ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LOW-POWER, NON-LICENSED TRANSMITTER

Test Report No.	**: OT-207-RWD-053**
AGR No.	**: A207A-155**
Applicant	**: LG Electronics USA, Inc.**
Address	**: 111 Sylvan Ave, North Building, Englewood Cliffs, New Jersey, 07632, United States**
Manufacturer	**: LG Electronics Inc.**
Address	**: 222 LG-ro Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, Korea**
Type of Equipment	**: Bluetooth Earbud**
FCC ID.	**: ZNFHBSFN7**
Model Name	**: TONE-FN7**
Multiple Model Name	**: HBS-TFN7, HBS-FN7, HBS-FN7W**
Serial number	**: N/A**
Total page of Report	**: 146 pages (including this page)**
Date of Incoming	**: July 13, 2020**
Date of issue	**: July 29, 2020**

SUMMARY

The equipment complies with the regulation; ***FCC PART 15 SUBPART C Section 15.247***

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

Reviewed by: Tae-Ho, Kim / Senior Manager, ONETECH Corp.

Approved by: Ki-Hong, Nam / General Manager, ONETECH Corp.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

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ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

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Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-207-RWD-053	July 29, 2020	Initial Release	All

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1. VERIFICATION OF COMPLIANCE

Applicant : LG Electronics USA, Inc.

Address : 111 Sylvan Ave, North Building, Englewood Cliffs, New Jersey, 07632, United States

Contact Person : Kyung-Su, Han / Director, Standards & Compliance

Telephone No. : 201-266-2215

FCC ID : ZNFHBSFN7

Model Name : TONE-FN7

Brand Name : -

Serial Number : N/A

Date : July 29, 2020

EQUIPMENT CLASS	DSS – PART 15 SPREAD SPECTRUM TRANSMITTER
E.U.T. DESCRIPTION	Bluetooth Earbud
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2013
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 SUBPART C Section 15.247 KDB 558074 D01 15.247 Meas Guidance v05r02
Modifications on the Equipment to Achieve Compliance	None
Final Test was Conducted On	3 m, Semi Anechoic Chamber

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

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2. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
15.247 (a) (1)	Carrier Frequency Separation	Met the Limit / PASS
15.247 (a) (1) (iii)	Minimum Number of Hopping Channels	Met the Limit / PASS
15.247 (a) (1) (iii)	Average Time of Occupancy	Met the Limit / PASS
15.247 (b) (1)	Maximum Peak Conducted Output Power	Met the Limit / PASS
15.247 (d)	100 kHz Bandwidth Outside the Frequency Band	Met the Limit / PASS
15.247 (d)	Radiated Emission which fall in the Restricted Band	Met the Limit / PASS
15.209	Radiated Emission Limits, General Requirement	Met the Limit / PASS
15.207	Conducted Limits	N/A (See Note)
15.203	Antenna Requirement	Met requirement / PASS

Note: This test is not performed because the EUT is wireless function does not work while charging mode.

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC PART 15 SUBPART C Section 15.247.

2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

2.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea.

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-4112/ C-14617/ G-10666/ T-11842

ISED (Innovation, Science and Economic Development Canada) – Registration No. Site# 3736A-3

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

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3. GENERAL INFORMATION

3.1 Product Description

The LG Electronics USA, Inc., Model TONE-FN7 (referred to as the EUT in this report) is a Bluetooth Earbud. The product specification described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	Bluetooth Earbud		
Temperature Range	0 °C ~ 40 °C		
OPERATING FREQUENCY	Bluetooth LE	2 402 MHz ~ 2 480 MHz	
	Bluetooth	2 402 MHz ~ 2 480 MHz	
MODULATION TYPE	Bluetooth LE	1 Mbps	GFSK
		2 Mbps	GFSK
	Bluetooth	1 Mbps	GFSK
		2 Mbps	π/4-DQPSK
		3 Mbps	8-DPSK
RF OUTPUT POWER	Bluetooth LE	1 Mbps	6.33 dBm(Bluetooth Earbud LEFT)
			6.02 dBm(Bluetooth Earbud RIGHT)
		2 Mbps	6.28 dBm(Bluetooth Earbud LEFT)
			6.01 dBm(Bluetooth Earbud RIGHT)
	Bluetooth	1 Mbps	5.98 dBm(Bluetooth Earbud LEFT)
			5.87 dBm(Bluetooth Earbud RIGHT)
		2 Mbps	5.09 dBm(Bluetooth Earbud LEFT)
			5.20 dBm(Bluetooth Earbud RIGHT)
		3 Mbps	5.34 dBm(Bluetooth Earbud LEFT)
			5.47 dBm(Bluetooth Earbud RIGHT)
ANTENNA TYPE	FPCB Antenna		
ANTENNA GAIN	Bluetooth Earbud LEFT		1.31 dBi
	Bluetooth Earbud RIGHT		1.43 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	26 MHz		

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3.2 Alternative type(s)/model(s); also covered by this test report.

-. The following lists consist of the added model and their differences.

Model Name	Differences	Tested
TONE-FN7	Basic Model (UV-C LED: X)	☐
HBS-TFN7	The models are identical to basic model but the use function is different. (UV-C LED: O)	☐
HBS-FN7W	The models are identical to basic model but the use function is different. (UV-C LED: X)	☐
HBS-FN7	The models are identical to basic model but the use function is different. (UV-C LED: O)	☑

Note: 1. Applicant consigns only basic model to test. Therefore this test report just guarantees the units, which have been tested.

2. The Applicant/manufacturer is responsible for the compliance of all variants.

4. EUT MODIFICATIONS

-. None

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5. SYSTEM TEST CONFIGURATION

5.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

-. Earbud Cradle

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	LG Electronics Inc.	HBS-FN7 CRADLE MAIN V1.0	N/A
Battery	Spring power technology(ShenZhen)Co., Ltd	N/A	N/A

-. Bluetooth Earbud Left

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	LG Electronics Inc.	HBS-FN7 V1.0_DK06	N/A
Sub Board	N/A	V1.0_DK04	N/A
Touch Sensor	N/A	HBS_FN7 TOUCH V1.0A	N/A
Speaker	N/A	N/A	N/A
MIC	N/A	N/A	N/A
Battery	N/A	N/A	N/A
Antenna Board	N/A	HBS-FN6 Rev4.0A	N/A

-. Bluetooth Earbud Right

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	LG Electronics Inc.	HBS-FN7 V1.0DK06	N/A
Sub Board	N/A	V1.0BK04	N/A
Touch Sensor	N/A	HBS_FN7 TOUCH V1.0A	N/A
Speaker	N/A	N/A	N/A
MIC	N/A	N/A	N/A
Battery	N/A	N/A	N/A
Antenna Board	N/A	HBS-FN6 Rev4.0A	N/A

5.2 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

Model	Manufacturer	Description	Connected to
TONE-FN7	LG Electronics Inc.	Bluetooth Earbud (EUT)	-
HP ProtectSmart	HP	Notebook PC	Jig Board
PPP009C	LIE-ON TECHNOLOGY (CHANGZHOU)CO.,LTD.	AC Adaptor	Notebook PC
UMFT234XD	FTDI Chip	Jig Board	EUT

5.3 Mode of operation during the test

For the testing, software used to control the EUT for staying in continuous transmitting is programmed.

For final testing, the EUT was set at 2 402 MHz, 2 441 MHz, and 2 480 MHz to get a maximum emission levels from the EUT. The EUT was moved throughout the XY, XZ, and YZ planes and the worst case is "XZ" axis, but the worst data was recorded in this report.

-. Channel List (Bluetooth)

Channel	Frequency[MHz]	Channel	Frequency[MHz]	Channel	Frequency[MHz]
0	2 402.00	27	2 429.00	54	2 456.00
1	2 403.00	28	2 430.00	55	2 457.00
2	2 404.00	29	2 431.00	56	2 458.00
3	2 405.00	30	2 432.00	57	2 459.00
4	2 406.00	31	2 433.00	58	2 460.00
5	2 407.00	32	2 434.00	59	2 461.00
6	2 408.00	33	2 435.00	60	2 462.00
7	2 409.00	34	2 436.00	61	2 463.00
8	2 410.00	35	2 437.00	62	2 464.00
9	2 411.00	36	2 438.00	63	2 465.00
10	2 412.00	37	2 439.00	64	2 466.00
11	2 413.00	38	2 440.00	65	2 467.00
12	2 414.00	39	2 441.00	66	2 468.00
13	2 415.00	40	2 442.00	67	2 469.00
14	2 416.00	41	2 443.00	68	2 470.00
15	2 417.00	42	2 444.00	69	2 471.00
16	2 418.00	43	2 445.00	70	2 472.00
17	2 419.00	44	2 446.00	71	2 473.00
18	2 420.00	45	2 447.00	72	2 474.00
19	2 421.00	46	2 448.00	73	2 475.00
20	2 422.00	47	2 449.00	74	2 476.00
21	2 423.00	48	2 450.00	75	2 477.00
22	2 424.00	49	2 451.00	76	2 478.00
23	2 425.00	50	2 452.00	77	2 479.00
24	2 426.00	51	2 453.00	78	2 480.00
25	2 427.00	52	2 454.00		
26	2 428.00	53	2 455.00		

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-. Duty Cycle(Bluetooth Earbud LEFT)

Mode	Tx On Time [ms]	Tx Off Time [ms]	Duty Cycle [%]	Correction Factor [dB]
Bluetooth [1 Mbps]	2.88	0.88	76.60	1.16
Bluetooth [2 Mbps]	2.88	0.88	76.60	1.16
Bluetooth [3 Mbps]	2.88	0.86	77.01	1.13

Note – Duty Cycle : (Tx On Time / (Tx On Time + Tx Off Time)) * 100

Correction Factor : 10 * Log(1 / (Duty Cycle / 100))

-. Duty Cycle(Bluetooth Earbud RIGHT)

Mode	Tx On Time [ms]	Tx Off Time [ms]	Duty Cycle [%]	Correction Factor [dB]
Bluetooth [1 Mbps]	2.88	0.88	76.60	1.16
Bluetooth [2 Mbps]	2.88	0.88	76.60	1.16
Bluetooth [3 Mbps]	2.88	0.88	76.60	1.16

Note – Duty Cycle : (Tx On Time / (Tx On Time + Tx Off Time)) * 100

Correction Factor : 10 * Log(1 / (Duty Cycle / 100))

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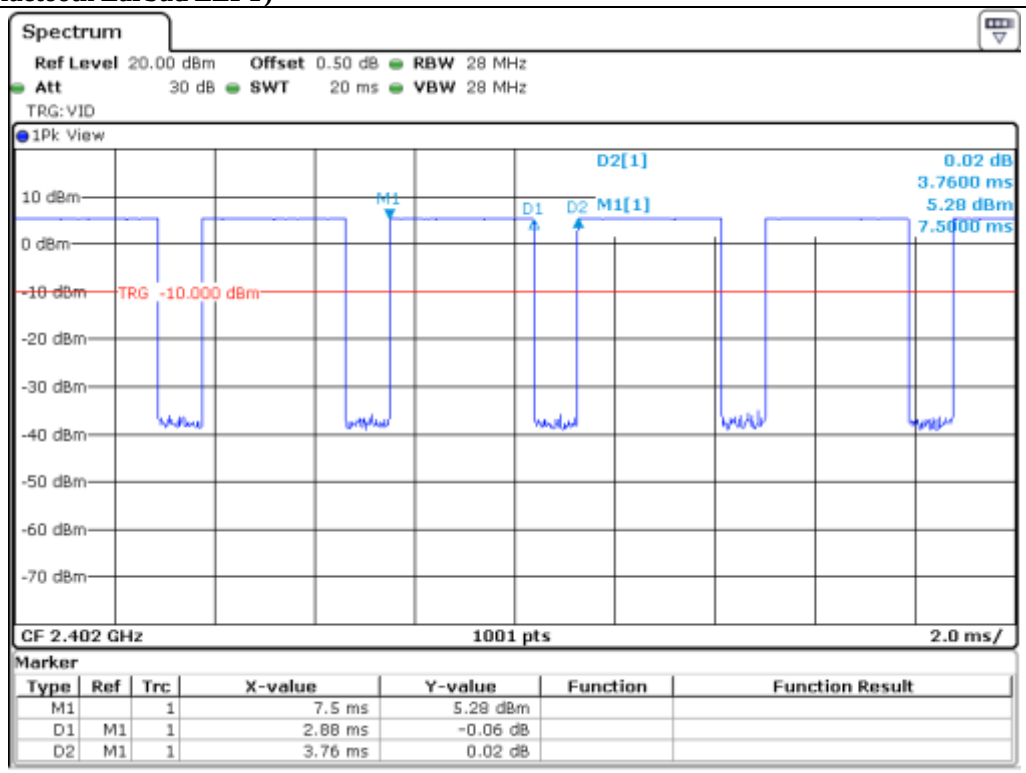
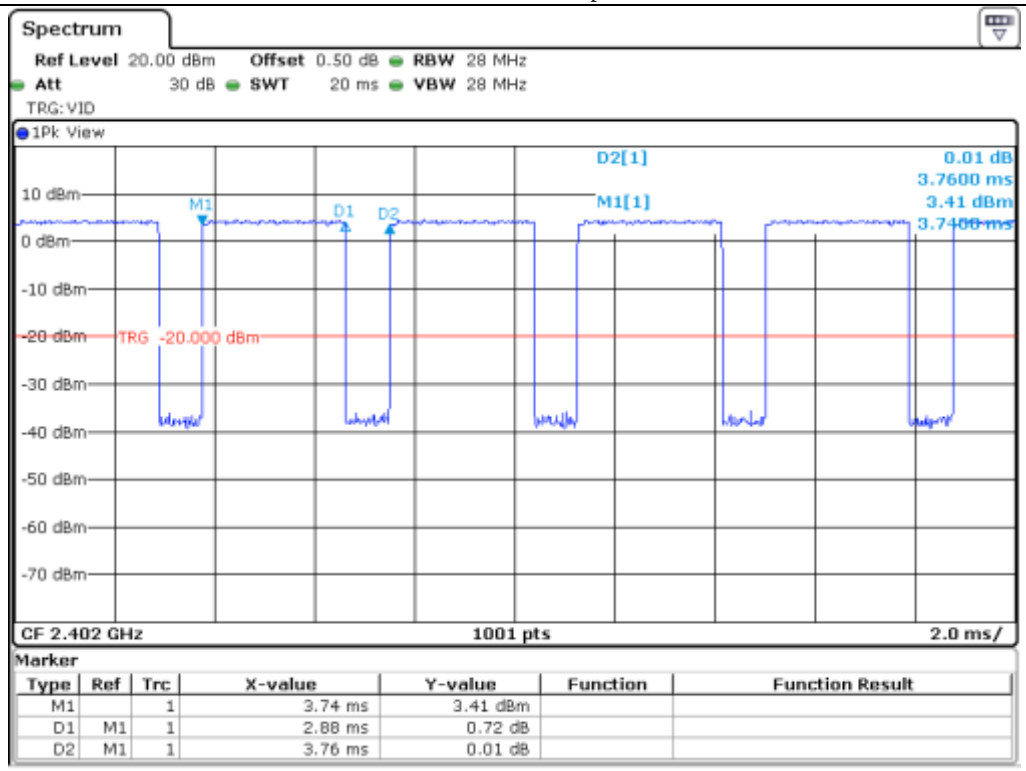
-. Test Plot(Bluetooth Earbud LEFT)



Bluetooth_1 Mbps



Bluetooth_2 Mbps

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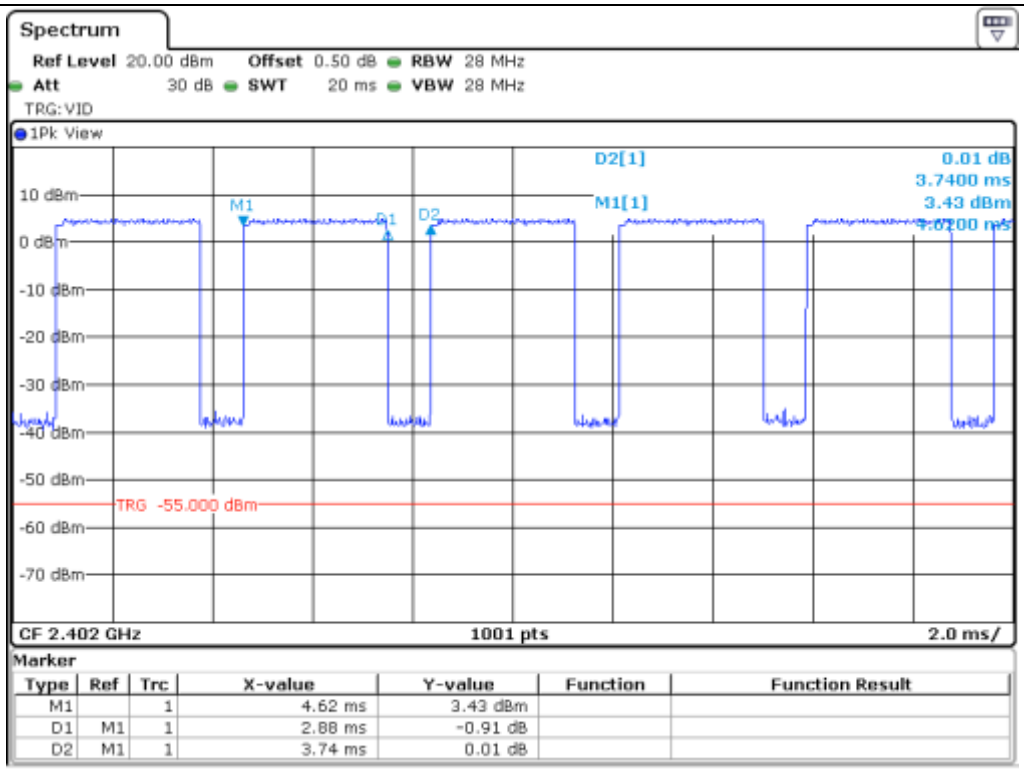

Bluetooth_3 Mbps

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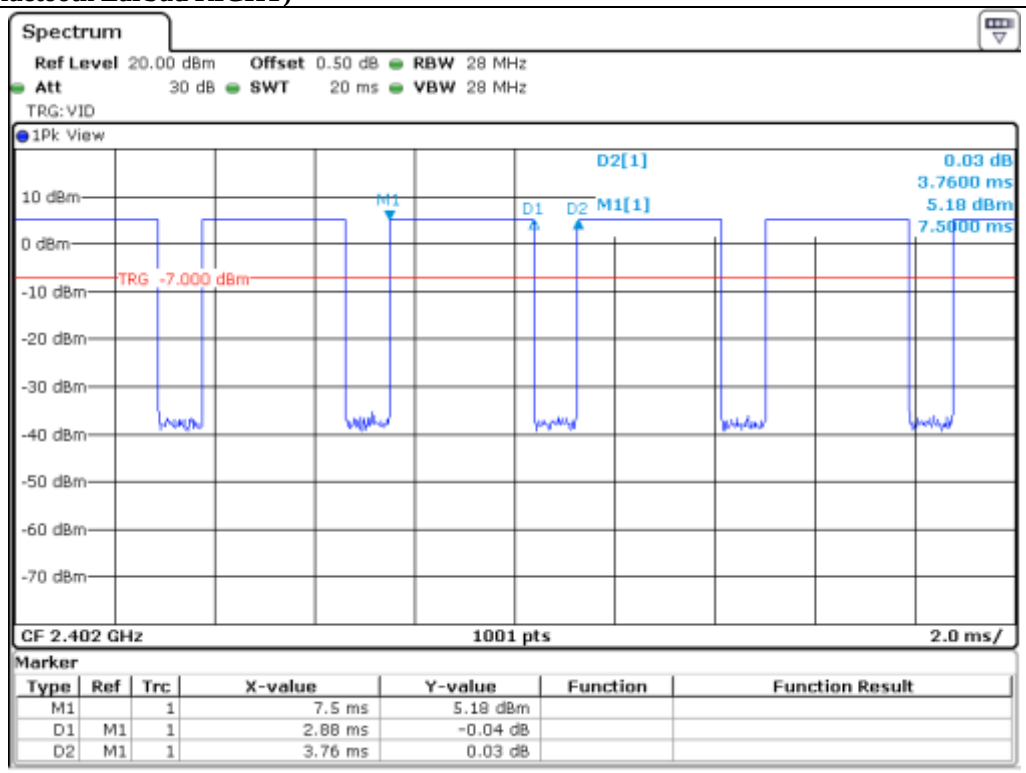
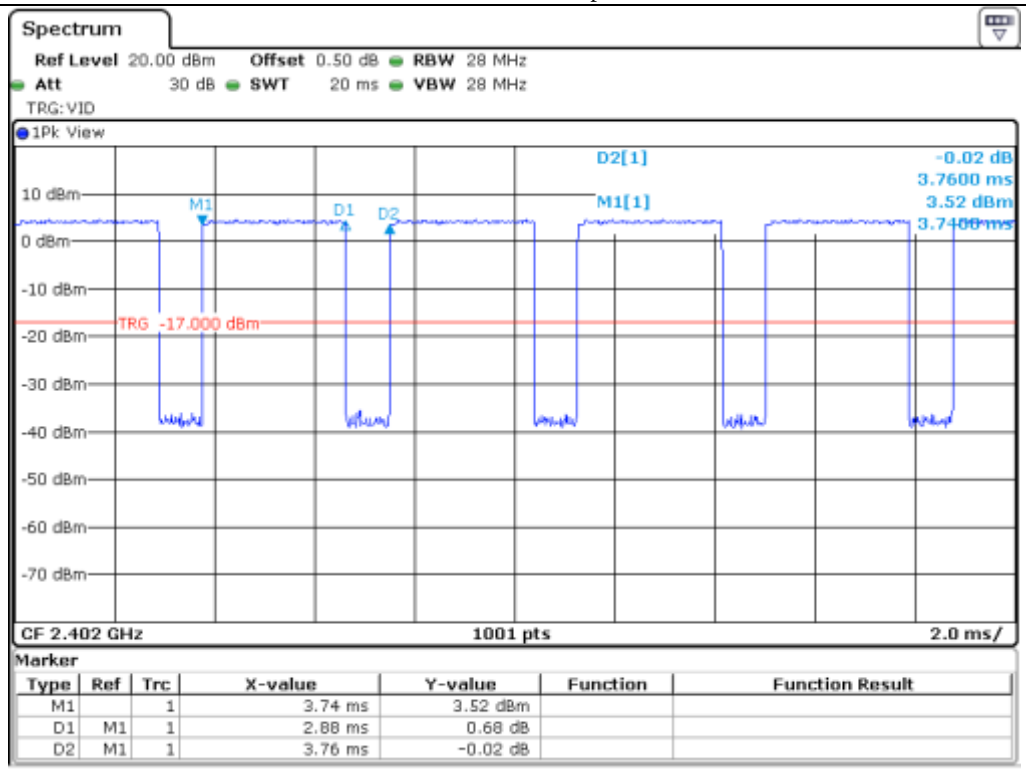
-. Test Plot(Bluetooth Earbud RIGHT)



Bluetooth_1 Mbps



Bluetooth_2 Mbps

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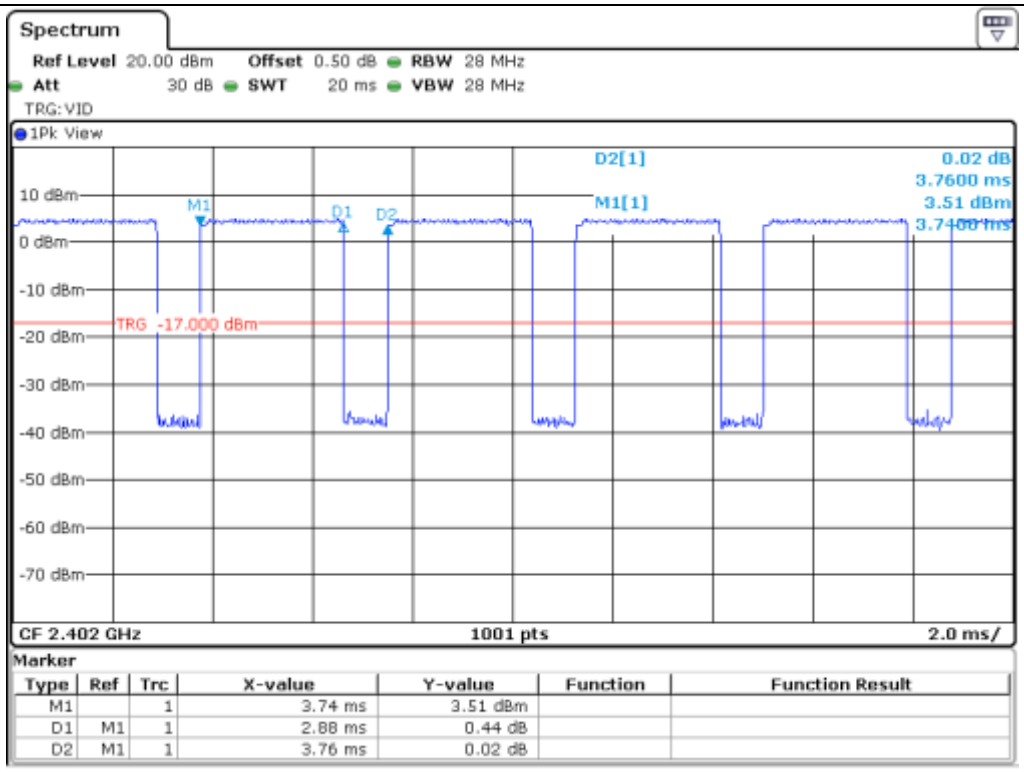

Bluetooth_3 Mbps

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5.4 Configuration of Test System

Line Conducted Test: This test is not performed because the EUT is wireless function does not work while charging mode.

Radiated Emission Test: Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 10 meter Semi Anechoic Chamber.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

5.5 Antenna Requirement

For intentional device, according to section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Construction:

The antenna of the EUT is a FPCB Antenna on the main board in the EUT, so no consideration of replacement by the user.

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6. PRELIMINARY TEST

6.1 AC Power line Conducted Emissions Tests

During Preliminary Test, the following operating mode was investigated.

Operation Mode	The Worse operating condition (Please check one only)
This test is not performed because the EUT is wireless function does not work while charging mode.	

6.2 General Radiated Emissions Tests

During Preliminary Test, the following operating mode was investigated.

Operation Mode	The Worse operating condition (Please check one only)
Transmitting Mode	X

7. MINIMUM 20 dB BANDWIDTH

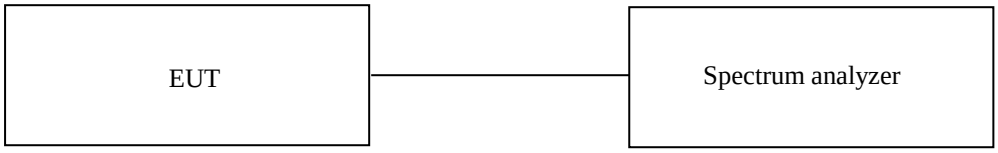
7.1 Operating environment

Temperature : 23 °C

Relative humidity : 45 % R.H.

7.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 10 kHz, and peak detection was used. The 20 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 20 dB.



7.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Feb. 21, 2020 (1Y)

All test equipment used is calibrated on a regular basis.

