Testing Laboratory
3023

Test report No.: 2380577R-RFUSV01S-B

TEST REPORT

Product Name	Multimedia device with Bluetooth and WLAN
Trademark	BOSCH
Model and /or type reference	CCS2SBXQ
FCC ID	2AUXS-CCS2SBXQ
Applicant´s name / address	Robert Bosch GmbH Robert-Bosch-Strasse 200, 31139 Hildesheim, Germany
Manufacturer´s name	Robert Bosch GmbH
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart C ANSI C63.4: 2014, ANSI C63.10: 2013
Verdict Summary	IN COMPLIANCE
Documented By (Supervisor / Jinn Chen)	Jinn Chen
Tested By (Senior Engineer / Ivan Chuang)	Ivan Chuang
Approved By (Senior Engineer / Alan Chen)	Alan Chen
Date of Receipt	2023/08/17
Date of Issue	2023/11/28
Report Version	V1.0

INDEX

Page

1. General Information 6

1.1. EUT Description 6
1.2. Tested System Details 9
1.3. Configuration of Tested System 9
1.4. EUT Exercise Software 9
1.5. Test Facility 10
1.6. List of Test Equipment 11
1.7. Uncertainty 12

2. Conducted Emission 13

2.1. Test Setup 13
2.2. Limits 13
2.3. Test Procedure 14
2.4. Test Result of Conducted Emission 15

3. Maximum Peak Conducted Output Power 16

3.1. Test Setup 16
3.2. Limit 16
3.3. Test Procedure 16
3.4. Test Result of Maximum Peak Conducted Output Power 17

4. Radiated Emission 19

4.1. Test Setup 19
4.2. Limits 20
4.3. Test Procedure 21
4.4. Test Result of Radiated Emission 22

5. RF Antenna Port Conducted Test 27

5.1. Test Setup 27
5.2. Limits 27
5.3. Test Procedure 27
5.4. Test Result of RF Antenna Port Conducted Test 28

6. Band Edge 30

6.1. Test Setup 30
6.2. Limit 31
6.3. Test Procedure 31

6.4. Test Result of Band Edge 32

7. Channel Number 46

7.1. Test Setup 46
7.2. Limit 46
7.3. Test Procedure 46
7.4. Test Result of Channel Number 47

8. Channel Separation 49

8.1. Test Setup 49
8.2. Limit 49
8.3. Test Procedure 49
8.4. Test Result of Channel Separation 50

9. Dwell Time 52

9.1. Test Setup 52
9.2. Limit 52
9.3. Test Procedure 52
9.4. Test Result of Dwell Time 53

10. 20dBc Occupied Bandwidth 55

10.1. Test Setup 55
10.2. Limits 55
10.3. Test Procedure 55
10.4. Test Result of 20dBc Occupied Bandwidth 56

11. Duty Cycle 58

11.1. Test Setup 58
11.2. Test Result of Duty Cycle 59

Appendix 1: EUT Test Photographs
Appendix 2: Product Photos-Please refer to the file: 2380577R-Product Photos

Competences and Guarantees

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

General conditions

1. The test results relate only to the samples tested.
2. The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.
3. This report must not be used to claim product endorsement by TAF or any agency of the government.
4. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
5. Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Revision History

Report No.	Version	Description	Issued Date
2380577R-RFUSV01S-B	V1.0	Initial issue of report.	2023/11/28

1. General Information

1.1. EUT Description

Product Name	Multimedia device with Bluetooth and WLAN
Trademark	BOSCH
Model and /or type reference	CCS2SBXQ
EUT Rated Voltage	DC 9V-16V
EUT Test Voltage	DC 12V by Battery
Frequency Range	2402-2480 MHz
Channel Number	79CH
Type of Modulation	GFSK(1 Mbps) / π /4DQPSK(2 Mbps) / 8DPSK(3 Mbps)
Channel Control	Auto

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	BOSCH	W702	Integrated as printed circuit board antenna	1.6 dBi for 2400 MHz

Note:

1. The antenna of EUT is conforming to FCC 15.203.
2. The antenna gain as by the manufacturer provided.

Center Frequency of Each Channel:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	01	2403	02	2404	03	2405
04	2406	05	2407	06	2408	07	2409
08	2410	09	2411	10	2412	11	2413
12	2414	13	2415	14	2416	15	2417
16	2418	17	2419	18	2420	19	2421
20	2422	21	2423	22	2424	23	2425
24	2426	25	2427	26	2428	27	2429
28	2430	29	2431	30	2432	31	2433
32	2434	33	2435	34	2436	35	2437
36	2438	37	2439	38	2440	39	2441
40	2442	41	2443	42	2444	43	2445
44	2446	45	2447	46	2448	47	2449
48	2450	49	2451	50	2452	51	2453
52	2454	53	2455	54	2456	55	2457
56	2458	57	2459	58	2460	59	2461
60	2462	61	2463	62	2464	63	2465
64	2466	65	2467	66	2468	67	2469
68	2470	69	2471	70	2472	71	2473
72	2474	73	2475	74	2476	75	2477
76	2478	77	2479	78	2480	--	--

Note:

1. The EUT is a Multimedia device with Bluetooth and WLAN with built-in WLAN and Bluetooth transceiver, this report for Bluetooth V2.1+EDR.
2. The product includes two configurations with the following as below:

Model name	HW Version Identification Number (HVIN)	Description
CCS2SBXQ	NA1	Internal Antenna / External Antenna
	NA2	2x Internal Antenna

3. Usage of samples, samples undergoing test have been selected by: The client.

ID	Bosch Part No	Control Number	Description
01	7 515 752 687-02	PSR-2054085	Internal / External antenna
02	7 515 752 687-02	PSR-2054083	Internal / External antenna (modified)
03	7 515 752 799-01	PSR-2054086	2x Internal antenna

Notes referenced to samples during the project:

ID	Type
01	Radiated
02	Conducted
03	Radiated

4. The product Bluetooth transceiver only use Internal antenna.
5. The spectrum plot against conducted item only shows the worst case.
6. DEKRA has evaluated each test mode. Only the worst case is shown in the report.
7. These tests were conducted on a sample for the purpose of demonstrating compliance of transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices
8. The test mode is based on the Bluetooth technology, while testing 1Mbps, 2Mbps and 3Mbps, the worst case is 1Mbps and 3Mbps, and only worse case data is recorded in this report.

Test Mode	Mode 1	Transmit - 1 Mbps
		Transmit - 3 Mbps

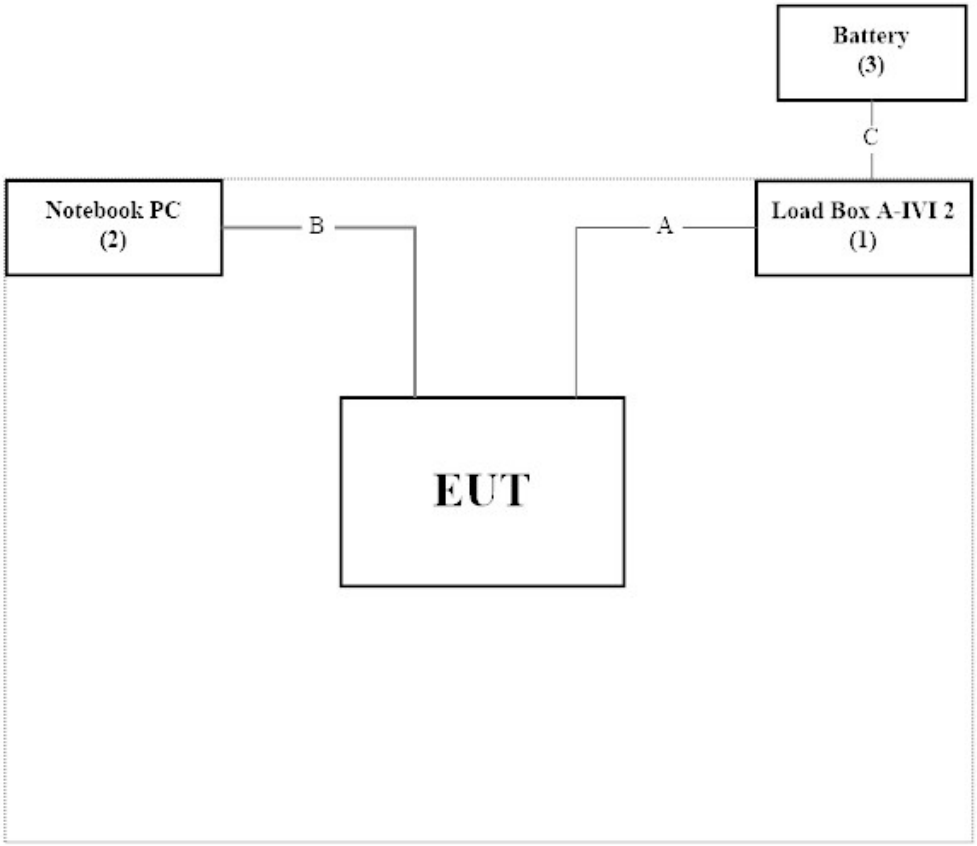
1.2. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Load Box A-IVI 2	BOSCH	N/A	N/A	N/A
2	Notebook PC	DELL	Latitude 5501	4H94P13	N/A
3	Battery	BOSCH	60044	N/A	N/A

Cable Type		Cable Description
A	Signal Cable	Non-shielded, 2m
B	USB Cable	Shielded, 0.9m
C	Power Cable	Non-shielded, 2m

1.3. Configuration of Tested System



1.4. EUT Exercise Software

1	Setup the EUT as shown in Section 1.3.
2	Execute software “cmd version 10.0.19045.3570” on the Notebook PC.
3	Configure the test mode, the test channel, and the data rate.
4	Press “OK” to start the continuous transmit.
5	Verify that the EUT works properly.

1.5. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
Radiated Emission	Temperature (°C)	10~40 °C	22. °C
	Humidity (%RH)	10~90 %	60.0 %
Conductive	Temperature (°C)	10~40 °C	22.0 °C
	Humidity (%RH)	10~90 %	55.0 %

USA	FCC Registration Number: TW0033
Canada	CAB Identifier Number: TW3023 / Company Number: 26930

Site Description	Accredited by TAF
	Accredited Number: 3023

Test Laboratory	DEKRA Testing and Certification Co., Ltd.
	Linkou Laboratory
Address	No.5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan, R.O.C.
Performed Location	No. 26, Huaya 1st Rd., Guishan Dist.,Taoyuan City 333411, Taiwan, R.O.C.
Phone Number	+886-3-275-7255
Fax Number	+886-3-327-8031

1.6. List of Test Equipment

For Conducted Measurements / HY-SR02

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
V	Spectrum Analyzer	R&S	FSV30	103466	2022/12/22	2023/12/21
V	Spectrum Analyzer	KEYSIGHT	N9010A	MY53470892	2023/11/09	2024/11/08
V	Peak Power Analyzer	KEYSIGHT	8990B	MY51000539	2023/05/15	2024/05/14
V	Wideband Power Sensor	KEYSIGHT	N1923A	MY59240002	2023/05/18	2024/05/17
V	Wideband Power Sensor	KEYSIGHT	N1923A	MY59240003	2023/05/18	2024/05/17

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “V” are used to measure the final test results.
3. Test Software Version: RF Conducted Test Tools R3 V3.0.0.14.

For Radiated Measurements /HY-CB01

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
	Loop Antenna	AMETEK	HLA6121	56736	2023/05/23	2024/05/24
V	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-0675	2023/08/09	2025/08/08
V	Horn Antenna	RF SPIN	DRH18-E	210802A18ES	2023/03/23	2024/03/22
V	Horn Antenna	Com-Power	AH-840	101101	2021/11/30	2023/11/29
V	Pre-Amplifier	SGH	0301	20211007-7	2023/01/10	2024/01/09
V	Pre-Amplifier	EMCI	EMC051845SE	980632	2023/01/10	2024/01/09
V	Pre-Amplifier	EMCI	EMC05820SE	980362	2023/01/10	2024/01/09
V	Pre-Amplifier	EMCI	EMC184045SE	980369	2023/01/10	2024/01/09
	Coaxial Cable	EMCI	EMC102-KM-KM-600	1160314		
	Coaxial Cable	EMCI	EMC102-KM-KM-7000	170242		
V	Filter	MICRO TRONICS	BRM50702	G251	2023/01/05	2024/01/04
	Filter	MICRO TRONICS	BRM50716	067	2023/01/05	2024/01/04
V	EMI Test Receiver	R&S	ESR3	102792	2022/12/29	2023/12/28
V	Spectrum Analyzer	R&S	FSV3044	101115	2023/01/06	2024/01/05
V	Coaxial Cable	SUHNER	SUCOFLEX 106	25450/6	2023/01/10	2024/01/09
	Coaxial Cable	SGH	HA800	GD20110222-8		
	Coaxial Cable	SGH	SGH18	2021003-8		
	Coaxial Cable	EMCI	EMC106	151113		

Note:

1. Bi-Log Antenna and Horn Antenna(AH-840) is calibrated every two years, the other equipments are calibrated every one year.
2. The test instruments marked with “V” are used to measure the final test results.
3. Test Software Version: e3 230303 dekra V9.

1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document.

