



TEST REPORT

Report Reference No...... : **TRE1803005302** R/C.....: 12379

FCC ID..... : **2A0OFS601**

Applicant's name..... : **Shenzhen Two Monkey technology co. Ltd.**

Address..... : Room 612, Building D, SDG Information Port, No.2 Kefeng Road, Nanshan District, Shenzhen, Guangdong, China

Manufacturer..... : Shenzhen Two Monkey technology co. Ltd.

Address..... : Room 612, Building D, SDG Information Port, No.2 Kefeng Road, Nanshan District, Shenzhen, Guangdong, China

Test item description : **Translating Machine**

Trade Mark : DOSMONO

Model/Type reference..... : DOSMONO S601

Listed Model(s) : -

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

Date of receipt of test sample..... : Mar.07,2018

Date of testing..... : Mar.07,2018- Mar.20,2018

Date of issue..... : Mar.21,2018

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

Compiled by
(position+printedname+signature).... : File administrators Candy Liu

Supervised by
(position+printedname+signature)..... : Project Engineer Edward Pan

Approved by
(position+printedname+signature)..... : RF Manager 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
00	Mar.21,2018	Original

2. TEST DESCRIPTION

Test Item	FCC Rule	Result	Test Engineer
Antenna requirement	15.203/15.247(c)	PASS	Baozhu hu
Line Conducted Emissions (AC Main)	15.207	PASS	Alex Guo
Conducted Peak Output Power	15.247(b)(3)	PASS	Baozhu hu
Power Spectral Density	15.247(e)	PASS	Baozhu hu
6dB Bandwidth	15.247(a)(2)	PASS	Baozhu hu
Restricted band	15.247(d)/15.205	PASS	Baozhu hu
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:	Shenzhen Two Monkey technology co. Ltd.
Address:	Room 612, Building D, SDG Information Port, No.2 Kefeng Road, Nanshan District, Shenzhen, Guangdong, China
Manufacturer:	Shenzhen Two Monkey technology co. Ltd.
Address:	Room 612, Building D, SDG Information Port, No.2 Kefeng Road, Nanshan District, Shenzhen, Guangdong, China

3.2. Product Description

Name of EUT:	Translating Machine
Trade Mark:	DOSMONO
Model No.:	DOSMONO S601
Listed Model(s):	-
IMEI:	Conducted: 866811030977840 Radiated: 866811030977824
Power supply:	DC 3.8V
Adapter information:	Input:100-240Va.c.,50/60Hz,0.2A Output: 5Vd.c.,1.0A
Hardware version:	YP1090-V1.1
Software version:	V1.1.0
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:	PIFA Antenna
Antenna gain:	1.00dBi

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	EMI Test Receiver	R&S	ESCI	101247	11/11/2017	11/10/2018
2	Loop Antenna	R&S	HFH2-Z2	100020	11/20/2017	11/19/2018
3	Ultra-Broadband Antenna	SCHWARZBECK	VULB9163	538	4/5/2017	4/4/2020
4	Preamplifier	SCHWARZBECK	BBV 9743	9743-0022	10/18/2017	10/17/2018
5	RF Connection Cable	HUBER+SUHNER	RE-7-FL	N/A	11/21/2017	11/20/2018
6	EMI Test Software	R&S	ESK1	N/A	N/A	N/A
7	Spectrum Analyzer	R&S	FSP40	100597	11/11/2017	11/10/2018
8	Horn Antenna	SCHWARZBECK	9120D	1011	3/27/2017	3/26/2020
9	Horn Antenna	SCHWARZBECK	BBHA9170	25841	3/27/2017	3/26/2018
10	Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-248	10/18/2017	10/17/2018
11	High pass filter	Compliance Direction systems	BSU-6	34202	11/11/2017	11/10/2018
12	RF Connection Cable	HUBER+SUHNER	RE-7-FH	N/A	11/21/2017	11/20/2018
13	EMI Test Software	Audix	E3	N/A	N/A	N/A
14	Turntable	MATURO	TT2.0	N/A	N/A	N/A
15	Antenna Mast	MATURO	TAM-4.0-P	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)

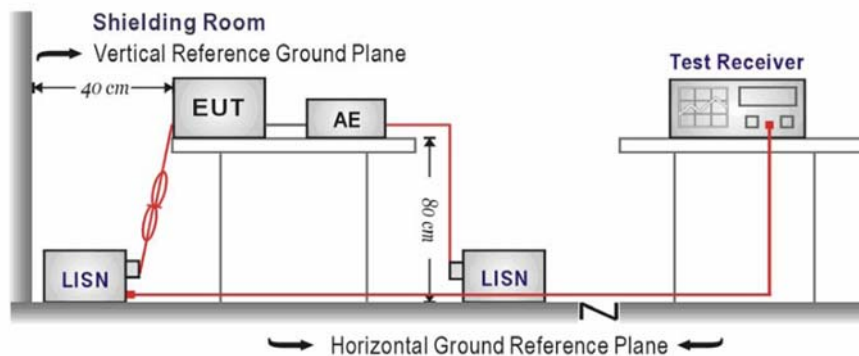
LIMIT

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

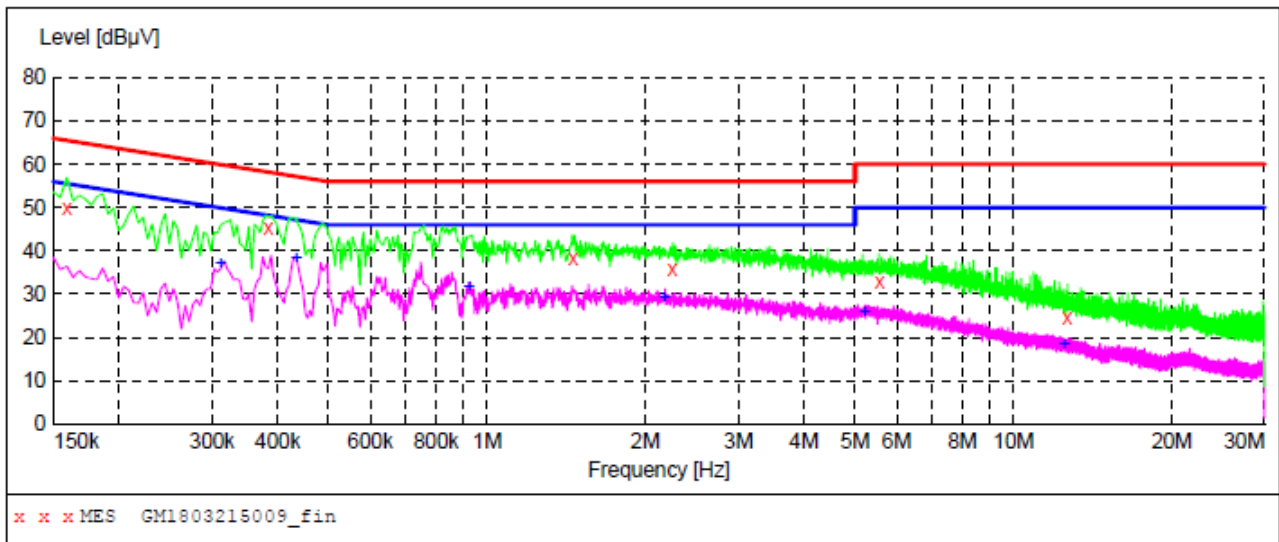
☒ Passed ☐ Not Applicable

Note:

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

Test Line:

L

**MEASUREMENT RESULT: "GM1803215009_fin"**

3/21/2018 9:39AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.159000	50.00	10.0	66	15.5	QP	L1	GND
0.384000	45.10	9.9	58	13.1	QP	L1	GND
1.455000	38.30	10.1	56	17.7	QP	L1	GND
2.247000	35.60	10.1	56	20.4	QP	L1	GND
5.572500	32.80	10.2	60	27.2	QP	L1	GND
12.642000	24.60	10.5	60	35.4	QP	L1	GND

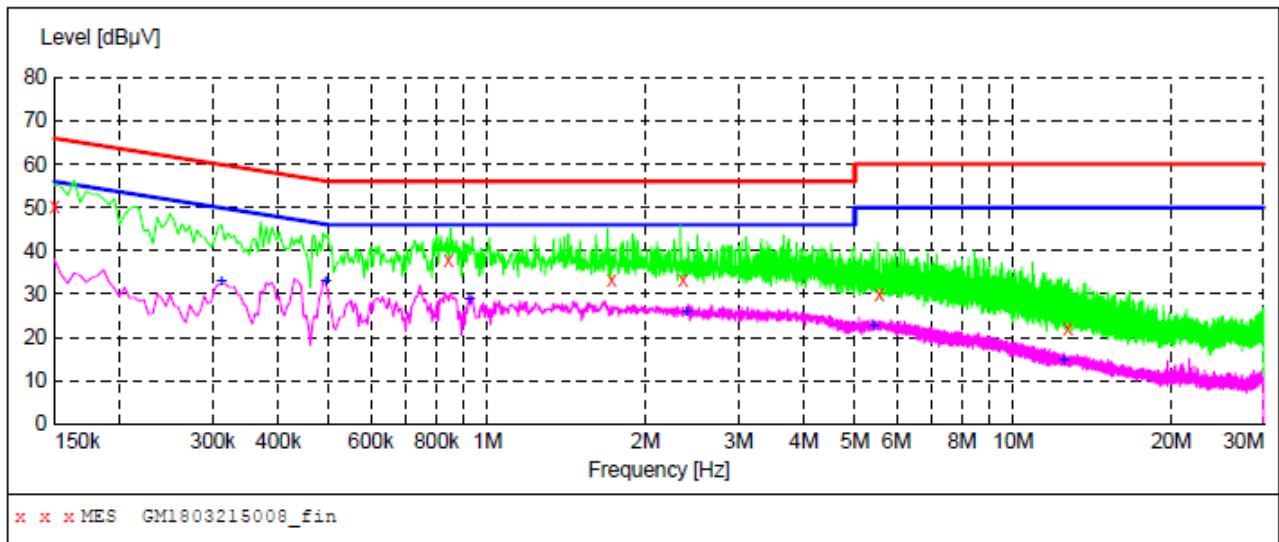
MEASUREMENT RESULT: "GM1803215009_fin2"

3/21/2018 9:39AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.312000	36.90	9.9	50	13.0	AV	L1	GND
0.433500	38.30	9.9	47	8.9	AV	L1	GND
0.924000	31.60	10.0	46	14.4	AV	L1	GND
2.170500	29.00	10.1	46	17.0	AV	L1	GND
5.203500	25.90	10.2	50	24.1	AV	L1	GND
12.471000	18.40	10.5	50	31.6	AV	L1	GND

Test Line:

N

**MEASUREMENT RESULT: "GM1803215008_fin"**

3/21/2018 9:36AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.150000	50.20	10.0	66	15.8	QP	N	GND
0.843000	38.00	10.0	56	18.0	QP	N	GND
1.720500	33.10	10.1	56	22.9	QP	N	GND
2.355000	33.40	10.1	56	22.6	QP	N	GND
5.563500	29.90	10.2	60	30.1	QP	N	GND
12.727500	22.10	10.5	60	37.9	QP	N	GND

MEASUREMENT RESULT: "GM1803215008_fin2"

3/21/2018 9:36AM

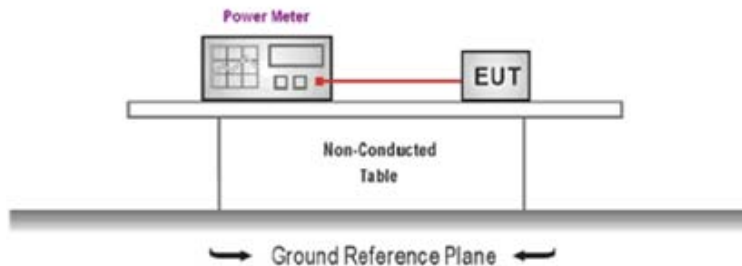
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.312000	32.80	9.9	50	17.1	AV	N	GND
0.492000	32.70	9.9	46	13.4	AV	N	GND
0.924000	28.70	10.0	46	17.3	AV	N	GND
2.391000	25.80	10.1	46	20.2	AV	N	GND
5.433000	22.70	10.2	50	27.3	AV	N	GND
12.484500	14.60	10.5	50	35.4	AV	N	GND

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

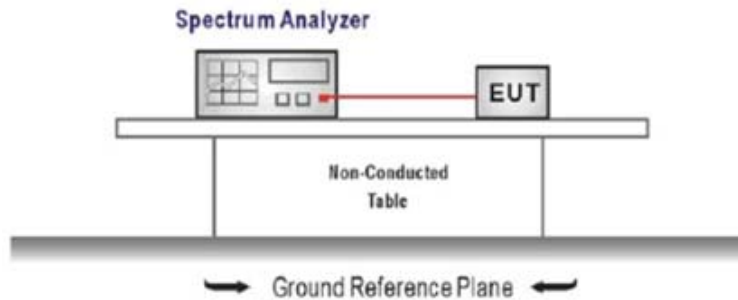
Type	Channel	Output power (dBm)	Limit (dBm)	Result
802.11b	01	12.28	≤30.00	Pass
	06	11.56		
	11	11.07		
802.11g	01	11.67	≤30.00	Pass
	06	11.19		
	11	10.25		
802.11n(HT20)	01	10.68	≤30.00	Pass
	06	10.41		
	11	9.48		
802.11n(HT40)	03	10.24	≤30.00	Pass
	06	10.15		
	09	10.18		

