시 험 성 적 서
TEST REPORT

성적서 번호 Report No.		ICRT-TR-E210866-0A
신청자 Client	기관명 Name	TRUEN Co., Ltd.
	주 소 Address	1309, Woolim e-BIZ Center 1, 28, Digital-ro 33-gil, Guro-gu, Seoul, Republic of Korea
시험대상품목 Sample description		Wireless Home Camera
모델명 Type designation		TSC-221S
정 격 Ratings		DC 5.0 V (Used AC/DC adapter).
시험장소 Place of test		■ 고정시험(Inside test) □ 현장시험(Field test) 주소지(Address): 112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
시험기간 Date of test		04. Mar. 2021 ~ 05. Mar. 2021
시험방법/항목 Test Method/Item		FCC Part 15 Subpart C §15.247
시험결과 Test Results		Refer to 3. Test Summary
확 인 Affirmation	작성자 Tested by 성 명 Name In-Jung, Kim (서 명 Signature)	기술책임자 Technical Manager 성 명 Name Hong-Kyu, Lee (Signature)

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This is certified that the above mentioned products have been tested for the sample

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2021. 04. 15

주식회사 아이씨알 대표이사

The head of INTERNATIONAL CERTIFICATION REGISTRAR

Contents

Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E210866-0A	15-Apr-2021	Initial Issue	All

1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	TRUEN Co., Ltd.
Address	1309, Woolim e-BIZ Center 1, 28, Digital-ro 33-gil, Guro-gu, Seoul, Republic of Korea
Contact Person	JunHo Kang
Telephone No.	+82-70-8677-6000
Fax No.	+82-2-2108-1595
E-mail	jhkang@truen.co.kr

1.2 Manufacturer Information

Manufacturer 1	TRUEN Co., Ltd.
Address	1309, Woolim e-BIZ Center 1, 28, Digital-ro 33-gil, Guro-gu, Seoul, Republic of Korea
Manufacturer 2	FENGTAIDA
Address	4/F BLDG G,NO. 4010 BANXUEGANG ROAD, BANTIAN LOGGANG DISTRICT, SHENZHEN,CHINA

1.3 Test Laboratory Information

Conducted tests were performed at	
Laboratory	ICR Co., Ltd.
Address	112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
Telephone No.	+82-2-6351-9002
Fax No.	+82-2-6351-9007
RRA No.	KR0165
KOLAS No.	KT652
Test Firm Registration Number	490614

2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	Wireless Home Camera
Brand Name	-
Model Name	TSC-221S
Additional Model Name	TSC-221U, TSC-221V
FCC ID	2AZK3-TSC-221S
Power Supply	DC 5.0 V(Used AC/DC adapter).

2.2 Additional Information

Equipment Class	DTS-Digital Transmission System
Device Type	Stand-alone
Operating Frequency	2 412 ㎒ ~ 2 462 ㎒
RF Output Power	16.34 ㏈m
Number of Channel	11
Modulation Type	802.11b: DSSS Modulation 802.11g/n(HT20): OFDM Modulation
Antenna Type	FPCB Antenna
Antenna Gain	3.51 ㏈i
Antenna Operating Mode	Single Antenna Equipment with only one antenna
List of Each Oscillator or Crystal Frequency	32.768 ㎒

2.3 Mode of operation during the test

- The EUT is continuous transmission mode during the test with set to each of the Low Channel, Middle Channel, and High Channel at the worst case data rate. The worst case data rate for each modulation is determined 1 Mbps for IEEE 802.11b, 6 Mbps for IEEE 802.11g, 6.5 Mbps for HT20.

2.4 Modifications of EUT

- None

2.5 Reason of Additional Model Name

NO	Family model name	Differential point
1	TSC-221U	Basic model and electric performance, structure and circuit are the same, but simple derivative model name is added according to buyer request
2	TSC-221V	

3. Test Summary

3.1 Test standards and results

FCC Part 15 Subpart C			
Clause	Test items	Applied	Results
§15.247 (a) (2)	6 dB Bandwidth	☒	PASS
§15.247 (b) (3)	Maximum Conducted (Average) Output Power	☒	PASS
§15.247 (e)	Power Spectral Density	☒	PASS
§15.247 (d)	Conducted Spurious Emission	☒	PASS
§15.247 (d) & §15.209 & §15.205	Radiated Spurious Emission	☒	PASS
§15.207	Power Line Conducted Emission	☒	PASS
§15.203	Antenna Requirement	☒	PASS

3.2 Purpose of the test

- To determine whether the equipment under test fulfills the requirements of the standards stated in FCC Part 15 Subpart C Section 15.247.

3.3 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013.

Radiated testing was performed at a distance of 3 m from EUT to the antenna.

3.4 Configuration of Test System

3.4.1 Radiated emission test

Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 m Semi Anechoic Chamber. The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

3.4.2 AC power line conducted emission test

The EUT was connected to LISN. All supporting equipment were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions.

3.5 Antenna requirement

According to §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 shall be considered sufficient to comply with the provisions of this Section.
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.
And according to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi.
Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.5.1 Result: Pass

The transmitter has a ***FPCB Antenna.*** The directional gain of the antenna is ***3.51 dBi.***

4. Used equipment on test

	Description	Model Name	Serial Number	Manufacturer	Next Cal. (cycle)
☐	Spectrum analyzer	FSW85	100864	Rohde & Schwarz	2022. 03. 22 (1Y)
☒	Spectrum analyzer	FSV40	101455	Rohde & Schwarz	2021 .06. 24 (1Y)
☒	Signal Generator	SMB100A	180607	Rohde & Schwarz	2022. 03. 03 (1Y)
☒	Wideband Power Sensor	NRP-Z91	103704	Rohde & Schwarz	2021. 04. 17 (1Y)
☐	TEMP & HUMID. TEST CHAMBER	MHK-408NKDA	1060908	TERCHY	2022. 03. 03 (1Y)
☒	DC Power Supply	XDL 35-5P	J00385373	Sorensen	2022. 03. 03 (1Y)
☐	DC Power Supply	6603D	672483	Topward	2022. 03. 03 (1Y)
☒	Loop Antenna	HFH2-Z2	100506	Rohde & Schwarz	2021. 06. 27 (2Y)
☒	TRILOG BROADBAND ANTENNA	VULB9162	143	SCHWARZBECK	2022. 12. 08 (2Y)
☒	RF Pre Amplifier	SCU08	100745	Rohde & Schwarz	2021. 04. 16 (1Y)
☒	DOUBLE-RIDGE WAVEGUIDE HORN ANTENNA	HF907	102556	Rohde & Schwarz	2021. 08. 19 (2Y)
☒	RF Pre Amplifier	SCU18	102342	Rohde & Schwarz	2021. 04. 16 (1Y)
☒	EMI Test Receiver	ESR26	101461	Rohde & Schwarz	2021. 04. 16 (1Y)
☒	EMI Test Receiver	ESR26	101462	Rohde & Schwarz	2021. 04. 16 (1Y)
☒	LISN	ENV216	102194	Rohde & Schwarz	2021. 04. 16 (1Y)
☒	EMI Test Receiver	ESR3	102119	Rohde & Schwarz	2021. 04. 16 (1Y)
☒	RF Cable	MULTIFLEX_86	-	HUBER & SUHNER	-
☒	Chamber Cable	mwx221	-	Junkosha	-

※ All test equipment used is calibration on a regular basis.

5. 6 dB Bandwidth

5.1 Operating environment

Temperature : 25 ℃

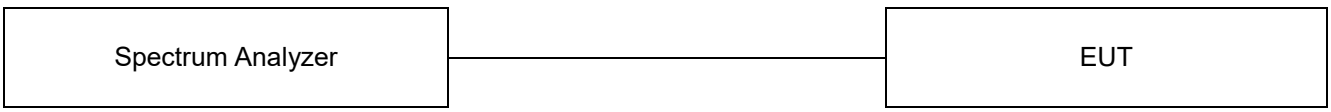
Relative humidity : 46 %

5.2 Measurement method

Standard : §15.247 (a) (2)

5.3 Test setup

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 ㎑, and peak detection was used. The 6 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 6 dB.



5.4 Test data

Test date : 04. Mar. 2021

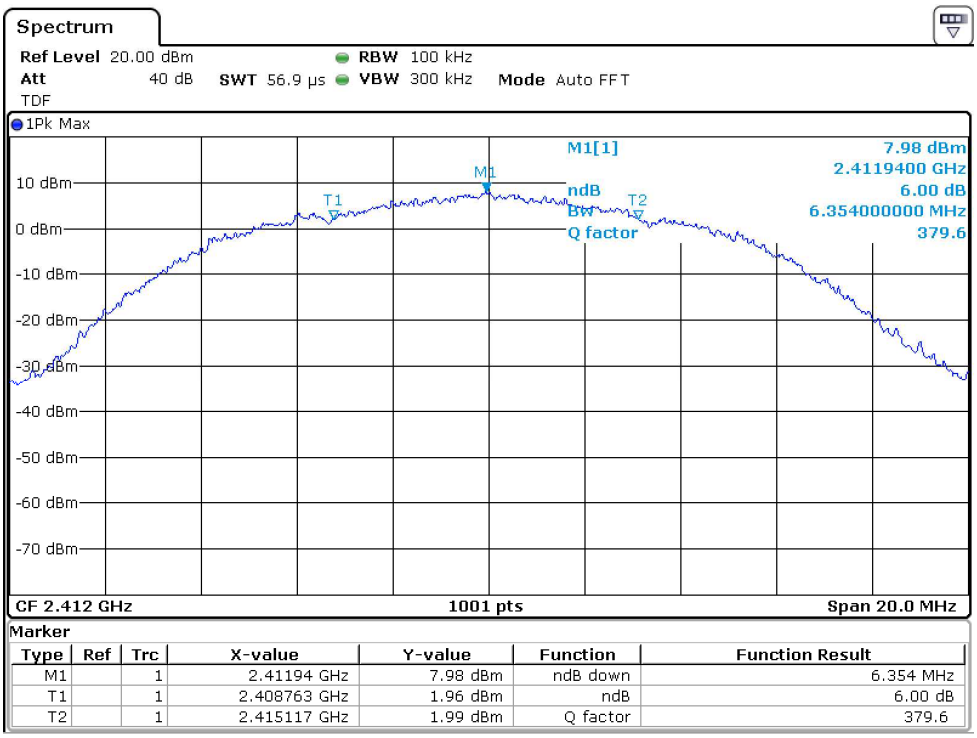
Operating mode : Transmit mode

Test Result : Pass

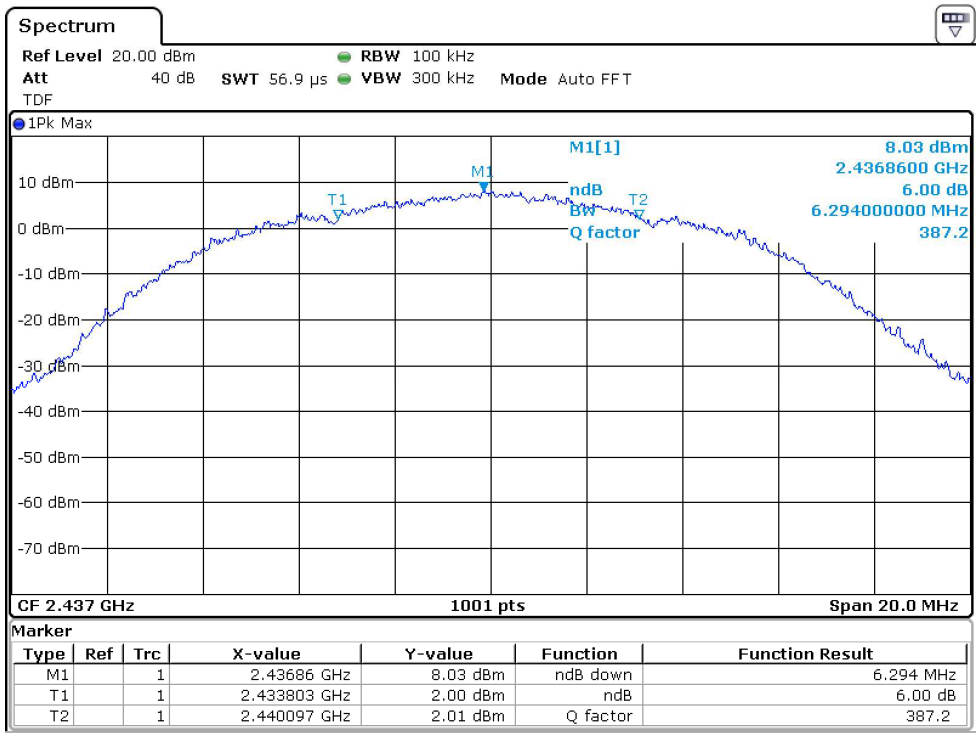
5.4.1 Measured Results

Modulation Type	Channel (Frequency)	Measured Value (㎒)	Limit (㎑)
802.11b	0 (2 412 ㎒)	6.354	at least 500
	6 (2 437 ㎒)	6.294	
	11 (2 462 ㎒)	6.474	
802.11g	0 (2 412 ㎒)	15.463	
	6 (2 437 ㎒)	15.305	
	11 (2 462 ㎒)	15.107	
802.11n(HT20)	0 (2 412 ㎒)	16.071	
	6 (2 437 ㎒)	15.938	
	11 (2 462 ㎒)	16.040	

5.4.2 Measured Graph for 802.11b



Low CH_



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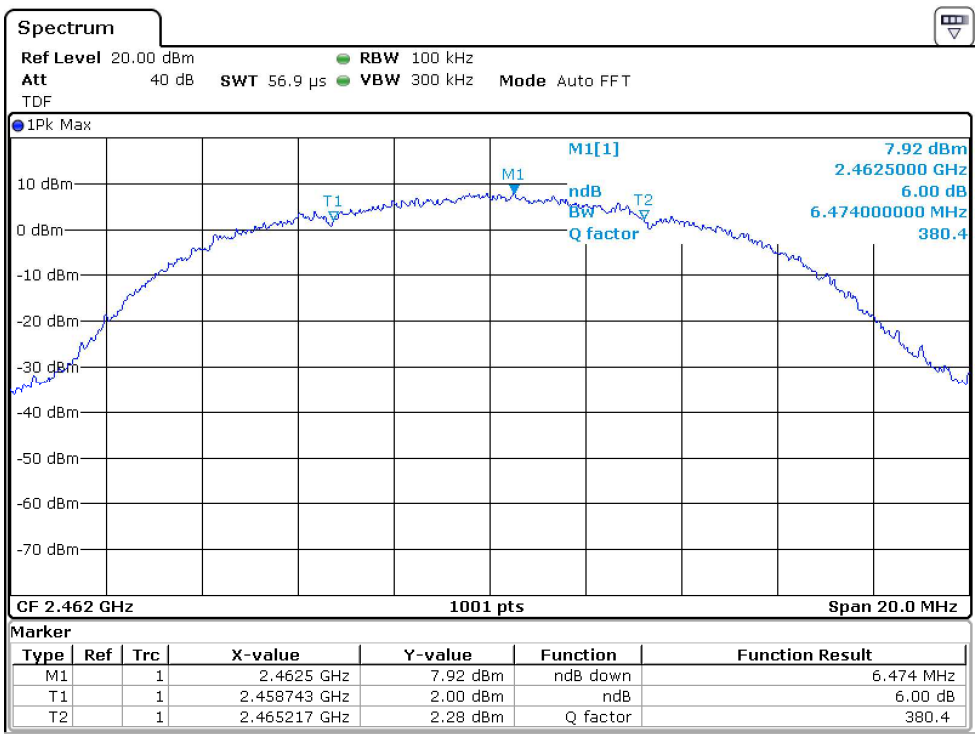
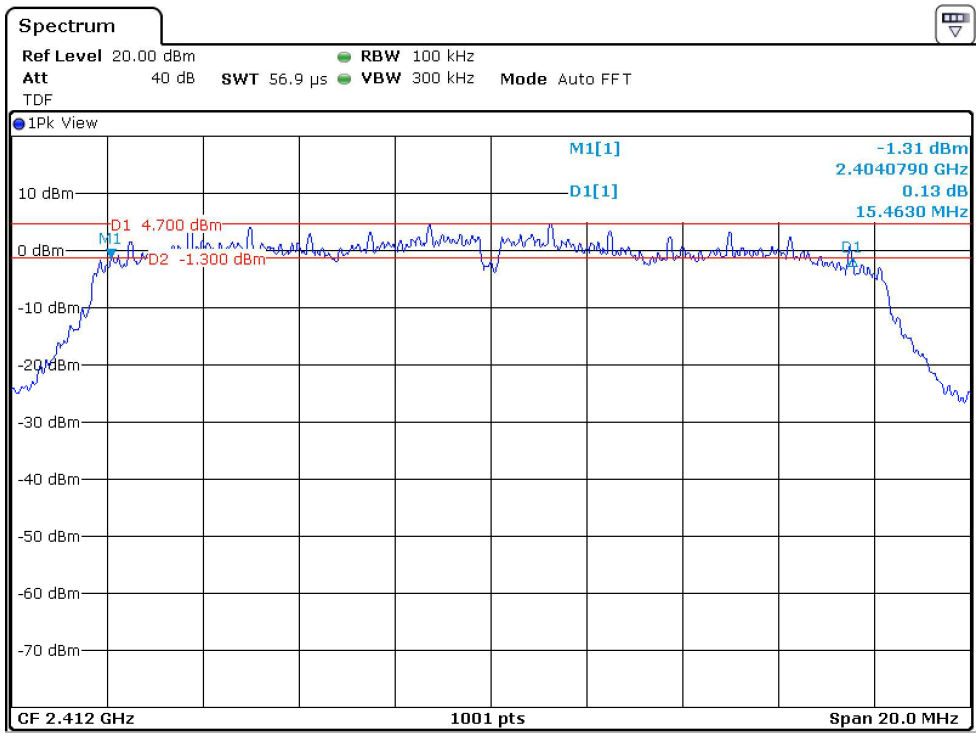


