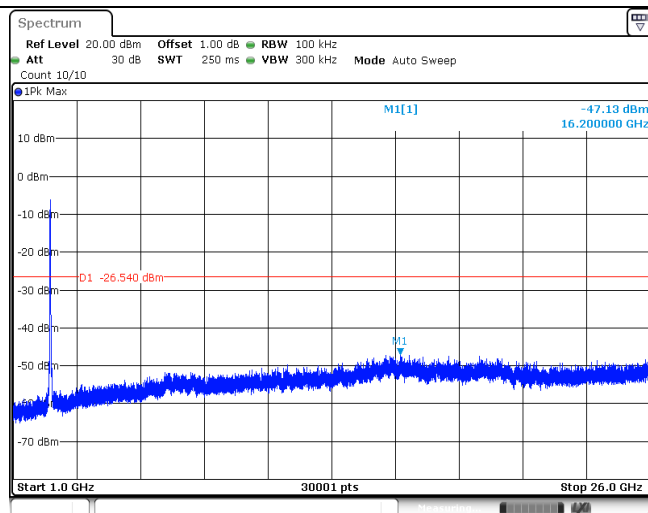
CH09  
Reference level



CH09  
30MHz~1000MHz



CH09  
1GHz~26GHz



### 5.8. Spurious Emissions (radiated)

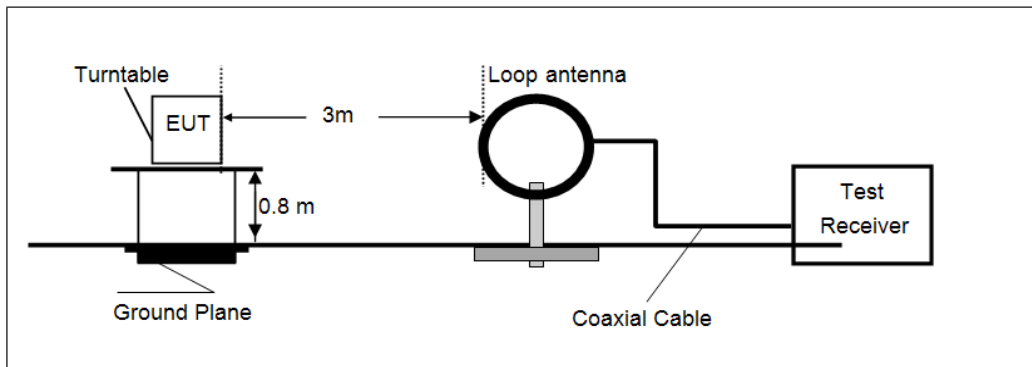
#### LIMIT

#### FCC CFR Title 47 Part 15 Subpart C Section 15.209

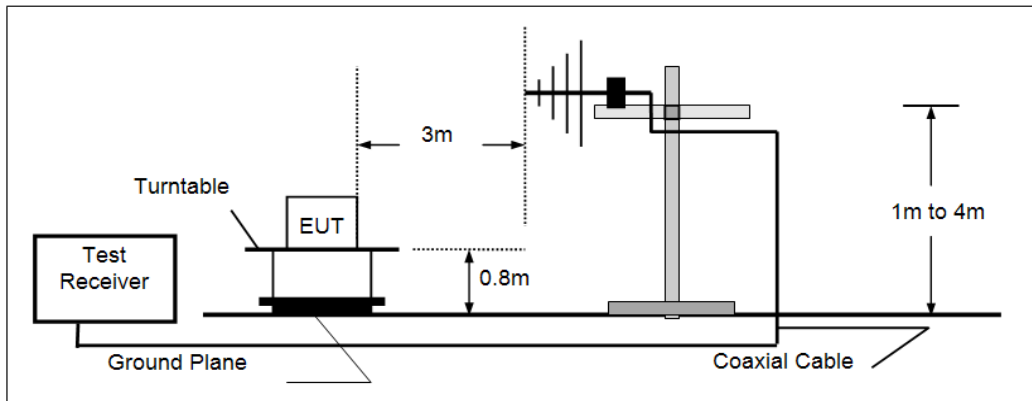
Frequency	Limit (dBuV/m @3m)	Value
30MHz-88MHz	40.00	Quasi-peak
88MHz-216MHz	43.50	Quasi-peak
216MHz-960MHz	46.00	Quasi-peak
960MHz-1GHz	54.00	Quasi-peak
Above 1GHz	54.00	Average
	74.00	Peak