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

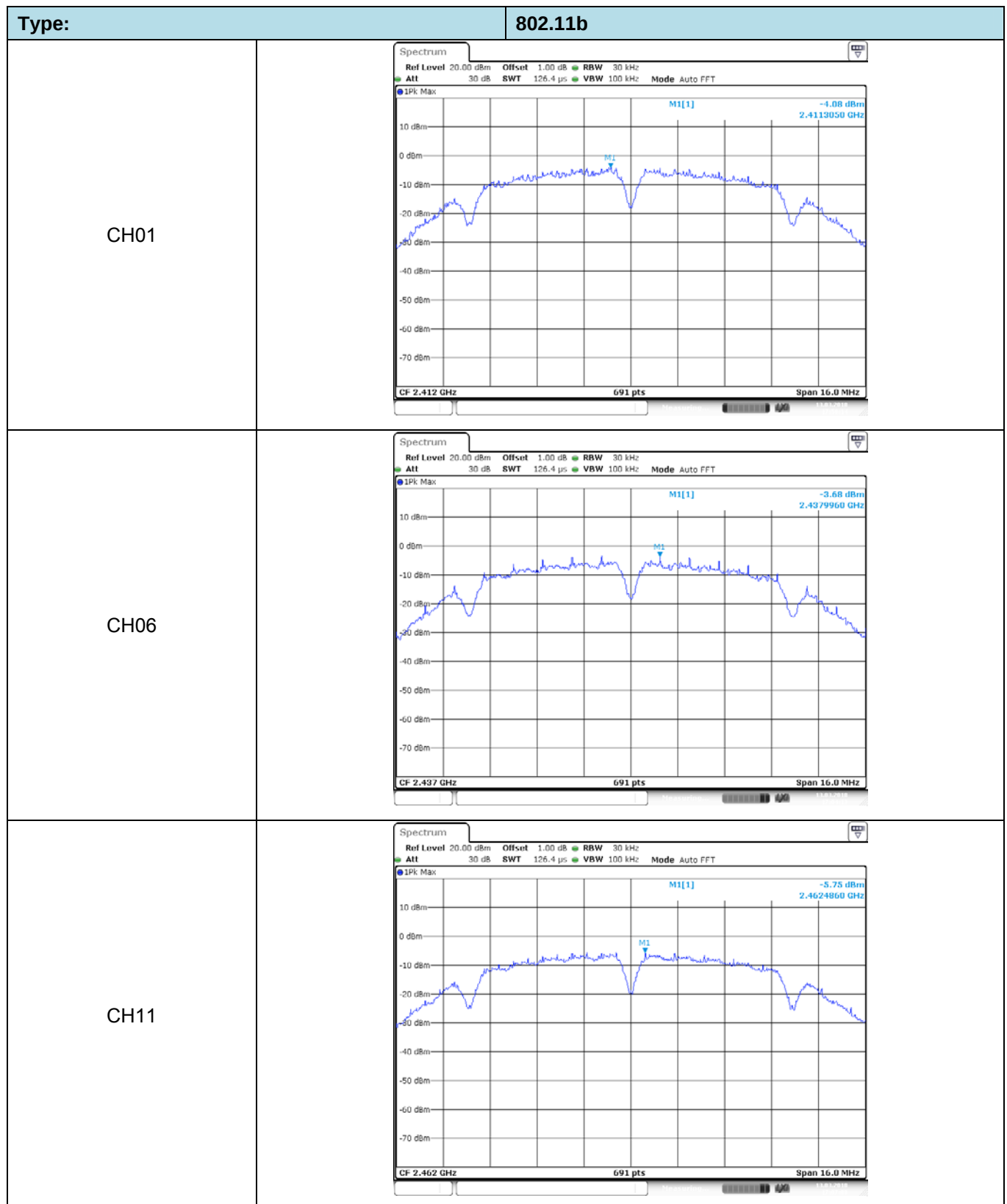
TEST RESULTS

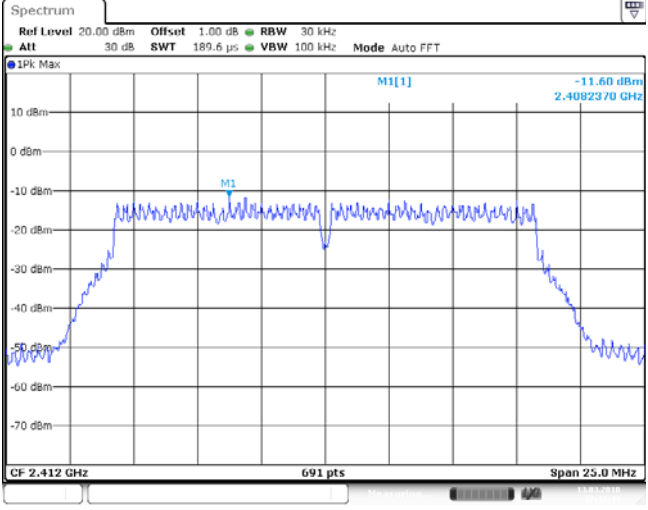
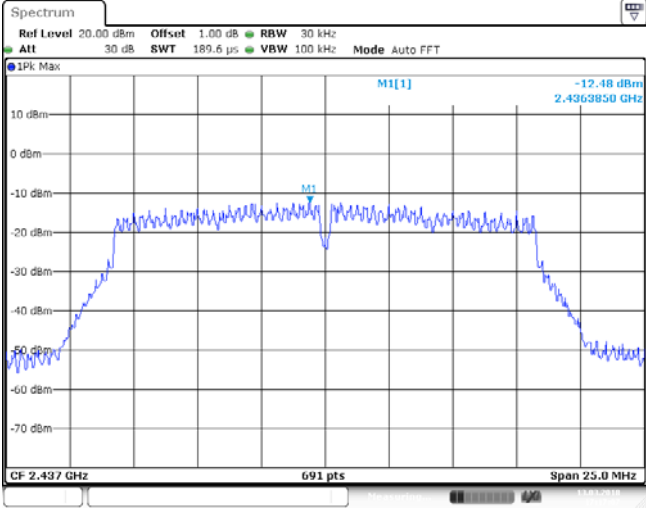
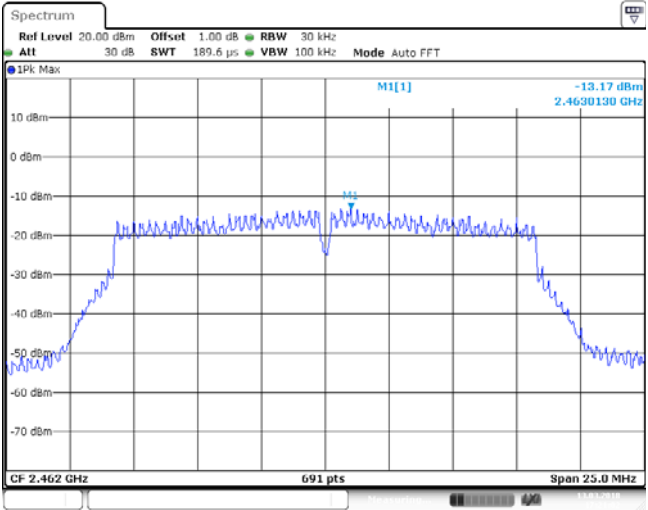
☒ Passed ☐ Not Applicable

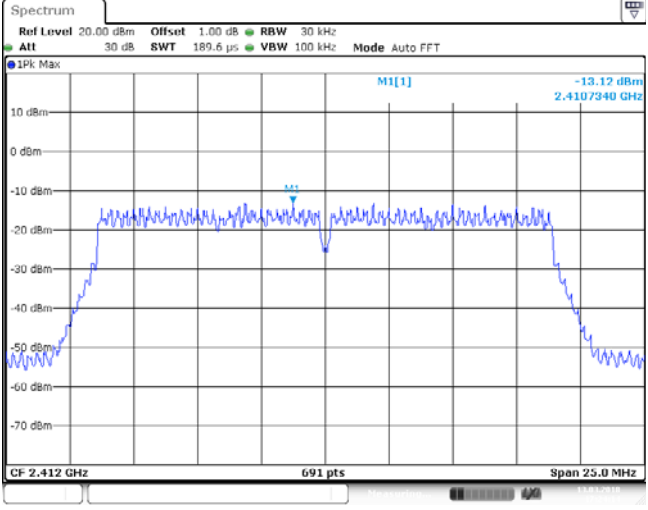
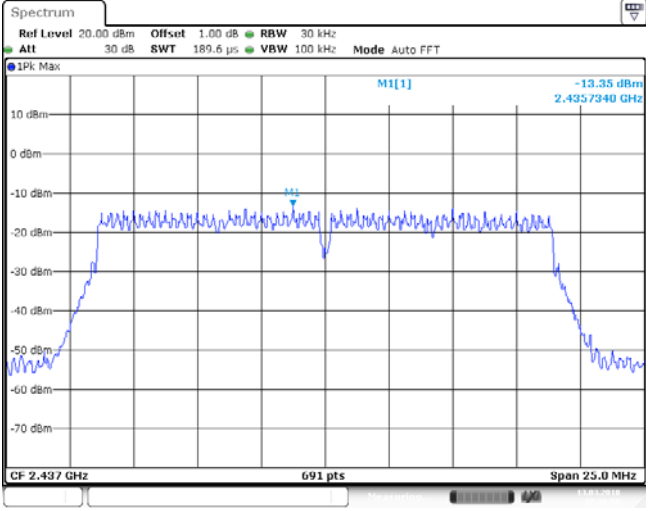
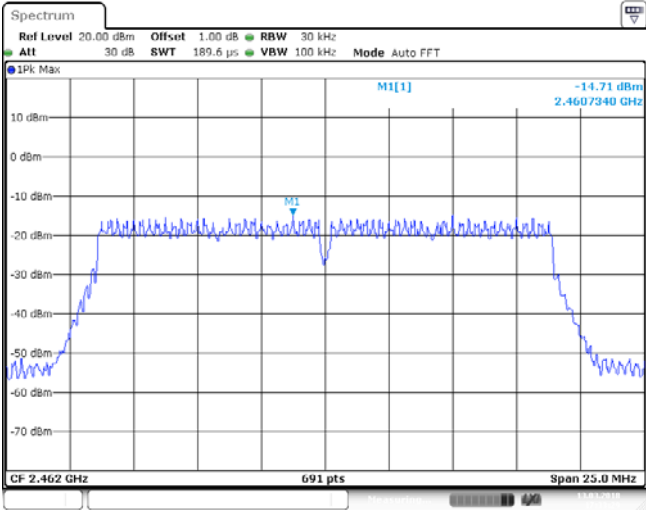
Type	Channel	Power Spectral Density (dBm/30KHz)	Power Spectral Density (dBm/3KHz)	Limit (dBm/3KHz)	Result
802.11b	01	-4.08	-14.08	≤8.00	Pass
	06	-3.68	-13.68		
	11	-5.75	-15.75		
802.11g	01	-11.60	-21.60	≤8.00	Pass
	06	-12.48	-22.48		
	11	-13.17	-23.17		
802.11n(HT20)	01	-13.12	-23.12	≤8.00	Pass
	06	-13.35	-23.35		
	11	-14.56	-24.56		
802.11n(HT40)	03	-16.81	-26.81	≤8.00	Pass
	06	-16.88	-26.88		
	09	-17.60	-27.60		

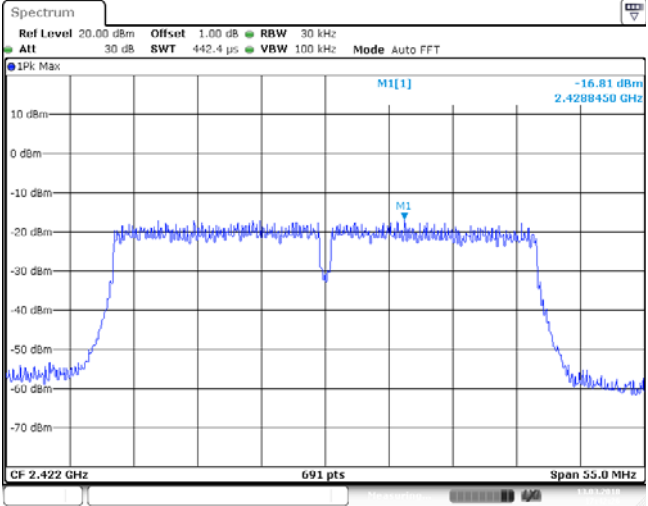
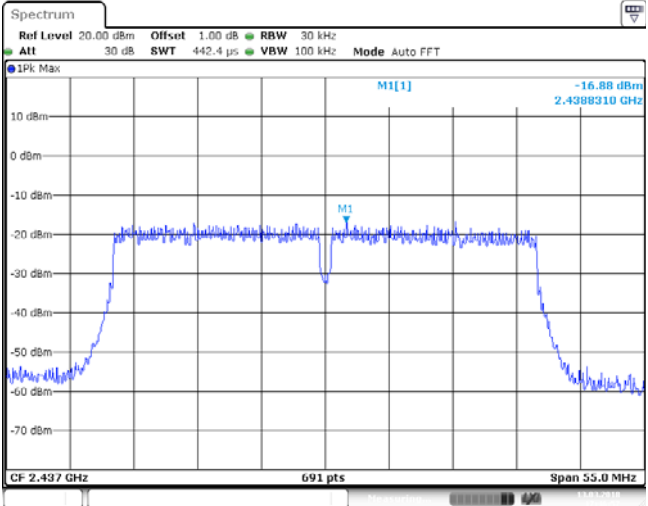
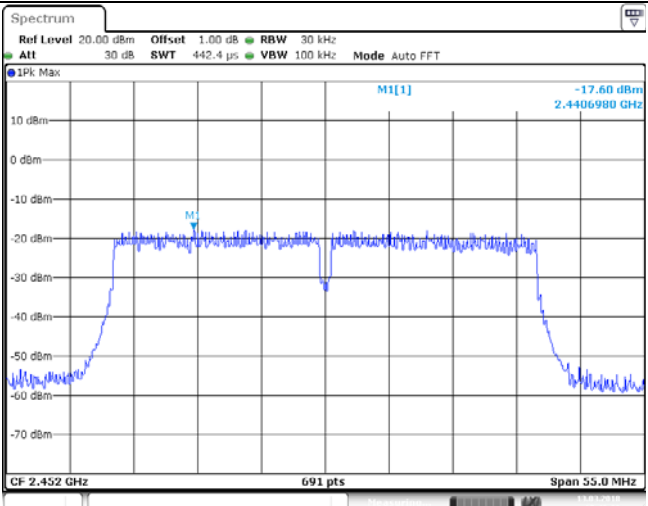
$\text{PSD}(3\text{KHz RBW}) = \text{PSD}(30\text{KHz RBW}) - 10 \cdot \log(30/3) = \text{PSD}(30\text{KHz RBW}) - 10$

Test plot as follows:



Type:	802.11g
CH01	
CH06	
CH11	

Type:	802.11n(HT20)
CH01	 Spectrum plot for CH01. The plot shows a signal at 2.4107340 GHz with a peak level of -13.12 dBm. The plot includes a noise floor and a clear signal peak. The x-axis is frequency in GHz, and the y-axis is power in dBm. The plot is titled 'Spectrum' and includes various parameters: Ref Level 20.00 dBm, Offset 1.00 dB, RBW 30 kHz, Att 30 dB, SWT 189.6 μs, VBW 100 kHz, Mode Auto FFT. The plot also shows a peak at 2.4107340 GHz with a level of -13.12 dBm. The plot is titled 'Spectrum' and includes various parameters: Ref Level 20.00 dBm, Offset 1.00 dB, RBW 30 kHz, Att 30 dB, SWT 189.6 μs, VBW 100 kHz, Mode Auto FFT. The plot also shows a peak at 2.4107340 GHz with a level of -13.12 dBm.
CH06	 Spectrum plot for CH06. The plot shows a signal at 2.4357340 GHz with a peak level of -13.35 dBm. The plot includes a noise floor and a clear signal peak. The x-axis is frequency in GHz, and the y-axis is power in dBm. The plot is titled 'Spectrum' and includes various parameters: Ref Level 20.00 dBm, Offset 1.00 dB, RBW 30 kHz, Att 30 dB, SWT 189.6 μs, VBW 100 kHz, Mode Auto FFT. The plot also shows a peak at 2.4357340 GHz with a level of -13.35 dBm. The plot is titled 'Spectrum' and includes various parameters: Ref Level 20.00 dBm, Offset 1.00 dB, RBW 30 kHz, Att 30 dB, SWT 189.6 μs, VBW 100 kHz, Mode Auto FFT. The plot also shows a peak at 2.4357340 GHz with a level of -13.35 dBm.
CH11	 Spectrum plot for CH11. The plot shows a signal at 2.4607340 GHz with a peak level of -14.71 dBm. The plot includes a noise floor and a clear signal peak. The x-axis is frequency in GHz, and the y-axis is power in dBm. The plot is titled 'Spectrum' and includes various parameters: Ref Level 20.00 dBm, Offset 1.00 dB, RBW 30 kHz, Att 30 dB, SWT 189.6 μs, VBW 100 kHz, Mode Auto FFT. The plot also shows a peak at 2.4607340 GHz with a level of -14.71 dBm. The plot is titled 'Spectrum' and includes various parameters: Ref Level 20.00 dBm, Offset 1.00 dB, RBW 30 kHz, Att 30 dB, SWT 189.6 μs, VBW 100 kHz, Mode Auto FFT. The plot also shows a peak at 2.4607340 GHz with a level of -14.71 dBm.

