



시험 성적서 TEST REPORT

페이지(page) : (1) / (총(Total) 116)

성적서 번호 Report No.		ICRT-TR-E230988-0A	
신청자 Client	기관명 Name	Aerobits Sp. z o.o.	
	주 소 Address	Przestrzenna 11, 70-800 Szczecin, poland	
시험대상품목 Sample description		idME (remoteID)	
모델명 Type designation		idME Pro	
정 격 Ratings		DC 5.0 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		28. Mar. 2023 ~ 10. 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	기술책임자 Technical Manager	
	성 명 Name Seong-Hun, Jeong (Signature)	성 명 Name Tae-Yang, Yoon (Signature)	
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Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E230988-0A	2023.05.03	Initial Issue	All



1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	Aerobits Sp. z o.o.
Address	Przestrzenna 11, 70-800 Szczecin, poland
Contact Person	Rafał Osypiuk
Telephone No.	0048 500 310 810
Fax No.	-
E-mail	rafal.osypiuk@aerobits.pl

1.2 Manufacturer Information

Manufacturer	Aerobits Sp. z o.o.
Address	Przestrzenna 11, 70-800 Szczecin, poland

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	idME (remoteID)
Brand Name	-
Model Name	idME Pro,
Additional Model Name	idME+, idME
FCC ID	2A94B-13EA2A94B
Power Supply	DC 5.0 V

2.2 Additional Information

Equipment Class	DTS-Digital Transmission System	
Device Type	Stand-alone	
Operating Frequency	802.11b/g/n(HT20)	2 412 MHz ~ 2 462 MHz
	802.11n(HT40)	2 422 MHz ~ 2 452 MHz
	Bluetooth LE (1M/2M/Coded 500k/Coded 125k)	2 402 MHz ~ 2 480 MHz
RF Output Power	802.11b	11.45 dBm
	802.11g	10.88 dBm
	802.11n(HT20)	9.94 dBm
	802.11n(HT40)	9.15 dBm
	Bluetooth LE 1Mbps	12.72 dBm
	Bluetooth LE 2Mbps	12.75 dBm
	Bluetooth LE Coded 500kbps	12.44 dBm
	Bluetooth LE Coded 125kbps	12.31 dBm
Number of Channel	802.11b/g/n(HT20) ::	11
	802.11n(HT40)	7
	Bluetooth LE (1M/2M/Coded 500k/Coded 125k)	40
Modulation Type	802.11b/g/n	BPSK, QPSK, QAM
	Bluetooth LE	GFSK
Antenna Type	Wire Antenna	
Antenna Gain	2.0 dBi	
Antenna Operating Mode	Single Antenna Equipment with only one antenna	



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

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 **Wire Antenna**. The directional gain of the antenna is **2.0 dBi**.



4. Used equipment on test

	Description	Model Name	Manufacturer	Serial Number	Next Cal. (cycle)
☒	SIGNAL & SPECTRUM ANALYZER	FSW85	R&S	101306	2024-03-02 (1Y)
☒	OPEN SWITCH AND CONTROL PLATFORM	OSP150	R&S	100937	2024-03-03 (1Y)
☒	BAND REJECTION FILTER	WT-A1205-R12	WT MICROWAVE	WT171201-6-1	2024-03-02 (1Y)
☒	LOOP ANTENNA	HFH2-Z2	R&S	100271	2025-03-08 (2Y)
☒	TRILOG BROADBAND ANTENNA	VULB9162	SCHWARZBECK	143	2024-12-14 (1Y)
☒	RF Pre Amplifier	SCU08	R&S	100747	2024-04-03 (1Y)
☒	EMI Test Receiver	ESR7	R&S	102034	2024-04-04 (1Y)
☒	Horn Antenna	HF907	R&S	102556	2023-08-22 (4M)
☒	RF Pre Amplifier	SCU18	R&S	102342	2024-04-03 (1Y)
☒	EMI Test Receiver	ESR26	R&S	101462	2024-04-04 (1Y)
☒	Horn Antenna	LB-42-10-C-KF	A-INFOMW	J202024625	2024-03-07 (1Y)
☒	PREAMPLIFIER	AMF-4F-18265-35-8P-1	MITEQ	771846	2024-03-07 (1Y)

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



5. 6 dB Bandwidth

5.1 Operating environment

Temperature : 23 °C

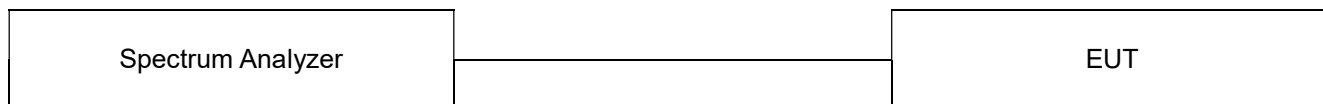
Relative humidity : 47 %

5.2 Measurement method

Standard : 47 CFR Part 15 Subpart C

5.3 Test setup

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz, 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

Operating mode : Transmit mode

Test Result : Pass

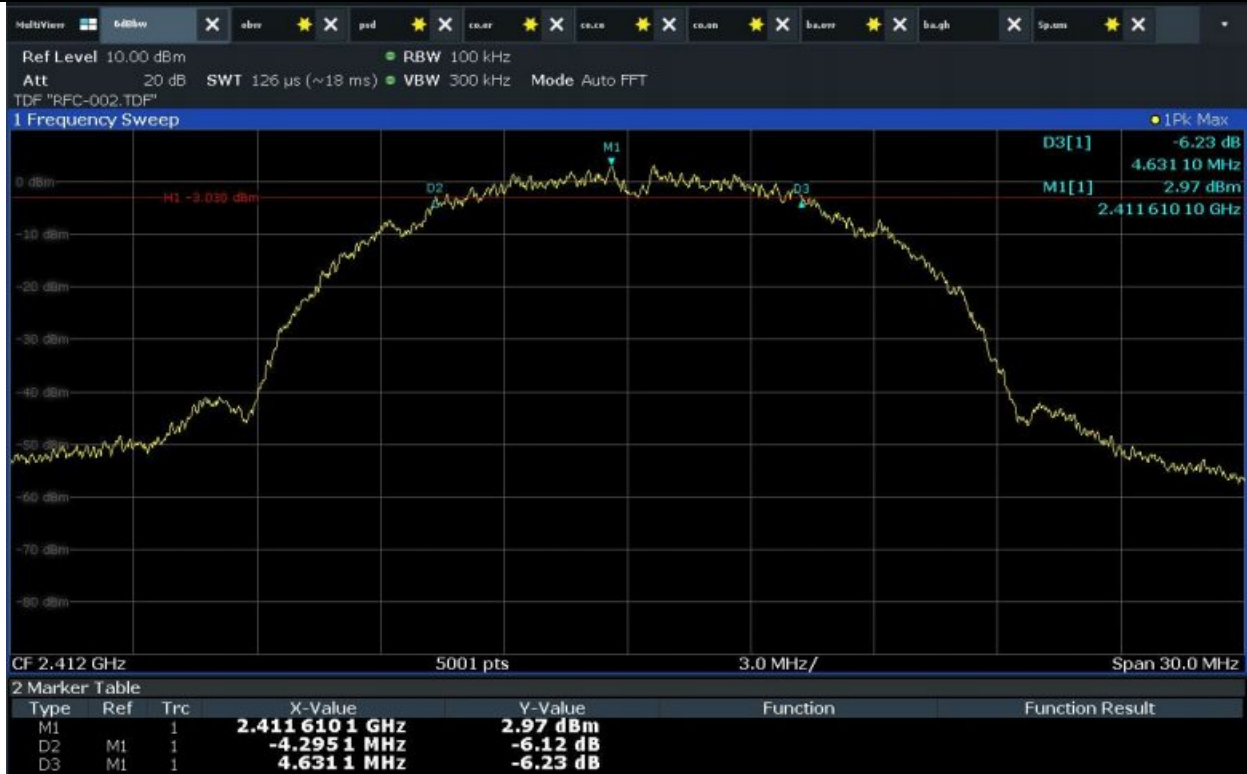


5.4.1 Measured Results

Modulation Type	Channel (Frequency)	Measured Value (kHz)	Limit (kHz)
802.11b	1 (2 412 MHz)	8926.20	at least 500
	6 (2 437 MHz)	8830.30	
	11 (2 462 MHz)	8770.20	
802.11g	1 (2 412 MHz)	16586.70	
	6 (2 437 MHz)	16556.60	
	11 (2 462 MHz)	16532.70	
802.11n(HT20)	1 (2 412 MHz)	17816.40	
	6 (2 437 MHz)	17822.40	
	11 (2 462 MHz)	17792.40	
802.11n(HT40)	3 (2 422 MHz)	32606.00	
	6 (2 437 MHz)	32666.00	
	9 (2 452 MHz)	32640.00	
Bluetooth LE 1Mbps	0 (2 402 MHz)	698.30	
	19 (2 440 MHz)	731.20	
	39 (2 480 MHz)	746.20	
Bluetooth LE 2Mbps	0 (2 402 MHz)	1270.80	
	19 (2 440 MHz)	1366.60	
	39 (2 480 MHz)	1348.60	
Bluetooth LE Coded 500kbps	0 (2 402 MHz)	725.30	
	19 (2 440 MHz)	731.30	
	39 (2 480 MHz)	749.20	
Bluetooth LE Coded 125kbps	0 (2 402 MHz)	644.40	
	19 (2 440 MHz)	686.40	
	39 (2 480 MHz)	674.40	



