



시험 성적서

TEST REPORT

페이지(page) : (1) / (총(Total) 54)

성적서 번호 Report No.		ICRT-TR-E210880-0A	
신청자 Client	기관명 Name	ESONIC CO., LTD.	
	주 소 Address	Ilsin Building 10-19, LS-ro 166beon-gil, Gunpo-si, Gyeonggi-do, Korea	
시험대상품목 Sample description		MOBILE RECORDER	
모델명 Type designation		BR-25	
정 격 Ratings		DC 3.7 V	
시험기간 Date of test		24. Mar. 2021 ~ 25. Mar. 2021	
시험방법/항목 Test Method/Item		FCC Part 15 Subpart C §15.247	
시험결과 Test Results		Refer to 3. Test Summary	
확 인 Affirmation	작성자 Tested by	기술책임자 Technical Manager	
	성 명 Name	성 명 Name	
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Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E210880-0A	16-Apr-2021	Initial Issue	All



1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	ESONIC CO., LTD.
Address	Ilisin Building 10-19, LS-ro 166beon-gil, Gunpo-si, Gyeonggi-do, Korea
Contact Person	Park Jeong Kyun
Telephone No.	+82-31-427-8331
Fax No.	+82-31-427-8330
E-mail	pjk@esonic.co.kr

1.2 Manufacturer Information

Manufacturer	ESONIC CO., LTD.
Address	Ilisin Building 10-19, LS-ro 166beon-gil, Gunpo-si, Gyeonggi-do, 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	MOBILE RECORDER
Brand Name	-
Model Name	BR-25
Additional Model Name	BR-25A, BR-25B, BR-25S, BR-25N
FCC ID / ISED number	TG7BR-25
Hardware Version	1.0
Software Version	1.0
Power Supply	DC 3.7 V
EUT Serial Number	Test 1

2.2 Additional Information

Equipment Class	DSS - Frequency Hopping Spread Spectrum systems
Device Type	Stand-alone
Operating Frequency	2 402 MHz ~ 2 480 MHz
RF Output Power	2.30 dBm
Number of Channel	79
Modulation Type	GFSK / $\pi/4$ -DQPSK / 8DPSK
Antenna Type	PCB Antenna
Antenna Gain	1.47 dBi
Antenna Operating Mode	Single Antenna Equipment with only one antenna

2.3 Test Frequency

Test mode	Test frequency (MHz)		
	Lowest frequency	Middle frequency	High frequency
GFSK	2 402	2 441	2 480
$\pi/4$ -DQPSK	2 402	2 441	2 480
8DPSK	2 402	2 441	2 480



2.4 Worst-Case

BDR	DH5(GFSK)
EDR	3-DH5(8DPSK)

Note: The power measurement has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates.

2.5 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.

2.6 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)(1)(i)		20 dB Bandwidth & 99 % Bandwidth	☒	PASS
§15.247 (a)(1)		Carrier Frequency Separation	☒	PASS
§15.247 (a)(1) (iii)		Number of Hopping Frequencies	☒	PASS
§15.247 (a)(1) (iii)		Time of Occupancy (dwell Time)	☒	PASS
§15.247 (a)(1)		Output Power	☒	PASS
§15.247 (d)		Conducted Spurious Emission & Band edge (Non-Restricted band)	☒	PASS
§15.209 §15.205		Radiated Spurious Emission(Restricted band)	☒	PASS
§15.207		Power Line Conducted 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.

3.4.2 AC powerline conducted emission test

The EUT was connected to LISN. All supporting equipments 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 **PCB Antenna**. The directional gain of the antenna is **1.47 dBi**.



4. Used equipment on test

	Description	Model Name	Serial Number	Manufacturer	Last Cal. (cycle)
☒	Spectrum analyzer	FSW85	100864	Rohde & Schwarz	2022. 03. 22 (1Y)
☐	Spectrum analyzer	FSV40	101455	Rohde & Schwarz	2021 .06. 24 (1Y)
☐	Spectrum analyzer	FSV40-N	101303	Rohde & Schwarz	2021 .06. 17 (1Y)
☒	Signal Generator	SMB100A	180607	Rohde & Schwarz	2022. 03. 03 (1Y)
☒	Wideband Power Sensor	NRP-Z91	103704	Rohde & Schwarz	2021. 04. 17 (1Y)
☐	Open Switch and Control Platform	OSP150	101000	Rohde & Schwarz	2022. 03. 04 (1Y)
☐	Environmental Test Chamber	MHK-408NKDA	1060908	TERCHY	2022. 03. 03 (1Y)
☐	Chamber	SH-641	92001266	ESPEC CORP.	2021. 05. 14 (1Y)
☐	DC Power Supply	XDL 35-5P	J00385373	Sorensen	2022. 03. 03 (1Y)
☒	DC Power Supply	6603D	672483	Topward	2022. 03. 03 (1Y)
☒	Loop Antenna	HFH2-Z2	100506	Rohde & Schwarz	2021. 06. 27 (2Y)
☒	TRILOG BROADBAND ANTENNA	VULB9162	120	SCHWARZBECK	2022. 12. 15 (2Y)
☒	RF Pre Amplifier	SCU08	100747	Rohde & Schwarz	2021. 04. 16 (1Y)
☒	DOUBLE-RIDGE WAVEGUIDE HORN ANTENNA	HF907	102556	Rohde & Schwarz	2021. 08. 21 (1Y)
☒	RF Pre Amplifier	SCU18	102342	Rohde & Schwarz	2021. 04. 16 (1Y)
☒	Horn Antenna	LB-42-10-C-KF	J202024625	AINFO Inc.	2022. 03. 04 (1Y)
☒	RF Pre Amplifier	AMF-4F-18265-35-8P-1	771846	MITEQ	2022. 03. 04 (1Y)
☐	Horn Antenna	LB-28-10-C-KF	J202024627	AINFO Inc.	2022. 03. 04 (1Y)
☐	RF Pre Amplifier	AMF-4D-260400-45-6P	779919	MITEQ	2022. 03. 04 (1Y)
☒	EMI Test Receiver	ESR26	101461	Rohde & Schwarz	2021. 04. 16 (1Y)
☒	EMI Test Receiver	ESR26	101461	Rohde & Schwarz	2021. 04. 16 (1Y)
☒	LISN	ENV216	102194	Rohde & Schwarz	2021. 04. 16 (1Y)
☒	ATTENUATOR	WA76-20-1313	1633	WEINSCHEL	2022. 03. 04 (1Y)

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



6. 20 dB Bandwidth & 99 % Bandwidth

6.1 Operating environment

Temperature : 22 °C
Relative humidity : 46 %

6.2 Measurement method

Standard : ANSI 63.10 (6.9.2)

6.3 Limit

Standard : §15.247 (a)(1)(i)

6.4 Test data

Test date : 25. Mar. 2021
Operating mode : Transmit mode
Test Result : Pass

6.4.1 Measured Results

Modulation Type	Channel (Frequency)	20 dB Bandwidth (kHz)	99 % Occupied Bandwidth (kHz)
DH5	0 (2 402 MHz)	937.10	861.01
	19 (2 441 MHz)	941.10	859.57
	39 (2 480 MHz)	941.10	859.62
3-DH5	0 (2 402 MHz)	1 290.70	1 180.62
	19 (2 441 MHz)	1 280.70	1 198.58
	39 (2 480 MHz)	1 284.70	1 213.77



