시 험 성 적 서
TEST REPORT

성적서 번호 Report No.		ICRT-TR-E230863-0A
신청자 Client	기관명 Name	Samsung Electronics Co., Ltd.
	주 소 Address	1, Samsung-ro, Giheung-gu, Yongin-si Gyeonggi-do, South Korea
시험대상품목 Sample description		IoT Module
모델명 Type designation		ITM-Gen3
정 격 Ratings		DC 3.3 V
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		13. Apr. 2023 ~ 18. Apr. 2023
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	Eun-Hye, Gwak (Signature)
	기술책임자 Technical Manager 성 명 Name	Tae-Yang, Yoon (Signature)

□ 위 성적서는 고객이 제공한 시료에 대한 시험결과 입니다.
The above test report is certified that the above mentioned products have been tested for the sample.

□ 위 성적서는 KS Q ISO/IEC 17025 및 한국인정기구(KOLAS)인정과 관련이 없습니다.
The above test report is not related to accreditation by KS Q ISO/IEC 17025 and Korea Laboratory Accreditation scheme.

□ 위 성적서는 주식회사 아이씨알의 승인 없이는 일부 복제에 대해 금지됩니다.
The test report is prohibited for some reproduction without the approval of the ICR.

2023. 04. 18

주식회사 아이씨알 대표이사

The head of INTERNATIONAL CERTIFICATION REGISTRAR

본 성적서의 진위 확인은 G4B 혹은 ICR 홈페이지에서 가능합니다.
The authenticity of the test report can be checked on the G4B or ICR website.

경기도 김포시 양촌읍 황금3로7번길 112 / Tel: 02-6351-9001 ~ 6
112, Hwanggeum3-ro 7beon-gil, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea / Tel: 02-6351-9001 ~ 6

Contents

Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E230863-0A	2023.04.18	Initial Issue	All

1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	Samsung Electronics Co., Ltd.
Address	1, Samsung-ro, Giheung-gu, Yongin-si Gyeonggi-do, South Korea
Contact Person	Moungjin Jang
Telephone No.	+82-70-7142-1361
Fax No.	+82-31-8000-8000
E-mail	ethan.jang@samsung.com

1.2 Manufacturer Information

Manufacturer	Samsung Electronics Co., Ltd.
Address	1, Samsung-ro, Giheung-gu, Yongin-si Gyeonggi-do, South Korea

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

2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	IoT Module
Brand Name	-
Model Name	ITM-Gen3
Additional Model Name	-
FCC ID	2AR3A-ITM-G3
Power Supply	DC 3.3 V

2.2 Additional Information

Equipment Class	DTS-Digital Transmission System	
Device Type	Stand-alone	
Operating Frequency	Bluetooth LE (1/2 Mbps)	2 402 ㎒ ~ 2 480 ㎒
	Zigbee	2 405 ㎒ ~ 2 480 ㎒
RF Output Power	Bluetooth LE 1 Mbps	7.63 ㏈m
	Bluetooth LE 2 Mbps	7.66 ㏈m
	Zigbee	6.28 ㏈m
Number of Channel	Bluetooth LE (1/2 Mbps)	40
	Zigbee	16
Modulation Type	Bluetooth LE (1/2 Mbps)	GFSK
	Zigbee	O-QPSK
Antenna Type	PCB Antenna	
Antenna Gain	-1.98 ㏈i	
Antenna Operating Mode	Single Antenna Equipment with only one antenna	
List of Each Oscillator or Crystal Frequency	32 ㎒	

2.3 Mode of operation during the test

- The EUT is continuous transmission mode during the test with set at Low Channel, Middle Channel, and High Channel. To get a maximum radiated emission levels from the EUT, the EUT was moved throughout the XY, YZ, XZ planes.

2.4 Modifications of EUT

- None

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 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
§15.203	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.

3.5 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 ***PCB Antenna.*** The directional gain of the antenna is ***-1.98 dBi.***

4. Used equipment on test

	Description	Model Name	Manufacturer	Serial Number	Next Cal. (cycle)
☒	SIGNAL GENERATOR	SMB100A	ROHDE & SCHWARZ	180607	2024-03-02
☒	LOOP ANTENNA	HFH2-Z2	ROHDE & SCHWARZ	100271	2025-03-08
☒	HORN ANTENNA	LB-42-10-C-KF	A-INFOMW	J202024625	2024-03-07
☒	SPECTRUM ANALYZER	FSV40-N	ROHDE & SCHWARZ	101303	2024-03-03
☒	ATTENUATOR	PFA40K2-10	PSATEK	-	2024-03-07
☒	PREAMPLIFIER	AMF-4F-18265-35-8P-1	MITEQ	771846	2024-03-07
☒	DC POWER SUPPLY	XDL35-5P	XANTREX	J00385373	2024-03-03
☒	BI-Log ANTENNA	VULB 9162	SCHWARZBECK	120	2024-12-26
☒	EMI TEST RECEIVER	ESR26	ROHDE & SCHWARZ	101462	2024-04-04
☒	SIGNAL CONDITIONING UNIT	SCU08	ROHDE & SCHWARZ	100746	2024-04-03
☒	EMI TEST RECEIVER	ESR26	ROHDE & SCHWARZ	101461	2024-04-04
☒	SIGNAL CONDITIONING UNIT	SCU18	ROHDE & SCHWARZ	102342	2024-04-03
☒	DOUBLE RIDGED HORN ANTENNA	HF907	ROHDE & SCHWARZ	102556	2023-08-22

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

5. 6 dB Bandwidth

5.1 Operating environment

Temperature : 24.2 ℃

Relative humidity : 47.7 %

5.2 Measurement method

Standard : §15.247 (a) (2)

5.3 Test data

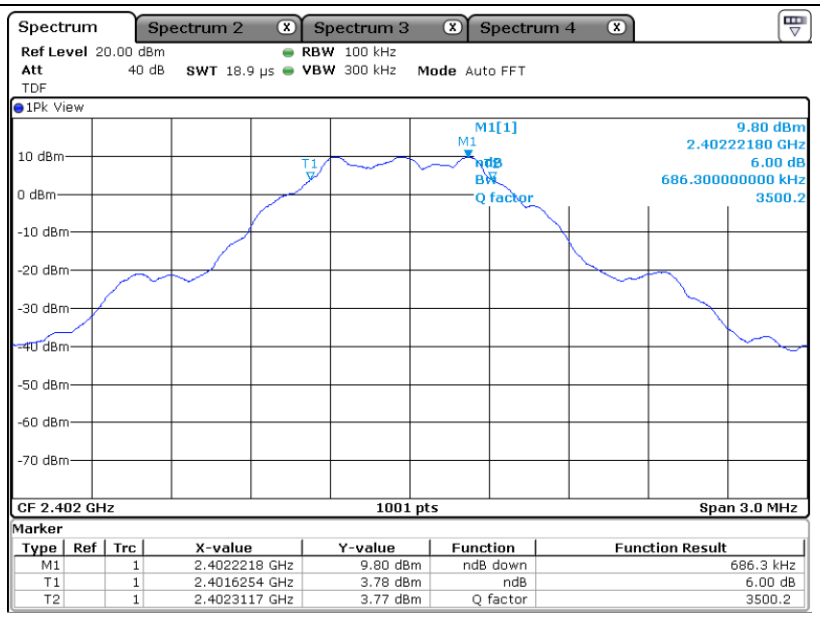
Operating mode : Transmit mode

Test Result : Pass

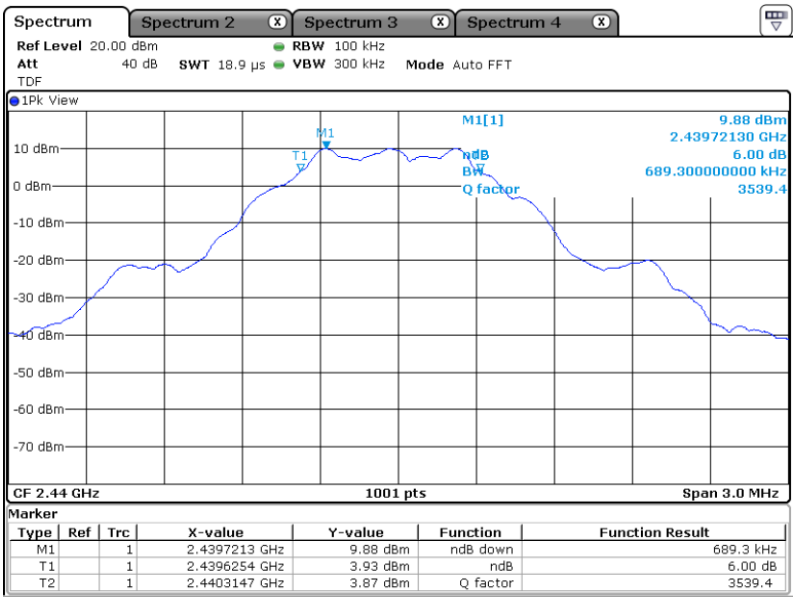
5.3.1 Measured Results

Modulation Type	Channel (Frequency)	Measured Value (㎑)	Limit (㎑)
Bluetooth LE 1M	0 (2 402 ㎒)	686.3	at least 500
	19 (2 440 ㎒)	689.3	
	39 (2 480 ㎒)	680.3	
Bluetooth LE 2M	0 (2 402 ㎒)	659.3	
	19 (2 440 ㎒)	659.3	
	39 (2 480 ㎒)	665.3	
Zigbee	11 (2 405 ㎒)	1.059	
	16 (2 440 ㎒)	1.129	
	26 (2 480 ㎒)	1.179	

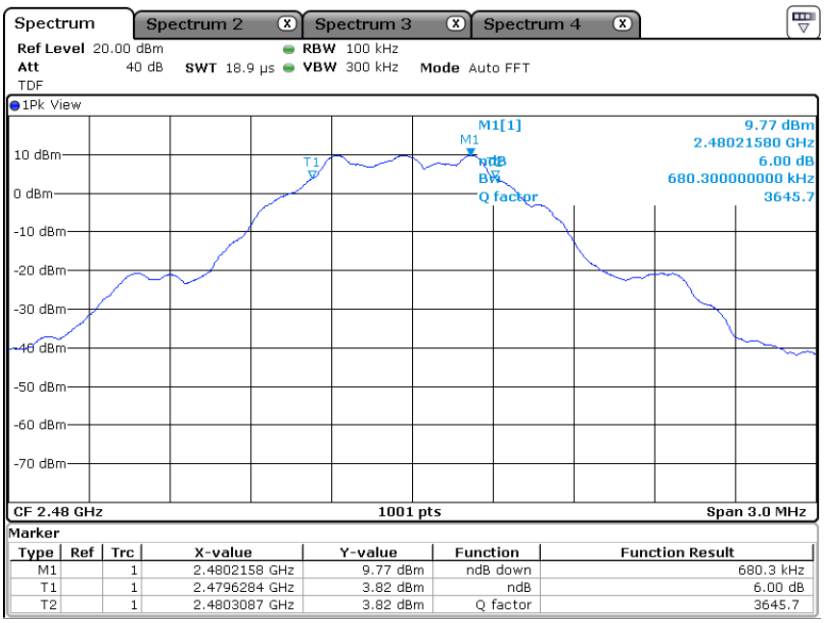
5.3.2 Measured Graph (6 dB Bandwidth)_Bluetooth LE 1M



Low CH

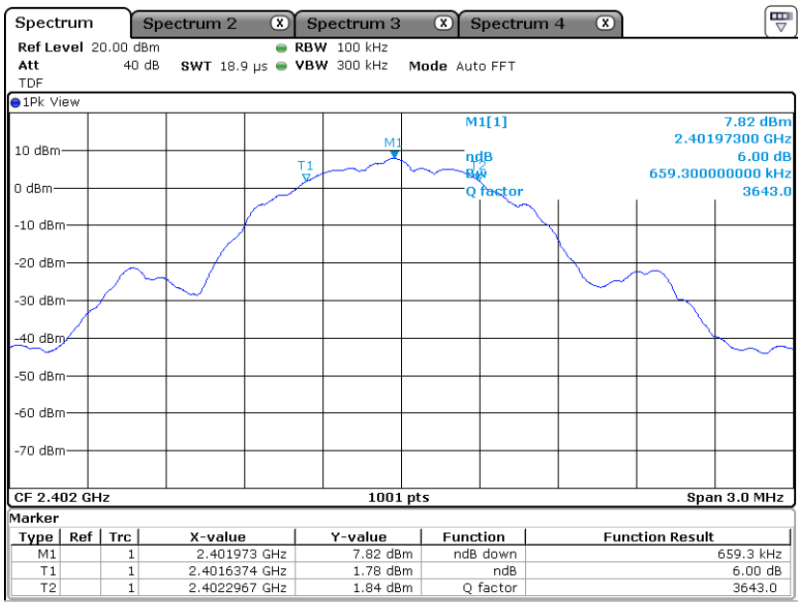


Mid CH

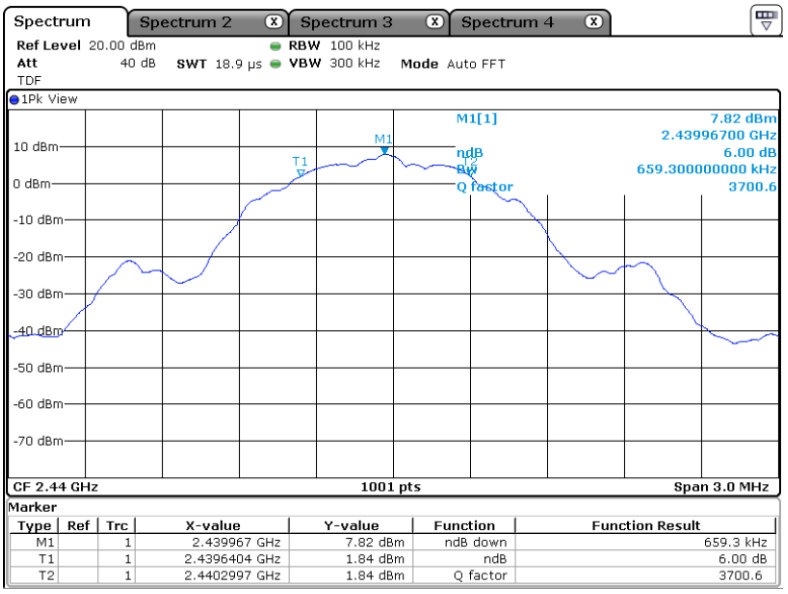

Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 20.00 dBm
RBW 100 kHz
Att 40 dB
SWT 18.9 µs
VBW 300 kHz
Mode Auto FFT
TDF
1Pk View
M1[1]
9.77 dBm
2.48021580 GHz
ndB 6.00 dB
BW 680.300000000 kHz
Q factor 3645.7
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.48 GHz
1001 pts
Span 3.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4802158 GHz 9.77 dBm ndB down 680.3 kHz
T1 1 2.4796284 GHz 3.82 dBm ndB 6.00 dB
T2 1 2.4803087 GHz 3.82 dBm Q factor 3645.7

High CH

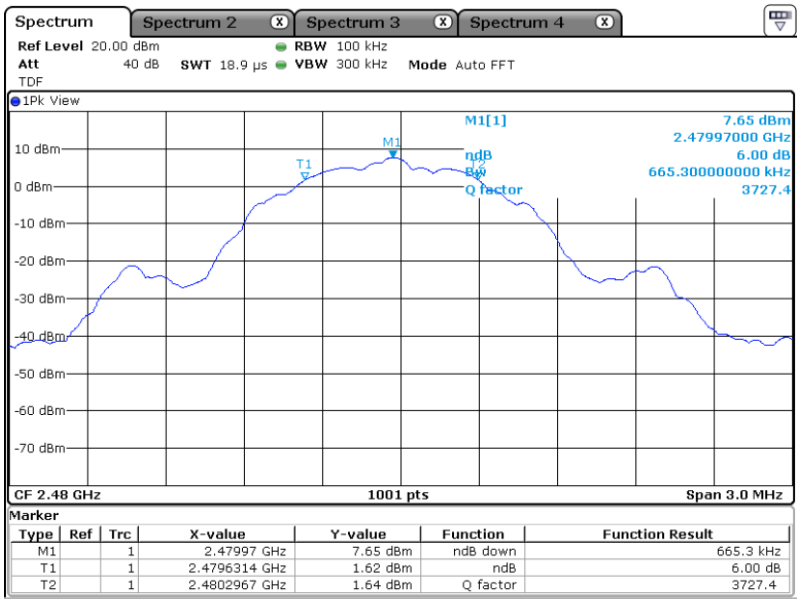
5.3.3 Measured Graph (6 dB Bandwidth)_ Bluetooth LE 2M



Low CH

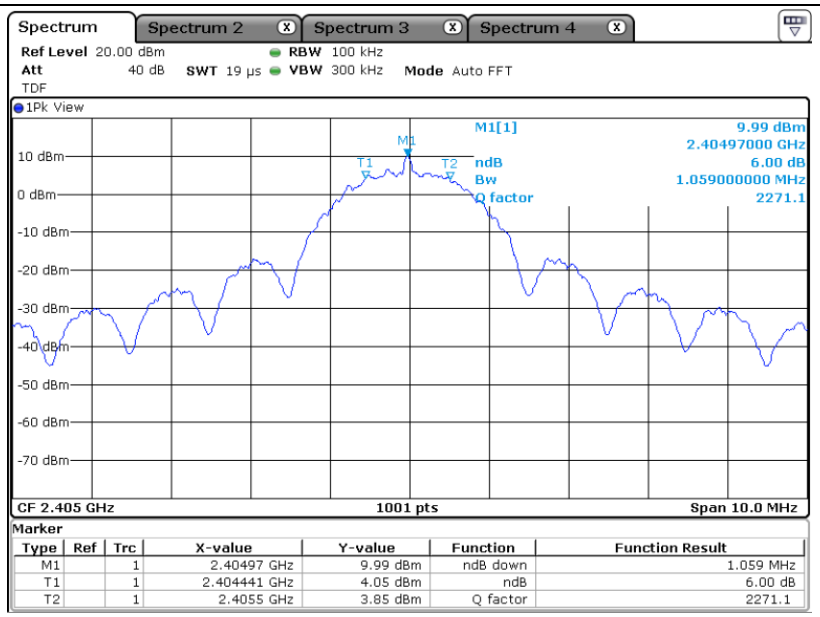


Mid CH

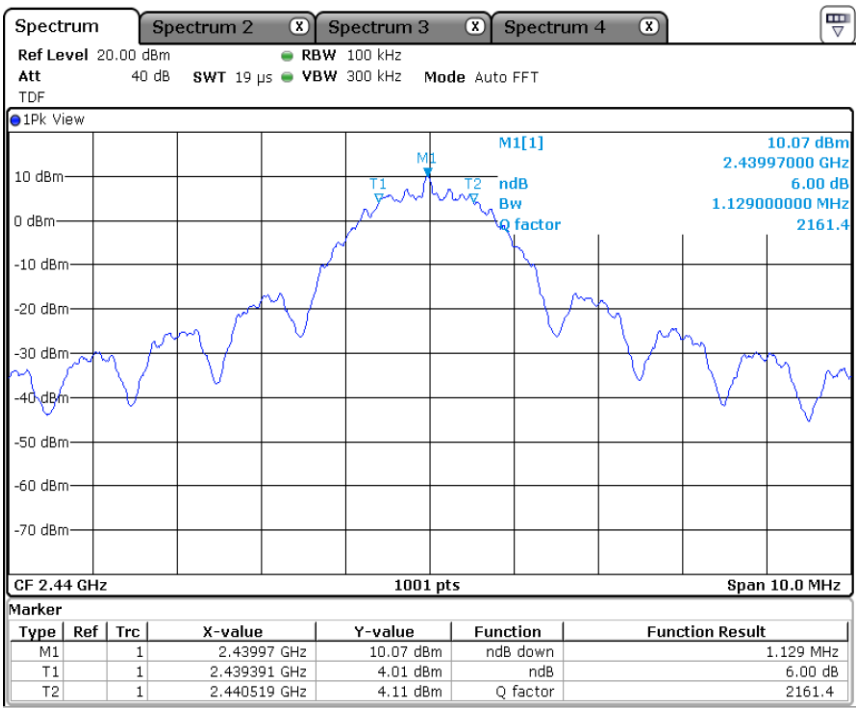

Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 20.00 dBm
RBW 100 kHz
Att 40 dB
SWT 18.9 µs
VBW 300 kHz
Mode Auto FFT
TDF
1Pk View
M1[1]
7.65 dBm
2.47997000 GHz
ndB 6.00 dB
Bw 665.300000000 kHz
Q factor 3727.4
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
CF 2.48 GHz
1001 pts
Span 3.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.47997 GHz 7.65 dBm ndB down 665.3 kHz
T1 1 2.4796314 GHz 1.62 dBm ndB 6.00 dB
T2 1 2.4802967 GHz 1.64 dBm Q factor 3727.4