#### TEST CONFIGURATION

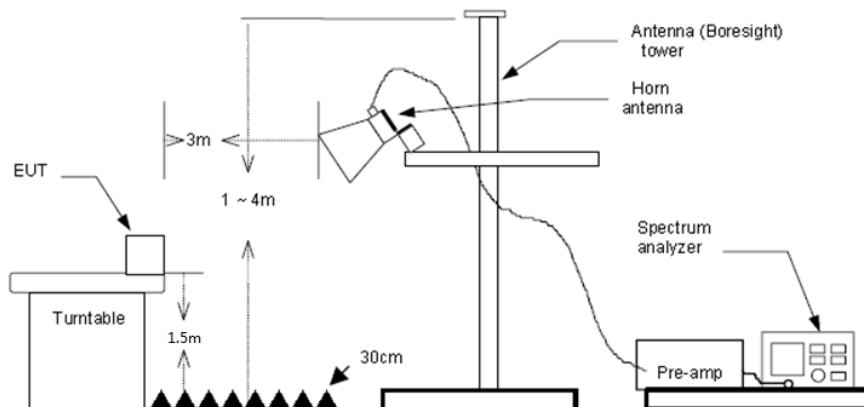
- 9kHz ~30MHz



- 30MHz ~ 1GHz



- Above 1GHz



**TEST PROCEDURE**

1. The EUT was setup and 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 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=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**

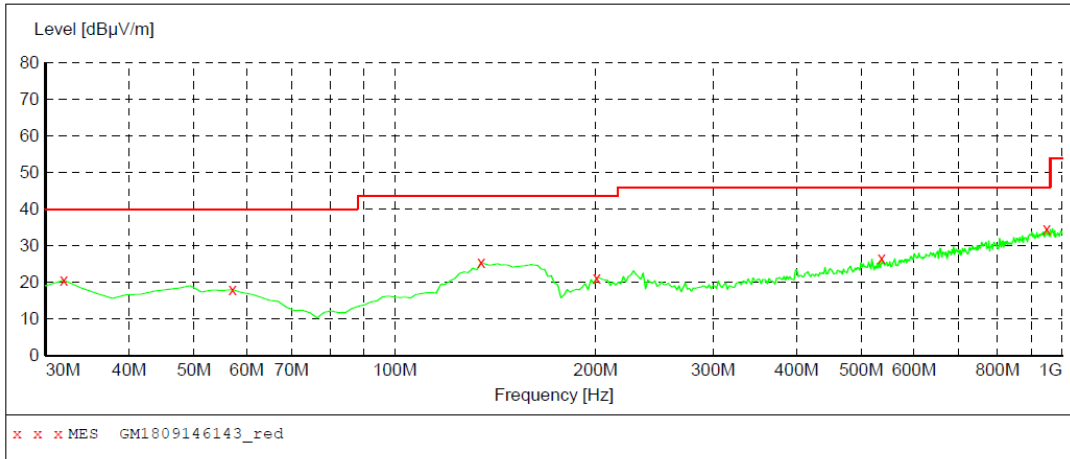
The EUT was pre-scanned the frequency band (9kHz~30MHz), found the radiated level lower than the limit, so don't show on the report.