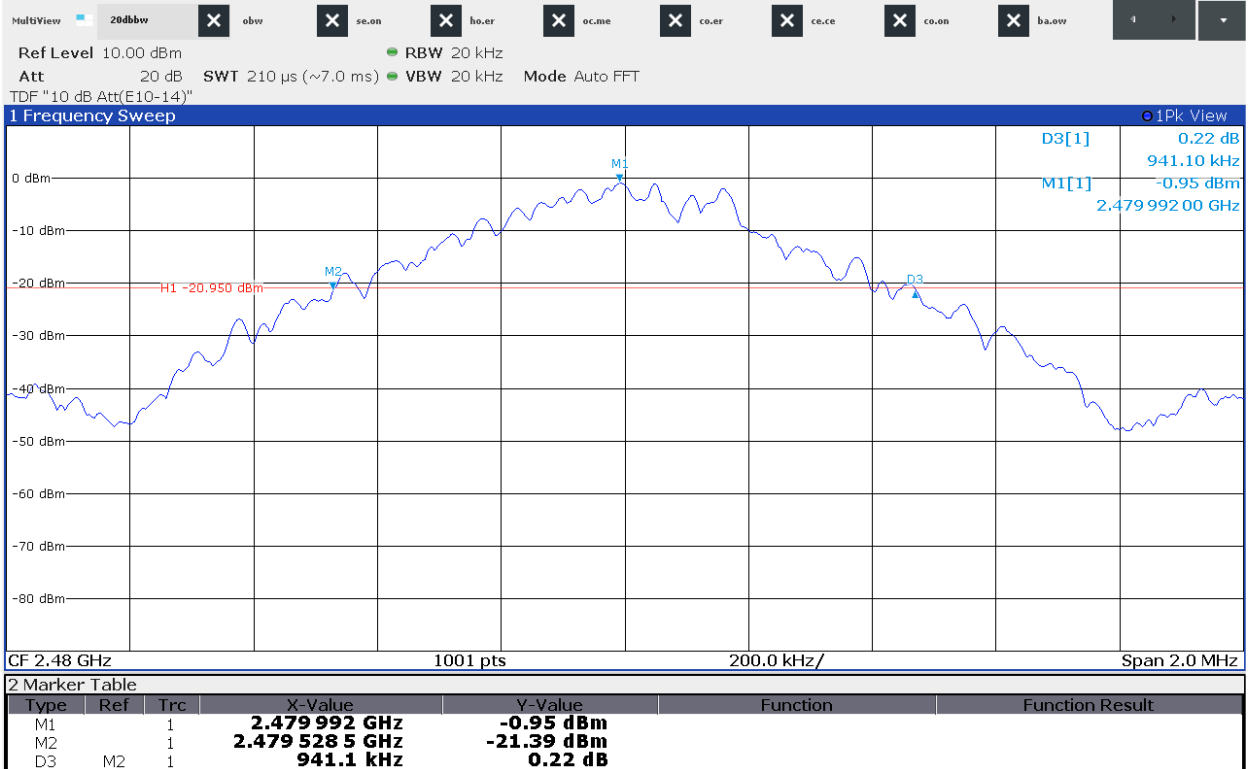
6.4.2 Measured Graph

- 20dB Bandwidth

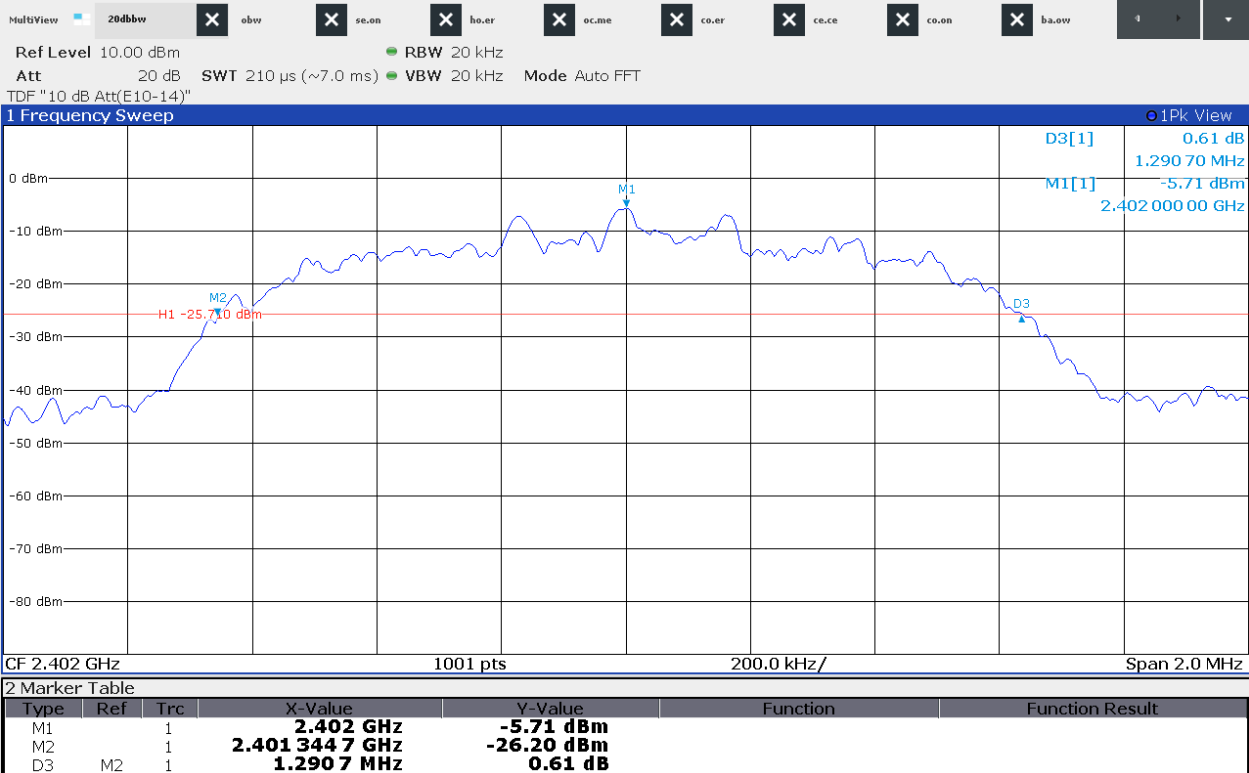




DH5_High CH

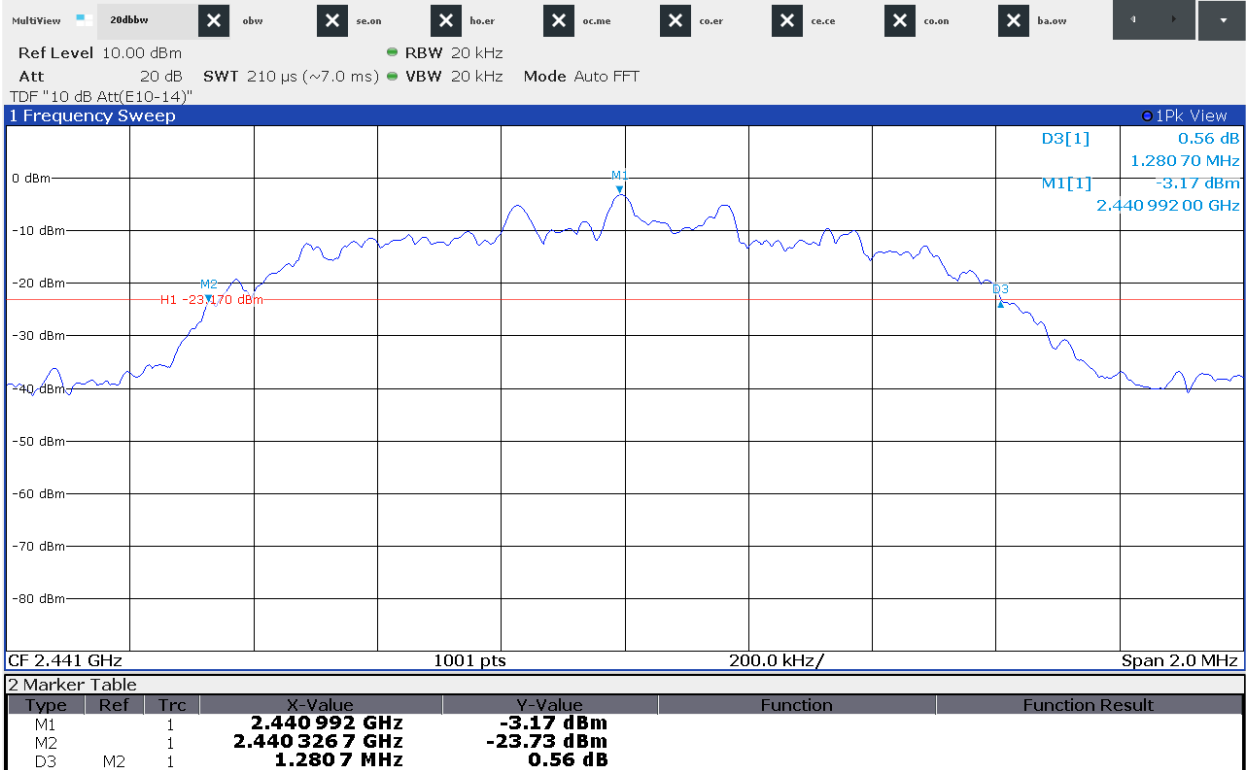


3-DH5_Low CH

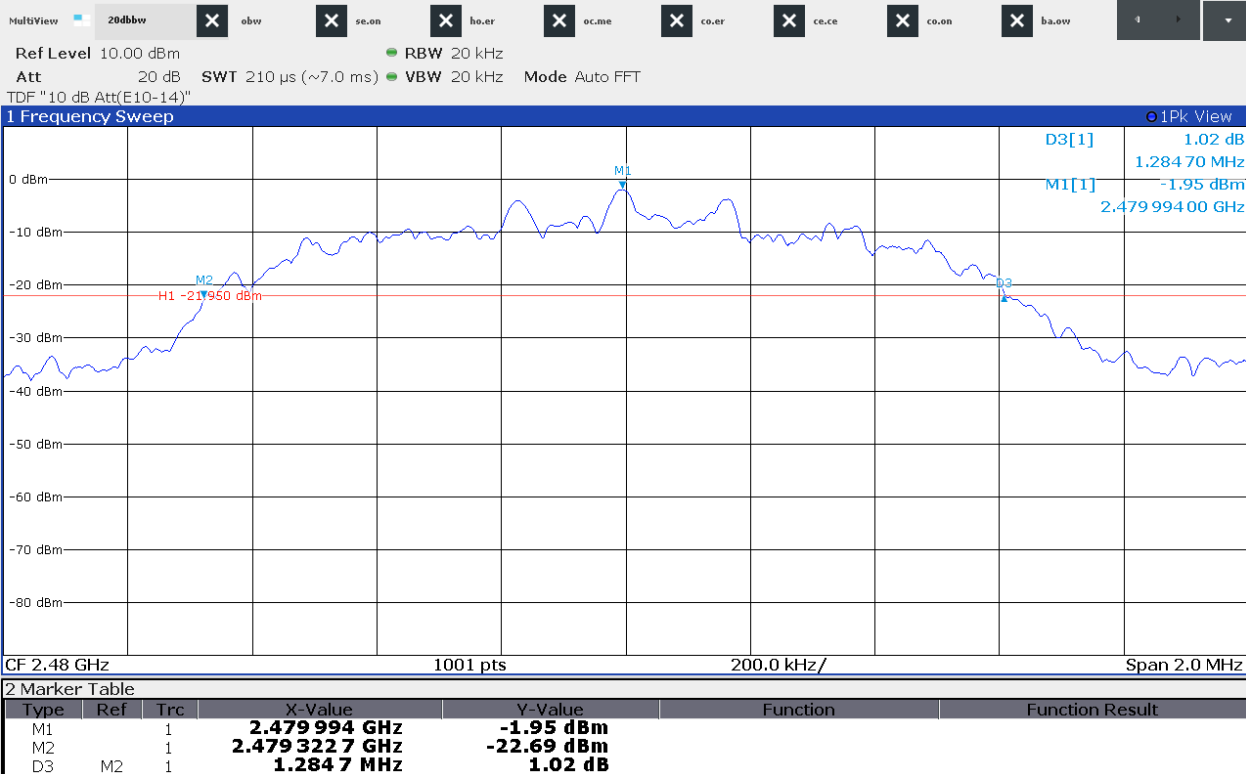




3-DH5_Mid CH

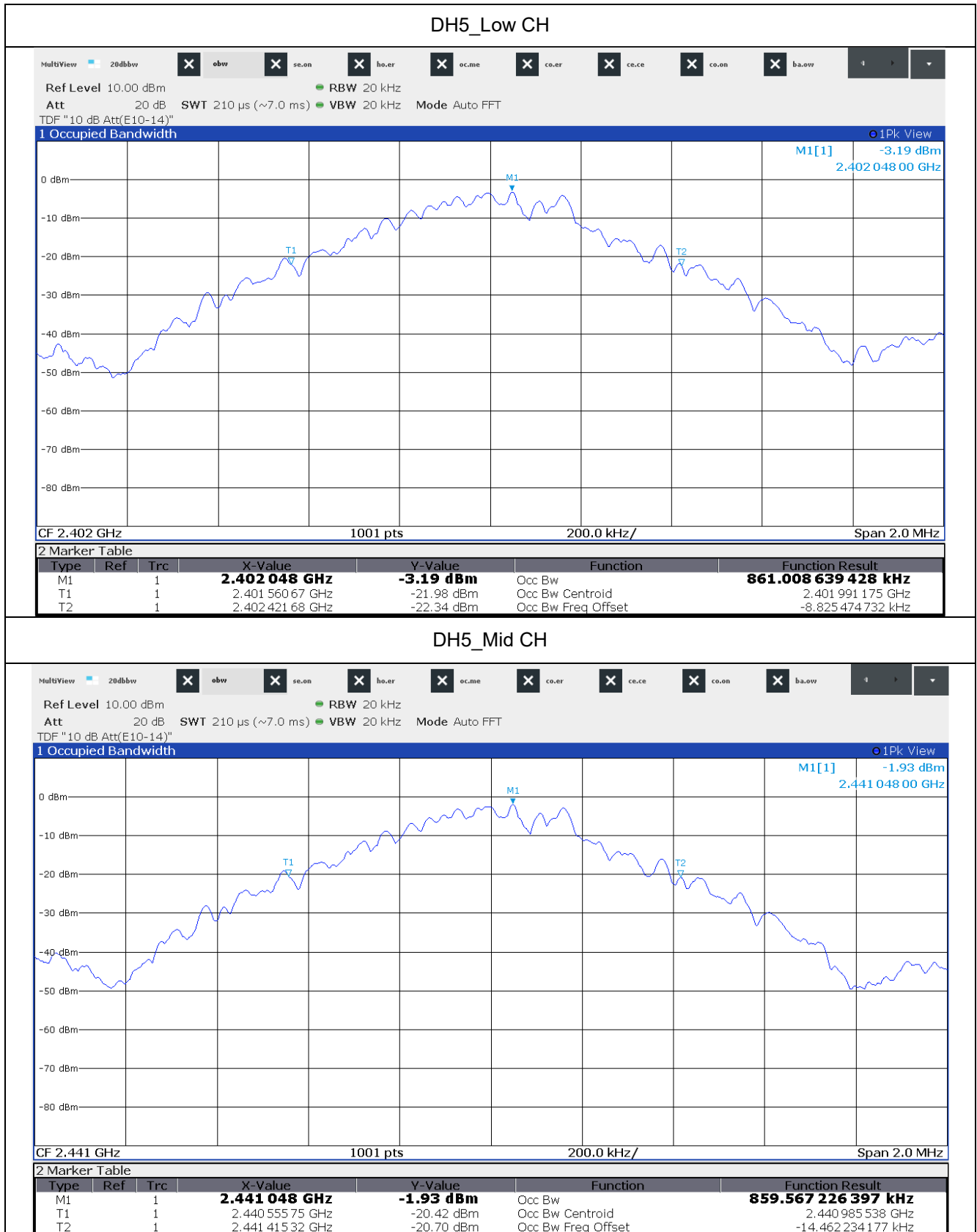


3-DH5_High CH



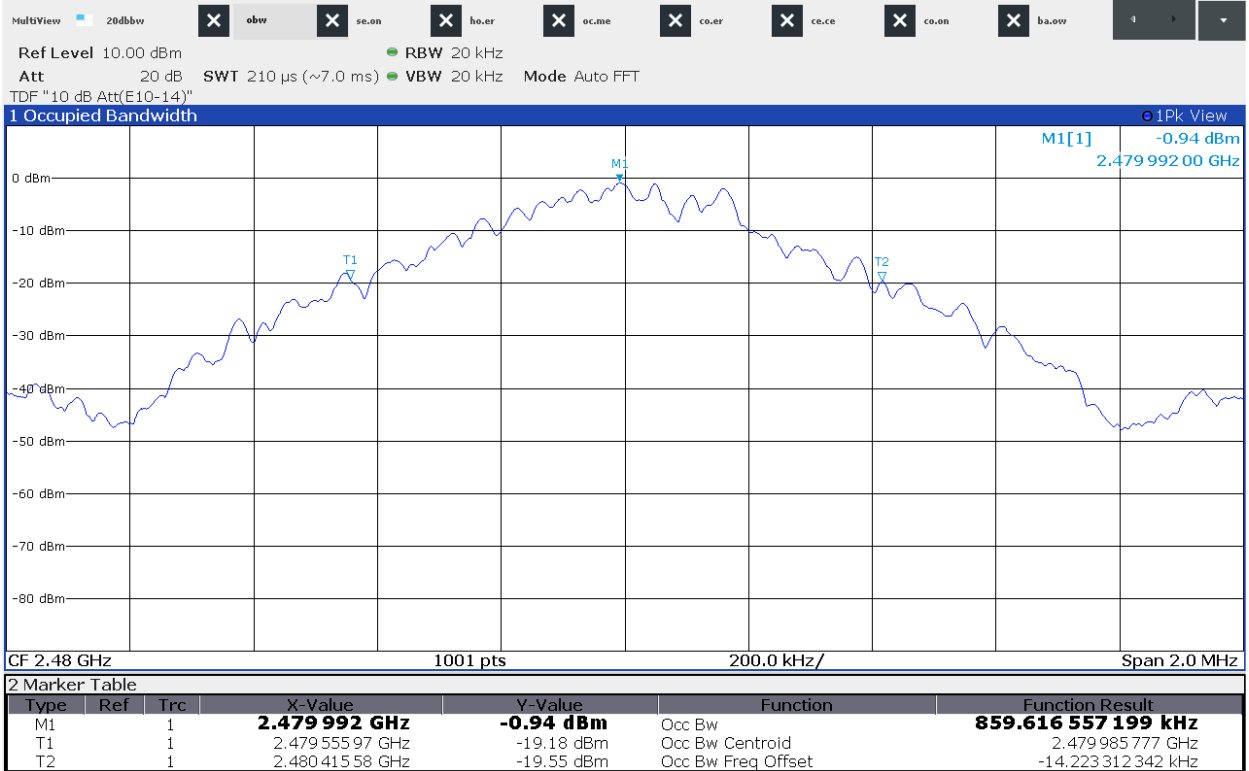


- 99% Bandwidth

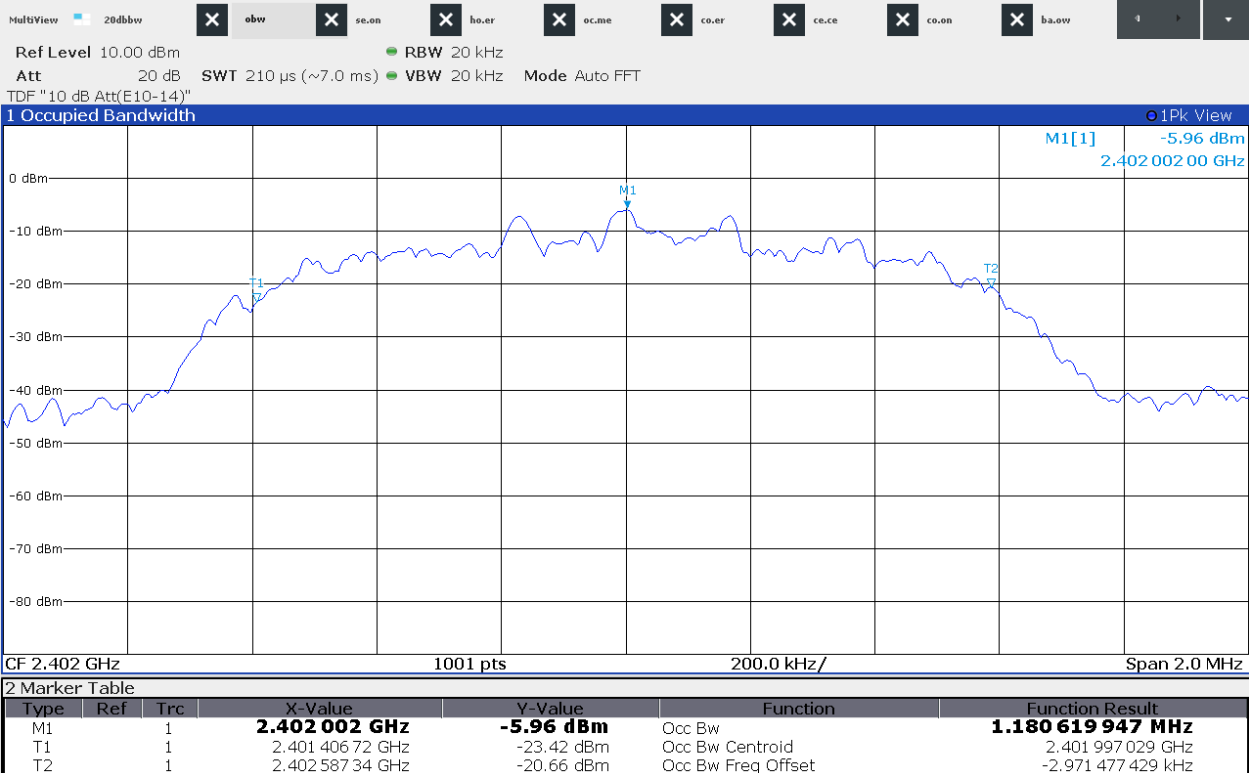


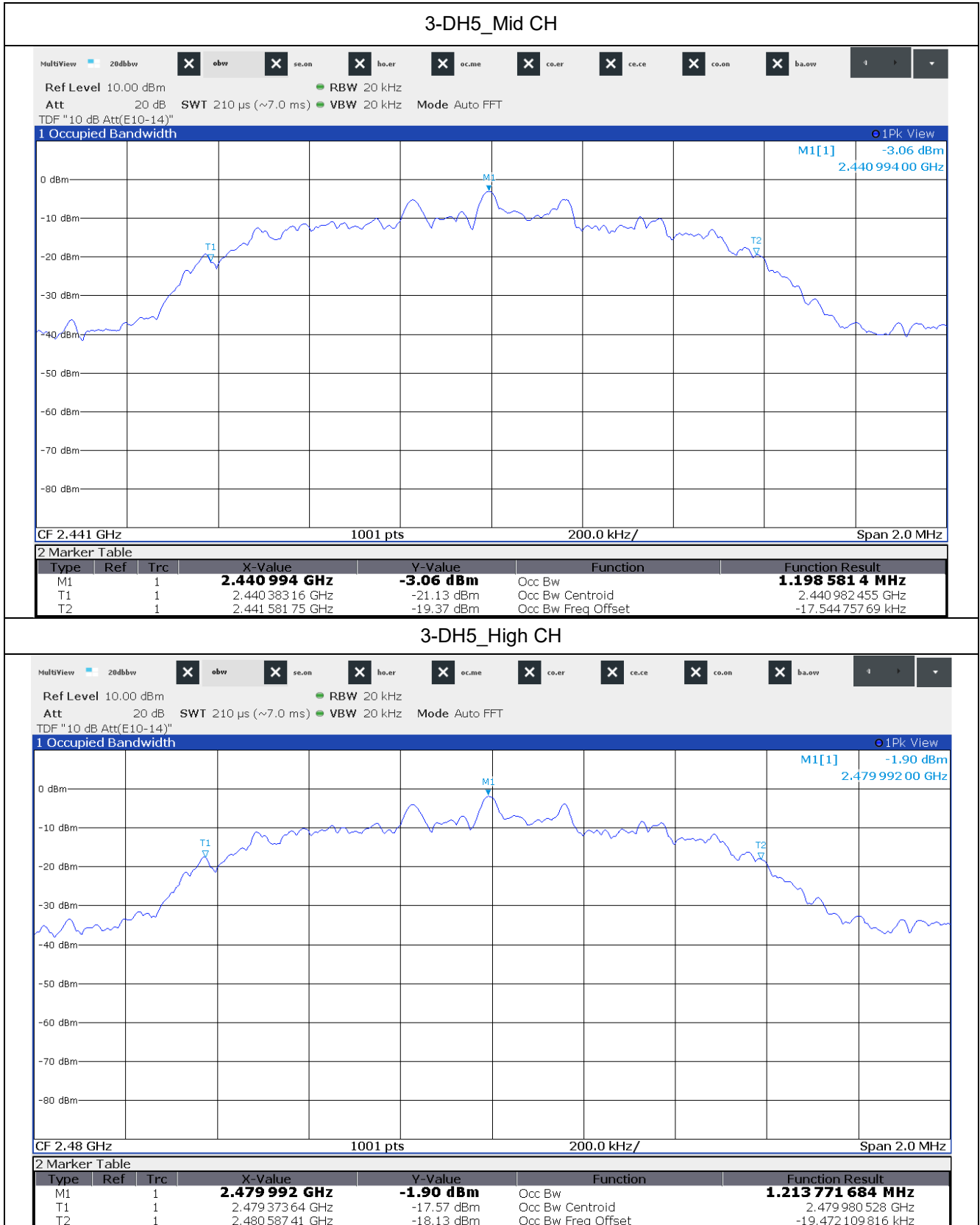


DH5_High CH



3-DH5_Low CH







7. Carrier Frequency Separation

7.1 Operating environment

Temperature : 22 °C
Relative humidity : 46 %

7.2 Measurement method

Standard : ANSI 63.10 (7.8.2)

7.3 Limit

Standard : 15.247 (a)(1)

7.4 Test data

Test date : 25. Mar. 2021
Operating mode : Transmit mode
Test Result : Pass

7.4.1 Measured Results

Modulation type	Channel (Frequency)	Separation (kHz)	Two-third 20 dB bandwidth of the hopping channel (kHz)	Limit
DH5	0 (2 402 MHz)	1 001.00	624.73	25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater
	39 (2 441 MHz)	1 004.00	627.40	
	78 (2 480 MHz)	1 010.00	627.40	
3-DH5	0 (2 402 MHz)	1 001.00	860.47	
	39 (2 441 MHz)	1 001.00	853.80	
	78 (2 480 MHz)	1 001.00	856.47	