5.4.1.1 Measured Graph for 802.11b



Low CH



Mid CH



High CH

5.4.1.2 Measured Graph for 802.11g



Low CH



Mid CH



High CH



5.4.1.3 Measured Graph for 802.11n(HT20)



Low CH



Mid CH



High CH

5.4.1.4 Measured Graph for 802.11n(HT40)



Low CH



Mid CH



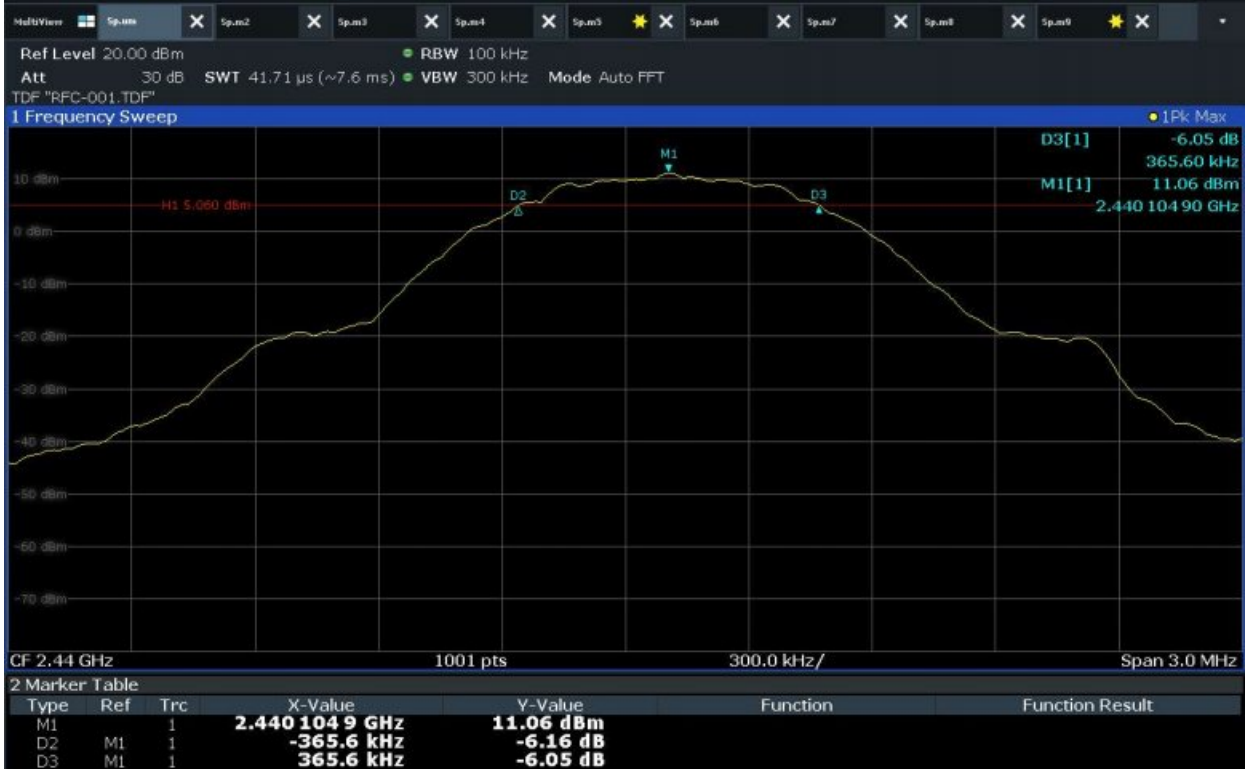
High CH



5.4.1.5 Measured Graph for LE 1Mbps



Low CH



Mid CH



High CH

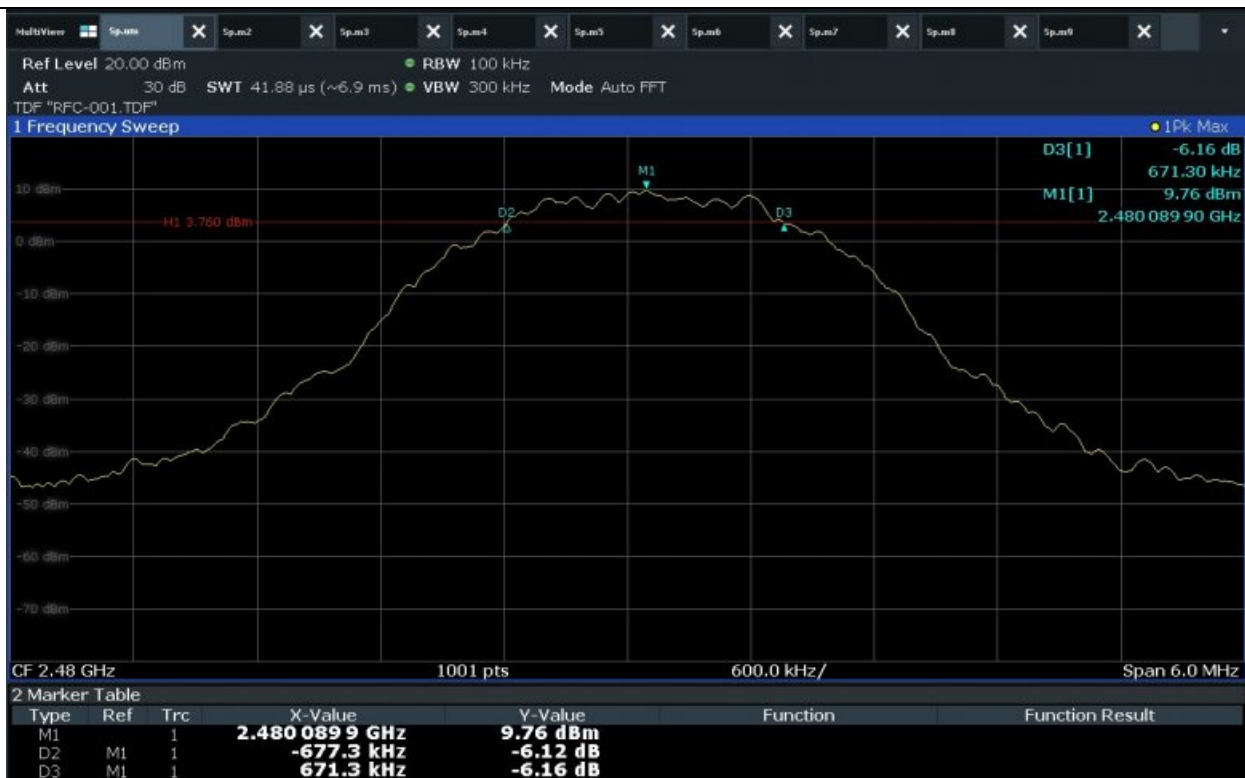
5.4.1.6 Measured Graph for LE 2Mbps



Low CH



Mid CH



High CH



5.4.1.7 Measured Graph for LE Coded 500kbps



Low CH



Mid CH



High CH

5.4.1.8 Measured Graph for LE Coded 125kbps



Low CH



Mid CH



High CH



6. Maximum Conducted Output Power

6.1 Operating environment

Temperature : 23 °C

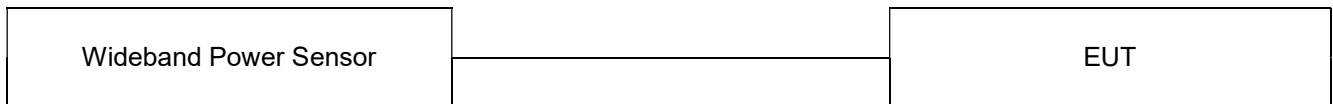
Relative humidity : 47 %

6.2 Measurement method

Standard : §15.247 (b)

6.3 Test setup

The maximum peak output power was measured with the wideband power sensor include in OSP connected to the antenna output of the EUT. The resolution bandwidth of the wideband power sensor supports sufficient values to use the method. The EUT was operating in transmit mode at the appropriate center frequency



6.4 Test data

Operating mode : Transmit mode

Test Result : Pass



6.4.1 Measured Results

Modulation Type	Channel (Frequency)	Measured Value (kHz)	Limit (kHz)
802.11b	1 (2 412 MHz)	10.72	30 (1 Watt)
	6 (2 437 MHz)	11.45	
	11 (2 462 MHz)	10.33	
802.11g	1 (2 412 MHz)	10.38	
	6 (2 437 MHz)	10.88	
	11 (2 462 MHz)	10.07	
802.11n(HT20)	1 (2 412 MHz)	9.46	
	6 (2 437 MHz)	9.94	
	11 (2 462 MHz)	9.17	
802.11n(HT40)	3 (2 422 MHz)	8.87	
	6 (2 437 MHz)	9.15	
	9 (2 452 MHz)	8.87	
Bluetooth LE 1Mbps	0 (2 402 MHz)	12.02	
	19 (2 440 MHz)	12.72	
	39 (2 480 MHz)	12.24	
Bluetooth LE 2Mbps	0 (2 402 MHz)	12.32	
	19 (2 440 MHz)	12.75	
	39 (2 480 MHz)	12.46	
Bluetooth LE Coded 500kbps	0 (2 402 MHz)	12.06	
	19 (2 440 MHz)	12.44	
	39 (2 480 MHz)	12.13	
Bluetooth LE Coded 125kbps	0 (2 402 MHz)	11.75	
	19 (2 440 MHz)	12.31	
	39 (2 480 MHz)	11.93	

6.4.2 Measured Graph

- PKPM1 Peak power meter method was used, so graph is not be submitted



7. Power Spectral Density

7.1 Operating environment

Temperature : 23 °C

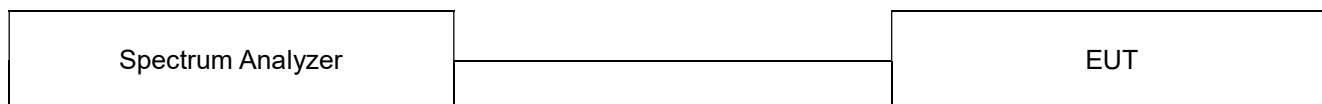
Relative humidity : 47 %

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 kHz, the video bandwidth is set to 3 times the resolution bandwidth.