Type:	802.11n(HT40)
CH03	
CH06	
CH09	

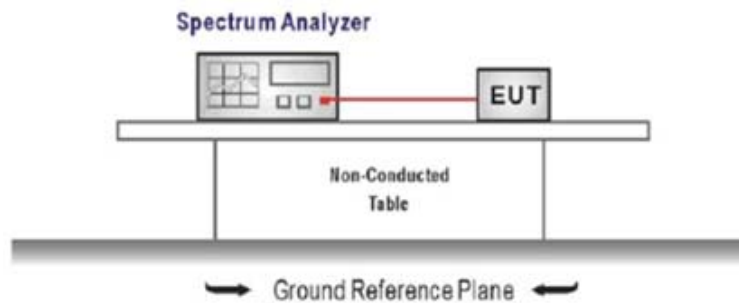
5.5. 6dB bandwidth

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 $\geq$ 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

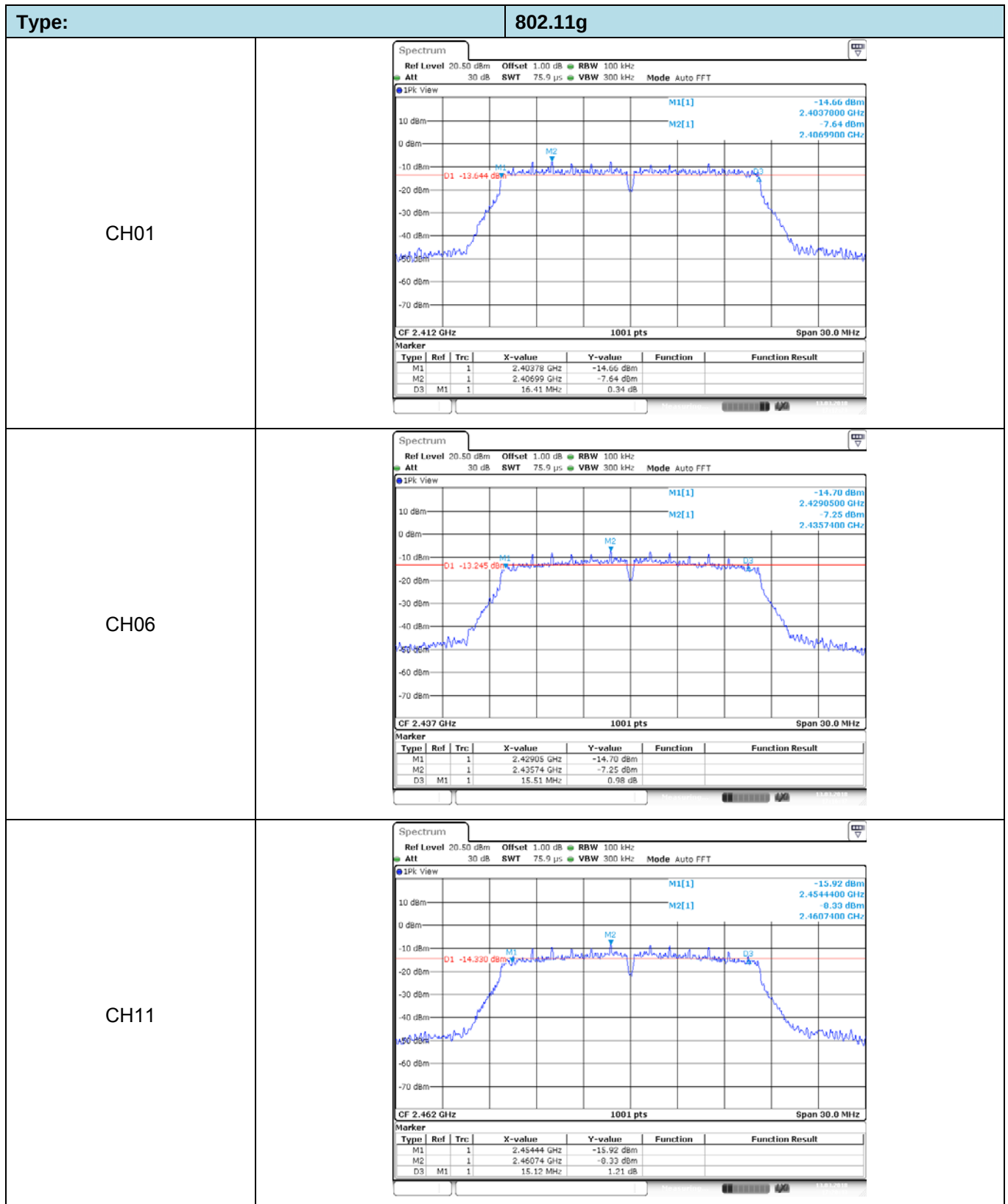
TEST RESULTS

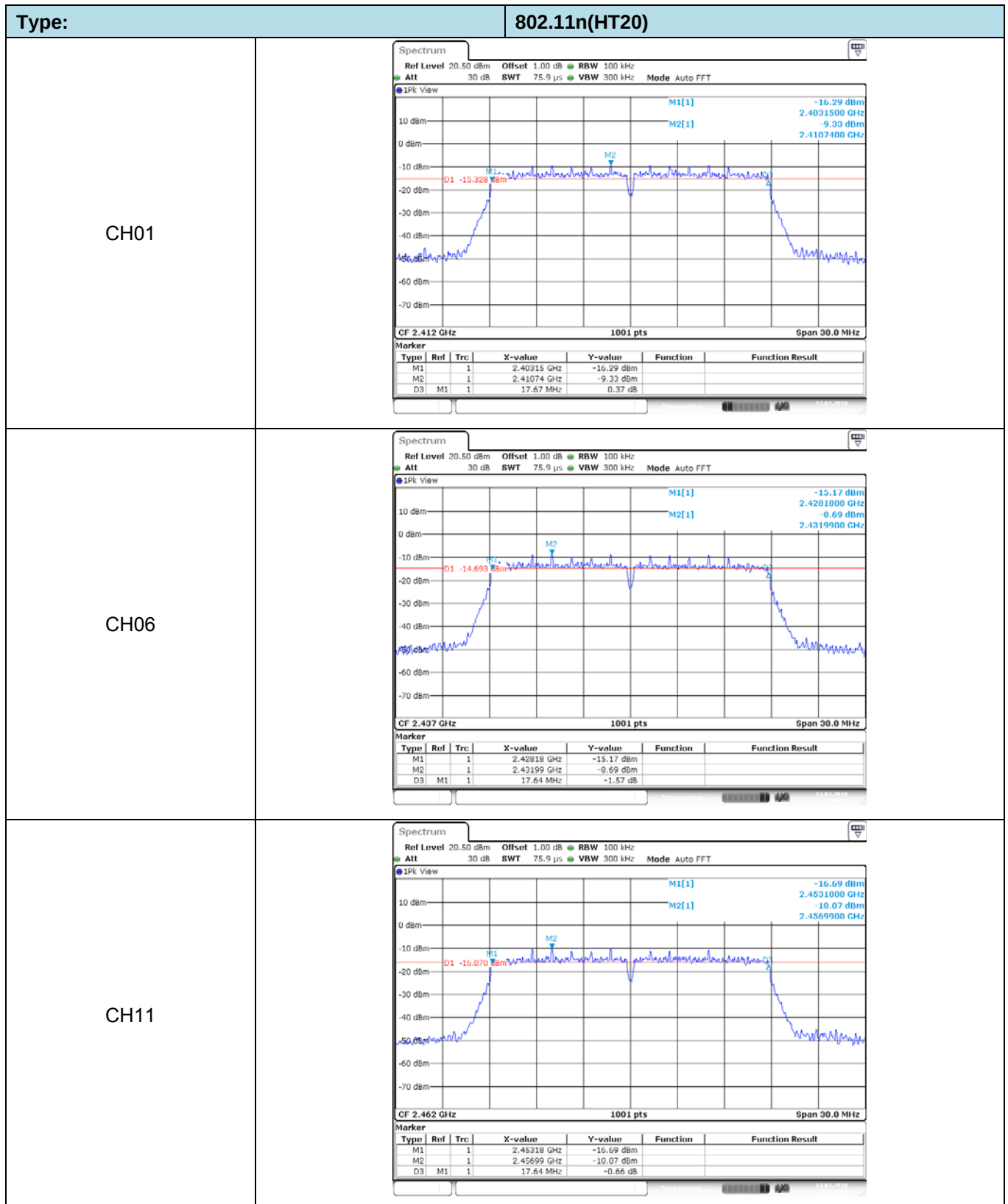
☒ Passed ☐ Not Applicable

Type	Channel	6dB Bandwidth (MHz)	Limit (kHz)	Result
802.11b	01	10.08	≥500	Pass
	06	9.60		
	11	9.60		
802.11g	01	16.41	≥500	Pass
	06	15.51		
	11	15.12		
802.11n(HT20)	01	17.67	≥500	Pass
	06	17.64		
	11	17.64		
802.11n(HT40)	03	35.64	≥500	Pass
	06	35.88		
	09	35.70		

Test plot as follows:

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 1Pk View M1[1] -5.73 dBm 2.4069600 GHz M2[1] 0.49 dBm 2.4109800 GHz D1 -5.515 dBm CF 2.412 GHz 1001 pts Span 30.0 MHz <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></td><td>1</td><td>2.40696 GHz</td><td>-5.73 dBm</td><td></td><td></td></tr><tr><td>M2</td><td></td><td>1</td><td>2.41099 GHz</td><td>0.49 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td>1</td><td>10.08 MHz</td><td>-0.73 dB</td><td></td><td></td></tr></table>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1		1	2.40696 GHz	-5.73 dBm			M2		1	2.41099 GHz	0.49 dBm			D3	M1	1	10.08 MHz	-0.73 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																							
M1		1	2.40696 GHz	-5.73 dBm																									
M2		1	2.41099 GHz	0.49 dBm																									
D3	M1	1	10.08 MHz	-0.73 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 1Pk View M1[1] -6.77 dBm 2.4319600 GHz M2[1] -0.59 dBm 2.4360100 GHz D1 -6.589 dBm CF 2.437 GHz 1001 pts Span 30.0 MHz <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></td><td>1</td><td>2.43196 GHz</td><td>-6.77 dBm</td><td></td><td></td></tr><tr><td>M2</td><td></td><td>1</td><td>2.43601 GHz</td><td>-0.59 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td>1</td><td>9.6 MHz</td><td>-0.54 dB</td><td></td><td></td></tr></table>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1		1	2.43196 GHz	-6.77 dBm			M2		1	2.43601 GHz	-0.59 dBm			D3	M1	1	9.6 MHz	-0.54 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																							
M1		1	2.43196 GHz	-6.77 dBm																									
M2		1	2.43601 GHz	-0.59 dBm																									
D3	M1	1	9.6 MHz	-0.54 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 1Pk View M1[1] -7.59 dBm 2.4574400 GHz M2[1] -1.20 dBm 2.4629900 GHz D1 -7.277 dBm CF 2.462 GHz 1001 pts Span 30.0 MHz <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></td><td>1</td><td>2.45744 GHz</td><td>-7.59 dBm</td><td></td><td></td></tr><tr><td>M2</td><td></td><td>1</td><td>2.46299 GHz</td><td>-1.20 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td>1</td><td>9.6 MHz</td><td>-0.18 dB</td><td></td><td></td></tr></table>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1		1	2.45744 GHz	-7.59 dBm			M2		1	2.46299 GHz	-1.20 dBm			D3	M1	1	9.6 MHz	-0.18 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																							
M1		1	2.45744 GHz	-7.59 dBm																									
M2		1	2.46299 GHz	-1.20 dBm																									
D3	M1	1	9.6 MHz	-0.18 dB																									





Type:	802.11n(HT40)																												
CH03	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 132.7 μs VBW 300 kHz Mode Auto FFT IPk View M1[1] -18.47 dBm 2.404000 GHz M2[1] -12.22 dBm 2.426980 GHz D1 -18.220 dBm CF 2.422 GHz 1001 pts Span 60.0 MHz 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></td><td>1</td><td>2.404 GHz</td><td>-18.47 dBm</td><td></td><td></td></tr><tr><td>M2</td><td></td><td>1</td><td>2.42698 GHz</td><td>-12.22 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td>1</td><td>35.64 MHz</td><td>-0.61 dB</td><td></td><td></td></tr></table>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1		1	2.404 GHz	-18.47 dBm			M2		1	2.42698 GHz	-12.22 dBm			D3	M1	1	35.64 MHz	-0.61 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																							
M1		1	2.404 GHz	-18.47 dBm																									
M2		1	2.42698 GHz	-12.22 dBm																									
D3	M1	1	35.64 MHz	-0.61 dB																									
CH06	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 132.7 μs VBW 300 kHz Mode Auto FFT IPk View M1[1] -20.87 dBm 2.418760 GHz M2[1] -12.31 dBm 2.434480 GHz D1 -18.310 dBm CF 2.437 GHz 1001 pts Span 60.0 MHz 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></td><td>1</td><td>2.41876 GHz</td><td>-20.87 dBm</td><td></td><td></td></tr><tr><td>M2</td><td></td><td>1</td><td>2.43448 GHz</td><td>-12.31 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td>1</td><td>35.88 MHz</td><td>1.99 dB</td><td></td><td></td></tr></table>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1		1	2.41876 GHz	-20.87 dBm			M2		1	2.43448 GHz	-12.31 dBm			D3	M1	1	35.88 MHz	1.99 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																							
M1		1	2.41876 GHz	-20.87 dBm																									
M2		1	2.43448 GHz	-12.31 dBm																									
D3	M1	1	35.88 MHz	1.99 dB																									
CH09	Spectrum Ref Level 20.50 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 132.7 μs VBW 300 kHz Mode Auto FFT IPk View M1[1] -18.73 dBm 2.433940 GHz M2[1] -12.51 dBm 2.449480 GHz D1 -18.508 dBm CF 2.452 GHz 1001 pts Span 60.0 MHz 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></td><td>1</td><td>2.43394 GHz</td><td>-18.73 dBm</td><td></td><td></td></tr><tr><td>M2</td><td></td><td>1</td><td>2.44948 GHz</td><td>-12.51 dBm</td><td></td><td></td></tr><tr><td>D3</td><td>M1</td><td>1</td><td>35.7 MHz</td><td>-1.77 dB</td><td></td><td></td></tr></table>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1		1	2.43394 GHz	-18.73 dBm			M2		1	2.44948 GHz	-12.51 dBm			D3	M1	1	35.7 MHz	-1.77 dB		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																							
M1		1	2.43394 GHz	-18.73 dBm																									
M2		1	2.44948 GHz	-12.51 dBm																									
D3	M1	1	35.7 MHz	-1.77 dB																									

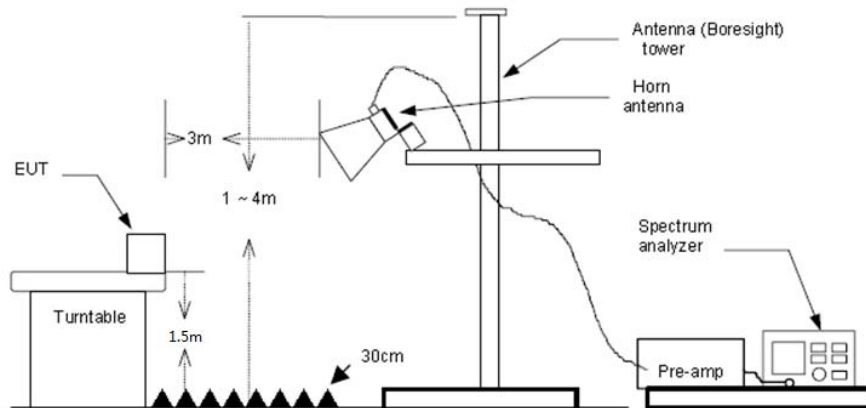
5.6. Restricted band

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

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	14.41	28.05	6.62	0.00	49.08	74.00	-24.92	Vertical	Peak
2390.01	13.90	27.65	6.75	0.00	48.30	74.00	-25.70	Vertical	Peak
2310.00	13.49	28.05	6.62	0.00	48.16	74.00	-25.84	Horizontal	Peak
2390.01	14.99	27.65	6.75	0.00	49.39	74.00	-24.61	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
2483.49	14.32	27.26	6.83	0.00	48.41	74.00	-25.59	Vertical	Peak
2500.00	12.80	27.20	6.84	0.00	46.84	74.00	-27.16	Vertical	Peak
2483.49	12.51	27.26	6.83	0.00	46.60	74.00	-27.40	Horizontal	Peak
2500.00	13.02	27.20	6.84	0.00	47.06	74.00	-26.94	Horizontal	Peak

