




시험 성적서 TEST REPORT

페이지(page) : (1) / (총(Total) 84)

성적서 번호 Report No.		ICRT-TR-E230497-0A	
신청자 Client	기관명 Name	AISOLUTION CO., LTD	
	주소 Address	28-4, Samyang-ro 29gil, Gangbuk-gu, Seoul, 01194, Republic of Korea	
시험대상품목 Sample description		Bluetooth Barcode Scanner Sled	
모델명 Type designation		KDC480	
정격 Ratings		DC 3.7 V	
시험장소 Place of test		<input checked="" type="checkbox"/> 고정시험(Inside test) <input type="checkbox"/> 현장시험(Field test) 주소지(Address): 112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea	
시험기간 Date of test		20. Feb. 2023 ~ 02. Mar. 2023	
시험방법/항목 Test Method/Item		FCC Part 15 Subpart C §15.247	
시험결과 Test Results		Refer to 3. Test Summary	
확인 Affirmation	작성자 Tested by	기술책임자 Technical Manager	
	성명 Name	Seong-Hun, Jeong (서명) (Signature)	Tae-Yang, Yoon (서명) (Signature)
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2023. 03. 08			
주식회사 아이씨알 대표이사		The head of INTERNATIONAL CERTIFICATION REGISTRAR	

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Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E230497-0A	2023.03.08	Initial Issue	All



1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	AISOLUTION CO., LTD
Address	28-4, Samyang-ro 29gil, Gangbuk-gu, Seoul, 01194, Republic of Korea
Contact Person	Seoneyong Kim
Telephone No.	82-10-9876-3482
Fax No.	82-07-8260-3731
E-mail	seonyeong.kim@koamtac.com

1.2 Manufacturer Information

Manufacturer	AISOLUTION CO., LTD
Address	28-4, Samyang-ro 29gil, Gangbuk-gu, Seoul, 01194, Republic of 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	Bluetooth Barcode Scanner Sled
Brand Name	-
Model Name	KDC480
Additional Model Name	KDC485
FCC ID	VH9-KDC480
Hardware Version	1.0
Software Version	1.0
Power Supply	DC 3.7 V

2.2 Additional Information

Equipment Class	DTS-Digital Transmission System	
Device Type	Stand-alone	
Operating Frequency	2 402 MHz ~ 2 480 MHz	
RF Output Power	LE 1M	-1.41 dBm
	LE 2M	-1.52 dBm
	LE Coded 125K	-1.56 dBm
	LE Coded 500K	-1.51 dBm
Number of Channel	40	
Modulation Type	GFSK	
Antenna Type	Chip Antenna	
Antenna Gain	3.14 dBi	
Antenna Operating Mode	Single antenna exists for each mode	

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

2.5 Modifications of EUT

- The model KDC485 is identical to KDC480, except for model designation, angled scan engine bracket and back case for tilted window.



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	<input checked="" type="checkbox"/>	PASS
§15.247 (b) (3)	Maximum Conducted Output Power	<input checked="" type="checkbox"/>	PASS
§15.247 (e)	Power Spectral Density	<input checked="" type="checkbox"/>	PASS
§15.247 (d)	Conducted Spurious Emission	<input checked="" type="checkbox"/>	PASS
§15.247 (d) & §15.209 & §15.205	Radiated Spurious Emission	<input checked="" type="checkbox"/>	PASS
§15.203	Antenna Requirement	<input checked="" type="checkbox"/>	PASS
§15.207	Power Line Conducted Emission	<input checked="" type="checkbox"/>	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 **Chip Antenna**. The directional gain of the antenna is **3.14 dBi**.



4. Used equipment on test

	Description	Model Name	Manufacturer	Serial Number	Next Cal. (cycle)
<input checked="" type="checkbox"/>	Spectrum analyzer	FSW85	R&S	101306	2024-03-02 (1Y)
<input checked="" type="checkbox"/>	Signal Generator	SMB100A	R&S	180607	2024-03-02 (1Y)
<input checked="" type="checkbox"/>	DC Power Supply	6603D	Topward	J00385373	2024-03-03 (1Y)
<input checked="" type="checkbox"/>	10 dB Attenuator	WA54-10-11	Weinschel	-	2023-03-07 (1Y)
<input checked="" type="checkbox"/>	Loop Antenna	HFH2-Z2	Rohde & Schwarz	100506	2023-07-05 (2Y)
<input checked="" type="checkbox"/>	TRILOG BROADBAND ANTENNA	VULB9162	SCHWARZBECK	143	2024-12-14 (2Y)
<input checked="" type="checkbox"/>	RF Pre Amplifier	SCU08	Rohde & Schwarz	100747	2023-04-13 (1Y)
<input checked="" type="checkbox"/>	EMI Test Receiver	ESR7	Rohde & Schwarz	102034	2023-04-13 (1Y)
<input checked="" type="checkbox"/>	Horn Antenna	HF907	Rohde & Schwarz	102556	2023-08-18 (1Y)
<input checked="" type="checkbox"/>	RF Pre Amplifier	SCU18	Rohde & Schwarz	102342	2023-04-13 (1Y)
<input checked="" type="checkbox"/>	EMI Test Receiver	ESR26	Rohde & Schwarz	101462	2023-04-13 (1Y)
<input checked="" type="checkbox"/>	Horn Antenna	LB-42-10-C-KF	AIBFO Inc.	J202024625	2023-03-10 (1Y)
<input checked="" type="checkbox"/>	PreAmplifier	AMF-4F-18265-35-8P-1	MITEQ	771846	2023-03-07 (1Y)
<input checked="" type="checkbox"/>	LISN	ENV216	Rohde & Schwarz	102193	2023-05-20 (1Y)

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



5. 6 dB Bandwidth

5.1 Operating environment

Temperature : 23 °C

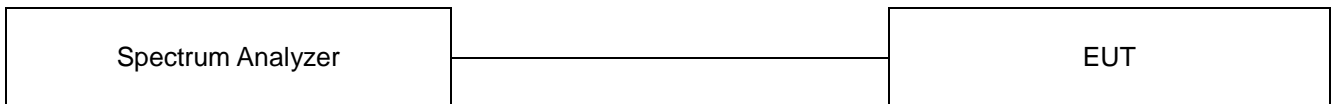
Relative humidity : 47 %

5.2 Measurement method

Standard : §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 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)
Bluetooth LE 1M	0 (2 402 MHz)	773.2	at least 500
	19 (2 440 MHz)	776.2	
	39 (2 480 MHz)	788.2	
Bluetooth LE 2M	0 (2 402 MHz)	1 370	
	19 (2 440 MHz)	1 380	
	39 (2 480 MHz)	1 370	
Bluetooth LE 125K	0 (2 402 MHz)	659.3	
	19 (2 440 MHz)	722.3	
	39 (2 480 MHz)	710.3	
Bluetooth LE 500K	0 (2 402 MHz)	776.2	
	19 (2 440 MHz)	746.3	
	39 (2 480 MHz)	779.2	



5.4.2 Measured Graph (6 dB Bandwidth) for LE 1M



Low CH



Mid CH

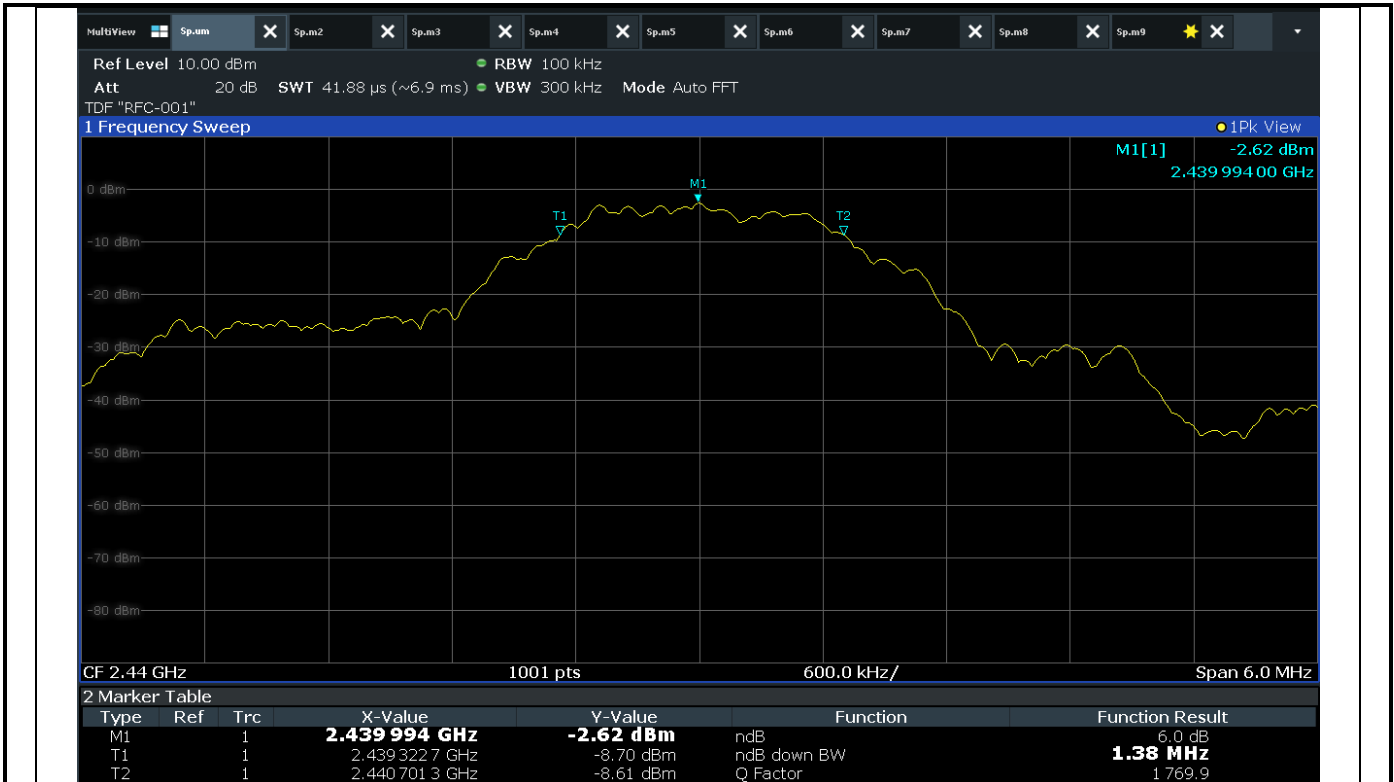


High CH

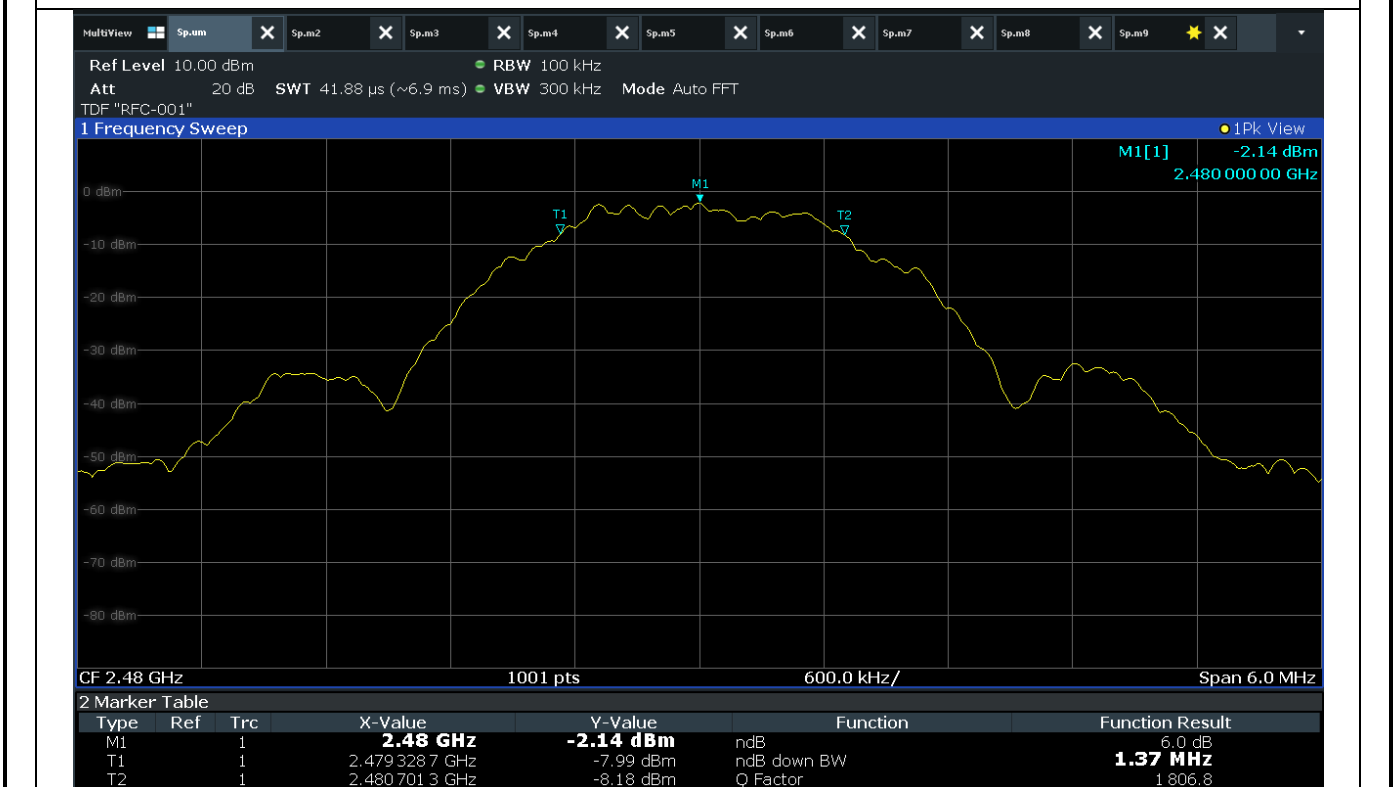


5.4.3 Measured Graph (6 dB Bandwidth) for LE 2M





Mid CH



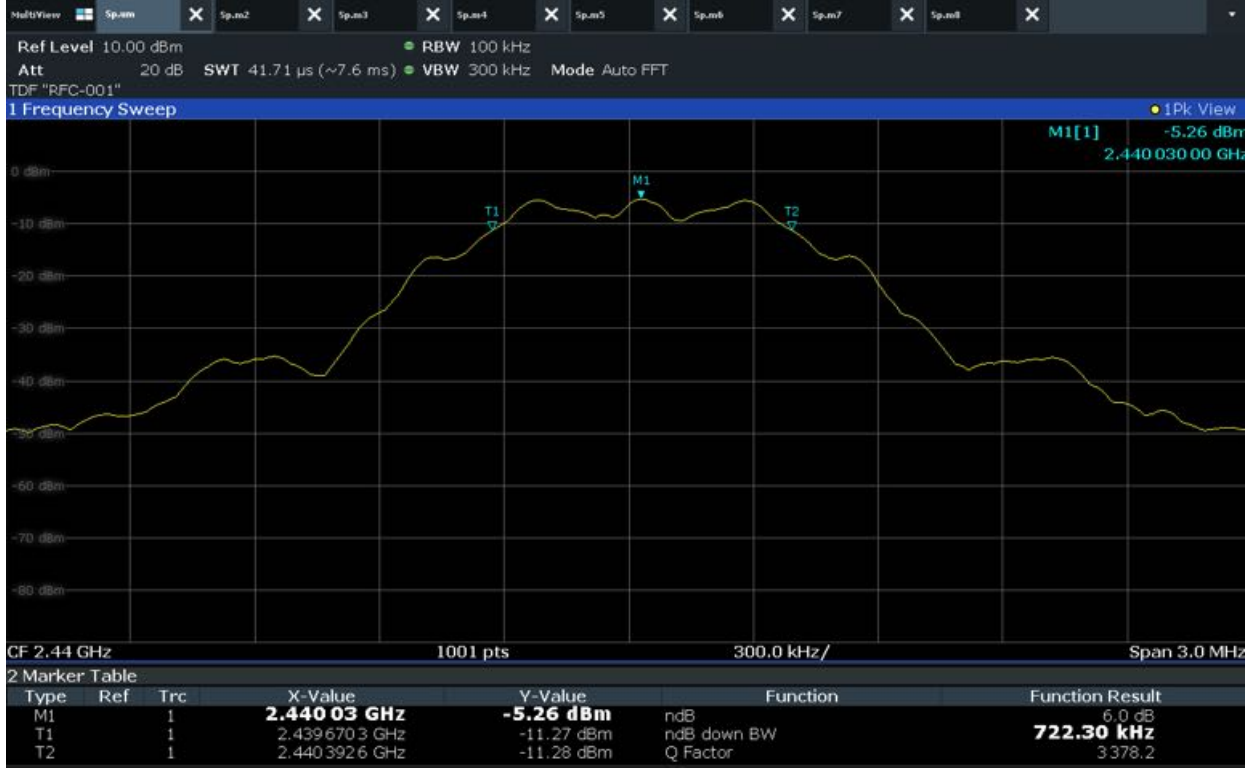
High CH



5.4.4 Measured Graph (6 dB Bandwidth) for LE 125K



Low CH



Mid CH



High CH



5.4.5 Measured Graph (6 dB Bandwidth) for LE 500K



Low CH



Mid CH



High CH



6. Maximum Conducted Output Power

6.1 Operating environment

Temperature : 23 °C
Relative humidity : 47 %

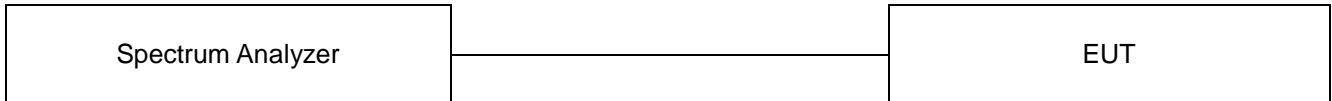
6.2 Measurement method

Standard : §15.247 (b) (3)

6.3 Test setup

The maximum peak output power was measured with the spectrum analyzer connected to the antenna output of the EUT. The spectrum analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99 % bandwidth. The EUT was operating in transmit mode at the appropriate center frequency.

And e.i.r.p. is added antenna maximum gain with the Maximum Conducted Output Power.





6.4 Test data

Operating mode : Transmit mode

Test Result : Pass

6.4.1 Measured Results

Modulation Type	Channel (Frequency)	Highest signal level (dBm)	Limit (dBm)
Bluetooth LE 1M	0 (2 402 MHz)	-1.41	30 (1 Watt)
	19 (2 440 MHz)	-1.77	
	39 (2 480 MHz)	-1.97	
Bluetooth LE 2M	0 (2 402 MHz)	-1.52	
	19 (2 440 MHz)	-1.71	
	39 (2 480 MHz)	-1.71	
Bluetooth LE 125K	0 (2 402 MHz)	-1.56	
	19 (2 440 MHz)	-1.87	
	39 (2 480 MHz)	-1.70	
Bluetooth LE 500K	0 (2 402 MHz)	-1.51	
	19 (2 440 MHz)	-1.79	
	39 (2 480 MHz)	-1.75	