7.4 Test data

Operating mode : Transmit mode

Test Result : Pass

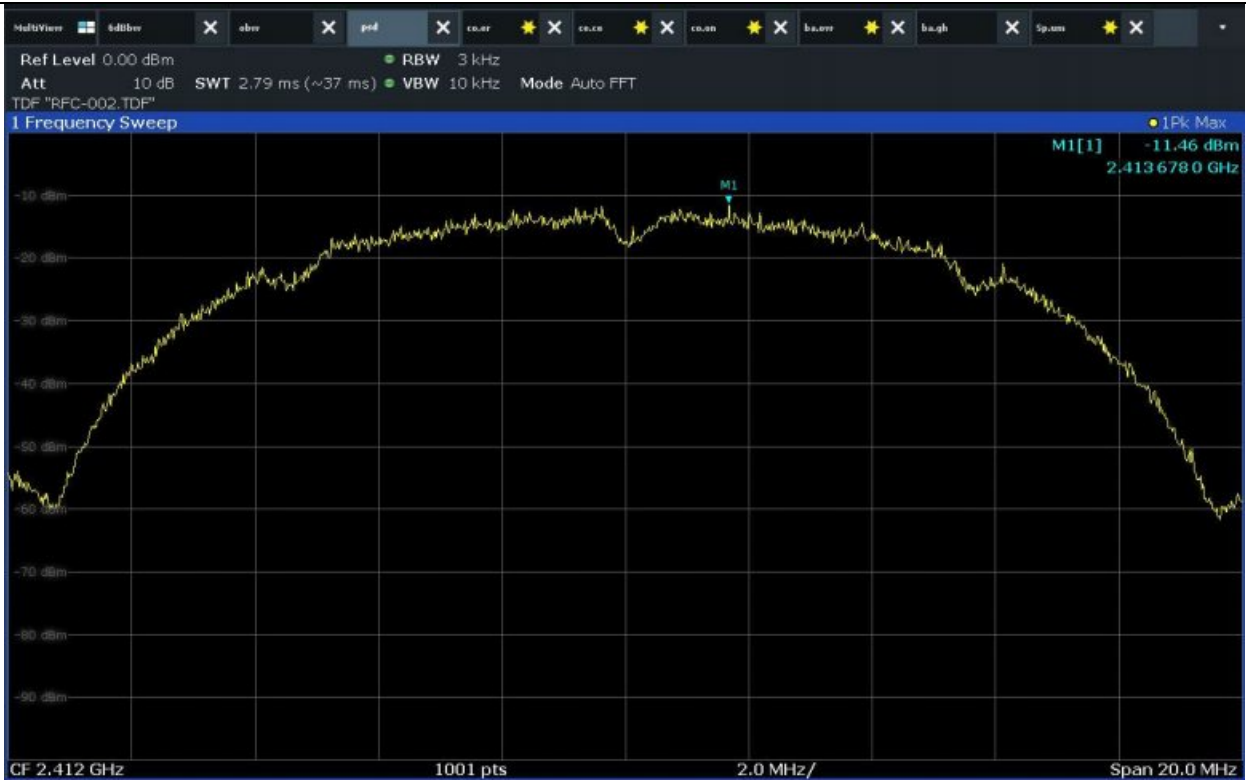


7.4.1 Measured Results

Modulation Type	Channel (Frequency)	Highest signal level (dBm)	Limit (dBm/3kHz)
802.11b	1 (2 412 MHz)	-11.46	8
	6 (2 437 MHz)	-12.12	
	11 (2 462 MHz)	-11.82	
802.11g	1 (2 412 MHz)	-15.11	
	6 (2 437 MHz)	-15.46	
	11 (2 462 MHz)	-15.15	
802.11n(HT20)	1 (2 412 MHz)	-15.26	
	6 (2 437 MHz)	-16.31	
	11 (2 462 MHz)	-15.76	
802.11n(HT40)	3 (2 422 MHz)	-17.57	
	6 (2 437 MHz)	-17.81	
	9 (2 452 MHz)	-17.91	
Bluetooth LE 1Mbps	0 (2 402 MHz)	-2.95	
	19 (2 440 MHz)	-0.25	
	39 (2 480 MHz)	1.43	
Bluetooth LE 2Mbps	0 (2 402 MHz)	-3.59	
	19 (2 440 MHz)	-1.74	
	39 (2 480 MHz)	-2.59	
Bluetooth LE Coded 500kbps	0 (2 402 MHz)	2.26	
	19 (2 440 MHz)	2.21	
	39 (2 480 MHz)	1.05	
Bluetooth LE Coded 125kbps	0 (2 402 MHz)	5.49	
	19 (2 440 MHz)	5.31	
	39 (2 480 MHz)	5.04	