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	14.27	28.05	6.62	0.00	48.94	74.00	-25.06	Vertical	Peak
2390.01	14.60	27.65	6.75	0.00	49.00	74.00	-25.00	Vertical	Peak
2310.00	13.25	28.05	6.62	0.00	47.92	74.00	-26.08	Horizontal	Peak
2390.01	13.89	27.65	6.75	0.00	48.29	74.00	-25.71	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
2483.49	13.57	27.26	6.83	0.00	47.66	74.00	-26.34	Vertical	Peak
2500.00	13.21	27.20	6.84	0.00	47.25	74.00	-26.75	Vertical	Peak
2483.49	13.73	27.26	6.83	0.00	47.82	74.00	-26.18	Horizontal	Peak
2500.00	12.74	27.20	6.84	0.00	46.78	74.00	-27.22	Horizontal	Peak

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	12.67	28.05	6.62	0.00	47.34	74.00	-26.66	Vertical	Peak
2390.01	13.97	27.65	6.75	0.00	48.37	74.00	-25.63	Vertical	Peak
2310.00	13.03	28.05	6.62	0.00	47.70	74.00	-26.30	Horizontal	Peak
2390.01	17.45	27.65	6.75	0.00	51.85	74.00	-22.15	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
2483.49	16.36	27.26	6.83	0.00	50.45	74.00	-23.55	Vertical	Peak
2500.00	14.82	27.20	6.84	0.00	48.86	74.00	-25.14	Vertical	Peak
2483.49	15.22	27.26	6.83	0.00	49.31	74.00	-24.69	Horizontal	Peak
2500.00	13.12	27.20	6.84	0.00	47.16	74.00	-26.84	Horizontal	Peak

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	13.20	28.05	6.62	0.00	47.87	74.00	-26.13	Vertical	Peak
2389.99	17.03	27.65	6.75	0.00	51.43	74.00	-22.57	Vertical	Peak
2310.00	13.53	28.05	6.62	0.00	48.20	74.00	-25.80	Horizontal	Peak
2389.99	13.65	27.65	6.75	0.00	48.05	74.00	-25.95	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
2483.50	16.60	27.26	6.83	0.00	50.69	74.00	-23.31	Vertical	Peak
2500.00	14.20	27.20	6.84	0.00	48.24	74.00	-25.76	Vertical	Peak
2483.50	17.00	27.26	6.83	0.00	51.09	74.00	-22.91	Horizontal	Peak
2500.00	13.97	27.20	6.84	0.00	48.01	74.00	-25.99	Horizontal	Peak

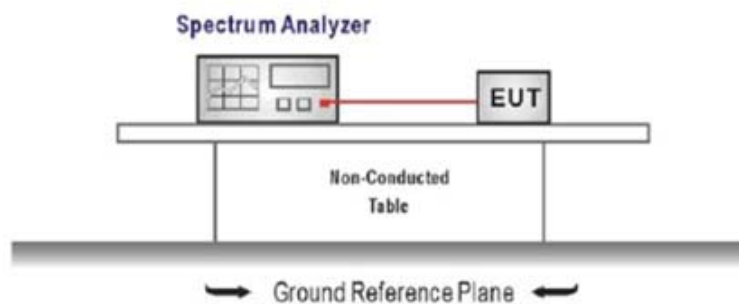
5.7. Band edge and Spurious Emissions (conducted)

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

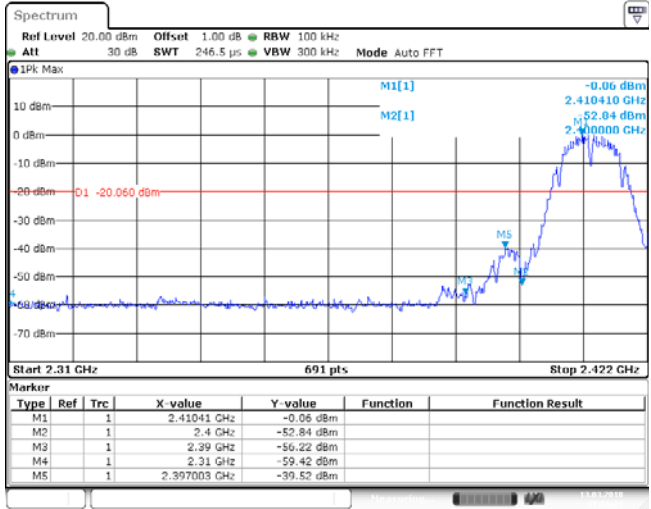
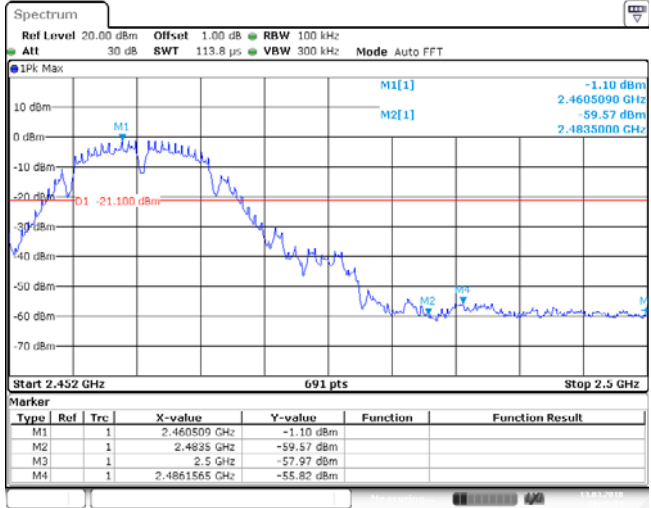
Note: the channel found to contain the maximum PSD level can be used to establish the reference level.
3. Emission level measurement
Set the center frequency and span to encompass frequency range to be measured
RBW = 100 kHz, VBW $\geq 3 \times$ RBW
Detector = peak, Sweep time = auto couple, Trace mode = 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.

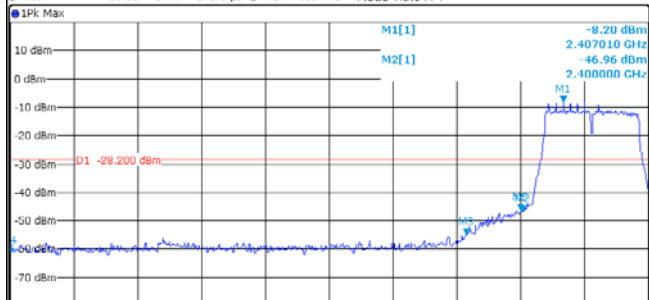
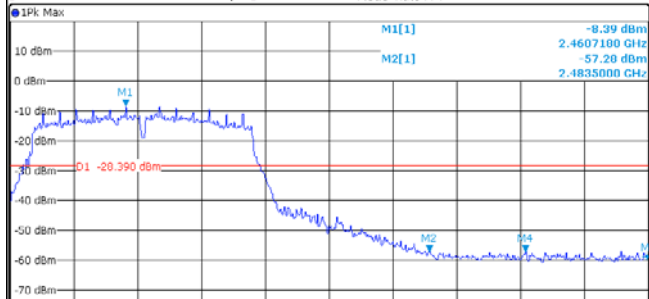
TEST MODE:

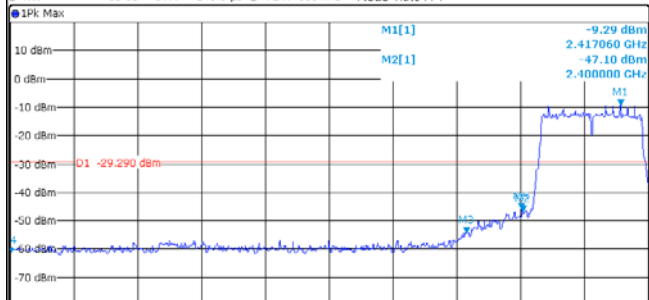
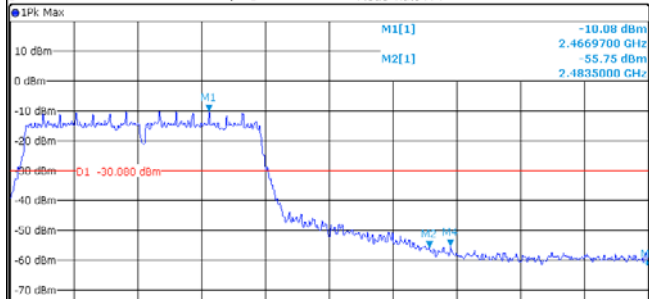
Please refer to the clause 3.3

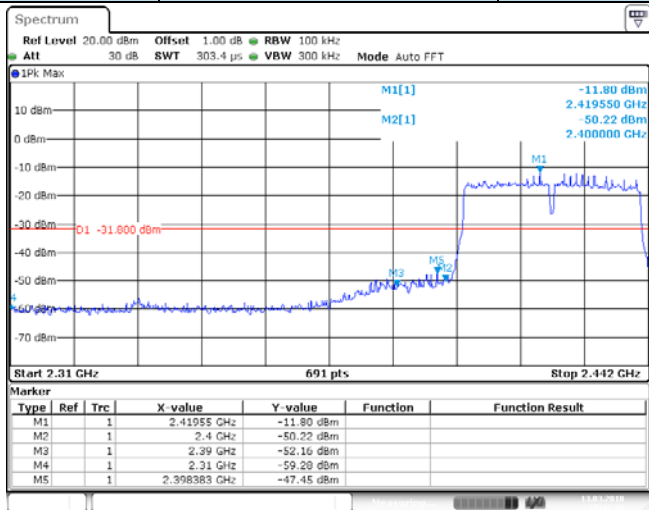
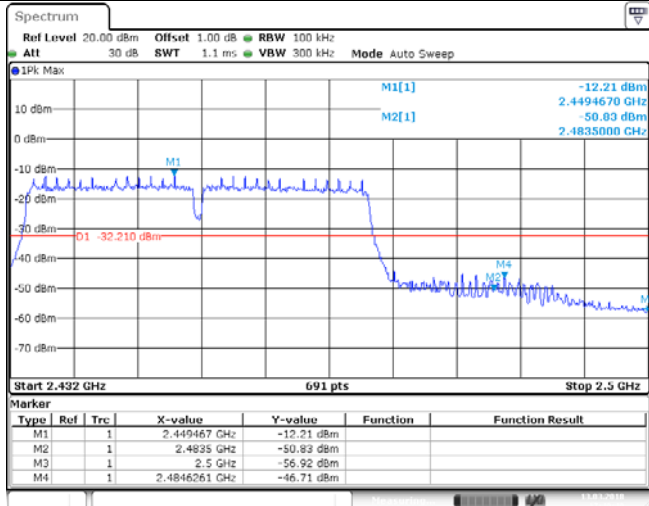
TEST RESULTS

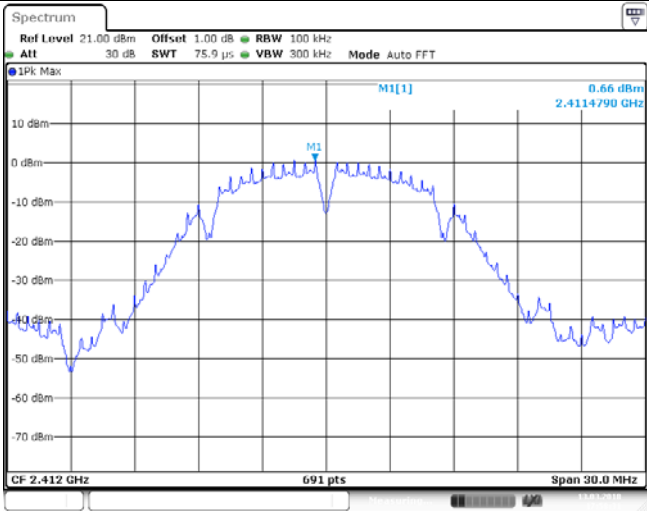
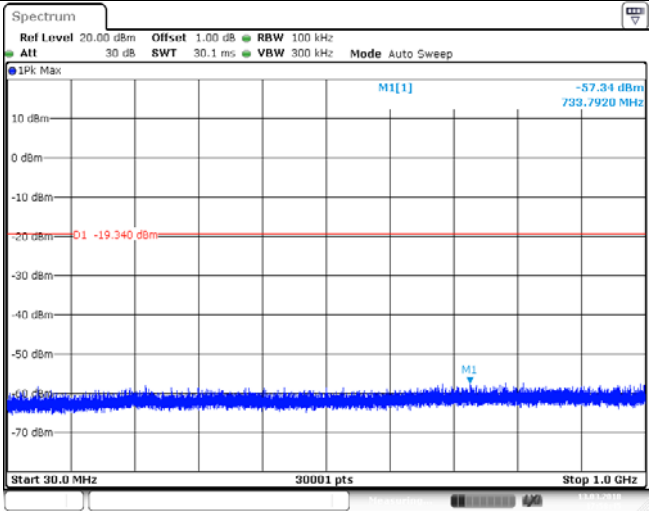
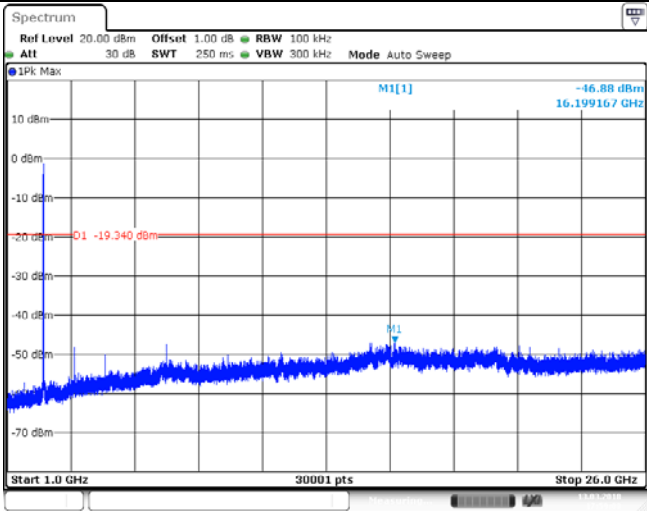
☒ Passed ☐ Not Applicable

