



TEST REPORT

Report Reference No. : **TRE1807009701** R/C : 30219

FCC ID : **A2HCN6212**

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 : Laptop

Trade Mark : Venturer, Avita

Model/Type reference : CN6212

Listed Model(s) : NS12A1

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

Date of receipt of test sample : Jul.18,2018

Date of testing : Jul.18,2018 ~ Jul.30,2018

Date of issue : Jul.30,2018

Result : **PASS**

Compiled by
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Tom Ouyang

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Hans Hu

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 v04](#): Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating under §15.247

1.2. Report version

Version No.	Date of issue	Description
N/A	2018-07-30	Original

2. TEST DESCRIPTION

Test Item	FCC Rule	Result	Test Engineer
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	Jiuru Pan

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:	Laptop
Trade Mark:	Venturer, Avita
Model No.:	CN6212
Listed Model(s):	NS12A1
Power supply:	DC 7.4V for internal battery
Adapter information:	Model: ADS-45SN-19-3 Input: 100-240V a.c., 50/60Hz, 1.2A Output: 19V d.c., 2.1A
WIFI	
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:	Integral antenna
Antenna gain:	Main Antenna: 1.5 dBi Auxilliary Antenna: 1.5 dBi

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

RF Conducted Test						
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	9/22/2017	9/21/2018
3	Power Meter	Anritsu	ML249A	N/A	9/22/2017	9/21/2018
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.

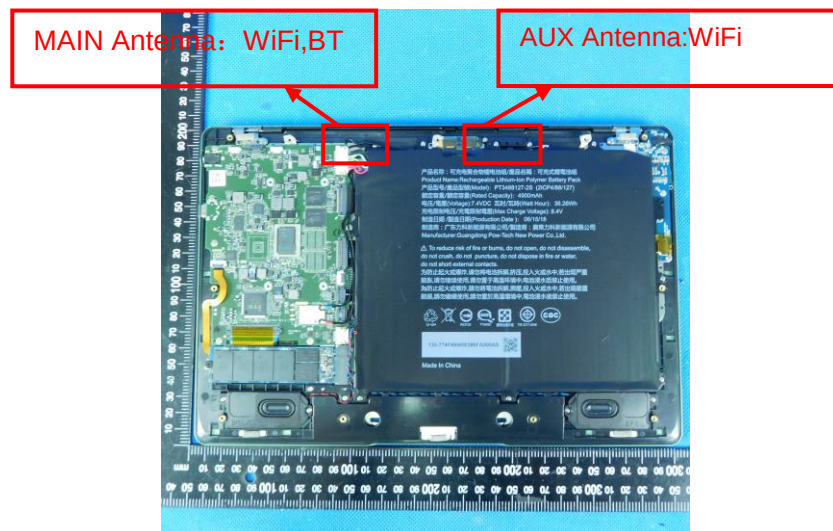
FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):

(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)

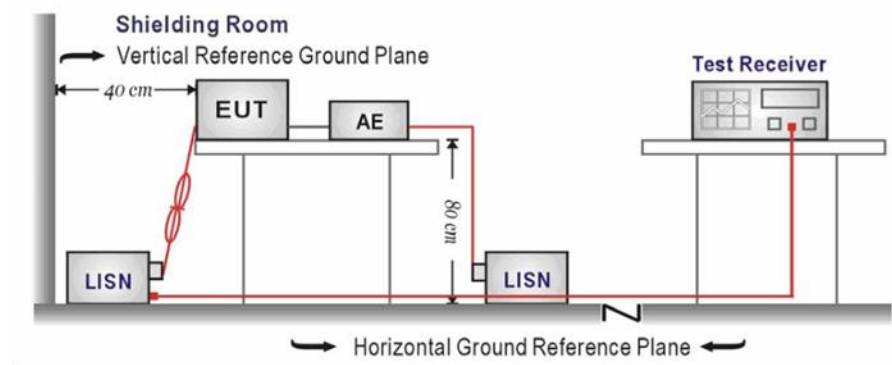
LIMIT

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

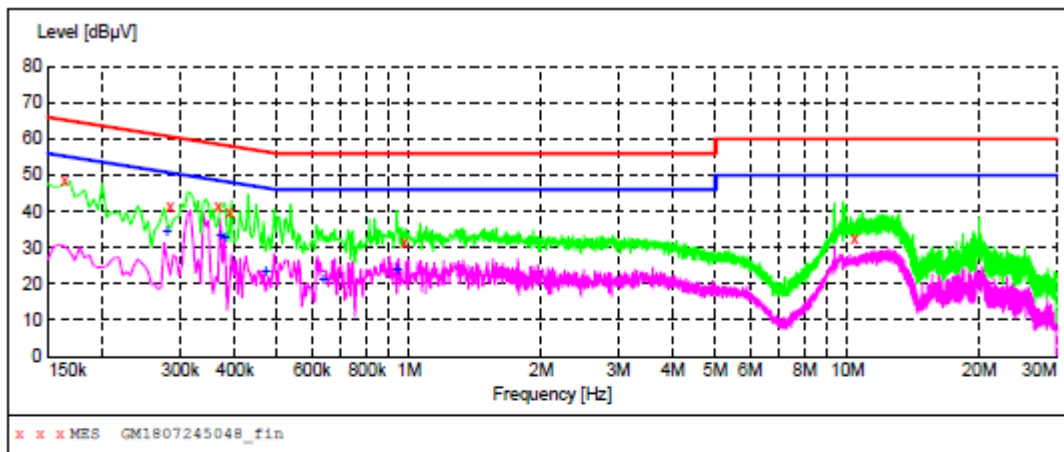
☒ Passed ☐ Not Applicable

Note:

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

Test Line:

L

**MEASUREMENT RESULT: "GM1807245048_fin"**

7/24/2018 3:32PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.163500	48.40	10.1	65	16.9	QP	L1	GND
0.285000	41.50	10.2	61	19.2	QP	L1	GND
0.366000	41.50	10.2	59	17.1	QP	L1	GND
0.388500	39.70	10.1	58	18.4	QP	L1	GND
0.973500	31.60	10.0	56	24.4	QP	L1	GND
10.396500	32.80	10.2	60	27.2	QP	L1	GND

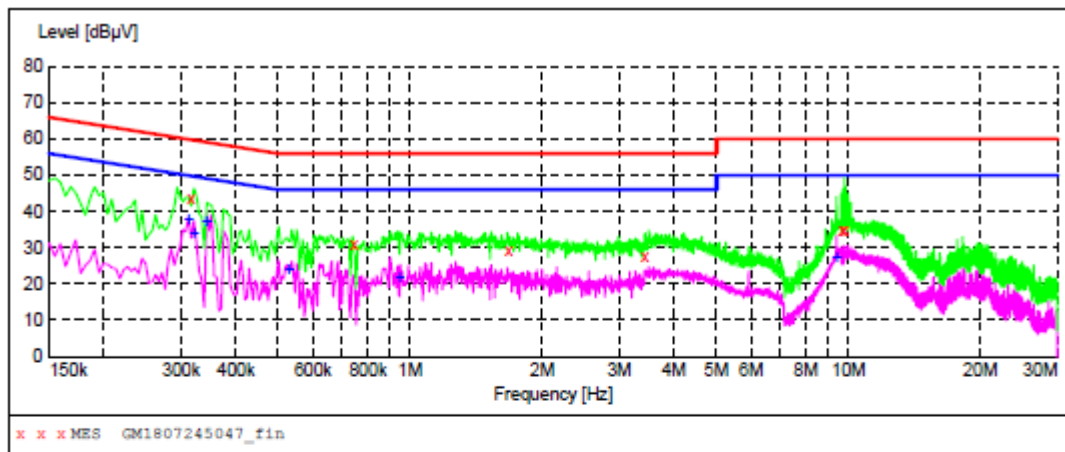
MEASUREMENT RESULT: "GM1807245048_fin2"

7/24/2018 3:32PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.280500	35.00	10.2	51	15.8	AV	L1	GND
0.370500	33.70	10.2	49	14.8	AV	L1	GND
0.379500	32.90	10.2	48	15.4	AV	L1	GND
0.469500	23.90	10.1	47	22.6	AV	L1	GND
0.636000	21.60	10.0	46	24.4	AV	L1	GND
0.937500	24.10	10.0	46	21.9	AV	L1	GND

Test Line:

N

**MEASUREMENT RESULT: "GM1807245047_fin"**

7/24/2018 3:29PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.316500	43.50	10.2	60	16.3	QP	N	GND
0.744000	31.00	10.0	56	25.0	QP	N	GND
1.675500	29.40	10.0	56	26.6	QP	N	GND
3.435000	27.50	10.1	56	28.5	QP	N	GND
9.699000	34.90	10.2	60	25.1	QP	N	GND
9.784500	35.00	10.2	60	25.0	QP	N	GND

MEASUREMENT RESULT: "GM1807245047_fin2"

7/24/2018 3:29PM

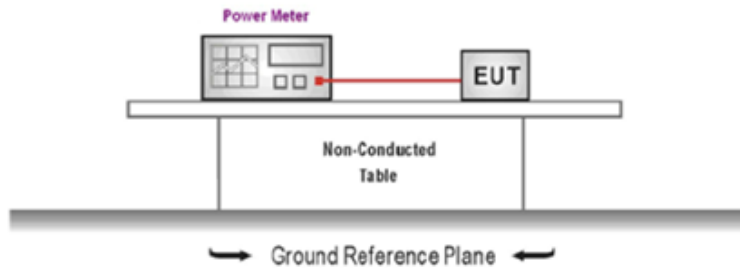
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.312000	38.20	10.2	50	11.7	AV	N	GND
0.321000	34.30	10.2	50	15.4	AV	N	GND
0.343500	37.30	10.2	49	11.8	AV	N	GND
0.528000	24.30	10.1	46	21.7	AV	N	GND
0.946500	22.30	10.0	46	23.7	AV	N	GND
9.411000	27.50	10.2	50	22.5	AV	N	GND

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
		Main Antenna	Auxilliary Antenna		
802.11b	01	17.87	17.45	≤30.00	Pass
	06	17.77	17.54		
	11	17.68	17.49		
802.11g	01	15.86	15.76	≤30.00	Pass
	06	15.93	15.67		
	11	15.89	15.78		

MIMO

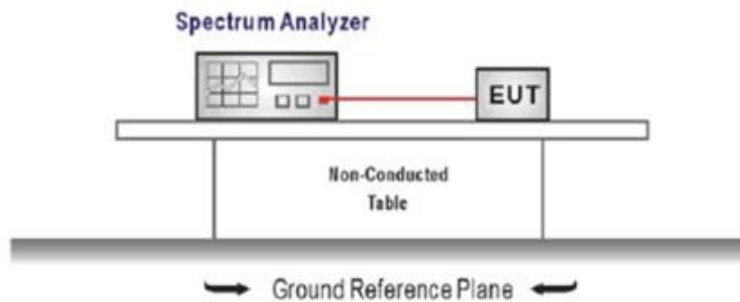
Type	Channel	Output power (dBm)		Total Power(dBm)	Limit (dBm)	Result
		Main Antenna	Auxilliary Antenna			
802.11n(HT20)	01	14.54	14.45	17.51	≤30.00	Pass
	06	14.61	14.53	17.58		
	11	14.62	14.50	17.57		
802.11n(HT40)	03	13.43	13.24	16.35	≤30.00	Pass
	06	13.01	12.81	15.92		
	09	13.04	12.73	15.90		

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
 $RBW = 3 \text{ kHz} \leq RBW \leq 100 \text{ kHz}$, $VBW \geq 3 \times RBW$
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

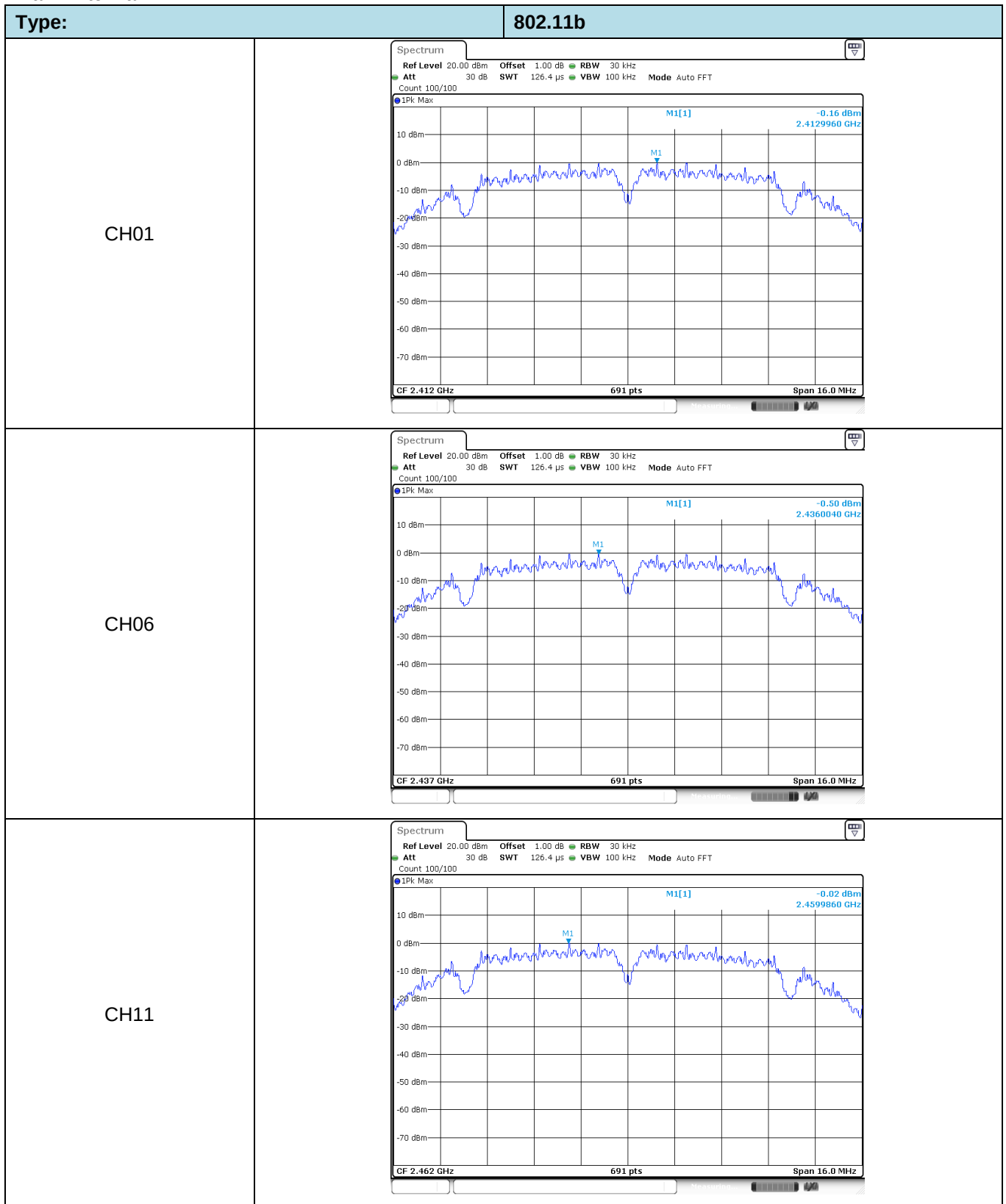
Type	Channel	Power Spectral Density (dBm/30KHz)		Limit (dBm/3KHz)	Result
		Main Antenna	Auxilliary Antenna		
802.11b	01	-0.16	-1.54	≤8.00	Pass
	06	-0.50	-1.49		
	11	-0.02	-1.46		
802.11g	01	-8.31	-8.05	≤8.00	Pass
	06	-8.32	-8.38		
	11	-7.90	-8.12		

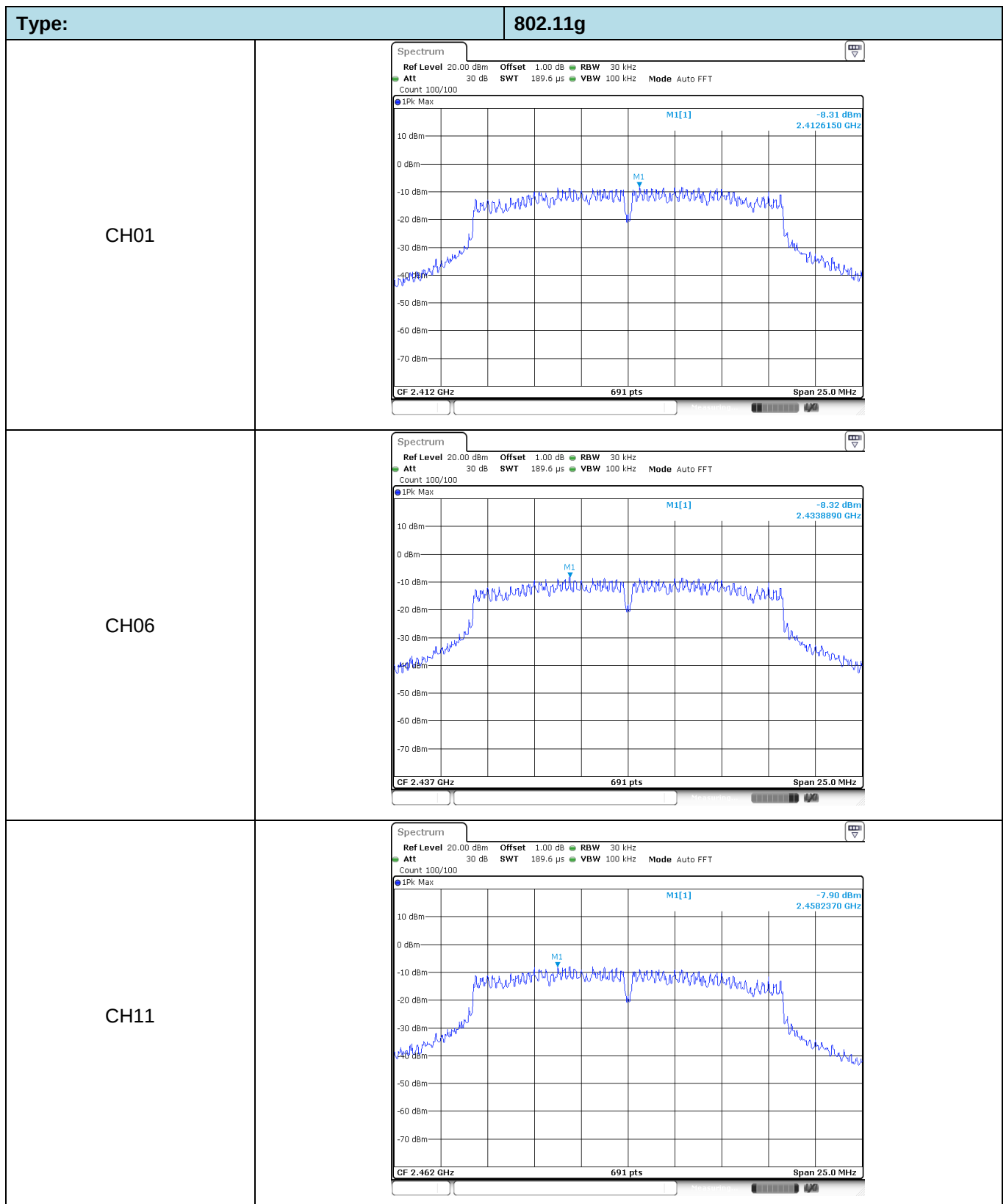
MIMO

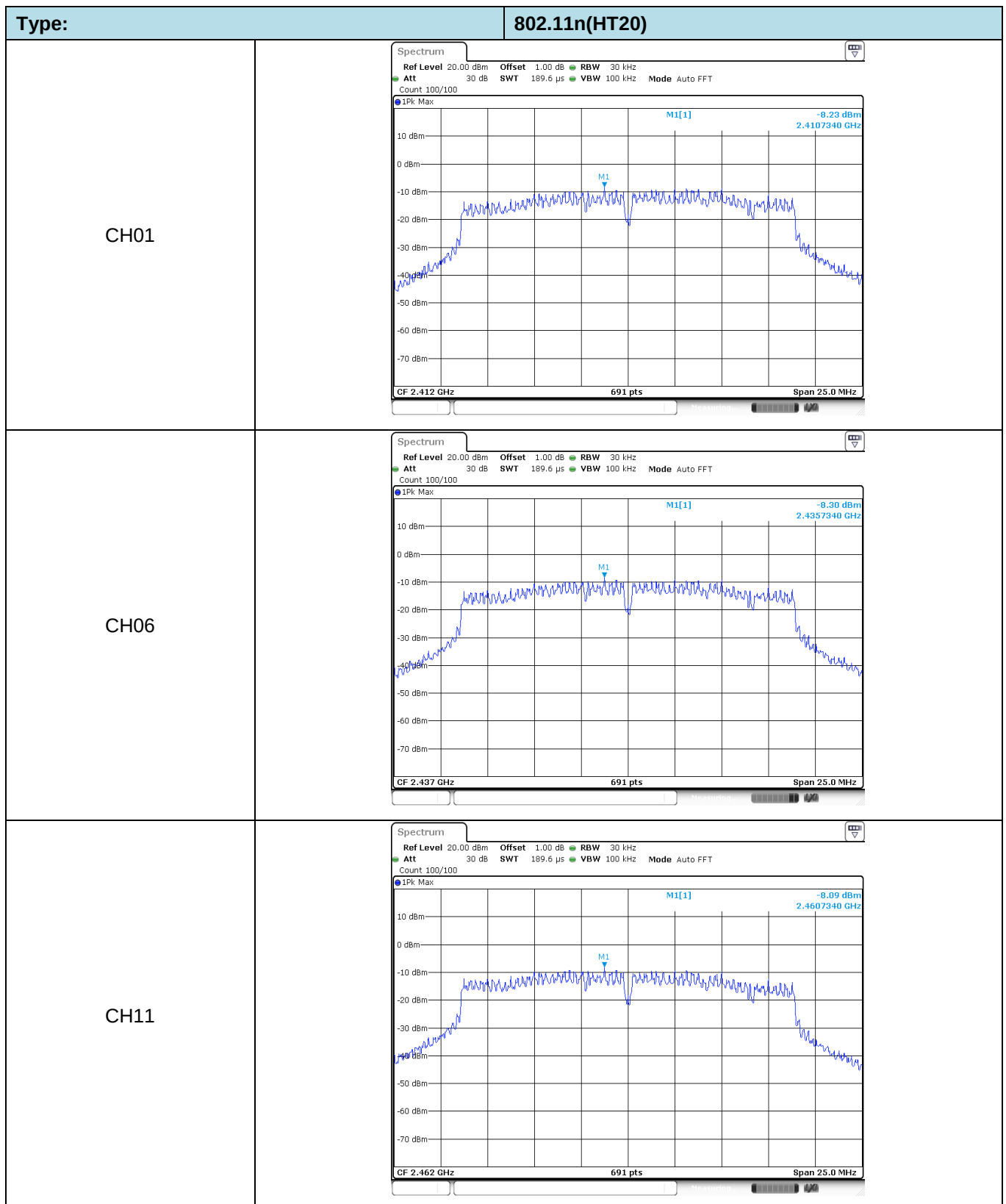
Type	Channel	Power Spectral Density (dBm/30KHz)		Total Power Spectral Density (dBm/30KHz)	Limit (dBm/3KHz)	Result
		Main Antenna	Auxilliary Antenna			
802.11n(HT20)	01	-8.23	-8.27	-5.24	≤8.00	Pass
	06	-8.30	-8.55	-5.41		
	11	-8.09	-8.36	-5.21		
802.11n(HT40)	03	-13.26	-13.32	-10.28	≤8.00	Pass
	06	-13.25	-13.67	-10.44		
	09	-13.00	-13.20	-10.09		

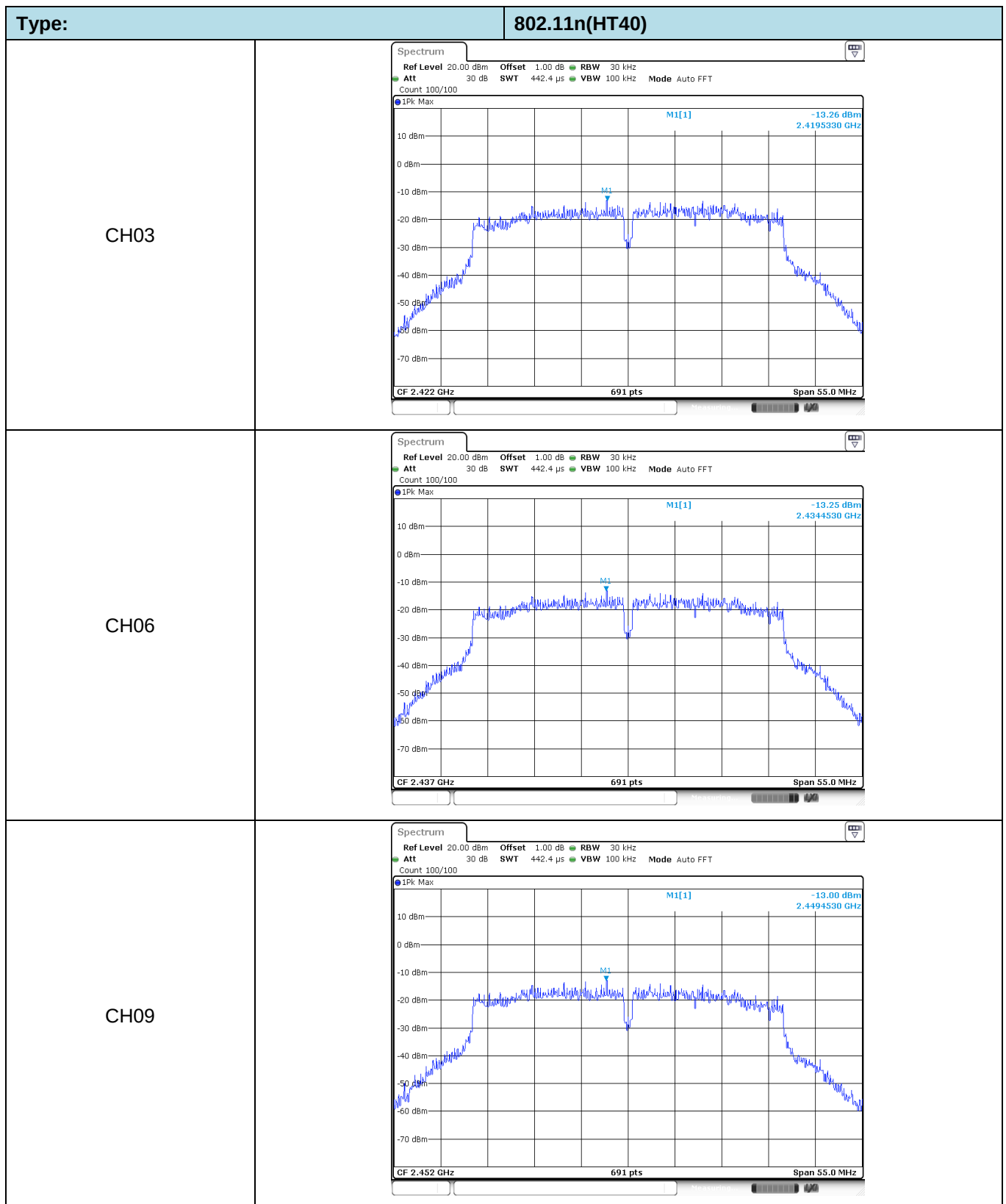
Test plot as follows:

Main Antenna:

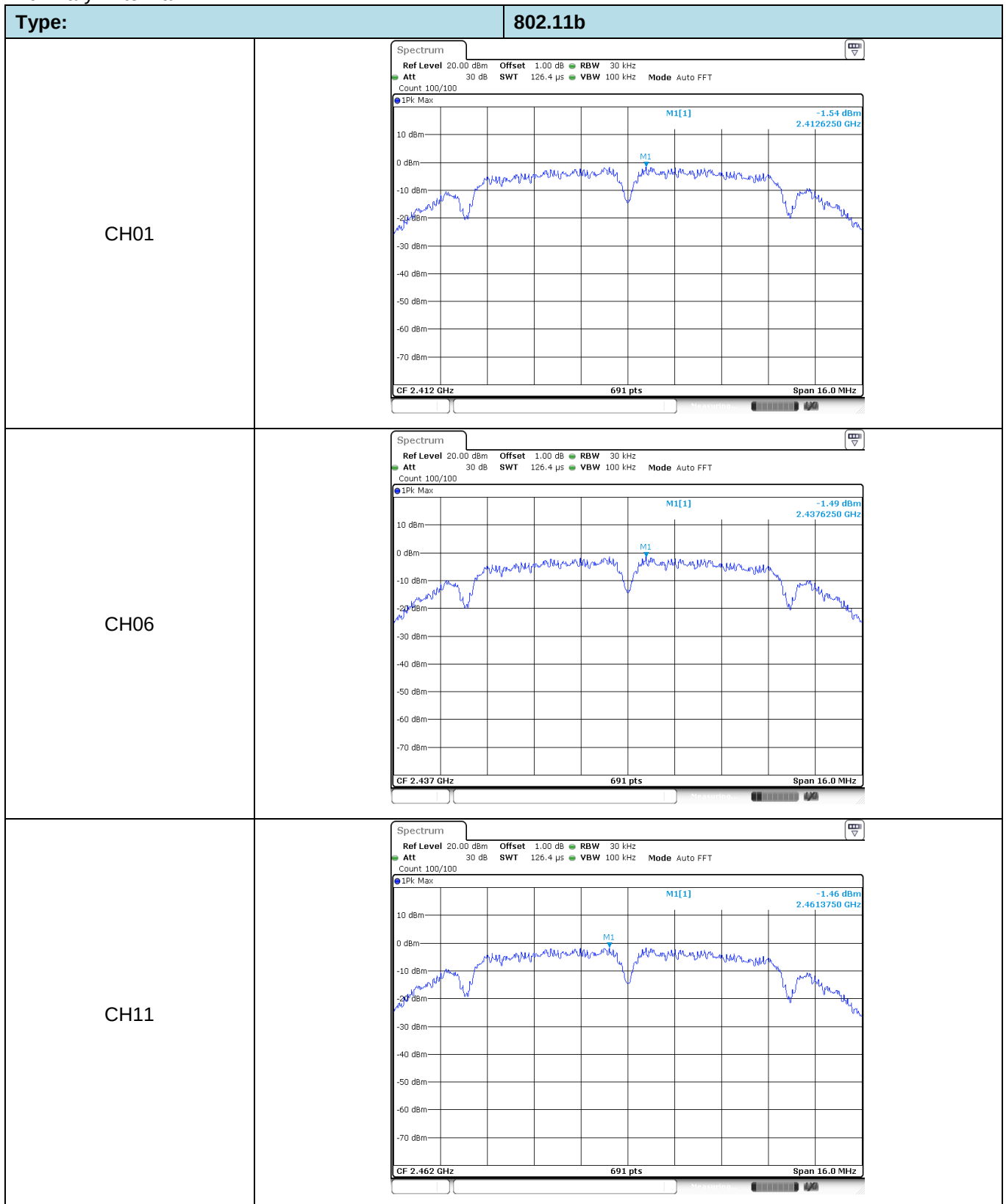


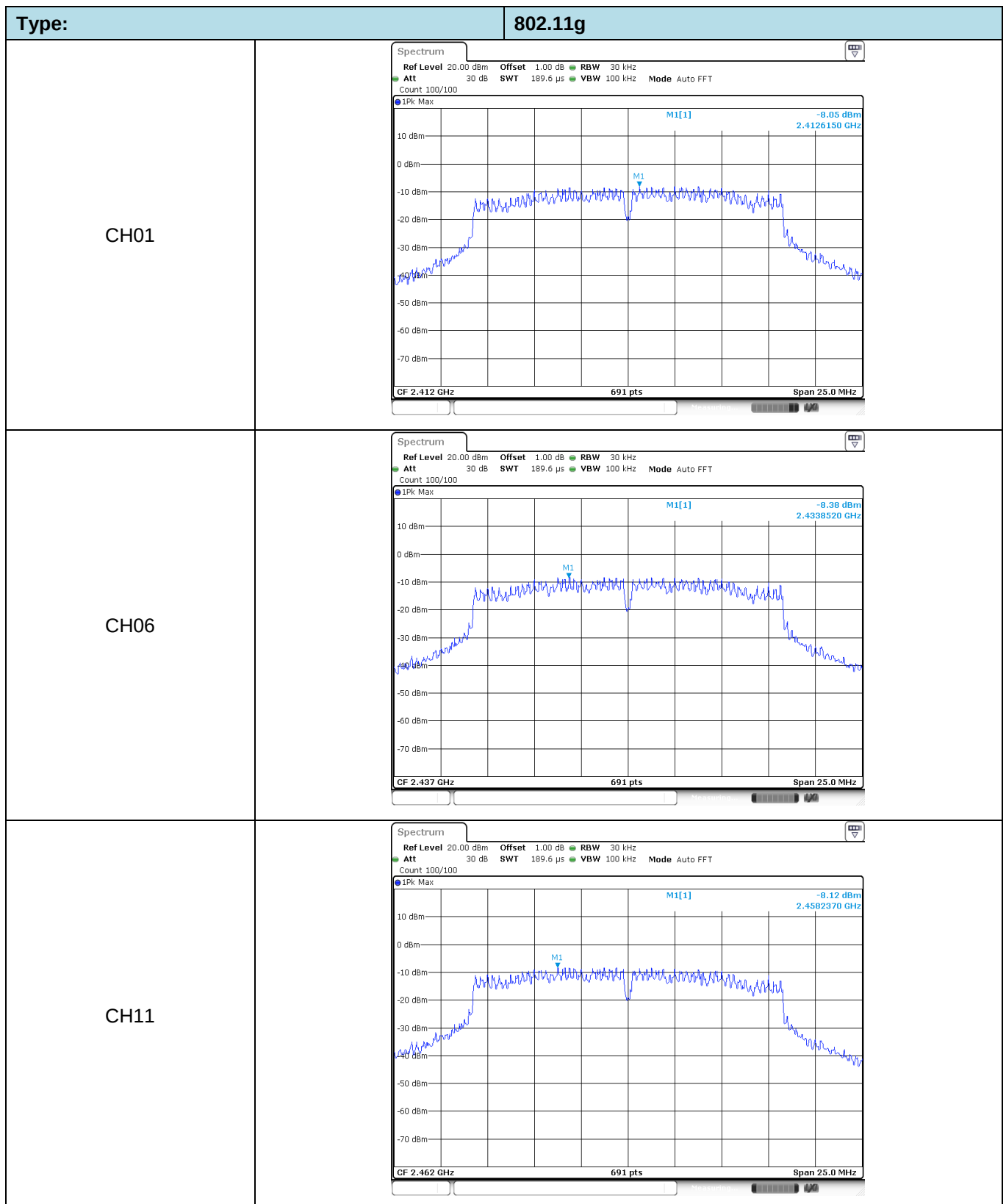


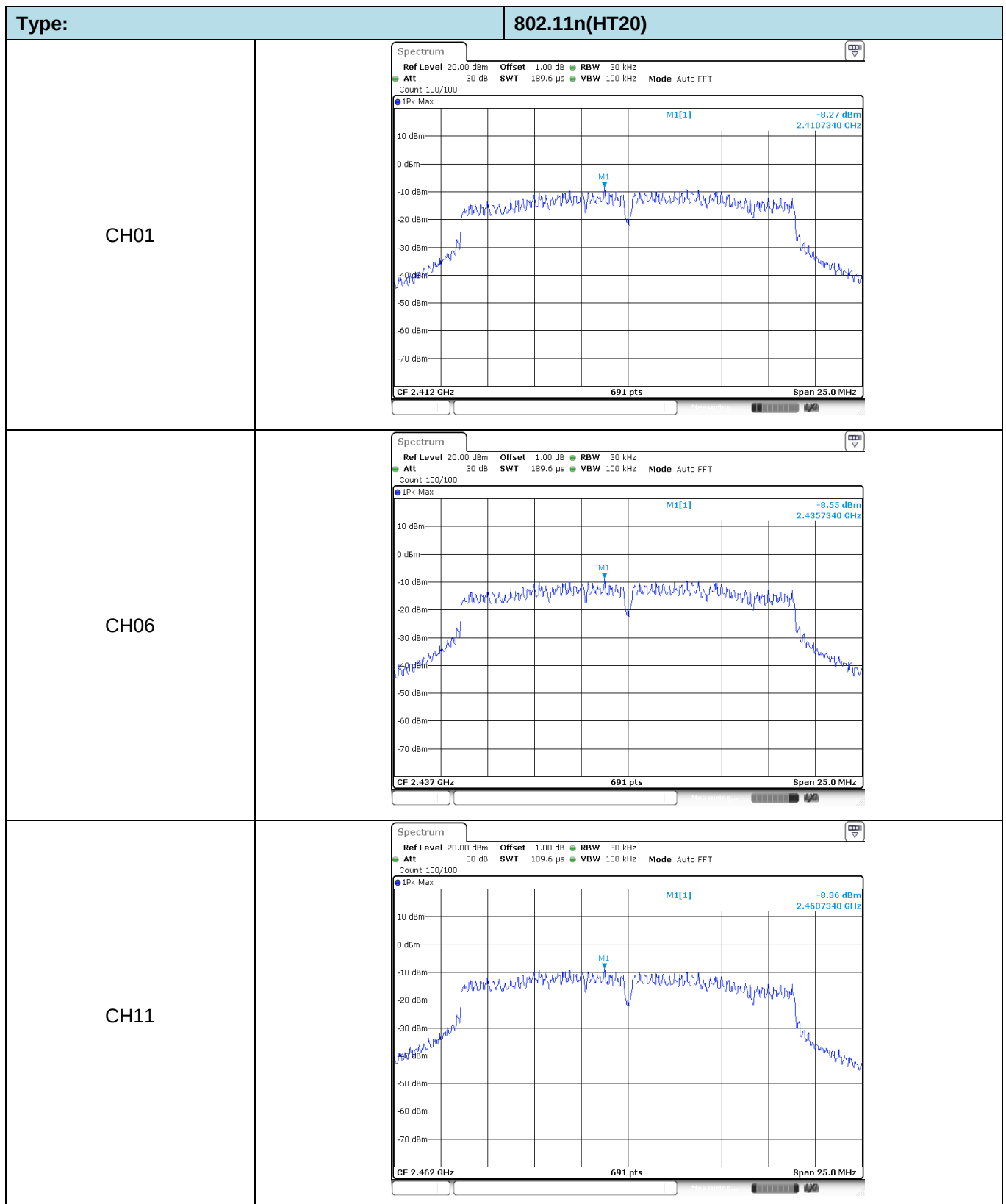


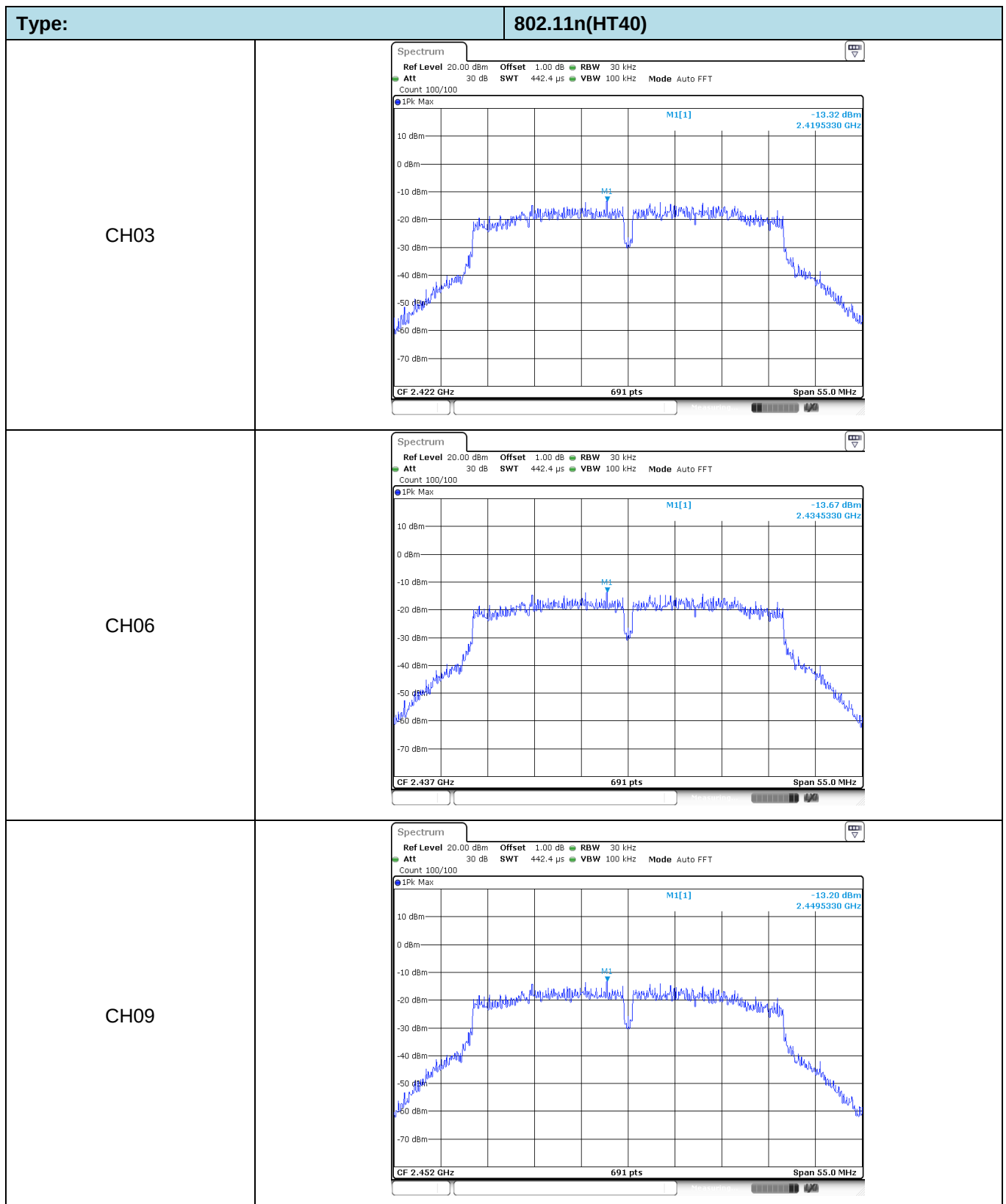


Auxilliary Antenna:









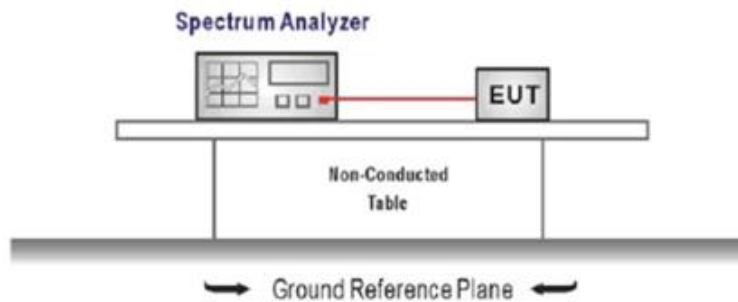
5.5. 6dB bandwidth

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 $\geq$ 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
		Main Antenna	Auxilliary Antenna		
802.11b	01	10.17	10.20	≥500	Pass
	06	10.17	10.17		
	11	10.17	10.17		
802.11g	01	13.92	15.15	≥500	Pass
	06	15.18	15.15		
	11	15.48	15.15		
802.11n(HT20)	01	15.15	15.18	≥500	Pass
	06	15.15	15.18		
	11	14.25	15.15		
802.11n(HT40)	03	34.02	34.02	≥500	Pass
	06	35.22	35.22		
	09	32.70	33.96		

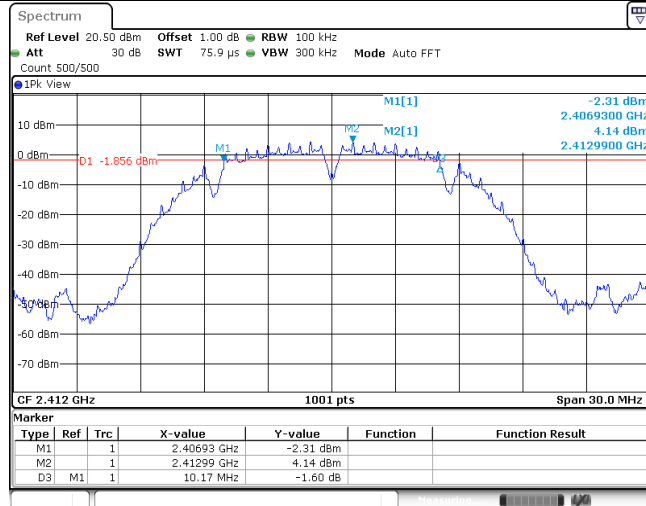
Test plot as follows:

Main Antenna

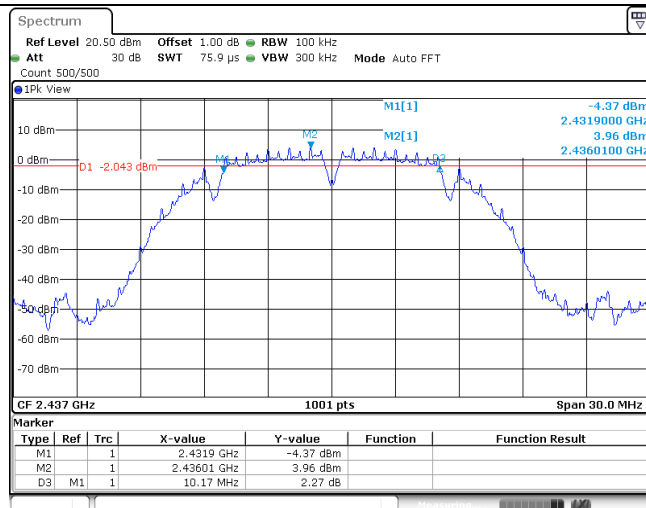
Type:

802.11b

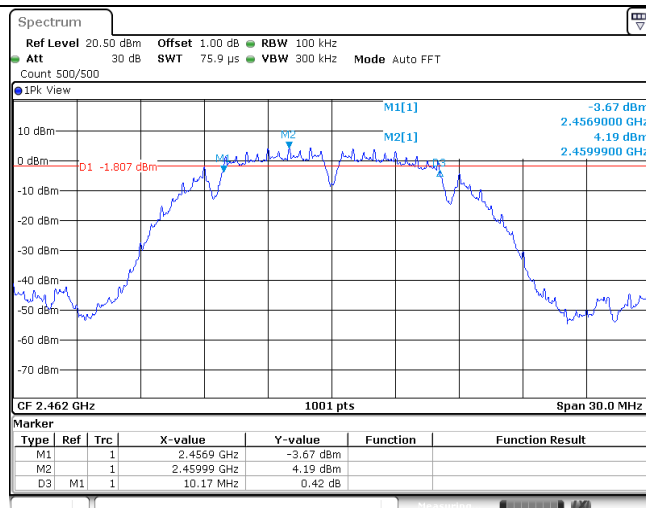
CH01

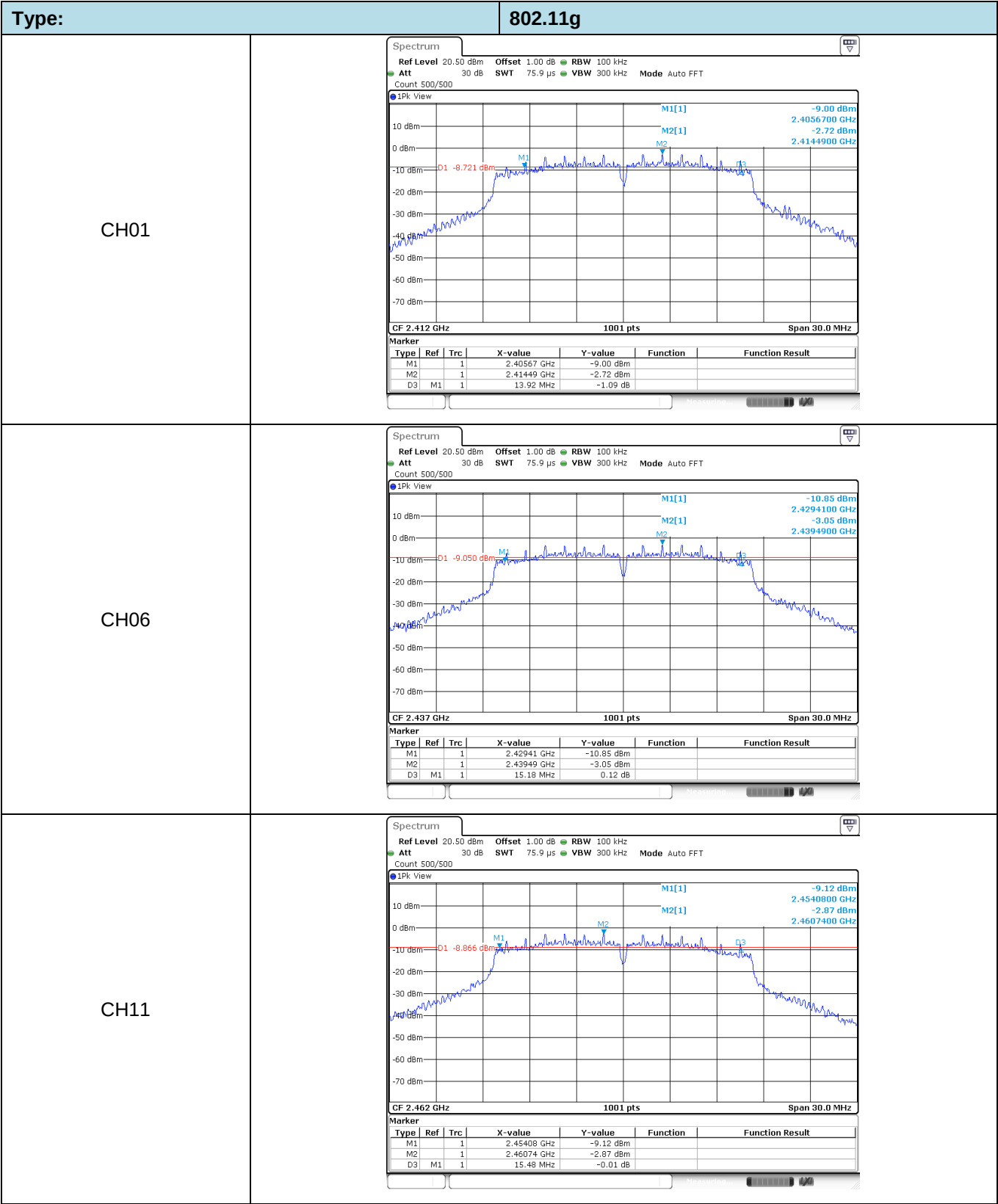


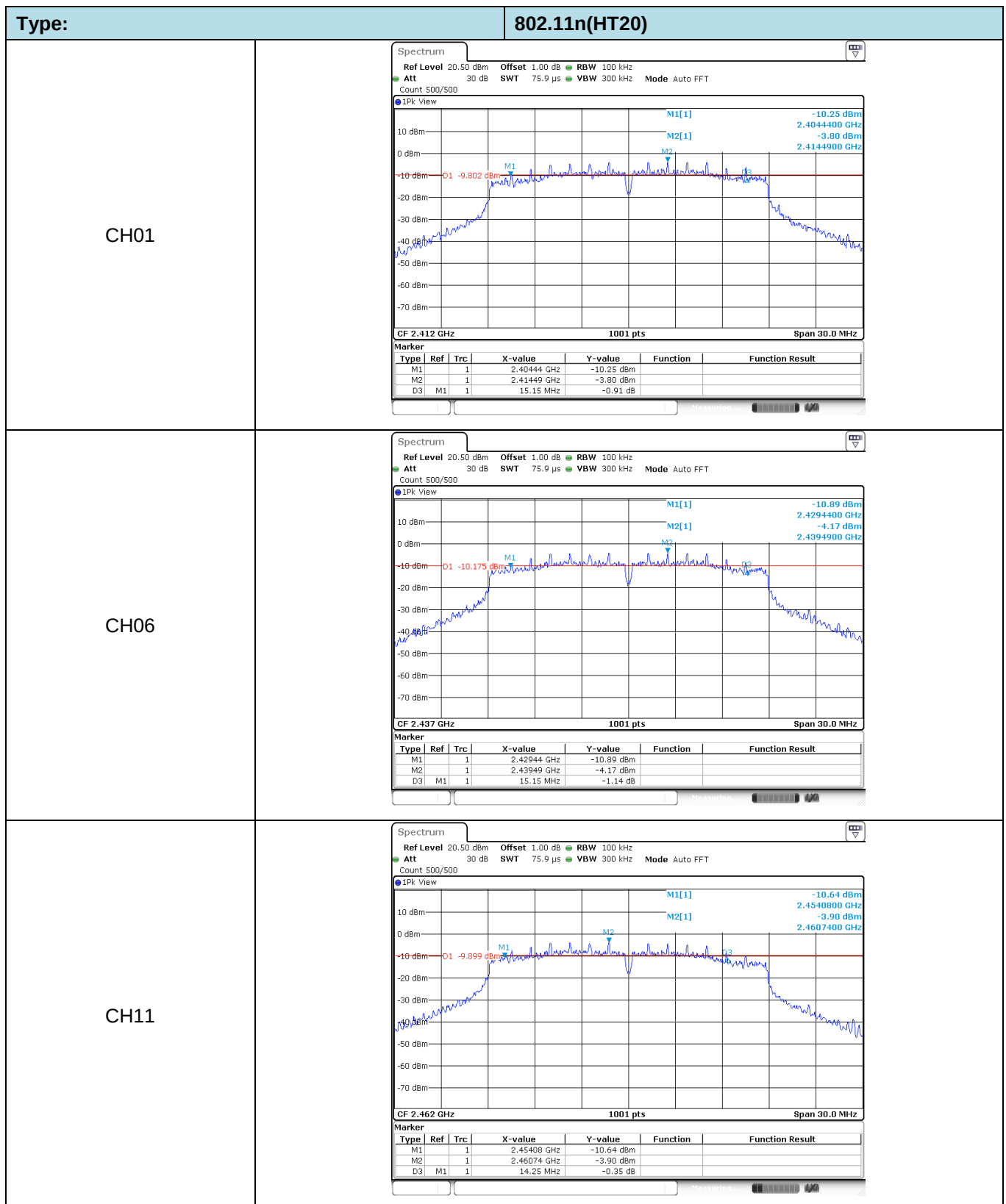
CH06



CH11

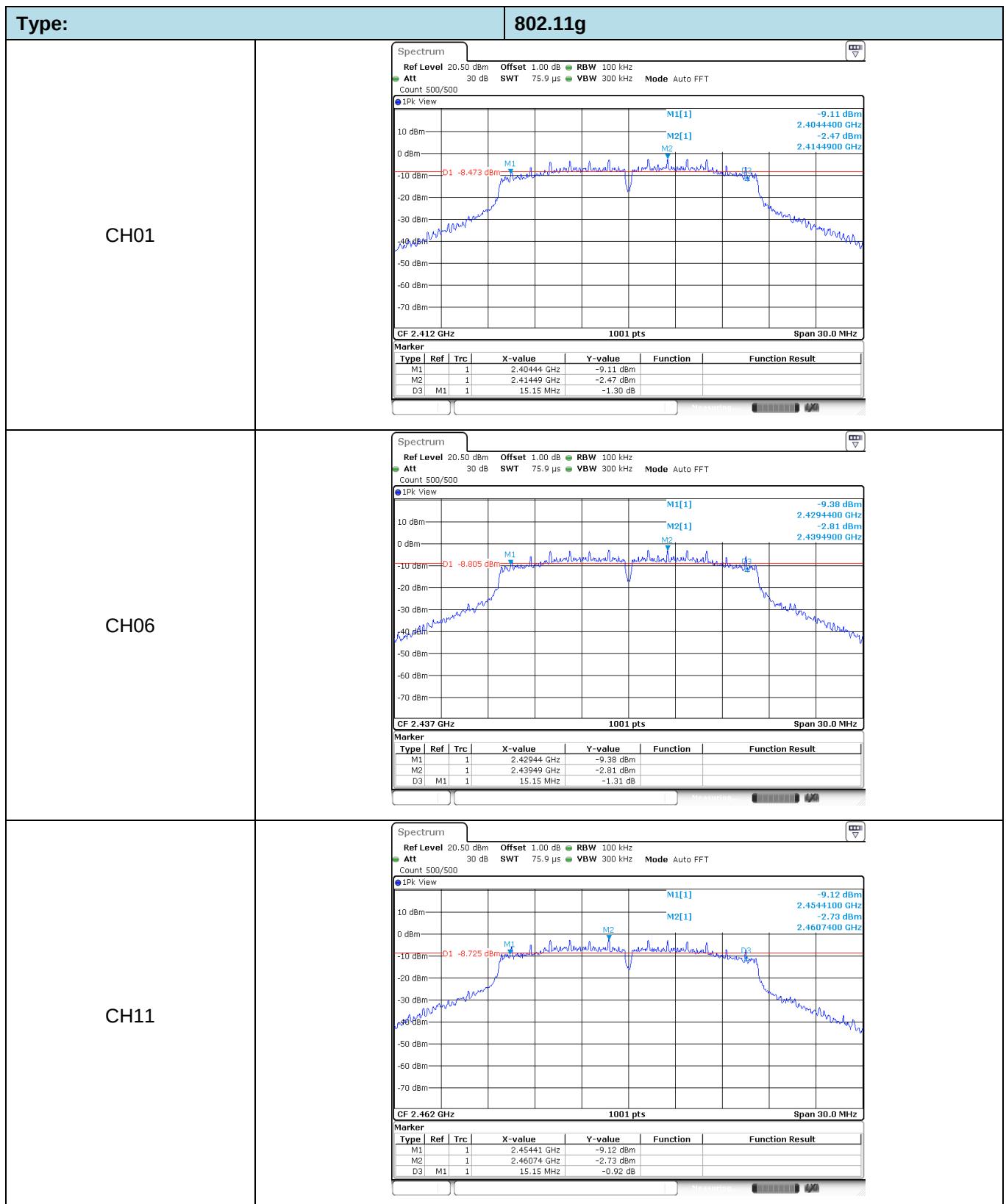


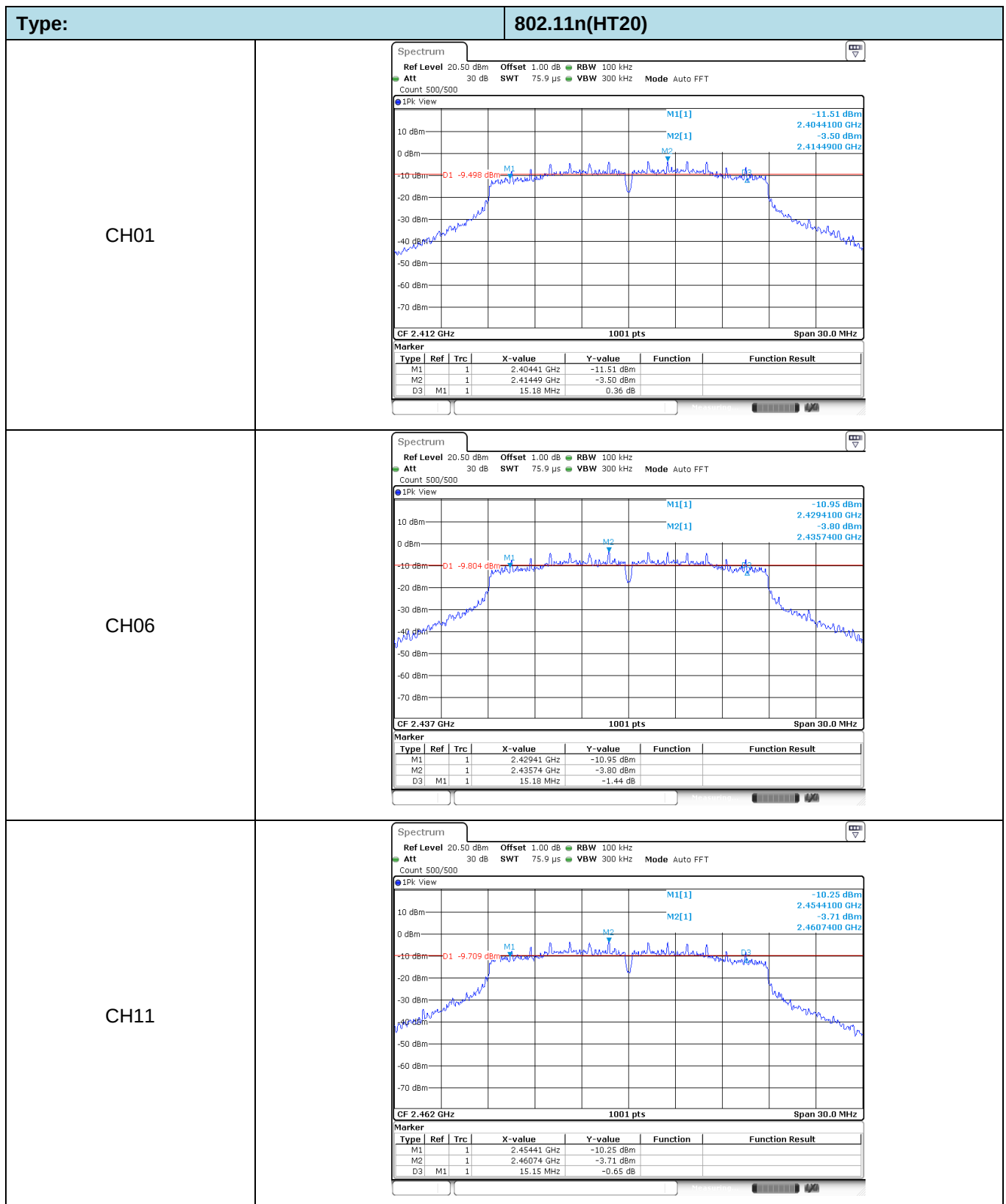


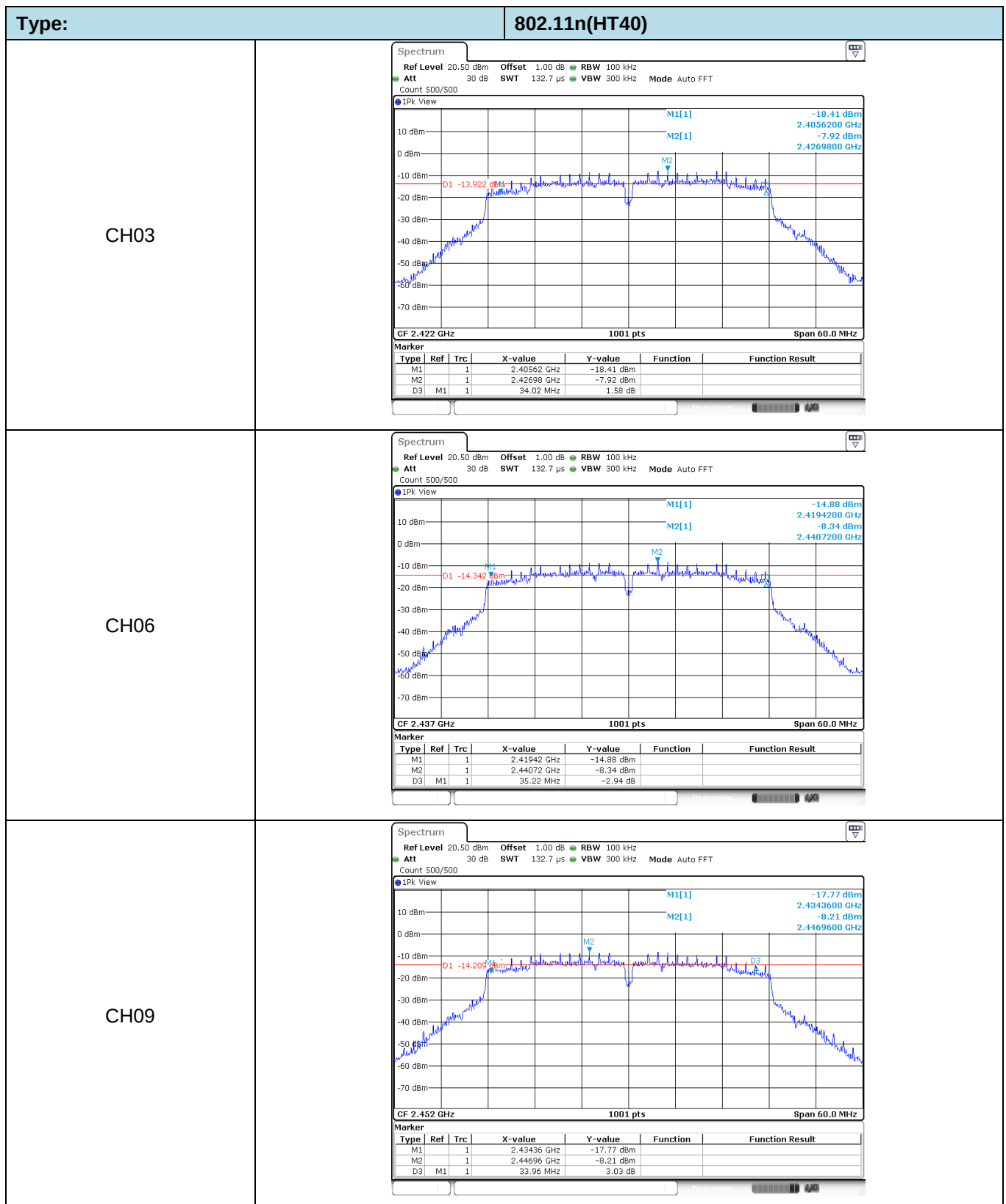


Auxilliary Antenna

Type:		802.11b																																
CH01	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 75.9 μs VBW 300 kHz Mode Auto FFT Count 500/500 IPk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 2.412 GHz 1001 pts Span 30.0 MHz M1[1] -3.64 dBm 2.4069000 GHz M2[1] 3.50 dBm 2.4125100 GHz D1 -2.499 dBm <table><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><tr><td>M1</td><td></td><td></td><td>1</td><td>2.4069 GHz</td><td>-3.64 dBm</td><td></td><td></td></tr><tr><td>M2</td><td></td><td></td><td>1</td><td>2.41251 GHz</td><td>3.50 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td></td><td>1</td><td>10.2 MHz</td><td>0.40 dB</td><td></td><td></td></tr></table>		Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1			1	2.4069 GHz	-3.64 dBm			M2			1	2.41251 GHz	3.50 dBm			D3	M1		1	10.2 MHz	0.40 dB		
Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result																											
M1			1	2.4069 GHz	-3.64 dBm																													
M2			1	2.41251 GHz	3.50 dBm																													
D3	M1		1	10.2 MHz	0.40 dB																													
CH06	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 75.9 μs VBW 300 kHz Mode Auto FFT Count 500/500 IPk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 2.437 GHz 1001 pts Span 30.0 MHz M1[1] -3.25 dBm 2.4319000 GHz M2[1] 3.51 dBm 2.4364900 GHz D1 -2.488 dBm <table><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><tr><td>M1</td><td></td><td></td><td>1</td><td>2.4319 GHz</td><td>-3.25 dBm</td><td></td><td></td></tr><tr><td>M2</td><td></td><td></td><td>1</td><td>2.43649 GHz</td><td>3.51 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td></td><td>1</td><td>10.17 MHz</td><td>0.63 dB</td><td></td><td></td></tr></table>		Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1			1	2.4319 GHz	-3.25 dBm			M2			1	2.43649 GHz	3.51 dBm			D3	M1		1	10.17 MHz	0.63 dB		
Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result																											
M1			1	2.4319 GHz	-3.25 dBm																													
M2			1	2.43649 GHz	3.51 dBm																													
D3	M1		1	10.17 MHz	0.63 dB																													
CH11	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 75.9 μs VBW 300 kHz Mode Auto FFT Count 500/500 IPk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm CF 2.462 GHz 1001 pts Span 30.0 MHz M1[1] -2.77 dBm 2.4569000 GHz M2[1] 3.42 dBm 2.4614900 GHz D1 -2.575 dBm <table><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><tr><td>M1</td><td></td><td></td><td>1</td><td>2.4569 GHz</td><td>-2.77 dBm</td><td></td><td></td></tr><tr><td>M2</td><td></td><td></td><td>1</td><td>2.46149 GHz</td><td>3.42 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td></td><td>1</td><td>10.17 MHz</td><td>-0.61 dB</td><td></td><td></td></tr></table>		Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1			1	2.4569 GHz	-2.77 dBm			M2			1	2.46149 GHz	3.42 dBm			D3	M1		1	10.17 MHz	-0.61 dB		
Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result																											
M1			1	2.4569 GHz	-2.77 dBm																													
M2			1	2.46149 GHz	3.42 dBm																													
D3	M1		1	10.17 MHz	-0.61 dB																													







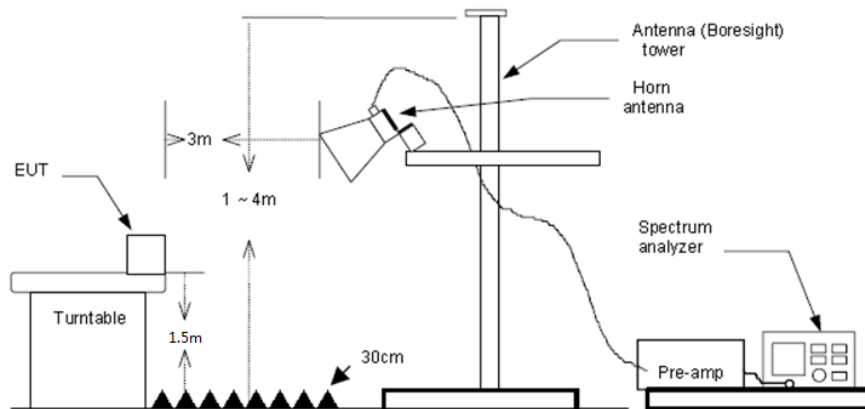
5.6. Restricted band

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
- 2) pre-scan both antenna of all modulation mode, found the main antenna which it was worst case, so only the worst case's data show on the test report.

802.11b					CH01				
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	17.10	28.05	6.62	0.00	51.77	74.00	-22.23	Vertical	Peak
2390.12	18.41	27.65	6.75	0.00	52.81	74.00	-21.19	Vertical	Peak
2310.00	18.00	28.05	6.62	0.00	52.67	74.00	-21.33	Horizontal	Peak
2390.12	18.23	27.65	6.75	0.00	52.63	74.00	-21.37	Horizontal	Peak
2310.00	11.46	28.05	6.62	0.00	46.13	54.00	-7.87	Vertical	Average
2390.01	11.24	27.65	6.75	0.00	45.64	54.00	-8.36	Vertical	Average
2310.00	11.50	28.05	6.62	0.00	46.17	54.00	-7.83	Horizontal	Average
2390.01	11.15	27.65	6.75	0.00	45.55	54.00	-8.45	Horizontal	Average

802.11b					CH11				
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
2483.49	18.72	27.26	6.83	0.00	52.81	74.00	-21.19	Vertical	Peak
2500.00	17.59	27.20	6.84	0.00	51.63	74.00	-22.37	Vertical	Peak
2483.49	17.42	27.26	6.83	0.00	51.51	74.00	-22.49	Horizontal	Peak
2500.00	16.82	27.20	6.84	0.00	50.86	74.00	-23.14	Horizontal	Peak
2483.49	11.99	27.26	6.83	0.00	46.08	54.00	-7.92	Vertical	Average
2500.00	11.02	27.20	6.84	0.00	45.06	54.00	-8.94	Vertical	Average
2483.49	11.99	27.26	6.83	0.00	46.08	54.00	-7.92	Horizontal	Average
2500.00	11.05	27.20	6.84	0.00	45.09	54.00	-8.91	Horizontal	Average

802.11g					CH01				
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	17.54	28.05	6.62	0.00	52.21	74.00	-21.79	Vertical	Peak
2390.01	17.94	27.65	6.75	0.00	52.34	74.00	-21.66	Vertical	Peak
2310.00	17.91	28.05	6.62	0.00	52.58	74.00	-21.42	Horizontal	Peak
2390.01	17.71	27.65	6.75	0.00	52.11	74.00	-21.89	Horizontal	Peak
2310.00	11.47	28.05	6.62	0.00	46.14	54.00	-7.86	Vertical	Average
2390.01	13.04	27.65	6.75	0.00	47.44	54.00	-6.56	Vertical	Average
2310.00	11.50	28.05	6.62	0.00	46.17	54.00	-7.83	Horizontal	Average
2390.01	11.95	27.65	6.75	0.00	46.35	54.00	-7.65	Horizontal	Average

802.11g					CH11				
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
2483.49	21.21	27.26	6.83	0.00	55.30	74.00	-18.70	Vertical	Peak
2499.96	19.76	27.20	6.84	0.00	53.80	74.00	-20.20	Vertical	Peak
2483.49	17.19	27.26	6.83	0.00	51.28	74.00	-22.72	Horizontal	Peak
2500.00	18.20	27.20	6.84	0.00	52.24	74.00	-21.76	Horizontal	Peak
2483.49	15.32	27.26	6.83	0.00	49.41	54.00	-4.59	Vertical	Average
2500.00	11.02	27.20	6.84	0.00	45.06	54.00	-8.94	Vertical	Average
2483.49	12.60	27.26	6.83	0.00	46.69	54.00	-7.31	Horizontal	Average
2500.00	11.03	27.20	6.84	0.00	45.07	54.00	-8.93	Horizontal	Average

802.11n(HT20)					CH01				
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	17.12	28.05	6.62	0.00	51.79	74.00	-22.21	Vertical	Peak
2390.01	18.19	27.65	6.75	0.00	52.59	74.00	-21.41	Vertical	Peak
2310.00	17.12	28.05	6.62	0.00	51.79	74.00	-22.21	Horizontal	Peak
2390.01	18.19	27.65	6.75	0.00	52.59	74.00	-21.41	Horizontal	Peak
2310.00	11.46	28.05	6.62	0.00	46.13	54.00	-7.87	Vertical	Average
2390.01	15.29	27.65	6.75	0.00	49.69	54.00	-4.31	Vertical	Average
2310.00	11.47	28.05	6.62	0.00	46.14	54.00	-7.86	Horizontal	Average
2390.01	12.89	27.65	6.75	0.00	47.29	54.00	-6.71	Horizontal	Average

802.11n(HT20)					CH11				
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
2483.57	21.42	27.26	6.83	0.00	55.51	74.00	-18.49	Vertical	Peak
2500.00	18.32	27.20	6.84	0.00	52.36	74.00	-21.64	Vertical	Peak
2483.53	20.61	27.26	6.83	0.00	54.70	74.00	-19.30	Horizontal	Peak
2500.00	18.85	27.20	6.84	0.00	52.89	74.00	-21.11	Horizontal	Peak
2483.49	15.66	27.26	6.83	0.00	49.75	54.00	-4.25	Vertical	Average
2500.00	11.07	27.20	6.84	0.00	45.11	54.00	-8.89	Vertical	Average
2483.49	14.99	27.26	6.83	0.00	49.08	54.00	-4.92	Horizontal	Average
2500.00	11.05	27.20	6.84	0.00	45.09	54.00	-8.91	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	17.66	28.05	6.62	0.00	52.33	74.00	-21.67	Vertical	Peak
2390.23	20.77	27.65	6.75	0.00	55.17	74.00	-18.83	Vertical	Peak
2310.00	17.36	28.05	6.62	0.00	52.03	74.00	-21.97	Horizontal	Peak
2389.99	18.62	27.65	6.75	0.00	53.02	74.00	-20.98	Horizontal	Peak
2310.00	11.51	28.05	6.62	0.00	46.18	54.00	-7.82	Vertical	Average
2389.99	16.64	27.65	6.75	0.00	51.04	54.00	-2.96	Vertical	Average
2310.00	11.50	28.05	6.62	0.00	46.17	54.00	-7.83	Horizontal	Average
2389.99	12.88	27.65	6.75	0.00	47.28	54.00	-6.72	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	26.36	27.26	6.83	0.00	60.45	74.00	-13.55	Vertical	Peak
2500.00	17.72	27.20	6.84	0.00	51.76	74.00	-22.24	Vertical	Peak
2483.50	23.83	27.26	6.83	0.00	57.92	74.00	-16.08	Horizontal	Peak
2500.00	18.37	27.20	6.84	0.00	52.41	74.00	-21.59	Horizontal	Peak
2483.50	18.57	27.26	6.83	0.00	52.66	54.00	-1.34	Vertical	Average
2500.00	11.16	27.20	6.84	0.00	45.20	54.00	-8.80	Vertical	Average
2483.50	17.58	27.26	6.83	0.00	51.67	54.00	-2.33	Horizontal	Average
2500.00	11.16	27.20	6.84	0.00	45.20	54.00	-8.80	Horizontal	Average

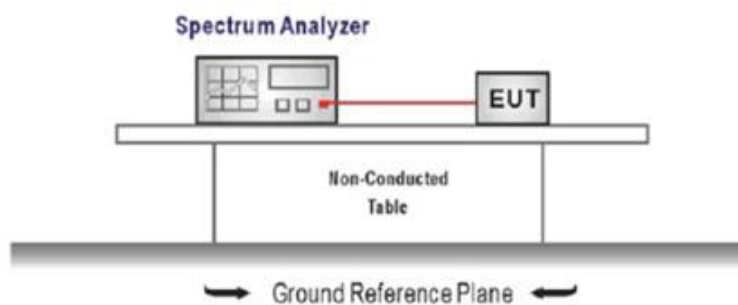
5.7. Band edge and Spurious Emissions (conducted)

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:

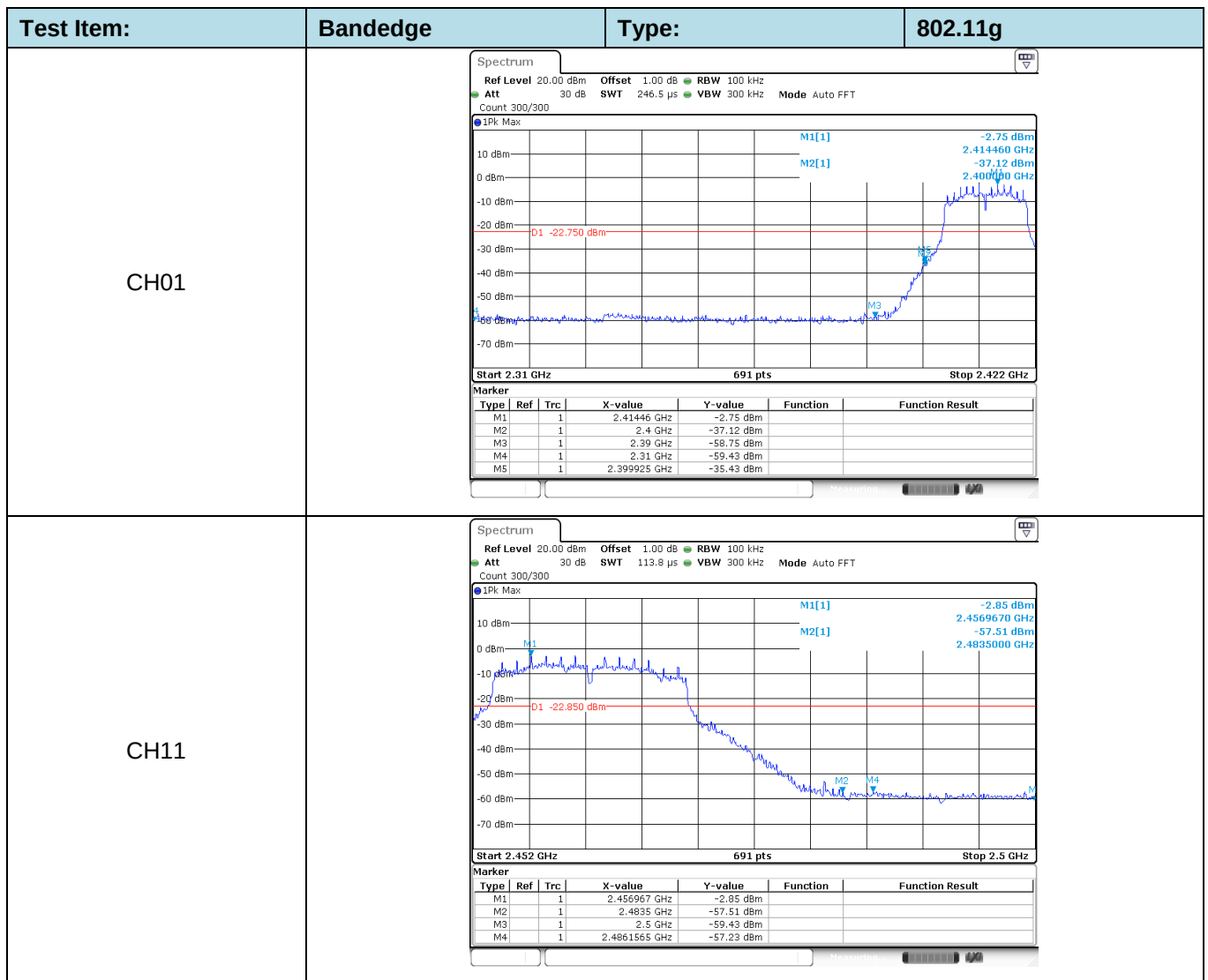
Please refer to the clause 3.3

TEST RESULTS

☒ Passed ☐ Not Applicable

Main Antenna

Test Item:	Bandedge	Type:	802.11b																																										
CH01	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 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M3 M4 M5 4.13 dBm 2.413980 GHz -52.90 dBm 2.413980 GHz -52.90 dBm D1 -15.870 dBm Start 2.31 GHz 691 pts Stop 2.422 GHz Marker <table><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><tr><td>M1</td><td>1</td><td></td><td>2.41398 GHz</td><td>4.13 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-52.90 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-57.79 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-60.08 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.397003 GHz</td><td>-45.49 dBm</td><td></td><td></td></tr></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.41398 GHz	4.13 dBm			M2	1		2.4 GHz	-52.90 dBm			M3	1		2.39 GHz	-57.79 dBm			M4	1		2.31 GHz	-60.08 dBm			M5	1		2.397003 GHz	-45.49 dBm		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																							
M1	1		2.41398 GHz	4.13 dBm																																									
M2	1		2.4 GHz	-52.90 dBm																																									
M3	1		2.39 GHz	-57.79 dBm																																									
M4	1		2.31 GHz	-60.08 dBm																																									
M5	1		2.397003 GHz	-45.49 dBm																																									
CH11	Spectrum 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 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M3 M4 M5 4.15 dBm 2.4609960 GHz -57.90 dBm 2.4835000 GHz -53.05 dBm D1 -15.850 dBm Start 2.452 GHz 691 pts Stop 2.5 GHz Marker <table><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><tr><td>M1</td><td>1</td><td></td><td>2.460996 GHz</td><td>4.15 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-57.90 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-58.78 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.4869217 GHz</td><td>-53.05 dBm</td><td></td><td></td></tr></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.460996 GHz	4.15 dBm			M2	1		2.4835 GHz	-57.90 dBm			M3	1		2.5 GHz	-58.78 dBm			M4	1		2.4869217 GHz	-53.05 dBm									
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																							
M1	1		2.460996 GHz	4.15 dBm																																									
M2	1		2.4835 GHz	-57.90 dBm																																									
M3	1		2.5 GHz	-58.78 dBm																																									
M4	1		2.4869217 GHz	-53.05 dBm																																									

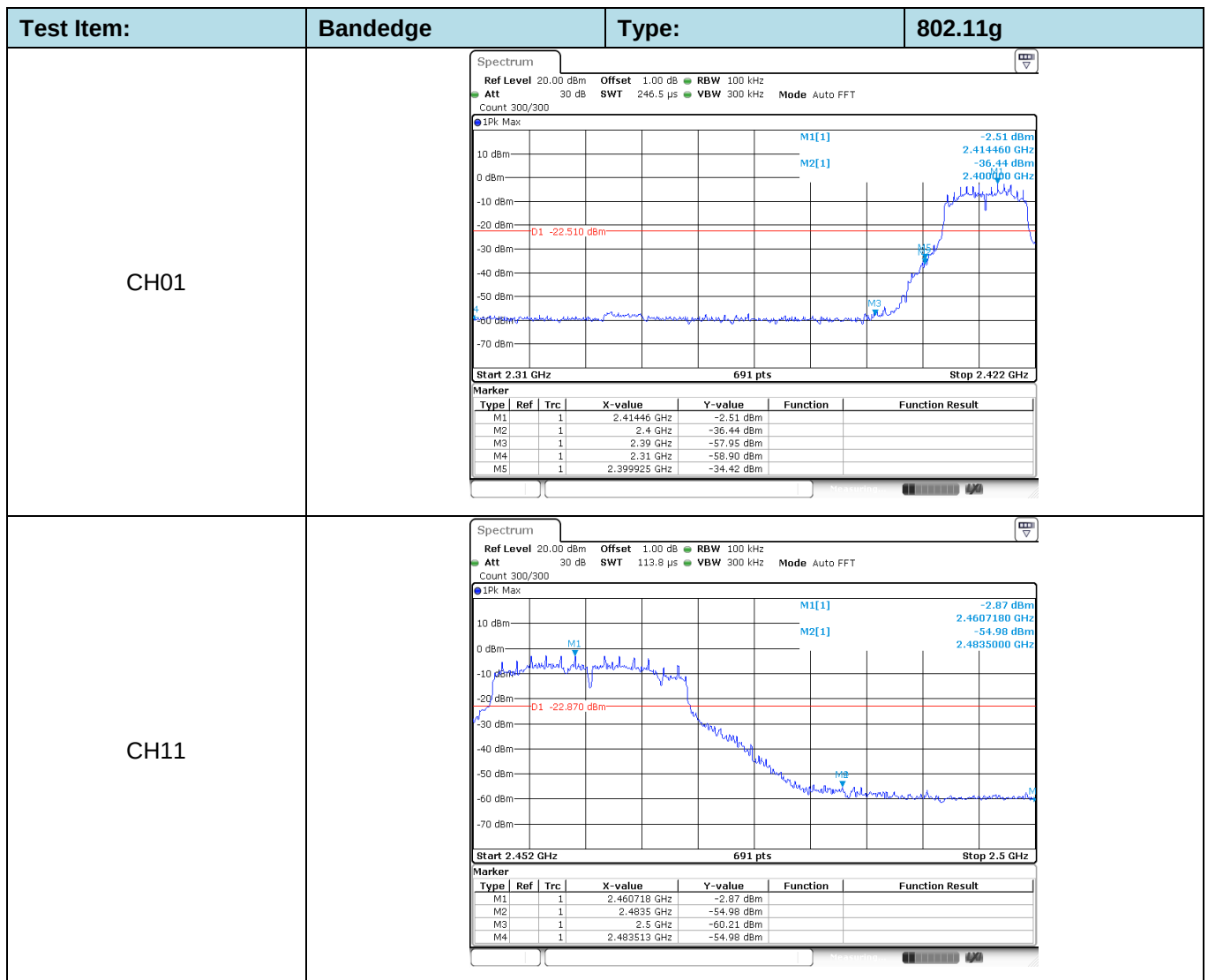


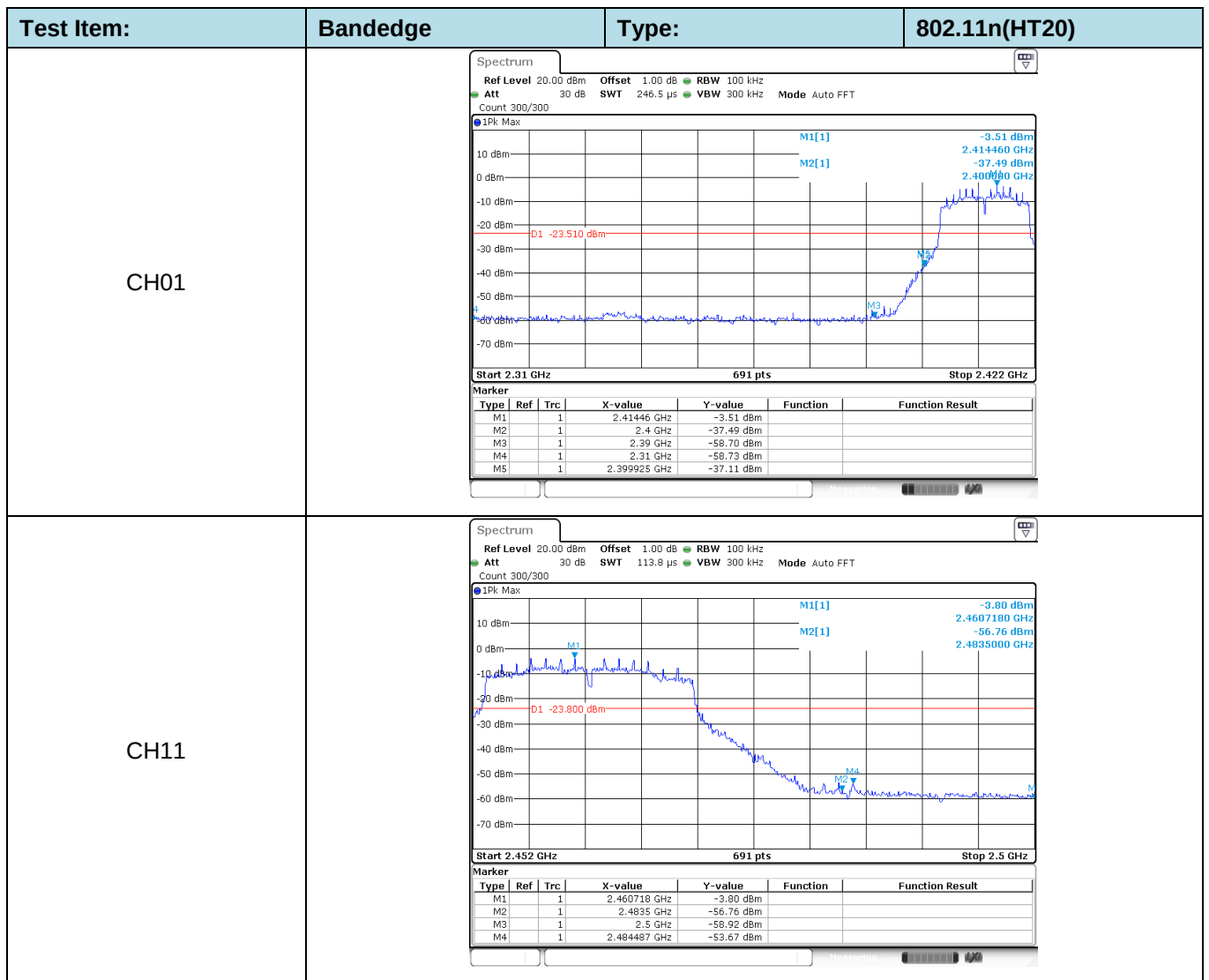
Test Item:	Bandedge	Type:	802.11n(HT20)																																										
CH01	Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 246.5 μs VBW 300 kHz Mode Auto FFT Count 300/300 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] D1 -23.750 dBm M3 -3.75 dBm 2.414460 GHz -36.85 dBm 2.400000 GHz Start 2.31 GHz 691 pts Stop 2.422 GHz Marker <table><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><tr><td>M1</td><td>1</td><td></td><td>2.41446 GHz</td><td>-3.75 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-36.85 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-58.89 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-58.72 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.399925 GHz</td><td>-36.91 dBm</td><td></td><td></td></tr></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.41446 GHz	-3.75 dBm			M2	1		2.4 GHz	-36.85 dBm			M3	1		2.39 GHz	-58.89 dBm			M4	1		2.31 GHz	-58.72 dBm			M5	1		2.399925 GHz	-36.91 dBm		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																							
M1	1		2.41446 GHz	-3.75 dBm																																									
M2	1		2.4 GHz	-36.85 dBm																																									
M3	1		2.39 GHz	-58.89 dBm																																									
M4	1		2.31 GHz	-58.72 dBm																																									
M5	1		2.399925 GHz	-36.91 dBm																																									
CH11	Spectrum 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 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] D1 -23.880 dBm M2 M4 -3.88 dBm 2.4569670 GHz -58.33 dBm 2.4835000 GHz Start 2.452 GHz 691 pts Stop 2.5 GHz Marker <table><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><tr><td>M1</td><td>1</td><td></td><td>2.456967 GHz</td><td>-3.88 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-58.33 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-59.75 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.4866435 GHz</td><td>-56.21 dBm</td><td></td><td></td></tr></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.456967 GHz	-3.88 dBm			M2	1		2.4835 GHz	-58.33 dBm			M3	1		2.5 GHz	-59.75 dBm			M4	1		2.4866435 GHz	-56.21 dBm									
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																							
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M2	1		2.4835 GHz	-58.33 dBm																																									
M3	1		2.5 GHz	-59.75 dBm																																									
M4	1		2.4866435 GHz	-56.21 dBm																																									

Test Item:	Bandedge	Type:	802.11n(HT40)																																										
CH03	Spectrum 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 300/300 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M3 M4 M5 -8.41 dBm 2.427000 GHz -39.46 dBm 2.400000 GHz -59.02 dBm 2.31 GHz -60.12 dBm 2.3953 GHz -38.06 dBm D1 -28.410 dBm Start 2.31 GHz 691 pts Stop 2.442 GHz Marker <table><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><tr><td>M1</td><td>1</td><td></td><td>2.427 GHz</td><td>-8.41 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-39.46 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-59.02 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-60.12 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.3953 GHz</td><td>-38.06 dBm</td><td></td><td></td></tr></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.427 GHz	-8.41 dBm			M2	1		2.4 GHz	-39.46 dBm			M3	1		2.39 GHz	-59.02 dBm			M4	1		2.31 GHz	-60.12 dBm			M5	1		2.3953 GHz	-38.06 dBm		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																							
M1	1		2.427 GHz	-8.41 dBm																																									
M2	1		2.4 GHz	-39.46 dBm																																									
M3	1		2.39 GHz	-59.02 dBm																																									
M4	1		2.31 GHz	-60.12 dBm																																									
M5	1		2.3953 GHz	-38.06 dBm																																									
CH09	Spectrum 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 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M1 M2 INF -8.12 dBm 2.4557660 GHz -57.82 dBm 2.4835000 GHz -57.82 dBm 2.5 GHz -56.00 dBm D1 -28.140 dBm Start 2.432 GHz 691 pts Stop 2.5 GHz Marker <table><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><tr><td>M1</td><td>1</td><td></td><td>2.455766 GHz</td><td>-8.12 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-57.82 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-57.88 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.4904406 GHz</td><td>-56.00 dBm</td><td></td><td></td></tr></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.455766 GHz	-8.12 dBm			M2	1		2.4835 GHz	-57.82 dBm			M3	1		2.5 GHz	-57.88 dBm			M4	1		2.4904406 GHz	-56.00 dBm									
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M4	1		2.4904406 GHz	-56.00 dBm																																									

Auxilliary Antenna

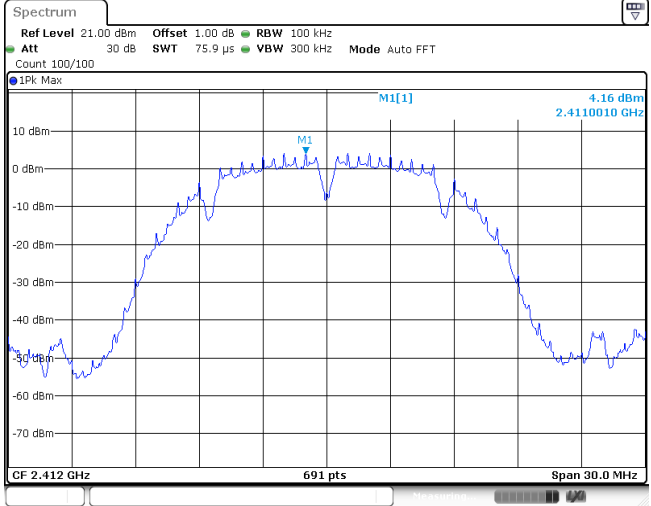
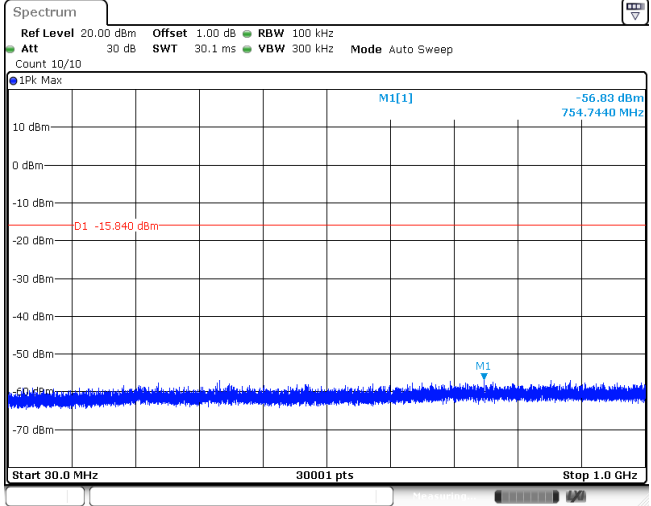
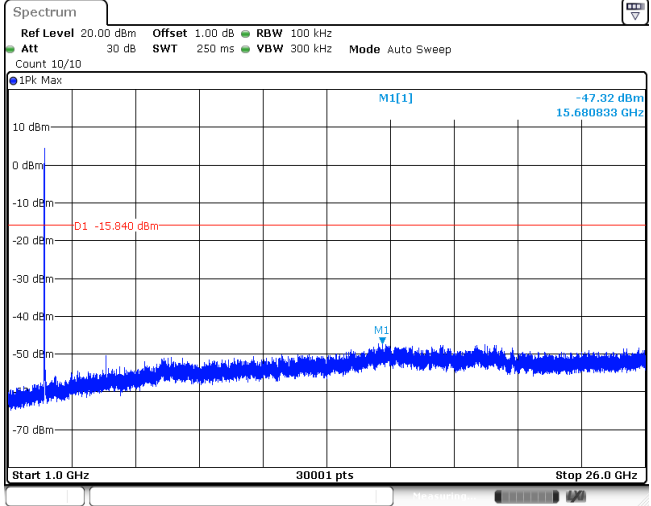
Test Item:	Bandedge	Type:	802.11b																																																
CH01	Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 246.5 μs VBW 300 kHz Mode Auto FFT Count 300/300 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M3 M4 M5 3.43 dBm 2.412520 GHz -54.52 dBm 2.397003 GHz -44.02 dBm D1 -16.570 dBm Start 2.31 GHz 691 pts Stop 2.422 GHz <table><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><tr><td>M1</td><td>1</td><td></td><td></td><td>2.41252 GHz</td><td>3.43 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td></td><td>2.4 GHz</td><td>-54.52 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td></td><td>2.39 GHz</td><td>-58.04 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td></td><td>2.31 GHz</td><td>-57.73 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td></td><td>2.397003 GHz</td><td>-44.02 dBm</td><td></td><td></td></tr></table>			Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1			2.41252 GHz	3.43 dBm			M2	1			2.4 GHz	-54.52 dBm			M3	1			2.39 GHz	-58.04 dBm			M4	1			2.31 GHz	-57.73 dBm			M5	1			2.397003 GHz	-44.02 dBm		
Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result																																												
M1	1			2.41252 GHz	3.43 dBm																																														
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M3	1			2.39 GHz	-58.04 dBm																																														
M4	1			2.31 GHz	-57.73 dBm																																														
M5	1			2.397003 GHz	-44.02 dBm																																														
CH11	Spectrum 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 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M3 3.37 dBm 2.4614820 GHz -51.07 dBm 2.4835000 GHz D1 -16.630 dBm Start 2.452 GHz 691 pts Stop 2.5 GHz <table><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><tr><td>M1</td><td>1</td><td></td><td></td><td>2.461482 GHz</td><td>3.37 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td></td><td>2.4835 GHz</td><td>-51.07 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td></td><td>2.5 GHz</td><td>-58.07 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td></td><td>2.483513 GHz</td><td>-51.07 dBm</td><td></td><td></td></tr></table>			Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1			2.461482 GHz	3.37 dBm			M2	1			2.4835 GHz	-51.07 dBm			M3	1			2.5 GHz	-58.07 dBm			M4	1			2.483513 GHz	-51.07 dBm										
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M4	1			2.483513 GHz	-51.07 dBm																																														



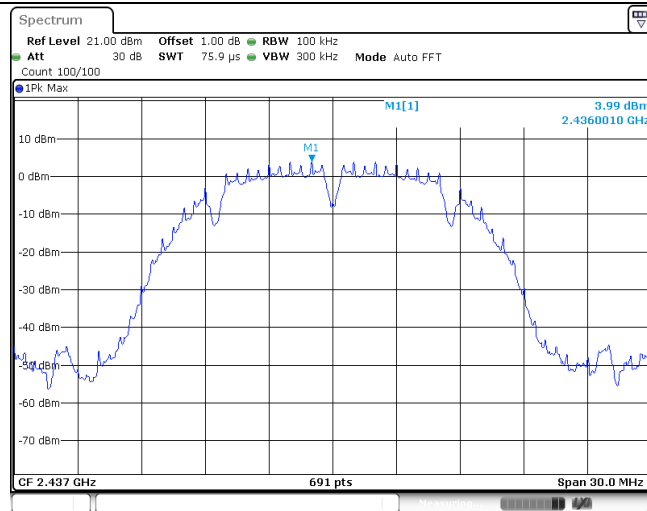


Test Item:	Bandedge	Type:	802.11n(HT40)																																										
CH03	Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 303.4 μs VBW 300 kHz Mode Auto FFT Count 300/300 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M3 M4 M5 -8.12 dBm 2.427000 GHz -40.23 dBm 2.400000 GHz -59.24 dBm 2.39553 GHz -38.60 dBm 2.31 GHz D1 -28.120 dBm Start 2.31 GHz 691 pts Stop 2.442 GHz Marker <table><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><tr><td>M1</td><td>1</td><td></td><td>2.427 GHz</td><td>-8.12 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-40.23 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-59.24 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-59.35 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.39953 GHz</td><td>-38.60 dBm</td><td></td><td></td></tr></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.427 GHz	-8.12 dBm			M2	1		2.4 GHz	-40.23 dBm			M3	1		2.39 GHz	-59.24 dBm			M4	1		2.31 GHz	-59.35 dBm			M5	1		2.39953 GHz	-38.60 dBm		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																							
M1	1		2.427 GHz	-8.12 dBm																																									
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M5	1		2.39953 GHz	-38.60 dBm																																									
CH09	Spectrum 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 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm M1[1] M2[1] M1 M2 M3 M4 -8.00 dBm 2.4470070 GHz -55.32 dBm 2.4835000 GHz -55.98 dBm 2.5 GHz -55.15 dBm 2.4870899 GHz D1 -28.000 dBm Start 2.432 GHz 691 pts Stop 2.5 GHz Marker <table><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><tr><td>M1</td><td>1</td><td></td><td>2.447007 GHz</td><td>-8.00 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-55.32 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-55.98 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.4870899 GHz</td><td>-55.15 dBm</td><td></td><td></td></tr></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.447007 GHz	-8.00 dBm			M2	1		2.4835 GHz	-55.32 dBm			M3	1		2.5 GHz	-55.98 dBm			M4	1		2.4870899 GHz	-55.15 dBm									
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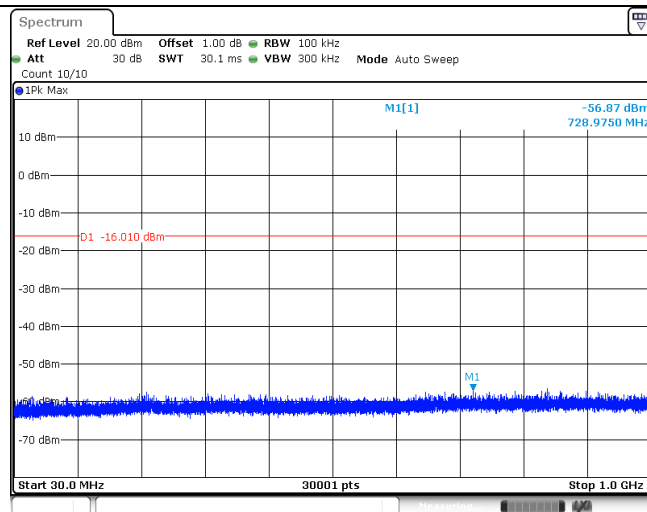
Main Antenna:

Test Item:	SE	Type:	802.11b
CH01 Reference level			
CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

