ISED Test Report

Product Name	ROG CETRA TRUE WIRELESS
Model No.	ROG CETRA TRUE WIRELESS(L), ROG CETRA TRUE WIRELESS(R)
IC ID. (L)	28010-RCTWL
IC ID. (R)	28010-RCTWR

Applicant	PALM GARDEN CORP.
Address	4F, 540-1, Zhong Zheng Rd., Xindian Dist., New Taipei City 231, Taiwan

Date of Receipt	Nov. 20, 2021
Issued Date	Mar 02, 2022
Report No.	21B0790R-RFICBT2V01-A
Report Version	V1.0

Testing Laboratory
3023

The test results relate only to the samples tested.
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.
This report must not be used to claim product endorsement by TAF or any agency of the government.
The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
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 Report

Issued Date: Mar 02, 2022
Report No.: 21B0790R-RFICBT2V01-A

Product Name	ROG CETRA TRUE WIRELESS
Applicant	PALM GARDEN CORP.
Address	4F, 540-1, Zhong Zheng Rd., Xindian Dist., New Taipei City 231, Taiwan
Manufacturer	PALM GARDEN CORP.
Model No.	ROG CETRA TRUE WIRELESS(L),ROG CETRA TRUE WIRELESS(R)
IC ID. (L)	28010-RCTWL
IC ID. (R)	28010-RCTWR
EUT Rated Voltage	DC 5V (Power by USB) or DC 3.7V (Power by Battery)
EUT Test Voltage	DC 5V (Power by USB)
Trade Name	ASUS
Applicable Standard	RSS-247 Issue 2 (Feb, 2017) ANSI C63.4: 2014, ANSI C63.10: 2013
Test Result	Complied

Documented By : Joanne Lin

(Senior Project Specialist / Joanne Lin)

Tested By : Bill Lin

(Senior Engineer / Bill Lin)

Approved By : Alan Chen

(Senior Engineer / Alan Chen)

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Appendix 1: EUT Test Photographs
Appendix 2: Product Photos-Please refer to the file: 21B0790R-Product Photos

Revision History

Report No.	Version	Description	Issued Date
21B0790R-RFICBT2V01-A	V1.0	Initial issue of report.	2022-03-02

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	ROG CETRA TRUE WIRELESS
Trade Name	ASUS
Model No.	ROG CETRA TRUE WIRELESS(L),ROG CETRA TRUE WIRELESS(R)
IC ID. (L)	28010-RCTWL
IC ID. (R)	28010-RCTWR
Frequency Range	2402-2480MHz
Channel Number	79
Type of Modulation	FHSS: GFSK(1Mbps) / π /4DQPSK(2Mbps) / 8DPSK(3Mbps)
Antenna Type	FPC Antenna
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”
ROG CETRA TRUE WIRELESS	MFR: ASUS, M/N: ROG CETRA TRUE WIRELESS
USB Cable	MFR: ASUS, M/N: ROG CETRA TRUE WIRELESS, Shielded, 0.6m

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	ATN	ATN1236	FPC Antenna	0.02dBi for 2.4 GHz

Firmware/Software Version

1	HW Version Identification Number (HVIN)	ROG CETRA TRUE WIRELESS(L),ROG CETRA TRUE WIRELESS(R)
2	Firmware Version Identification Number (FVIN)	N/A
3	Test SW Version	Bluetooth RF Test Tool RtlBluetoothMP.dll version5.3.1.89, RTLBTAPP Version5.2.3.16
4	RF power setting in TEST SW	☐ RF power setting was not able to alter during testing. ☒ RF power setting was able to alter during testing. (See the following table)

Parameters of test software setting - Left

Frequency	2402MHz	2441MHz	2480MHz
GFSK (1Mbps)	0x3F	0x3F	0x3F
8DPSK (3Mbps)	0x44	0x44	0x44

Parameters of test software setting - Right

Frequency	2402MHz	2441MHz	2480MHz
GFSK (1Mbps)	0x3F	0x3F	0x3F
8DPSK (3Mbps)	0x44	0x44	0x44

Center Frequency of Each Channel:

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

Note:

1. The EUT is a ROG CETRA TRUE WIRELESS with built-in Bluetooth V5.1、V2.1+EDR transceive this report for Bluetooth V2.1+EDR.
2. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
4. These tests are conducted on a sample for the purpose of demonstrating compliance of Bluetooth transmitter with RSS-247 Issue 2 for spread spectrum devices.
5. 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-1Mbps-Left Mode 2: Transmit-3Mbps-Left Mode 3: Transmit-1Mbps-Right Mode 4: Transmit-3Mbps-Right Mode 5: Charge Mode

1.2. Tested System Datails

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

Transmit mode:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	Latitude 5501	4H94P13	N/A
2	Test Fixture	GZUt	CH340G	N/A	N/A

Signal Cable Type		Signal cable Description
A	Signal Cable	Non-shielded, 0.25m
B	USB Cable	Shielded, 1.8m

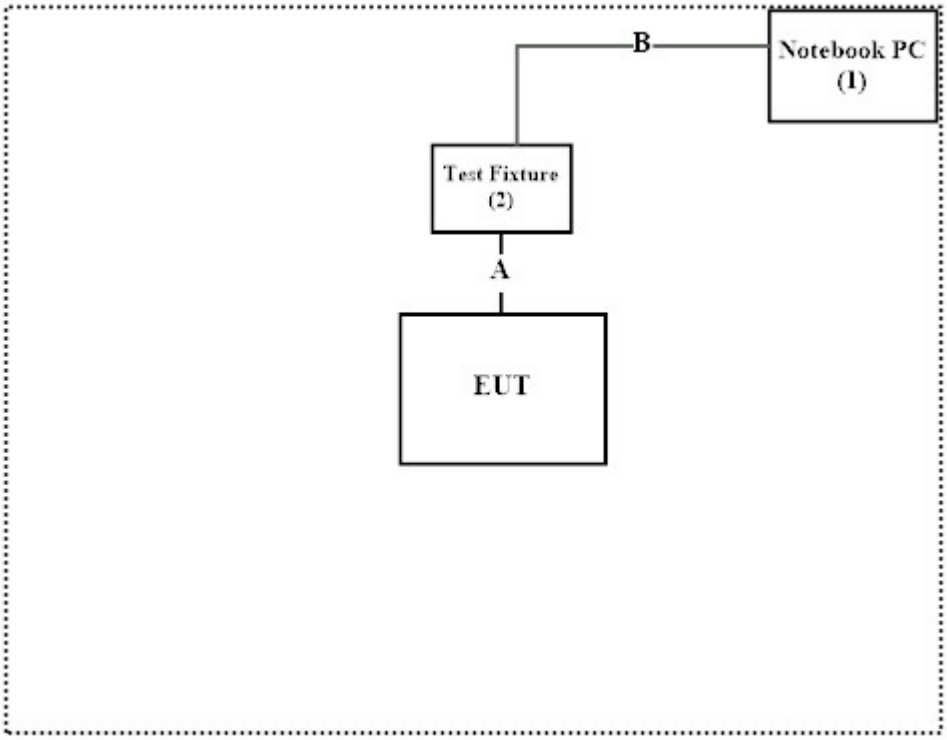
Charge Mode:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Power Adapter	CHEN YANG ELECTRONICS	MDY-09-EB	N/A	N/A

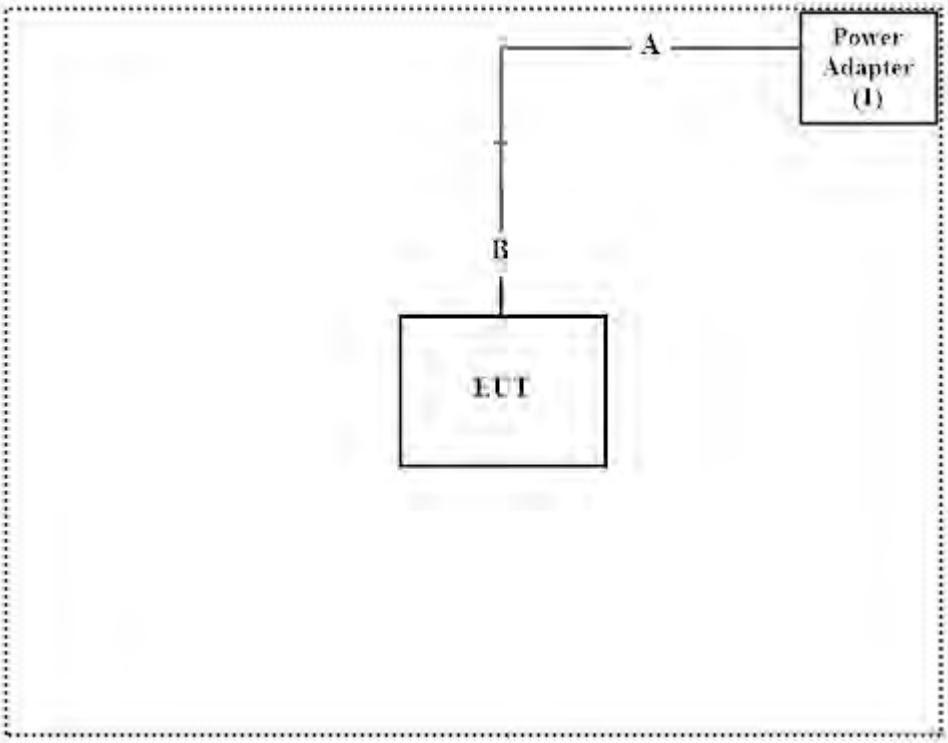
Signal Cable Type		Signal cable Description
A	USB Cable	Shielded, 0.6m
B	USB Cable	Shielded, 1.8m

1.3. Configuration of tested System

Transmit mode



Charge Mode



1.4. EUT Exercise Software

1. Setup the EUT as shown in Section 1.3.
2. Execute software “Bluetooth RF Test Tool RtlBluetoothMP.dll version5.3.1.89, RTLBTAPP Version5.2.3.16” 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
Conducted Emission	Temperature (°C)	10~40 °C	22.8 °C
	Humidity (%RH)	10~90 %	47.9 %
Radiated Emission	Temperature (°C)	10~40 °C	22.3 °C
	Humidity (%RH)	10~90 %	62.6 %
Conductive	Temperature (°C)	10~40 °C	23.2 °C
	Humidity (%RH)	10~90 %	70 %

USA : FCC Registration Number: TW0033

Canada : IC Registration Number: 26930

Site Description : Accredited by TAF
Accredited Number: 3023

Test Laboratory : DEKRA Testing and Certification Co., Ltd
Address : No. 5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan
Performed Location : No. 26, Huaya 1st Rd., Guishan Dist.,Taoyuan City 333411, Taiwan, R.O.C.
Phone number : +886-3-275-7255
Fax number : +866-3-327-8031
Email address : info.tw@dekra.com
Website : http://www.dekra.com.tw

1.6. List of Test Equipment

For Conduction measurements / SH1

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	EMI Test Receiver	R&S	ESR7	101601	2021/06/19	2022/06/18
X	Two-Line V-Network	R&S	ENV216	101306	2021/04/08	2022/04/07
X	Two-Line V-Network	R&S	ENV216	101307	2021/05/04	2022/05/03
X	Coaxial Cable	DEKRA	RG400_BNC	RF001	2021/05/24	2022/05/23

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : AUDIX e3 V9.

For Conducted measurements / SH2

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Spectrum Analyzer	R&S	FSV30	103464	2021/03.25	2022/03.24
X	Peak Power Analyzer	KEYSIGHT	8900B	MY51000539	2021/06/07	2022/06/06
X	Power Sensor	KEYSIGHT	N1923A	MY59240002	2021/05/17	2022/05/16
X	Power Sensor	KEYSIGHT	N1923A	MY59240003	2021/05/17	2022/05/16

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.

For Radiated measurements / 966-3

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Loop Antenna	AMETEK	HLA6121	56736	2021/04/14	2022/04/13
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-675	2021/08/11	2022/08/10
X	Horn Antenna	ETS-Lindgren	3117	00227700	2021/10/12	2022/10/11
X	Horn Antenna	Com-Power	AH-840	101100	2021/10/04	2022/10/03
	Pre-Amplifier	SGH	EM330	60736	2021/08/11	2022/08/10
X	Pre-Amplifier	SGH	PRAMP118	20200202	2021/03/25	2022/03/24
X	Pre-Amplifier	EMCI	EMC001330	980254	2021/07/06	2022/07/05
	Pre-Amplifier	EMCI	EMC051835SE	980313	2021/11/24	2022/11/23
	Pre-Amplifier	EMCI	EMC05820SE	980309	2021/09/27	2022/09/26
X	Pre-Amplifier	EMCI	EMC05820SE	980310	2021/07/07	2022/07/06
X	Pre-Amplifier	EMCI	EMC184045SE	980369	2021/04/27	2022/04/26
	Coaxial Cable	EMCI	EMC102-KM-KM-600	1160314		
	Coaxial Cable	EMCI	EMC102-KM-KM-7000	170242		
X	Filter	MICRO TRONICS	BRM50702	G251	2021/09/16	2022/09/15
	Filter	MICRO TRONICS	BRM50716	G188	2021/09/16	2022/09/15
X	EMI Test	R&S	ESR3	102793	2021/12/15	2022/12/14
X	Spectrum	R&S	FSV3044	101114	2021/02/04	2022/02/03
X	Coaxial Cable	SGH	HA800	GD20110222-3	2021/03/05	2022/03/04
	Coaxial Cable	SGH	SGH18	20110223-1		
	Coaxial Cable	SGH	SGH18	2021001-1		
	Coaxial Cable	SGH	SGH18	2021001-18		

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : AUDIX e3 V9.

1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document.

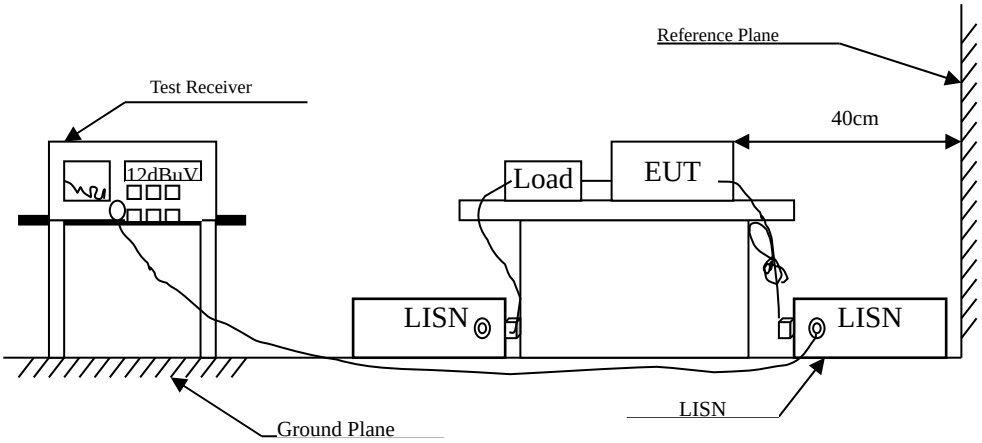
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

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	±3.42 dB	
Peak Power Output	±0.91 dB	
Radiated Emission	Under 1GHz ±4.06 dB	Above 1GHz ±3.73 dB
RF Antenna Conducted Test	±2.53 dB	
Band Edge	Under 1GHz ±4.06 dB	Above 1GHz ±3.73 dB
Channel Number	N/A	
Channel Separation	±682.83 Hz	
Dwell Time	±2.31 ms	
Occupied Bandwidth	±682.83 Hz	
99% Occupied Bandwidth	±682.83 Hz	
Duty Cycle	±2.31 ms	

2. Conducted Emission

2.1. Test Setup



2.2. Limits

RSS-Gen Issue 5 Section 8.8 Limits		
Frequency MHz	Limits (dBuV)	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

2.3. Test Procedure

The EUT and simulators 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 refers to the block diagram of the test setup and photographs.)

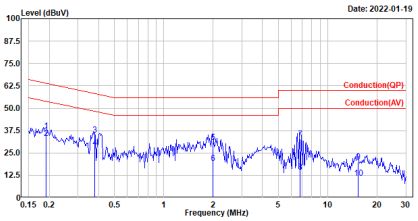
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.4. Test Result of Conducted Emission

Left

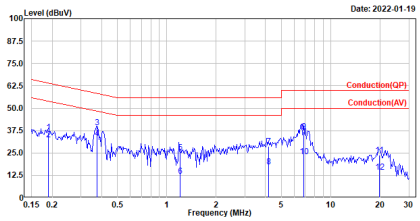
Site :SH1
Condition :Line
Mode :BT_3M_2441MHz_Tx
test by :Ryan



No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB	Remark
1	0.191	37.23	63.98	-26.75	27.58	9.65	QP
2	0.191	33.20	53.98	-20.78	23.55	9.65	Average
3	0.378	35.15	58.32	-23.17	25.49	9.66	QP
4	0.378	28.03	48.32	-20.29	18.37	9.66	Average
5	1.988	31.13	56.00	-24.87	21.41	9.72	QP
6	1.988	19.24	46.00	-26.76	9.52	9.72	Average
7	6.806	32.84	60.00	-27.16	23.00	9.84	QP
8	6.806	14.36	50.00	-35.64	4.52	9.84	Average
9	15.270	20.07	60.00	-39.93	10.13	9.94	QP
10	15.270	11.01	50.00	-38.99	1.07	9.94	Average

Note:
1. Level = Read Level + Factor
2. Factor = LISN insertion loss + Cable loss
3. Over Limit = Level - Limit Line

Site :SH1
Condition :Neutral
Mode :BT_3M_2441MHz_Tx
test by :Ryan

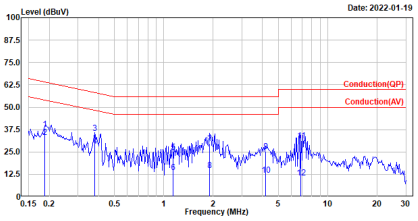


No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB	Remark
1	0.191	36.69	64.01	-27.32	27.02	9.67	QP
2	0.191	32.63	54.01	-21.38	22.96	9.67	Average
3	0.377	39.07	58.34	-19.27	29.40	9.67	QP
4	0.377	33.11	48.34	-15.23	23.44	9.67	Average
5	1.208	25.22	56.00	-30.78	15.52	9.70	QP
6	1.208	12.06	46.00	-33.94	2.36	9.70	Average
7	4.185	28.68	56.00	-27.32	18.90	9.78	QP
8	4.185	17.52	46.00	-28.48	7.74	9.78	Average
9	6.853	36.90	60.00	-23.10	27.04	9.86	QP
10	6.853	22.87	50.00	-27.13	13.01	9.86	Average
11	19.789	23.62	60.00	-36.38	13.57	10.05	QP
12	19.789	14.37	50.00	-35.63	4.32	10.05	Average

Note:
1. Level = Read Level + Factor
2. Factor = LISN insertion loss + Cable loss
3. Over Limit = Level - Limit Line

Right

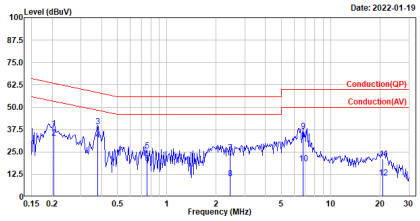
Site :SH1
Condition :Line
Mode :BT_3M_2441MHz_Tx
test by :Ryan



No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB	Remark
1	0.188	37.78	64.12	-26.34	28.13	9.65	QP
2	0.188	33.39	54.12	-20.73	23.74	9.65	Average
3	0.378	35.64	58.32	-22.68	25.98	9.66	QP
4	0.378	28.34	48.32	-19.98	18.68	9.66	Average
5	1.144	25.05	56.00	-30.95	15.36	9.69	QP
6	1.144	13.72	46.00	-32.28	4.03	9.69	Average
7	1.900	29.29	56.00	-26.71	19.57	9.72	QP
8	1.900	14.55	46.00	-31.45	4.83	9.72	Average
9	4.175	25.47	56.00	-30.53	15.70	9.77	QP
10	4.175	12.15	46.00	-33.85	2.38	9.77	Average
11	6.867	31.44	60.00	-28.56	21.60	9.84	QP
12	6.867	10.60	50.00	-39.40	0.76	9.84	Average

Note:
1. Level = Read Level + Factor
2. Factor = LISN insertion loss + Cable loss
3. Over Limit = Level - Limit Line

Site :SH1
Condition :Neutral
Mode :BT_3M_2441MHz_Tx
test by :Ryan

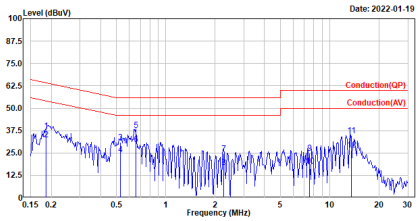


No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB	Remark
1	0.204	38.18	63.43	-25.25	28.51	9.67	QP
2	0.204	32.71	53.43	-20.72	23.04	9.67	Average
3	0.380	39.08	58.29	-19.21	29.41	9.67	QP
4	0.380	31.52	48.29	-16.77	21.85	9.67	Average
5	0.755	25.53	56.00	-30.47	15.85	9.68	QP
6	0.755	18.43	46.00	-27.57	8.75	9.68	Average
7	2.428	24.65	56.00	-31.35	14.91	9.74	QP
8	2.428	10.30	46.00	-35.70	0.56	9.74	Average
9	6.769	36.49	60.00	-23.51	26.64	9.85	QP
10	6.769	18.50	50.00	-31.50	8.65	9.85	Average
11	20.817	21.12	60.00	-38.88	11.07	10.05	QP
12	20.817	10.57	50.00	-39.43	0.52	10.05	Average

Note:
1. Level = Read Level + Factor
2. Factor = LISN insertion loss + Cable loss
3. Over Limit = Level - Limit Line

Charge mode

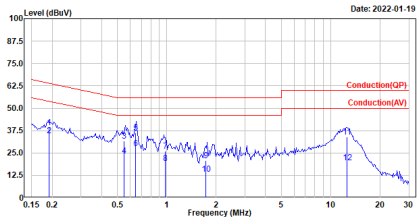
Site :SH1
Condition :Line
Mode :Charge Mode
test by :Ryan



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.187	37.25	64.17	-26.92	27.60	9.65	QP
2	0.187	32.35	54.17	-21.82	22.70	9.65	Average
3	0.527	31.12	56.00	-24.88	21.46	9.66	QP
4	0.527	24.00	46.00	-22.00	14.34	9.66	Average
5	0.655	37.57	56.00	-18.43	27.89	9.68	QP
6	0.655	29.83	46.00	-16.17	20.15	9.68	Average
7	2.266	24.43	56.00	-31.57	14.70	9.73	QP
8	2.266	16.86	46.00	-29.14	7.13	9.73	Average
9	7.526	25.07	60.00	-34.93	15.22	9.85	QP
10	7.526	17.56	50.00	-32.44	7.71	9.85	Average
11	13.561	34.62	60.00	-25.38	24.69	9.93	QP
12	13.561	26.63	50.00	-23.37	16.70	9.93	Average

Note:
1. Level = Read Level + Factor
2. Factor = LISN insertion loss + Cable loss
3. Over Limit = Level - Limit Line

Site :SH1
Condition :Neutral
Mode :Charge Mode
test by :Ryan



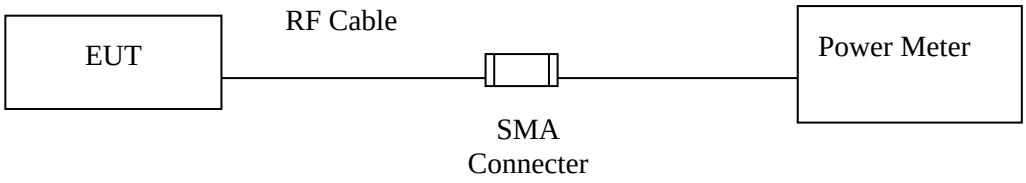
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.191	39.10	64.00	-24.90	29.43	9.67	QP
2	0.191	34.67	54.00	-19.33	25.00	9.67	Average
3	0.551	31.53	56.00	-24.47	21.86	9.67	QP
4	0.551	23.25	46.00	-22.75	13.58	9.67	Average
5	0.647	36.33	56.00	-19.67	26.65	9.68	QP
6	0.647	27.55	46.00	-18.45	17.87	9.68	Average
7	0.977	26.02	56.00	-29.98	16.33	9.69	QP
8	0.977	19.30	46.00	-26.70	9.61	9.69	Average
9	1.732	20.57	56.00	-35.43	10.85	9.72	QP
10	1.732	13.21	46.00	-32.79	3.49	9.72	Average
11	12.551	33.92	60.00	-26.08	23.96	9.96	QP
12	12.551	19.71	50.00	-30.29	9.75	9.96	Average

Note:
1. Level = Read Level + Factor
2. Factor = LISN insertion loss + Cable loss
3. Over Limit = Level - Limit Line

3. Peak Power Output

3.1. Test Setup

Conduction Power Measurement



3.2. Limits

According to RSS-247 Issue 2, 5.4(b) (Feb, 2017), the maximum peak conducted output power shall not exceed 1.0 W if the hopset uses 75 or more hopping channels; the maximum peak conducted output power shall not exceed 0.125 W if the hopset uses less than 75 hopping channels.

3.3. Test Result of Peak Power Output

Product : ROG CETRA TRUE WIRELESS
Test Item : Peak Power Output
Test Mode : Mode 1: Transmit-1Mbps-Left
Test Date : 2021/01/10

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402	7.89	1 Watt= 30 dBm	Pass
Channel 39	2441	8.44	1 Watt= 30 dBm	Pass
Channel 78	2480	8.61	1 Watt= 30 dBm	Pass

Channel No.	Frequency Range (MHz)	Output Power (dBm)	Antenna gain (dBi)	E.I.R.P (dBm)	E.I.R.P Limt (dBm)	Result
00	2402	7.89	0.02	7.91	<36	Pass
39	2441	8.44	0.02	8.46	<36	Pass
78	2480	8.61	0.02	8.63	<36	Pass

Product : ROG CETRA TRUE WIRELESS
Test Item : Peak Power Output
Test Mode : Mode 2: Transmit-3Mbps-Left
Test Date : 2021/01/10

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402	7.46	1 Watt= 30 dBm	Pass
Channel 39	2441	8.02	1 Watt= 30 dBm	Pass
Channel 78	2480	8.21	1 Watt= 30 dBm	Pass

Channel No.	Frequency Range (MHz)	Output Power (dBm)	Antenna gain (dBi)	E.I.R.P (dBm)	E.I.R.P Limt (dBm)	Result
00	2402	7.46	0.02	7.48	<36	Pass
39	2441	8.02	0.02	8.04	<36	Pass
78	2480	8.21	0.02	8.23	<36	Pass

Product : ROG CETRA TRUE WIRELESS
Test Item : Peak Power Output
Test Mode : Mode 3: Transmit-1Mbps-Right
Test Date : 2021/01/10

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402	7.63	1 Watt= 30 dBm	Pass
Channel 39	2441	8.33	1 Watt= 30 dBm	Pass
Channel 78	2480	8.61	1 Watt= 30 dBm	Pass

Channel No.	Frequency Range (MHz)	Output Power (dBm)	Antenna gain (dBi)	E.I.R.P (dBm)	E.I.R.P Limt (dBm)	Result
00	2402	7.63	0.02	7.65	<36	Pass
39	2441	8.33	0.02	8.35	<36	Pass
78	2480	8.61	0.02	8.63	<36	Pass

Product : ROG CETRA TRUE WIRELESS
Test Item : Peak Power Output
Test Mode : Mode 4: Transmit-3Mbps-Right
Test Date : 2021/01/10

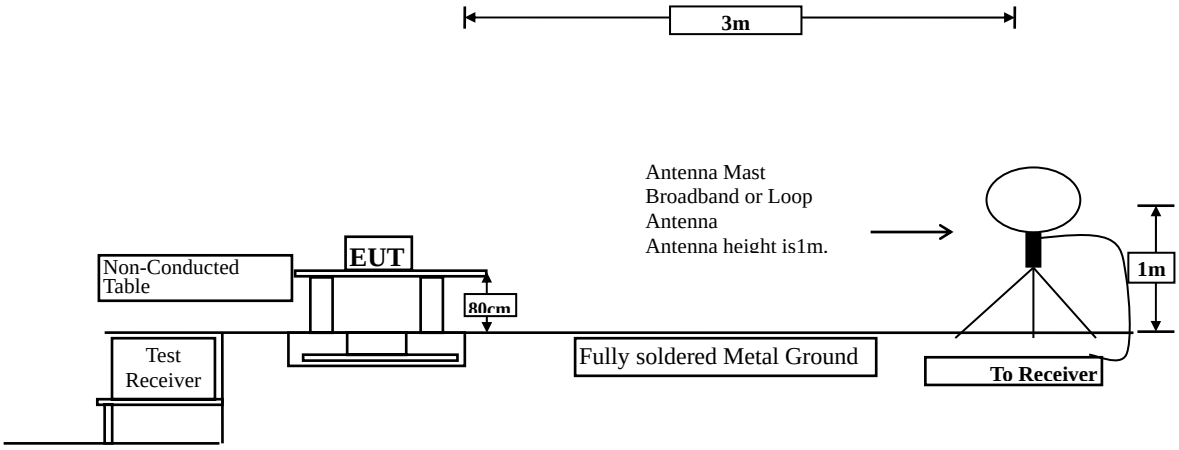
Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402	7.16	1 Watt= 30 dBm	Pass
Channel 39	2441	7.86	1 Watt= 30 dBm	Pass
Channel 78	2480	8.15	1 Watt= 30 dBm	Pass

Channel No.	Frequency Range (MHz)	Output Power (dBm)	Antenna gain (dBi)	E.I.R.P (dBm)	E.I.R.P Limt (dBm)	Result
00	2402	7.16	0.02	7.18	<36	Pass
39	2441	7.86	0.02	7.88	<36	Pass
78	2480	8.15	0.02	8.17	<36	Pass

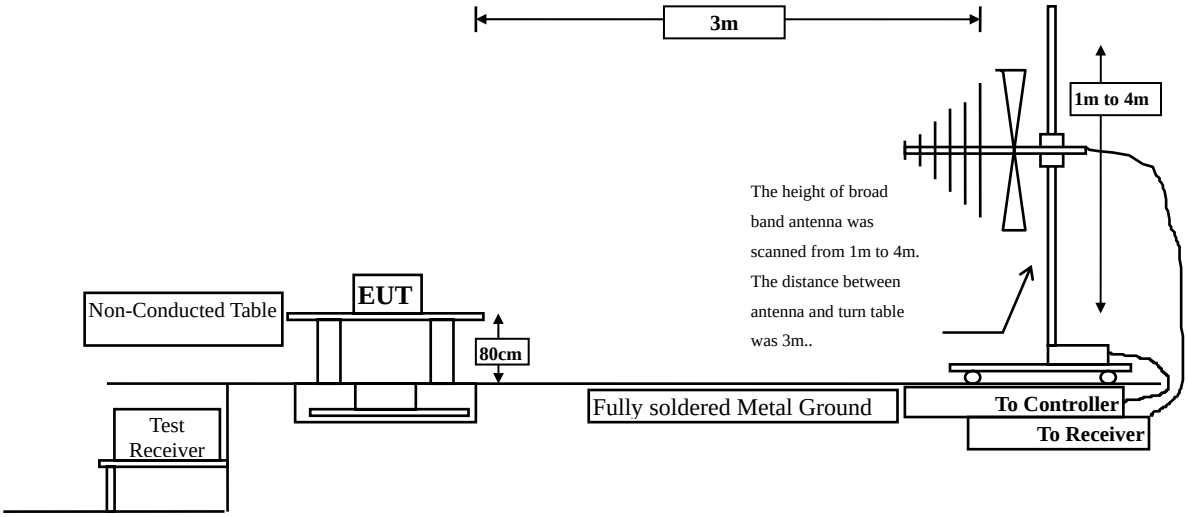
4. Radiated Emission

4.1. Test Setup

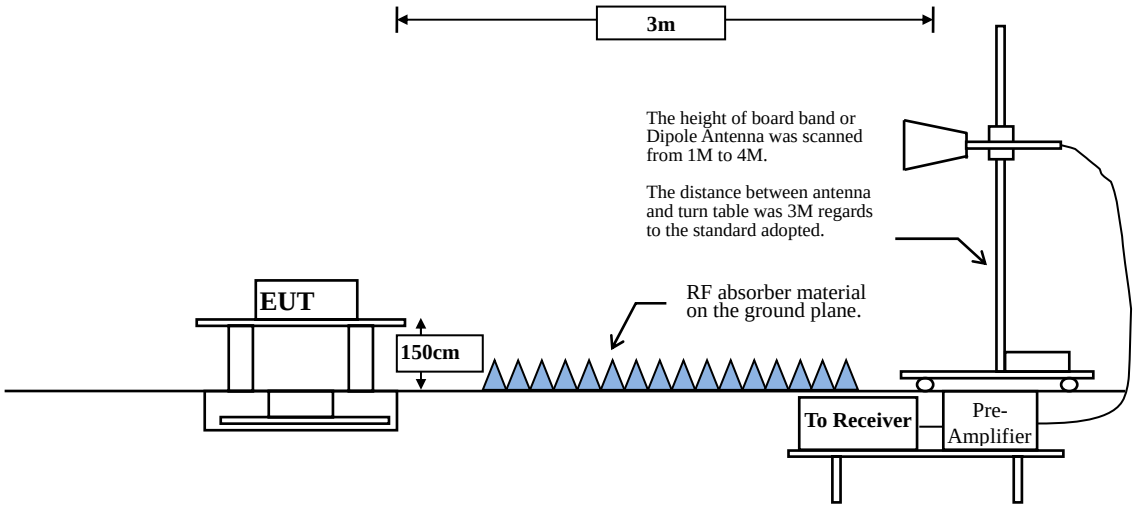
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



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 RSS-Gen Issue 5 Section 8.9, whichever is the lesser attenuation.