6.4.2 Measured Graph for LE 1M



Low CH



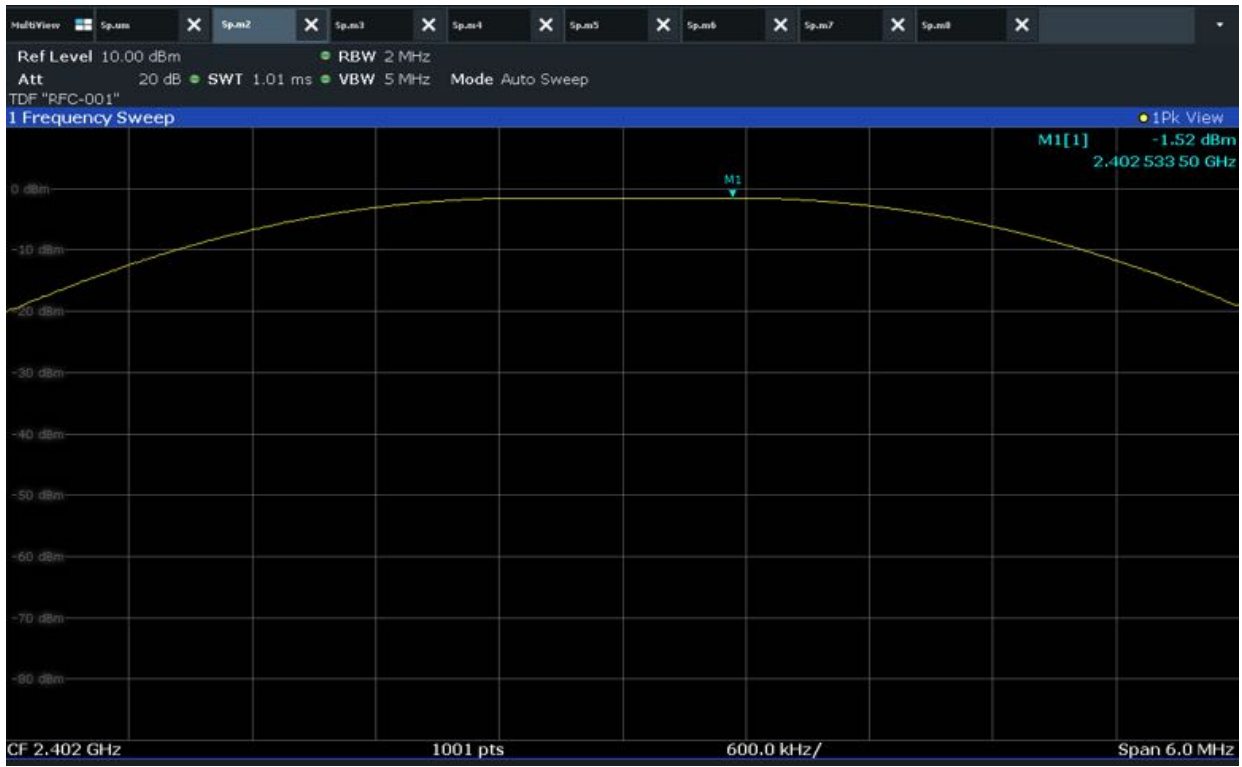
Mid CH



High CH



6.4.3 Measured Graph for LE 2M



Low CH



Mid CH



High CH



6.4.4 Measured Graph for LE 125K



Low CH



Mid CH



High CH



6.4.5 Measured Graph for LE 500K





Mid CH



High CH



7. Power Spectral Density

7.1 Operating environment

Temperature : 23 °C

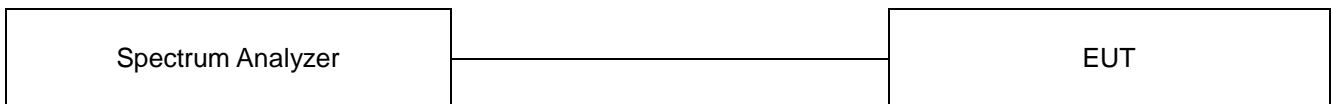
Relative humidity : 47 %

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

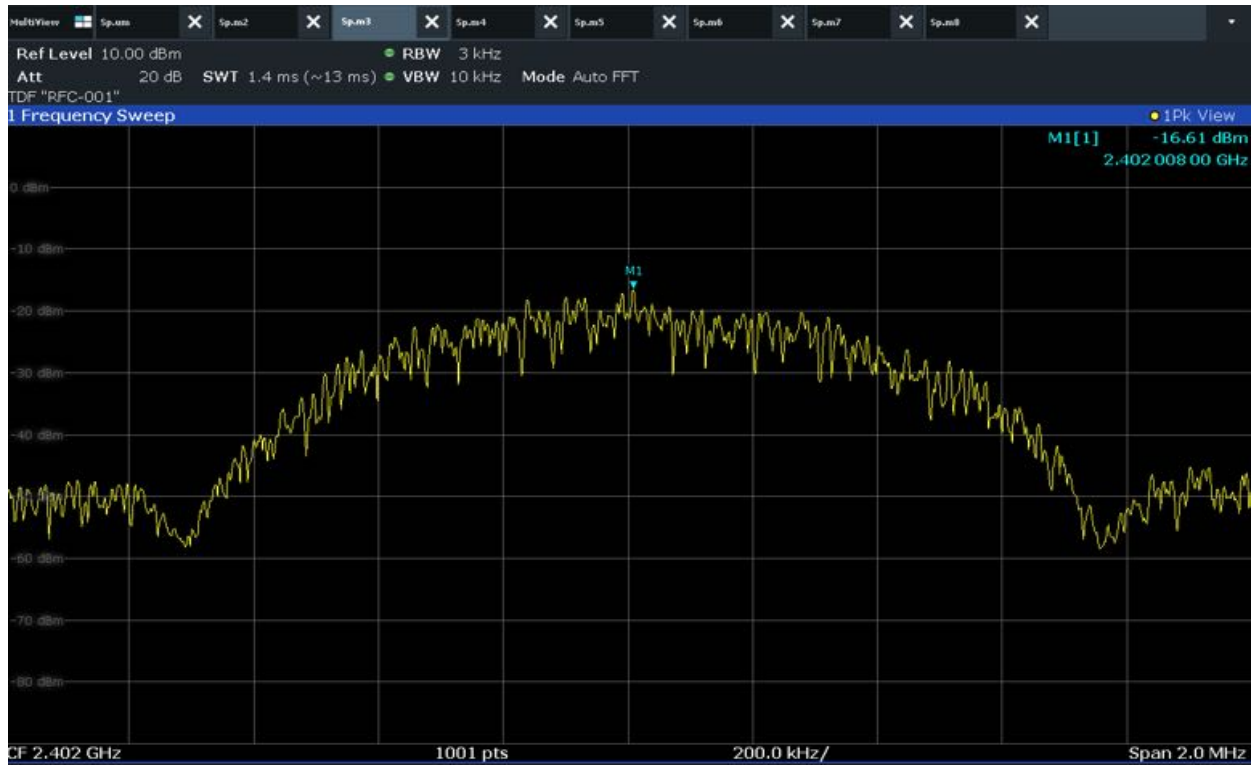
Test Result : Pass

7.4.1 Measured Results

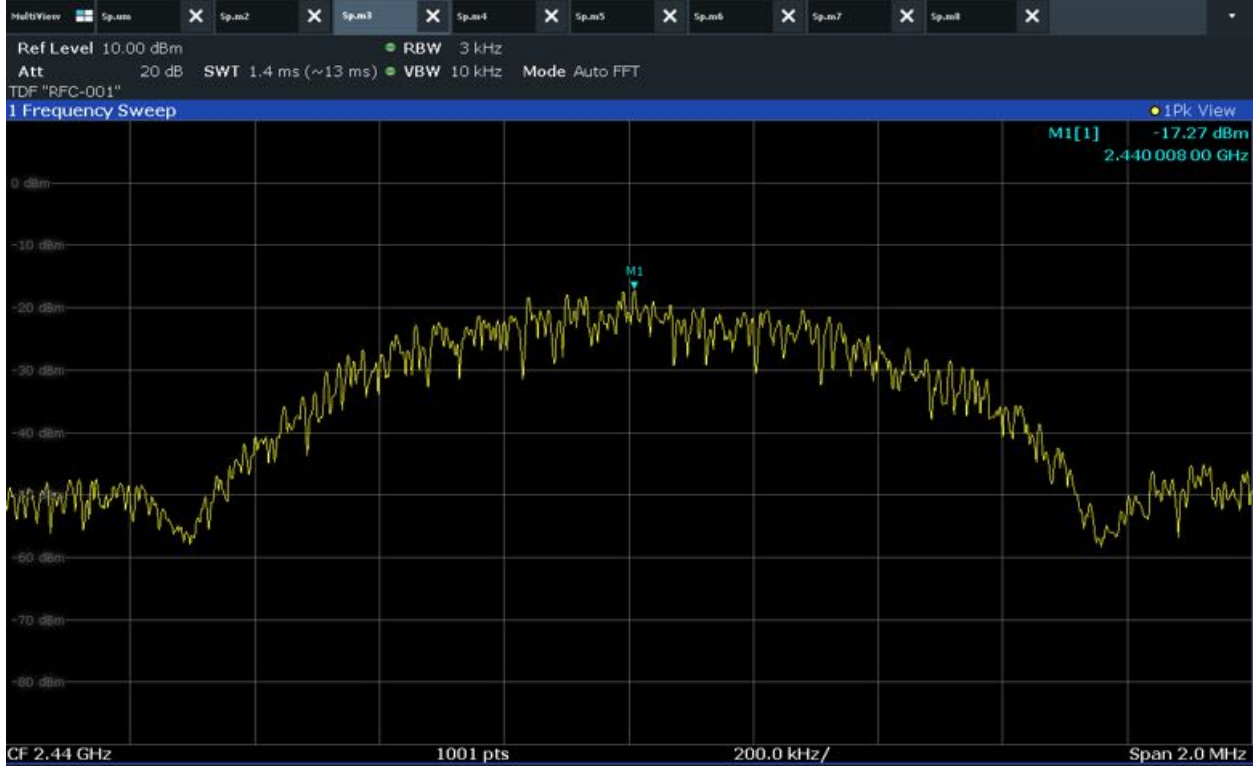
Modulation Type	Channel (Frequency)	Highest signal level (dBm)	Limit (dBm/3kHz)
Bluetooth LE 1M	0 (2 402 MHz)	-16.61	8
	19 (2 440 MHz)	-17.27	
	39 (2 480 MHz)	-17.53	
Bluetooth LE 2M	0 (2 402 MHz)	-19.45	
	19 (2 440 MHz)	-19.74	
	39 (2 480 MHz)	-19.81	
Bluetooth LE 125K	0 (2 402 MHz)	-7.71	
	19 (2 440 MHz)	-7.90	
	39 (2 480 MHz)	-7.78	
Bluetooth LE 500K	0 (2 402 MHz)	-14.29	
	19 (2 440 MHz)	-11.17	
	39 (2 480 MHz)	-14.50	