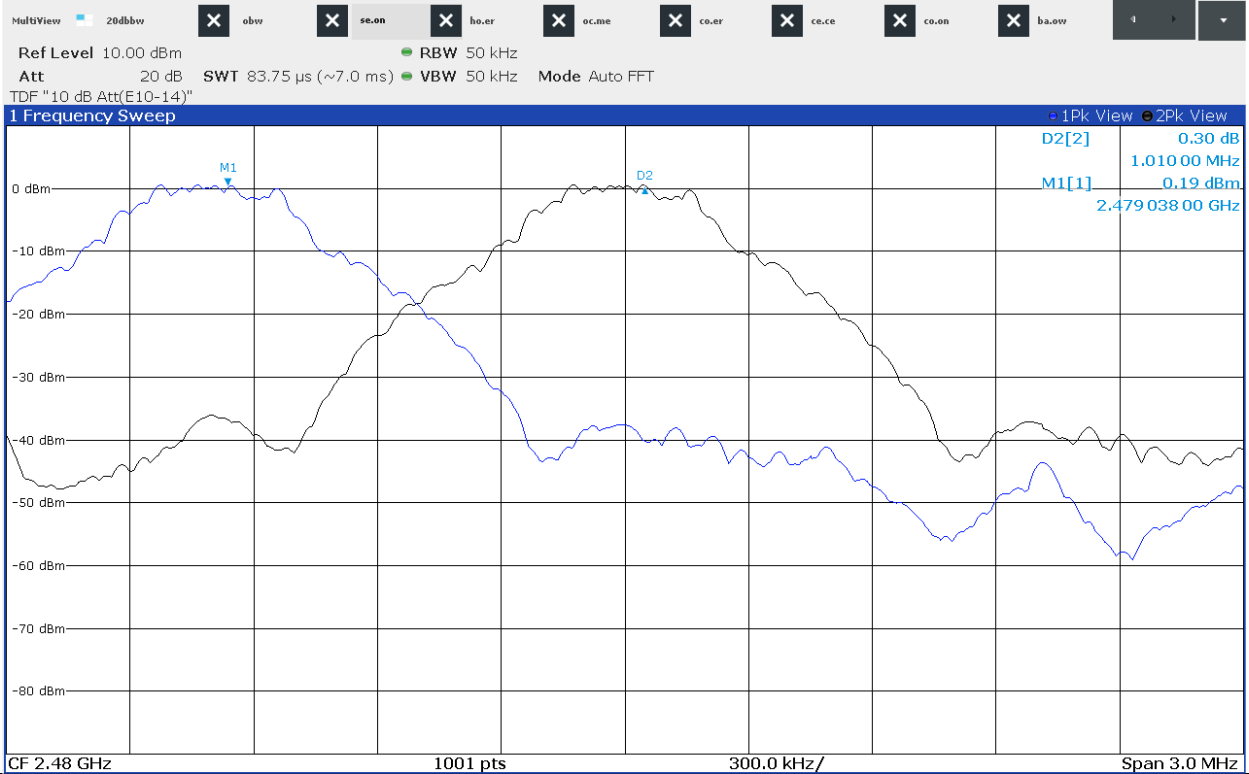


7.4.2 Measured Graph

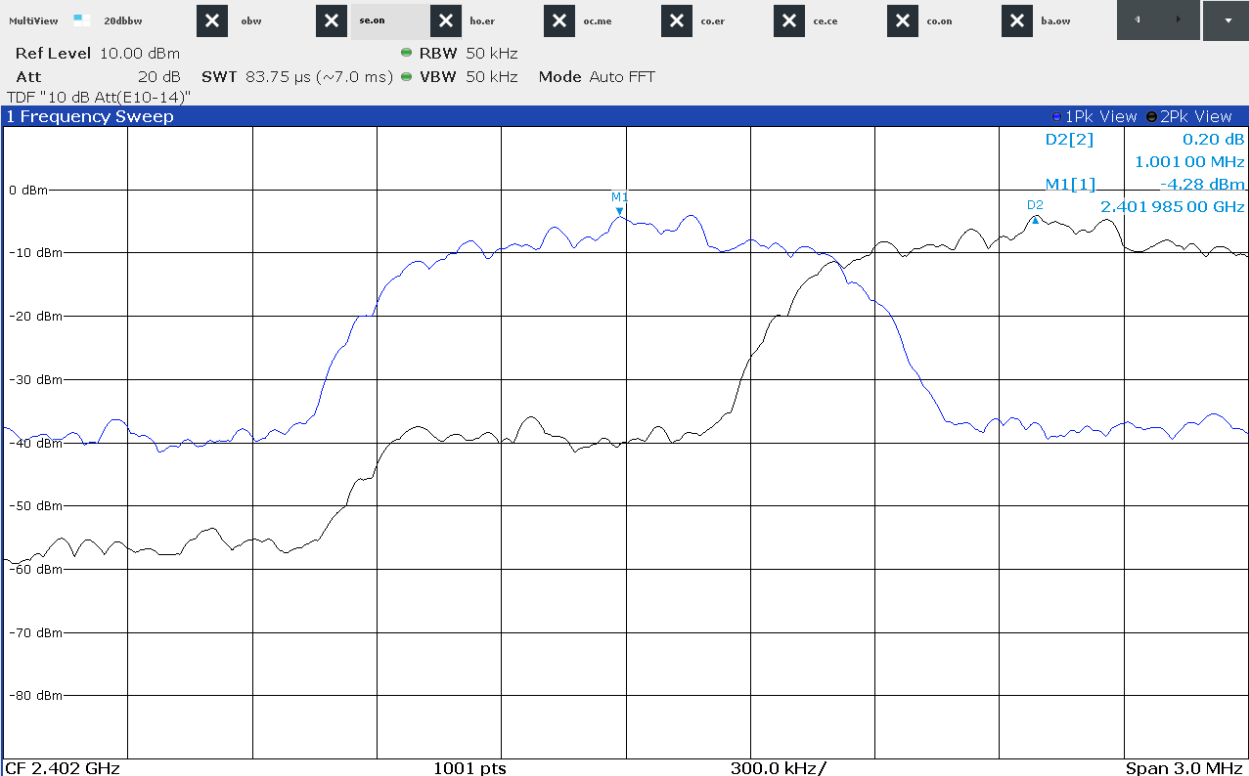




DH5_High CH

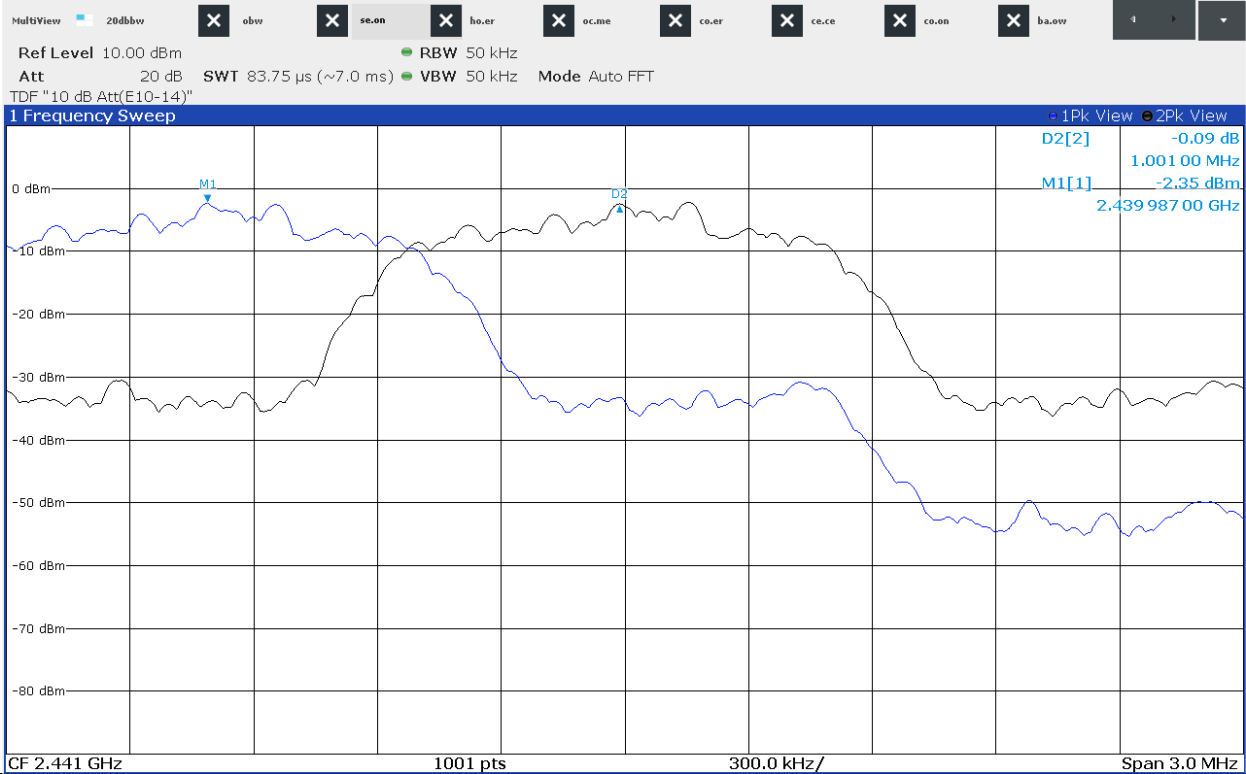


3-DH5_Low CH

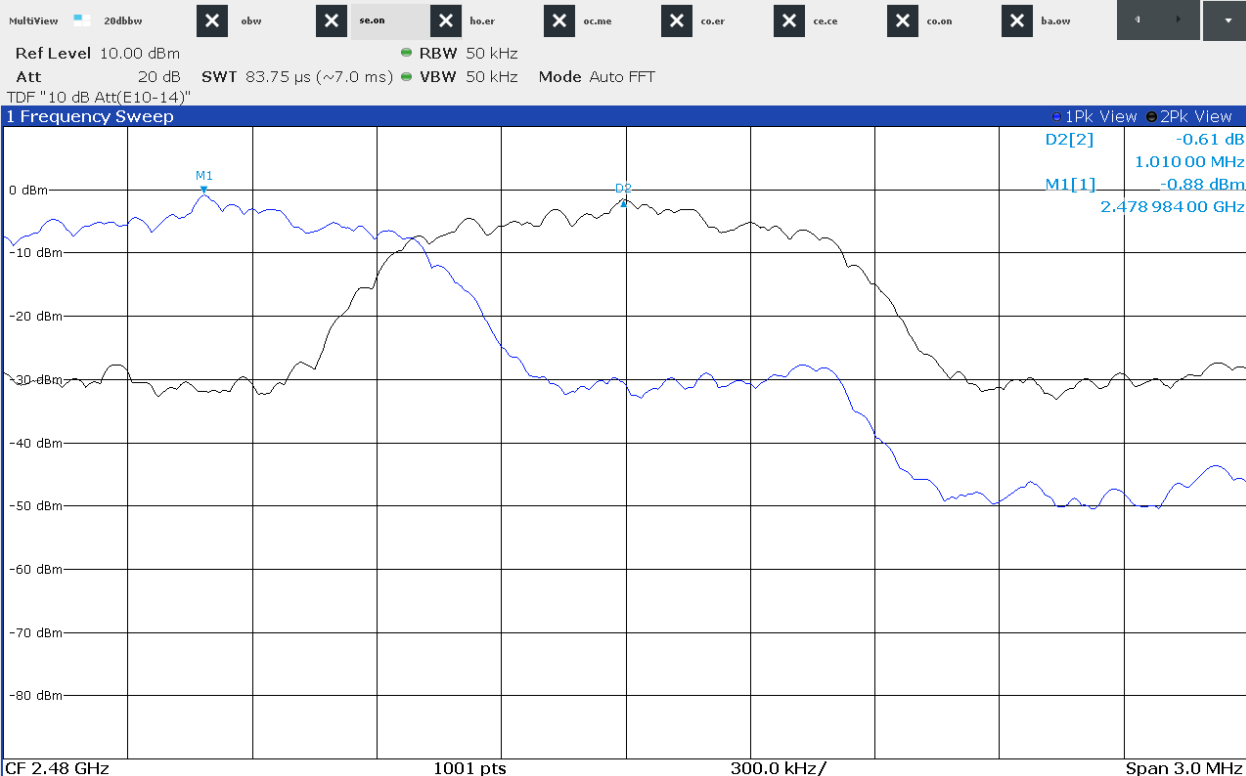




3-DH5_Mid CH



3-DH5_High CH





8. Number of Hopping Frequency

8.1 Operating environment

Temperature : 22 °C
Relative humidity : 46 %

8.2 Measurement method

Standard : ANSI 63.10 (7.8.3)

8.3 Limit

Standard : 15.247 (a)(1)(iii)

8.4 Test data

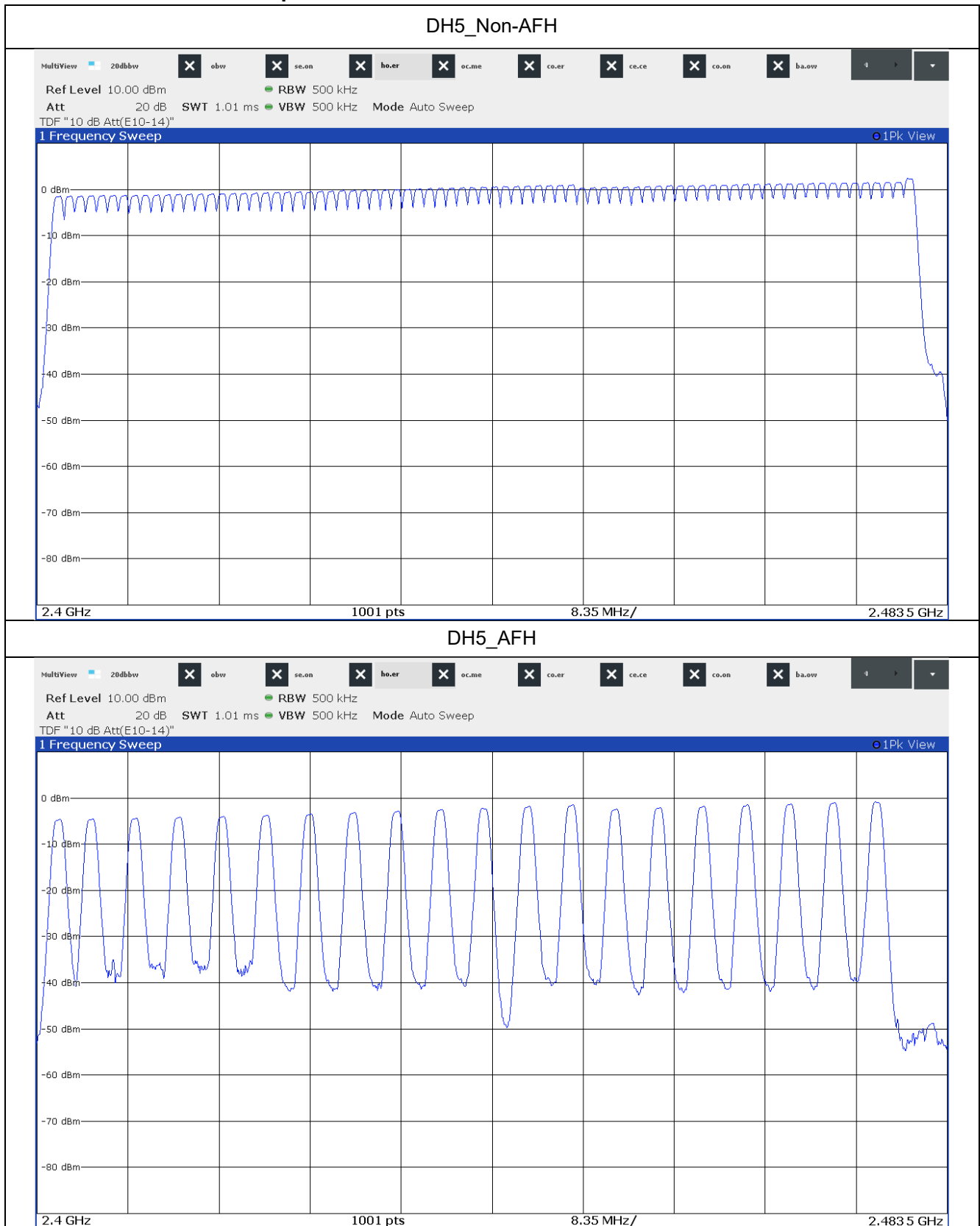
Test date : 25. Mar. 2021
Operating mode : Hopping mode
Test Result : Pass

8.4.1 Measured Results

Modulation type	Hopping Channel Number	Limit
DH5(non-AFH)	79	> 15
DH5(AFH)	20	
3-DH5(non-AFH)	79	
3-DH5(AFH)	20	

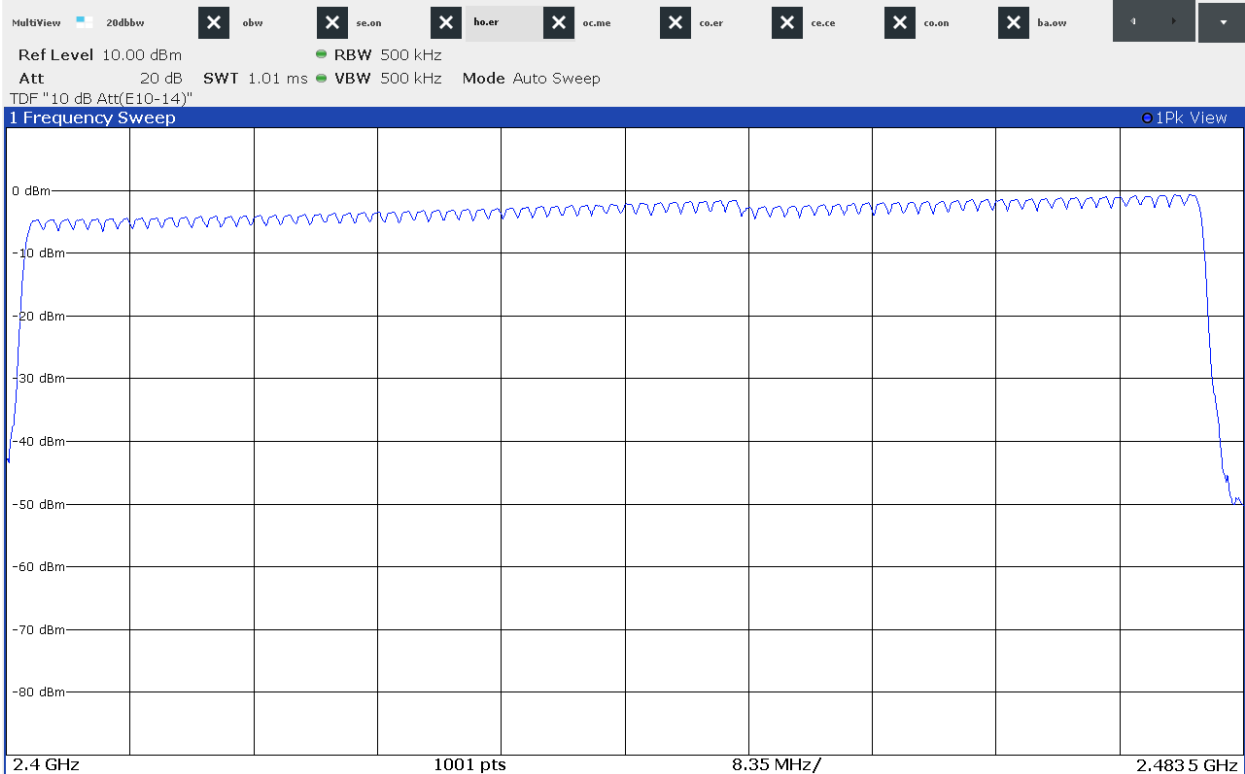


8.4.2 Measured Graph

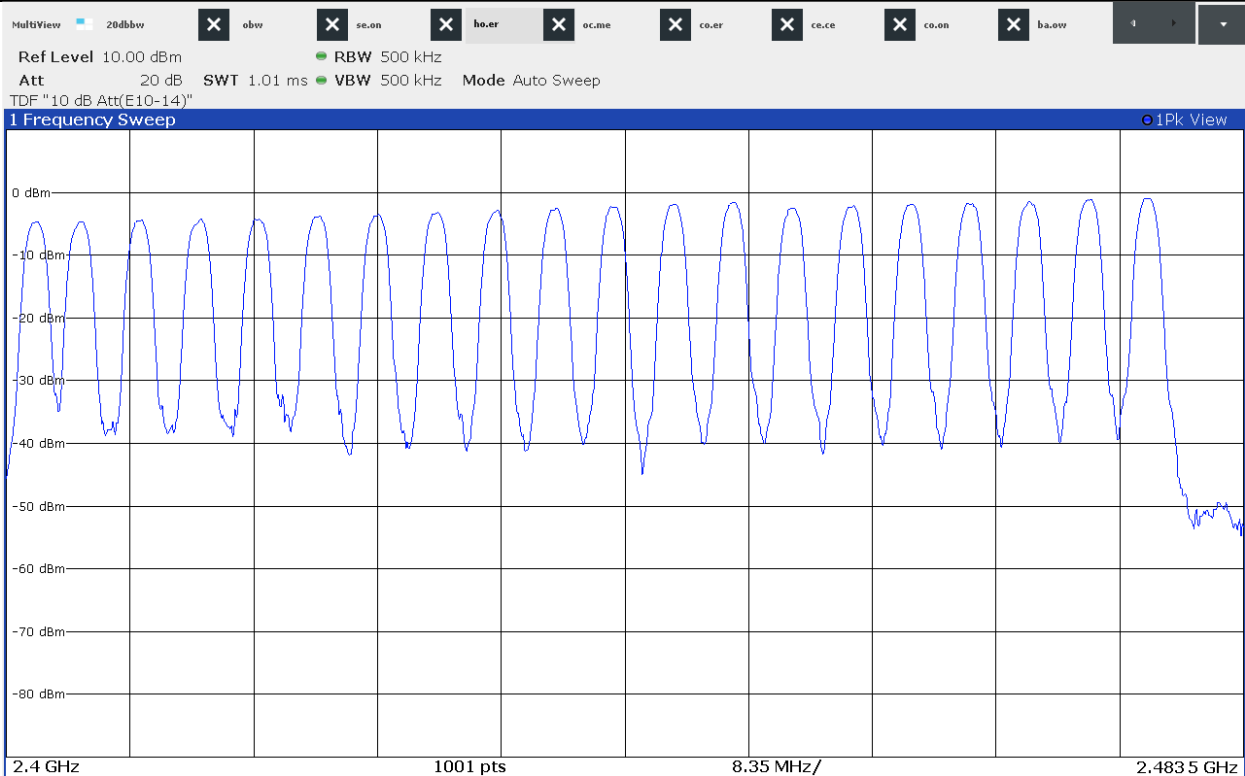




3-DH5_Non-AFH



3-DH5_AFH





9. Time of Occupancy (dwell Time)

9.1 Operating environment

Temperature : 22 °C
Relative humidity : 46 %

9.2 Measurement method

Standard : ANSI 63.10 (7.8.4)

9.3 Limit

Standard : §15.247 (a)(1)(iii)

9.4 Test data

Test date : 25. Mar. 2021

Test Result : Pass

In Theory,

- non-AFH mode: hopping rate is 1 600 hops/s with 6 slots in 79 hopping channels. With channel hopping rate (1600 / 6 / 79) in Occupancy Time Limit (0.4 x 79) (s).
Hops Over Occupancy Time comes to (1 600 / 6 / 79) x (0.4 x 79) = 106.67 hops.
- AFH mode: hopping rate is 800 hops/s with 6 slots in 20 hopping channels. With channel hopping rate (800 / 6 / 20) in Occupancy Time Limit (0.4 x 20) (s).
Hops Over Occupancy Time comes to (800 / 6 / 20) x (0.4 x 20) = 53.33 hops