RSS-Gen Issue 5 Section 8.9 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 (dBuV) = 20 log RF Voltage (uV)

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

Measuring the frequency range below 1GHz, 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 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 C63.4: 2014 on radiated measurement.

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

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

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

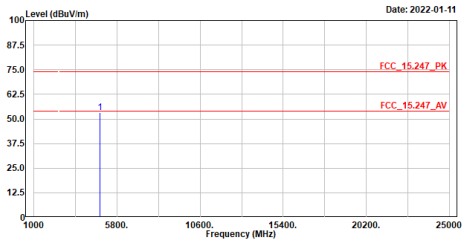
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the 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 9kHz - 10th Harmonic of fundamental was investigated.

4.4. Test Result of Radiated Emission

Left

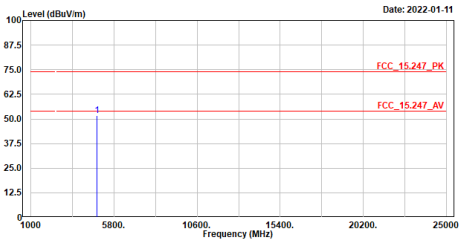
Site :966-3
Condition :3m ,HORIZONTAL
Mode :Tx_bt1M_2402MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4804.000	53.12	74.00	-20.88	52.22	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

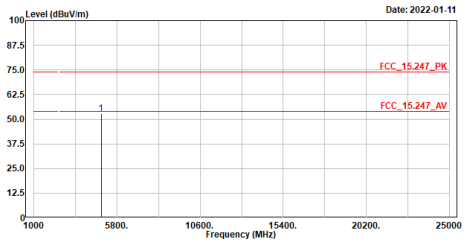
Site :966-3
Condition :3m ,VERTICAL
Mode :Tx_bt1M_2402MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4804.000	51.76	74.00	-22.24	50.86	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

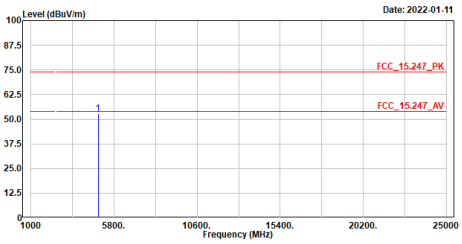
Site :966-3
Condition :3m ,HORIZONTAL
Mode :Tx_bt1M_2441MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4882.000	53.00	74.00	-21.00	52.10	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

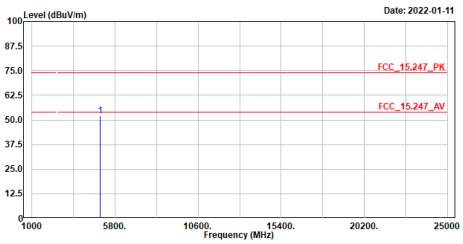
Site :966-3
Condition :3m ,VERTICAL
Mode :Tx_bt1M_2441MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4882.000	52.97	74.00	-21.03	52.07	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

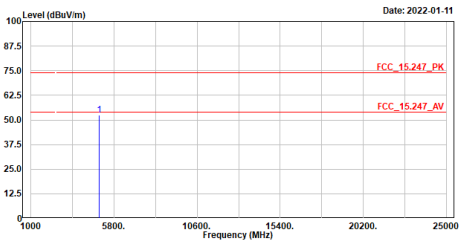
Site :966-3
Condition :3m ,HORIZONTAL
Mode :Tx_bt1M_2480MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4960.000	52.10	74.00	-21.90	51.06	1.04	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

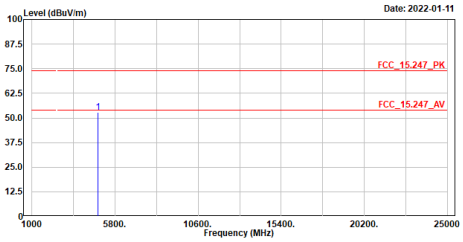
Site :966-3
Condition :3m ,VERTICAL
Mode :Tx_bt1M_2480MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4960.000	52.39	74.00	-21.61	51.35	1.04	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

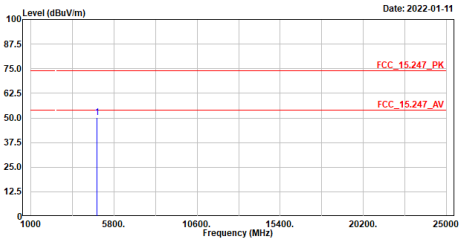
Site :966-3
Condition :3m ,HORIZONTAL
Mode :Tx_bt3M_2402MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4804.000	52.81	74.00	-21.19	51.91	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

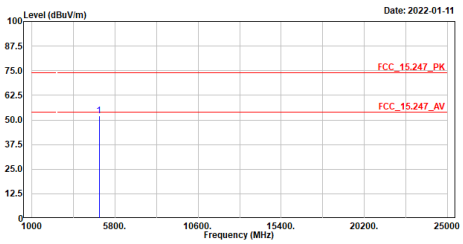
Site :966-3
Condition :3m ,VERTICAL
Mode :Tx_bt3M_2402MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4804.000	50.11	74.00	-23.89	49.21	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

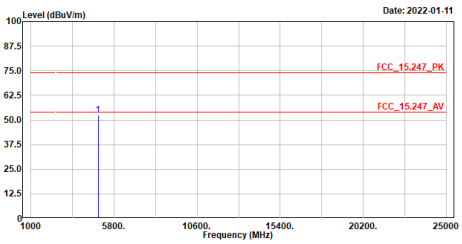
Site :966-3
Condition :3m ,HORIZONTAL
Mode :Tx_bt3M_2441MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4882.000	52.26	74.00	-21.74	51.36	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

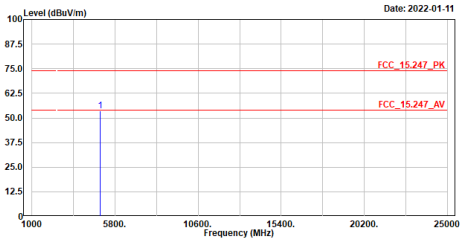
Site :966-3
Condition :3m ,VERTICAL
Mode :Tx_bt3M_2441MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4882.000	52.60	74.00	-21.40	51.70	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

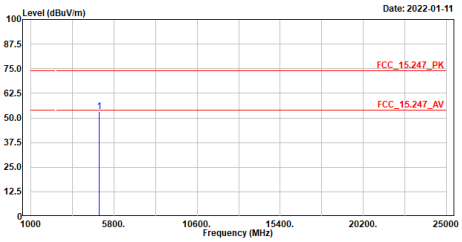
Site :966-3
Condition :3m ,HORIZONTAL
Mode :Tx_bt3M_2480MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4960.000	53.62	74.00	-20.38	52.58	1.04	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

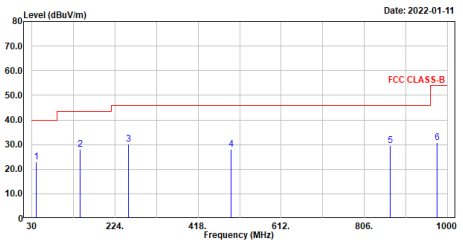
Site :966-3
Condition :3m ,VERTICAL
Mode :Tx_bt3M_2480MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4960.000	53.14	74.00	-20.86	52.10	1.04	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

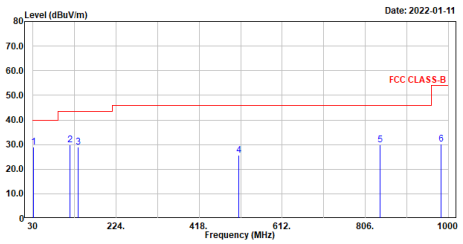
Site :966-3
Condition :3m ,HORIZONTAL
Mode :TX_bt3M_2441MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	40.670	23.01	40.00	-16.99	35.11	-12.10	QP
2	142.520	28.03	43.50	-15.47	39.91	-11.88	QP
3	256.010	30.27	46.00	-15.73	42.87	-12.60	QP
4	494.630	28.14	46.00	-17.86	34.62	-6.48	QP
5	866.140	29.62	46.00	-16.38	30.64	-1.02	QP
6	975.750	30.73	54.00	-23.27	30.31	0.42	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 :966-3
Condition :3m ,VERTICAL
Mode :TX_bt3M_2441MHz
Test BY :Ashton Chiu

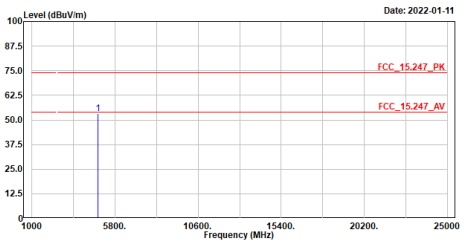


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	30.970	28.86	40.00	-11.14	42.21	-13.35	QP
2	117.300	29.77	43.50	-13.73	43.82	-14.05	QP
3	135.730	29.06	43.50	-14.44	41.27	-12.21	QP
4	510.150	25.66	46.00	-20.34	31.72	-6.06	QP
5	839.950	29.81	46.00	-16.19	30.97	-1.16	QP
6	983.510	30.28	54.00	-23.72	29.84	0.44	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.

Right

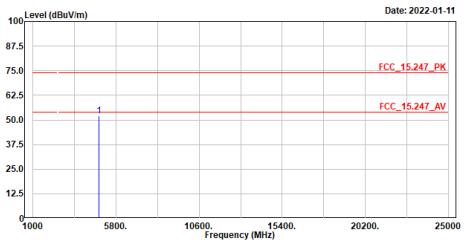
Site :966-3
Condition :3m ,HORIZONTAL
Mode :Tx_bt1M_2402MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4804.000	53.27	74.00	-20.73	52.37	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

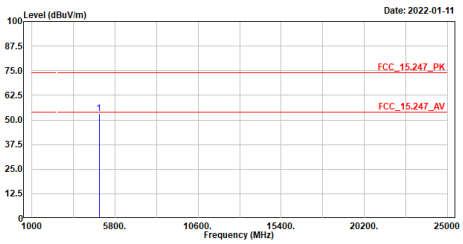
Site :966-3
Condition :3m ,VERTICAL
Mode :Tx_bt1M_2402MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4804.000	52.11	74.00	-21.89	51.21	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

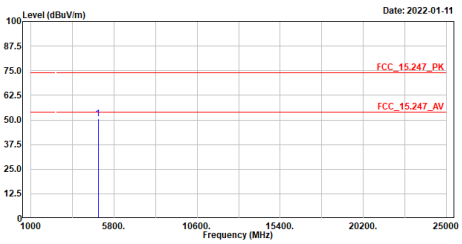
Site :966-3
Condition :3m ,HORIZONTAL
Mode :Tx_bt1M_2441MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4882.000	53.38	74.00	-20.62	52.48	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

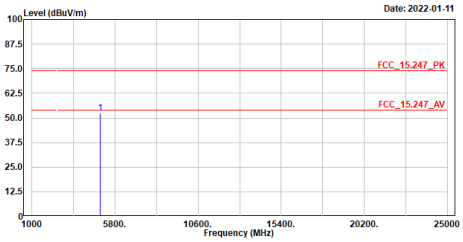
Site :966-3
Condition :3m ,VERTICAL
Mode :Tx_bt1M_2441MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4882.000	50.56	74.00	-23.44	49.66	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

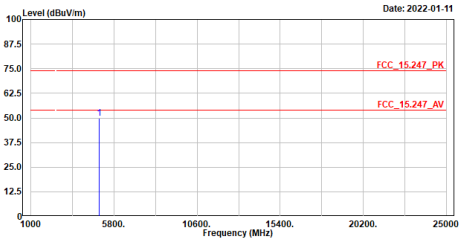
Site :966-3
Condition :3m ,HORIZONTAL
Mode :Tx_bt1M_2480MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4960.000	52.56	74.00	-21.44	51.52	1.04	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

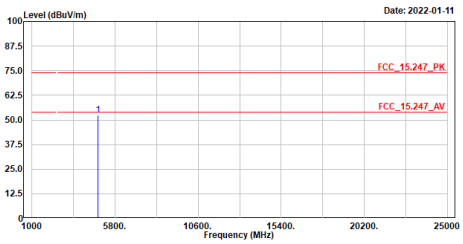
Site :966-3
Condition :3m ,VERTICAL
Mode :Tx_bt1M_2480MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4960.000	49.81	74.00	-24.19	48.77	1.04	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

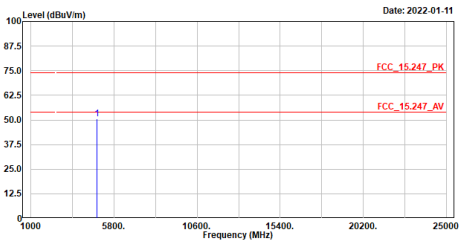
Site :966-3
Condition :3m ,HORIZONTAL
Mode :Tx_bt3M_2402MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4804.000	52.32	74.00	-21.68	51.42	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

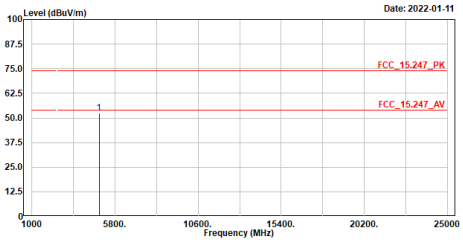
Site :966-3
Condition :3m ,VERTICAL
Mode :Tx_bt3M_2402MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4804.000	50.57	74.00	-23.43	49.67	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

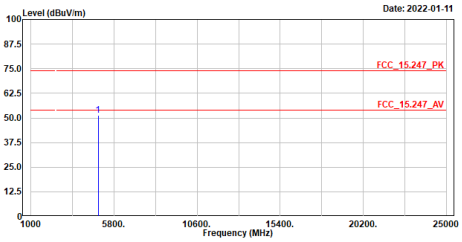
Site :966-3
Condition :3m ,HORIZONTAL
Mode :Tx_bt3M_2441MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4882.000	52.40	74.00	-21.60	51.50	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

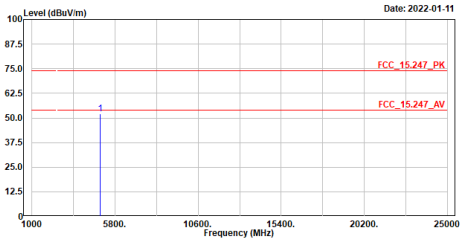
Site :966-3
Condition :3m ,VERTICAL
Mode :Tx_bt3M_2441MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4882.000	51.29	74.00	-22.71	50.39	0.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

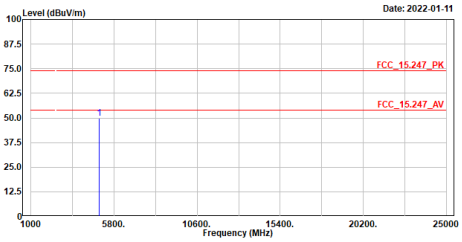
Site :966-3
Condition :3m ,HORIZONTAL
Mode :Tx_bt3M_2480MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4960.000	52.20	74.00	-21.80	51.16	1.04	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

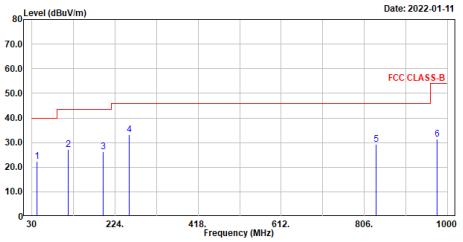
Site :966-3
Condition :3m ,VERTICAL
Mode :Tx_bt3M_2480MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4960.000	49.71	74.00	-24.29	48.67	1.04	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

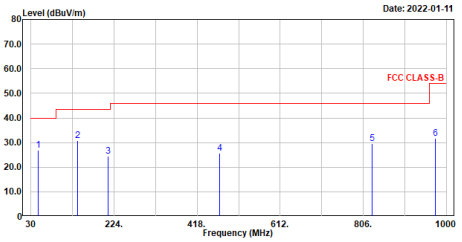
Site :966-3
Condition :3m ,HORIZONTAL
Mode :TX_bt3M_2441MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	41.640	22.46	40.00	-17.54	34.28	-11.82	QP
2	114.390	27.15	43.50	-16.35	41.46	-14.31	QP
3	195.870	26.14	43.50	-17.36	40.53	-14.39	QP
4	256.980	33.22	46.00	-12.78	45.81	-12.59	QP
5	834.130	29.21	46.00	-16.79	30.49	-1.28	QP
6	976.720	31.44	54.00	-22.56	31.02	0.42	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 :966-3
Condition :3m ,VERTICAL
Mode :TX_bt3M_2441MHz
Test BY :Ashton Chiu

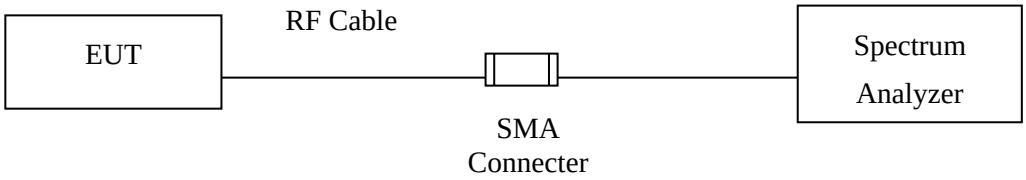


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	46.490	26.94	40.00	-13.06	38.62	-11.68	QP
2	138.640	30.77	43.50	-12.73	42.87	-12.10	QP
3	210.420	24.49	43.50	-19.01	38.73	-14.24	QP
4	471.350	25.53	46.00	-20.47	32.38	-6.85	QP
5	826.370	29.46	46.00	-16.54	30.84	-1.38	QP
6	974.780	31.81	54.00	-22.19	31.39	0.42	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 Conducted Test

5.1. Test Setup



5.2. Limits

According to RSS-247 Issue 2, 5.5 (Feb, 2017). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

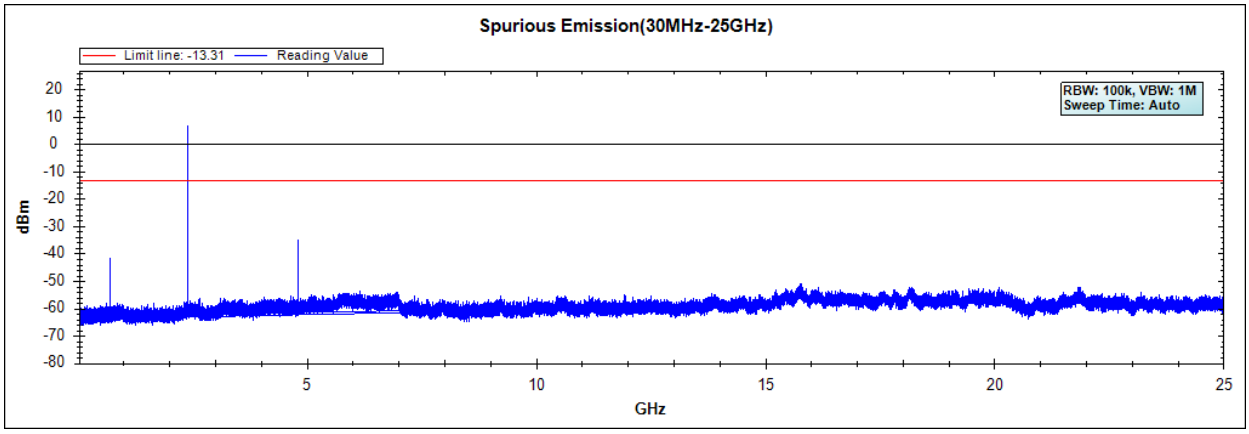
5.3. Test Procedure

The EUT was setup to ANSI C63.10: 2013; According to RSS-247 Issue 2, 5.5 (Feb, 2017).

5.4. Test Result of RF Antenna Conducted Test

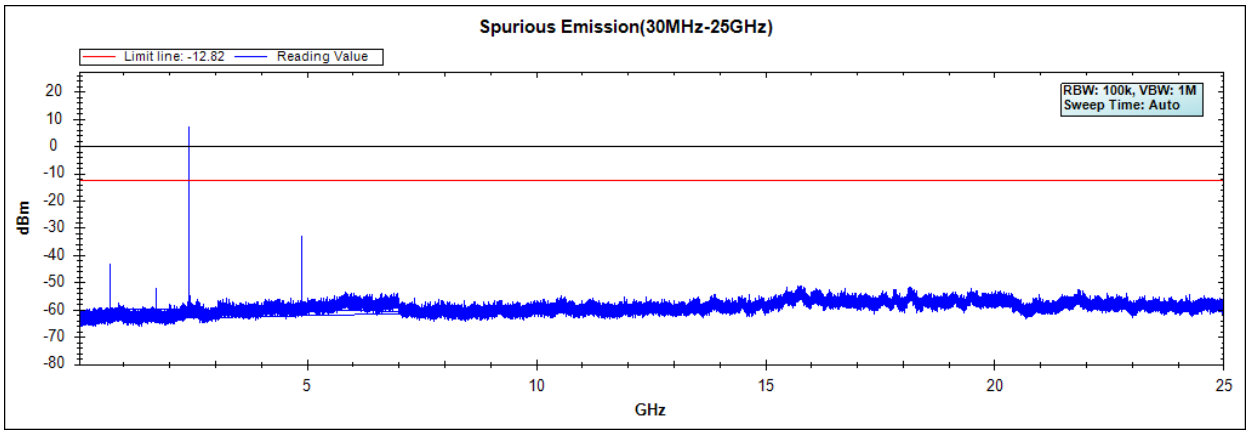
Product	:	ROG CETRA TRUE WIRELESS
Test Item	:	RF Antenna Conducted Test
Test Mode	:	Mode 1: Transmit-1Mbps-Left
Test Date	:	2022/01/07

Figure Channel 00:



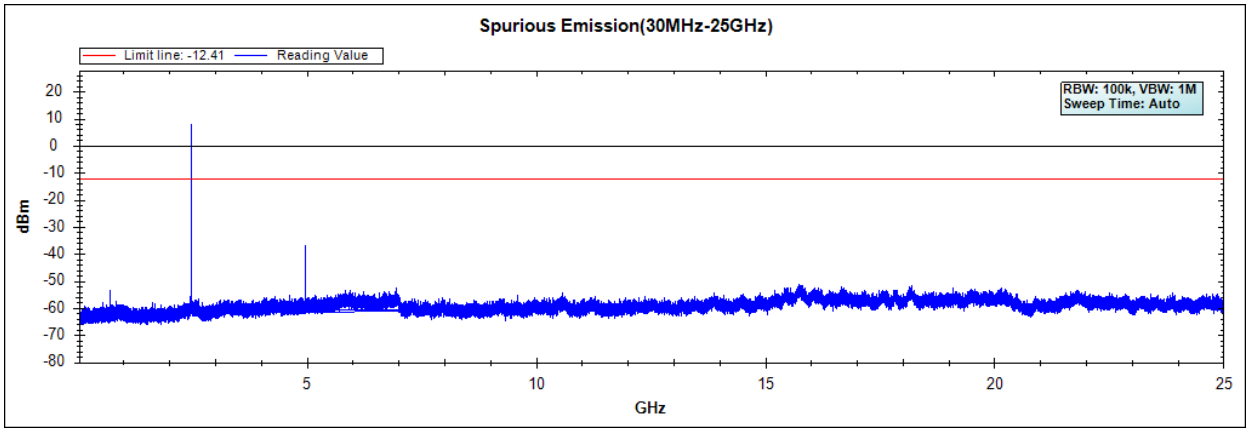
Note: The above test pattern is synthesized by multiple of the frequency range.

Figure Channel 39:



Note: The above test pattern is synthesized by multiple of the frequency range.

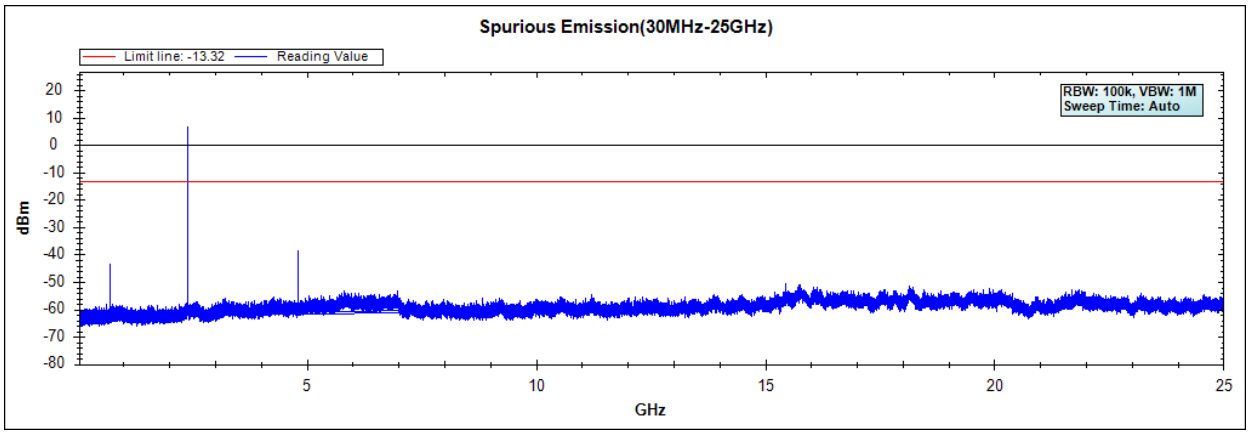
Figure Channel 78:



Note: The above test pattern is synthesized by multiple of the frequency range.

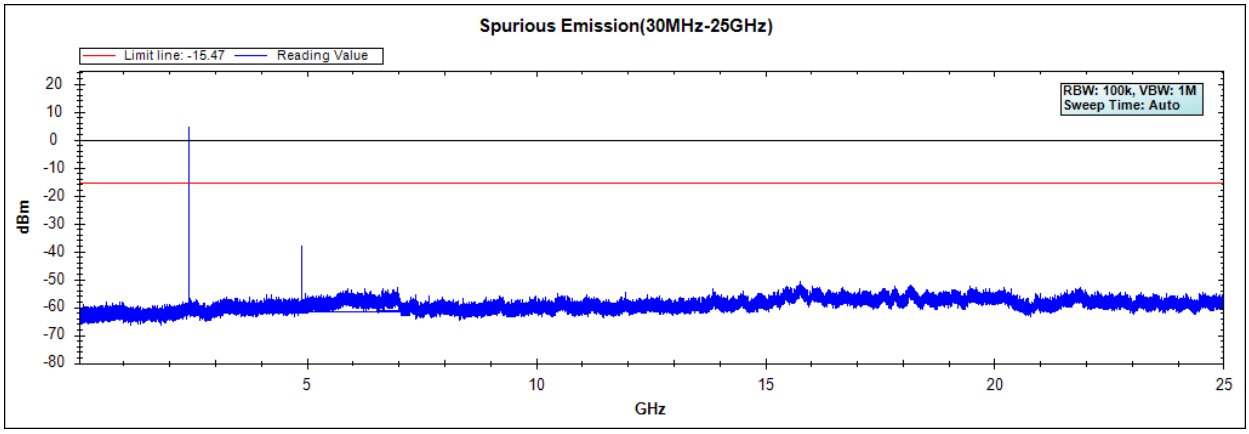
Product	:	ROG CETRA TRUE WIRELESS
Test Item	:	RF Antenna Conducted Test
Test Mode	:	Mode 2: Transmit-3Mbps-Left
Test Date	:	2022/01/07

Figure Channel 00:



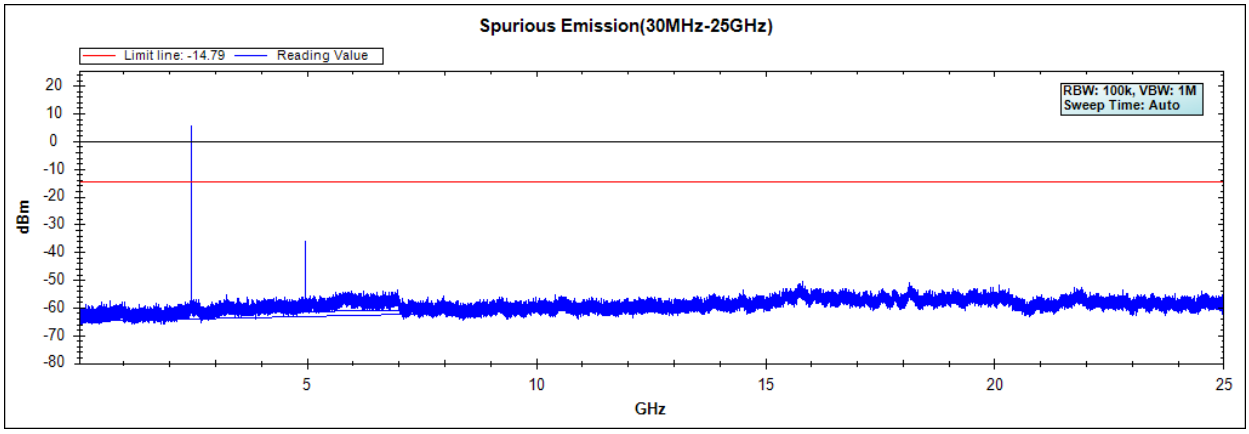
Note: The above test pattern is synthesized by multiple of the frequency range.

Figure Channel 39:



Note: The above test pattern is synthesized by multiple of the frequency range.

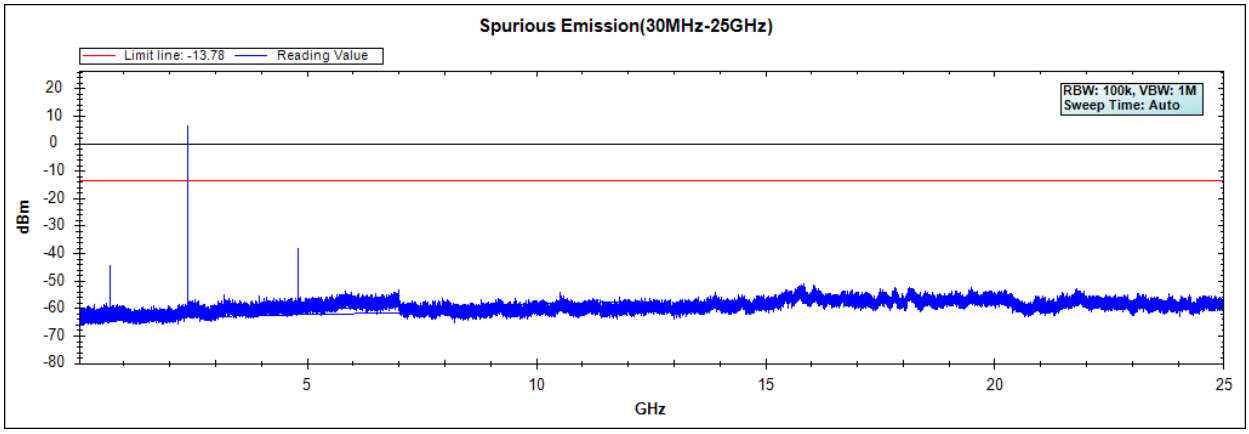
Figure Channel 78:



Note: The above test pattern is synthesized by multiple of the frequency range.

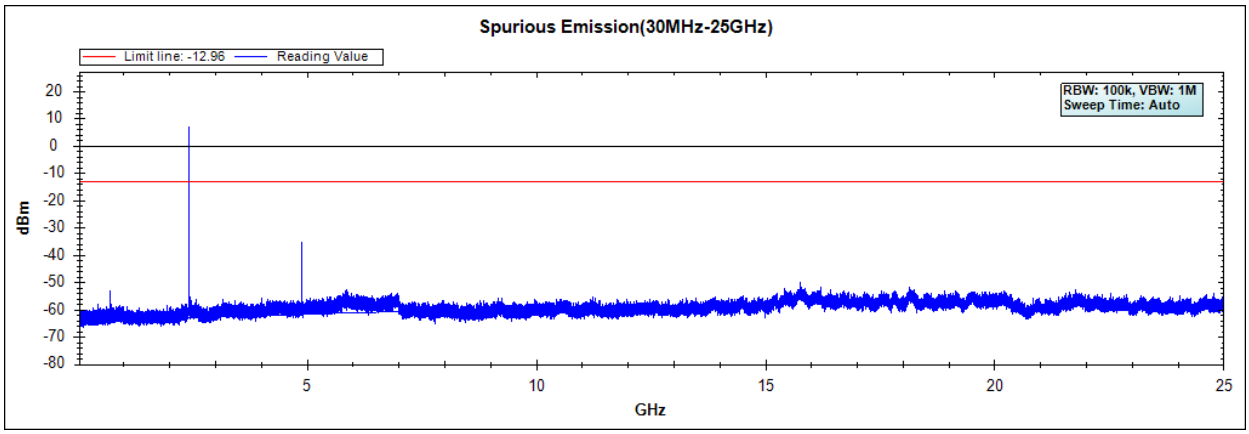
Product	:	ROG CETRA TRUE WIRELESS
Test Item	:	RF Antenna Conducted Test
Test Mode	:	Mode 3: Transmit-1Mbps-Right
Test Date	:	2022/01/10

Figure Channel 00:



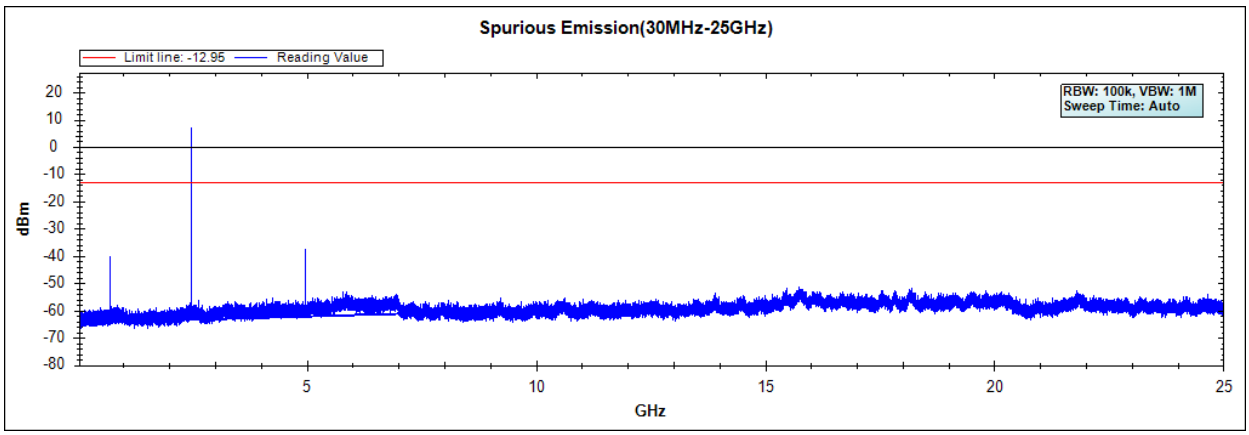
Note: The above test pattern is synthesized by multiple of the frequency range.