**➤ 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

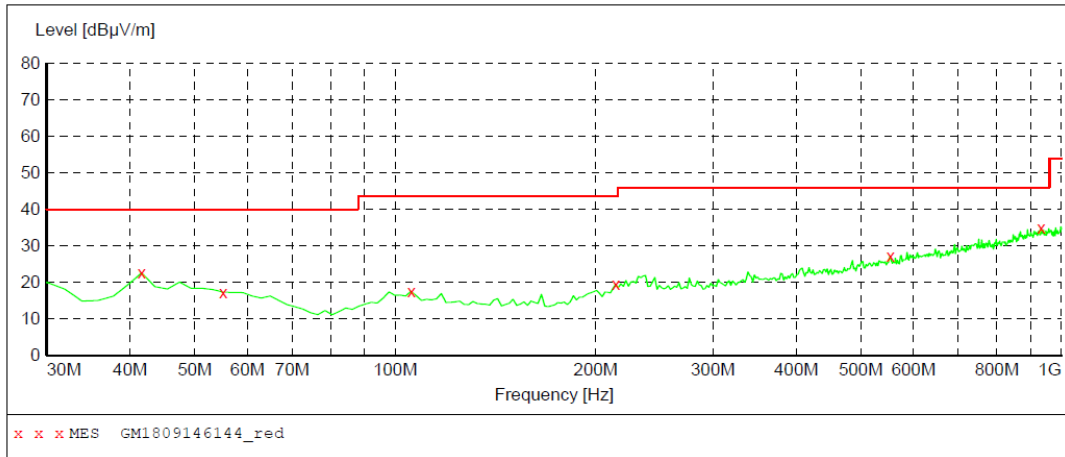


**MEASUREMENT RESULT: "GM1809146143\_red"**

9/14/2018 10:40PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
31.940000	20.60	-13.2	40.0	19.4	QP	100.0	239.00	VERTICAL
57.160000	18.00	-9.4	40.0	22.0	QP	100.0	0.00	VERTICAL
134.760000	25.50	-13.7	43.5	18.0	QP	100.0	211.00	VERTICAL
200.720000	21.30	-9.9	43.5	22.2	QP	100.0	211.00	VERTICAL
536.340000	26.60	-1.0	46.0	19.4	QP	100.0	251.00	VERTICAL
947.620000	34.60	7.2	46.0	11.4	QP	100.0	67.00	VERTICAL

Polarization: Horizontal



**MEASUREMENT RESULT: "GM1809146144\_red"**

9/14/2018 10:44PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
41.640000	22.60	-9.5	40.0	17.4	QP	100.0	107.00	HORIZONTAL
55.220000	17.30	-9.2	40.0	22.7	QP	100.0	356.00	HORIZONTAL
105.660000	17.60	-10.5	43.5	25.9	QP	300.0	216.00	HORIZONTAL
214.300000	19.50	-10.3	43.5	24.0	QP	100.0	291.00	HORIZONTAL
553.800000	27.10	-0.7	46.0	18.9	QP	300.0	175.00	HORIZONTAL
932.100000	34.90	7.1	46.0	11.1	QP	100.0	356.00	HORIZONTAL