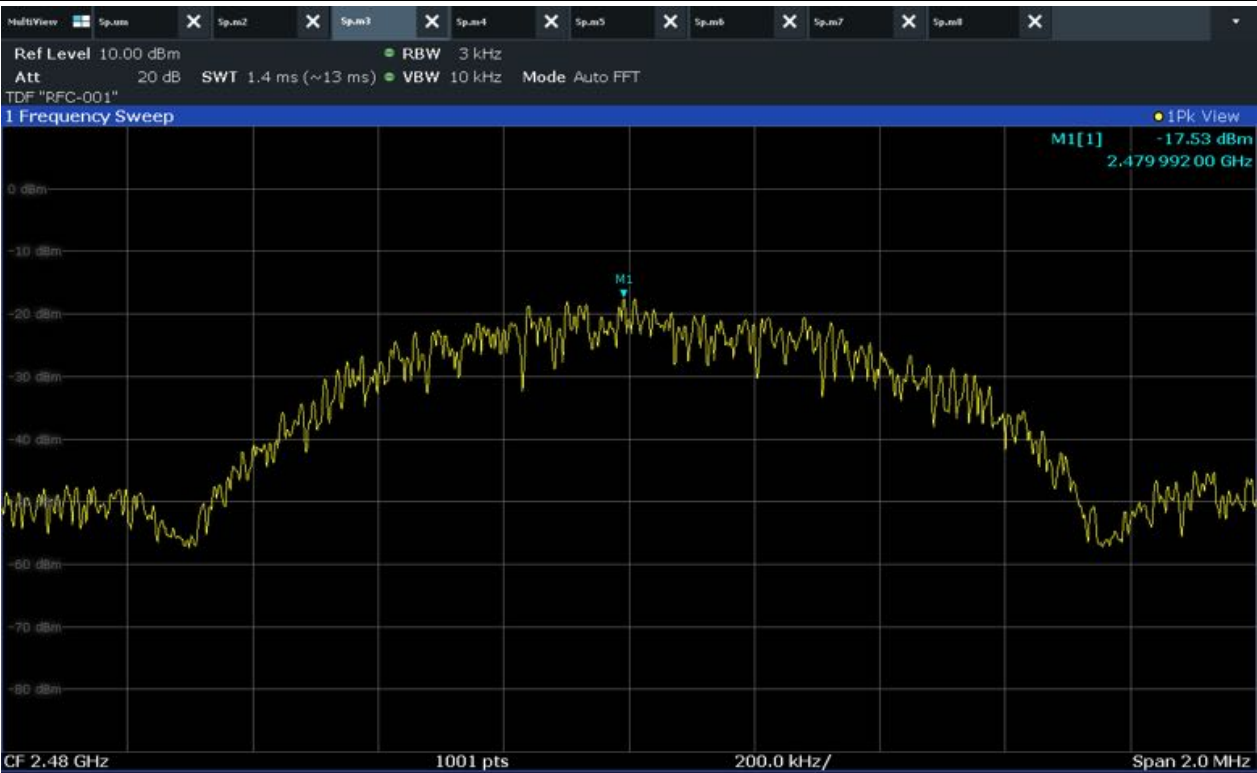
7.4.2 Measured Graph for LE 1M



Low CH



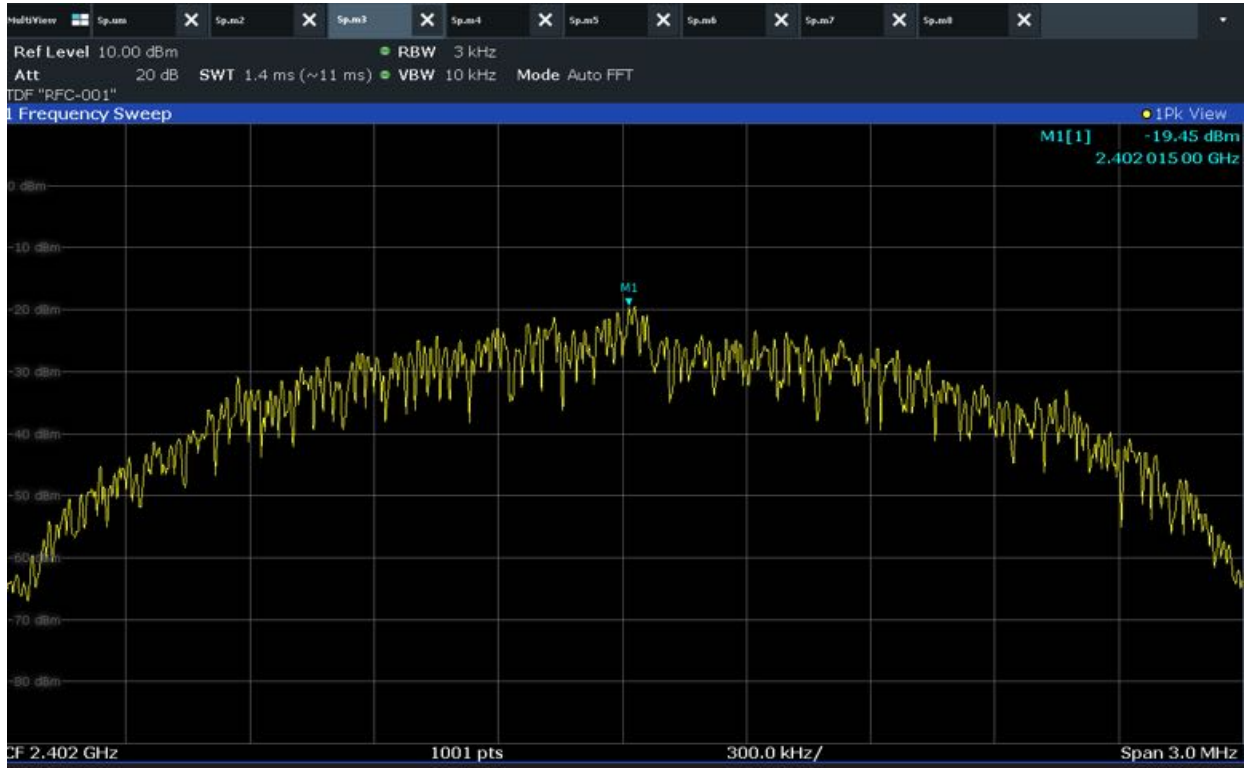
Mid CH



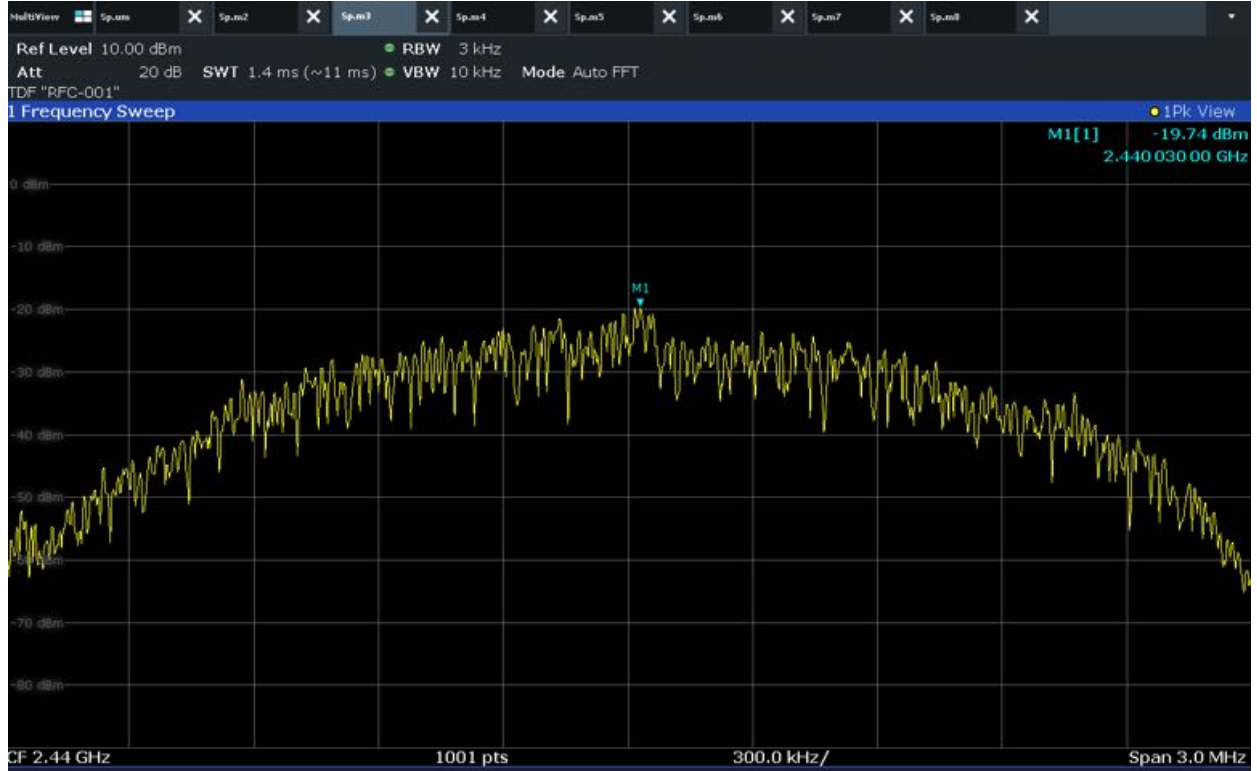
High CH



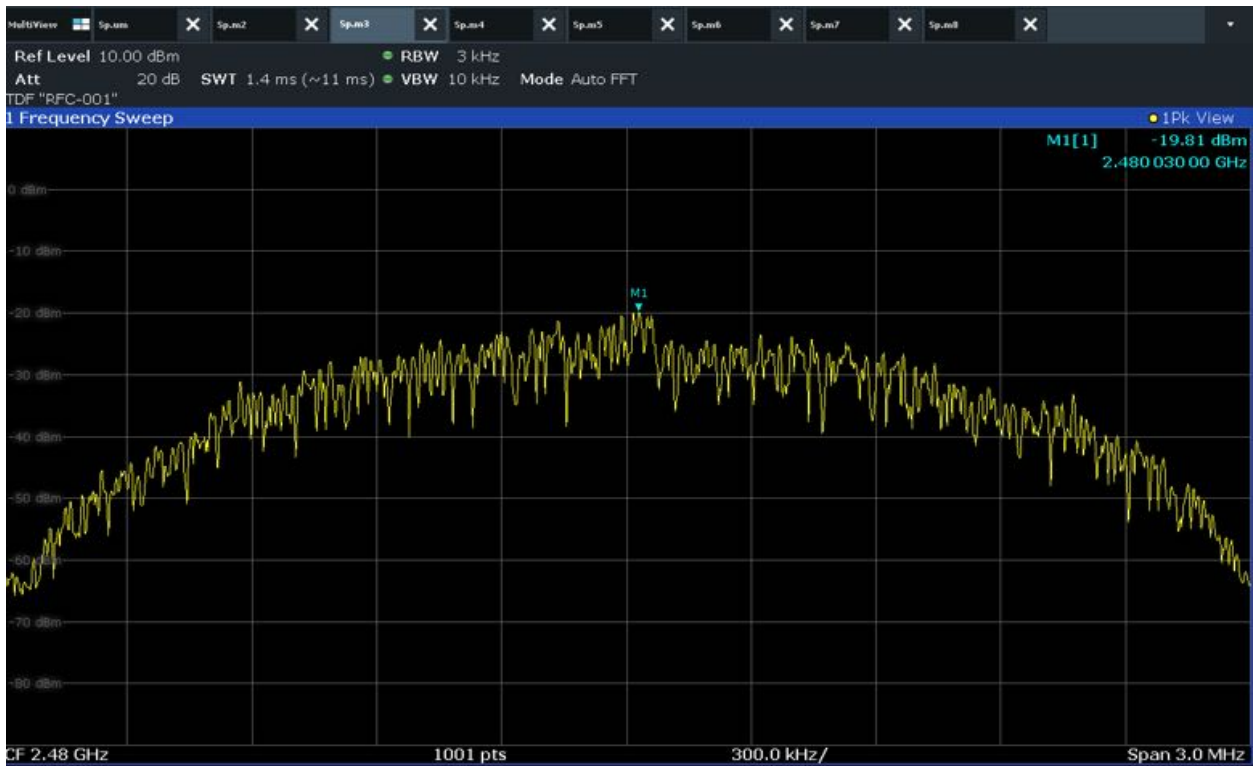
7.4.3 Measured Graph for LE 2M



Low CH



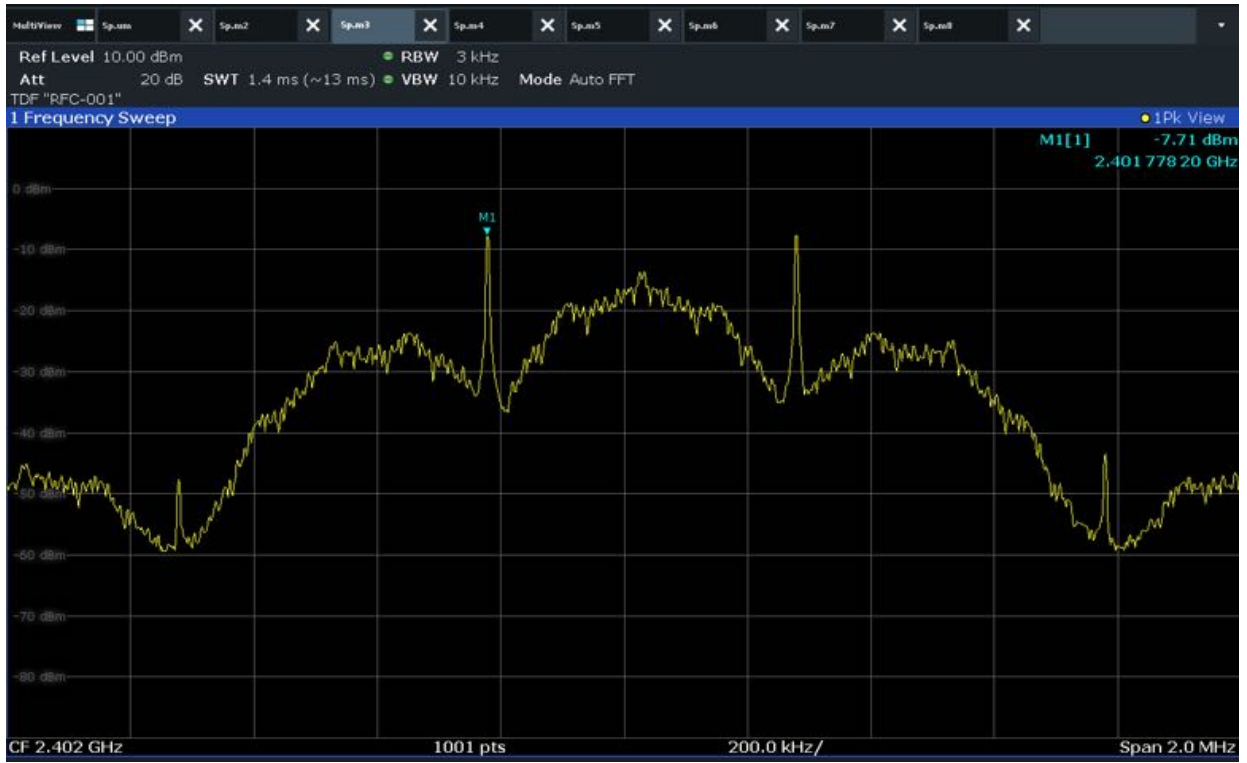
Mid CH



High CH



7.4.4 Measured Graph for LE 125K



Low CH



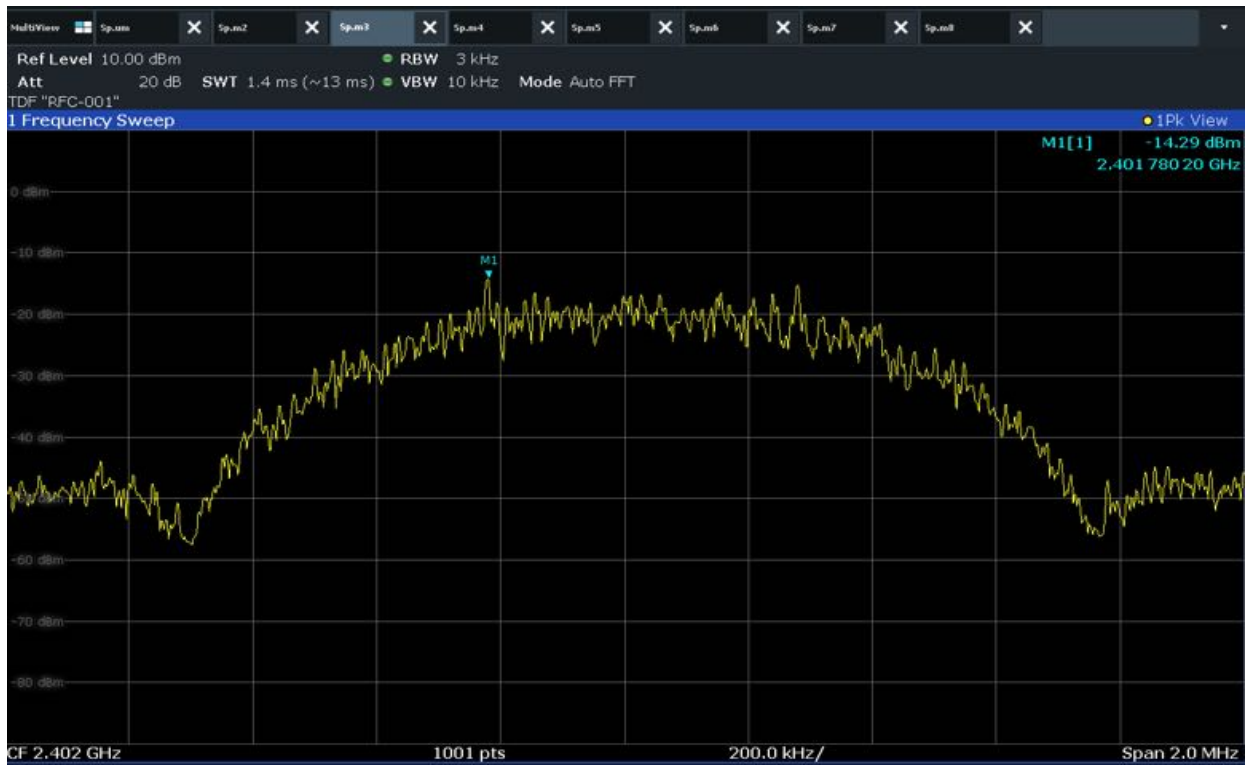
Mid CH



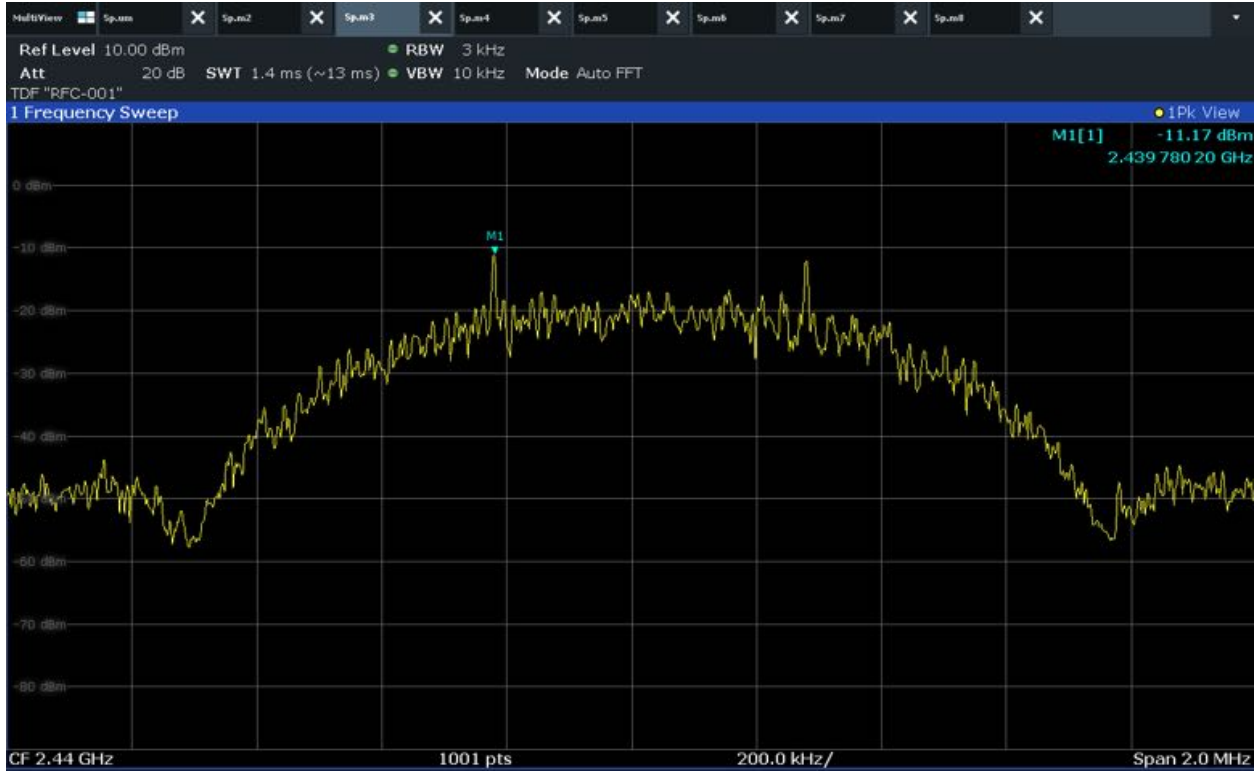
High CH



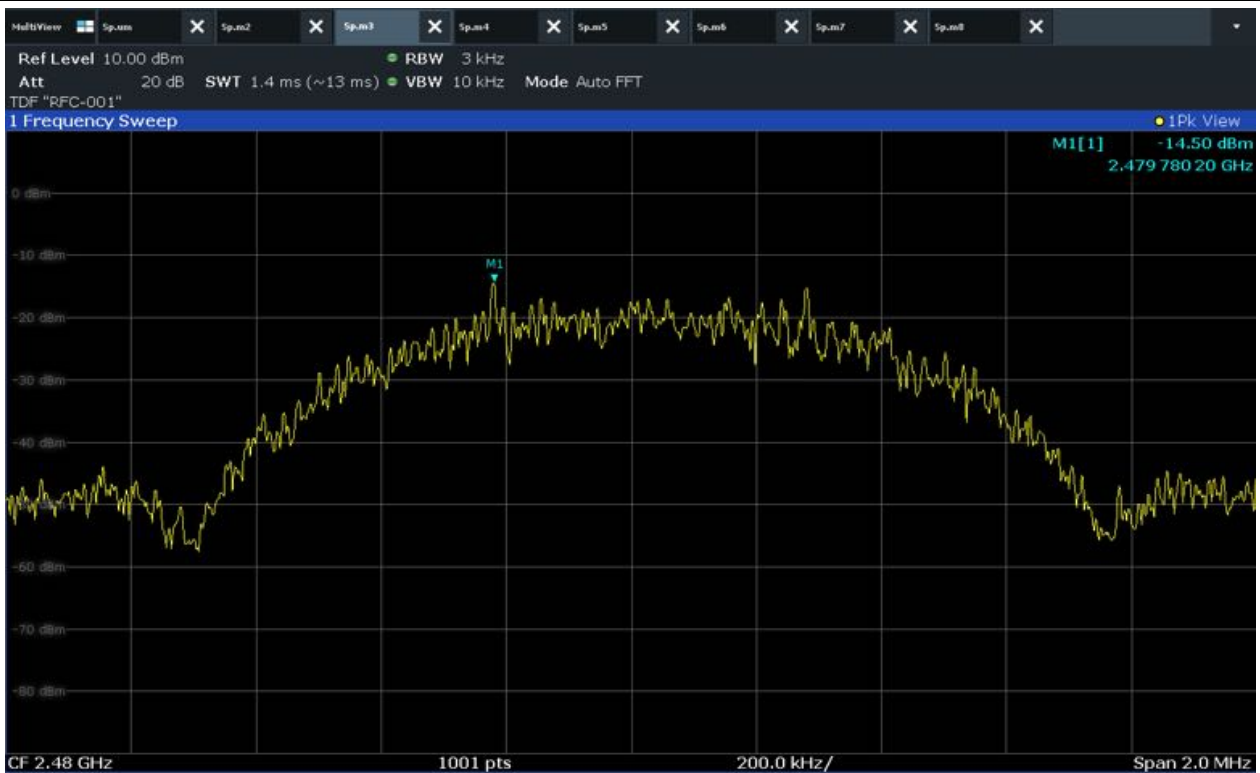
7.4.5 Measured Graph for LE 500K



Low CH



Mid CH



High CH



8. Conducted Spurious Emission

8.1 Operating environment

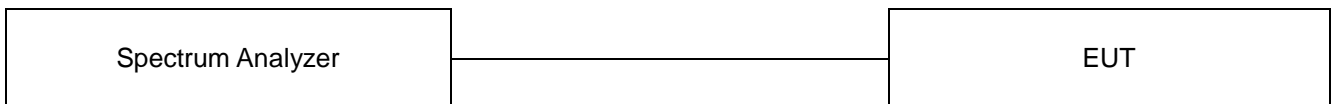
Temperature : 23 °C
Relative humidity : 47 %

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.





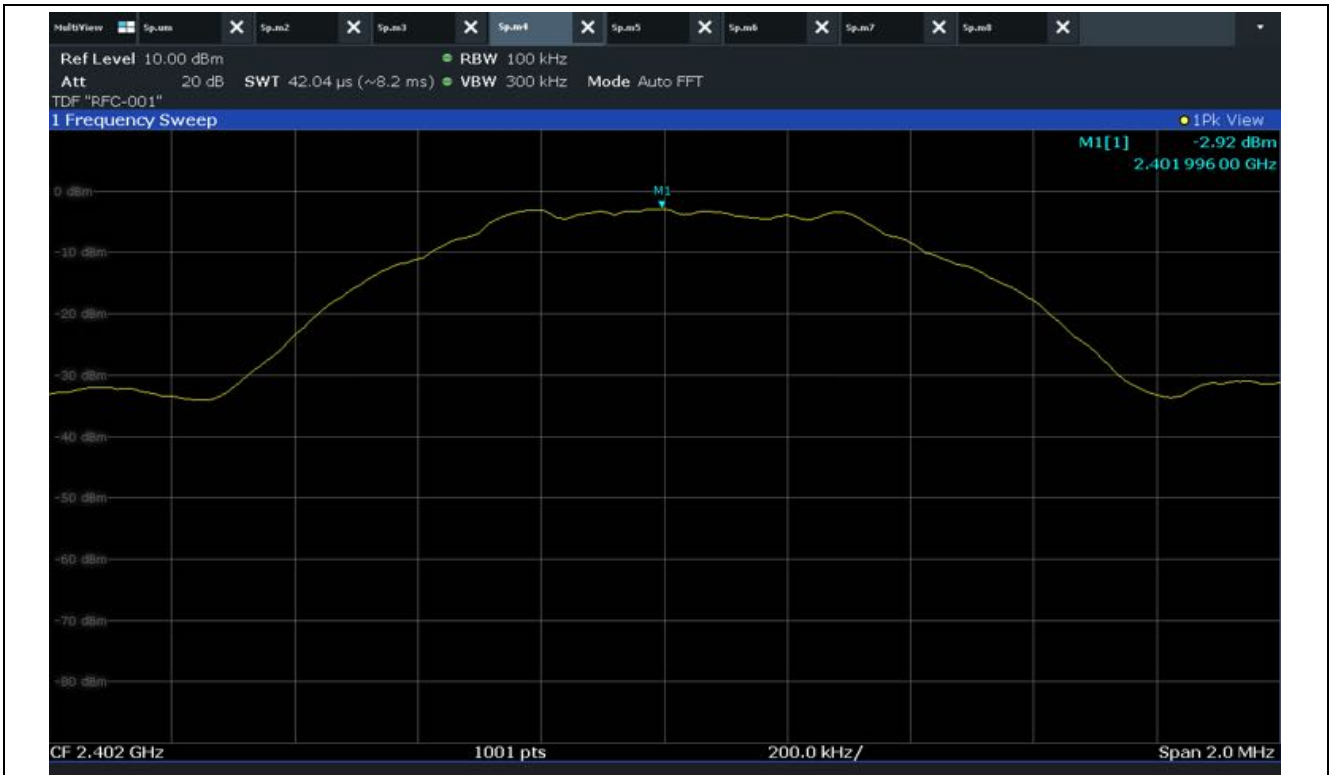
8.4 Test data

Operating mode : Transmit mode

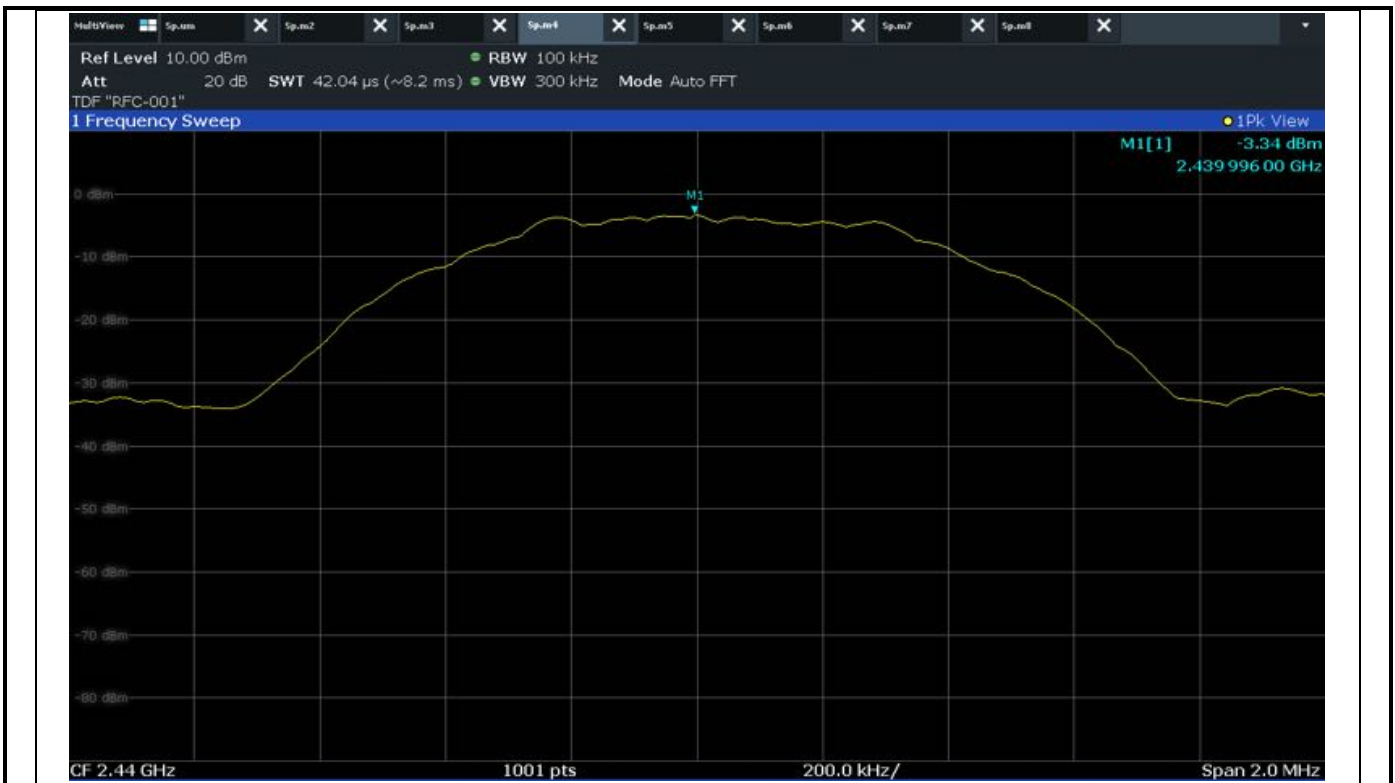
Test Result : Pass

8.4.1 Measured Results

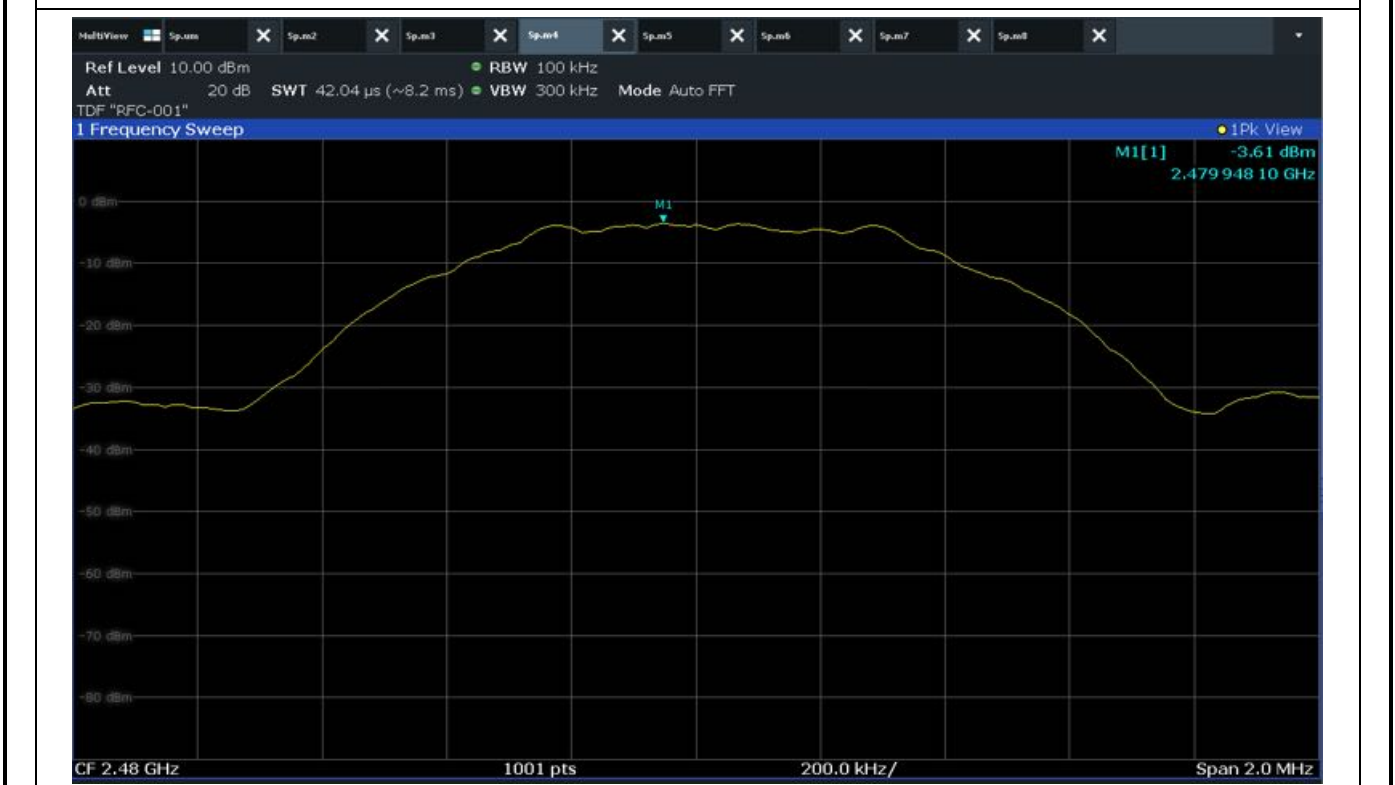
8.4.1.1 Signal level (dB m) for LE 1M



Low CH



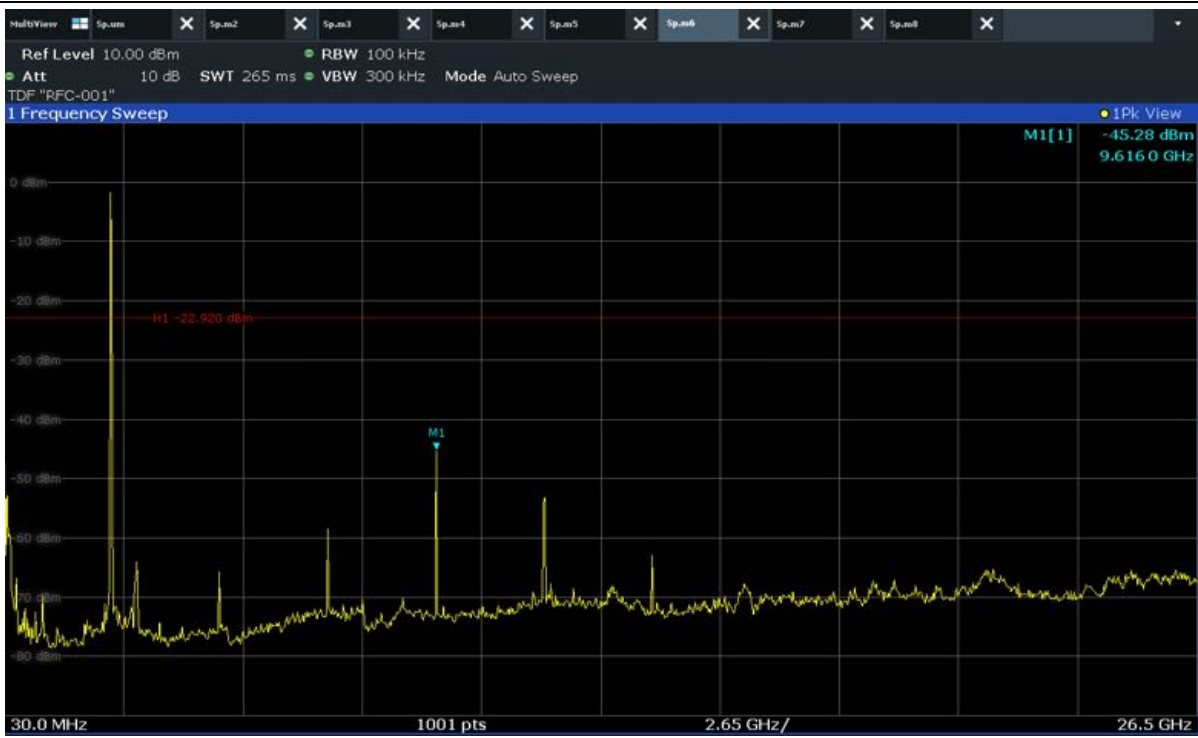
Mid CH



High CH



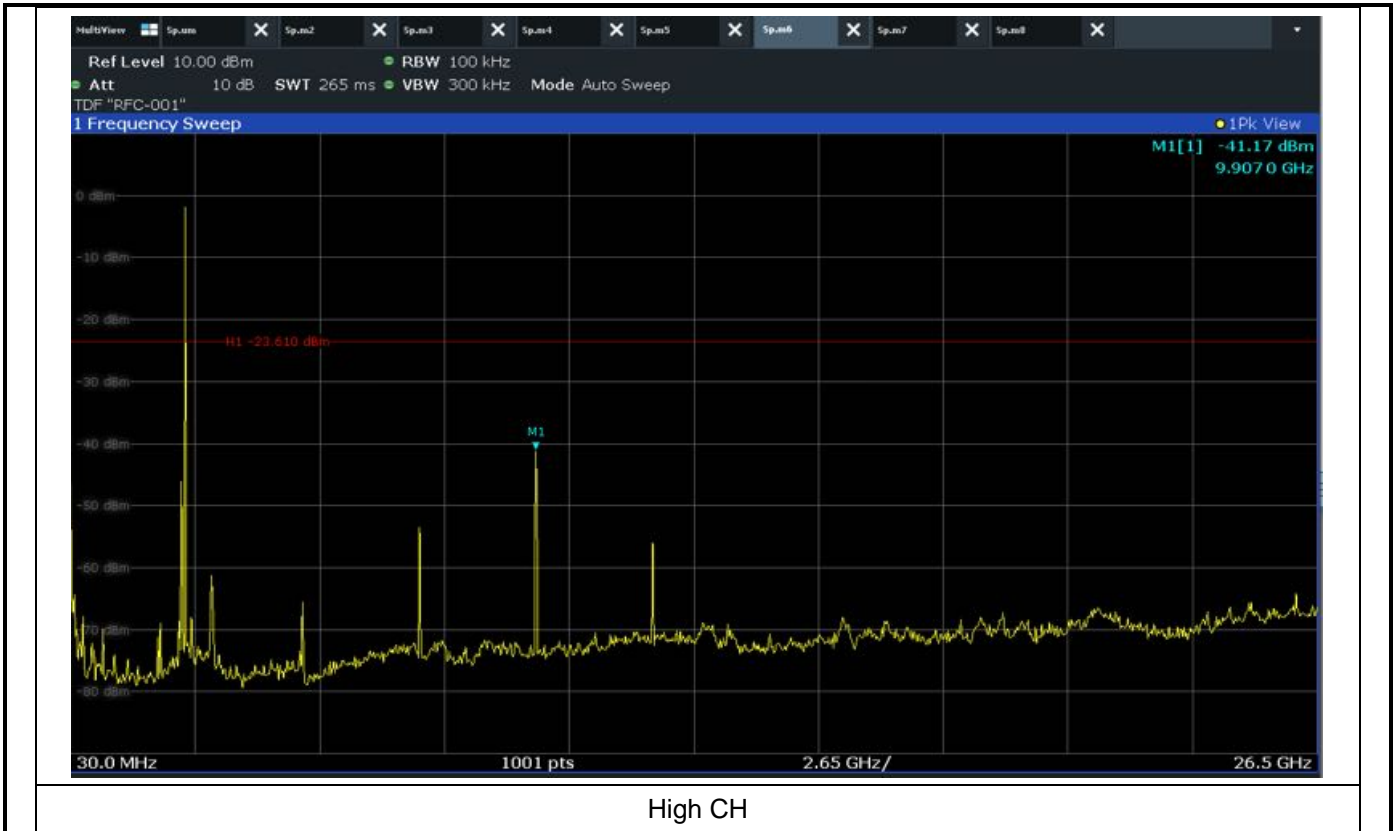
8.4.1.2 Unwanted Emissions In Non-Restricted Frequency Bands for LE 1M