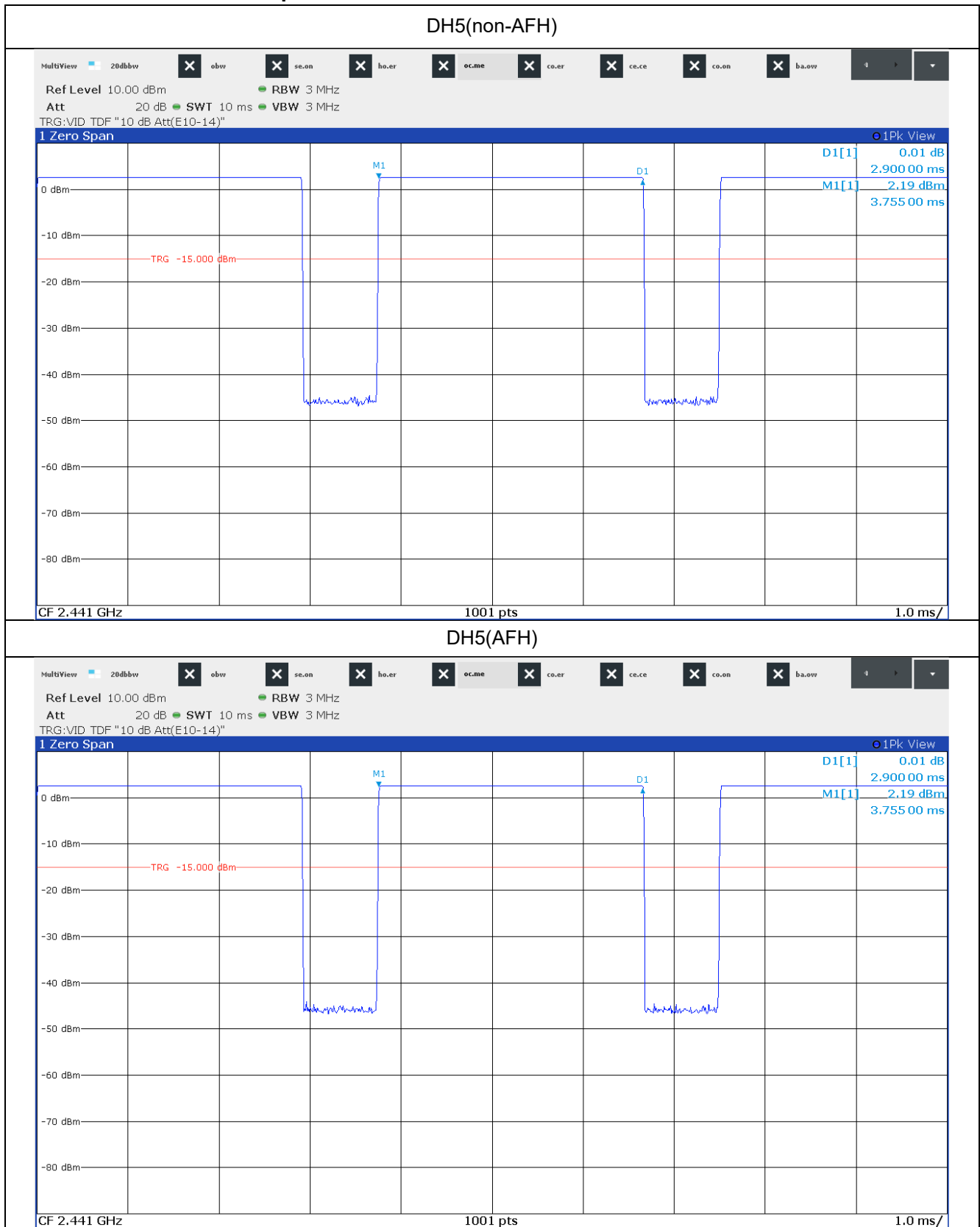
9.4.1 Measured Results

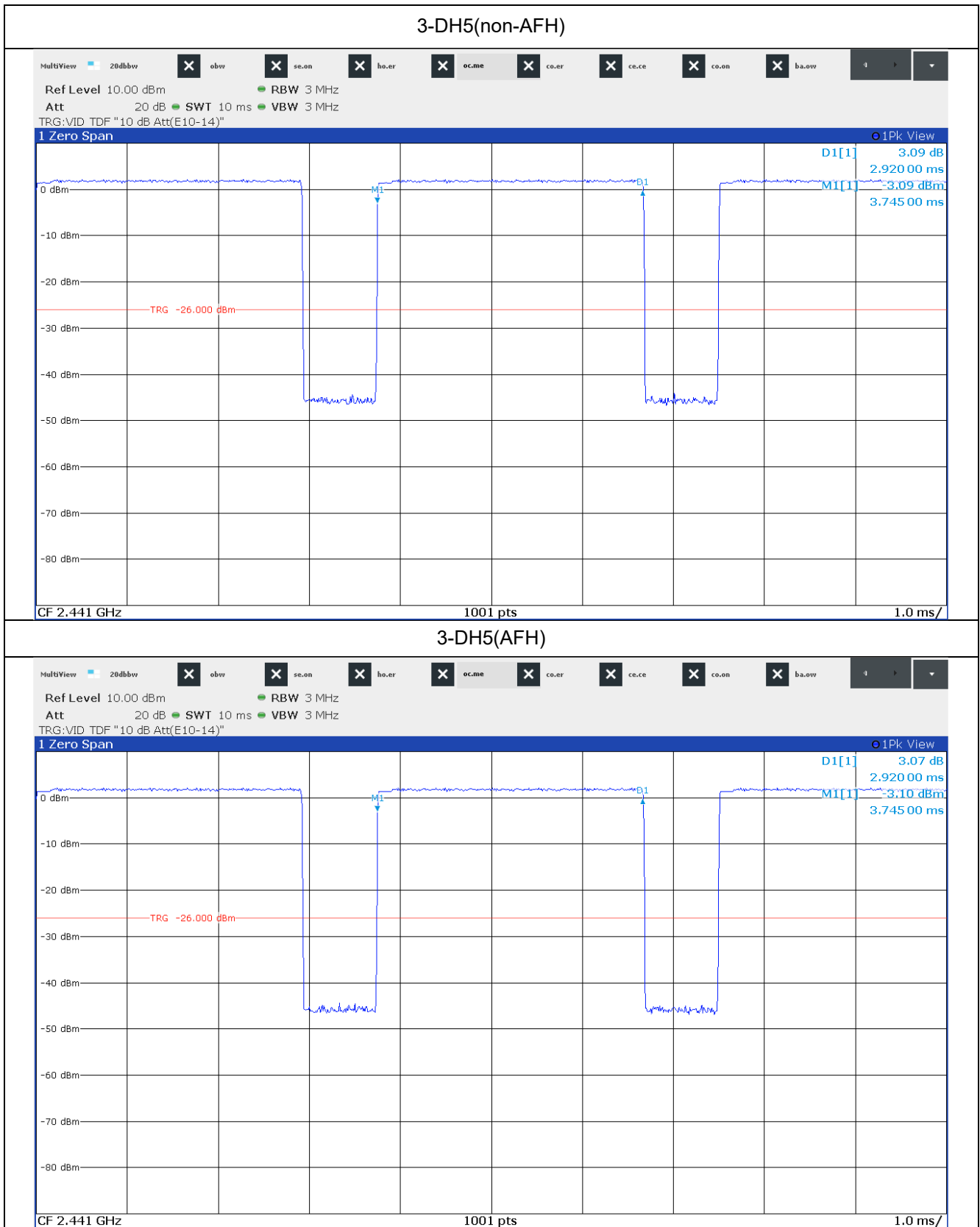
Operating Mode	Mode	Hopping Channel Number	Hops Over Occupancy Time (ms/hops)	Package Transfer Time (ms)	Occupancy Time (s)	Limit (s)
Hopping	DH5(non-AFH)	79	106.67	2.9	0.31	0.4
	DH5(AFH)	20	53.33	2.9	0.15	
	3-DH5(non-AFH)	79	106.67	2.92	0.31	
	3-DH5(AFH)	20	53.33	2.92	0.16	

※ Occupancy Time (s) = Hops Over Occupancy Time (hops) x Package Transfer Time (ms)



9.4.2 Measured Graph







10. Output Power

10.1 Operating environment

Temperature : 22 °C
Relative humidity : 46 %

10.2 Measurement method

Standard : ANSI 63.10 (7.8.5)

10.3 Limit

Standard : §15.247 (a)(1)

10.4 Test data

Test date : 25. Mar. 2021
Operating mode : Transmit mode
Test Result : Pass

10.4.1 Measured Results

Modulation Type	Channel (Frequency)	Maximum Conducted Output Power			e.i.r.p.	
		Measured value (dBm)	Avaerage Power(dBm)	Limit	Measured value (dBm)	Limit
DH5	0 (2 402 MHz)	1.46	1.13	21 (dBm) (0.125 Watt)	2.93	36 (dBm) (4 Watt)
	39 (2 441 MHz)	1.90	1.64		3.37	
	78 (2 480 MHz)	2.30	2.05		3.77	
2-DH5	0 (2 402 MHz)	0.49	-1.86		1.96	
	39 (2 441 MHz)	1.41	-0.57		2.88	
	78 (2 480 MHz)	1.92	0.29		3.39	
3-DH5	0 (2 402 MHz)	0.73	-2.33		2.20	
	39 (2 441 MHz)	1.54	-1.08		3.01	
	78 (2 480 MHz)	2.04	-0.16		3.51	

※ Antenna Gain : 1.74 dBi



11. Conducted Spurious Emission & Band edge (Non-Restricted band)

11.1 Operating environment

Temperature : 22 °C
Relative humidity : 46 %

11.2 Measurement method

Standard : ANSI 63.10 (7.8.8) / ANSI 63.(10 6.10.4)

11.3 Limit

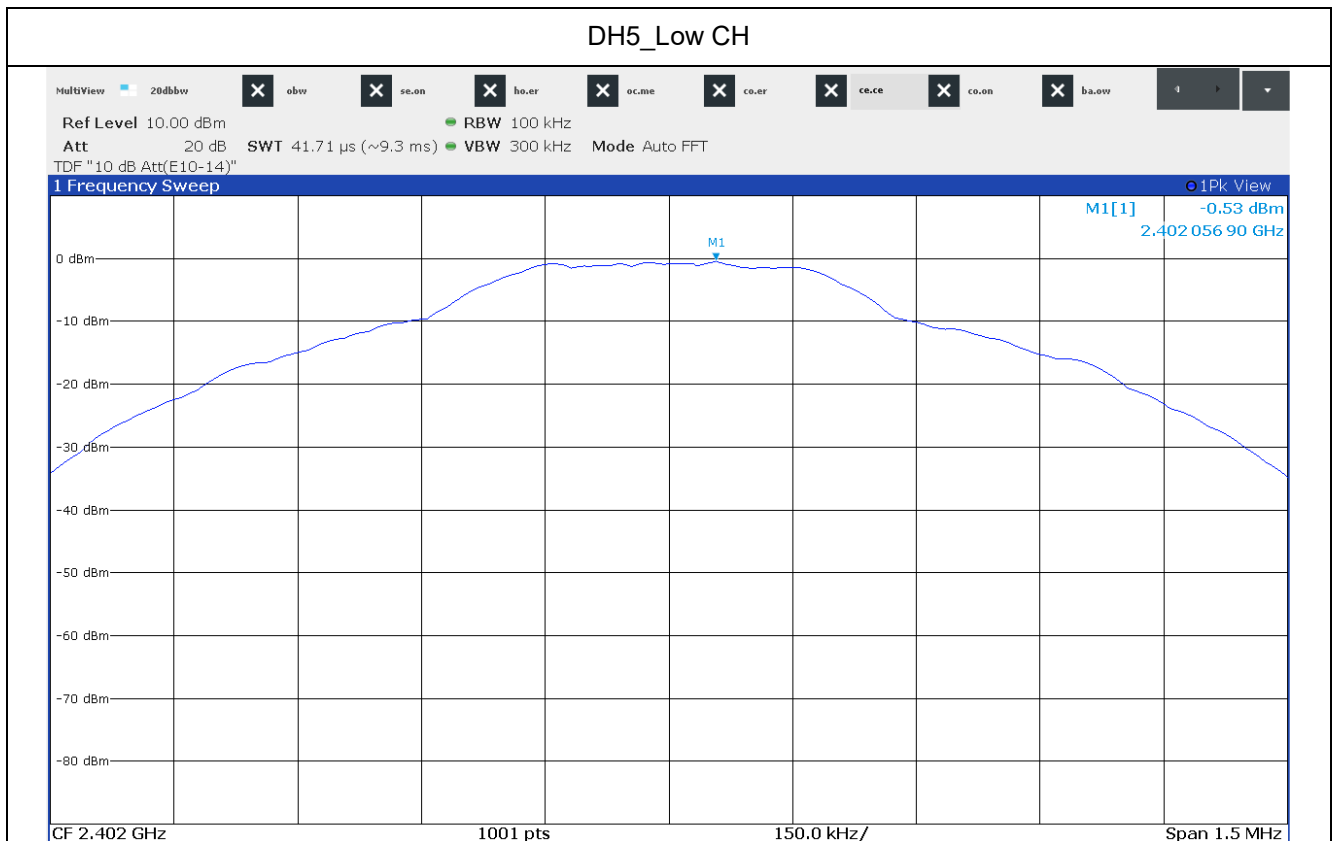
Standard : §15.247 (d)

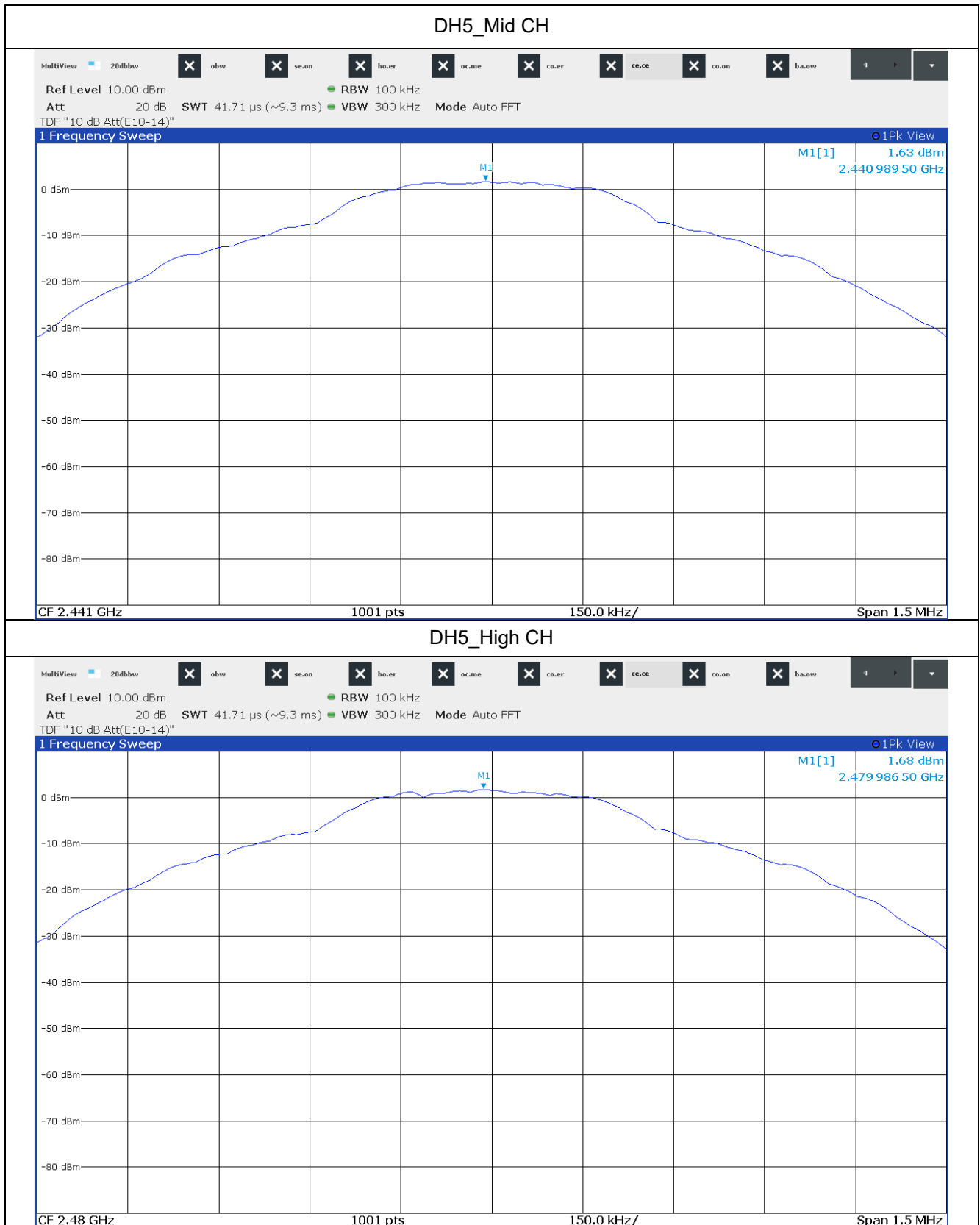
11.4 Test data

Test date : 25. Mar. 2021
Operating mode : Transmit mode
Test Result : Pass

11.4.1 Measured Results

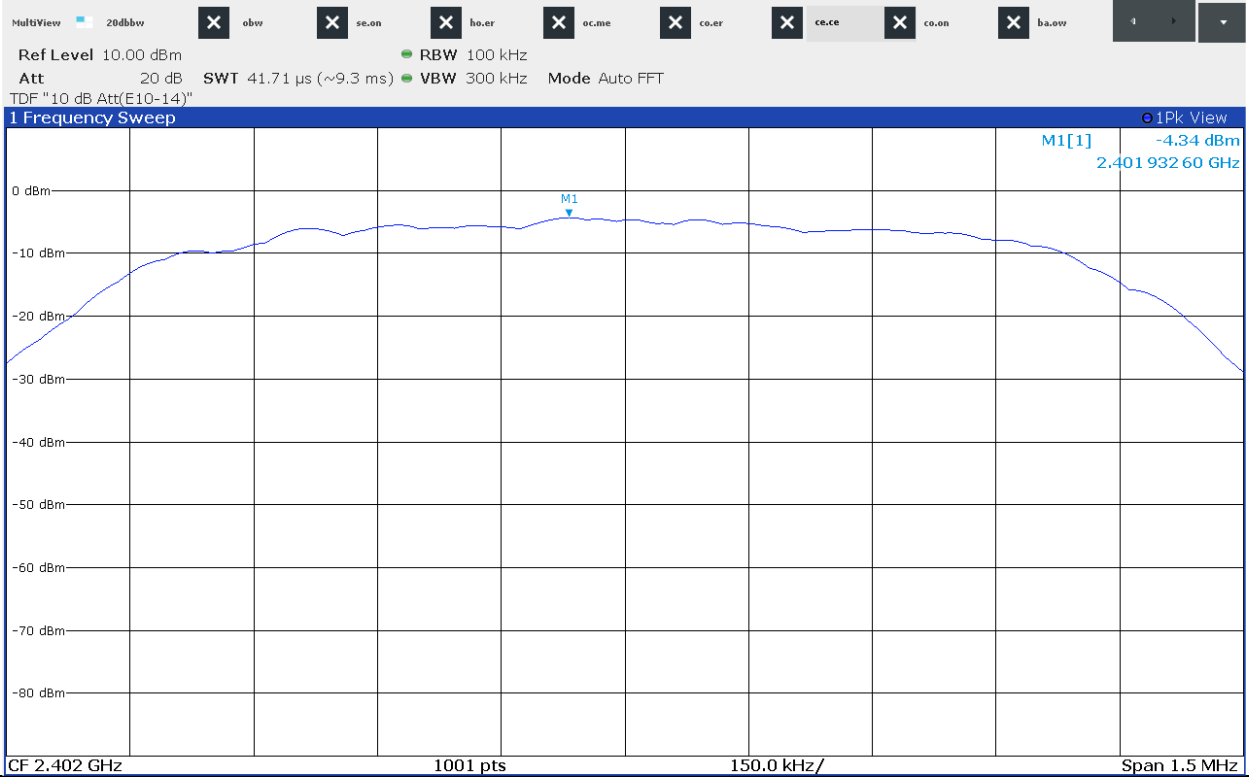
11.4.1.1 Signal level (dB m)