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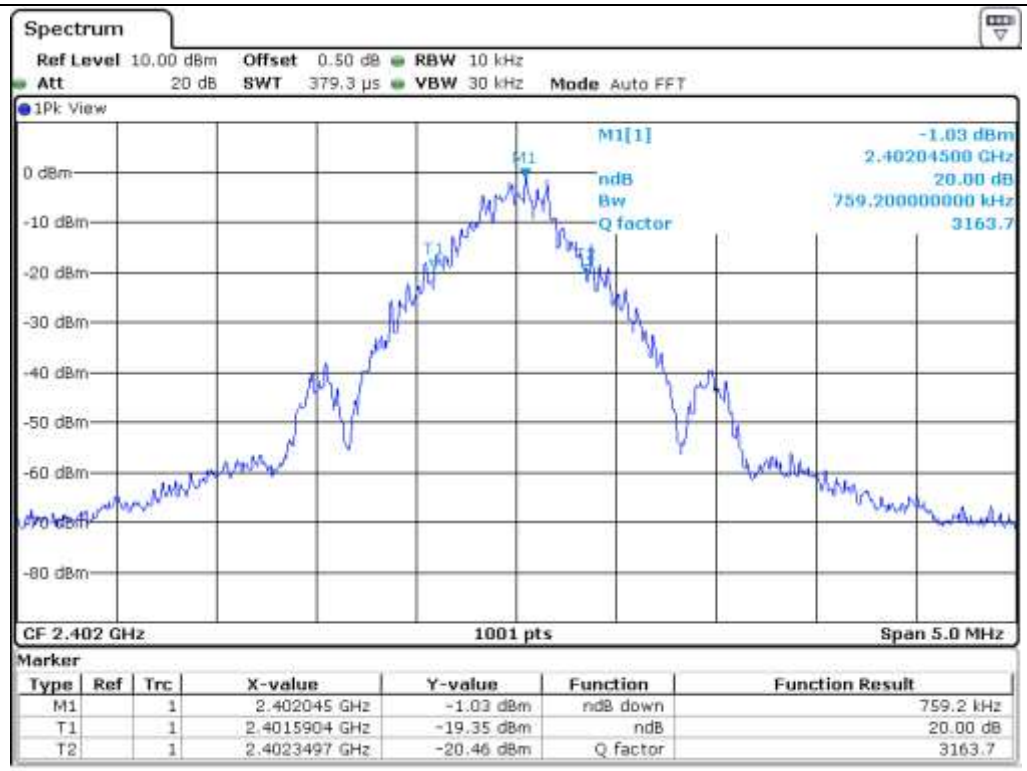
7.4 Test data for 1 Mbps

7.4.1 Test data for Bluetooth Earbud LEFT

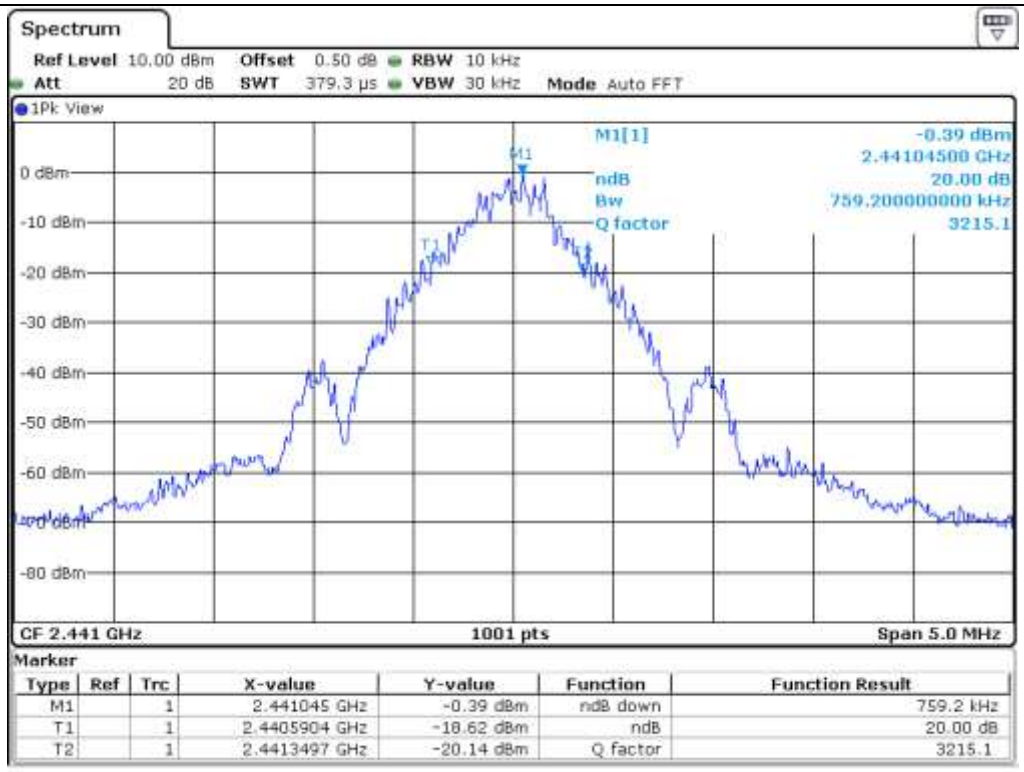
-. Test Date : July 13, 2020 ~ July 17, 2020

CHANNEL	FREQUENCY (MHz)	20 dB Bandwidth (kHz)
Low	2 402.00	759.20
Middle	2 441.00	759.20
High	2 480.00	769.20

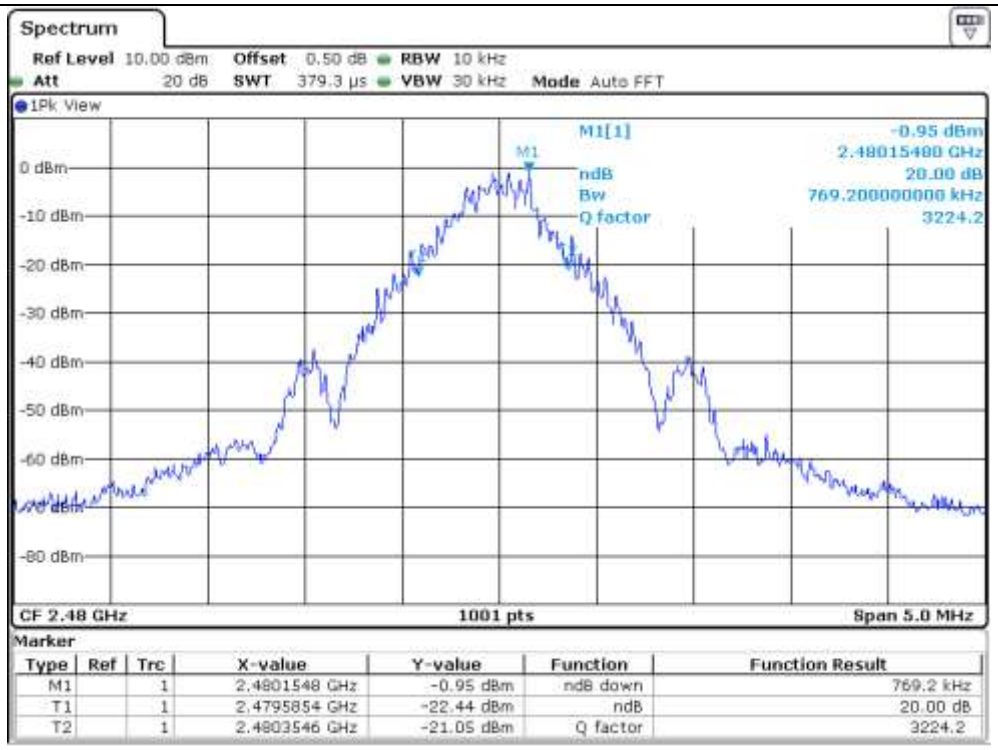
Tested by: Hyung-Kwon, Oh / Manager



Low Channel



Middle Channel



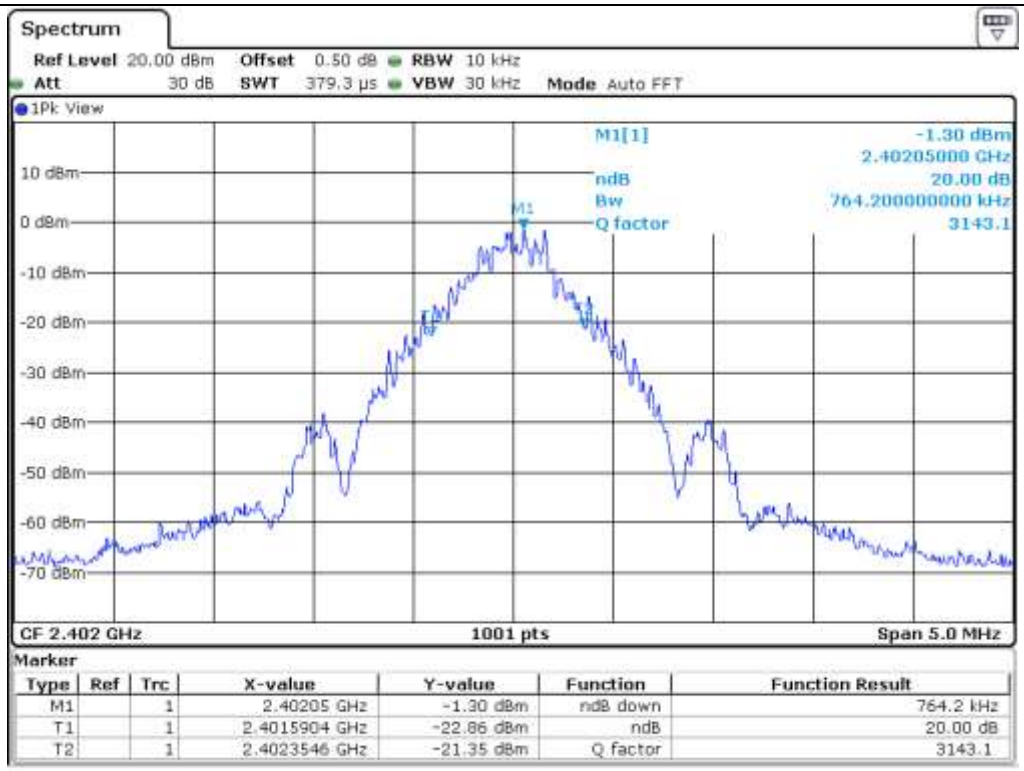
High Channel

7.4.2 Test data for Bluetooth Earbud RIGHT

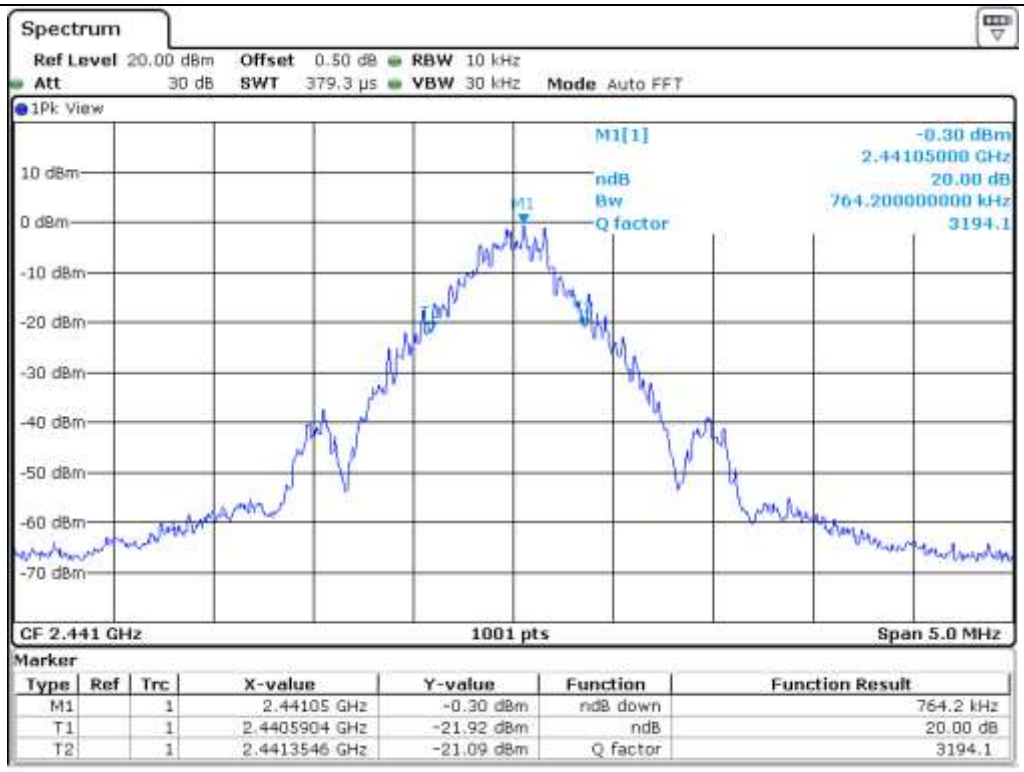
-. Test Date : July 13, 2020 ~ July 17, 2020

CHANNEL	FREQUENCY (MHz)	20 dB Bandwidth (kHz)
Low	2 402.00	764.20
Middle	2 441.00	764.20
High	2 480.00	759.20

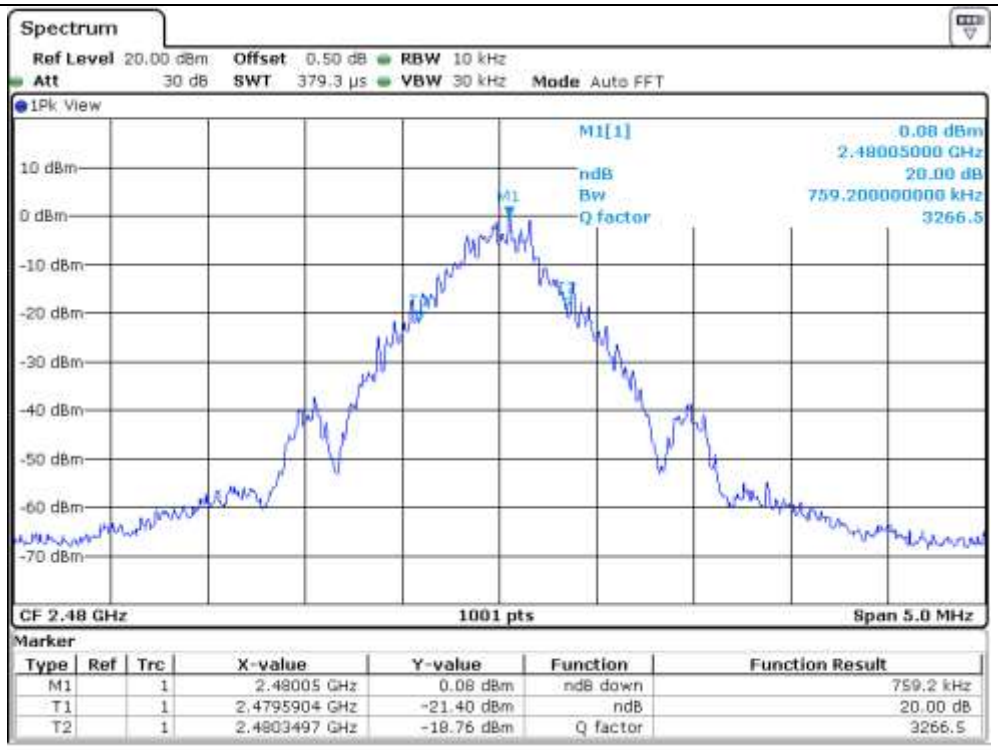
Tested by: Hyung-Kwon, Oh / Manager



Low Channel



Middle Channel



High Channel

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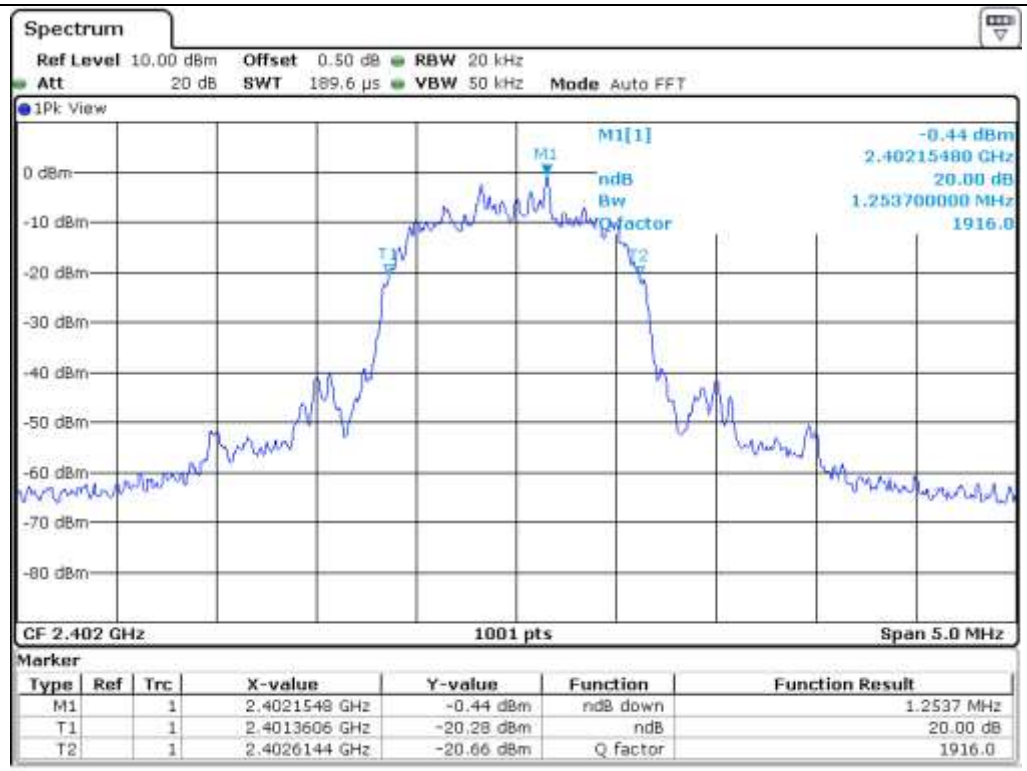
7.5 Test data for 2 Mbps

7.5.1 Test data for Bluetooth Earbud LEFT

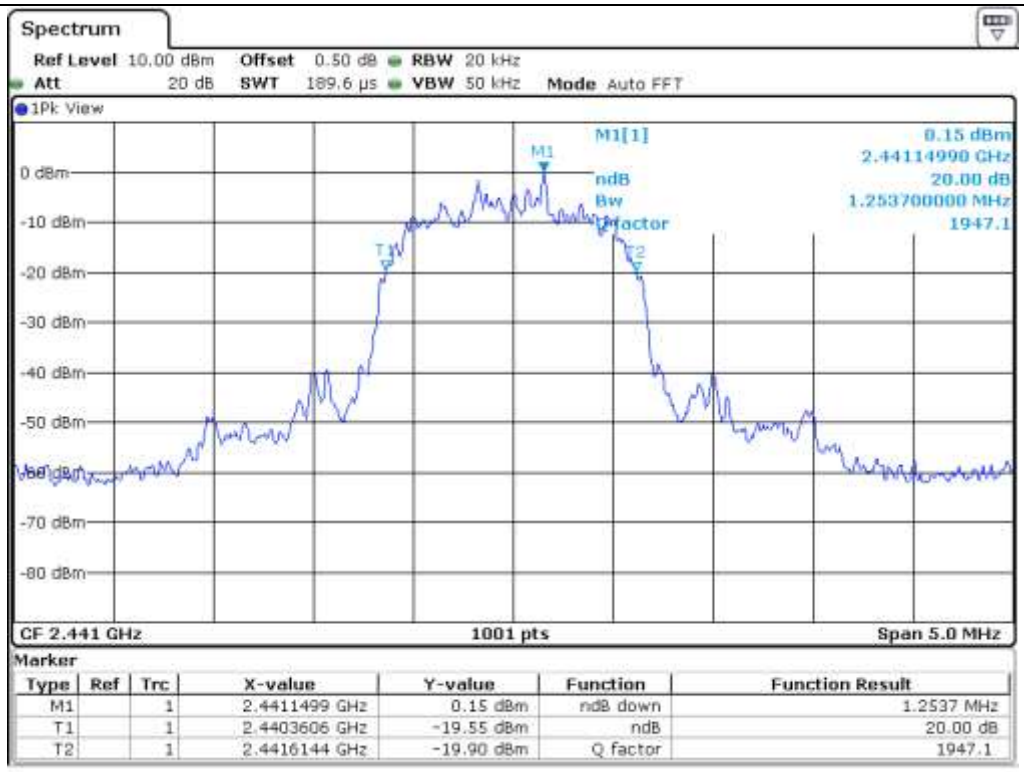
-. Test Date : July 13, 2020 ~ July 17, 2020

CHANNEL	FREQUENCY (MHz)	20 dB Bandwidth (kHz)
Low	2 402.00	1 253.70
Middle	2 441.00	1 253.70
High	2 480.00	1 253.70

Tested by: Hyung-Kwon, Oh / Manager



Low Channel



Middle Channel

High Channel

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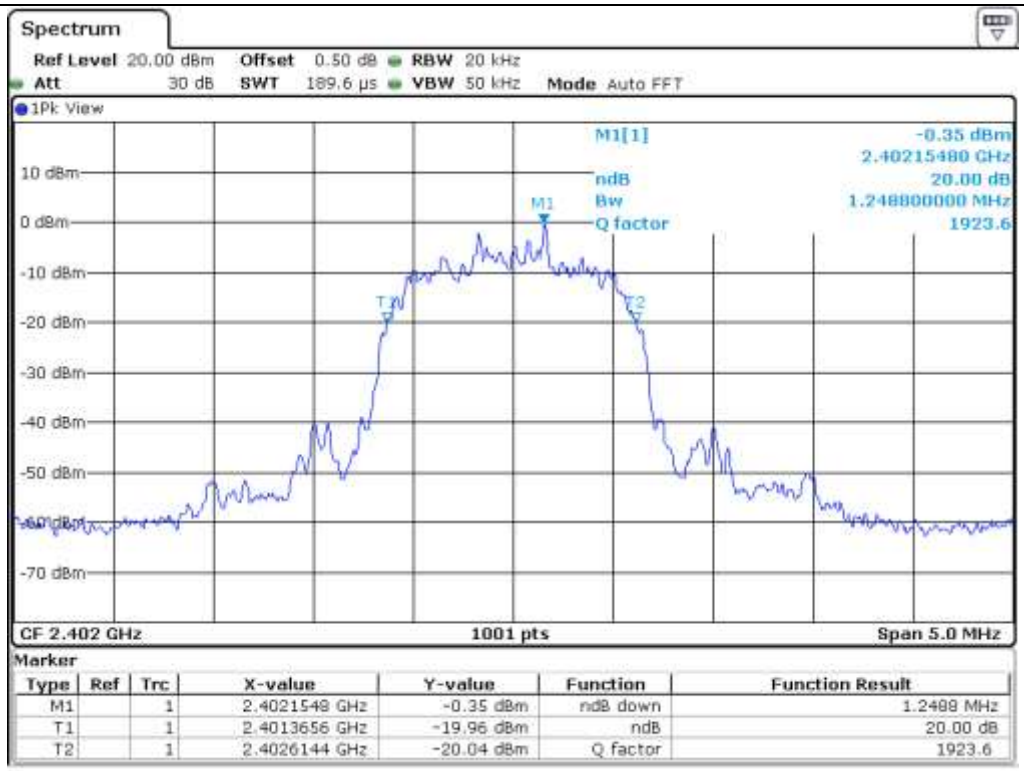
7.5.2 Test data for Bluetooth Earbud RIGHT

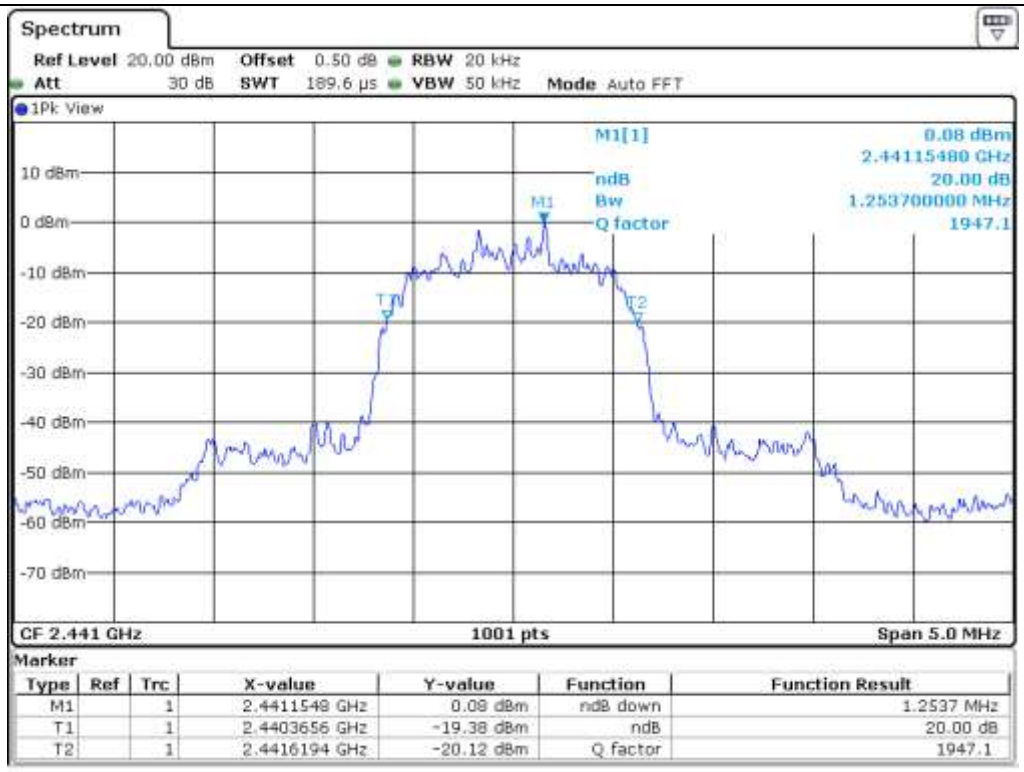
-. Test Date : July 13, 2020 ~ July 17, 2020

CHANNEL	FREQUENCY (MHz)	20 dB Bandwidth (kHz)
Low	2 402.00	1 248.80
Middle	2 441.00	1 253.70
High	2 480.00	1 248.80