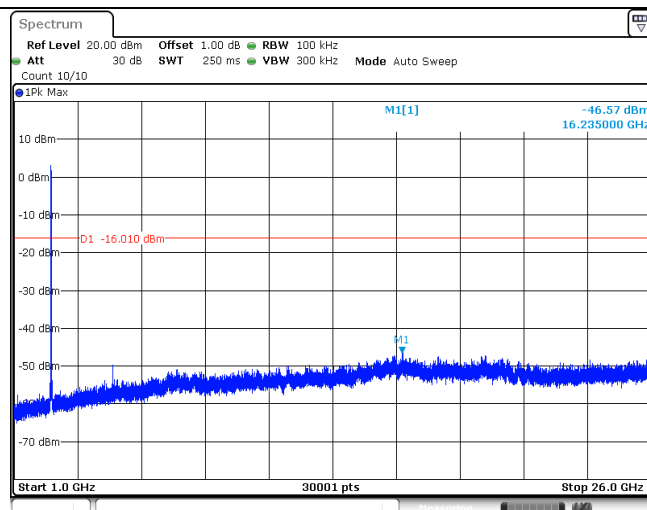
CH06
Reference level



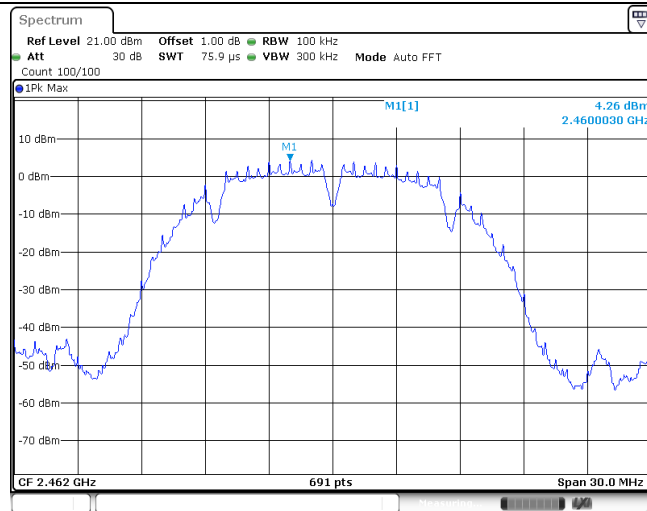
CH06
30MHz~1000MHz



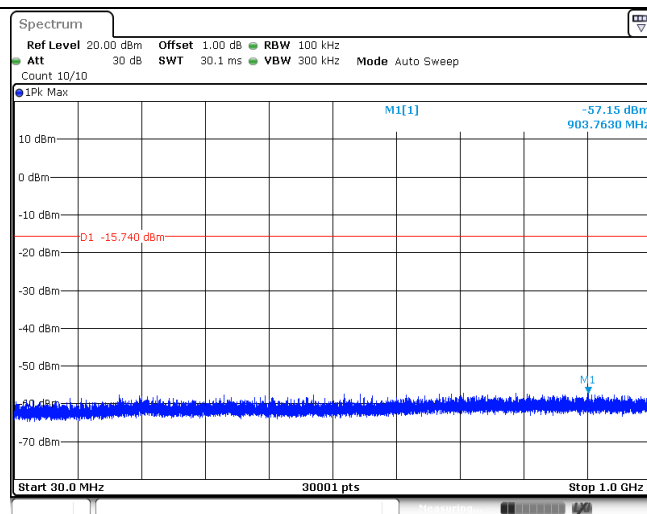
CH06
1GHz~26GHz



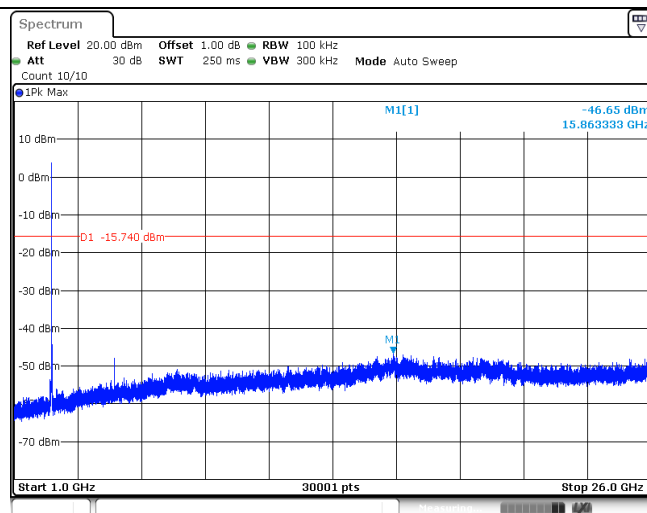
CH11
Reference level

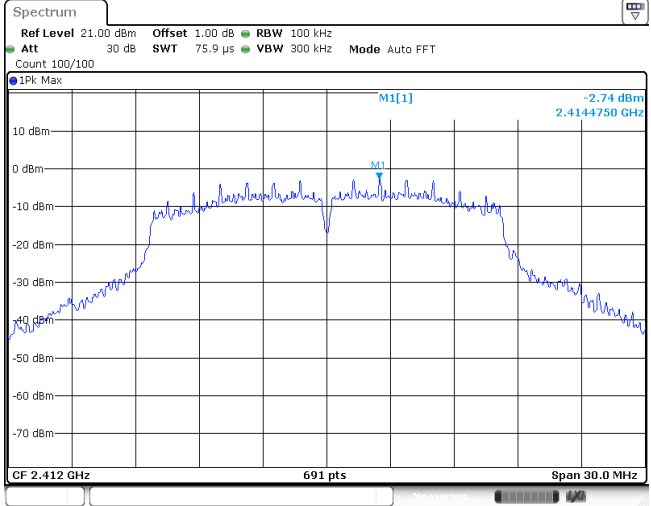
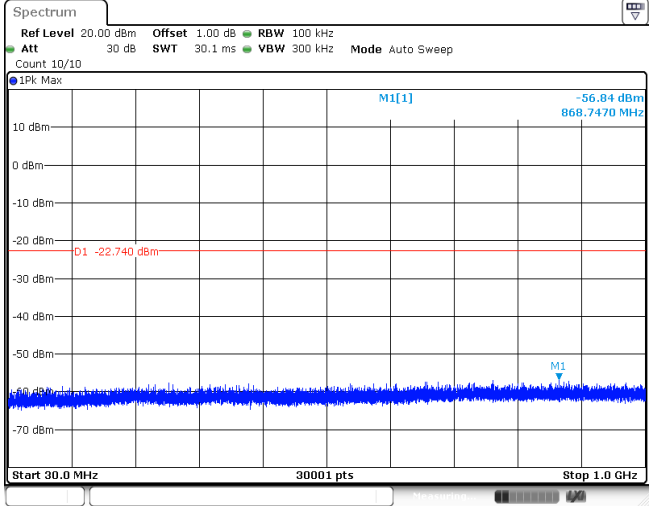
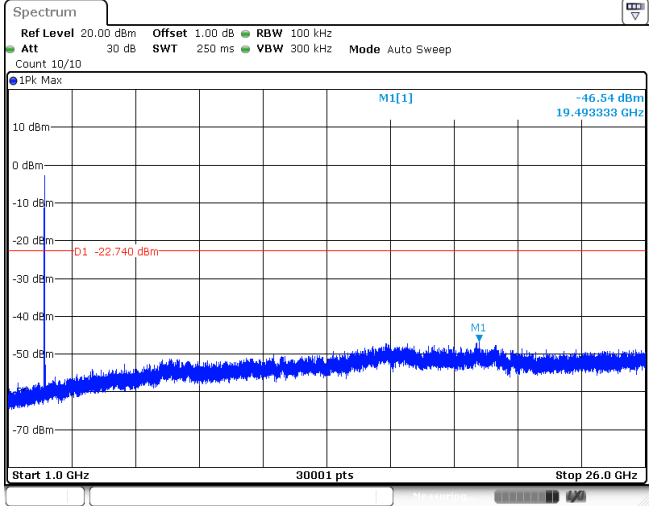


CH11
30MHz~1000MHz

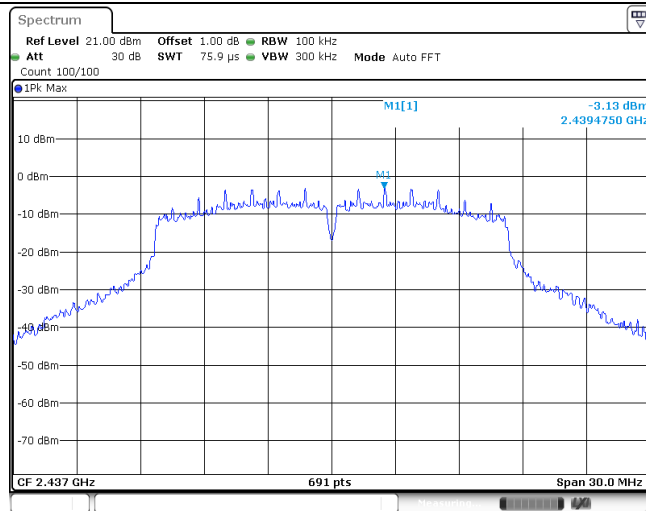


CH11
1GHz~26GHz

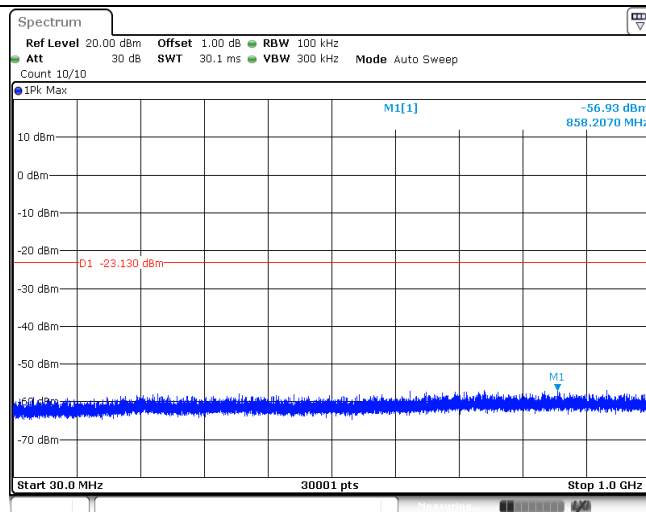


Test Item:	SE	Type:	802.11g
CH01 Reference level			
CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

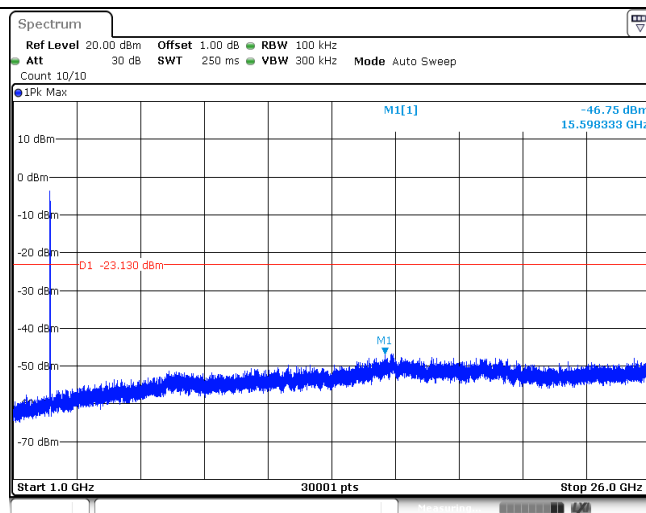
CH06
Reference level

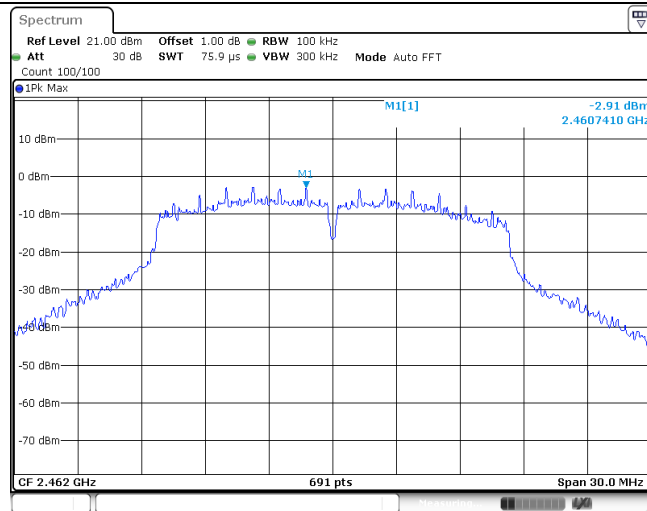
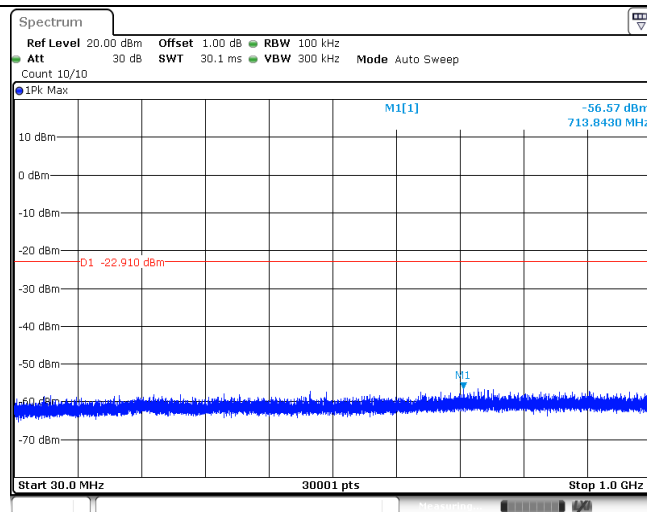
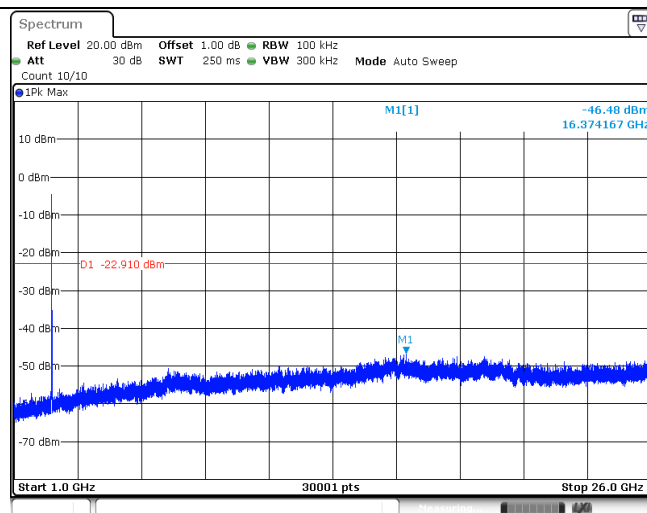


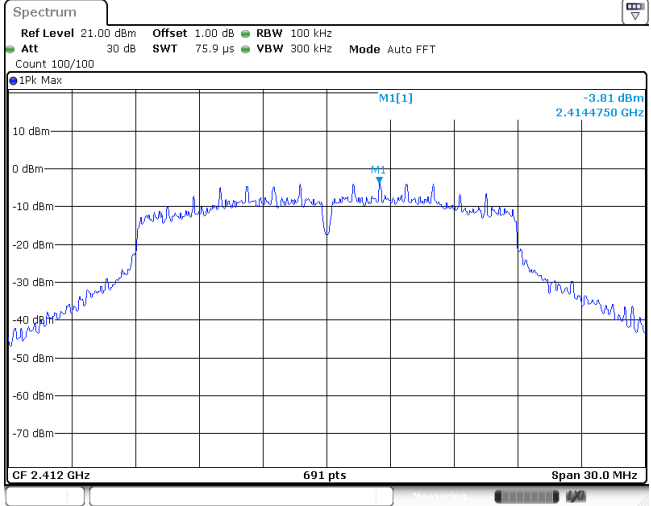
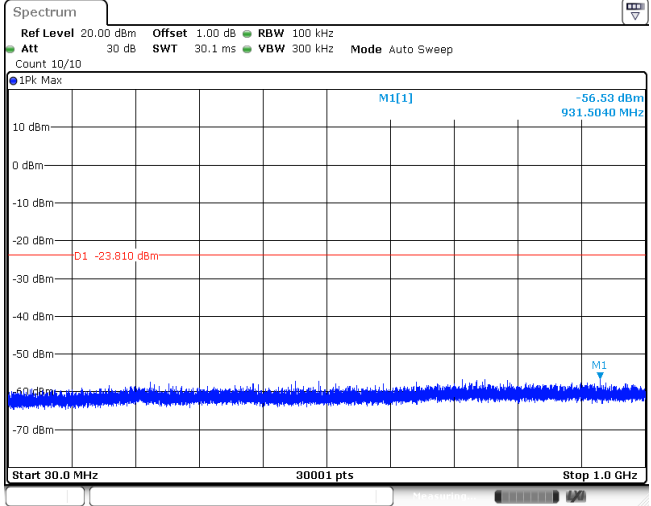
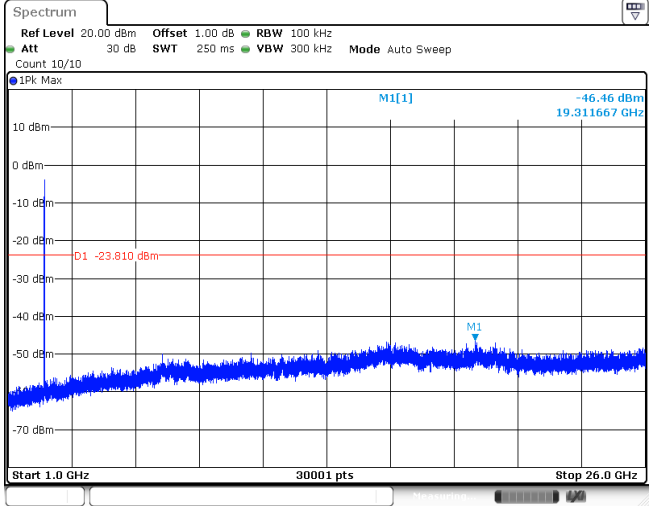
CH06
30MHz~1000MHz



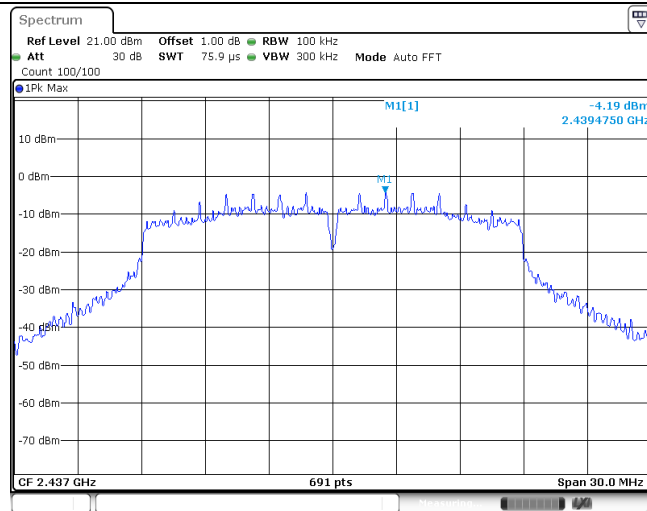
CH06
1GHz~26GHz



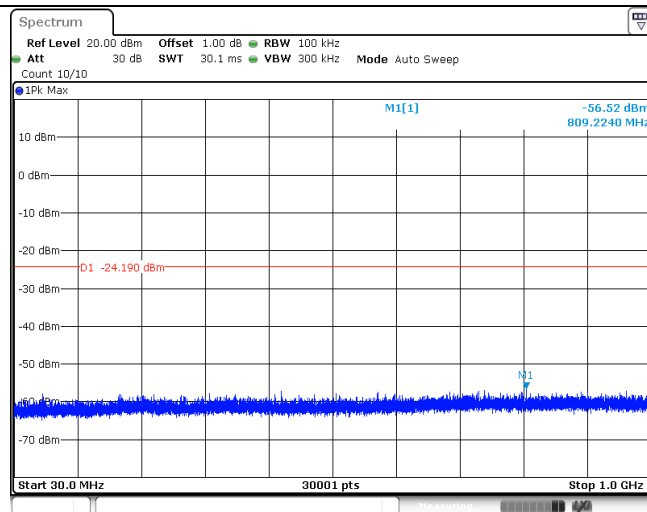
CH11
Reference levelCH11
30MHz~1000MHzCH11
1GHz~26GHz

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

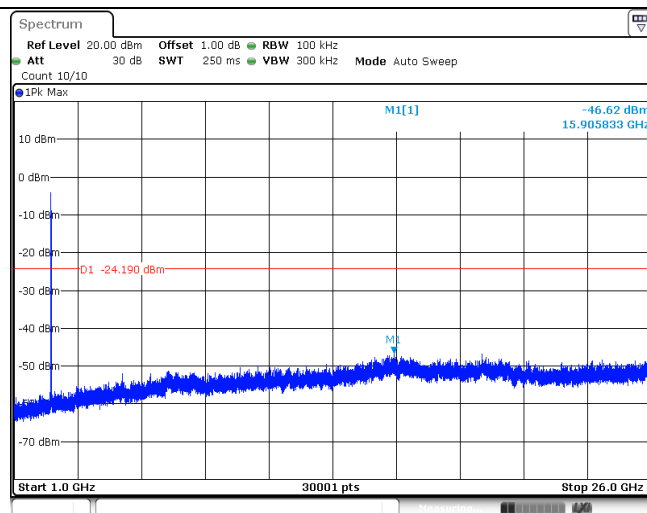
CH06
Reference level



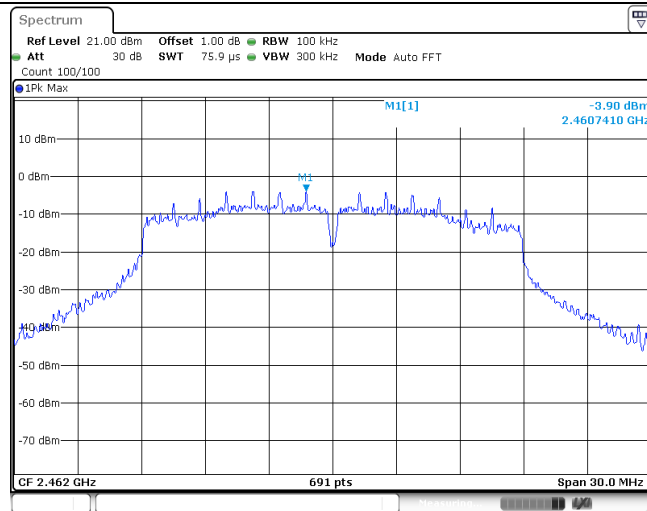
CH06
30MHz~1000MHz



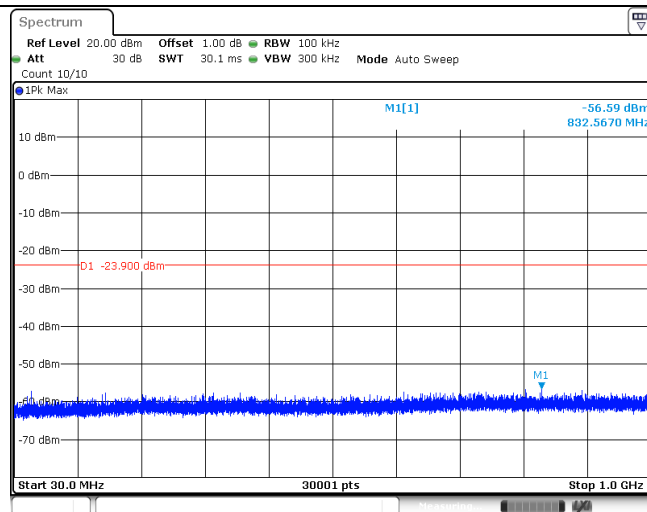
CH06
1GHz~26GHz



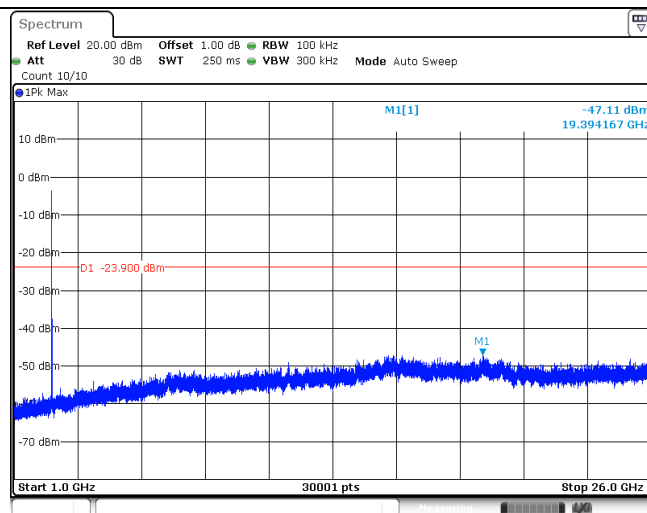
CH11
Reference level

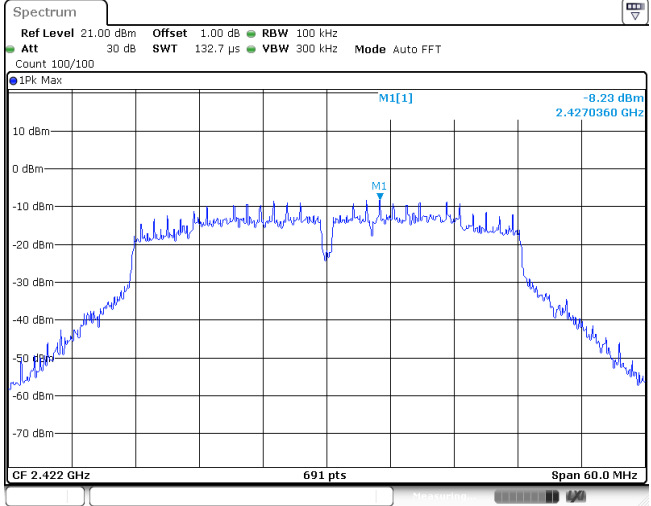
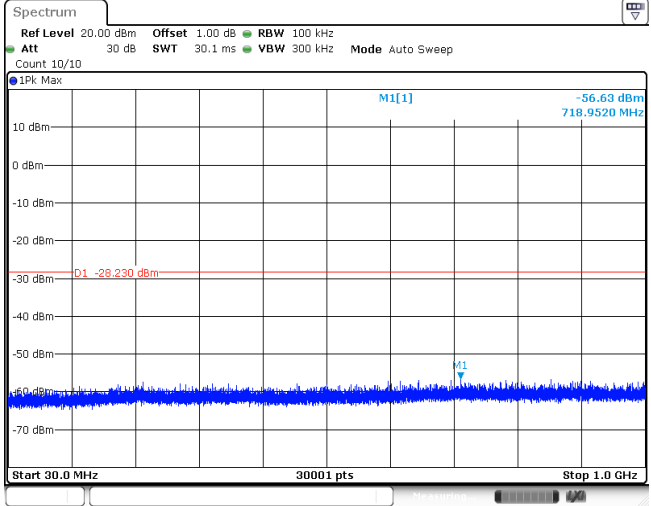
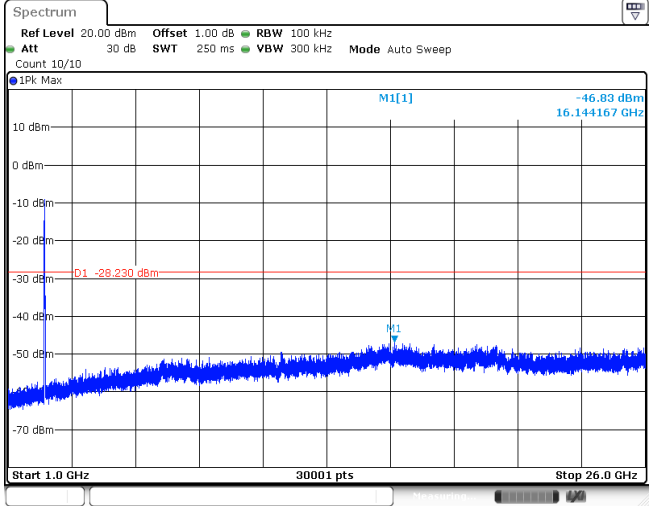