High CH

5.4.3 Measured Graph for 802.11g



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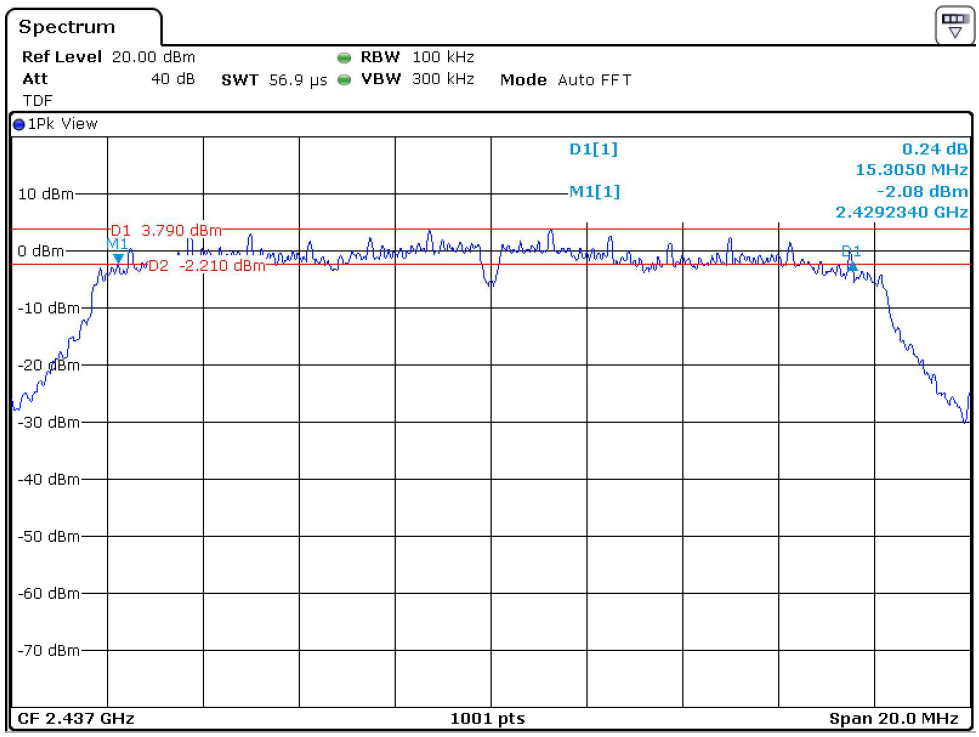
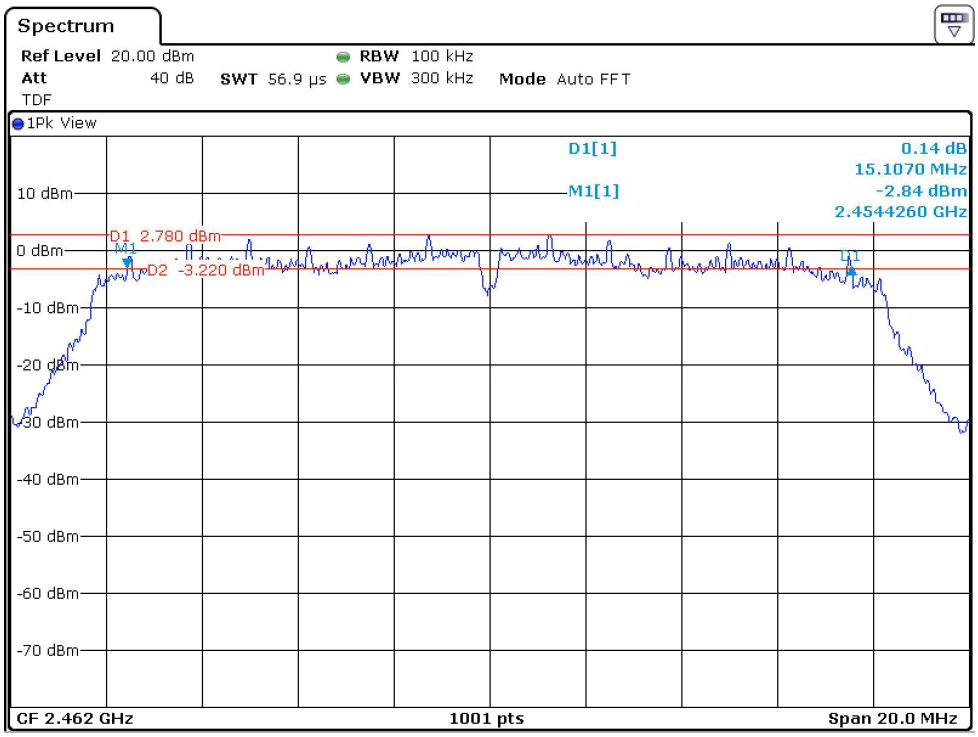
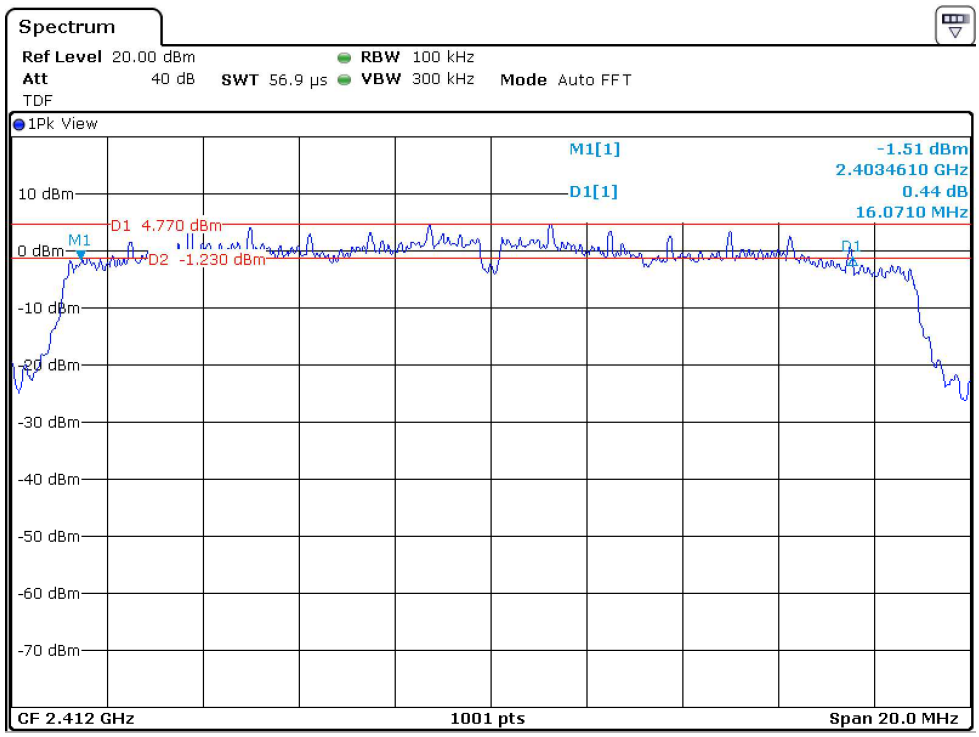


Mid CH

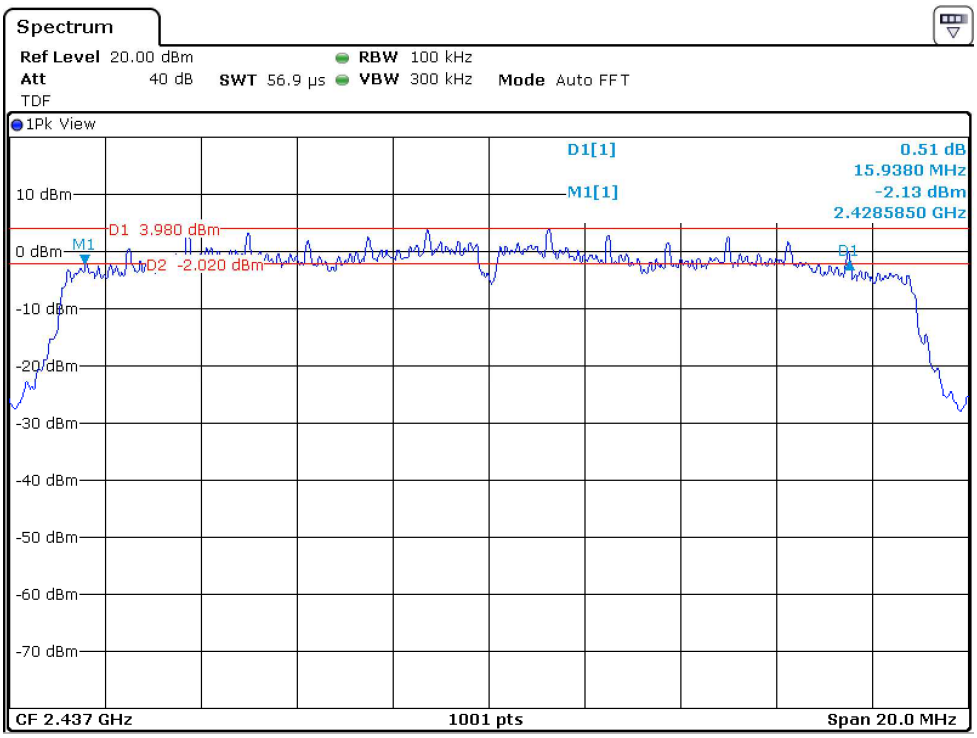


High CH

5.4.4 Measured Graph for 802.11n(HT20)



Low CH_



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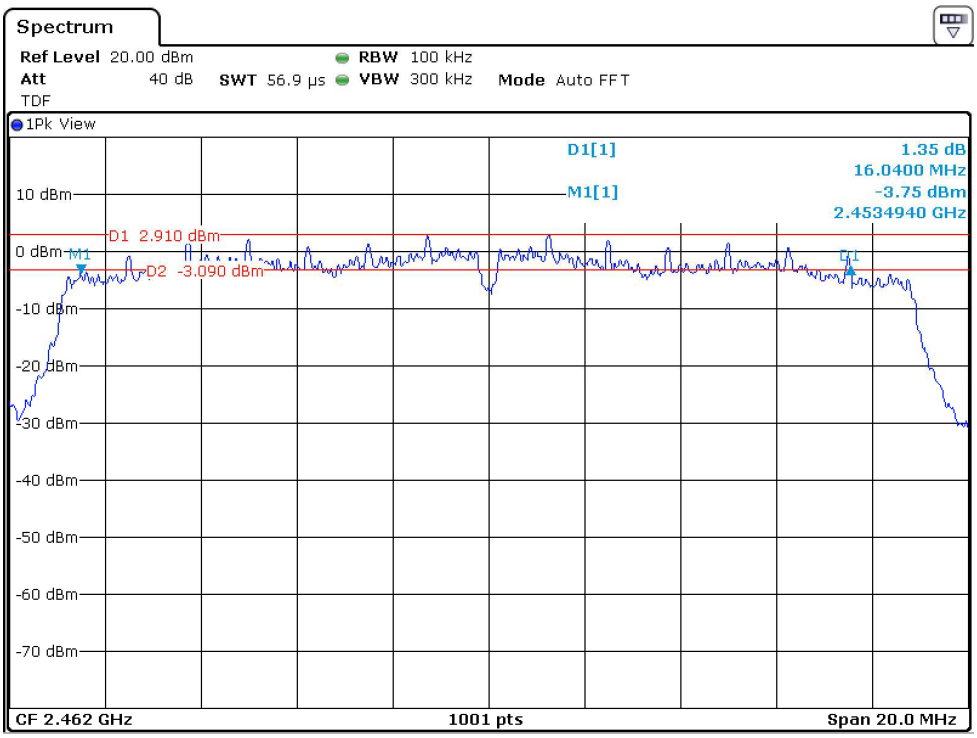


High CH

6. Maximum Conducted (Average) Output Power

6.1 Operating environment

Temperature : 25 ℃

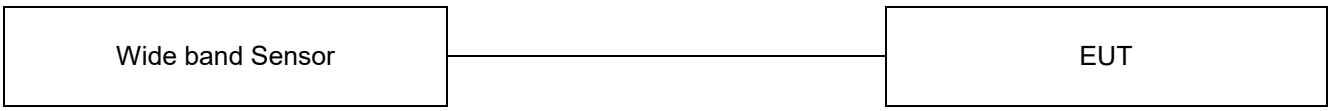
Relative humidity : 46 %

6.2 Measurement method

Standard : §15.247 (b) (3)

6.3 Test setup

The maximum peak output power was measured with the wide band sensor connected to the antenna output power of the EUT. The Wide Band Sensor is measured when the EUT is transmitting at the appropriate center frequency its maximum power control level as described in Section 8.3(558074 D01 15.247 Meas Guidance v05r02).
Since this measurement is made only during the ON time of the transmitter, no duty cycle correction is required.



6.4 Test data

Test date : 04. Mar. 2021

Operating mode : Transmit mode

Test Result : Pass

6.4.1 Measured Results

Modulation Type	Channel (Frequency)	Measured Value (dBm)	Limit (dBm)
802.11b	0 (2 412 ㎒)	16.33	30 (1 Watt)
	6 (2 437 ㎒)	16.32	
	11 (2 462 ㎒)	***16.34***	
802.11g	0 (2 412 ㎒)	16.19	
	6 (2 437 ㎒)	15.49	
	11 (2 462 ㎒)	14.30	
802.11n(HT20)	0 (2 412 ㎒)	16.15	
	6 (2 437 ㎒)	15.46	
	11 (2 462 ㎒)	14.26	

7. Power Spectral Density

7.1 Operating environment

Temperature : 25 ℃

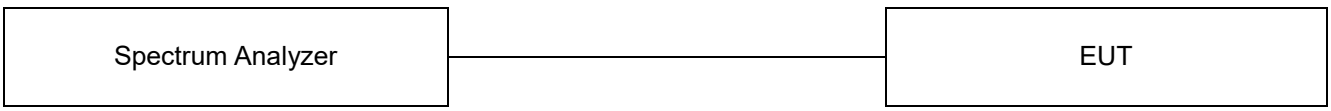
Relative humidity : 46 %

7.2 Measurement method

Standard : §15.247 (e)

7.3 Test setup

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 3 ㎑, the video bandwidth is set to 3 times the resolution bandwidth.



7.4 Test data

Test date : 04. Mar. 2021

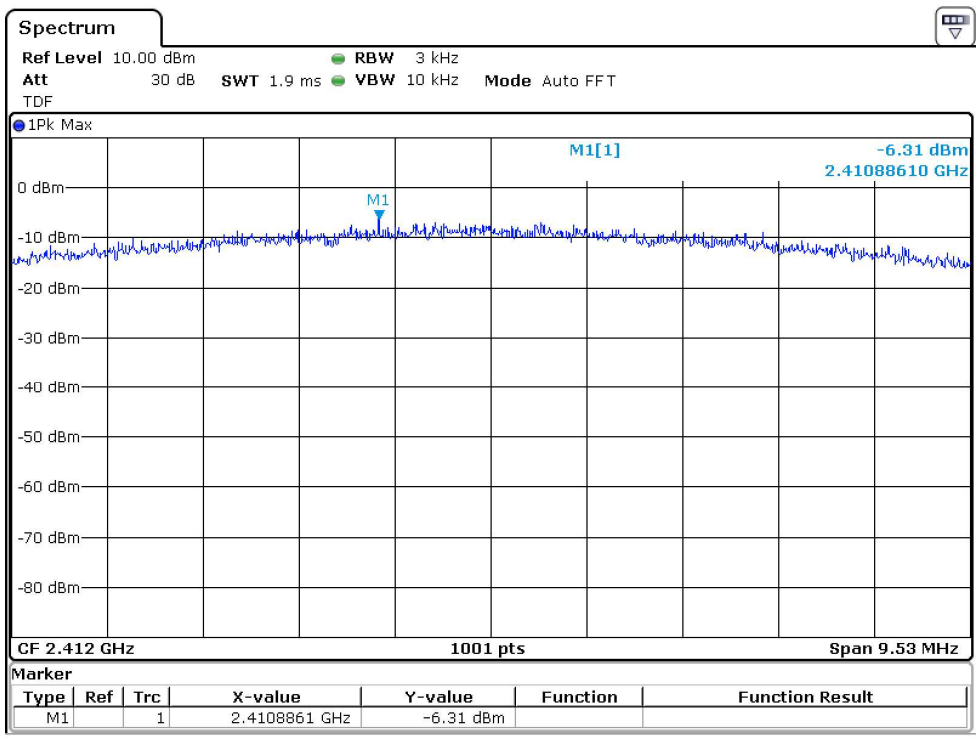
Operating mode : Transmit mode

Test Result : Pass

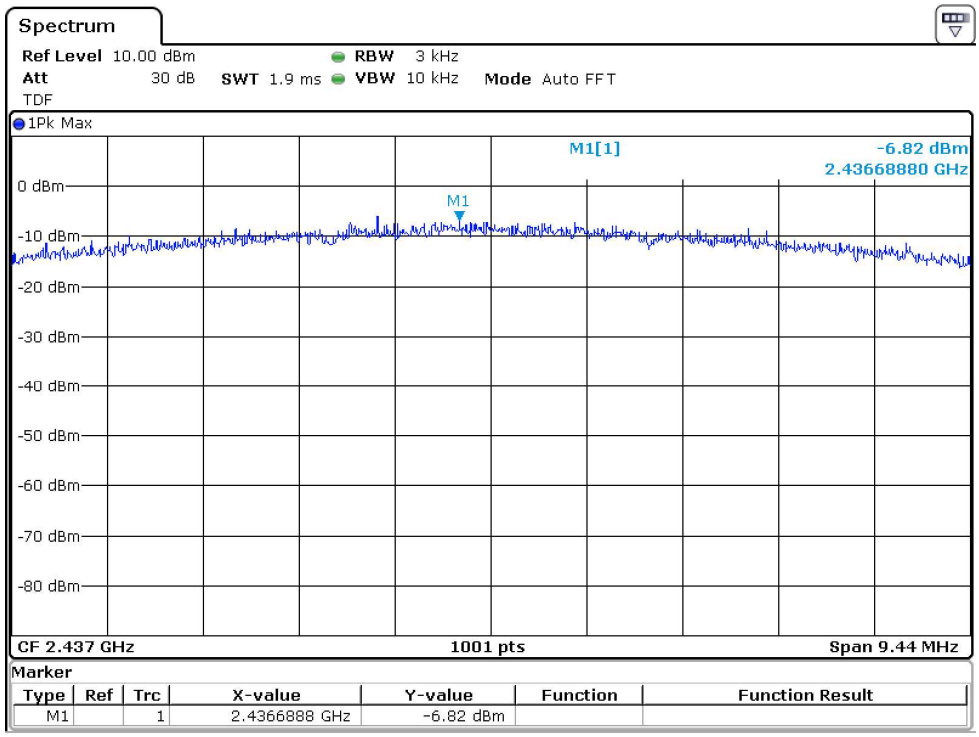
7.4.1 Measured Results

Modulation Type	Channel (Frequency)	Highest signal level (dBm)	Limit (dBm/3kHz)
802.11b	0 (2 412 MHz)	-6.31	8
	6 (2 437 MHz)	-6.82	
	11 (2 462 MHz)	-6.51	
802.11g	0 (2 412 MHz)	-8.58	
	6 (2 437 MHz)	-9.68	
	11 (2 462 MHz)	-9.92	
802.11n(HT20)	0 (2 412 MHz)	-7.39	
	6 (2 437 MHz)	-9.58	
	11 (2 462 MHz)	-10.20	

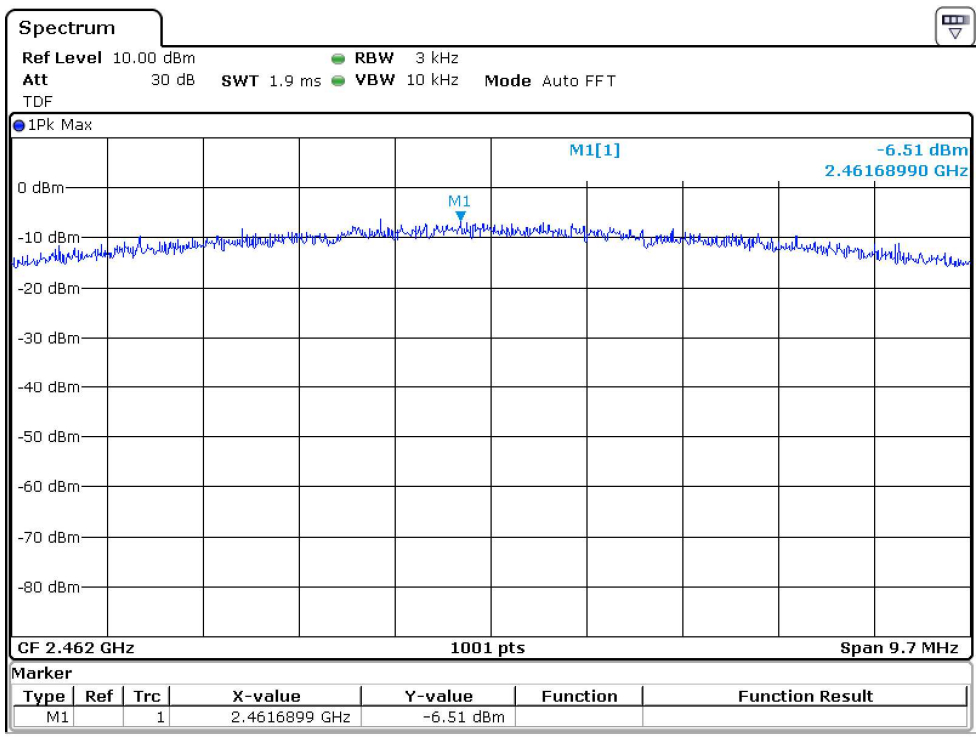
7.4.2 Measured Graph for 802.11b



Low CH

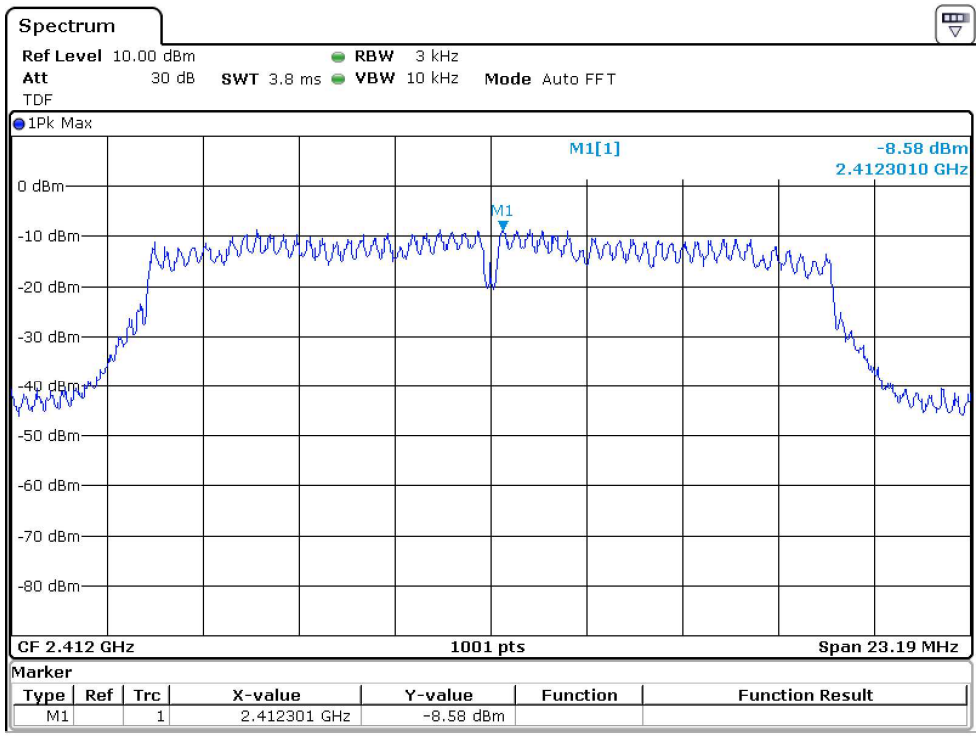


Mid CH



High CH

7.4.3 Measured Graph for 802.11g



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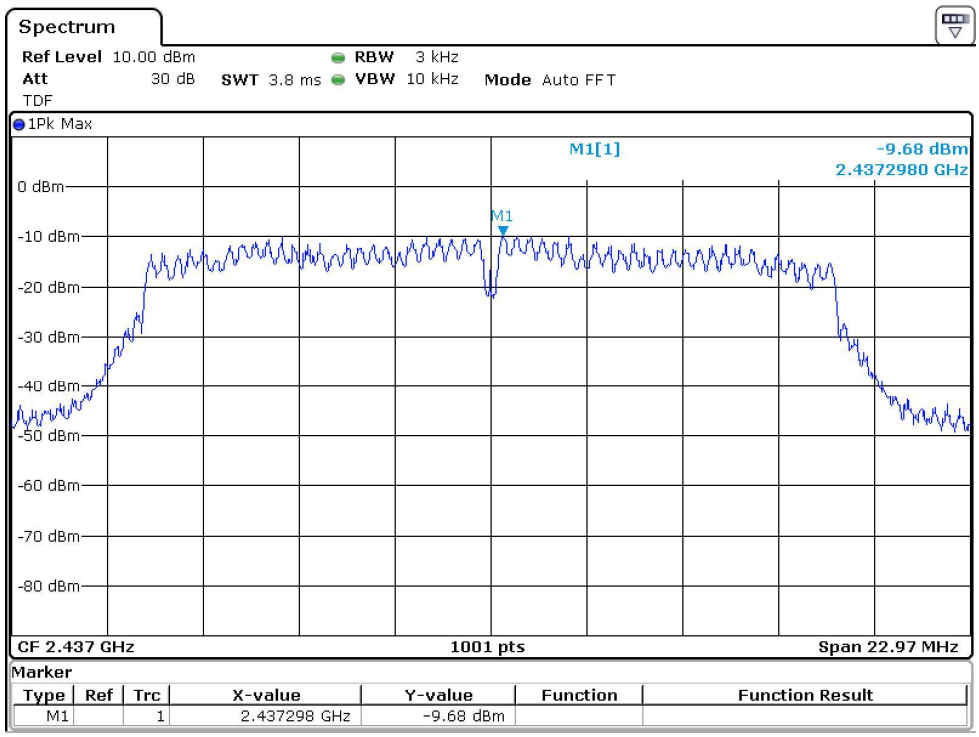