Figure Channel 39:



Note: The above test pattern is synthesized by multiple of the frequency range.

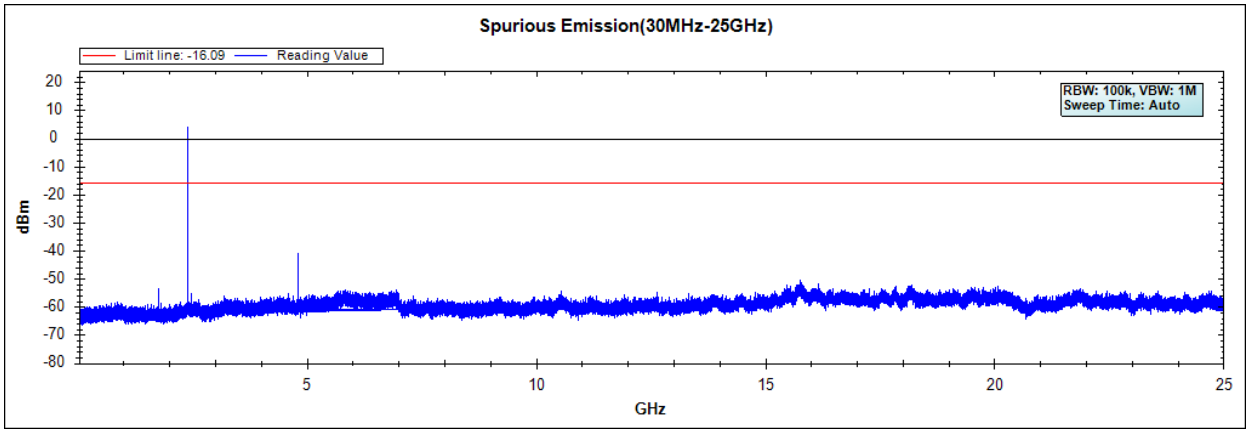
Figure Channel 78:



Note: The above test pattern is synthesized by multiple of the frequency range.

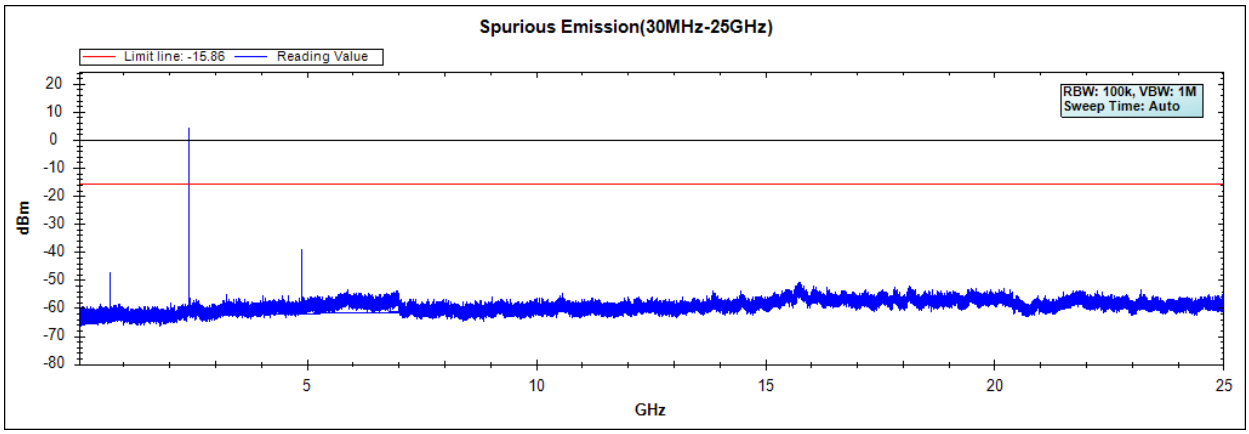
Product	:	ROG CETRA TRUE WIRELESS
Test Item	:	RF Antenna Conducted Test
Test Mode	:	Mode 4: Transmit-3Mbps-Right
Test Date	:	2022/01/10

Figure Channel 00:



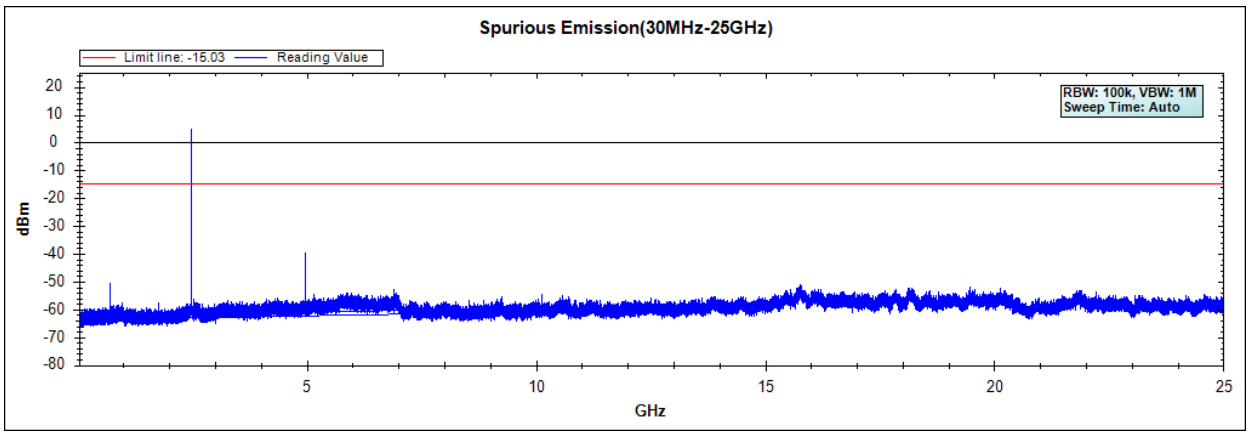
Note: The above test pattern is synthesized by multiple of the frequency range.

Figure Channel 39:



Note: The above test pattern is synthesized by multiple of the frequency range.

Figure Channel 78:

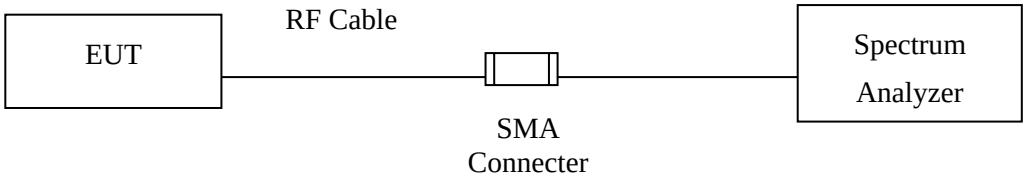


Note: The above test pattern is synthesized by multiple of the frequency range.

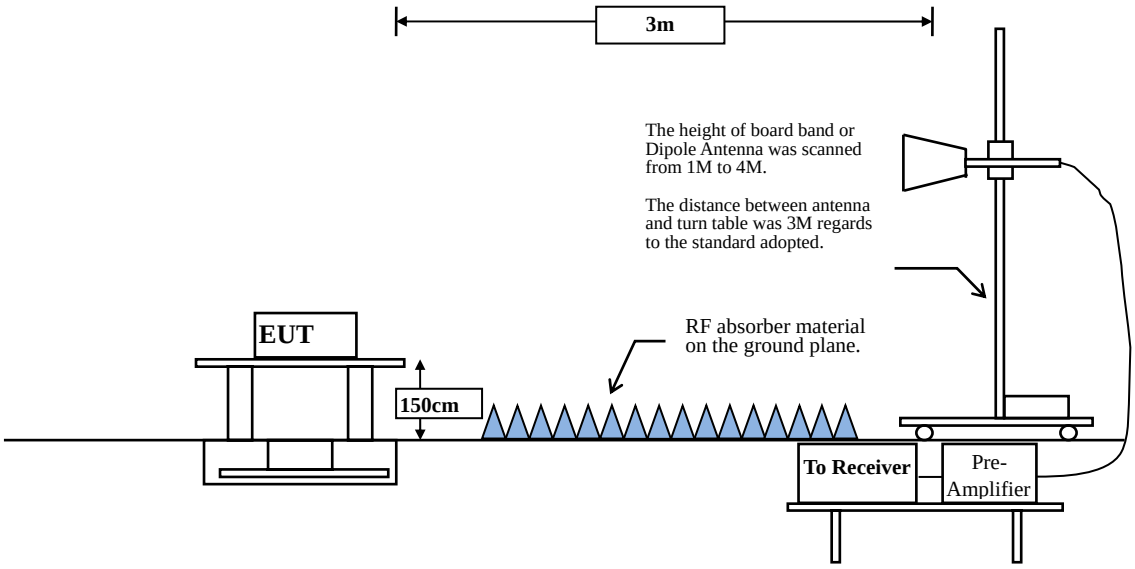
6. Band Edge

6.1. Test Setup

RF Conducted Measurement



RF Radiated Measurement:



6.2. Limits

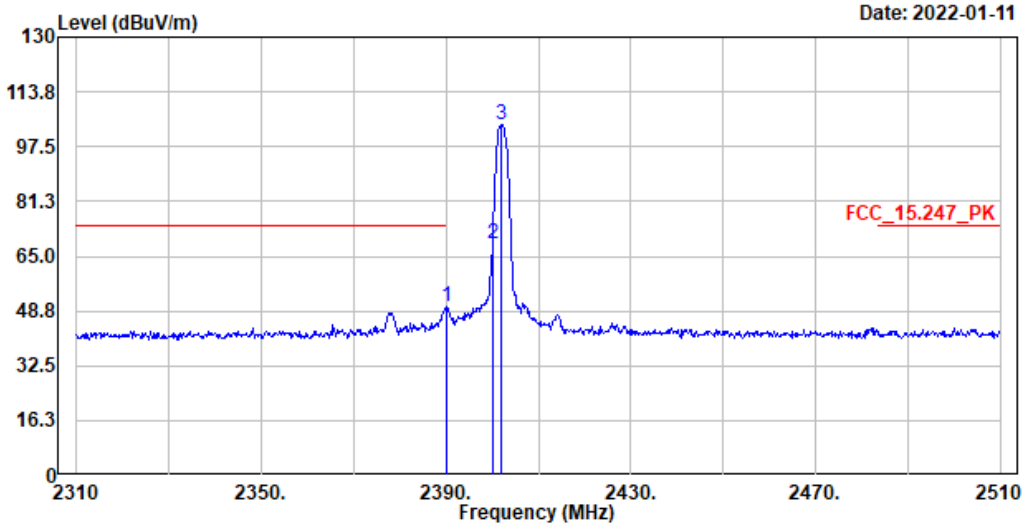
According to RSS-247 Issue 2 (Feb 2017). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

6.3. Test Procedure

The EUT and its simulators are placed on a turn table which is 1.5 meter above ground. The turn table can rotate 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 below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.

6.4. Test Result of Band Edge

```
Site      :966-3
Condition :3m    ,Horizontal
Mode      :Tx_bt1M_2402MHz
Test BY   :Jing Chang
```



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2390.000	49.96	74.00	-24.04	37.05	12.91	Peak
2	2400.000	68.46	------	------	55.49	12.97	Peak
3	2402.000	104.07	------	------	91.10	12.97	Peak

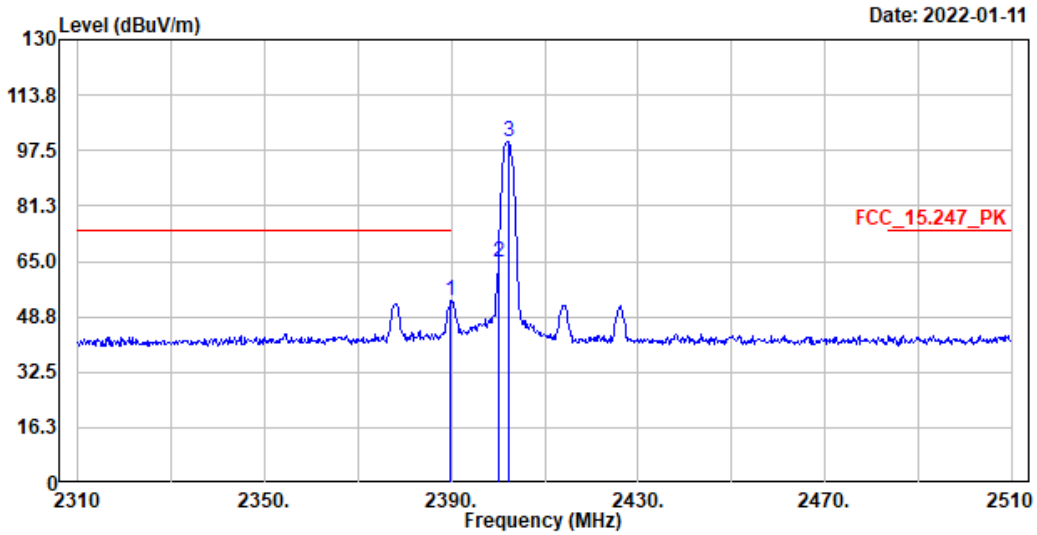
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Left:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal Average Detector:					
2390	49.96	-24.761	25.199	-28.801	54.000
2400	68.46	-24.761	43.699	--	--
2402	104.07	-24.761	79.309	--	--

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Vertical
Mode      :Tx_bt1M_2402MHz
Test BY   :Jing Chang
```



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2389.800	53.61	74.00	-20.39	40.70	12.91	Peak
2	2400.000	64.97	------	------	52.00	12.97	Peak
3	2402.200	99.88	------	------	86.91	12.97	Peak

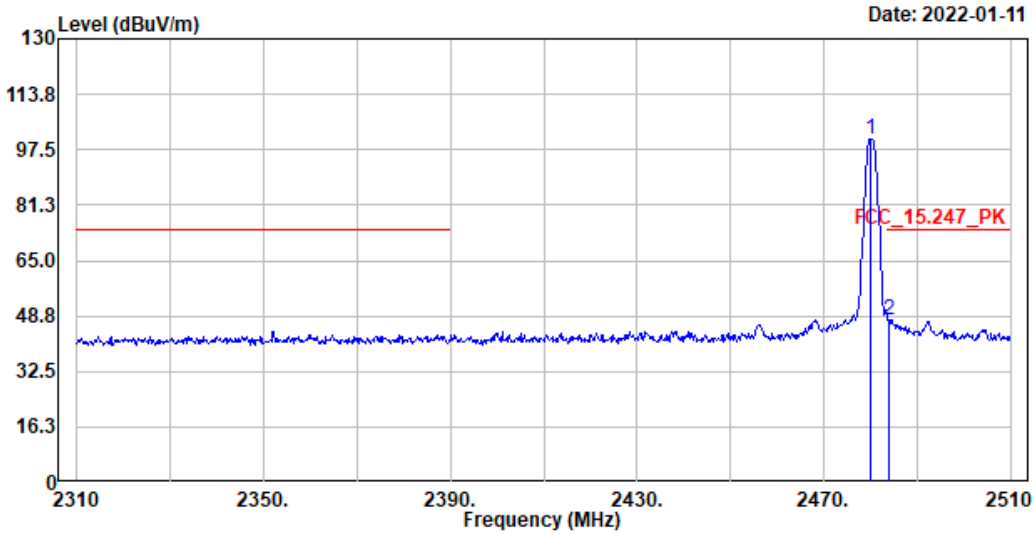
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Left:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Vertical Average Detector:					
2389.8	53.61	-24.761	28.849	-25.151	54.000
2400	64.97	-24.761	40.209	--	--
2402.2	99.88	-24.761	75.119	--	--

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Horizontal
Mode      :Tx_bt1M_2480MHz
Test BY   :Jing Chang
```



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2480.000	100.43	------	------	87.36	13.07	Peak
2	2483.800	47.60	74.00	-26.40	34.52	13.08	Peak

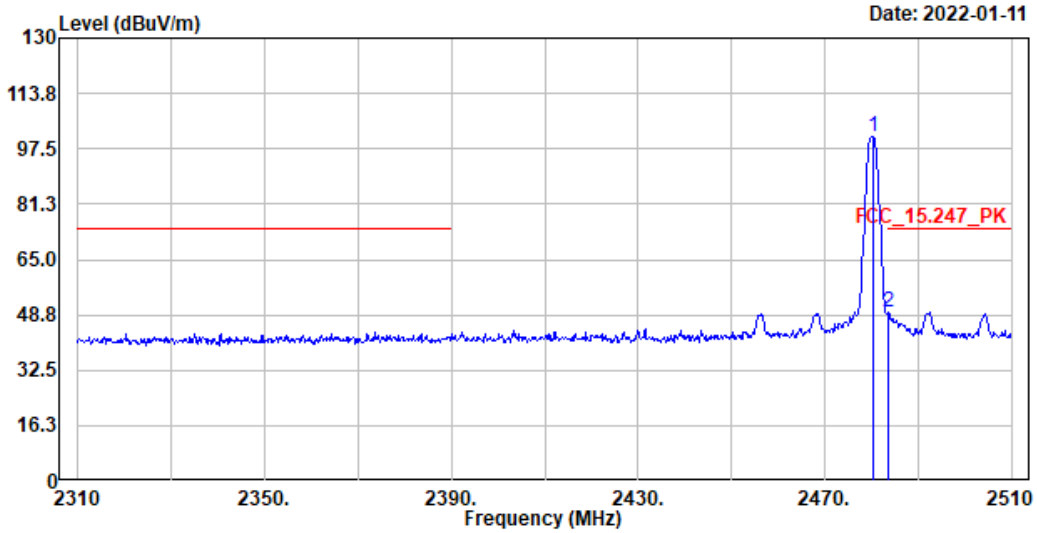
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Left:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal Average Detector:					
2480	100.43	-24.761	75.669	--	--
2483.8	47.6	-24.761	22.839	-31.161	54.000

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Vertical
Mode      :Tx_bt1M_2480MHz
Test BY   :Jing Chang
```



No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB	Remark
1	2480.400	100.92	------	------	87.85	13.07	Peak
2	2483.600	49.68	74.00	-24.32	36.60	13.08	Peak

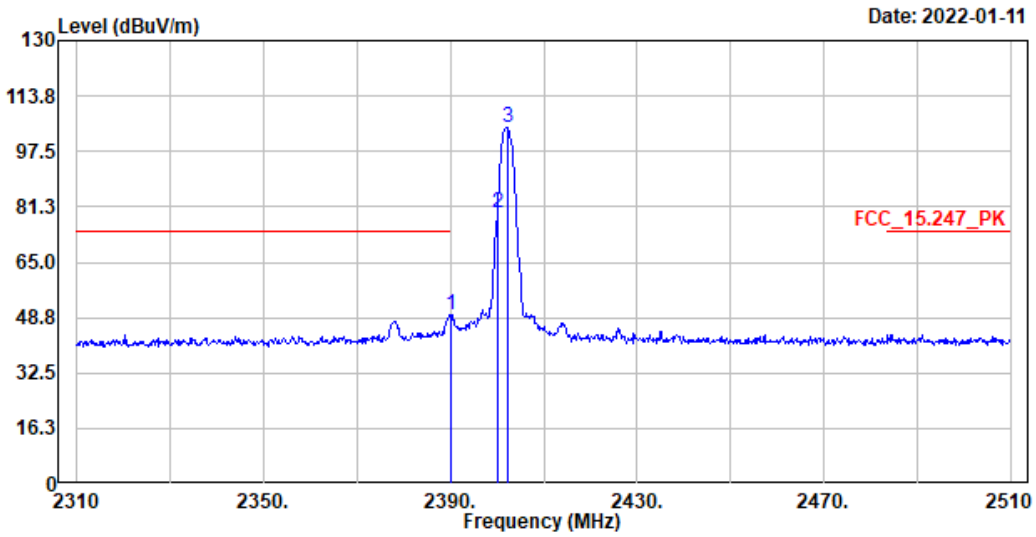
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Left:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Vertical Average Detector:					
2480.4	100.92	-24.761	76.159	--	--
2483.6	49.68	-24.761	24.919	-29.081	54.000

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Horizontal
Mode      :Tx_bt3M_2402MHz
Test BY   :Jing Chang
```



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2390.000	49.51	74.00	-24.49	36.60	12.91	Peak
2	2400.000	79.47	------	------	66.50	12.97	Peak
3	2402.200	104.59	------	------	91.62	12.97	Peak

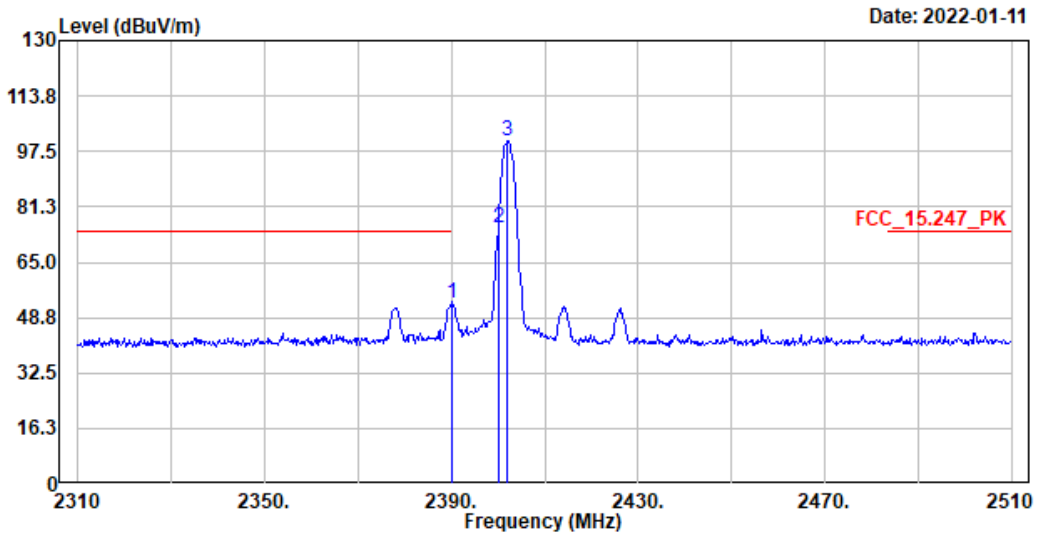
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Left:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal Average Detector:					
2390	49.51	-24.761	24.749	-29.251	54.000
2400	79.47	-24.761	54.709	--	--
2402.2	104.59	-24.761	79.829	--	--

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Vertical
Mode      :Tx_bt3M_2402MHz
Test BY   :Jing Chang
```



No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB	Remark
1	2390.000	53.11	74.00	-20.89	40.20	12.91	Peak
2	2400.000	74.88	------	------	61.91	12.97	Peak
3	2402.000	100.42	------	------	87.45	12.97	Peak

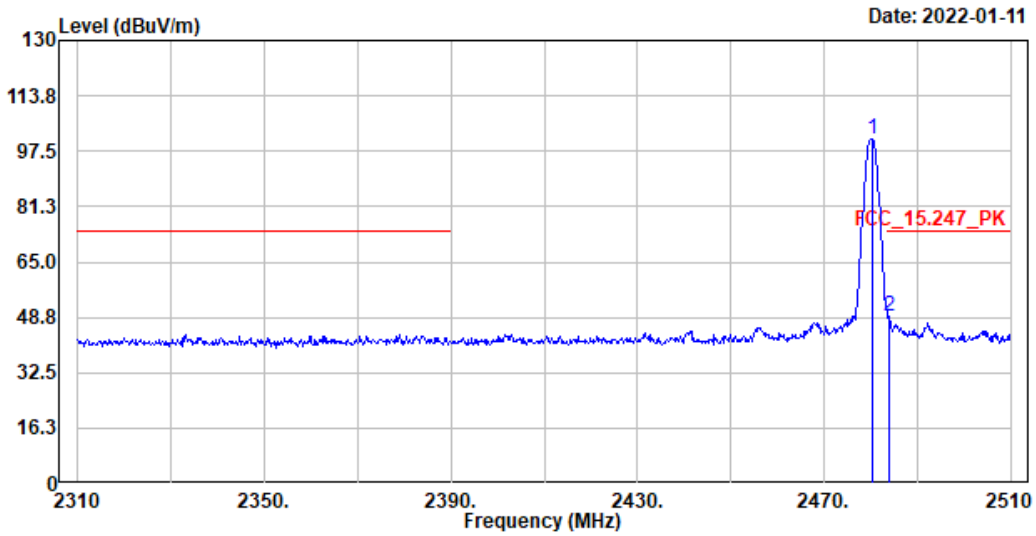
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Left:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Vertical Average Detector:					
2390	53.11	-24.761	28.349	-25.651	54.000
2400	74.88	-24.761	50.119	--	--
2402	100.42	-24.761	75.659	--	--

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Horizontal
Mode      :Tx_bt3M_2480MHz
Test BY   :Jing Chang
```



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2480.200	101.22	------	------	88.15	13.07	Peak
2	2484.000	49.03	74.00	-24.97	35.95	13.08	Peak

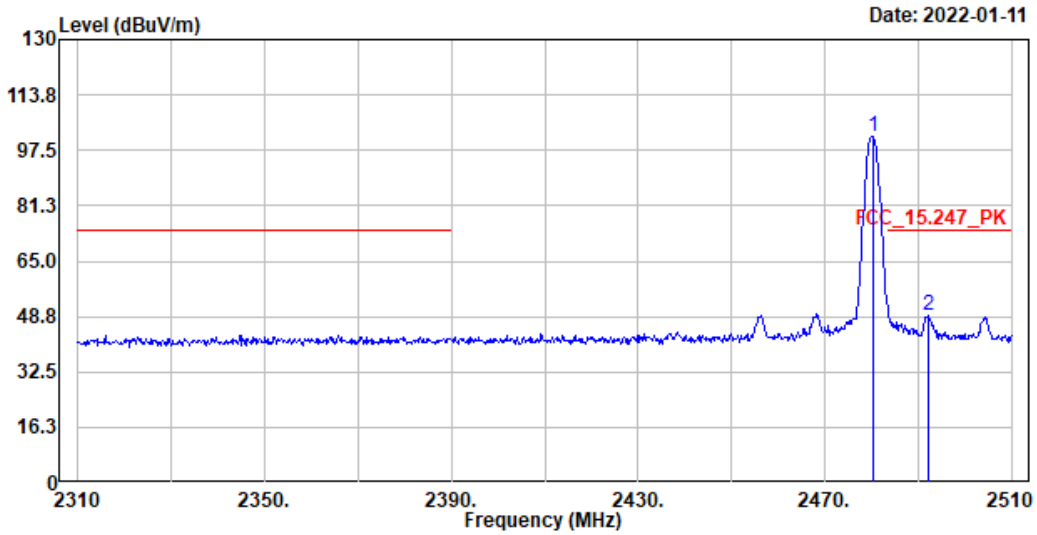
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Left:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal Average Detector:					
2480.2	101.22	-24.761	76.459	--	--
2484	49.03	-24.761	24.269	-29.731	54.000

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Vertical
Mode      :Tx_bt3M_2480MHz
Test BY   :Jing Chang
```



No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB	Remark
1	2480.200	101.69	------	------	88.62	13.07	Peak
2	2492.200	49.29	74.00	-24.71	36.20	13.09	Peak

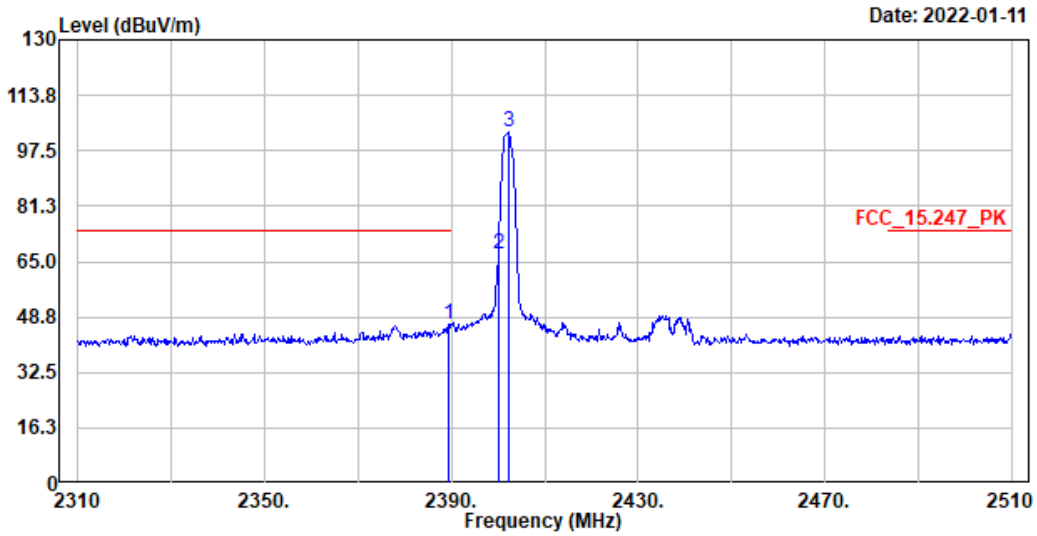
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Left:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Vertical Average Detector:					
2480.2	101.69	-24.761	76.929	--	--
2492.2	49.29	-24.761	24.529	-29.471	54.000

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Horizontal
Mode      :Tx_bt1M_2402MHz
Test BY   :Jing Chang
```



No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB	Remark
1	2389.400	46.82	74.00	-27.18	33.91	12.91	Peak
2	2400.000	67.21	------	------	54.24	12.97	Peak
3	2402.200	102.78	------	------	89.81	12.97	Peak

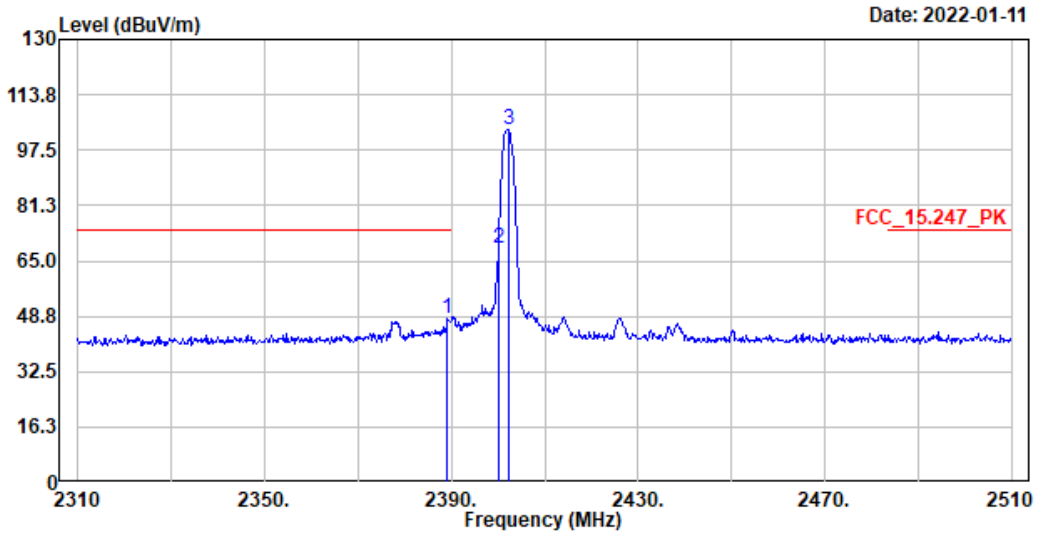
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Right:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal Average Detector:					
2389.4	46.82	-24.792	22.028	-31.972	54.000
2400	67.21	-24.792	42.418	--	--
2402.2	102.78	-24.792	77.988	--	--

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Vertical
Mode      :Tx_bt1M_2402MHz
Test BY   :Jing Chang
```



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2389.200	47.87	74.00	-26.13	34.96	12.91	Peak
2	2400.000	68.57	------	------	55.60	12.97	Peak
3	2402.200	103.52	------	------	90.55	12.97	Peak

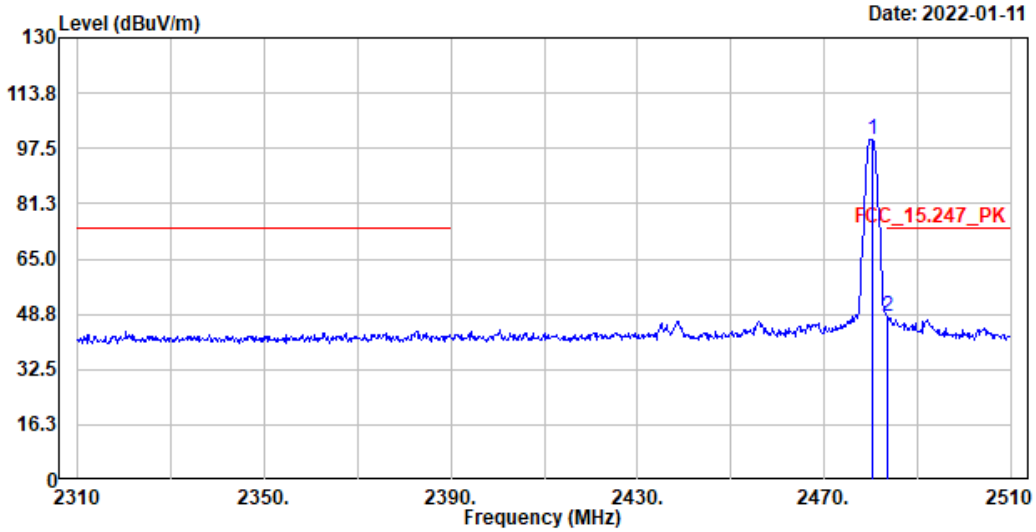
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Right:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Vertical Average Detector:					
2389.2	47.87	-24.792	23.078	-30.922	54.000
2400	68.57	-24.792	43.778	--	--
2402.2	103.52	-24.792	78.728	--	--

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Horizontal
Mode      :Tx_bt1M_2480MHz
Test BY   :Jing Chang
```