High CH

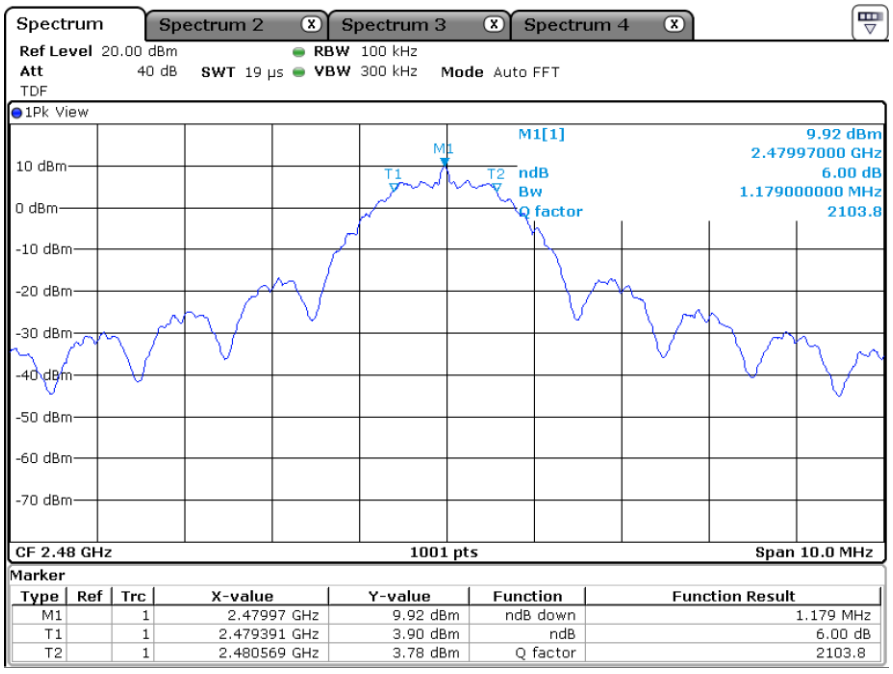
5.3.4 Measured Graph (6 dB Bandwidth)_Zigbee



Low CH



Mid CH


Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 20.00 dBm
RBW 100 kHz
Att 40 dB
SWT 19 µs
VBW 300 kHz
Mode Auto FFT
TDF
1Pk View
M1[1]
9.92 dBm
2.47997000 GHz
ndB 6.00 dB
Bw 1.179000000 MHz
Q factor 2103.8
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.48 GHz
1001 pts
Span 10.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.47997 GHz 9.92 dBm ndB down 1.179 MHz
T1 1 2.479391 GHz 3.90 dBm ndB 6.00 dB
T2 1 2.480569 GHz 3.78 dBm Q factor 2103.8

High CH

6. Maximum Conducted Output Power

6.1 Operating environment

Temperature : 24.2 ℃

Relative humidity : 47.7 %

6.2 Measurement method

Standard : §15.247 (b) (3)

6.3 Test data

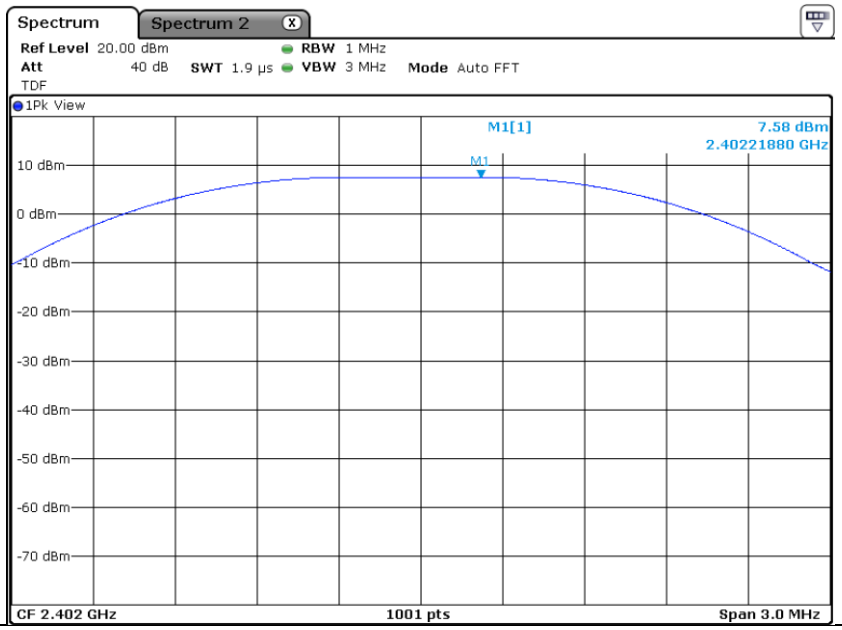
Operating mode : Transmit mode

Test Result : Pass

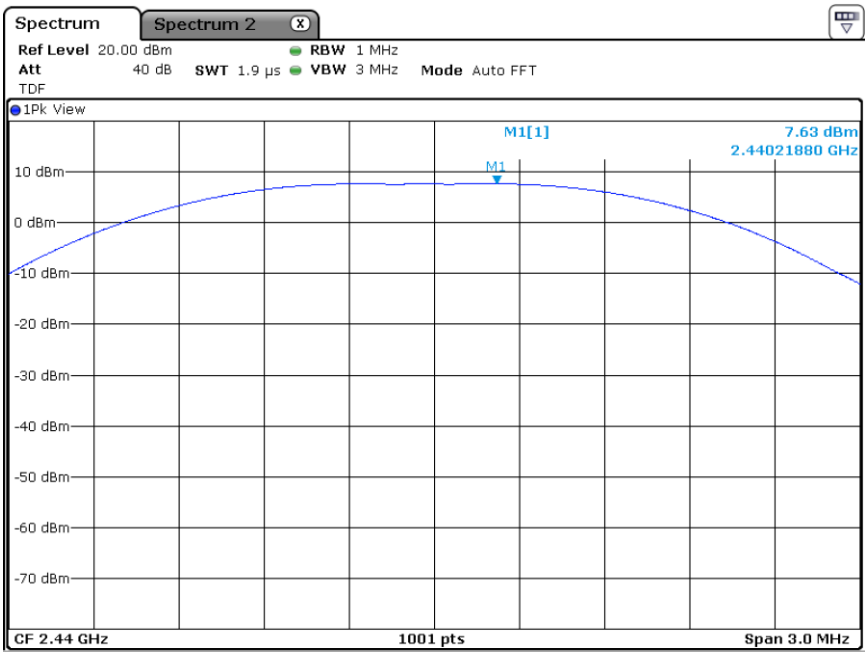
6.3.1 Measured Results

Modulation Type	Channel (Frequency)	Highest signal level (dBm)	Limit (dBm)
Bluetooth LE 1M	0 (2 402 ㎒)	7.58	30 (1 Watt)
	19 (2 440 ㎒)	***7.63***	
	39 (2 480 ㎒)	7.59	
Bluetooth LE 2M	0 (2 402 ㎒)	7.56	
	19 (2 440 ㎒)	***7.66***	
	39 (2 480 ㎒)	7.59	
Zigbee	11 (2 405 ㎒)	6.21	
	16 (2 440 ㎒)	***6.28***	
	26 (2 480 ㎒)	6.14	

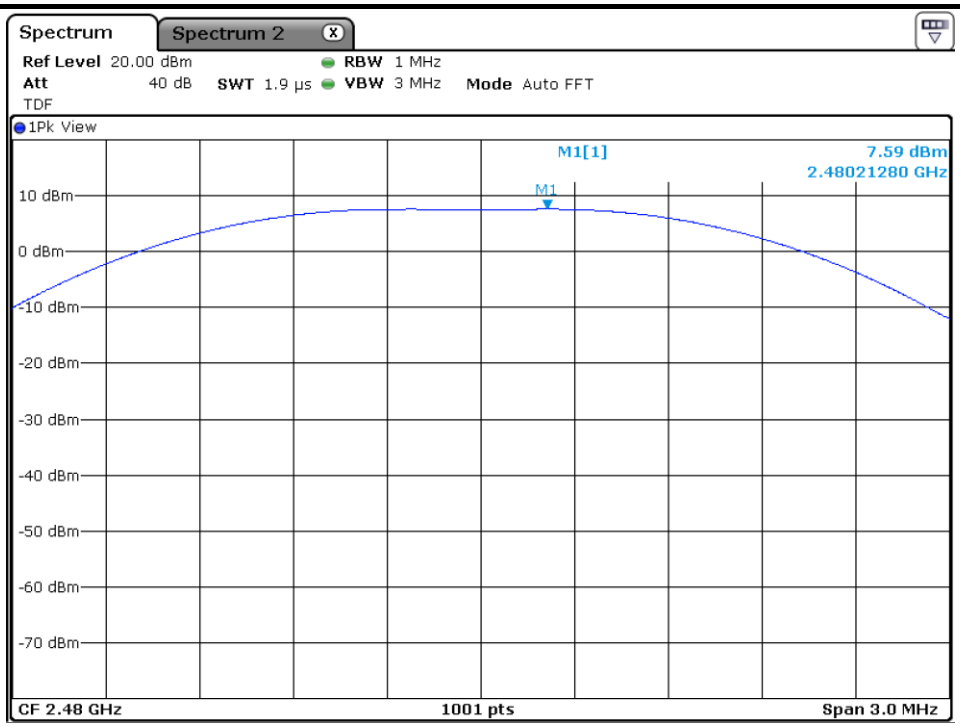
6.3.1.1 Measured Graph Bluetooth LE 1M



Low CH

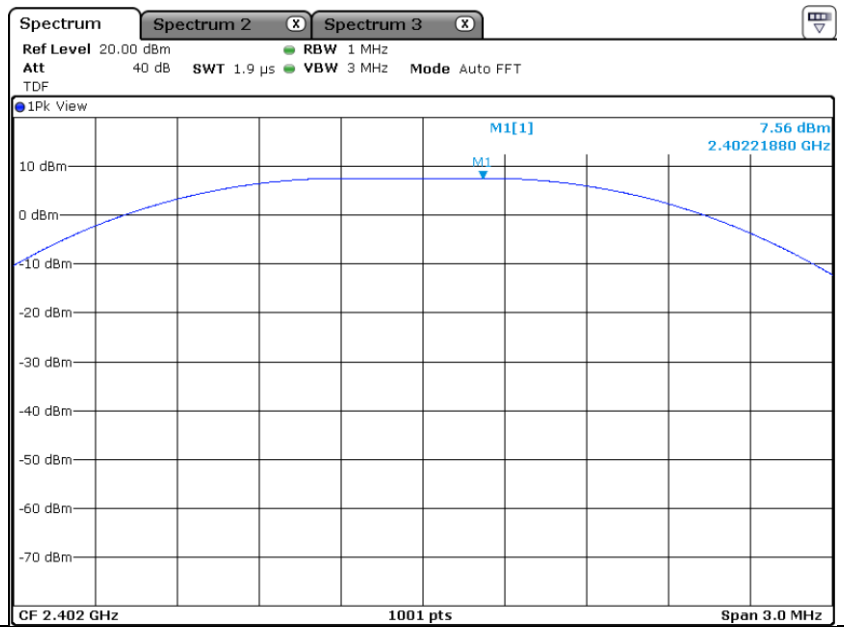


Mid CH

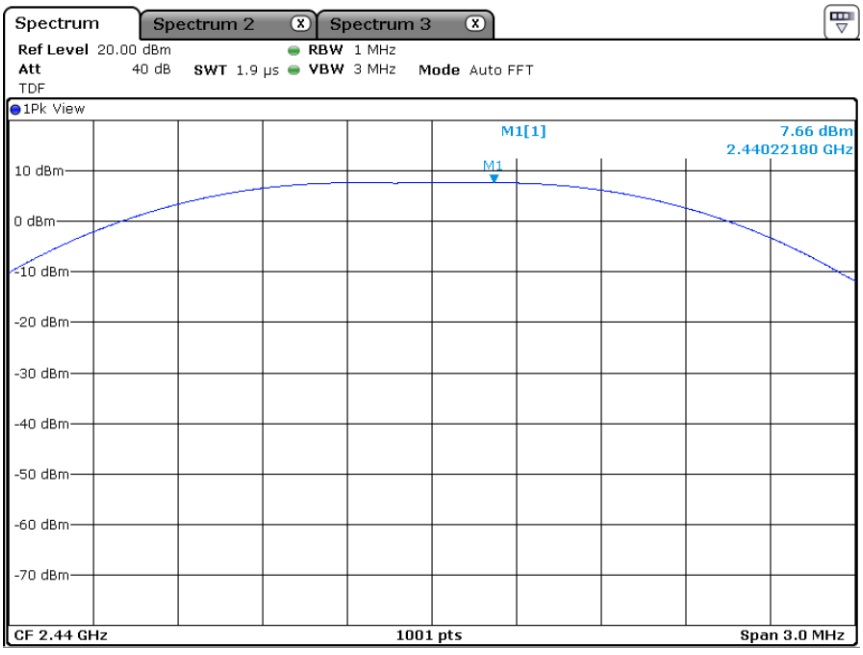

Spectrum
Spectrum 2
Ref Level 20.00 dBm
RBW 1 MHz
Att 40 dB
SWT 1.9 µs
VBW 3 MHz
Mode Auto FFT
TDF
1Pk View
M1[1]
7.59 dBm
2.48021280 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.48 GHz
1001 pts
Span 3.0 MHz

High CH

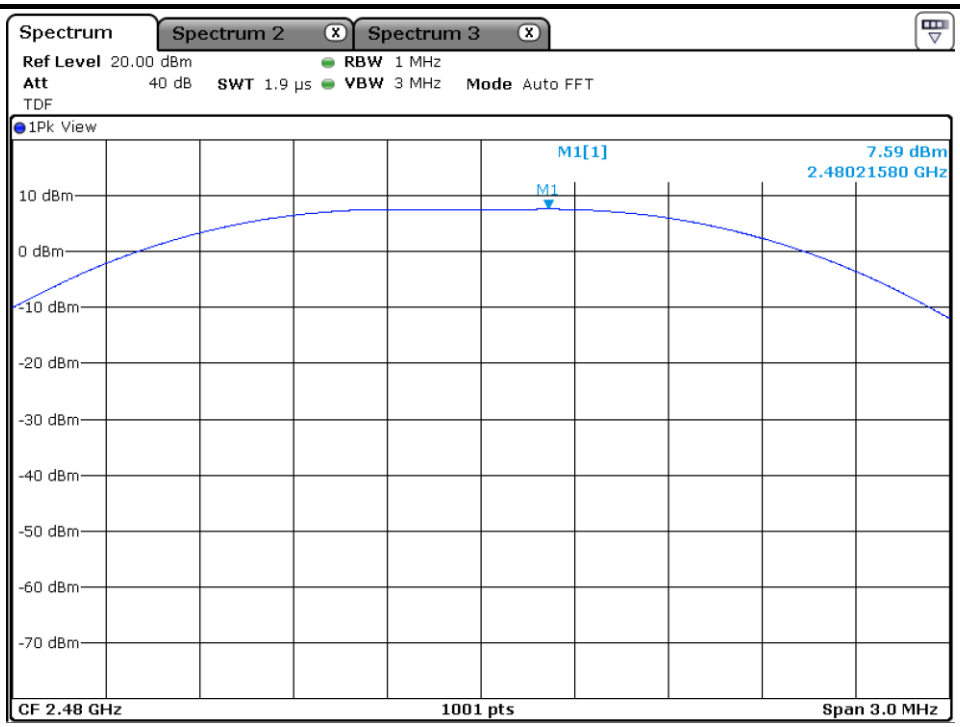
6.3.1.2 Measured Graph Bluetooth LE 2M



Low CH

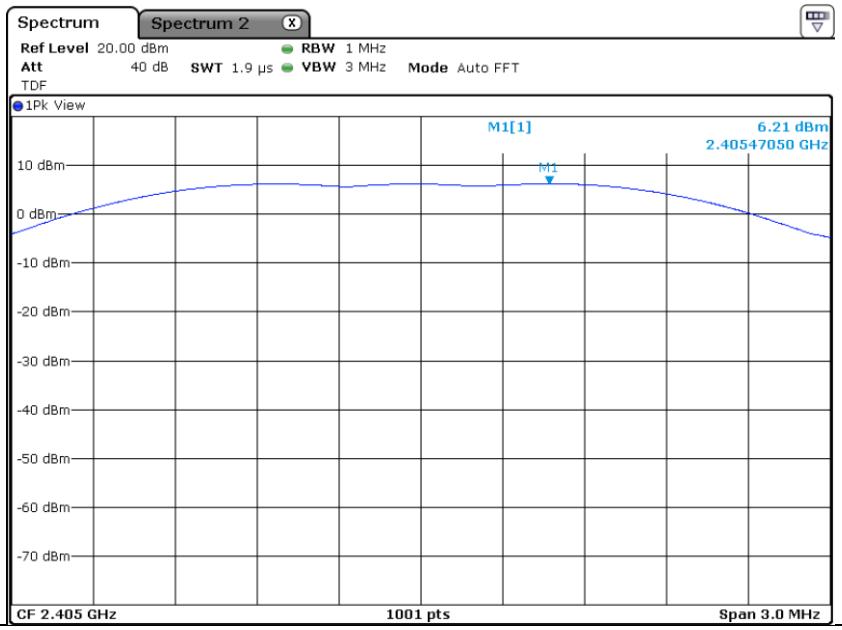


Mid CH

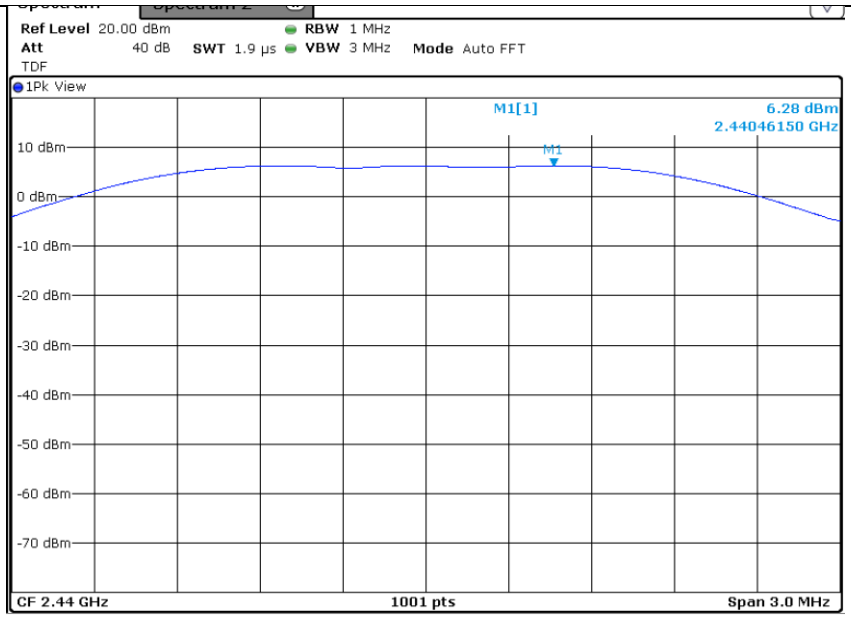

Spectrum
Spectrum 2
Spectrum 3
Ref Level 20.00 dBm
RBW 1 MHz
Att 40 dB
SWT 1.9 µs
VBW 3 MHz
Mode Auto FFT
TDF
1Pk View
M1[1]
7.59 dBm
2.48021580 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.48 GHz
1001 pts
Span 3.0 MHz