Low CH



Mid CH





8.4.1.3 Band Edge for LE 1M



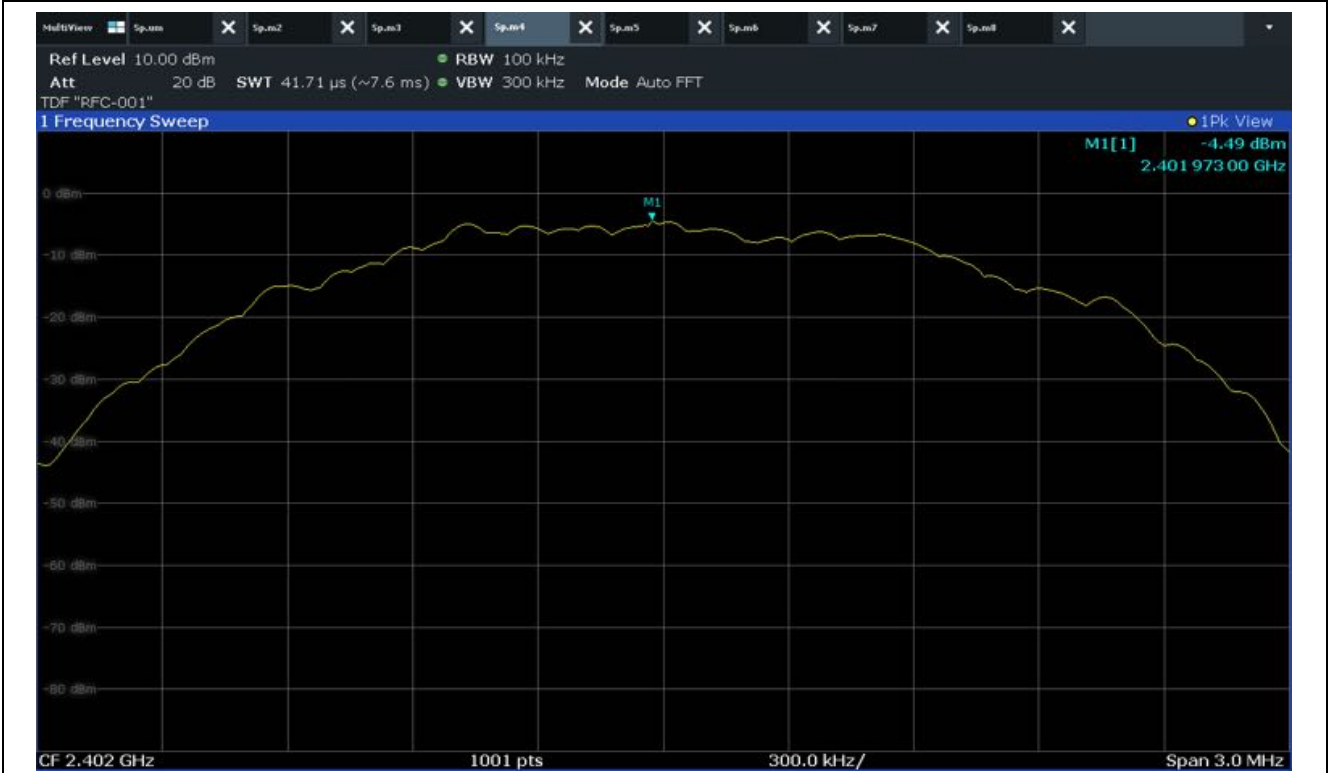
Low CH



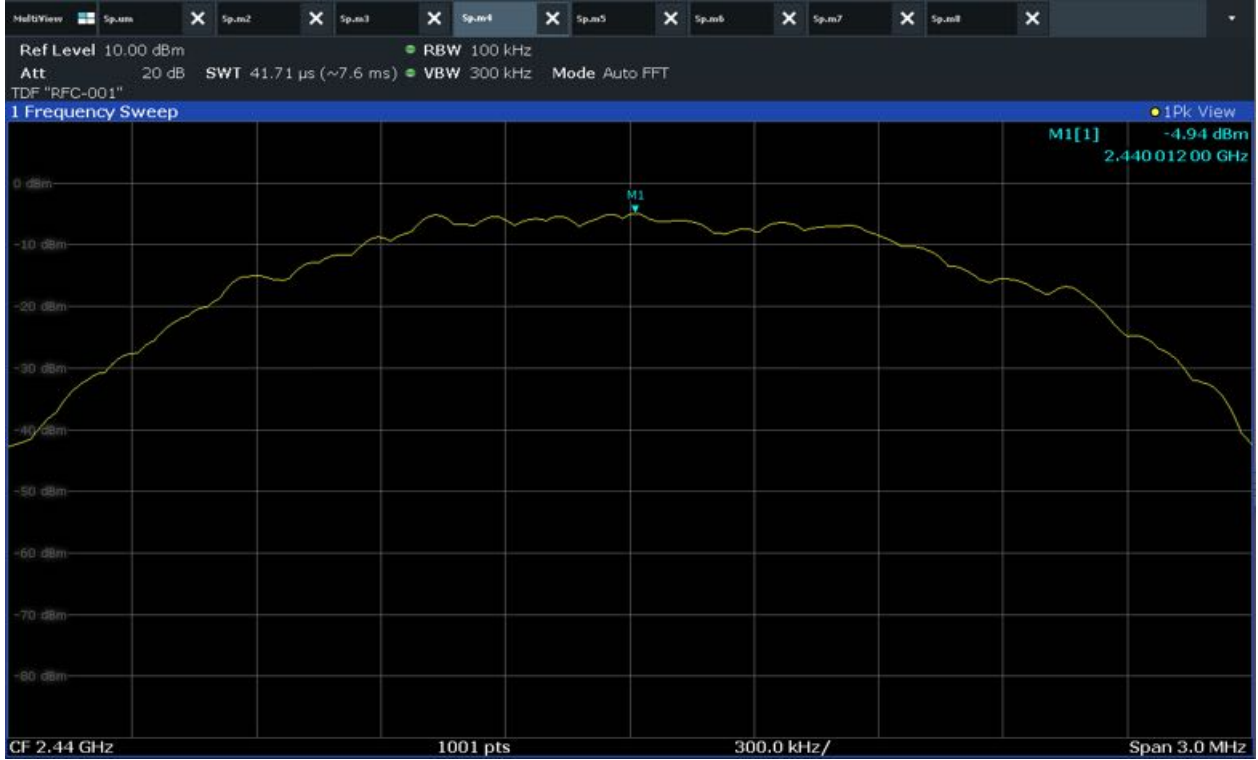
High CH



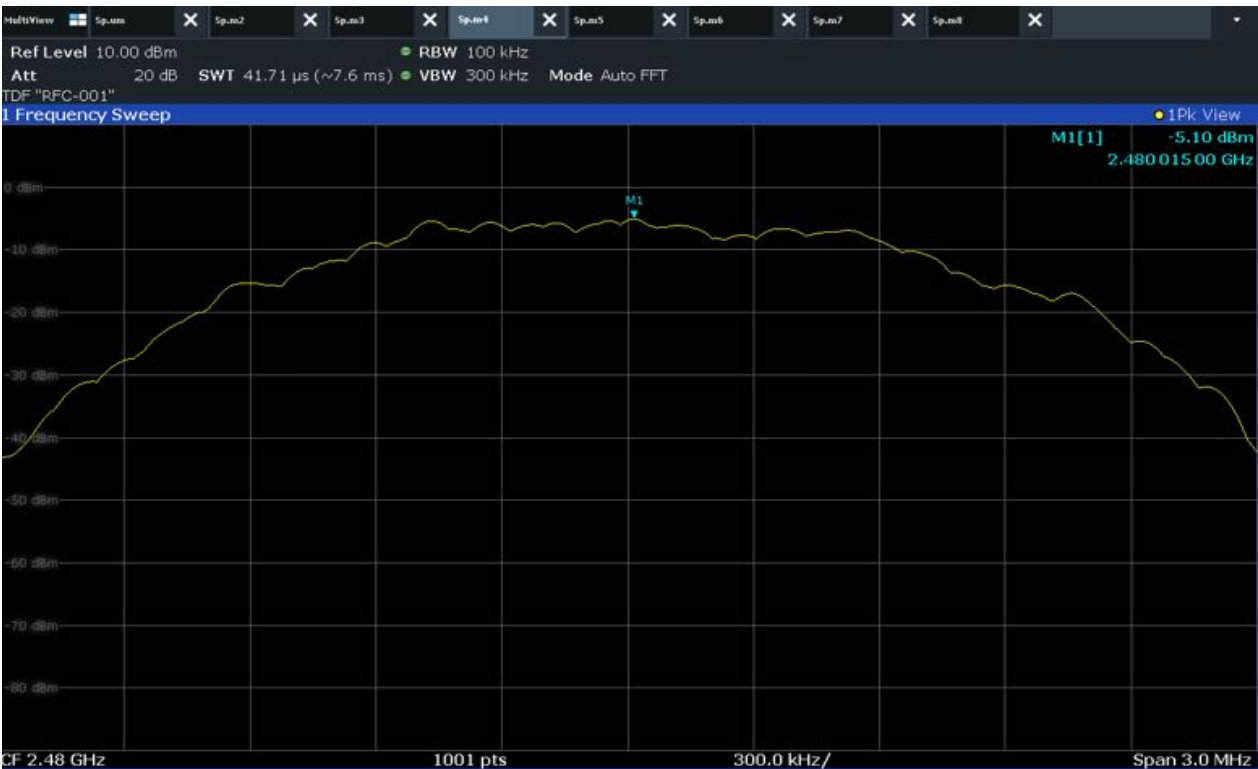
8.4.1.4 Signal level (dB m) for LE 2M



Low CH



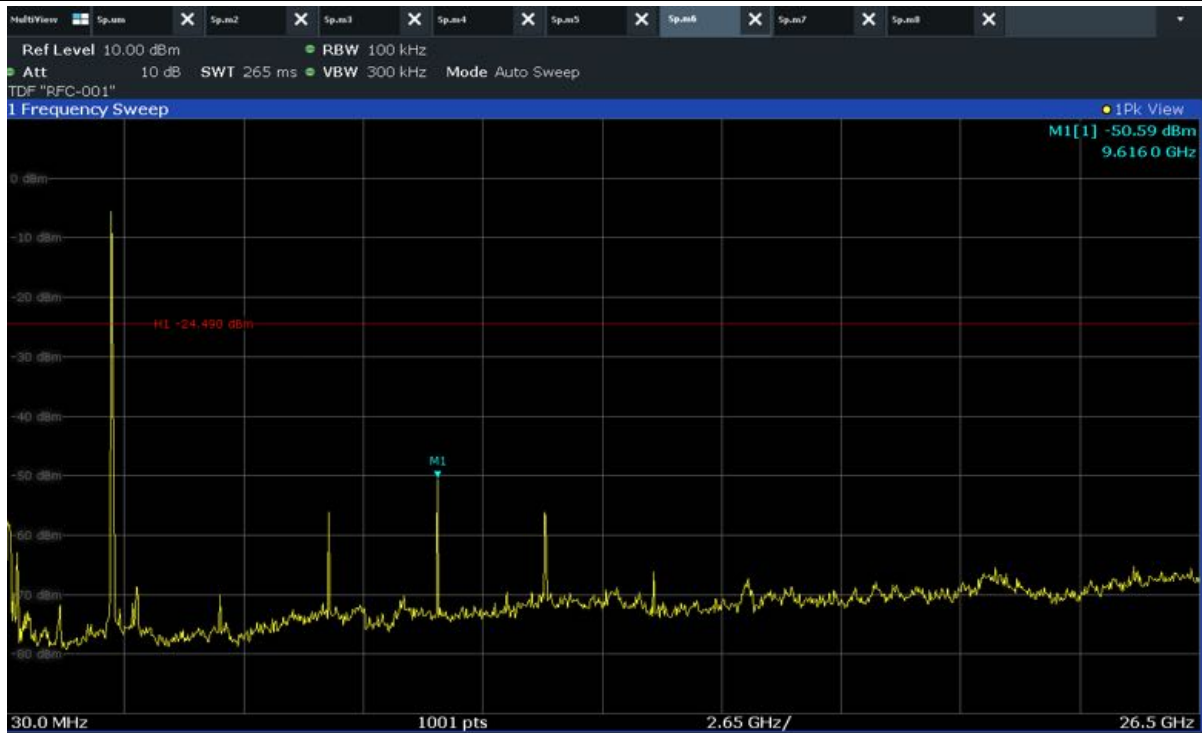
Mid CH



High CH



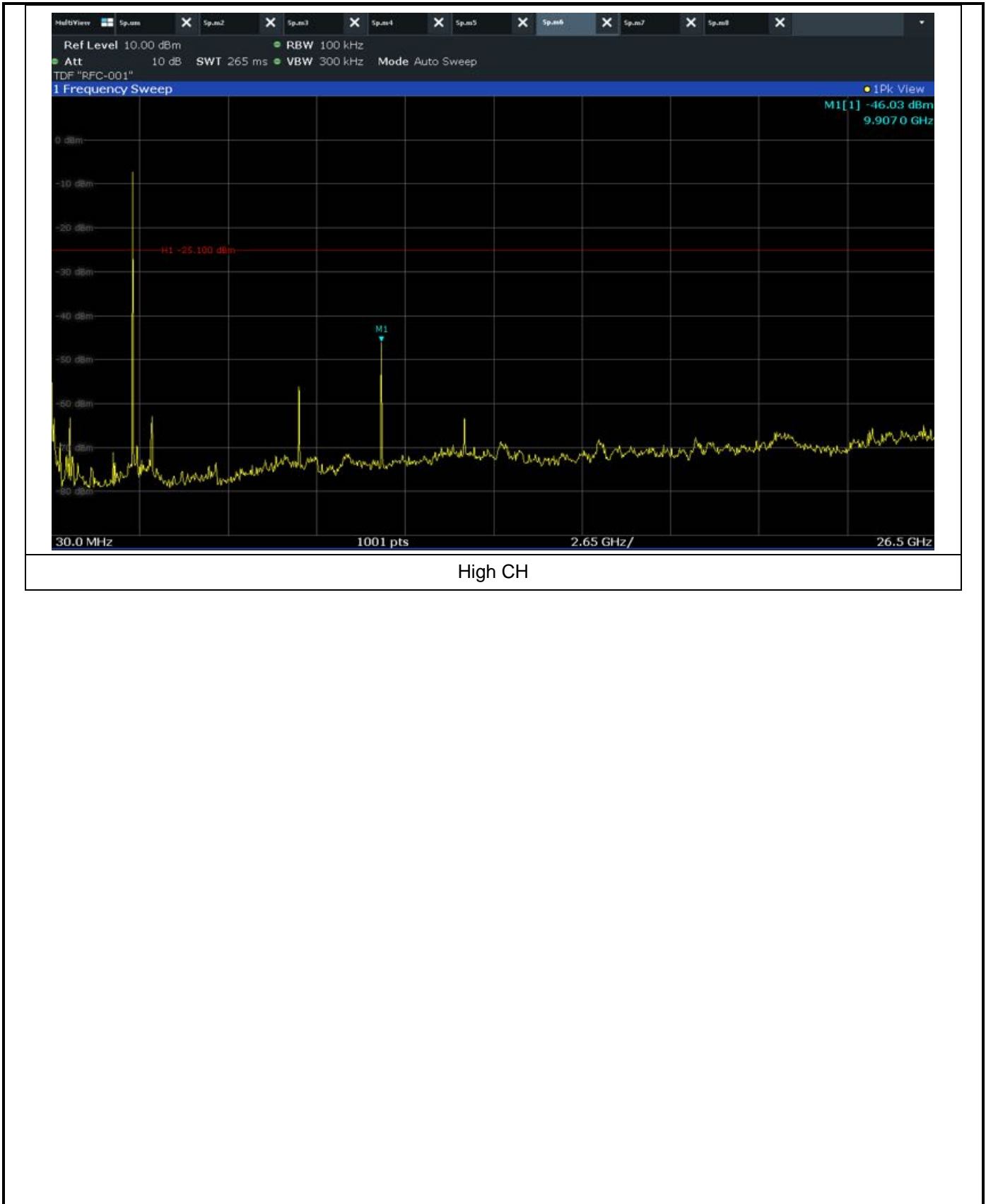
8.4.1.5 Unwanted Emissions In Non-Restricted Frequency Bands for LE 2M