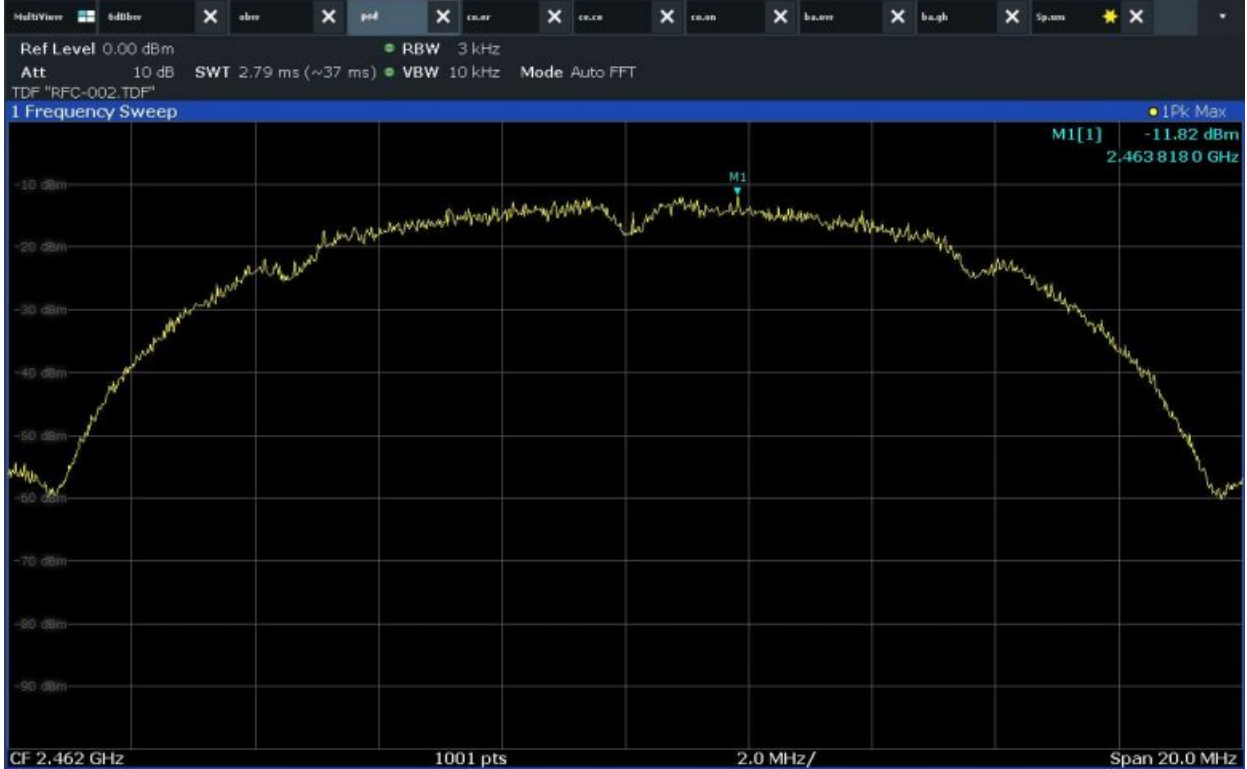
7.4.1.1 Measured Graph for 802.11b



Low CH

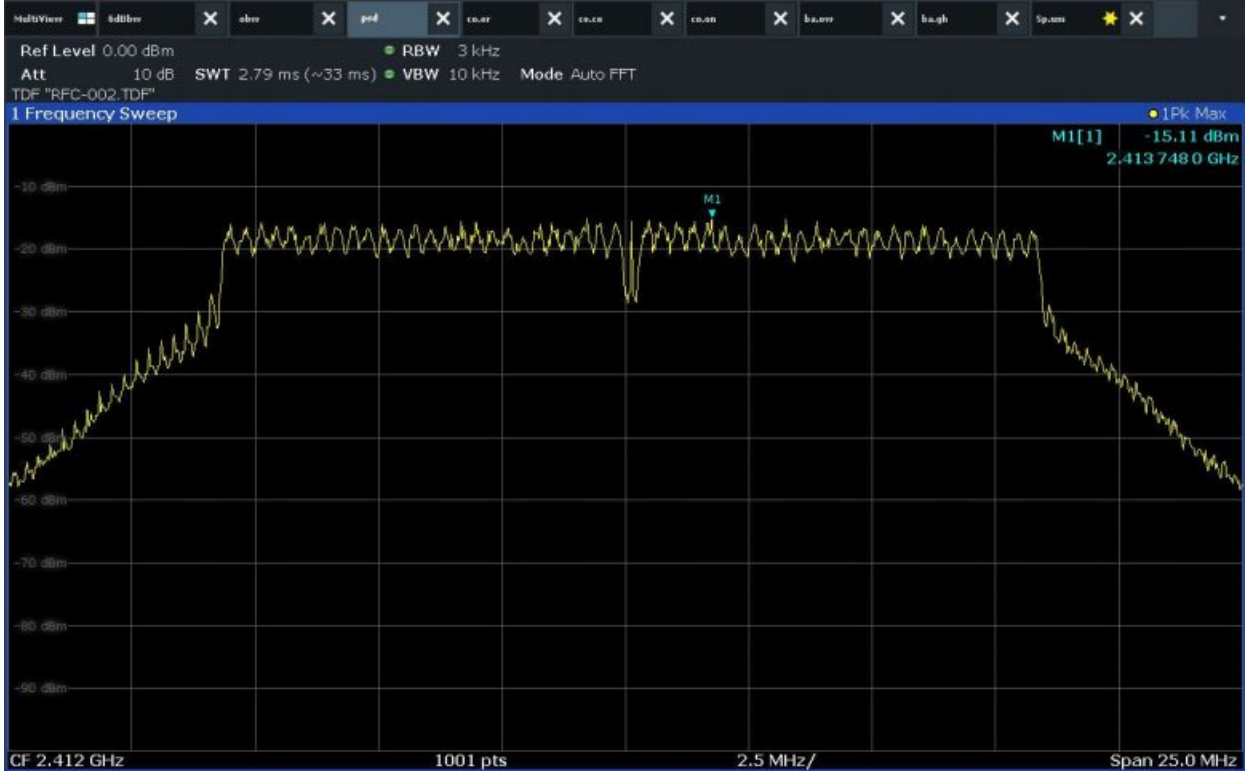


Mid CH

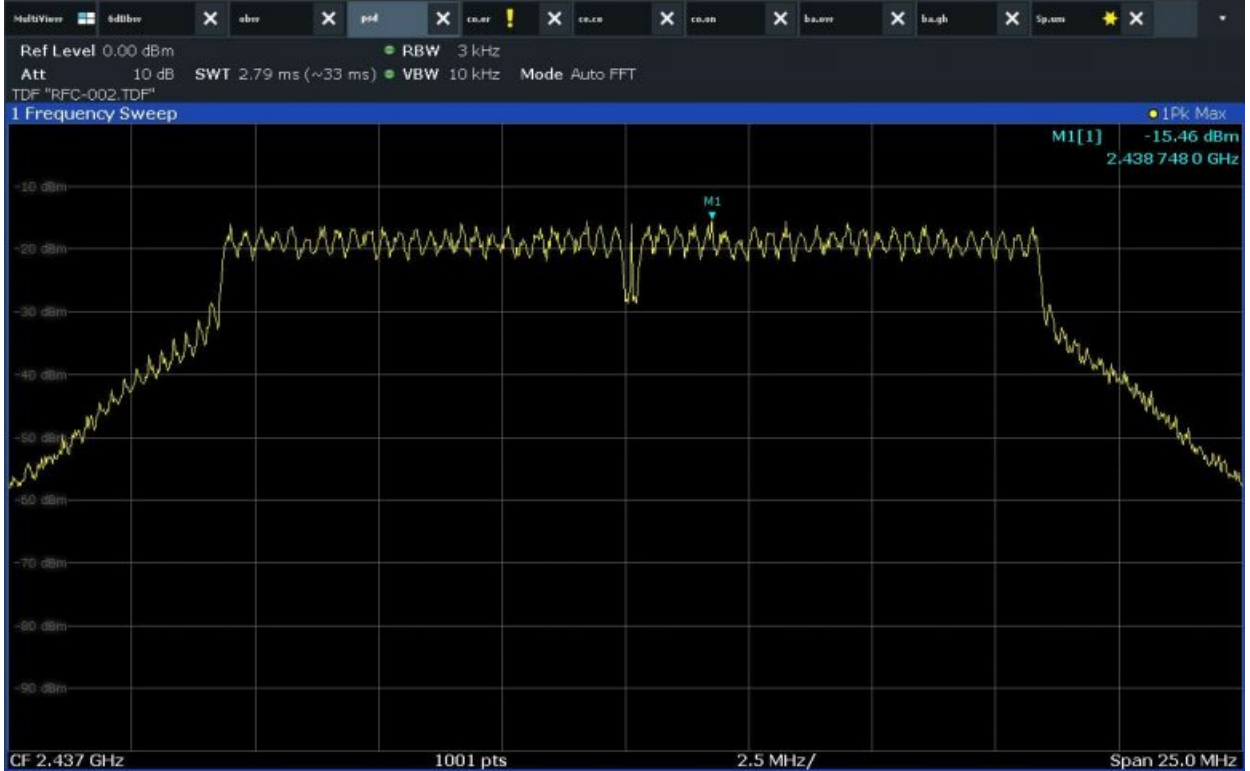


High CH

7.4.1.2 Measured Graph for 802.11g



Low CH



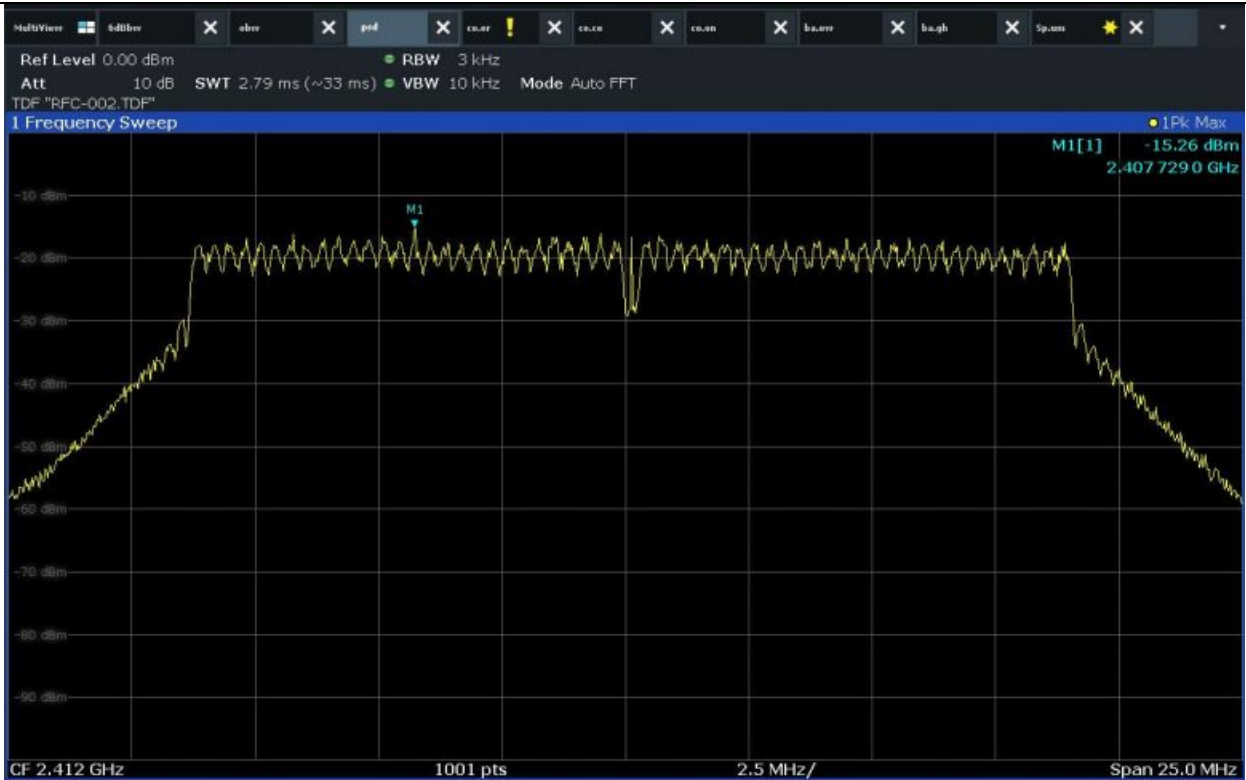
Mid CH



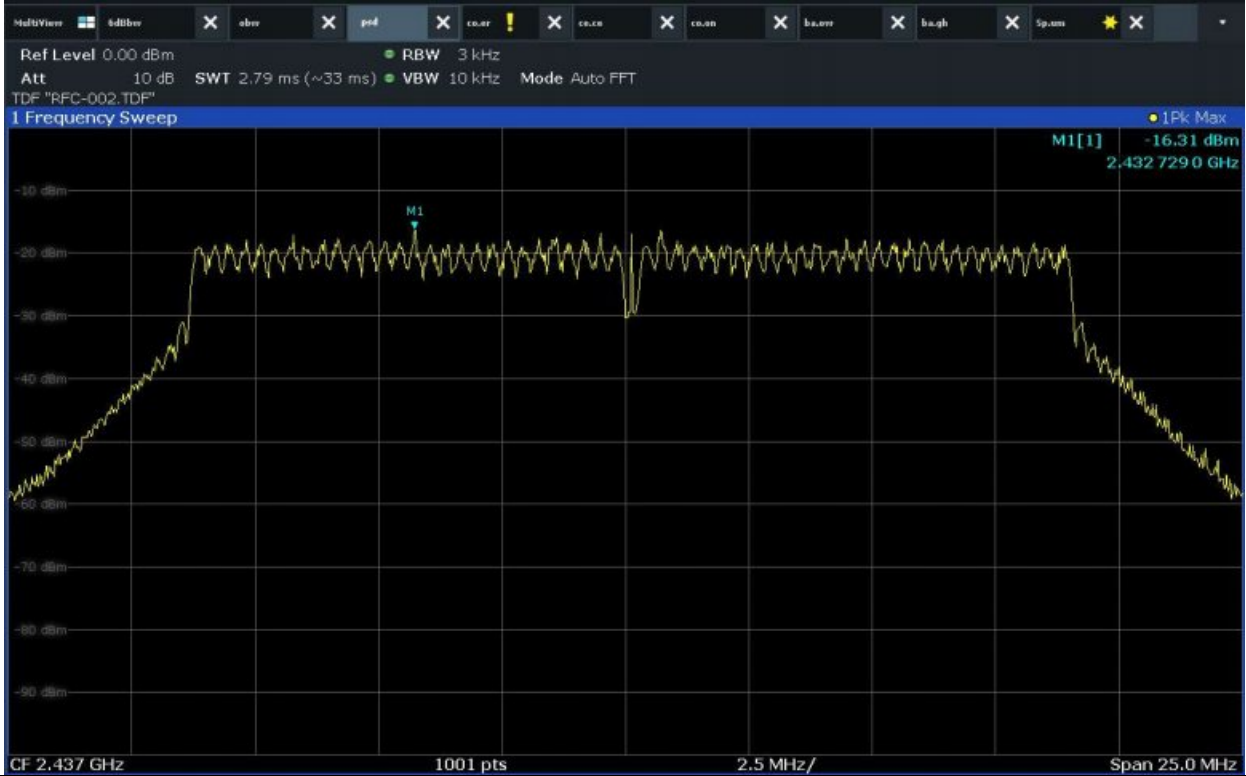
High CH



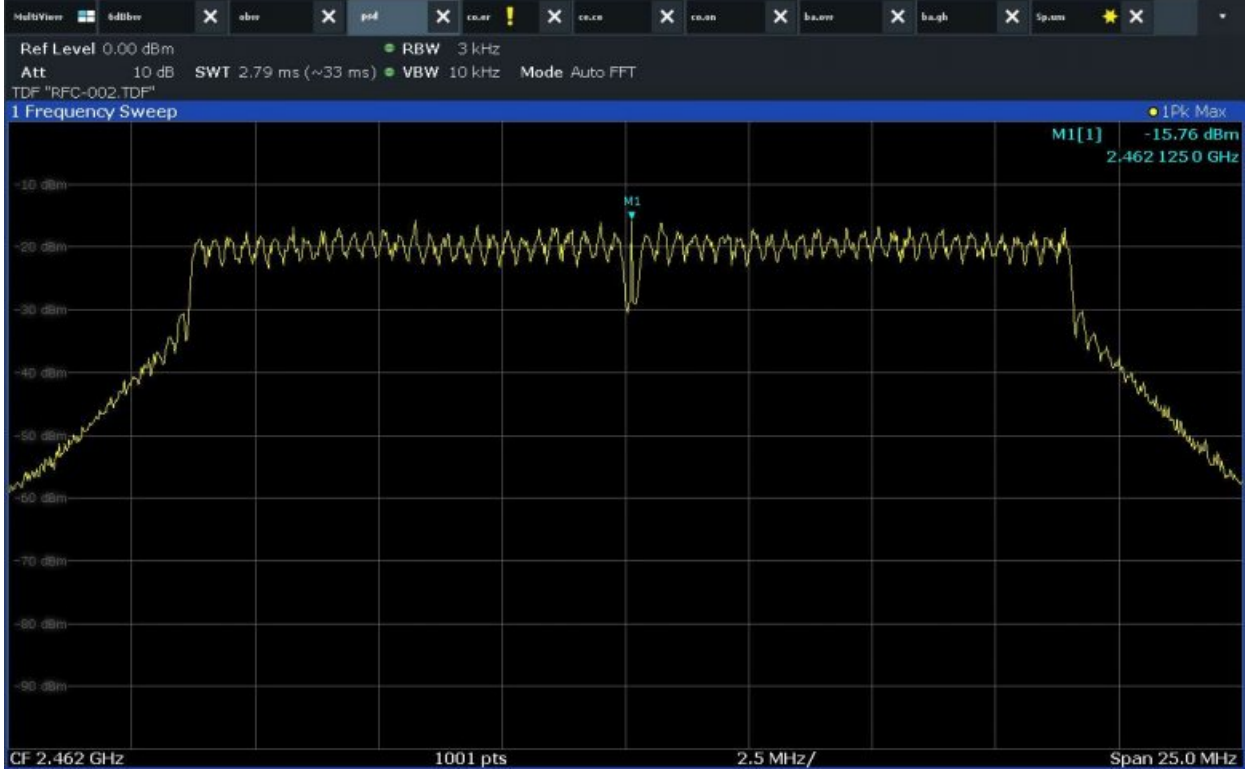
7.4.1.3 Measured Graph for 802.11(HT20)