High CH

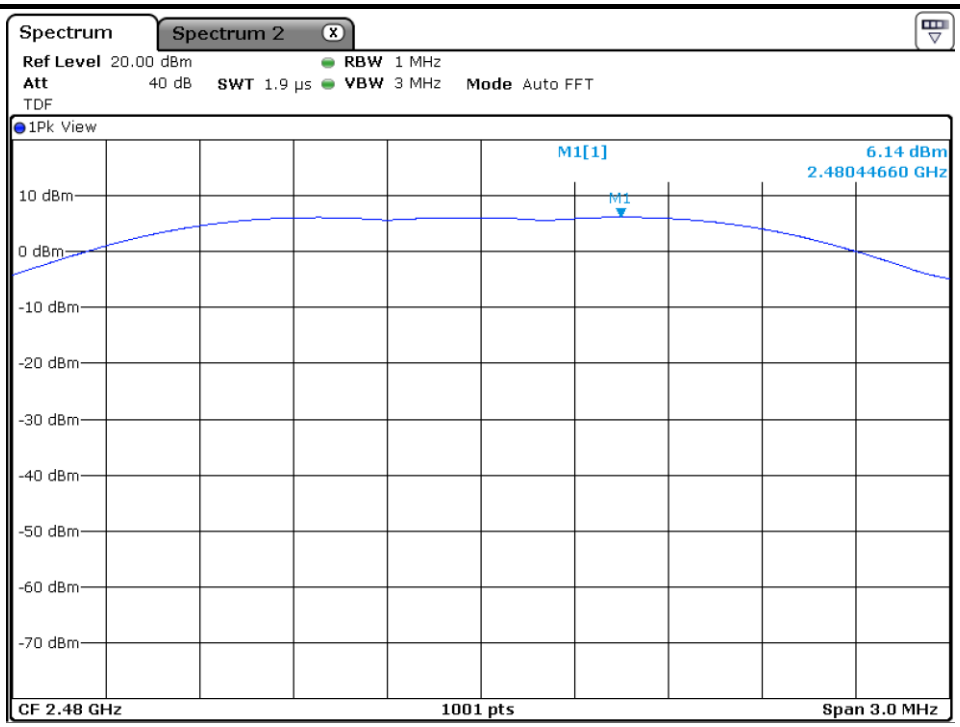
6.3.1.3 Measured Graph Zigbee



Low CH



Mid CH


Spectrum
Spectrum 2
Ref Level 20.00 dBm
RBW 1 MHz
Att 40 dB
SWT 1.9 µs
VBW 3 MHz
Mode Auto FFT
TDF
1Pk View
M1[1]
6.14 dBm
2.48044660 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.48 GHz
1001 pts
Span 3.0 MHz

High CH

7. Power Spectral Density

7.3 Operating environment

Temperature : 24.2 ℃

Relative humidity : 47.7 %

7.4 Measurement method

Standard : §15.247 (e)

7.5 Test data

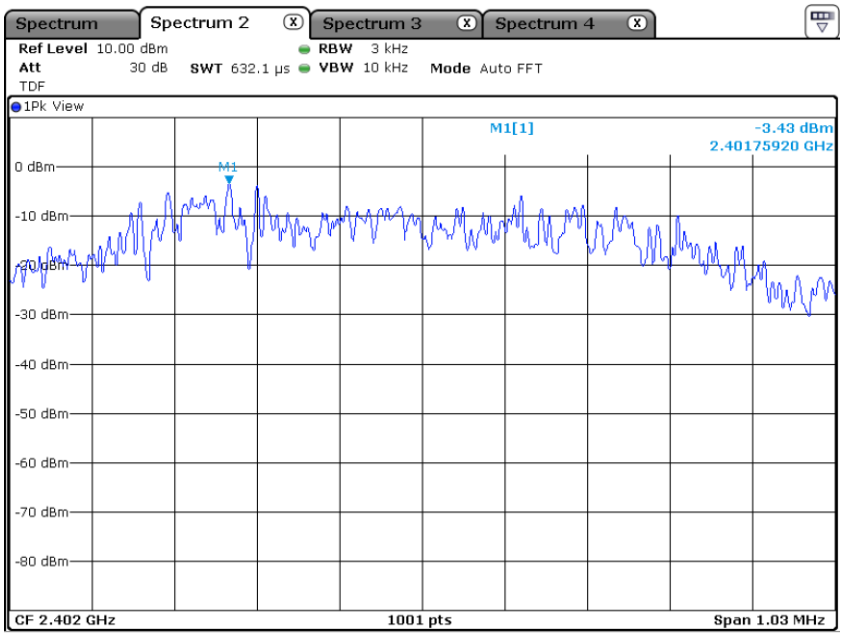
Operating mode : Transmit mode

Test Result : Pass

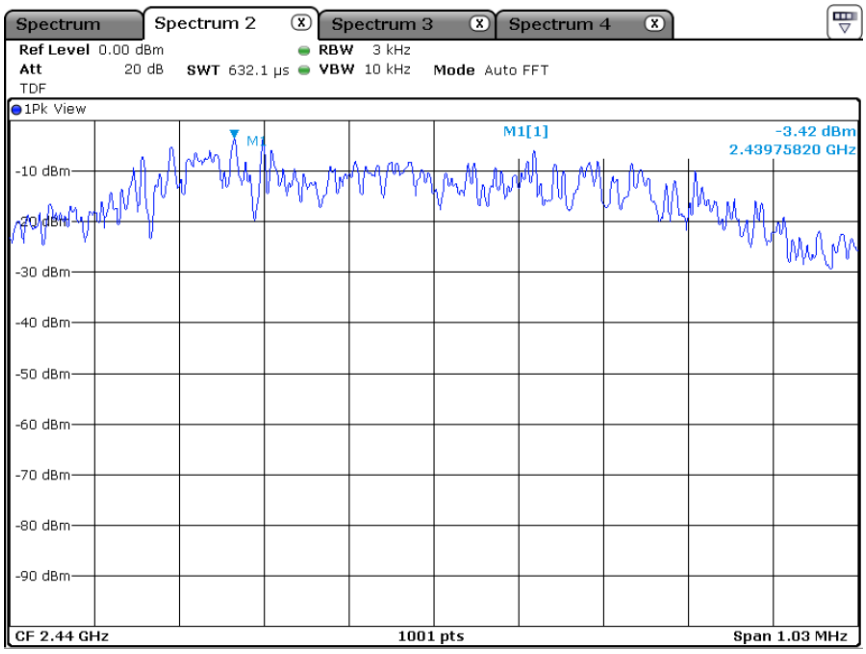
7.5.1.3 Measured Results

Modulation Type	Channel (Frequency)	Highest signal level (dBm)	Limit (dBm/3㎑)
Bluetooth LE 1M	0 (2 402 ㎒)	-3.43	8
	19 (2 440 ㎒)	-3.42	
	39 (2 480 ㎒)	-3.56	
Bluetooth LE 2M	0 (2 402 ㎒)	6.46	
	19 (2 440 ㎒)	6.50	
	39 (2 480 ㎒)	6.31	
Zigbee	0 (2 412 ㎒)	-1.89	
	6 (2 437 ㎒)	-1.81	
	11 (2 462 ㎒)	-1.92	

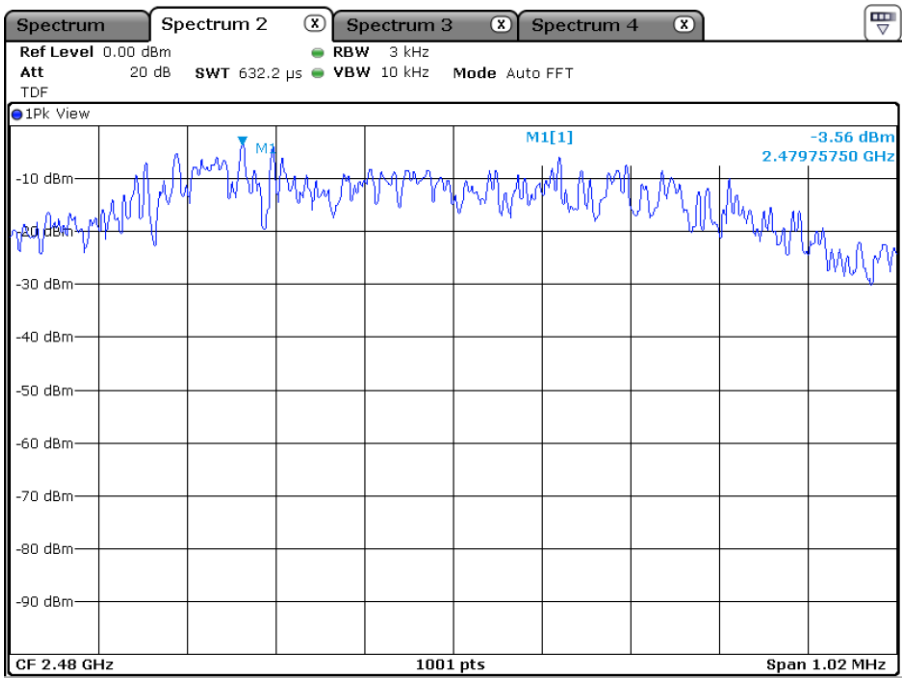
7.5.1.3 Measured Graph_ Bluetooth LE 1M



Low CH

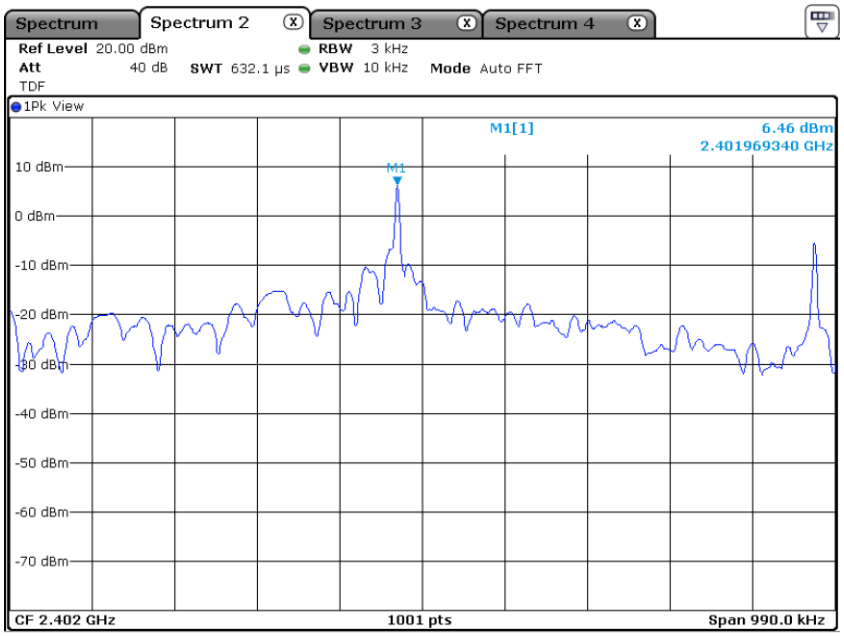


Mid CH

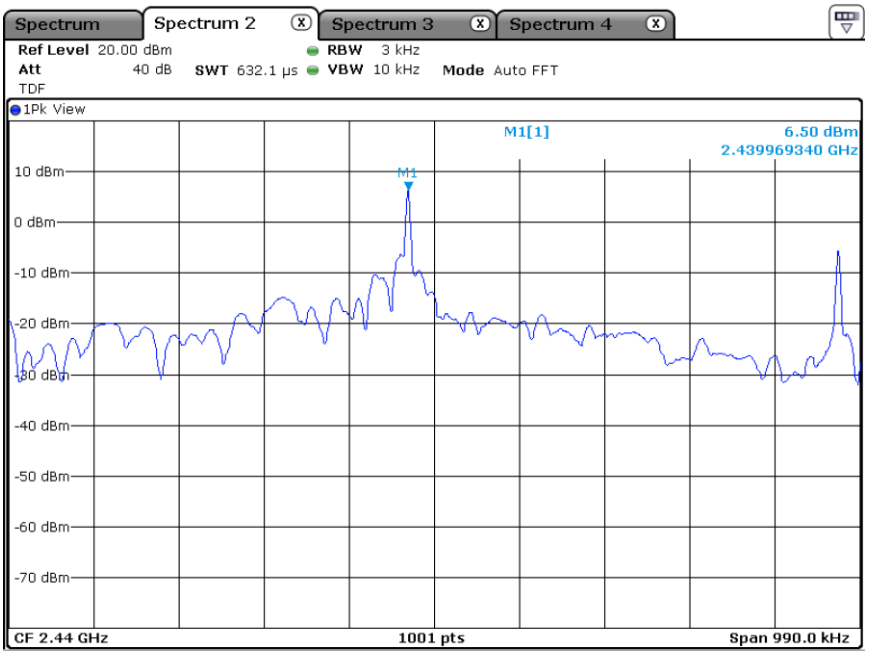

Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 0.00 dBm
RBW 3 kHz
Att 20 dB
SWT 632.2 µs
VBW 10 kHz
Mode Auto FFT
TDF
1Pk View
M1[1]
-3.56 dBm
2.47975750 GHz
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
CF 2.48 GHz
1001 pts
Span 1.02 MHz

High CH

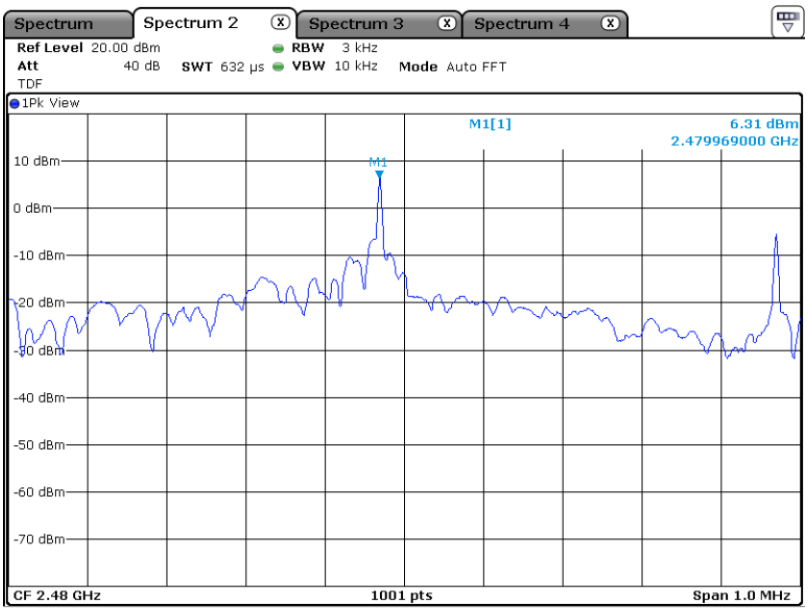
7.5.1.3 Measured Graph_ Bluetooth LE 2M



Low CH

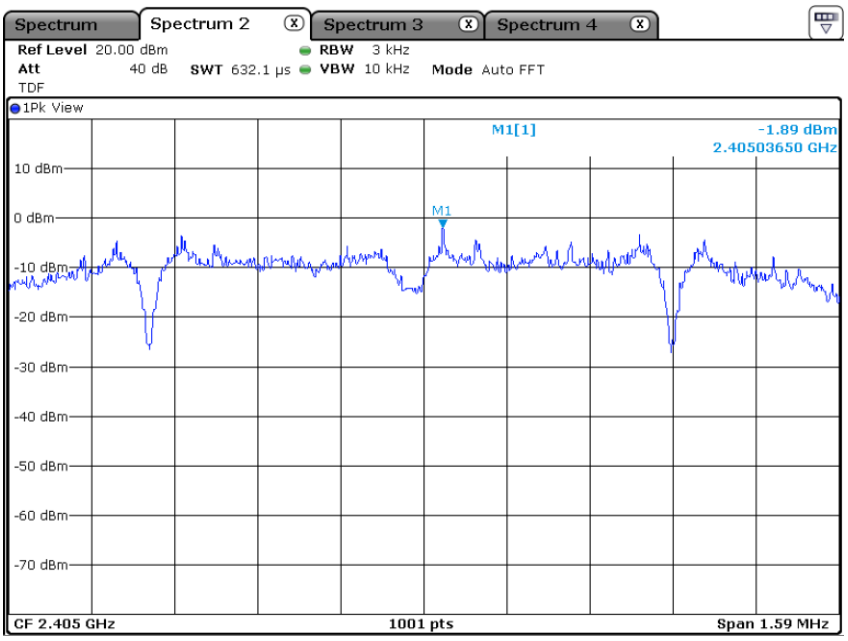


Mid CH

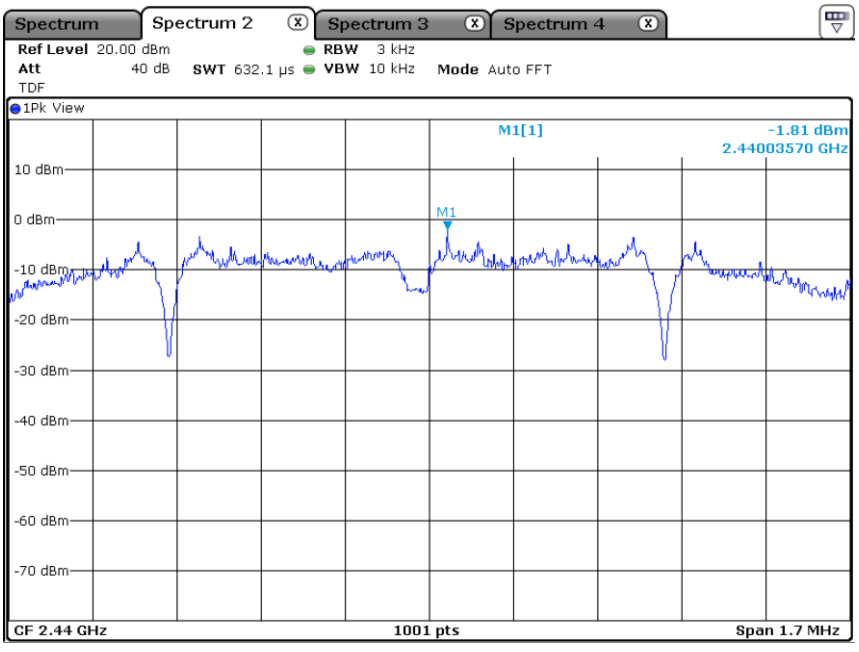

Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 20.00 dBm
RBW 3 kHz
Att 40 dB
SWT 632 µs
VBW 10 kHz
Mode Auto FFT
TDF
1Pk View
M1[1]
6.31 dBm
2.479969000 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.48 GHz
1001 pts
Span 1.0 MHz

High CH

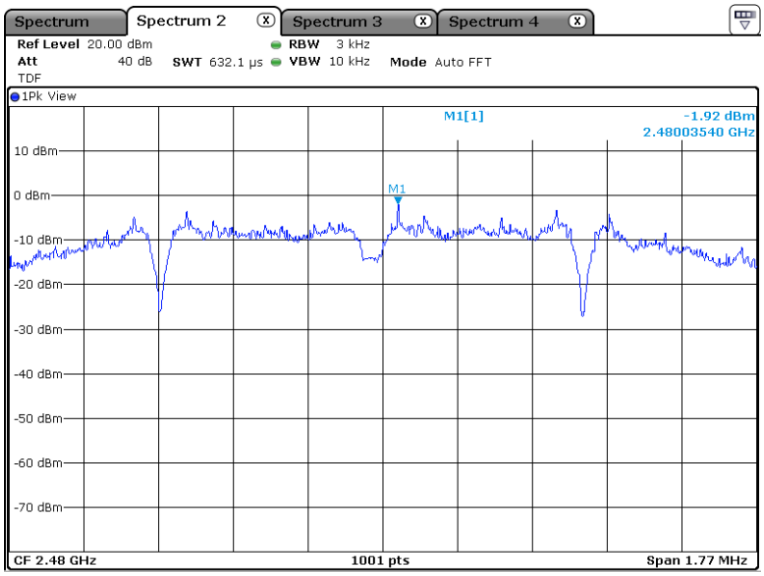
7.5.1.3 Measured Graph_Zigbee



Low CH



Mid CH


Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 20.00 dBm
RBW 3 kHz
Att 40 dB
SWT 632.1 µs
VBW 10 kHz
Mode Auto FFT
TDF
1Pk View
M1[1]
-1.92 dBm
2.48003540 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.48 GHz
1001 pts
Span 1.77 MHz