Low CH

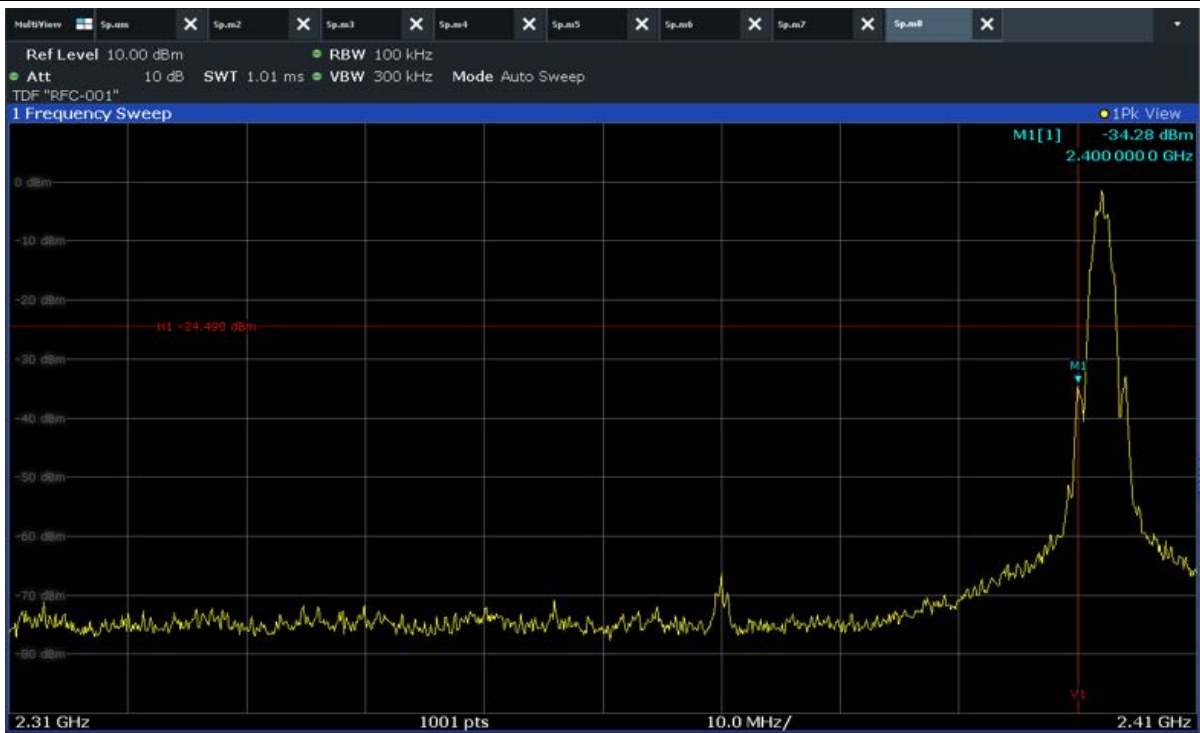


Mid CH

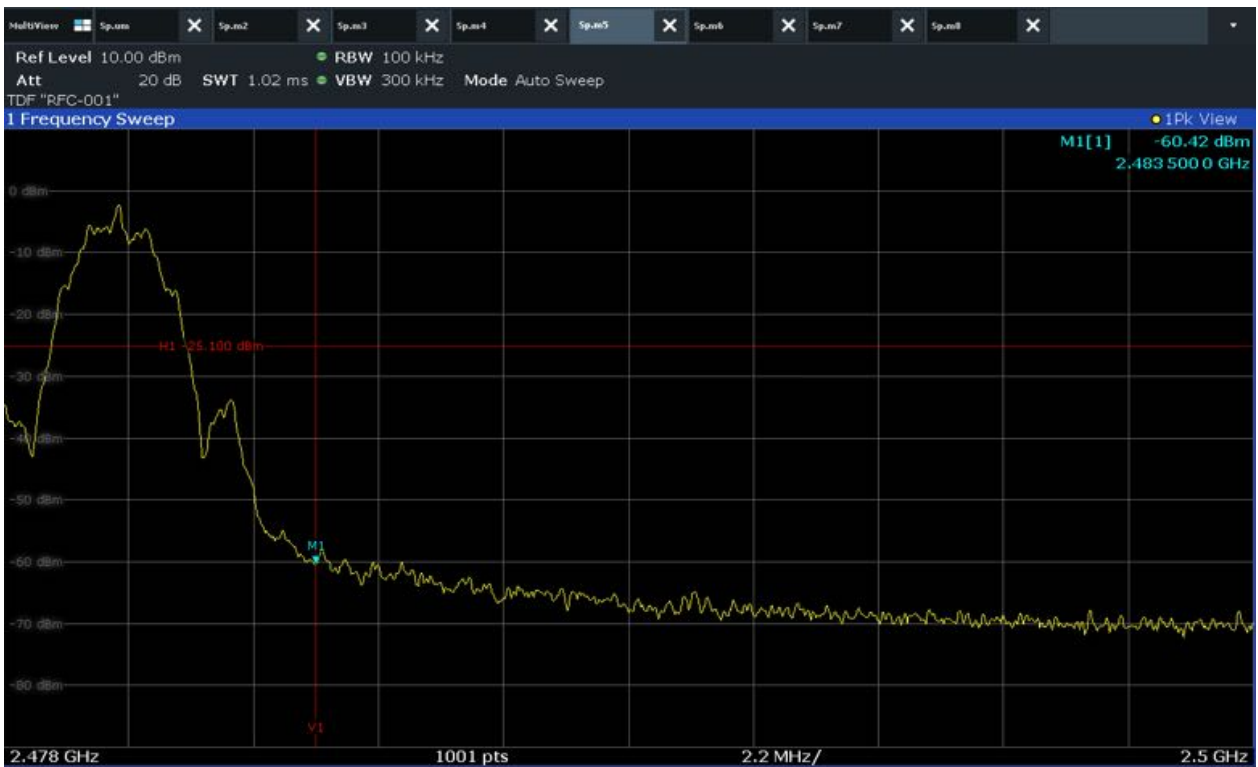




8.4.1.6 Band Edge for LE 2M



Low CH



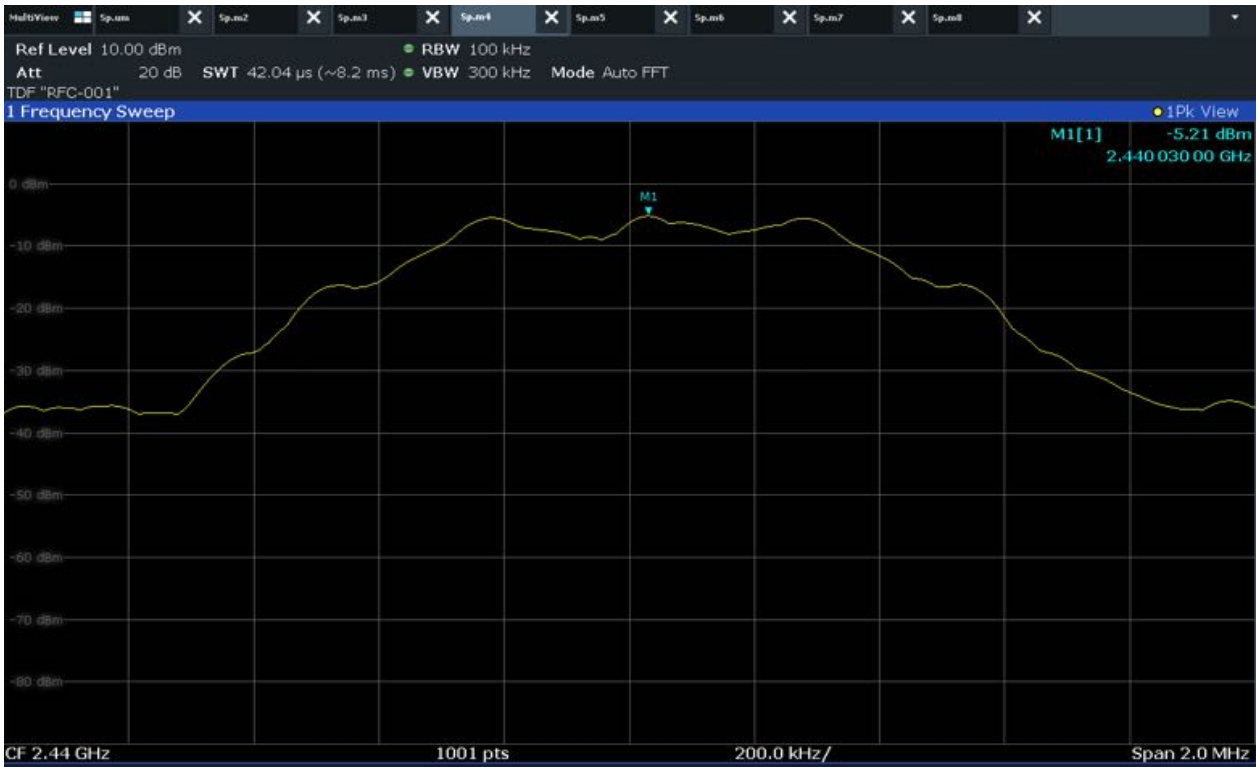
High CH



8.4.1.7 Signal level (dB m) for LE 125K



Low CH



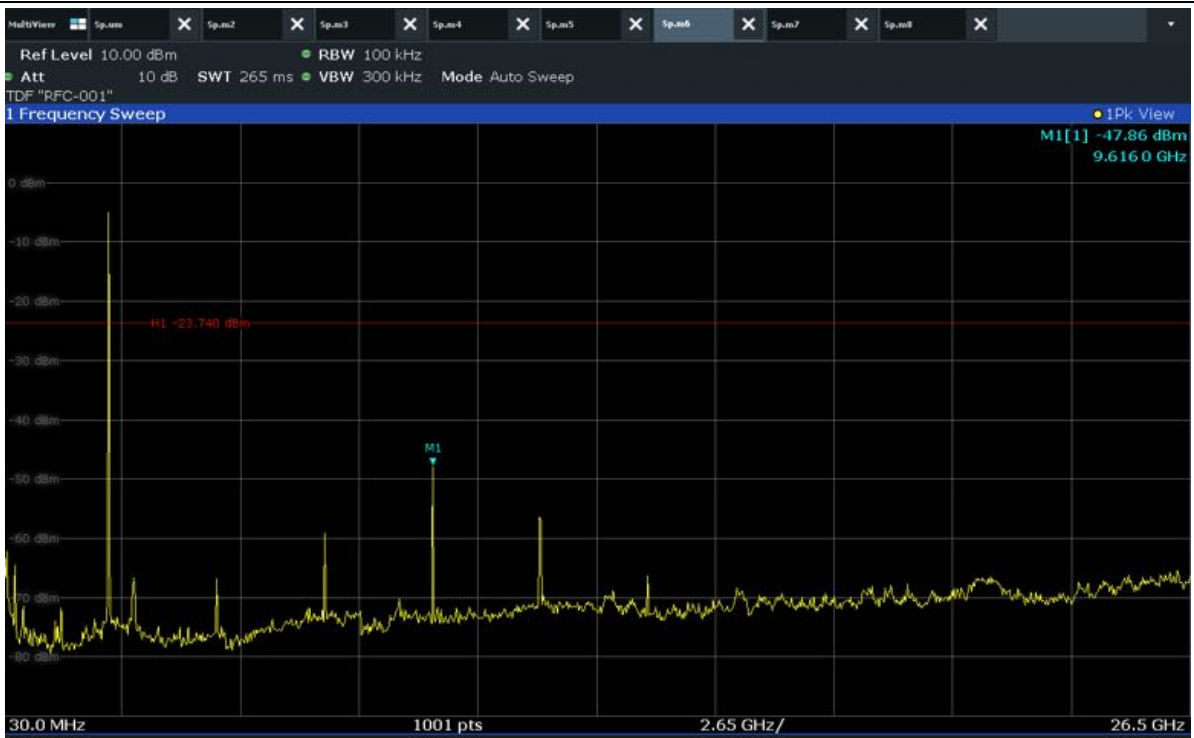
Mid CH



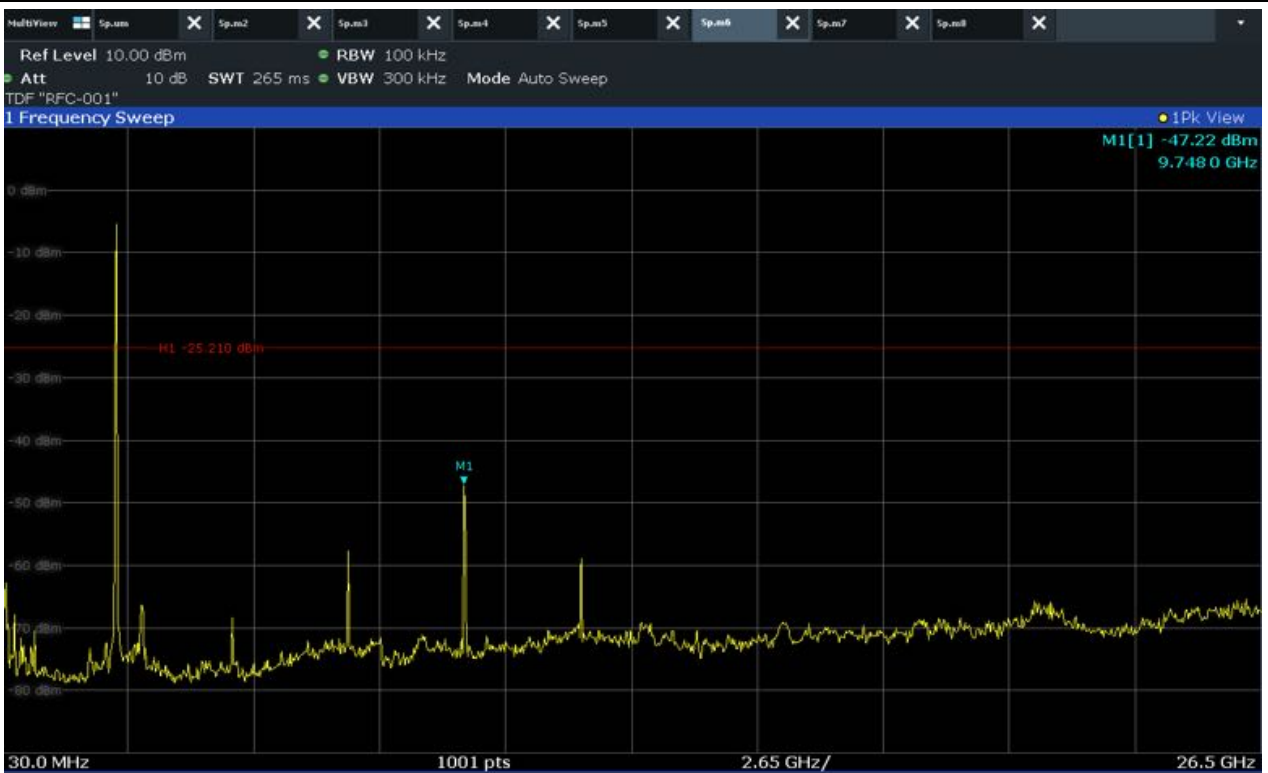
High CH



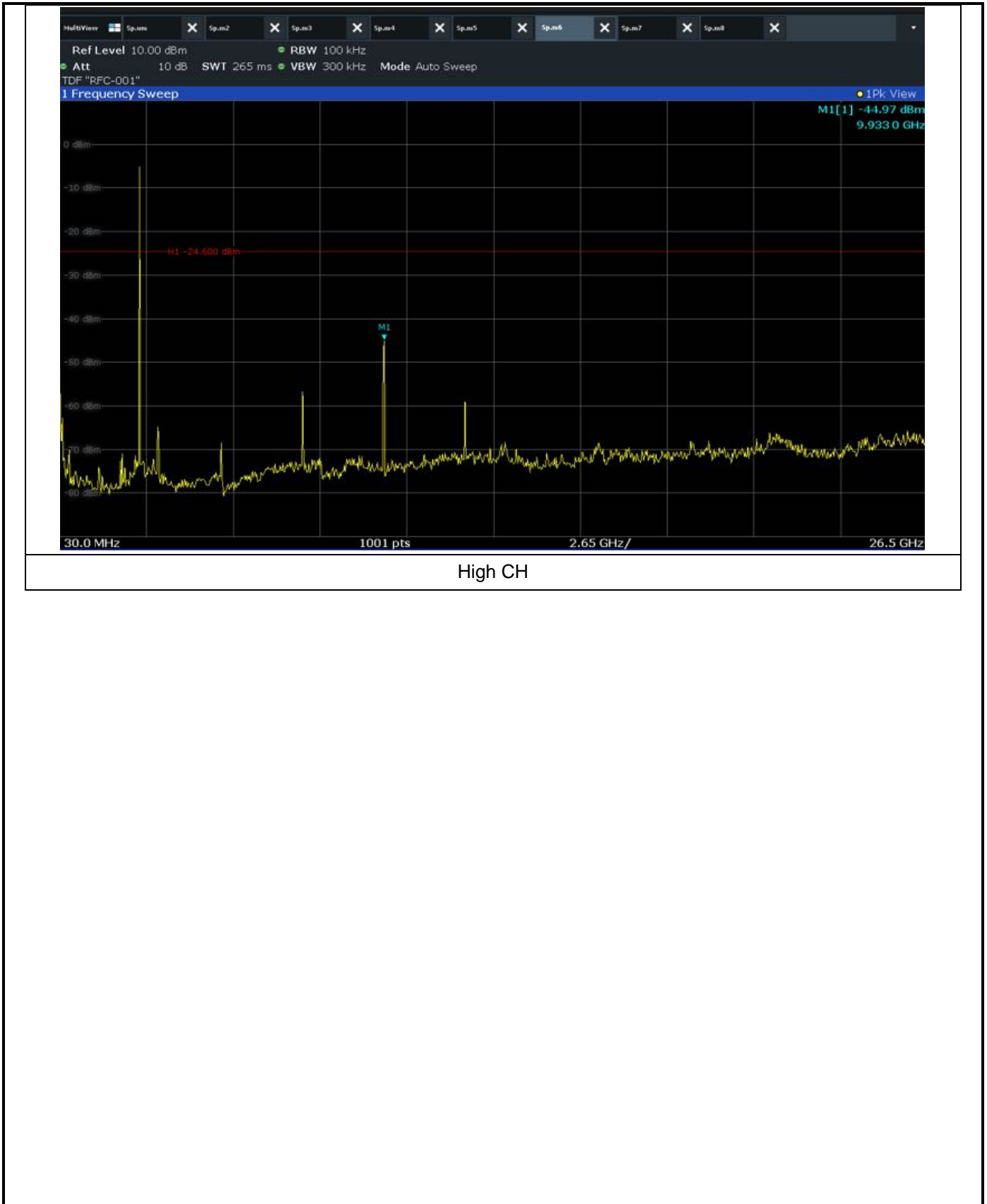
8.4.1.8 Unwanted Emissions In Non-Restricted Frequency Bands for LE 125K



Low CH



Mid CH

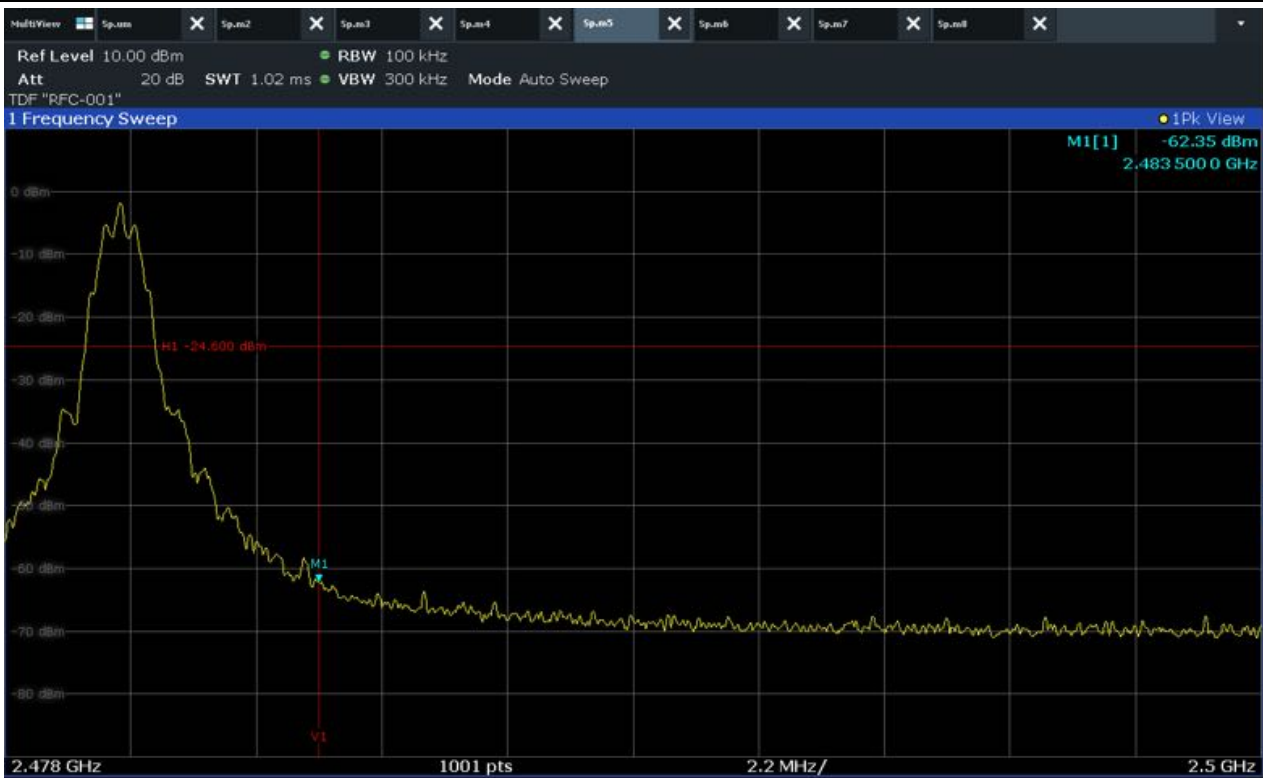




8.4.1.9 Band Edge for LE 125K



Low CH



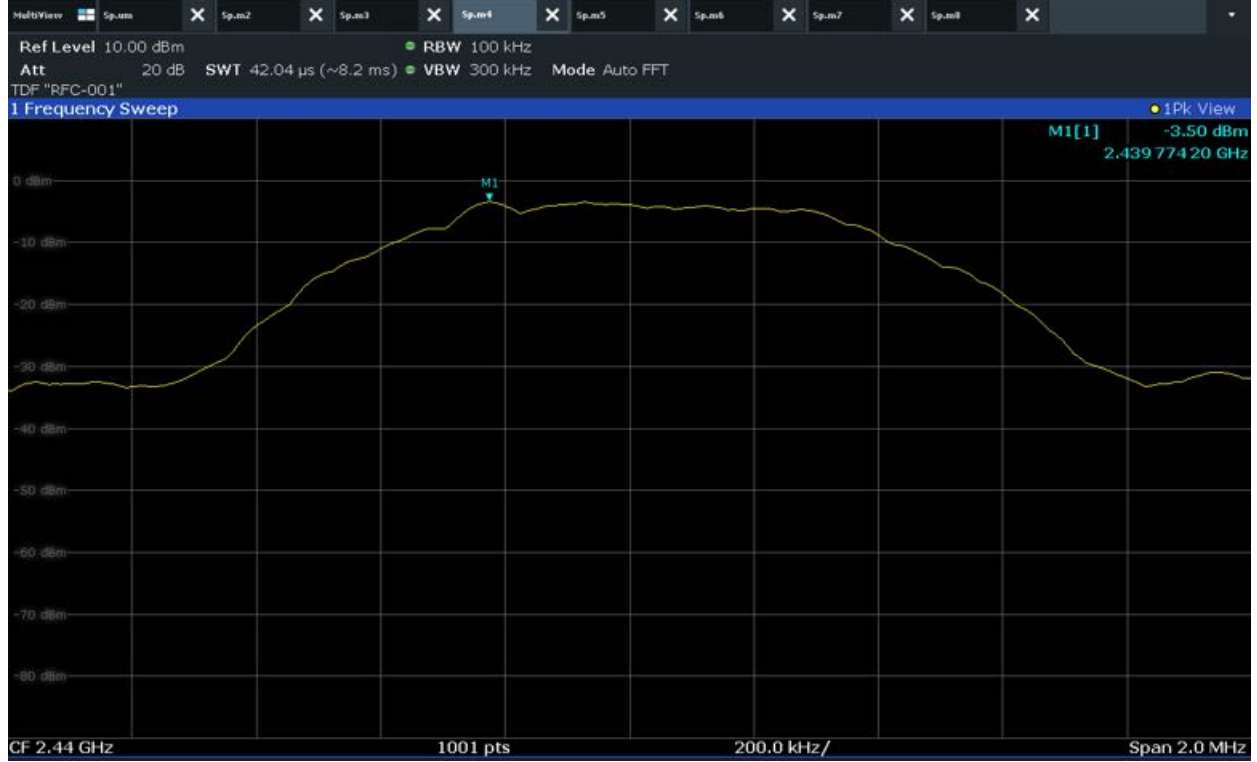
High CH



8.4.1.10 Signal level (dB m) for LE 500K



Low CH



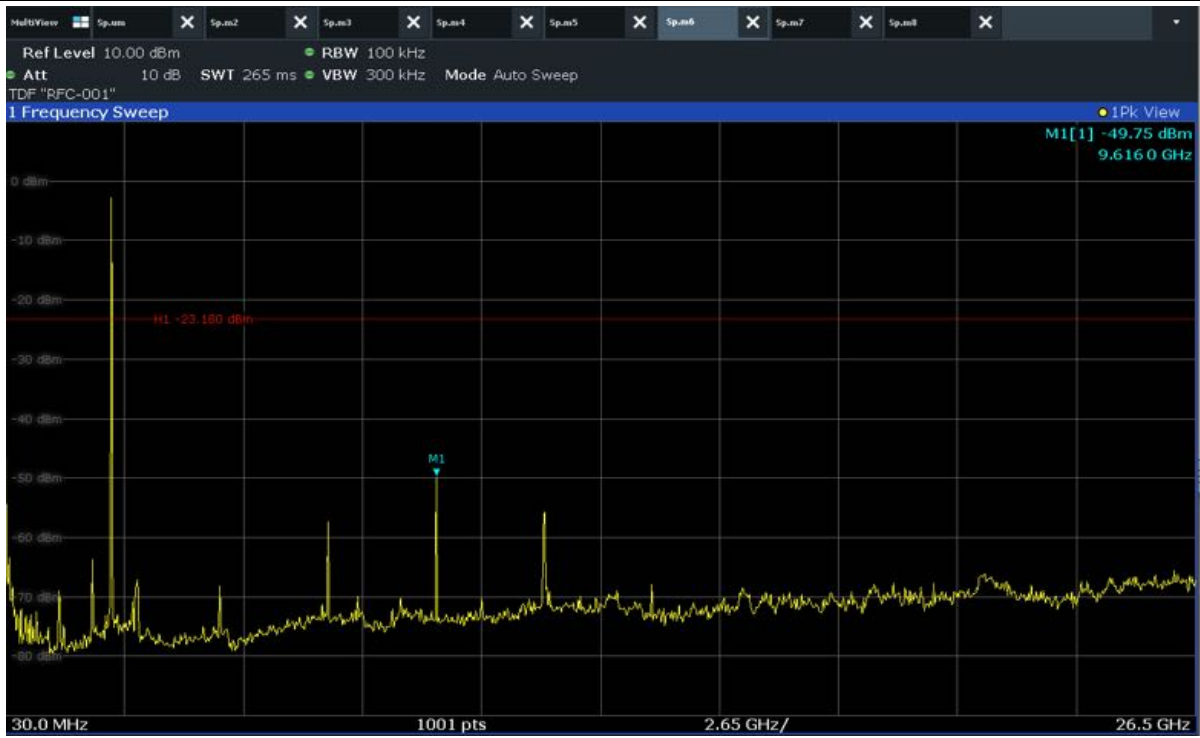
Mid CH



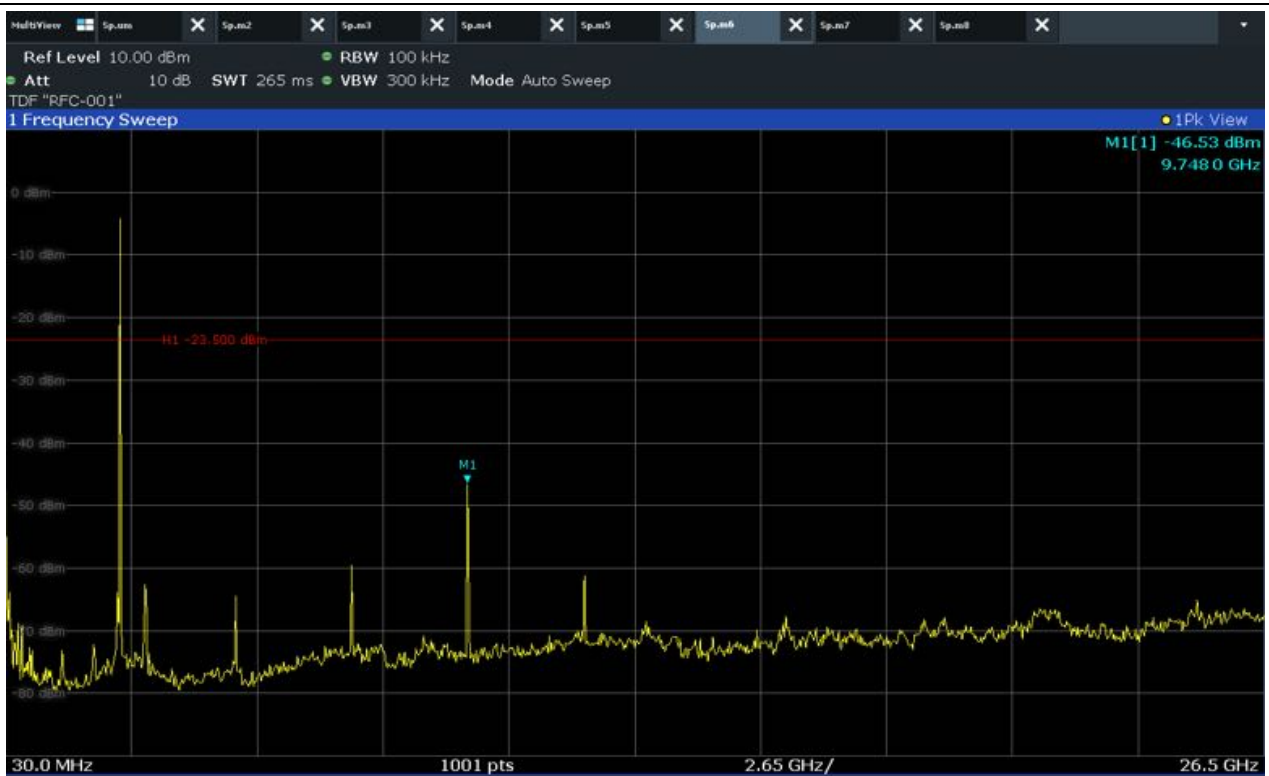
High CH



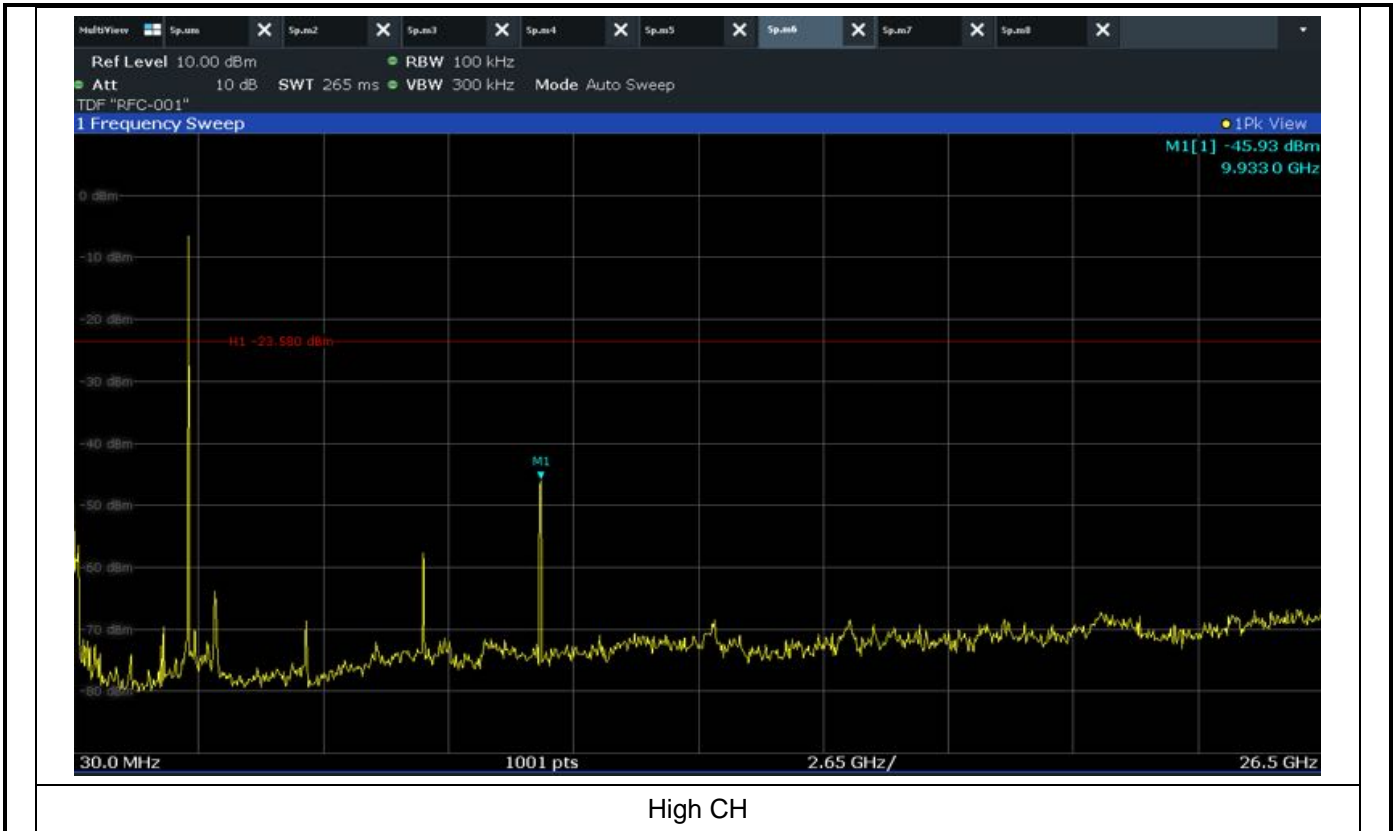
8.4.1.11 Unwanted Emissions In Non-Restricted Frequency Bands for LE 500K