Low CH

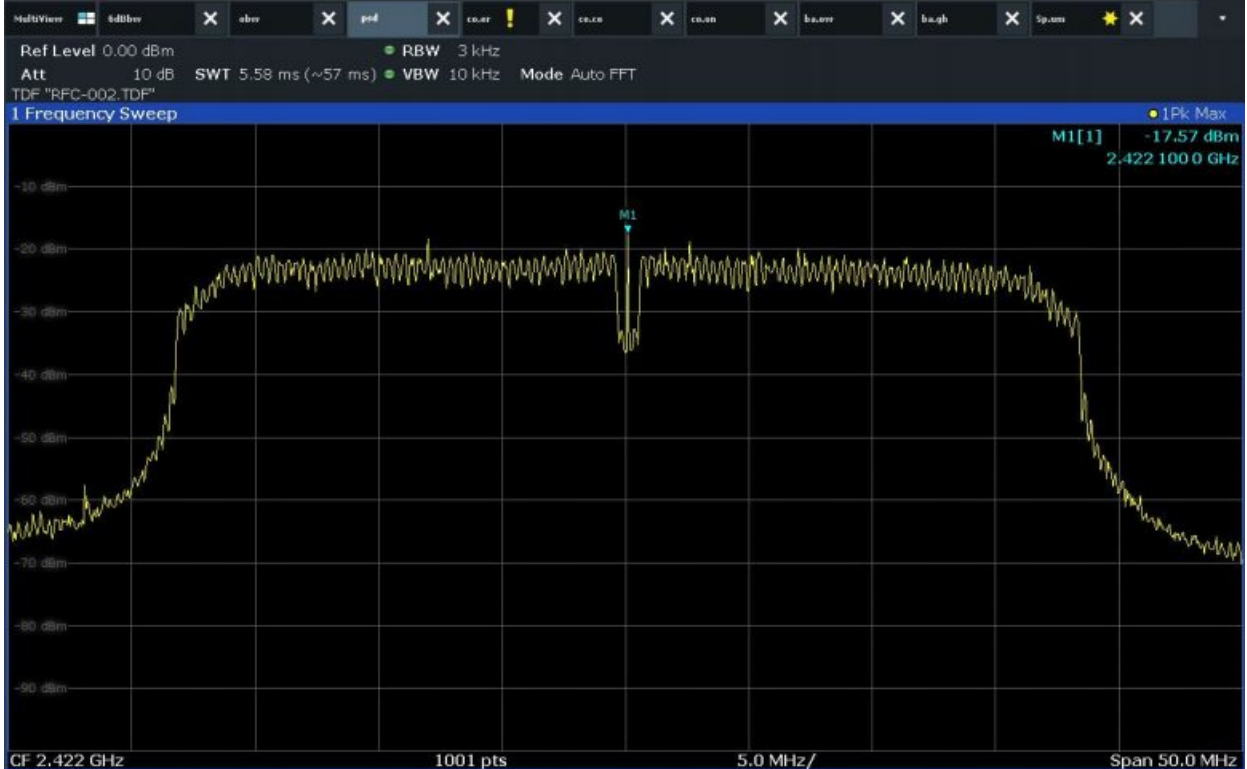


Mid CH

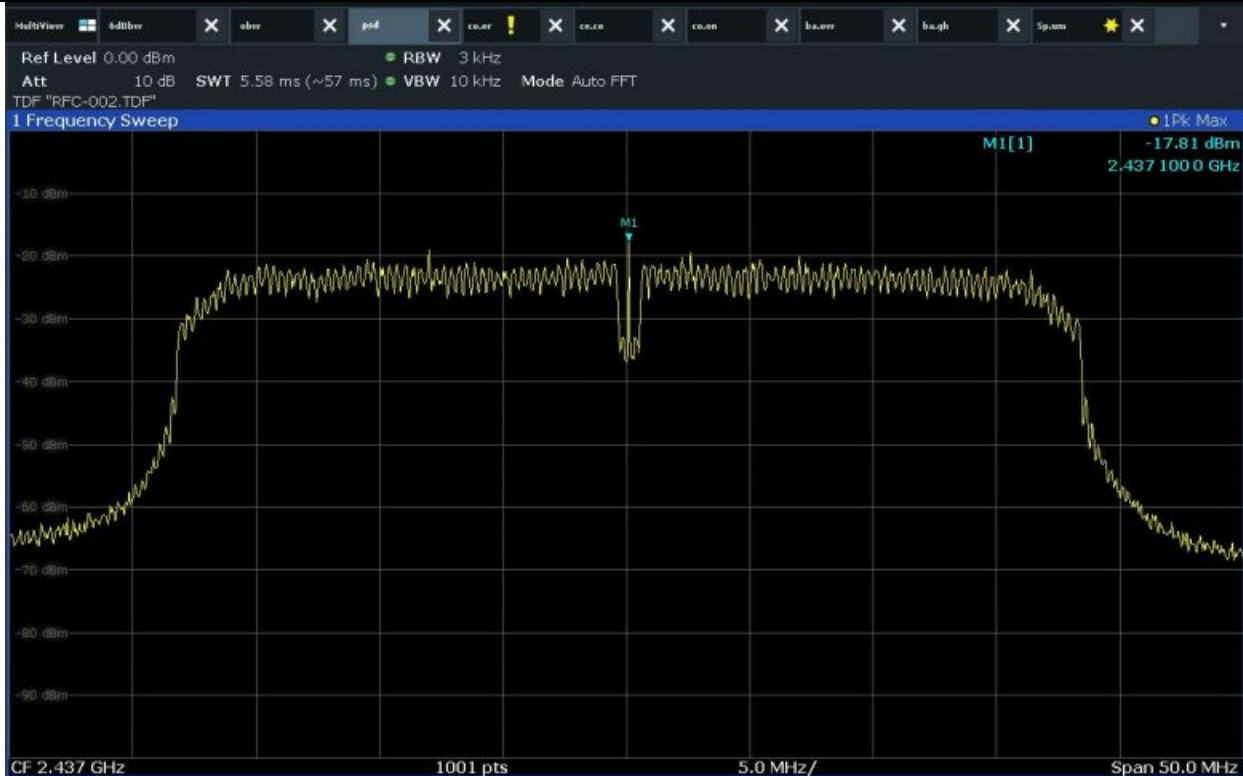
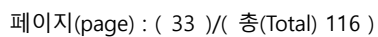