High CH

8. Conducted Spurious Emission

8.3 Operating environment

Temperature : 24.2 ℃

Relative humidity : 47.7 %

8.4 Measurement method

Standard : §15.247 (d)

8.5 Test data

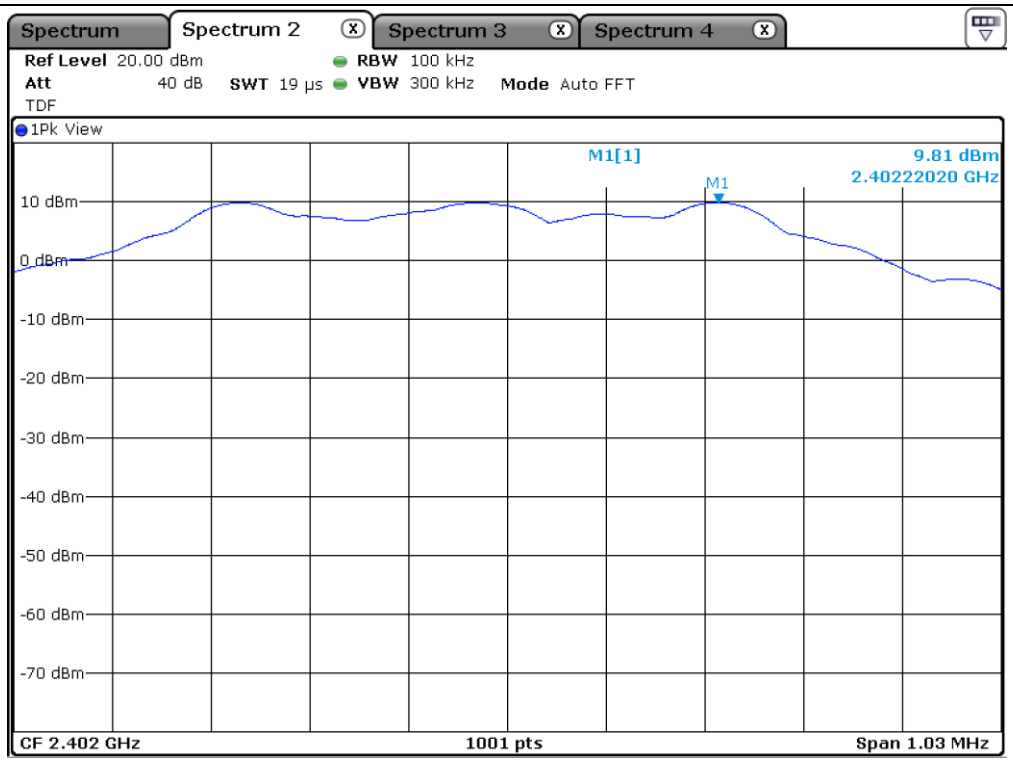
Operating mode : Transmit mode

Test Result : Pass

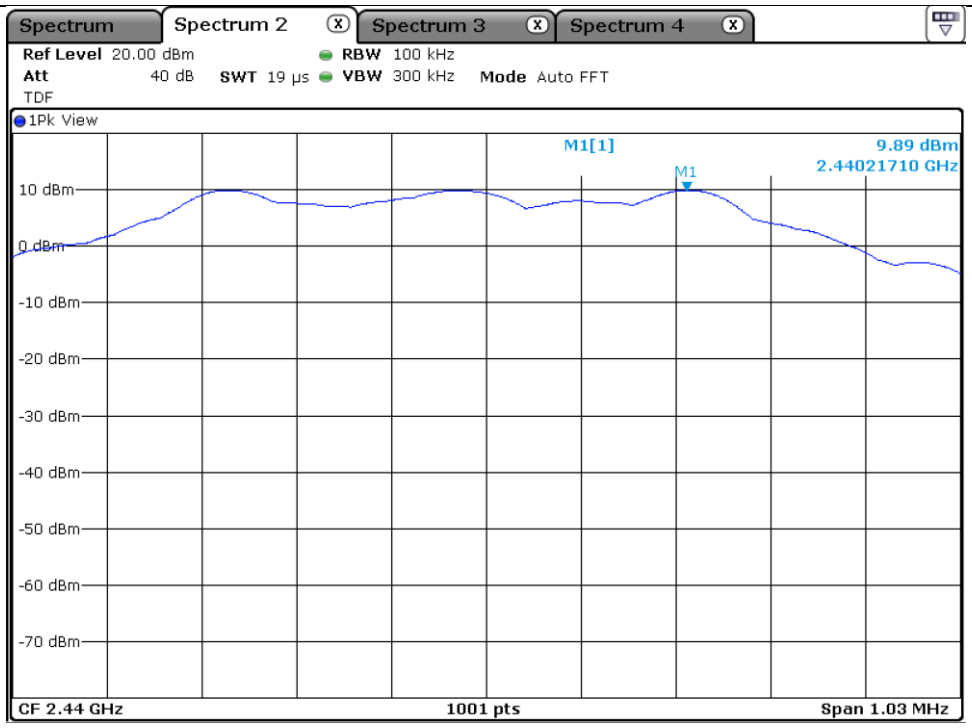
8.5.1.3 Measured Results

8.5.3.1 Bluetooth LE 1M

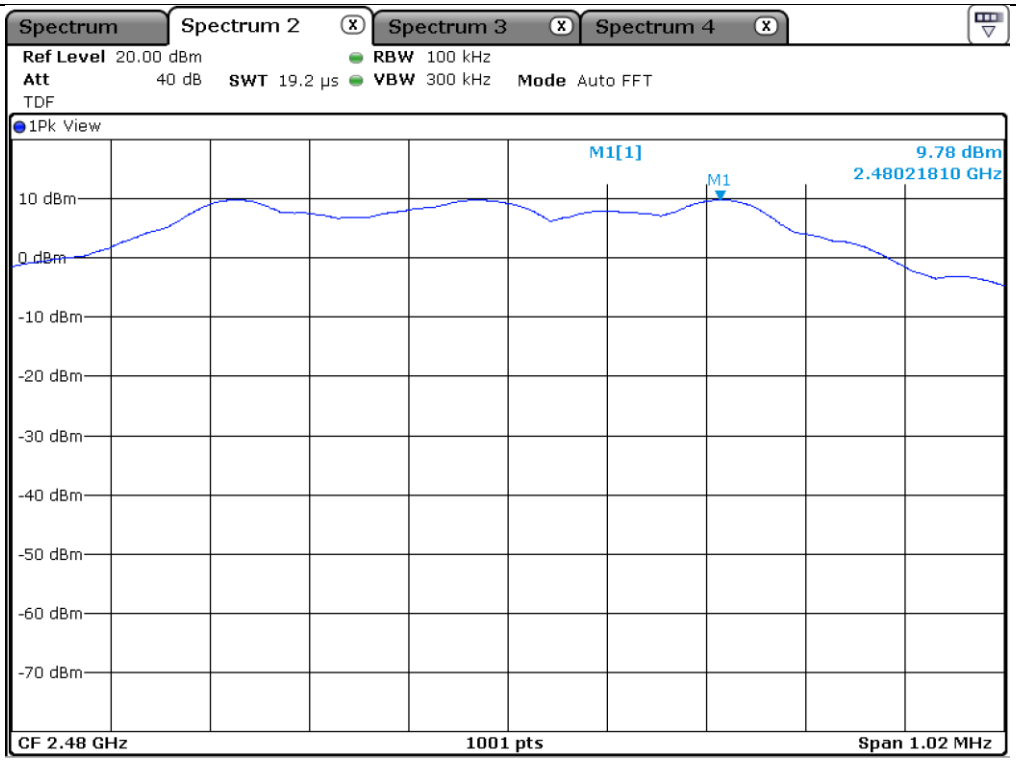
8.3.1.1.1 Signal level (dB m)



Low CH

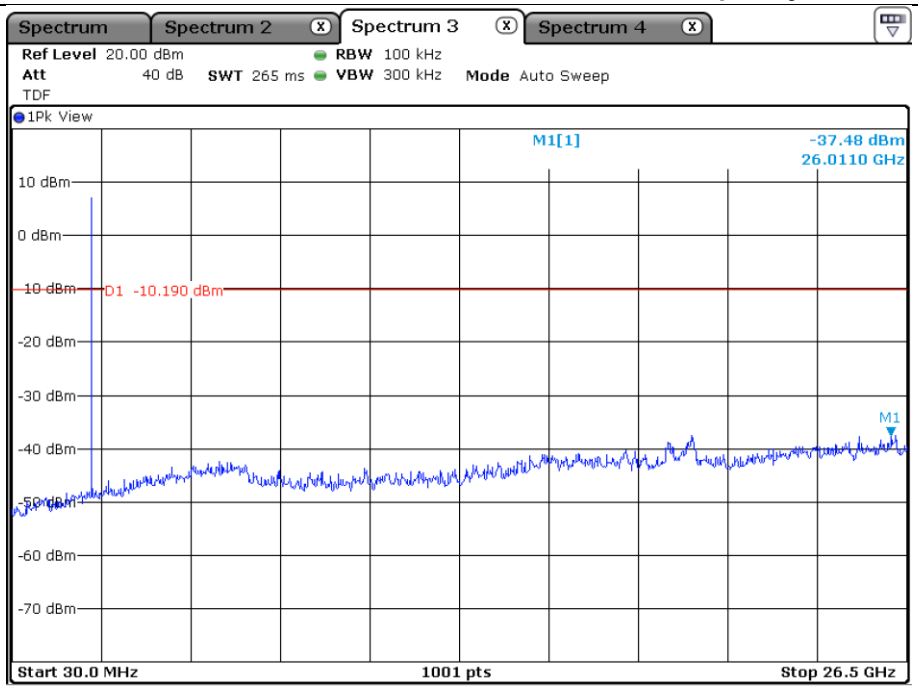


Mid CH

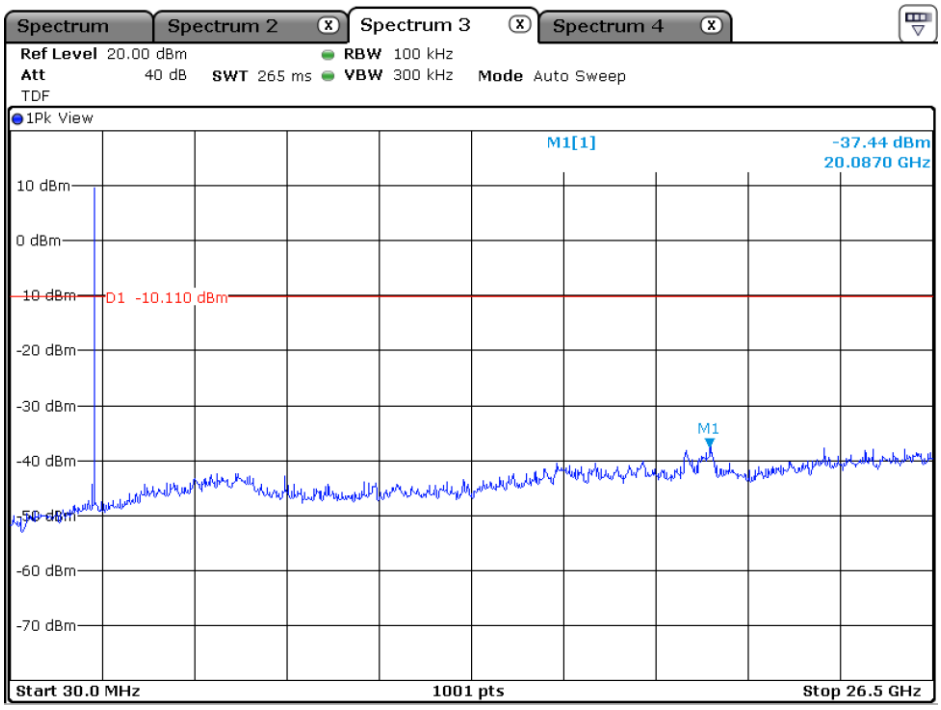


High CH

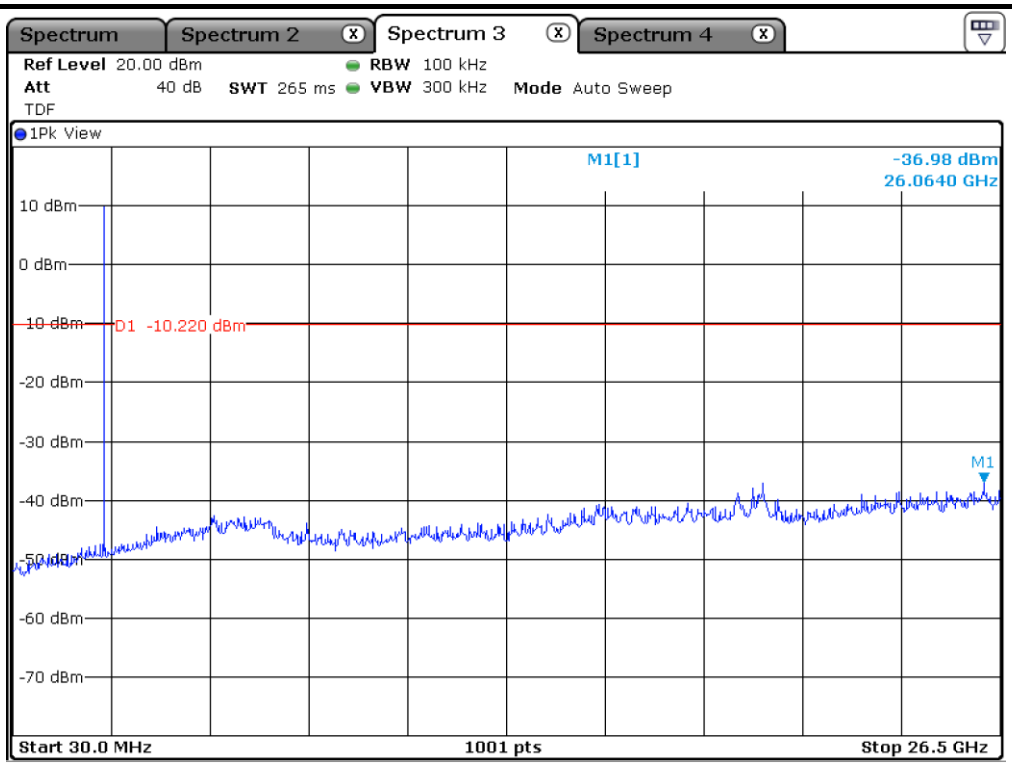
8.3.1.1.2 Unwanted Emissions In Non-Restricted Frequency Bands



Low CH

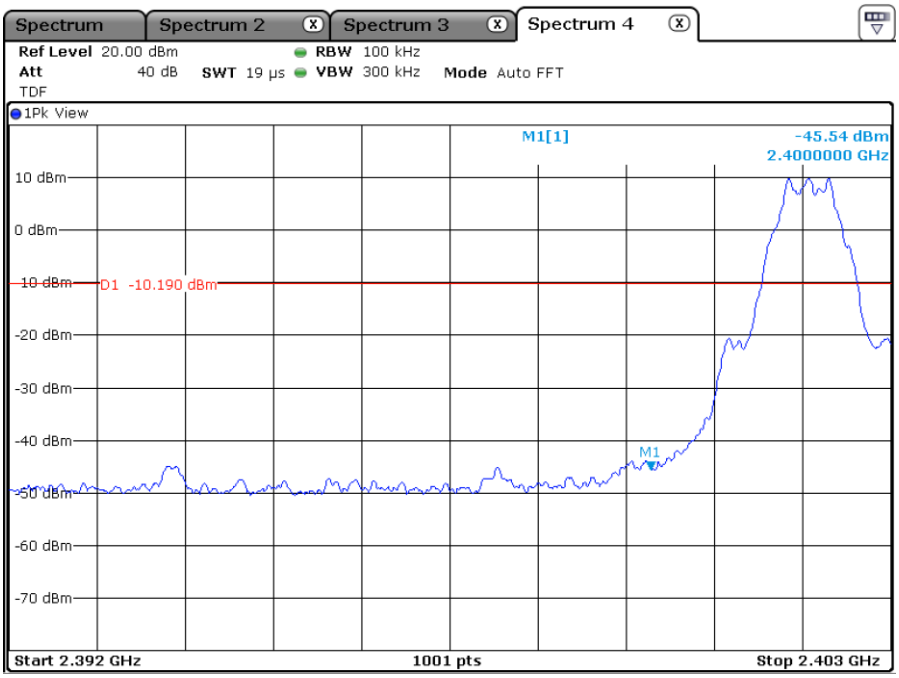


Mid CH

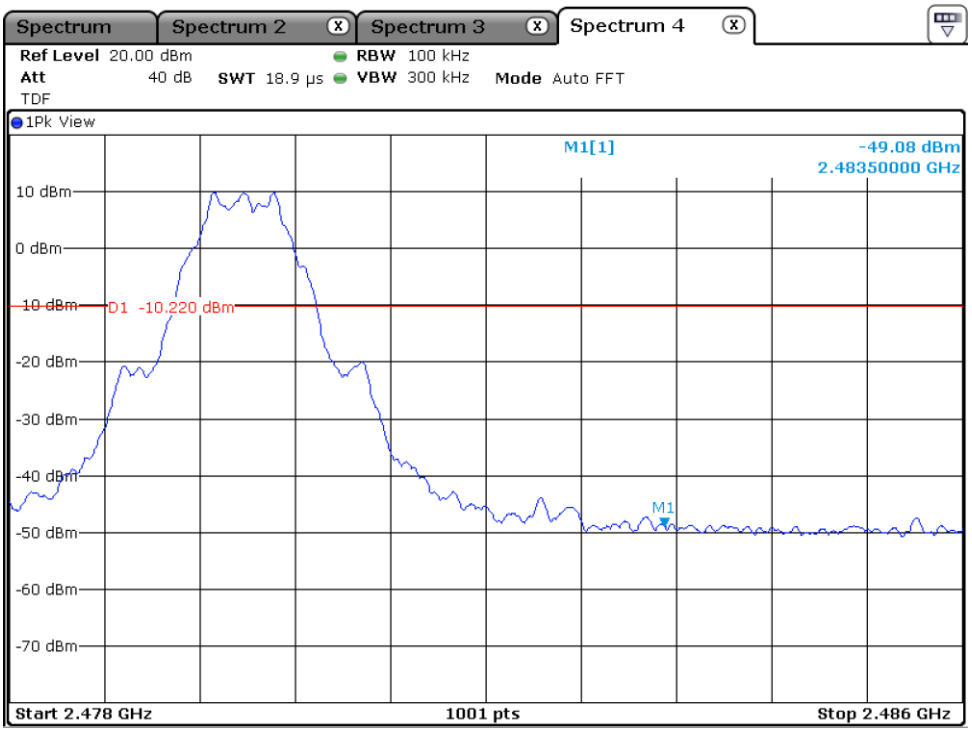

Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 20.00 dBm
RBW 100 kHz
Att 40 dB
SWT 265 ms
VBW 300 kHz
Mode Auto Sweep
TDF
1Pk View
M1[1]
-36.98 dBm
26.0640 GHz
10 dBm
0 dBm
-10 dBm
D1 -10.220 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
Start 30.0 MHz
1001 pts
Stop 26.5 GHz