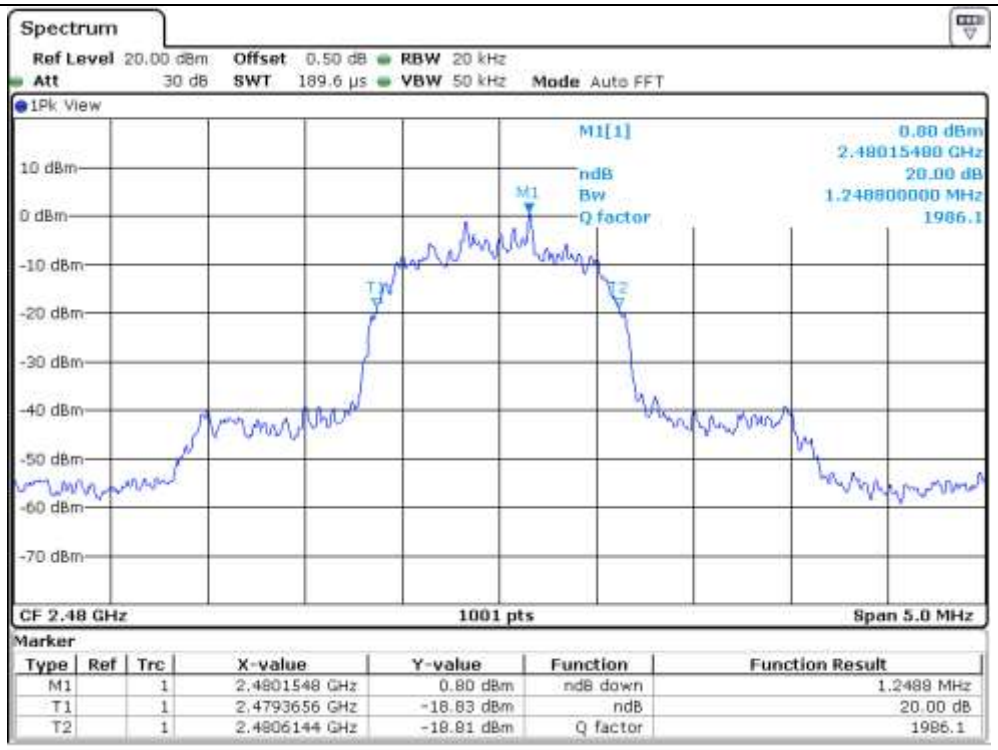
Tested by: Hyung-Kwon, Oh / Manager



Low Channel



Middle Channel



High Channel

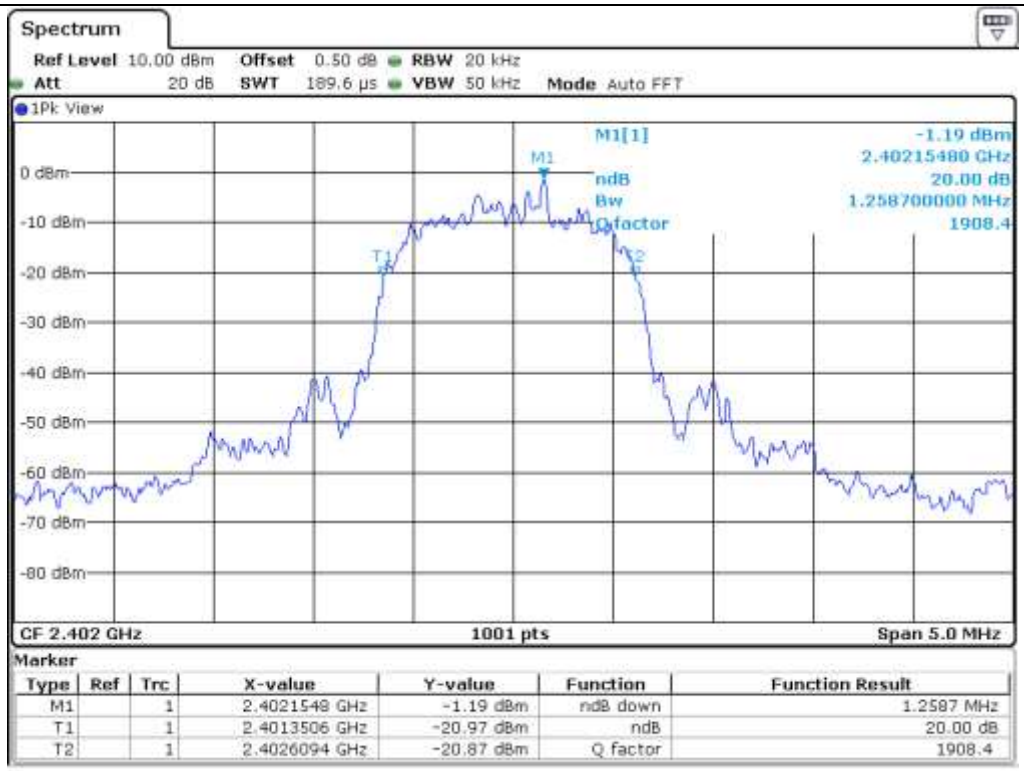
7.6 Test data for 3 Mbps

7.6.1 Test data for Bluetooth Earbud LEFT

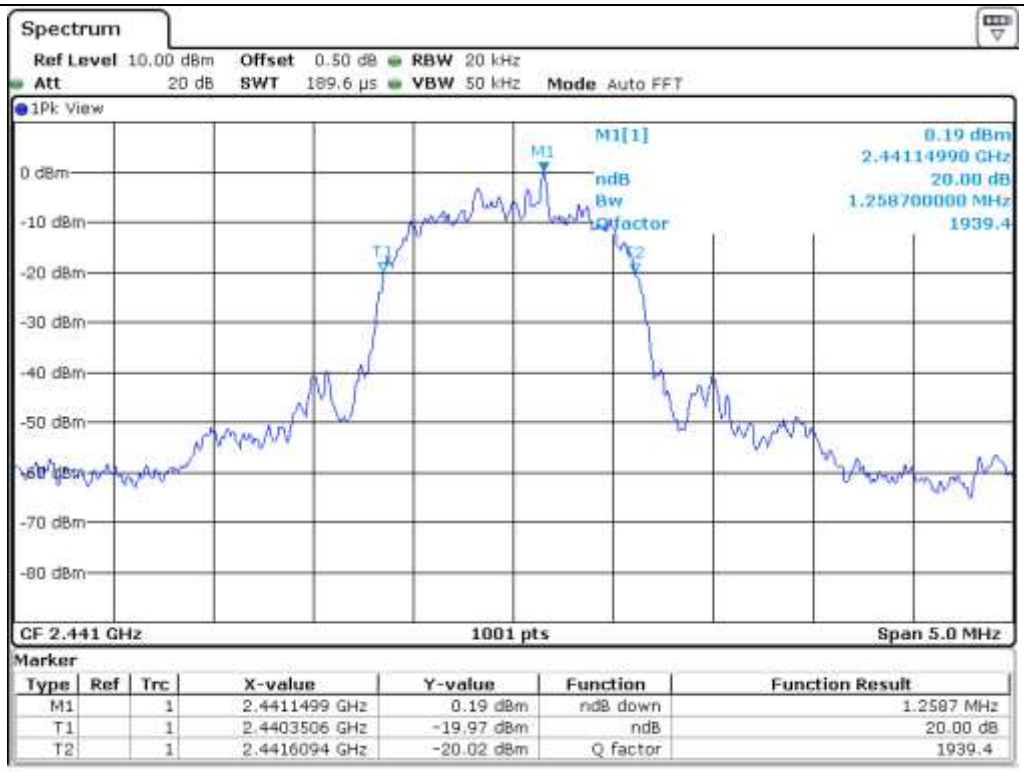
-. Test Date : July 13, 2020 ~ July 17, 2020

CHANNEL	FREQUENCY (MHz)	20 dB Bandwidth (kHz)
Low	2 402.00	1 258.70
Middle	2 441.00	1 258.70
High	2 480.00	1 253.70

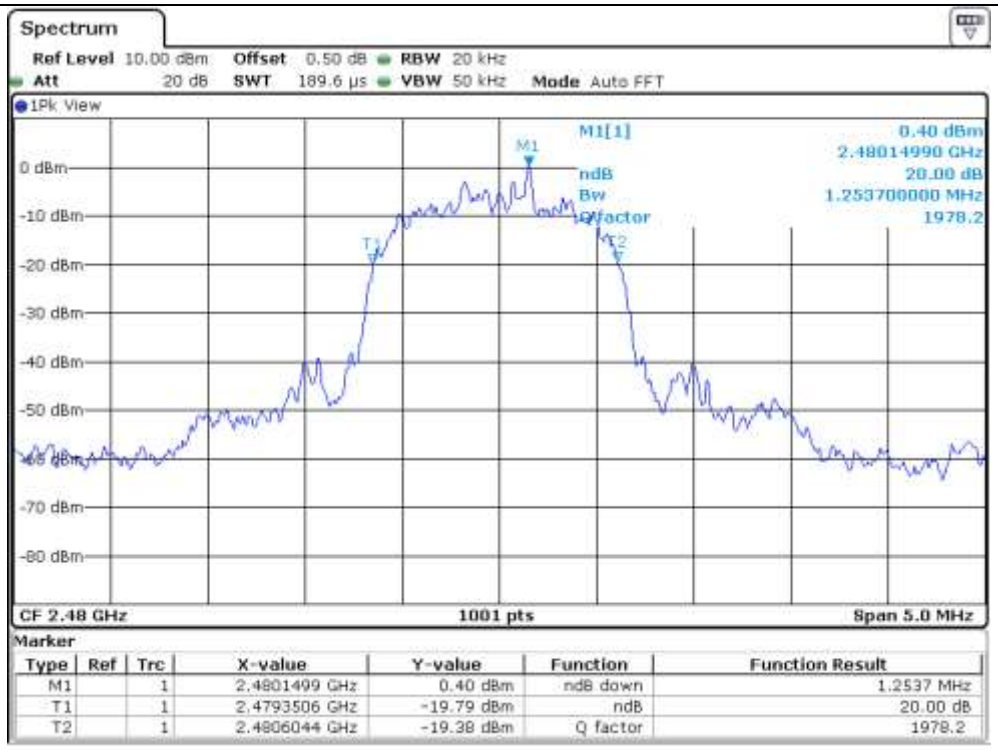
Tested by: Hyung-Kwon, Oh / Manager



Low Channel



Middle Channel



High Channel

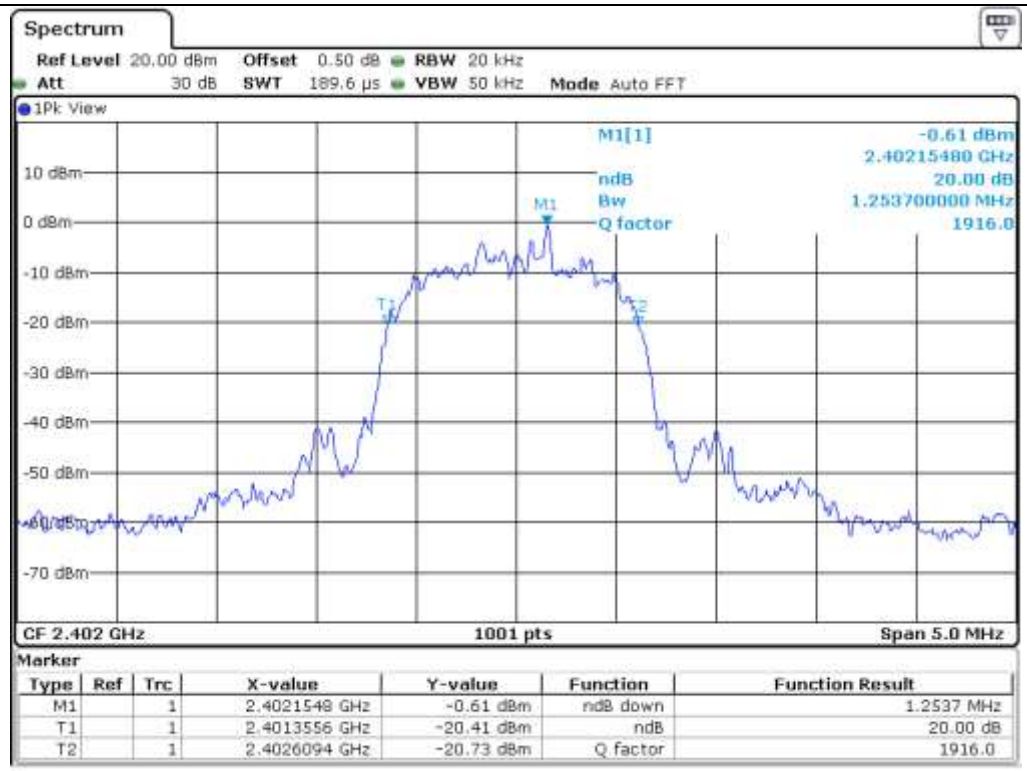
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

7.6.2 Test data for Bluetooth Earbud RIGHT

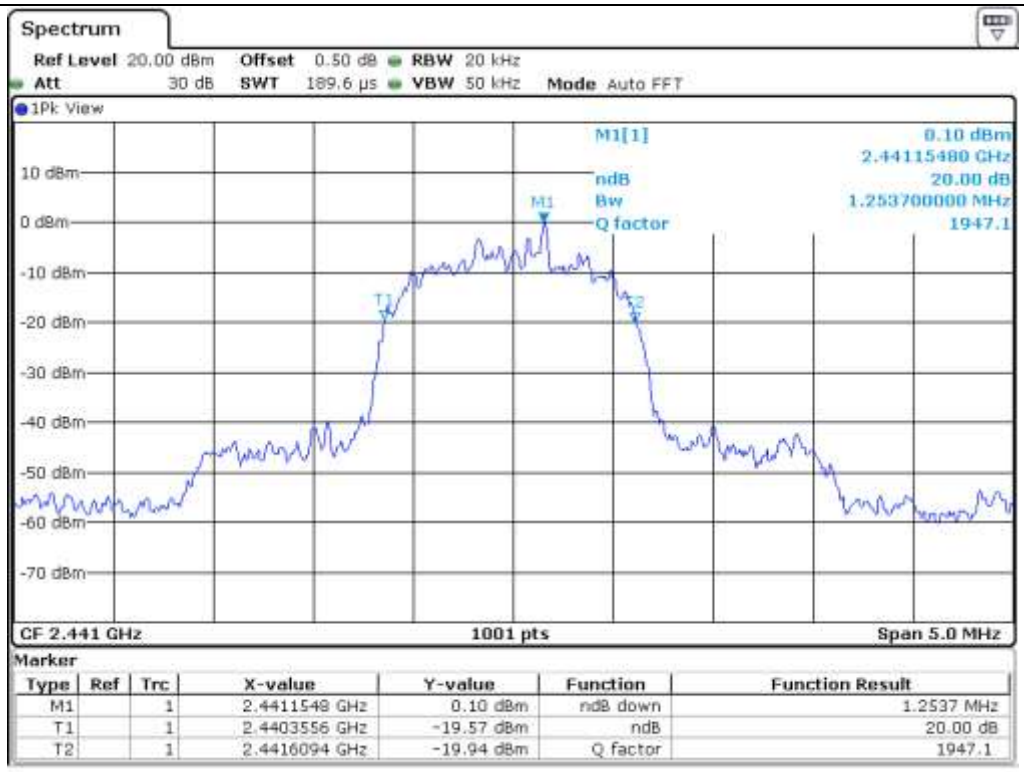
-. Test Date : July 13, 2020 ~ July 17, 2020

CHANNEL	FREQUENCY (MHz)	20 dB Bandwidth (kHz)
Low	2 402.00	1 253.70
Middle	2 441.00	1 253.70
High	2 480.00	1 258.70

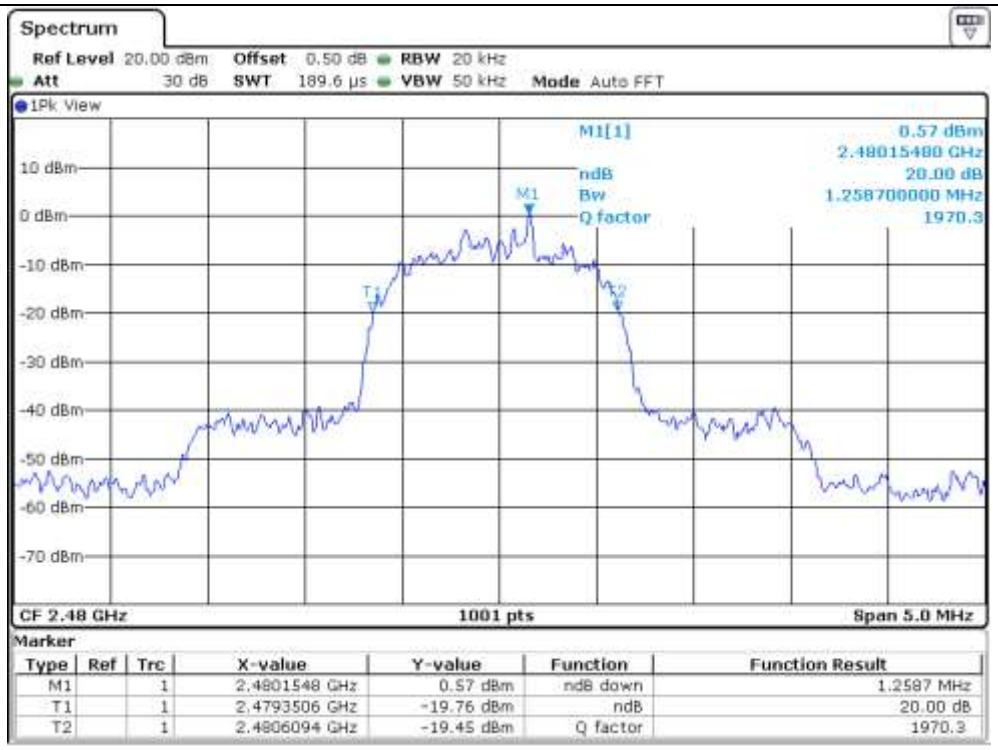
Tested by: Hyung-Kwon, Oh / Manager



Low Channel



Middle Channel



High Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

8. HOPPING FREQUENCY SEPARATION

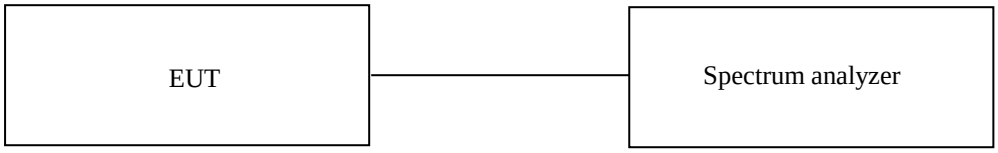
8.1 Operating environment

Temperature : 23 °C

Relative humidity : 45 % R.H.

8.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The frequency span is set to 5 MHz. The analyzer is set to peak hold then a pseudo-random hopping sequence of the transmitter is captured. The mark delta function was used to measure the frequency separation between two adjacent hopping channels.



8.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Feb. 21, 2020 (1Y)

All test equipment used is calibrated on a regular basis.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

8.4 Test data for 1 Mbps

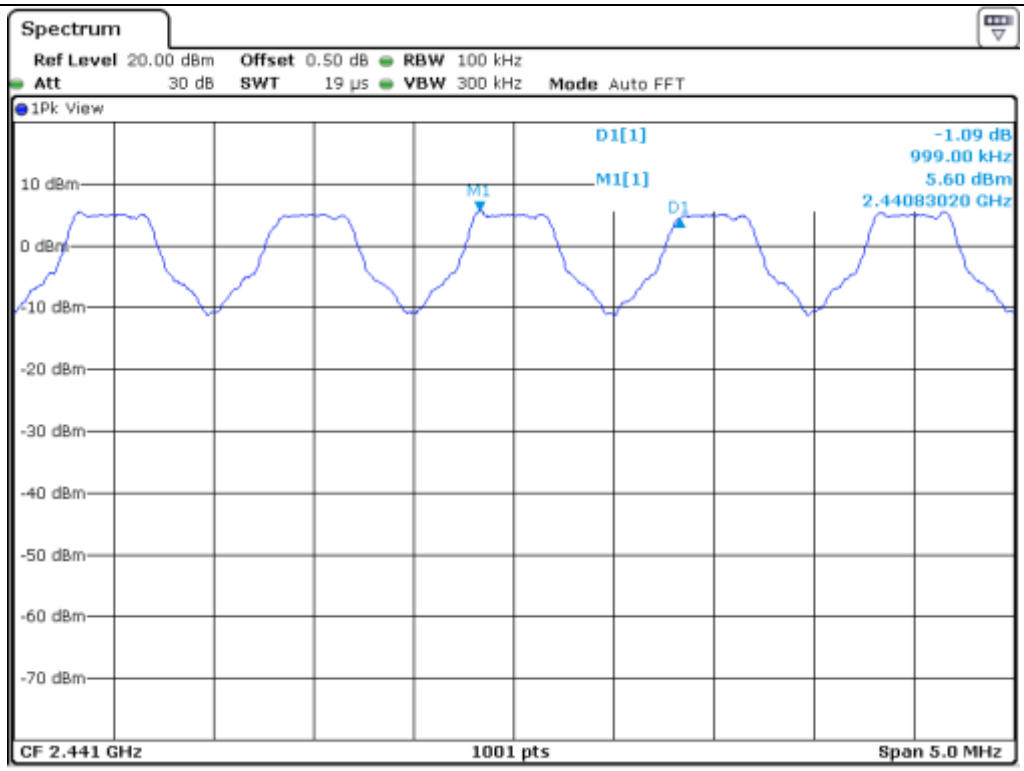
8.4.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

MEASURED VLAUE (kHz)	Two-third of 20 dB Bandwitdth (kHz)	LIMIT
999.00	506.13	Separated by a minimum of 506.13 kHz

Tested by: Hyung-Kwon, Oh / Manager



ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

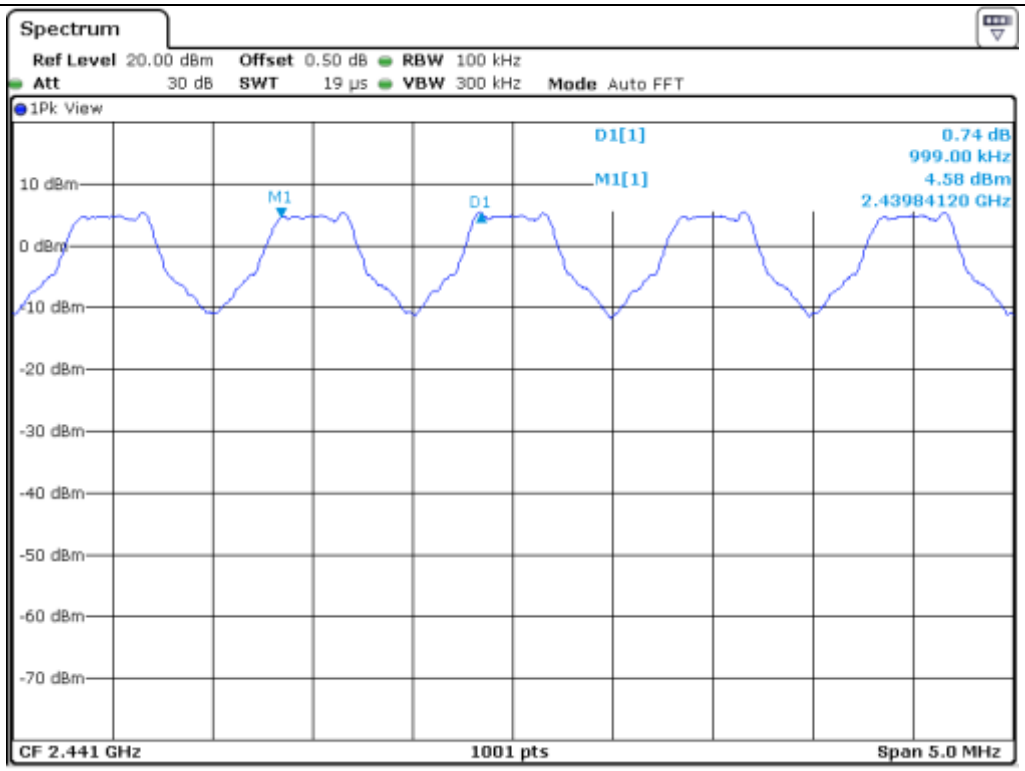
8.4.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

MEASURED VLAUE (kHz)	Two-third of 20 dB Bandwitdth (kHz)	LIMIT
999.00	509.47	Separated by a minimum of 509.47 kHz

Tested by: Hyung-Kwon, Oh / Manager



8.5 Test data for 2 Mbps

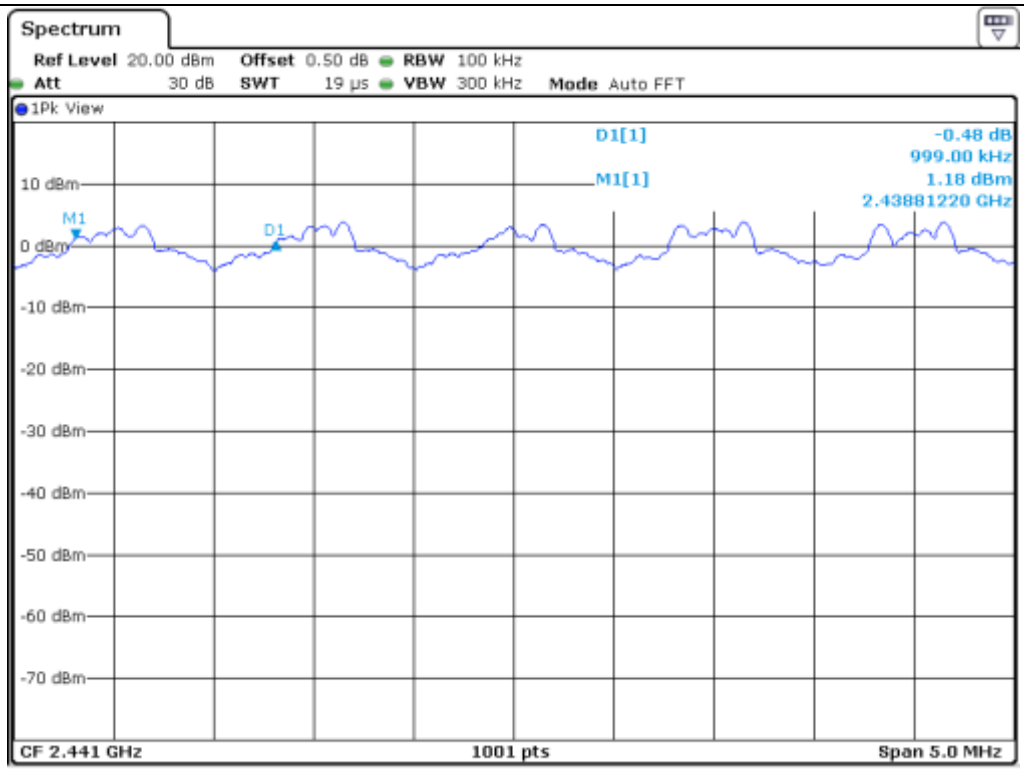
8.5.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

MEASURED VLAUE (kHz)	Two-third of 20 dB Bandwitdth (kHz)	LIMIT
999.00	835.80	Separated by a minimum of 835.80 kHz

Tested by: Hyung-Kwon, Oh / Manager



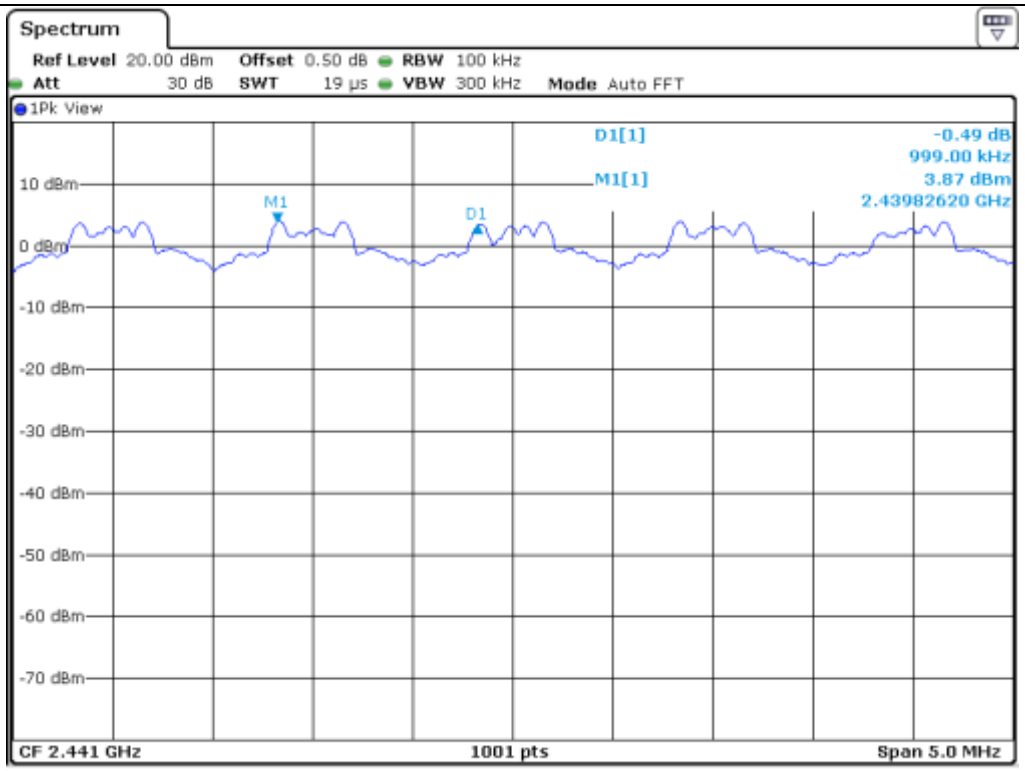
8.5.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

MEASURED VLAUE (kHz)	Two-third of 20 dB Bandwitdth (kHz)	LIMIT
999.00	835.80	Separated by a minimum of 835.80 kHz