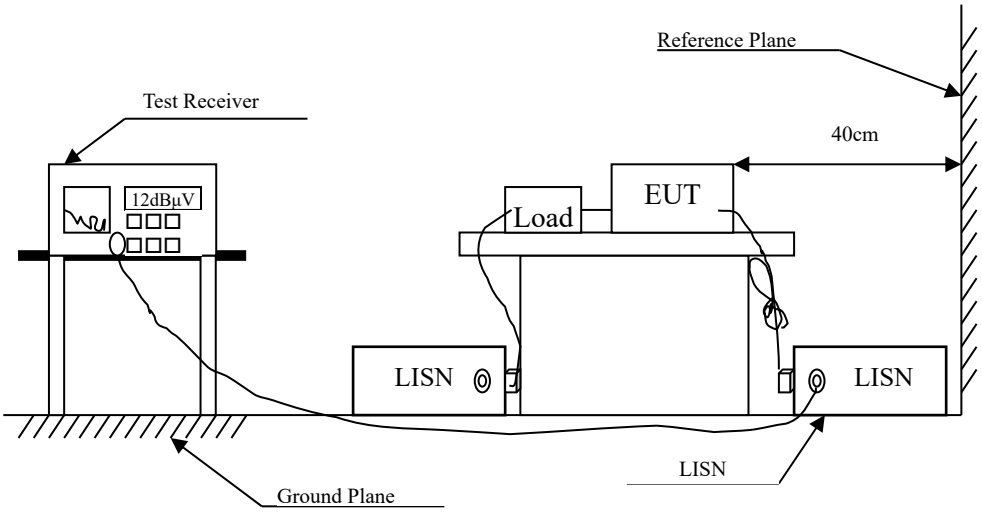
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test item	Uncertainty
Conducted Emission	±3.50 dB
Maximum Peak Conducted Output Power	Spectrum Analyzer: ±2.14 dB Power Meter: ±1.05 dB
Radiated Emission	9 kHz~30 MHz: ±3.88 dB 30 MHz~1 GHz: ±4.42 dB 1 GHz~18 GHz: ±4.28 dB 18 GHz~40 GHz: ±3.90 dB
RF Antenna Conducted Test	±2.14 dB
Band Edge	9 kHz~30 MHz: ±3.88 dB 30 MHz~1 GHz: ±4.42 dB 1 GHz~18 GHz: ±4.28 dB 18 GHz~40 GHz: ±3.90 dB
Channel Number	N/A
Channel Separation	±1580.61 Hz
Dwell Time	±0.53 %
20dBc Occupied Bandwidth	±1580.61 Hz
Duty Cycle	±0.53 %

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBμV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.3. Test Procedure

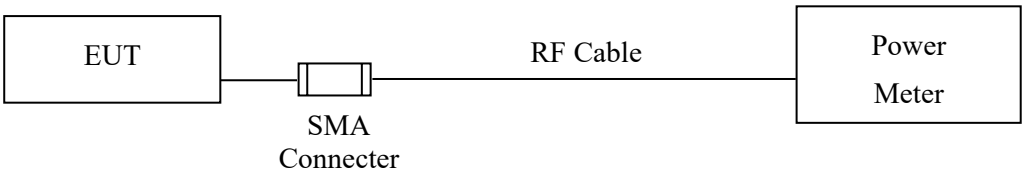
The EUT and Peripherals are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.
The EUT setup and the test procedure are according to ANSI C63.4, 2014 to comply with the requirements of FCC 47CFR Subpart C.

2.4. Test Result of Conducted Emission

Owing to the DC operation of EUT, this test item is not performed.

3. Maximum Peak Conducted Output Power

3.1. Test Setup



3.2. Limit

The maximum peak power shall be less 1Watt,for all other frequency hopping systems in the 2400-2483.5MHz band: 0.125 watts.

3.3. Test Procedure

Tested according to FHSS test procedure of KDB 558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

3.4. Test Result of Maximum Peak Conducted Output Power

Product : Multimedia device with Bluetooth and WLAN
Test Item : Maximum Peak Conducted Output Power
Test Mode : Transmit - 1 Mbps
Test Date : 2023/10/17
Test Sample : ID 02

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
00	2402	-0.95	0.125Watt = 21 dBm	Pass
39	2441	-0.74	0.125Watt = 21 dBm	Pass
78	2480	-0.96	0.125Watt = 21 dBm	Pass

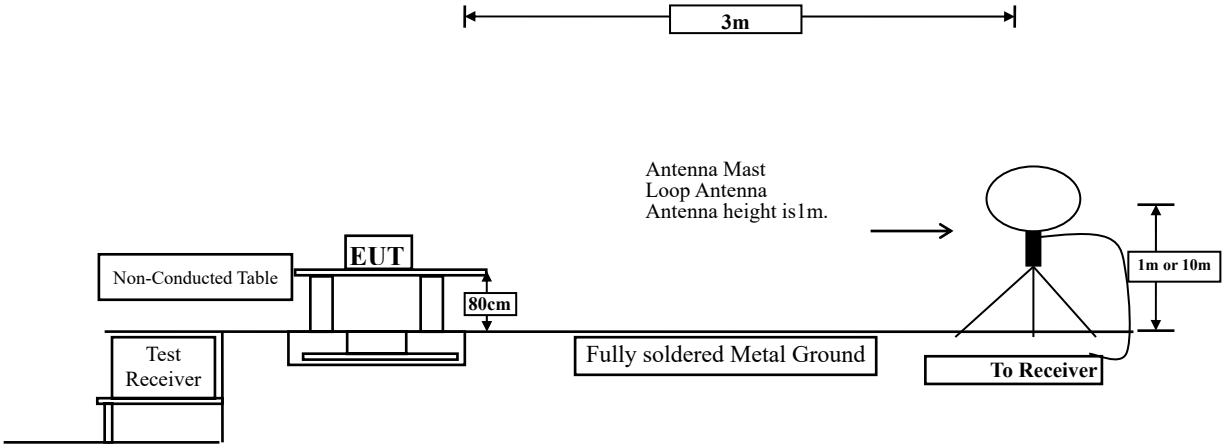
Product : Multimedia device with Bluetooth and WLAN
Test Item : Maximum Peak Conducted Output Power
Test Mode : Transmit - 3 Mbps
Test Date : 2023/10/17
Test Sample : ID 02

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
00	2402	1.52	0.125Watt = 21 dBm	Pass
39	2441	1.55	0.125Watt = 21 dBm	Pass
78	2480	1.53	0.125Watt = 21 dBm	Pass

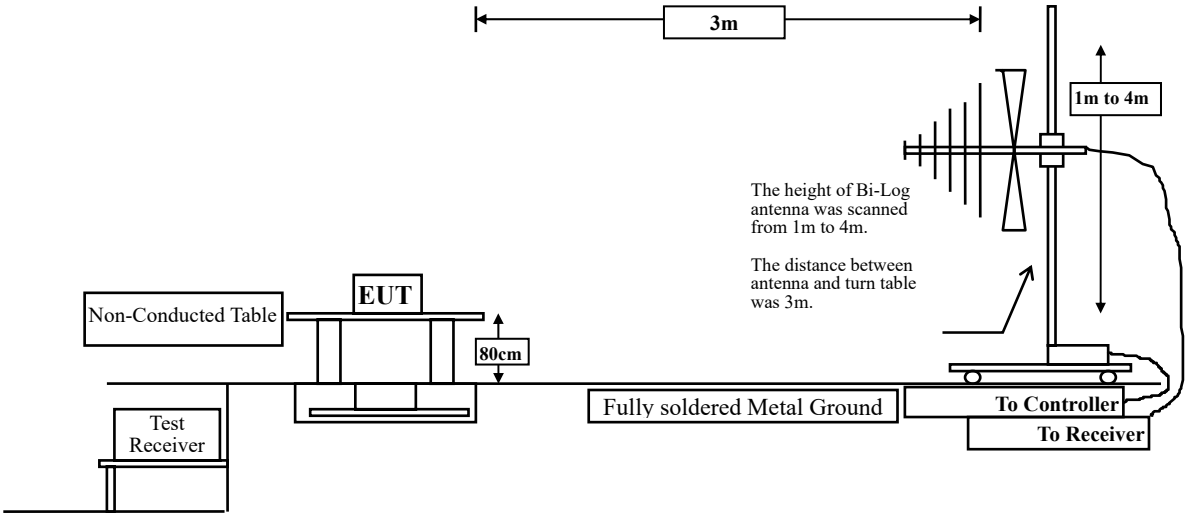
4. Radiated Emission

4.1. Test Setup

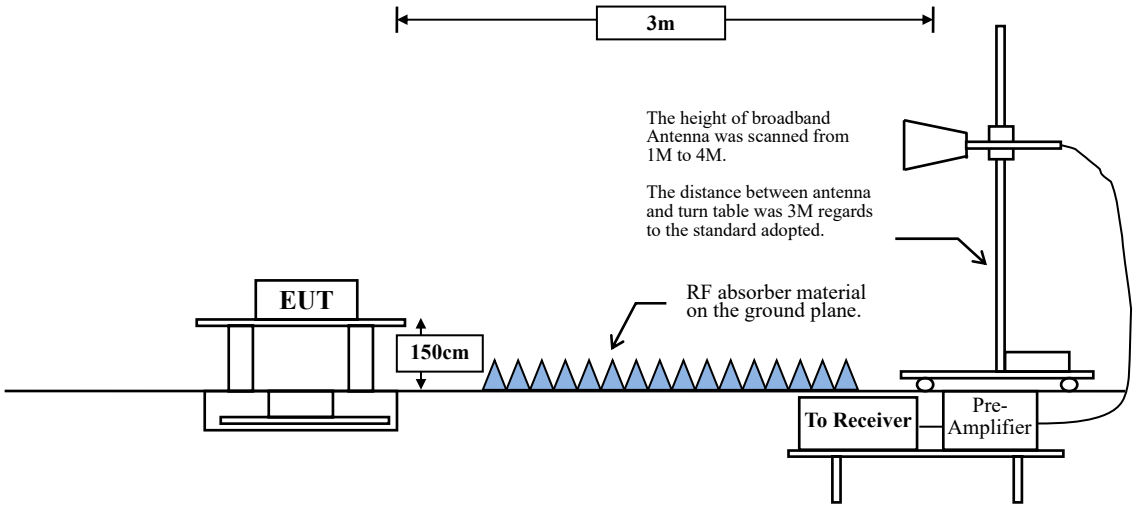
Radiated Emission Under 30 MHz



Radiated Emission Below 1 GHz



Radiated Emission Above 1 GHz



4.2. Limits

➢ **General Radiated Emission Limits**

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks:

1. RF Voltage (dBμV/m) = 20 log RF Voltage (μV/m)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1 GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30 MHz setting on the field strength meter is 9kHz and 30 MHz~1 GHz is 120 kHz and above 1 GHz is 1 MHz.

Radiated emission measurements below 30 MHz are made using Loop Antenna and 30 MHz~1 GHz are made using broadband Bilog antenna and above 1 GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

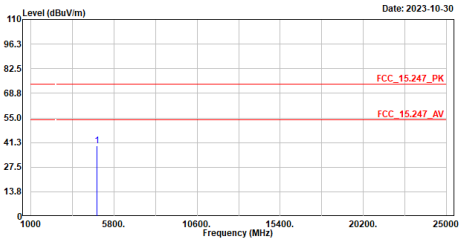
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The measurement frequency range form 9 kHz - 10th Harmonic of fundamental was investigated.

4.4. Test Result of Radiated Emission

NA1_Sample ID 01

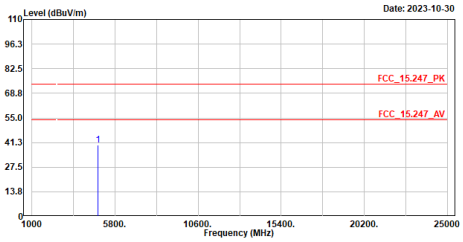
Site :HY-CB01
Condition :3m ,HORIZONTAL
Mode :TX_bt1m_2402MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4804.000	39.37	74.00	-34.63	52.92	-13.55	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

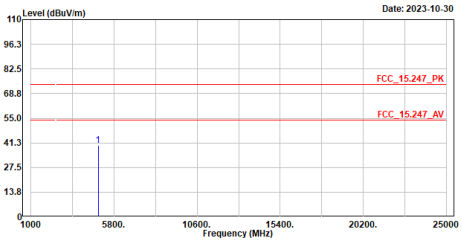
Site :HY-CB01
Condition :3m ,VERTICAL
Mode :TX_bt1m_2402MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4804.000	39.82	74.00	-34.18	53.37	-13.55	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

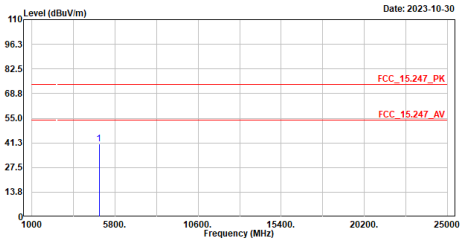
Site :HY-CB01
Condition :3m ,HORIZONTAL
Mode :TX_bt1m_2441MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4882.000	40.01	74.00	-33.99	53.37	-13.36	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

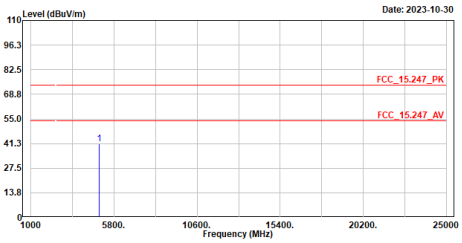
Site :HY-CB01
Condition :3m ,VERTICAL
Mode :TX_bt1m_2441MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4882.000	40.59	74.00	-33.41	53.95	-13.36	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