High CH

8.3.1.1.3 Band Edge



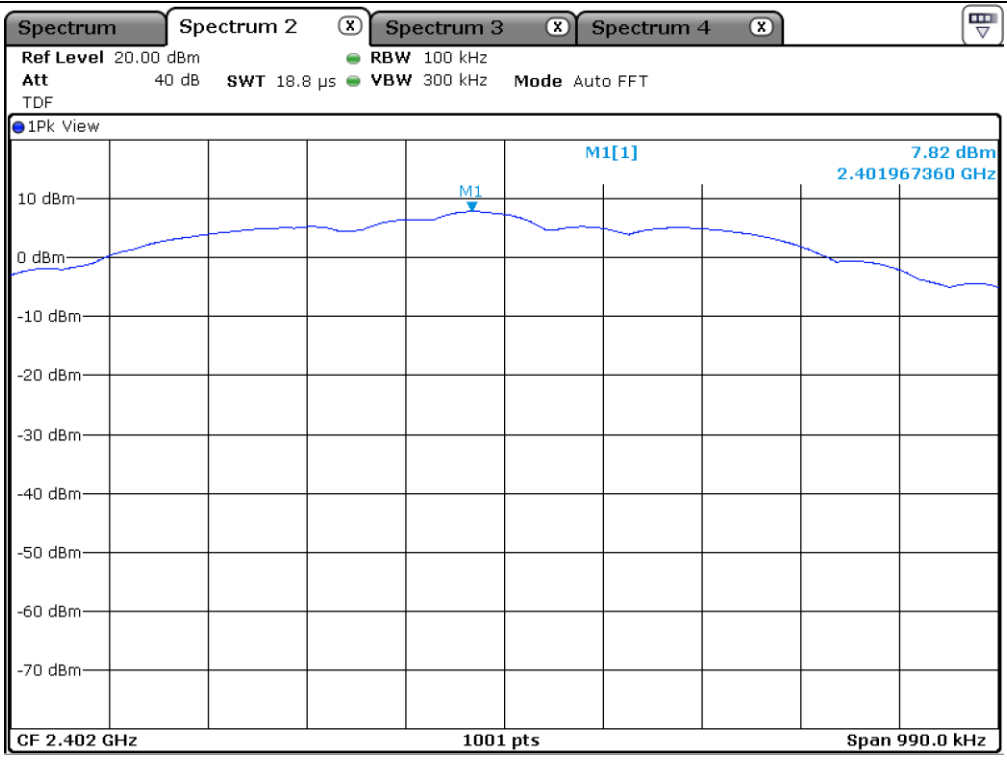
Low CH



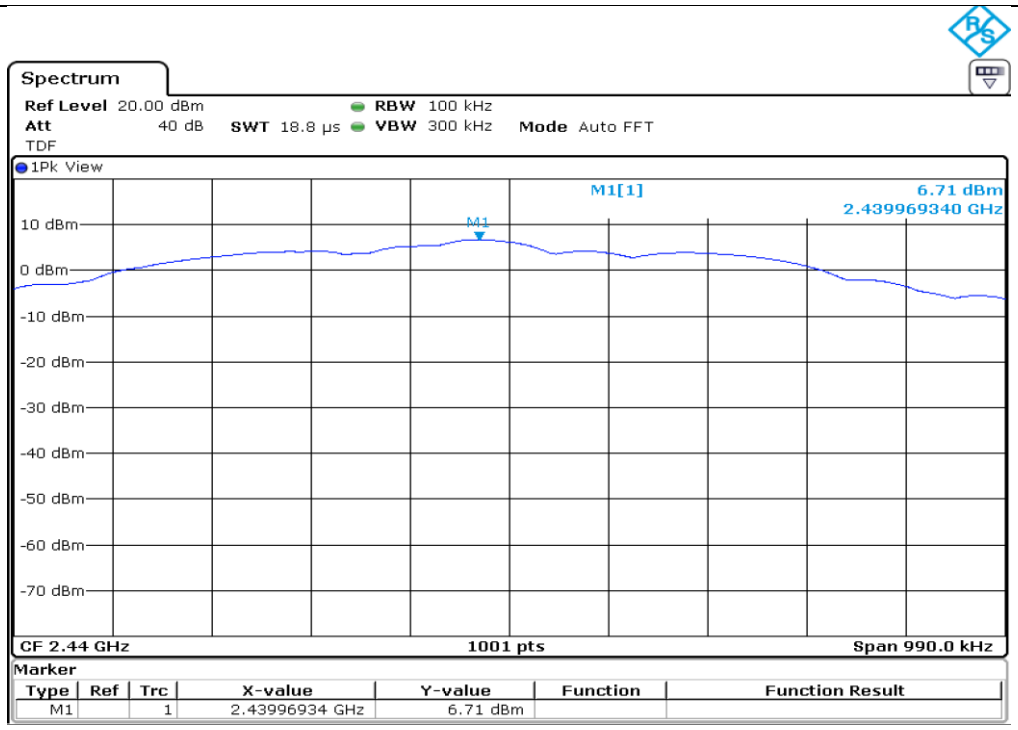
High CH

8.5.3.2 Bluetooth LE 2M

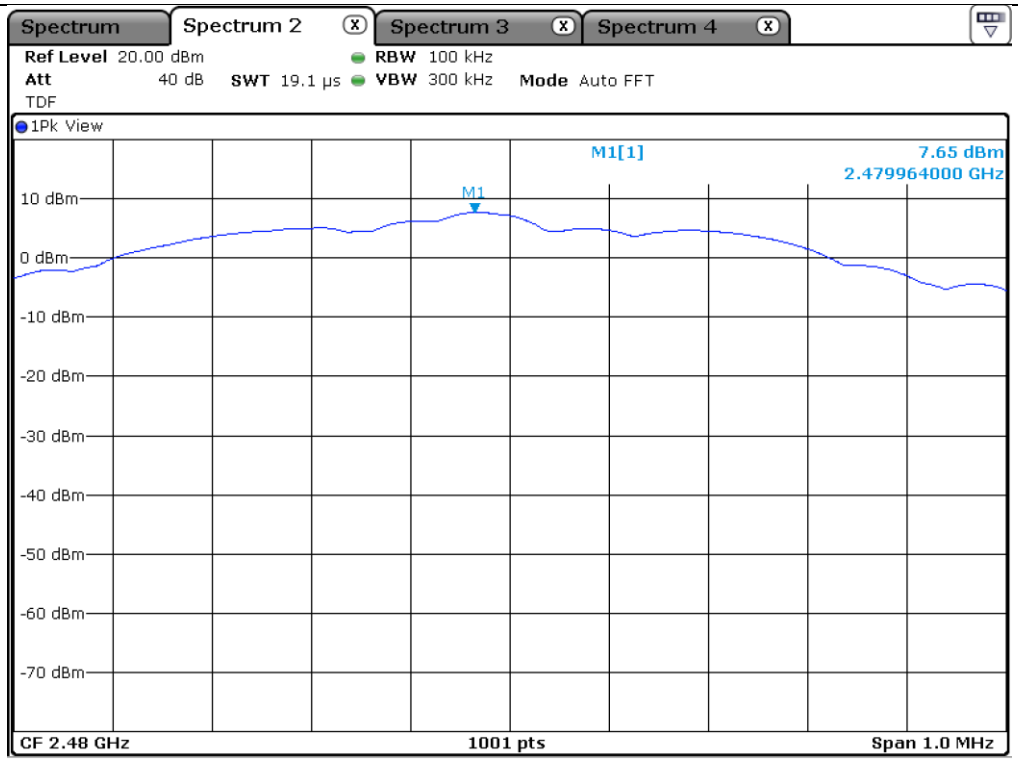
8.5.3.2.1 Signal level (dB m)



Low CH

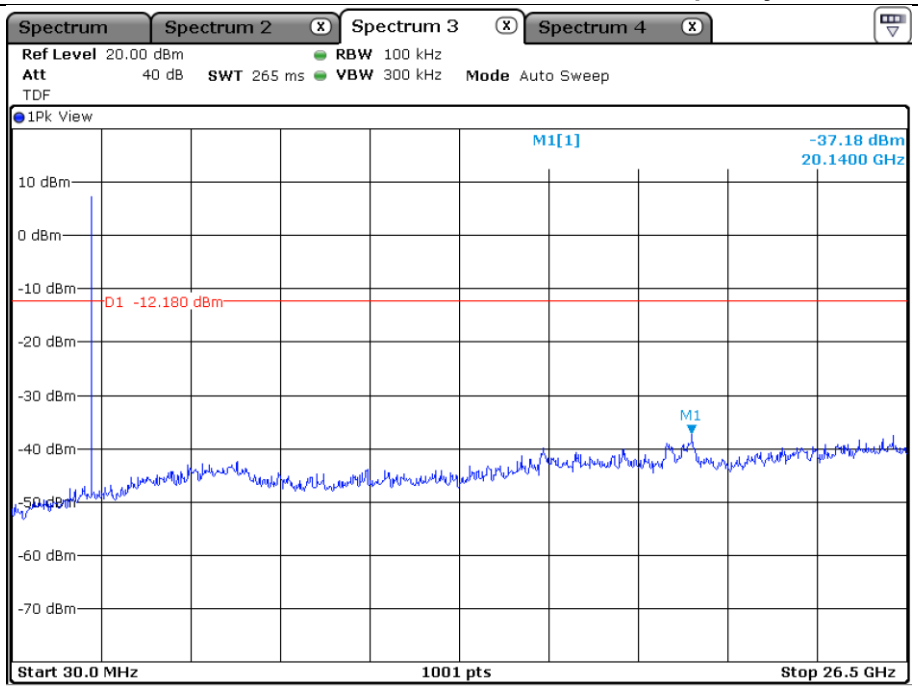


Mid CH

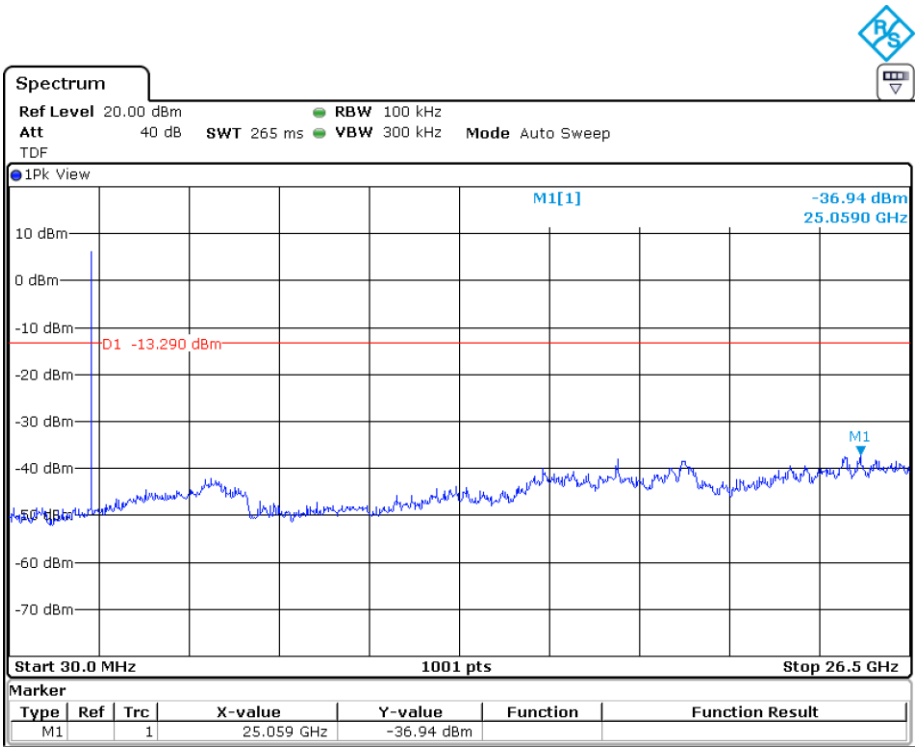


High CH

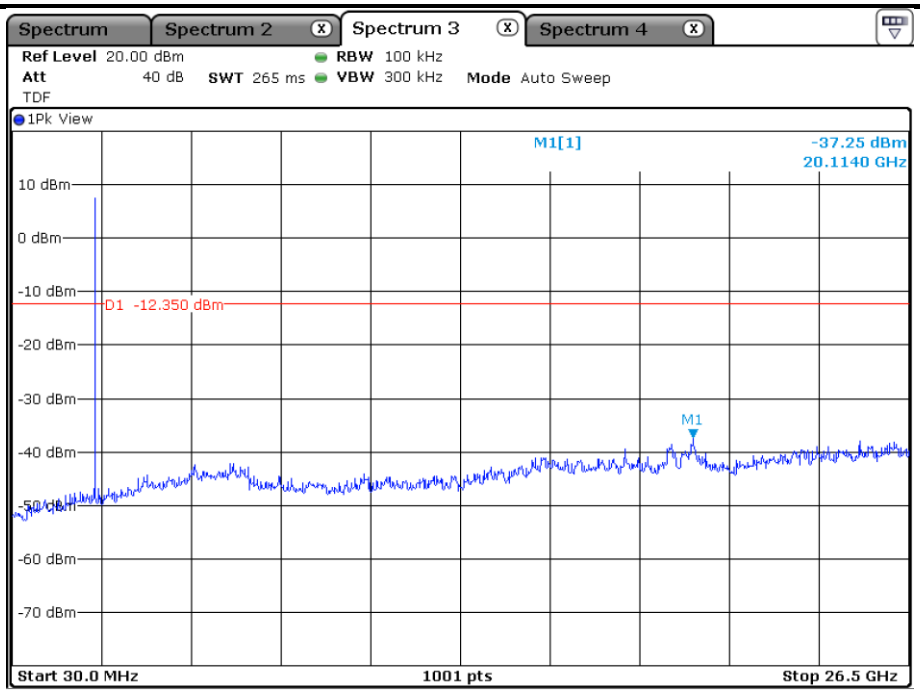
8.5.3.2.2 Unwanted Emissions In Non-Restricted Frequency Bands



Low CH

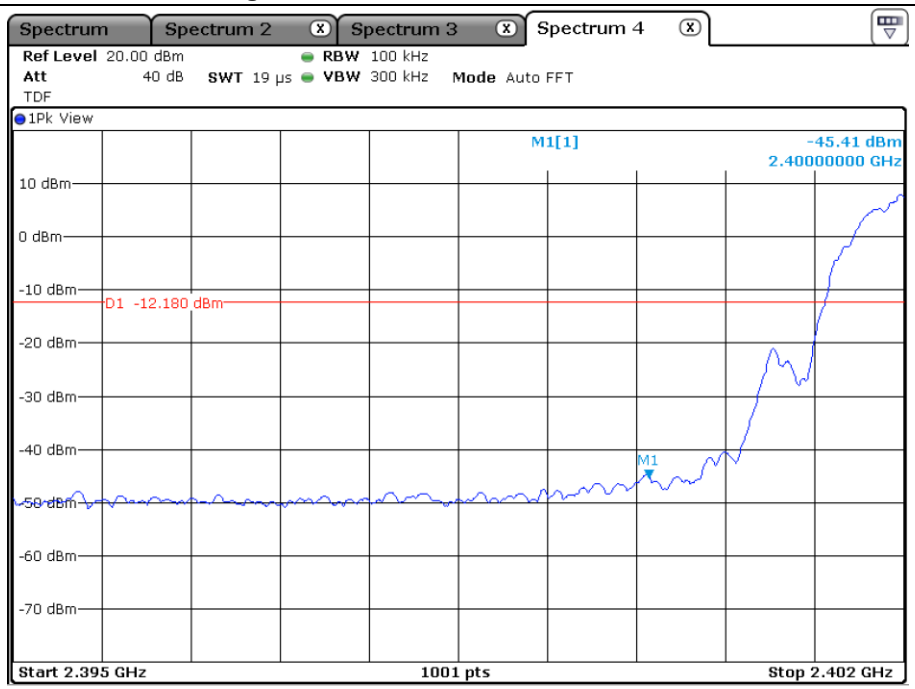


Mid CH

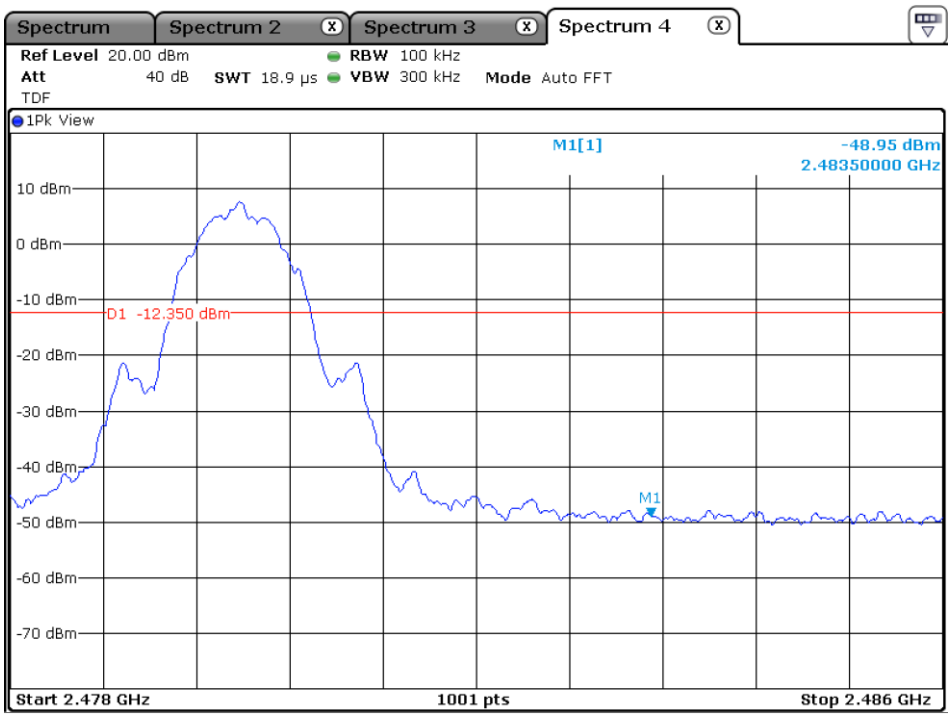

Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 20.00 dBm
RBW 100 kHz
Att 40 dB
SWT 265 ms
VBW 300 kHz
Mode Auto Sweep
TDF
1Pk View
M1[1]
-37.25 dBm
20.1140 GHz
10 dBm
0 dBm
-10 dBm
D1 -12.350 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
Start 30.0 MHz
1001 pts
Stop 26.5 GHz