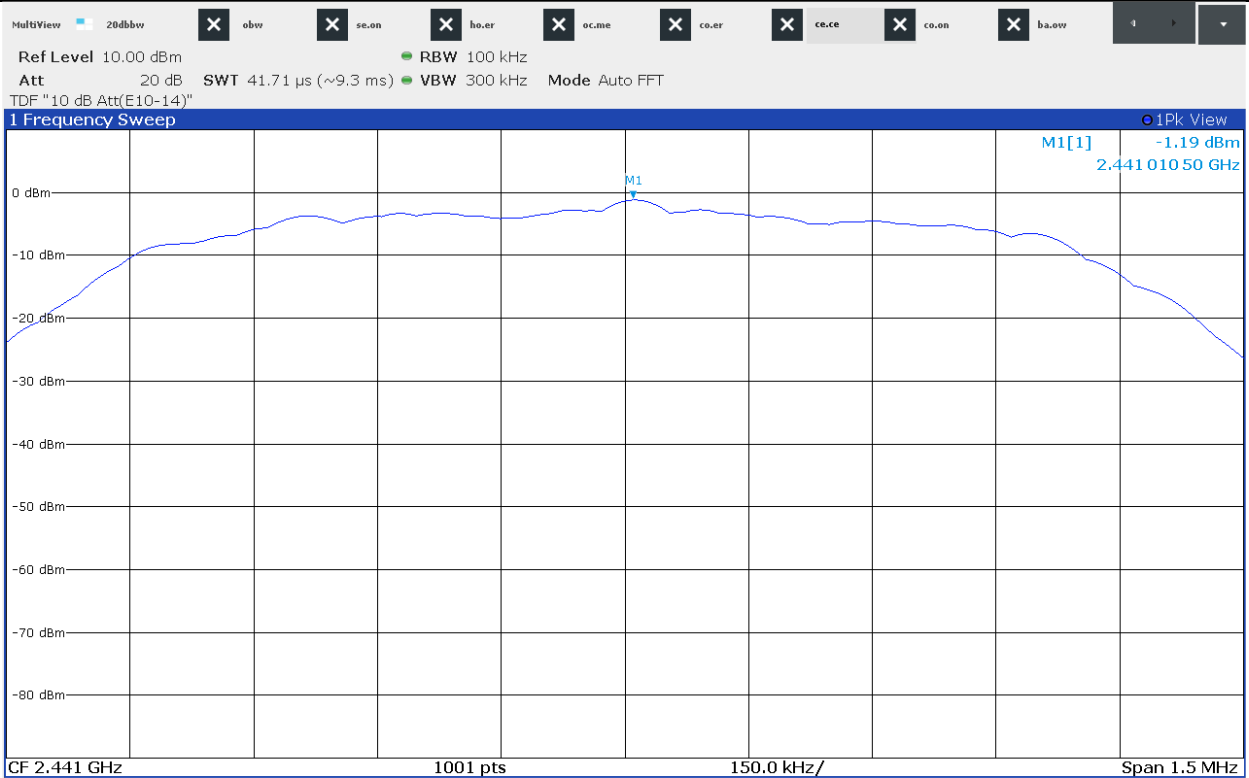




3-DH5_Low CH

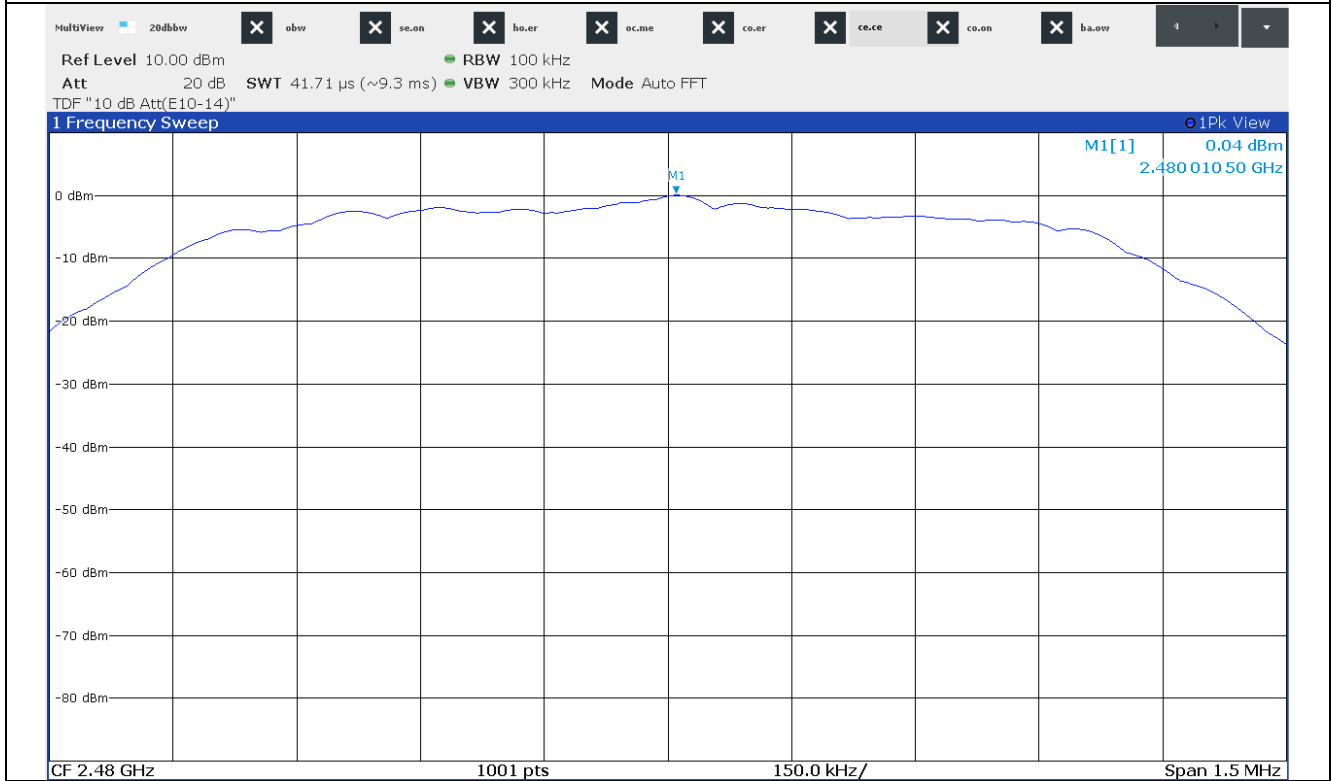


3-DH5_Mid CH



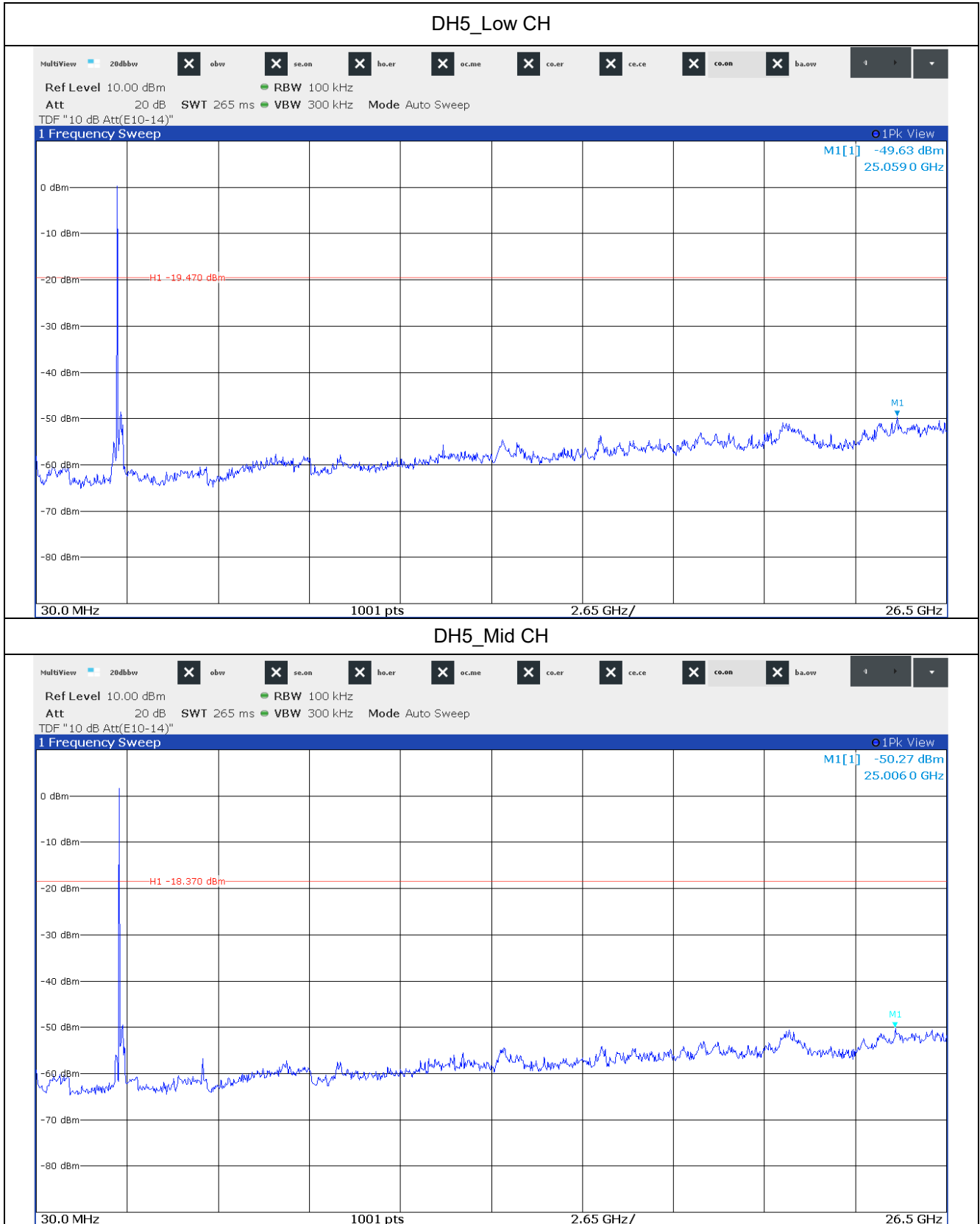


3-DH5_High CH



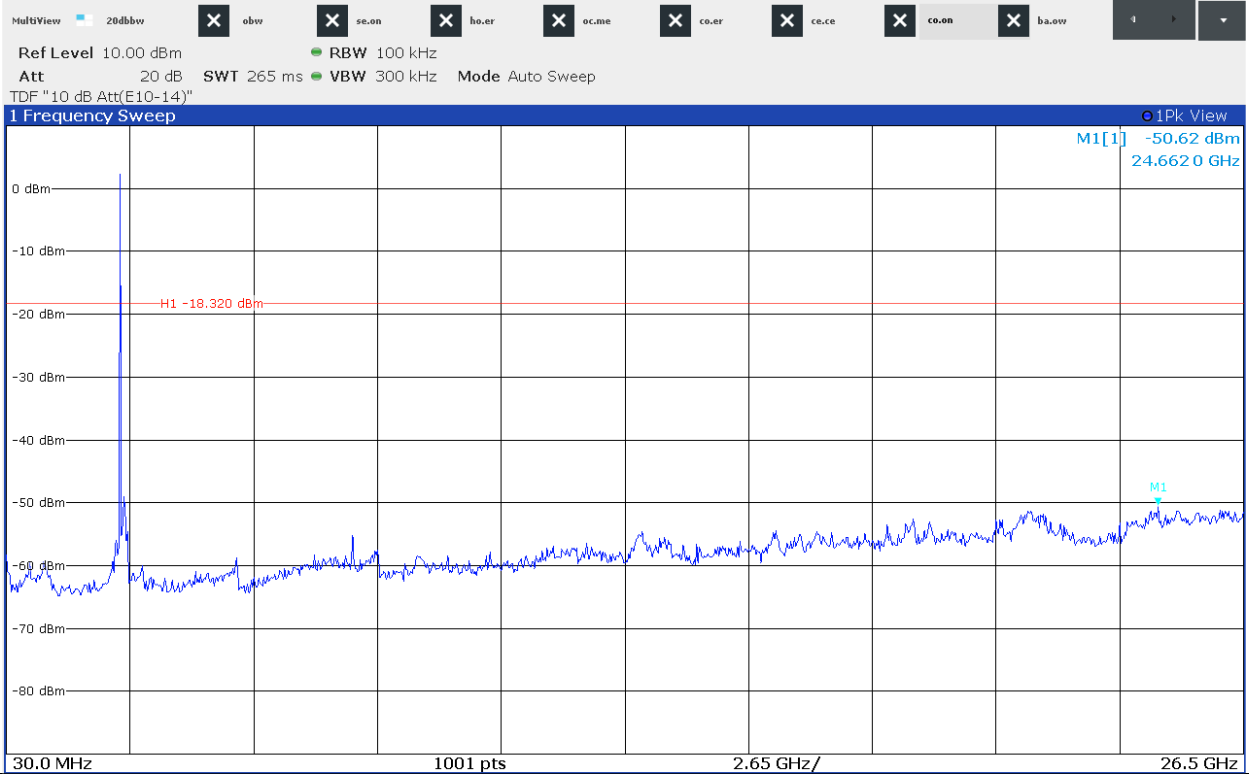


11.4.1.2 Unwanted Emissions In Non-Restricted Frequency Bands

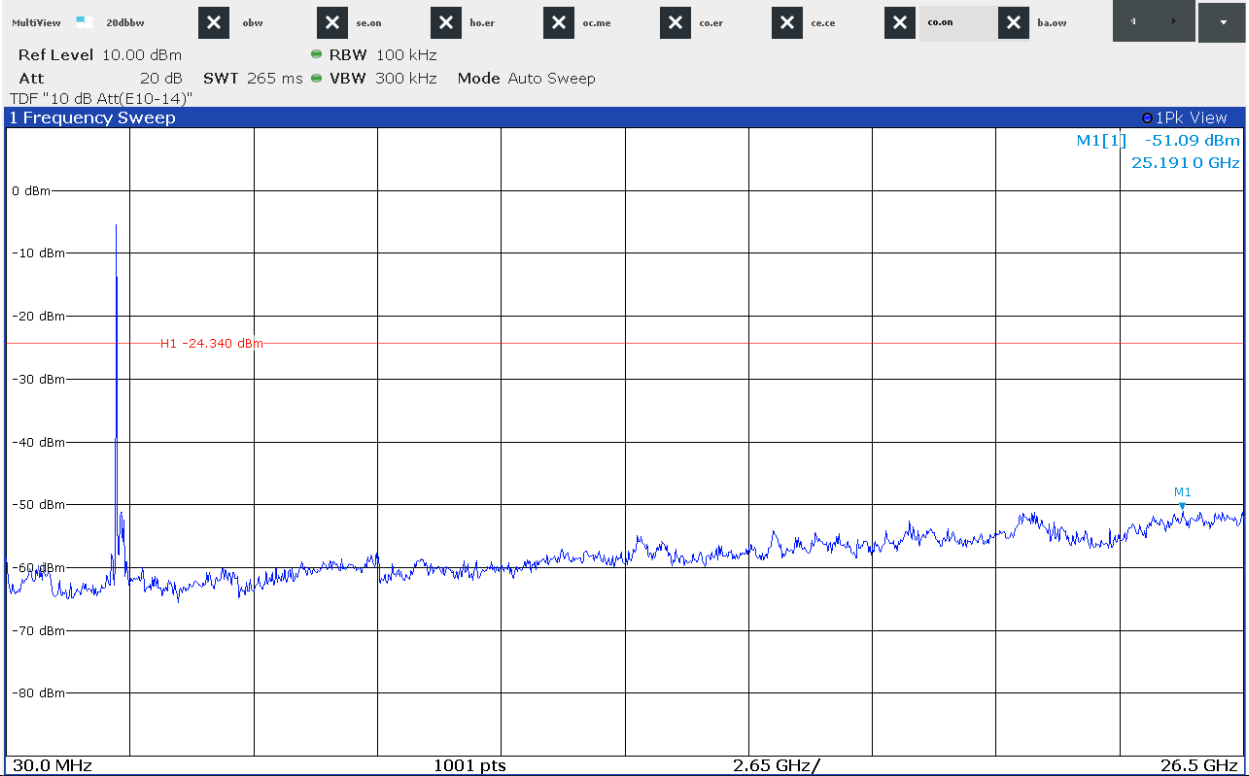




DH5_High CH

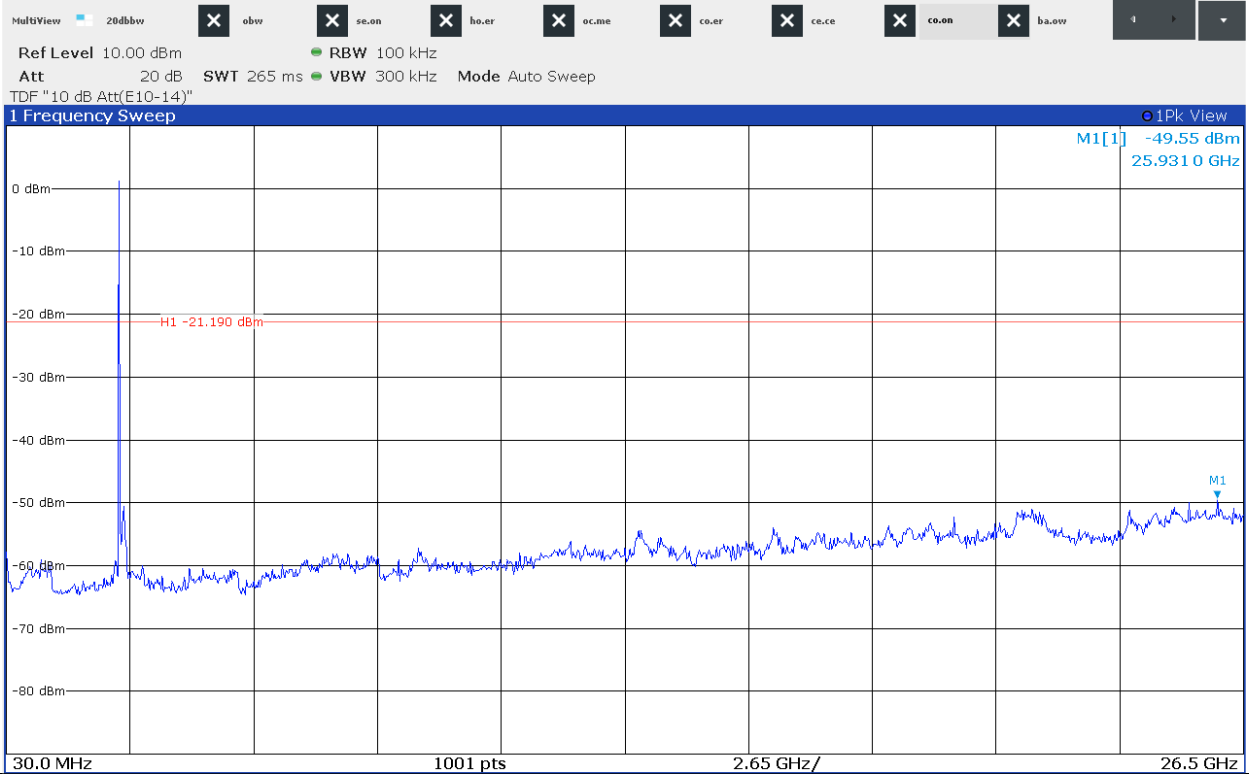


3-DH5_Low CH

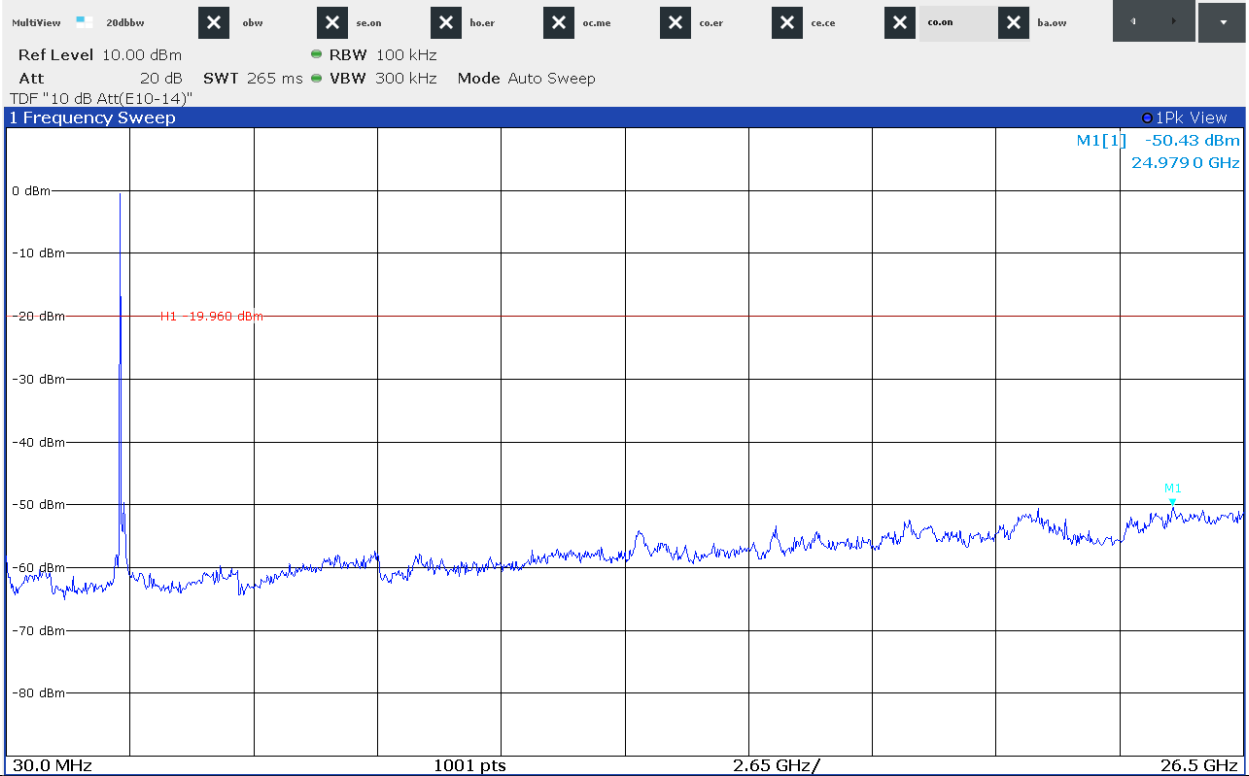




3-DH5_Mid CH

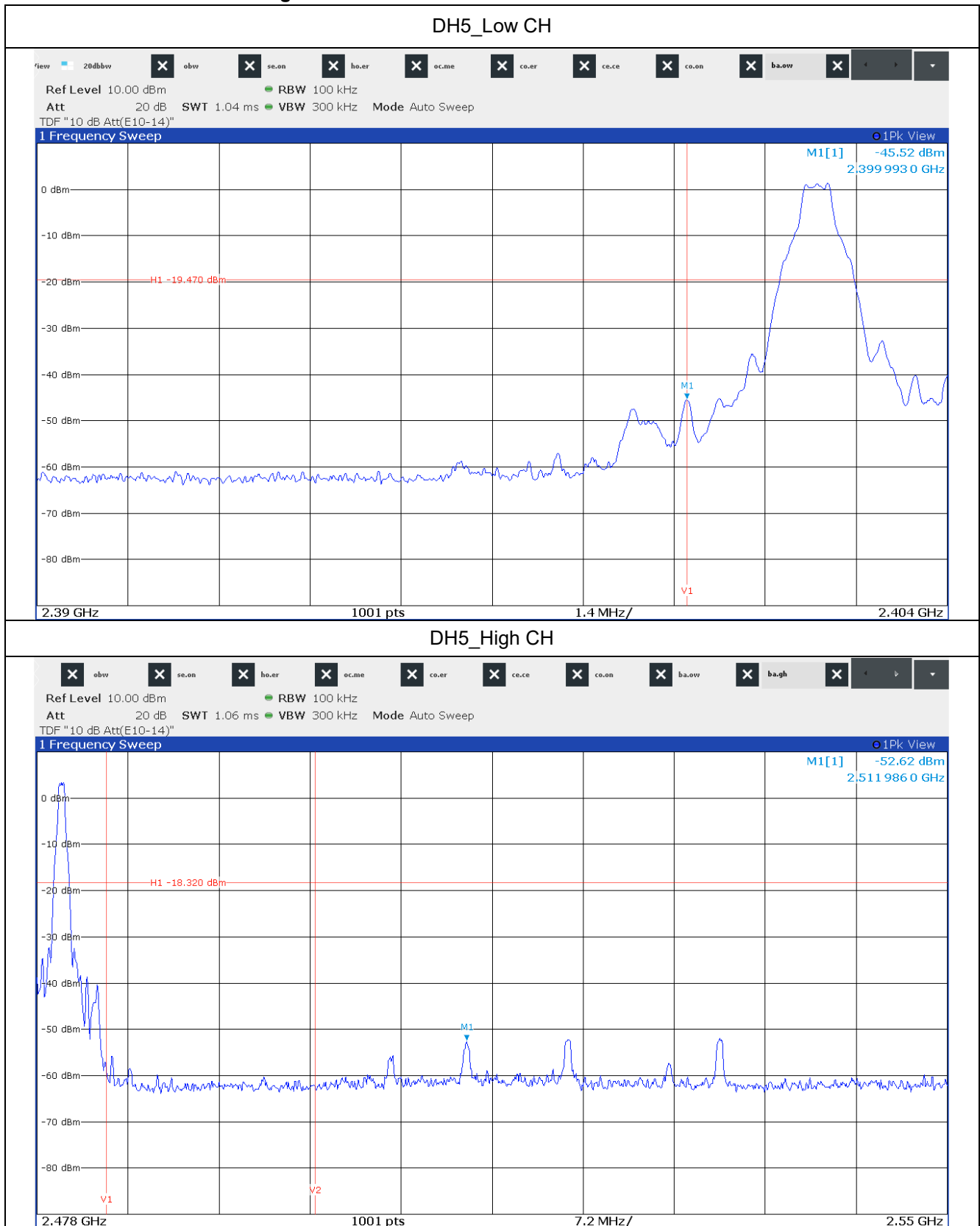


3-DH5_High CH



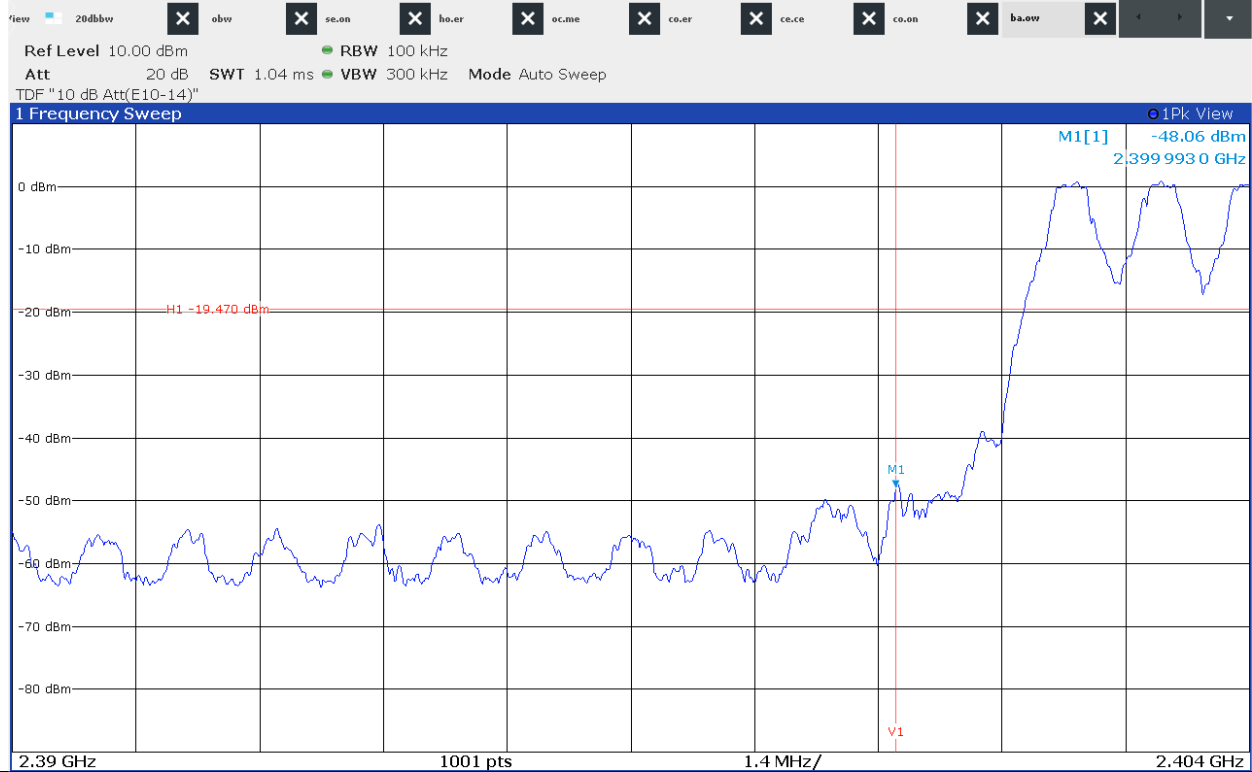


11.4.1.3 Band Edge

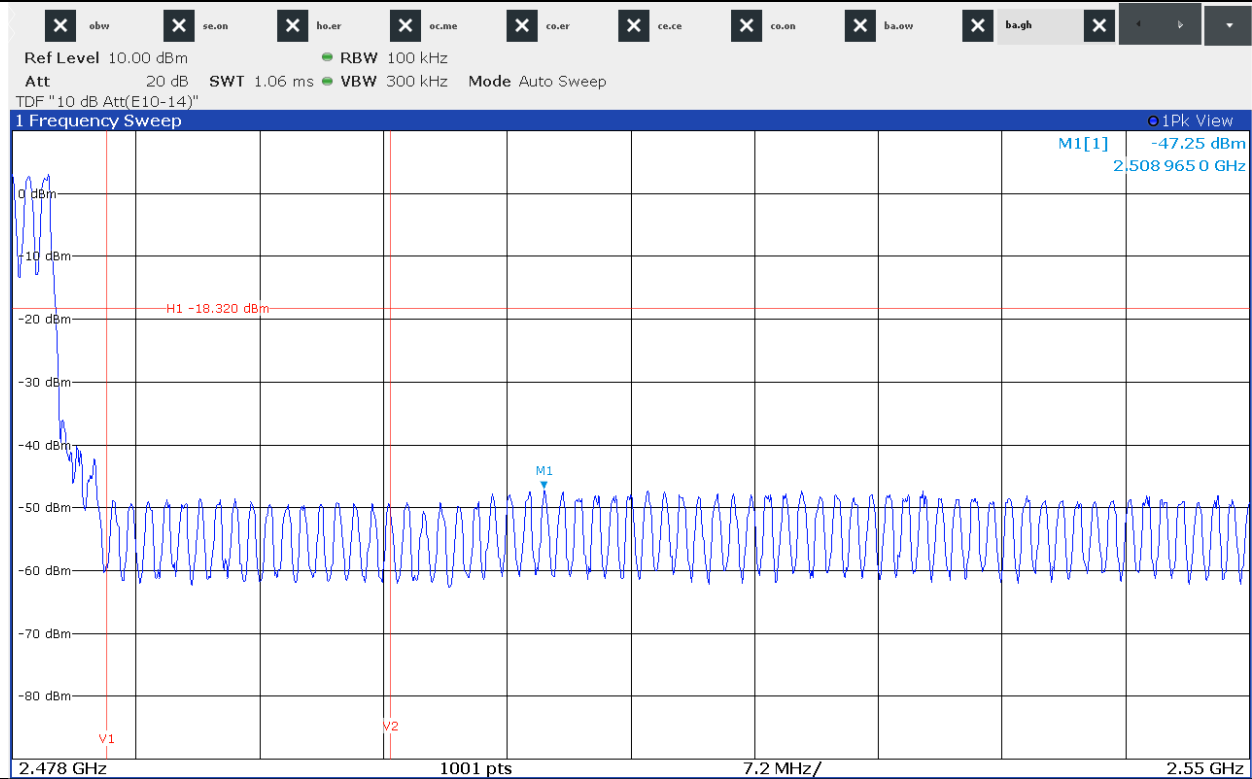




DH5_Hopping_Low CH

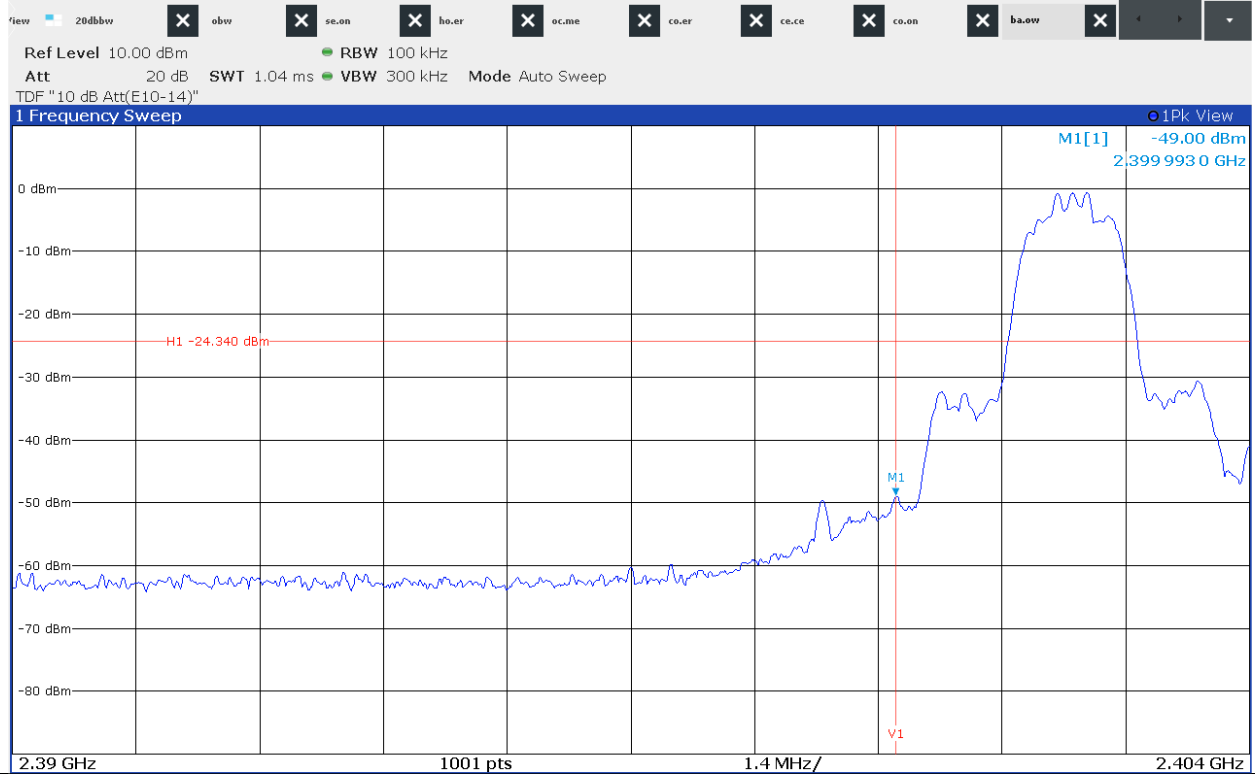


DH5_Hopping_High CH

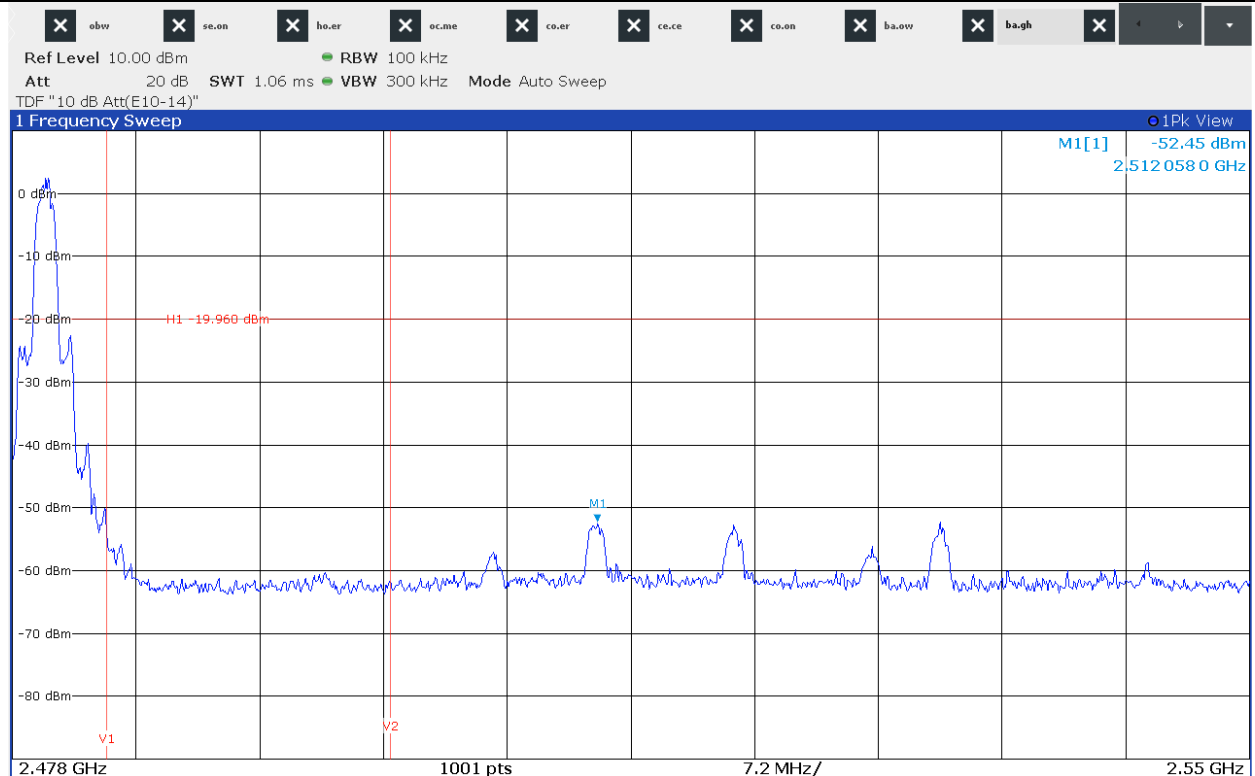




3-DH5_Low CH

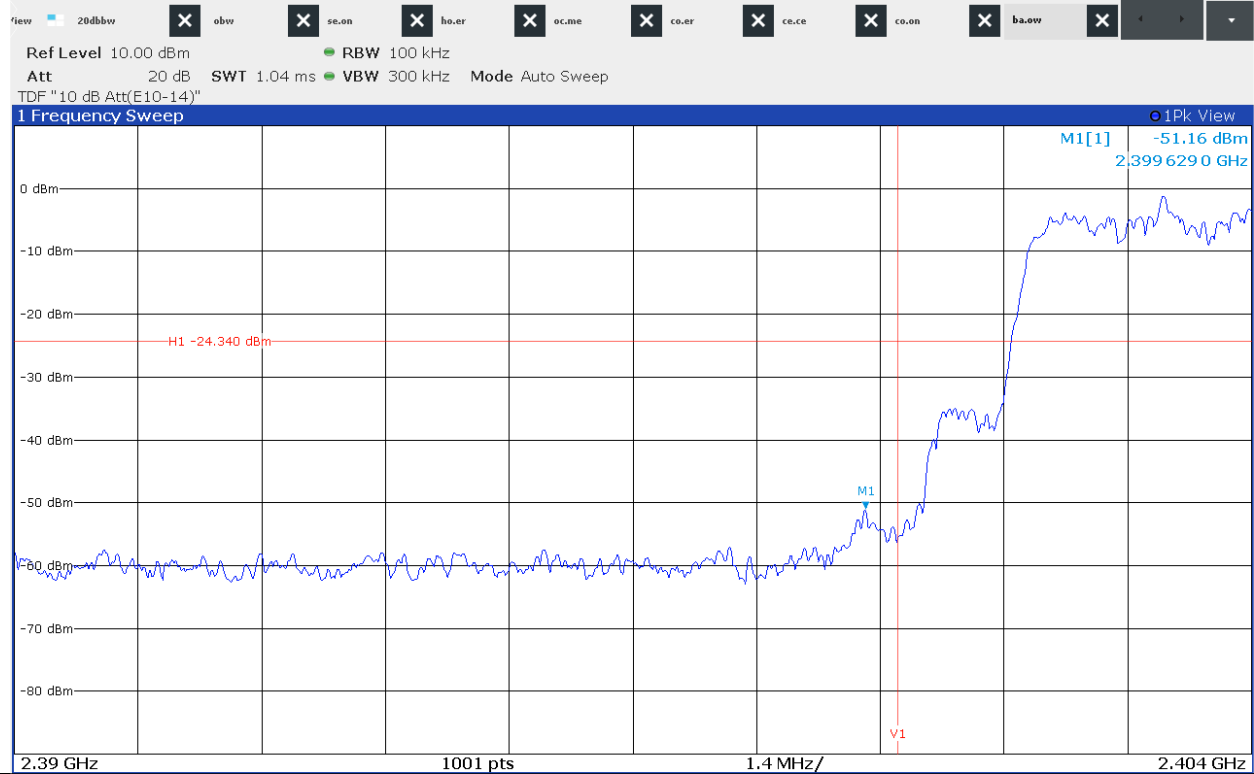


3-DH5_High CH

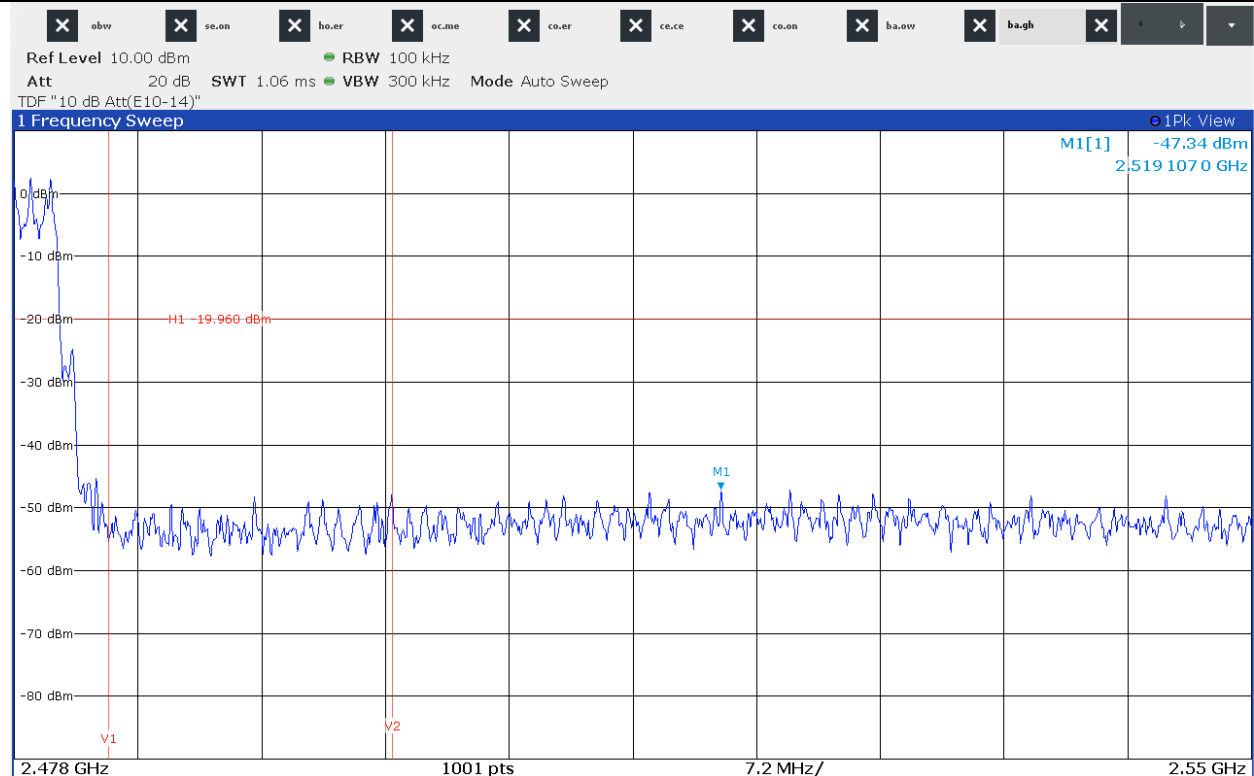




3-DH5_Hopping_Low CH



3-DH5_Hopping_High CH





12. Radiated Spurious Emission(Restricted band)

12.1 Operating environment

Temperature : (22 ~ 24) °C
Relative humidity : (47 ~ 49) %

12.2 Measurement method

Standard : ANSI 63.10 (6.4/6.5/6.6)

12.3 Limit

Standard : §15.205, §15.209

12.4 Test data

Test date : 24. Mar. 2021
Operating mode : Transmit mode
Test Result : Pass

12.4.1 Test data for Restricted band

12.4.1.1 DH5

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2364.93	Peak	H	48.89	-10.90 -	37.99	73.98	35.99
	Average	H	34.37		34.37	53.98	19.61
High CH							
2483.73	Peak	H	50.05	-9.50 -	40.55	73.98	33.43
	Average	H	36.33		36.33	53.98	17.65

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



12.4.1.2 3-DH5

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2324.76	Peak	H	48.58	-10.90 -	37.68	73.98	36.30
	Average	H	34.88		34.88	53.98	19.10
High CH							
2483.51	Peak	H	51.92	-9.50 -	42.42	73.98	31.56
	Average	H	36.57		36.57	53.98	17.41

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



12.4.2 Test data for Spurious & Harmonic

12.4.2.1 Measurement Results for Below 30 MHz

12.4.2.1.1 DH5

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.							