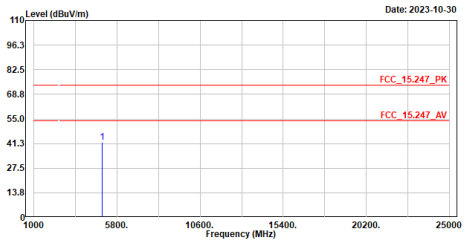
Site :HY-CB01
Condition :3m ,HORIZONTAL
Mode :TX_bt1m_2480MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4960.000	41.03	74.00	-32.97	54.23	-13.20	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

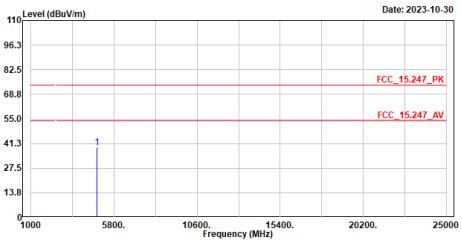
Site :HY-CB01
Condition :3m ,VERTICAL
Mode :TX_bt1m_2480MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4960.000	41.81	74.00	-32.19	55.01	-13.20	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

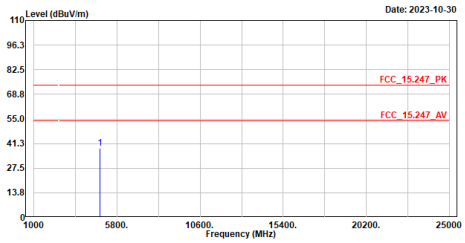
Site :HY-CB01
Condition :3m ,HORIZONTAL
Mode :TX_bt3m_2402MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4804.000	39.08	74.00	-34.92	52.63	-13.55	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

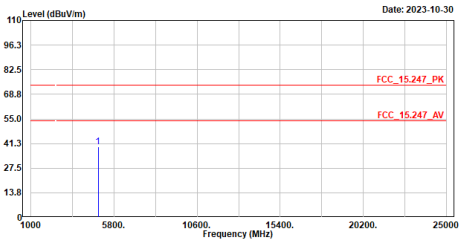
Site :HY-CB01
Condition :3m ,VERTICAL
Mode :TX_bt3m_2402MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4804.000	38.80	74.00	-35.20	52.35	-13.55	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

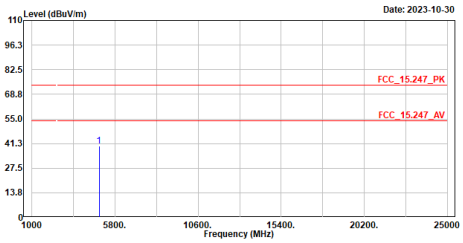
Site :HY-CB01
Condition :3m ,HORIZONTAL
Mode :TX_bt3m_2441MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4882.000	39.41	74.00	-34.59	52.77	-13.36	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

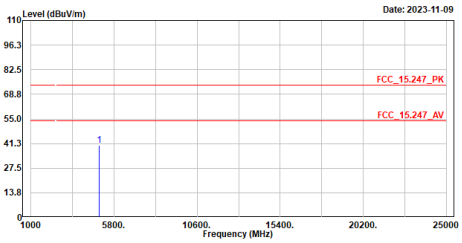
Site :HY-CB01
Condition :3m ,VERTICAL
Mode :TX_bt3m_2441MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4882.000	39.72	74.00	-34.28	53.08	-13.36	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

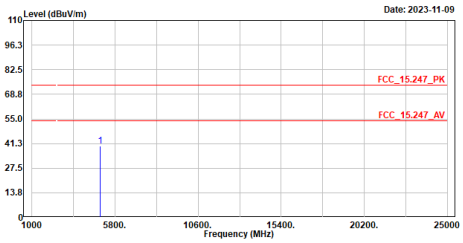
Site :HY-CB01
Condition :3m ,HORIZONTAL
Mode :TX_bt3m_2480MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4960.000	40.47	74.00	-33.53	53.67	-13.20	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

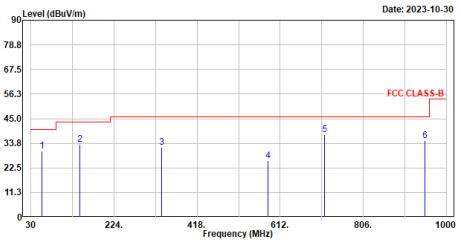
Site :HY-CB01
Condition :3m ,VERTICAL
Mode :TX_bt3m_2480MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4960.000	39.77	74.00	-34.23	52.97	-13.20	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

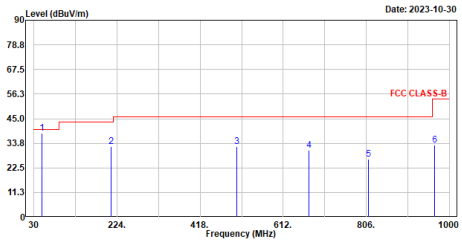
Site :HY-CB01
Condition :3m ,HORIZONTAL
Mode :TX_bt3m_2441MHz
TEST BY :Caster



No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB/m	Remark
1	55.220	30.24	40.00	-9.76	53.78	-23.54	QP
2	144.460	33.45	43.50	-10.05	57.39	-23.94	QP
3	335.550	31.86	46.00	-14.14	53.70	-21.84	QP
4	583.870	25.92	46.00	-20.08	41.79	-15.87	QP
5	714.820	37.53	46.00	-8.47	51.21	-13.68	QP
6	950.530	34.88	46.00	-11.12	45.47	-10.59	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Site :HY-CB01
Condition :3m ,VERTICAL
Mode :TX_bt3m_2441MHz
TEST BY :Caster

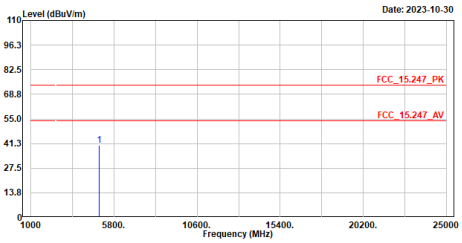


No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB/m	Remark
1	48.430	38.52	40.00	-1.48	61.59	-23.07	QP
2	210.420	32.16	43.50	-11.34	58.57	-26.41	QP
3	504.330	32.33	46.00	-13.67	50.05	-17.72	QP
4	672.140	30.62	46.00	-15.38	45.20	-14.58	QP
5	810.850	26.35	46.00	-19.65	38.72	-12.37	QP
6	965.080	32.96	54.00	-21.04	43.62	-10.66	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

NA2_ Sample ID 03

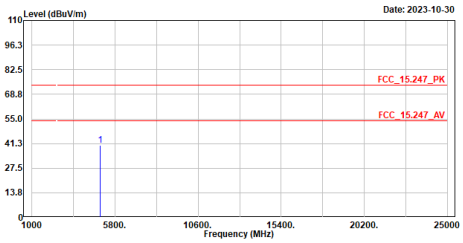
Site :HY-CB01
Condition :3m ,HORIZONTAL
Mode :TX_bt3m_2480MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4960.000	40.25	74.00	-33.75	53.45	-13.20	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

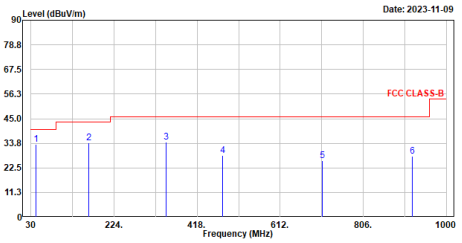
Site :HY-CB01
Condition :3m ,VERTICAL
Mode :TX_bt3m_2480MHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	4960.000	40.19	74.00	-33.81	53.39	-13.20	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

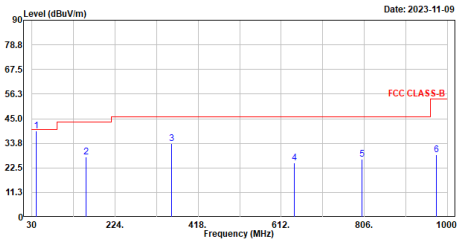
Site :HY-CB01
Condition :3m ,HORIZONTAL
Mode :TX_bt3m_2480MHz
TEST BY :Caster



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	42.610	33.14	40.00	-6.86	56.59	-23.45	QP
2	165.800	33.99	43.50	-9.51	57.93	-23.94	QP
3	346.220	34.45	46.00	-11.55	56.19	-21.74	QP
4	477.170	28.29	46.00	-17.71	46.57	-18.28	QP
5	710.940	25.71	46.00	-20.29	39.46	-13.75	QP
6	920.460	27.98	46.00	-18.02	39.05	-11.07	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Site :HY-CB01
Condition :3m ,VERTICAL
Mode :TX_bt3m_2480MHz
TEST BY :Caster

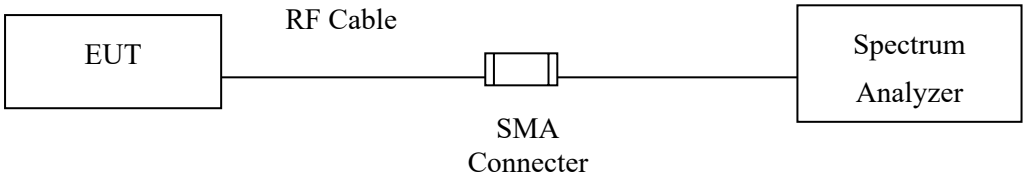


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	40.670	39.56	40.00	-0.44	63.44	-23.88	QP
2	156.100	27.62	43.50	-15.88	51.20	-23.58	QP
3	356.890	33.69	46.00	-12.31	55.34	-21.65	QP
4	643.040	24.96	46.00	-21.04	39.81	-14.85	QP
5	800.180	26.36	46.00	-19.64	38.75	-12.39	QP
6	973.810	28.40	54.00	-25.60	39.05	-10.65	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

5. RF Antenna Port Conducted Test

5.1. Test Setup



5.2. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

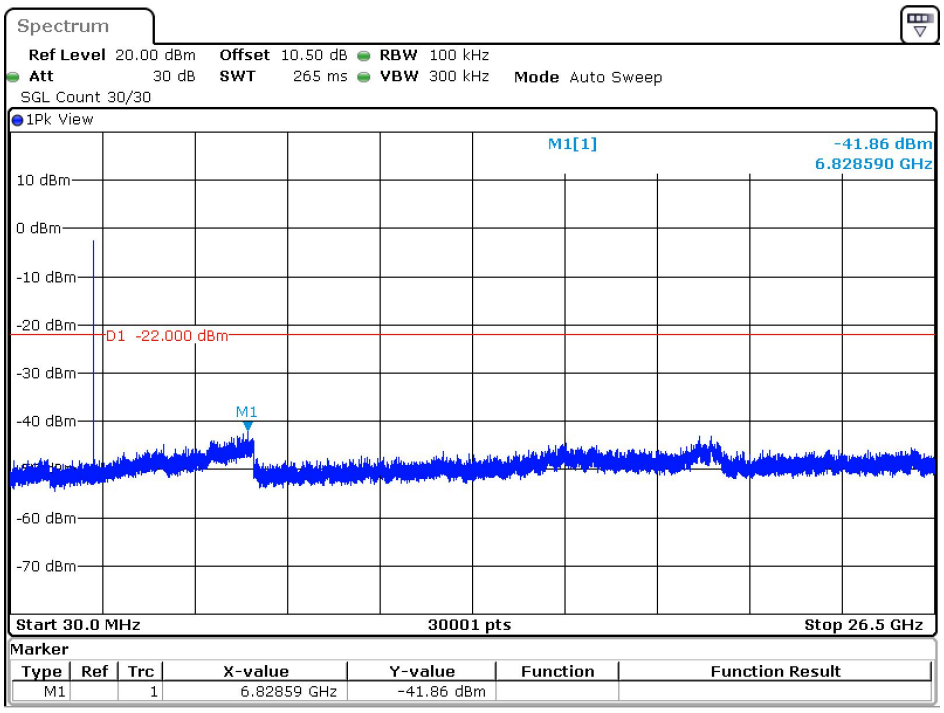
5.3. Test Procedure

Tested according to FHSS test procedure of KDB558074 section 9 b) for compliance to FCC 47CFR 15.247 requirements.