## ➤ 1 GHz ~ 25 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
1129.96	36.51	25.75	4.50	37.27	29.49	74.00	-44.51	Vertical	Peak
3616.45	34.63	29.30	8.29	37.05	35.17	74.00	-38.83	Vertical	Peak
4821.76	39.79	31.56	9.55	35.69	45.21	74.00	-28.79	Vertical	Peak
7245.81	34.44	36.25	11.91	33.45	49.15	74.00	-24.85	Vertical	Peak
1241.56	34.84	26.26	4.73	37.20	28.63	74.00	-45.37	Horizontal	Peak
3616.45	35.43	29.30	8.29	37.05	35.97	74.00	-38.03	Horizontal	Peak
4821.76	36.86	31.56	9.55	35.69	42.28	74.00	-31.72	Horizontal	Peak
8022.46	31.61	37.08	12.35	33.06	47.98	74.00	-26.02	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
3653.46	35.51	29.30	8.33	37.02	36.12	74.00	-37.88	Vertical	Peak
4871.10	38.16	31.46	9.59	35.61	43.60	74.00	-30.40	Vertical	Peak
6094.14	33.12	32.50	10.83	34.05	42.40	74.00	-31.60	Vertical	Peak
7319.96	34.75	36.30	11.99	33.32	49.72	74.00	-24.28	Vertical	Peak
1232.12	34.83	26.27	4.71	37.21	28.60	74.00	-45.40	Horizontal	Peak
3653.46	44.56	29.30	8.33	37.02	45.17	74.00	-28.83	Horizontal	Peak
4871.10	47.09	31.46	9.59	35.61	52.53	74.00	-21.47	Horizontal	Peak
7319.96	37.74	36.30	11.99	33.32	52.71	74.00	-21.29	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
1188.98	35.72	26.22	4.64	37.23	29.35	74.00	-44.65	Vertical	Peak
3700.26	33.95	29.30	8.39	36.98	34.66	74.00	-39.34	Vertical	Peak
4920.96	40.19	31.42	9.62	35.52	45.71	74.00	-28.29	Vertical	Peak
7394.88	32.81	36.30	12.06	33.20	47.97	74.00	-26.03	Vertical	Peak
1293.17	34.92	26.21	4.82	37.17	28.78	74.00	-45.22	Horizontal	Peak
3690.85	39.23	29.30	8.37	36.99	39.91	74.00	-34.09	Horizontal	Peak
4920.96	40.94	31.42	9.62	35.52	46.46	74.00	-27.54	Horizontal	Peak
7394.88	35.27	36.30	12.06	33.20	50.43	74.00	-23.57	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(test frequency band is 1GHz to 25GHz) 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
1144.44	35.41	25.86	4.53	37.26	28.54	74.00	-45.46	Vertical	Peak
3625.67	37.46	29.30	8.30	37.04	38.02	74.00	-35.98	Vertical	Peak
4834.05	33.77	31.53	9.56	35.67	39.19	74.00	-34.81	Vertical	Peak
7840.75	30.90	36.35	13.06	33.05	47.26	74.00	-26.74	Vertical	Peak
1719.78	34.25	25.24	5.80	37.32	27.97	74.00	-46.03	Horizontal	Peak
3616.45	43.06	29.30	8.29	37.05	43.60	74.00	-30.40	Horizontal	Peak
4821.76	39.14	31.56	9.55	35.69	44.56	74.00	-29.44	Horizontal	Peak
7245.81	33.75	36.25	11.91	33.45	48.46	74.00	-25.54	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
1124.23	36.87	25.70	4.49	37.27	29.79	74.00	-44.21	Vertical	Peak
3184.25	33.77	28.80	7.70	37.41	32.86	74.00	-41.14	Vertical	Peak
4883.52	33.26	31.43	9.59	35.58	38.70	74.00	-35.30	Vertical	Peak
8022.46	31.20	37.08	12.35	33.06	47.57	74.00	-26.43	Vertical	Peak
1082.11	36.38	25.45	4.39	37.30	28.92	74.00	-45.08	Horizontal	Peak
3653.46	34.89	29.30	8.33	37.02	35.50	74.00	-38.50	Horizontal	Peak
4871.10	32.20	31.46	9.59	35.61	37.64	74.00	-36.36	Horizontal	Peak
7981.72	32.07	37.03	12.39	33.07	48.42	74.00	-25.58	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
1185.96	34.80	26.19	4.63	37.23	28.39	74.00	-45.61	Vertical	Peak
3690.85	39.11	29.30	8.37	36.99	39.79	74.00	-34.21	Vertical	Peak
4933.50	33.94	31.43	9.63	35.50	39.50	74.00	-34.50	Vertical	Peak
8725.48	31.14	37.85	13.02	32.96	49.05	74.00	-24.95	Vertical	Peak
1313.08	34.42	26.16	4.85	37.16	28.27	74.00	-45.73	Horizontal	Peak
3690.85	42.73	29.30	8.37	36.99	43.41	74.00	-30.59	Horizontal	Peak
4920.96	33.86	31.42	9.62	35.52	39.38	74.00	-34.62	Horizontal	Peak
7394.88	32.19	36.30	12.06	33.20	47.35	74.00	-26.65	Horizontal	Peak

## Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor
2. The peak level is lower than average limit (54 dBuV/m), this data is too weak instrument of signal is unable to test.
3. The emission levels of other frequencies (test frequency band is 1GHz to 25GHz) 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
1232.12	35.56	26.27	4.71	37.21	29.33	74.00	-44.67	Vertical	Peak
3616.45	33.97	29.30	8.29	37.05	34.51	74.00	-39.49	Vertical	Peak
4821.76	36.12	31.56	9.55	35.69	41.54	74.00	-32.46	Vertical	Peak
8022.46	31.03	37.08	12.35	33.06	47.40	74.00	-26.60	Vertical	Peak
1232.12	34.62	26.27	4.71	37.21	28.39	74.00	-45.61	Horizontal	Peak
3616.45	35.05	29.30	8.29	37.05	35.59	74.00	-38.41	Horizontal	Peak
4821.76	36.00	31.56	9.55	35.69	41.42	74.00	-32.58	Horizontal	Peak
7721.91	31.35	36.10	13.05	33.04	47.46	74.00	-26.54	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
1232.12	34.75	26.27	4.71	37.21	28.52	74.00	-45.48	Vertical	Peak
3662.78	39.41	29.30	8.34	37.01	40.04	74.00	-33.96	Vertical	Peak
4883.52	37.23	31.43	9.59	35.58	42.67	74.00	-31.33	Vertical	Peak
7319.96	32.43	36.30	11.99	33.32	47.40	74.00	-26.60	Vertical	Peak
1176.94	35.67	26.12	4.61	37.24	29.16	74.00	-44.84	Horizontal	Peak
3653.46	42.87	29.30	8.33	37.02	43.48	74.00	-30.52	Horizontal	Peak
4871.10	38.37	31.46	9.59	35.61	43.81	74.00	-30.19	Horizontal	Peak
7319.96	35.51	36.30	11.99	33.32	50.48	74.00	-23.52	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
1283.34	35.26	26.22	4.80	37.18	29.10	74.00	-44.90	Vertical	Peak
3200.50	34.57	28.80	7.72	37.40	33.69	74.00	-40.31	Vertical	Peak
4920.96	32.78	31.42	9.62	35.52	38.30	74.00	-35.70	Vertical	Peak
7663.17	30.75	36.14	12.89	33.04	46.74	74.00	-27.26	Vertical	Peak
1263.88	34.30	26.24	4.77	37.19	28.12	74.00	-45.88	Horizontal	Peak
3690.85	36.50	29.30	8.37	36.99	37.18	74.00	-36.82	Horizontal	Peak
5504.17	31.60	31.90	10.20	34.42	39.28	74.00	-34.72	Horizontal	Peak
7394.88	31.81	36.30	12.06	33.20	46.97	74.00	-27.03	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(test frequency band is 1GHz to 25GHz) 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
1176.94	35.50	26.12	4.61	37.24	28.99	74.00	-45.01	Vertical	Peak
3072.77	34.27	28.75	7.57	37.51	33.08	74.00	-40.92	Vertical	Peak
3634.91	34.60	29.30	8.31	37.03	35.18	74.00	-38.82	Vertical	Peak
7860.74	31.59	36.47	12.97	33.06	47.97	74.00	-26.03	Vertical	Peak
1144.44	35.87	25.86	4.53	37.26	29.00	74.00	-45.00	Horizontal	Peak
3644.18	38.40	29.30	8.32	37.03	38.99	74.00	-35.01	Horizontal	Peak
6494.56	31.74	33.96	11.16	33.63	43.23	74.00	-30.77	Horizontal	Peak
8002.06	31.99	37.10	12.30	33.07	48.32	74.00	-25.68	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
1185.96	34.94	26.19	4.63	37.23	28.53	74.00	-45.47	Vertical	Peak
3662.78	33.80	29.30	8.34	37.01	34.43	74.00	-39.57	Vertical	Peak
5674.90	32.28	31.65	10.39	34.32	40.00	74.00	-34.00	Vertical	Peak
7357.33	32.53	36.30	12.03	33.26	47.60	74.00	-26.40	Vertical	Peak
1201.15	34.12	26.30	4.66	37.22	27.86	74.00	-46.14	Horizontal	Peak
3653.46	33.74	29.30	8.33	37.02	34.35	74.00	-39.65	Horizontal	Peak
6696.01	31.52	34.20	11.48	33.72	43.48	74.00	-30.52	Horizontal	Peak
8002.06	31.70	37.10	12.30	33.07	48.03	74.00	-25.97	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
1192.01	35.68	26.24	4.64	37.23	29.33	74.00	-44.67	Vertical	Peak
3104.22	33.64	28.80	7.61	37.48	32.57	74.00	-41.43	Vertical	Peak
6645.07	31.08	34.20	11.41	33.70	42.99	74.00	-31.01	Vertical	Peak
8770.01	32.13	37.76	13.07	32.98	49.98	74.00	-24.02	Vertical	Peak
1141.53	35.66	25.84	4.53	37.26	28.77	74.00	-45.23	Horizontal	Peak
1746.25	33.89	25.29	5.86	37.35	27.69	74.00	-46.31	Horizontal	Peak
3690.85	40.35	29.30	8.37	36.99	41.03	74.00	-32.97	Horizontal	Peak
8549.59	31.81	37.10	12.88	32.92	48.87	74.00	-25.13	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(test frequency band is 1GHz to 25GHz) are very lower than the limit and not show in test report.