Test Item:	Bandedge	Type:	802.11b
CH01			
CH11			

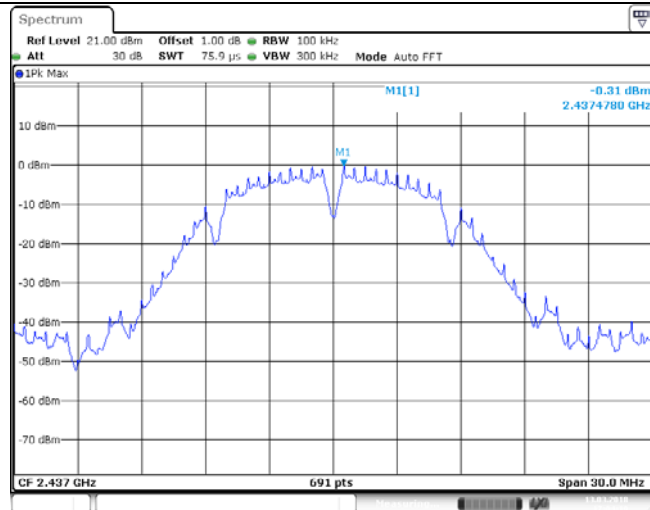
Test Item:	Bandedge	Type:	802.11g																																										
CH01	Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Att 30 dB SWT 246.5 μs VBW 300 kHz Mode Auto FFT 1PK Max  M1[1] -8.20 dBm 2.407010 GHz M2[1] -46.96 dBm 2.400000 GHz D1 -28.200 dBm Start 2.31 GHz 691 pts Stop 2.422 GHz Marker <table><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>2.40701 GHz</td><td>-8.20 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-46.96 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-54.93 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-60.20 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.3996 GHz</td><td>-46.42 dBm</td><td></td><td></td></tr></tbody></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.40701 GHz	-8.20 dBm			M2	1		2.4 GHz	-46.96 dBm			M3	1		2.39 GHz	-54.93 dBm			M4	1		2.31 GHz	-60.20 dBm			M5	1		2.3996 GHz	-46.42 dBm		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																							
M1	1		2.40701 GHz	-8.20 dBm																																									
M2	1		2.4 GHz	-46.96 dBm																																									
M3	1		2.39 GHz	-54.93 dBm																																									
M4	1		2.31 GHz	-60.20 dBm																																									
M5	1		2.3996 GHz	-46.42 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 1PK Max  M1[1] -8.39 dBm 2.460718 GHz M2[1] -57.20 dBm 2.4835000 GHz D1 -20.390 dBm Start 2.452 GHz 691 pts Stop 2.5 GHz Marker <table><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>2.460718 GHz</td><td>-8.39 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-57.28 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-50.79 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.4907478 GHz</td><td>-56.97 dBm</td><td></td><td></td></tr></tbody></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.460718 GHz	-8.39 dBm			M2	1		2.4835 GHz	-57.28 dBm			M3	1		2.5 GHz	-50.79 dBm			M4	1		2.4907478 GHz	-56.97 dBm									
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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 1PK Max  Start 2.31 GHz 691 pts Stop 2.422 GHz Marker <table><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>2.41706 GHz</td><td>-9.29 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-47.10 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-54.52 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-60.15 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.399762 GHz</td><td>-46.14 dBm</td><td></td><td></td></tr></tbody></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.41706 GHz	-9.29 dBm			M2	1		2.4 GHz	-47.10 dBm			M3	1		2.39 GHz	-54.52 dBm			M4	1		2.31 GHz	-60.15 dBm			M5	1		2.399762 GHz	-46.14 dBm		
Type	Ref	Trc	X-value	Y-value	Function	Function Result																																							
M1	1		2.41706 GHz	-9.29 dBm																																									
M2	1		2.4 GHz	-47.10 dBm																																									
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Type	Ref	Trc	X-value	Y-value	Function	Function Result																																							
M1	1		2.46697 GHz	-10.08 dBm																																									
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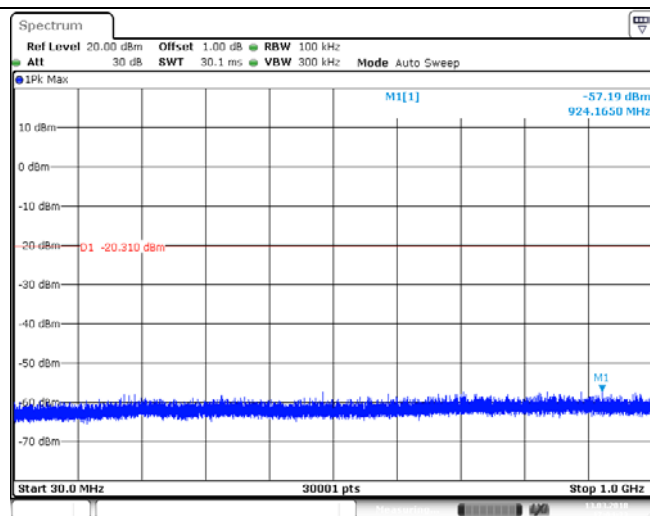
Test Item:	Bandedge	Type:	802.11n(HT40)																																										
CH03	 Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Alt 30 dB SWT 303.4 μs VBW 300 kHz Mode Auto FFT 1PK Max M1[1] -11.80 dBm 2.419550 GHz M2[1] -50.22 dBm 2.400000 GHz Start 2.31 GHz 691 pts Stop 2.442 GHz Marker <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>2.41955 GHz</td><td>-11.80 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4 GHz</td><td>-50.22 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.39 GHz</td><td>-52.16 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.31 GHz</td><td>-59.20 dBm</td><td></td><td></td></tr><tr><td>M5</td><td>1</td><td></td><td>2.398383 GHz</td><td>-47.45 dBm</td><td></td><td></td></tr></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.41955 GHz	-11.80 dBm			M2	1		2.4 GHz	-50.22 dBm			M3	1		2.39 GHz	-52.16 dBm			M4	1		2.31 GHz	-59.20 dBm			M5	1		2.398383 GHz	-47.45 dBm		
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M4	1		2.31 GHz	-59.20 dBm																																									
M5	1		2.398383 GHz	-47.45 dBm																																									
CH09	 Spectrum Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz Alt 30 dB SWT 1.1 ms VBW 300 kHz Mode Auto Sweep 1PK Max M1[1] -12.21 dBm 2.4494670 GHz M2[1] -50.93 dBm 2.4835000 GHz 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>2.449467 GHz</td><td>-12.21 dBm</td><td></td><td></td></tr><tr><td>M2</td><td>1</td><td></td><td>2.4835 GHz</td><td>-50.93 dBm</td><td></td><td></td></tr><tr><td>M3</td><td>1</td><td></td><td>2.5 GHz</td><td>-56.92 dBm</td><td></td><td></td></tr><tr><td>M4</td><td>1</td><td></td><td>2.4846261 GHz</td><td>-46.71 dBm</td><td></td><td></td></tr></table>			Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		2.449467 GHz	-12.21 dBm			M2	1		2.4835 GHz	-50.93 dBm			M3	1		2.5 GHz	-56.92 dBm			M4	1		2.4846261 GHz	-46.71 dBm									
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Test Item:	SE	Type:	802.11b
CH01 Reference level			
CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

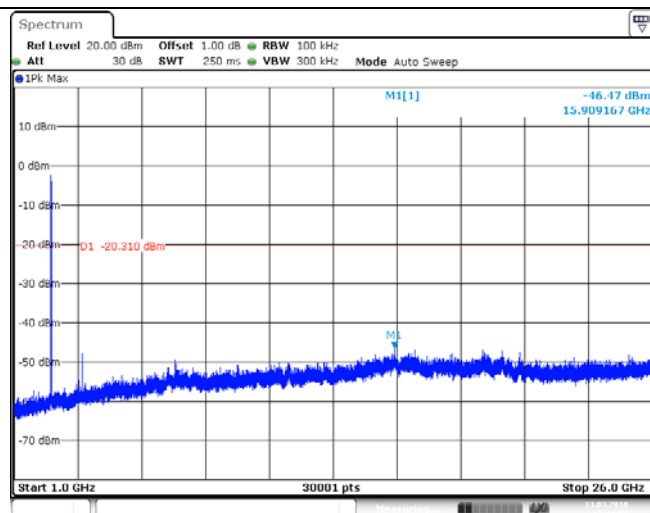
CH06
Reference level



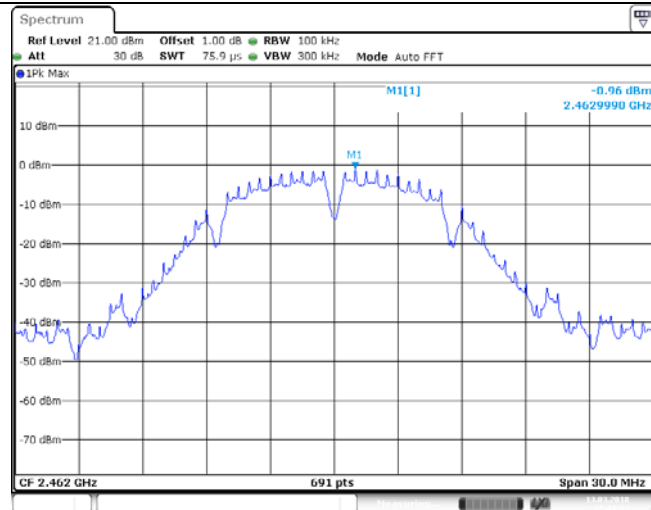
CH06
30MHz~1000MHz



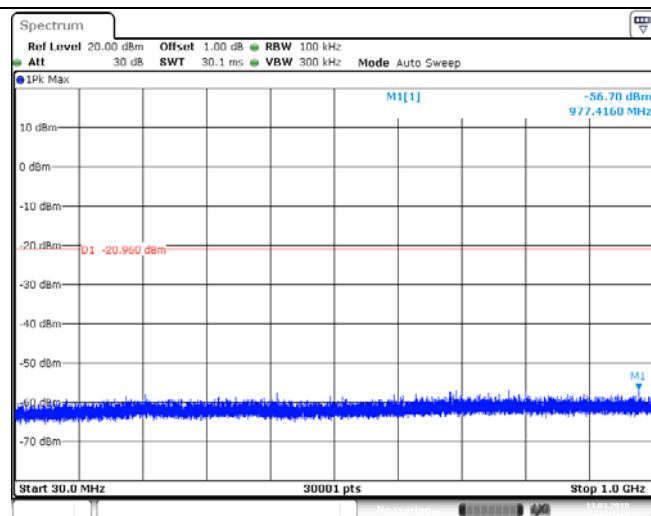
CH06
1GHz~26GHz



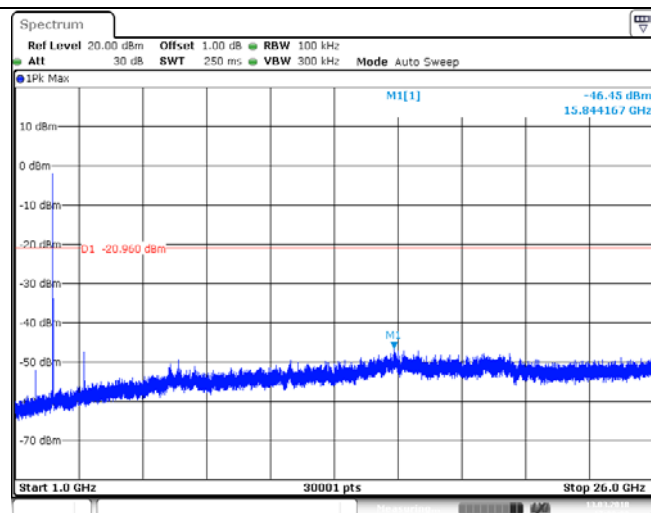
CH11
Reference level

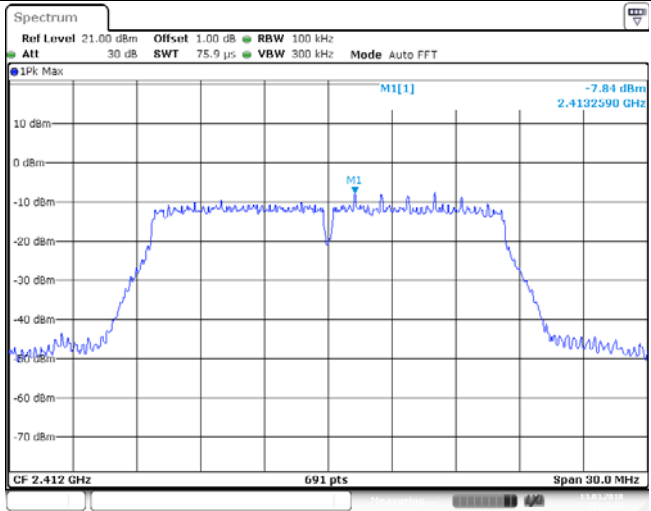
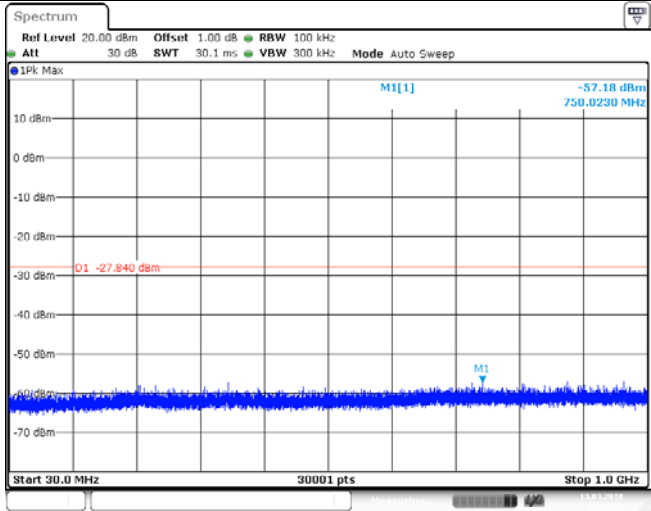
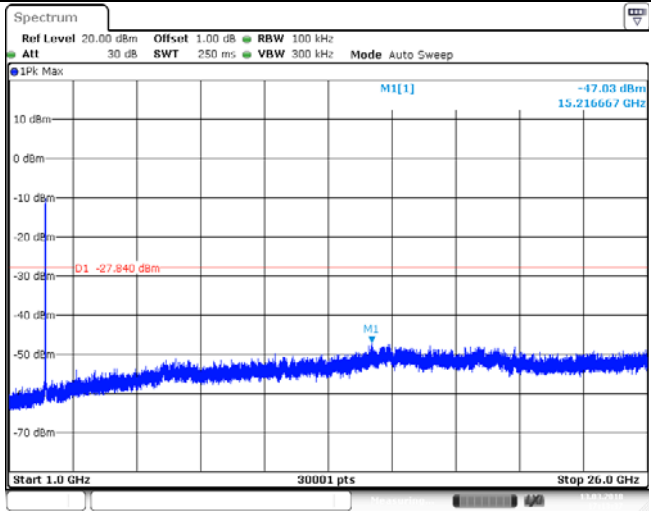


CH11
30MHz~1000MHz

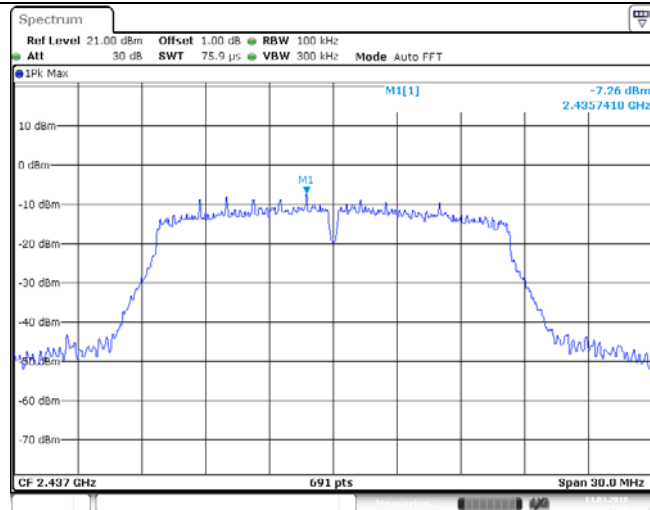


CH11
1GHz~26GHz

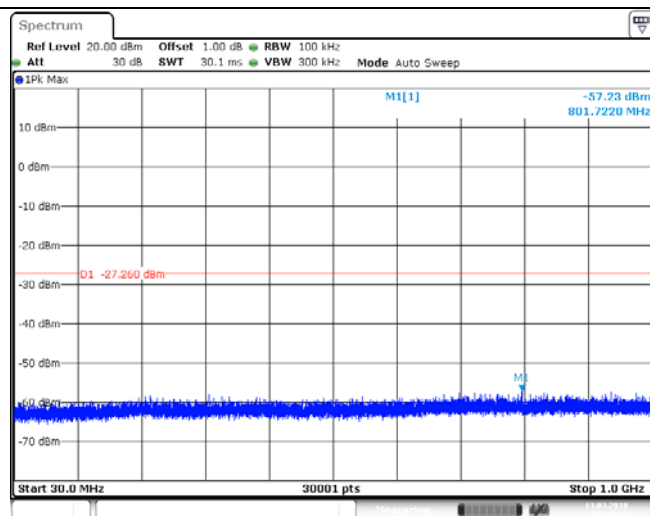


Test Item:	SE	Type:	802.11g
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CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