5.4. Test Result of RF Antenna Port Conducted Test

Product	:	Multimedia device with Bluetooth and WLAN
Test Item	:	RF Antenna Port Conducted Test
Test Mode	:	Transmit - 1 Mbps
Test Date	:	2023/10/19
Test Sample	:	ID 02

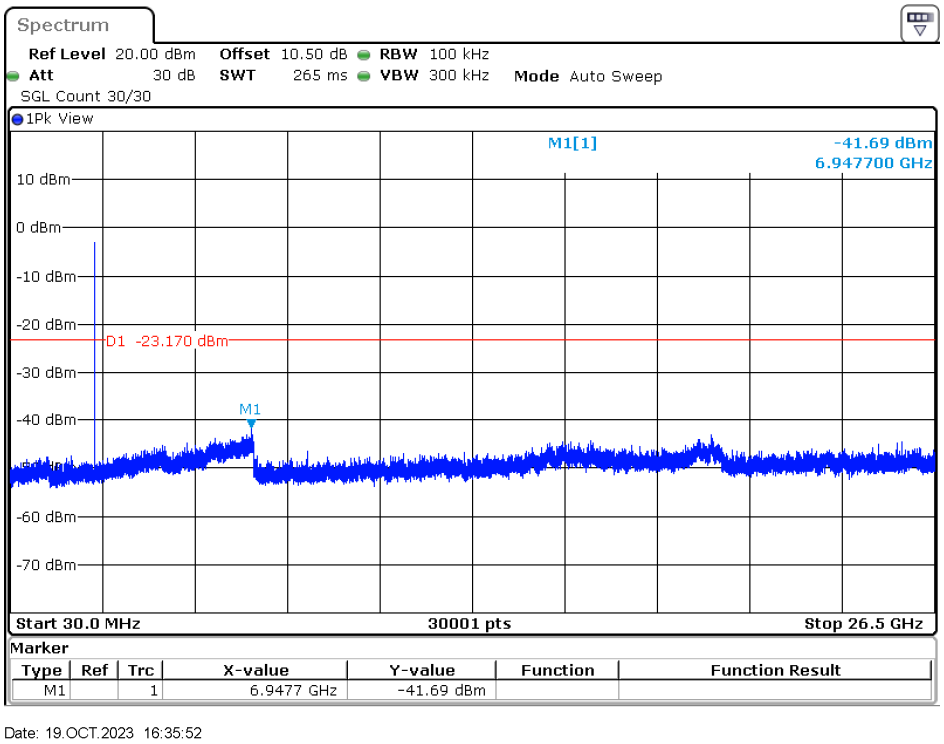
Channel 00:



Date: 19.OCT.2023 16:04:52

Product	:	Multimedia device with Bluetooth and WLAN
Test Item	:	RF Antenna Port Conducted Test
Test Mode	:	Transmit - 3 Mbps
Test Date	:	2023/10/19
Test Sample	:	ID 02

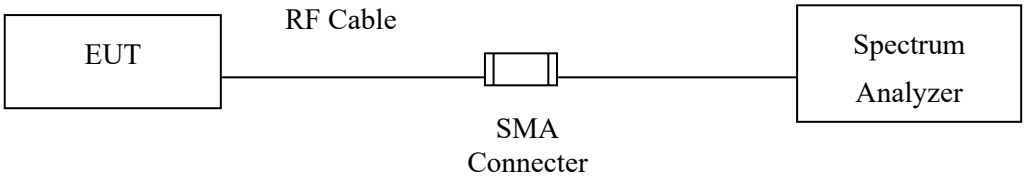
Channel 39:



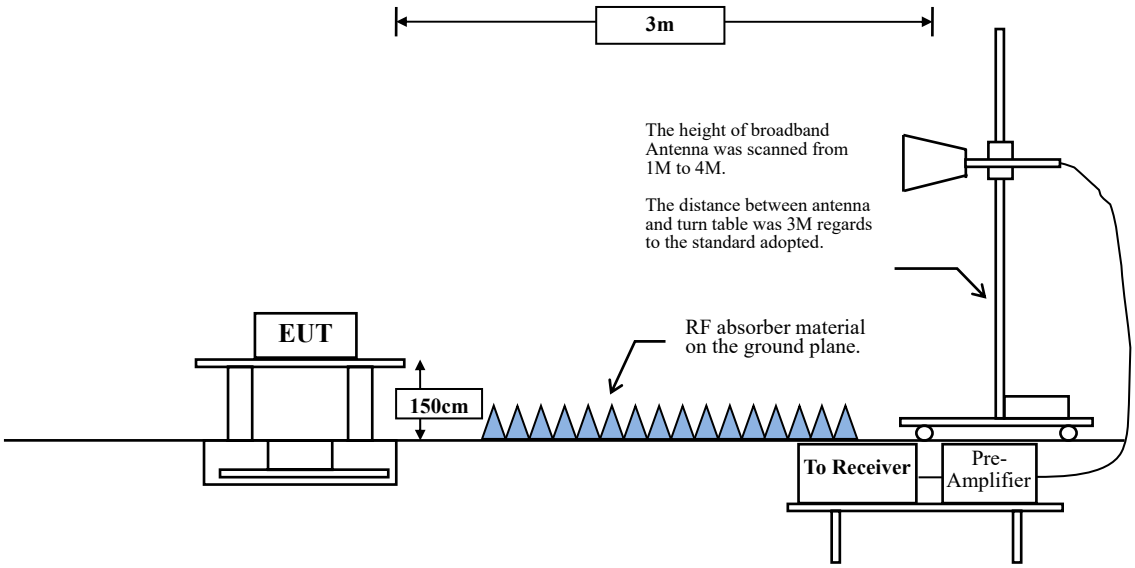
6. Band Edge

6.1. Test Setup

RF Conducted Measurement



RF Radiated Measurement



6.2. Limit

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.3. Test Procedure

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to

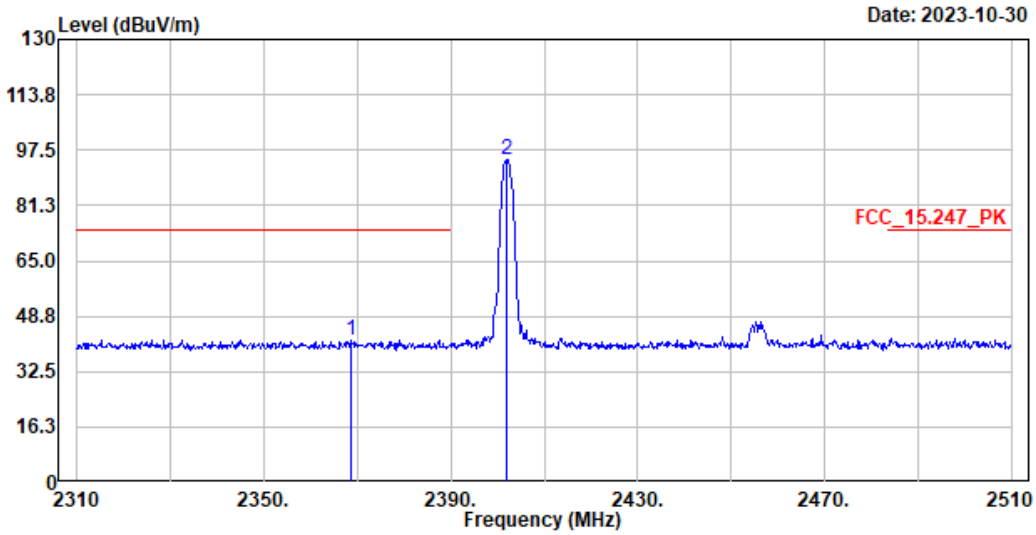
ANSI C63.10: 2013 on radiated measurement.

The bandwidth setting below 1 GHz and above 1 GHz on the field strength meter is 120 kHz and 1MHz, respectively.

6.4. Test Result of Band Edge

NA1 Sample ID 01

```
Site      :HY-CB01
Condition :3m    ,Horizontal
Mode      :TX_bt1m_2402MHz
TEST BY   :Sam
```



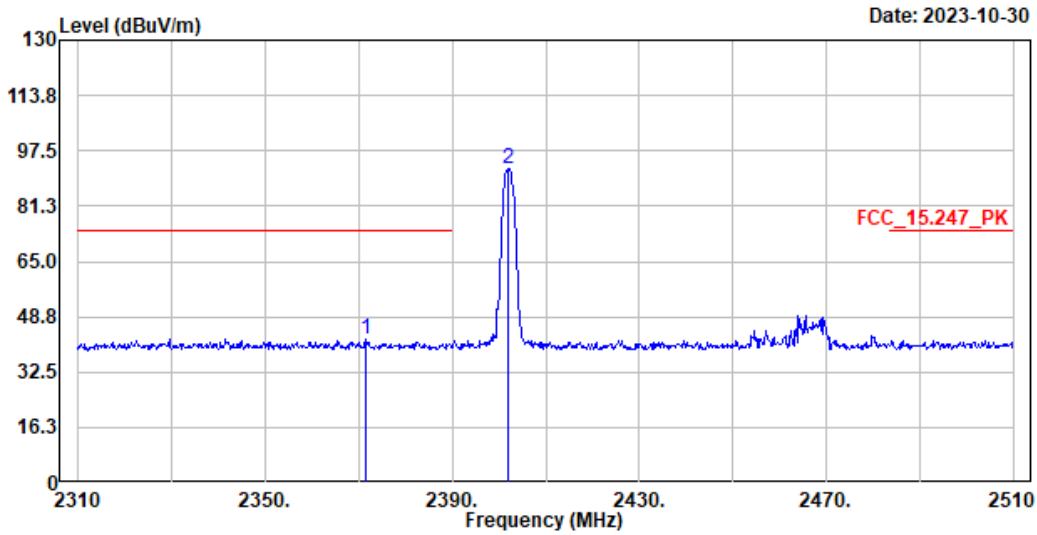
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2368.800	41.93	74.00	-32.07	36.21	5.72	Peak
2	2402.000	94.53	------	------	88.90	5.63	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

Horizontal Average Detector:

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)
2368.8	41.93	-24.731	17.199	-36.801	54.000
2402	94.53	-24.731	69.799	--	--

```
Site      :HY-CB01
Condition :3m    ,Vertical
Mode      :TX_bt1m_2402MHz
TEST BY   :Sam
```



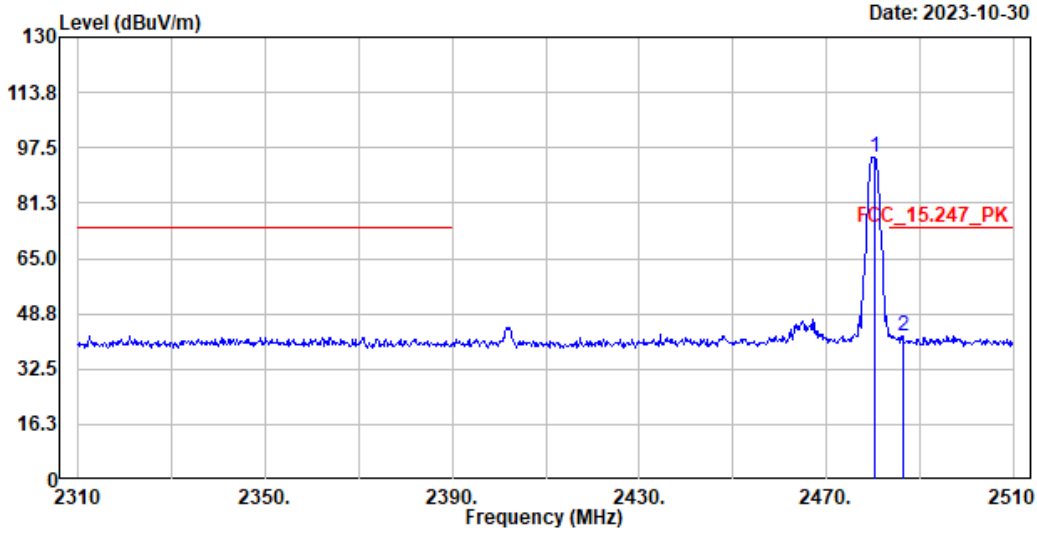
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2371.400	42.04	74.00	-31.96	36.33	5.71	Peak
2	2402.000	92.25	------	------	86.62	5.63	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

Vertical Average Detector:

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)
2371.4	42.04	-24.731	17.309	-36.691	54.000
2402	92.25	-24.731	67.519	--	--

```
Site      :HY-CB01
Condition :3m    ,Horizontal
Mode      :TX_bt1m_2480MHz
TEST BY   :Sam
```



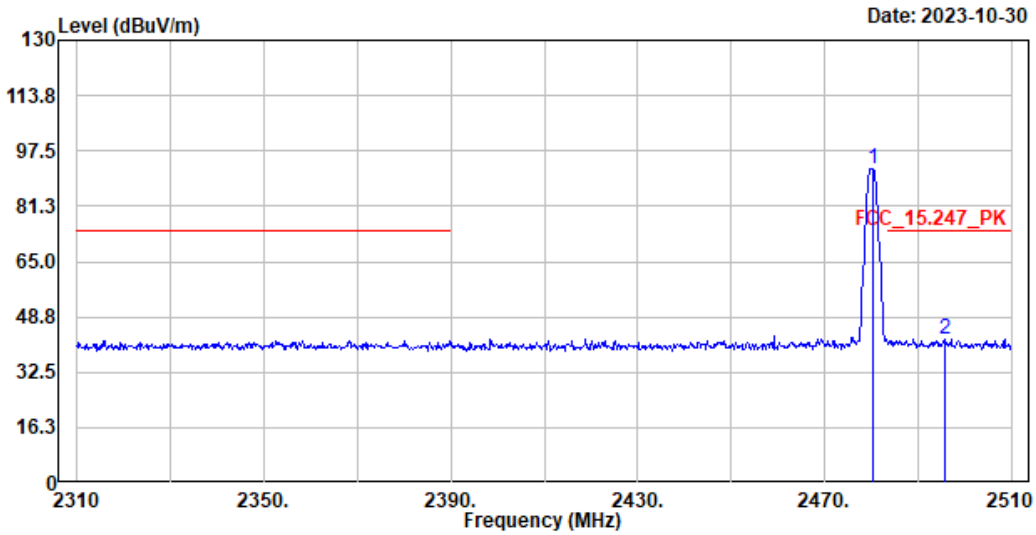
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2480.200	94.87	------	------	89.20	5.67	Peak
2	2486.400	42.40	74.00	-31.60	36.71	5.69	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

Horizontal Average Detector:

Frequency (MHz)	Peak Measurement (dBµV/m)	Duty Cycle Factor (dB)	Measurement Level (dBµV/m)	Margin (dB)	Limit (dBµV/m)
2480.2	94.87	-24.731	70.139	--	--
2486.4	42.4	-24.731	17.669	-36.331	54.000

```
Site      :HY-CB01
Condition :3m    ,Vertical
Mode      :TX_bt1m_2480MHz
TEST BY   :Sam
```