Tested by: Hyung-Kwon, Oh / Manager



8.6 Test data for 3 Mbps

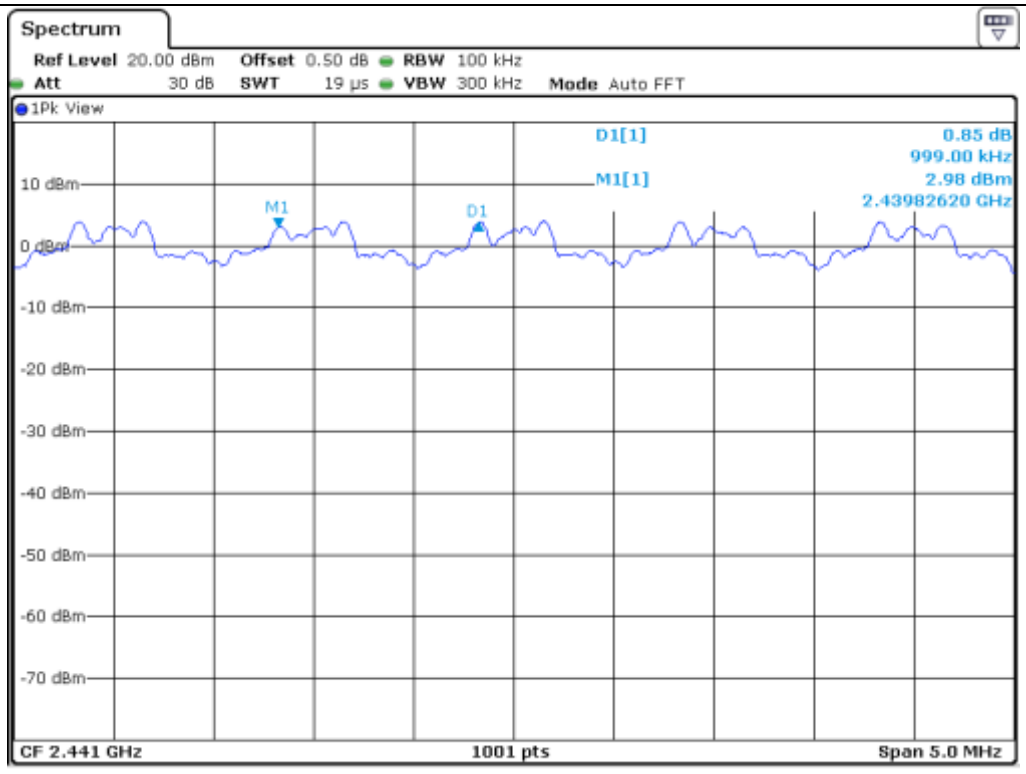
8.6.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

MEASURED VLAUE (kHz)	Two-third of 20 dB Bandwitdth (kHz)	LIMIT
999.00	839.13	Separated by a minimum of 839.13 kHz

Tested by: Hyung-Kwon, Oh / Manager



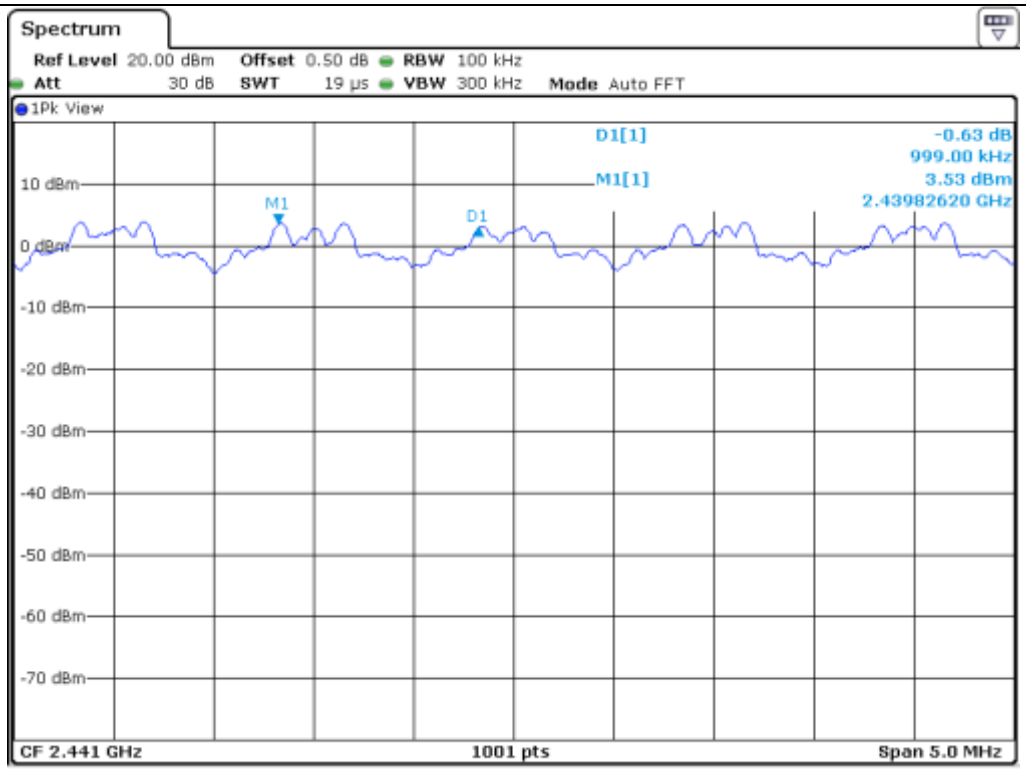
8.6.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

MEASURED VLAUE (kHz)	Two-third of 20 dB Bandwitdth (kHz)	LIMIT
999.00	839.13	Separated by a minimum of 839.13 kHz

Tested by: Hyung-Kwon, Oh / Manager



9. NUMBER OF HOPPING CHANNELS

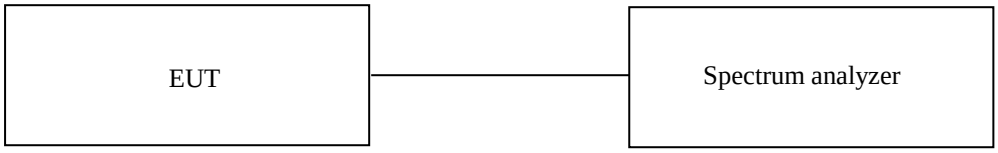
9.1 Operating environment

Temperature : 23 °C

Relative humidity : 45 % R.H.

9.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The frequency span is set to 100 MHz and the resolution bandwidth is set to 100 kHz. The analyzer is set to peak hold and then complete pseudo-random hopping sequence of the transmitter is captured.



9.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Feb. 21, 2020 (1Y)

All test equipment used is calibrated on a regular basis.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

9.4 Test data for 1 Mbps

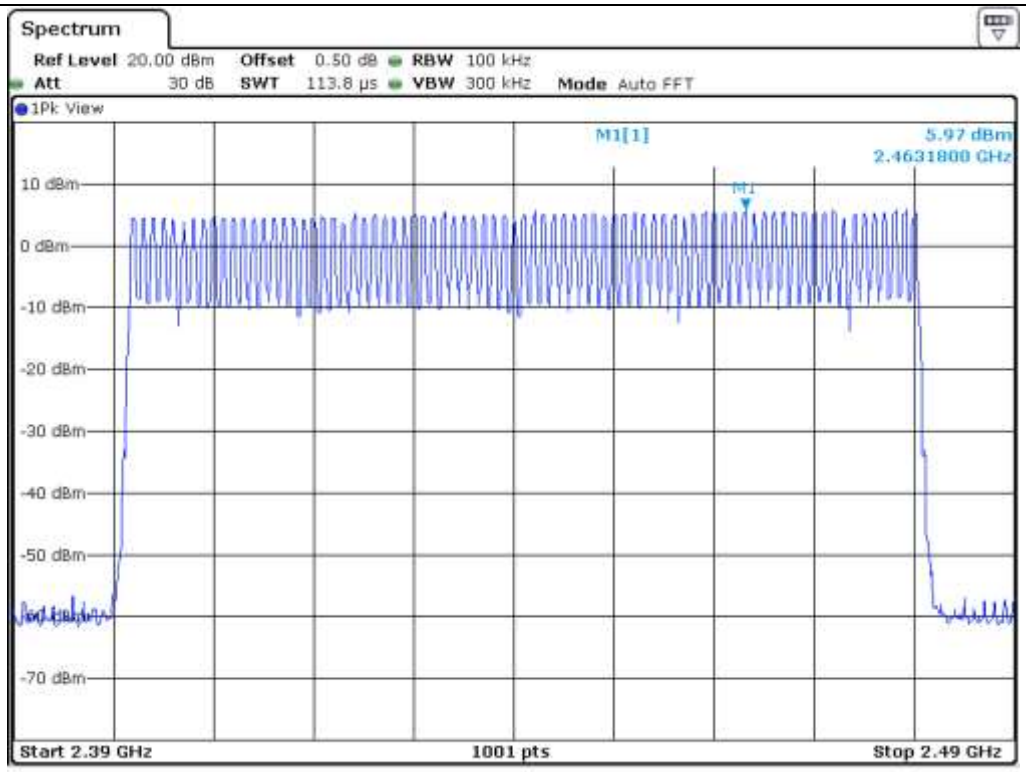
9.4.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

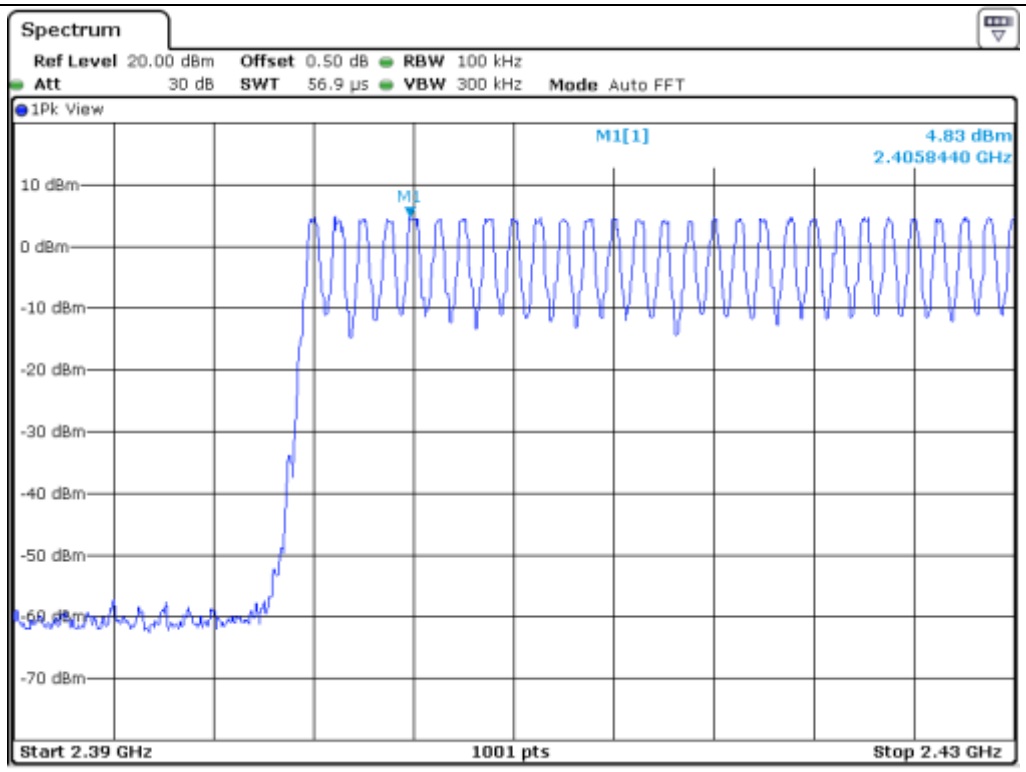
Data Transfer Rate	Measured value (Number)	Limit (Number)	Margin (Number)
1 Mbps	79	Minimum of 15	64

Tested by: Hyung-Kwon, Oh / Manager

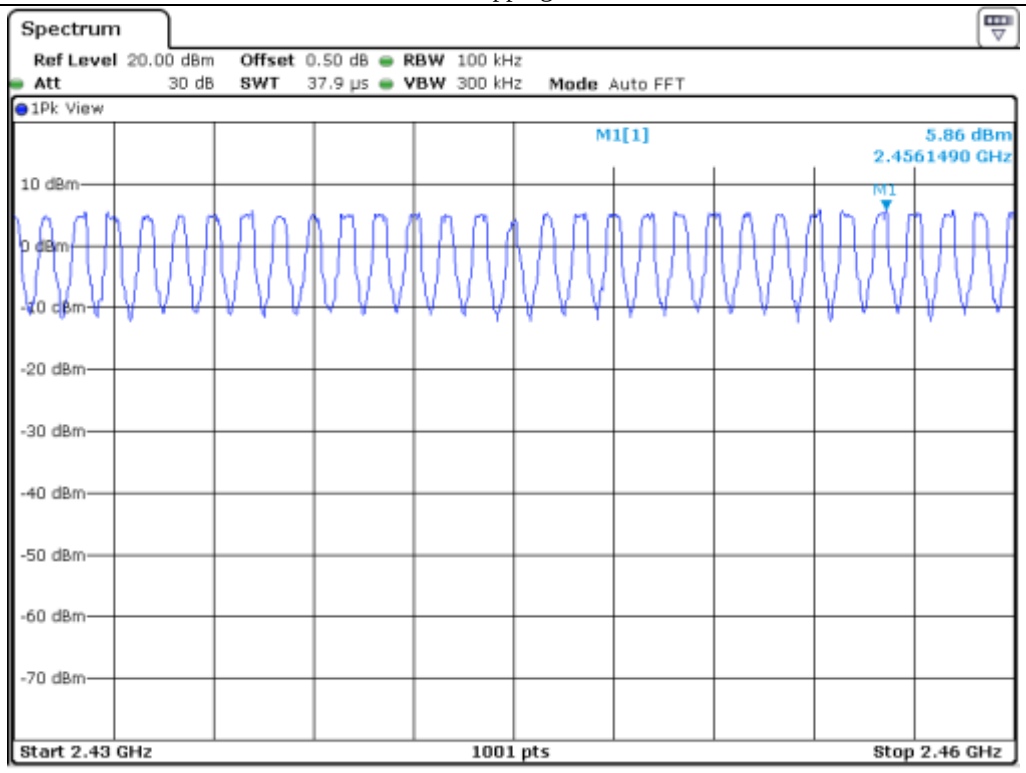


Total number of hopping channel: 28+30+21 = 79

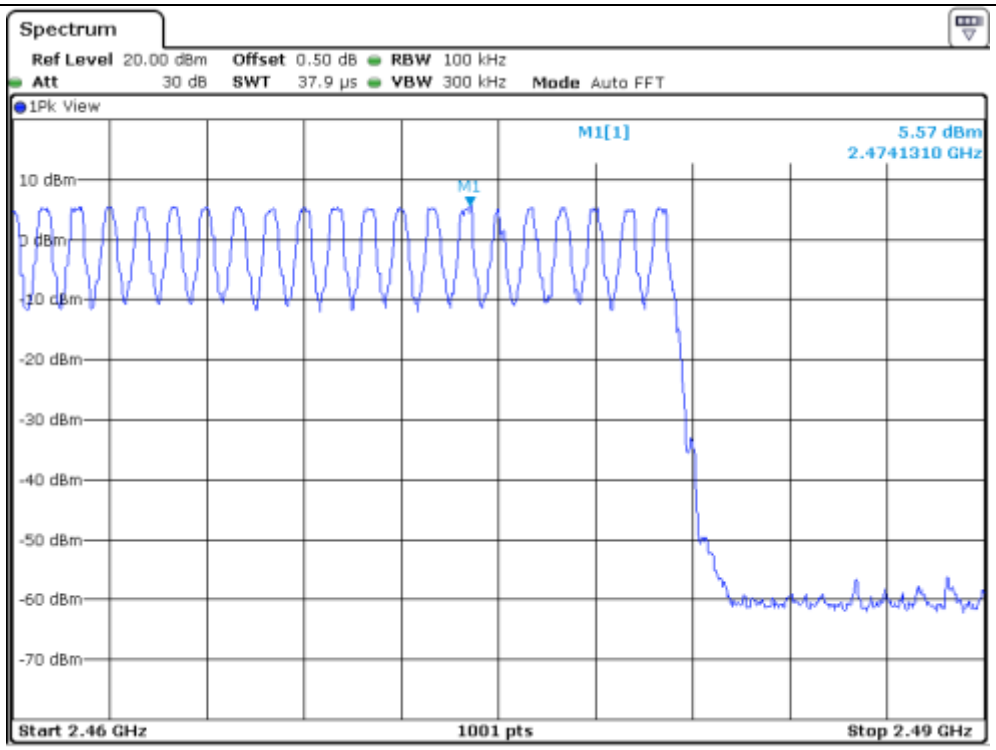
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Number of hopping channel: 28



Number of hopping channel: 30



Number of hopping channel: 21

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

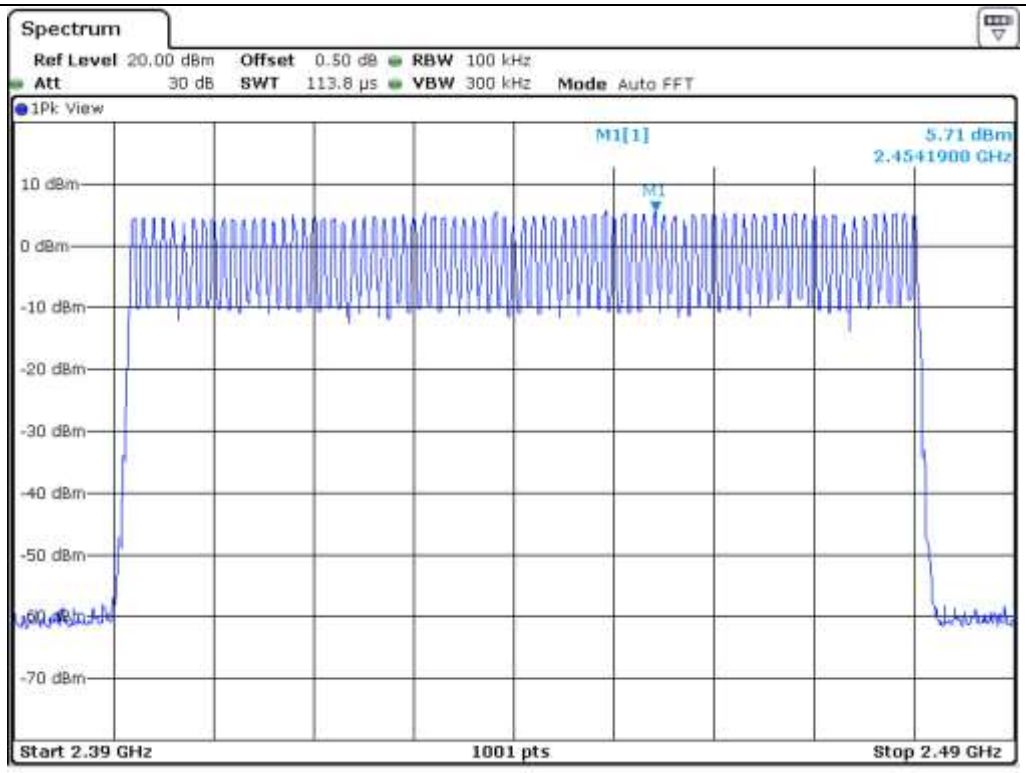
9.4.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

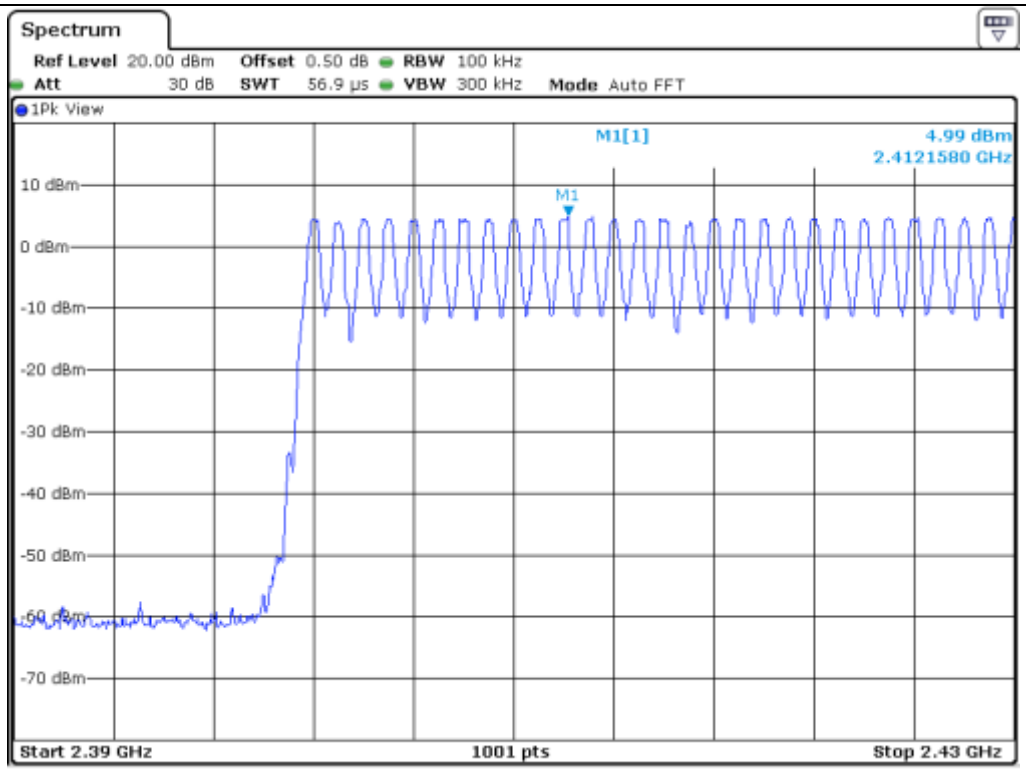
-. Test Result : Pass

Data Transfer Rate	Measured value (Number)	Limit (Number)	Margin (Number)
1 Mbps	79	Minimum of 15	64

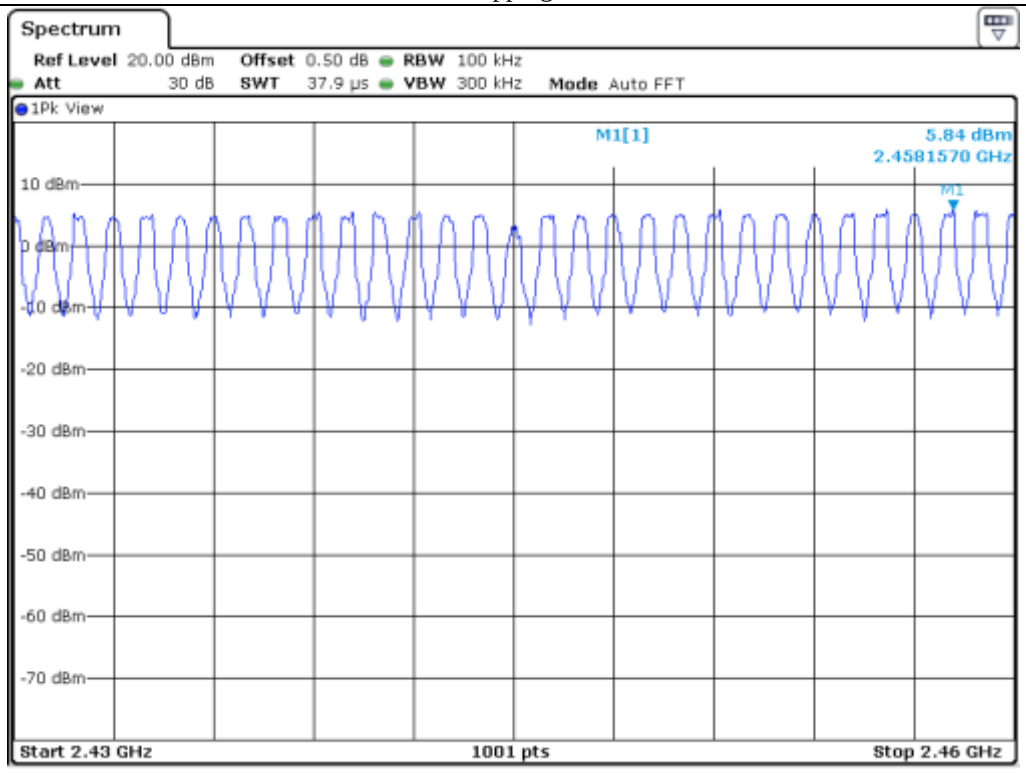
Tested by: Hyung-Kwon, Oh / Manager



Total number of hopping channel: 28+30+21 = 79

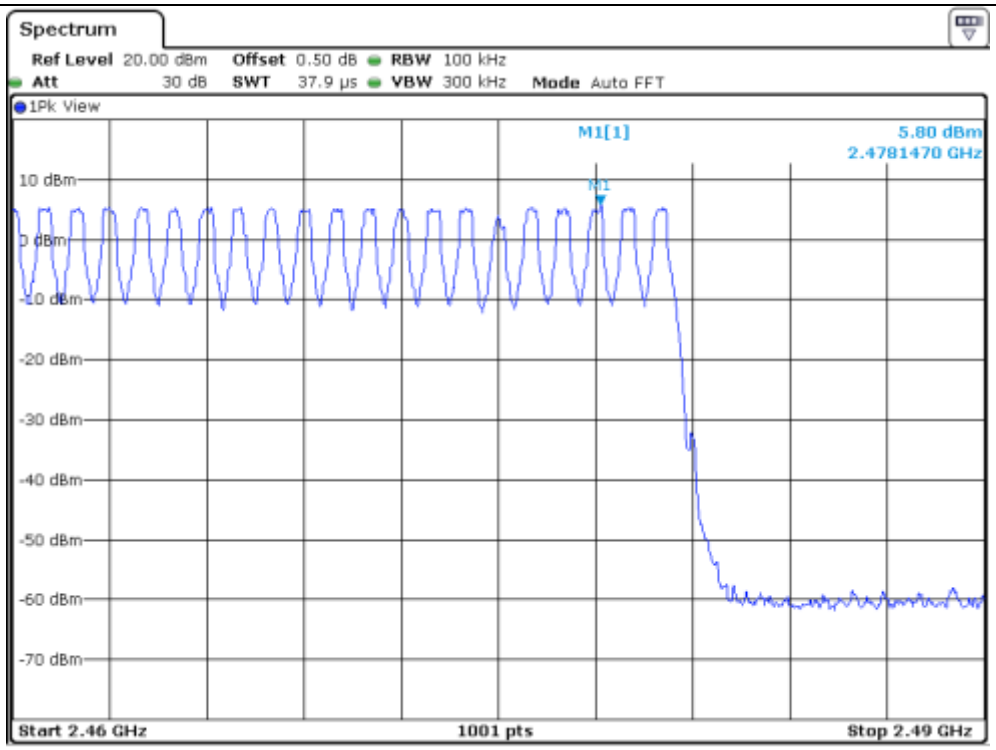


Number of hopping channel: 28



Number of hopping channel: 30

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Number of hopping channel: 21

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

9.5 Test data for 2 Mbps

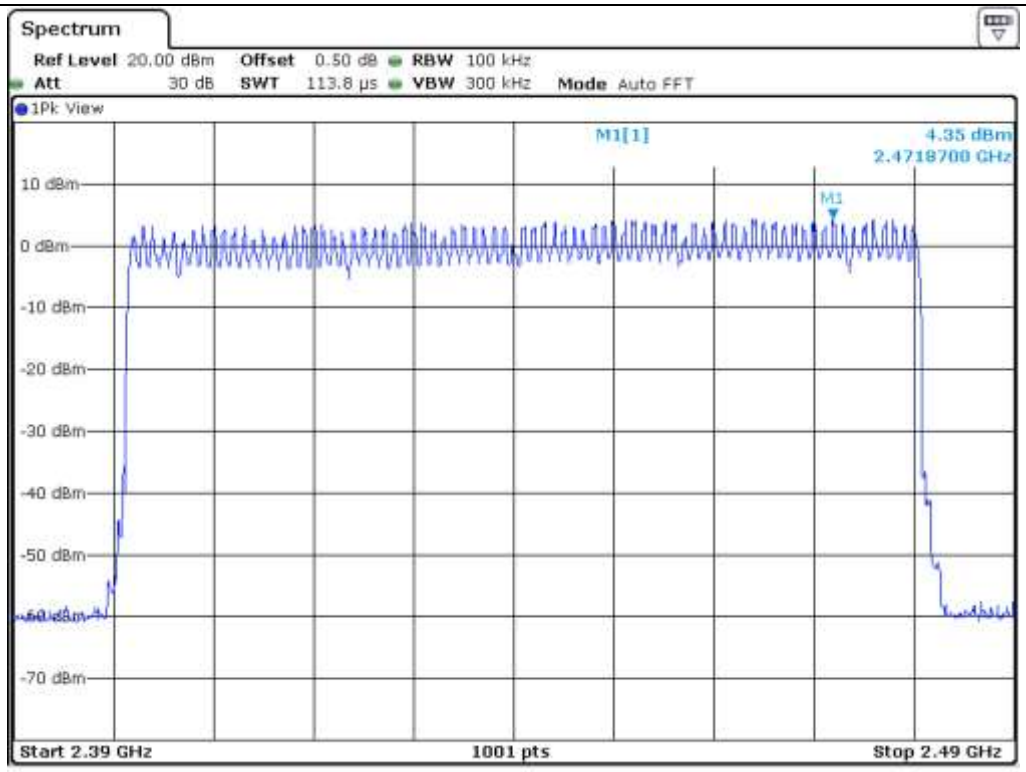
9.5.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