Low CH

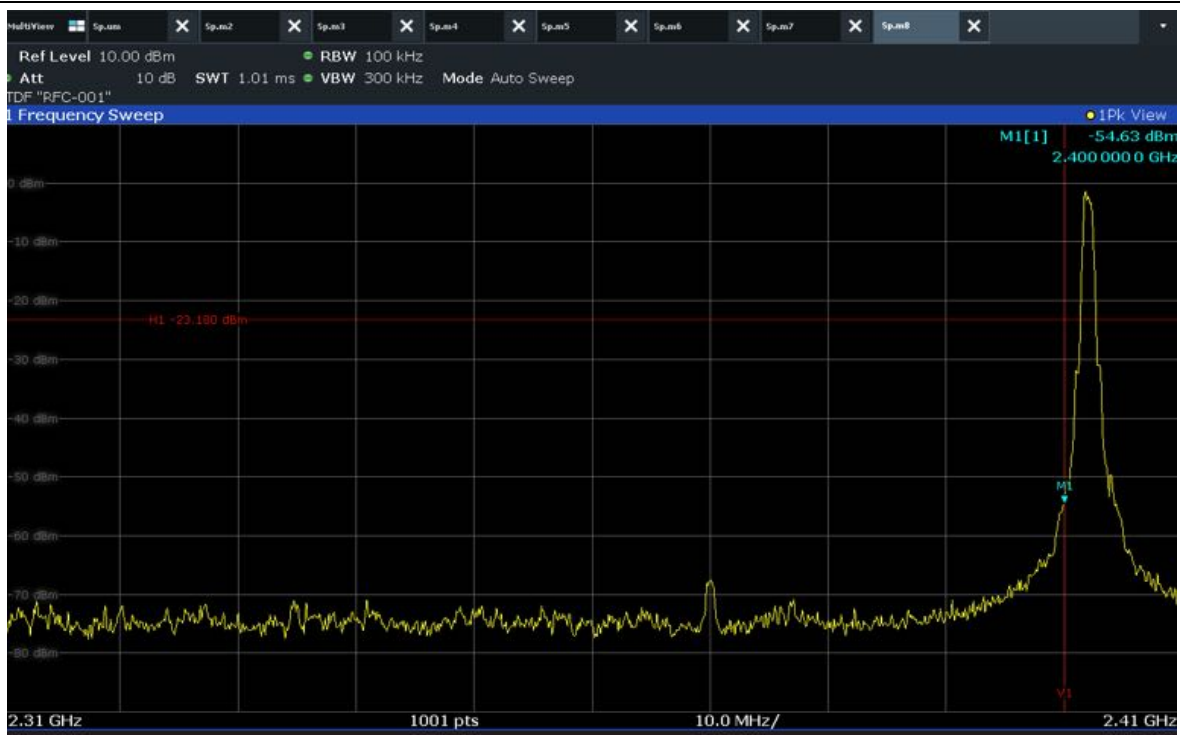


Mid CH

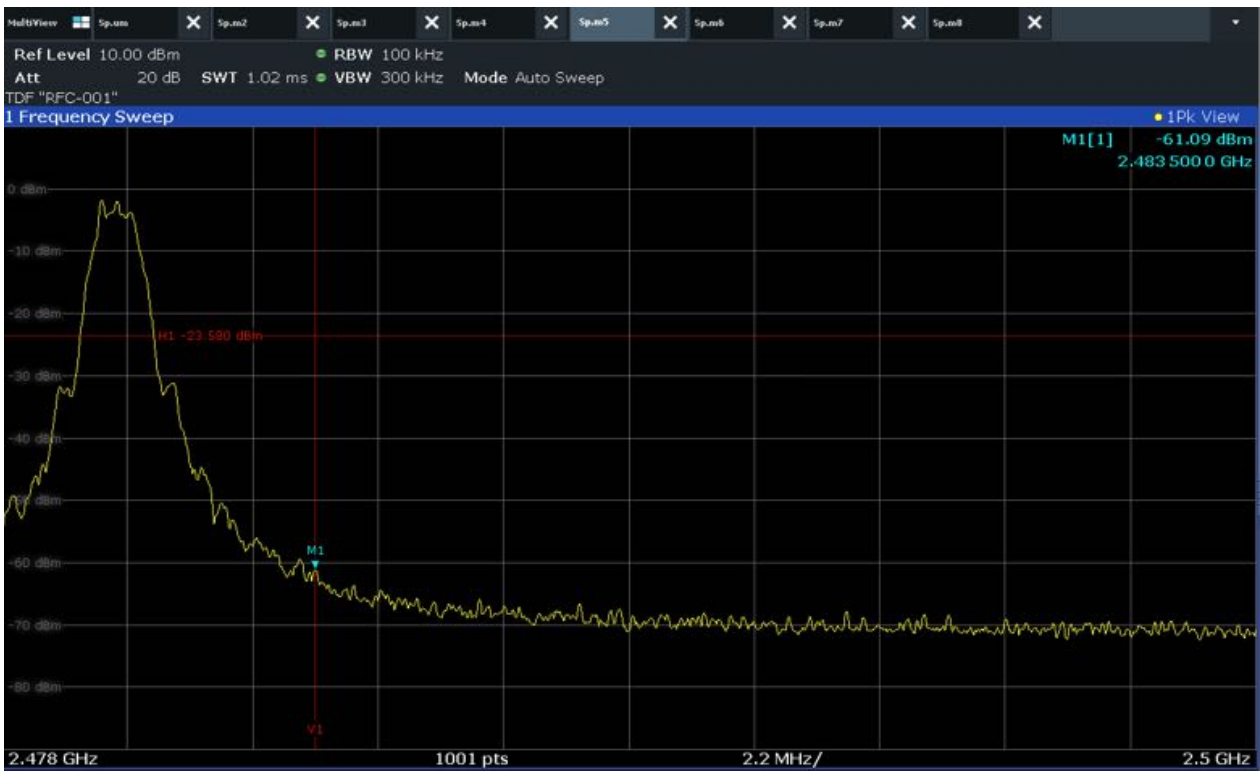




8.4.1.12 Band Edge for LE 500K



Low CH



High CH

9. Radiated Spurious Emission

9.1 Operating environment

Temperature : 24 °C
Relative humidity : 48 %

9.2 Measurement method

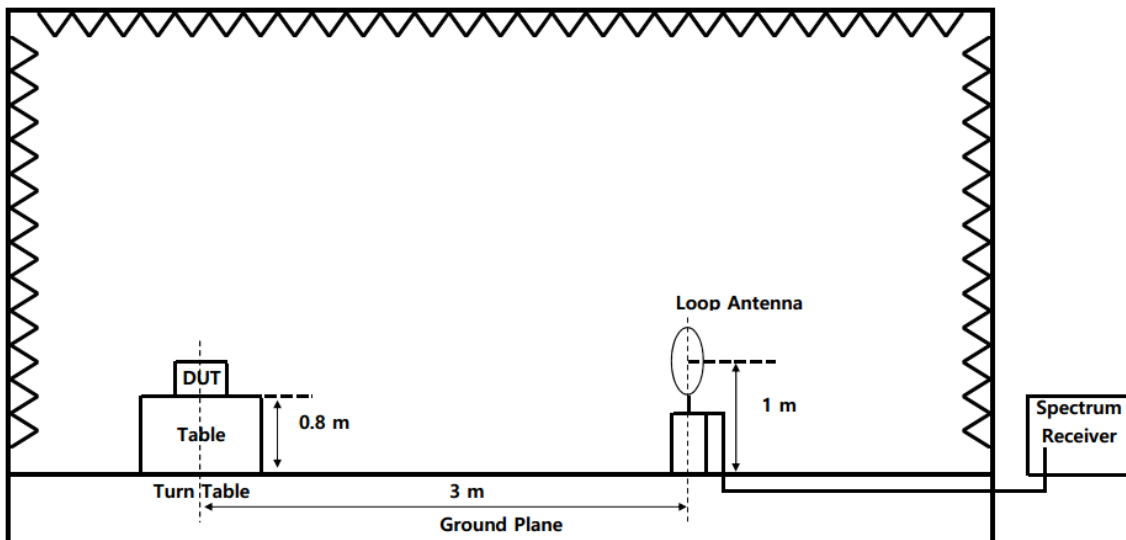
Standard : §15.247 (d), §15.209, §15.205

9.3 Test setup

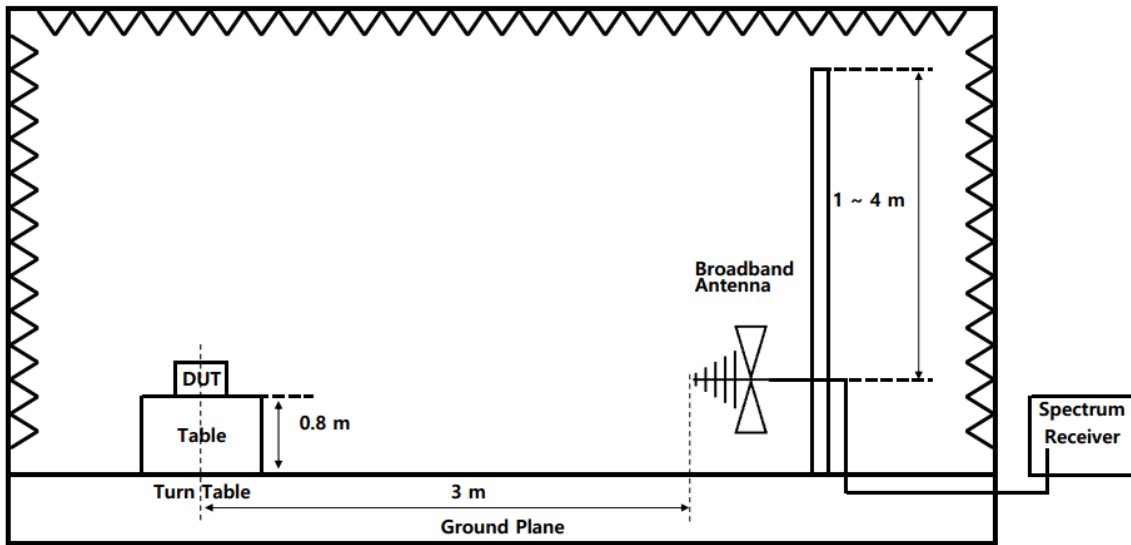
The radiated emissions measurements were performed on the 3 m, Semi-Anechoic Chamber. The EUT was placed on a non-conductive turntable above the ground plane.

The frequency spectrum from 9 kHz to 26.5 GHz 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.

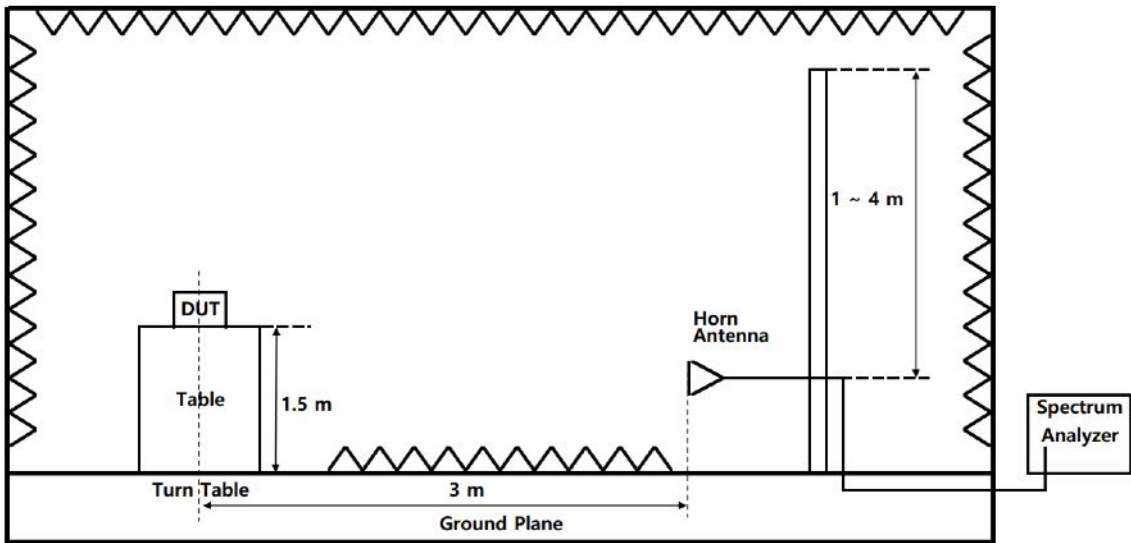
9.3.1 Below 30 MHz



9.3.2 30 MHz to 1 GHz



9.3.3 Above 1 GHz





9.4 Test data

Operating mode : Transmit mode

Test Result : Pass

9.4.1 Test data for Restricted band for LE 1M

Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2 355.82	47.63	Peak	V	-14.60	33.03	74.00	40.97
	34.04	Average	V		19.44	54.00	34.56
High CH							
2 484.01	56.43	Peak	H	-14.10	42.33	74	31.67
	35.81	Average	H		21.71	54	32.29

9.4.2 Test data for Restricted band for LE 2M

Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2 370.31	60.20	Peak	H	-14.50	45.70	74.00	28.30
	34.50	Average	H		20.00	54.00	34.00
High CH							
2 484.16	45.44	Peak	H	-14.10	31.34	74	42.66
	31.92	Average	H		17.82	54	36.18

9.4.3 Test data for Restricted band for LE 125K

Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2 310.11	47.20	Peak	V	-14.70	32.50	74.00	41.50
	33.79	Average	V		19.09	54.00	34.91
High CH							
2 484.04	56.25	Peak	H	-14.10	42.15	74	31.85
	37.01	Average	H		22.91	54	31.09



9.4.4 Test data for Restricted band for LE 500K

Frequency (MHz)	Reading (dB μ V)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Low CH							
2 378.43	47.79	Peak	V	-14.50	33.29	74.00	40.71
	34.18	Average	V		19.68	54.00	34.32
High CH							
2 484.72	54.50	Peak	H	-14.10	40.40	74	33.60
	34.78	Average	H		20.68	54	33.32

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



9.5 Test data for Spurious & Harmonic

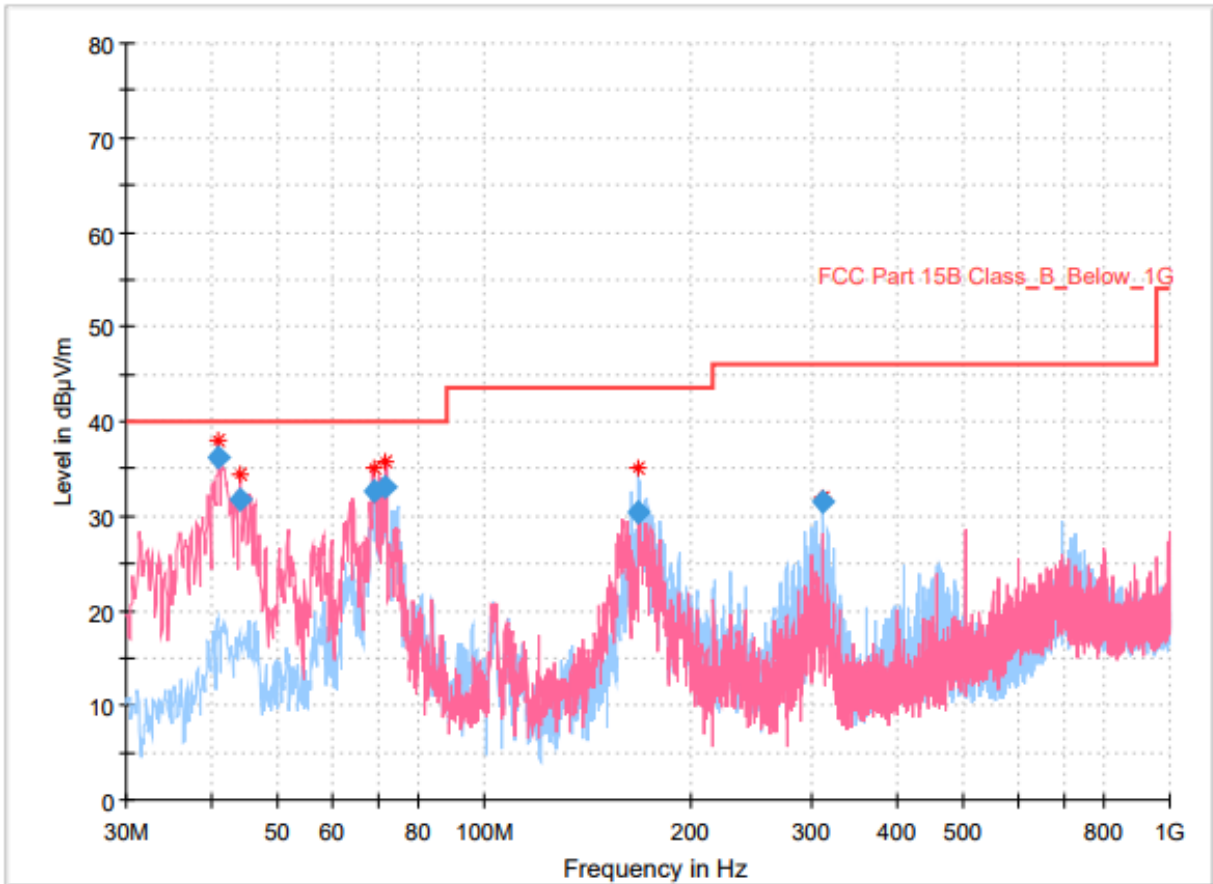
9.5.4.1 Measurement Results for below 30 MHz for LE 1M, 2M, Coded 125K ,500K

Frequency (MHz)	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



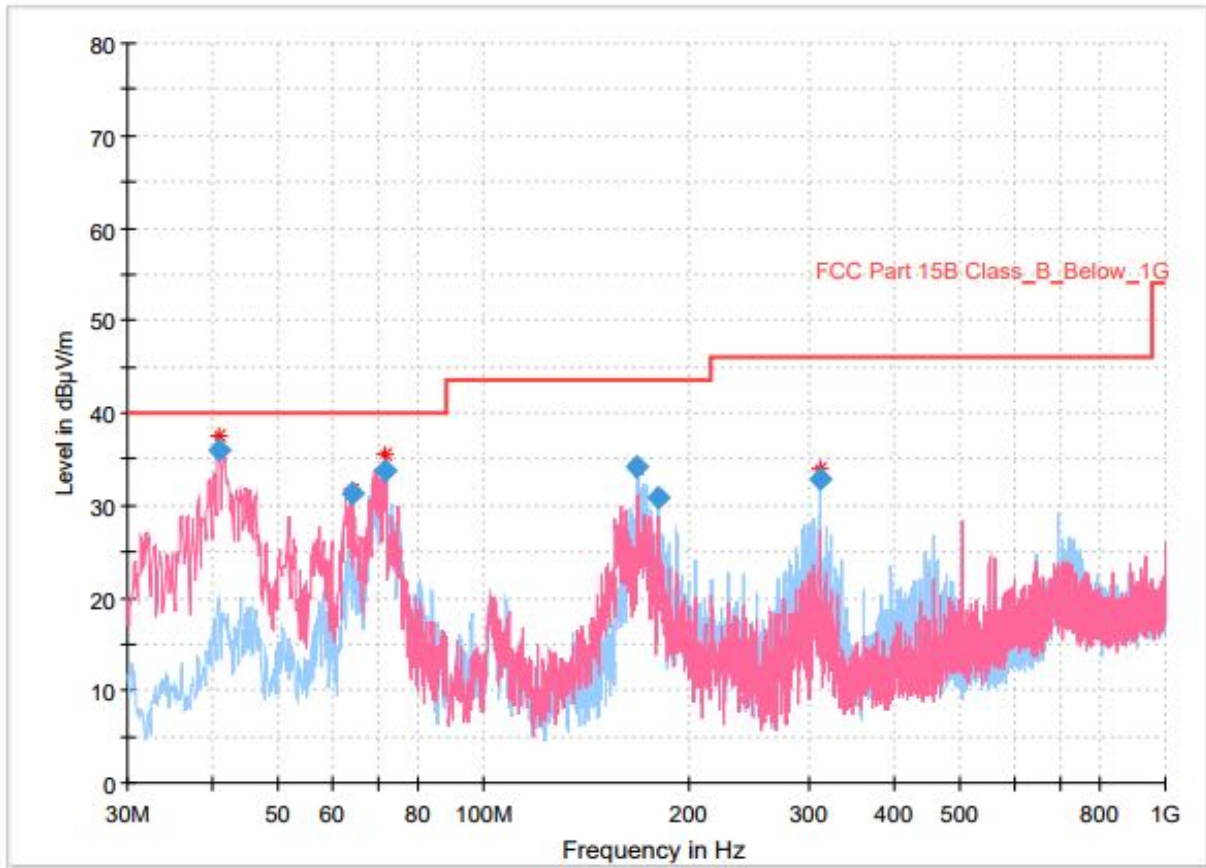
9.5.4.2 Measurement Results for below 1 GHz for LE 1M



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.864000	36.17	40.00	3.83	1000.0	120.000	99.9	V	290.0	-23.6
44.065000	31.83	40.00	8.17	1000.0	120.000	99.9	V	0.0	-22.9
68.897000	32.66	40.00	7.34	1000.0	120.000	99.9	V	249.0	-26.4
71.904000	33.12	40.00	6.88	1000.0	120.000	99.9	V	249.0	-27.6
167.934000	30.41	43.50	13.09	1000.0	120.000	99.9	H	0.0	-26.9
311.979000	31.61	46.00	14.39	1000.0	120.000	99.9	H	210.0	-20.6

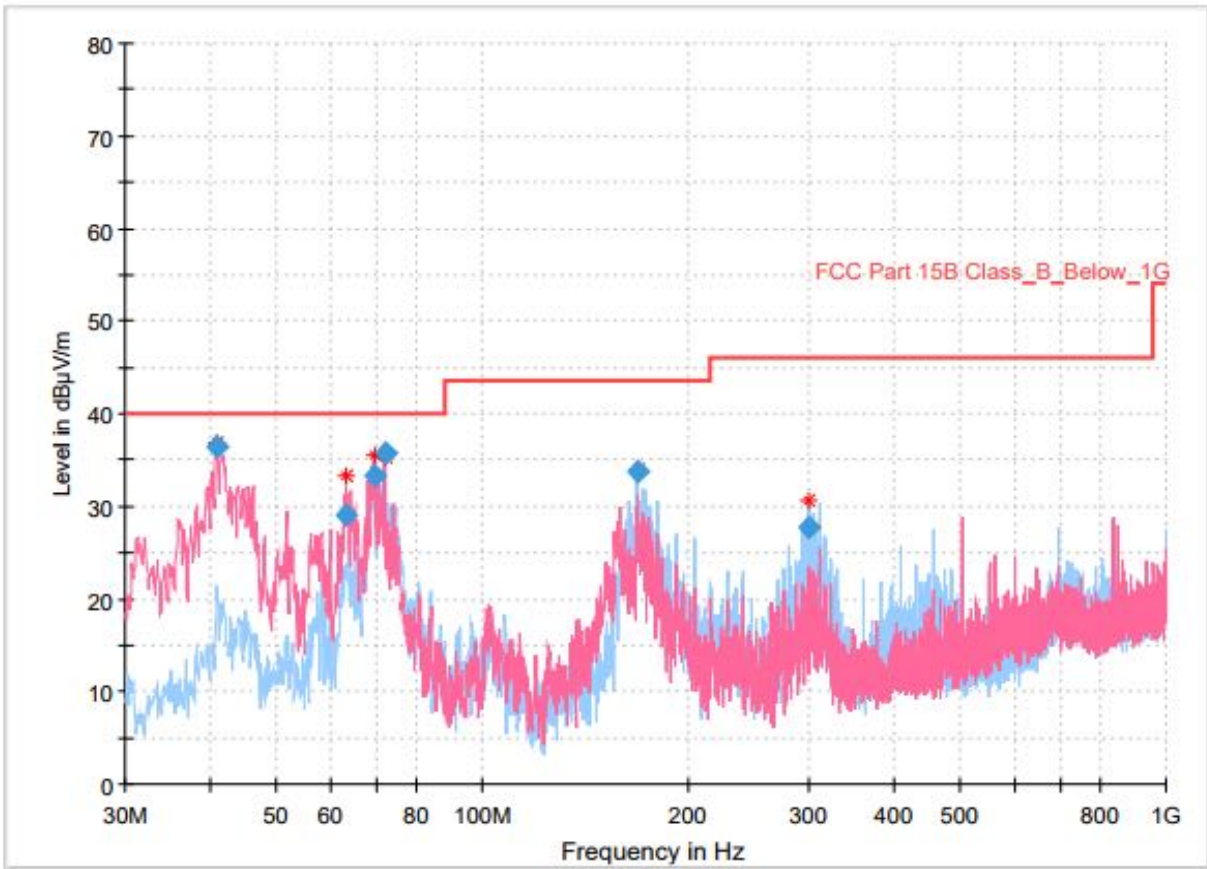
Low CH



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.864000	35.88	40.00	4.12	1000.0	120.000	99.9	V	31.0	-23.6
64.241000	31.21	40.00	8.79	1000.0	120.000	99.9	V	270.0	-24.8
71.904000	33.69	40.00	6.31	1000.0	120.000	99.9	H	0.0	-27.6
168.031000	34.29	43.50	9.21	1000.0	120.000	99.9	H	220.0	-26.9
180.059000	30.89	43.50	12.61	1000.0	120.000	99.9	H	206.0	-26.2
311.979000	32.79	46.00	13.21	1000.0	120.000	99.9	H	174.0	-20.6