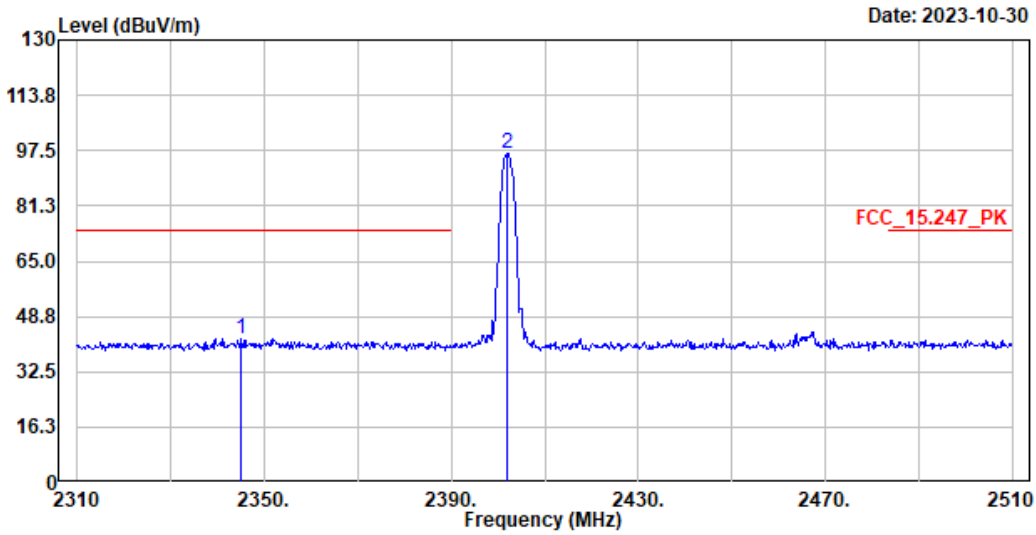
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2480.200	92.27	------	------	86.60	5.67	Peak
2	2495.600	42.17	74.00	-31.83	36.45	5.72	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

Vertical Average Detector:

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)
2480.2	92.27	-24.731	67.539	--	--
2495.6	42.17	-24.731	17.439	-36.561	54.000

```
Site      :HY-CB01
Condition :3m    ,Horizontal
Mode      :TX_bt3m_2402MHz
TEST BY   :Sam
```



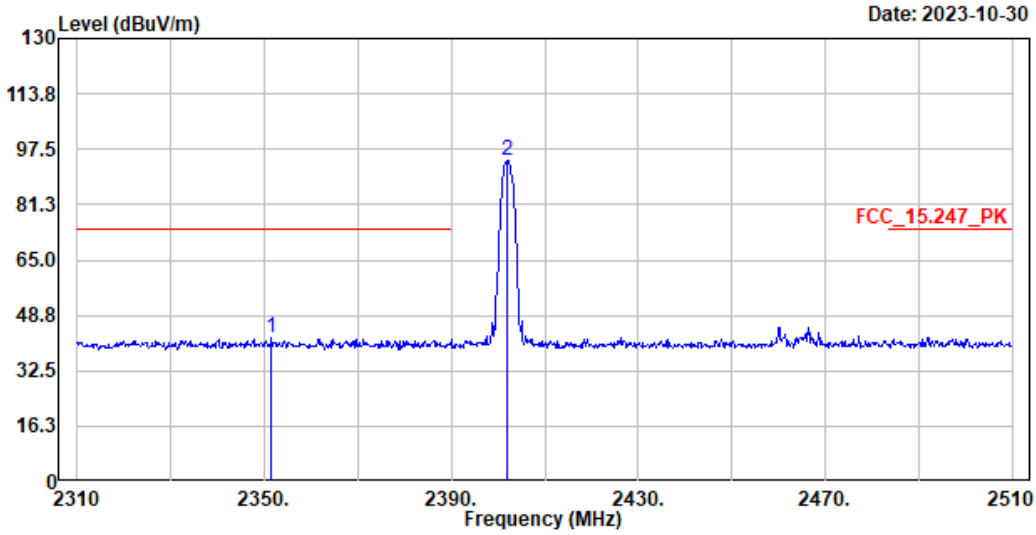
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2345.200	42.17	74.00	-31.83	36.39	5.78	Peak
2	2402.000	96.80	------	------	91.17	5.63	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

Horizontal Average Detector:

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)
2345.2	42.17	-24.731	17.439	-36.561	54.000
2402	96.8	-24.731	72.069	--	--

```
Site      :HY-CB01
Condition :3m    ,Vertical
Mode      :TX_bt3m_2402MHz
TEST BY   :Sam
```



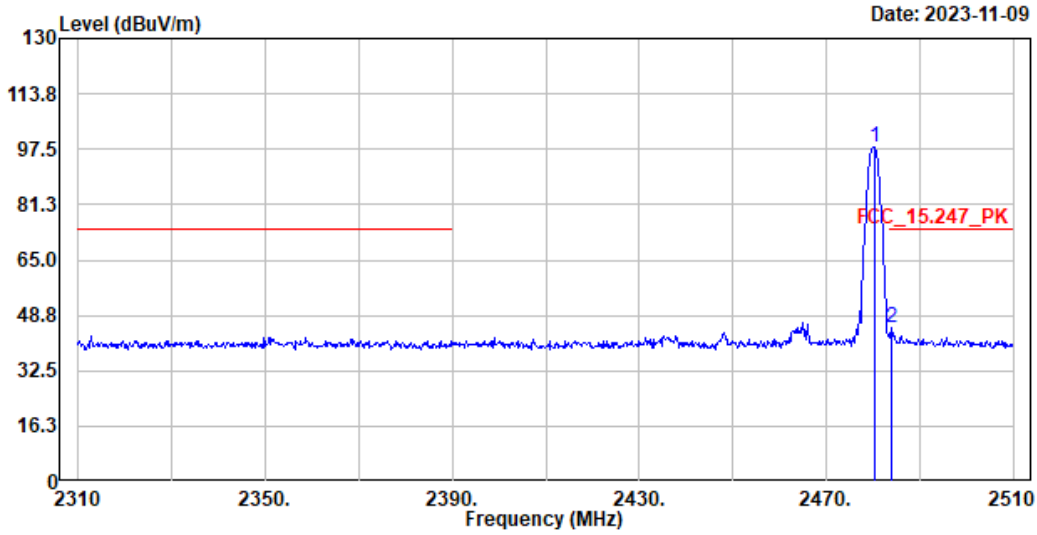
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2351.600	42.22	74.00	-31.78	36.45	5.77	Peak
2	2402.000	94.14	------	------	88.51	5.63	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

Vertical Average Detector:

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)
2351.6	42.22	-24.731	17.489	-36.511	54.000
2402	94.14	-24.731	69.409	--	--

```
Site      :HY-CB01
Condition :3m    ,Horizontal
Mode      :TX_bt3m_2480MHz
TEST BY   :Sam
```



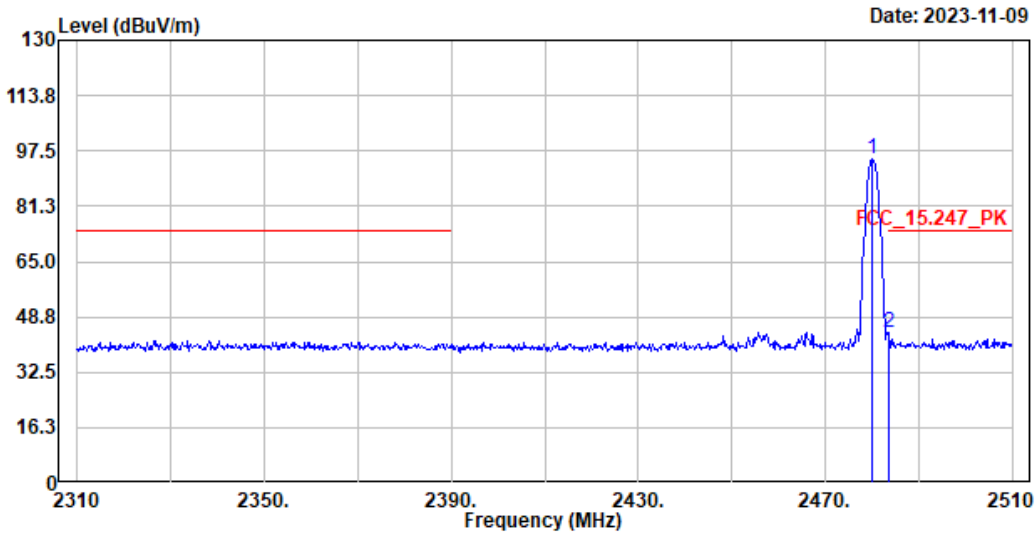
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2480.200	98.08	------	------	92.41	5.67	Peak
2	2483.800	44.97	74.00	-29.03	39.28	5.69	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

Horizontal Average Detector:

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)
2480.2	98.08	-24.731	73.349	--	--
2483.8	44.97	-24.731	20.239	-33.761	54.000

```
Site      :HY-CB01
Condition :3m    ,Vertical
Mode      :TX_bt3m_2480MHz
TEST BY   :Sam
```



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2480.000	94.95	------	------	89.28	5.67	Peak
2	2483.600	44.17	74.00	-29.83	38.48	5.69	Peak

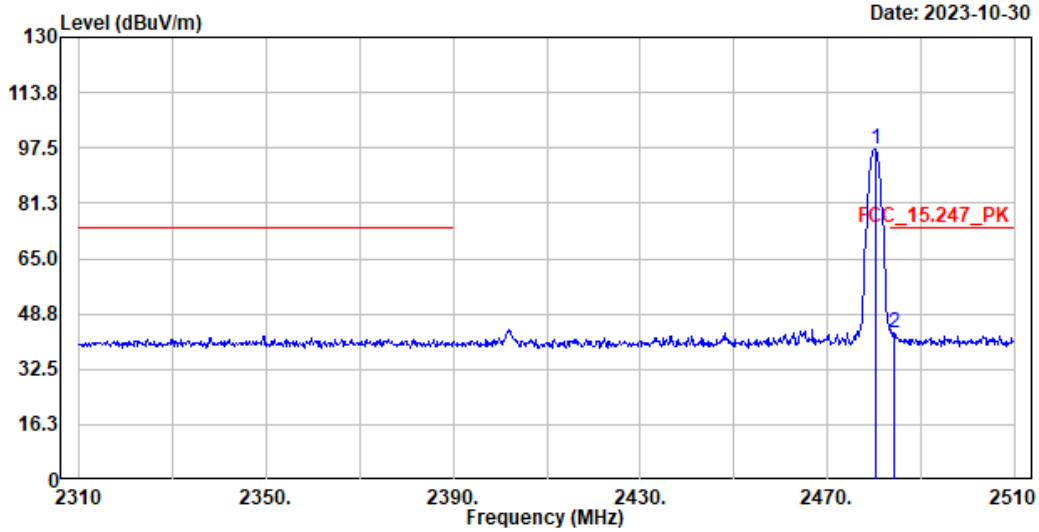
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

Vertical Average Detector:

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)
2480	94.95	-24.731	70.219	--	--
2483.6	44.17	-24.731	19.439	-34.561	54.000

NA2_ Sample ID 03

```
Site      :HY-CB01
Condition :3m    ,Horizontal
Mode      :TX_bt3m_2480MHz
TEST BY   :Sam
```



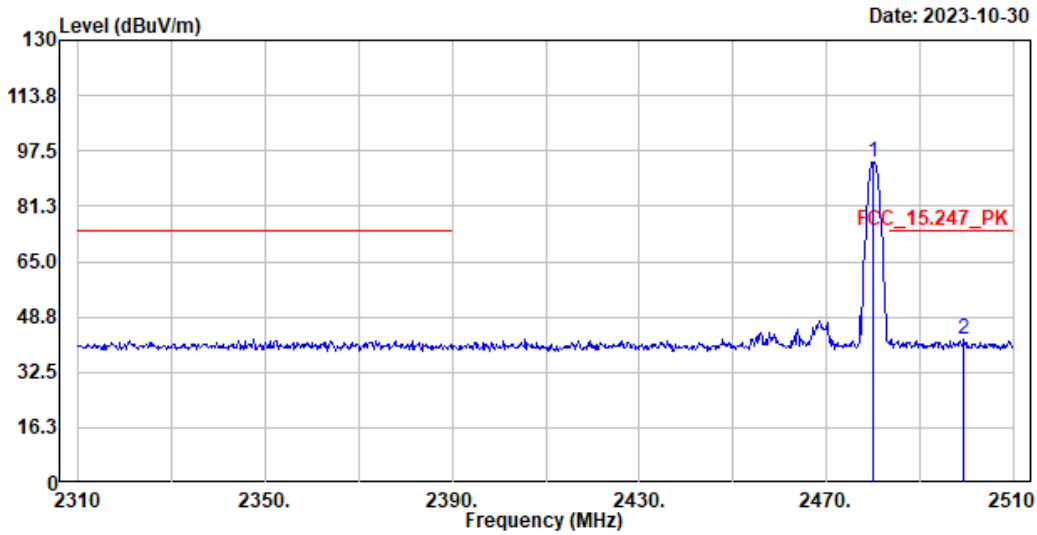
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2480.200	96.99	------	------	91.32	5.67	Peak
2	2484.400	43.41	74.00	-30.59	37.72	5.69	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

Horizontal Average Detector:

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)
2480.2	96.99	-24.731	72.259	--	--
2484.4	43.41	-24.731	18.679	-35.321	54.000

```
Site      :HY-CB01
Condition :3m    ,Vertical
Mode      :TX_bt3m_2480MHz
TEST BY   :Sam
```