High CH

8.5.3.2.3 Band Edge



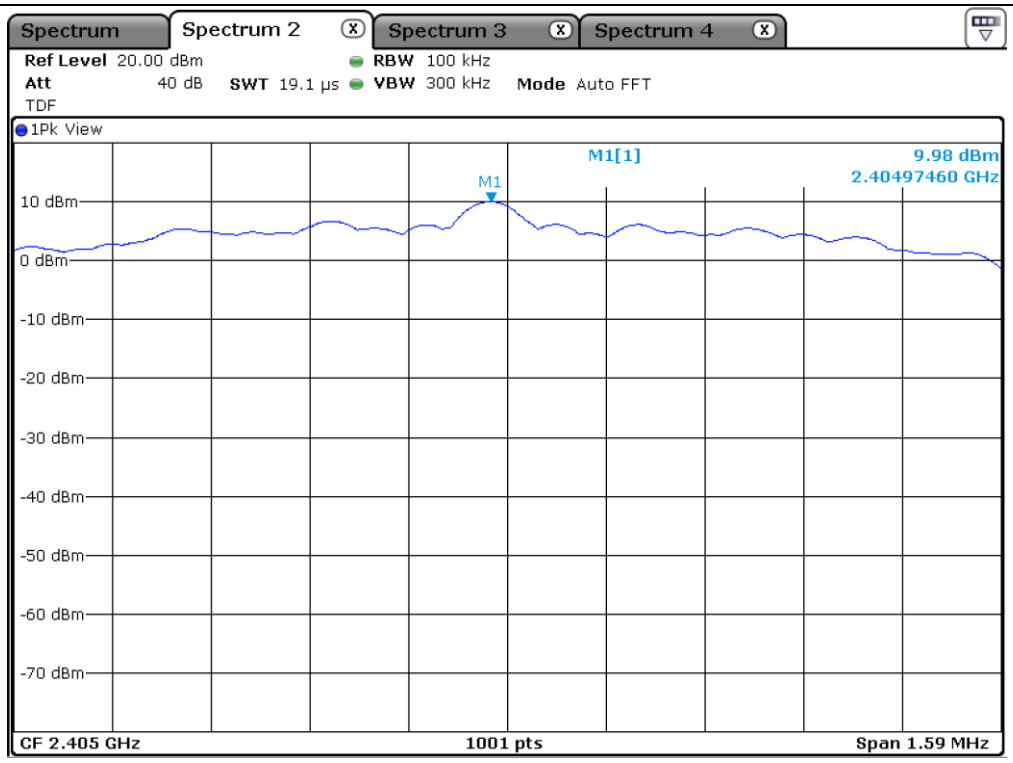
Low CH



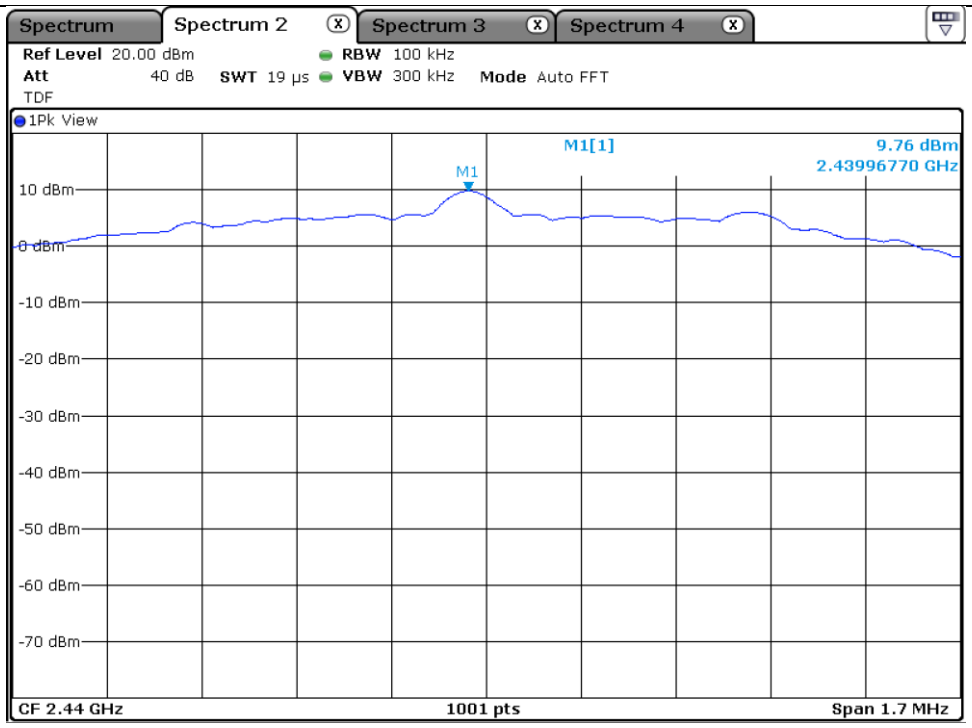
High CH

8.5.3.3 Zigbee

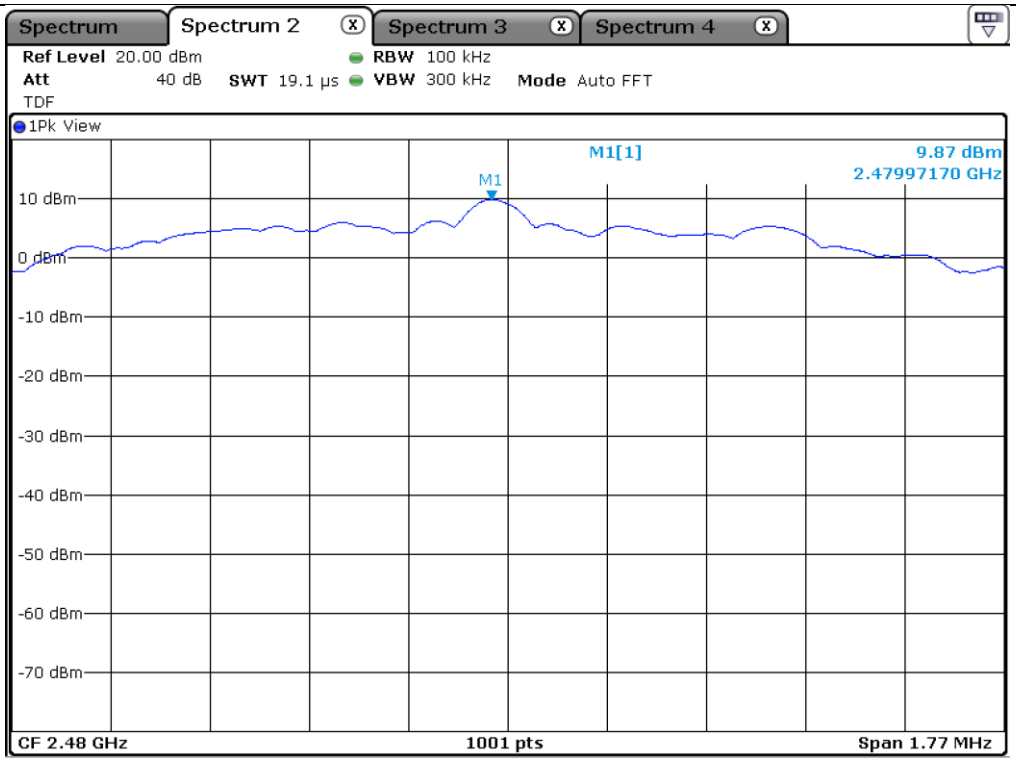
8.5.3.3.1 Signal level (dB m)



Low CH

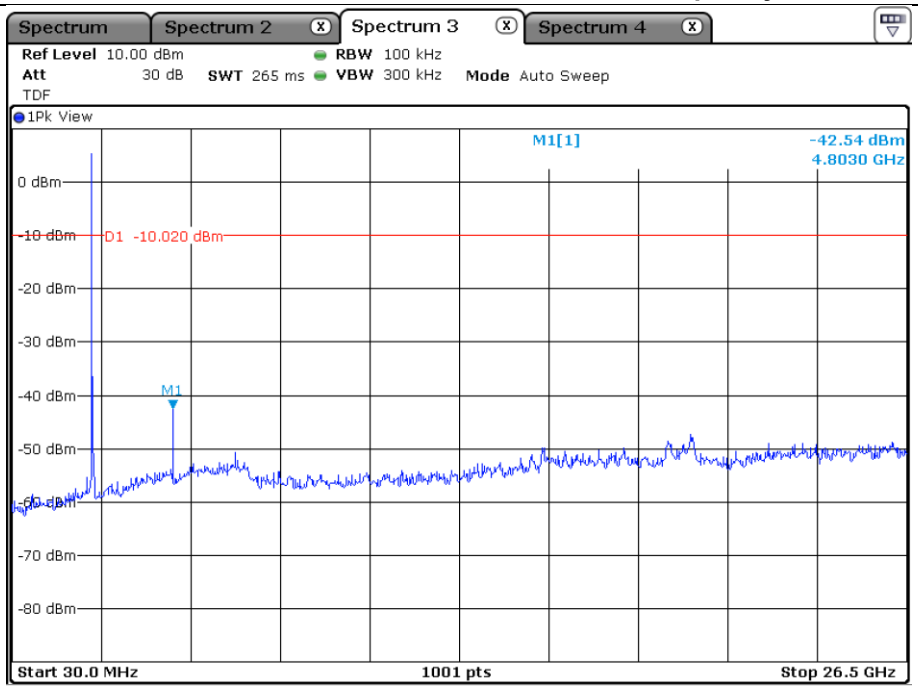


Mid CH

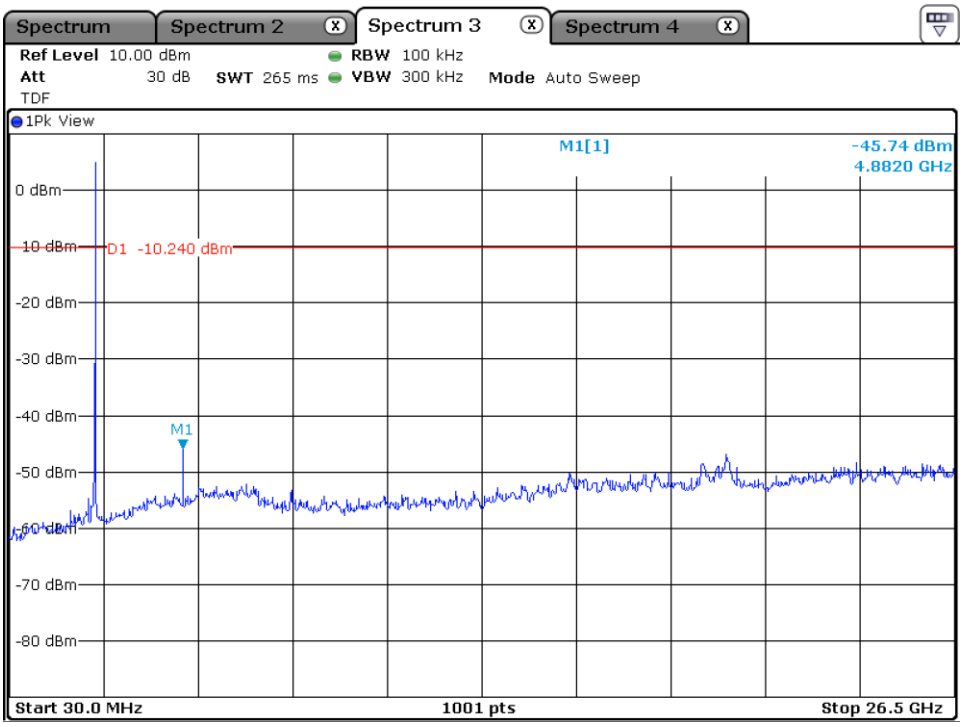


High CH

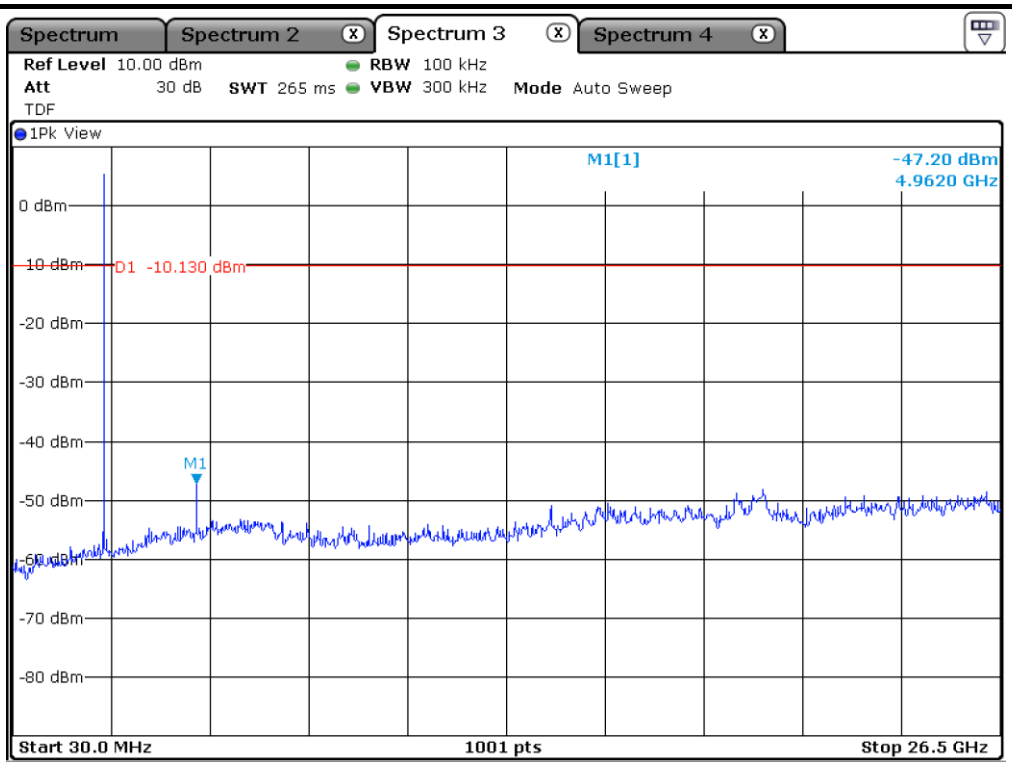
8.5.3.3.2 Unwanted Emissions In Non-Restricted Frequency Bands



Low CH

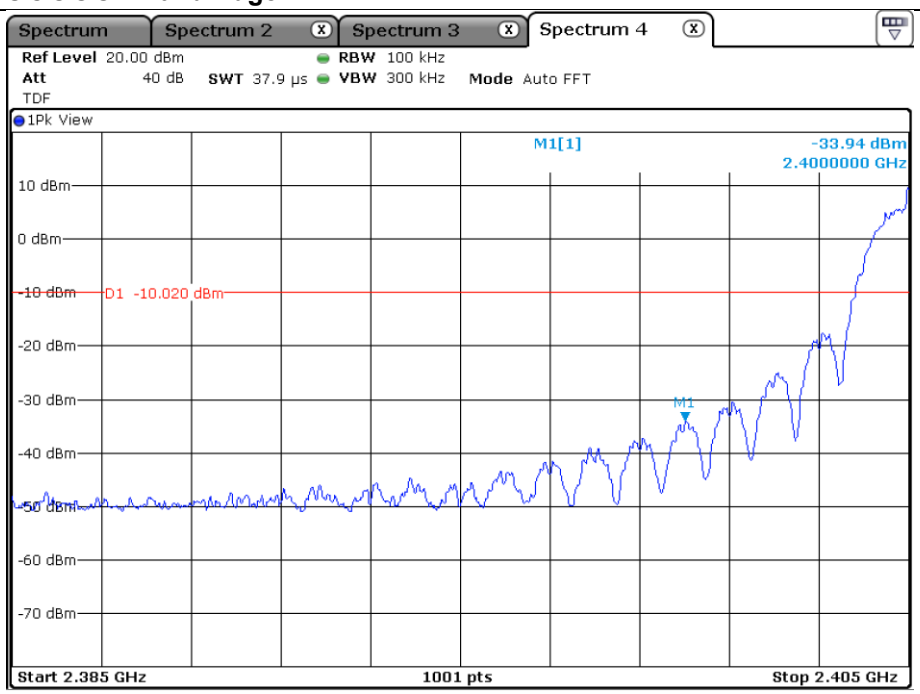


Mid CH

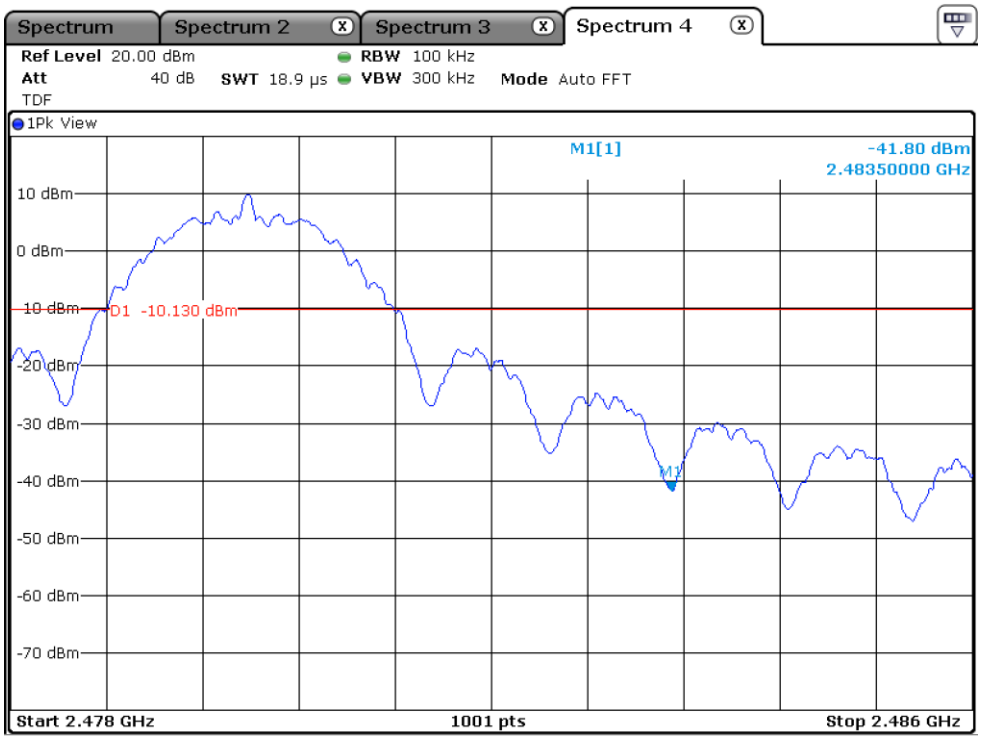

Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 10.00 dBm
RBW 100 kHz
Att 30 dB
SWT 265 ms
VBW 300 kHz
Mode Auto Sweep
TDF
1Pk View
M1[1]
-47.20 dBm
4.9620 GHz
0 dBm
-10 dBm
D1 -10.130 dBm
-20 dBm
-30 dBm
-40 dBm
M1
-50 dBm
-60 dBm
-70 dBm
-80 dBm
Start 30.0 MHz
1001 pts
Stop 26.5 GHz

High CH

8.5.3.3.3 Band Edge



Low CH



High CH

9. Radiated Spurious Emission

9.3 Operating environment

Temperature : 24.5 ℃

Relative humidity : 47.3 %

9.4 Measurement method

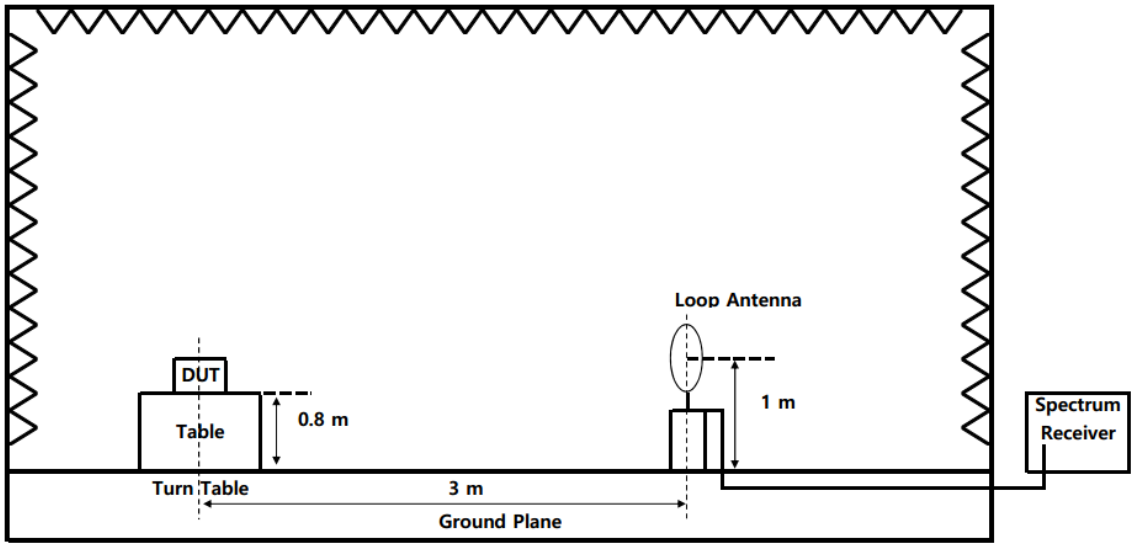
Standard : §15.247 (d), §15.209, §15.205

9.5 Test setup

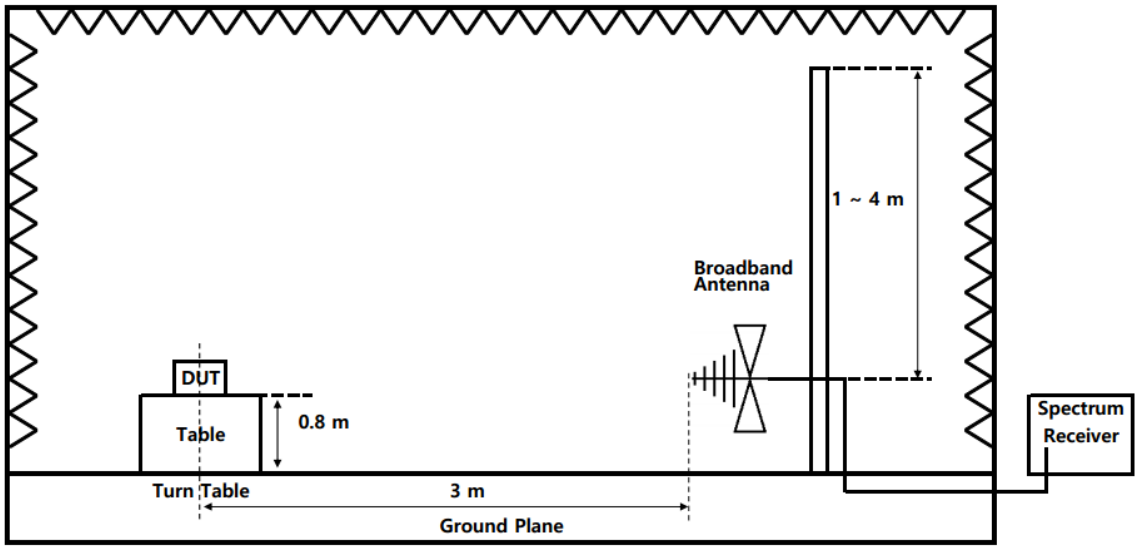
The radiated emissions measurements were performed on the 3 m, Semi-Anechoic Camber. The EUT was placed on a non-conductive turntable above the ground plane.