CH11
30MHz~1000MHz

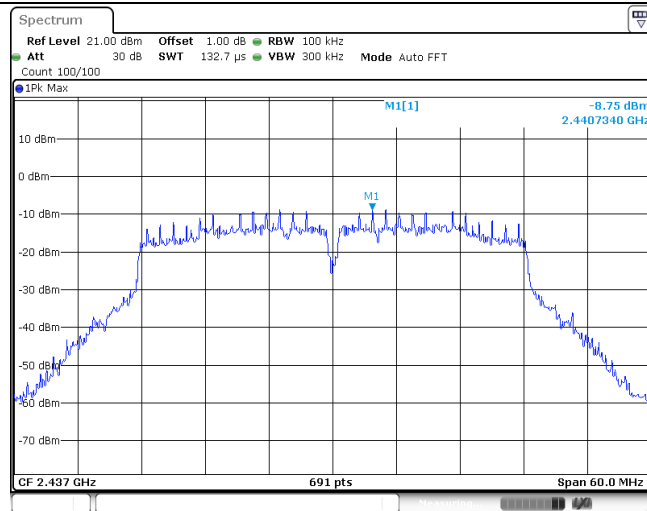


CH11
1GHz~26GHz

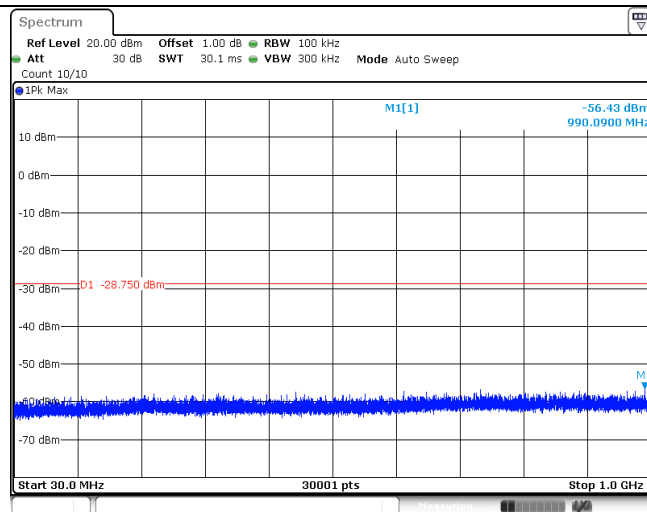


Test Item:	SE	Type:	802.11n(HT40)
CH03 Reference level			
CH03 30MHz~1000MHz			
CH03 1GHz~26GHz			

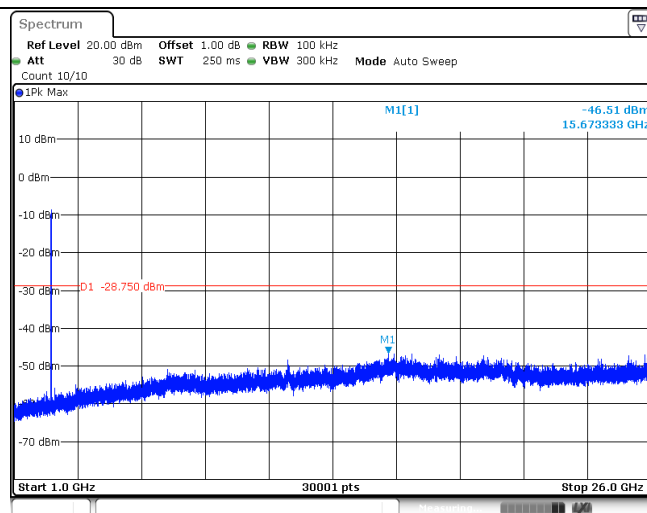
CH06
Reference level



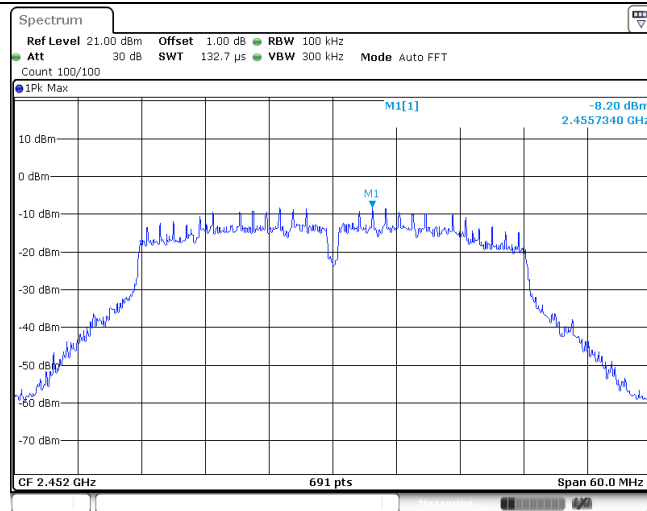
CH06
30MHz~1000MHz



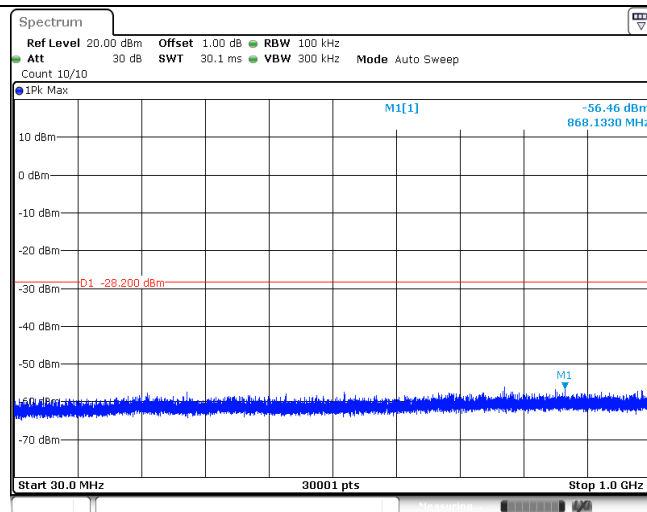
CH06
1GHz~26GHz



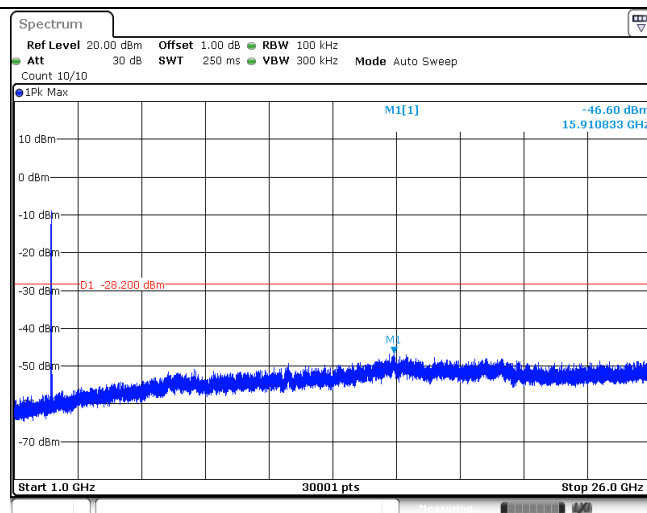
CH09
Reference level



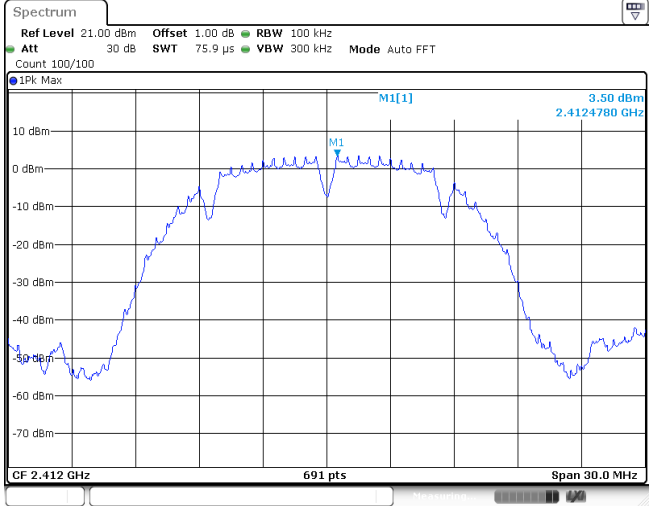
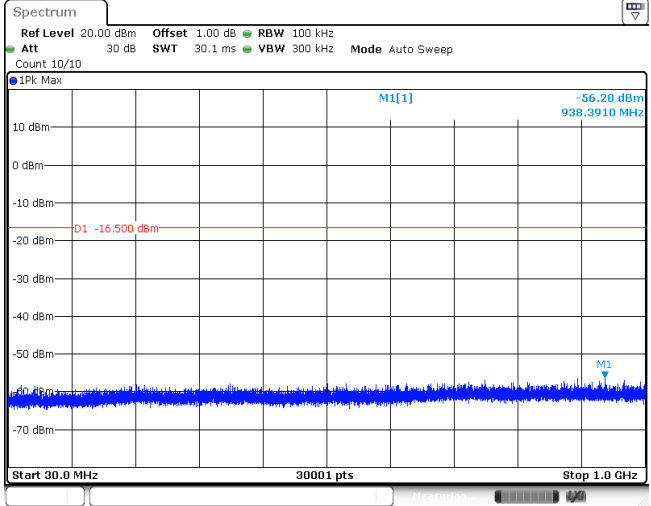
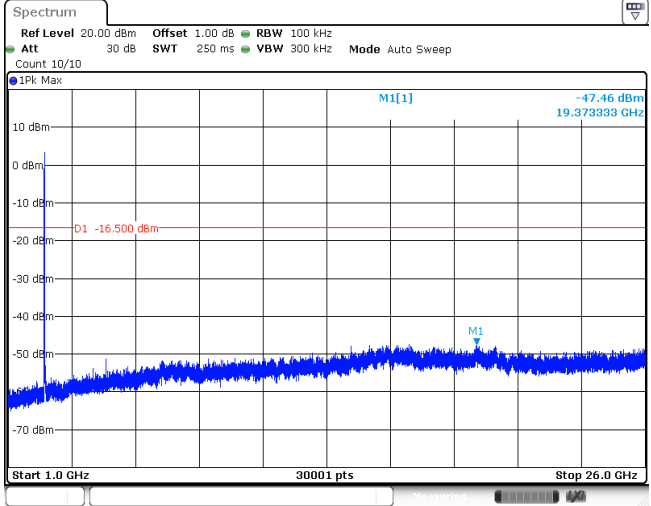
CH09
30MHz~1000MHz



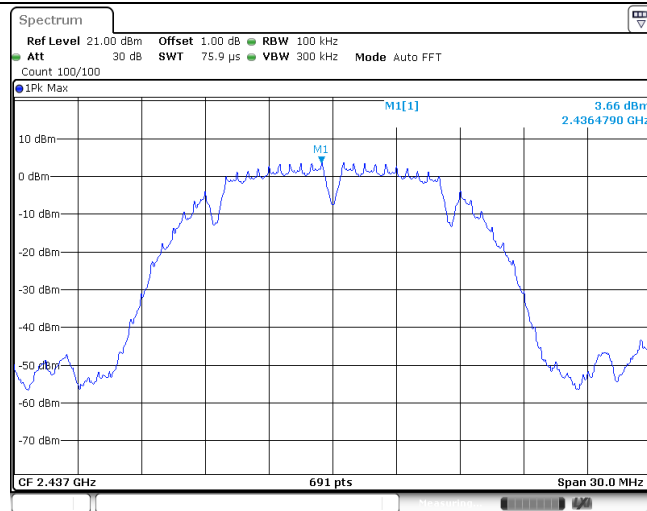
CH09
1GHz~26GHz



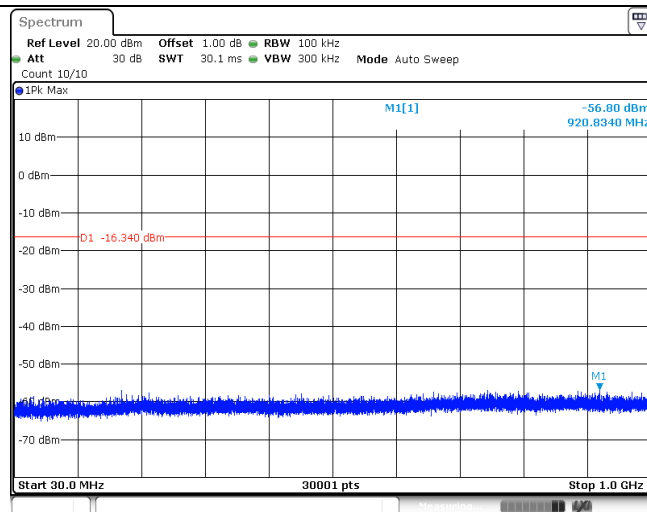
Auxilliary Antenna:

Test Item:	SE	Type:	802.11b
CH01 Reference level			
CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

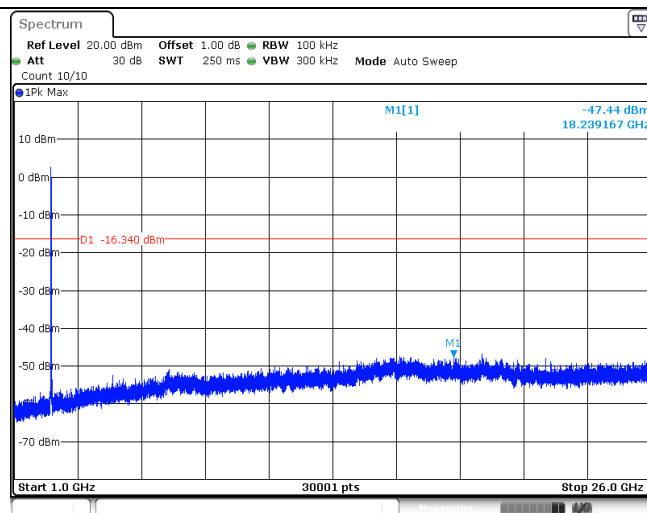
CH06
Reference level



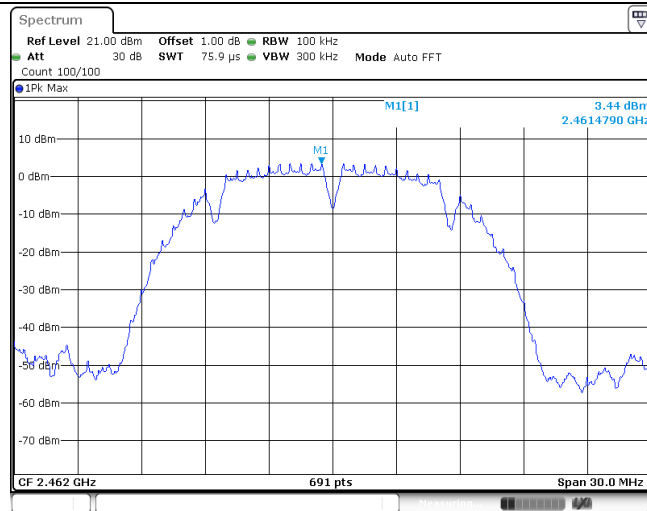
CH06
30MHz~1000MHz



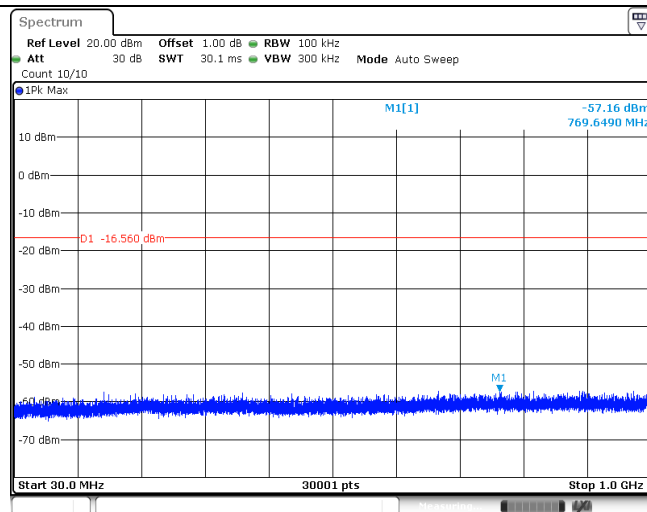
CH06
1GHz~26GHz



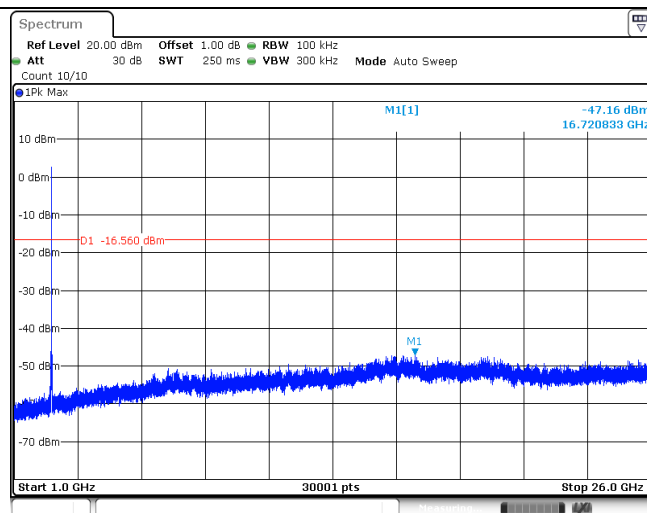
CH11
Reference level

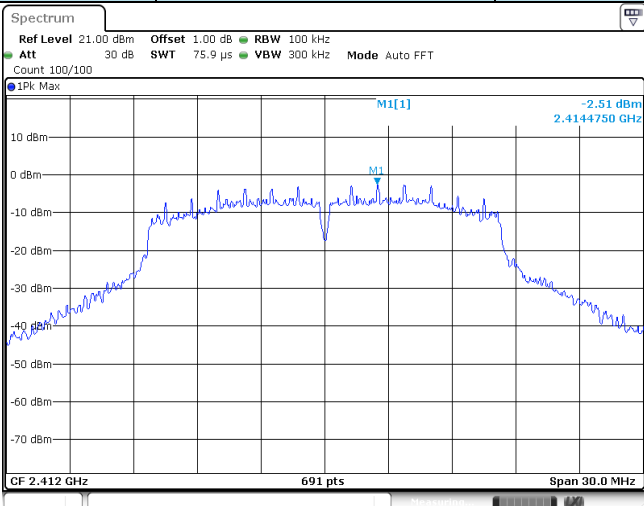
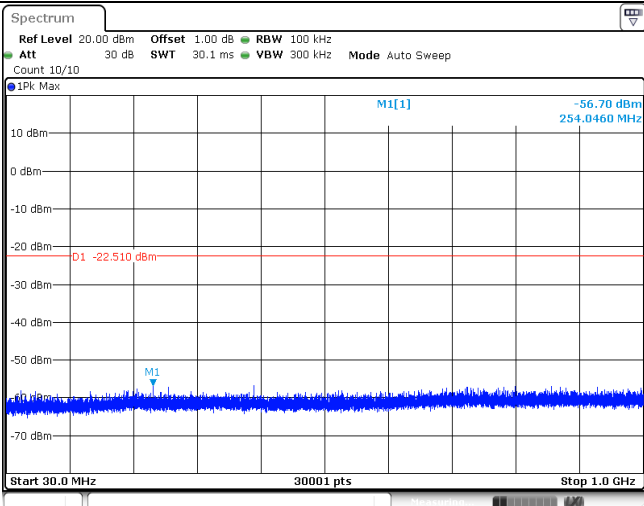
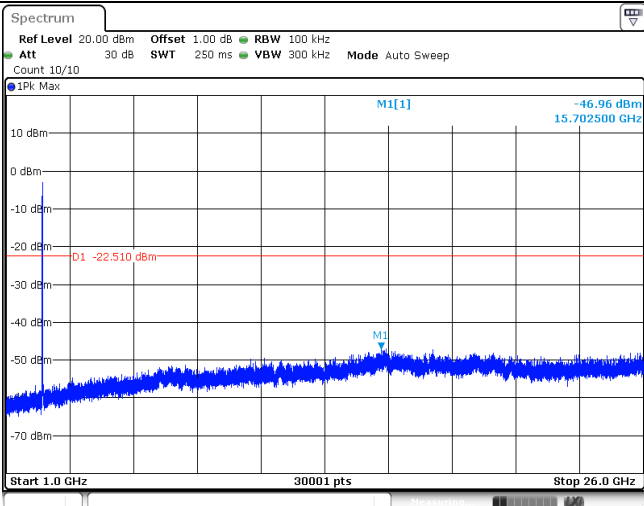


CH11
30MHz~1000MHz

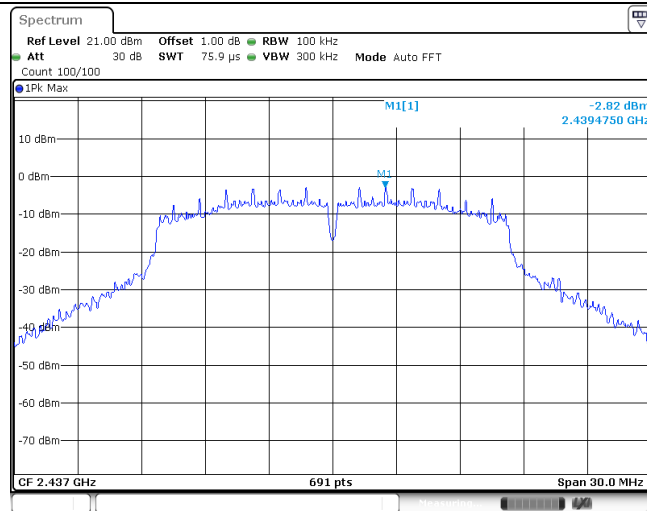


CH11
1GHz~26GHz

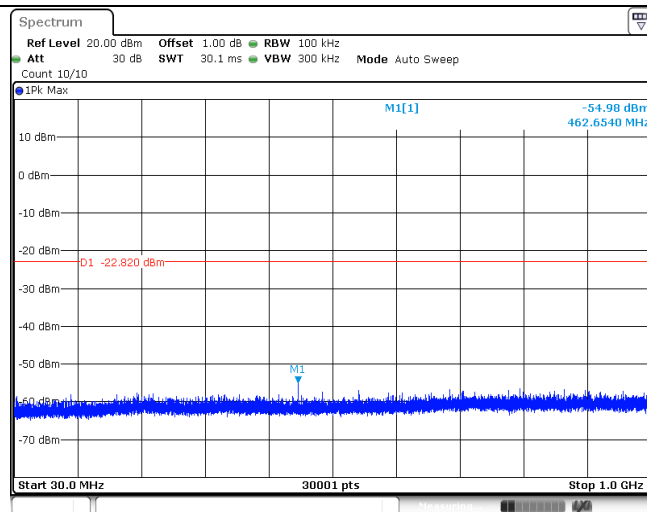


Test Item:	SE	Type:	802.11g
CH01 Reference level			
CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