Mid CH



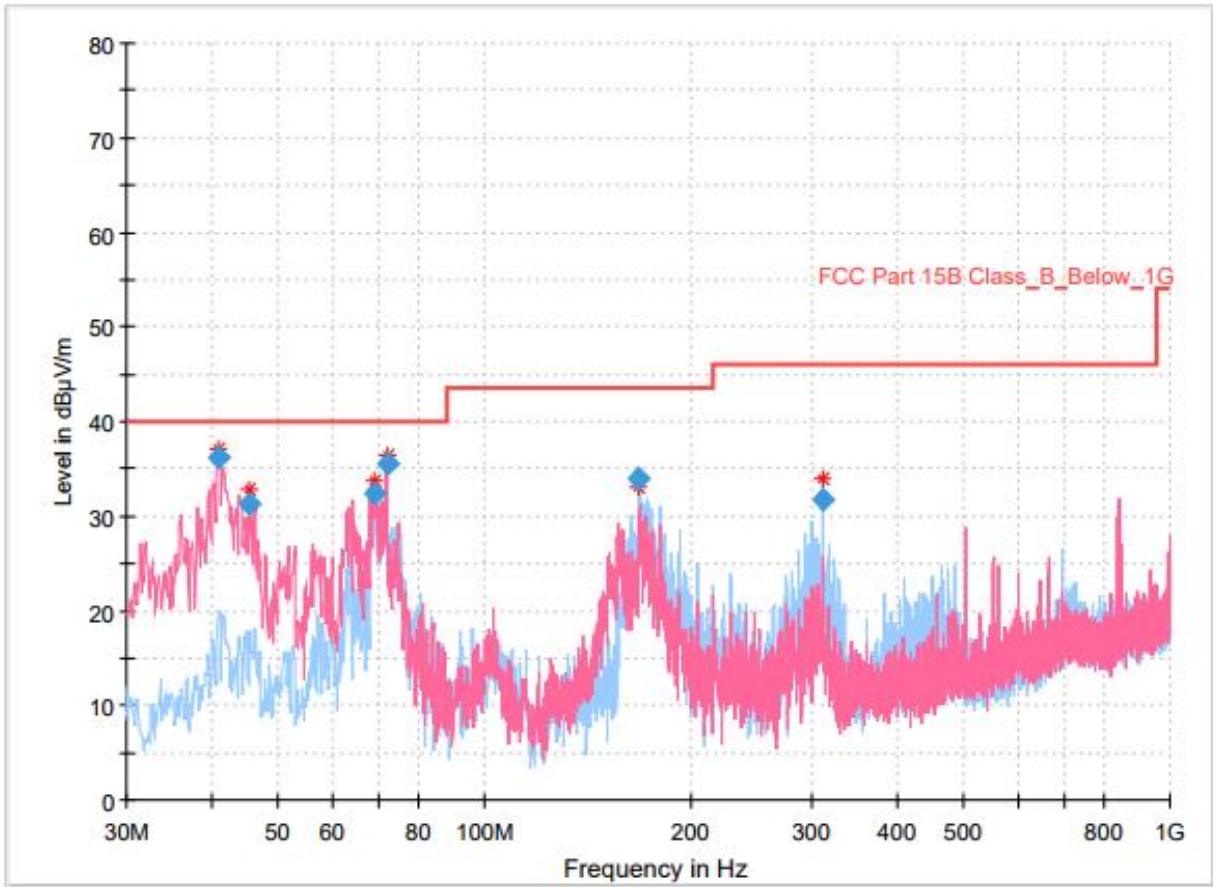
Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.864000	36.44	40.00	3.56	1000.0	120.000	99.9	V	15.0	-23.6
63.271000	29.11	40.00	10.89	1000.0	120.000	99.9	V	315.0	-24.6
69.382000	33.19	40.00	6.81	1000.0	120.000	99.9	V	287.0	-26.6
72.001000	35.67	40.00	4.33	1000.0	120.000	99.9	V	274.0	-27.6
168.225000	33.69	43.50	9.81	1000.0	120.000	99.9	H	209.0	-26.9
299.854000	27.74	46.00	18.26	1000.0	120.000	99.9	H	166.0	-21.0

High CH



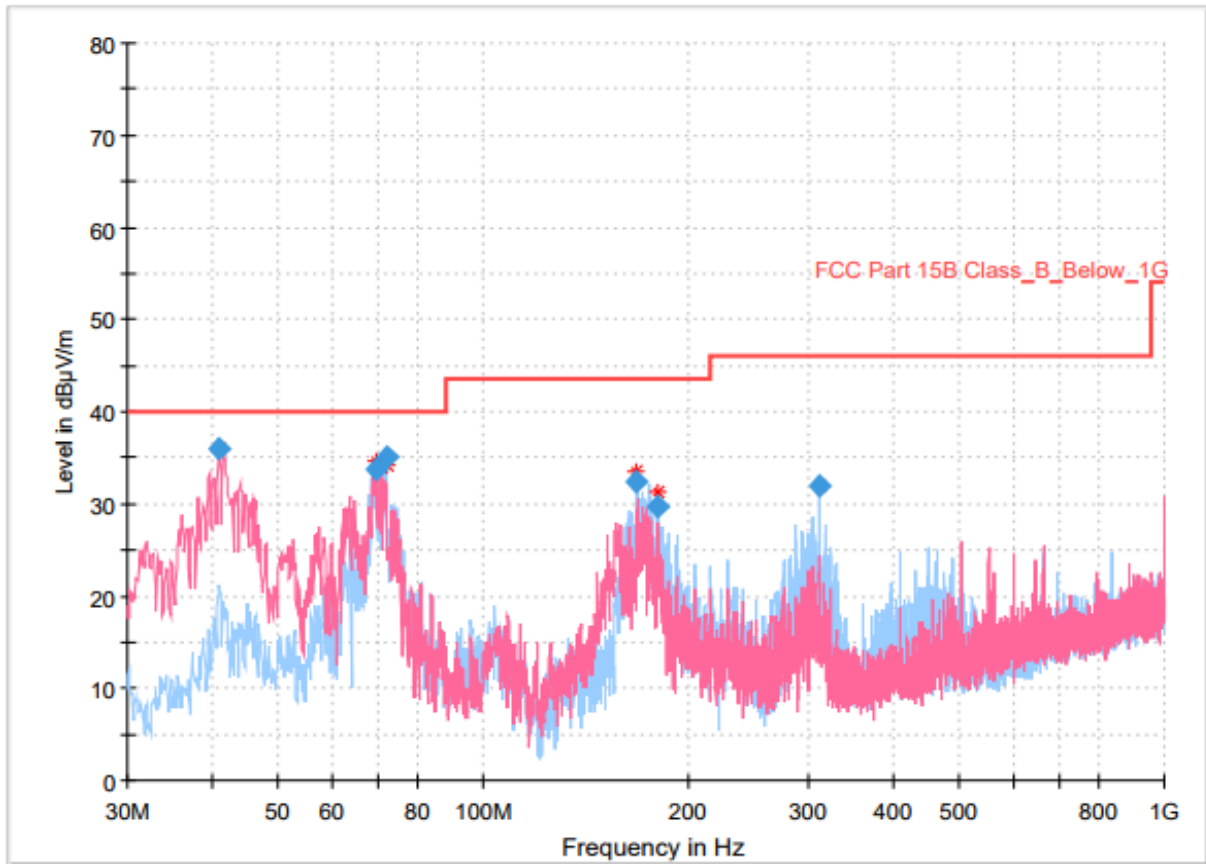
9.5.4.3 Measurement Results for below 1 GHz for LE 2M



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.864000	36.16	40.00	3.84	1000.0	120.000	99.9	V	266.0	-23.6
45.520000	31.26	40.00	8.74	1000.0	120.000	99.9	V	295.0	-22.7
68.897000	32.37	40.00	7.63	1000.0	120.000	99.9	H	195.0	-26.4
72.001000	35.60	40.00	4.40	1000.0	120.000	99.9	V	295.0	-27.6
168.128000	33.88	43.50	9.62	1000.0	120.000	99.9	H	208.0	-26.9
311.979000	31.70	46.00	14.30	1000.0	120.000	99.9	H	169.0	-20.6

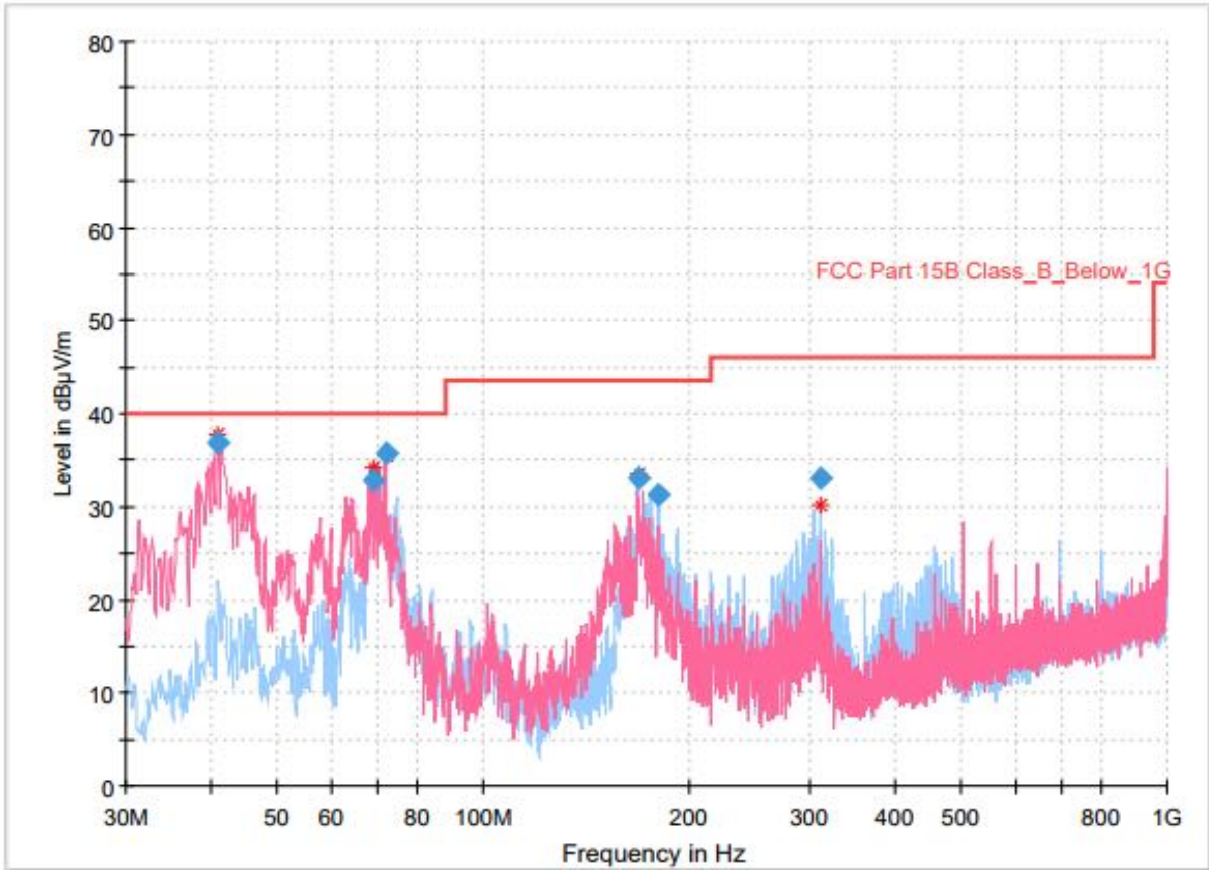
Low CH



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.864000	36.06	40.00	3.94	1000.0	120.000	99.9	V	0.0	-23.6
69.479000	33.71	40.00	6.29	1000.0	120.000	99.9	V	300.0	-26.7
72.001000	35.11	40.00	4.89	1000.0	120.000	99.9	H	358.0	-27.6
168.128000	32.31	43.50	11.19	1000.0	120.000	99.9	H	351.0	-26.9
180.156000	29.75	43.50	13.75	1000.0	120.000	99.9	H	0.0	-26.2
311.979000	32.00	46.00	14.00	1000.0	120.000	99.9	H	180.0	-20.6

Mid CH



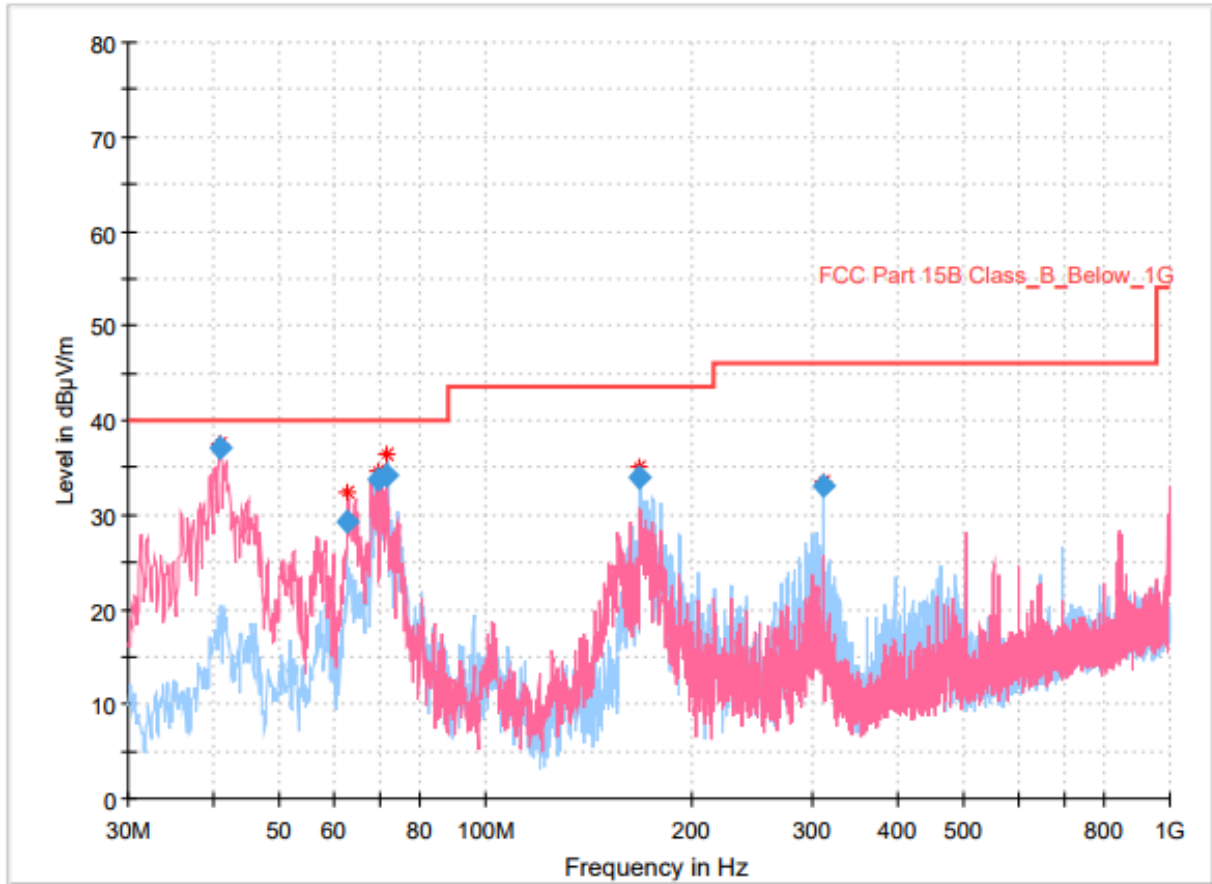
Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.864000	36.81	40.00	3.19	1000.0	120.000	99.9	V	245.0	-23.6
68.897000	32.83	40.00	7.17	1000.0	120.000	99.9	V	302.0	-26.4
72.001000	35.71	40.00	4.29	1000.0	120.000	99.9	V	287.0	-27.6
168.225000	33.06	43.50	10.44	1000.0	120.000	99.9	H	199.0	-26.9
180.059000	31.35	43.50	12.15	1000.0	120.000	99.9	H	215.0	-26.2
311.979000	33.13	46.00	12.87	1000.0	120.000	99.9	H	185.0	-20.6

High CH



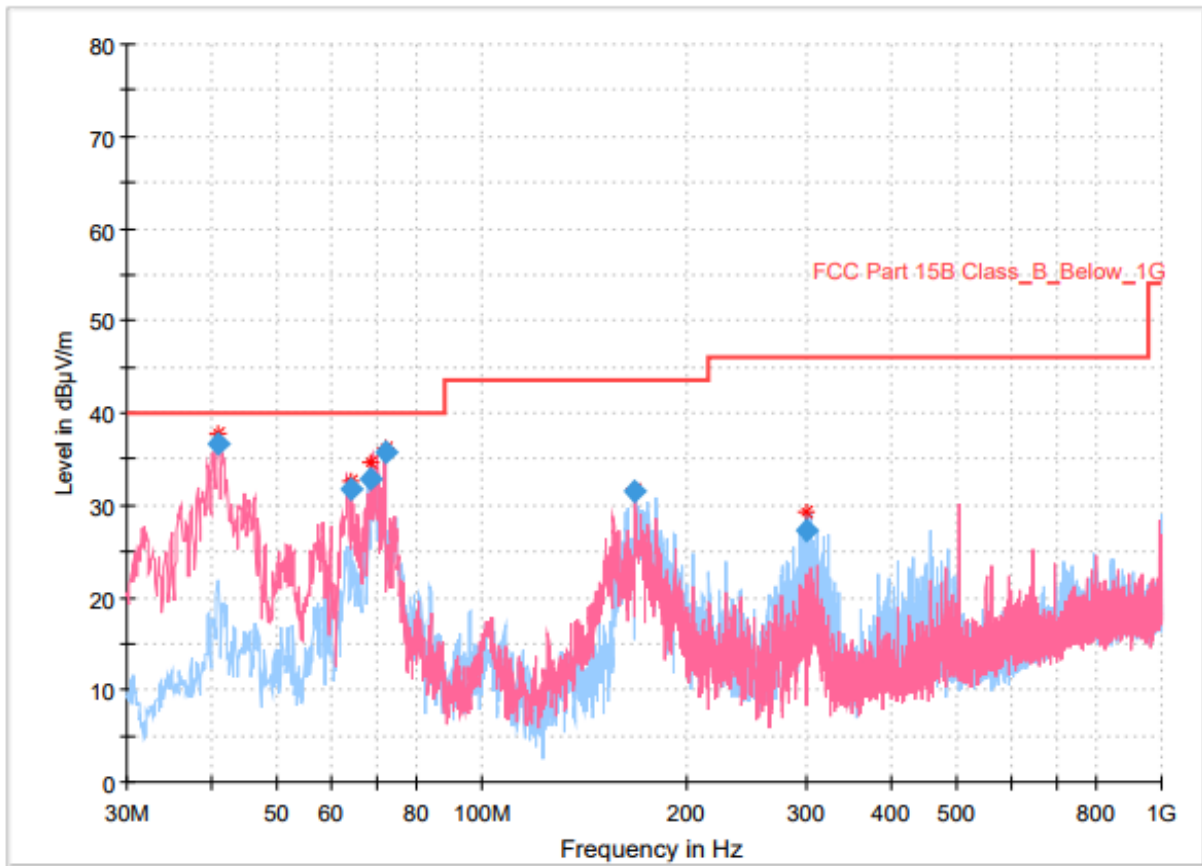
9.5.4.4 Measurement Results for below 1 GHz for LE 125K



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.864000	37.16	40.00	2.84	1000.0	120.000	99.9	V	330.0	-23.6
62.980000	29.26	40.00	10.74	1000.0	120.000	99.9	V	302.0	-24.5
69.576000	33.82	40.00	6.18	1000.0	120.000	99.9	V	288.0	-26.7
71.904000	34.24	40.00	5.76	1000.0	120.000	99.9	H	180.0	-27.6
168.031000	33.88	43.50	9.62	1000.0	120.000	99.9	H	208.0	-26.9
311.979000	33.18	46.00	12.82	1000.0	120.000	99.9	H	194.0	-20.6

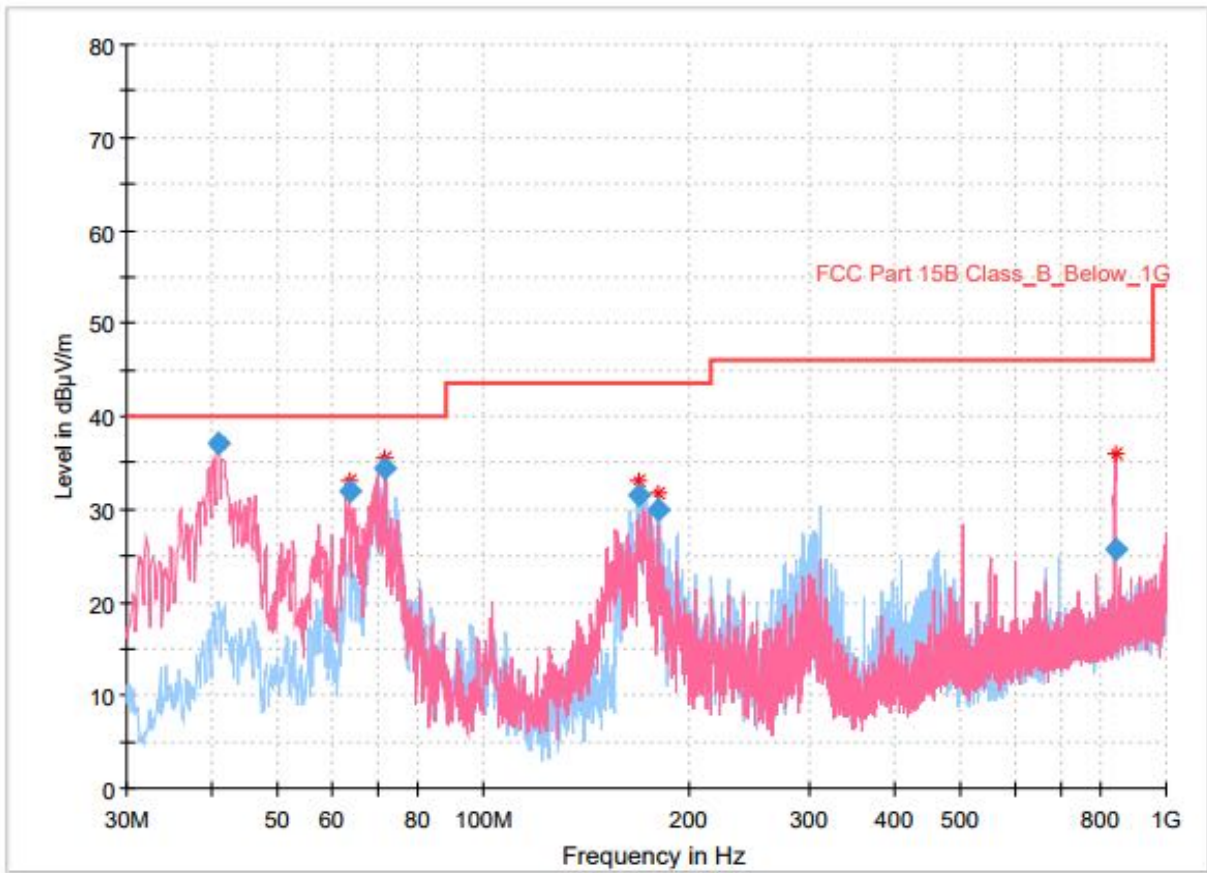
Low CH



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.961000	36.58	40.00	3.42	1000.0	120.000	99.9	V	0.0	-23.5
64.241000	31.81	40.00	8.19	1000.0	120.000	99.9	V	285.0	-24.8
68.606000	32.89	40.00	7.11	1000.0	120.000	99.9	V	312.0	-26.3
72.001000	35.80	40.00	4.20	1000.0	120.000	99.9	V	285.0	-27.6
168.128000	31.51	43.50	11.99	1000.0	120.000	99.9	H	0.0	-26.9
299.660000	27.21	46.00	18.79	1000.0	120.000	99.9	H	165.0	-21.0

Mid CH



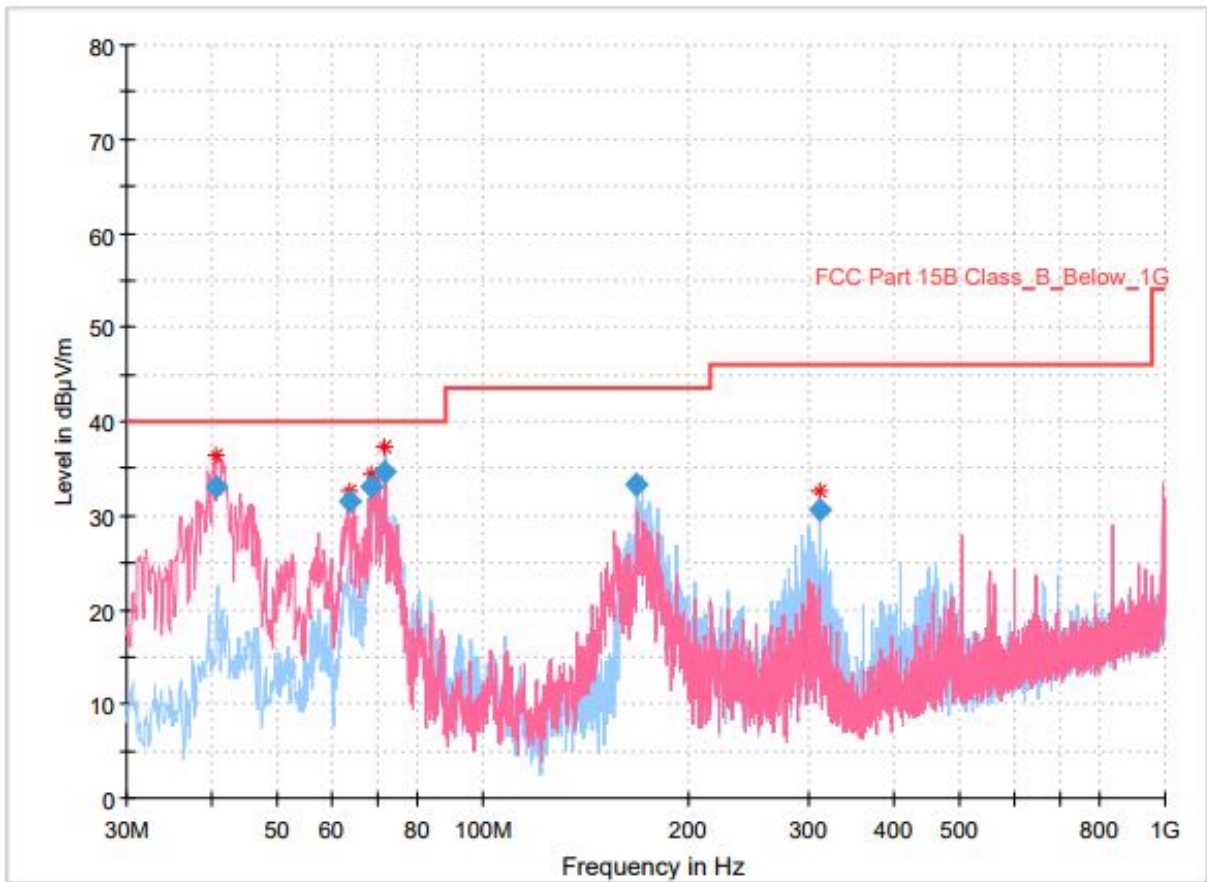
Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.864000	37.04	40.00	2.96	1000.0	120.000	99.9	V	246.0	-23.6
63.659000	31.86	40.00	8.14	1000.0	120.000	99.9	V	302.0	-24.6
71.904000	34.31	40.00	5.69	1000.0	120.000	99.9	H	183.0	-27.6
168.322000	31.44	43.50	12.06	1000.0	120.000	99.9	H	0.0	-26.9
180.059000	29.84	43.50	13.66	1000.0	120.000	99.9	H	351.0	-26.2
840.823000	25.74	46.00	20.26	1000.0	120.000	99.9	V	191.0	-10.0