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
1	2480.000	94.33	------	------	88.66	5.67	Peak
2	2499.400	41.96	74.00	-32.04	36.23	5.73	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

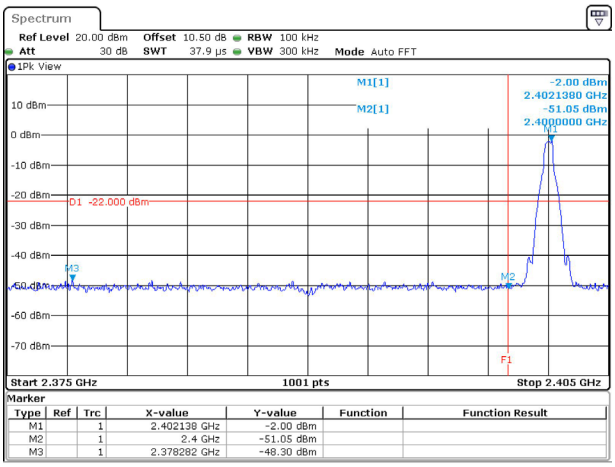
Vertical Average Detector:

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)
2480	94.33	-24.731	69.599	--	--
2499.4	41.96	-24.731	17.229	-36.771	54.000

Product : Multimedia device with Bluetooth and WLAN
Test Item : Band Edge
Test Mode : Transmit - 1 Mbps (Hopping off)
Test Date : 2023/10/19
Test Sample : ID 02

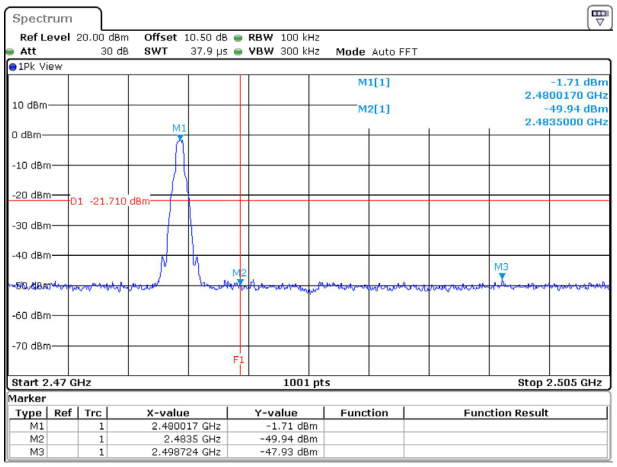
Measurement Level Δ (dB)	Result
> 20	PASS

2402 MHz



Date: 19.OCT.2023 16:04:22

2480 MHz

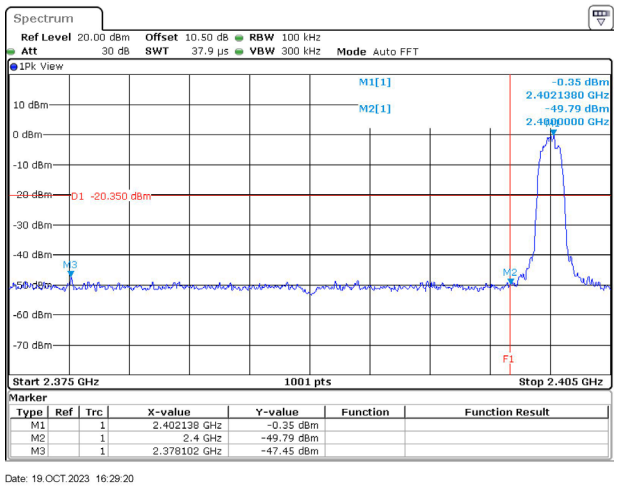


Date: 19.OCT.2023 16:20:21

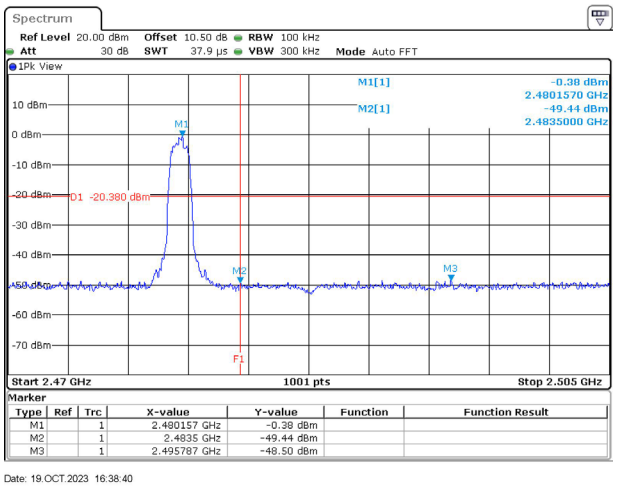
Product : Multimedia device with Bluetooth and WLAN
Test Item : Band Edge
Test Mode : Transmit - 3 Mbps (Hopping off)
Test Date : 2023/10/19
Test Sample : ID 02

Measurement Level Δ (dB)	Result
> 20	PASS

2402 MHz



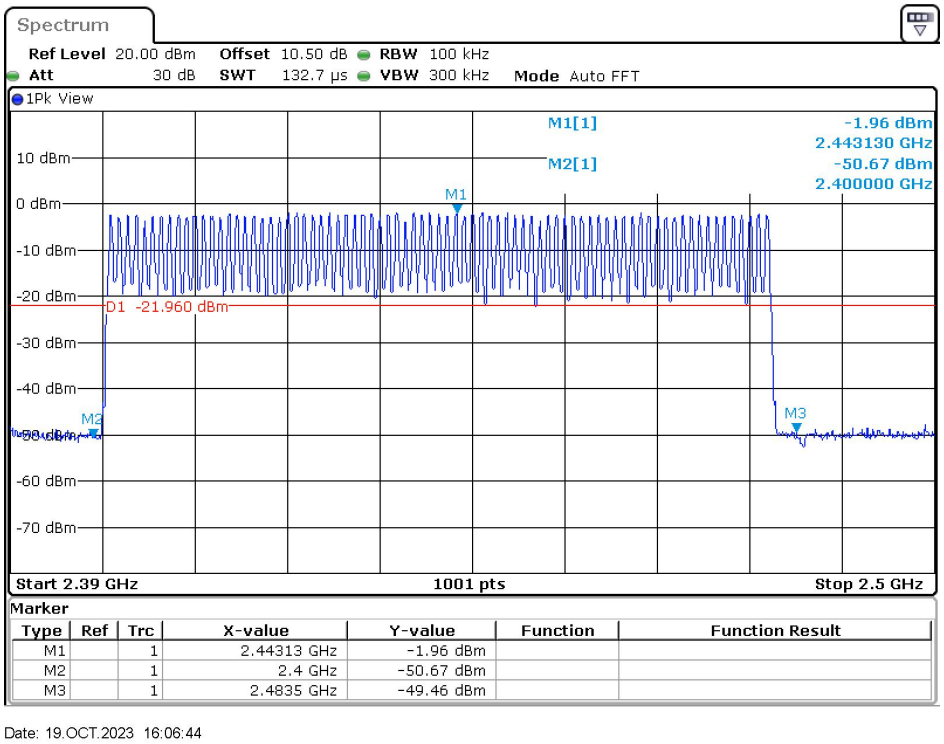
2480 MHz



Product : Multimedia device with Bluetooth and WLAN
Test Item : Band Edge
Test Mode : Transmit - 1 Mbps (Hopping on)
Test Date : 2023/10/19
Test Sample : ID 02

Measurement Level Δ (dB)	Result
> 20	PASS

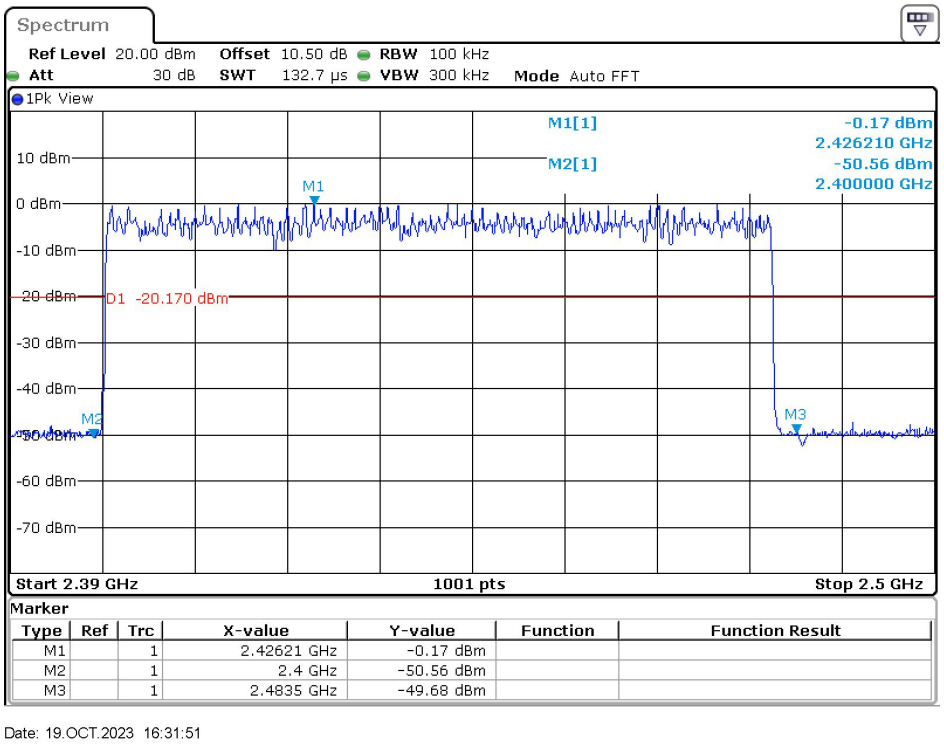
Channel Hopping:



Product : Multimedia device with Bluetooth and WLAN
Test Item : Band Edge
Test Mode : Transmit - 3 Mbps (Hopping on)
Test Date : 2023/10/19
Test Sample : ID 02

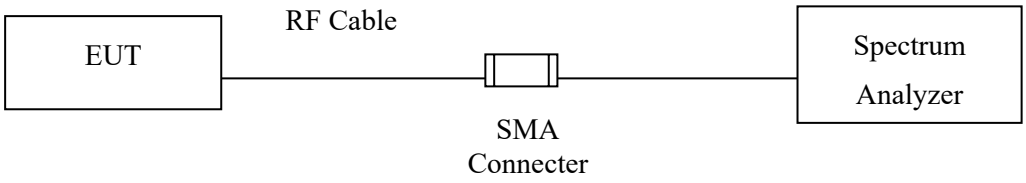
Measurement Level Δ (dB)	Result
> 20	PASS

Channel Hopping:



7. Channel Number

7.1. Test Setup



7.2. Limit

Frequency hopping systems operating in the 2400-2483.5 MHz bands shall use at least 15 hopping frequencies.

7.3. Test Procedure

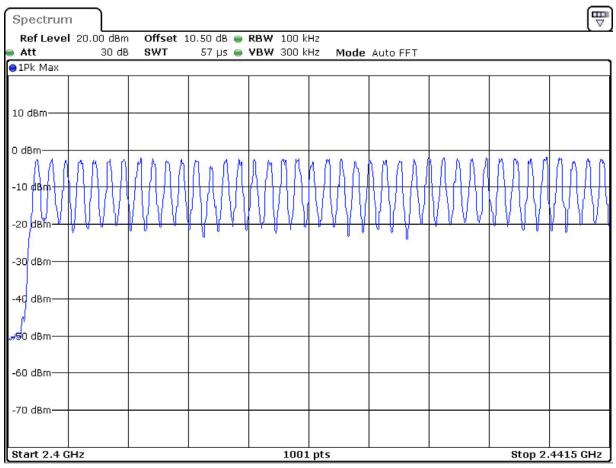
Tested according to FHSS test procedure of KDB558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

7.4. Test Result of Channel Number

Product : Multimedia device with Bluetooth and WLAN
Test Item : Channel Number
Test Mode : Transmit - 1 Mbps
Test Date : 2023/10/19
Test Sample : ID 02

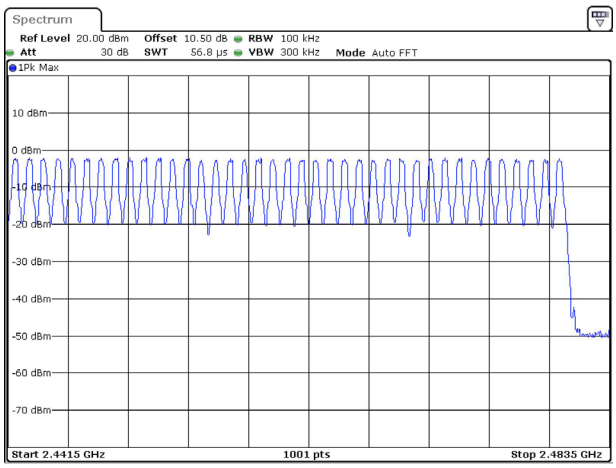
Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>15	Pass