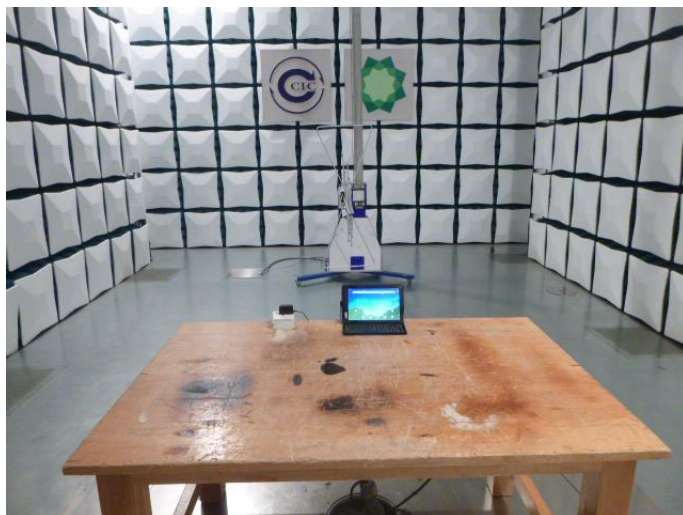
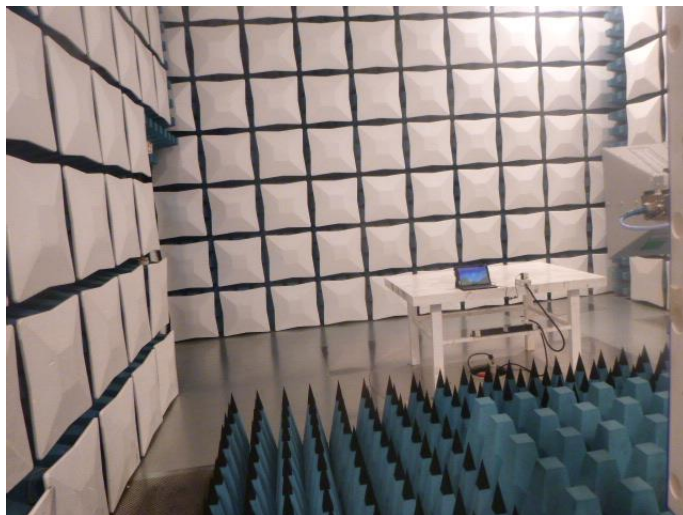


## 6. TEST SETUP PHOTOS

### Conducted Emissions



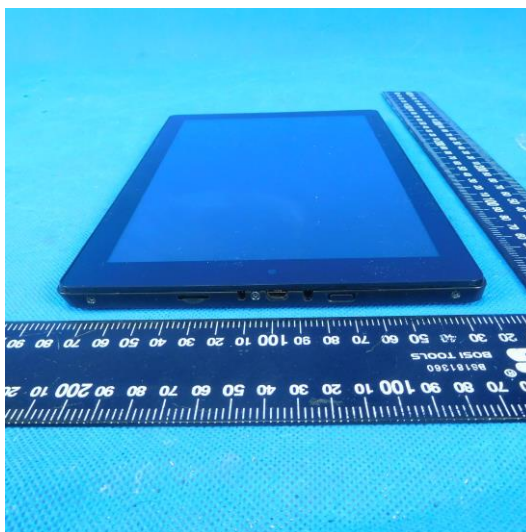
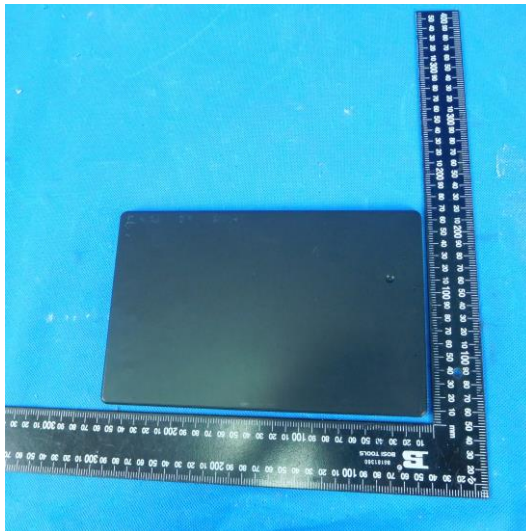
### Radiated Emissions