12.4.2.1.2 3-DH5

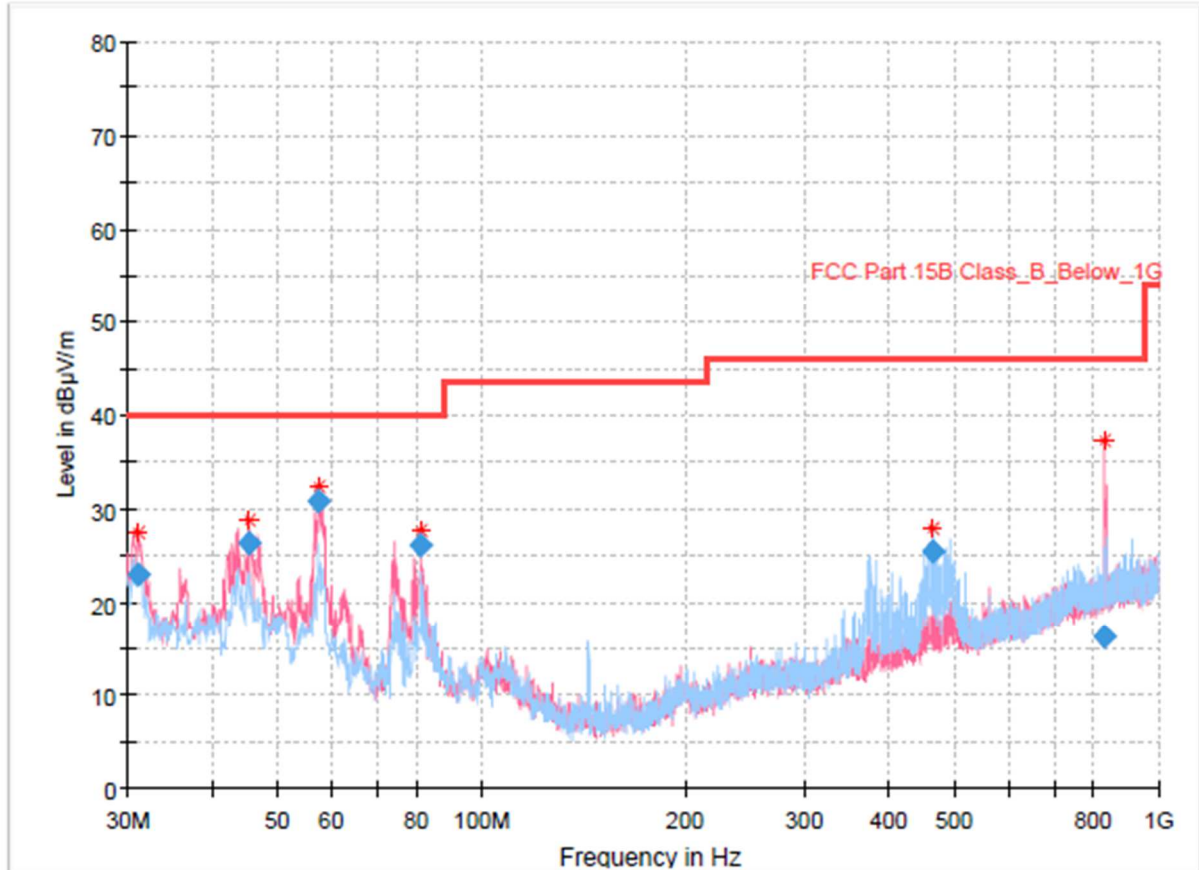
Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
It was not found any emissions peaks found from the EUT.							
Mid CH							
It was not found any emissions peaks found from the EUT.							
High CH							
It was not found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



12.4.2.2 Measurement Results for 30 MHz to 1 GHz

12.4.2.2.1 DH5

Low CH

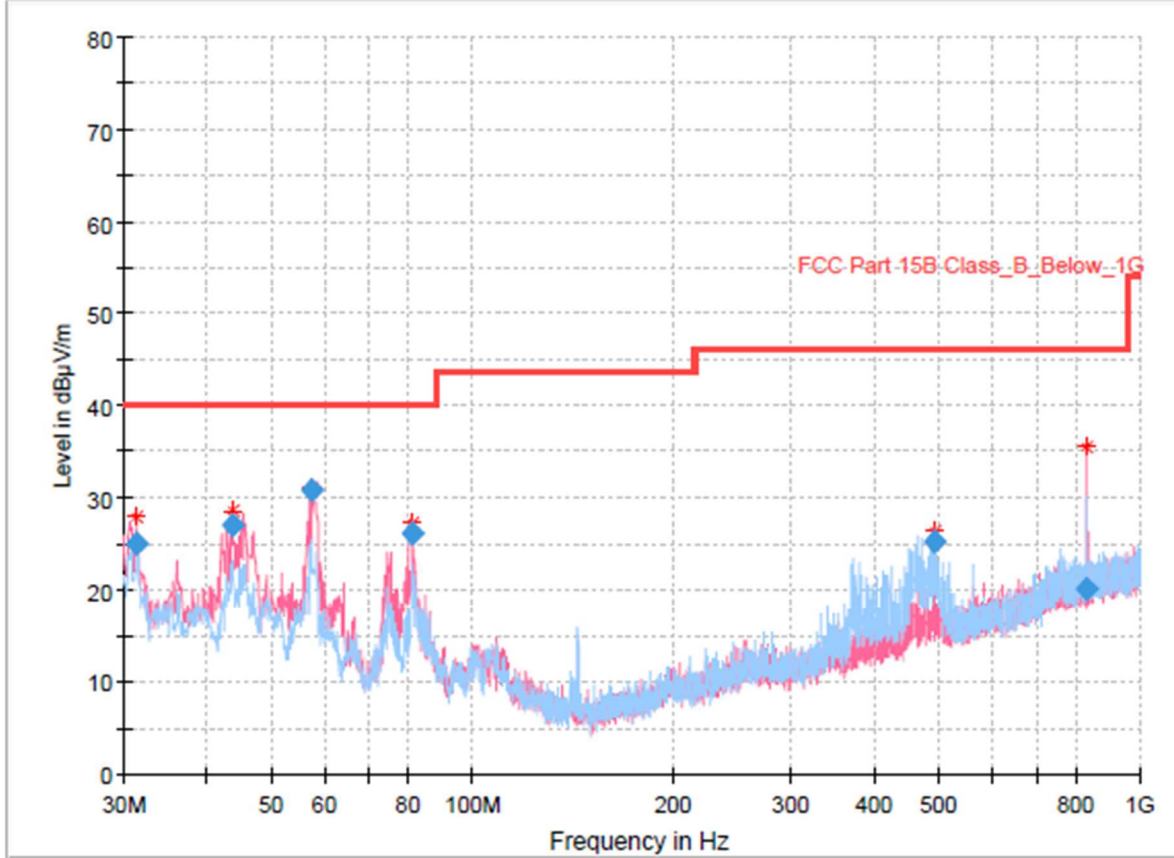


Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.164000	23.01	40.00	16.99	1000.0	120.000	100.0	V	59.0	-23.3
45.229000	26.34	40.00	13.66	1000.0	120.000	100.0	V	0.0	-19.2
57.451000	30.74	40.00	9.26	1000.0	120.000	100.0	V	358.0	-19.6
81.216000	26.14	40.00	13.86	1000.0	120.000	100.0	V	161.0	-25.4
463.978000	25.57	46.00	20.43	1000.0	120.000	100.0	H	246.0	-14.0
833.839000	16.25	46.00	29.75	1000.0	120.000	100.0	V	284.0	-8.2



Mid CH

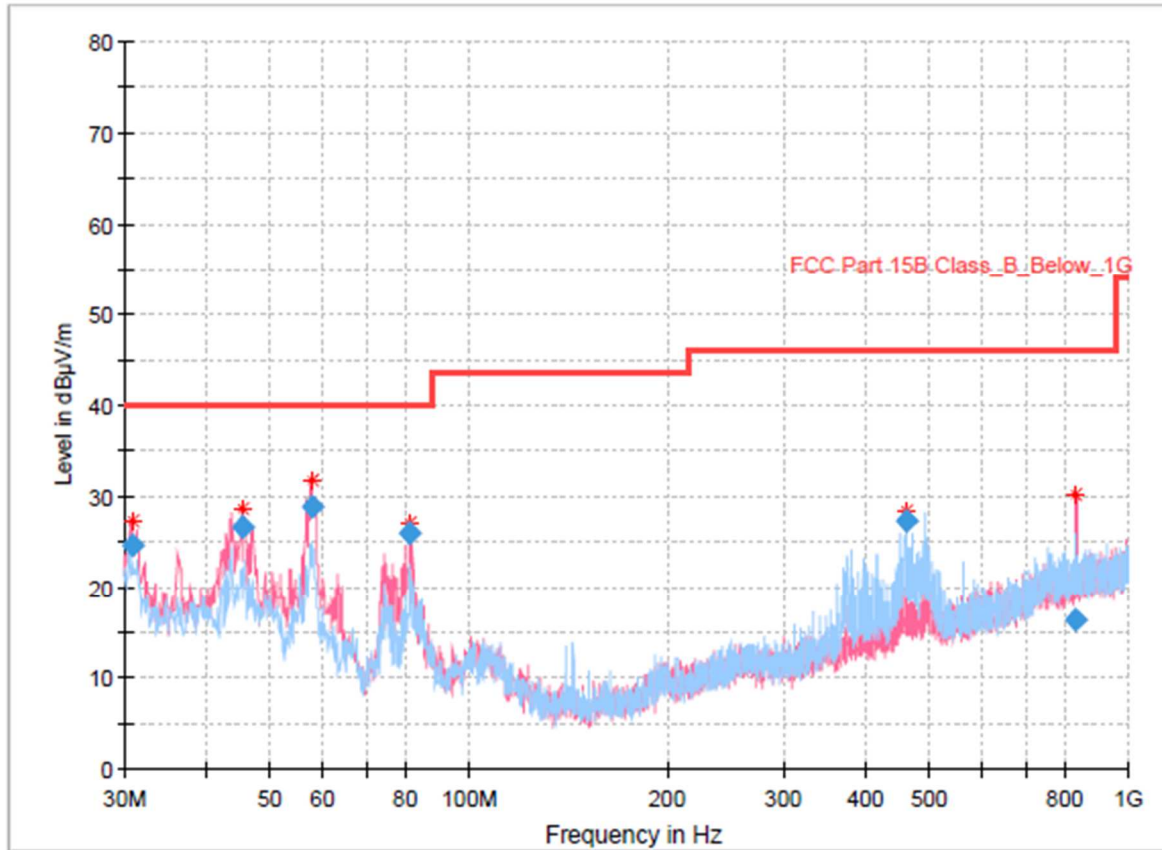


Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.358000	25.02	40.00	14.98	1000.0	120.000	99.9	V	168.0	-23.4
43.774000	27.14	40.00	12.86	1000.0	120.000	99.9	V	34.0	-19.3
57.451000	30.83	40.00	9.17	1000.0	120.000	99.9	V	269.0	-19.6
81.216000	26.11	40.00	13.89	1000.0	120.000	99.9	V	223.0	-25.4
492.011000	25.18	46.00	20.82	1000.0	120.000	99.9	H	240.0	-13.4
830.250000	20.20	46.00	25.80	1000.0	120.000	99.9	V	131.0	-8.3



High CH



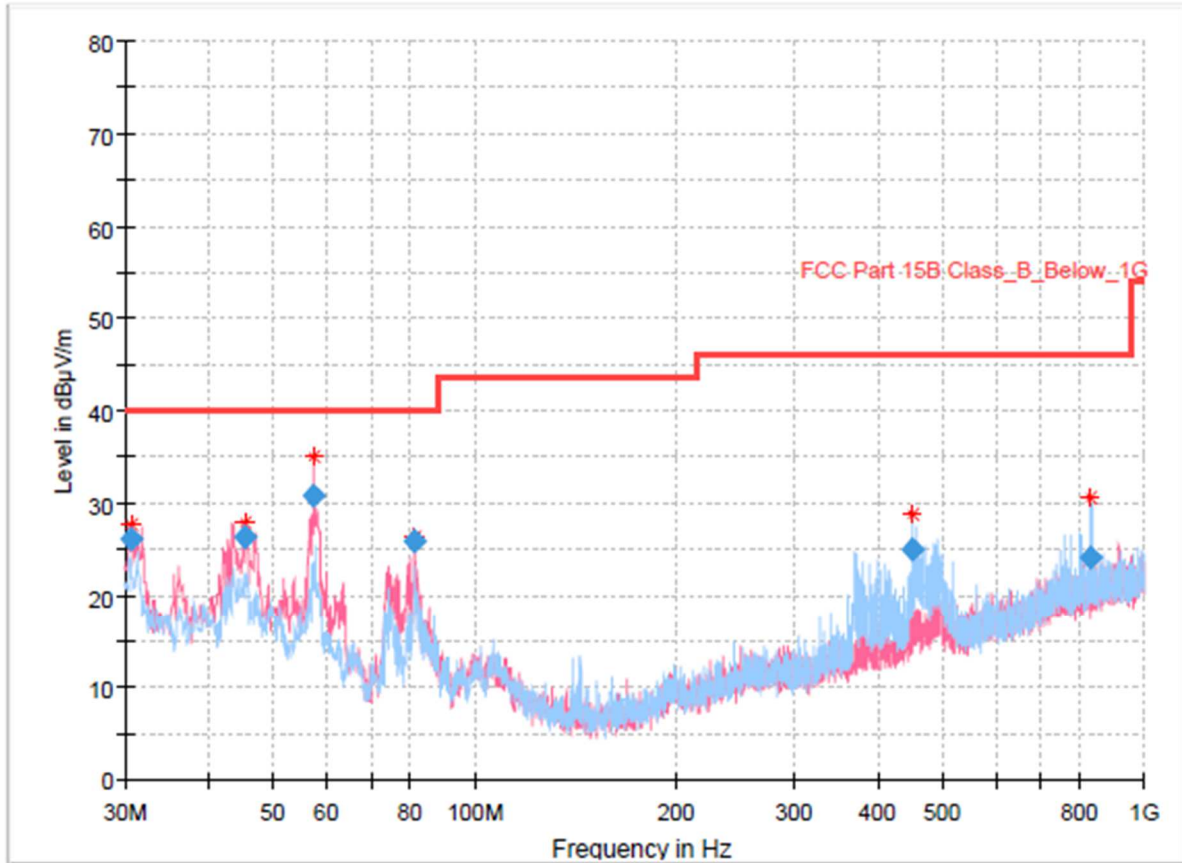
Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.873000	24.49	40.00	15.51	1000.0	120.000	99.9	V	112.0	-23.1
45.229000	26.56	40.00	13.44	1000.0	120.000	99.9	V	43.0	-19.2
57.839000	28.78	40.00	11.22	1000.0	120.000	99.9	V	130.0	-19.7
81.216000	25.97	40.00	14.03	1000.0	120.000	99.9	V	43.0	-25.4
460.001000	27.28	46.00	18.72	1000.0	120.000	99.9	H	225.0	-14.0
834.518000	16.27	46.00	29.73	1000.0	120.000	99.9	V	34.0	-8.2



12.4.2.2.2 3-DH5

Low CH

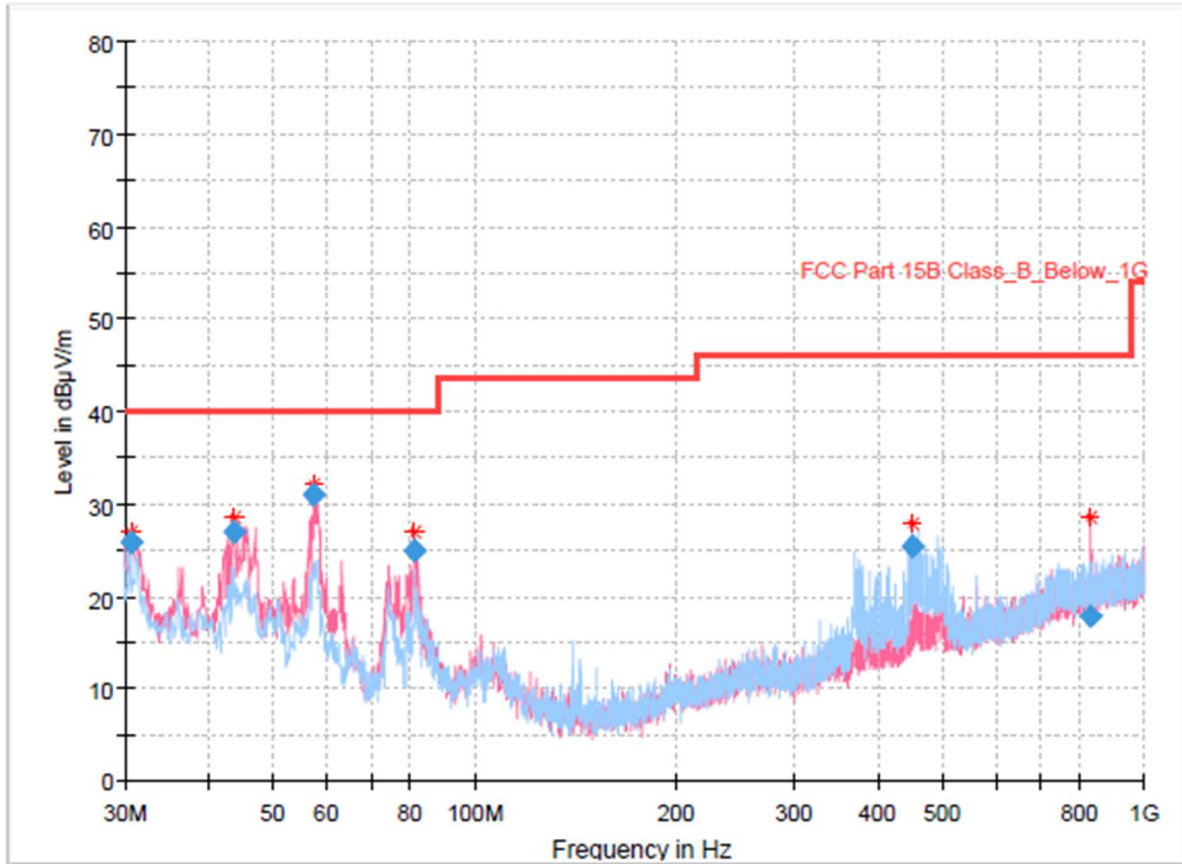


Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.582000	26.06	40.00	13.94	1000.0	120.000	100.0	V	34.0	-22.9
45.229000	26.34	40.00	13.66	1000.0	120.000	100.0	V	0.0	-19.2
57.451000	30.78	40.00	9.22	1000.0	120.000	100.0	V	78.0	-19.6
81.216000	25.99	40.00	14.01	1000.0	120.000	100.0	V	34.0	-25.4
452.047000	25.03	46.00	20.97	1000.0	120.000	100.0	H	242.0	-14.2
834.033000	24.12	46.00	21.88	1000.0	120.000	100.0	H	338.0	-8.2