2402-2441 MHz



Date: 19.OCT.2023 16:06:20

2442-2480 MHz

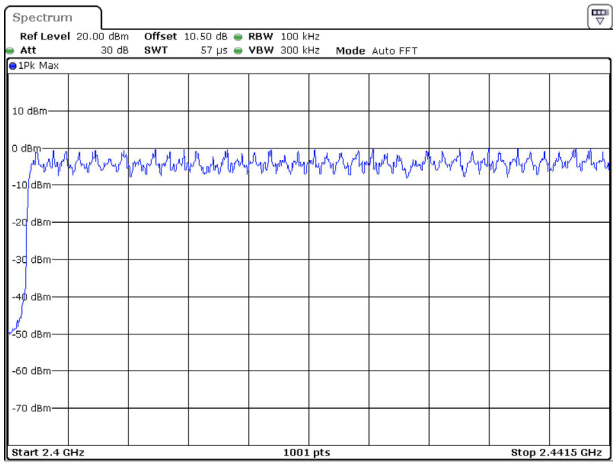


Date: 19.OCT.2023 16:08:11

Product	:	Multimedia device with Bluetooth and WLAN
Test Item	:	Channel Number
Test Mode	:	Transmit - 3 Mbps
Test Date	:	2023/10/19
Test Sample	:	ID 02

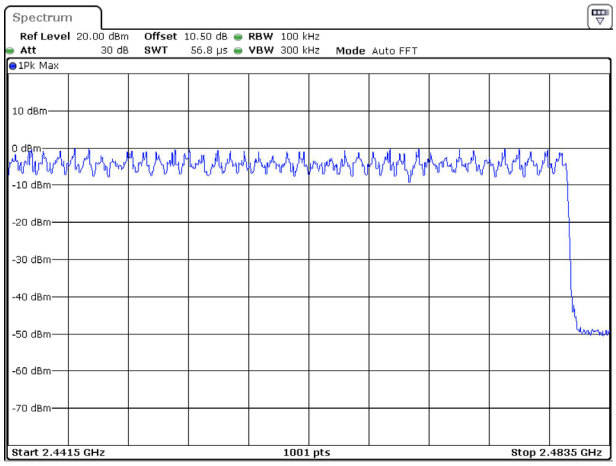
Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>15	Pass

2402-2441 MHz



Date: 19.OCT.2023 16:31:06

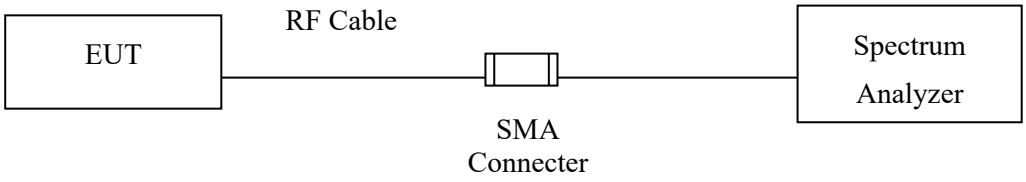
2442-2480 MHz



Date: 19.OCT.2023 16:32:46

8. Channel Separation

8.1. Test Setup



8.2. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

8.3. Test Procedure

Tested according to FHSS test procedure of KDB558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

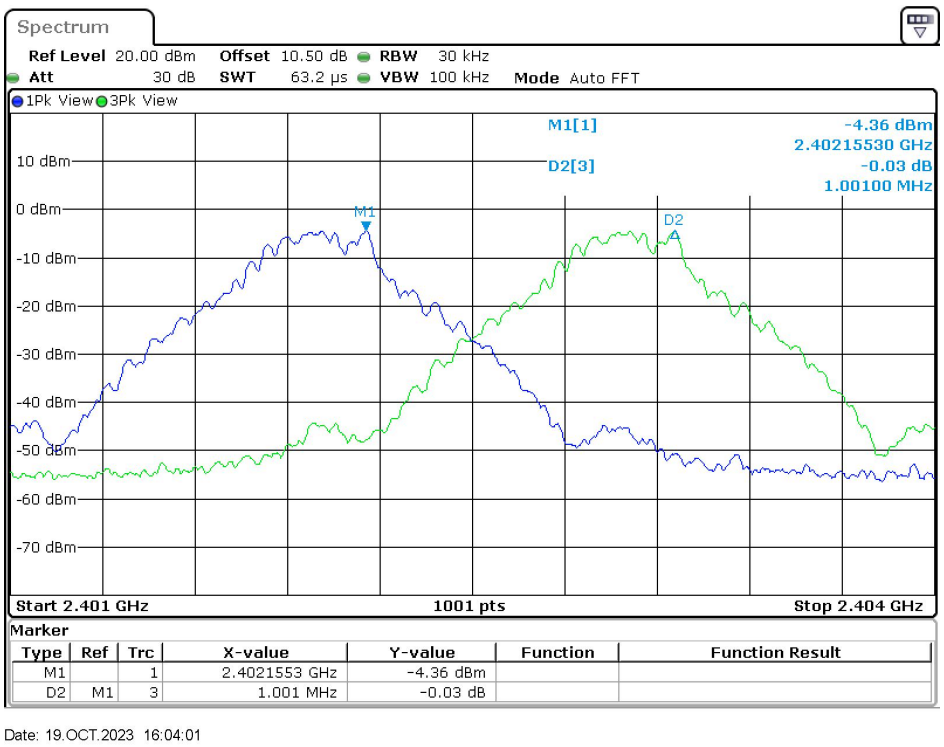
8.4. Test Result of Channel Separation

Product : Multimedia device with Bluetooth and WLAN
Test Item : Channel Separation
Test Mode : Transmit - 1 Mbps
Test Date : 2023/10/19
Test Sample : ID 02

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Limit (kHz)	Limit of (2/3)*20dB Bandwidth (kHz)	Result
00	2402	1001	>25 kHz	625.4	Pass
39	2441	1001	>25 kHz	625.4	Pass
78	2480	1001	>25 kHz	623.4	Pass

Note: The 20dB Bandwidth is refer to section 10.

Channel 00:

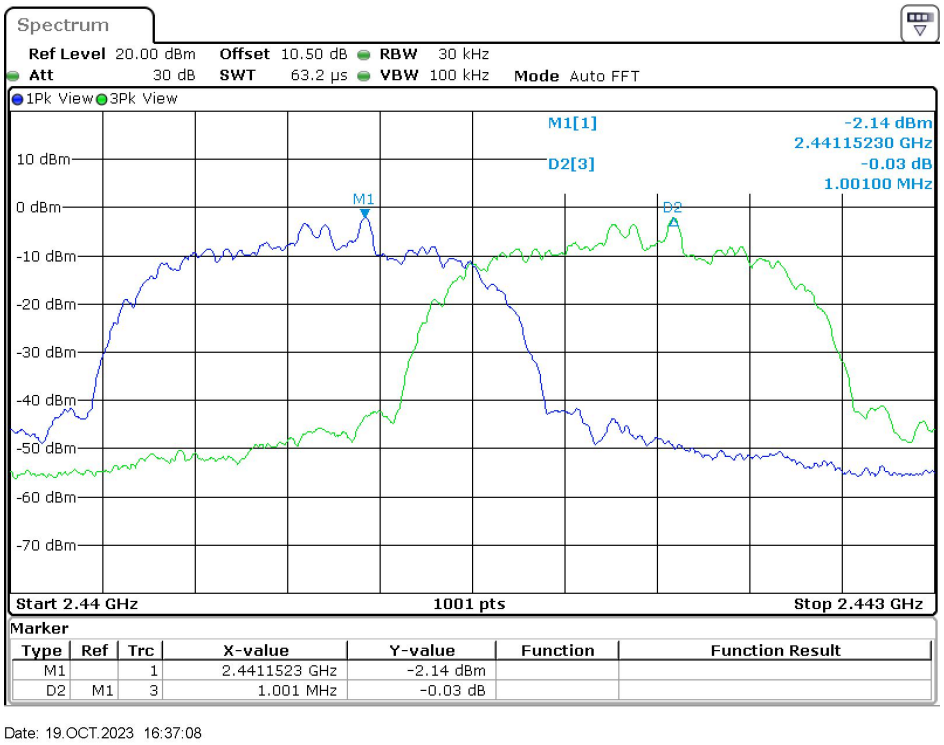


Product : Multimedia device with Bluetooth and WLAN
Test Item : Channel Separation
Test Mode : Transmit - 3 Mbps
Test Date : 2023/10/19
Test Sample : ID 02

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Limit (kHz)	Limit of (2/3)*20dB Bandwidth (kHz)	Result
00	2402	998	>25 kHz	857.1	Pass
39	2441	1001	>25 kHz	859.1	Pass
78	2480	1001	>25 kHz	859.1	Pass

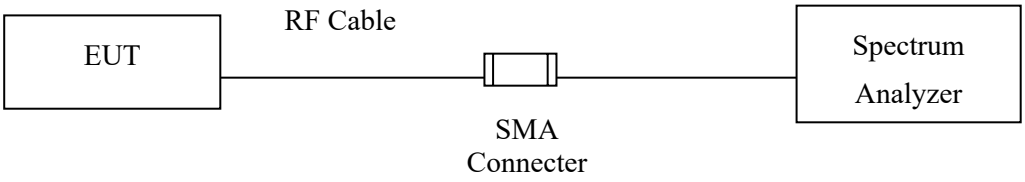
Note: The 20dB Bandwidth is refer to section 10.

Channel 39:



9. Dwell Time

9.1. Test Setup



9.2. Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

9.3. Test Procedure

Tested according to FHSS test procedure of KDB558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

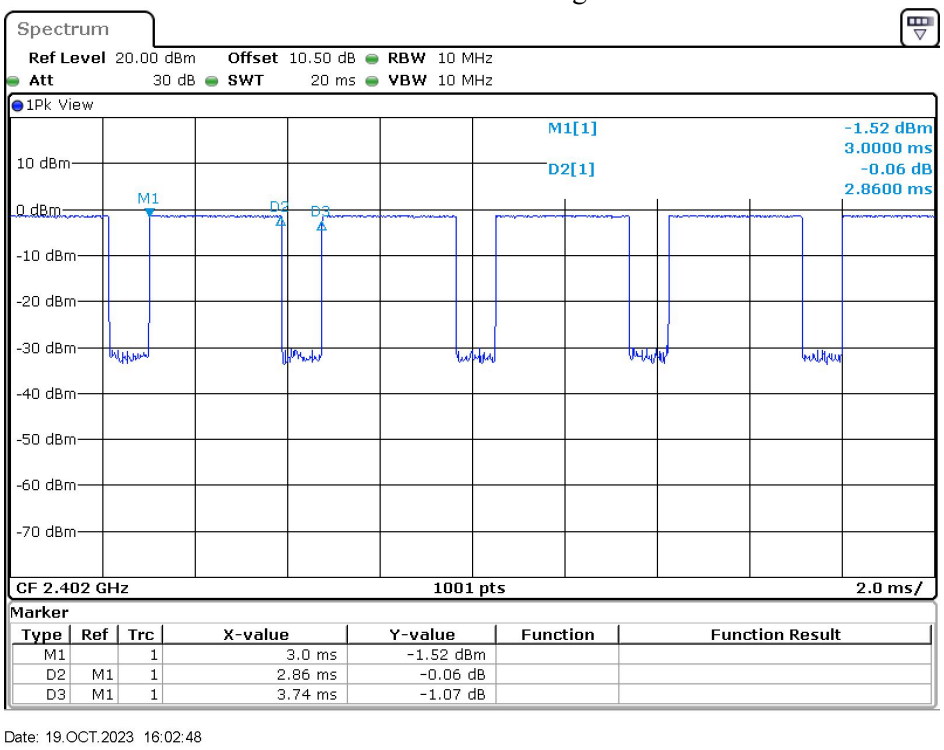
9.4. Test Result of Dwell Time

Product : Multimedia device with Bluetooth and WLAN
Test Item : Dwell Time
Test Mode : Transmit - 1 Mbps (Channel 00, 39, 78)
Test Date : 2023/10/19
Test Sample : ID 02

Frequency (MHz)	Time slot length (ms)	Period (sec)	Calculation	Dwell Time (ms)	Limit (ms)	Result
2402	2.860	31.6	Time(sec)*(266.67/79)*31.6	305.070	400	Pass
2441	2.860	31.6	Time(sec)*(266.67/79)*31.6	305.070	400	Pass
2480	2.860	31.6	Time(sec)*(266.67/79)*31.6	305.070	400	Pass

Note: Dwell time =Time slot length* calculation

CH 00 Time slot length



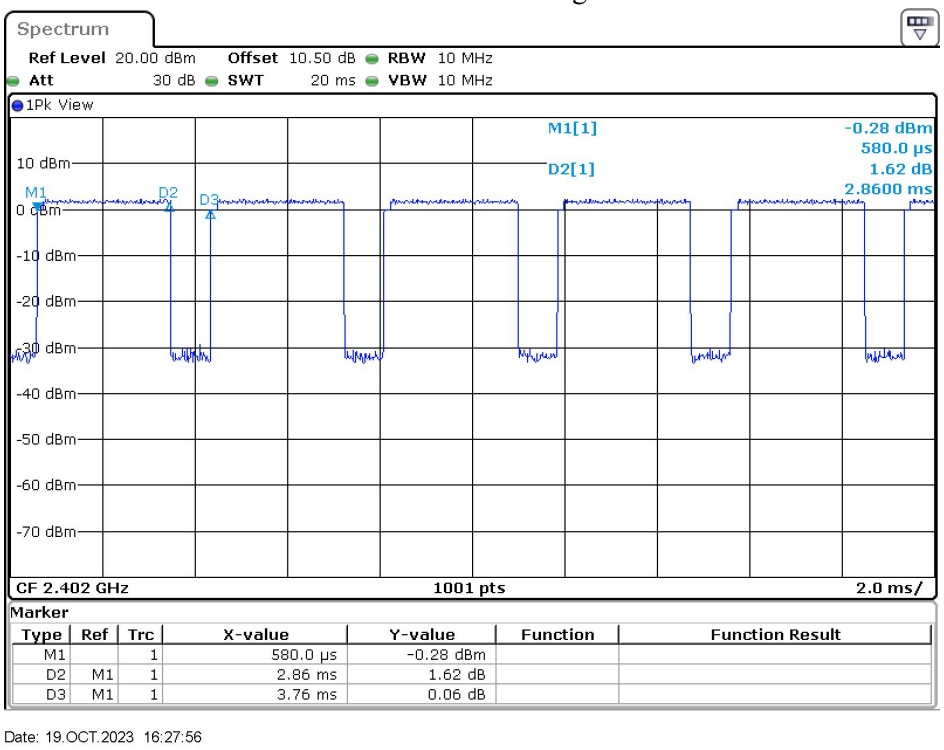
Date: 19.OCT.2023 16:02:48

Product : Multimedia device with Bluetooth and WLAN
Test Item : Dwell Time
Test Mode : Transmit - 3 Mbps (Channel 00, 39, 78)
Test Date : 2023/10/19
Test Sample : ID 02