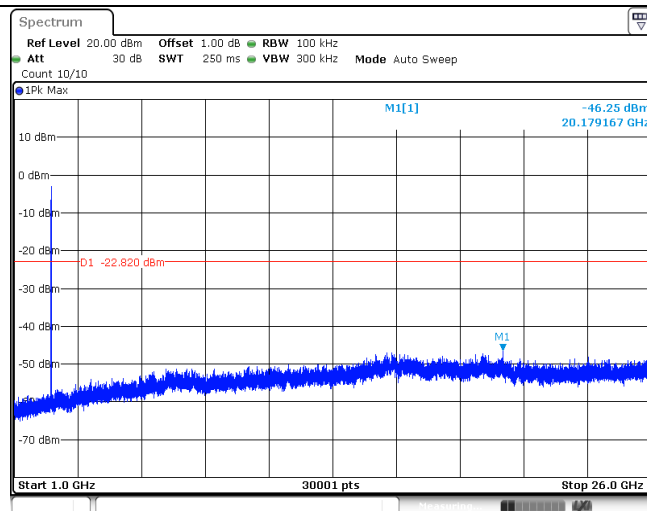
CH06
Reference level



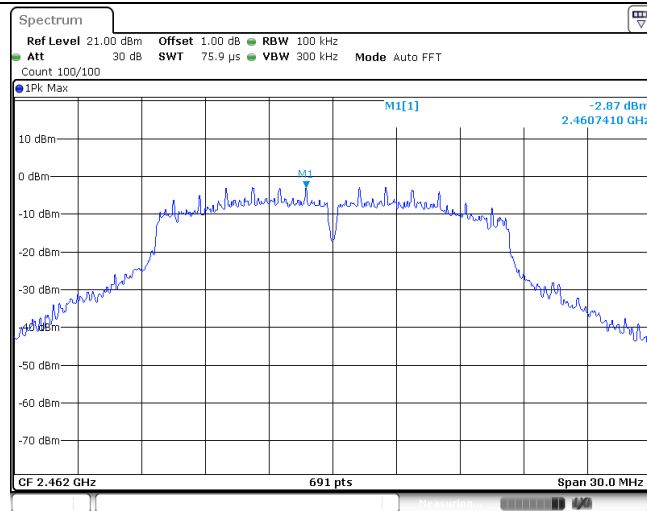
CH06
30MHz~1000MHz



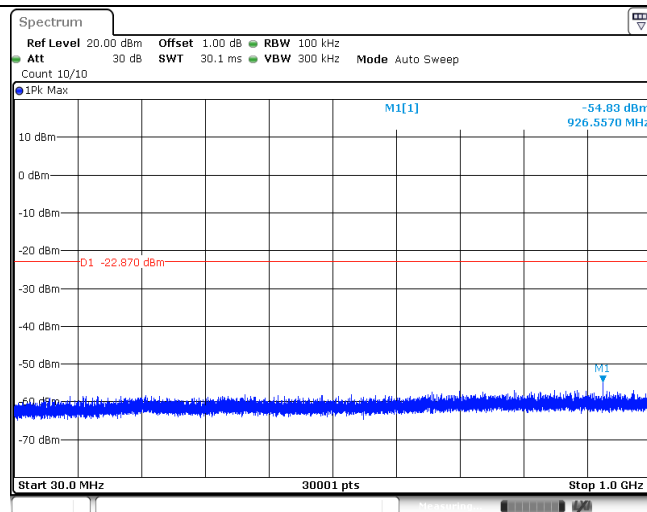
CH06
1GHz~26GHz



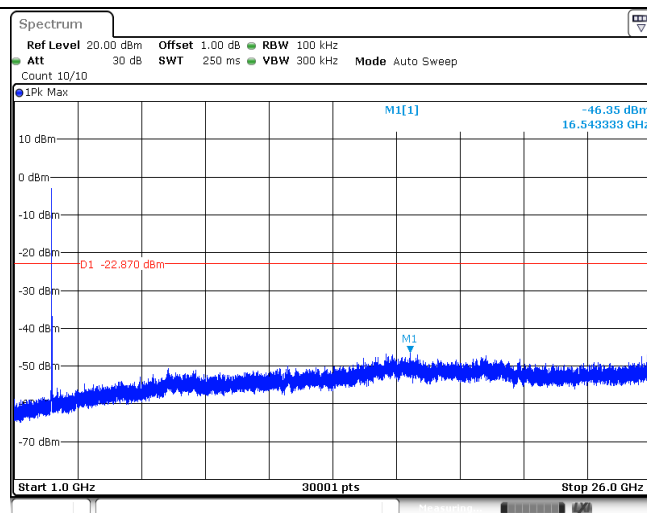
CH11
Reference level

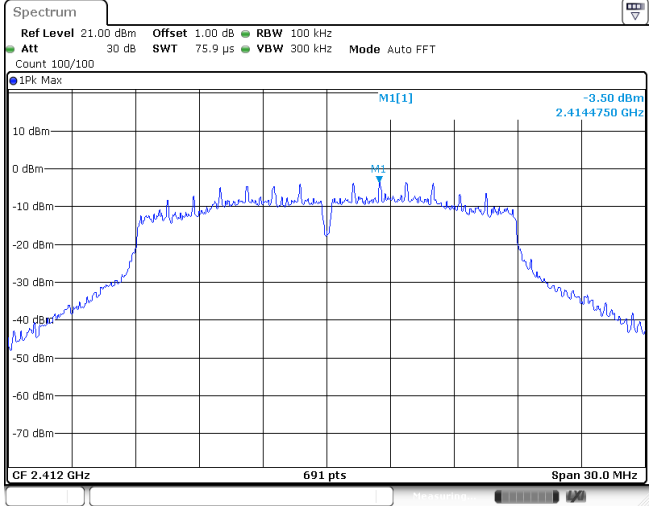
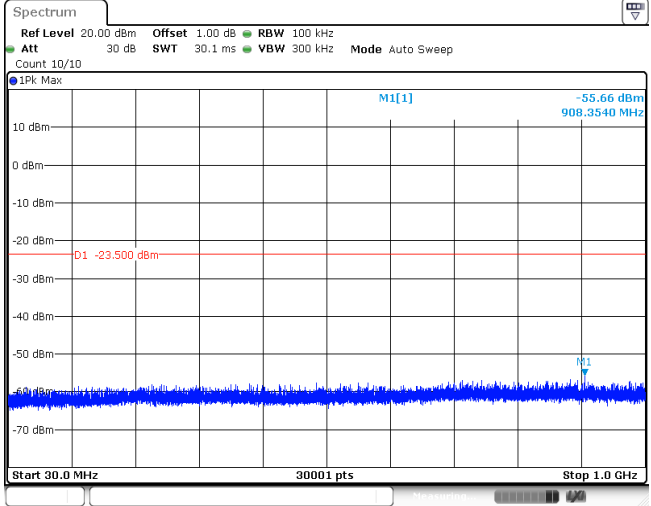
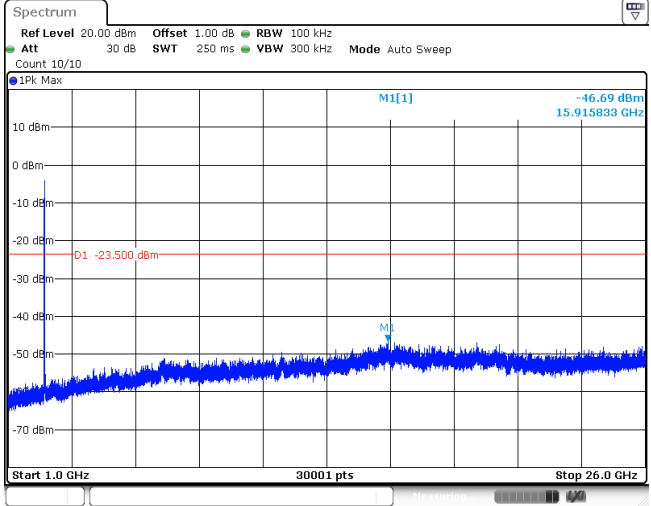


CH11
30MHz~1000MHz

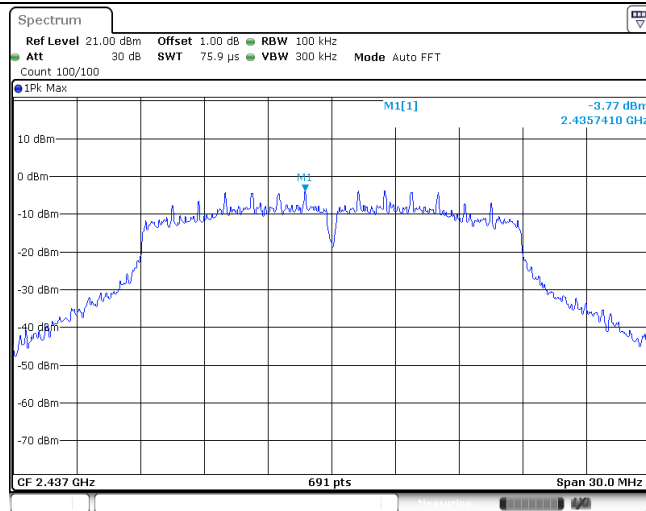


CH11
1GHz~26GHz

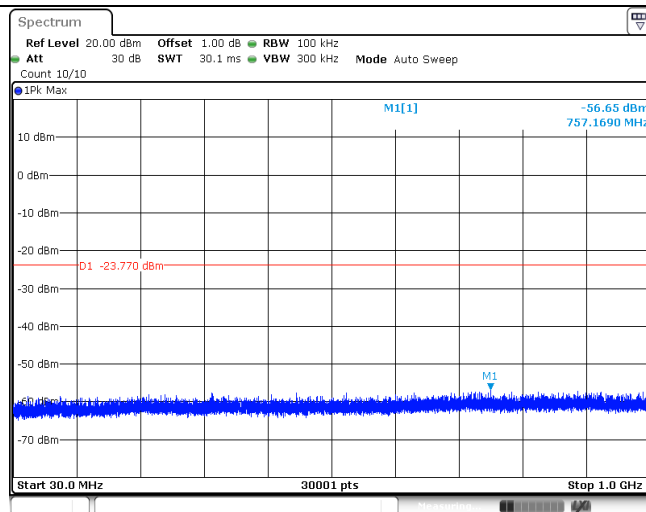


Test Item:	SE	Type:	802.11n(HT20)
CH01 Reference level			
CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

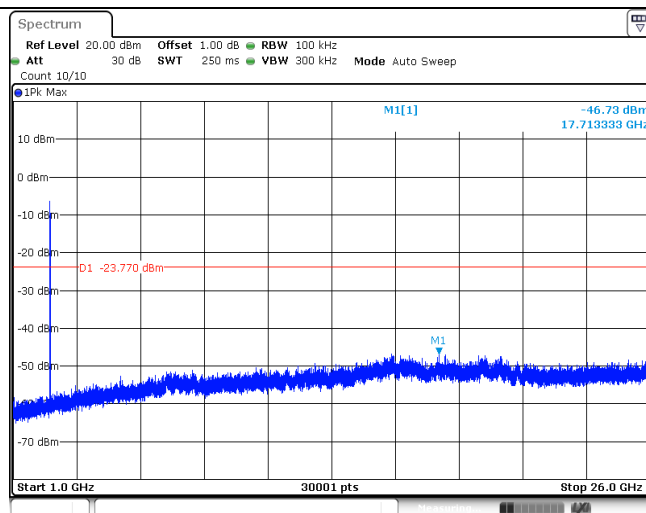
CH06
Reference level



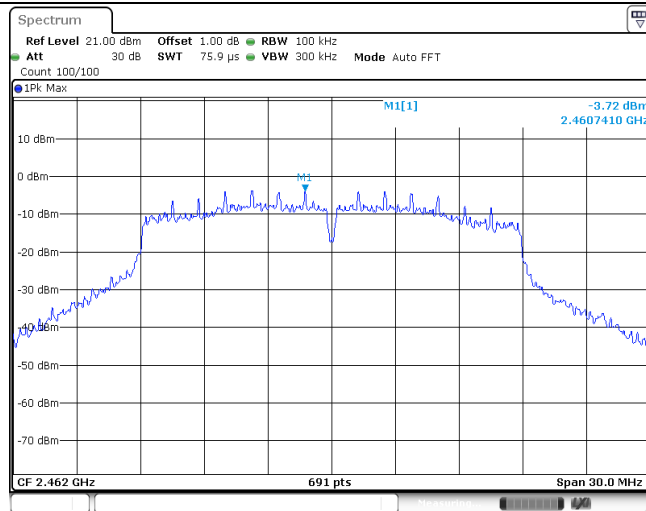
CH06
30MHz~1000MHz



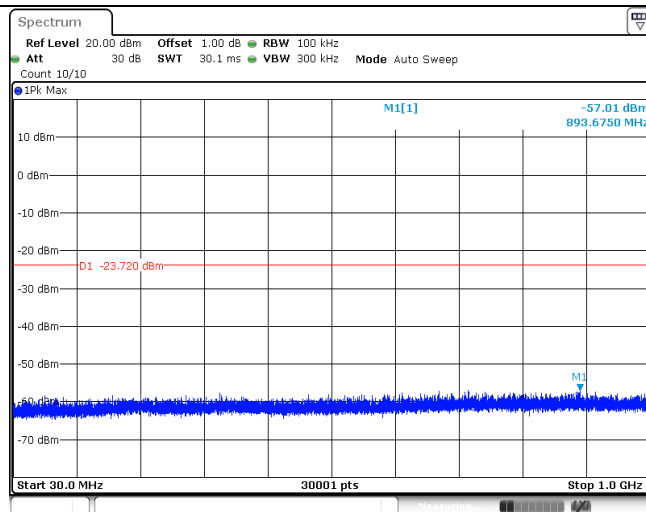
CH06
1GHz~26GHz



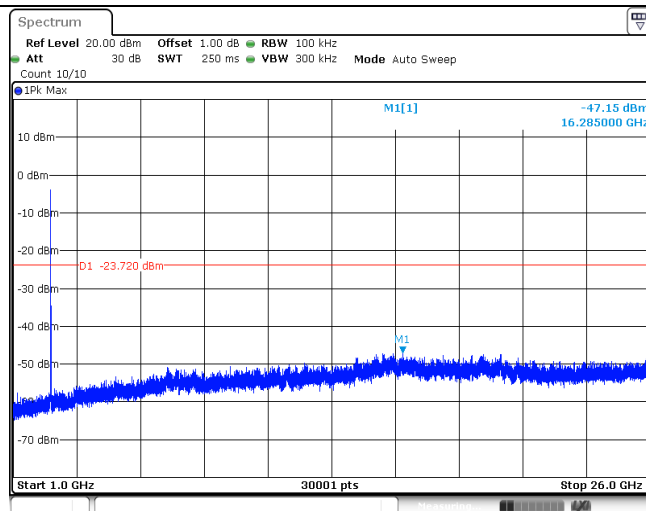
CH11
Reference level

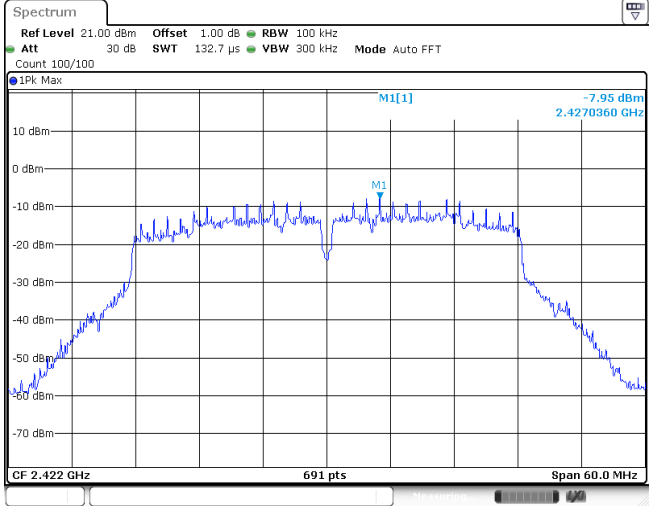
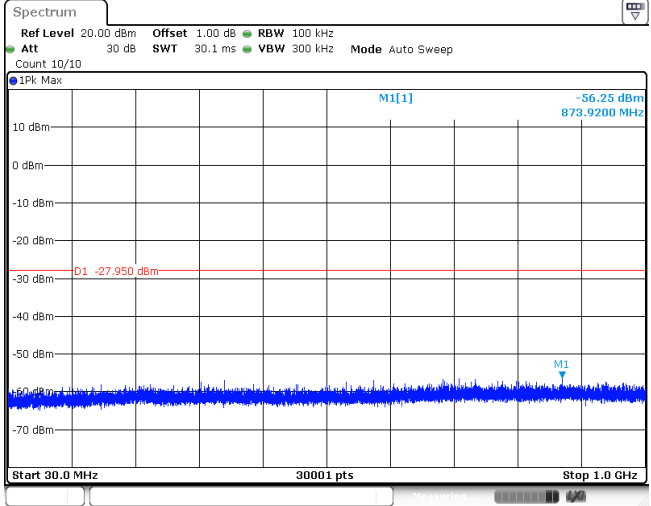
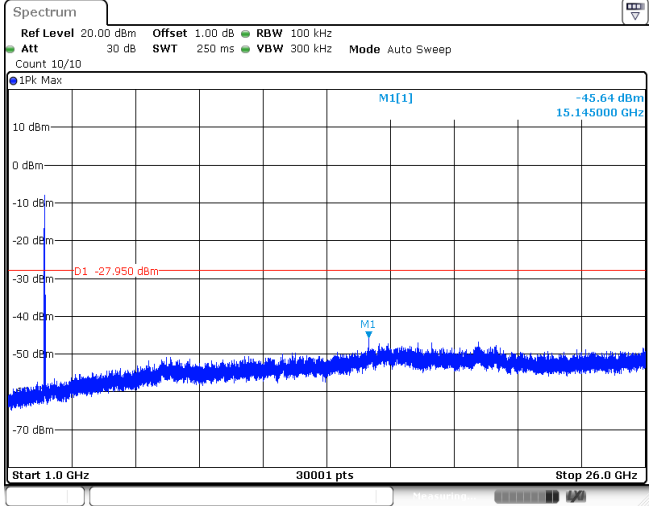


CH11
30MHz~1000MHz

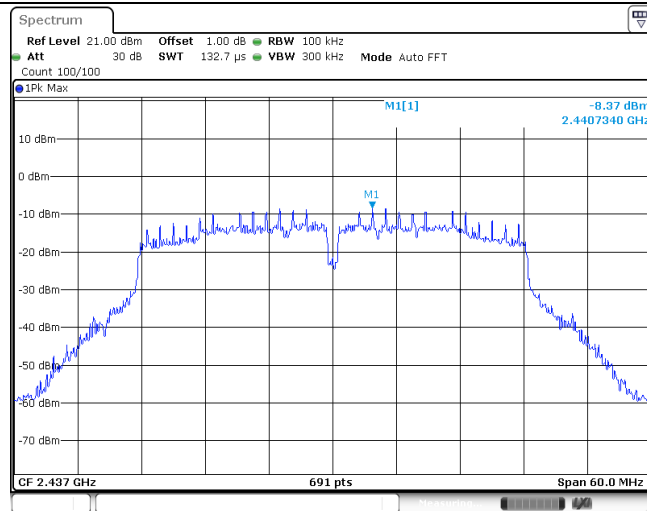


CH11
1GHz~26GHz

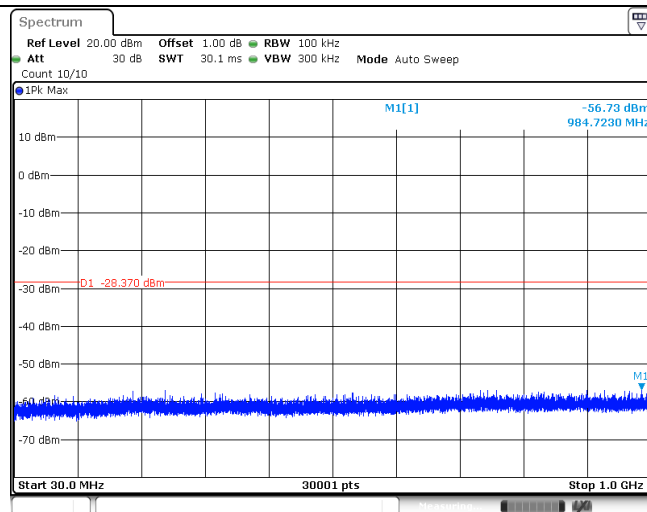


Test Item:	SE	Type:	802.11n(HT40)
CH03 Reference level			
CH03 30MHz~1000MHz			
CH03 1GHz~26GHz			

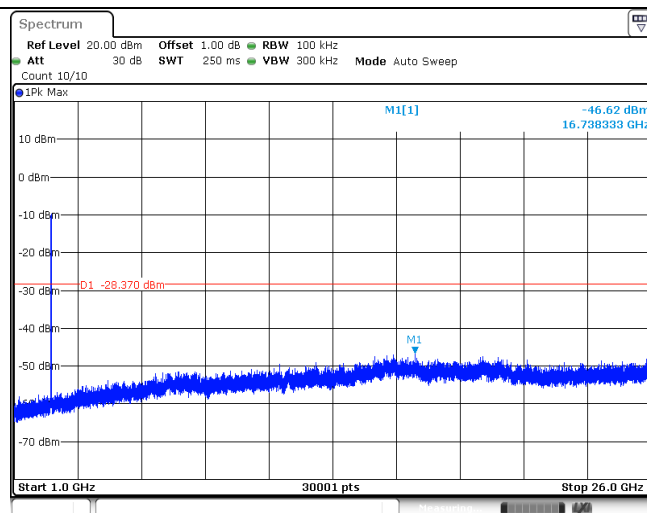
CH06
Reference level



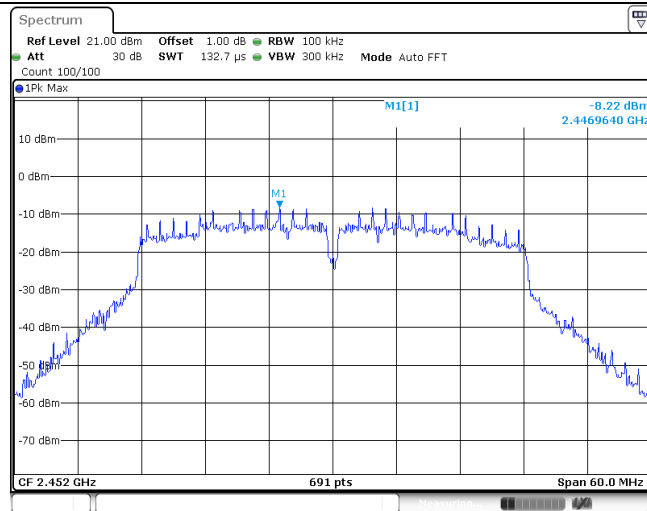
CH06
30MHz~1000MHz



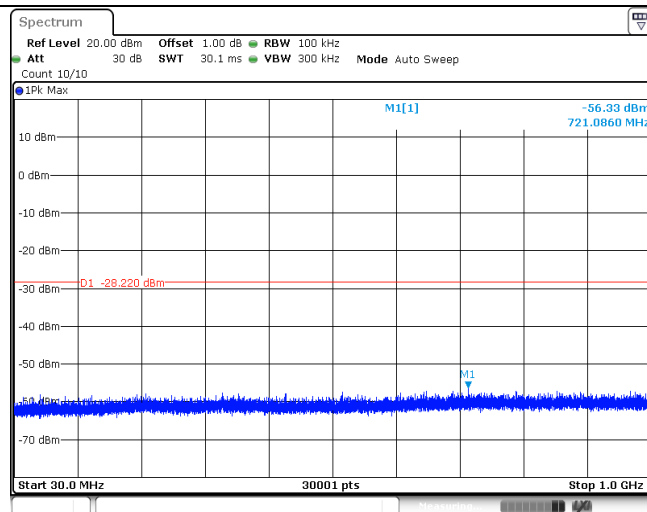
CH06
1GHz~26GHz



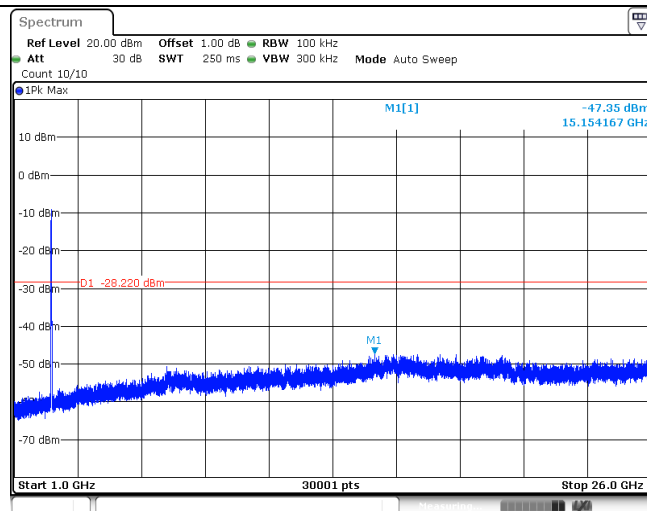
CH09
Reference level



CH09
30MHz~1000MHz



CH09
1GHz~26GHz



5.8. Spurious Emissions (radiated)

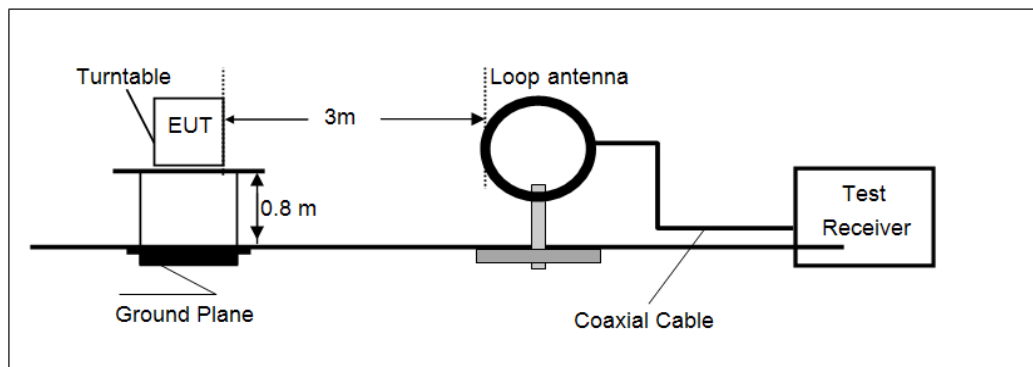
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.209

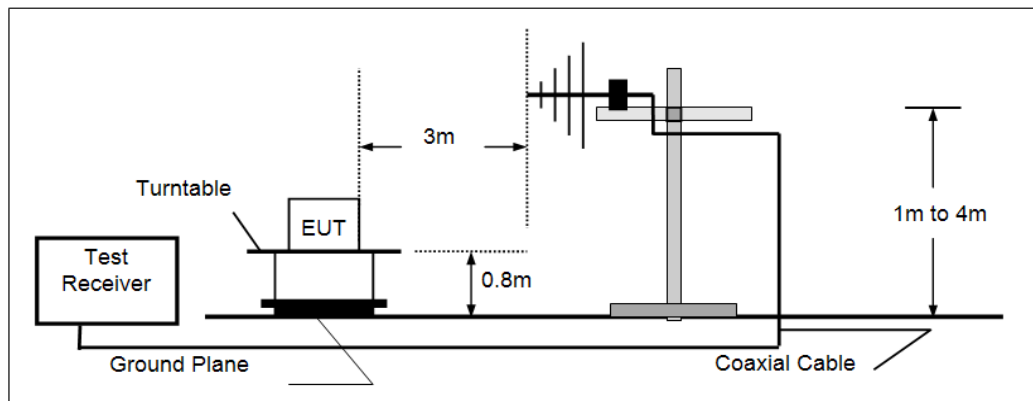
Frequency	Limit (dBuV/m @3m)	Value
30MHz-88MHz	40.00	Quasi-peak
88MHz-216MHz	43.50	Quasi-peak
216MHz-960MHz	46.00	Quasi-peak
960MHz-1GHz	54.00	Quasi-peak
Above 1GHz	54.00	Average
	74.00	Peak

TEST CONFIGURATION

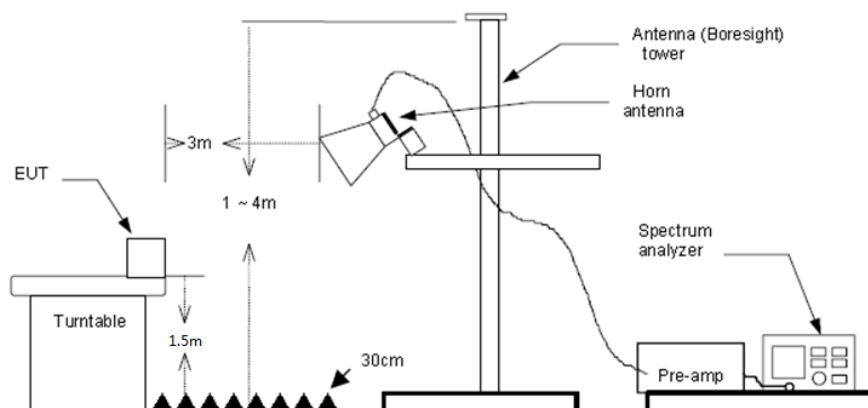
➤ 9kHz ~30MHz



➤ 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 10th 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.
- 3) pre-scan both antenna of all modulation mode, found the main antenna which it was worst case, so only the worst case's data show on the 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.