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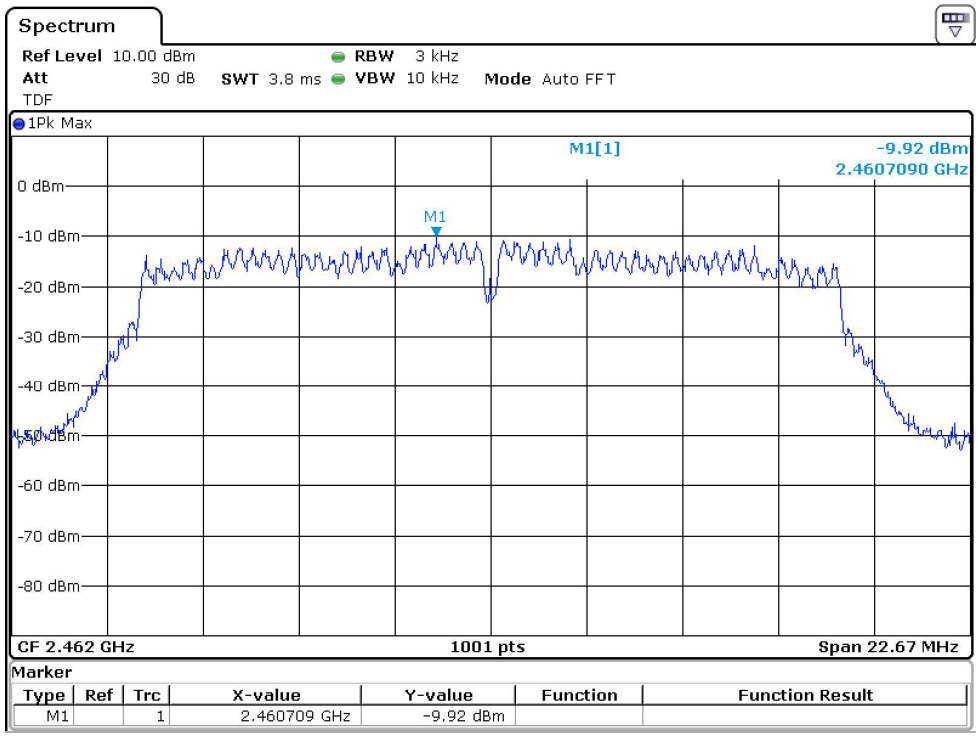
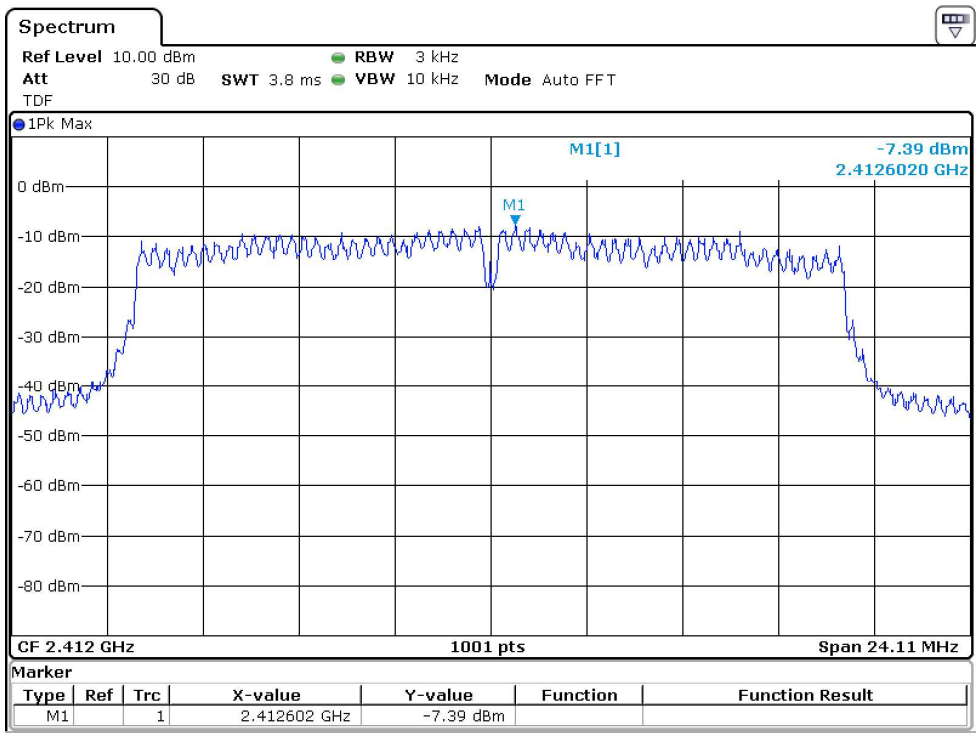


High CH

7.4.4 Measured Graph for 802.11n(HT20)



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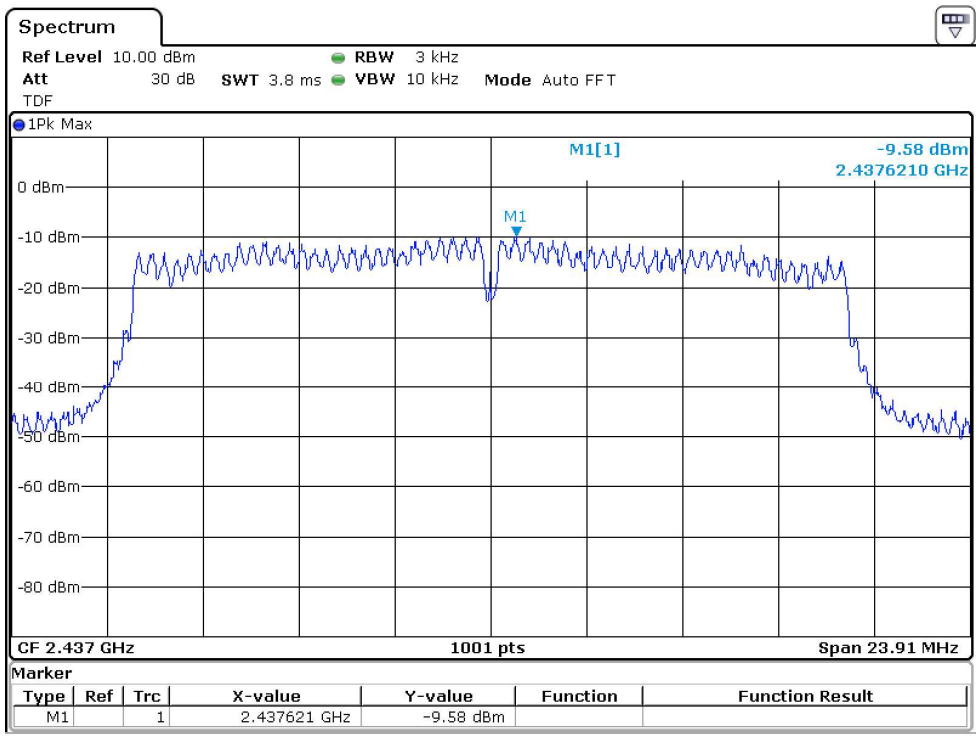

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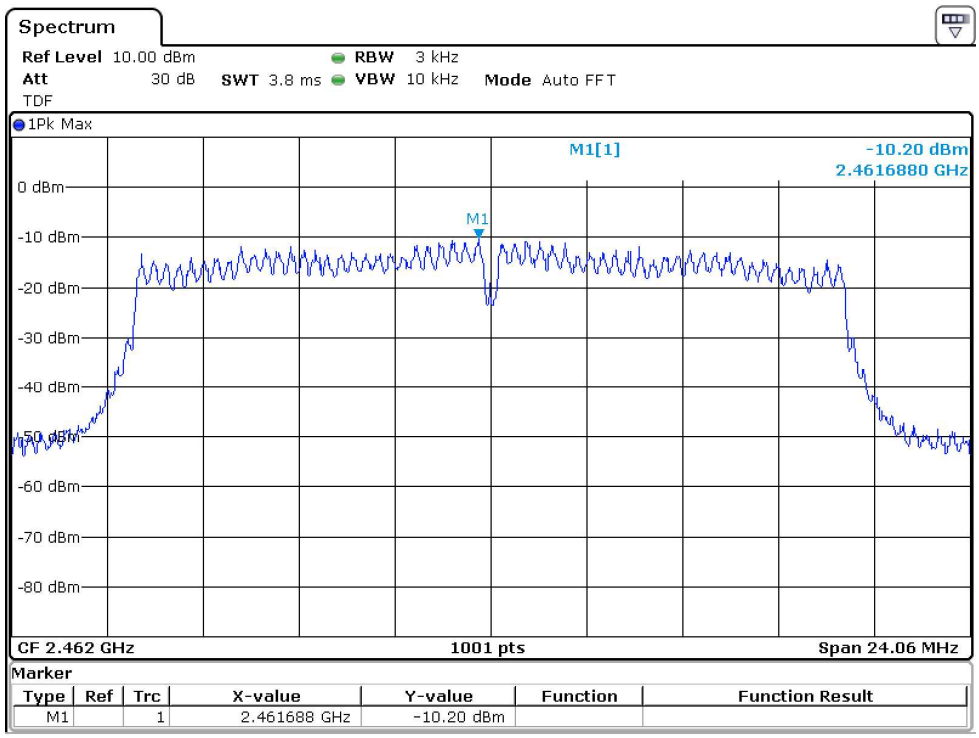


High CH

8. Conducted Spurious Emission

8.1 Operating environment

Temperature : 25 ℃

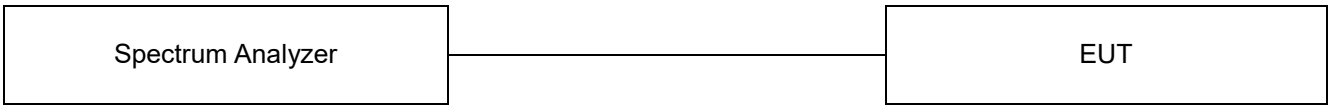
Relative humidity : 46 %

8.2 Measurement method

Standard : §15.247 (d)

8.3 Test setup

The antenna output of the EUT was connected to the spectrum analyzer. The resolution and video bandwidth is set to 100 ㎑, and peak detection was used.



8.4 Test data

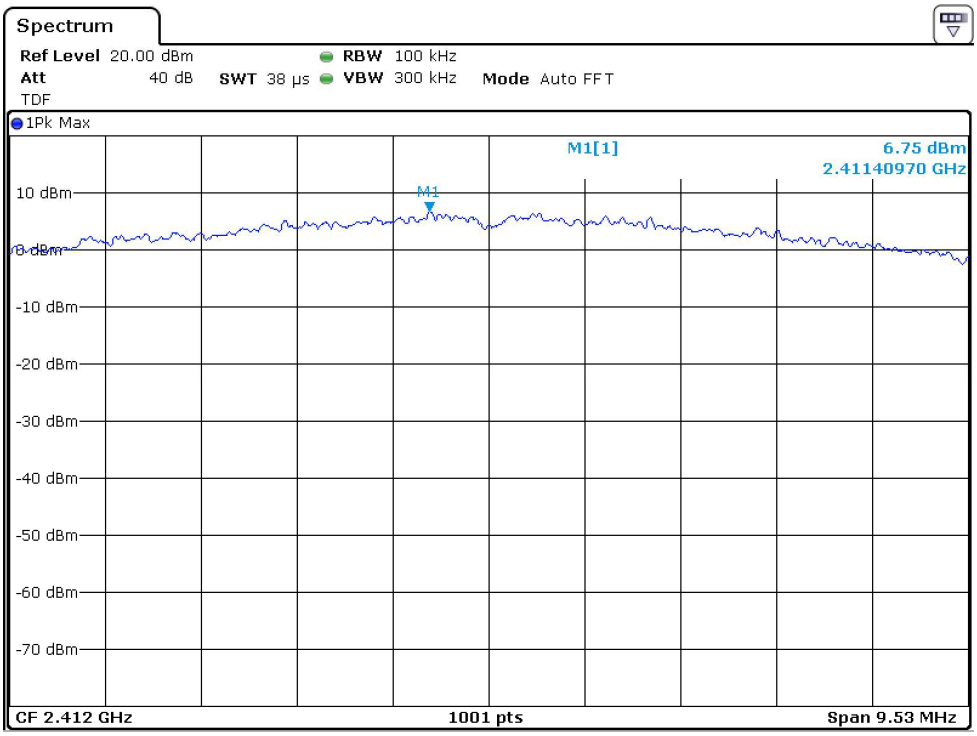
Test date : 04. Mar. 2021

Operating mode : Transmit mode

Test Result : Pass

8.4.1 Measured Results

8.4.1.1 Signal level (dB m) for 802.11b



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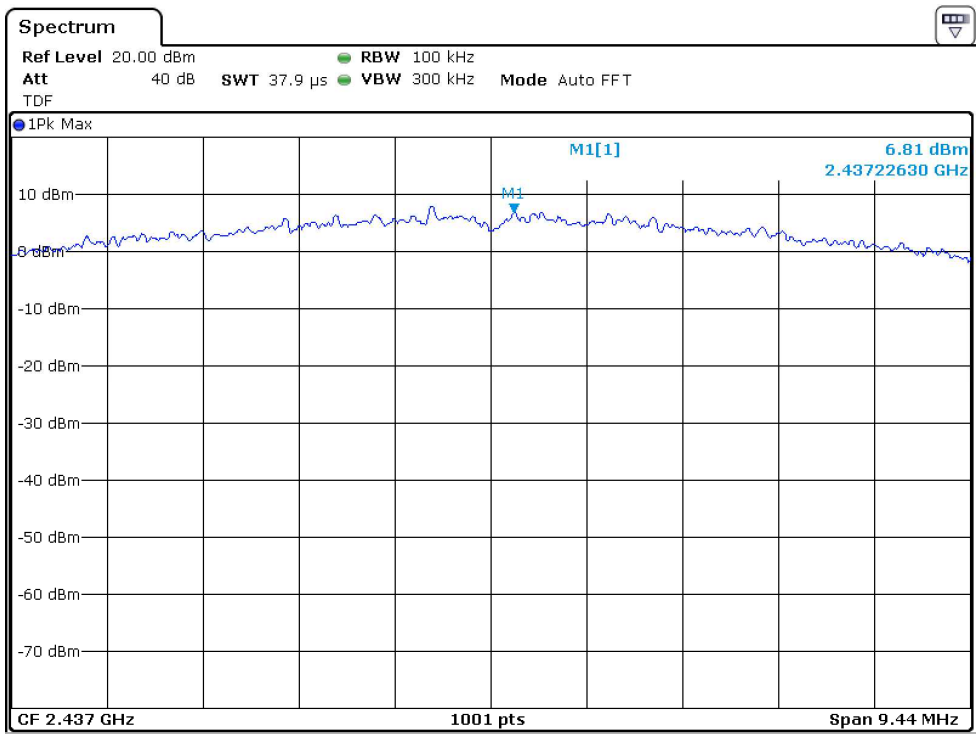
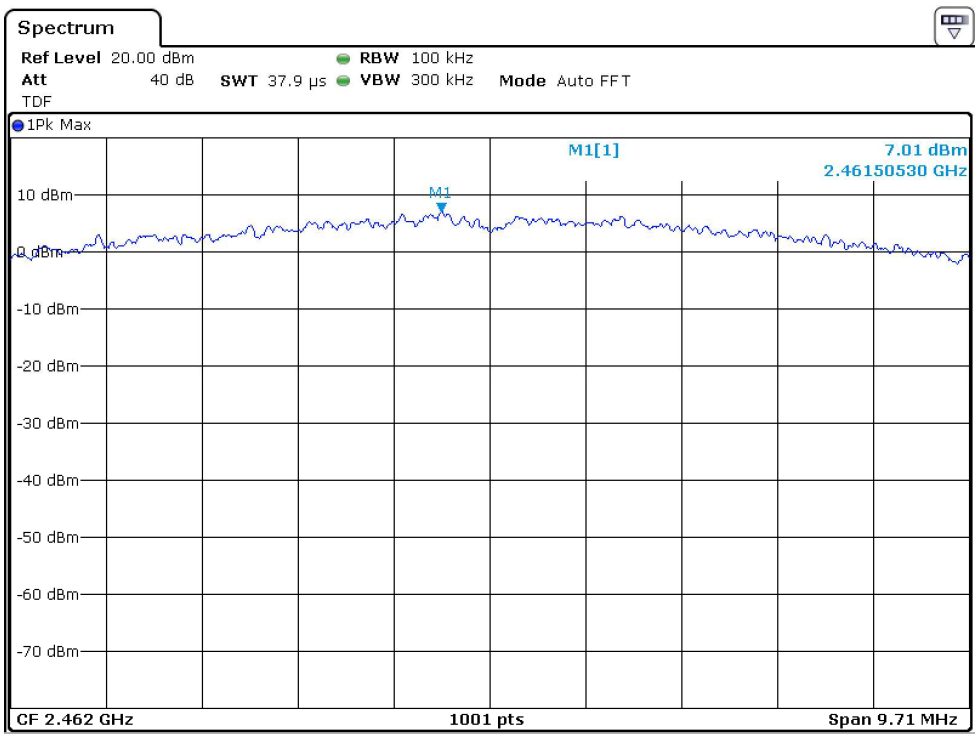
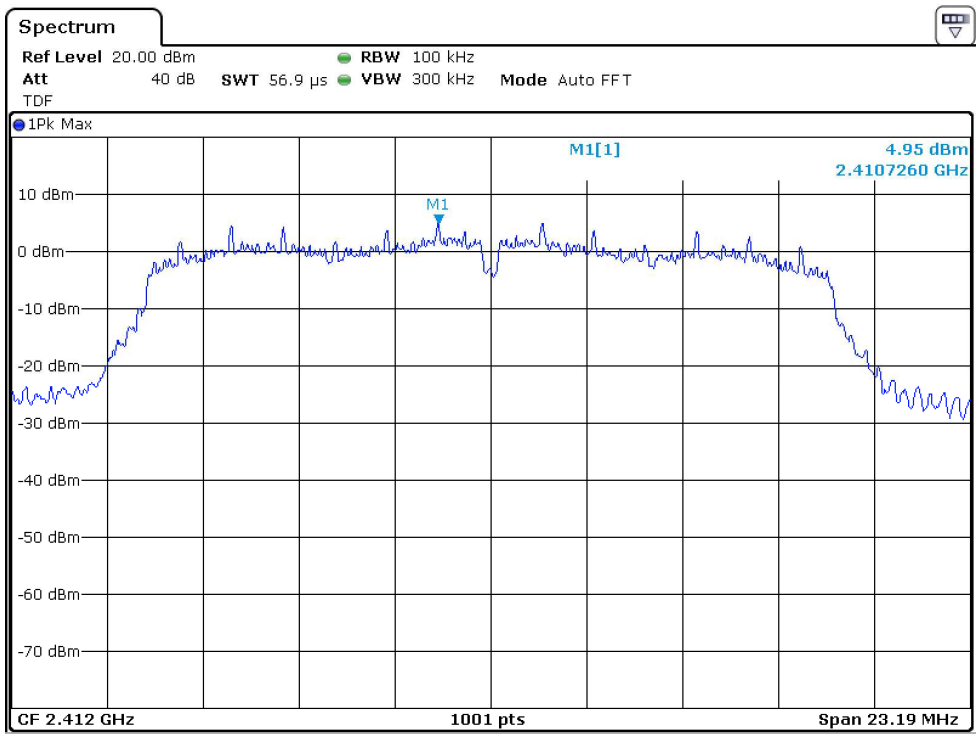