Frequency (MHz)	Time slot length (ms)	Period (sec)	Calculation	Dwell Time (ms)	Limit (ms)	Result
2402	2.860	31.6	Time(sec)*(266.67/79)*31.6	305.070	400	Pass
2441	2.860	31.6	Time(sec)*(266.67/79)*31.6	305.070	400	Pass
2480	2.860	31.6	Time(sec)*(266.67/79)*31.6	305.070	400	Pass

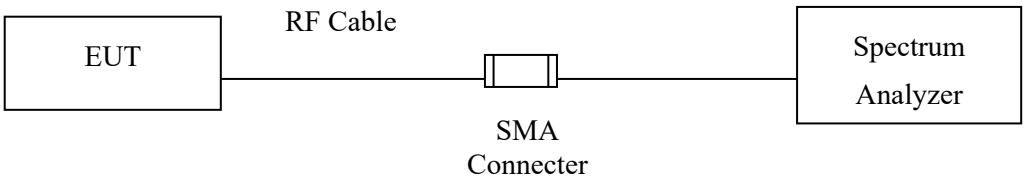
Note: Dwell time =Time slot length* calculation

CH 00 Time slot length



10. 20dBc Occupied Bandwidth

10.1. Test Setup



10.2. Limits

N/A

10.3. Test Procedure

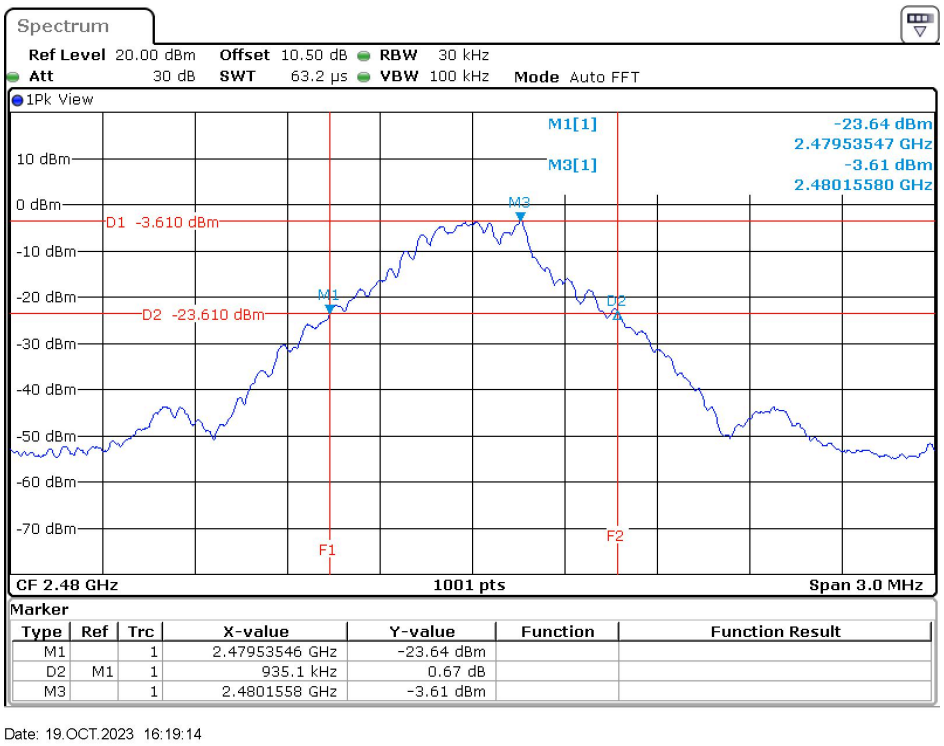
Tested according to FHSS test procedure of KDB558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

10.4. Test Result of 20dBc Occupied Bandwidth

Product : Multimedia device with Bluetooth and WLAN
Test Item : 20dBc Occupied Bandwidth
Test Mode : Transmit - 1 Mbps
Test Date : 2023/10/19
Test Sample : ID 02

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	938	--	NA
39	2441	938	--	NA
78	2480	935	--	NA

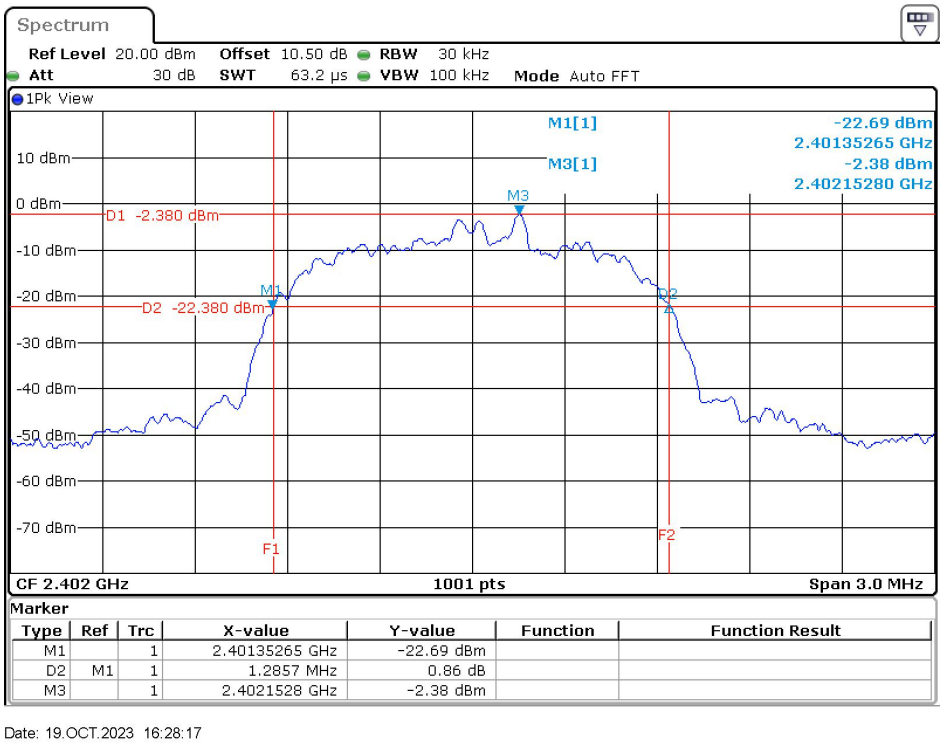
Channel 78:



Product : Multimedia device with Bluetooth and WLAN
Test Item : 20dBc Occupied Bandwidth
Test Mode : Transmit - 3 Mbps
Test Date : 2023/10/19
Test Sample : ID 02

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1286	--	NA
39	2441	1289	--	NA
78	2480	1289	--	NA

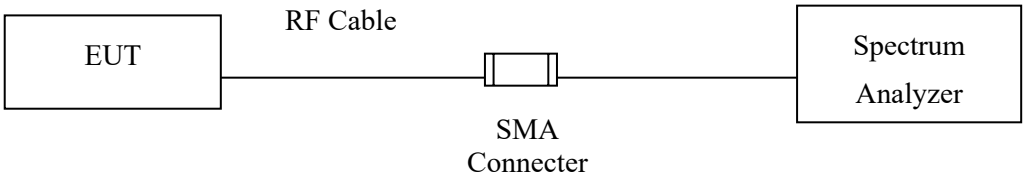
Channel 00:



Date: 19.OCT.2023 16:28:17

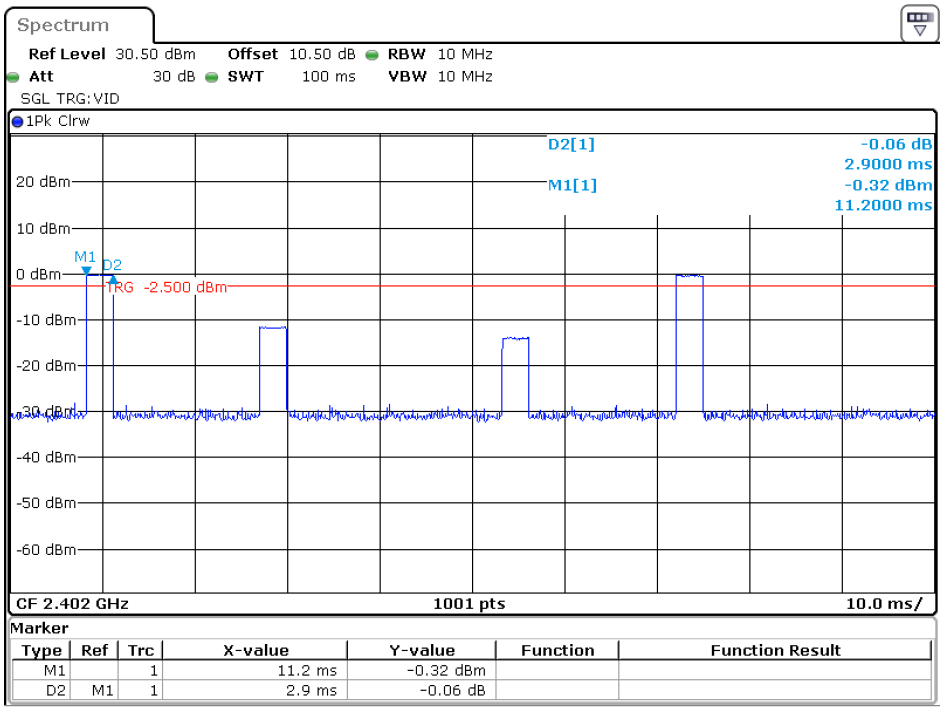
11. Duty Cycle

11.1. Test Setup



11.2. Test Result of Duty Cycle

Product	:	Multimedia device with Bluetooth and WLAN
Test Item	:	Duty Cycle Data
Test Mode	:	Transmit - 1 Mbps
Test Sample	:	ID 02

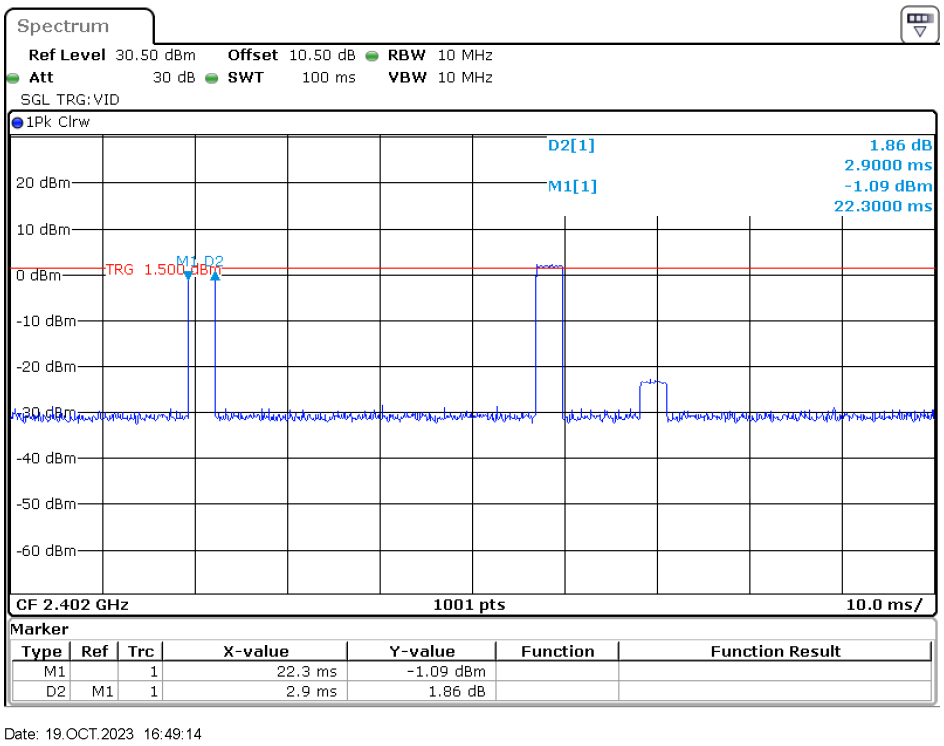


Date: 19.OCT.2023 16:50:52

Time on of 100ms = 5.8ms
Duty Cycle = 5.8 ms / 100ms = 0.058
Duty Cycle correction factor = 20 LOG 0.058 = -24.731 dB

Duty Cycle correction factor	-24.731 dB

Product : Multimedia device with Bluetooth and WLAN
Test Item : Duty Cycle Data
Test Mode : Transmit - 3 Mbps
Test Sample : ID 02



Time on of 100ms = 5.8ms
Duty Cycle = 5.8 ms / 100ms = 0.058
Duty Cycle correction factor = 20 LOG 0.058 = -24.731 dB

Duty Cycle correction factor	-24.731 dB