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.

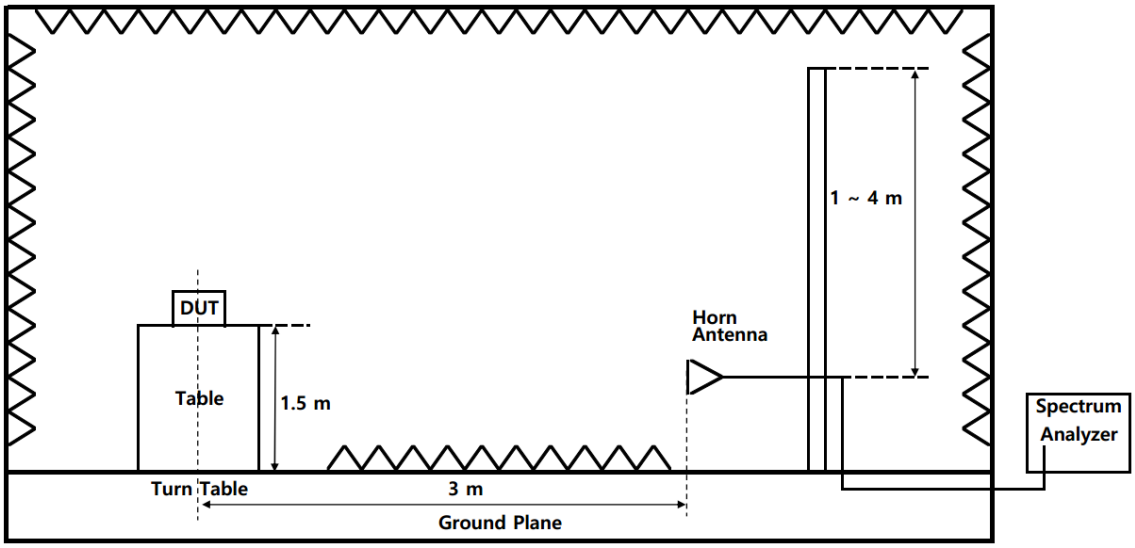
9.5.1.3 Below 30 ㎒



9.5.1.3 30 MHz to 1 GHz



9.5.1.3 Above 1 GHz



9.6 Test data

Operating mode : Transmit mode

Test Result : Pass

9.6.1.3 Test data for Restricted band

9.6.3.1 LE 1M

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2 346.008	48.68	Peak	H	-14.60	34.08	73.98	39.90
	40.21	Average	H		25.61	53.98	28.37
High CH							
2 495.938	59.89	Peak	H	-14.10	45.79	73.98	28.19
	34.30	Average	H		20.20	53.98	33.78

9.6.3.2 LE 2M

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2 362.464	61.18	Peak	H	-14.60	46.58	73.98	27.40
	34.83	Average	H		20.23	53.98	33.75
High CH							
2 495.966	59.87	Peak	H	-14.10	45.77	73.98	28.21
	39.39	Average	H		25.29	53.98	28.69

9.6.3.3 Zigbee

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2 381.152	56.94	Peak	H	-14.50	42.44	73.98	31.54
	40.25	Average	H		25.75	53.98	28.23
High CH							
2 484.091	68.00	Peak	H	-14.10	53.90	73.98	20.08
	53.04	Average	H		38.94	53.98	15.04

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

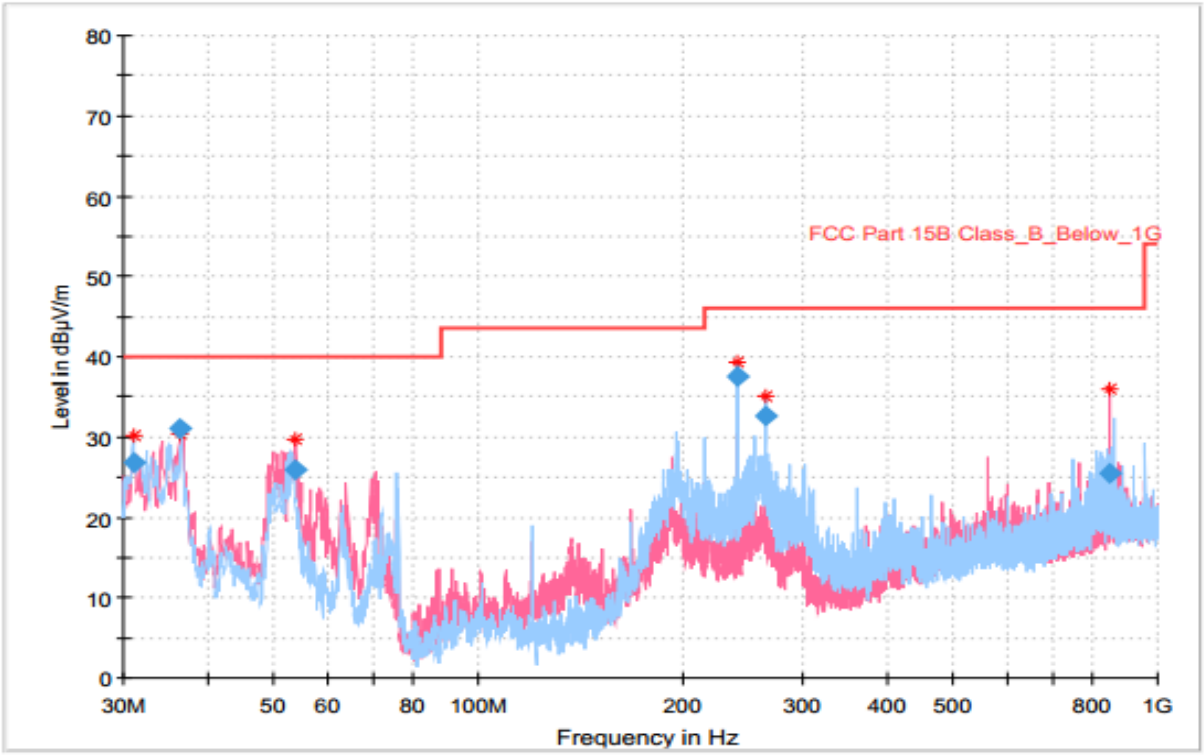
9.6.1.3 Test data for Spurious & Harmonic

9.6.4.1 Measurement Results for below 30 ㎒

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

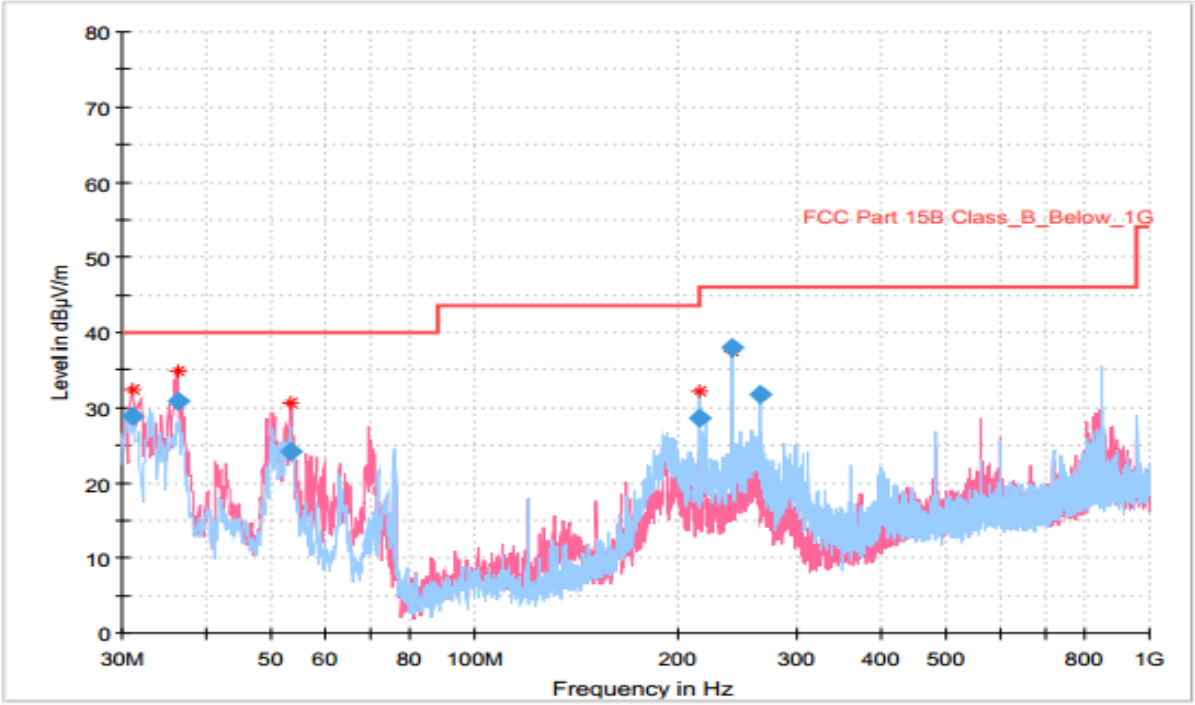
9.6.4.2 Measurement Results for below 1 ㎓_LE 1M



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.067000	26.76	40.00	13.24	1000.0	120.000	200.0	H	188.0	-26.5
36.402000	31.11	40.00	8.89	1000.0	120.000	100.0	V	2.0	-25.2
53.765000	25.84	40.00	14.16	1000.0	120.000	100.0	V	2.0	-22.8
240.005000	37.64	46.00	8.36	1000.0	120.000	100.0	H	358.0	-22.5
263.964000	32.64	46.00	13.36	1000.0	120.000	100.0	H	149.0	-21.9
849.941000	25.40	46.00	20.60	1000.0	120.000	100.0	V	268.0	-9.7

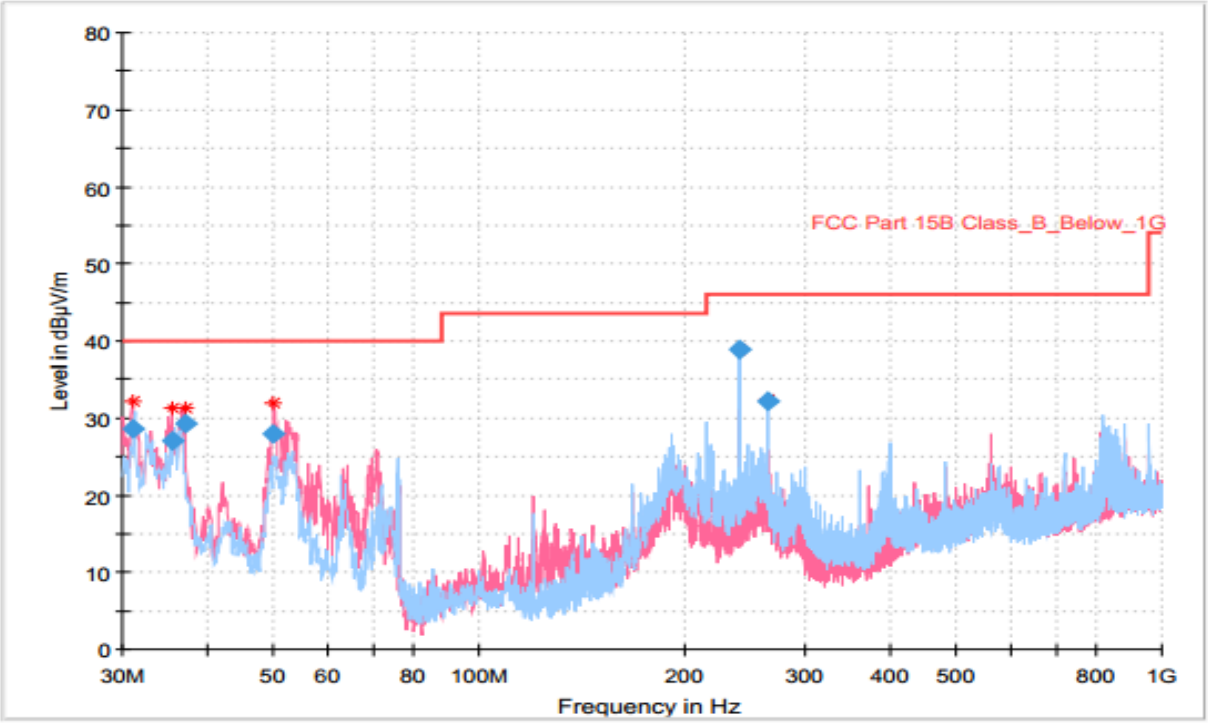
Low CH



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.067000	28.84	40.00	11.16	1000.0	120.000	100.1	V	66.0	-26.5
36.305000	30.79	40.00	9.21	1000.0	120.000	100.1	V	119.0	-25.3
53.474000	24.17	40.00	15.83	1000.0	120.000	100.1	V	105.0	-22.7
215.949000	28.51	43.50	14.99	1000.0	120.000	100.1	H	0.0	-24.2
240.005000	38.03	46.00	7.97	1000.0	120.000	100.1	H	0.0	-22.5
263.964000	31.75	46.00	14.25	1000.0	120.000	100.1	H	133.0	-21.9

Mid CH

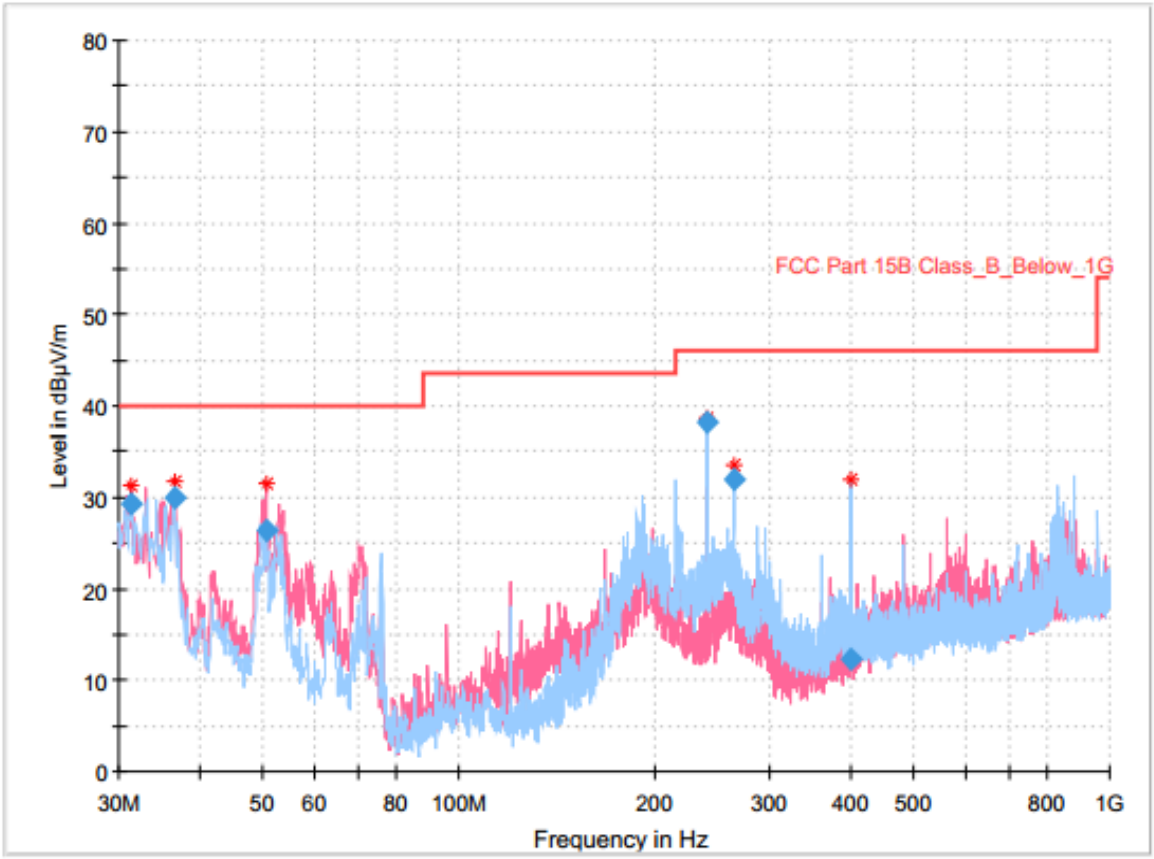


Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.067000	28.59	40.00	11.41	1000.0	120.000	99.8	V	332.0	-26.5
35.432000	27.02	40.00	12.98	1000.0	120.000	99.8	V	173.0	-25.6
37.081000	29.21	40.00	10.79	1000.0	120.000	99.8	V	173.0	-25.0
50.079000	27.93	40.00	12.07	1000.0	120.000	99.8	V	0.0	-22.5
240.005000	38.80	46.00	7.20	1000.0	120.000	99.8	H	25.0	-22.5
263.964000	32.16	46.00	13.84	1000.0	120.000	99.8	H	162.0	-21.9