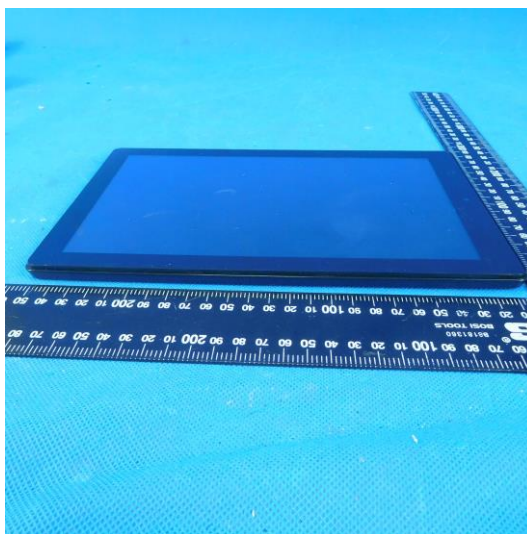
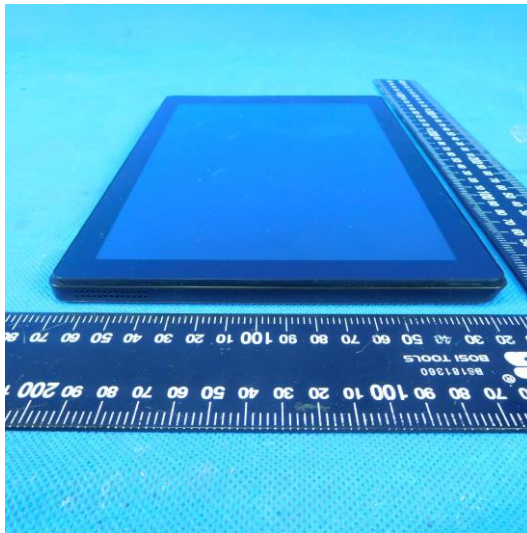
## 7. EXTERANAL AND INTERNAL PHOTOS

### EXTERANAL PHOTO

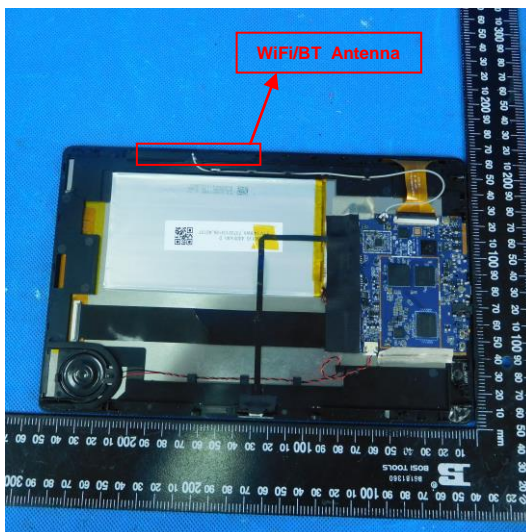


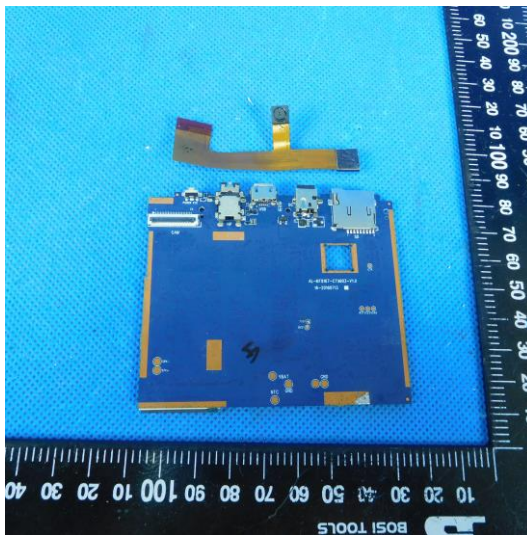
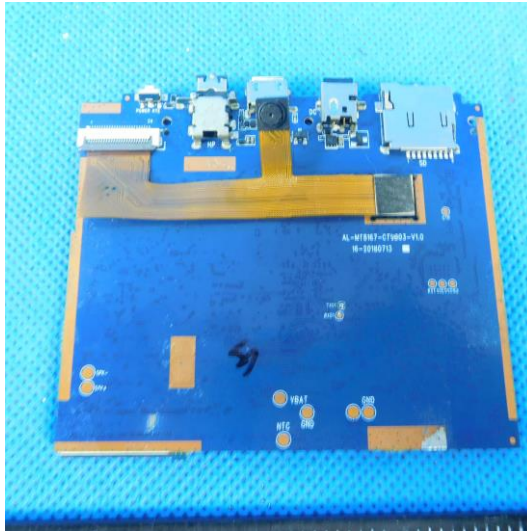






### INTERNAL PHOTO











-----End of Report-----