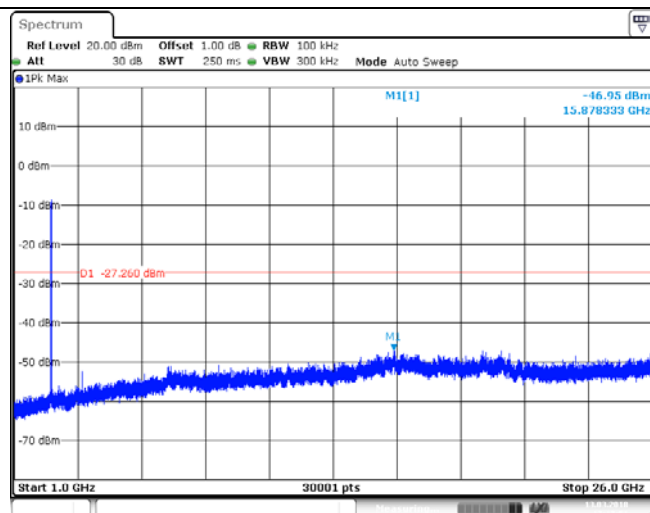
CH06
Reference level



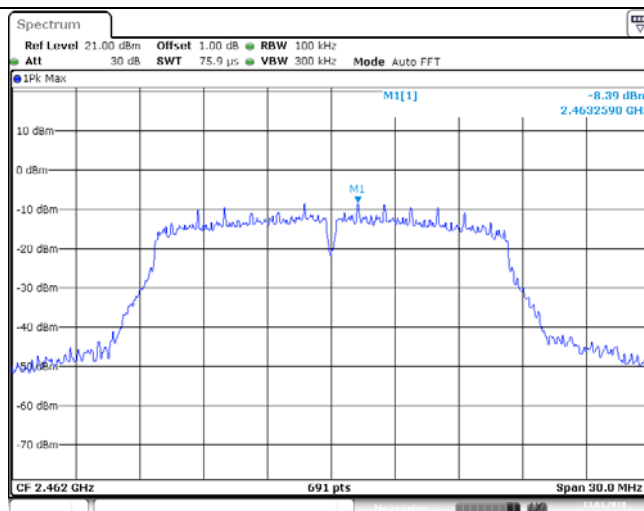
CH06
30MHz~1000MHz



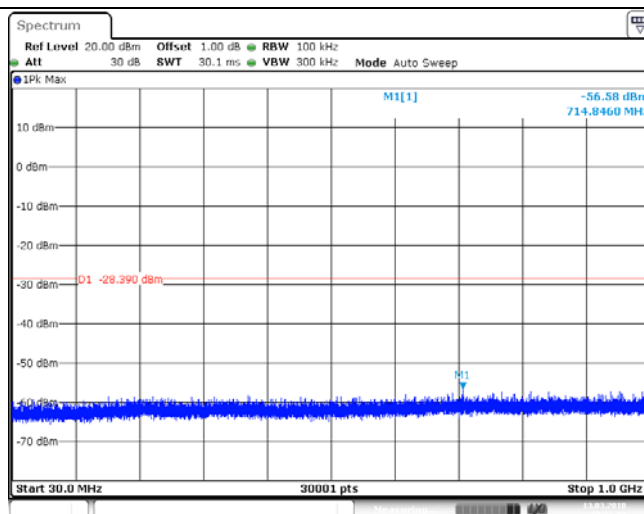
CH06
1GHz~26GHz



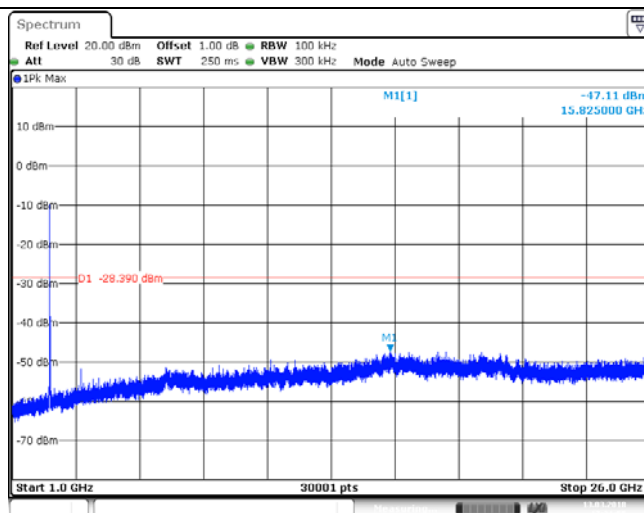
CH11
Reference level

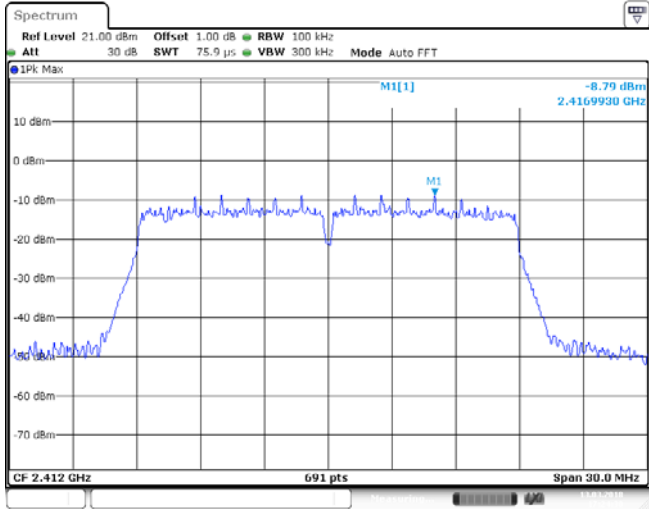
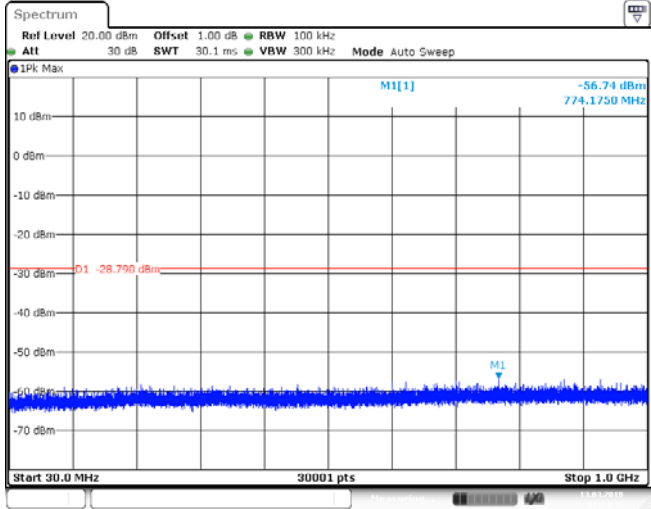
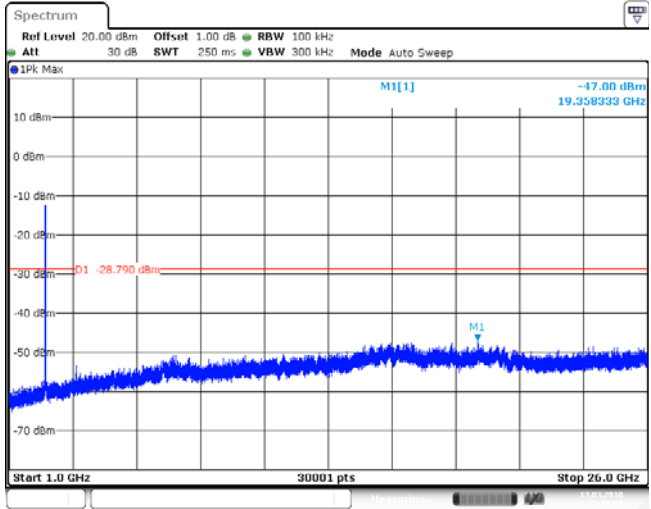


CH11
30MHz~1000MHz

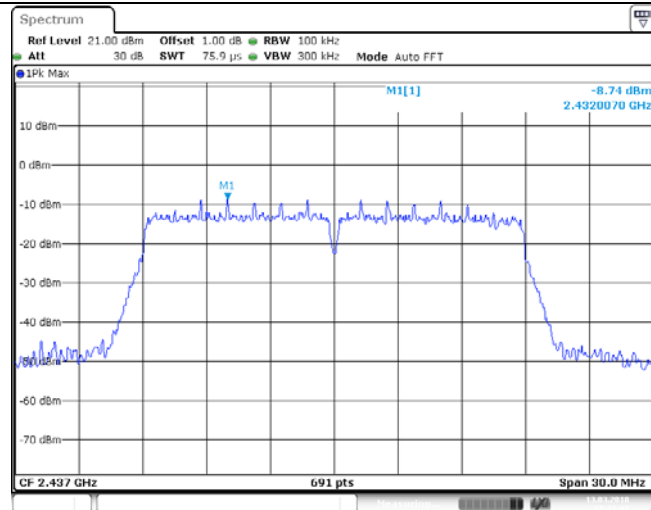


CH11
1GHz~26GHz

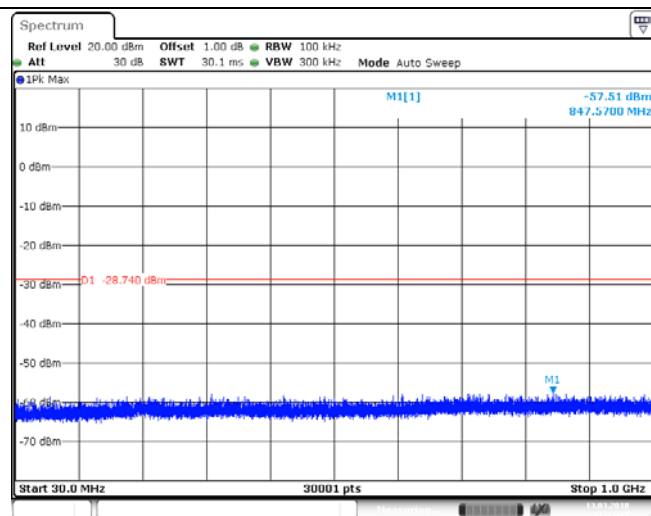


Test Item:	SE	Type:	802.11n(HT20)
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CH01 30MHz~1000MHz			
CH01 1GHz~26GHz			