High CH

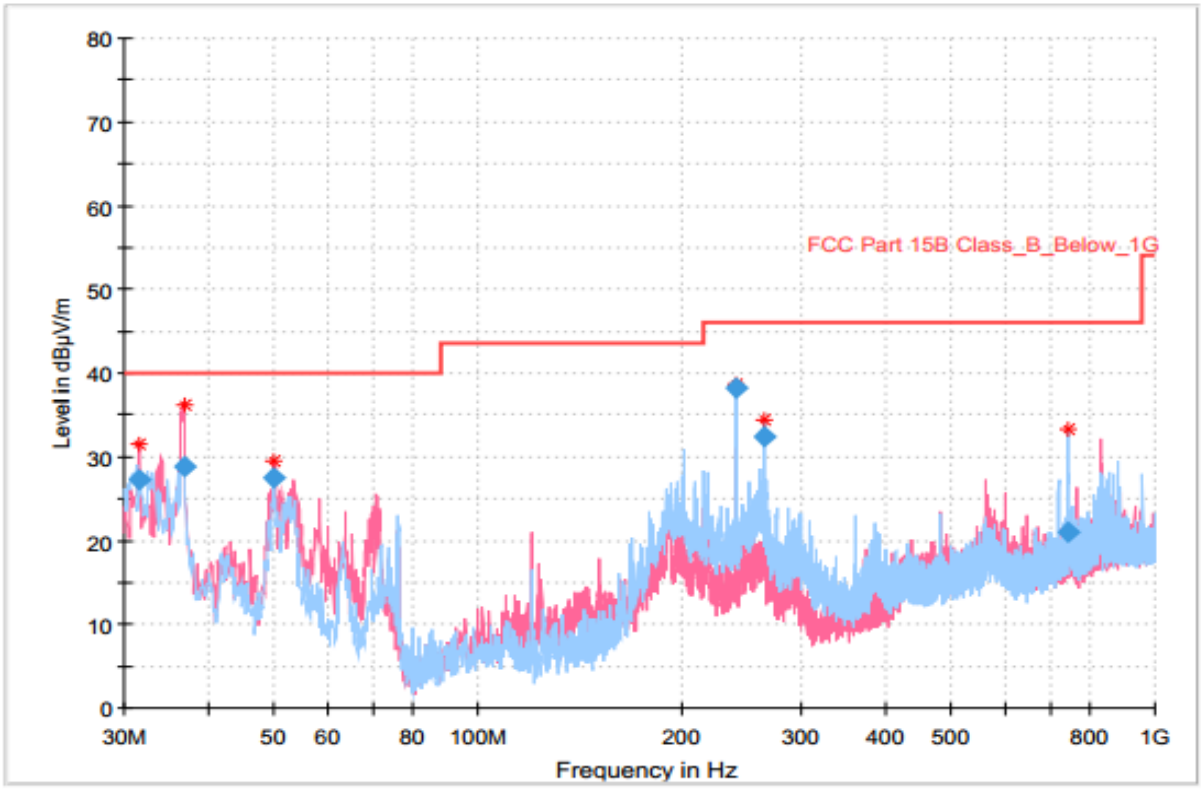
9.6.4.3 Measurement Results for below 1 ㎓_LE 2M



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.358000	29.23	40.00	10.77	1000.0	120.000	99.9	V	87.0	-26.6
36.693000	30.00	40.00	10.00	1000.0	120.000	99.9	V	331.0	-25.1
50.564000	26.45	40.00	13.55	1000.0	120.000	99.9	V	277.0	-22.5
240.005000	38.29	46.00	7.71	1000.0	120.000	99.9	H	24.0	-22.5
263.964000	31.94	46.00	14.07	1000.0	120.000	99.9	H	39.0	-21.9
400.055000	12.30	46.00	33.70	1000.0	120.000	200.0	H	214.0	-17.8

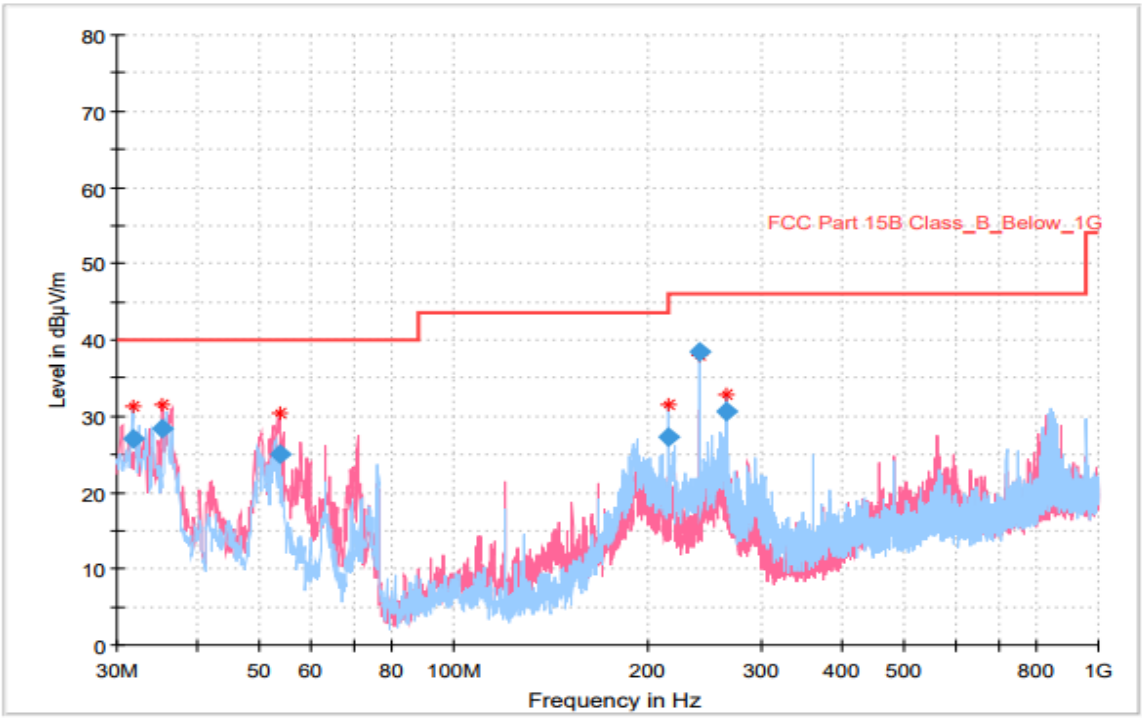
Low CH



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.552000	27.16	40.00	12.84	1000.0	120.000	100.0	V	80.0	-26.6
36.790000	28.89	40.00	11.11	1000.0	120.000	100.0	V	80.0	-25.1
49.982000	27.49	40.00	12.51	1000.0	120.000	100.0	V	332.0	-22.5
240.005000	38.19	46.00	7.81	1000.0	120.000	100.0	H	0.0	-22.5
263.964000	32.38	46.00	13.62	1000.0	120.000	100.0	H	142.0	-21.9
744.308000	20.93	46.00	25.07	1000.0	120.000	100.0	H	279.0	-11.1

Mid CH

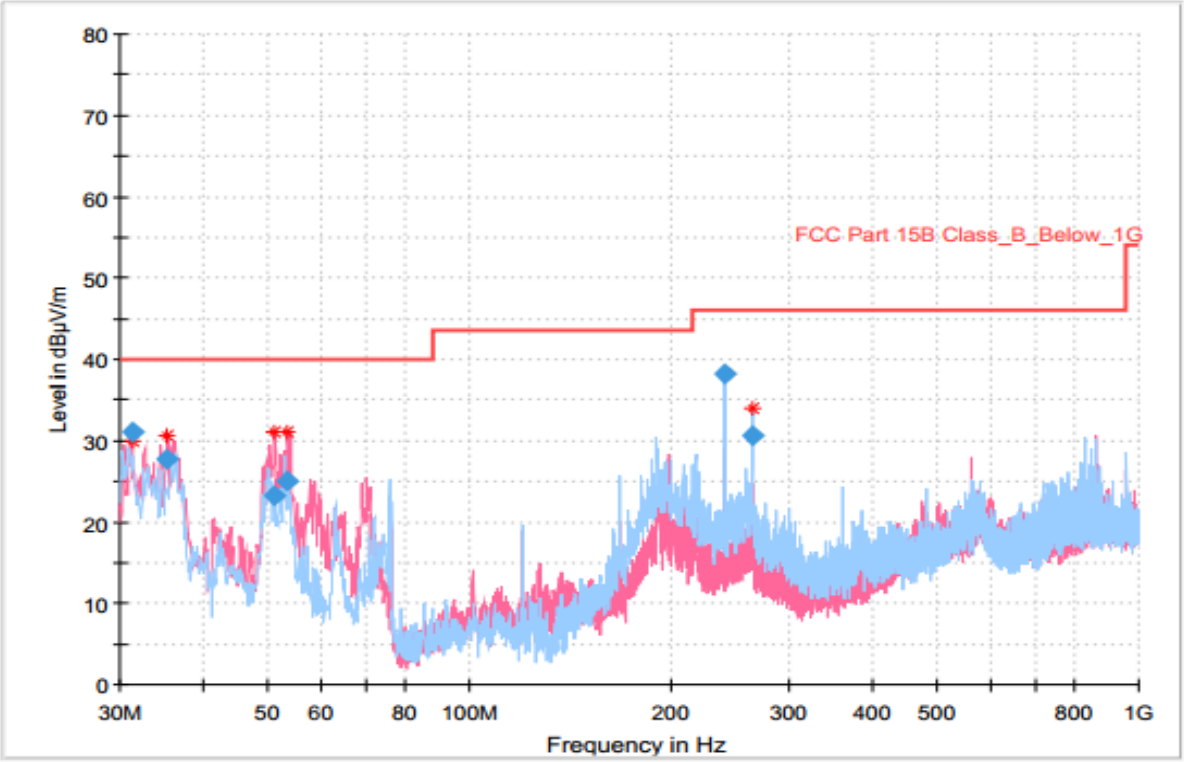


Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.746000	27.11	40.00	12.89	1000.0	120.000	200.0	H	169.0	-26.6
35.335000	28.34	40.00	11.66	1000.0	120.000	100.1	V	321.0	-25.6
53.668000	25.02	40.00	14.98	1000.0	120.000	100.1	V	268.0	-22.7
215.949000	27.24	43.50	16.26	1000.0	120.000	100.1	H	0.0	-24.2
240.005000	38.34	46.00	7.66	1000.0	120.000	100.1	H	354.0	-22.5
263.964000	30.58	46.00	15.42	1000.0	120.000	100.1	H	303.0	-21.9

High CH

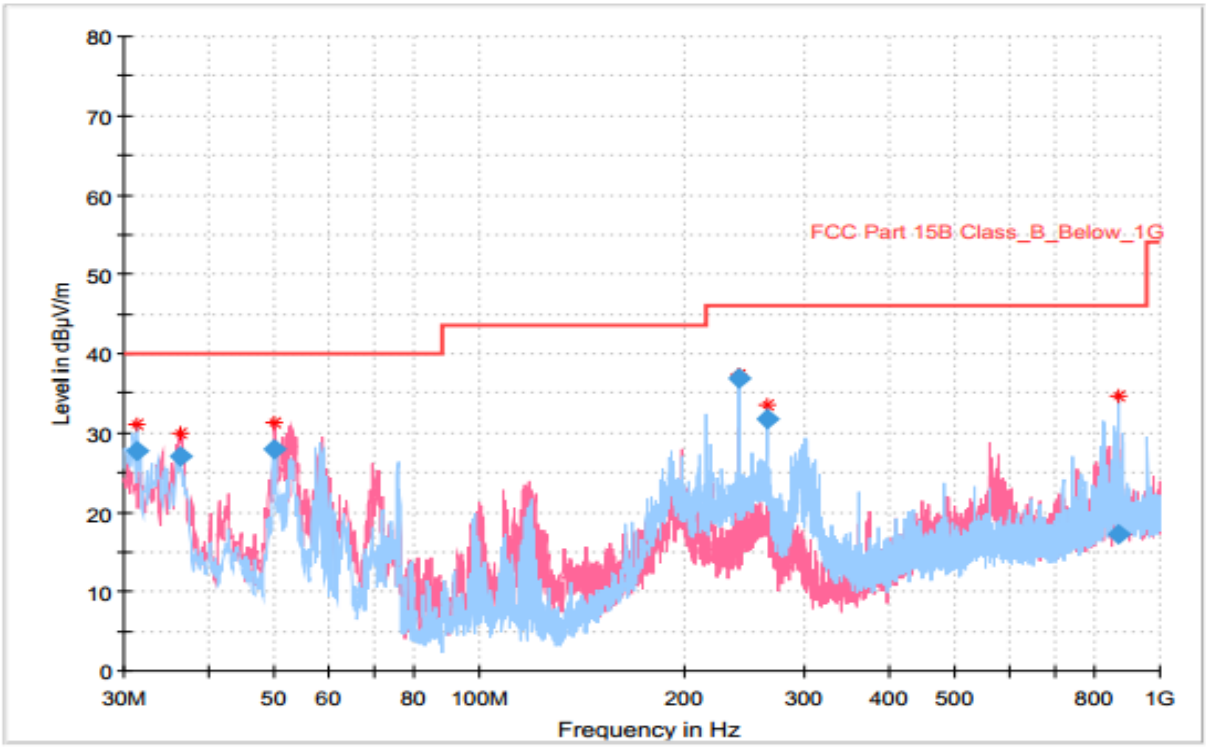
9.6.4.4 Measurement Results for below 1 ㎓_Zigbee



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.261000	31.13	40.00	8.87	1000.0	120.000	100.1	V	275.0	-26.5
35.335000	27.64	40.00	12.36	1000.0	120.000	100.1	V	250.0	-25.6
51.049000	23.19	40.00	16.81	1000.0	120.000	100.1	V	173.0	-22.4
53.474000	24.98	40.00	15.02	1000.0	120.000	100.1	V	133.0	-22.7
240.005000	38.21	46.00	7.79	1000.0	120.000	100.1	H	31.0	-22.5
263.964000	30.65	46.00	15.35	1000.0	120.000	100.1	H	170.0	-21.9

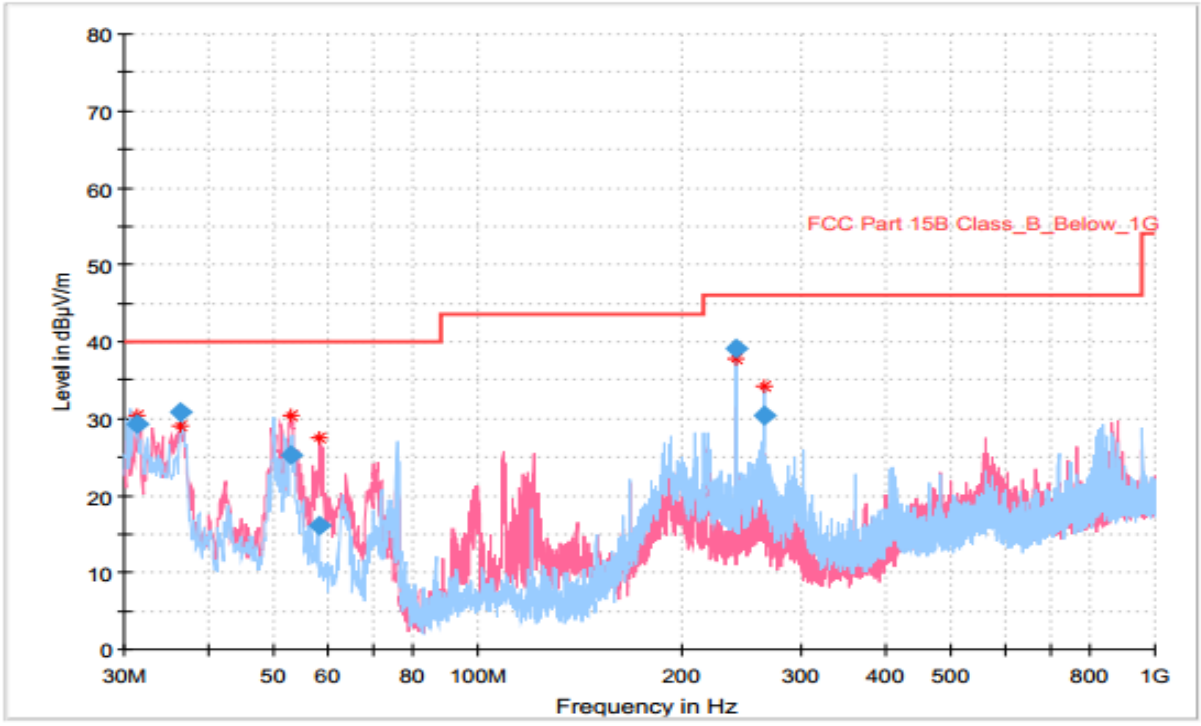
Low CH



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.358000	27.71	40.00	12.29	1000.0	120.000	99.8	H	279.0	-26.6
36.402000	27.06	40.00	12.94	1000.0	120.000	200.0	V	241.0	-25.2
50.079000	27.86	40.00	12.14	1000.0	120.000	99.8	V	57.0	-22.5
240.005000	36.83	46.00	9.17	1000.0	120.000	99.8	H	43.0	-22.5
263.964000	31.78	46.00	14.22	1000.0	120.000	99.8	H	30.0	-21.9
866.237000	17.11	46.00	28.89	1000.0	120.000	99.8	H	206.0	-9.4

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)
31.358000	29.35	40.00	10.65	1000.0	120.000	100.1	V	259.0	-26.6
36.305000	30.91	40.00	9.09	1000.0	120.000	100.1	V	285.0	-25.3
52.989000	25.30	40.00	14.70	1000.0	120.000	100.1	V	76.0	-22.6
58.324000	16.15	40.00	23.85	1000.0	120.000	100.1	V	0.0	-23.4
240.005000	39.07	46.00	6.93	1000.0	120.000	100.1	H	24.0	-22.5
263.964000	30.40	46.00	15.60	1000.0	120.000	100.1	H	38.0	-21.9

High CH

9.6.4.5 Measurement Results for Above 1 ㎓_LE 1M

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4 804.600	57.94	Peak	H	-3.90	54.04	73.98	19.94
	39.79	Average	H		35.89	53.98	18.09
7 205.000	59.55	Peak	H	0.70	60.25	73.98	13.73
	41.53	Average	H		42.23	53.98	11.75
Mid CH							
4 879.400	66.03	Peak	H	-3.40	62.63	73.98	11.35
	49.68	Average	H		46.28	53.98	7.70
7 318.900	48.32	Peak	H	0.70	49.02	73.98	24.96
	35.03	Average	H		35.73	53.98	18.25
High CH							
4 959.300	64.86	Peak	H	-3.20	61.66	73.98	12.32
	50.52	Average	H		47.32	53.98	6.66
7 439.600	50.46	Peak	H	1.00	51.46	73.98	22.52
	39.97	Average	H		40.97	53.98	13.01

9.6.4.6 Measurement Results for Above 1 ㎓_LE 2M

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4 802.900	57.87	Peak	H	-4.00	53.87	73.98	20.11
	45.29	Average	H		41.29	53.98	12.69
7 206.700	57.57	Peak	H	0.70	58.27	73.98	15.71
	43.29	Average	H		43.99	53.98	9.99
Mid CH							
4 879.400	62.89	Peak	H	-3.40	59.49	73.98	14.49
	51.65	Average	H		48.25	53.98	5.73
7 320.600	57.56	Peak	H	0.70	58.26	73.98	15.72
	44.09	Average	H		44.79	53.98	9.19
High CH							
4 959.300	63.55	Peak	H	-3.20	60.35	73.98	13.63
	51.94	Average	H		48.74	53.98	5.24
7 439.600	56.07	Peak	H	1.00	57.07	73.98	16.91
	47.05	Average	H		48.05	53.98	5.93

9.6.4.7 Measurement Results for Above 1 ㎓_Zigbee

Frequency (㎒)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4 811.400	70.37	Peak	H	-3.90	66.47	73.98	7.51
	51.49	Average	H		47.59	53.98	6.39
7 216.900	62.63	Peak	H	0.70	63.33	73.98	10.65
	46.90	Average	H		47.60	53.98	6.38
Mid CH							
4 879.400	54.74	Peak	H	-3.40	51.34	73.98	22.64
	38.39	Average	H		34.99	53.98	18.99
7 318.900	56.01	Peak	H	0.70	56.71	73.98	17.27
	39.64	Average	H		40.34	53.98	13.64
High CH							
4 961.000	68.30	Peak	H	-3.20	65.10	73.98	8.88
	49.10	Average	H		45.90	53.98	8.08
7 439.6000	54.31	Peak	H	1.00	55.31	73.98	18.67
	36.40	Average	H		37.40	53.98	16.58

※ Ant. Pol. : Antenna Polarization

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

※ Result = Reading + Corr. Factor

※ Margin = Limit – Resul

- END -