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2480.200	99.95	------	------	86.88	13.07	Peak
2	2483.600	47.95	74.00	-26.05	34.87	13.08	Peak

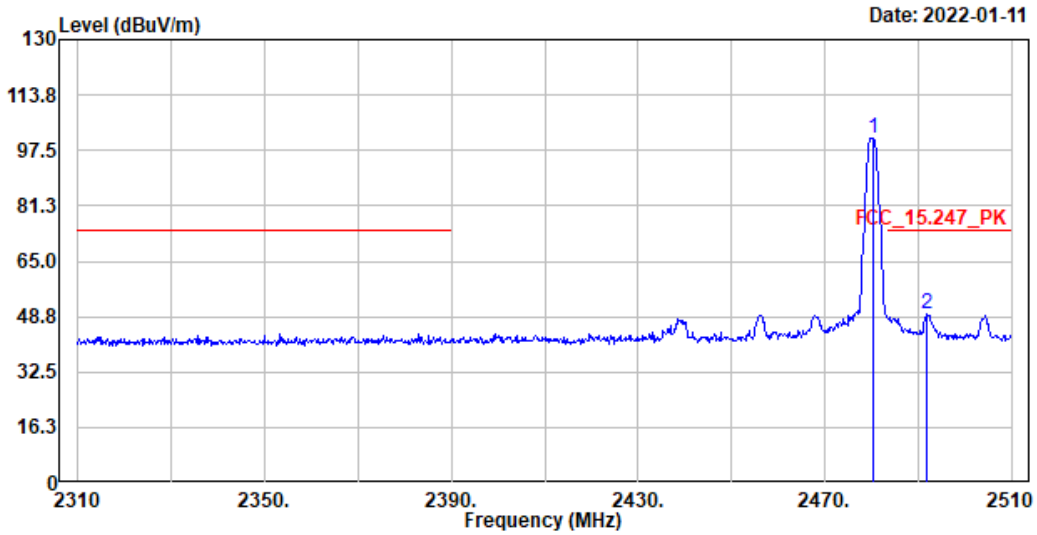
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Right:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal Average Detector:					
2480.2	99.95	-24.792	75.158	--	--
2483.6	47.95	-24.792	23.158	-30.842	54.000

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Vertical
Mode      :Tx_bt1M_2480MHz
Test BY   :Jing Chang
```



No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB	Remark
1	2480.400	101.29	------	------	88.22	13.07	Peak
2	2491.800	49.34	74.00	-24.66	36.25	13.09	Peak

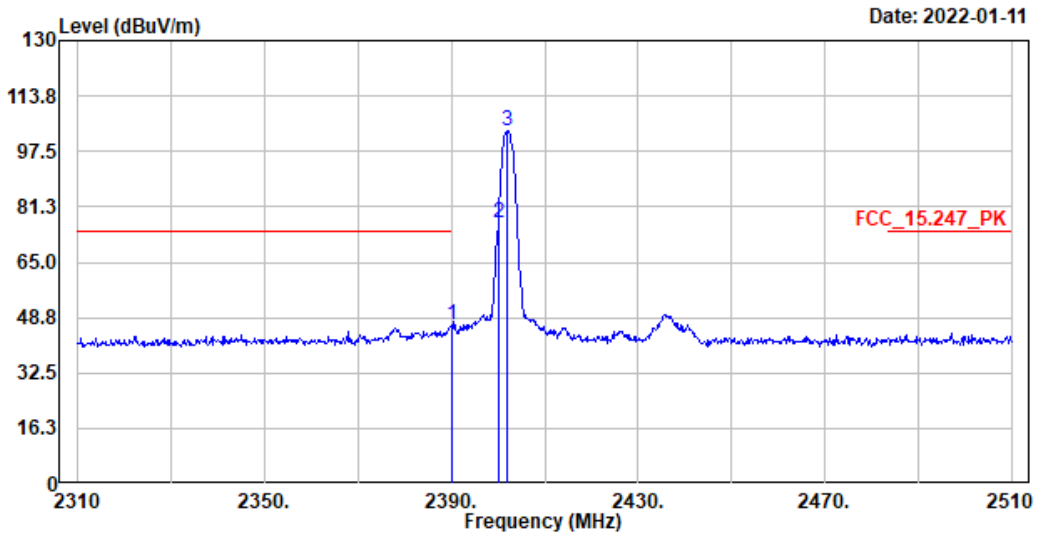
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Right:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Vertical Average Detector:					
2480.4	101.29	-24.792	76.498	--	--
2491.8	49.34	-24.792	24.548	-29.452	54.000

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Horizontal
Mode      :Tx_bt3M_2402MHz
Test BY   :Jing Chang
```



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2390.000	46.47	74.00	-27.53	33.56	12.91	Peak
2	2400.000	76.41	------	------	63.44	12.97	Peak
3	2402.000	103.74	------	------	90.77	12.97	Peak

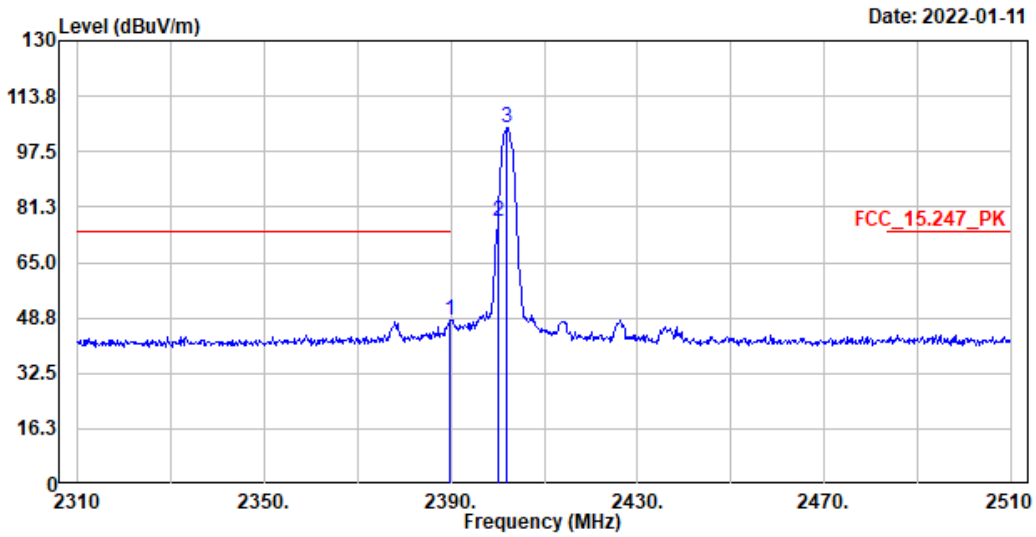
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Right:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal Average Detector:					
2390	46.47	-24.792	21.678	-32.322	54.000
2400	76.41	-24.792	51.618	--	--
2402	103.74	-24.792	78.948	--	--

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Vertical
Mode      :Tx_bt3M_2402MHz
Test BY   :Jing Chang
```



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2389.800	47.93	74.00	-26.07	35.02	12.91	Peak
2	2400.000	77.14	------	------	64.17	12.97	Peak
3	2402.000	104.30	------	------	91.33	12.97	Peak

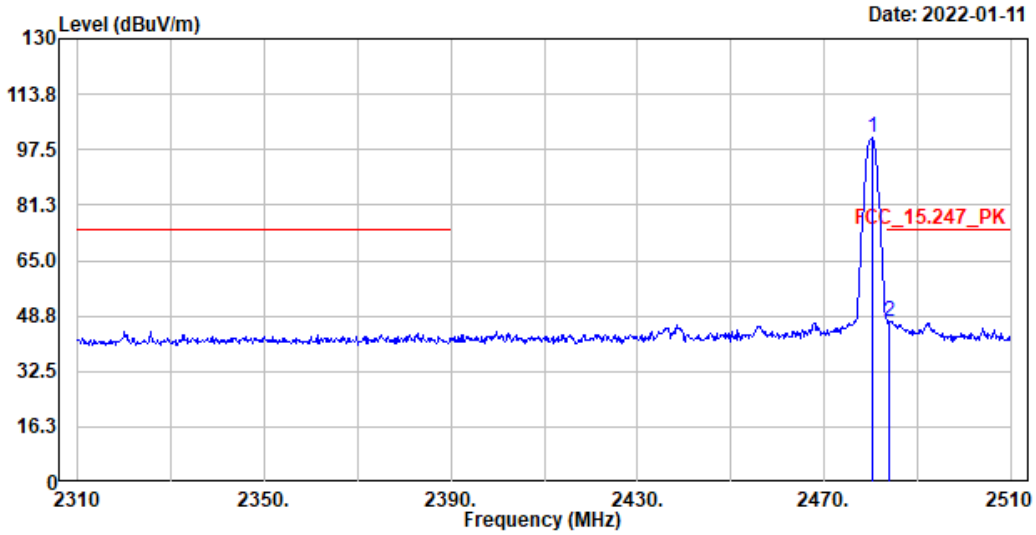
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Right:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Vertical Average Detector:					
2389.8	47.93	-24.792	23.138	-30.862	54.000
2400	77.14	-24.792	52.348	--	--
2402	104.3	-24.792	79.508	--	--

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Horizontal
Mode      :Tx_bt3M_2480MHz
Test BY   :Jing Chang
```



No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB	Remark
1	2480.200	100.84	------	------	87.77	13.07	Peak
2	2483.800	47.34	74.00	-26.66	34.26	13.08	Peak

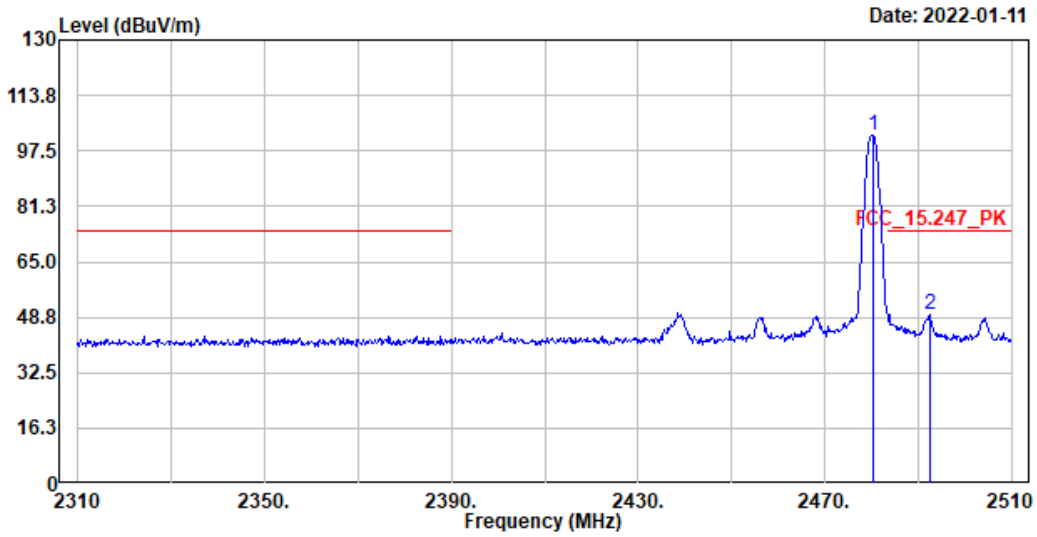
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Right:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal Average Detector:					
2480.2	100.84	-24.792	76.048	--	--
2483.8	47.34	-24.792	22.548	-31.452	54.000

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

```
Site      :966-3
Condition :3m    ,Vertical
Mode      :Tx_bt3M_2480MHz
Test BY   :Jing Chang
```



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2480.200	102.17	------	------	89.10	13.07	Peak
2	2492.400	49.45	74.00	-24.55	36.36	13.09	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Right:

Frequency MHz	Peak Measurement dBuV/m	Duty Cycle Factor dB	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Vertical Average Detector:					
2480.2	102.17	-24.792	77.378	--	--
2492.4	49.45	-24.792	24.658	-29.342	54.000

Note:
1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

Product : ROG CETRA TRUE WIRELESS
Test Item : Band Edge
Test Mode : Mode 1: Transmit-1Mbps-Left (Hopping off)
Test Date : 2022/01/07

Measurement Level Δ (dB)	Result
> 20	PASS

Figure Channel 00:

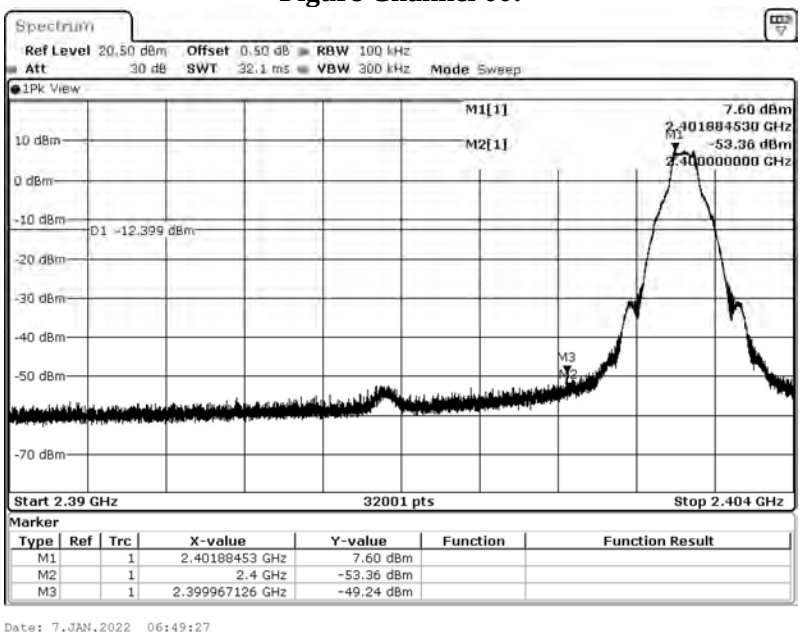
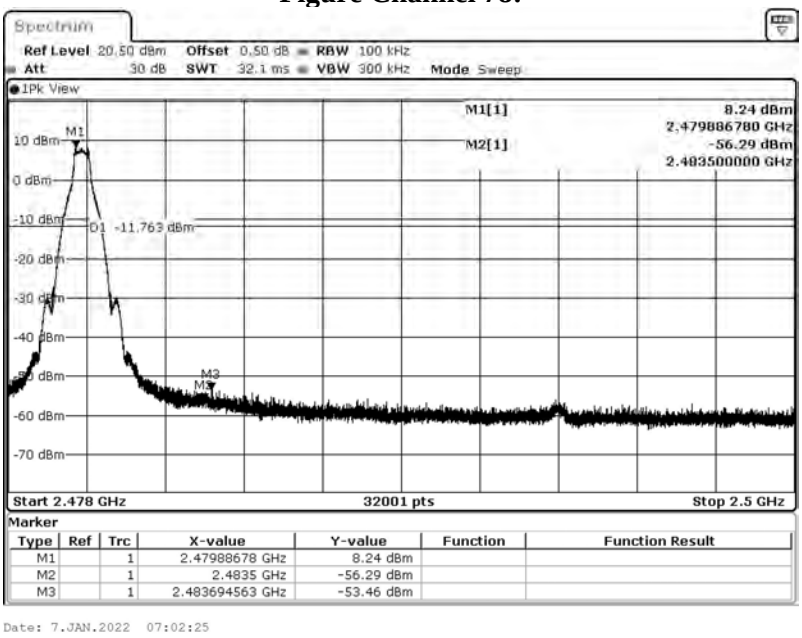


Figure Channel 78:



Product : ROG CETRA TRUE WIRELESS
Test Item : Band Edge
Test Mode : Mode 2: Transmit-3Mbps-Left (Hopping off)
Test Date : 2022/01/07

Measurement Level Δ (dB)	Result
> 20	PASS

Figure Channel 00:

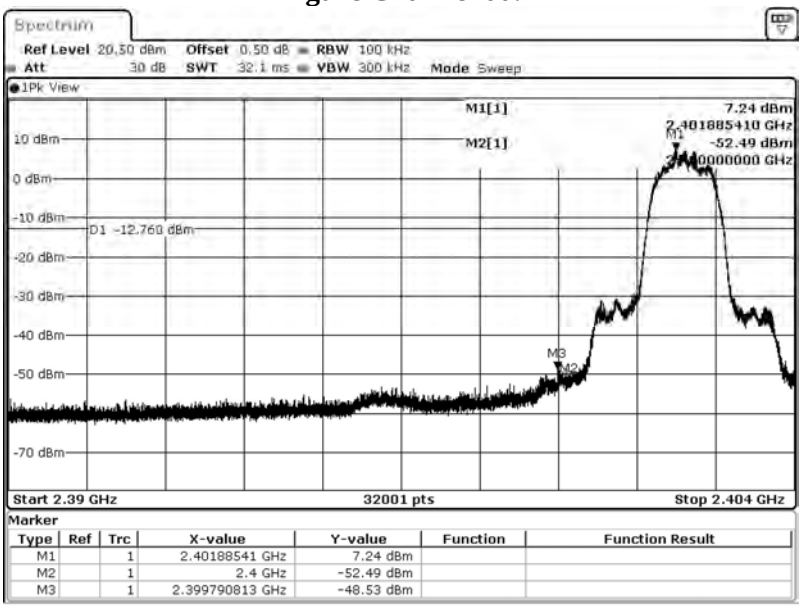
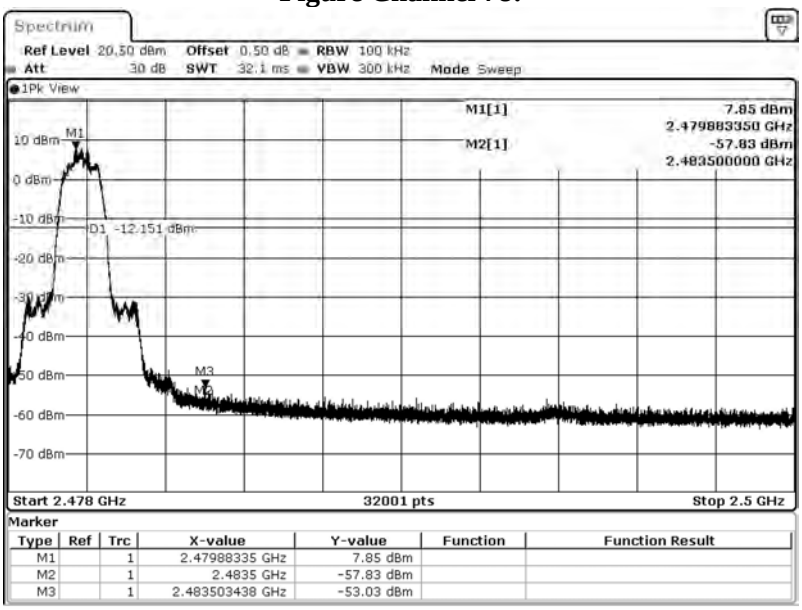


Figure Channel 78:



Product : ROG CETRA TRUE WIRELESS
Test Item : Band Edge
Test Mode : Mode 3: Transmit-1Mbps-Right (Hopping off)
Test Date : 2022/01/10

Measurement Level Δ (dB)	Result
> 20	PASS

Figure Channel 00:

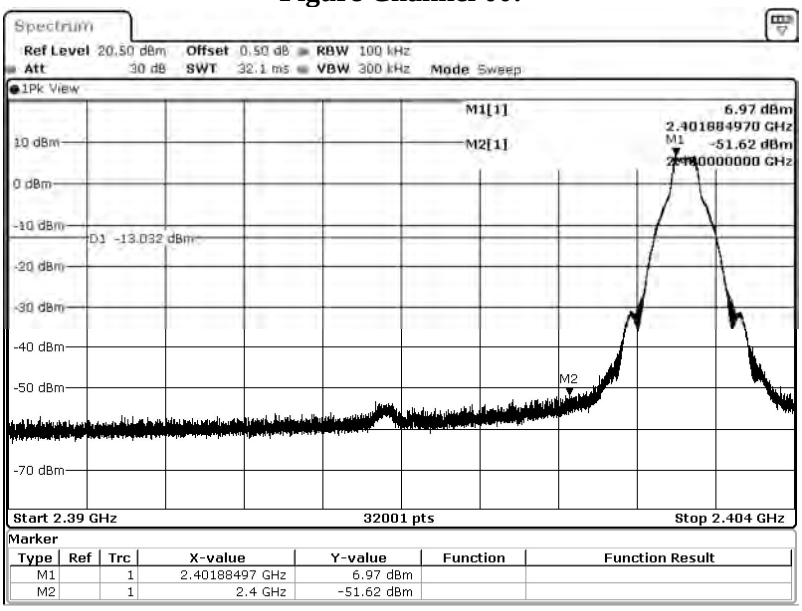
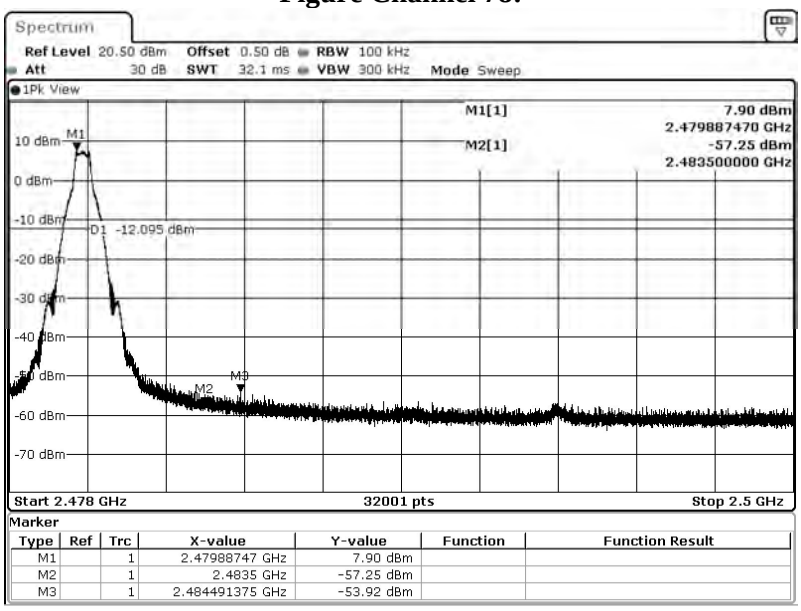


Figure Channel 78:



Product : ROG CETRA TRUE WIRELESS
Test Item : Band Edge
Test Mode : Mode 4: Transmit-3Mbps-Right (Hopping off)
Test Date : 2022/01/10

Measurement Level Δ (dB)	Result
> 20	PASS

Figure Channel 00:

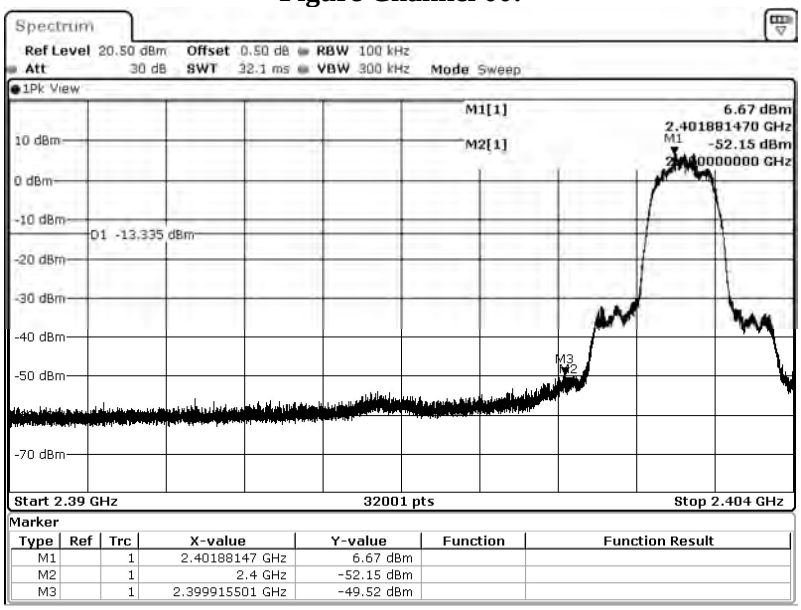
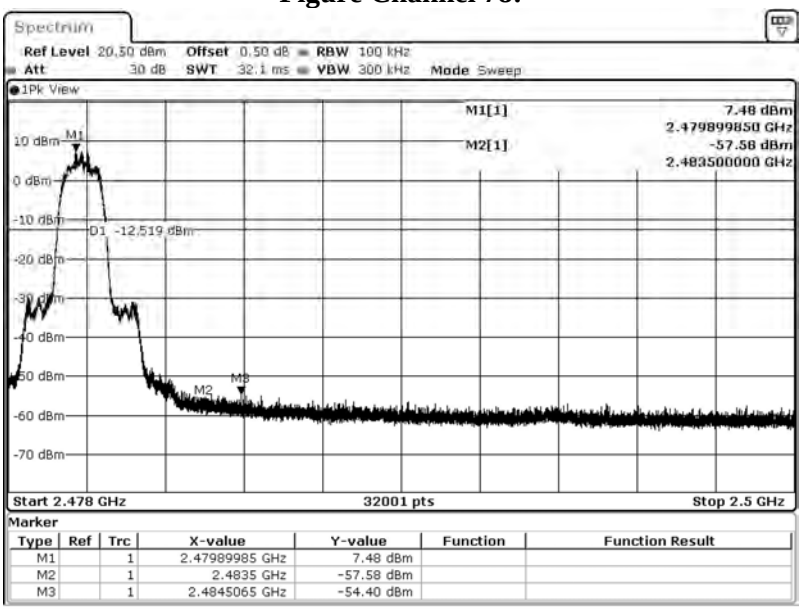


Figure Channel 78:



Product : ROG CETRA TRUE WIRELESS
Test Item : Band Edge
Test Mode : Mode 1: Transmit-1Mbps-Left (Hopping on)
Test Date : 2022/01/07

Measurement Level Δ (dB)	Result
> 20	PASS

Figure Channel Hopping:

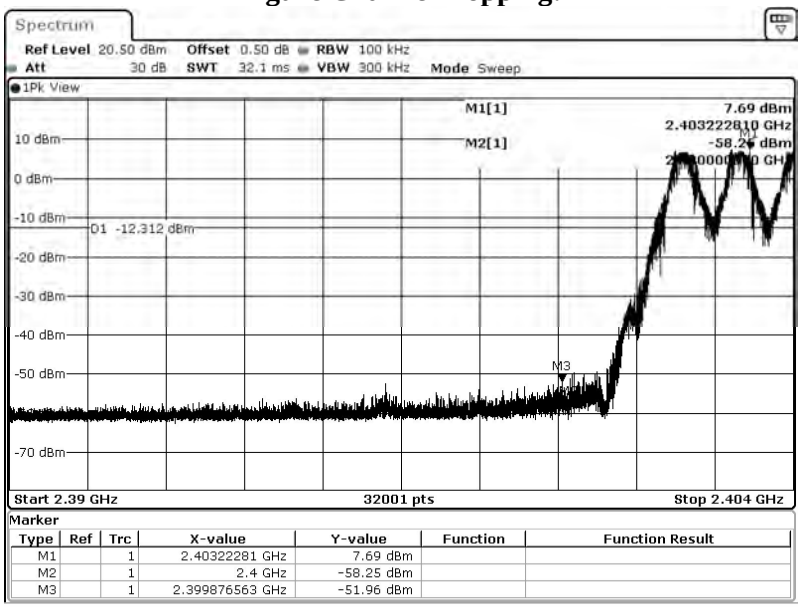
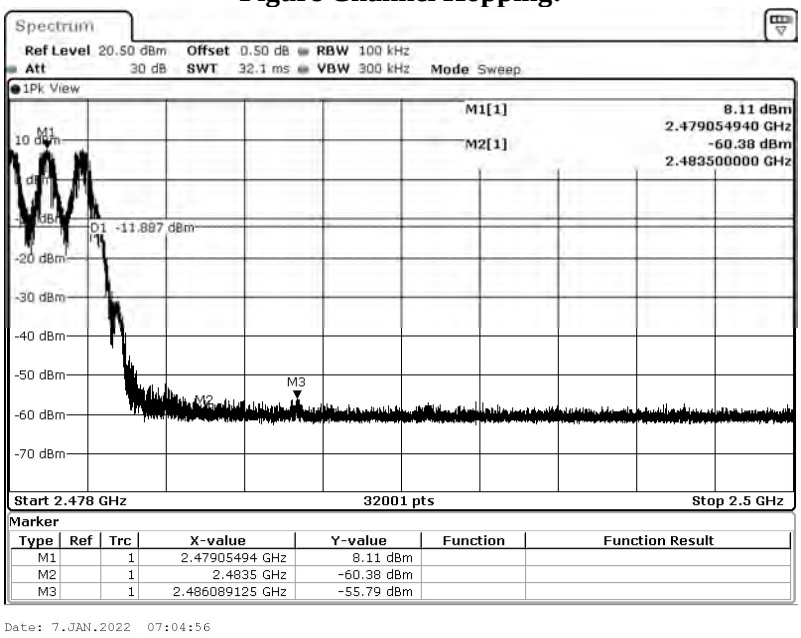


Figure Channel Hopping:



Product : ROG CETRA TRUE WIRELESS
Test Item : Band Edge
Test Mode : Mode 2: Transmit-3Mbps-Left (Hopping on)
Test Date : 2022/01/07

Measurement Level Δ (dB)	Result
> 20	PASS

Figure Channel Hopping:

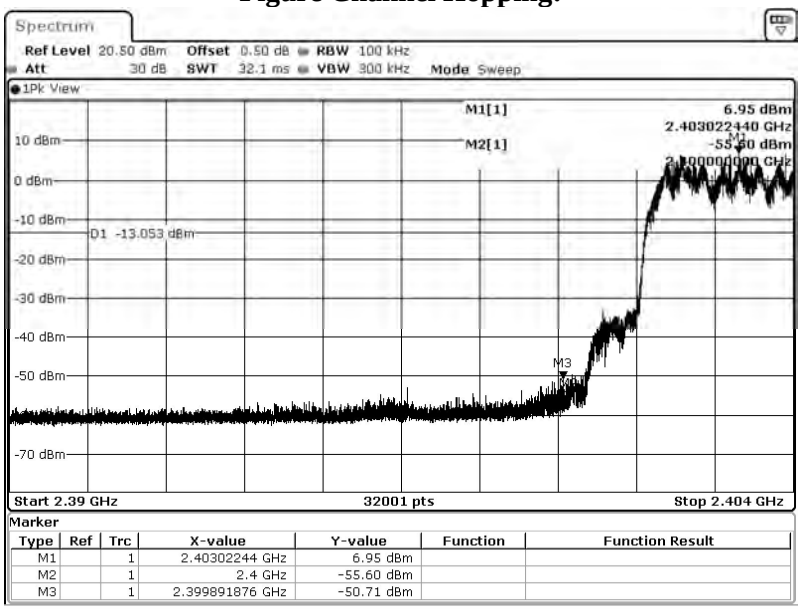
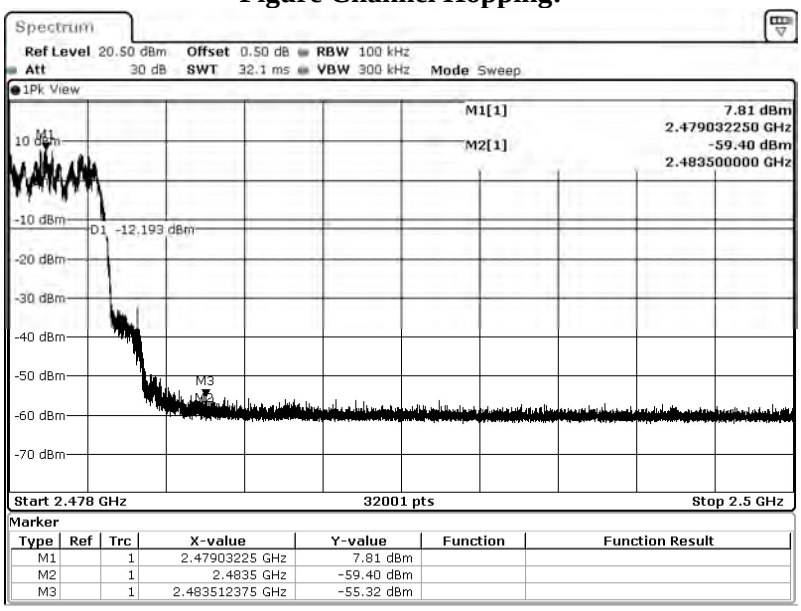


Figure Channel Hopping:



Product : ROG CETRA TRUE WIRELESS
Test Item : Band Edge
Test Mode : Mode 3: Transmit-1Mbps-Right (Hopping on)
Test Date : 2022/01/10

Measurement Level Δ (dB)	Result
> 20	PASS

Figure Channel Hopping:

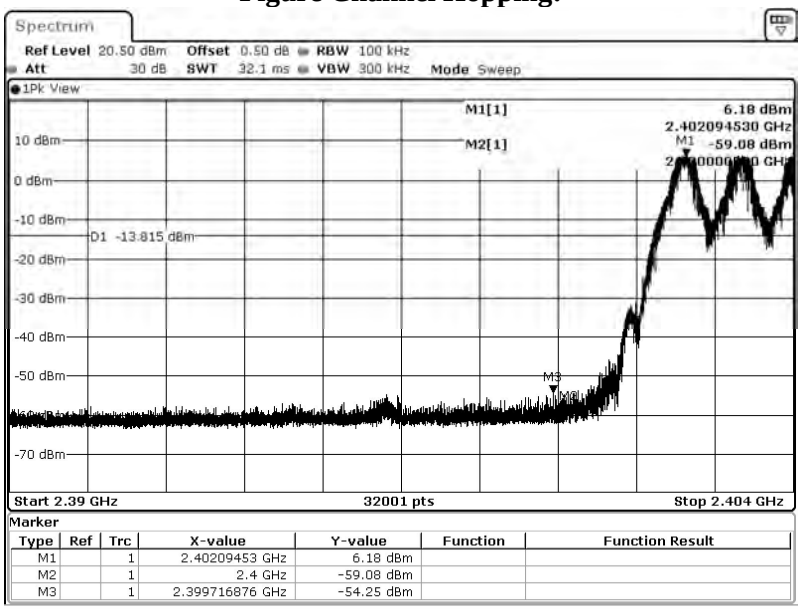
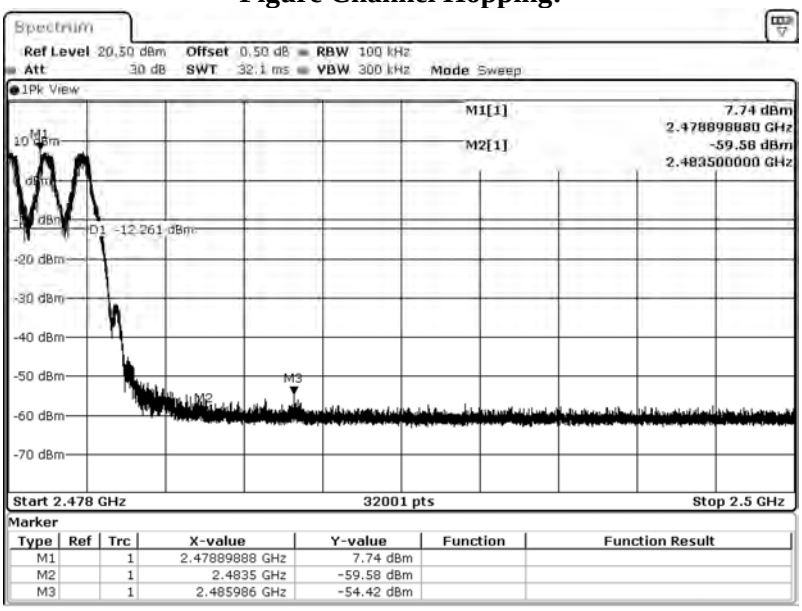


Figure Channel Hopping:



Product : ROG CETRA TRUE WIRELESS
Test Item : Band Edge
Test Mode : Mode 4: Transmit-3Mbps-Right (Hopping on)
Test Date : 2022/01/10

Measurement Level Δ (dB)	Result
> 20	PASS

Figure Channel Hopping:

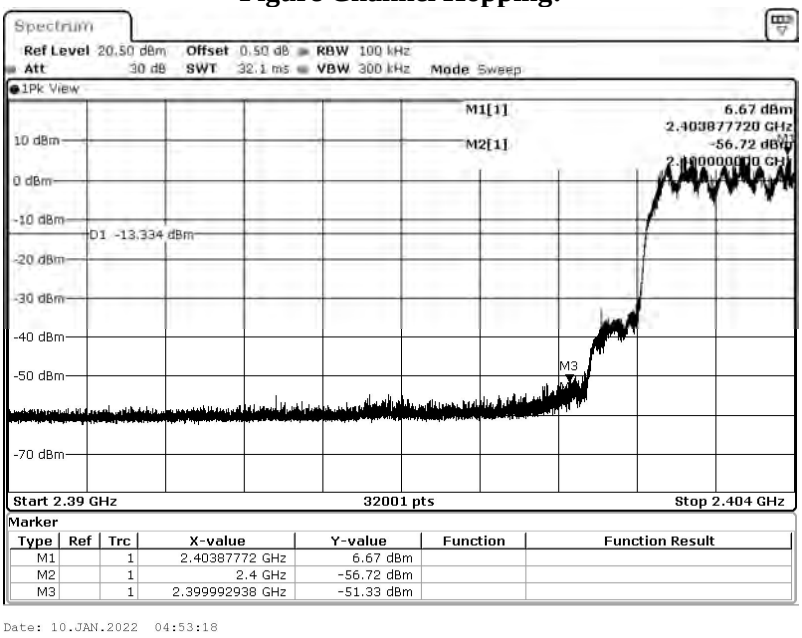
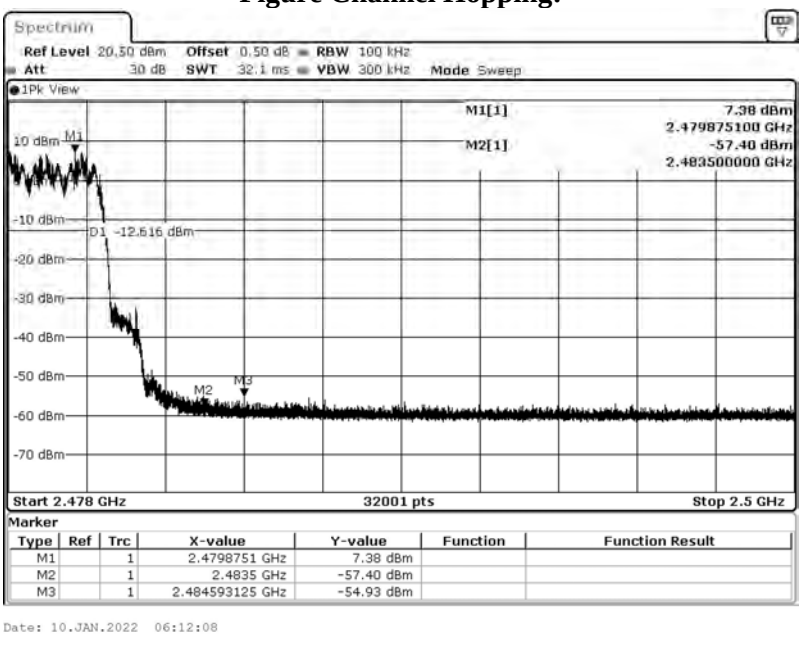
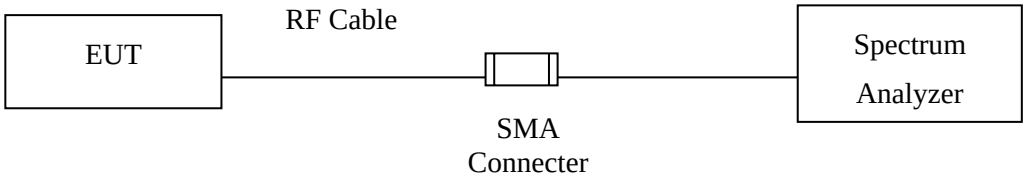


Figure Channel Hopping:



7. Channel Number

7.1. Test Setup



7.2. Limit

The frequency hopping systems operating in the 2400-2483.5 MHz bands shall use at least 75 hopping frequencies.

7.3. Test Procedure

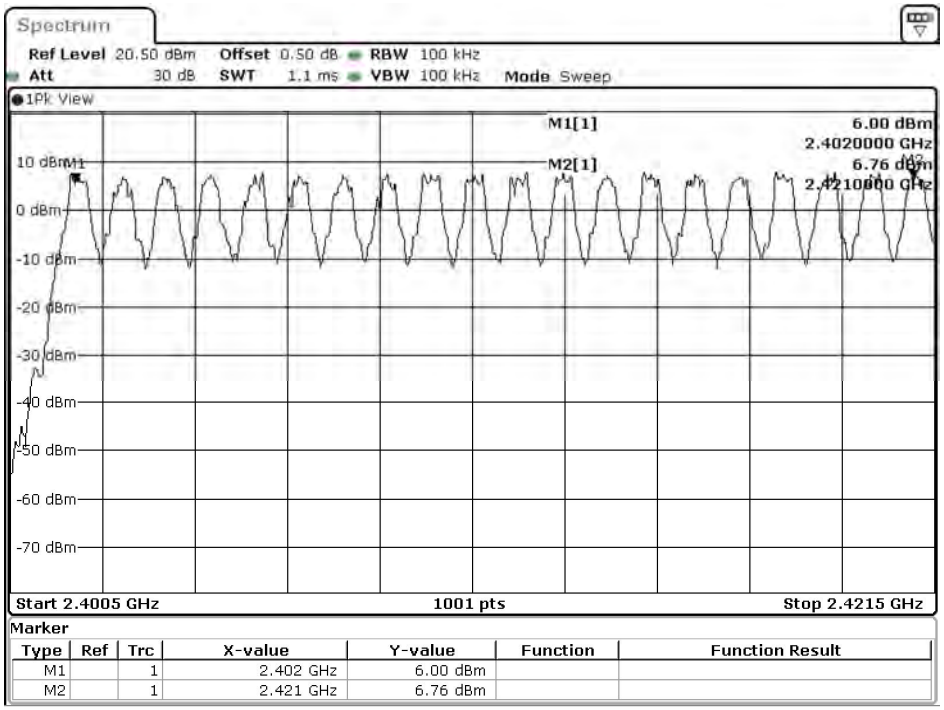
The EUT was setup to ANSI C63.10: 2013; According to RSS-247 Issue 2, 5.4(b) (Feb, 2017).

7.4. Test Result of Channel Number

Product : ROG CETRA TRUE WIRELESS
Test Item : Channel Number
Test Mode : Mode 1: Transmit-1Mbps-Left
Test Date : 2022/01/07

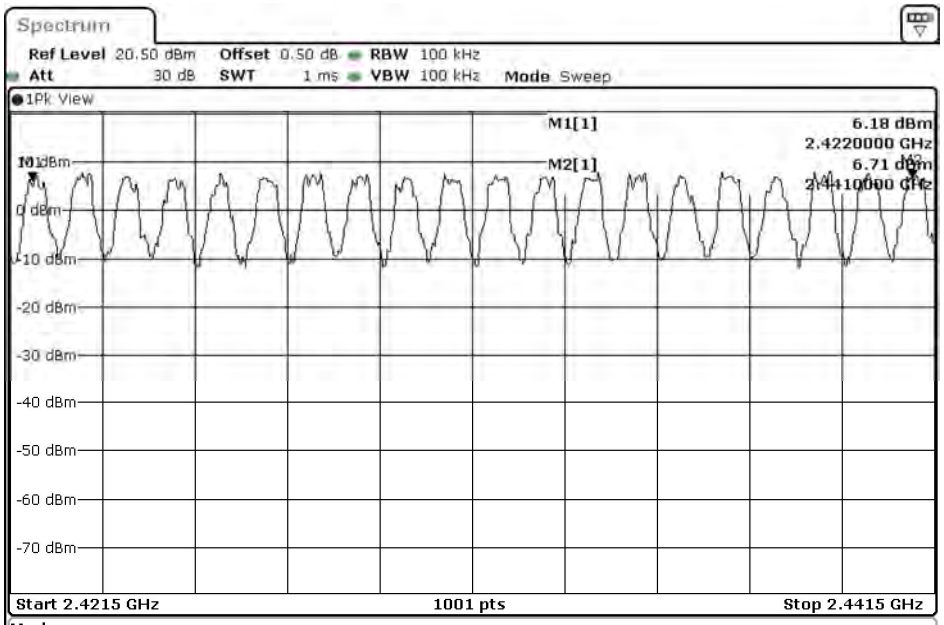
Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>75	Pass

2402-2421MHz



Date: 7.JAN.2022 07:06:02

2422-2441MHz

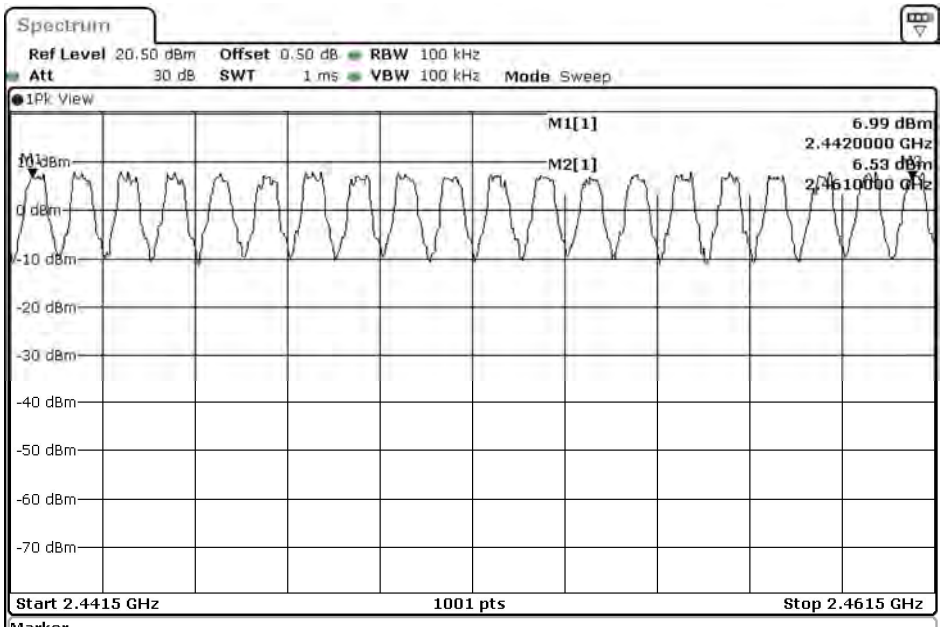


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.422 GHz	6.18 dBm		
M2		1	2.441 GHz	6.71 dBm		

Date: 7.JAN.2022 07:06:55

2442-2461MHz

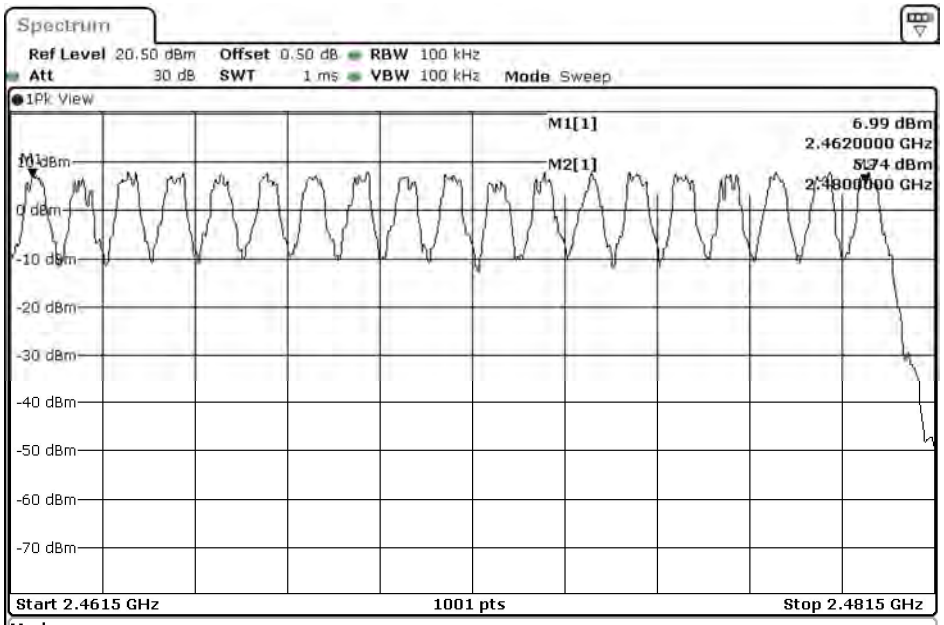


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.442 GHz	6.99 dBm		
M2		1	2.461 GHz	6.53 dBm		

Date: 7.JAN.2022 07:08:11

2462-2480MHz



Marker

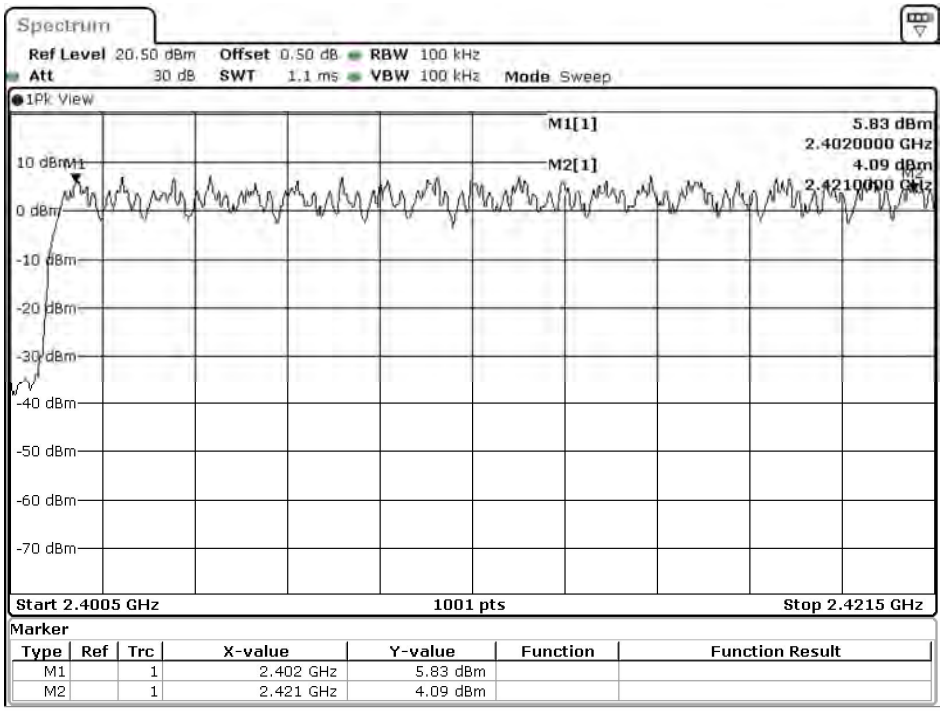
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.462 GHz	6.99 dBm		
M2		1	2.48 GHz	5.74 dBm		

Date: 7.JAN.2022 07:09:11

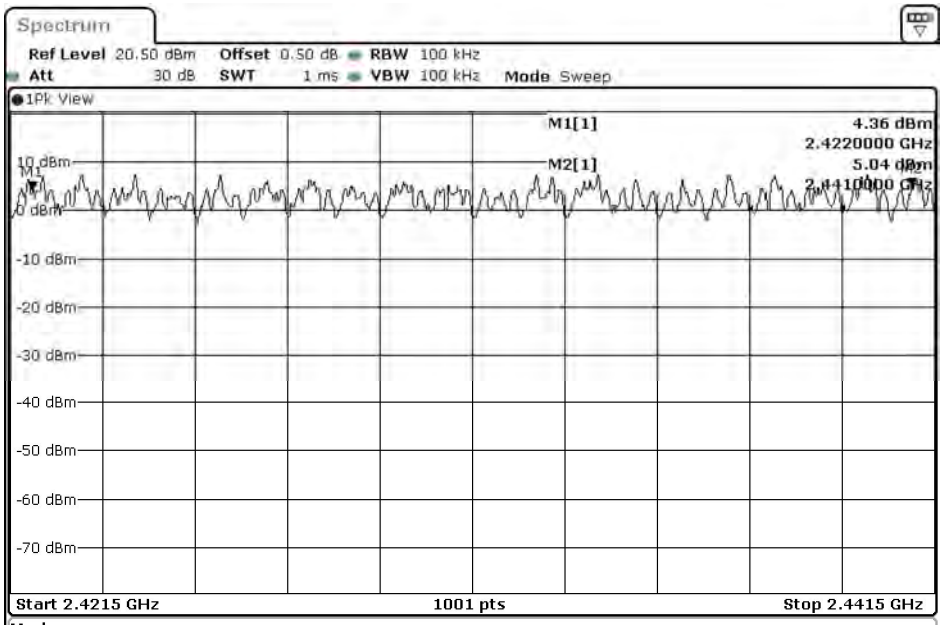
Product : ROG CETRA TRUE WIRELESS
Test Item : Channel Number
Test Mode : Mode 2: Transmit-3Mbps-Left
Test Date : 2022/01/07

Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>75	Pass

2402-2421MHz



2422-2441MHz

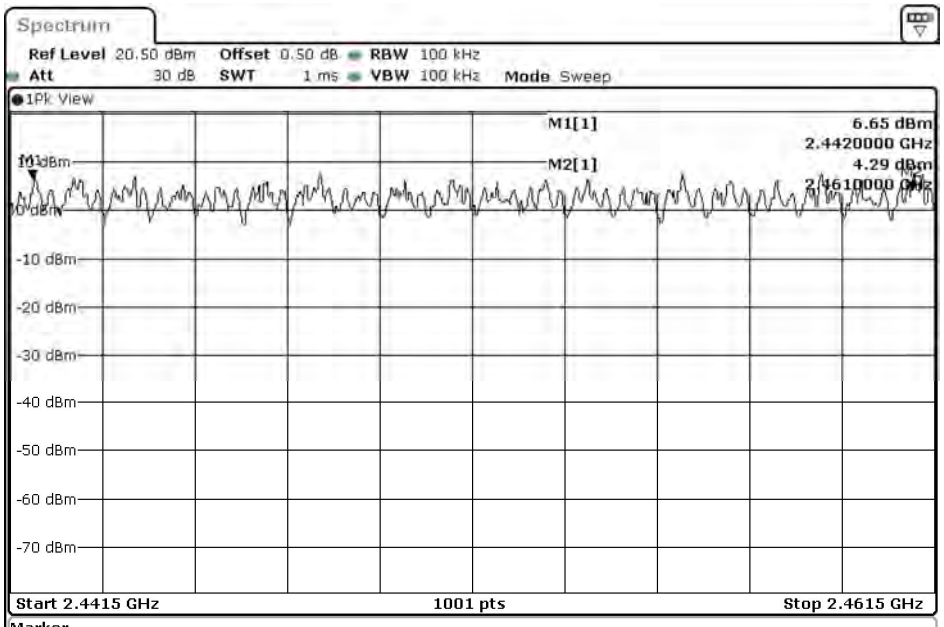


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.422 GHz	4.36 dBm		
M2		1	2.441 GHz	5.04 dBm		

Date: 7.JAN.2022 08:02:18

2442-2461MHz

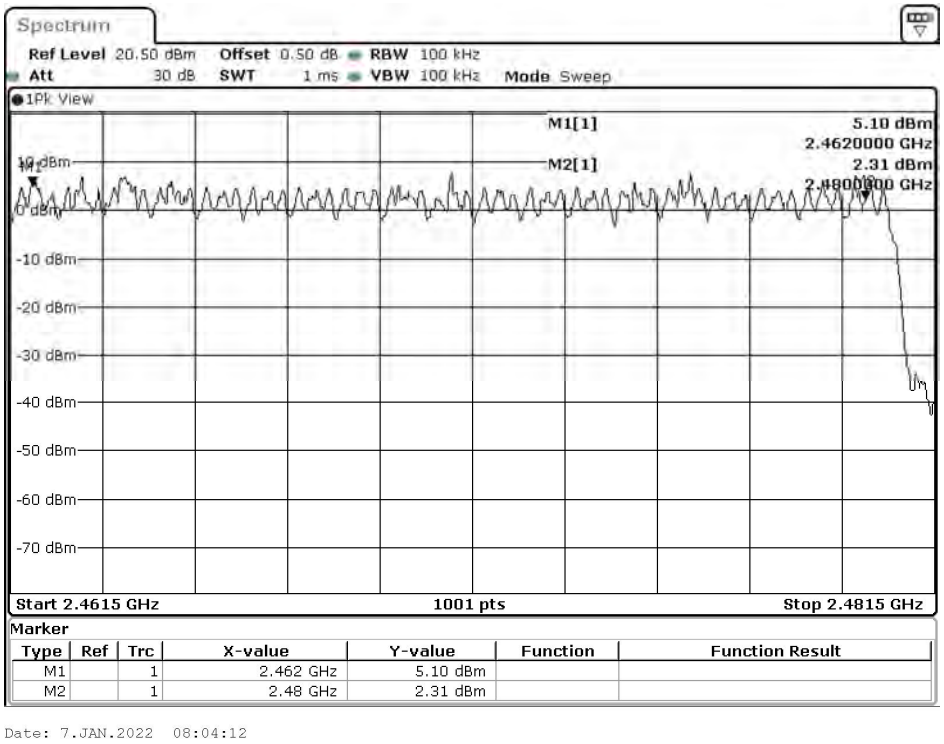


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.442 GHz	6.65 dBm		
M2		1	2.461 GHz	4.29 dBm		

Date: 7.JAN.2022 08:03:12

2462-2480MHz



Marker

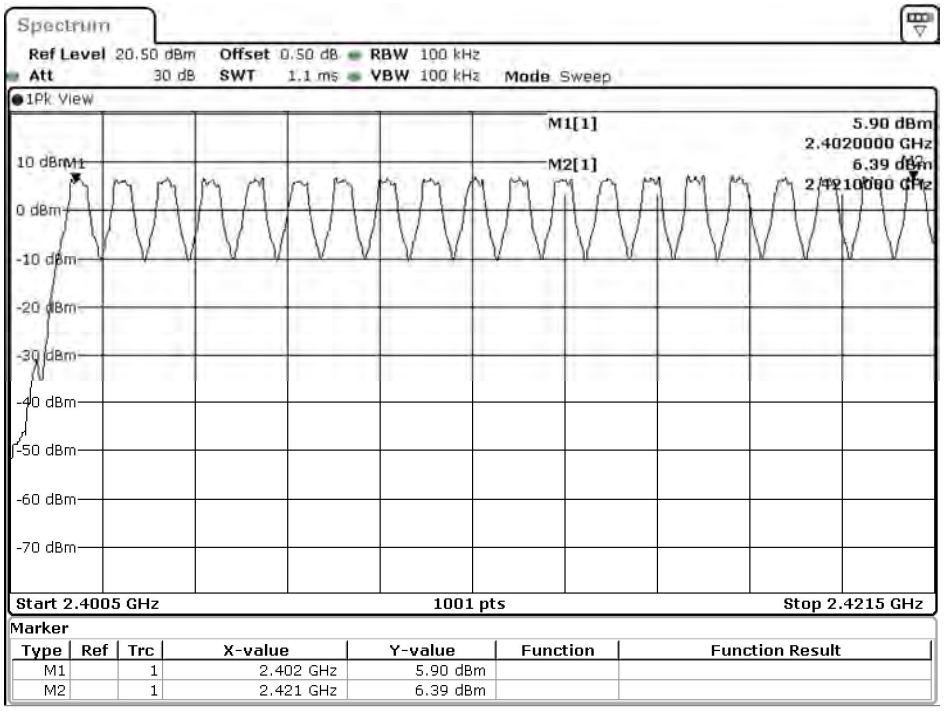
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.462 GHz	5.10 dBm		
M2		1	2.48 GHz	2.31 dBm		

Date: 7.JAN.2022 08:04:12

Product : ROG CETRA TRUE WIRELESS
Test Item : Channel Number
Test Mode : Mode 3: Transmit-1Mbps-Right
Test Date : 2022/01/10

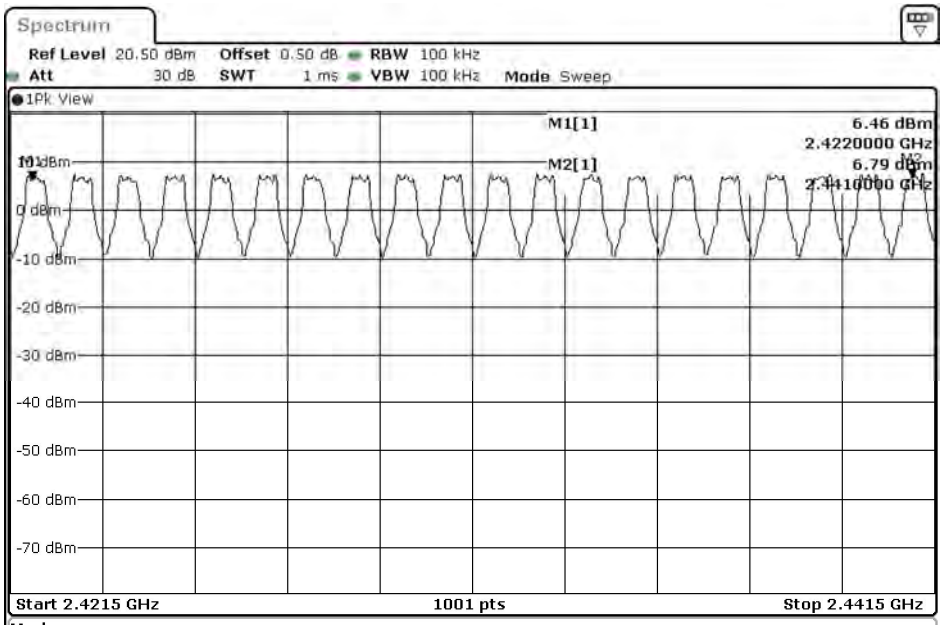
Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>75	Pass

2402-2421MHz



Date: 10.JAN.2022 03:40:00

2422-2441MHz

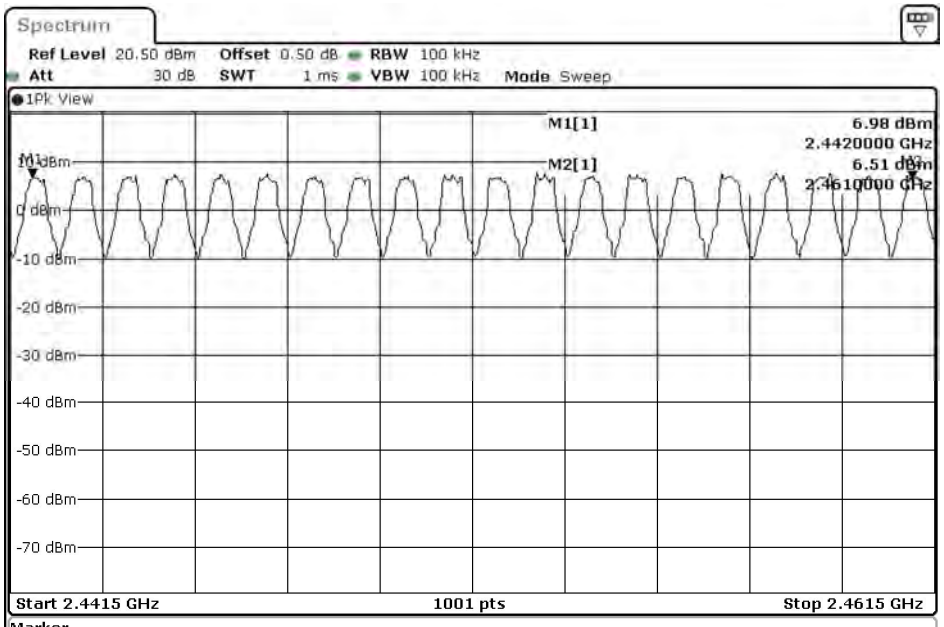


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.422 GHz	6.46 dBm		
M2		1	2.441 GHz	6.79 dBm		

Date: 10.JAN.2022 03:54:31

2442-2461MHz

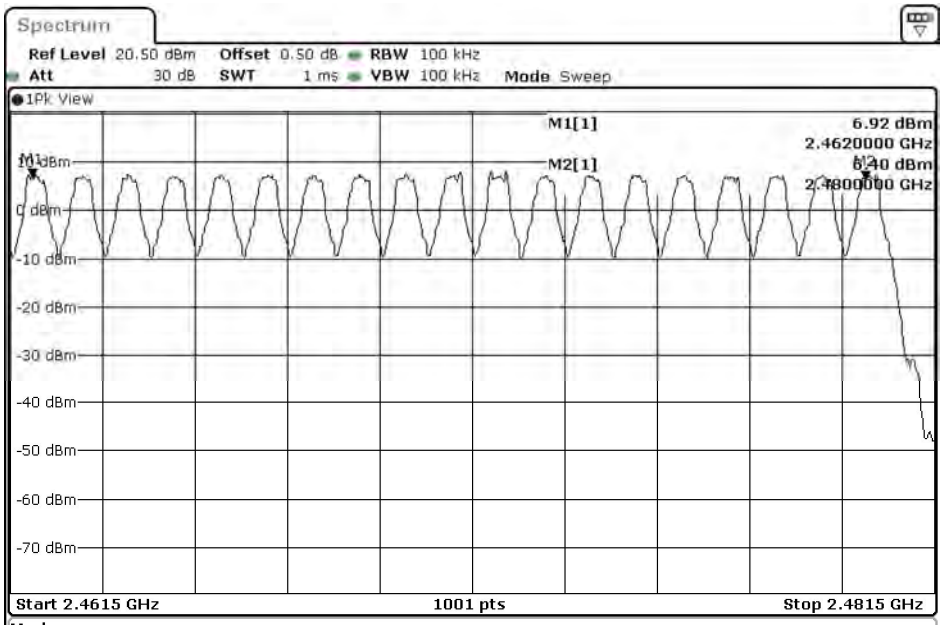


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.442 GHz	6.98 dBm		
M2		1	2.461 GHz	6.51 dBm		