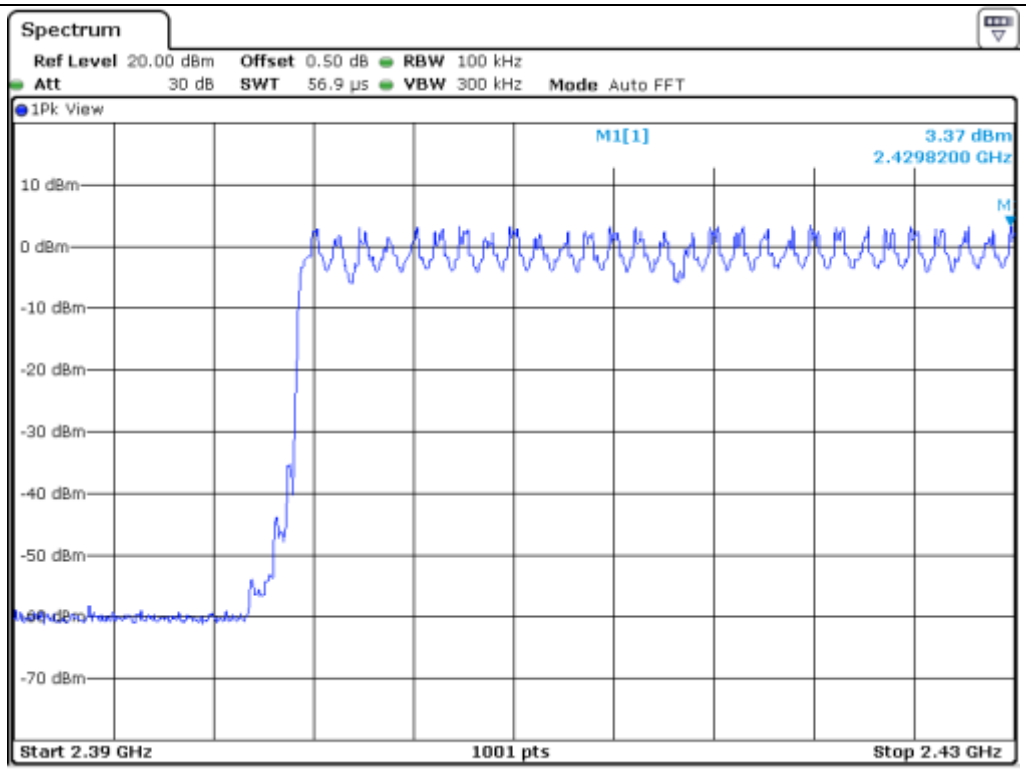
Data Transfer Rate	Measured value (Number)	Limit (Number)	Margin (Number)
2 Mbps	79	Minimum of 15	64

Tested by: Hyung-Kwon, Oh / Manager

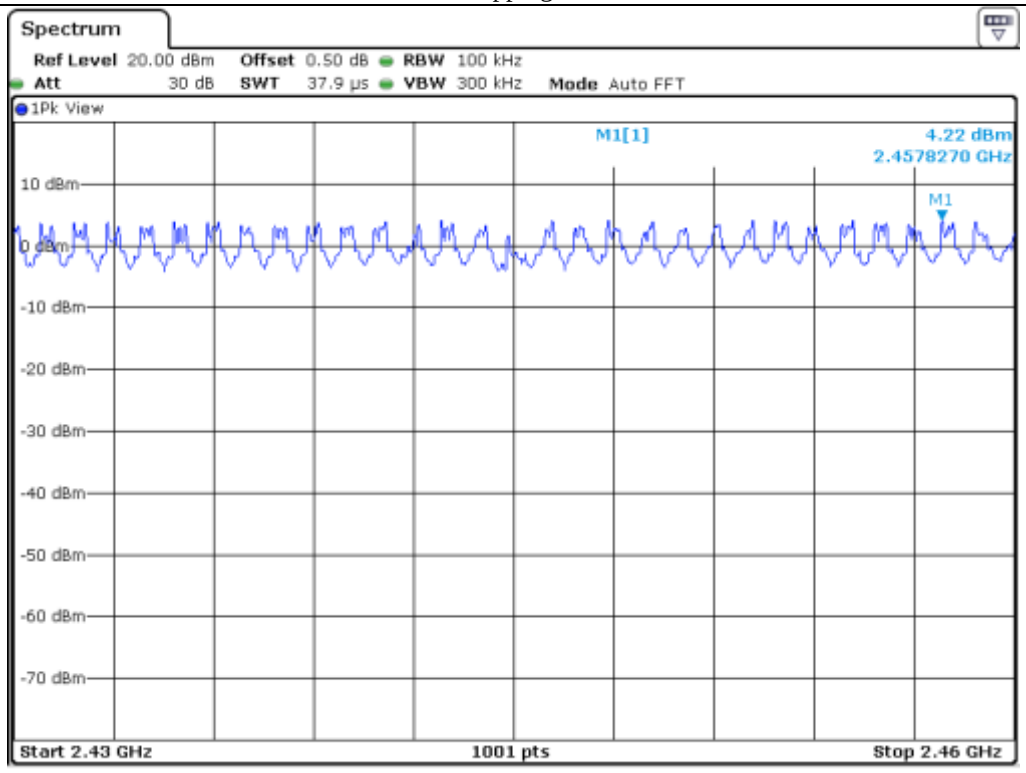


Total number of hopping channel: 28+30+21 = 79

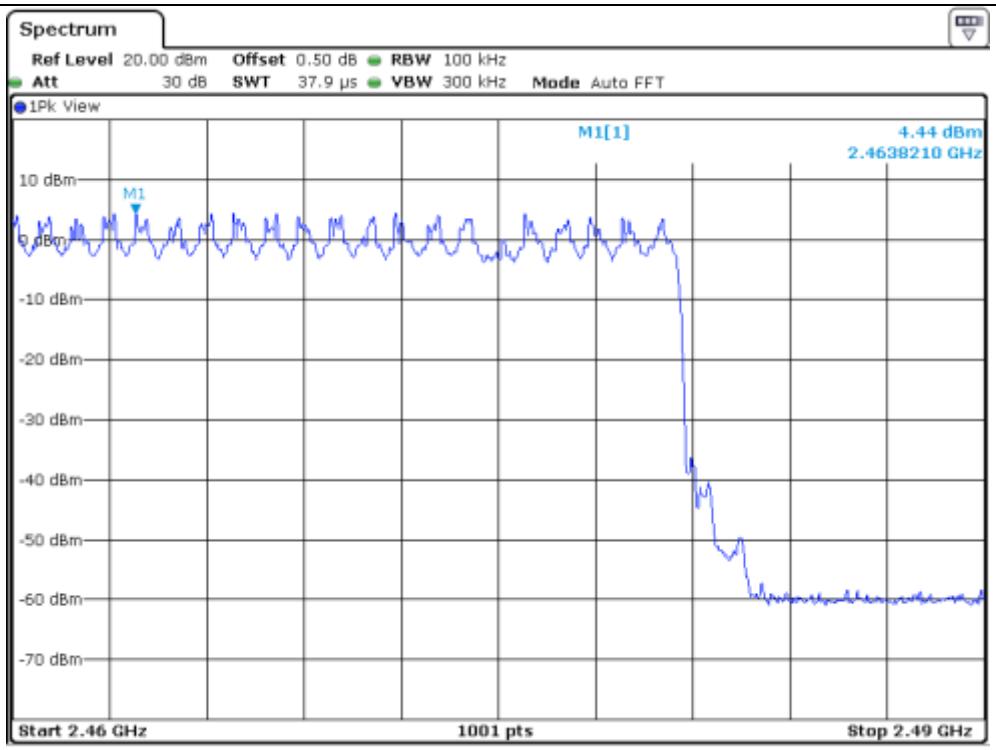
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Number of hopping channel: 28



Number of hopping channel: 30



Number of hopping channel: 21

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

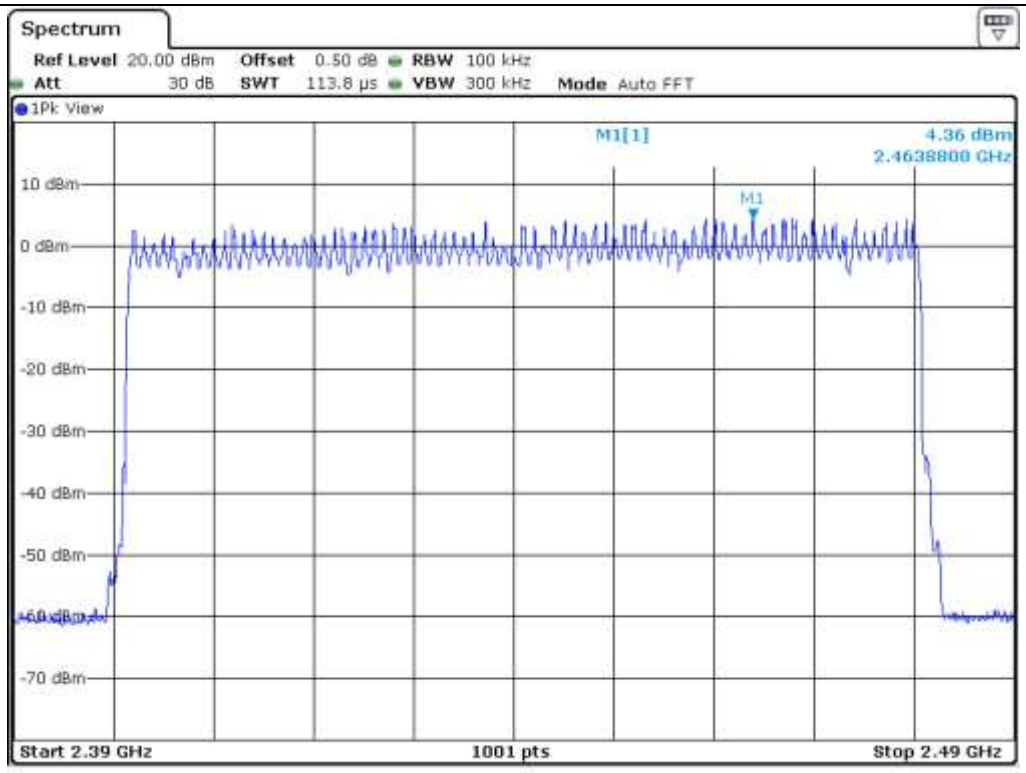
9.5.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

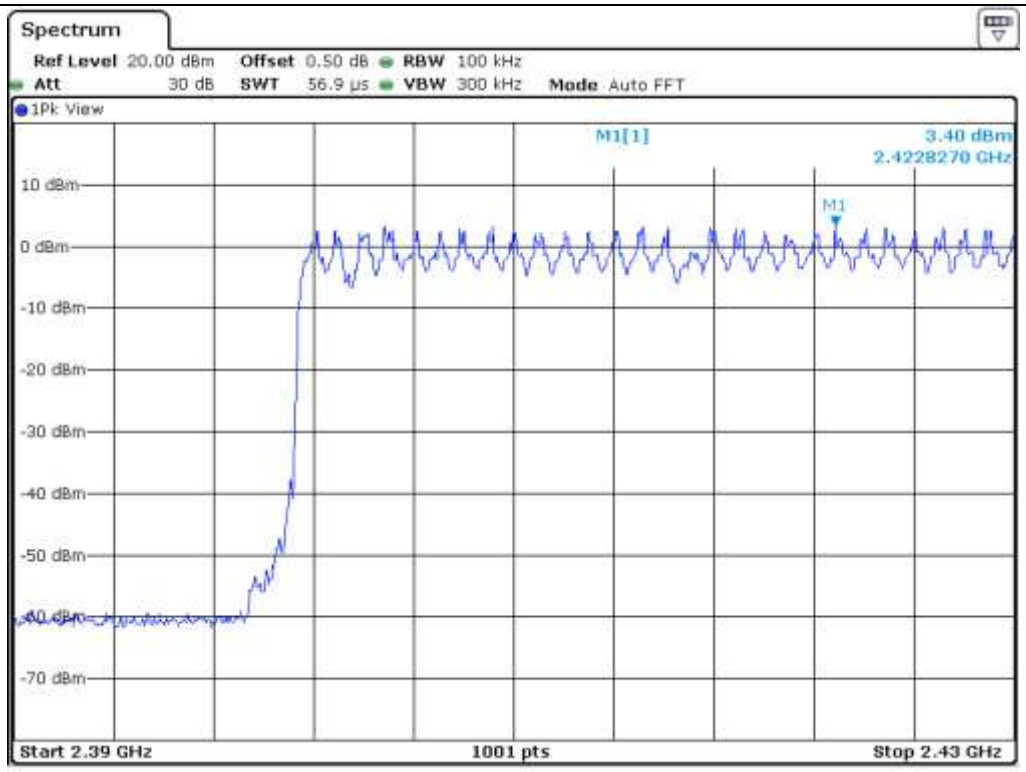
-. Test Result : Pass

Data Transfer Rate	Measured value (Number)	Limit (Number)	Margin (Number)
2 Mbps	79	Minimum of 15	64

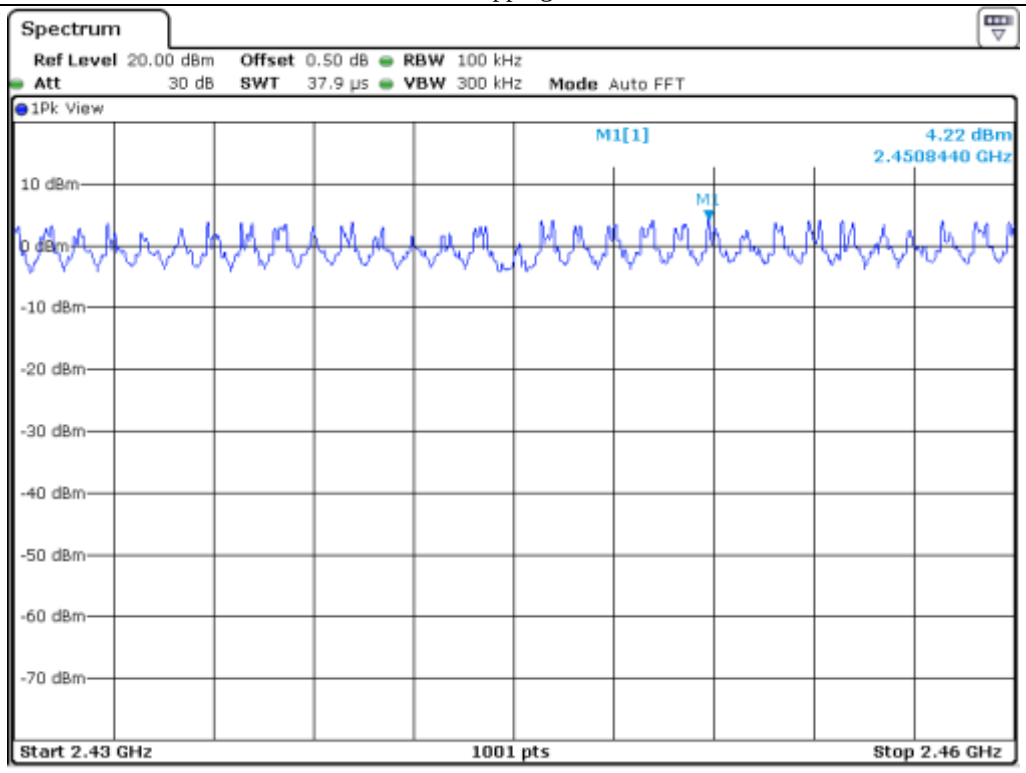
Tested by: Hyung-Kwon, Oh / Manager



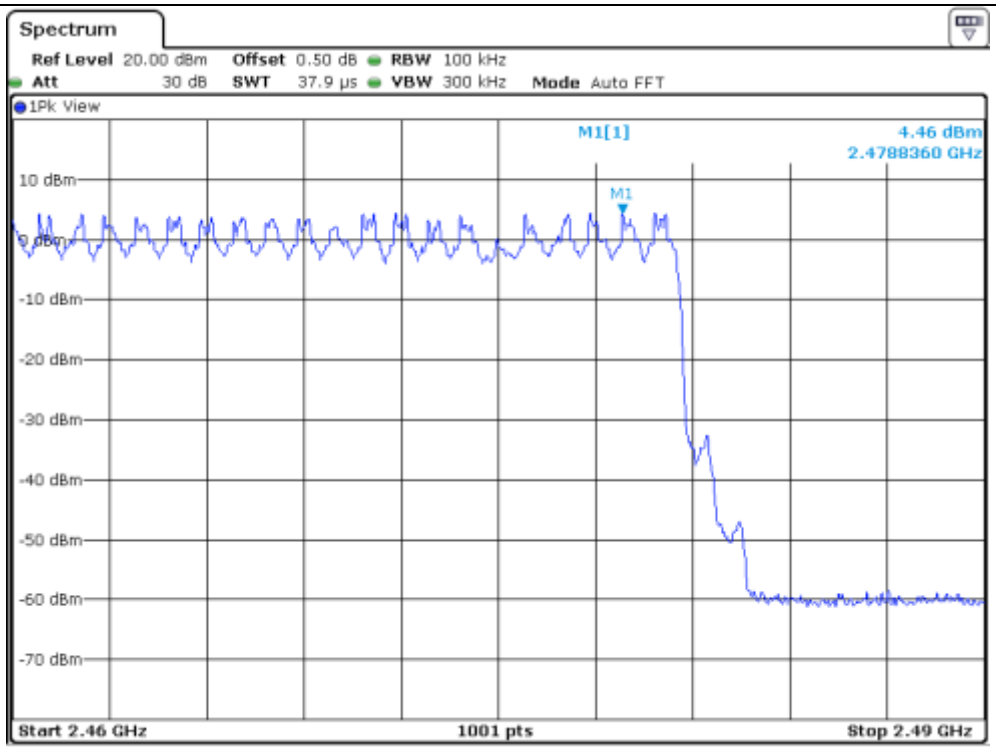
Total number of hopping channel: 28+30+21 = 79



Number of hopping channel: 28



Number of hopping channel: 30



Number of hopping channel: 21

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

9.6 Test data for 3 Mbps

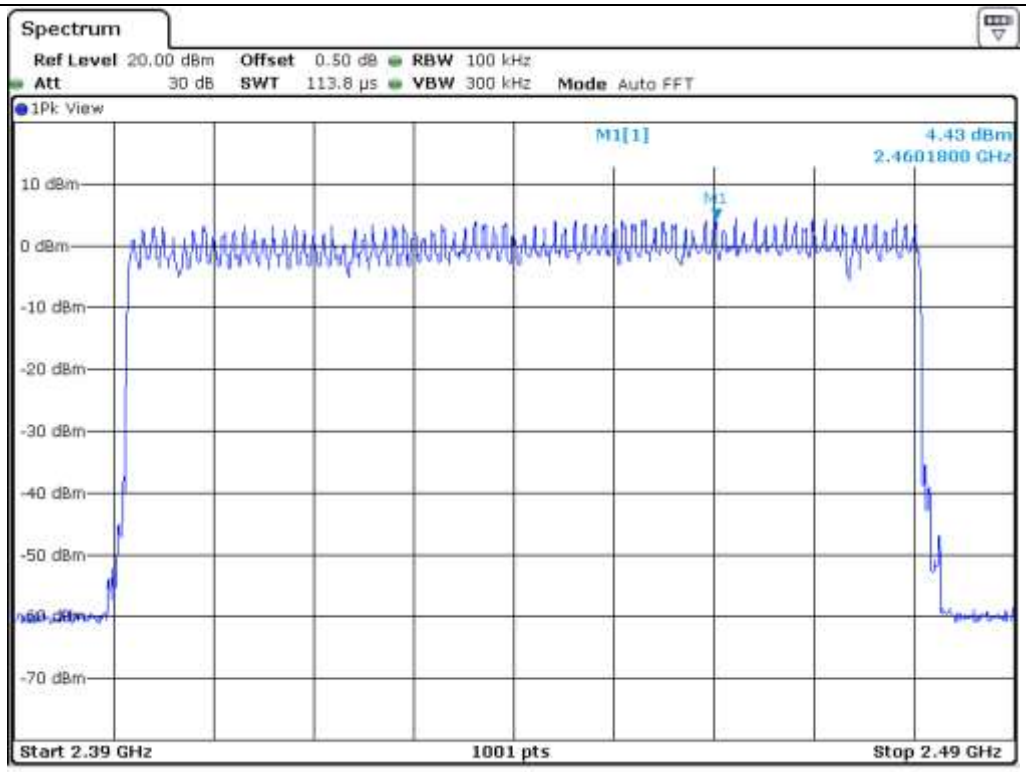
9.6.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

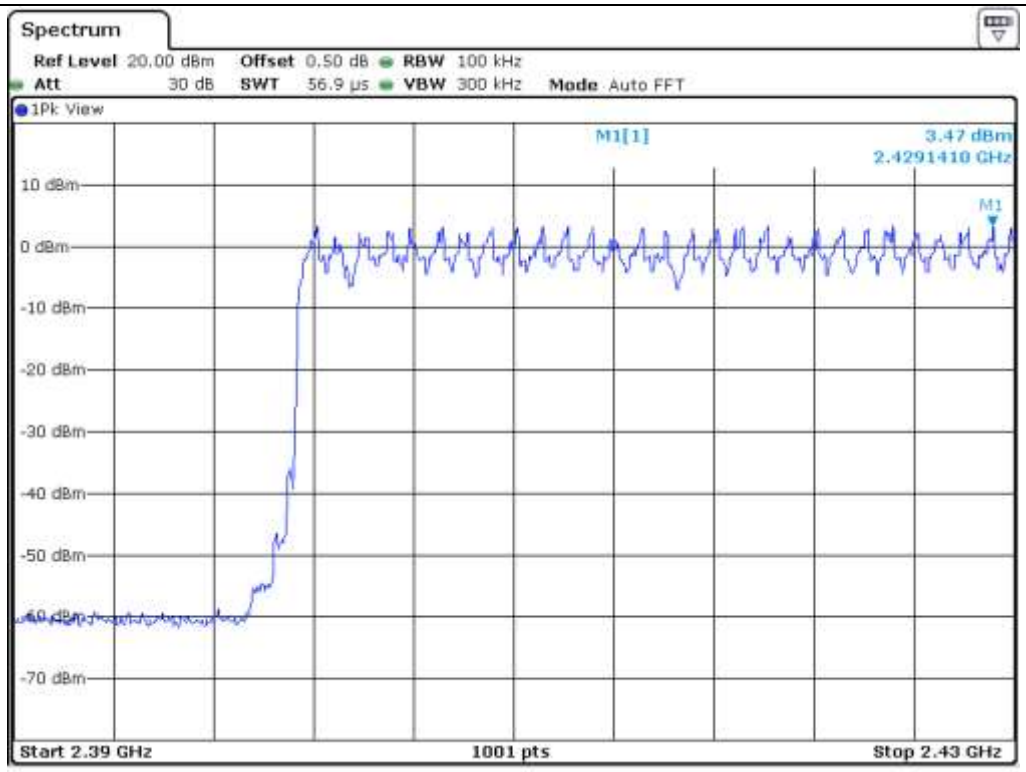
Data Transfer Rate	Measured value (Number)	Limit (Number)	Margin (Number)
3 Mbps	79	Minimum of 15	64

Tested by: Hyung-Kwon, Oh / Manager

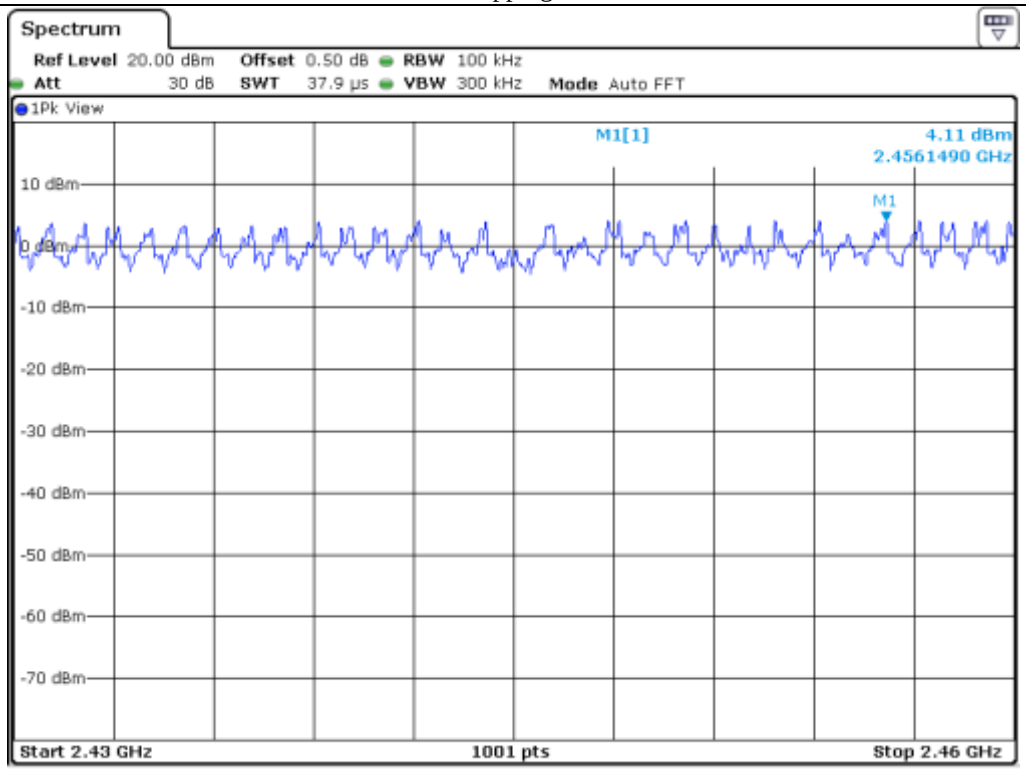


Total number of hopping channel: 28+30+21 = 79

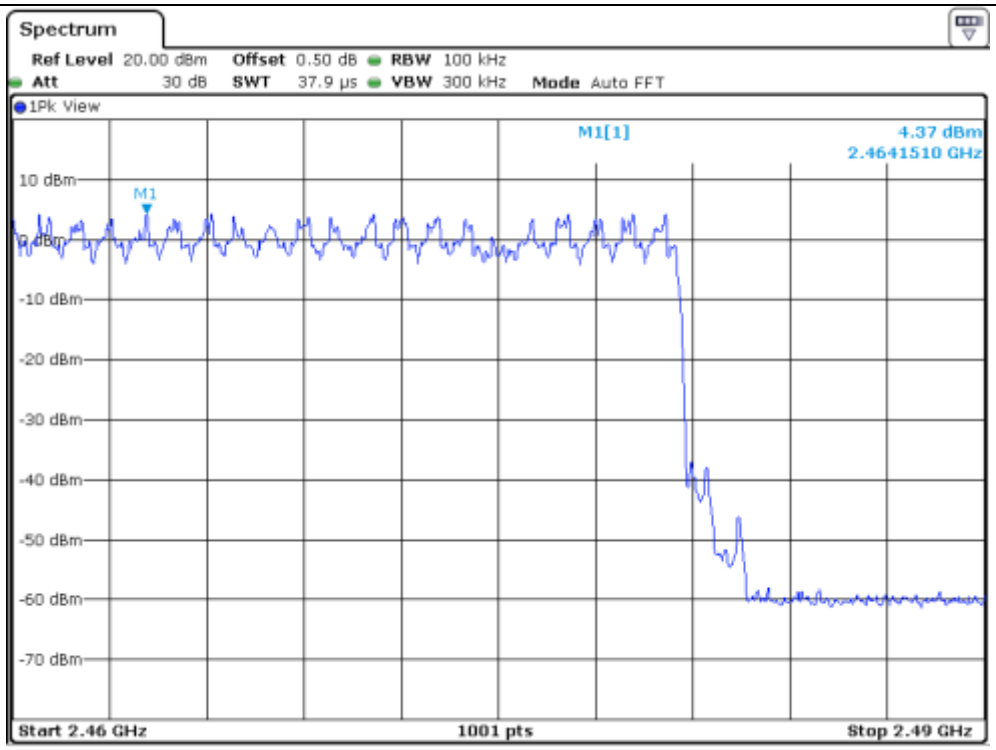
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Number of hopping channel: 28