High CH

7.4.4.4 Measured Graph for 802.11(HT40)



Low CH



Mid CH



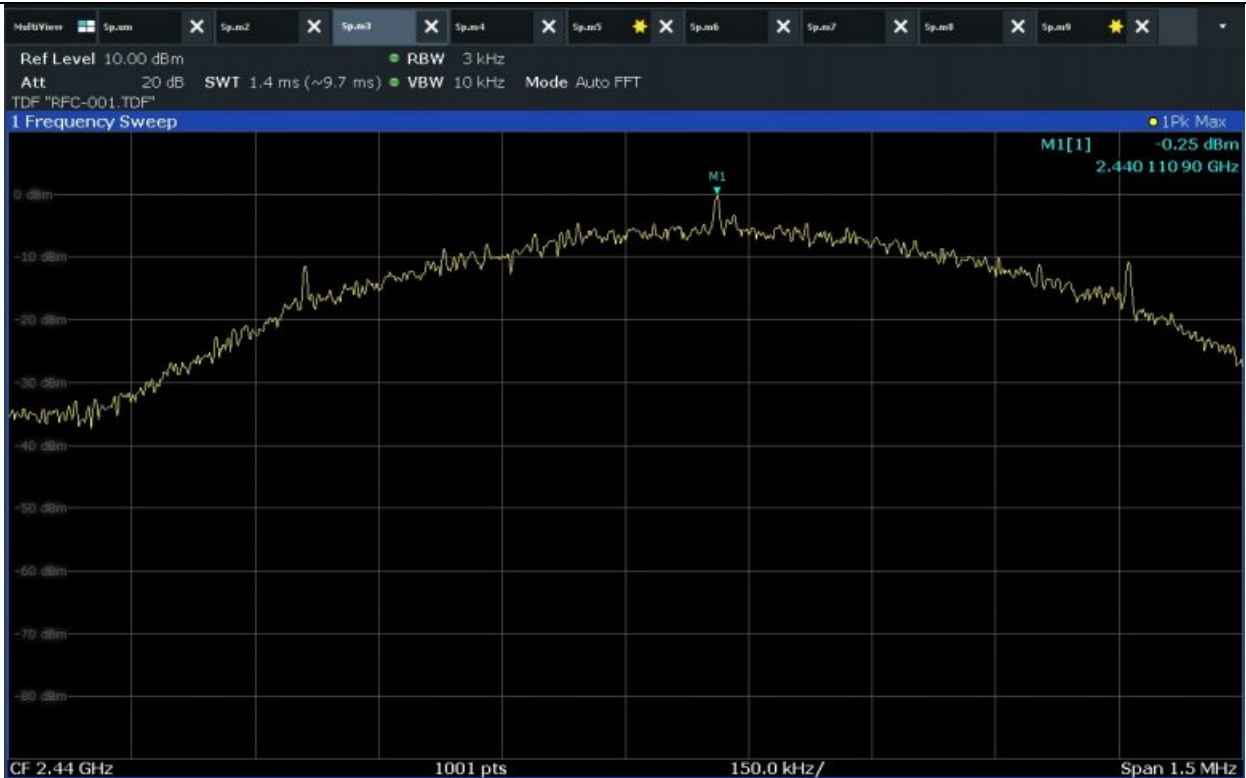
High CH



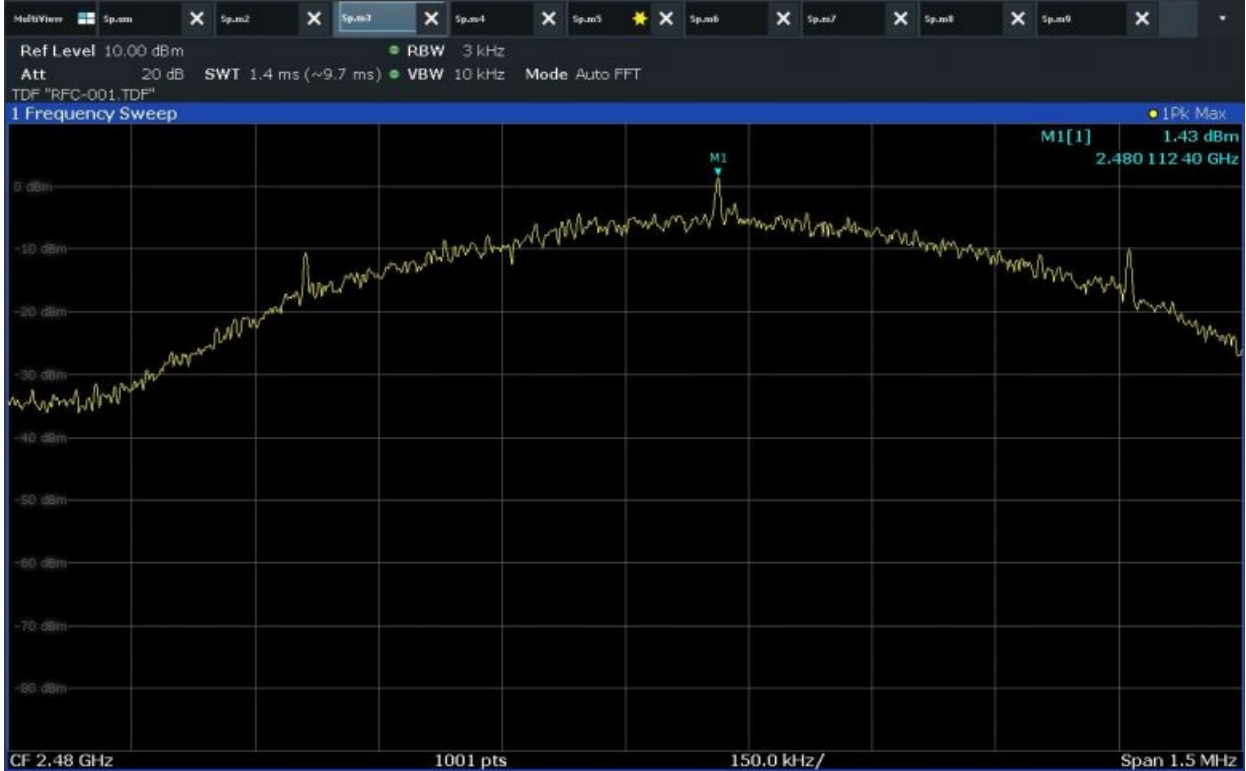
7.4.1.4 Measured Graph for LE 1Mbps



Low CH

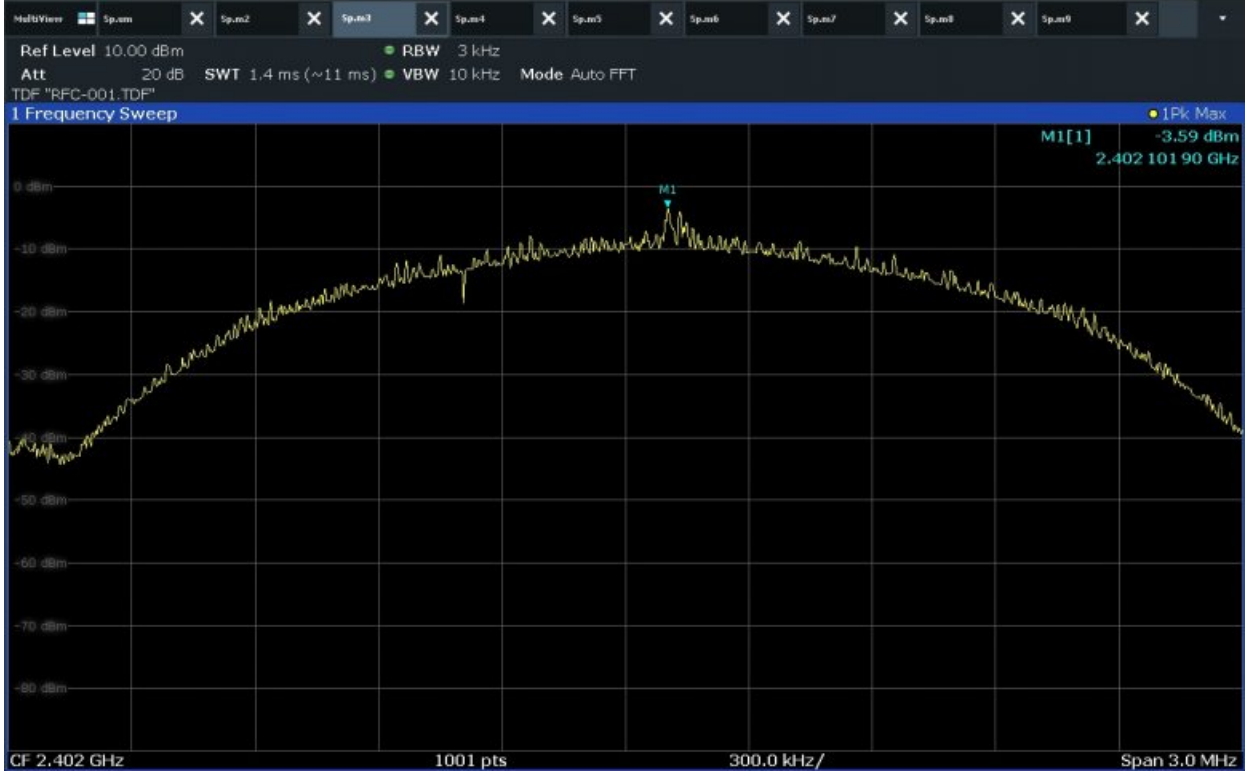


Mid CH

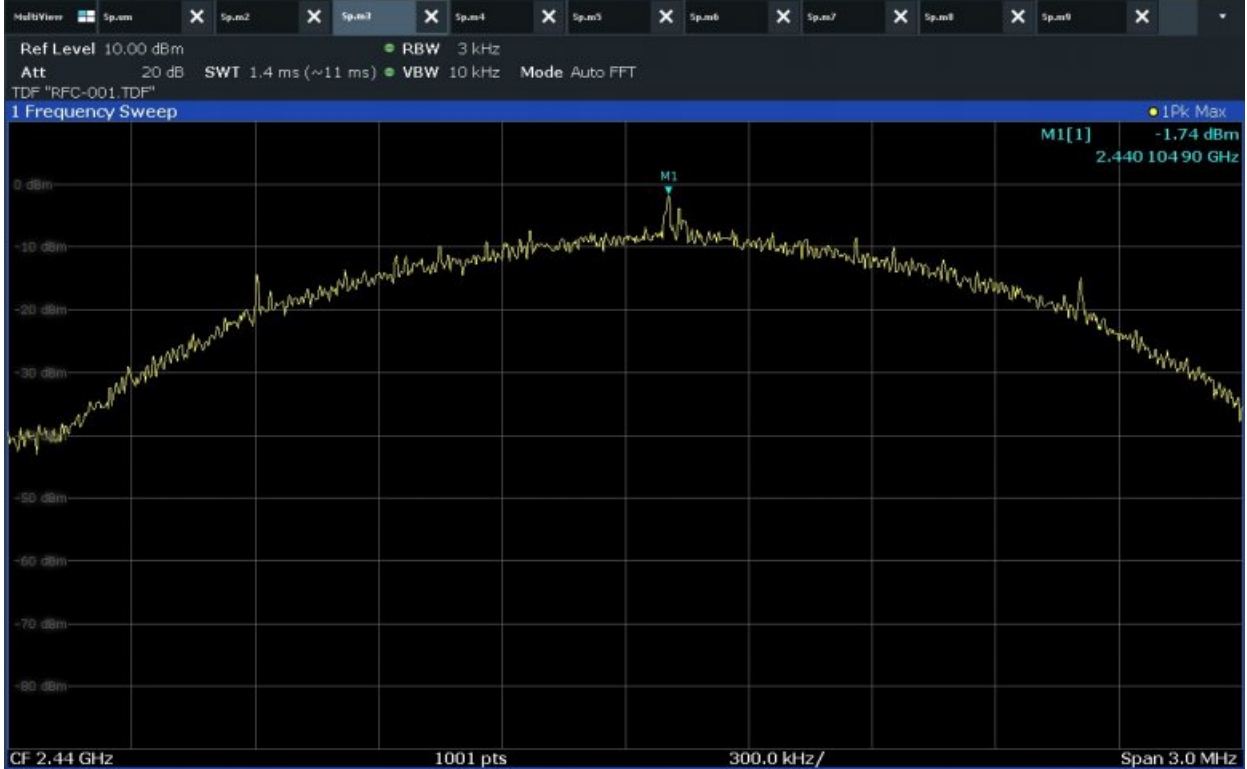