High CH



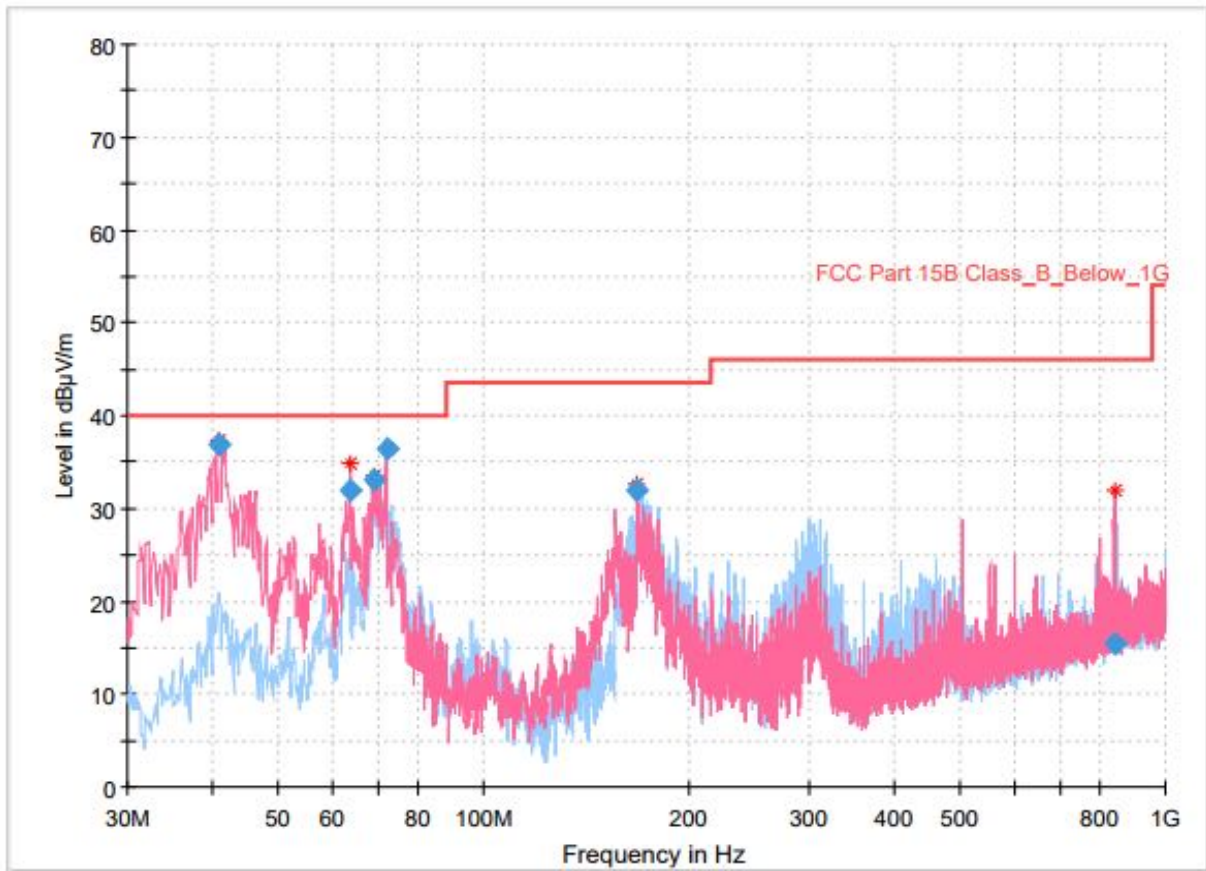
9.5.4.5 Measurement Results for below 1 GHz for LE 500K



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.670000	33.12	40.00	6.88	1000.0	120.000	99.9	V	86.0	-23.6
63.659000	31.61	40.00	8.39	1000.0	120.000	99.9	V	260.0	-24.6
68.800000	33.13	40.00	6.87	1000.0	120.000	99.9	V	300.0	-26.4
71.904000	34.73	40.00	5.27	1000.0	120.000	99.9	H	192.0	-27.6
168.031000	33.29	43.50	10.21	1000.0	120.000	99.9	H	192.0	-26.9
311.979000	30.64	46.00	15.36	1000.0	120.000	99.9	H	165.0	-20.6

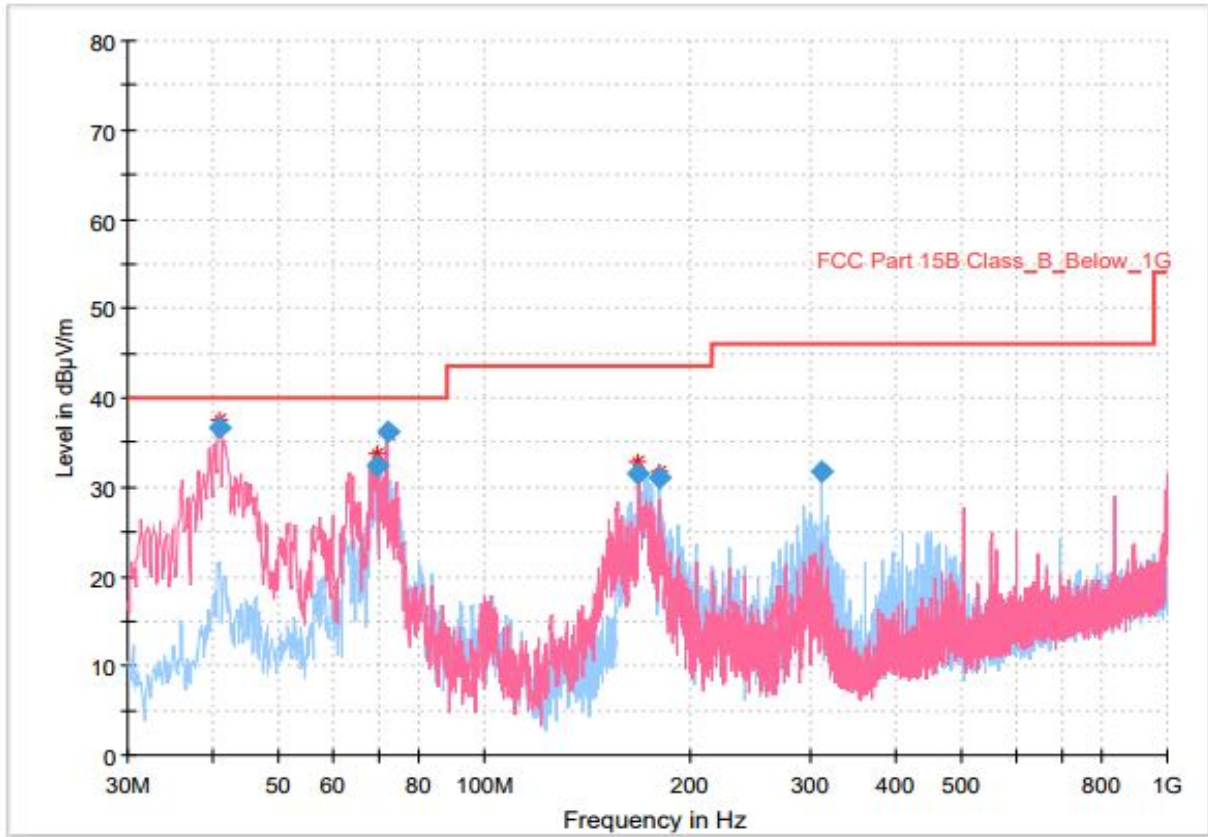
Low CH



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.961000	36.96	40.00	3.04	1000.0	120.000	99.9	V	271.0	-23.5
63.659000	31.94	40.00	8.06	1000.0	120.000	99.9	V	285.0	-24.6
68.897000	33.06	40.00	6.94	1000.0	120.000	99.9	V	300.0	-26.4
72.001000	36.49	40.00	3.51	1000.0	120.000	99.9	H	206.0	-27.6
168.128000	32.04	43.50	11.46	1000.0	120.000	99.9	H	353.0	-26.9
843.927000	15.37	46.00	30.63	1000.0	120.000	99.9	V	316.0	-9.9

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)
40.864000	36.59	40.00	3.41	1000.0	120.000	99.9	V	152.0	-23.6
69.382000	32.36	40.00	7.64	1000.0	120.000	99.9	V	316.0	-26.6
72.001000	36.18	40.00	3.82	1000.0	120.000	99.9	H	219.0	-27.6
168.128000	31.51	43.50	11.99	1000.0	120.000	99.9	H	29.0	-26.9
180.059000	31.17	43.50	12.33	1000.0	120.000	99.9	H	205.0	-26.2
311.979000	31.74	46.00	14.26	1000.0	120.000	99.9	H	178.0	-20.6

High CH



9.5.4.6 Measurement Results for Above 1 GHz for LE 1M

Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4 802.90	57.55	Peak	H	-4.00	53.55	74	20.45
	45.83	Average	H		41.83	54	12.17
7 205.00	40.34	Peak	H	0.70	50.43	74	32.96
	26.79	Average	H		37.97	54	26.51
9 607.10	40.34	Peak	H	3.60	53.53	74	32.96
	26.79	Average	H		41.56	54	26.51
Mid CH							
4 879.40	51.21	Peak	H	-3.40	47.81	74	26.19
	39.77	Average	H		36.37	54	17.63
7 318.90	55.18	Peak	H	0.70	55.88	74	18.12
	42.82	Average	H		43.52	54	10.48
9 758.40	44.41	Peak	H	3.90	48.31	74	25.69
	31.12	Average	H		35.02	54	18.98
High CH							
4 959.30	60.99	Peak	H	-3.20	57.79	74	16.21
	50.05	Average	H		46.85	54	7.15
7 459.30	57.75	Peak	H	1.00	58.75	74	15.25
	47.95	Average	H		48.95	54	5.05
9 919.90	50.99	Peak	V	4.20	55.19	74	18.81
	36.54	Average	V		40.74	54	13.26



9.5.4.7 Measurement Results for Above 1 GHz for 2M

Frequency (MHz)	Reading (dB μ V)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Low CH							
4 802.90	63.23	Peak	H	-4.00	59.23	74	14.77
	46.81	Average	H		42.81	54	11.19
7 205.0	49.76	Peak	H	0.70	50.46	74	23.54
	35.36	Average	H		36.06	54	17.94
9 608.80	49.10	Peak	V	3.60	52.70	74	21.30
	32.68	Average	V		36.28	54	17.72
Mid CH							
4 881.10	48.46	Peak	H	-3.40	45.06	74	28.94
	32.05	Average	H		28.65	54	25.35
7 318.90	51.75	Peak	H	0.70	52.45	74	21.55
	30.77	Average	H		31.47	54	22.53
9 758.40	47.54	Peak	V	3.90	51.44	74	22.56
	31.79	Average	V		35.69	54	18.31
High CH							
4 959.30	50.97	Peak	H	-3.20	47.77	74	26.23
	36.02	Average	H		32.82	54	21.18
7 441.30	48.75	Peak	H	-3.20	45.55	74	28.45
	33.42	Average	H		30.22	54	23.78
9 921.60	52.24	Peak	V	0.90	53.14	74	20.86
	36.12	Average	V		37.02	54	16.98



9.5.4.8 Measurement Results for Above 1 GHz for LE 125K

Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4 802.90	55.90	Peak	H	-4.00	51.90	74	22.10
	45.69	Average	H		41.69	54	12.31
7 205.0	57.82	Peak	H	0.70	58.52	74	15.48
	47.90	Average	H		48.60	54	5.40
9 608.80	50.02	Peak	H	3.60	53.62	74	20.38
	40.86	Average	H		44.46	54	9.54
12 009.200	43.87	Peak	H	5.40	49.27	74	24.73
	33.84	Average	H		39.24	54	14.76
Mid CH							
4 879.40	61.39	Peak	H	-3.40	57.99	74	16.01
	52.90	Average	H		49.50	54	4.50
7 318.90	54.21	Peak	H	0.70	54.91	74	19.09
	43.81	Average	H		44.51	54	9.49
9 761.80	31.80	Peak	H	3.90	35.70	74	38.30
	44.31	Average	H		48.21	54	5.79
High CH							
4 959.30	60.81	Peak	H	-3.20	57.61	74	16.39
	51.83	Average	H		48.63	54	5.37
7 439.60	57.37	Peak	H	1.00	58.37	74	15.63
	49.25	Average	H		50.25	54	3.75
9 919.90	48.21	Peak	V	4.20	52.41	74	21.59
	33.98	Average	V		38.18	54	15.82



9.5.4.9 Measurement Results for Above 1 GHz for 500K

Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4 802.90	54.42	Peak	H	-4.00	50.42	74	23.58
	41.63	Average	H		37.63	54	16.37
7 205.00	58.00	Peak	H	0.70	58.70	74	15.30
	45.12	Average	H		45.82	54	8.18
9 607.10	53.39	Peak	H	3.60	56.99	74	17.01
	40.87	Average	H		44.47	54	9.53
Mid CH							
4 879.40	60.22	Peak	H	-3.40	56.82	74	17.18
	44.14	Average	H		40.74	54	13.26
7 318.90	56.00	Peak	H	0.70	56.70	74	17.30
	42.96	Average	H		43.66	54	10.34
9 758.40	38.80	Peak	V	3.90	42.70	74	31.30
	24.84	Average	V		28.74	54	25.26
High CH							
4 959.30	53.30	Peak	H	-3.20	50.10	74	23.90
	41.03	Average	H		37.83	54	16.17
7 439.60	44.58	Peak	V	1.00	45.58	74	28.42
	32.22	Average	V		33.22	54	20.78
9 921.60	45.62	Peak	V	4.20	49.82	74	24.18
	31.82	Average	V		36.02	54	17.98

- ※ 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 °C
Relative humidity : 48 %

10.2 Measurement method

Standard : §15.207

10.3 Limit

Standard : §15.207

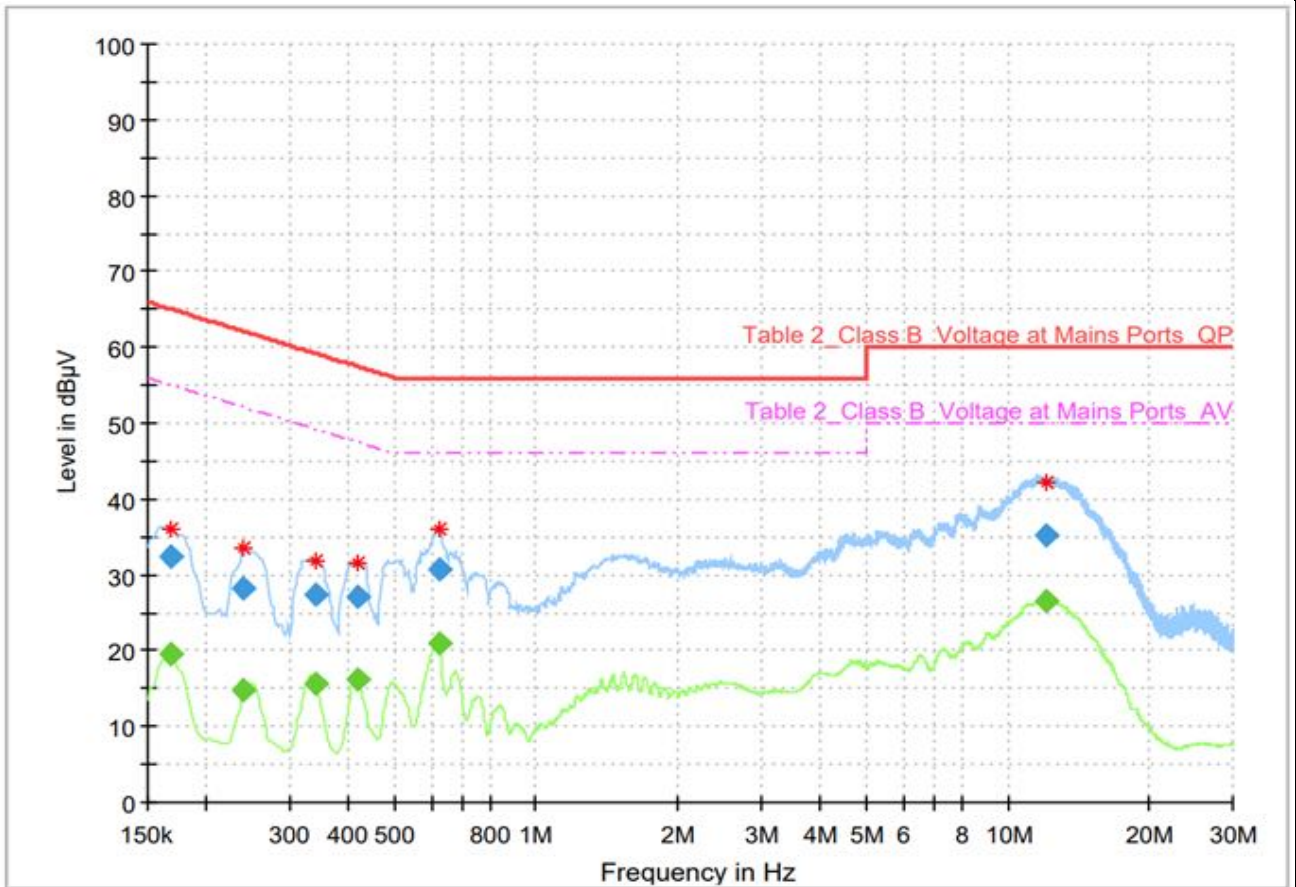
10.4 Test data

Operating mode : Transmit mode
Test Result : Pass



Measured Results & Graph

Live line

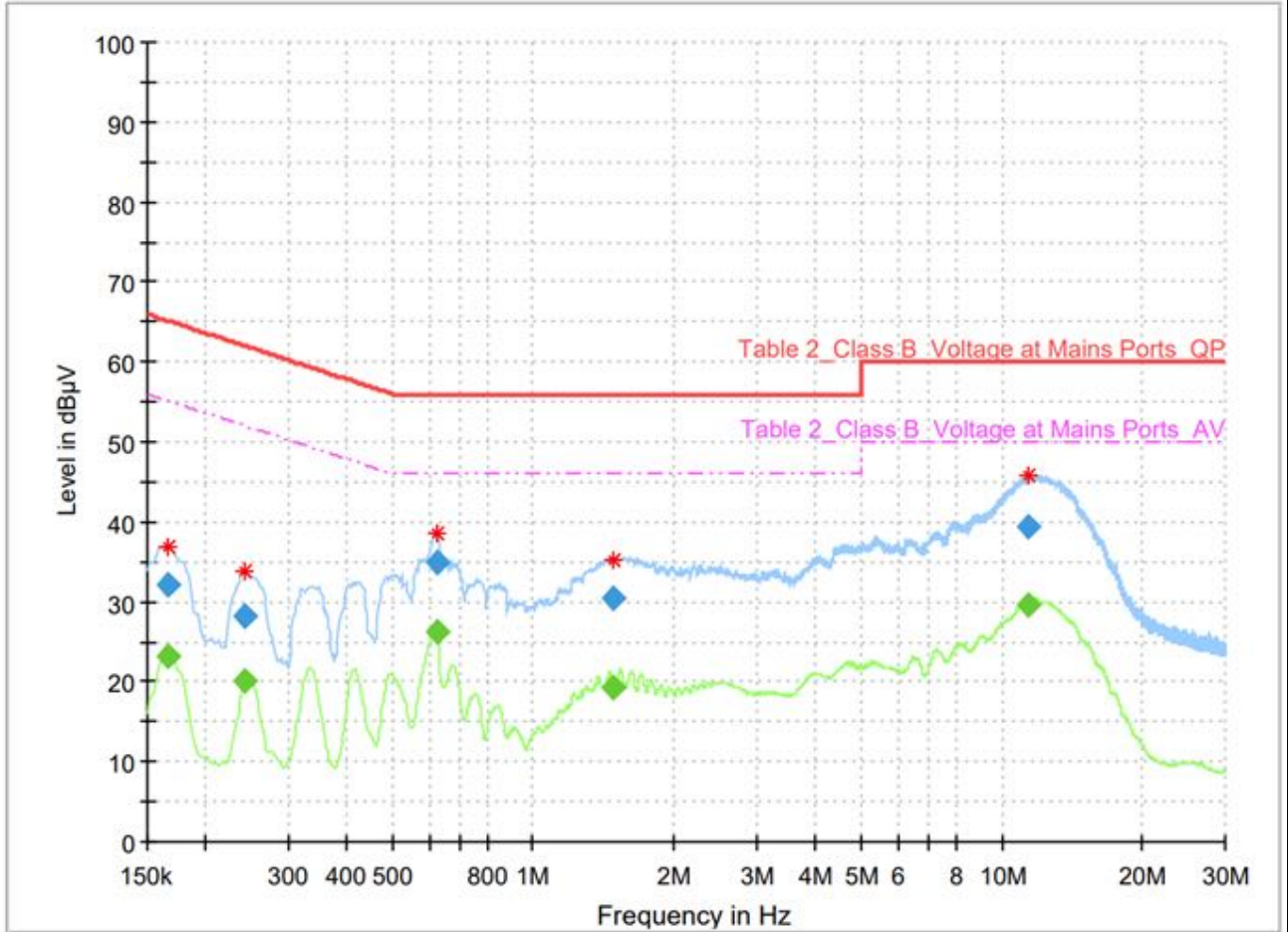


Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.168000	---	19.49	55.06	35.57	5000.0	9.000	L1	10.1
0.168000	32.52	---	65.06	32.54	5000.0	9.000	L1	10.1
0.240000	---	14.90	52.10	37.20	5000.0	9.000	L1	9.8
0.240000	28.33	---	62.10	33.76	5000.0	9.000	L1	9.8
0.341250	---	15.72	49.17	33.45	5000.0	9.000	L1	9.9
0.341250	27.41	---	59.17	31.76	5000.0	9.000	L1	9.9
0.417750	---	16.17	47.49	31.33	5000.0	9.000	L1	10.0
0.417750	26.99	---	57.49	30.51	5000.0	9.000	L1	10.0
0.620250	---	20.96	46.00	25.04	5000.0	9.000	L1	9.9
0.620250	30.80	---	56.00	25.20	5000.0	9.000	L1	9.9
12.111000	---	26.56	50.00	23.44	5000.0	9.000	L1	10.2
12.111000	35.24	---	60.00	24.76	5000.0	9.000	L1	10.2



Neutral line



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165750	---	23.08	55.17	32.09	5000.0	9.000	N	10.1
0.165750	32.01	---	65.17	33.16	5000.0	9.000	N	10.1
0.242250	---	20.00	52.02	32.02	5000.0	9.000	N	9.8
0.242250	28.18	---	62.02	33.84	5000.0	9.000	N	9.8
0.620250	---	26.31	46.00	19.69	5000.0	9.000	N	10.0
0.620250	34.94	---	56.00	21.06	5000.0	9.000	N	10.0
1.488750	---	19.35	46.00	26.65	5000.0	9.000	N	9.8
1.488750	30.50	---	56.00	25.50	5000.0	9.000	N	9.8
11.411250	---	29.63	50.00	20.37	5000.0	9.000	N	10.0
11.411250	39.32	---	60.00	20.68	5000.0	9.000	N	10.0

- END -