Mid CH



High CH

8.4.1.2 Signal level (dB m) for 802.11g



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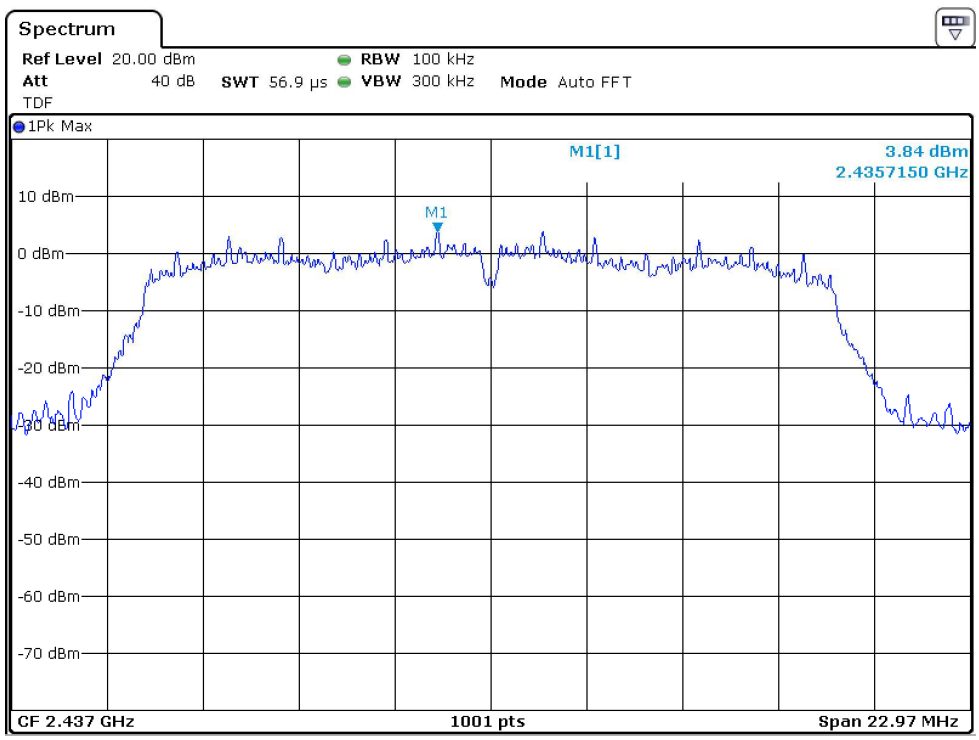

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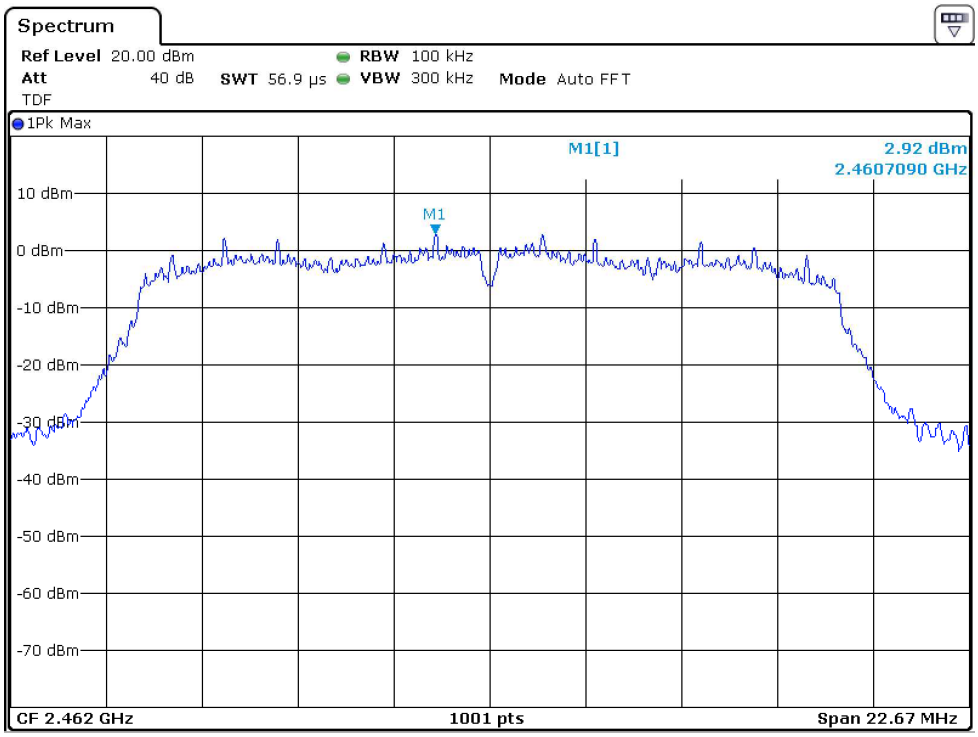
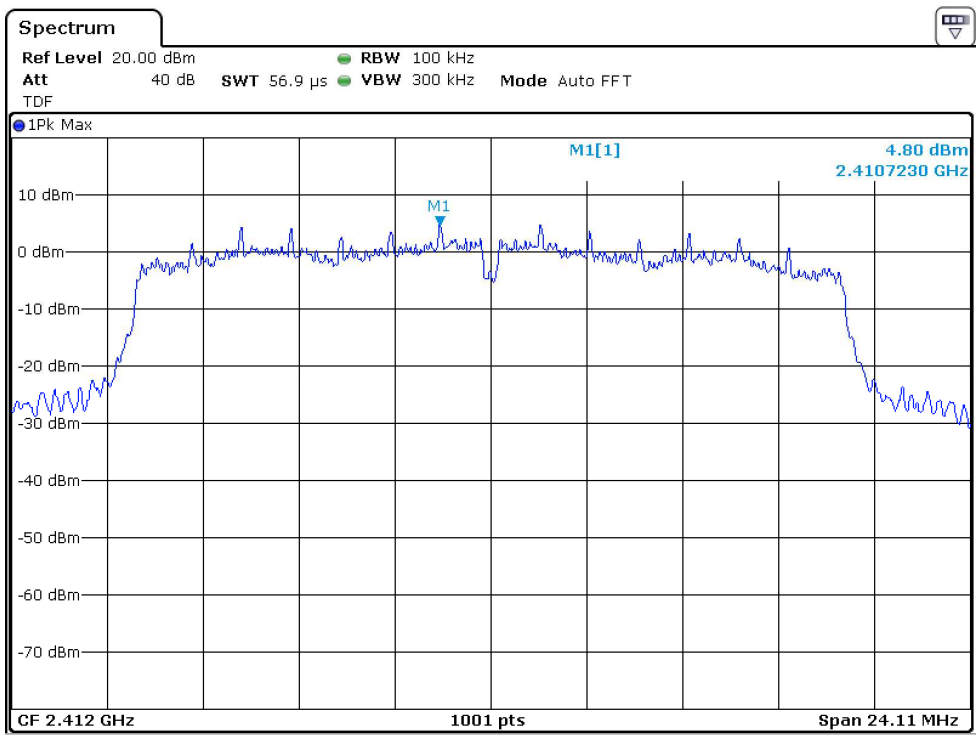
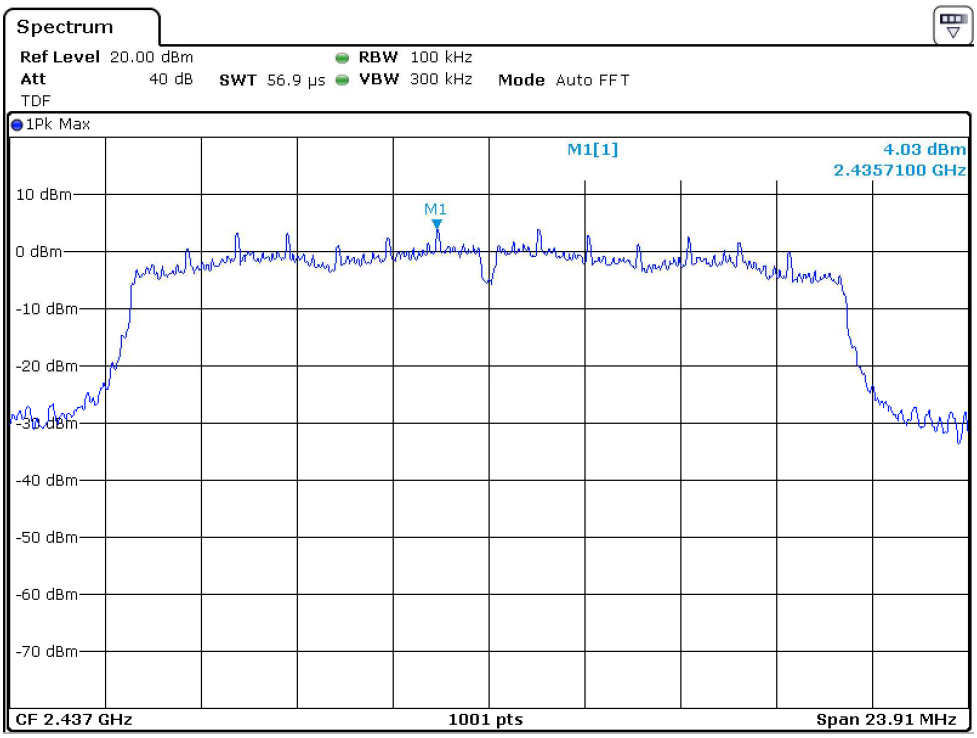


High CH

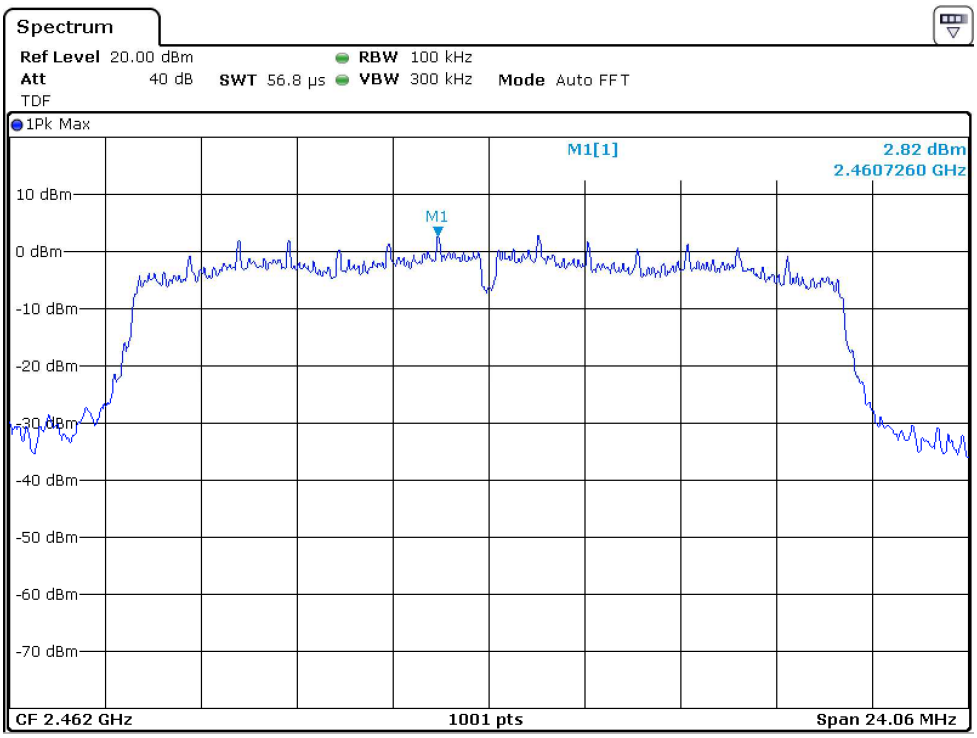
8.4.1.3 Signal level (dB m) for 802.11n(HT20)



Low CH

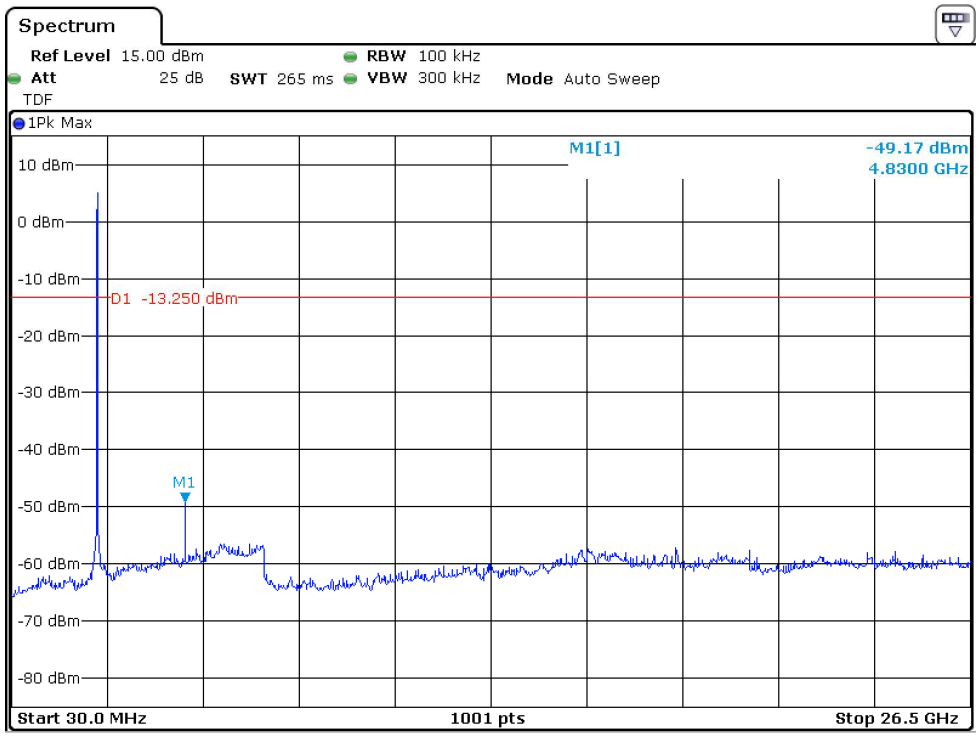


Mid CH

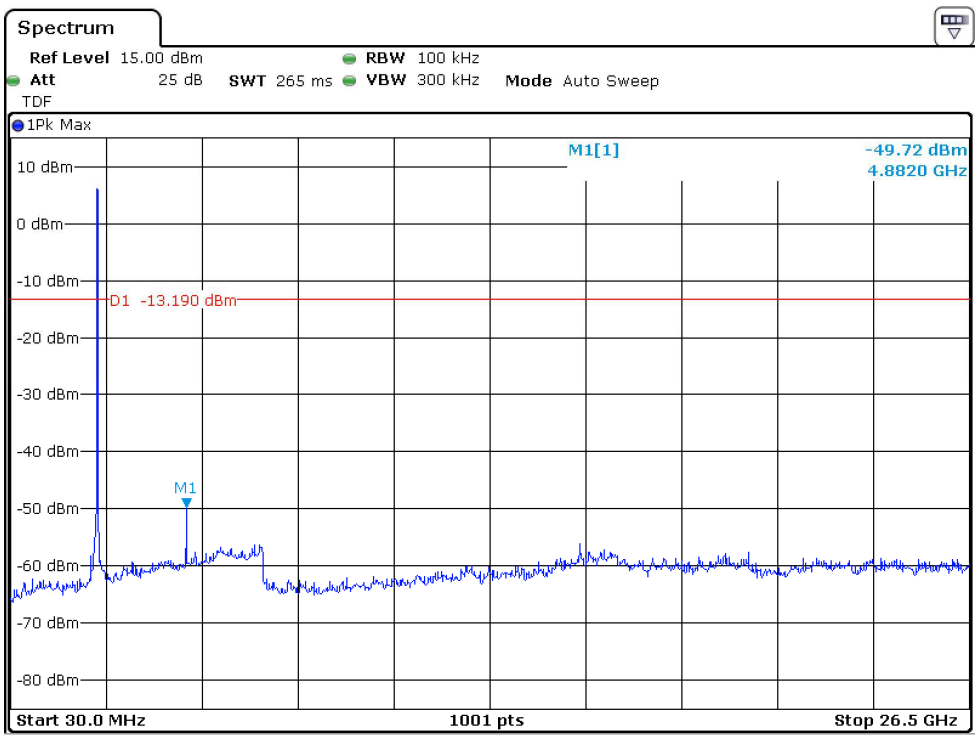


High CH

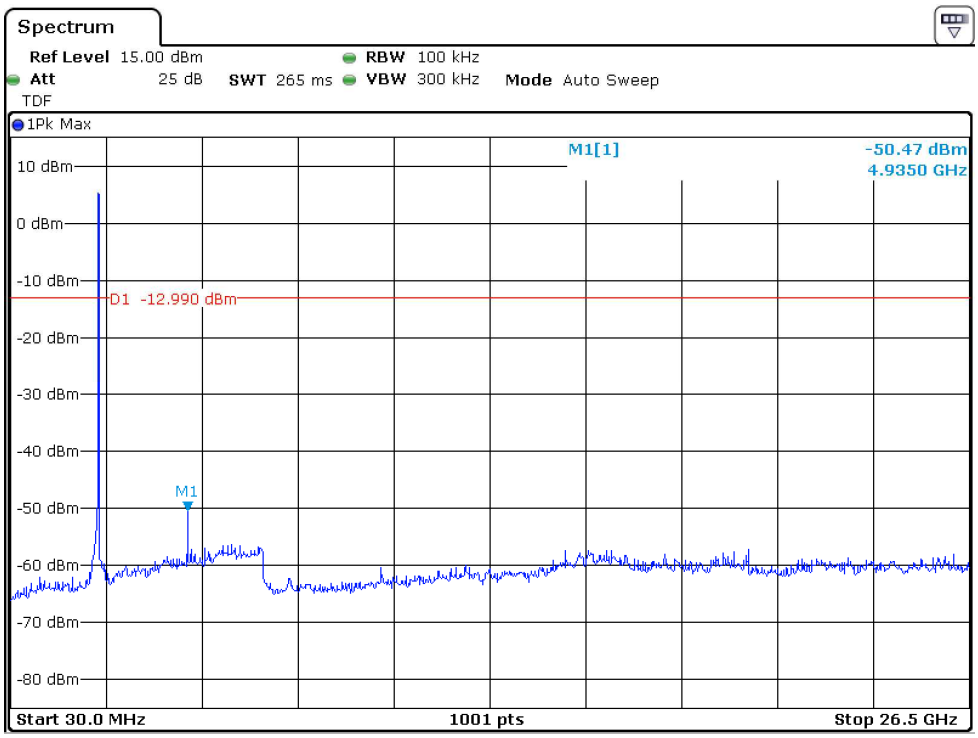
8.4.1.4 Unwanted Emissions In Non-Restricted Frequency Bands for 802.11b