Date: 10.JAN.2022 03:56:16

2462-2480MHz



Marker

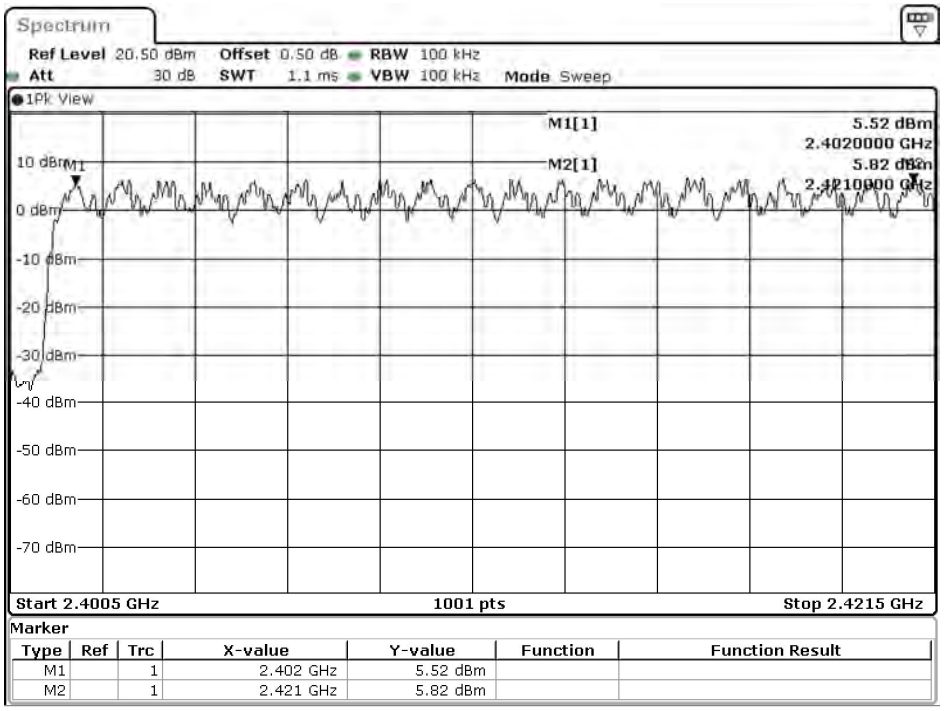
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.462 GHz	6.92 dBm		
M2		1	2.48 GHz	6.40 dBm		

Date: 10.JAN.2022 03:58:45

Product : ROG CETRA TRUE WIRELESS
Test Item : Channel Number
Test Mode : Mode 4: Transmit-3Mbps-Right
Test Date : 2022/01/10

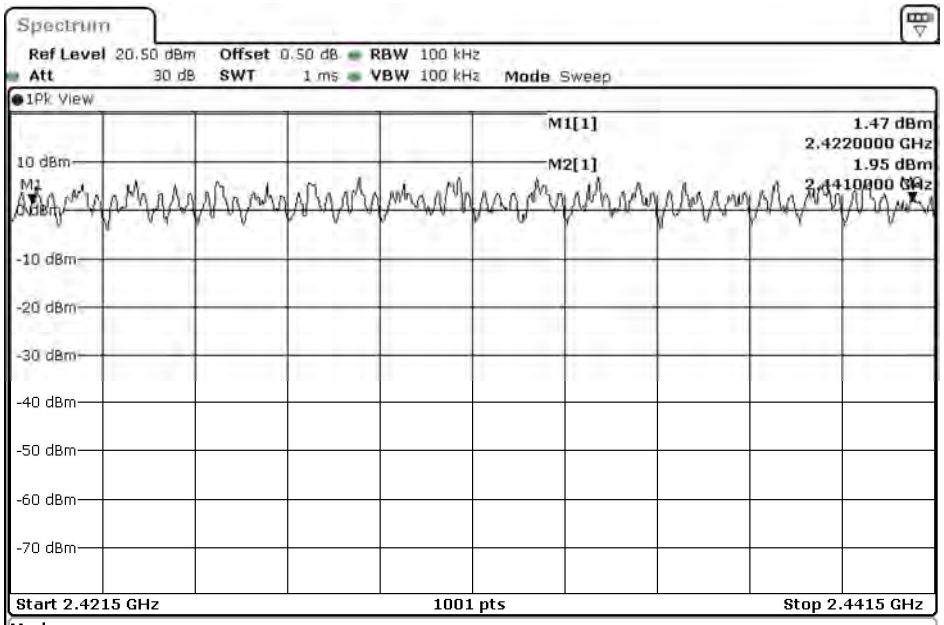
Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>75	Pass

2402-2421MHz



Date: 10.JAN.2022 06:15:33

2422-2441MHz

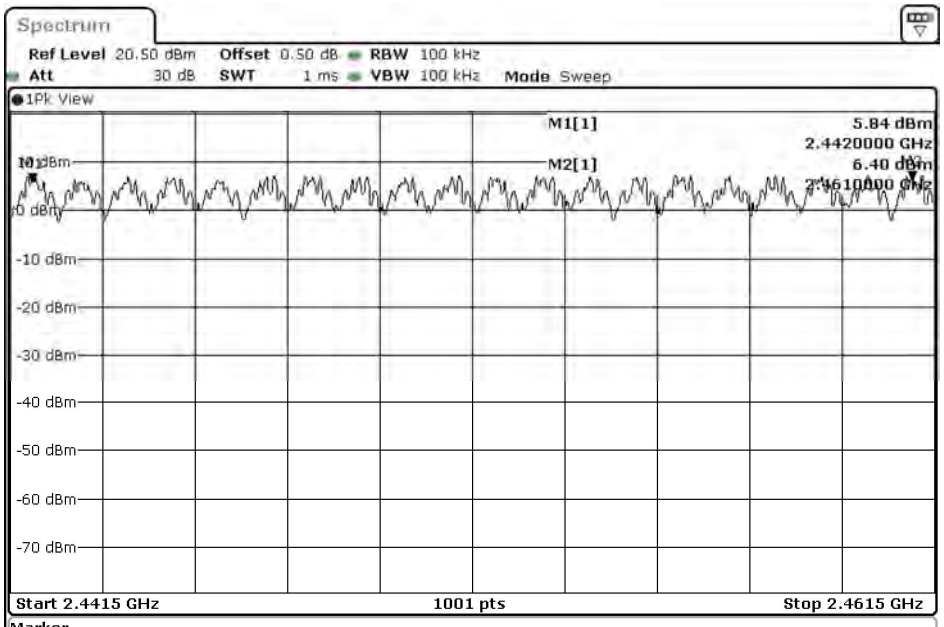


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.422 GHz	1.47 dBm		
M2		1	2.441 GHz	1.95 dBm		

Date: 10.JAN.2022 06:16:36

2442-2461MHz

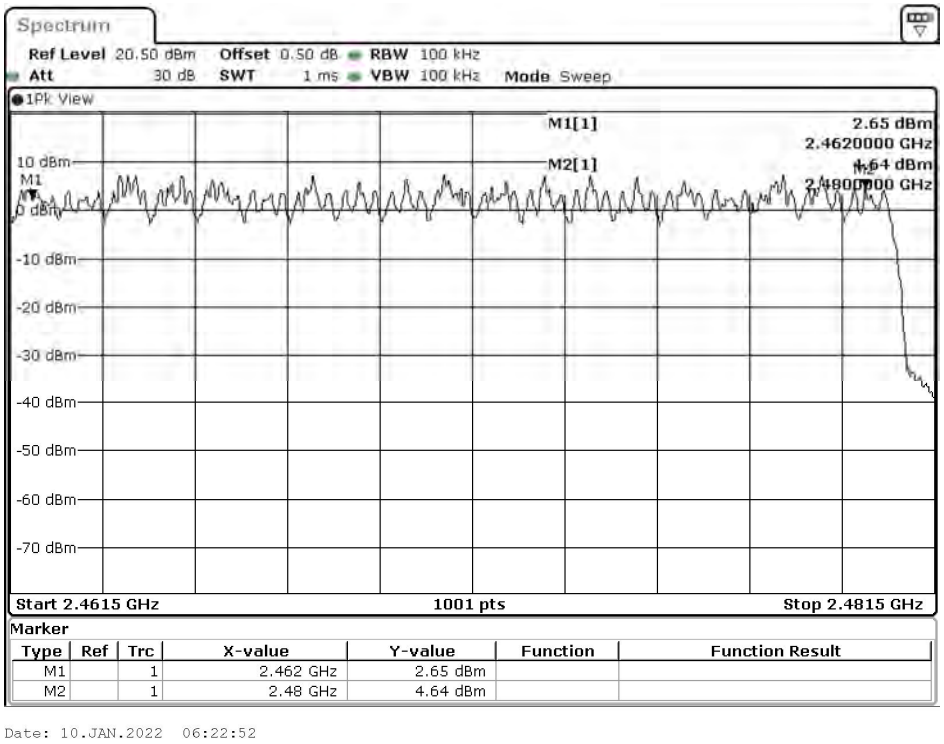


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.442 GHz	5.84 dBm		
M2		1	2.461 GHz	6.40 dBm		

Date: 10.JAN.2022 06:21:43

2462-2480MHz



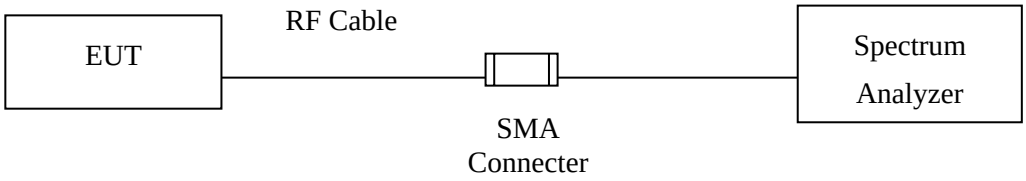
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.462 GHz	2.65 dBm		
M2		1	2.48 GHz	4.64 dBm		

Date: 10.JAN.2022 06:22:52

8. Channel Separation

8.1. Test Setup



8.2. Limit

The 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

The EUT was setup to ANSI C63.10: 2013; According to RSS-247 Issue 2, 5.1(b) (Feb, 2017).

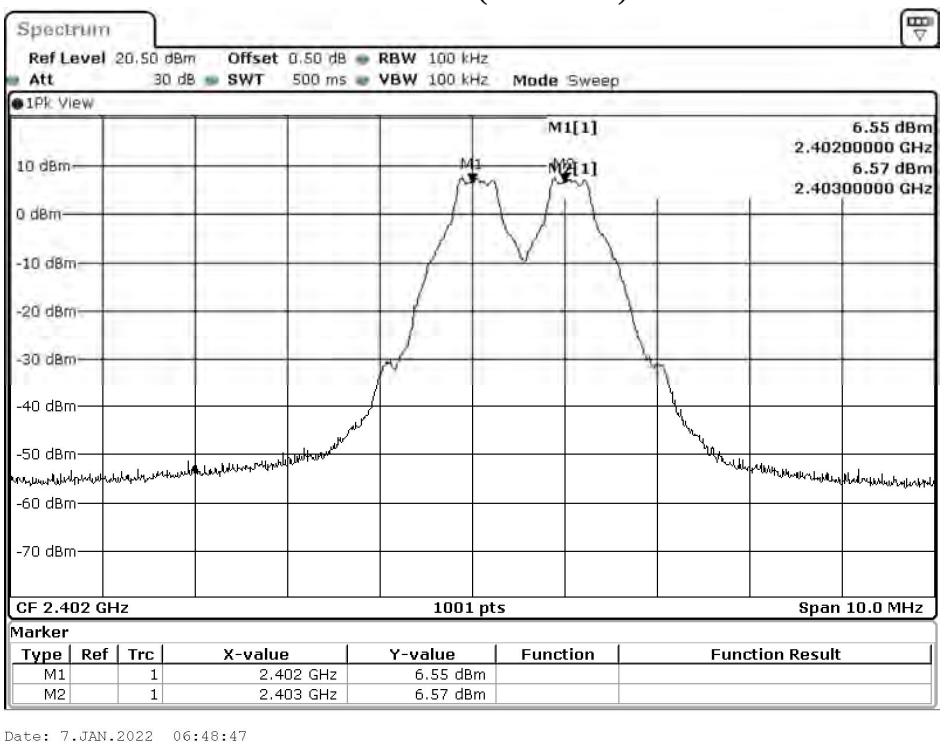
8.4. Test Result of Channel Separation

Product : ROG CETRA TRUE WIRELESS
Test Item : Channel Separation
Test Mode : Mode 1: Transmit-1Mbps-Left
Test Date : 2022/01/07

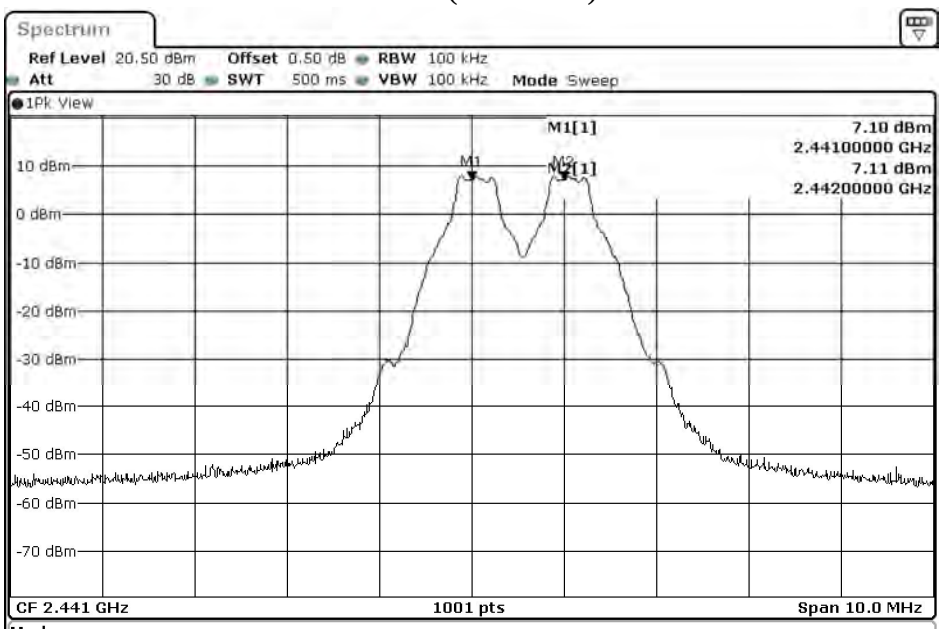
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Limit (kHz)	Limit of (2/3)*20dB Bandwidth (kHz)	Result
00	2402	1000	>25 kHz	640.0	Pass
39	2441	1000	>25 kHz	642.0	Pass
78	2480	1000	>25 kHz	640.0	Pass

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

Channel 00 (2402MHz)



Channel 39 (2441MHz)

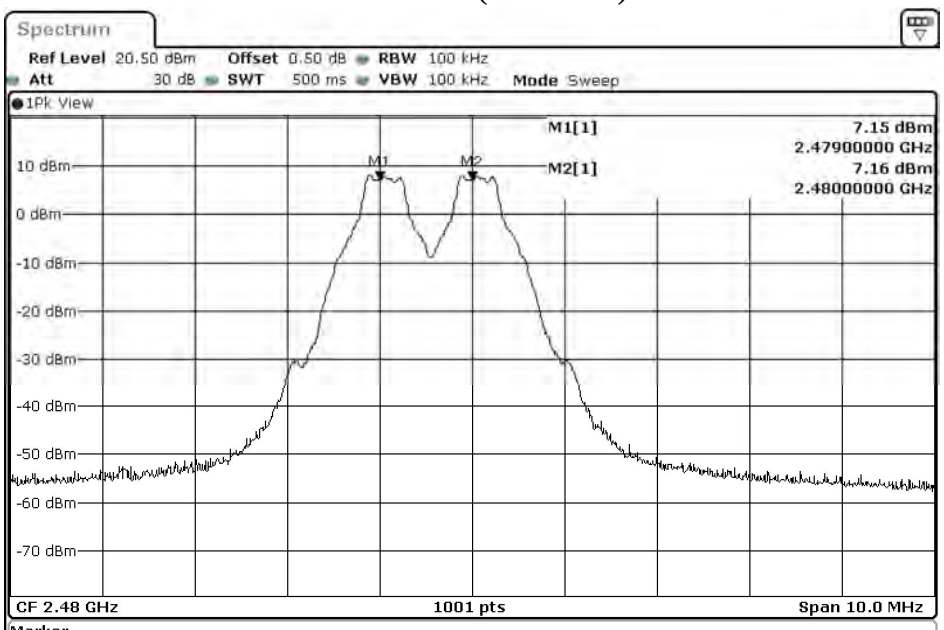


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.441 GHz	7.10 dBm		
M2		1	2.442 GHz	7.11 dBm		

Date: 7.JAN.2022 06:57:19

Channel 78 (2480MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.479 GHz	7.15 dBm		
M2		1	2.48 GHz	7.16 dBm		

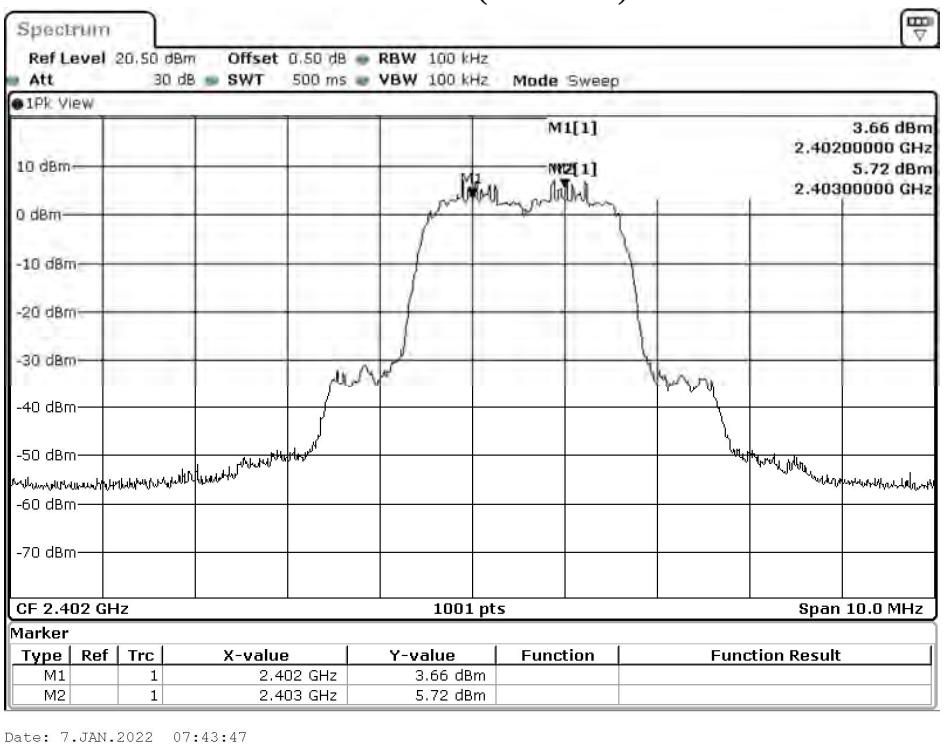
Date: 7.JAN.2022 07:01:47

Product : ROG CETRA TRUE WIRELESS
Test Item : Channel Separation
Test Mode : Mode 2: Transmit-3Mbps-Left
Test Date : 2022/01/07

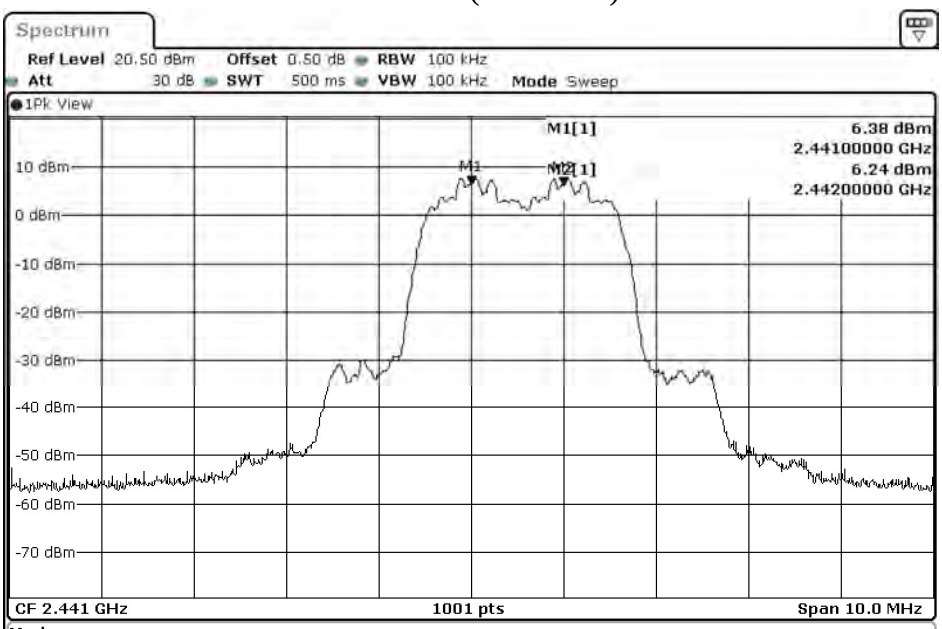
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Limit (kHz)	Limit of (2/3)*20dB Bandwidth (kHz)	Result
00	2402	1000	>25 kHz	868.0	Pass
39	2441	1000	>25 kHz	870.0	Pass
78	2480	1000	>25 kHz	868.0	Pass

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

Channel 00 (2402MHz)



Channel 39 (2441MHz)

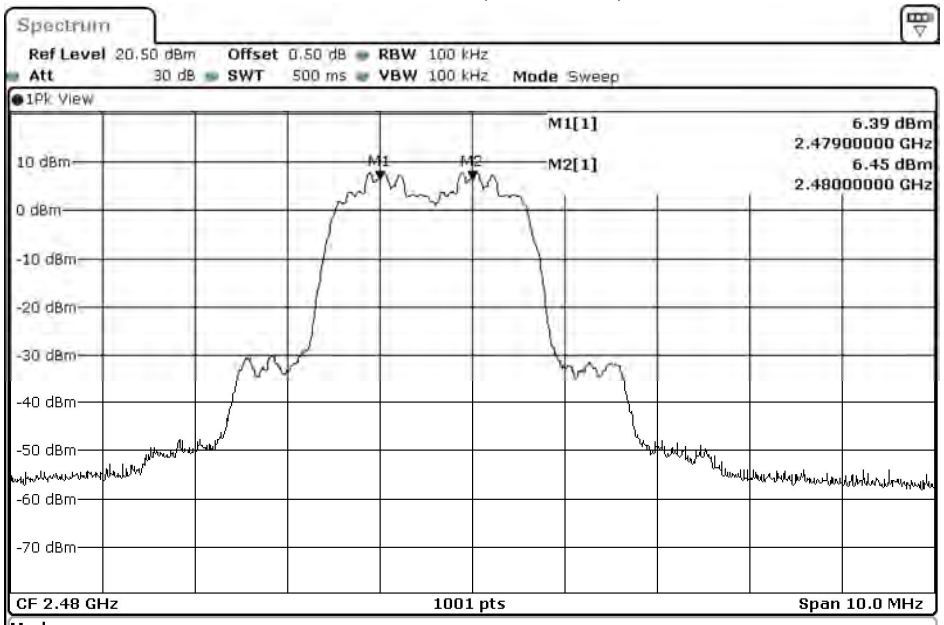


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.441 GHz	6.38 dBm		
M2		1	2.442 GHz	6.24 dBm		

Date: 7.JAN.2022 07:51:43

Channel 78 (2480MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.479 GHz	6.39 dBm		
M2		1	2.48 GHz	6.45 dBm		

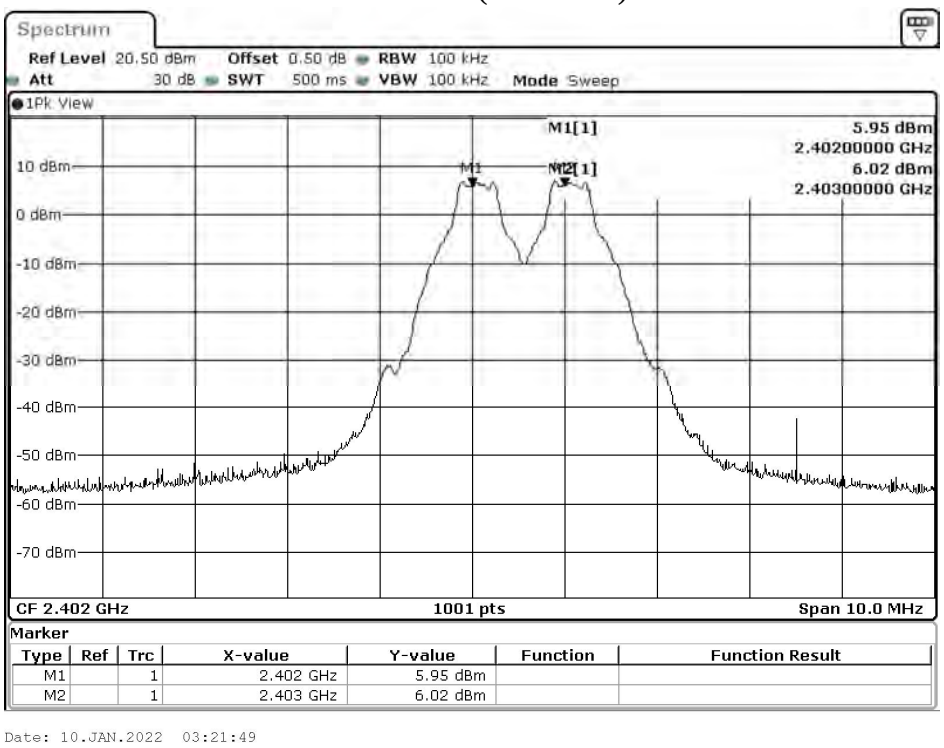
Date: 7.JAN.2022 07:55:41

Product : ROG CETRA TRUE WIRELESS
Test Item : Channel Separation
Test Mode : Mode 3: Transmit-1Mbps-Right
Test Date : 2022/01/10

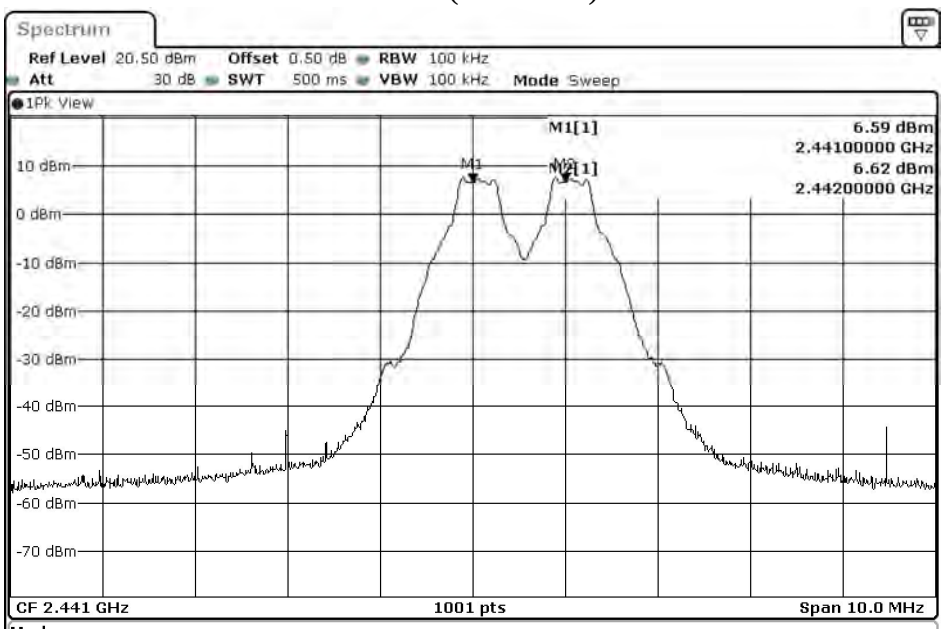
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Limit (kHz)	Limit of (2/3)*20dB Bandwidth (kHz)	Result
00	2402	1000	>25 kHz	640.0	Pass
39	2441	1000	>25 kHz	642.0	Pass
78	2480	1000	>25 kHz	640.0	Pass

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

Channel 00 (2402MHz)



Channel 39 (2441MHz)

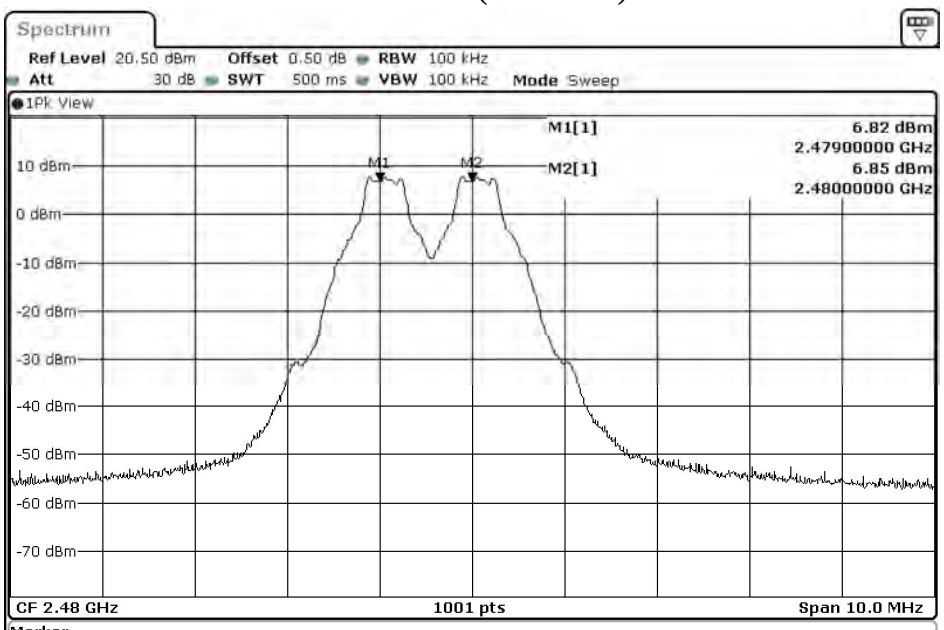


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.441 GHz	6.59 dBm		
M2		1	2.442 GHz	6.62 dBm		

Date: 10.JAN.2022 03:29:26

Channel 78 (2480MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.479 GHz	6.82 dBm		
M2		1	2.48 GHz	6.85 dBm		

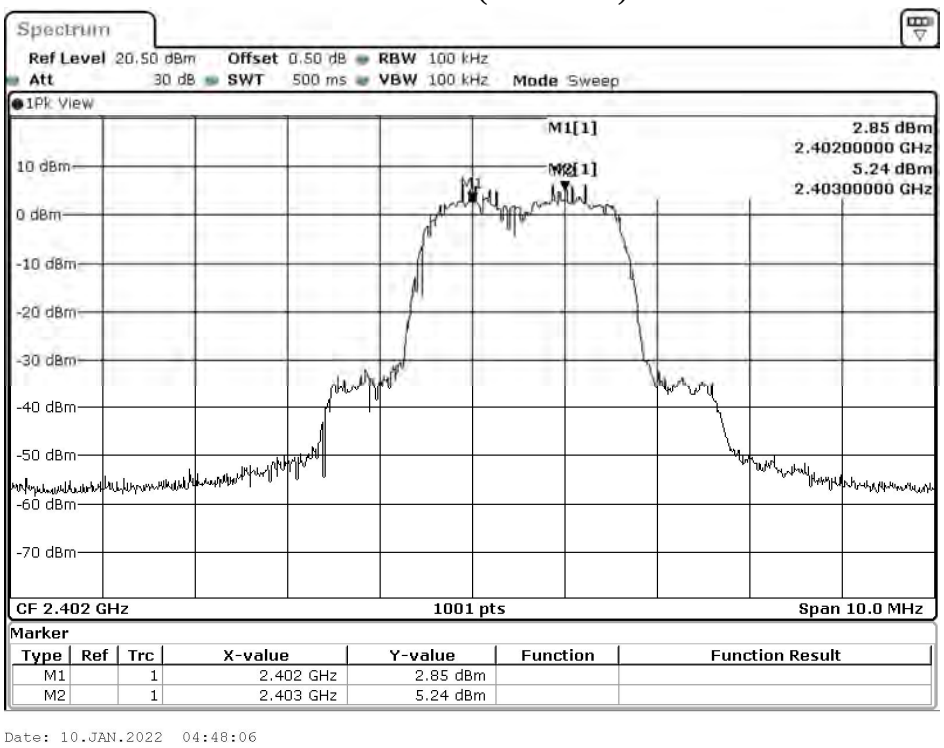
Date: 10.JAN.2022 03:34:35

Product : ROG CETRA TRUE WIRELESS
Test Item : Channel Separation
Test Mode : Mode 4: Transmit-3Mbps-Right
Test Date : 2022/01/07

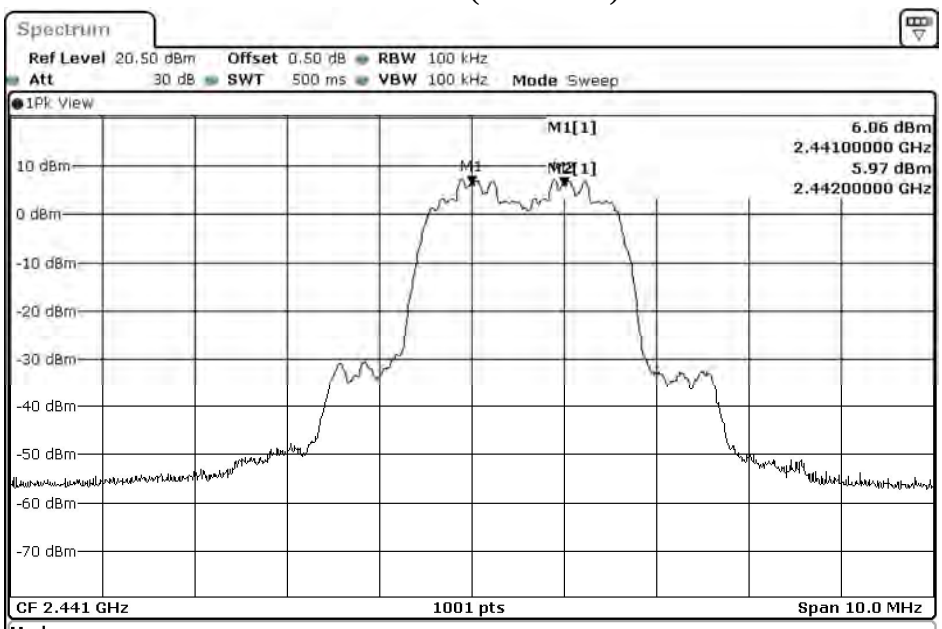
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Limit (kHz)	Limit of (2/3)*20dB Bandwidth (kHz)	Result
00	2402	1000	>25 kHz	864.0	Pass
39	2441	1000	>25 kHz	864.0	Pass
78	2480	1000	>25 kHz	866.0	Pass

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

Channel 00 (2402MHz)



Channel 39 (2441MHz)

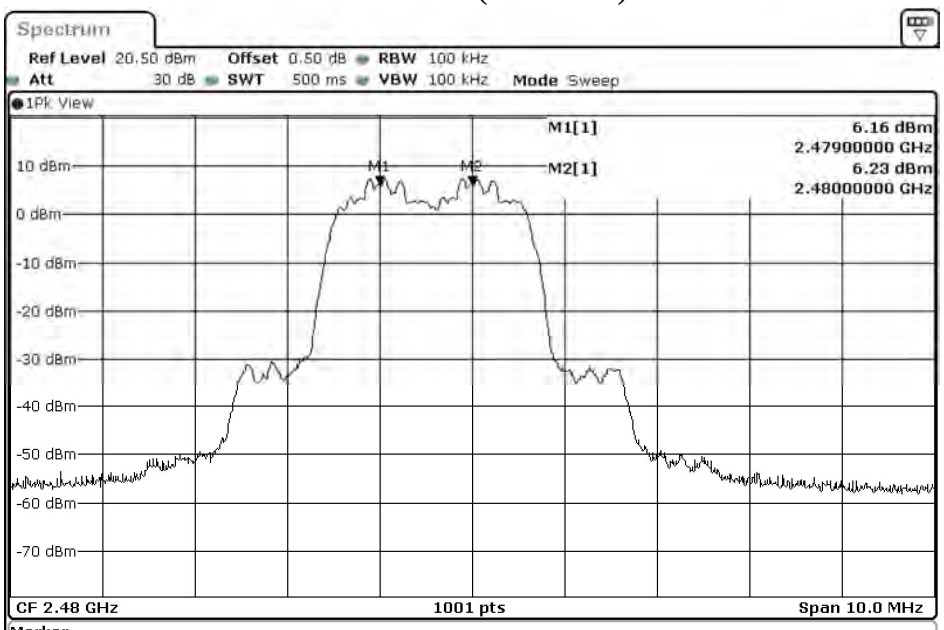


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.441 GHz	6.06 dBm		
M2		1	2.442 GHz	5.97 dBm		

Date: 10.JAN.2022 04:59:38

Channel 78 (2480MHz)



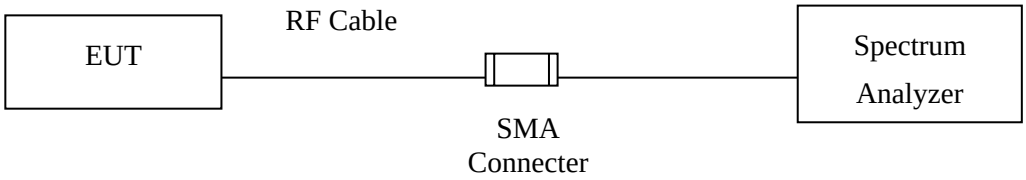
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.479 GHz	6.16 dBm		
M2		1	2.48 GHz	6.23 dBm		

Date: 10.JAN.2022 06:06:30

9. Dwell Time

9.1. Test Setup



9.2. Limit

The dwell time shall be the average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds.