Number of hopping channel: 30



Number of hopping channel: 21

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

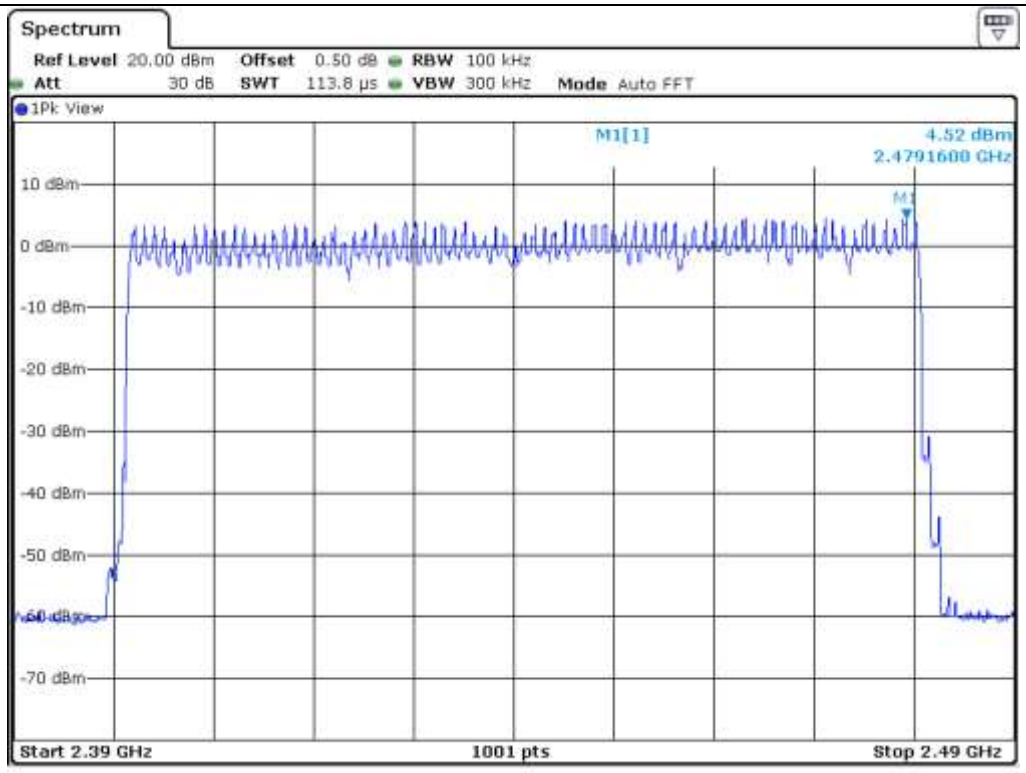
9.6.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

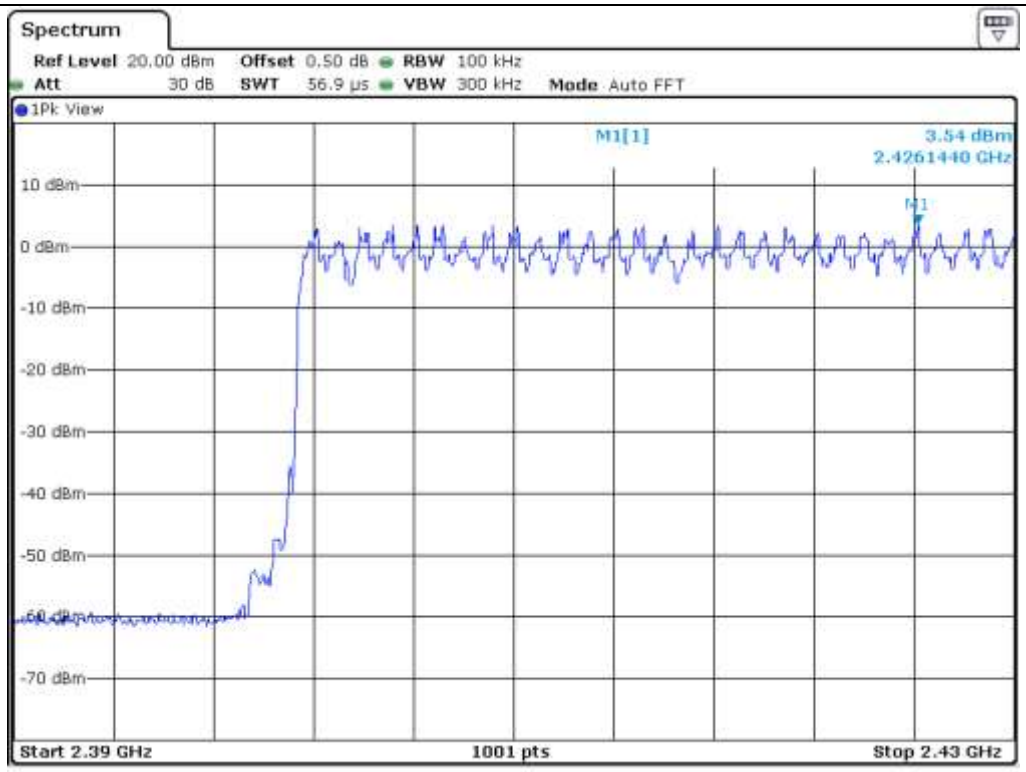
-. Test Result : Pass

Data Transfer Rate	Measured value (Number)	Limit (Number)	Margin (Number)
3 Mbps	79	Minimum of 15	64

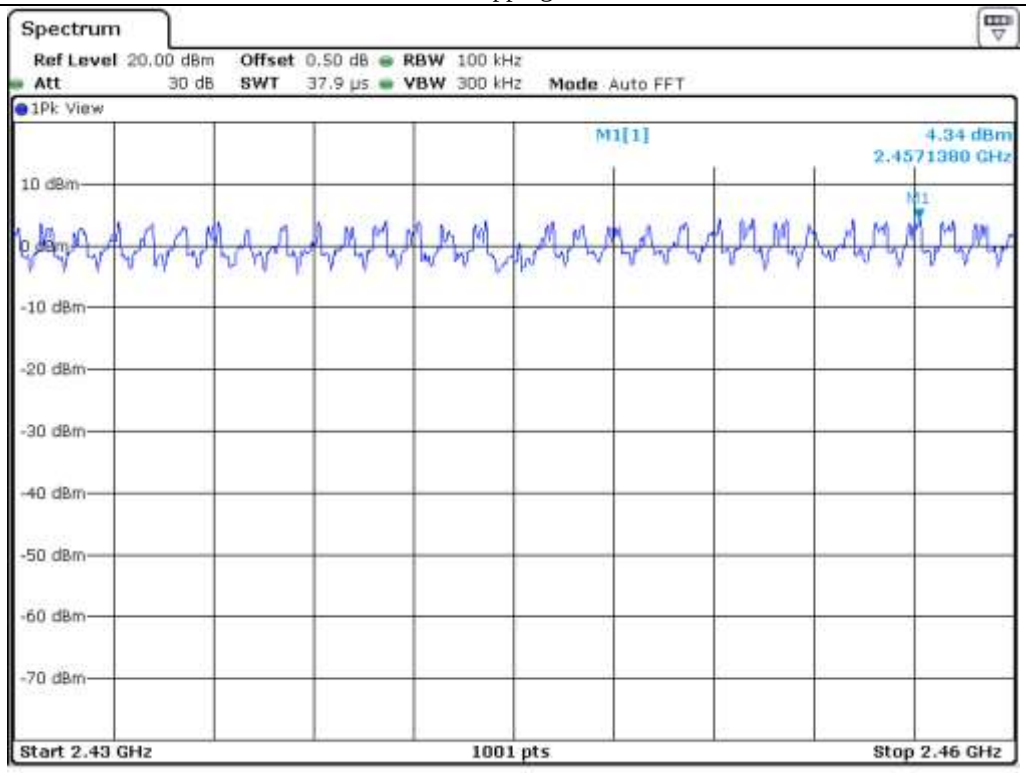
Tested by: Hyung-Kwon, Oh / Manager



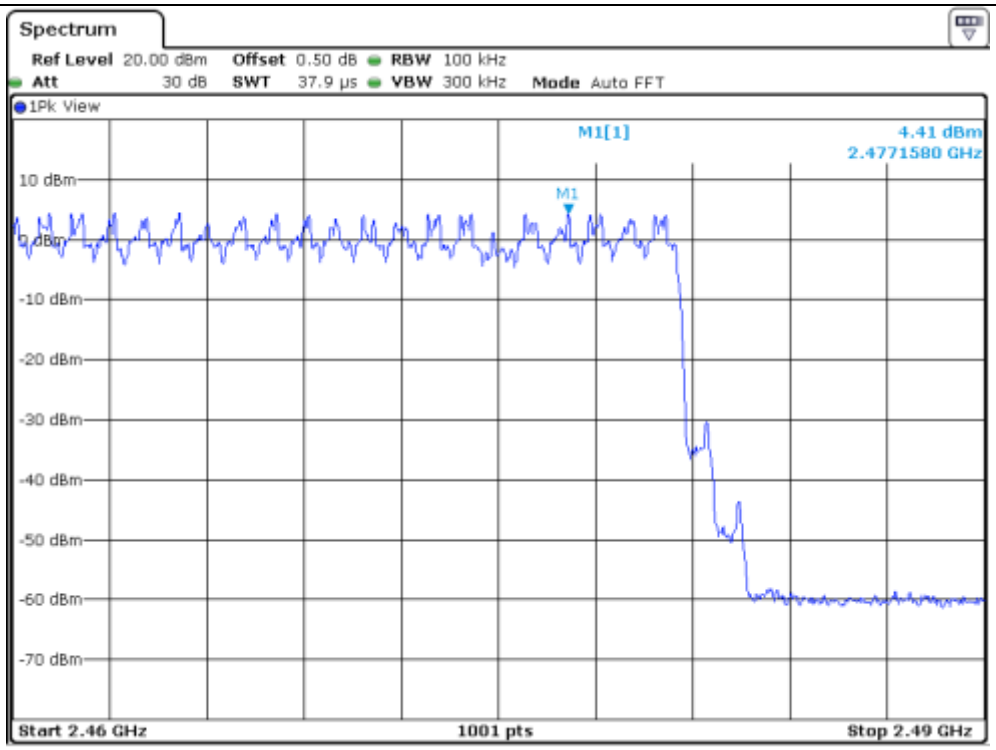
Total number of hopping channel: 28+30+21 = 79



Number of hopping channel: 28



Number of hopping channel: 30



Number of hopping channel: 21

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10. TIME OF OCCUPANCY

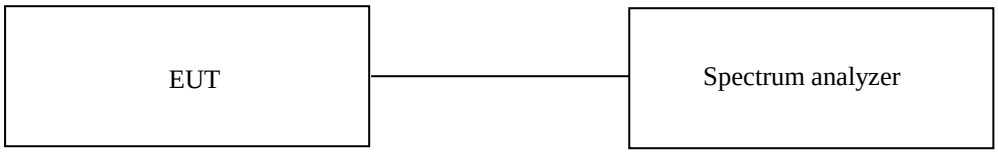
10.1 Operating environment

Temperature : 23 °C

Relative humidity : 45 % R.H.

10.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The transmitter is set to operate in its normal frequency hopping mode. The center frequency of the spectrum analyzer is set to one of hopping channels near the center of the operating band and span is set to zero Hz. The sweep time is set to display one complete pulse. The mark delta function is used to measure the duration of the pulses.



10.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Feb. 21, 2020 (1Y)

All test equipment used is calibrated on a regular basis.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.4 Test data for 1 Mbps

10.4.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

The system makes worst case 1 600 hops per second or 1 time slot has a length of 625 μs with 79 channels.

For DH1 packet type, the EUT needs 1 time slot for transmitting and 1 time slot for receiving and for DH3 packet type, the EUT needs 3 times slots for transmitting and 1 time slot for receiving, and DH5 packet needs 5 times slots for transmitting and 1 time slot for receiving. So The EUT has each channel for 10.13 times per second (= 1 600/2/79) for DH1, and 5.06 times (= 1 600/4/79) for DH3, and 3.38 times (= 1 600/6/79) for DH5.

Packet Type	Pulse Time (ms)	Hops per second with channels	Period Time (ms)	Total Dwell Time (ms)	Limit (ms)	Test Result
DH1	0.365	10.13	31.60	116.84	400.00	PASS
DH3	1.620	5.06	31.60	259.03	400.00	
DH5	2.880	3.38	31.60	307.61	400.00	

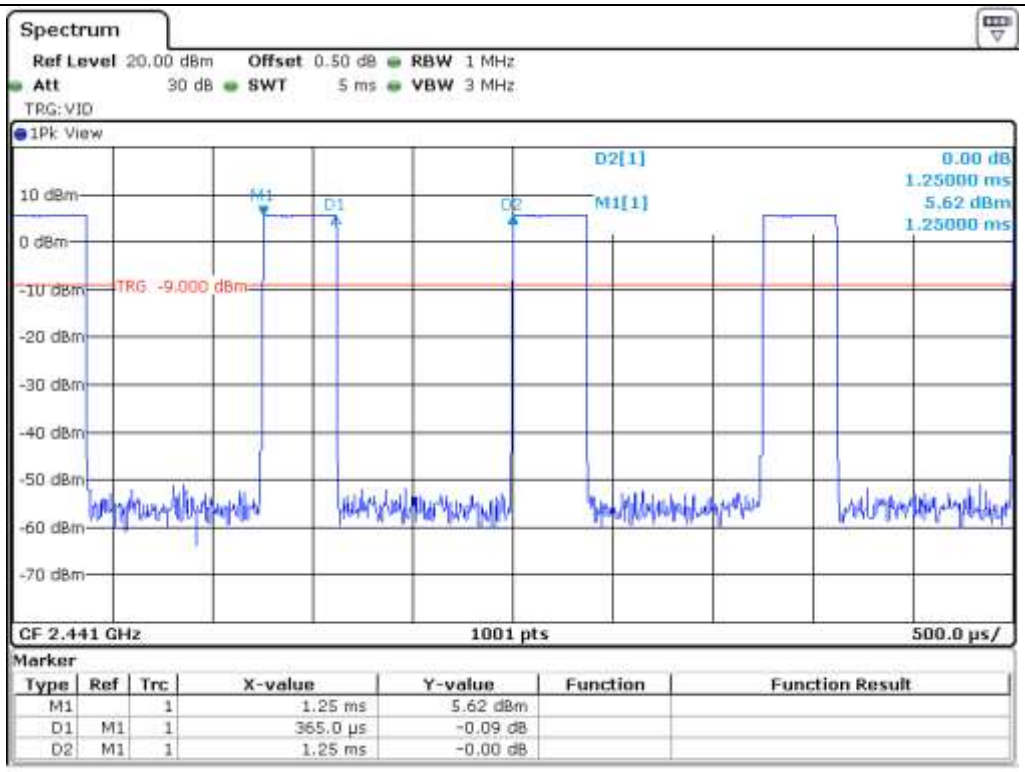
Total dwell time is calculated as following.

Total Dwell Time = Pulse time * Hops per second with channels * period time

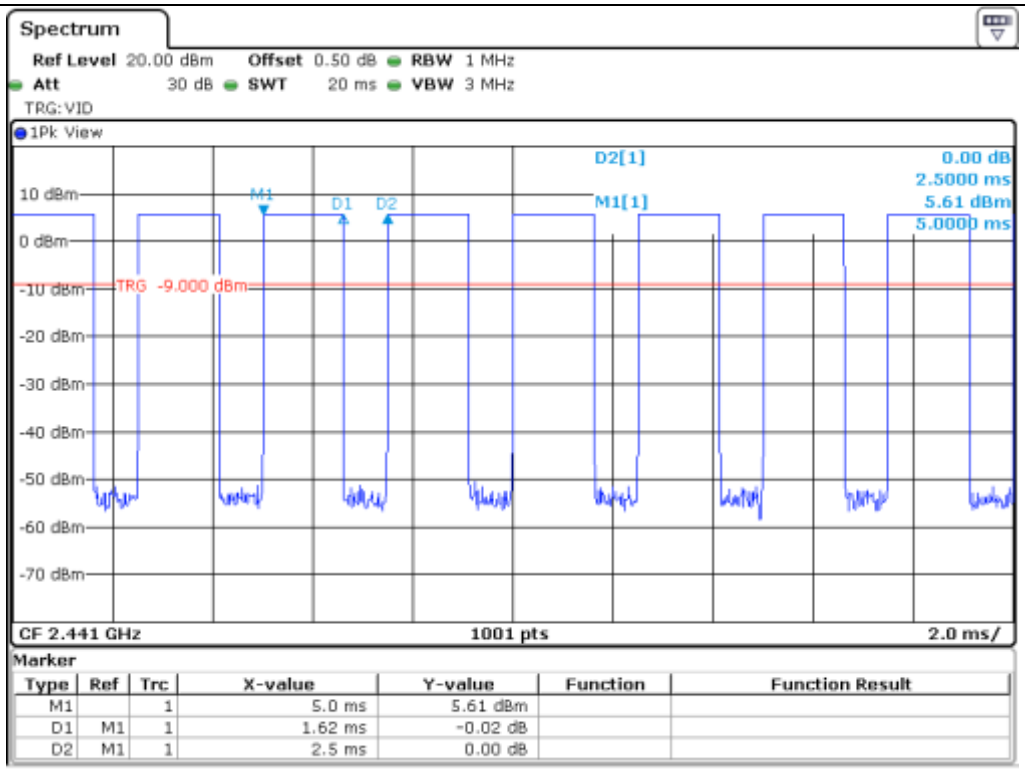
Remark: See next page for an overview sweep performed with peak detector.

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

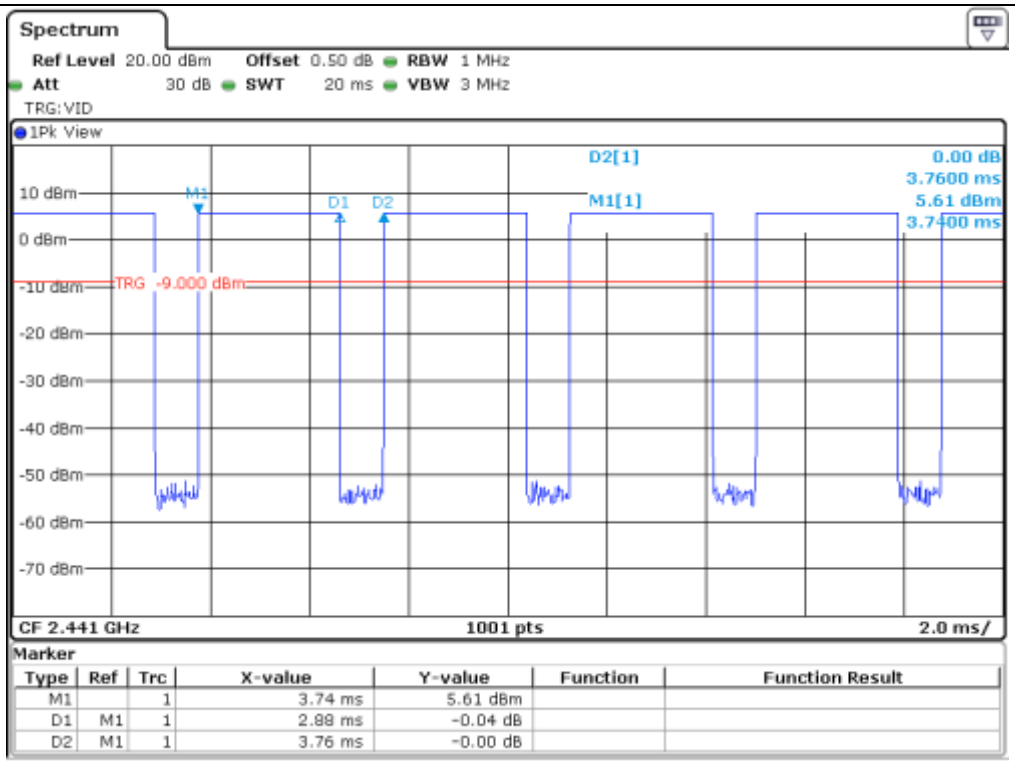


DH1



DH3

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 1 MHz
Att 30 dB SWT 20 ms VBW 3 MHz
TRG:VID
1Pk View
D2[1] 0.00 dB
3.7600 ms
M1[1] 5.61 dBm
3.7400 ms
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1
D2
TRG -9.000 dBm
CF 2.441 GHz
1001 pts
2.0 ms/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 3.74 ms 5.61 dBm
D1 M1 1 2.89 ms -0.04 dB
D2 M1 1 3.76 ms -0.00 dB

DH5

10.4.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

The system makes worst case 1 600 hops per second or 1 time slot has a length of 625 μs with 79 channels.

For DH1 packet type, the EUT needs 1 time slot for transmitting and 1 time slot for receiving and for DH3 packet type, the EUT needs 3 times slots for transmitting and 1 time slot for receiving, and DH5 packet needs 5 times slots for transmitting and 1 time slot for receiving. So The EUT has each channel for 10.13 times per second (= 1 600/2/79) for DH1, and 5.06 times (= 1 600/4/79) for DH3, and 3.38 times (= 1 600/6/79) for DH5.

Packet Type	Pulse Time (ms)	Hops per second with channels	Period Time (ms)	Total Dwell Time (ms)	Limit (ms)	Test Result
DH1	0.370	10.13	31.60	118.44	400.00	PASS
DH3	1.620	5.06	31.60	259.03	400.00	
DH5	2.880	3.38	31.60	307.61	400.00	

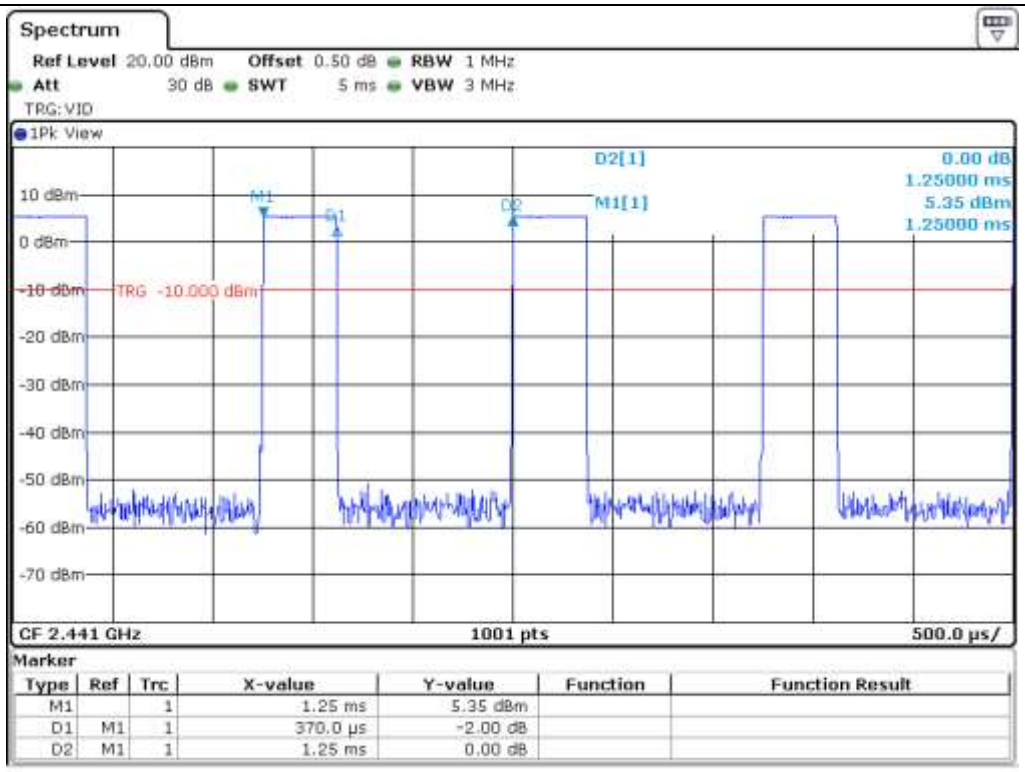
Total dwell time is calculated as following.

Total Dwell Time = Pulse time * Hops per second with channels * period time

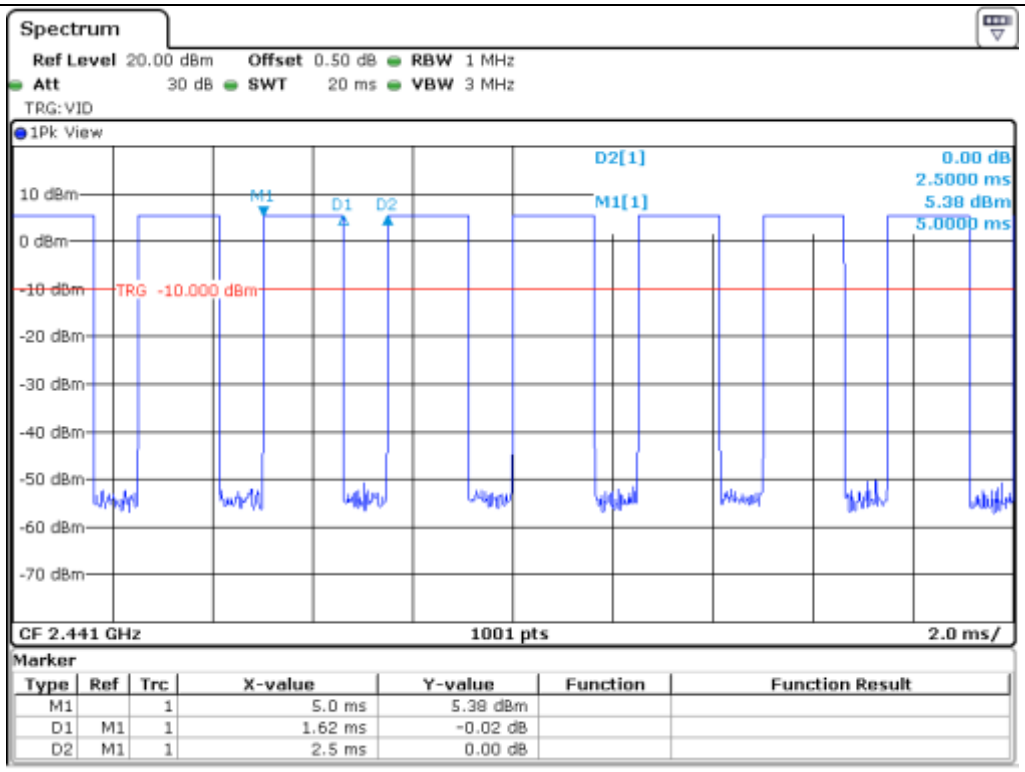
Remark: See next page for an overview sweep performed with peak detector.