High CH

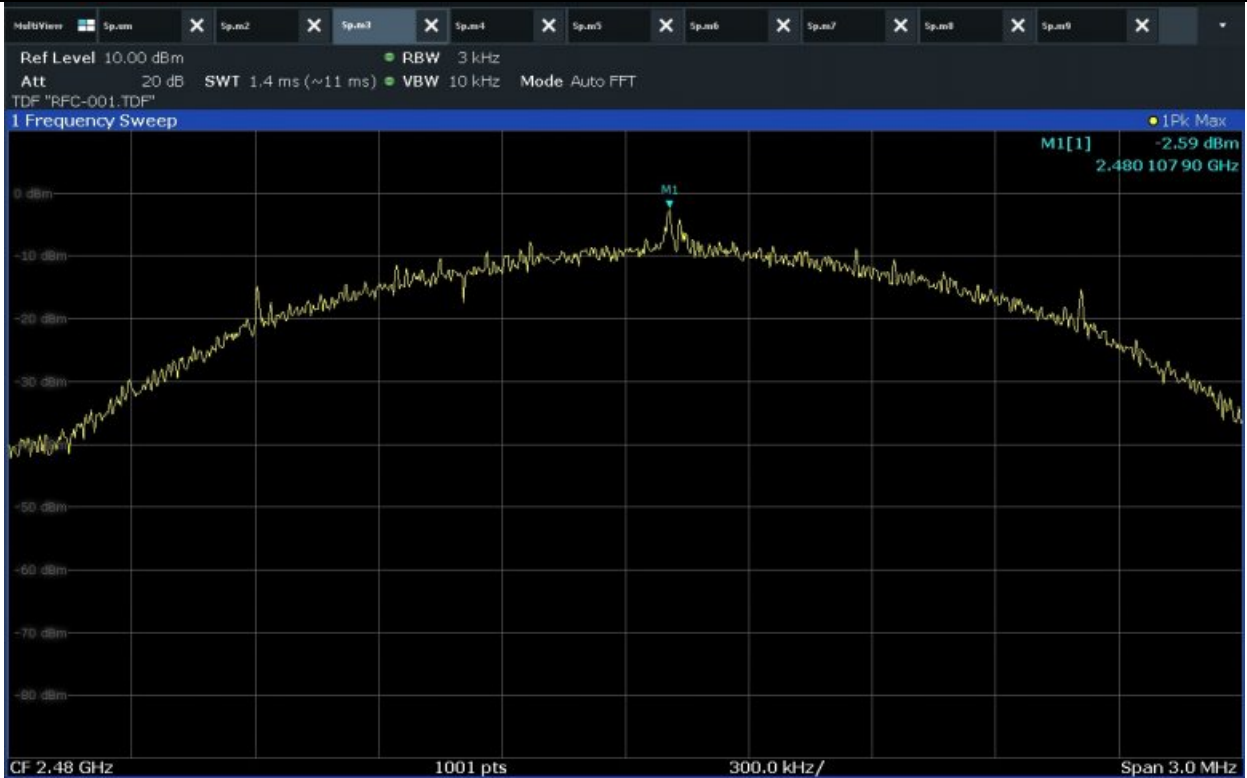
7.4.1.5 Measured Graph for LE 2Mbps



Low CH

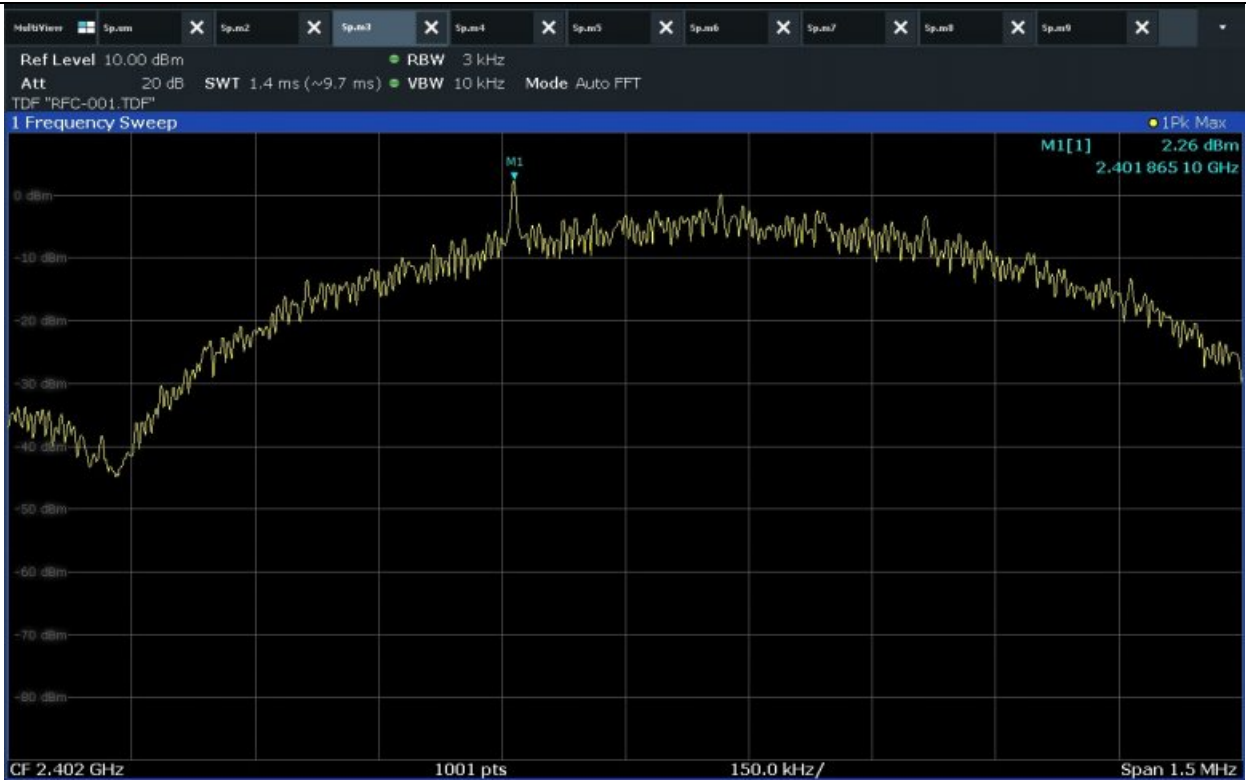


Mid CH

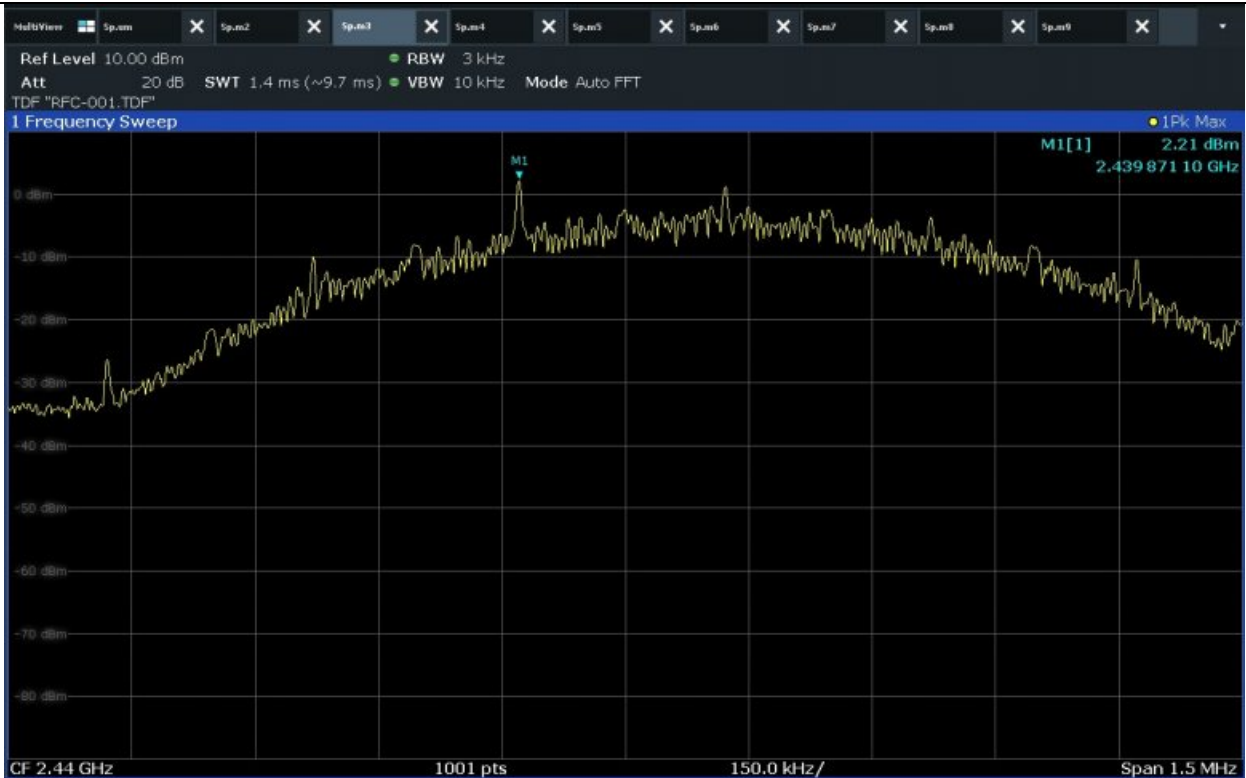


High CH

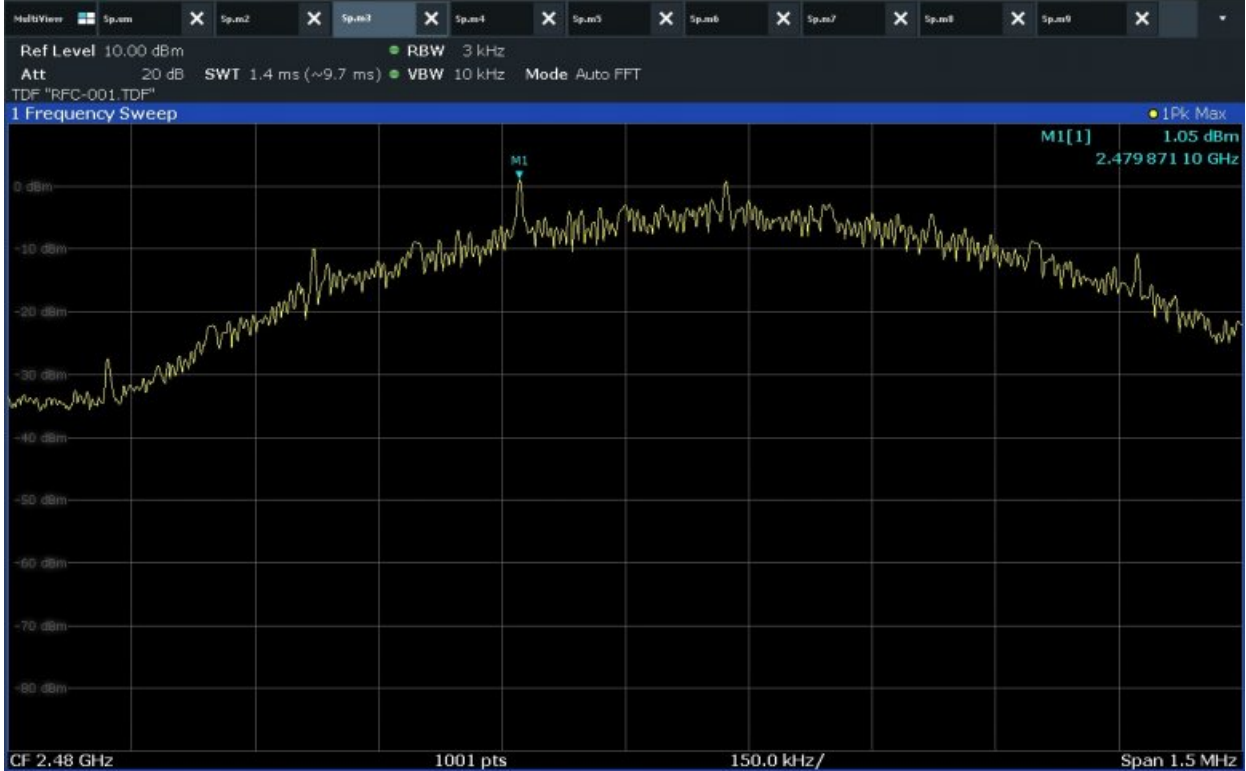
7.4.1.6 Measured Graph for LE Coded 500kbps