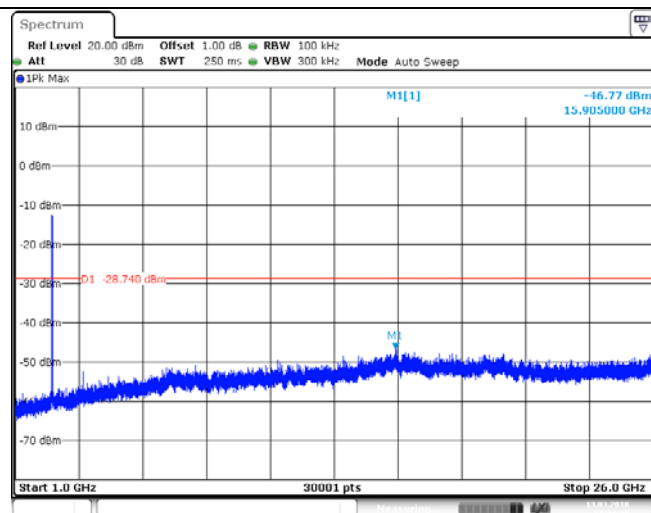
CH06
Reference level



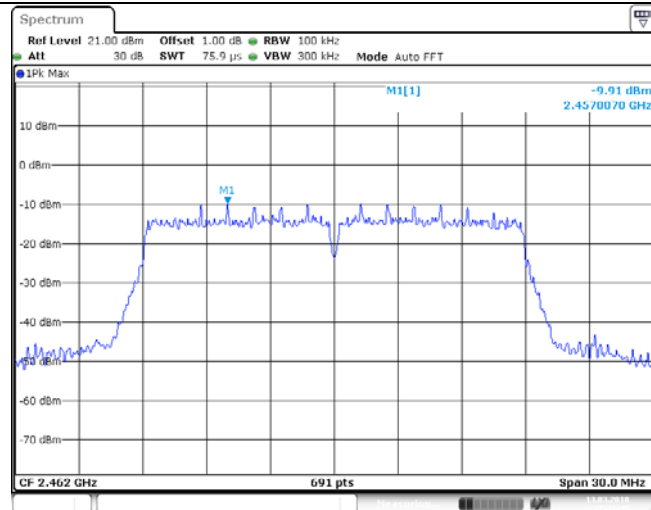
CH06
30MHz~1000MHz



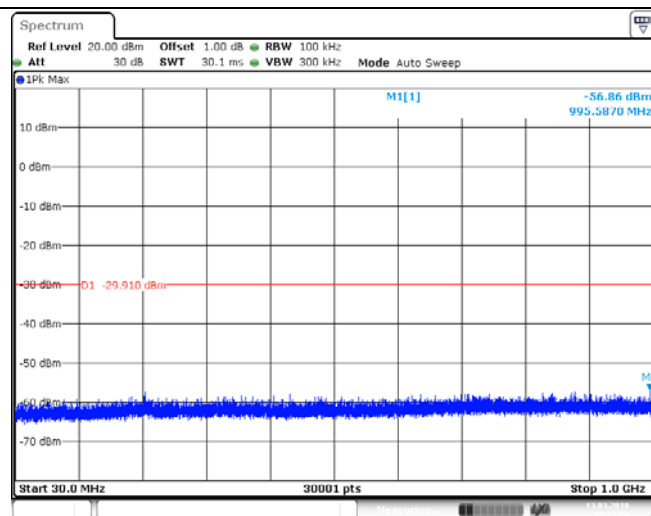
CH06
1GHz~26GHz



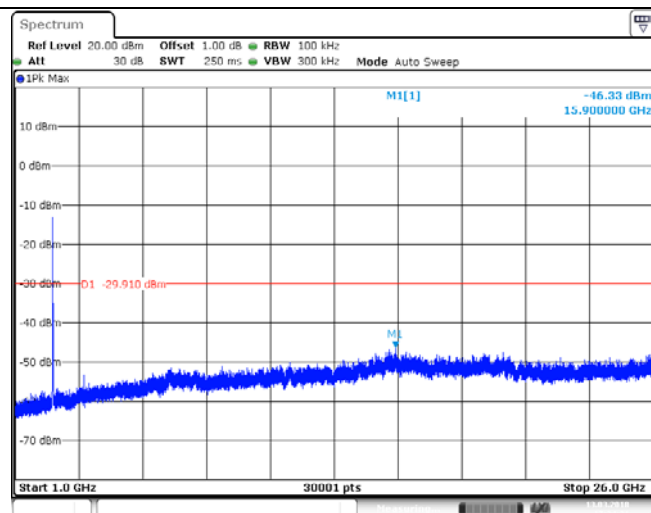
CH11
Reference level

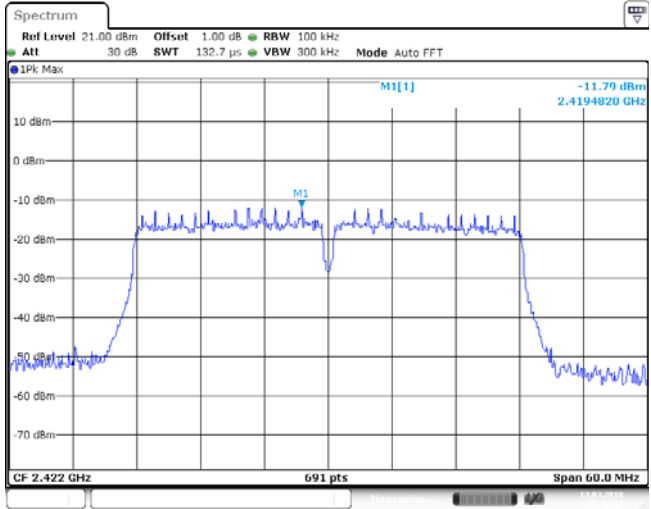
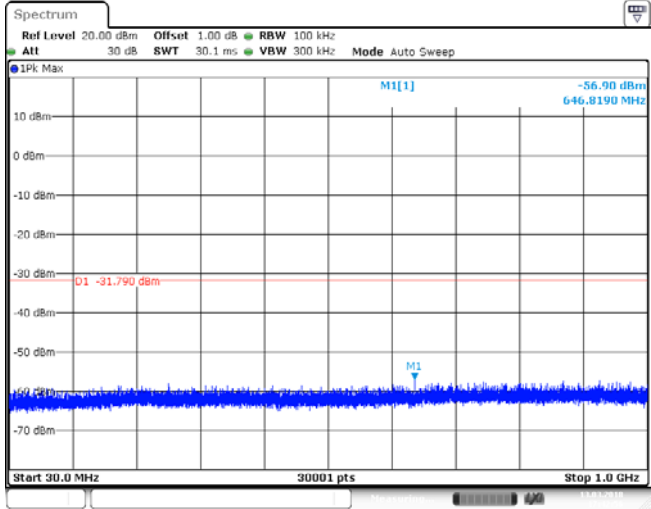
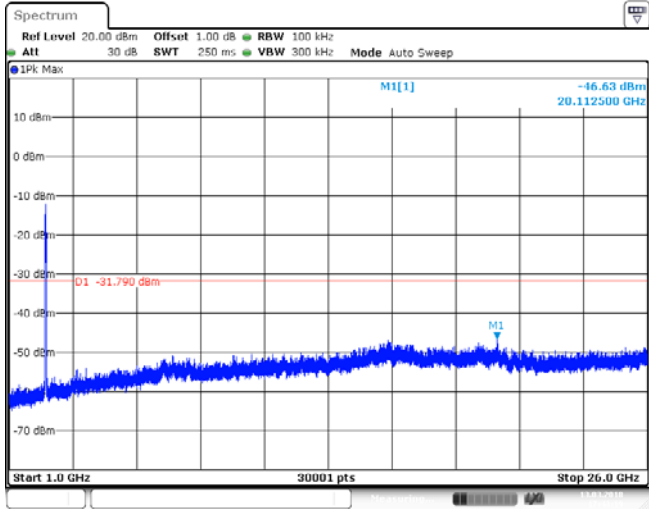


CH11
30MHz~1000MHz

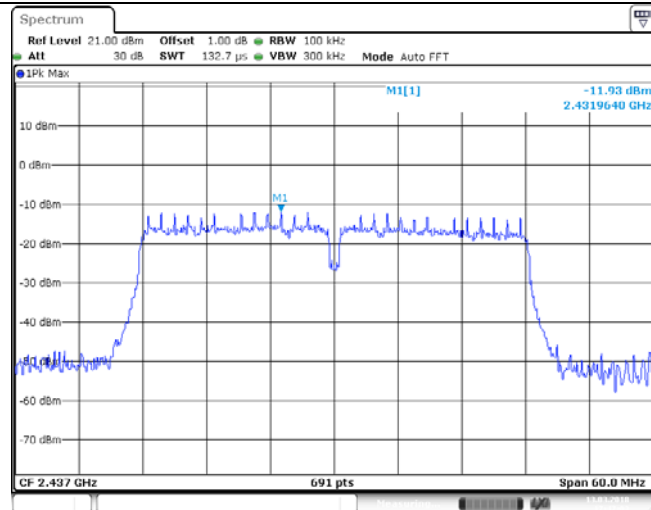


CH11
1GHz~26GHz

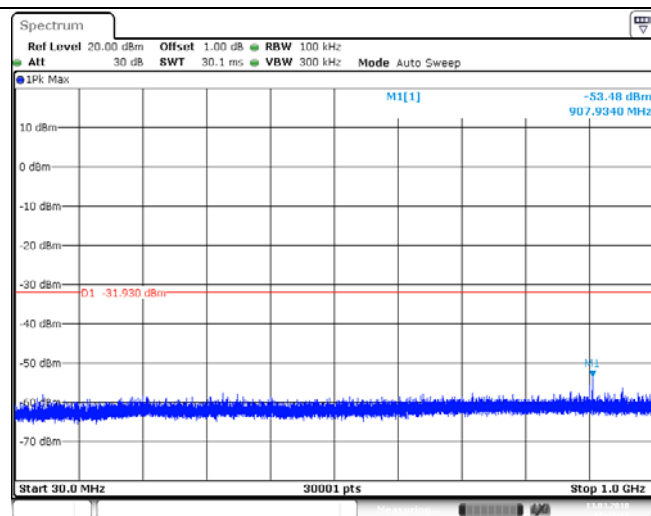


Test Item:	SE	Type:	802.11n(HT40)
CH03 Reference level			
CH03 30MHz~1000MHz			
CH03 1GHz~26GHz			

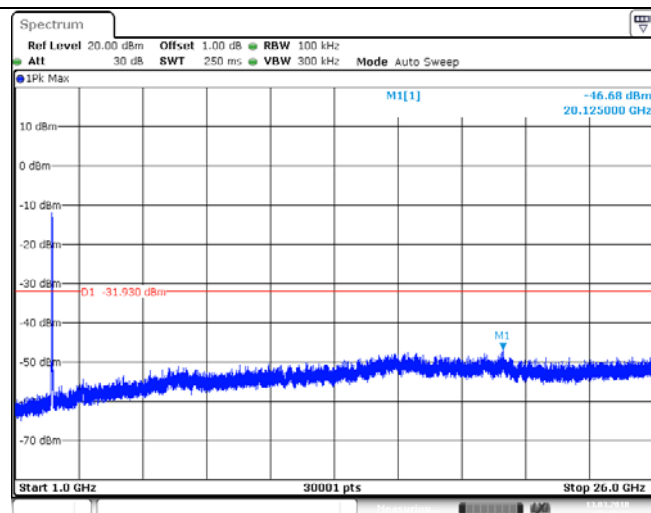
CH06
Reference level



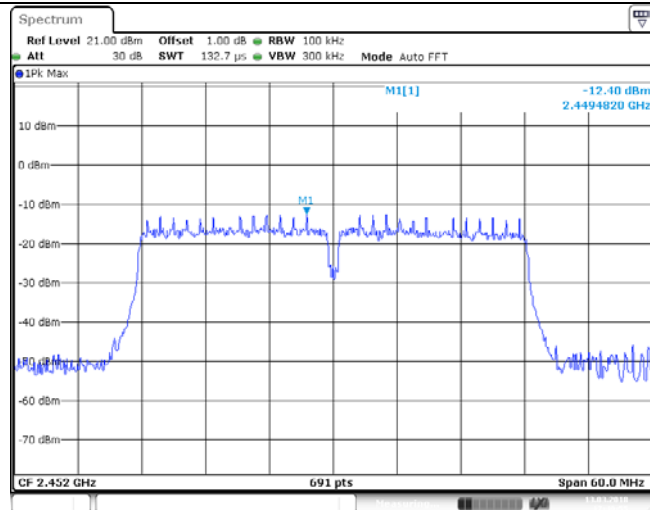
CH06
30MHz~1000MHz



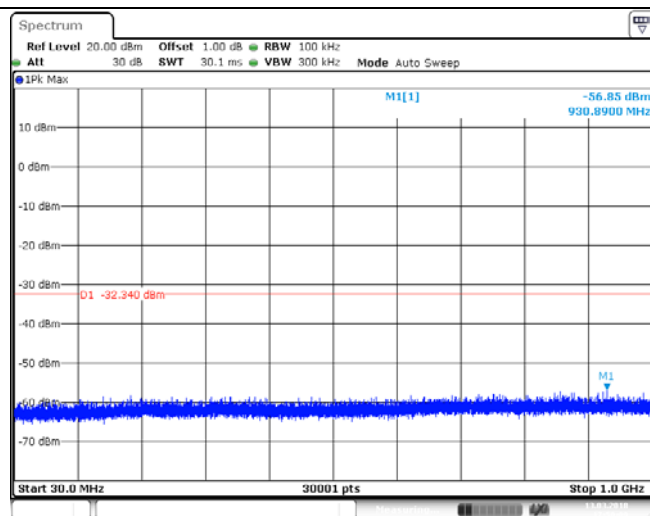
CH06
1GHz~26GHz



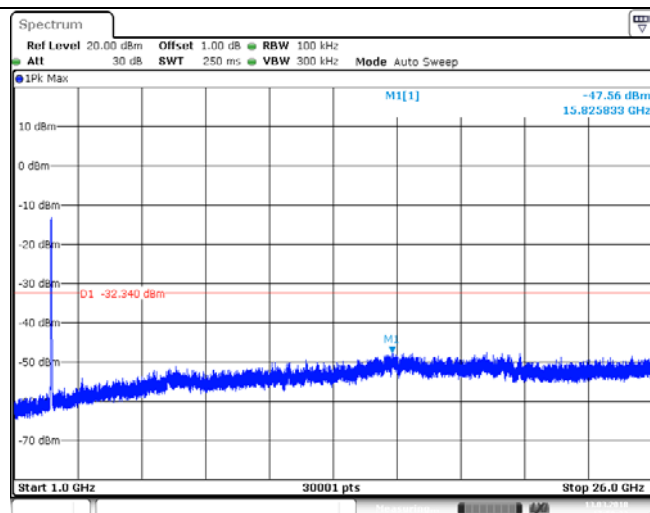
CH09
Reference level



CH09
30MHz~1000MHz



CH09
1GHz~26GHz



5.8. Spurious Emissions (radiated)

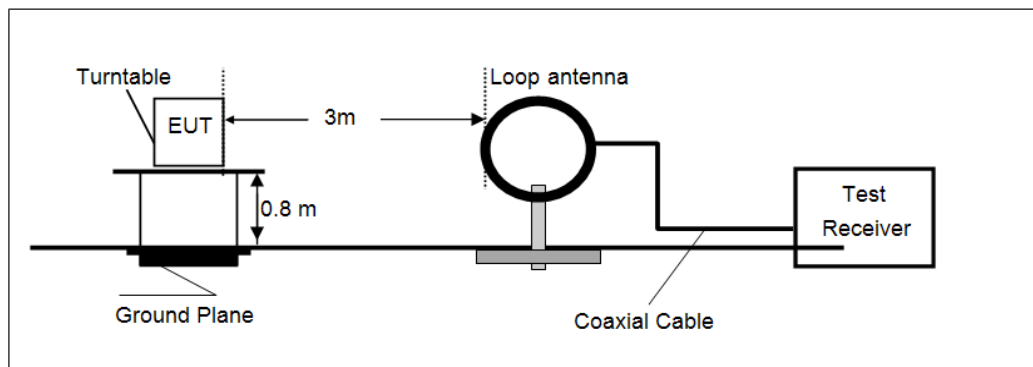
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.209

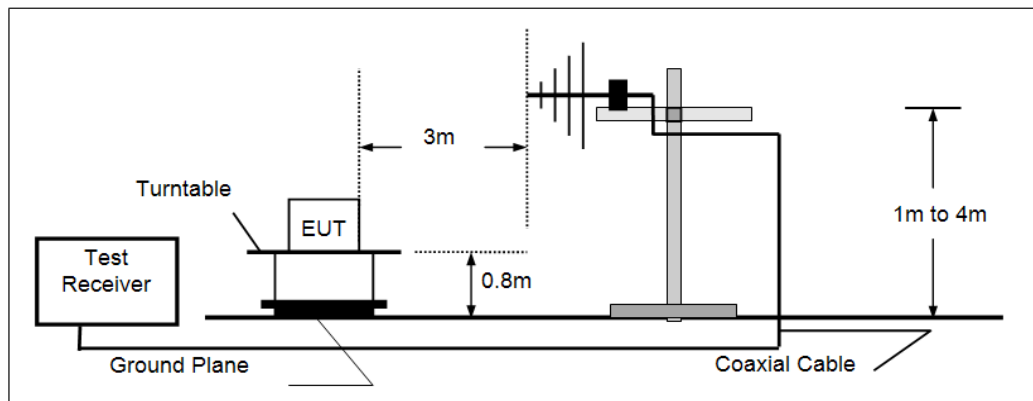
Frequency	Limit (dBuV/m @3m)	Value
30MHz-88MHz	40.00	Quasi-peak
88MHz-216MHz	43.50	Quasi-peak
216MHz-960MHz	46.00	Quasi-peak
960MHz-1GHz	54.00	Quasi-peak
Above 1GHz	54.00	Average
	74.00	Peak

TEST CONFIGURATION

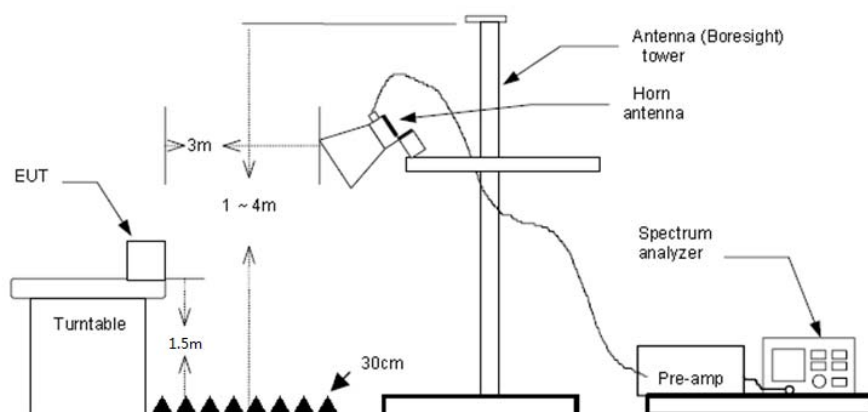
➤ 9kHz ~30MHz



➤ 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.

➤ **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.