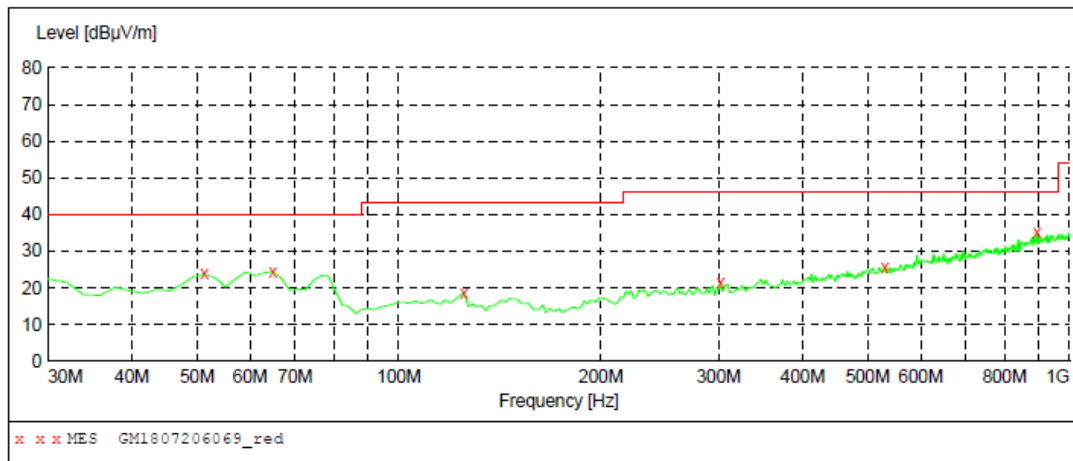
➤ **30MHz ~1000MHz**

Have pre-scan both antenna of 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

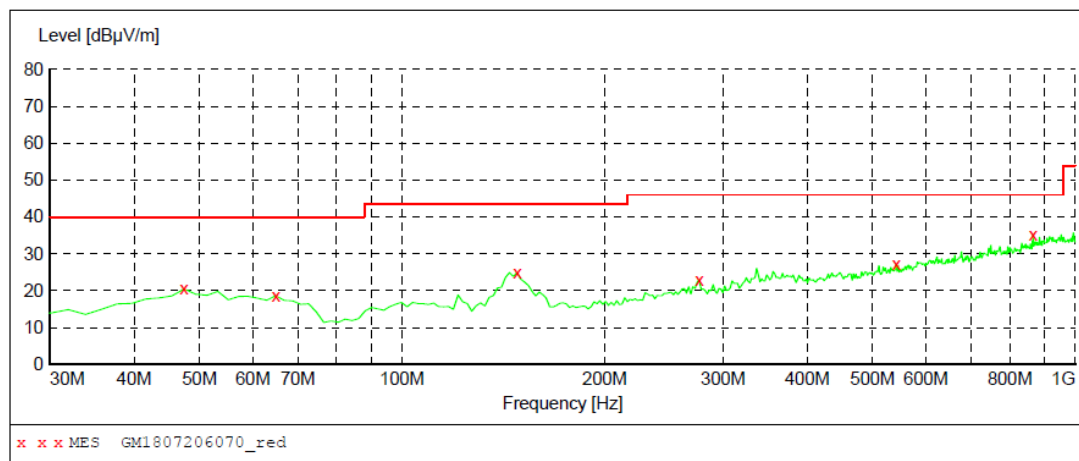
**MEASUREMENT RESULT: "GM1807206069_red"**

7/12/2018 8:23PM

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
51.340000	23.80	-8.8	40.0	16.2	QP	100.0	7.00	VERTICAL
64.920000	24.60	-11.4	40.0	15.4	QP	100.0	0.00	VERTICAL
125.060000	18.70	-12.9	43.5	24.8	QP	100.0	24.00	VERTICAL
301.600000	21.30	-7.2	46.0	24.7	QP	100.0	122.00	VERTICAL
530.520000	25.70	-1.1	46.0	20.3	QP	100.0	249.00	VERTICAL
893.300000	35.10	6.6	46.0	10.9	QP	100.0	7.00	VERTICAL

Polarization:

Horizontal

**MEASUREMENT RESULT: "GM1807206070_red"**

7/12/2018 8:27PM

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
47.460000	20.50	-8.8	40.0	19.5	QP	300.0	141.00	HORIZONTAL
64.920000	18.60	-11.4	40.0	21.4	QP	300.0	141.00	HORIZONTAL
148.340000	24.90	-13.8	43.5	18.6	QP	300.0	336.00	HORIZONTAL
276.380000	23.00	-7.9	46.0	23.0	QP	100.0	106.00	HORIZONTAL
542.160000	27.10	-0.9	46.0	18.9	QP	100.0	211.00	HORIZONTAL
866.140000	35.30	5.9	46.0	10.7	QP	100.0	286.00	HORIZONTAL

➤ 1 GHz ~ 25 GHz

802.11b					CH01				
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
1195.05	37.37	26.26	4.65	37.23	31.05	74.00	-42.95	Vertical	Peak
3120.06	36.02	28.80	7.62	37.47	34.97	74.00	-39.03	Vertical	Peak
5099.49	32.93	31.90	9.75	35.18	39.40	74.00	-34.60	Vertical	Peak
6527.71	32.00	34.06	11.23	33.63	43.66	74.00	-30.34	Vertical	Peak
3135.99	35.69	28.80	7.64	37.45	34.68	74.00	-39.32	Horizontal	Peak
4278.06	34.36	30.16	9.01	36.49	37.04	74.00	-36.96	Horizontal	Peak
5821.21	32.33	32.14	10.60	34.24	40.83	74.00	-33.17	Horizontal	Peak
7470.56	31.90	36.16	12.30	33.07	47.29	74.00	-26.71	Horizontal	Peak

802.11b					CH06				
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
3096.33	36.40	28.79	7.60	37.49	35.30	74.00	-38.70	Vertical	Peak
5060.69	32.84	31.74	9.72	35.26	39.04	74.00	-34.96	Vertical	Peak
5762.24	34.14	31.91	10.53	34.28	42.30	74.00	-31.70	Vertical	Peak
7432.62	31.75	36.23	12.18	33.13	47.03	74.00	-26.97	Vertical	Peak
2118.97	35.56	26.85	6.37	37.60	31.18	74.00	-42.82	Horizontal	Peak
3176.16	35.76	28.80	7.69	37.42	34.83	74.00	-39.17	Horizontal	Peak
5574.67	33.36	31.83	10.25	34.38	41.06	74.00	-32.94	Horizontal	Peak
6992.14	31.82	35.25	11.84	33.88	45.03	74.00	-28.97	Horizontal	Peak

802.11b					CH11				
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
1585.25	36.47	25.03	5.53	37.17	29.86	74.00	-44.14	Vertical	Peak
3498.74	35.12	28.99	8.11	37.14	35.08	74.00	-38.92	Vertical	Peak
4920.96	32.60	31.42	9.62	35.52	38.12	74.00	-35.88	Vertical	Peak
7376.08	32.81	36.30	12.04	33.23	47.92	74.00	-26.08	Vertical	Peak
2140.66	34.60	27.03	6.39	37.60	30.42	74.00	-43.58	Horizontal	Peak
3700.26	35.58	29.30	8.39	36.98	36.29	74.00	-37.71	Horizontal	Peak
5086.52	32.71	31.85	9.74	35.21	39.09	74.00	-34.91	Horizontal	Peak
6696.01	31.85	34.20	11.48	33.72	43.81	74.00	-30.19	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)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1257.47	35.77	26.24	4.76	37.19	29.58	74.00	-44.42	Vertical	Peak
3184.25	36.29	28.80	7.70	37.41	35.38	74.00	-38.62	Vertical	Peak
5821.21	31.45	32.14	10.60	34.24	39.95	74.00	-34.05	Vertical	Peak
7470.56	32.29	36.16	12.30	33.07	47.68	74.00	-26.32	Vertical	Peak
3096.33	35.71	28.79	7.60	37.49	34.61	74.00	-39.39	Horizontal	Peak
4065.71	34.64	29.83	8.83	36.69	36.61	74.00	-37.39	Horizontal	Peak
5617.41	33.18	31.76	10.30	34.35	40.89	74.00	-33.11	Horizontal	Peak
7961.43	33.09	36.95	12.49	33.07	49.46	74.00	-24.54	Horizontal	Peak

802.11g					CH06				
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
1228.98	36.02	26.27	4.71	37.21	29.79	74.00	-44.21	Vertical	Peak
3903.44	34.86	29.70	8.64	36.83	36.37	74.00	-37.63	Vertical	Peak
5073.59	32.35	31.80	9.73	35.23	38.65	74.00	-35.35	Vertical	Peak
7470.56	32.13	36.16	12.30	33.07	47.52	74.00	-26.48	Vertical	Peak
1741.81	35.87	25.29	5.85	37.35	29.66	74.00	-44.34	Horizontal	Peak
3026.20	35.11	28.65	7.51	37.56	33.71	74.00	-40.29	Horizontal	Peak
4582.42	32.50	30.87	9.43	36.13	36.67	74.00	-37.33	Horizontal	Peak
7451.57	32.24	36.20	12.24	33.10	47.58	74.00	-26.42	Horizontal	Peak

802.11g					CH11				
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
1525.86	36.10	25.56	5.36	37.10	29.92	74.00	-44.08	Vertical	Peak
3634.91	35.85	29.30	8.31	37.03	36.43	74.00	-37.57	Vertical	Peak
4933.50	33.51	31.43	9.63	35.50	39.07	74.00	-34.93	Vertical	Peak
7489.60	32.79	36.12	12.36	33.04	48.23	74.00	-25.77	Vertical	Peak
1545.41	36.73	25.38	5.41	37.12	30.40	74.00	-43.60	Horizontal	Peak
3151.99	35.40	28.80	7.66	37.44	34.42	74.00	-39.58	Horizontal	Peak
5393.22	33.07	31.49	10.12	34.62	40.06	74.00	-33.94	Horizontal	Peak
7357.33	32.06	36.30	12.03	33.26	47.13	74.00	-26.87	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(HT20)					CH01				
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
3192.37	35.64	28.80	7.71	37.40	34.75	74.00	-39.25	Vertical	Peak
4536.00	33.61	30.77	9.35	36.22	37.51	74.00	-36.49	Vertical	Peak
5560.50	32.52	31.84	10.24	34.39	40.21	74.00	-33.79	Vertical	Peak
7357.33	31.63	36.30	12.03	33.26	46.70	74.00	-27.30	Vertical	Peak
1127.09	38.68	25.72	4.50	37.27	31.63	74.00	-42.37	Horizontal	Peak
3662.78	35.25	29.30	8.34	37.01	35.88	74.00	-38.12	Horizontal	Peak
5151.68	32.83	31.69	9.79	35.08	39.23	74.00	-34.77	Horizontal	Peak
6527.71	32.28	34.06	11.23	33.63	43.94	74.00	-30.06	Horizontal	Peak

802.11n(HT20)					CH06				
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
1153.21	37.62	25.93	4.55	37.25	30.85	74.00	-43.15	Vertical	Peak
3644.18	34.21	29.30	8.32	37.03	34.80	74.00	-39.20	Vertical	Peak
5732.97	32.67	31.77	10.48	34.29	40.63	74.00	-33.37	Vertical	Peak
6992.14	32.00	35.25	11.84	33.88	45.21	74.00	-28.79	Vertical	Peak
1135.73	37.93	25.79	4.52	37.26	30.98	74.00	-43.02	Horizontal	Peak
3588.94	35.25	29.27	8.25	37.07	35.70	74.00	-38.30	Horizontal	Peak
5393.22	32.11	31.49	10.12	34.62	39.10	74.00	-34.90	Horizontal	Peak
6611.33	31.77	34.20	11.37	33.68	43.66	74.00	-30.34	Horizontal	Peak

802.11n(HT20)					CH11				
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
1680.83	35.93	25.14	5.73	37.28	29.52	74.00	-44.48	Vertical	Peak
3795.66	34.31	29.59	8.50	36.91	35.49	74.00	-38.51	Vertical	Peak
5956.11	32.95	32.41	10.65	34.17	41.84	74.00	-32.16	Vertical	Peak
7840.75	31.55	36.35	13.06	33.05	47.91	74.00	-26.09	Vertical	Peak
1267.10	35.65	26.23	4.77	37.19	29.46	74.00	-44.54	Horizontal	Peak
3274.67	35.75	28.35	7.81	37.33	34.58	74.00	-39.42	Horizontal	Peak
5151.68	32.46	31.69	9.79	35.08	38.86	74.00	-35.14	Horizontal	Peak
6494.56	31.80	33.96	11.16	33.63	43.29	74.00	-30.71	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)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1689.41	35.62	25.17	5.74	37.29	29.24	74.00	-44.76	Vertical	Peak
3463.29	34.39	28.71	8.06	37.17	33.99	74.00	-40.01	Vertical	Peak
4834.05	32.71	31.53	9.56	35.67	38.13	74.00	-35.87	Vertical	Peak
7099.75	31.11	35.60	11.85	33.70	44.86	74.00	-29.14	Vertical	Peak
1270.33	36.75	26.23	4.78	37.18	30.58	74.00	-43.42	Horizontal	Peak
3625.67	35.73	29.30	8.30	37.04	36.29	74.00	-37.71	Horizontal	Peak
4772.91	33.50	31.49	9.53	35.78	38.74	74.00	-35.26	Horizontal	Peak
7547.01	31.15	36.15	12.55	33.02	46.83	74.00	-27.17	Horizontal	Peak

802.11n(HT40)					CH06				
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
1746.25	36.33	25.29	5.86	37.35	30.13	74.00	-43.87	Vertical	Peak
3049.39	35.53	28.70	7.54	37.53	34.24	74.00	-39.76	Vertical	Peak
4354.97	34.39	30.37	9.09	36.42	37.43	74.00	-36.57	Vertical	Peak
7319.96	32.28	36.30	11.99	33.32	47.25	74.00	-26.75	Vertical	Peak
3018.50	34.54	28.64	7.50	37.56	33.12	74.00	-40.88	Horizontal	Peak
4321.84	34.15	30.27	9.06	36.45	37.03	74.00	-36.97	Horizontal	Peak
5806.41	31.09	32.11	10.59	34.25	39.54	74.00	-34.46	Horizontal	Peak
7099.75	30.99	35.60	11.85	33.70	44.74	74.00	-29.26	Horizontal	Peak

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
1204.21	36.77	26.30	4.67	37.22	30.52	74.00	-43.48	Vertical	Peak
3112.13	35.93	28.80	7.61	37.48	34.86	74.00	-39.14	Vertical	Peak
4858.72	33.63	31.48	9.58	35.63	39.06	74.00	-34.94	Vertical	Peak
6219.51	31.75	32.94	11.01	33.91	41.79	74.00	-32.21	Vertical	Peak
1737.38	35.43	25.28	5.84	37.34	29.21	74.00	-44.79	Horizontal	Peak
3863.90	34.58	29.66	8.59	36.86	35.97	74.00	-38.03	Horizontal	Peak
5271.06	33.36	31.36	9.94	34.85	39.81	74.00	-34.19	Horizontal	Peak
7338.62	31.76	36.30	12.01	33.29	46.78	74.00	-27.22	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.

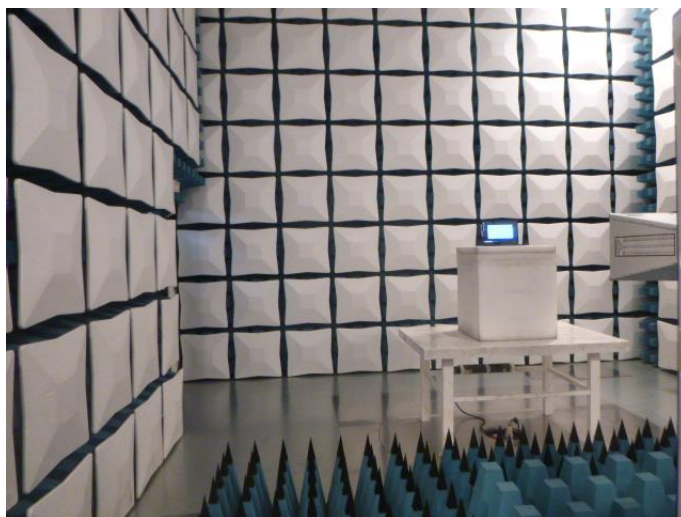
6. TEST SETUP PHOTOS

Conducted Emissions



Radiated Emissions

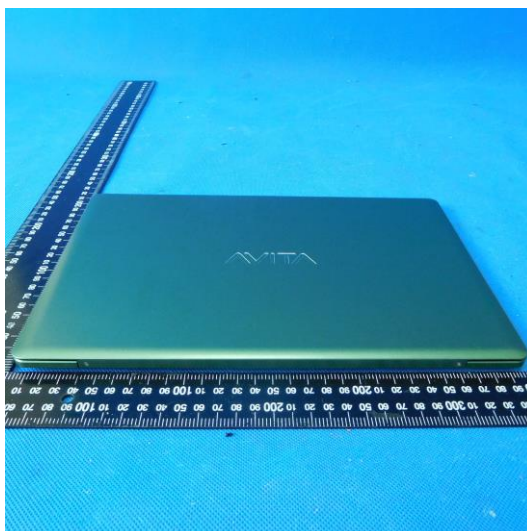
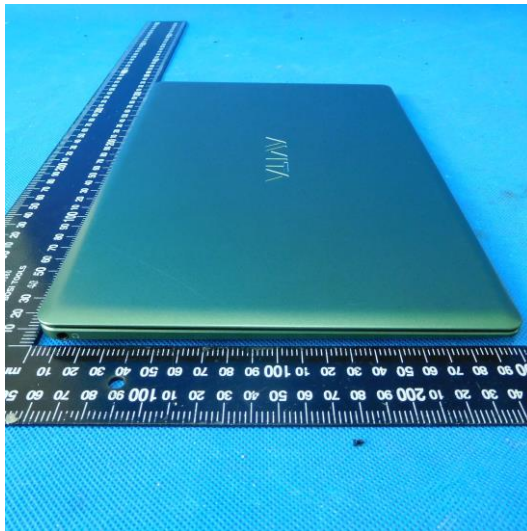
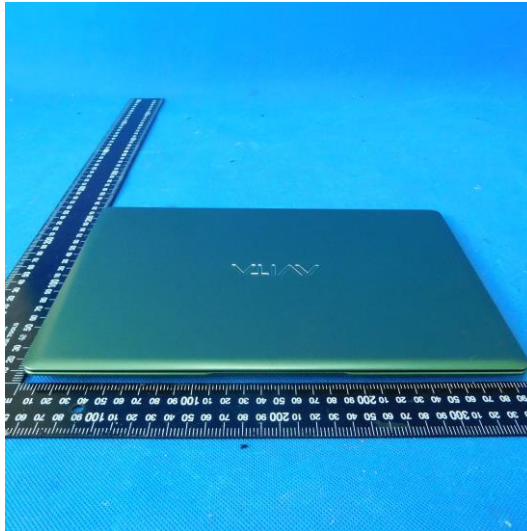


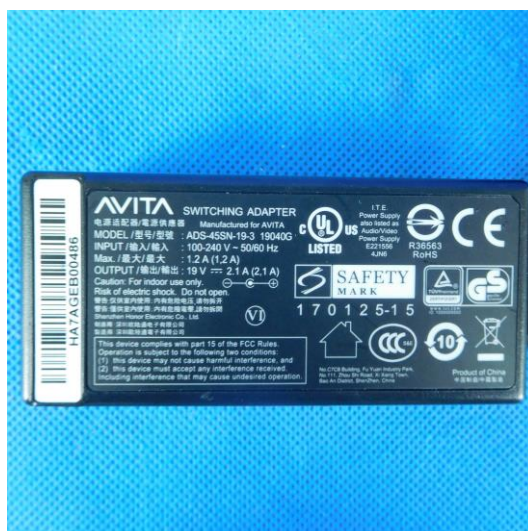
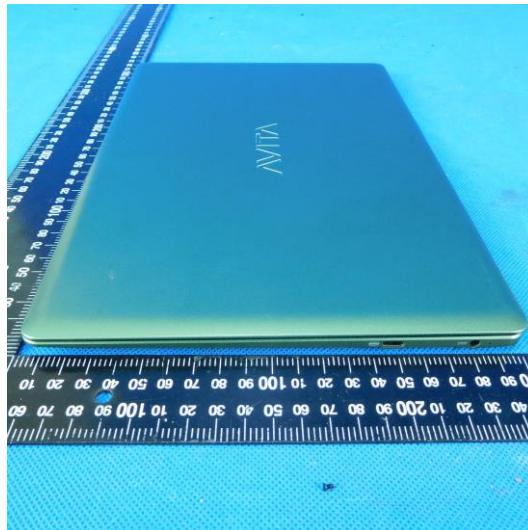


7. EXTERNAL AND INTERNAL PHOTOS

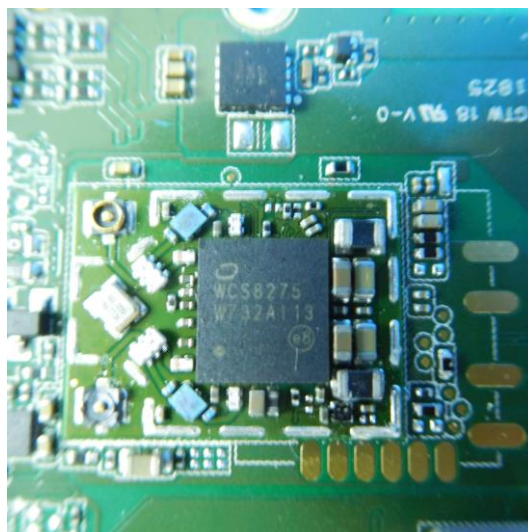
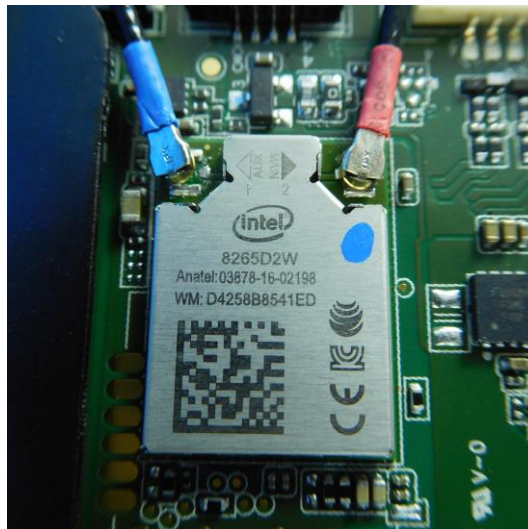
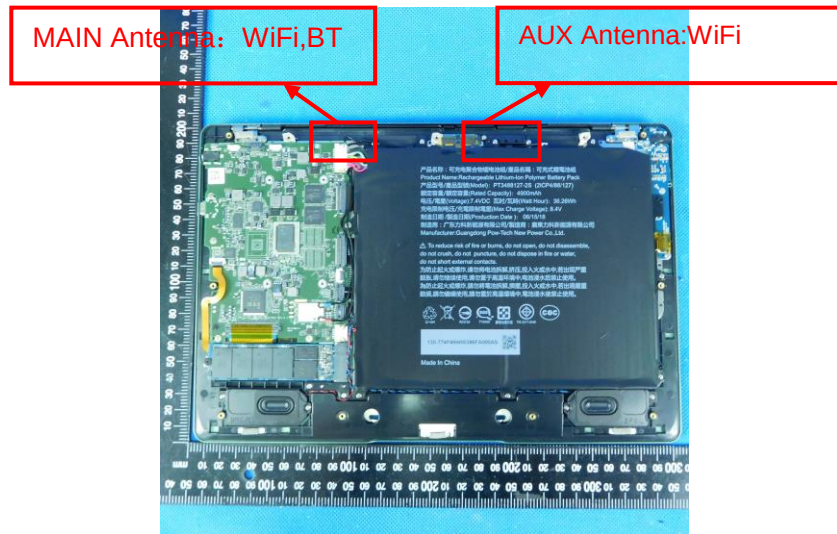
EXTERNAL PHOTOS

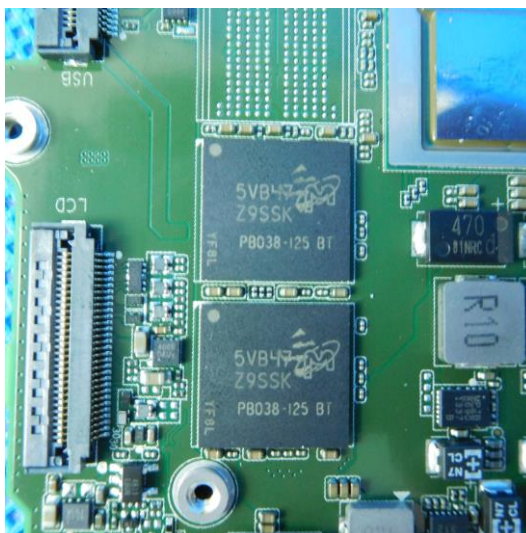
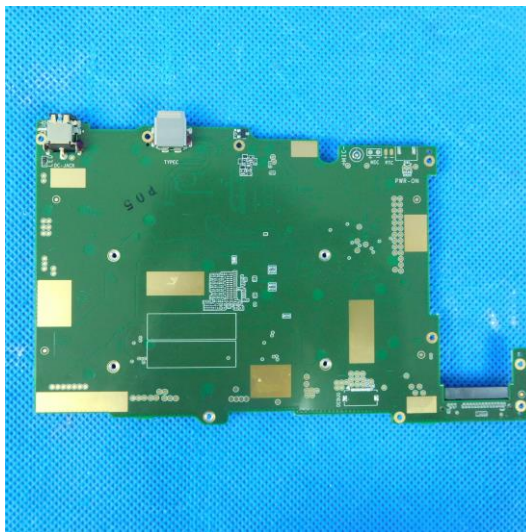


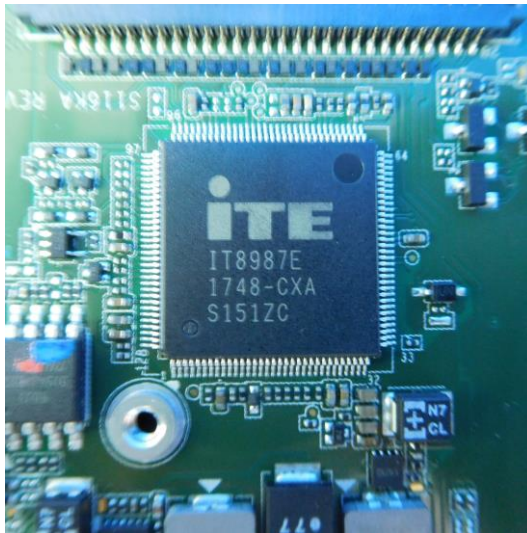


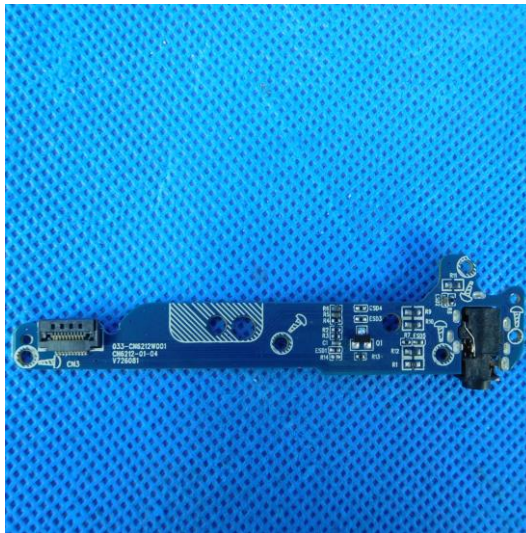


INTERNAL PHOTOS









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