Low CH

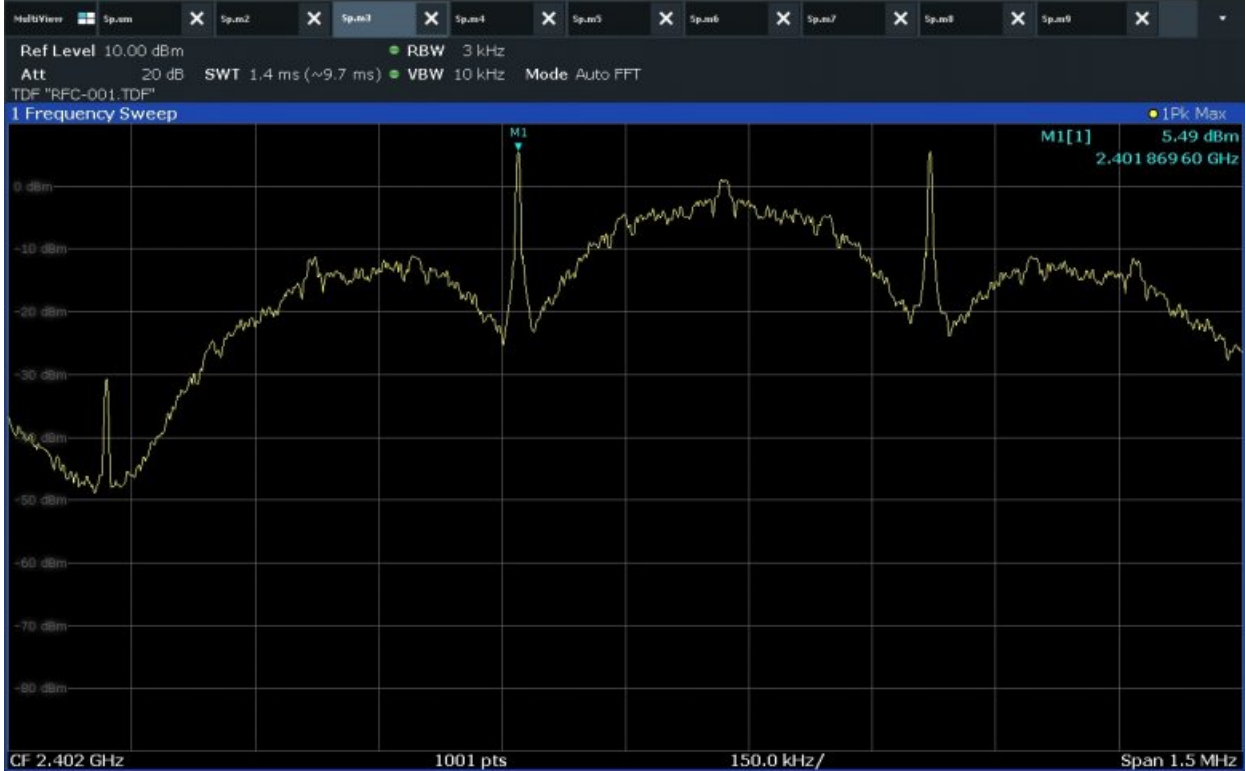


Mid CH

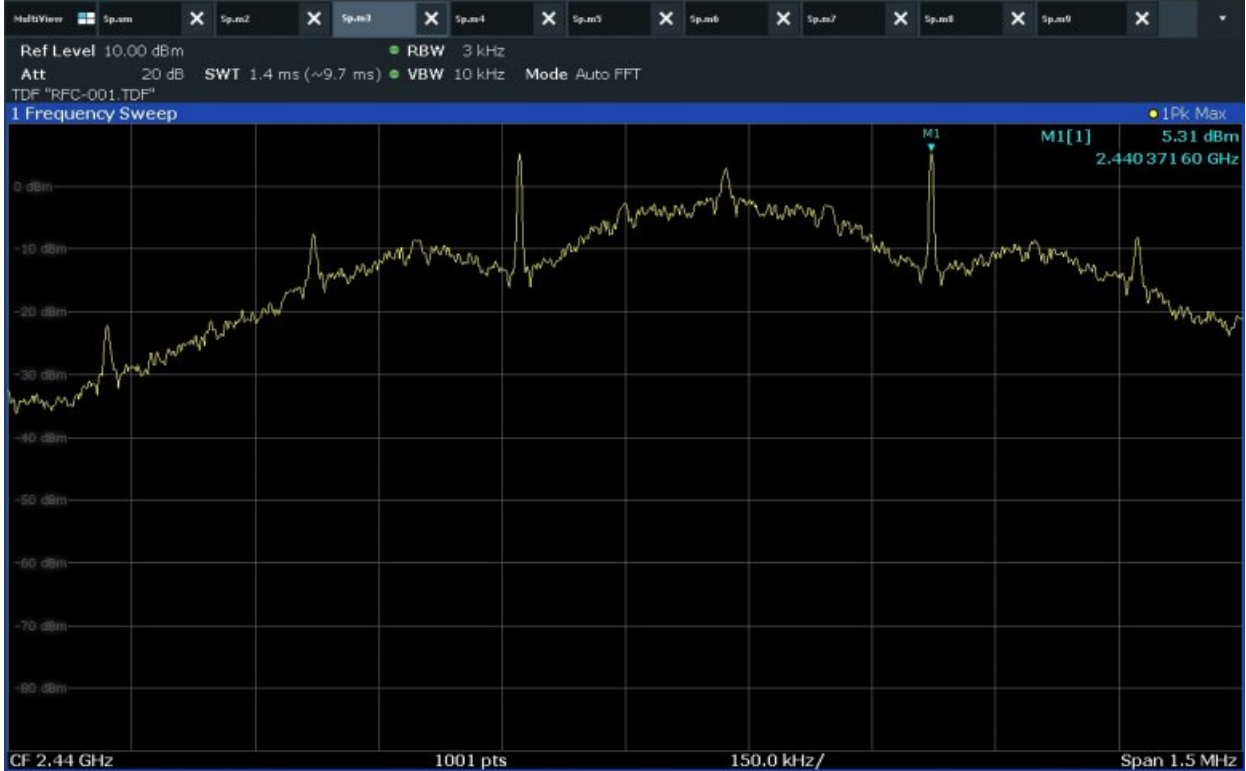


High CH

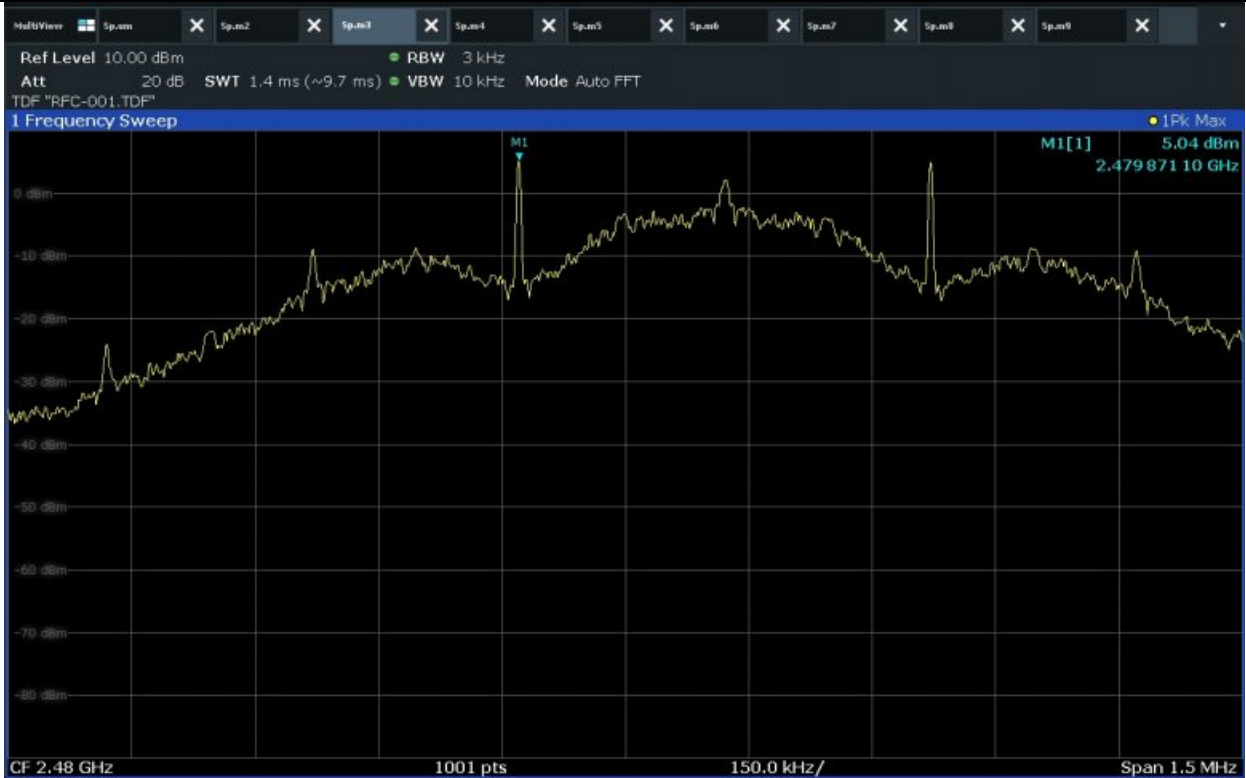
7.4.1.7 Measured Graph for LE Coded 125kbps



Low CH



Mid CH



High CH



8. Conducted Spurious Emission

8.1 Operating environment

Temperature : 23 °C

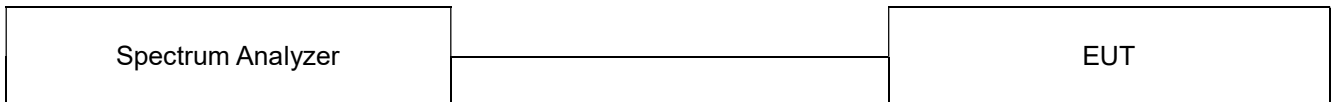
Relative humidity : 47 %

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 kHz, and peak detection was used.



8.4 Test data

Operating mode : Transmit mode

Test Result : Pass



8.4.1 Measured Results

Modulation Type	Channel (Frequency)	Highest signal level (dBm)	Limit (dBm/3kHz)
802.11b	1 (2 412 MHz)	Band Edge	Pass
		30 MHz to 1 GHz	
		1 GHz to 26 GHz	
	6 (2 437 MHz)	30 MHz to 1 GHz	
		1 GHz to 26 GHz	
		Band Edge	
	11 (2 462 MHz)	30 MHz to 1 GHz	
		1 GHz to 26 GHz	
		Band Edge	
802.11g	1 (2 412 MHz)	Band Edge	Pass
		30 MHz to 1 GHz	
		1 GHz to 26 GHz	
	6 (2 437 MHz)	30 MHz to 1 GHz	
		1 GHz to 26 GHz	
		Band Edge	
	11 (2 462 MHz)	30 MHz to 1 GHz	
		1 GHz to 26 GHz	
		Band Edge	
802.11n(HT20)	1 (2 412 MHz)	Band Edge	Pass
		30 MHz to 1 GHz	
		1 GHz to 26 GHz	
	6 (2 437 MHz)	30 MHz to 1 GHz	
		1 GHz to 26 GHz	
		Band Edge	
	11 (2 462 MHz)	30 MHz to 1 GHz	
		1 GHz to 26 GHz	
		Band Edge	
802.11n(HT40)	3 (2 422 MHz)	Band Edge	Pass
		30 MHz to 1 GHz	
		1 GHz to 26 GHz	
	6 (2 437 MHz)	30 MHz to 1 GHz	
		1 GHz to 26 GHz	
		Band Edge	
	9 (2 452 MHz)	30 MHz to 1 GHz	
		1 GHz to 26 GHz	
		Band Edge	



Bluetooth LE 1Mbps	0 (2 402 MHz)	Band Edge	Pass
		30 MHz to 1 GHz	Pass
		1 GHz to 26 GHz	Pass
	19 (2 440 MHz)	30 MHz to 1 GHz	Pass
		1 GHz to 26 GHz	Pass
	39 (2 480 MHz)	Band Edge	Pass
		30 MHz to 1 GHz	Pass
		1 GHz to 26 GHz	Pass
Bluetooth LE 2Mbps	0 (2 402 MHz)	Band Edge	Pass
		30 MHz to 1 GHz	Pass
		1 GHz to 26 GHz	Pass
	19 (2 440 MHz)	30 MHz to 1 GHz	Pass
		1 GHz to 26 GHz	Pass
	39 (2 480 MHz)	Band Edge	Pass
		30 MHz to 1 GHz	Pass
		1 GHz to 26 GHz	Pass
Bluetooth LE Coded 500kbps	0 (2 402 MHz)	Band Edge	Pass
		30 MHz to 1 GHz	Pass
		1 GHz to 26 GHz	Pass
	19 (2 440 MHz)	30 MHz to 1 GHz	Pass
		1 GHz to 26 GHz	Pass
	39 (2 480 MHz)	Band Edge	Pass
		30 MHz to 1 GHz	Pass
		1 GHz to 26 GHz	Pass
Bluetooth LE Coded 125kbps	0 (2 402 MHz)	Band Edge	Pass
		30 MHz to 1 GHz	Pass
		1 GHz to 26 GHz	Pass
	19 (2 440 MHz)	30 MHz to 1 GHz	Pass
		1 GHz to 26 GHz	Pass
	39 (2 480 MHz)	Band Edge	Pass
		30 MHz to 1 GHz	Pass
		1 GHz to 26 GHz	Pass