Mid CH

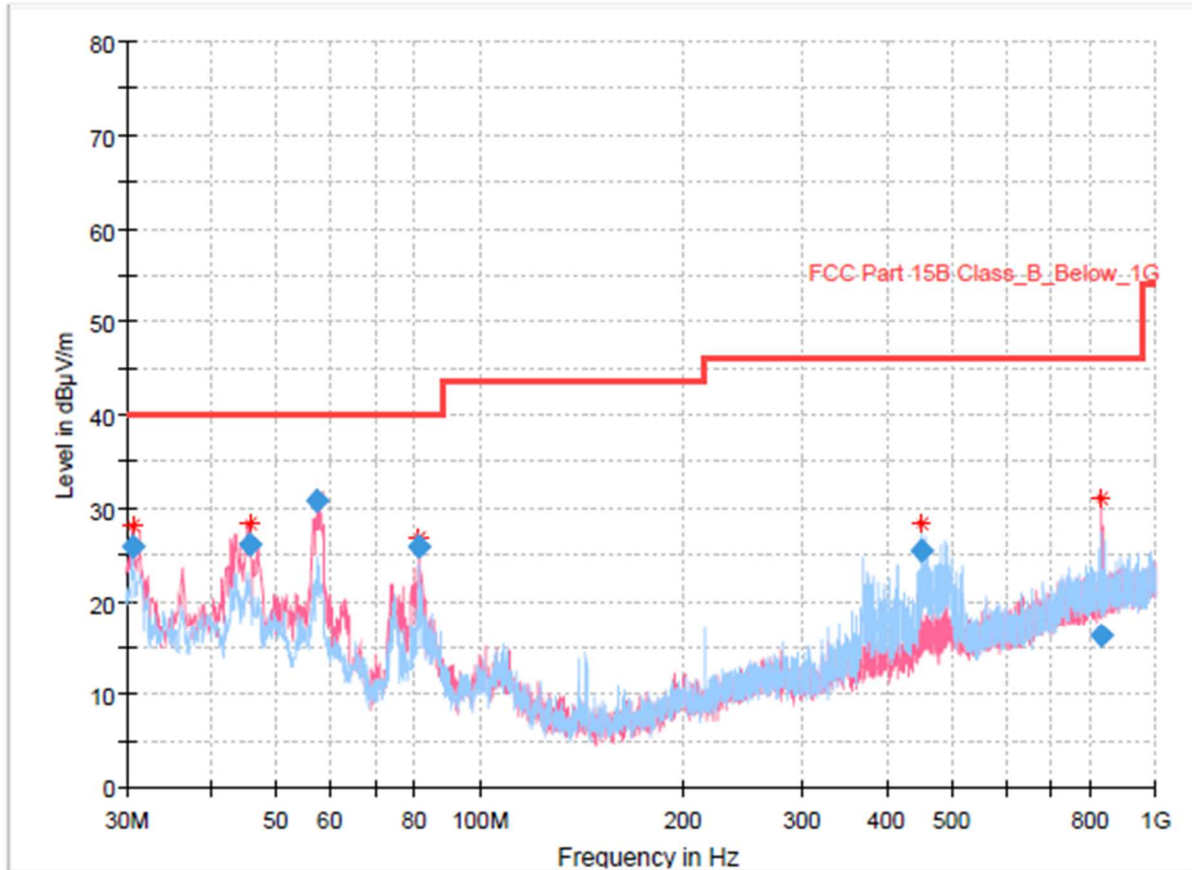


Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.582000	26.01	40.00	13.99	1000.0	120.000	100.0	V	69.0	-22.9
43.774000	27.08	40.00	12.92	1000.0	120.000	100.0	V	323.0	-19.3
57.451000	31.02	40.00	8.98	1000.0	120.000	100.0	V	286.0	-19.6
81.507000	25.01	40.00	14.99	1000.0	120.000	100.0	V	199.0	-25.3
452.047000	25.49	46.00	20.51	1000.0	120.000	100.0	H	232.0	-14.2
832.966000	17.79	46.00	28.21	1000.0	120.000	200.0	V	9.0	-8.2



High 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)
30.582000	25.93	40.00	14.07	1000.0	120.000	100.1	V	113.0	-22.9
45.714000	26.23	40.00	13.77	1000.0	120.000	100.1	V	141.0	-19.1
57.451000	30.93	40.00	9.07	1000.0	120.000	100.1	V	251.0	-19.6
81.216000	25.93	40.00	14.08	1000.0	120.000	100.1	V	0.0	-25.4
451.950000	25.39	46.00	20.61	1000.0	120.000	100.1	H	229.0	-14.2
832.869000	16.37	46.00	29.63	1000.0	120.000	200.0	V	0.0	-8.2



12.4.2.3 Measurement Results for Above 1 GHz

12.4.2.3.1 DH5

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4804.00	Peak	H	48.87	-4.80	44.07	73.98	29.91
	Average	H	40.38		40.38	53.98	13.60
7206.00	Peak	H	49.83	-1.20	48.63	73.98	25.35
	Average	H	38.62		38.62	53.98	15.36
Mid CH							
4804.00	Peak	H	48.55	-4.40	44.15	73.98	29.83
	Average	H	40.47		40.47	53.98	13.51
7206.00	Peak	H	52.60	-1.00	51.60	73.98	22.38
	Average	H	41.64		41.64	53.98	12.34
High CH							
4804.00	Peak	H	47.75	-4.20	43.55	73.98	30.43
	Average	H	40.24		40.24	53.98	13.74
7206.00	Peak	H	53.72	-0.80	52.92	73.98	21.06
	Average	H	43.55		43.55	53.98	10.43

※ Ant. Pol. : Antenna Polarization

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

※ Result = Reading + Corr Factor

※ Margin = Result - Limit

**12.4.2.3.2 3-DH5**

Frequency (MHz)	Detector	Ant. Pol. (H/V)	Reading (dBμV)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4804.00	Peak	H	48.08	-4.80	43.28	73.98	30.70
	Average	H	38.60		38.60	53.98	15.38
Mid CH							
4804.00	Peak	H	45.86	-4.40	41.46	73.98	32.52
	Average	H	34.67		34.67	53.98	19.31
High CH							
4804.00	Peak	H	47.11	-4.20	42.91	73.98	31.07
	Average	H	37.70		37.70	53.98	16.28

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



8. Power Line Conducted Emission

8.1 Operating environment

Temperature : 22 °C

Relative humidity : 44 %

8.2 Measurement method

Standard : §15.207

8.3 Limit

Standard : §15.207

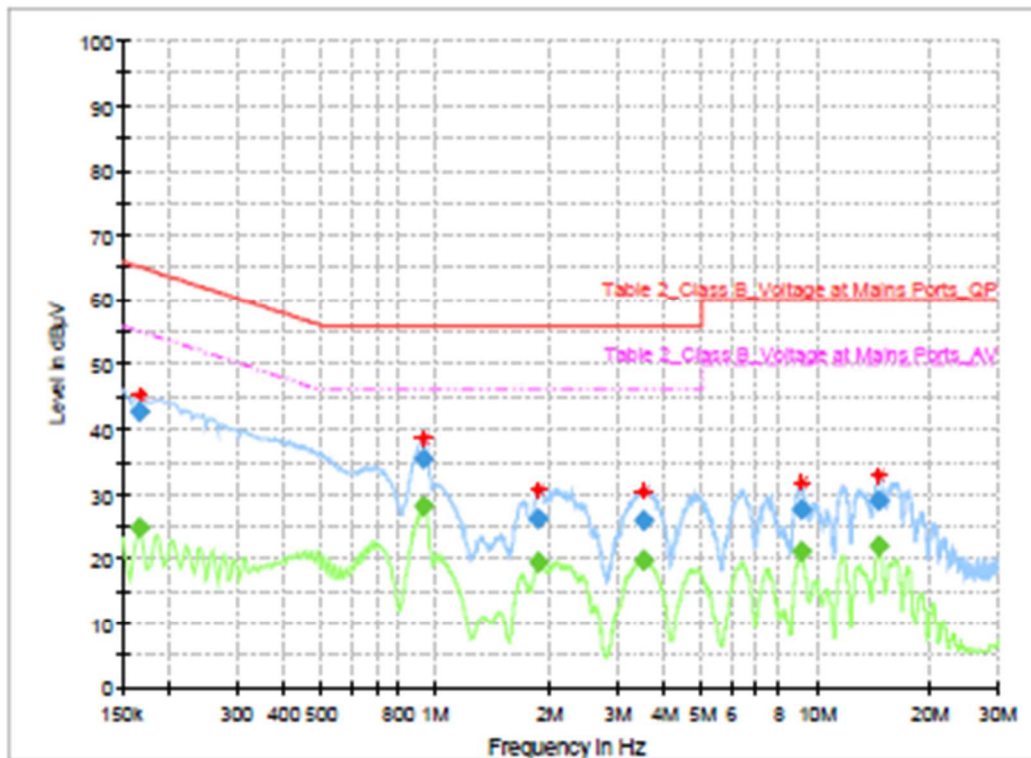


8.4 Test data

Test date : 24. Mar. 2021
 Operating mode : Transmit mode
 Test Result : Pass

8.4.1 Measured Results & Graph

DH5_Live line

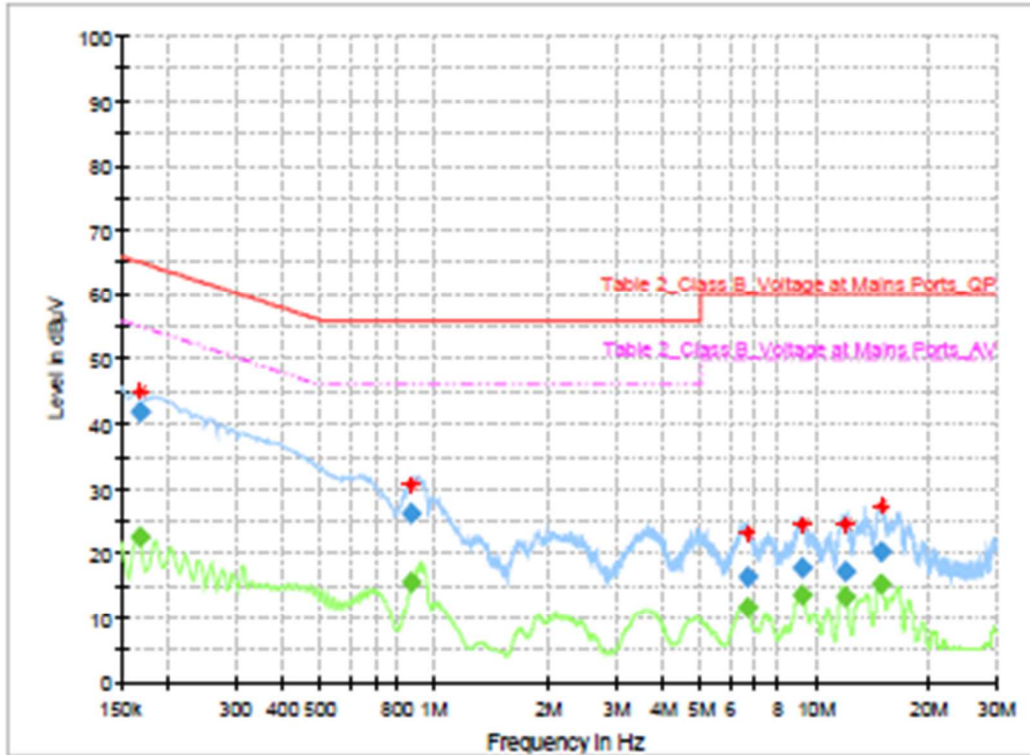


Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.186750	—	24.88	55.17	30.21	5000.0	8.000	L1	ON	10.1
0.186750	42.82	—	55.17	22.35	5000.0	8.000	L1	ON	10.1
0.828250	—	28.23	48.00	17.77	5000.0	8.000	L1	ON	10.0
0.828250	35.50	—	48.00	20.50	5000.0	8.000	L1	ON	10.0
1.889000	—	19.50	48.00	28.50	5000.0	8.000	L1	ON	10.0
1.889000	28.33	—	48.00	28.67	5000.0	8.000	L1	ON	10.0
3.534000	—	19.84	48.00	28.08	5000.0	8.000	L1	ON	10.0
3.534000	28.08	—	48.00	28.92	5000.0	8.000	L1	ON	10.0
8.169000	—	21.23	60.00	28.77	5000.0	8.000	L1	ON	10.1
8.169000	27.83	—	60.00	32.37	5000.0	8.000	L1	ON	10.1
14.706250	—	22.08	60.00	27.81	5000.0	8.000	L1	ON	10.1
14.706250	28.88	—	60.00	31.01	5000.0	8.000	L1	ON	10.1



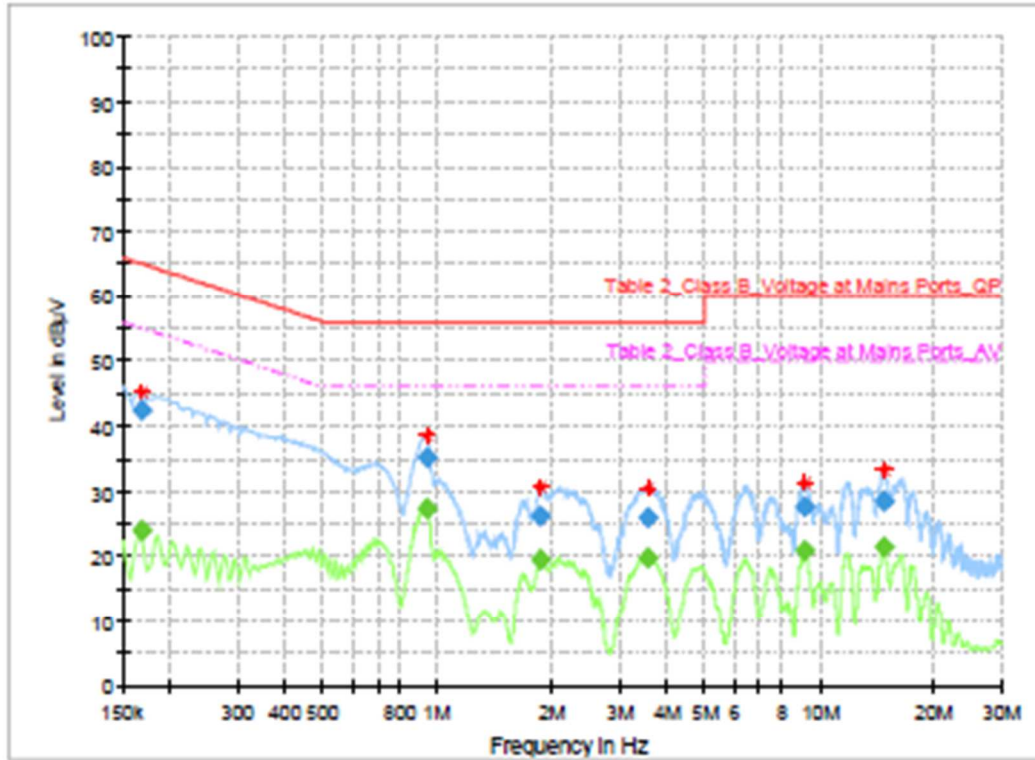
DH5_Neutral line



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.188000	---	22.60	65.08	32.68	6000.0	9.000	N	ON	9.8
0.188000	42.00	---	65.08	23.08	6000.0	9.000	N	ON	9.8
0.870000	---	16.67	48.00	30.43	6000.0	9.000	N	ON	9.8
0.870000	28.17	---	68.00	28.83	6000.0	9.000	N	ON	9.8
8.864750	---	11.75	60.00	38.28	6000.0	9.000	N	ON	9.8
8.864750	18.80	---	60.00	43.40	6000.0	9.000	N	ON	9.8
9.261250	---	13.68	60.00	38.41	6000.0	9.000	N	ON	9.8
9.261250	17.80	---	60.00	42.10	6000.0	9.000	N	ON	9.8
12.117750	---	13.30	60.00	38.70	6000.0	9.000	N	ON	9.8
12.117750	17.24	---	60.00	42.78	6000.0	9.000	N	ON	9.8
16.008000	---	16.48	60.00	34.62	6000.0	9.000	N	ON	9.8
16.008000	20.35	---	60.00	39.65	6000.0	9.000	N	ON	9.8

3-DH5_Live line

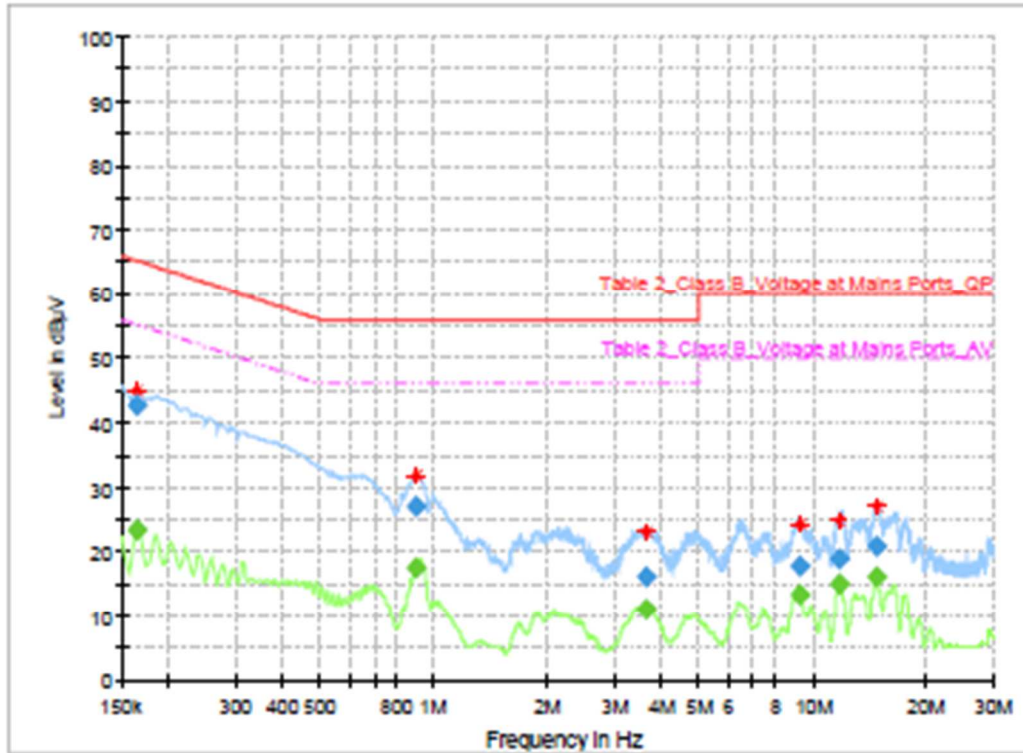


Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.188000	---	24.12	55.08	30.84	5000.0	8.000	L1	ON	10.1
0.188000	42.48	---	55.08	22.68	5000.0	8.000	L1	ON	10.1
0.836250	---	27.37	48.00	18.83	5000.0	8.000	L1	ON	10.0
0.836250	35.18	---	48.00	20.82	5000.0	8.000	L1	ON	10.0
1.889000	---	19.50	48.00	28.50	5000.0	8.000	L1	ON	10.0
1.889000	28.27	---	48.00	28.73	5000.0	8.000	L1	ON	10.0
3.658500	---	19.84	48.00	28.16	5000.0	8.000	L1	ON	10.0
3.658500	25.88	---	48.00	30.12	5000.0	8.000	L1	ON	10.0
8.178250	---	20.88	48.00	28.04	5000.0	8.000	L1	ON	10.1
8.178250	27.62	---	48.00	32.48	5000.0	8.000	L1	ON	10.1
14.780750	---	21.38	48.00	28.81	5000.0	8.000	L1	ON	10.1
14.780750	28.42	---	48.00	31.58	5000.0	8.000	L1	ON	10.1



3-DH5_Neutral line



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Mess. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.183500	—	23.55	65.28	31.73	5000.0	8.000	N	ON	9.8
0.183500	42.81	—	65.28	22.88	5000.0	8.000	N	ON	9.8
0.901600	—	17.83	48.00	28.37	5000.0	8.000	N	ON	9.8
0.901600	27.08	—	68.00	28.92	5000.0	8.000	N	ON	9.8
3.863250	—	11.27	48.00	34.73	5000.0	8.000	N	ON	9.7
3.863250	16.14	—	68.00	38.86	5000.0	8.000	N	ON	9.7
8.248750	—	13.48	60.00	38.54	5000.0	8.000	N	ON	9.8
8.248750	17.88	—	80.00	42.02	5000.0	8.000	N	ON	9.8
11.820750	—	14.95	60.00	35.05	5000.0	8.000	N	ON	9.8
11.820750	18.88	—	80.00	41.12	5000.0	8.000	N	ON	9.8
14.776000	—	16.12	60.00	33.88	5000.0	8.000	N	ON	9.8
14.776000	21.03	—	80.00	38.97	5000.0	8.000	N	ON	9.8

- END OF REPORT.