9.3. Test Procedure

The EUT was setup to ANSI C63.10: 2013; According to RSS-247 Issue 2, 5.1(d) (Feb, 2017).

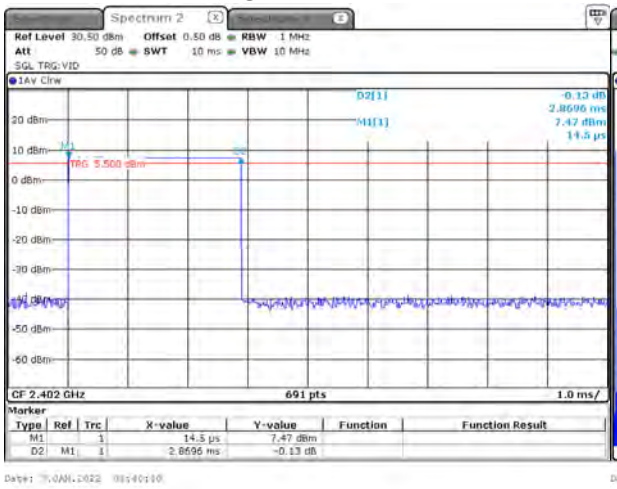
9.4. Test Result of Dwell Time

Product : ROG CETRA TRUE WIRELESS
Test Item : Dwell Time
Test Mode : Mode 1: Transmit-1Mbps-Left (Channel 00,39,78)
Test Date : 2022/01/07

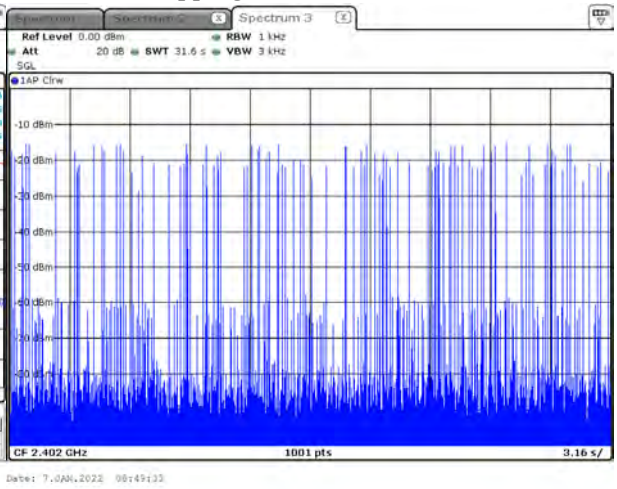
Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Dwell Time (ms)	Limit (ms)	Result
2402	2.86	106	31600	303.160	400	Pass
2441	2.86	113	31600	323.180	400	Pass
2480	2.86	107	31600	306.020	400	Pass

Dwell time = Time slot length (ms)*Hopping of Number

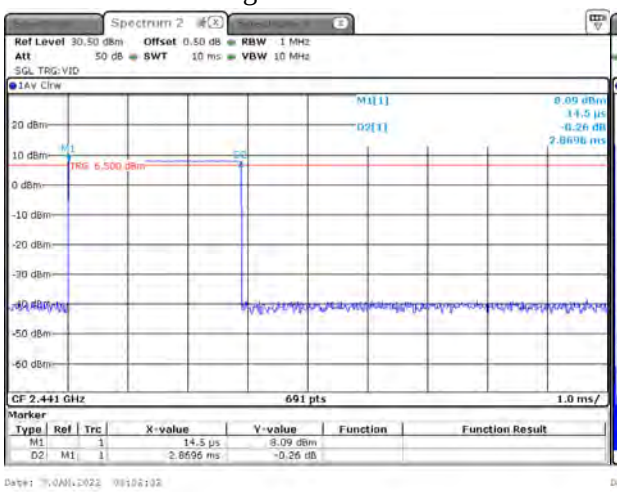
CH 00 Time slot length



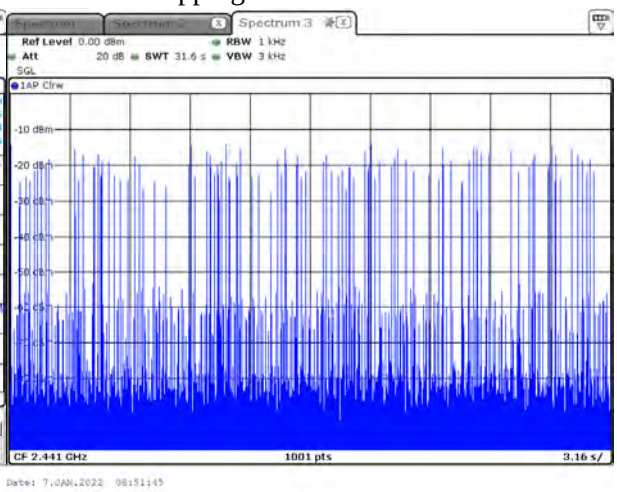
CH 00 Hopping of Number



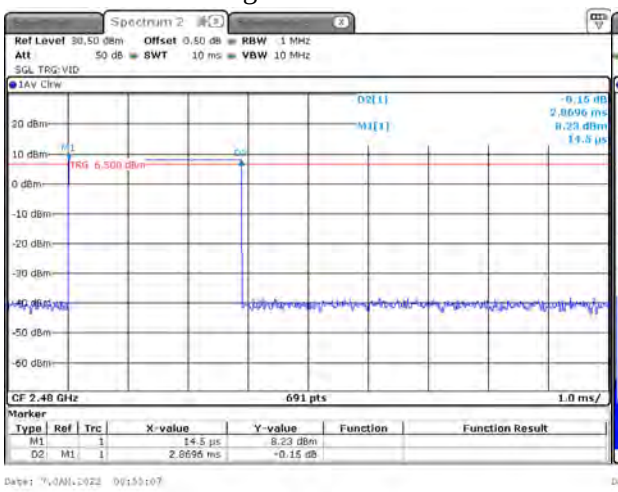
CH 39 Time slot length



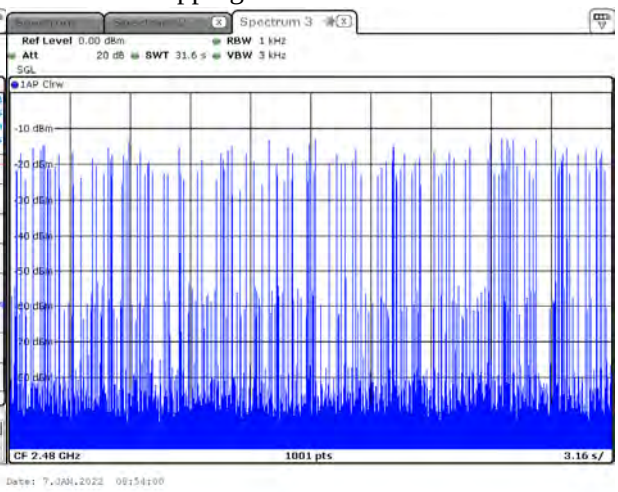
CH 39 Hopping of Number



CH 78 Time slot length



CH 78 Hopping of Number



Note:

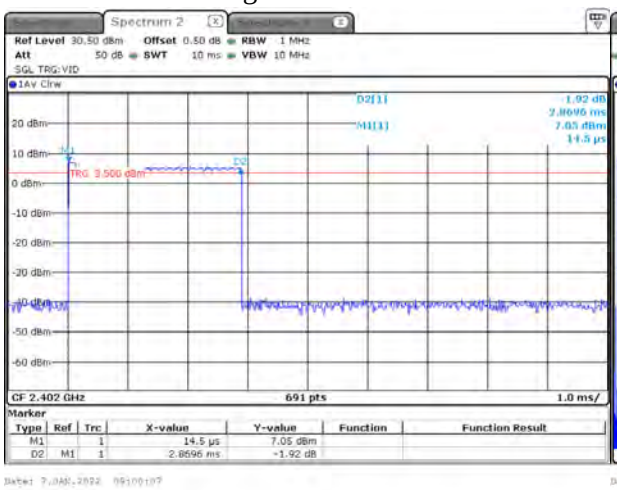
The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the DH5 worst case is shown on the report.

Product : ROG CETRA TRUE WIRELESS
Test Item : Dwell Time
Test Mode : Mode 2: Transmit-3Mbps-Left (Channel 00,39,78)
Test Date : 2022/01/07

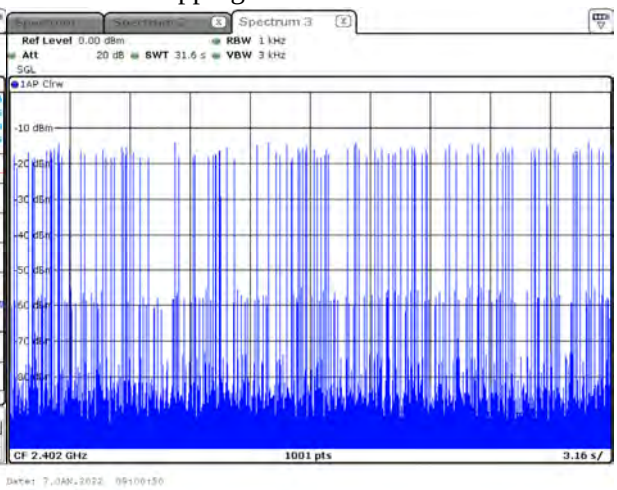
Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Dwell Time (ms)	Limit (ms)	Result
2402	2.86	105	31600	300.300	400	Pass
2441	2.86	101	31600	288.860	400	Pass
2480	2.86	105	31600	300.300	400	Pass

Dwell time = Time slot length (ms)*Hopping of Number

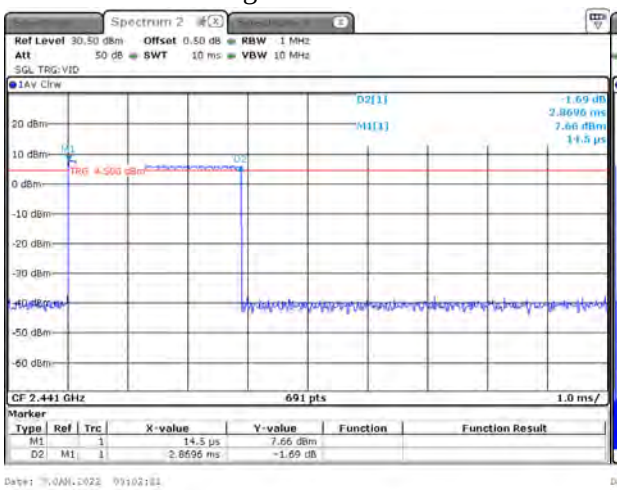
CH 00 Time slot length



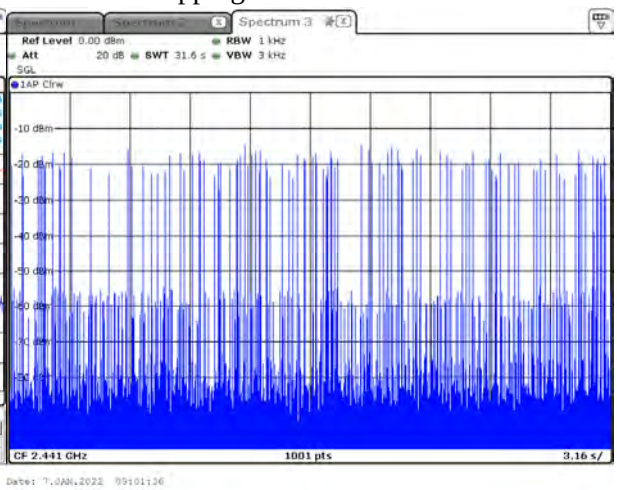
CH 00 Hopping of Number



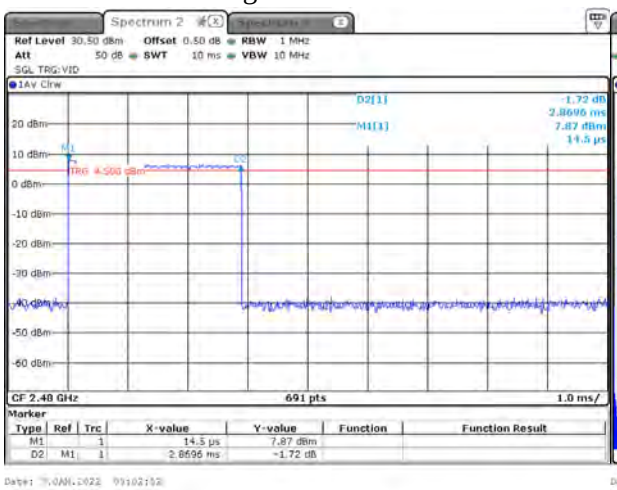
CH 39 Time slot length



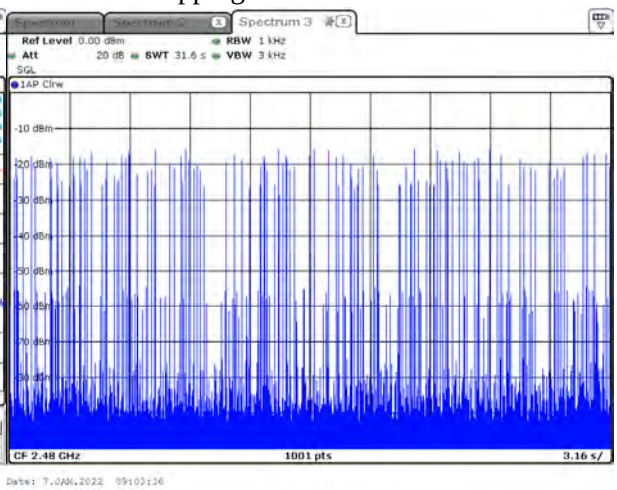
CH 39 Hopping of Number



CH 78 Time slot length



CH 78 Hopping of Number



Note:

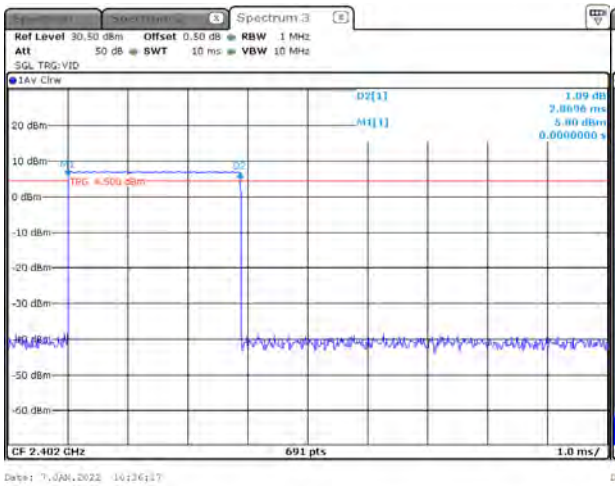
The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the DH5 worst case is shown on the report.

Product : ROG CETRA TRUE WIRELESS
Test Item : Dwell Time
Test Mode : Mode 3: Transmit-1Mbps-Right (Channel 00,39,78)
Test Date : 2022/01/07

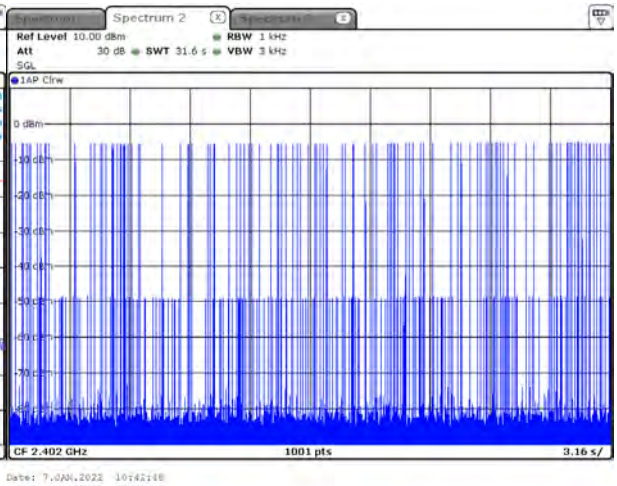
Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Dwell Time (ms)	Limit (ms)	Result
2402	2.86	120	31600	343.200	400	Pass
2441	2.86	114	31600	326.040	400	Pass
2480	2.86	109	31600	311.740	400	Pass

Dwell time = Time slot length (ms)*Hopping of Number

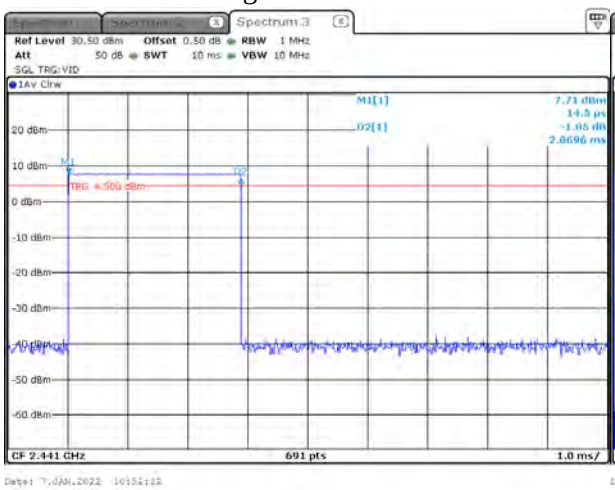
CH 00 Time slot length



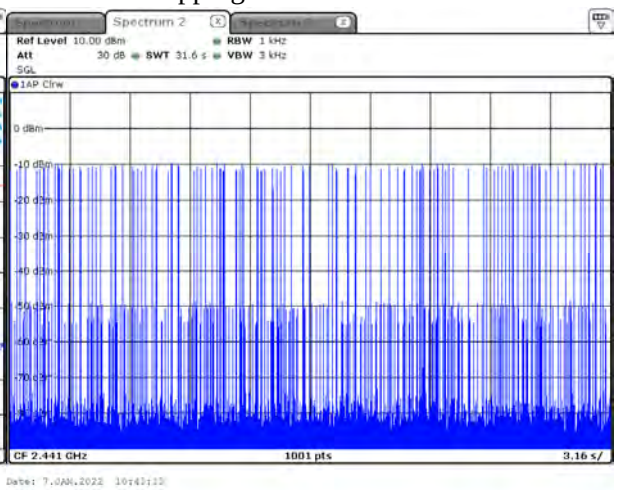
CH 00 Hopping of Number



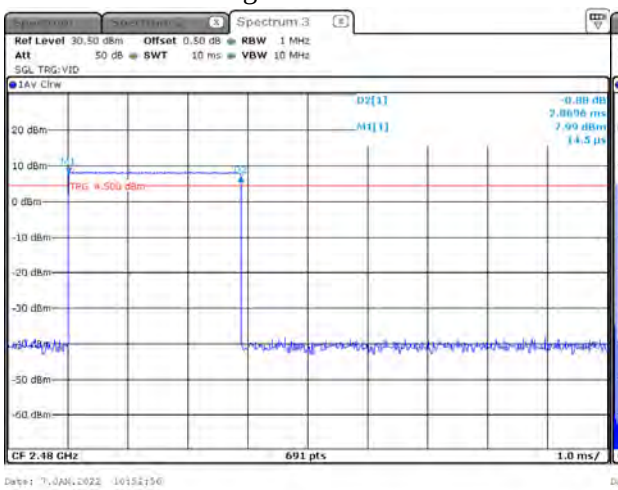
CH 39 Time slot length



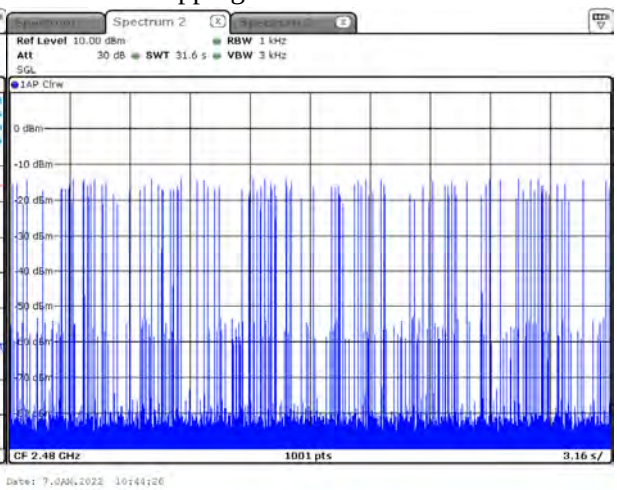
CH 39 Hopping of Number



CH 78 Time slot length



CH 78 Hopping of Number



Note:

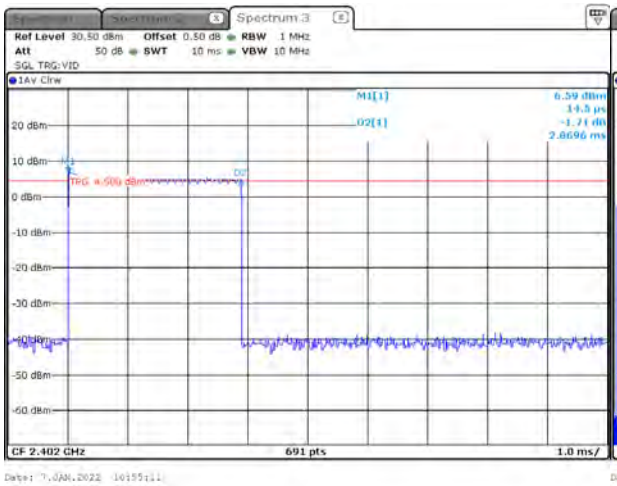
The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the DH5 worst case is shown on the report.

Product : ROG CETRA TRUE WIRELESS
Test Item : Dwell Time
Test Mode : Mode 4: Transmit-3Mbps-Right (Channel 00,39,78)
Test Date : 2022/01/07

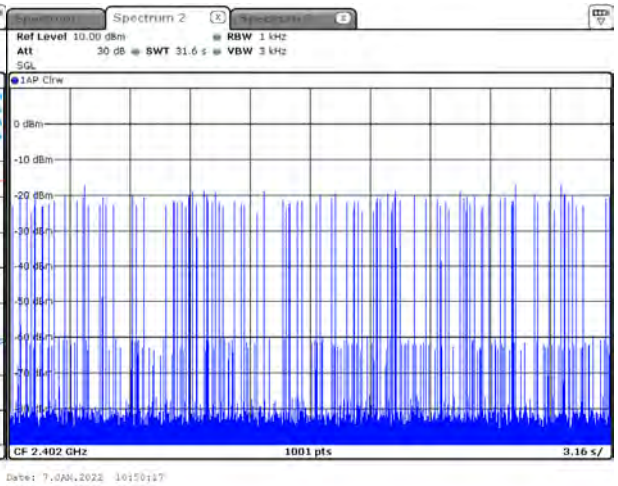
Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Dwell Time (ms)	Limit (ms)	Result
2402	2.86	112	31600	320.320	400	Pass
2441	2.86	107	31600	306.020	400	Pass
2480	2.86	105	31600	300.300	400	Pass

Dwell time = Time slot length (ms)*Hopping of Number

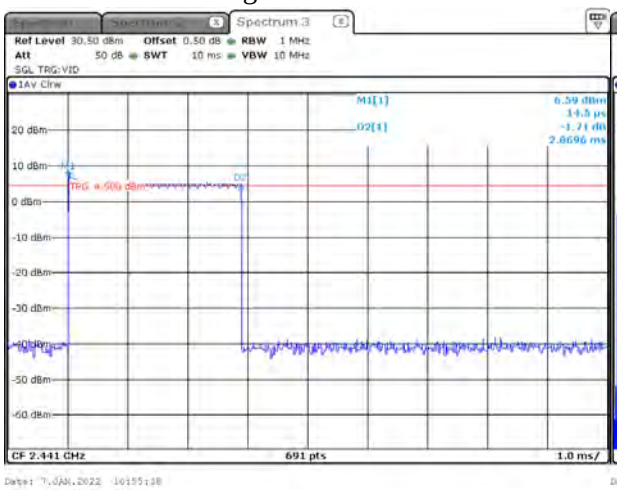
CH 00 Time slot length



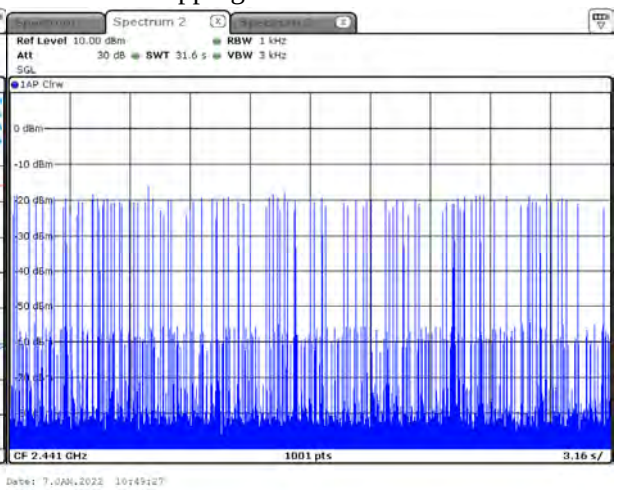
CH 00 Hopping of Number



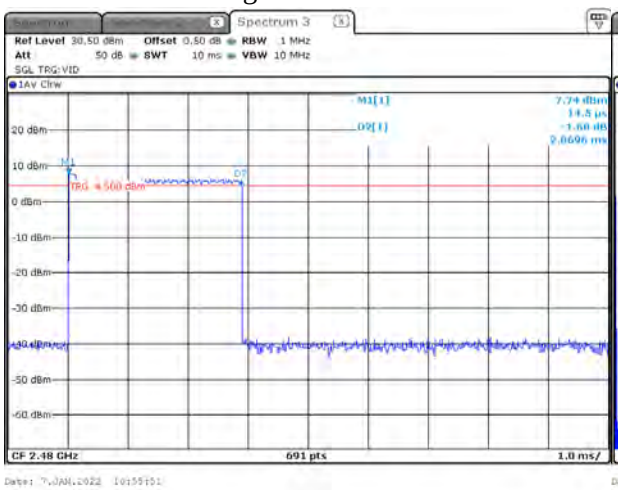
CH 39 Time slot length



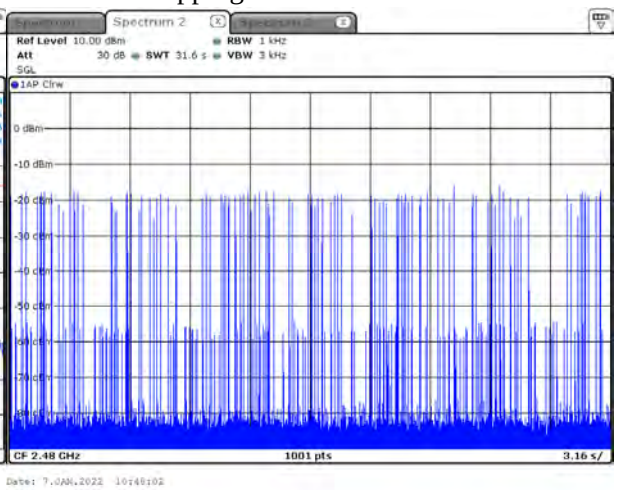
CH 39 Hopping of Number



CH 78 Time slot length



CH 78 Hopping of Number

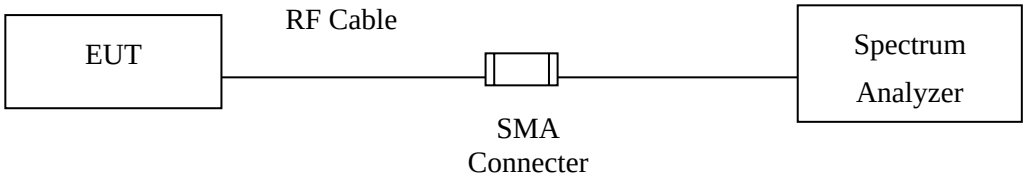


Note:

The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the DH5 worst case is shown on the report.

10. Occupied Bandwidth

10.1. Test Setup



10.2. Limits

N/A.