Low CH

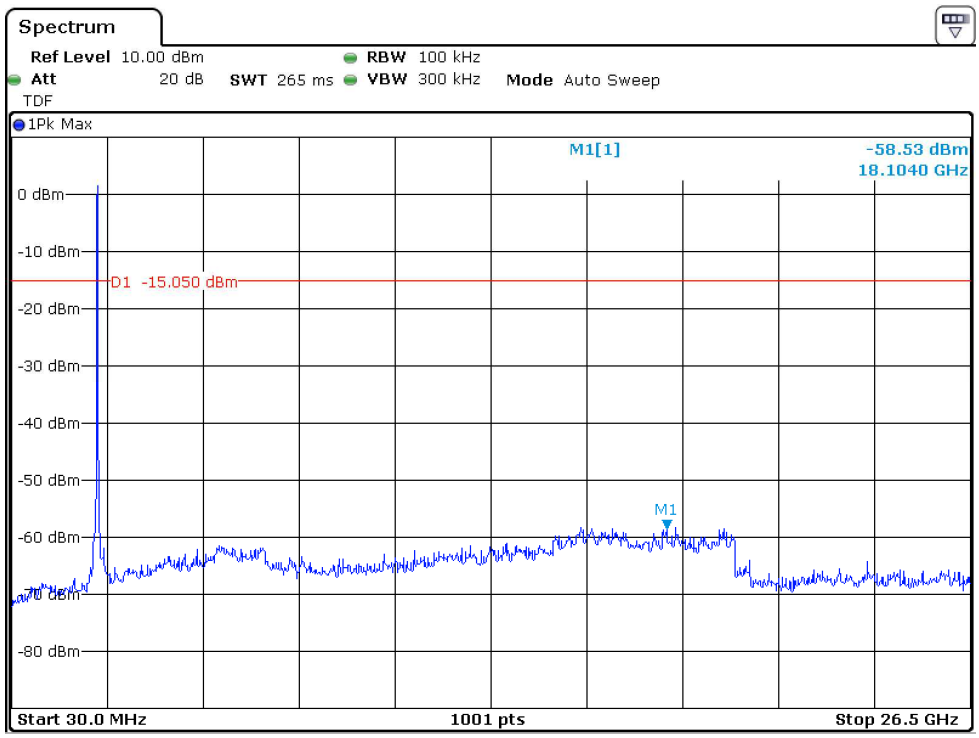


Mid CH

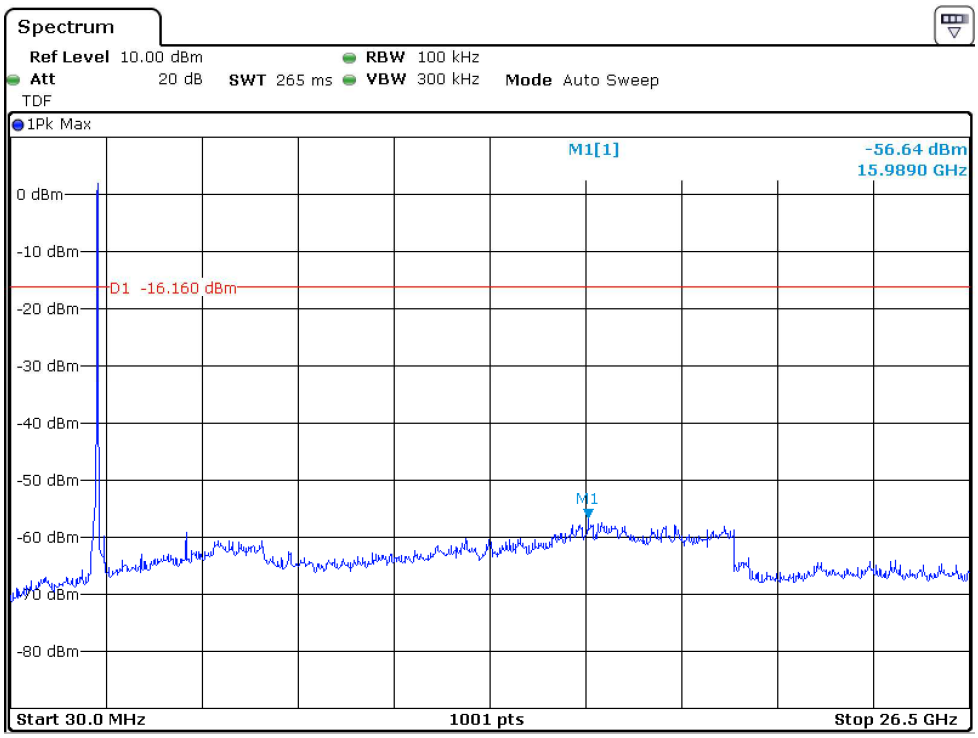


High CH

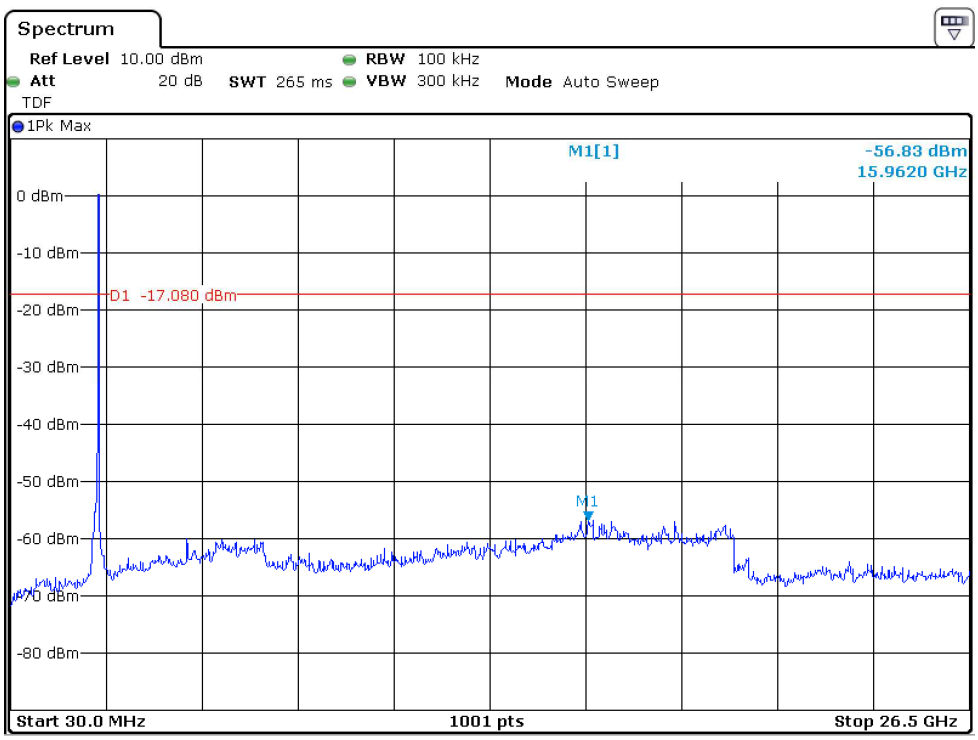
8.4.1.5 Unwanted Emissions In Non-Restricted Frequency Bands for 802.11g



Low CH

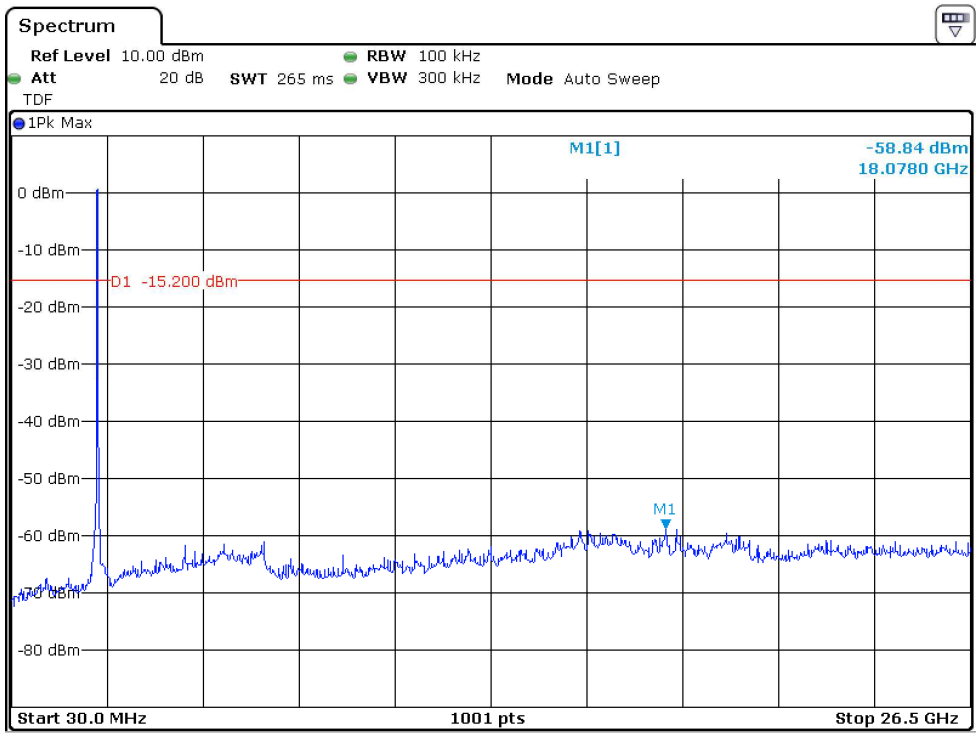


Mid CH

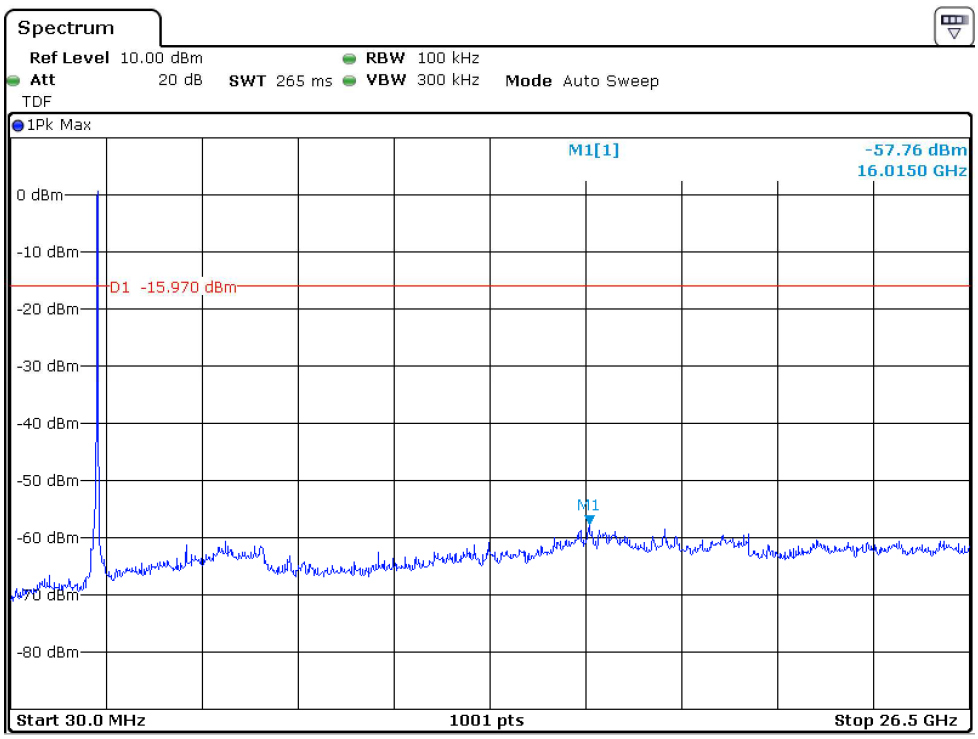


High CH

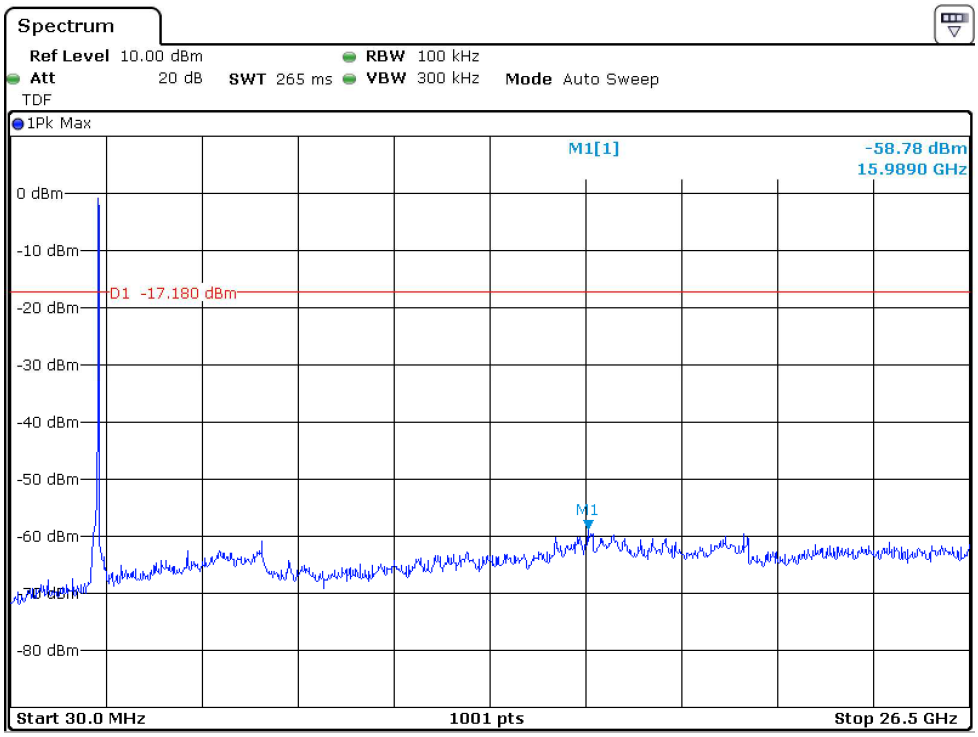
8.4.1.6 Unwanted Emissions In Non-Restricted Frequency Bands for 802.11n(HT20)



Low CH

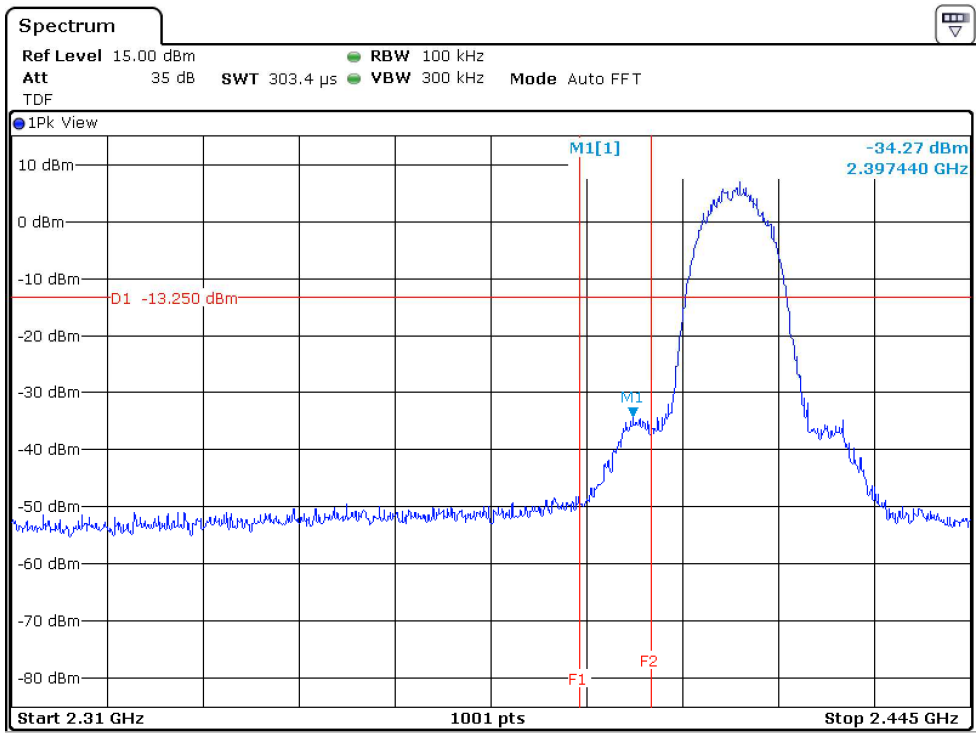


Mid CH

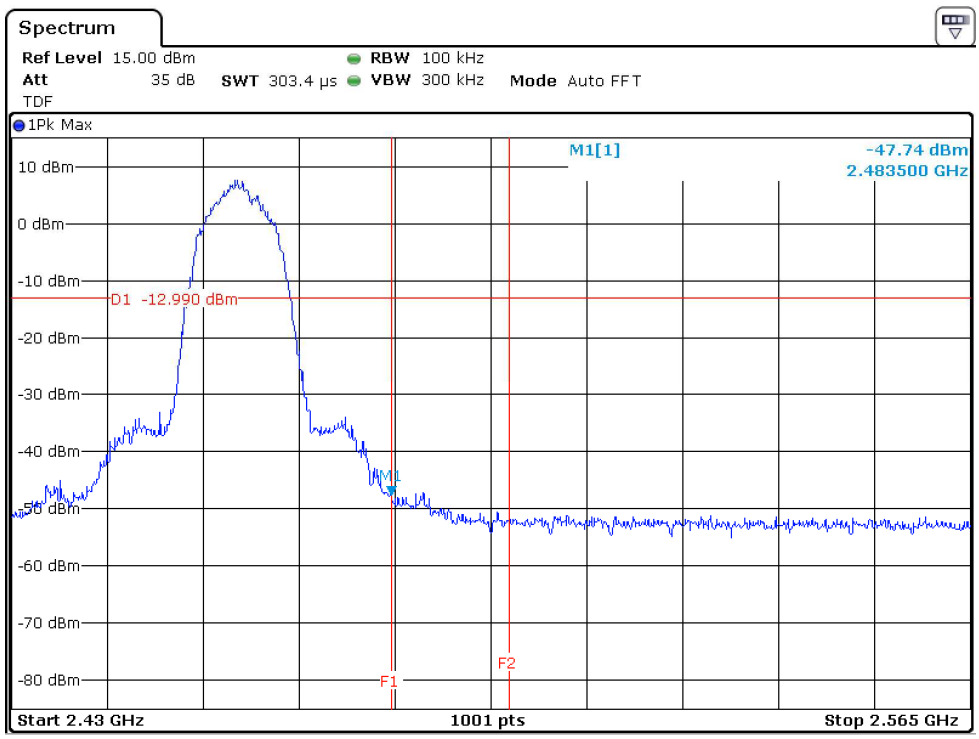

Spectrum
Ref Level 10.00 dBm
RBW 100 kHz
Att 20 dB
SWT 265 ms
VBW 300 kHz
Mode Auto Sweep
TDF
1Pk Max
M1[1]
-58.78 dBm
15.9890 GHz
0 dBm
-10 dBm
D1 -17.180 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
M1
-60 dBm
-70 dBm
-80 dBm
Start 30.0 MHz
1001 pts
Stop 26.5 GHz