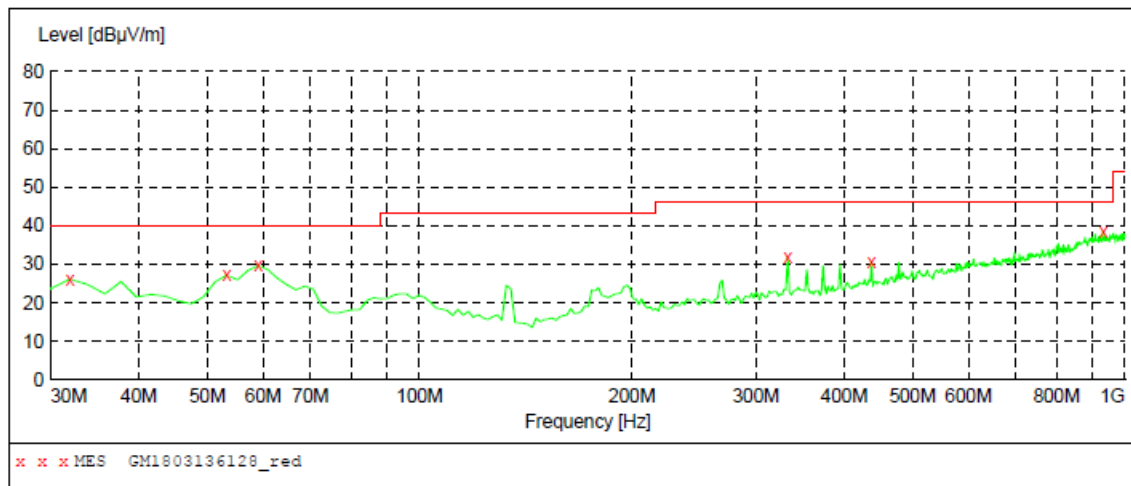
➤ **30MHz ~1000MHz**

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

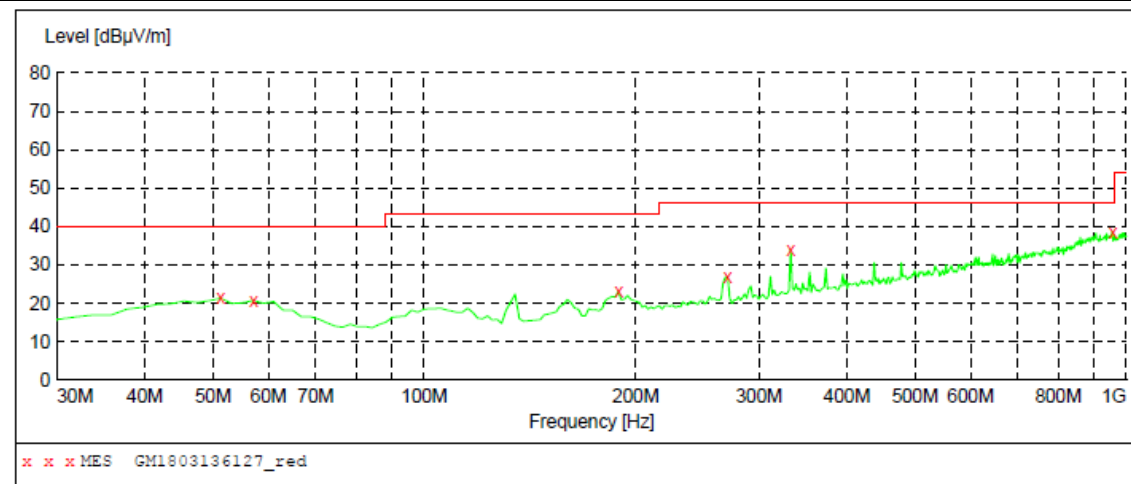
**MEASUREMENT RESULT: "GM1803136128_red"**

3/13/2018 9:07PM

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
31.940000	26.20	-13.2	40.0	13.8	QP	100.0	287.00	VERTICAL
53.280000	27.20	-9.0	40.0	12.8	QP	100.0	0.00	VERTICAL
59.100000	29.70	-9.8	40.0	10.3	QP	100.0	356.00	VERTICAL
332.640000	31.80	-6.1	46.0	14.2	QP	100.0	161.00	VERTICAL
437.400000	30.50	-3.5	46.0	15.5	QP	100.0	216.00	VERTICAL
932.100000	38.50	7.1	46.0	7.5	QP	100.0	216.00	VERTICAL

Polarization:

Horizontal

**MEASUREMENT RESULT: "GM1803136127_red"**

3/13/2018 9:04PM

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
51.340000	21.40	-8.8	40.0	18.6	QP	100.0	212.00	HORIZONTAL
57.160000	20.80	-9.4	40.0	19.2	QP	100.0	0.00	HORIZONTAL
189.080000	23.00	-11.2	43.5	20.5	QP	100.0	171.00	HORIZONTAL
270.560000	26.90	-8.0	46.0	19.1	QP	300.0	104.00	HORIZONTAL
332.640000	33.90	-6.1	46.0	12.1	QP	100.0	117.00	HORIZONTAL
955.380000	38.70	7.3	46.0	7.3	QP	100.0	338.00	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
1746.25	35.58	25.29	5.86	37.03	29.70	74.00	-44.30	Vertical	Peak
3616.45	37.63	29.30	8.29	38.27	36.95	74.00	-37.05	Vertical	Peak
4821.76	40.07	31.56	9.55	36.90	44.28	74.00	-29.72	Vertical	Peak
8703.29	32.55	37.89	13.00	34.40	49.04	74.00	-24.96	Vertical	Peak
1719.78	35.12	25.24	5.80	36.97	29.19	74.00	-44.81	Horizontal	Peak
3625.67	33.73	29.30	8.30	38.26	33.07	74.00	-40.93	Horizontal	Peak
4821.76	34.48	31.56	9.55	36.90	38.69	74.00	-35.31	Horizontal	Peak
7245.81	36.41	36.25	11.91	35.02	49.55	74.00	-24.45	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
1948.25	40.75	25.79	6.19	37.26	35.47	74.00	-38.53	Vertical	Peak
3653.46	39.37	29.30	8.33	38.26	38.74	74.00	-35.26	Vertical	Peak
4871.10	38.27	31.46	9.59	36.76	42.56	74.00	-31.44	Vertical	Peak
7319.96	34.44	36.30	11.99	34.92	47.81	74.00	-26.19	Vertical	Peak
1680.83	36.38	25.14	5.73	36.89	30.36	74.00	-43.64	Horizontal	Peak
3653.46	37.34	29.30	8.33	38.26	36.71	74.00	-37.29	Horizontal	Peak
4871.10	39.20	31.46	9.59	36.76	43.49	74.00	-30.51	Horizontal	Peak
7319.96	36.62	36.30	11.99	34.92	49.99	74.00	-24.01	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
1764.12	39.74	25.33	5.89	37.06	33.90	74.00	-40.10	Vertical	Peak
3690.85	36.87	29.30	8.37	38.25	36.29	74.00	-37.71	Vertical	Peak
4920.96	33.94	31.42	9.62	36.62	38.36	74.00	-35.64	Vertical	Peak
7027.82	30.30	35.38	11.85	34.83	42.70	74.00	-31.30	Vertical	Peak
1948.25	37.08	25.79	6.19	37.26	31.80	74.00	-42.20	Horizontal	Peak
3690.85	34.70	29.30	8.37	38.25	34.12	74.00	-39.88	Horizontal	Peak
5073.59	31.49	31.80	9.73	36.33	36.69	74.00	-37.31	Horizontal	Peak
7394.88	34.63	36.30	12.06	34.83	48.16	74.00	-25.84	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
1948.25	44.06	25.79	6.19	37.26	38.78	74.00	-35.22	Vertical	Peak
3616.45	39.28	29.30	8.29	38.27	38.60	74.00	-35.40	Vertical	Peak
4821.76	36.57	31.56	9.55	36.90	40.78	74.00	-33.22	Vertical	Peak
7027.82	30.98	35.38	11.85	34.83	43.38	74.00	-30.62	Vertical	Peak
1948.25	42.46	25.79	6.19	37.26	37.18	74.00	-36.82	Horizontal	Peak
3616.45	39.28	29.30	8.29	38.27	38.60	74.00	-35.40	Horizontal	Peak
4821.76	37.25	31.56	9.55	36.90	41.46	74.00	-32.54	Horizontal	Peak
7357.33	31.67	36.30	12.03	34.88	45.12	74.00	-28.88	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
1715.41	35.37	25.23	5.80	36.96	29.44	74.00	-44.56	Vertical	Peak
3653.46	38.85	29.30	8.33	38.26	38.22	74.00	-35.78	Vertical	Peak
4871.10	34.44	31.46	9.59	36.76	38.73	74.00	-35.27	Vertical	Peak
7820.82	31.37	36.23	13.16	35.01	45.75	74.00	-28.25	Vertical	Peak
1569.19	35.09	25.17	5.48	36.68	29.06	74.00	-44.94	Horizontal	Peak
3653.46	35.10	29.30	8.33	38.26	34.47	74.00	-39.53	Horizontal	Peak
5806.41	31.76	32.11	10.59	35.32	39.14	74.00	-34.86	Horizontal	Peak
7319.96	35.32	36.30	11.99	34.92	48.69	74.00	-25.31	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
1764.12	38.63	25.33	5.89	37.06	32.79	74.00	-41.21	Vertical	Peak
3700.26	37.19	29.30	8.39	38.25	36.63	74.00	-37.37	Vertical	Peak
4933.50	32.88	31.43	9.63	36.59	37.35	74.00	-36.65	Vertical	Peak
7394.88	31.82	36.30	12.06	34.83	45.35	74.00	-28.65	Vertical	Peak
1777.65	44.79	25.36	5.92	37.09	38.98	74.00	-35.02	Horizontal	Peak
3690.85	35.18	29.30	8.37	38.25	34.60	74.00	-39.40	Horizontal	Peak
5086.52	32.13	31.85	9.74	36.31	37.41	74.00	-36.59	Horizontal	Peak
7394.88	32.05	36.30	12.06	34.83	45.58	74.00	-28.42	Horizontal	Peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies(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
1948.25	38.77	25.79	6.19	37.26	33.49	74.00	-40.51	Vertical	Peak
3616.45	38.28	29.30	8.29	38.27	37.60	74.00	-36.40	Vertical	Peak
4821.76	35.66	31.56	9.55	36.90	39.87	74.00	-34.13	Vertical	Peak
7376.08	31.72	36.30	12.04	34.85	45.21	74.00	-28.79	Vertical	Peak
1715.41	35.08	25.23	5.80	36.96	29.15	74.00	-44.85	Horizontal	Peak
3616.45	37.44	29.30	8.29	38.27	36.76	74.00	-37.24	Horizontal	Peak
4821.76	40.23	31.56	9.55	36.90	44.44	74.00	-29.56	Horizontal	Peak
7245.81	34.66	36.25	11.91	35.02	47.80	74.00	-26.20	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
1750.70	34.31	25.30	5.86	37.04	28.43	74.00	-45.57	Vertical	Peak
3653.46	38.66	29.30	8.33	38.26	38.03	74.00	-35.97	Vertical	Peak
4883.52	34.76	31.43	9.59	36.73	39.05	74.00	-34.95	Vertical	Peak
7376.08	31.02	36.30	12.04	34.85	44.51	74.00	-29.49	Vertical	Peak
1693.72	35.82	25.18	5.75	36.92	29.83	74.00	-44.17	Horizontal	Peak
3653.46	35.92	29.30	8.33	38.26	35.29	74.00	-38.71	Horizontal	Peak
4883.52	35.87	31.43	9.59	36.73	40.16	74.00	-33.84	Horizontal	Peak
7319.96	34.71	36.30	11.99	34.92	48.08	74.00	-25.92	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
1786.72	35.46	25.37	5.93	37.11	29.65	74.00	-44.35	Vertical	Peak
3690.85	35.28	29.30	8.37	38.25	34.70	74.00	-39.30	Vertical	Peak
5850.92	30.83	32.20	10.61	35.35	38.29	74.00	-35.71	Vertical	Peak
7394.88	31.04	36.30	12.06	34.83	44.57	74.00	-29.43	Vertical	Peak
1706.70	35.15	25.21	5.78	36.94	29.20	74.00	-44.80	Horizontal	Peak
3690.85	34.43	29.30	8.37	38.25	33.85	74.00	-40.15	Horizontal	Peak
5204.40	32.31	31.49	9.84	36.21	37.43	74.00	-36.57	Horizontal	Peak
8615.13	31.65	37.39	12.91	34.50	47.45	74.00	-26.55	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.

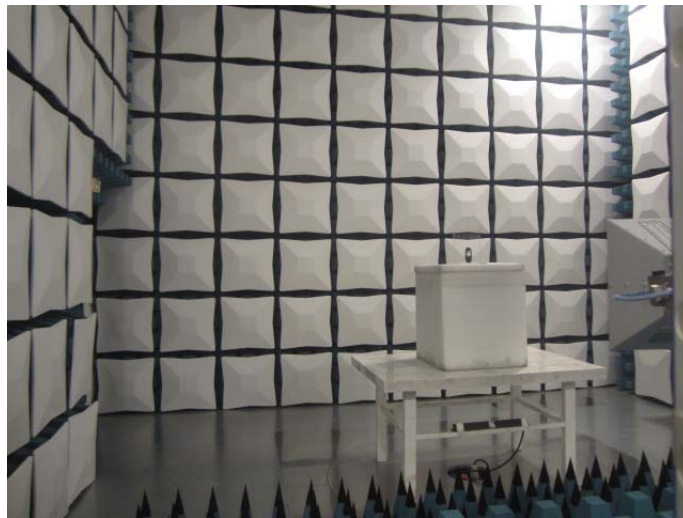
802.11n(HT40)					CH03				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1270.33	34.50	26.23	4.78	36.53	28.98	74.00	-45.02	Vertical	Peak
3634.91	33.31	29.30	8.31	38.26	32.66	74.00	-41.34	Vertical	Peak
5689.36	31.83	31.62	10.41	35.62	38.24	74.00	-35.76	Vertical	Peak
7432.62	31.53	36.23	12.18	34.85	45.09	74.00	-28.91	Vertical	Peak
1498.91	34.24	25.80	5.28	36.59	28.73	74.00	-45.27	Horizontal	Peak
3176.16	35.06	28.80	7.69	38.20	33.35	74.00	-40.65	Horizontal	Peak
4858.72	33.95	31.48	9.58	36.80	38.21	74.00	-35.79	Horizontal	Peak
8022.46	31.17	37.08	12.35	34.53	46.07	74.00	-27.93	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
1659.57	35.04	25.08	5.69	36.85	28.96	74.00	-45.04	Vertical	Peak
3653.46	37.53	29.30	8.33	38.26	36.90	74.00	-37.10	Vertical	Peak
5099.49	32.44	31.90	9.75	36.30	37.79	74.00	-36.21	Vertical	Peak
7081.70	30.81	35.55	11.85	34.91	43.30	74.00	-30.70	Vertical	Peak
1768.62	34.91	25.34	5.90	37.07	29.08	74.00	-44.92	Horizontal	Peak
3241.50	34.97	28.55	7.77	38.27	33.02	74.00	-40.98	Horizontal	Peak
4617.55	32.49	30.95	9.47	37.21	35.70	74.00	-38.30	Horizontal	Peak
6267.19	34.05	33.03	11.00	35.30	42.78	74.00	-31.22	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
3168.08	33.83	28.80	7.68	38.20	32.11	74.00	-41.89	Vertical	Peak
3681.47	35.86	29.30	8.36	38.25	35.27	74.00	-38.73	Vertical	Peak
5112.49	32.74	31.85	9.76	36.29	38.06	74.00	-35.94	Vertical	Peak
6645.07	32.42	34.20	11.41	35.28	42.75	74.00	-31.25	Vertical	Peak
1487.51	34.31	25.81	5.25	36.57	28.80	74.00	-45.20	Horizontal	Peak
3135.99	34.69	28.80	7.64	38.21	32.92	74.00	-41.08	Horizontal	Peak
4664.81	32.24	31.10	9.49	37.14	35.69	74.00	-38.31	Horizontal	Peak
7357.33	31.75	36.30	12.03	34.88	45.20	74.00	-28.80	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.



7. EXTERANAL AND INTERNAL PHOTOS

Reference to the test report No.: TRE1803005301.

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