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

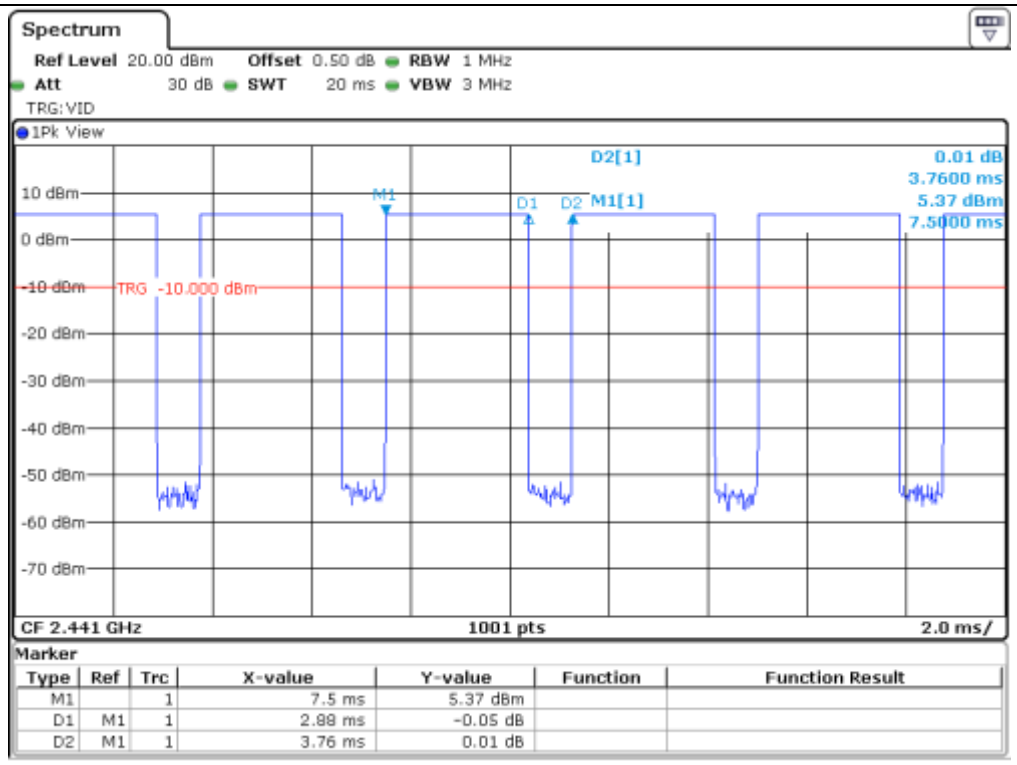


DH1



DH3

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 1 MHz
Att 30 dB SWT 20 ms VBW 3 MHz
TRG:VID
1Pk View
D2[1] 0.01 dB
3.7600 ms
M1[1] 5.37 dBm
7.5000 ms
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1
D2
TRG -10.000 dBm
CF 2.441 GHz
1001 pts
2.0 ms/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 7.5 ms 5.37 dBm
D1 M1 1 2.89 ms -0.05 dB
D2 M1 1 3.76 ms 0.01 dB

DH5

10.5 Test data for 2 Mbps

10.5.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

The system makes worst case 1 600 hops per second or 1 time slot has a length of 625 μs with 79 channels.

For DH1 packet type, the EUT needs 1 time slot for transmitting and 1 time slot for receiving and for DH3 packet type, the EUT needs 3 times slots for transmitting and 1 time slot for receiving, and DH5 packet needs 5 times slots for transmitting and 1 time slot for receiving. So The EUT has each channel for 10.13 times per second (= 1 600/2/79) for DH1, and 5.06 times (= 1 600/4/79) for DH3, and 3.38 times (= 1 600/6/79) for DH5.

Packet Type	Pulse Time (ms)	Hops per second with channels	Period Time (ms)	Total Dwell Time (ms)	Limit (ms)	Test Result
DH1	0.375	10.13	31.60	120.04	400.00	PASS
DH3	1.620	5.06	31.60	259.03	400.00	
DH5	2.860	3.38	31.60	305.47	400.00	

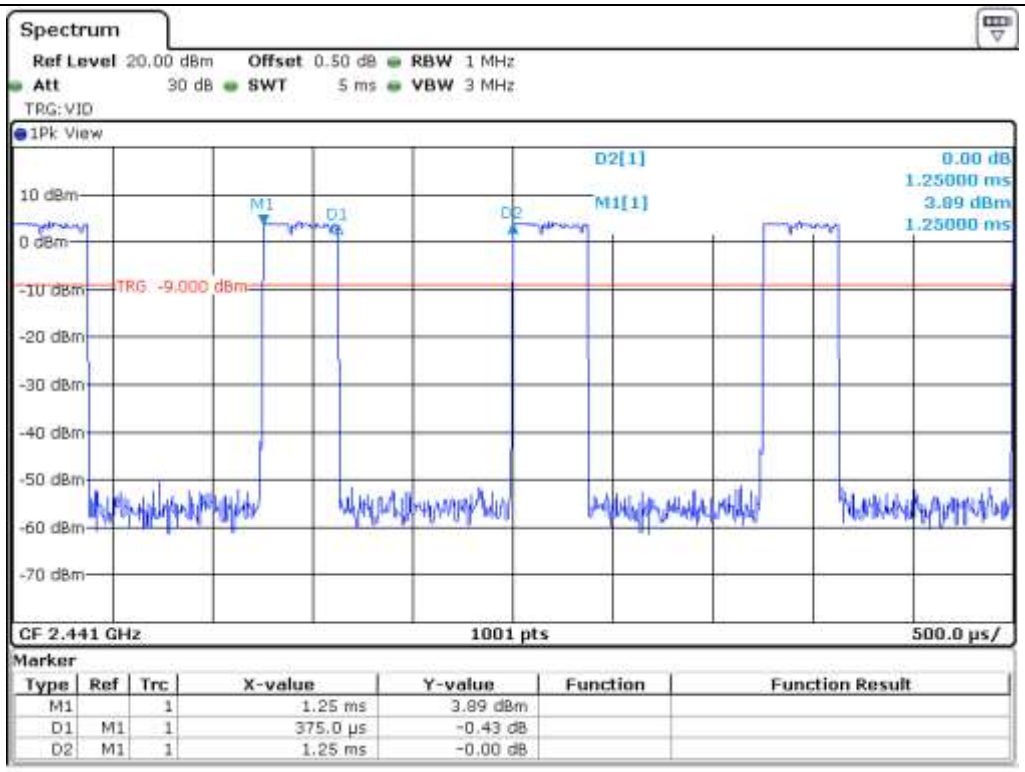
Total dwell time is calculated as following.

Total Dwell Time = Pulse time * Hops per second with channels * period time

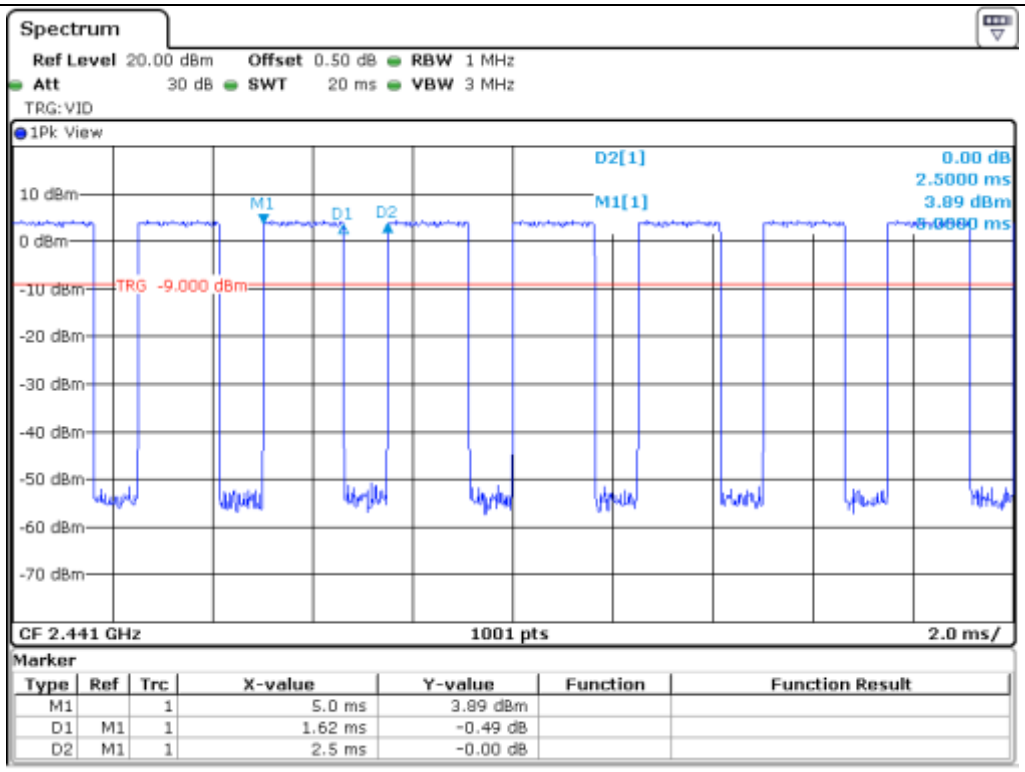
Remark: See next page for an overview sweep performed with peak detector.

Tested by: Hyung-Kwon, Oh / Manager

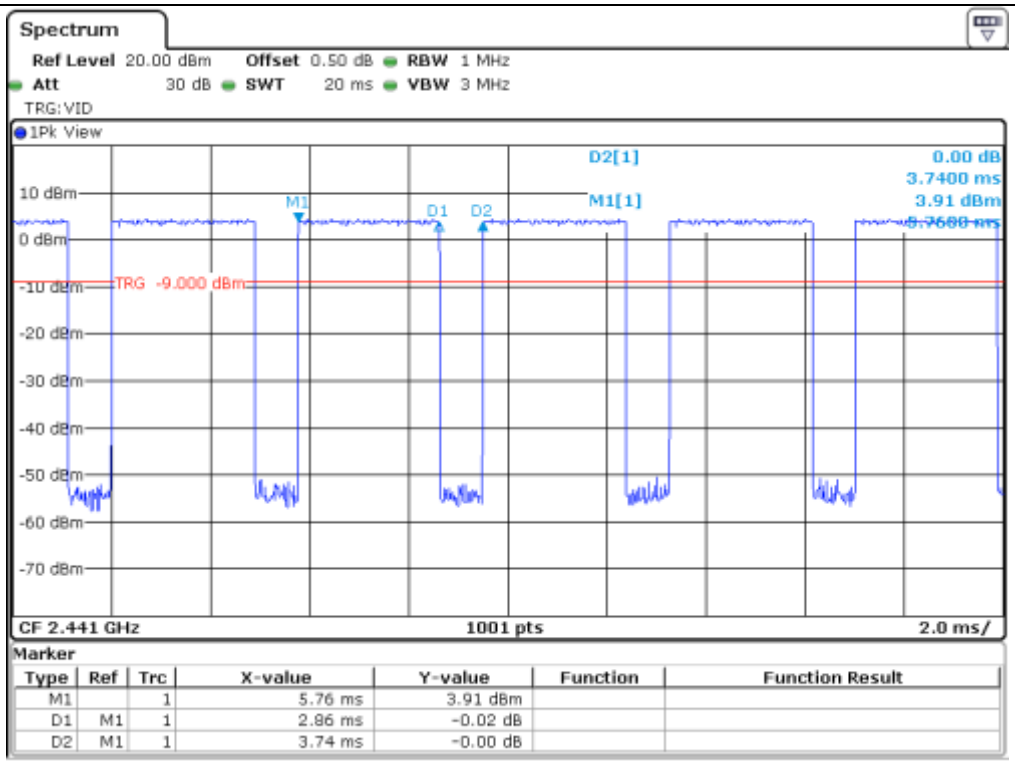
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 1 MHz
Att 30 dB SWT 5 ms VBW 3 MHz
TRG:VID
1Pk View
D2[1] 0.00 dB
1.25000 ms
M1[1] 3.89 dBm
1.25000 ms
10 dBm
0 dBm
-10 dBm
TRG -9.000 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.441 GHz
1001 pts
500.0 µs/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 1.25 ms 3.89 dBm
D1 M1 1 375.0 µs -0.43 dB
D2 M1 1 1.25 ms -0.00 dB

DH1


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 1 MHz
Att 30 dB SWT 20 ms VBW 3 MHz
TRG:VID
1Pk View
D2[1] 0.00 dB
2.5000 ms
M1[1] 3.89 dBm
10 dBm
0 dBm
-10 dBm
TRG -9.000 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.441 GHz
1001 pts
2.0 ms/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 1 5.0 ms 3.89 dBm
D1 M1 1 1.62 ms -0.49 dB
D2 M1 1 2.5 ms -0.00 dB

DH3


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 1 MHz
Att 30 dB SWT 20 ms VBW 3 MHz
TRG:VID
1Pk View
D2[1] 0.00 dB
3.7400 ms
M1[1] 3.91 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1
D2
TRG -9.000 dBm
CF 2.441 GHz
1001 pts
2.0 ms/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.76 ms 3.91 dBm
D1 M1 1 2.86 ms -0.02 dB
D2 M1 1 3.74 ms -0.00 dB

DH5

10.5.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

The system makes worst case 1 600 hops per second or 1 time slot has a length of 625 μs with 79 channels.

For DH1 packet type, the EUT needs 1 time slot for transmitting and 1 time slot for receiving and for DH3 packet type, the EUT needs 3 times slots for transmitting and 1 time slot for receiving, and DH5 packet needs 5 times slots for transmitting and 1 time slot for receiving. So The EUT has each channel for 10.13 times per second (= 1 600/2/79) for DH1, and 5.06 times (= 1 600/4/79) for DH3, and 3.38 times (= 1 600/6/79) for DH5.

Packet Type	Pulse Time (ms)	Hops per second with channels	Period Time (ms)	Total Dwell Time (ms)	Limit (ms)	Test Result
DH1	0.375	10.13	31.60	120.04	400.00	PASS
DH3	1.630	5.06	31.60	260.63	400.00	
DH5	2.880	3.38	31.60	307.61	400.00	

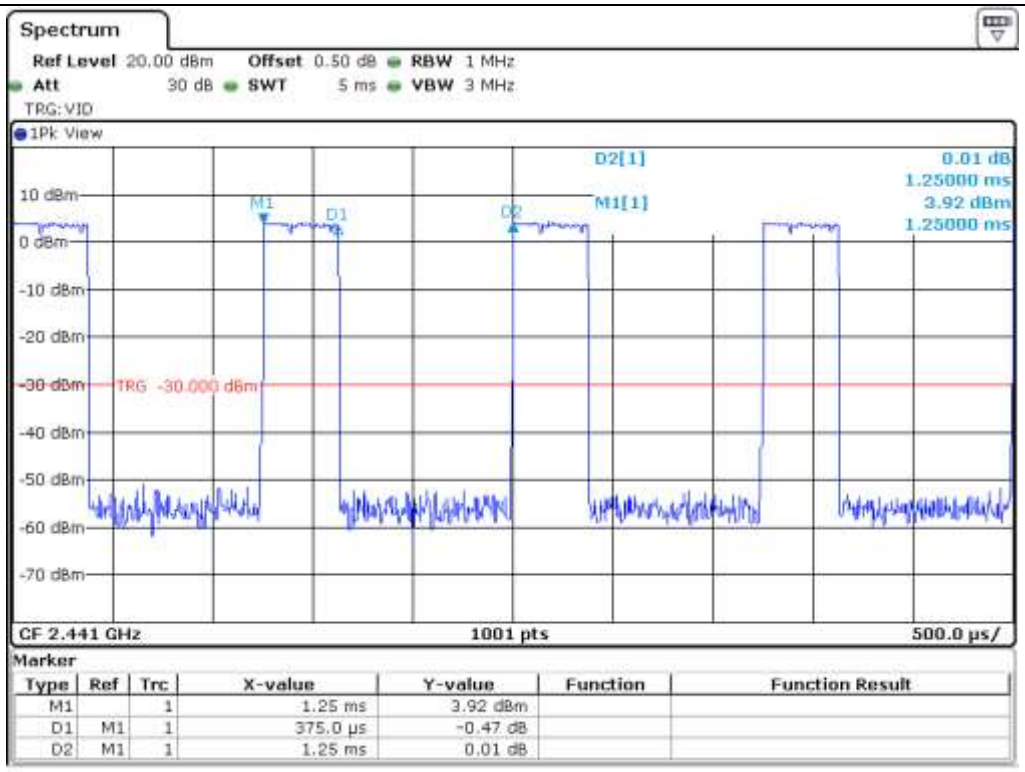
Total dwell time is calculated as following.

Total Dwell Time = Pulse time * Hops per second with channels * period time

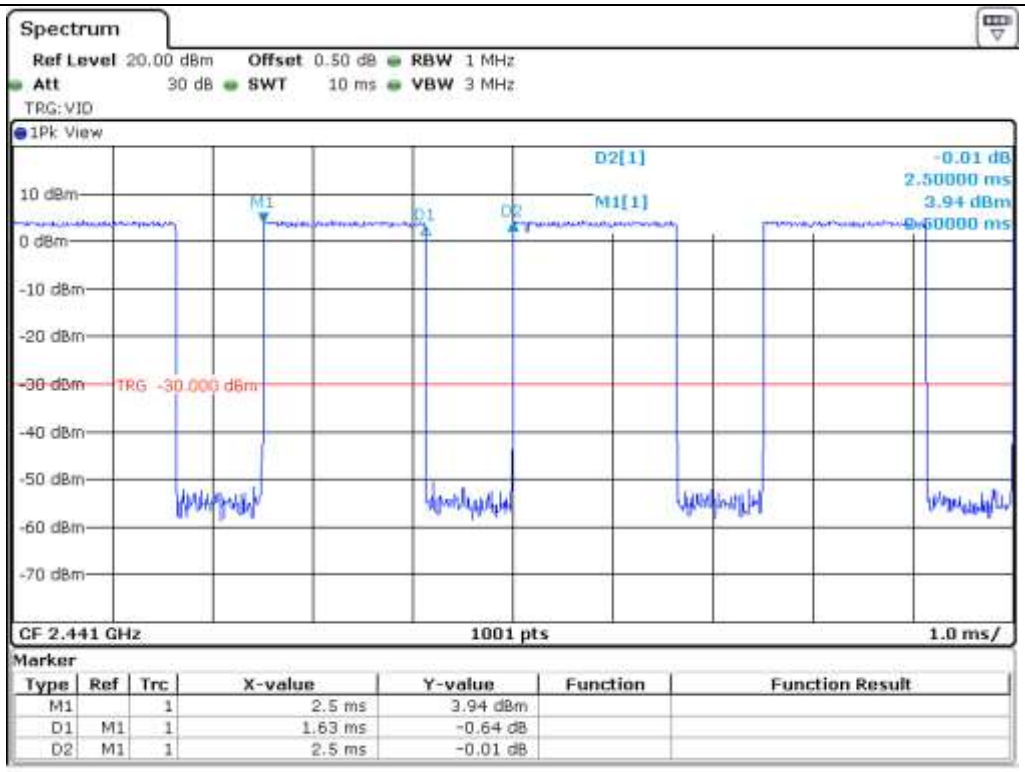
Remark: See next page for an overview sweep performed with peak detector.

Tested by: Hyung-Kwon, Oh / Manager

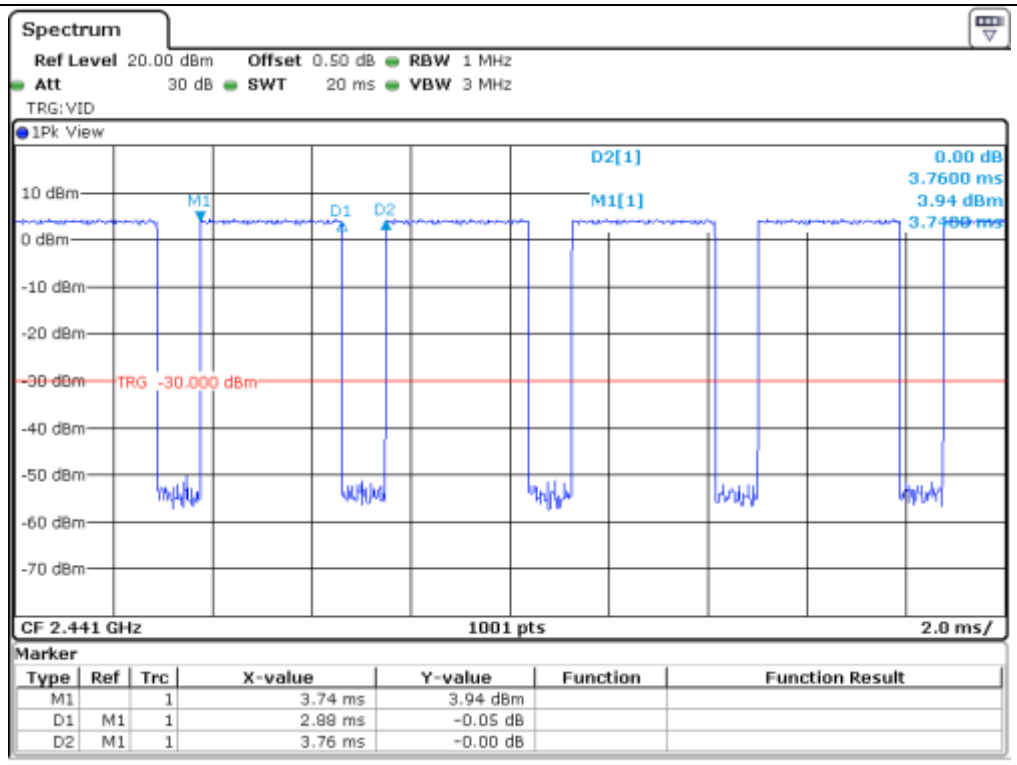
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 1 MHz
Att 30 dB SWT 5 ms VBW 3 MHz
TRG:VID
1Pk View
D2[1] 0.01 dB
1.25000 ms
M1[1] 3.92 dBm
1.25000 ms
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
TRG -30.000 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.441 GHz
1001 pts
500.0 µs/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 1.25 ms 3.92 dBm
D1 M1 1 375.0 µs -0.47 dB
D2 M1 1 1.25 ms 0.01 dB

DH1


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 1 MHz
Att 30 dB SWT 10 ms VBW 3 MHz
TRG:VID
1Pk View
D2[1] -0.01 dB
2.50000 ms
M1[1] 3.94 dBm
2.50000 ms
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
TRG -30.000 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.441 GHz
1001 pts
1.0 ms/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.5 ms 3.94 dBm
D1 M1 1 1.63 ms -0.64 dB
D2 M1 1 2.5 ms -0.01 dB

DH3


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 1 MHz
Att 30 dB SWT 20 ms VBW 3 MHz
TRG:VID
1Pk View
D2[1] 0.00 dB
3.7600 ms
M1[1] 3.94 dBm
3.7
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1
D2
TRG -30.000 dBm
CF 2.441 GHz
1001 pts
2.0 ms/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 3.74 ms 3.94 dBm
D1 M1 1 2.89 ms -0.05 dB
D2 M1 1 3.76 ms -0.00 dB

DH5

10.6 Test data for 3 Mbps

10.6.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

The system makes worst case 1 600 hops per second or 1 time slot has a length of 625 μs with 79 channels.

For DH1 packet type, the EUT needs 1 time slot for transmitting and 1 time slot for receiving and for DH3 packet type, the EUT needs 3 times slots for transmitting and 1 time slot for receiving, and DH5 packet needs 5 times slots for transmitting and 1 time slot for receiving. So The EUT has each channel for 10.13 times per second (= 1 600/2/79) for DH1, and 5.06 times (= 1 600/4/79) for DH3, and 3.38 times (= 1 600/6/79) for DH5.

Packet Type	Pulse Time (ms)	Hops per second with channels	Period Time (ms)	Total Dwell Time (ms)	Limit (ms)	Test Result
DH1	0.375	10.13	31.60	120.04	400.00	PASS
DH3	1.620	5.06	31.60	259.03	400.00	
DH5	2.880	3.38	31.60	307.61	400.00	

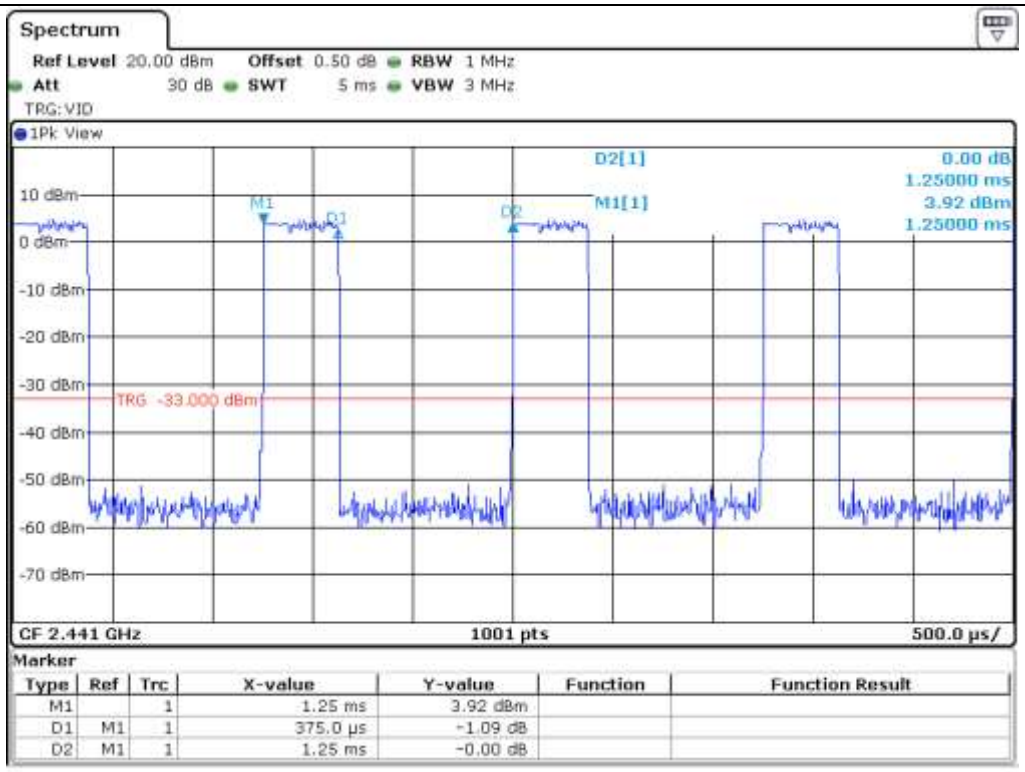
Total dwell time is calculated as following.

Total Dwell Time = Pulse time * Hops per second with channels * period time

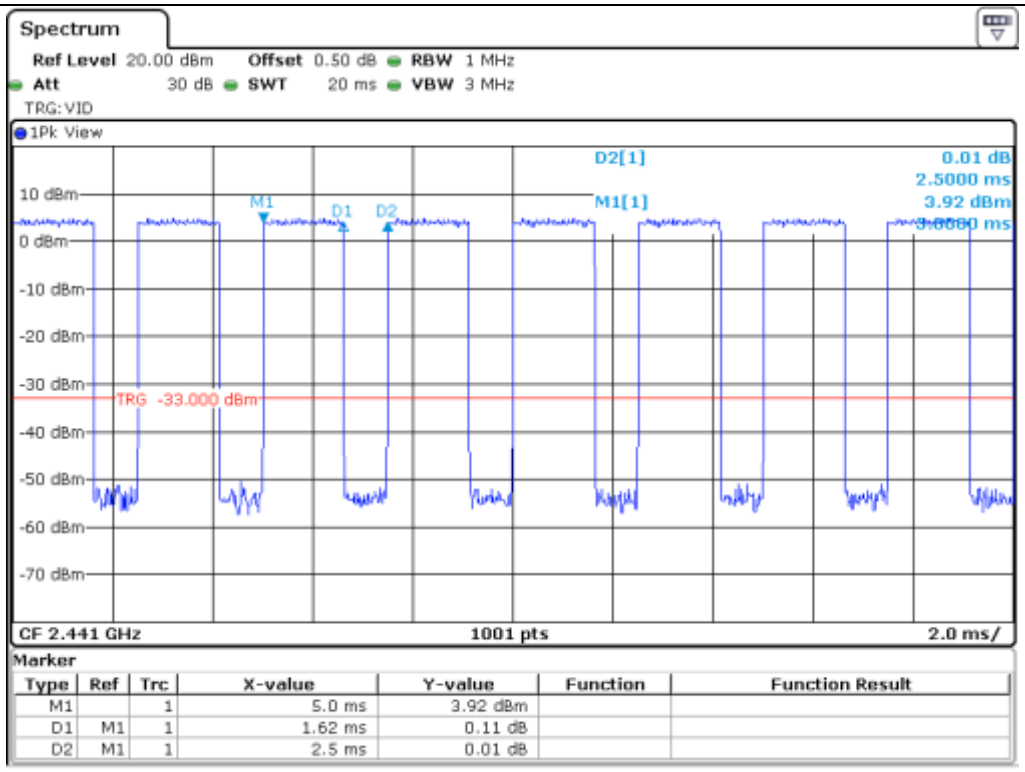
Remark: See next page for an overview sweep performed with peak detector.