High CH

8.4.1.7 Band Edge for 802.11b

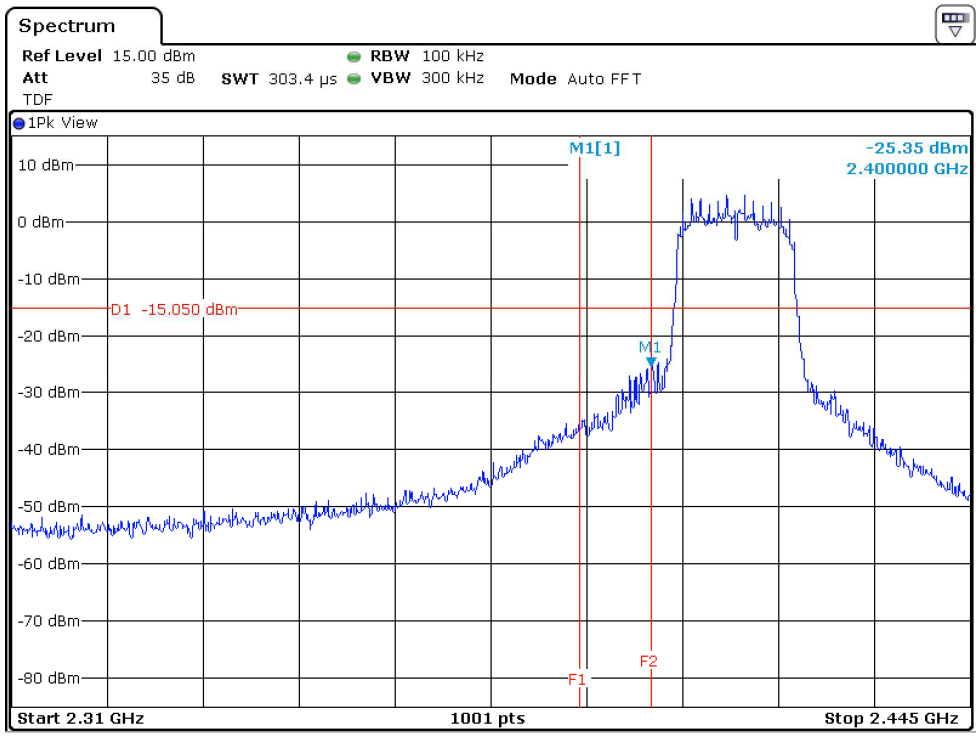


Low CH

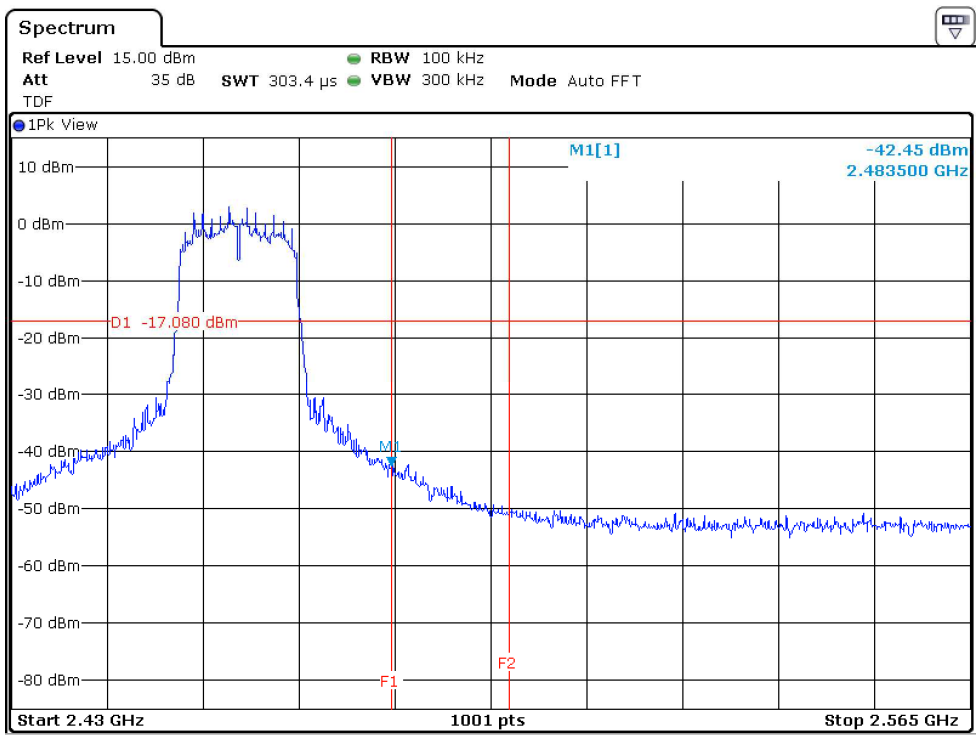


High CH

8.4.1.8 Band Edge for 802.11g

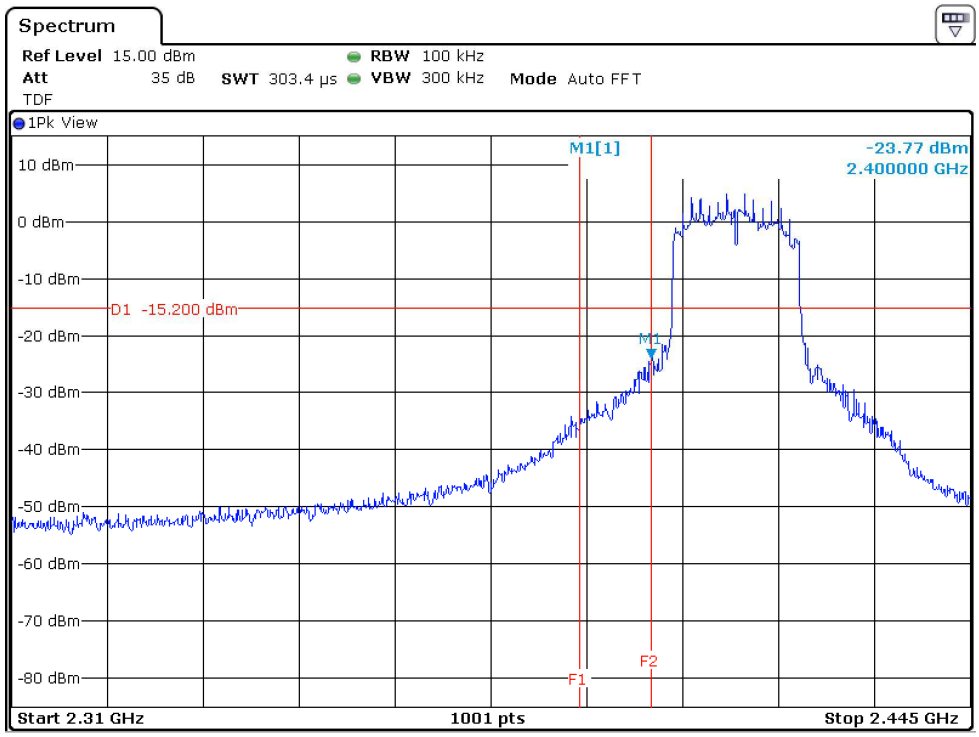


Low CH

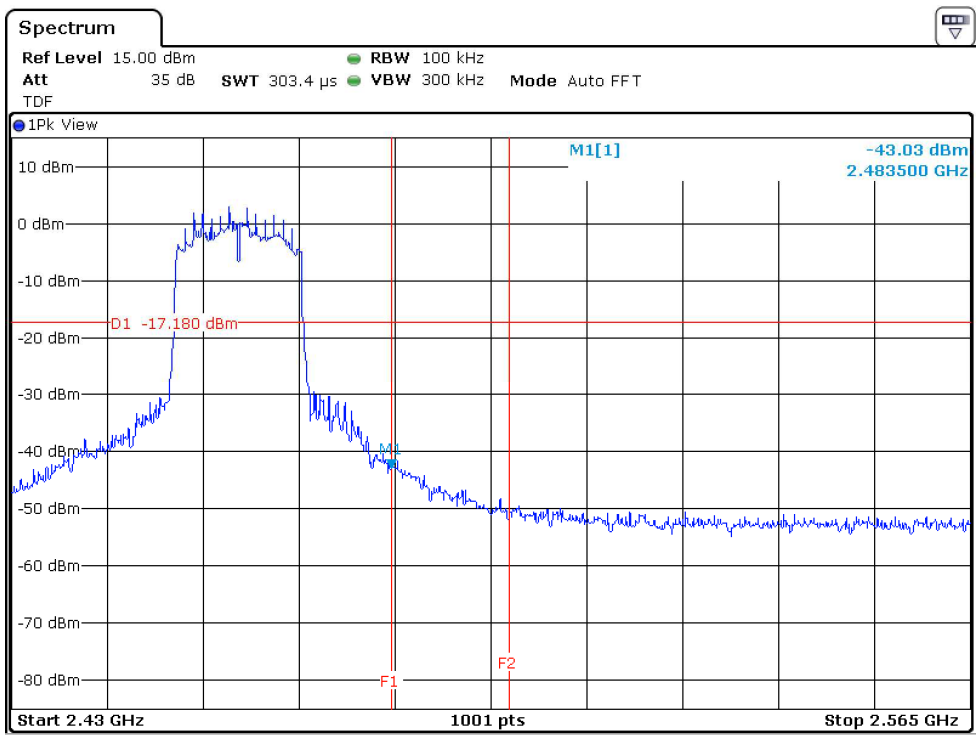


High CH

8.4.1.9 Band Edge for 802.11n(HT20)



Low CH



High CH

9. Radiated Spurious Emission

9.1 Operating environment

Temperature : 24 ℃

Relative humidity : 45 %

9.2 Measurement method

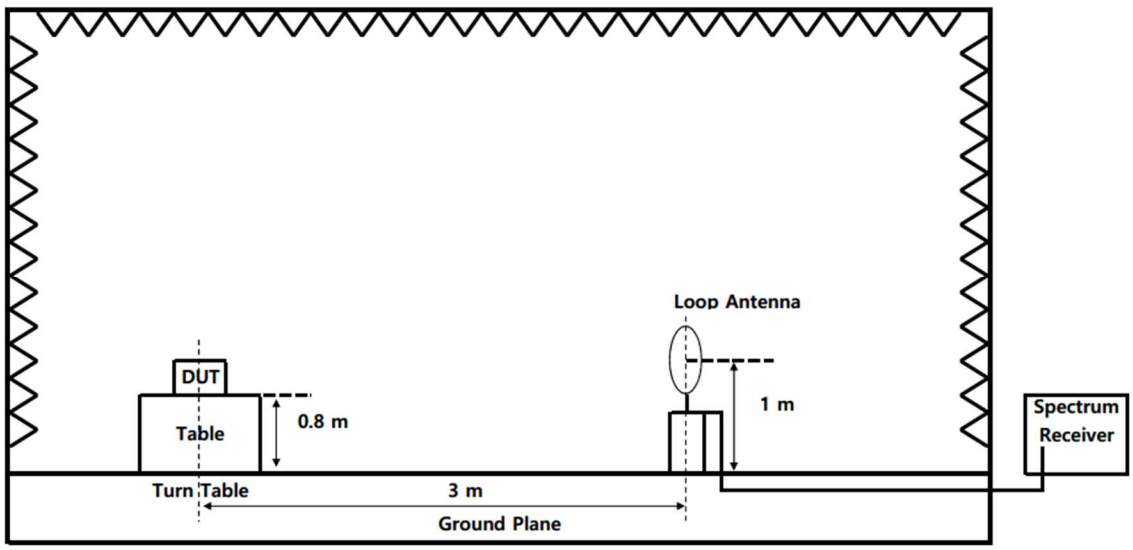
Standard : §15.247 (d), §15.209, §15.205

9.3 Test setup

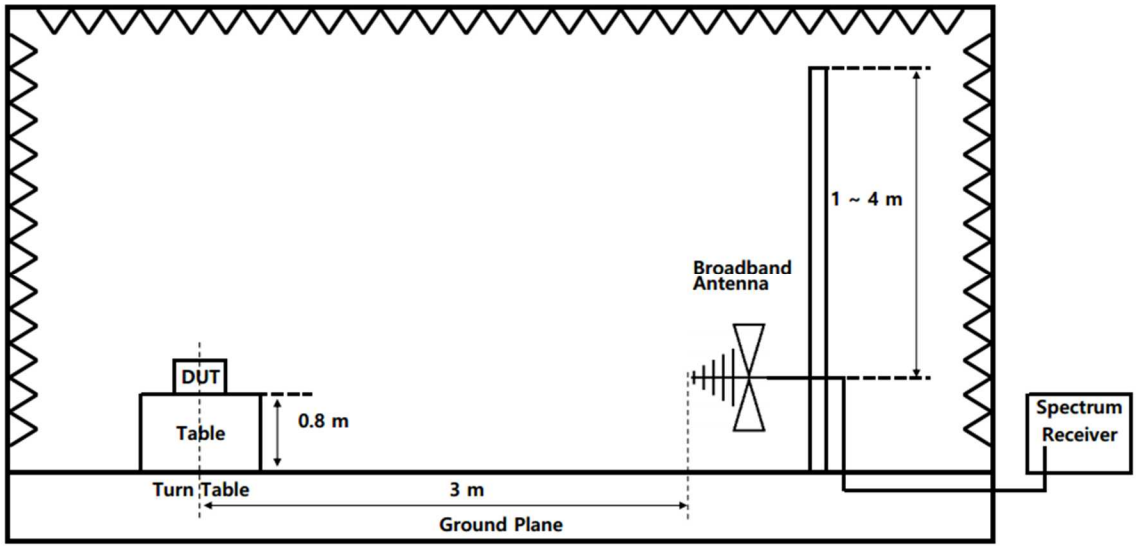
The radiated emissions measurements were performed on the 3 m, Semi-Anechoic Camber. The EUT was placed on a non-conductive turntable above the ground plane.

The frequency spectrum from 9 ㎑ to 26.5 ㎓ was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

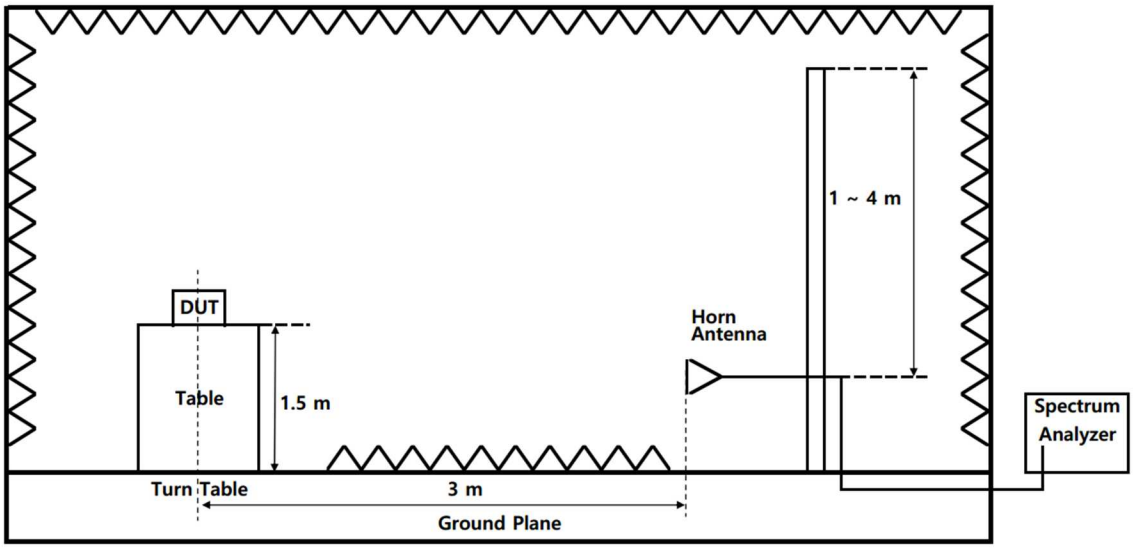
9.3.1 Below 30 ㎒



9.3.2 30 MHz to 1 GHz



9.3.3 Above 1 GHz



9.4 Test data

Test date : 05. Mar. 2021

Operating mode : Transmit mode

Test Result : Pass

9.4.1 Test data for Restricted band

9.4.1.1 802.11b

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2 339.53	55.33	Peak	H	-13.22	42.11	73.98	31.87
	36.50	Average	H		23.28	53.98	30.70
2 319.87	51.68	Peak	V	-13.46	38.22	73.98	35.76
	39.41	Average	V		25.95	53.98	28.03
High CH							
2 487.63	53.68	Peak	H	-12.67	41.01	73.98	32.97
	36.22	Average	H		23.55	53.98	30.43
2 491.65	51.18	Peak	V	-12.64	38.54	73.98	35.44
	37.05	Average	V		24.41	53.98	29.57

※ Ant. Pol. : Antenna Polarization

※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain

※ Result = Reading + Corr. Factor

※ Margin = Limit – Result

9.4.1.2 802.11g

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2 389.00	58.83	Peak	H	-13.27	45.56	73.98	28.42
	45.12	Average	H		31.85	53.98	22.13
2 389.64	61.61	Peak	V	-13.27	48.34	73.98	25.64
	48.46	Average	V		35.19	53.98	18.79
High CH							
2 483.66	61.66	Peak	H	-12.69	48.97	73.98	25.01
	47.62	Average	H		34.93	53.98	19.05
2 484.45	60.96	Peak	V	-12.69	48.27	73.98	25.71
	46.65	Average	V		33.96	53.98	20.02

※ Ant. Pol. : Antenna Polarization

※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain

※ Result = Reading + Corr. Factor

※ Margin = Limit - Result

9.4.1.3 802.11n(HT20)

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2 389.96	62.27	Peak	H	-13.27	49.00	73.98	24.98
	48.73	Average	H		35.46	53.98	18.52
2 389.48	61.50	Peak	V	-13.27	48.23	73.98	25.75
	47.93	Average	V		34.66	53.98	19.32
High CH							
2 483.66	59.38	Peak	H	-12.69	46.69	73.98	27.29
	45.15	Average	H		32.46	53.98	21.52
2 483.56	61.85	Peak	V	-12.69	49.16	73.98	24.82
	46.88	Average	V		34.19	53.98	19.79

※ Ant. Pol. : Antenna Polarization

※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain

※ Result = Reading + Corr. Factor

※ Margin = Limit – Result

9.4.2 Test data for Spurious & Harmonic

9.4.2.1 Measurement Results for below 30 ㎒

9.4.2.1.1 802.11b

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
It was not found any emissions peaks found from the EUT.							
Mid CH							
It was not found any emissions peaks found from the EUT.							
High CH							
It was not found any emissions peaks found from the EUT.							

※ Ant. Pol. : Antenna Polarization
※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain
※ Result = Reading + Corr. Factor
※ Margin = Limit – Result

9.4.2.1.2 802.11g

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
It was not found any emissions peaks found from the EUT.							
Mid CH							
It was not found any emissions peaks found from the EUT.							
High CH							
It was not found any emissions peaks found from the EUT.							

※ Ant. Pol. : Antenna Polarization
※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain
※ Result = Reading + Corr. Factor
※ Margin = Limit – Result

9.4.2.1.3 802.11n(HT20)

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
It was not found any emissions peaks found from the EUT.							
Mid CH							
It was not found any emissions peaks found from the EUT.							
High CH							
It was not found any emissions peaks found from the EUT.							

※ Ant. Pol. : Antenna Polarization

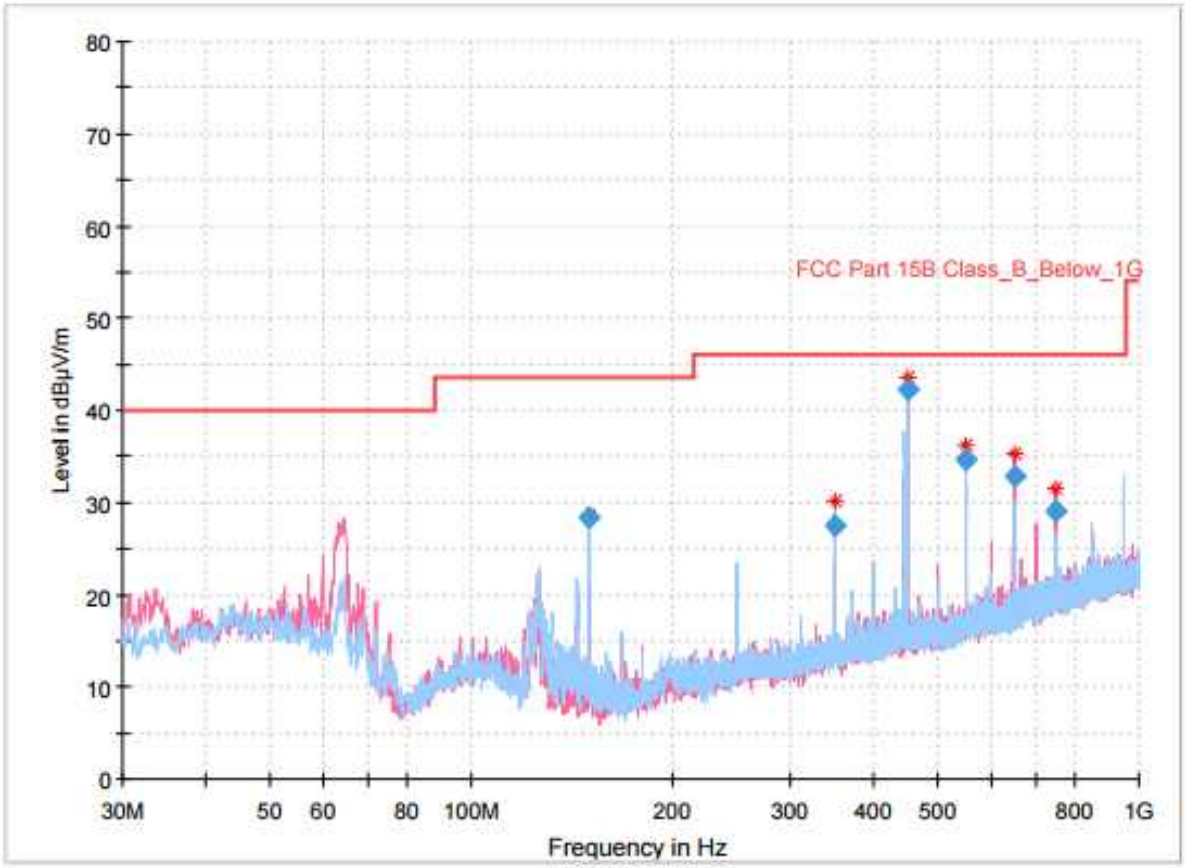
※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain

※ Result = Reading + Corr. Factor

※ Margin = Limit – Result

9.4.2.2 Measurement Results for below 1 GHz

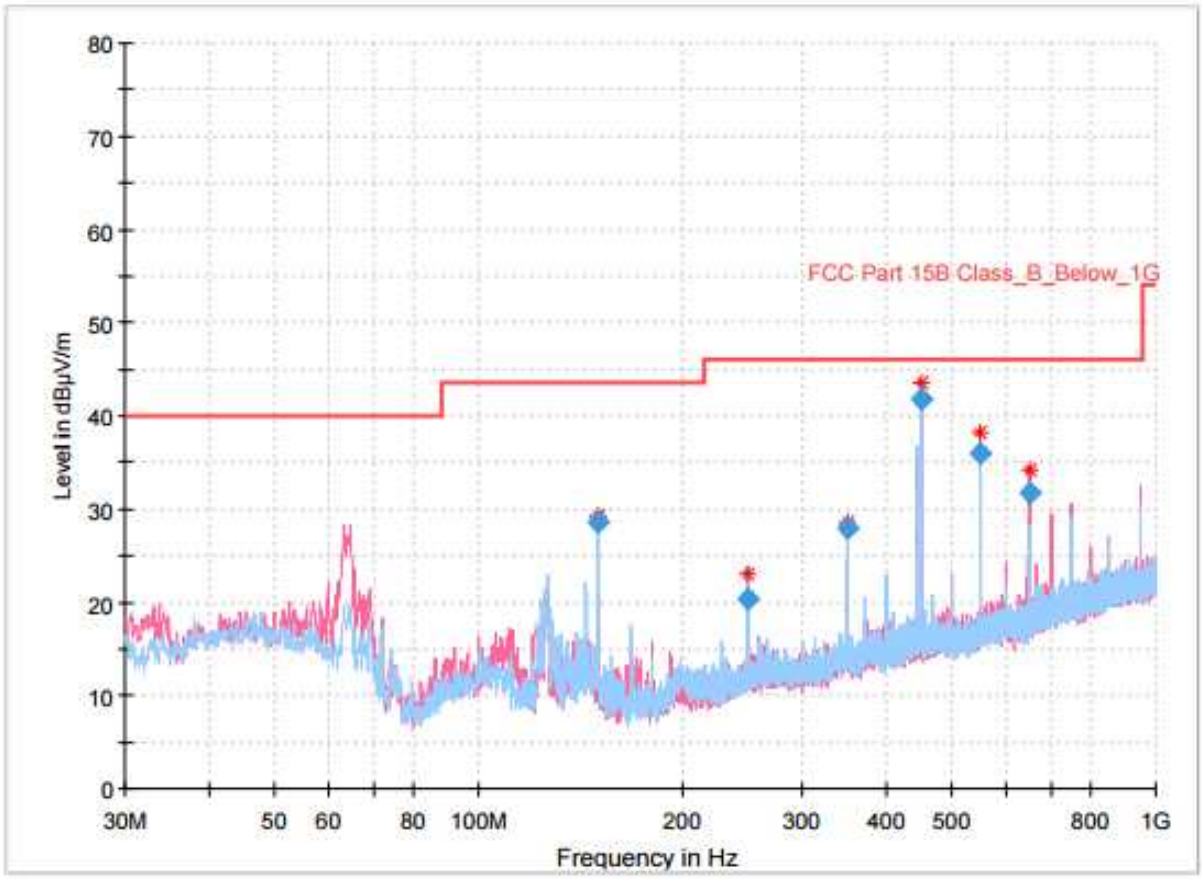
9.4.2.2.1 802.11b



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
149.989000	28.32	43.50	15.18	1000.0	120.000	200.0	H	0.0	-24.2
349.906000	27.49	46.00	18.51	1000.0	120.000	100.0	H	337.0	-15.9
450.107000	42.22	46.00	3.78	1000.0	120.000	100.0	H	134.0	-14.3
550.114000	34.58	46.00	11.42	1000.0	120.000	100.0	V	330.0	-12.3
649.830000	32.79	46.00	13.21	1000.0	120.000	100.0	V	0.0	-10.9
749.740000	29.03	46.00	16.97	1000.0	120.000	100.0	V	175.0	-8.8