10.3. Test Procedure

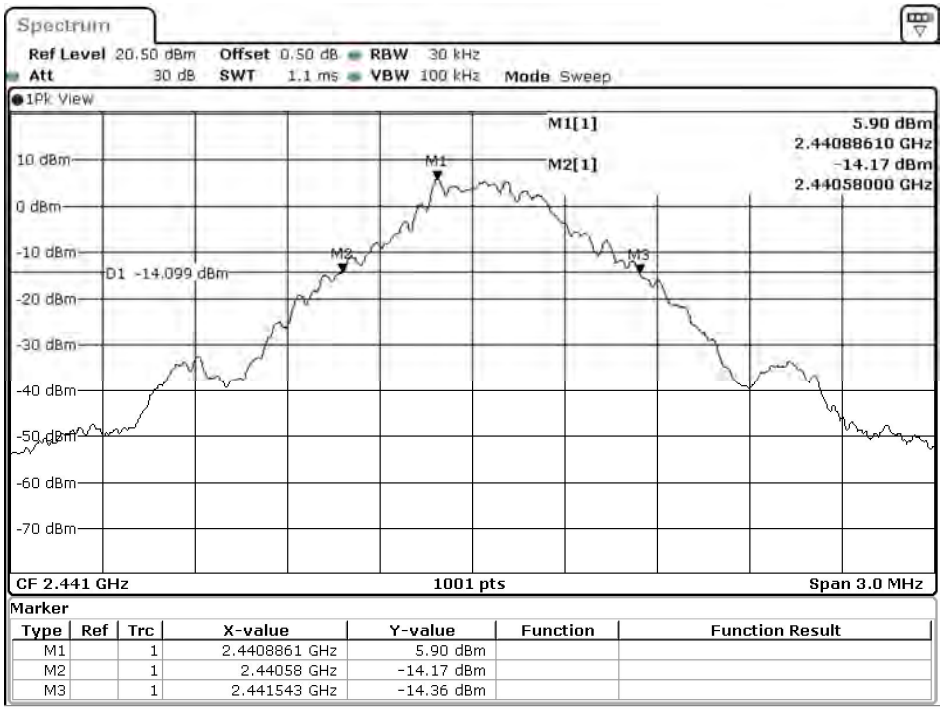
The EUT was setup to ANSI C63.10: 2013; According to RSS-247 Issue 2, 5.1(a) (Feb, 2017)

10.4. Test Result of Occupied Bandwidth

Product : ROG CETRA TRUE WIRELESS
Test Item : Occupied Bandwidth Data
Test Mode : Mode 1: Transmit-1Mbps-Left
Test Date : 2022/01/07

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	960	--	NA
39	2441	963	--	NA
78	2480	960	--	NA

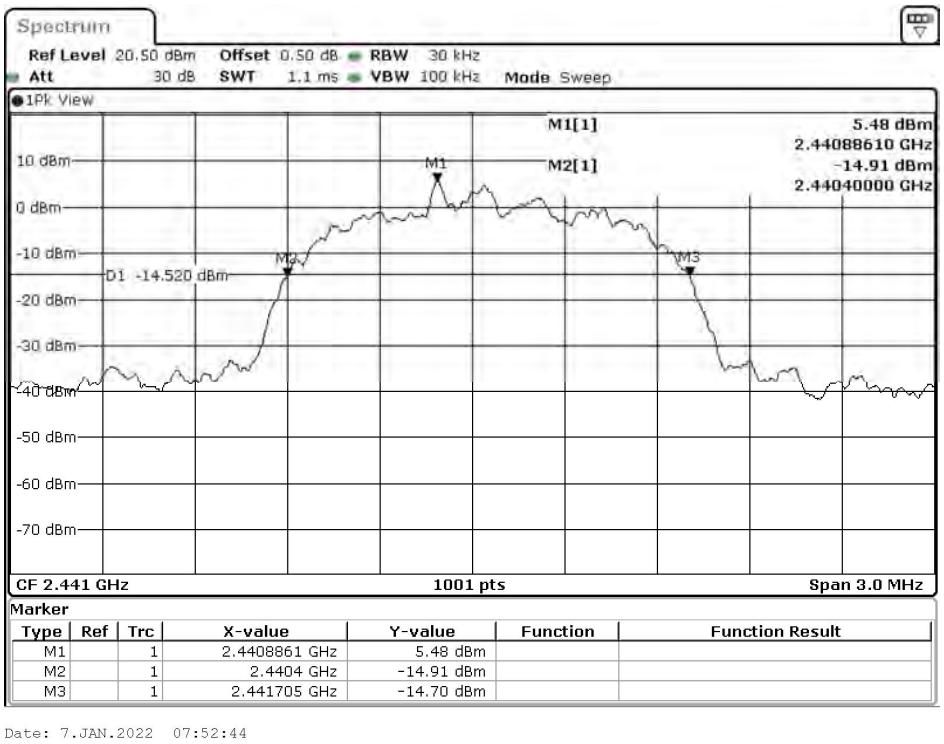
Figure Channel 39:



Product : ROG CETRA TRUE WIRELESS
Test Item : Occupied Bandwidth Data
Test Mode : Mode 2: Transmit-3Mbps-Left
Test Date : 2022/01/07

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1302	--	NA
39	2441	1305	--	NA
78	2480	1302	--	NA

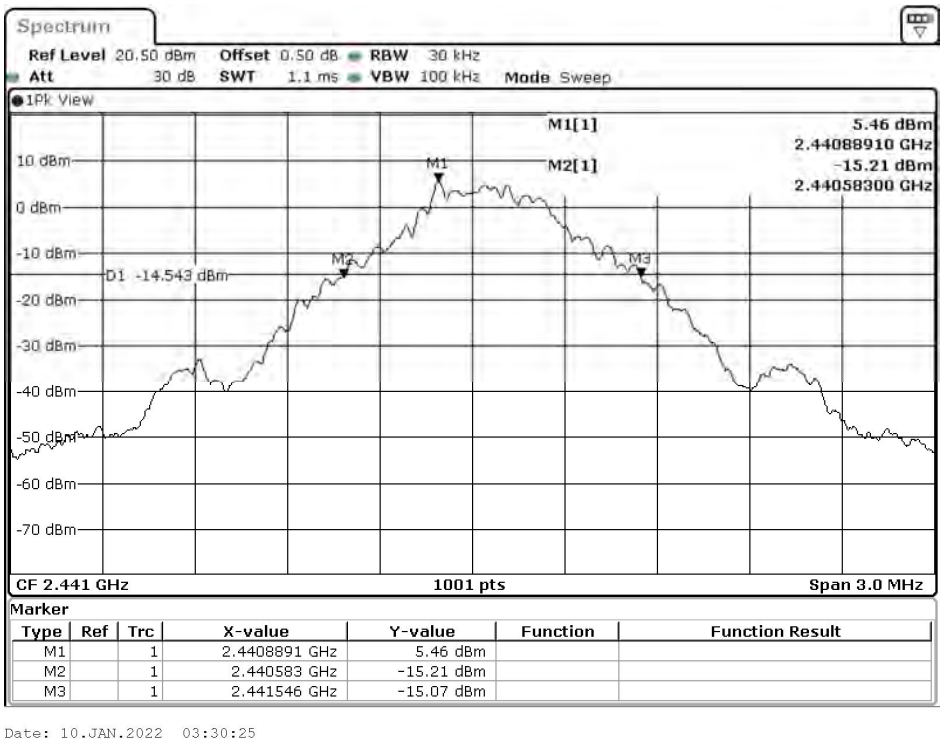
Figure Channel 39:



Product : ROG CETRA TRUE WIRELESS
Test Item : Occupied Bandwidth Data
Test Mode : Mode 3: Transmit-1Mbps-Right
Test Date : 2022/01/10

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	960	--	NA
39	2441	963	--	NA
78	2480	960	--	NA

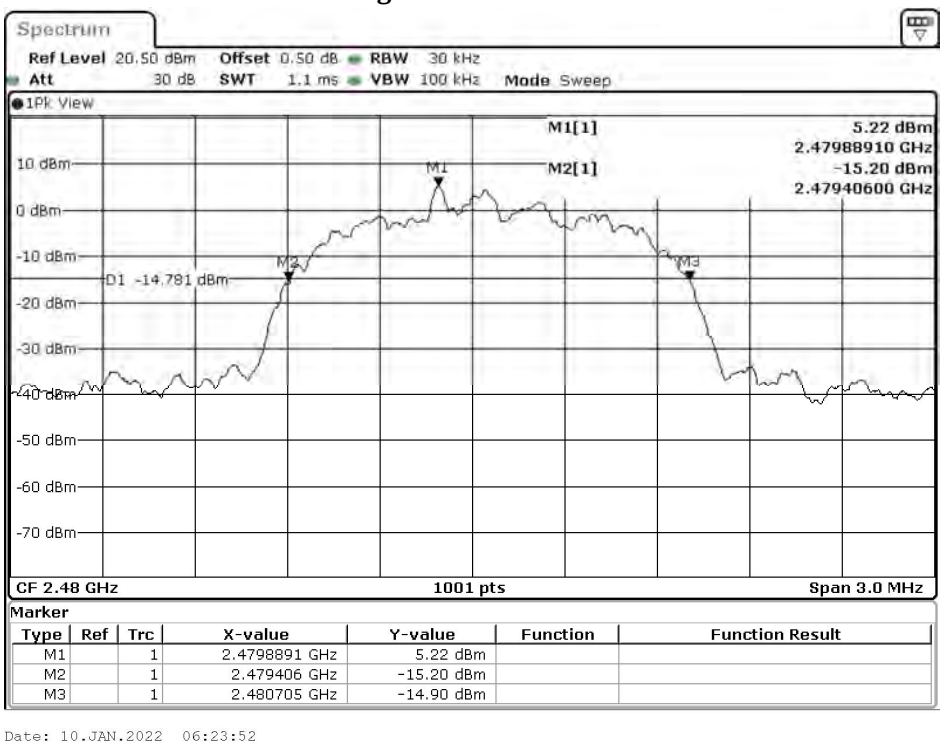
Figure Channel 39:



Product : ROG CETRA TRUE WIRELESS
Test Item : Occupied Bandwidth Data
Test Mode : Mode 4: Transmit-3Mbps-Right
Test Date : 2022/01/10

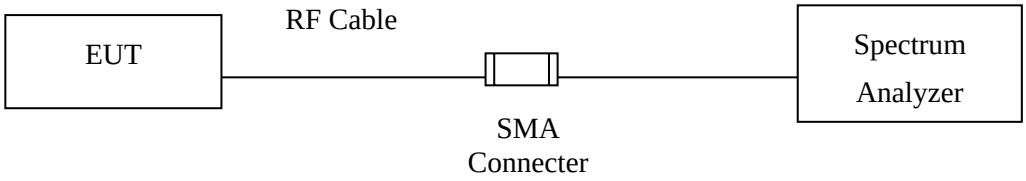
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1296	--	NA
39	2441	1296	--	NA
78	2480	1299	--	NA

Figure Channel 78:



11. 99% Occupied Bandwidth

11.1. Test Setup



11.2. Limits

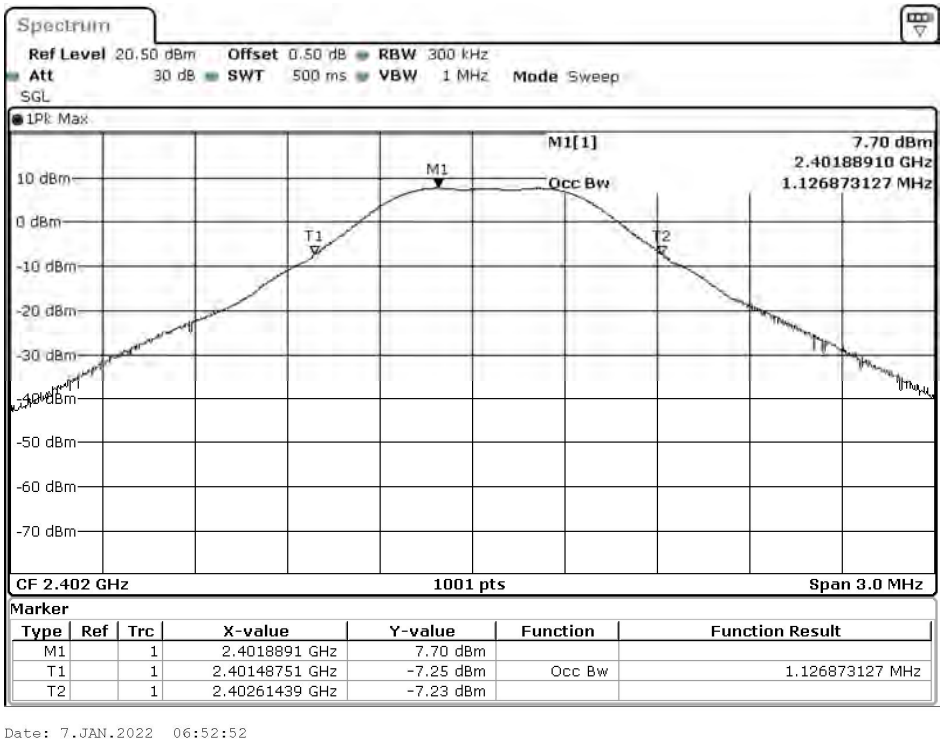
No Required

11.3. Test Result of 99% Occupied Bandwidth

Product : ROG CETRA TRUE WIRELESS
Test Item : 99% Occupied Bandwidth Data
Test Mode : Mode 1: Transmit-1Mbps-Left

Channel No.	Frequency (MHz)	Measurement Level (MHz)	Required Limit (MHz)	Result
00	2402	1.12	--	NA
39	2441	1.12	--	NA
78	2480	1.12	--	NA

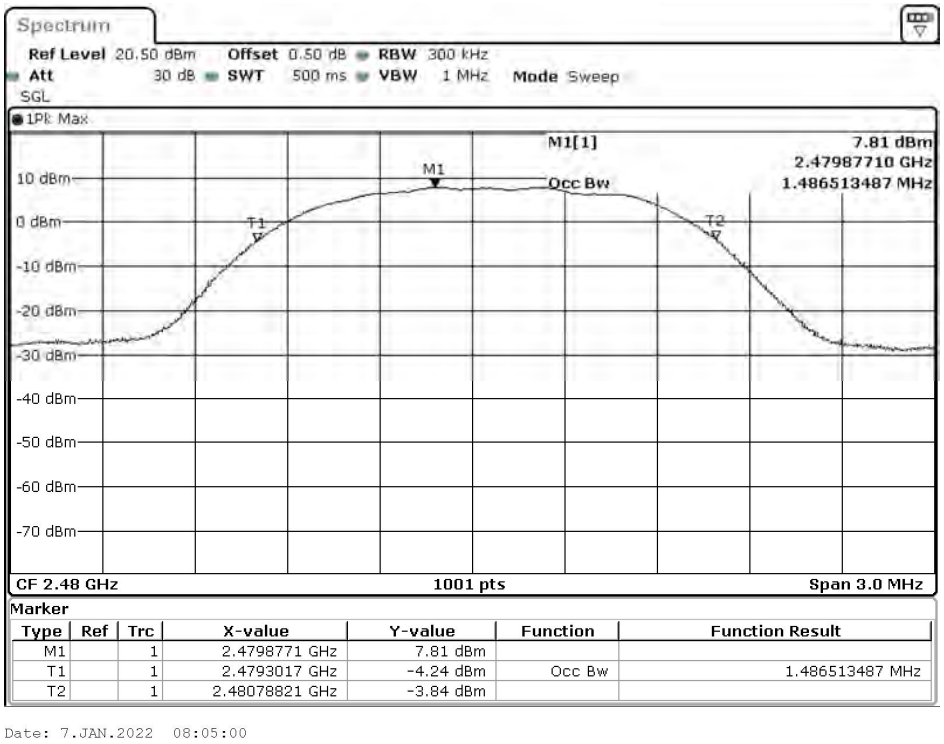
Figure Channel 00:



Product : ROG CETRA TRUE WIRELESS
Test Item : 99% Occupied Bandwidth Data
Test Mode : Mode 2: Transmit-3Mbps-Left

Channel No.	Frequency (MHz)	Measurement Level (MHz)	Required Limit (MHz)	Result
00	2402	1.47	--	NA
39	2441	1.48	--	NA
78	2480	1.48	--	NA

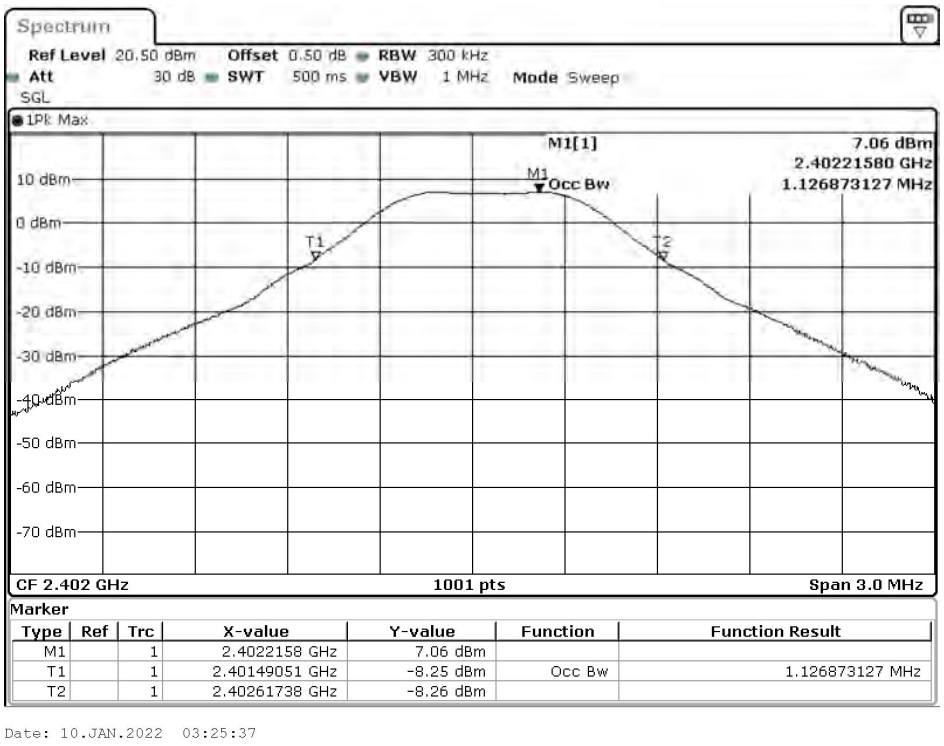
Figure Channel 78:



Product : ROG CETRA TRUE WIRELESS
Test Item : 99% Occupied Bandwidth Data
Test Mode : Mode 3: Transmit-1Mbps-Right

Channel No.	Frequency (MHz)	Measurement Level (MHz)	Required Limit (MHz)	Result
00	2402	1.12	--	NA
39	2441	1.12	--	NA
78	2480	1.12	--	NA

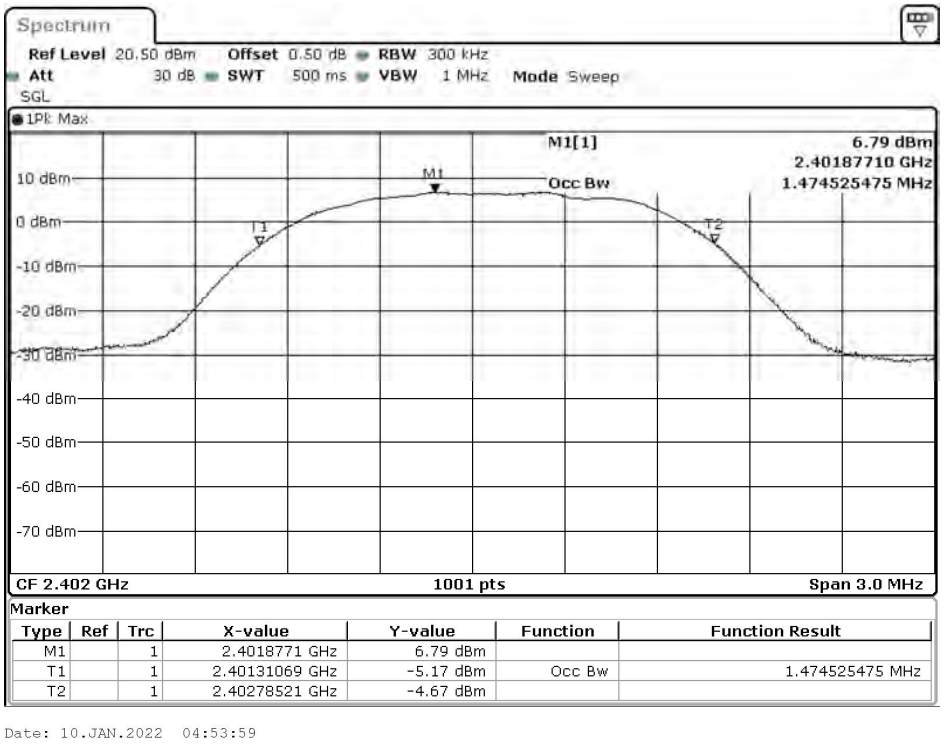
Figure Channel 00:



Product : ROG CETRA TRUE WIRELESS
Test Item : 99% Occupied Bandwidth Data
Test Mode : Mode 4: Transmit-3Mbps-Right

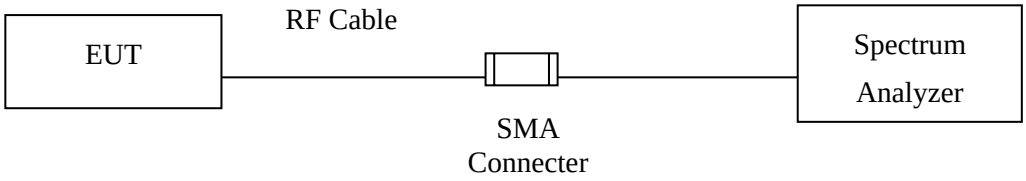
Channel No.	Frequency (MHz)	Measurement Level (MHz)	Required Limit (MHz)	Result
00	2402	1.47	--	NA
39	2441	1.47	--	NA
78	2480	1.47	--	NA

Figure Channel 00:



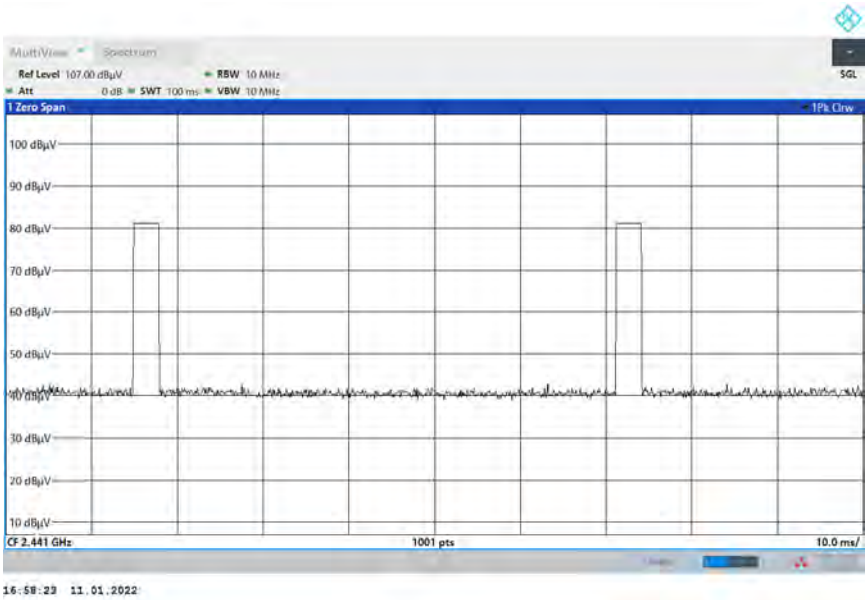
12. Duty Cycle

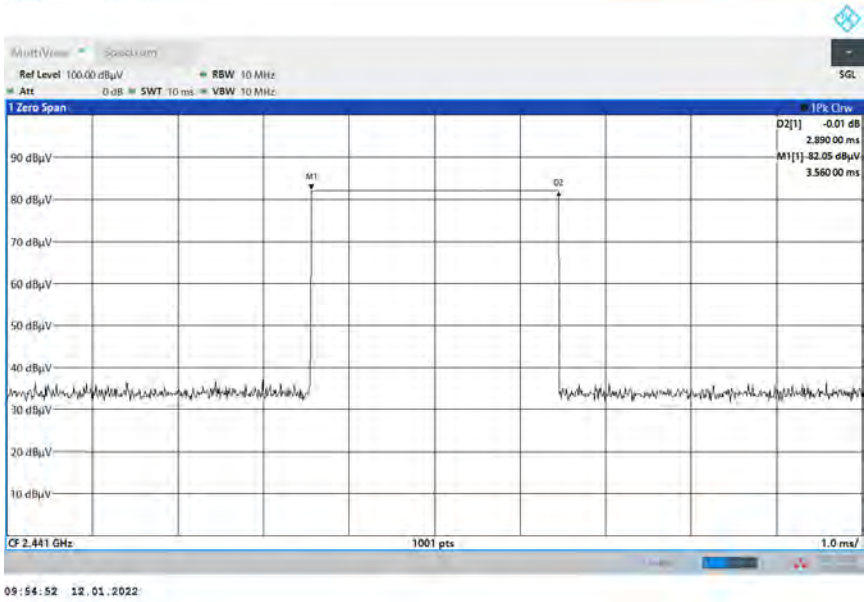
12.1. Test Setup



12.2. Test Result of Duty Cycle

Product : ROG CETRA TRUE WIRELESS
Test Item : Duty Cycle Data
Test Mode : Mode 1: Transmit-1Mbps-Left

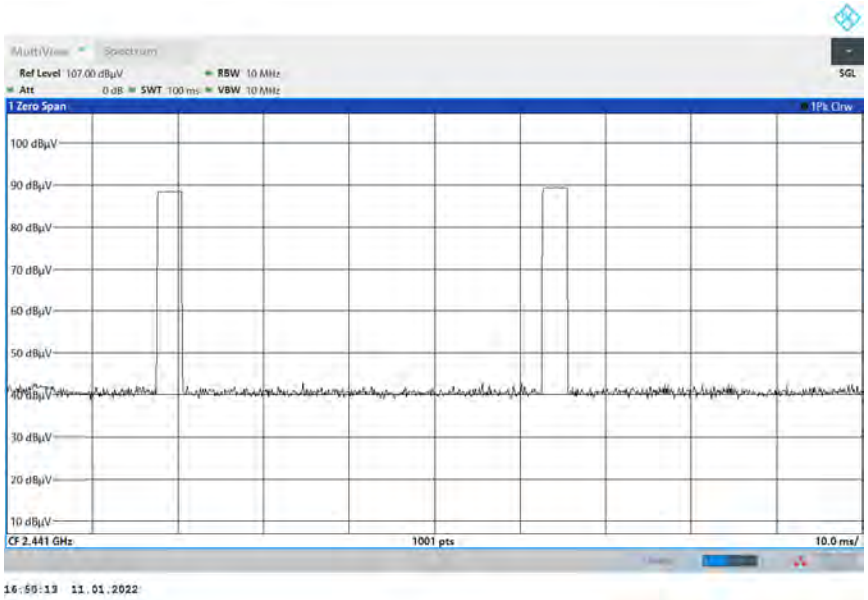


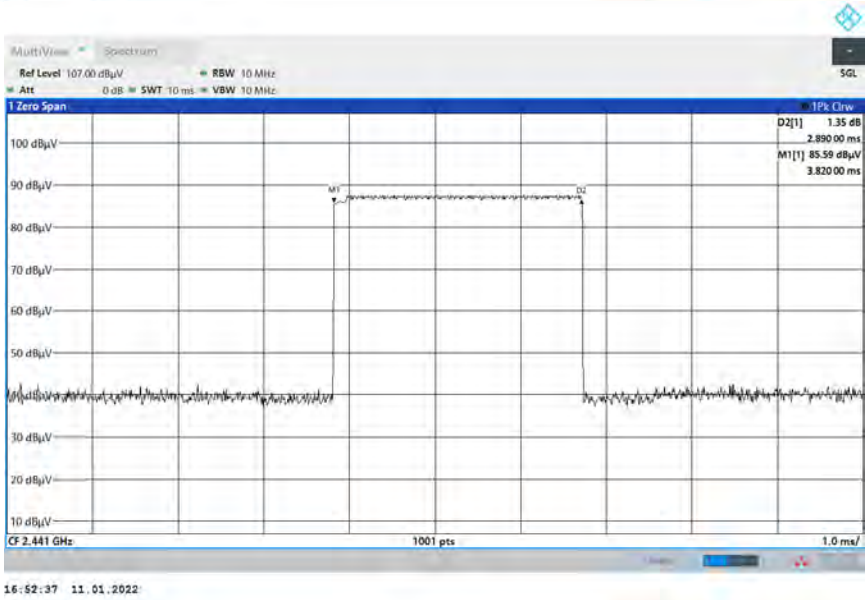


Time on of 100ms= 2.89ms*2= 5.780ms
Duty Cycle=5.78ms / 100ms= 0.0578
Duty Cycle correction factor= 20 LOG 0.0578= -24.761 dB

Duty Cycle correction factor	**-24.761 dB**

Product : ROG CETRA TRUE WIRELESS
Test Item : Duty Cycle Data
Test Mode : Mode 2: Transmit-3Mbps-Left

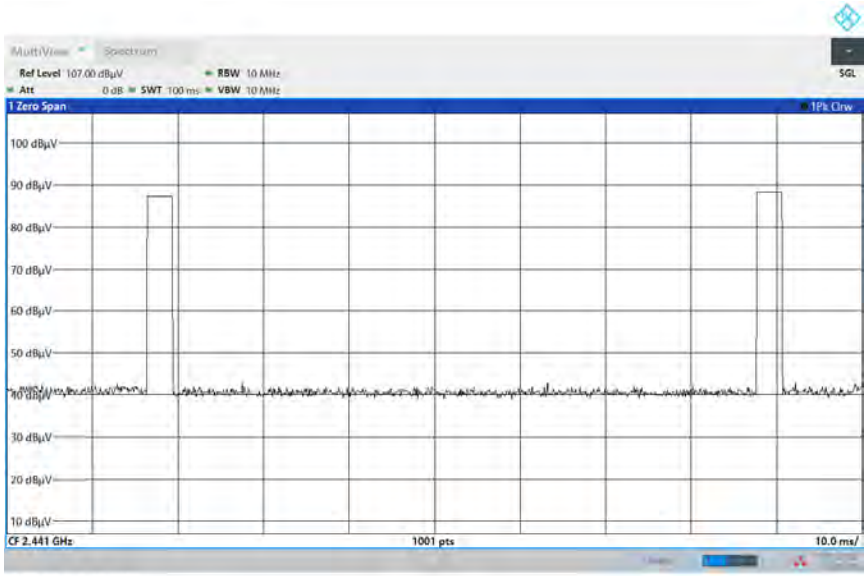


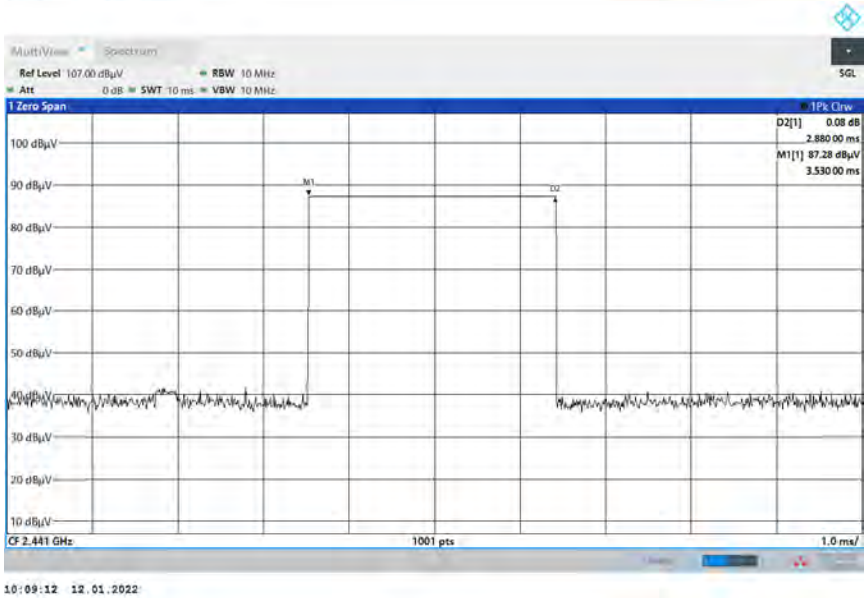


Time on of 100ms= 2.89ms*2= 5.780ms
Duty Cycle=5.78ms / 100ms= 0.0578
Duty Cycle correction factor= 20 LOG 0.0578= -24.761 dB

Duty Cycle correction factor	**-24.761 dB**

Product : ROG CETRA TRUE WIRELESS
Test Item : Duty Cycle Data
Test Mode : Mode 3: Transmit-1Mbps-Right

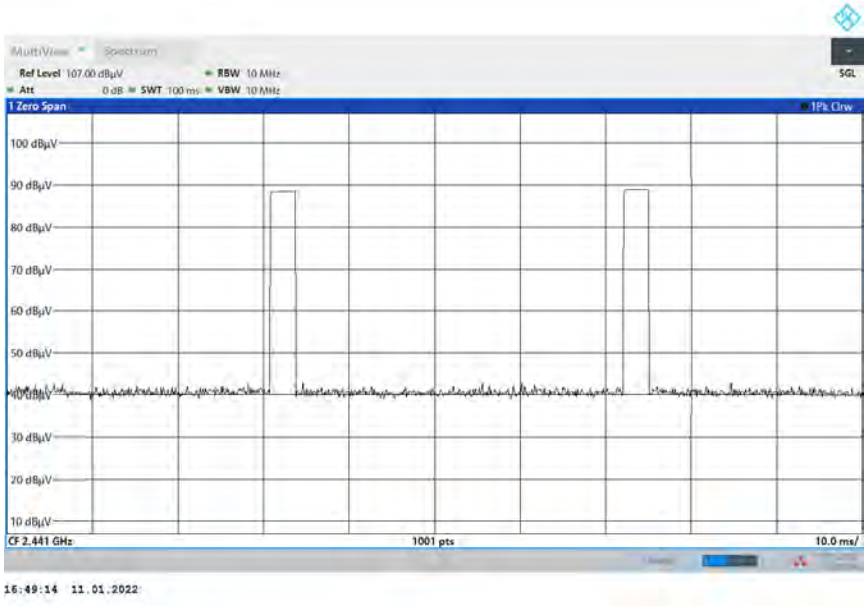


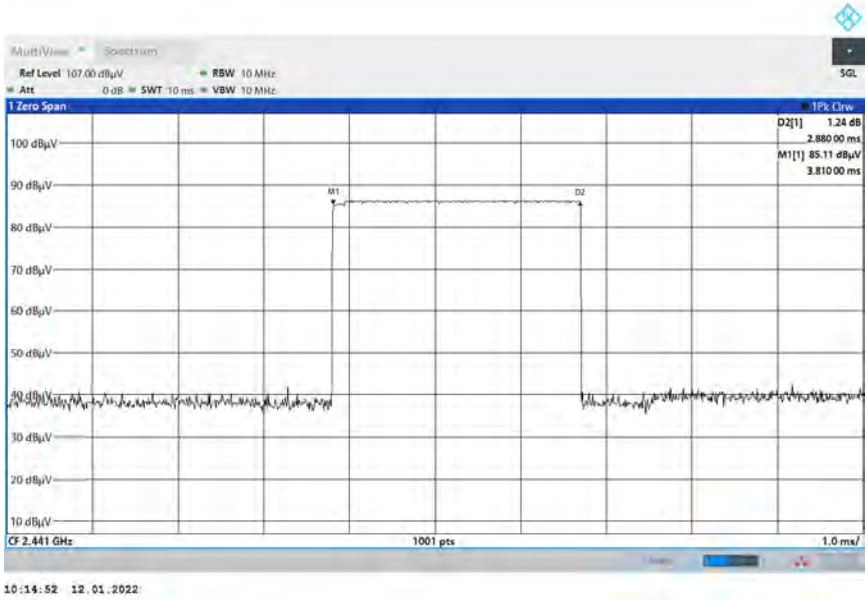


Time on of 100ms= 2.88ms*2= 5.760ms
Duty Cycle=5.76ms / 100ms= 0.0576
Duty Cycle correction factor= 20 LOG 0.0576= -24.792 dB

Duty Cycle correction factor	**-24.792 dB**

Product : ROG CETRA TRUE WIRELESS
Test Item : Duty Cycle Data
Test Mode : Mode 4: Transmit-3Mbps-Right





Time on of 100ms= 2.88ms*2= 5.760ms
Duty Cycle=5.76ms / 100ms= 0.0576
Duty Cycle correction factor= 20 LOG 0.0576= -24.792 dB

Duty Cycle correction factor	**-24.792 dB**

13. EMI Reduction Method During Compliance Testing

No modification was made during testing.