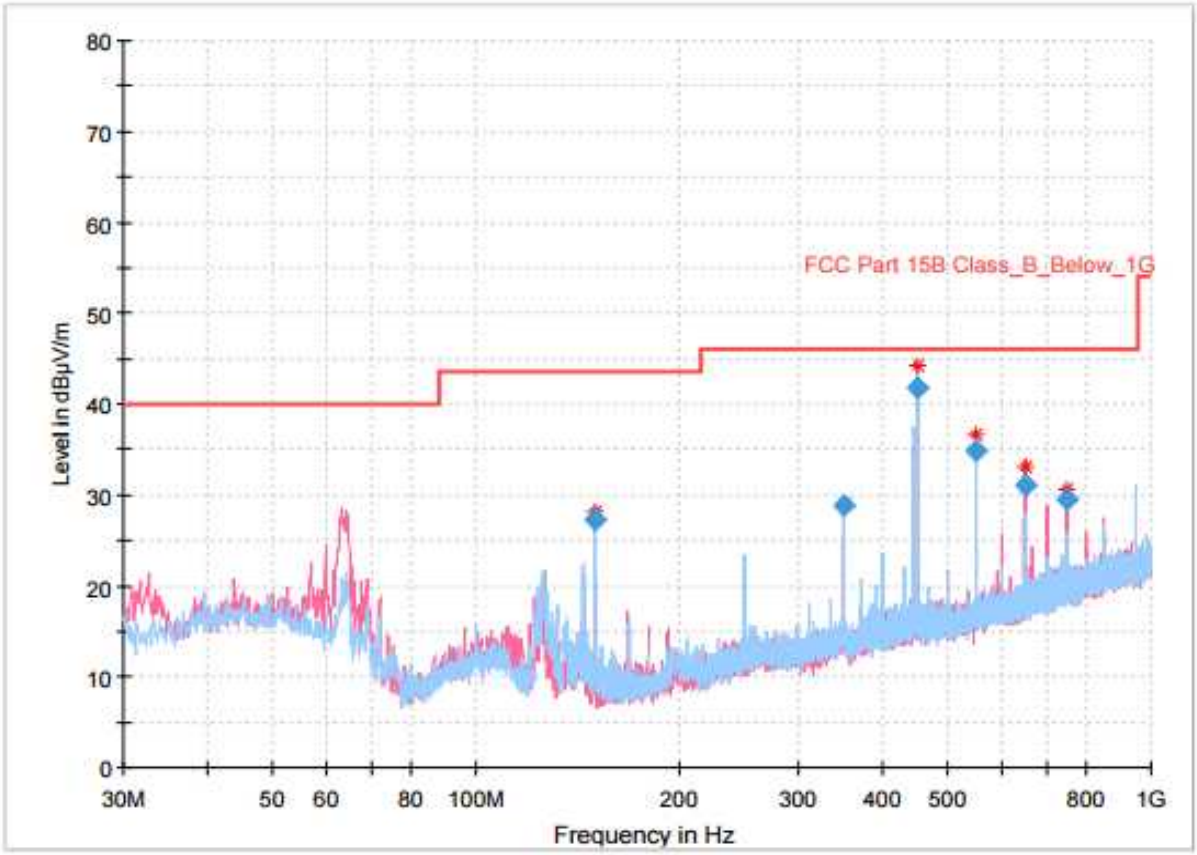
Low CH



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
149.989000	28.53	43.50	14.97	1000.0	120.000	200.0	H	0.0	-24.2
249.899000	20.40	46.00	25.60	1000.0	120.000	100.0	H	62.0	-18.7
350.003000	27.86	46.00	18.14	1000.0	120.000	300.1	H	47.0	-15.9
449.816000	41.73	46.00	4.27	1000.0	120.000	100.0	H	71.0	-14.3
550.114000	36.01	46.00	9.99	1000.0	120.000	100.0	V	339.0	-12.3
649.830000	31.66	46.00	14.34	1000.0	120.000	100.0	V	127.0	-10.9

Mid CH

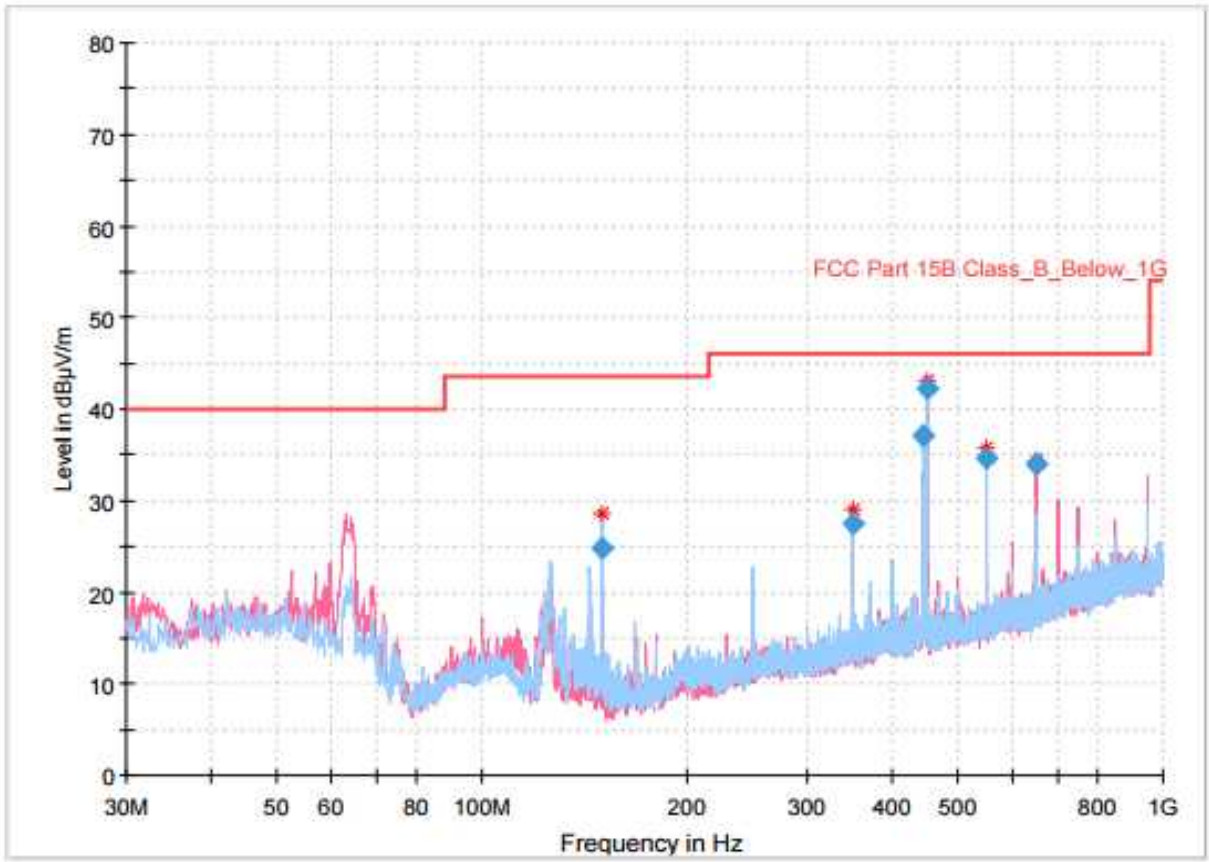


Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
150.086000	27.21	43.50	16.29	1000.0	120.000	200.0	H	0.0	-24.2
350.003000	28.74	46.00	17.26	1000.0	120.000	100.0	H	320.0	-15.9
449.816000	41.78	46.00	4.22	1000.0	120.000	100.0	H	320.0	-14.3
549.920000	34.92	46.00	11.08	1000.0	120.000	100.0	V	326.0	-12.3
650.218000	30.98	46.00	15.02	1000.0	120.000	100.0	V	298.0	-10.9
750.031000	29.47	46.00	16.53	1000.0	120.000	100.0	V	180.0	-8.8

High CH

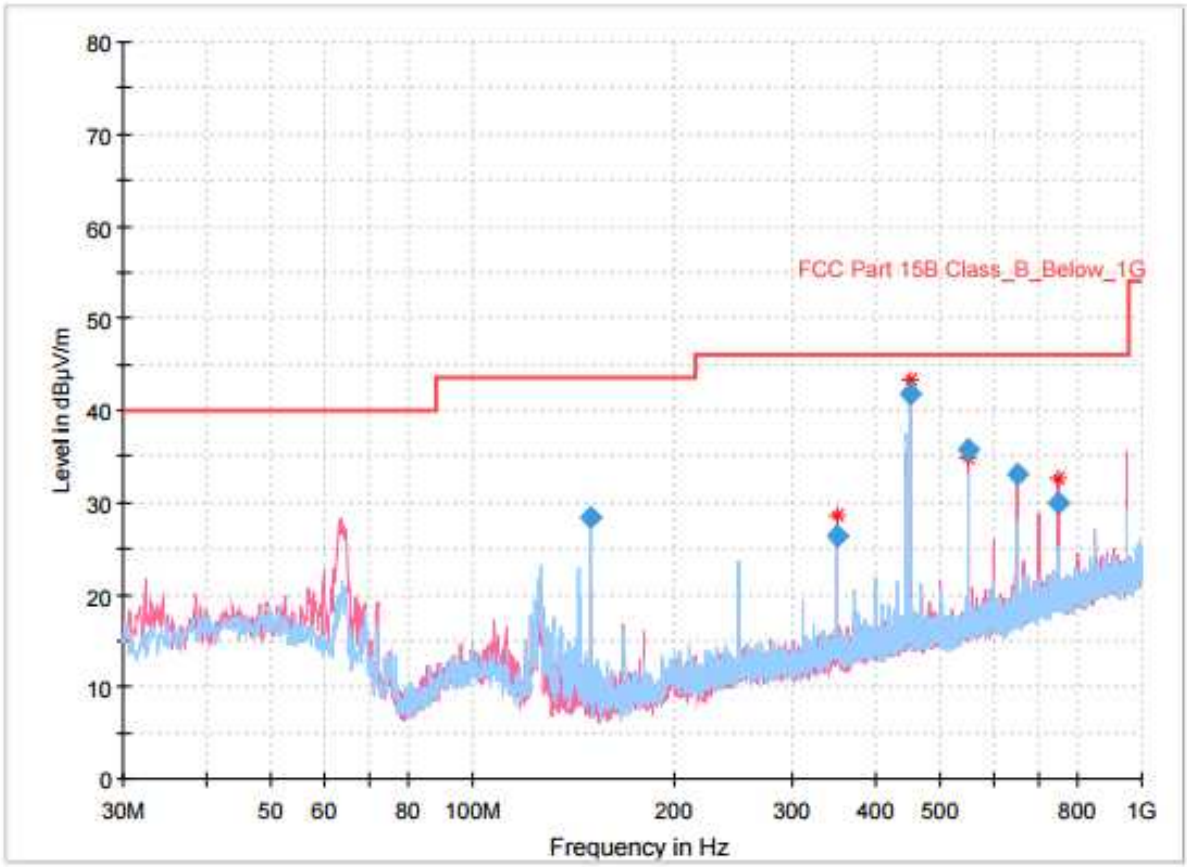
9.4.2.2.2 802.11g



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
149.892000	24.76	43.50	18.74	1000.0	120.000	200.1	H	0.0	-24.2
350.100000	27.39	46.00	18.61	1000.0	120.000	300.0	H	44.0	-15.9
445.548000	37.16	46.00	8.84	1000.0	120.000	100.1	H	65.0	-14.3
450.010000	42.13	46.00	3.87	1000.0	120.000	100.1	H	328.0	-14.3
550.017000	34.53	46.00	11.47	1000.0	120.000	100.1	V	25.0	-12.3
649.927000	33.90	46.00	12.10	1000.0	120.000	100.1	V	354.0	-10.9

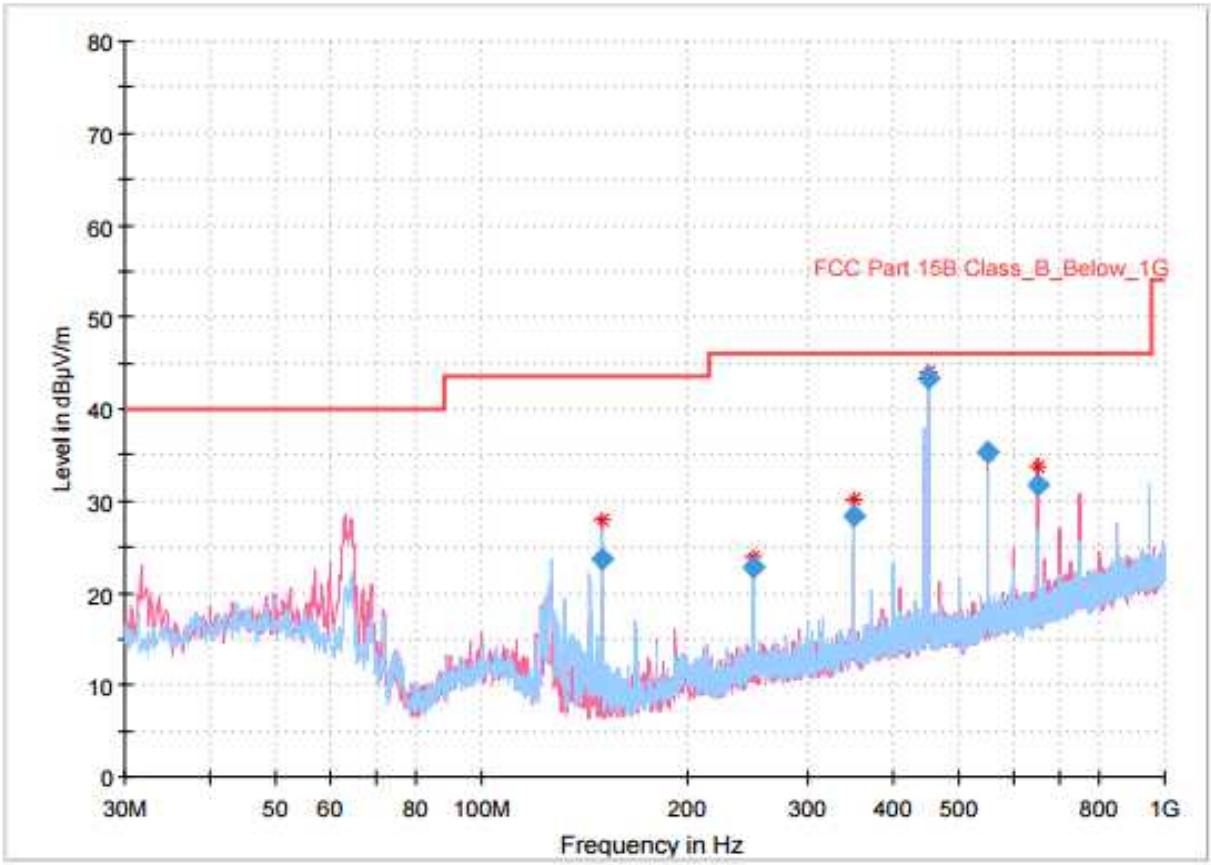
Low CH



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
149.989000	28.41	43.50	15.09	1000.0	120.000	200.1	H	0.0	-24.2
349.906000	26.30	46.00	19.70	1000.0	120.000	100.1	H	268.0	-15.9
450.010000	41.81	46.00	4.19	1000.0	120.000	100.1	H	78.0	-14.3
550.114000	35.72	46.00	10.28	1000.0	120.000	100.1	V	333.0	-12.3
649.830000	33.06	46.00	12.94	1000.0	120.000	100.1	V	358.0	-10.9
749.837000	29.83	46.00	16.17	1000.0	120.000	100.1	V	174.0	-8.8

Mid CH

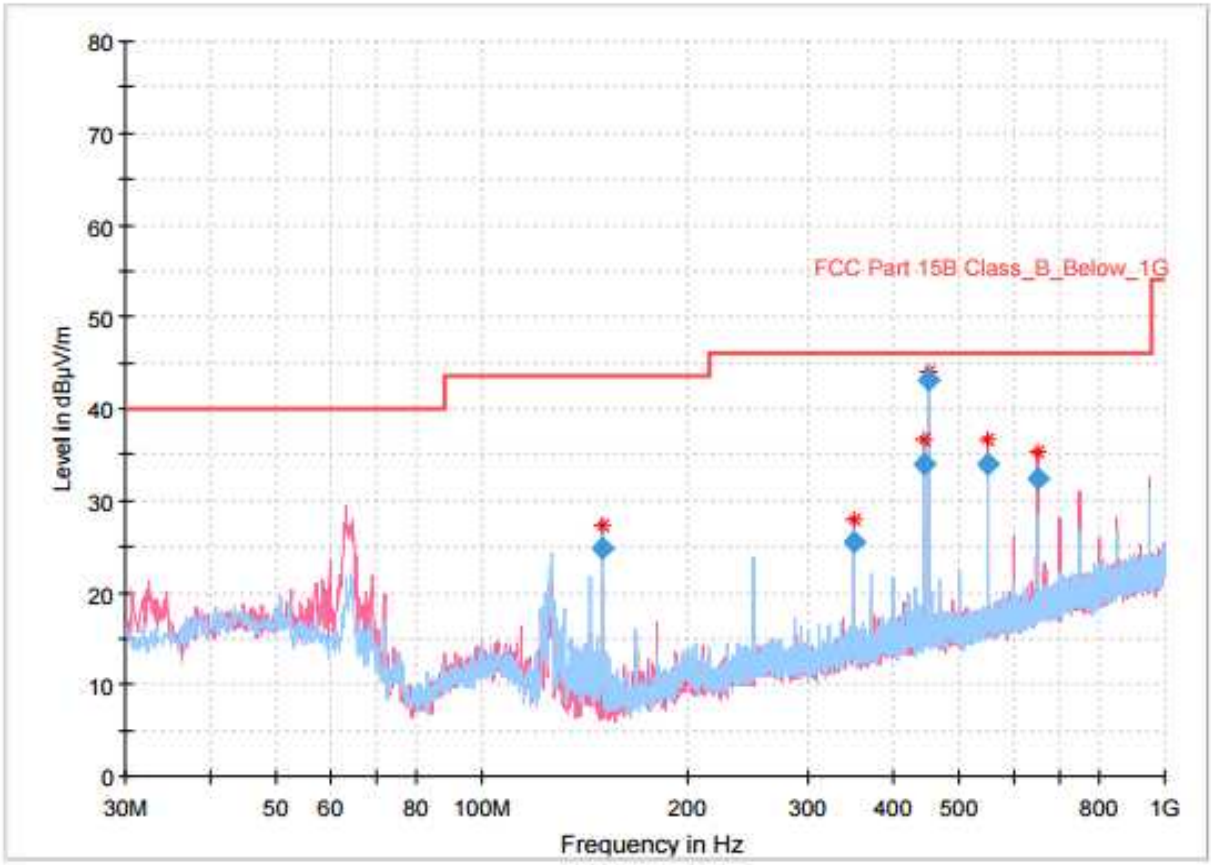


Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
149.892000	23.67	43.50	19.83	1000.0	120.000	300.0	H	0.0	-24.2
250.093000	22.68	46.00	23.32	1000.0	120.000	100.1	H	240.0	-18.7
350.100000	28.45	46.00	17.55	1000.0	120.000	100.1	H	311.0	-15.9
449.913000	43.33	46.00	2.67	1000.0	120.000	100.1	H	303.0	-14.3
549.823000	35.22	46.00	10.78	1000.0	120.000	100.1	V	344.0	-12.3
649.830000	31.65	46.00	14.35	1000.0	120.000	100.1	V	300.0	-10.9

High CH

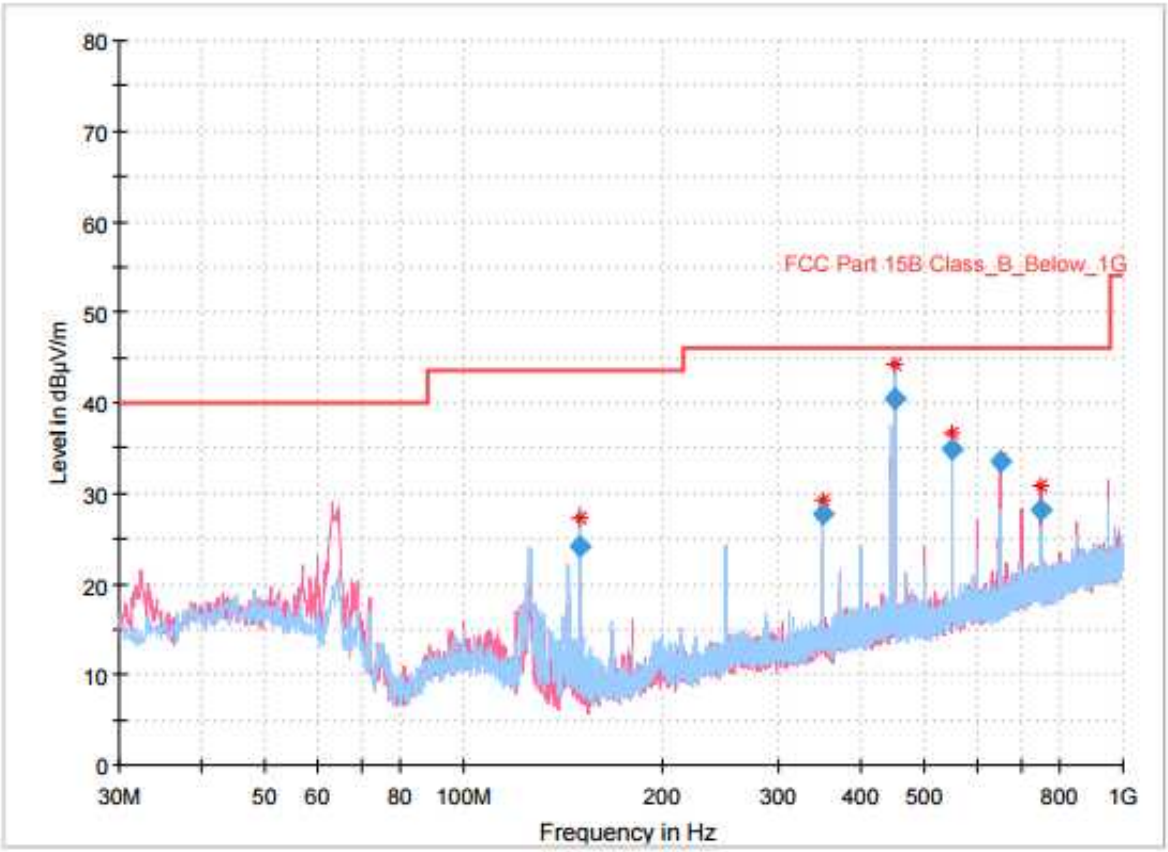
9.4.2.2.3 802.11n(HT20)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
149.892000	24.89	43.50	18.61	1000.0	120.000	200.0	H	19.0	-24.2
349.906000	25.54	46.00	20.46	1000.0	120.000	300.0	H	60.0	-15.9
445.548000	33.88	46.00	12.12	1000.0	120.000	100.0	H	87.0	-14.3
449.913000	43.10	46.00	2.90	1000.0	120.000	100.0	H	319.0	-14.3
550.211000	33.92	46.00	12.08	1000.0	120.000	100.0	V	30.0	-12.3
649.927000	32.43	46.00	13.58	1000.0	120.000	100.0	V	126.0	-10.9

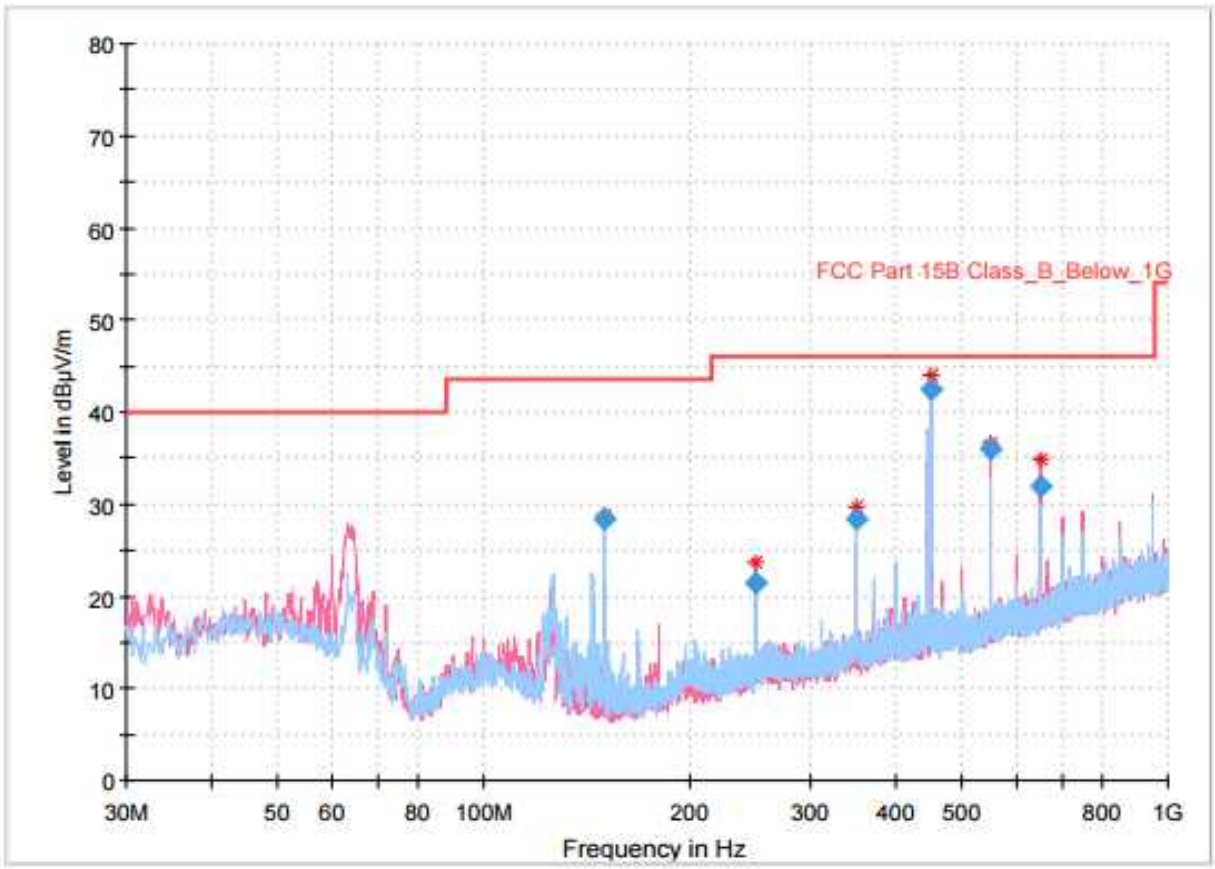
Low CH



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
149.892000	24.04	43.50	19.46	1000.0	120.000	200.0	H	158.0	-24.2
350.003000	27.78	46.00	18.22	1000.0	120.000	100.0	H	282.0	-15.9
450.204000	40.34	46.00	5.66	1000.0	120.000	100.0	H	327.0	-14.3
549.823000	34.91	46.00	11.09	1000.0	120.000	100.0	V	51.0	-12.3
650.024000	33.52	46.00	12.48	1000.0	120.000	100.0	V	310.0	-10.9
749.837000	28.05	46.00	17.95	1000.0	120.000	100.0	V	42.0	-8.8

Mid CH



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
149.989000	28.38	43.50	15.12	1000.0	120.000	200.0	H	0.0	-24.2
249.899000	21.38	46.00	24.62	1000.0	120.000	100.1	H	51.0	-18.7
350.003000	28.36	46.00	17.64	1000.0	120.000	100.1	H	300.0	-15.9
449.913000	42.55	46.00	3.45	1000.0	120.000	100.1	H	134.0	-14.3
550.017000	35.95	46.00	10.05	1000.0	120.000	100.1	V	333.0	-12.3
650.121000	31.99	46.00	14.01	1000.0	120.000	100.1	V	122.0	-10.9

High CH

9.4.2.3 Measurement Results for Above 1 ㎓

9.4.2.3.1 802.11b

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4 824.40	64.91	Peak	H	-4.69	60.22	73.98	13.76
	51.19	Average	H		46.50	53.98	7.48
7 236.55	59.26	Peak	H	-1.07	58.19	73.98	15.79
	45.40	Average	H		44.33	53.98	9.65
4 824.35	66.52	Peak	V	-4.69	61.83	73.98	12.15
	52.68	Average	V		47.99	53.98	5.99
7 235.65	65.23	Peak	V	-1.07	64.16	73.98	9.82
	51.60	Average	V		50.53	53.98	3.45
Mid CH							
4 874.10	61.41	Peak	H	-4.45	56.96	73.98	17.02
	47.40	Average	H		42.95	53.98	11.03
7 310.80	61.37	Peak	H	-1.02	60.35	73.98	13.63
	46.78	Average	H		45.76	53.98	8.22
4 873.95	64.05	Peak	V	-4.45	59.60	73.98	14.38
	49.88	Average	V		45.43	53.98	8.55
7 311.40	61.33	Peak	V	-1.02	60.31	73.98	13.67
	47.36	Average	V		46.34	53.98	7.64
High CH							
4 923.85	61.76	Peak	H	-4.29	57.47	73.98	16.51
	47.66	Average	H		43.37	53.98	10.61
7 386.10	64.41	Peak	H	-0.97	63.44	73.98	10.54
	49.35	Average	H		48.38	53.98	5.60
4 924.0	65.64	Peak	V	-4.29	61.35	73.98	12.63
	51.08	Average	V		46.79	53.98	7.19
7 386.10	64.97	Peak	V	-0.97	64.00	73.98	9.98
	49.48	Average	V		48.51	53.98	5.47

※ Ant. Pol. : Antenna Polarization

※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain

※ Result = Reading + Corr. Factor

※ Margin = Limit – Result

9.4.2.3.2 802.11g

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4 823.05	64.35	Peak	H	-4.69	59.66	73.98	14.32
	48.60	Average	H		43.91	53.98	10.07
7 227.91	64.55	Peak	H	-1.07	63.48	73.98	10.50
	45.32	Average	H		44.25	53.98	9.73
4 823.80	65.24	Peak	V	-4.69	60.55	73.98	13.43
	47.54	Average	V		42.85	53.98	11.13
7 235.40	71.48	Peak	V	-1.07	70.41	73.98	3.57
	51.04	Average	V		49.97	53.98	4.01
Mid CH							
4 876.95	64.51	Peak	H	-4.44	60.07	73.98	13.91
	47.92	Average	H		43.48	53.98	10.50
7 311.0	66.66	Peak	H	-1.02	65.64	73.98	8.34
	47.35	Average	H		46.33	53.98	7.65
4 872.95	66.50	Peak	V	-4.45	62.05	73.98	11.93
	49.96	Average	V		45.51	53.98	8.47
7 311.50	69.64	Peak	V	-1.02	68.62	73.98	5.36
	50.34	Average	V		49.32	53.98	4.66
High CH							
4 924.20	67.45	Peak	H	-4.29	63.16	73.98	10.82
	50.98	Average	H		46.69	53.98	7.29
7 384.90	68.93	Peak	H	-0.97	67.96	73.98	6.02
	49.93	Average	H		48.96	53.98	5.02
4 923.45	64.97	Peak	V	-4.29	60.68	73.98	13.30
	48.93	Average	V		44.64	53.98	9.34
7 378.66	66.46	Peak	V	-0.97	65.49	73.98	8.49
	46.88	Average	V		45.91	53.98	8.07

※ Ant. Pol. : Antenna Polarization

※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain

※ Result = Reading + Corr. Factor

※ Margin = Limit – Result

9.4.2.3.3 802.11n(HT20)

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4 824.35	65.88	Peak	H	-4.69	61.19	73.98	12.79
	49.37	Average	H		44.68	53.98	9.30
7 233.15	62.66	Peak	H	-1.07	61.59	73.98	12.39
	45.96	Average	H		44.89	53.98	9.09
4 821.75	67.98	Peak	V	-4.71	63.27	73.98	10.71
	51.96	Average	V		47.25	53.98	6.73
7 240.95	65.73	Peak	V	-1.06	64.67	73.98	9.31
	47.07	Average	V		46.01	53.98	7.97
Mid CH							
4 875.75	64.40	Peak	H	-4.45	59.95	73.98	14.03
	46.94	Average	H		42.49	53.98	11.49
7 308.05	64.13	Peak	H	-1.02	63.11	73.98	10.87
	46.33	Average	H		45.31	53.98	8.67
4 875.70	65.17	Peak	V	-4.45	60.72	73.98	13.26
	49.04	Average	V		44.59	53.98	9.39
7 311.20	67.51	Peak	V	-1.02	66.49	73.98	7.49
	49.57	Average	V		48.55	53.98	5.43
High CH							
4 928.60	66.57	Peak	H	-4.28	62.29	73.98	11.69
	50.16	Average	H		45.88	53.98	8.10
7 387.95	69.10	Peak	H	-0.97	68.13	73.98	5.85
	50.34	Average	H		49.37	53.98	4.61
4 928.30	65.82	Peak	V	-4.28	61.54	73.98	12.44
	49.63	Average	V		45.35	53.98	8.63
7 384.05	68.09	Peak	V	-0.97	67.12	73.98	6.86
	49.58	Average	V		48.61	53.98	5.37

※ Ant. Pol. : Antenna Polarization

※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain

※ Result = Reading + Corr. Factor

※ Margin = Limit – Result

10. Power Line Conducted Emission

10.1 Operating environment

Temperature : 24 ℃

Relative humidity : 44 %

10.2 Measurement method

Standard : §15.207

10.3 Test setup

The EUT was placed on a wooden table, 0.8 m height above the floor. Power was fed to the EUT through a 50 Ω / 50 μH + 5 Ω Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

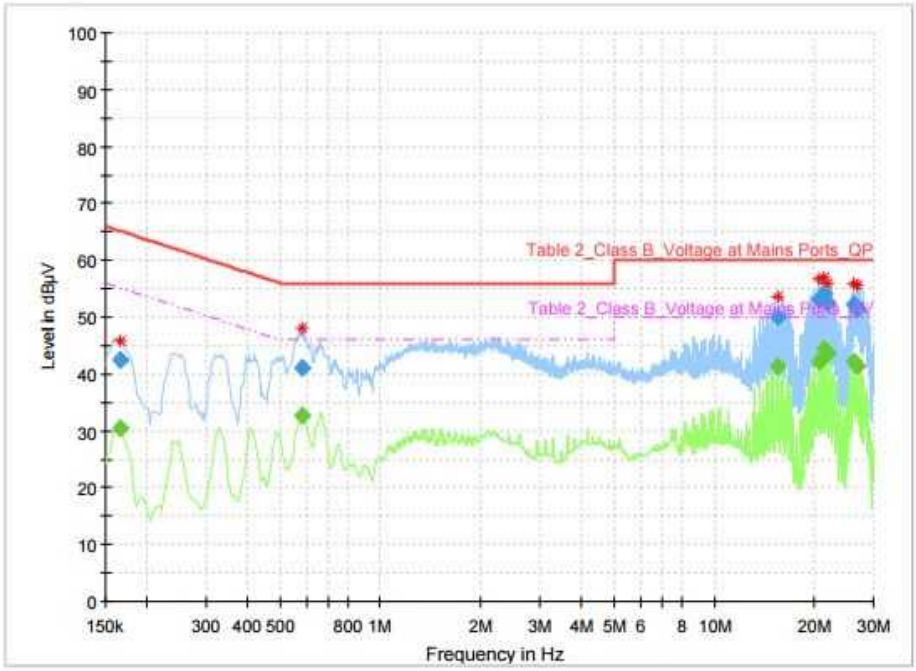
10.4 Test data

Test date : 04. Mar. 2021

Operating mode : Transmit mode

Test Result : Pass

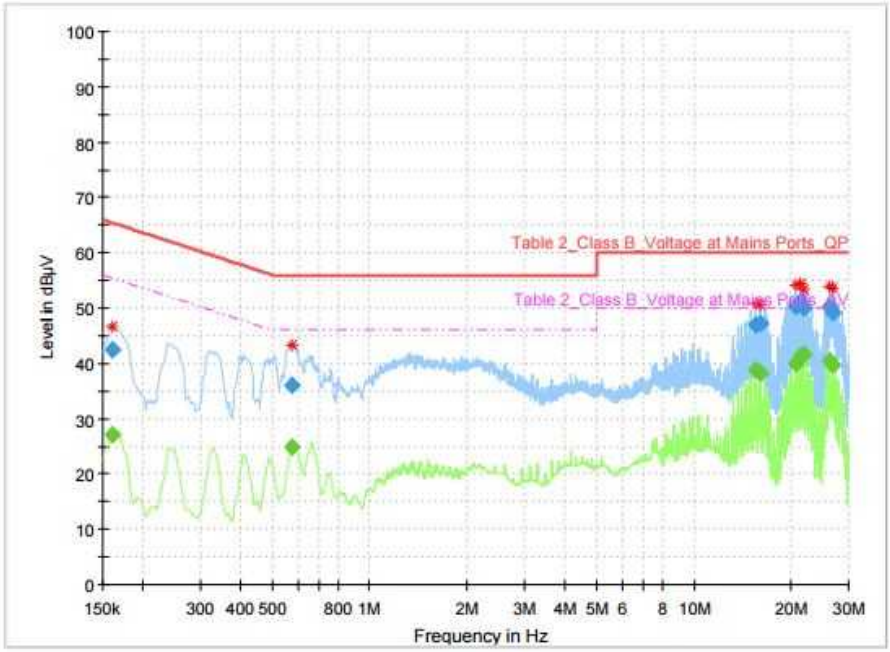
10.4.1 Measured Results & Graph



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.165750	---	30.40	55.17	24.77	5000.0	9.000	L1	ON	9.9
0.165750	42.48	---	65.17	22.69	5000.0	9.000	L1	ON	9.9
0.584250	---	32.71	46.00	13.29	5000.0	9.000	L1	ON	9.9
0.584250	41.12	---	56.00	14.88	5000.0	9.000	L1	ON	9.9
15.477000	---	41.35	50.00	8.65	5000.0	9.000	L1	ON	9.8
15.477000	49.98	---	60.00	10.02	5000.0	9.000	L1	ON	9.8
20.694750	---	42.04	50.00	7.96	5000.0	9.000	L1	ON	9.9
20.694750	52.94	---	60.00	7.06	5000.0	9.000	L1	ON	9.9
21.216750	---	44.41	50.00	5.59	5000.0	9.000	L1	ON	10.0
21.216750	54.18	---	60.00	5.82	5000.0	9.000	L1	ON	10.0
21.738750	---	43.69	50.00	6.31	5000.0	9.000	L1	ON	10.0
21.738750	52.43	---	60.00	7.57	5000.0	9.000	L1	ON	10.0
26.261250	---	42.13	50.00	7.87	5000.0	9.000	L1	ON	10.0
26.261250	52.29	---	60.00	7.71	5000.0	9.000	L1	ON	10.0
26.783250	---	41.47	50.00	8.53	5000.0	9.000	L1	ON	9.9
26.783250	51.44	---	60.00	8.56	5000.0	9.000	L1	ON	9.9

Live line



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.161250	---	27.21	55.40	28.19	5000.0	9.000	N	ON	9.9
0.161250	42.45	---	65.40	22.95	5000.0	9.000	N	ON	9.9
0.577500	---	24.83	46.00	21.17	5000.0	9.000	N	ON	9.9
0.577500	36.14	---	56.00	19.86	5000.0	9.000	N	ON	9.9
15.477000	---	38.77	50.00	11.23	5000.0	9.000	N	ON	9.8
15.477000	46.87	---	60.00	13.13	5000.0	9.000	N	ON	9.8
15.999000	---	38.32	50.00	11.68	5000.0	9.000	N	ON	9.8
15.999000	47.12	---	60.00	12.88	5000.0	9.000	N	ON	9.8
20.694750	---	40.05	50.00	9.95	5000.0	9.000	N	ON	9.9
20.694750	50.34	---	60.00	9.66	5000.0	9.000	N	ON	9.9
21.216750	---	41.40	50.00	8.60	5000.0	9.000	N	ON	10.0
21.216750	51.02	---	60.00	8.98	5000.0	9.000	N	ON	10.0
21.738750	---	41.59	50.00	8.41	5000.0	9.000	N	ON	10.0
21.738750	50.04	---	60.00	9.96	5000.0	9.000	N	ON	10.0
26.261250	---	40.44	50.00	9.56	5000.0	9.000	N	ON	10.0
26.261250	50.25	---	60.00	9.75	5000.0	9.000	N	ON	10.0
26.783250	---	39.64	50.00	10.36	5000.0	9.000	N	ON	9.9
26.783250	49.19	---	60.00	10.81	5000.0	9.000	N	ON	9.9

Neutral line

- END OF REPORT.