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

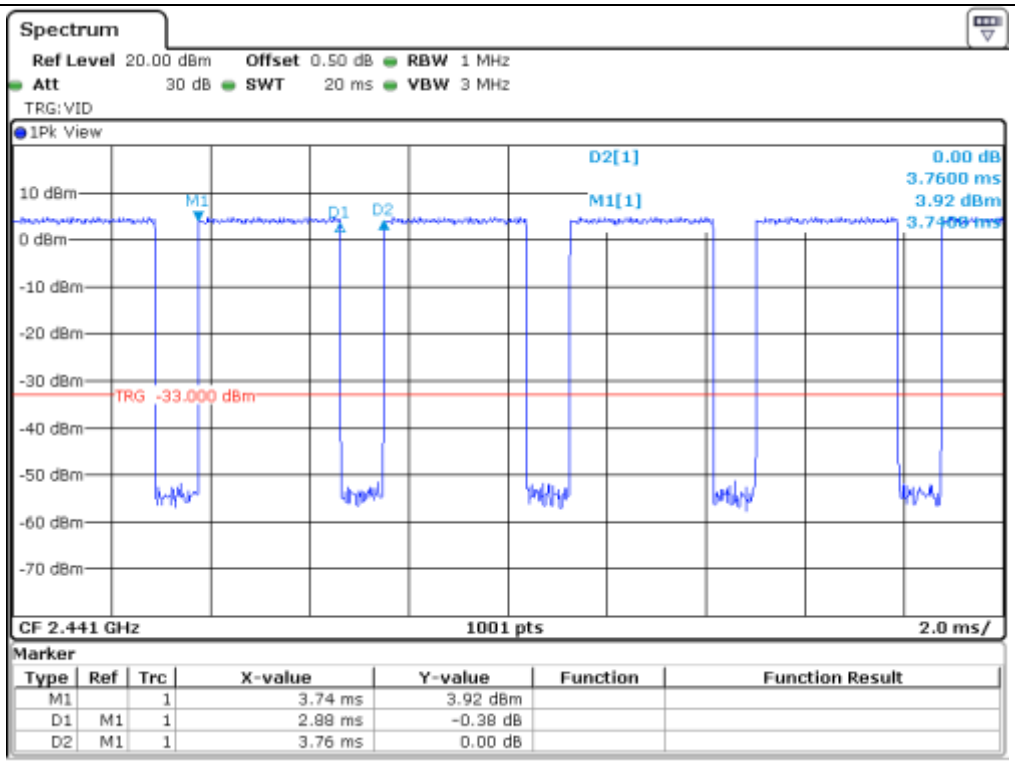


DH1



DH3

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 1 MHz
Att 30 dB SWT 20 ms VBW 3 MHz
TRG:VID
1Pk View
D2[1] 0.00 dB
3.7600 ms
M1[1] 3.92 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1
D2
TRG -33.000 dBm
CF 2.441 GHz
1001 pts
2.0 ms/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 3.74 ms 3.92 dBm
D1 M1 1 2.89 ms -0.38 dB
D2 M1 1 3.76 ms 0.00 dB

DH5

10.6.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : April 16, 2020 ~ April 23, 2020

The system makes worst case 1 600 hops per second or 1 time slot has a length of 625 μs with 79 channels.

For DH1 packet type, the EUT needs 1 time slot for transmitting and 1 time slot for receiving and for DH3 packet type, the EUT needs 3 times slots for transmitting and 1 time slot for receiving, and DH5 packet needs 5 times slots for transmitting and 1 time slot for receiving. So The EUT has each channel for 10.13 times per second (= 1 600/2/79) for DH1, and 5.06 times (= 1 600/4/79) for DH3, and 3.38 times (= 1 600/6/79) for DH5.

Packet Type	Pulse Time (ms)	Hops per second with channels	Period Time (ms)	Total Dwell Time (ms)	Limit (ms)	Test Result
DH1	0.375	10.13	31.60	120.04	400.00	PASS
DH3	1.630	5.06	31.60	260.63	400.00	
DH5	2.880	3.38	31.60	307.61	400.00	

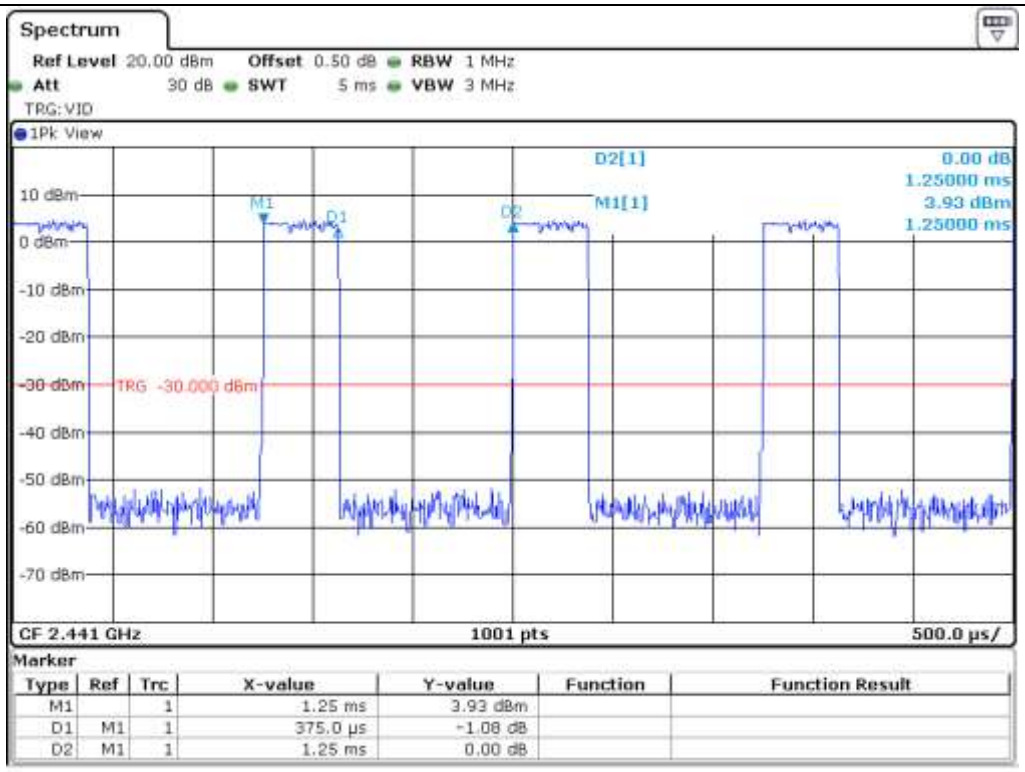
Total dwell time is calculated as following.

Total Dwell Time = Pulse time * Hops per second with channels * period time

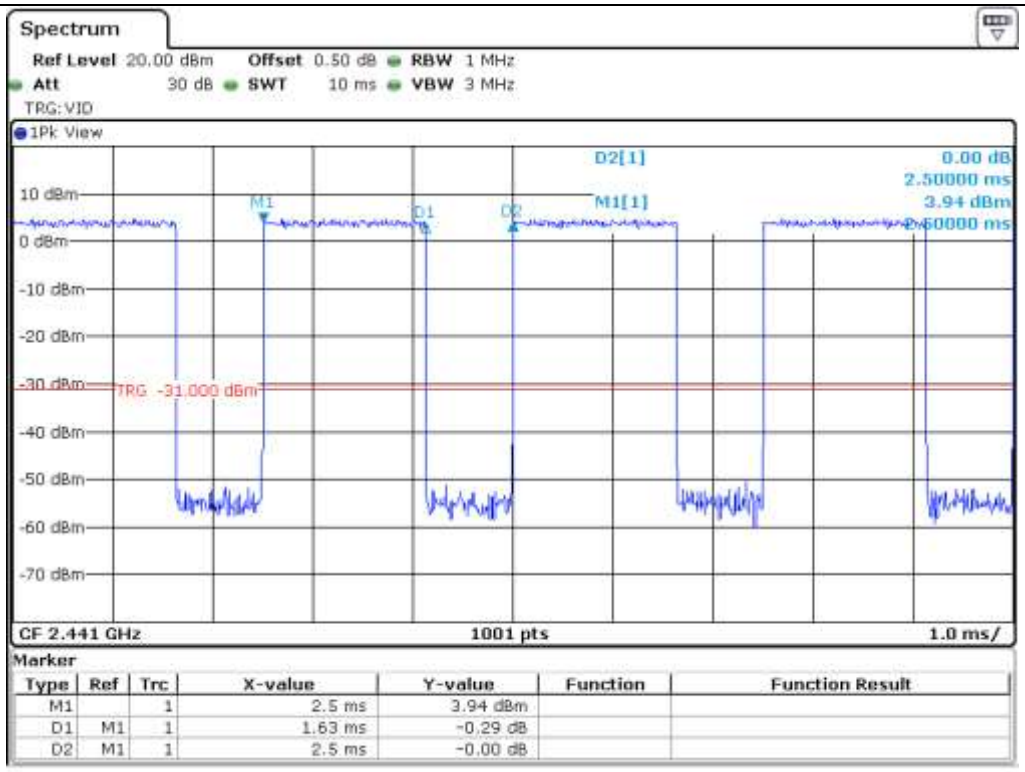
Remark: See next page for an overview sweep performed with peak detector.

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

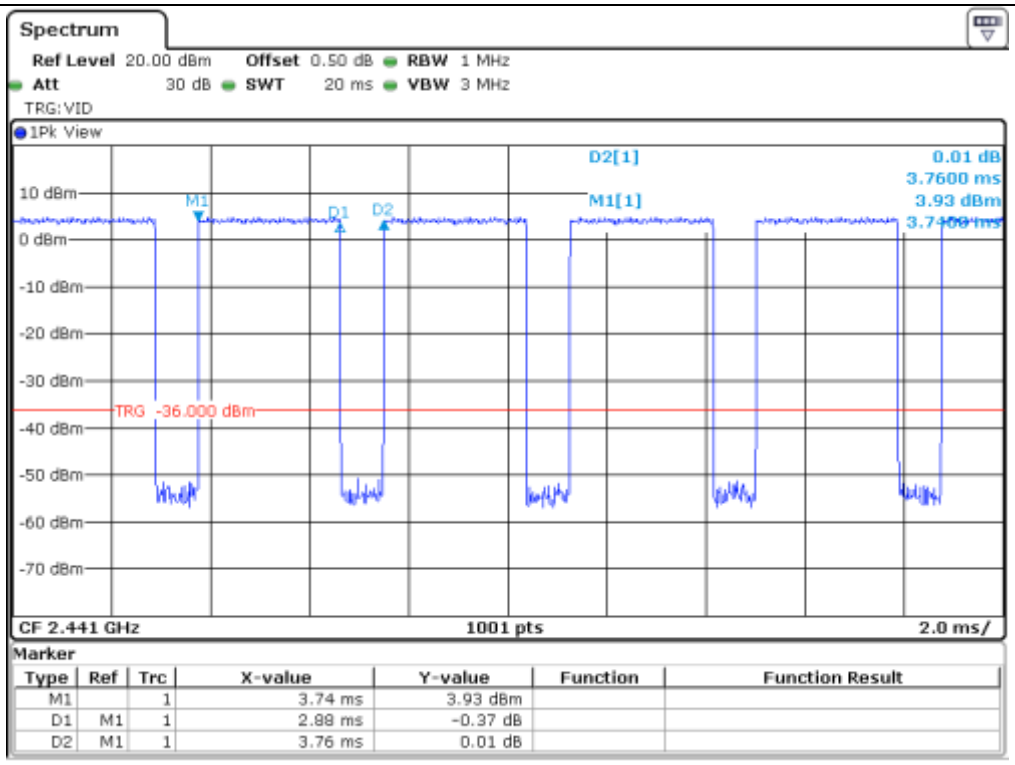


DH1



DH3

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 1 MHz
Att 30 dB SWT 20 ms VBW 3 MHz
TRG:VID
1Pk View
D2[1] 0.01 dB
3.7600 ms
M1[1] 3.93 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1
D2
TRG -36.000 dBm
CF 2.441 GHz
1001 pts
2.0 ms/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 3.74 ms 3.93 dBm
D1 M1 1 2.89 ms -0.37 dB
D2 M1 1 3.76 ms 0.01 dB

DH5

11. MAXIMUM PEAK OUTPUT POWER

11.1 Operating environment

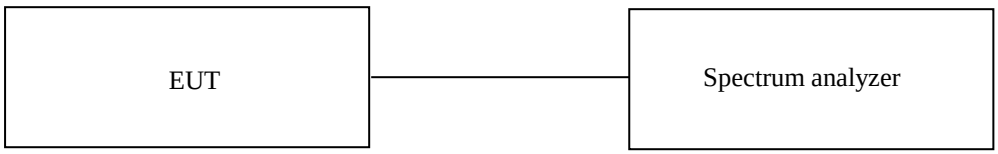
Temperature : 23 °C

Relative humidity : 45 % R.H.

11.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer.

The resolution bandwidth is set to ≥ DTS Bandwidth, the video bandwidth is set to 3 times the resolution bandwidth.



11.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Feb. 21, 2020 (1Y)

All test equipment used is calibrated on a regular basis.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

11.4 Test data for 1 Mbps

11.4.1 Test data for Bluetooth Earbud LEFT

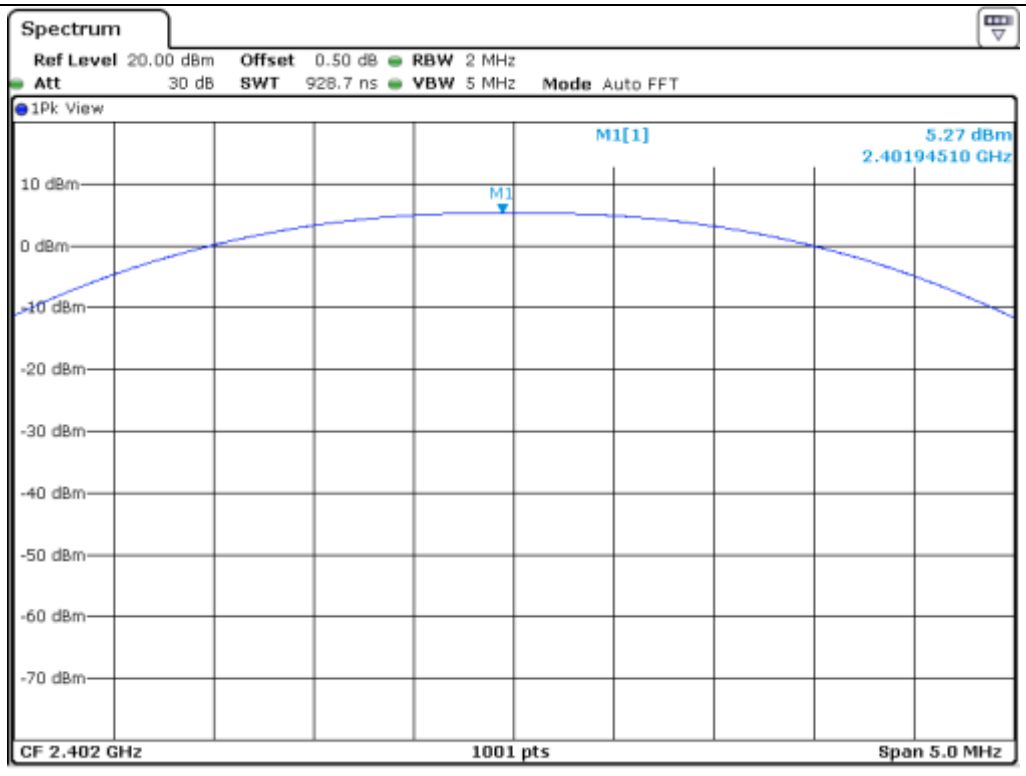
-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

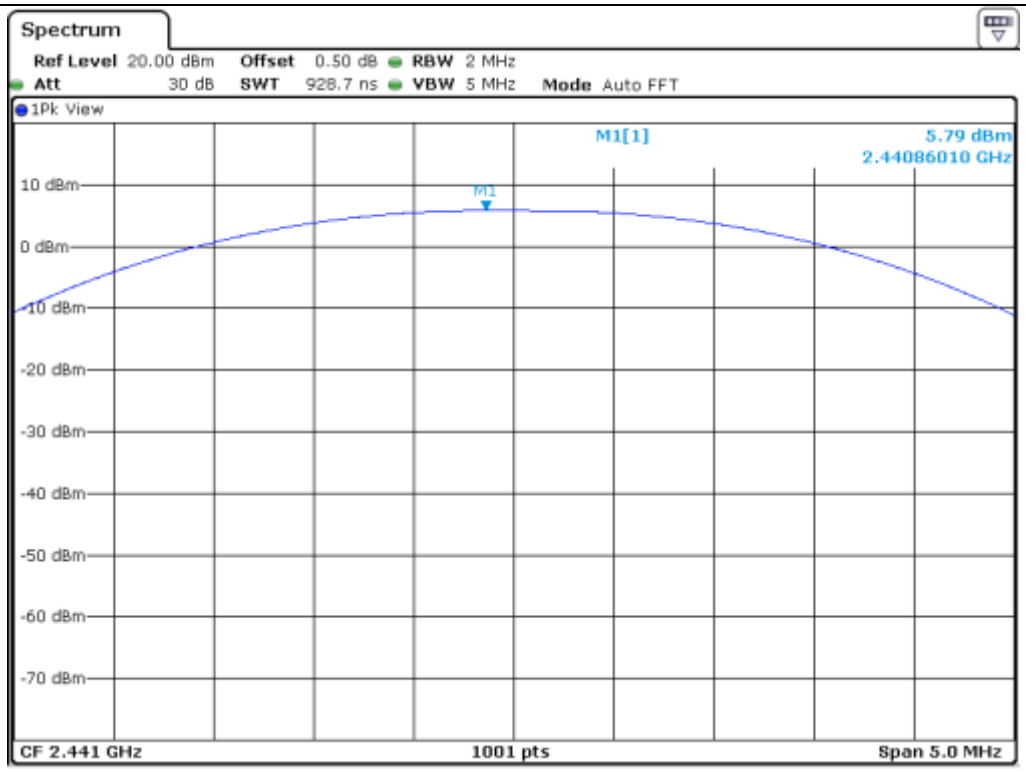
CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 402.00	5.27	21.00	15.73
MIDDLE	2 441.00	5.79	21.00	15.21
HIGH	2 480.00	5.98	21.00	15.02

Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

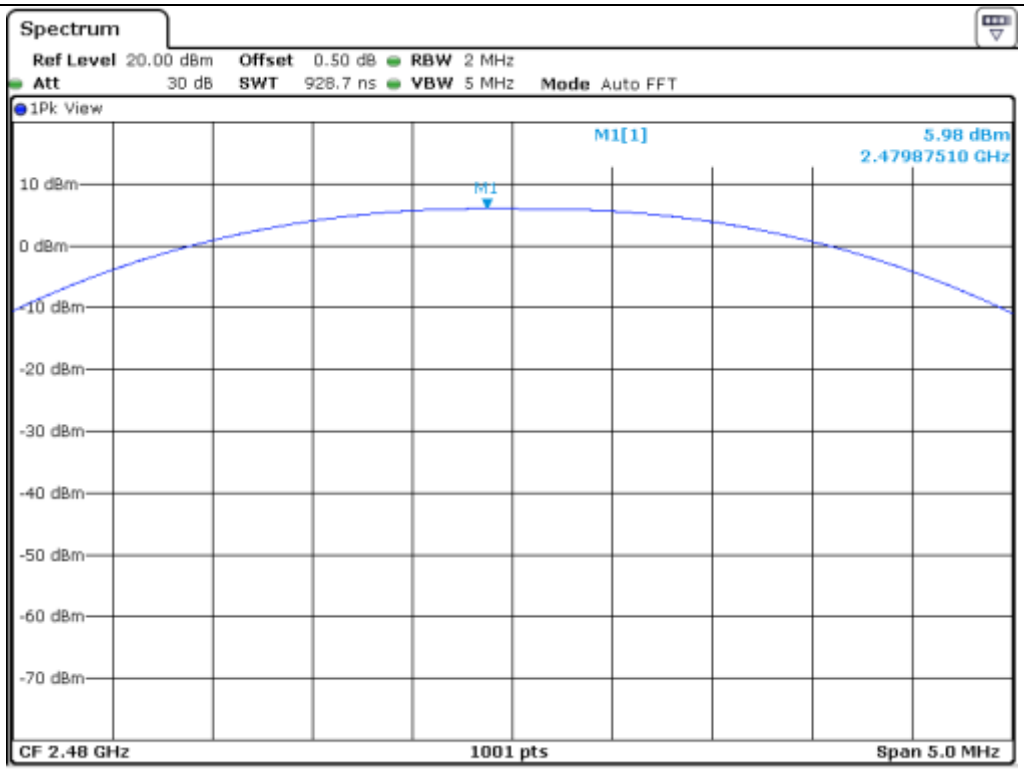
Tested by: Hyung-Kwon, Oh / Manager



Low Channel



Middle Channel



High Channel

11.4.2 Test data for Bluetooth Earbud RIGHT

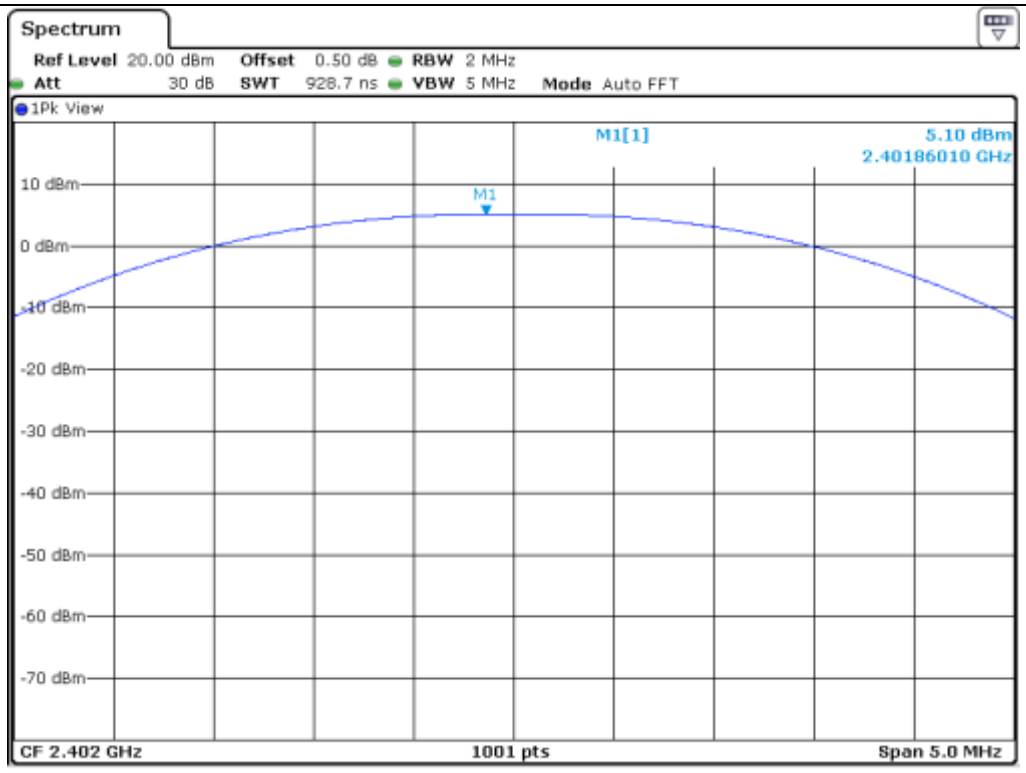
-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

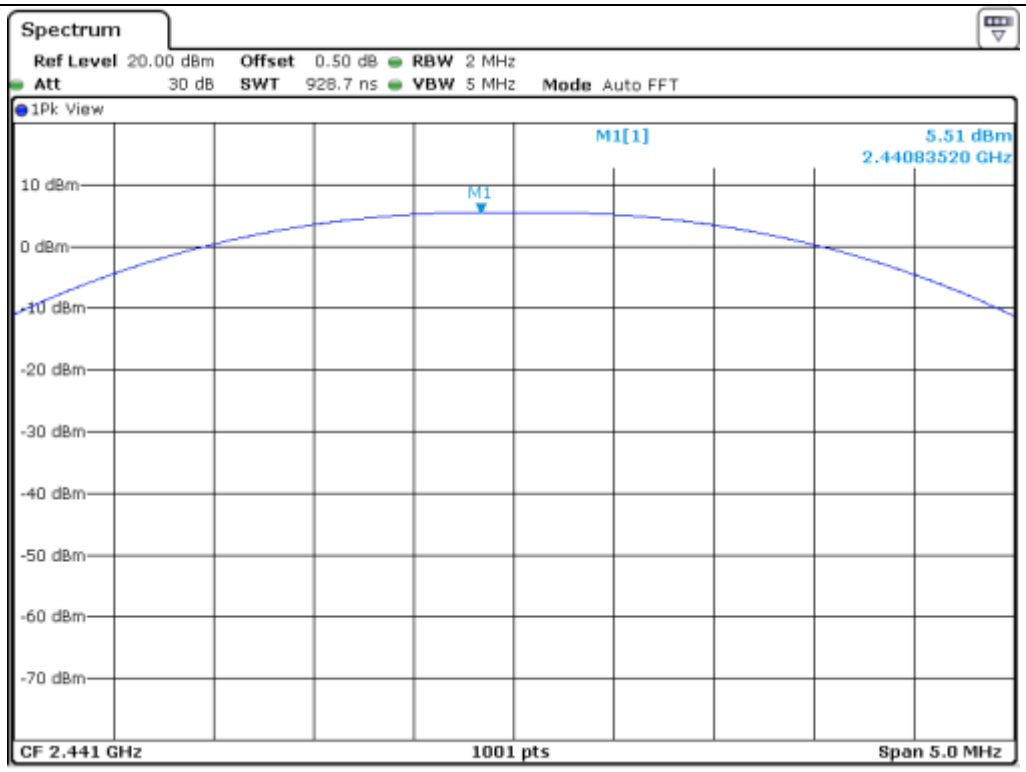
CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 402.00	5.10	21.00	15.90
MIDDLE	2 441.00	5.51	21.00	15.49
HIGH	2 480.00	5.87	21.00	15.13

Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

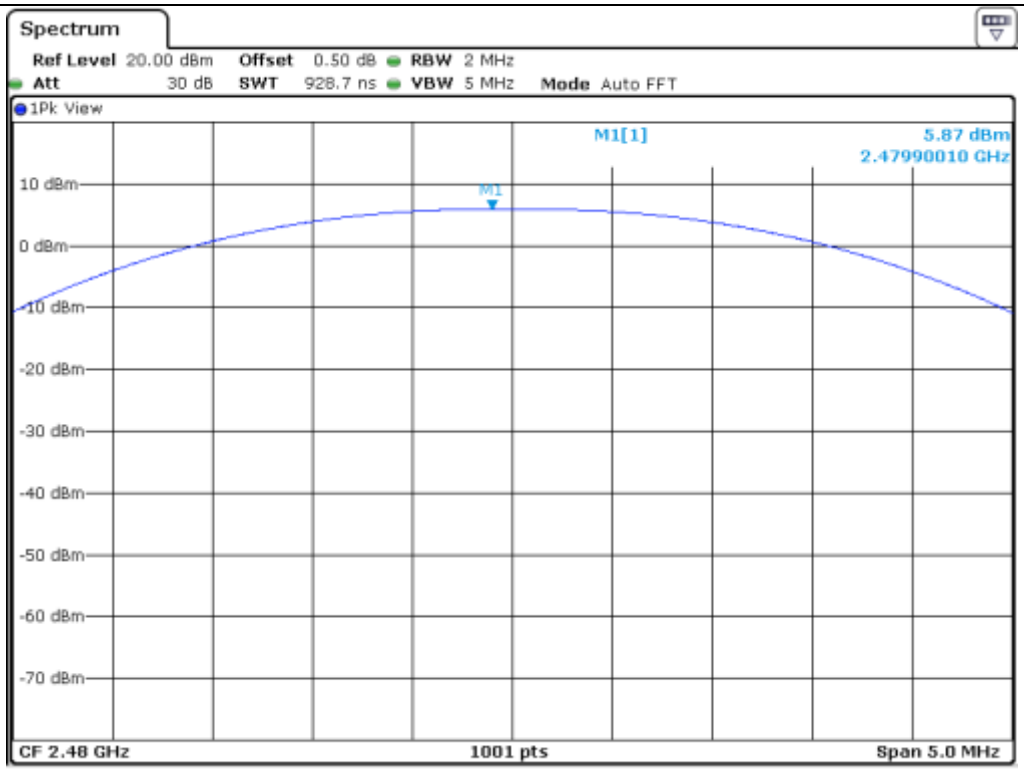
Tested by: Hyung-Kwon, Oh / Manager



Low Channel



Middle Channel



High Channel

11.5 Test data for 2 Mbps

11.5.1 Test data for Bluetooth Earbud LEFT

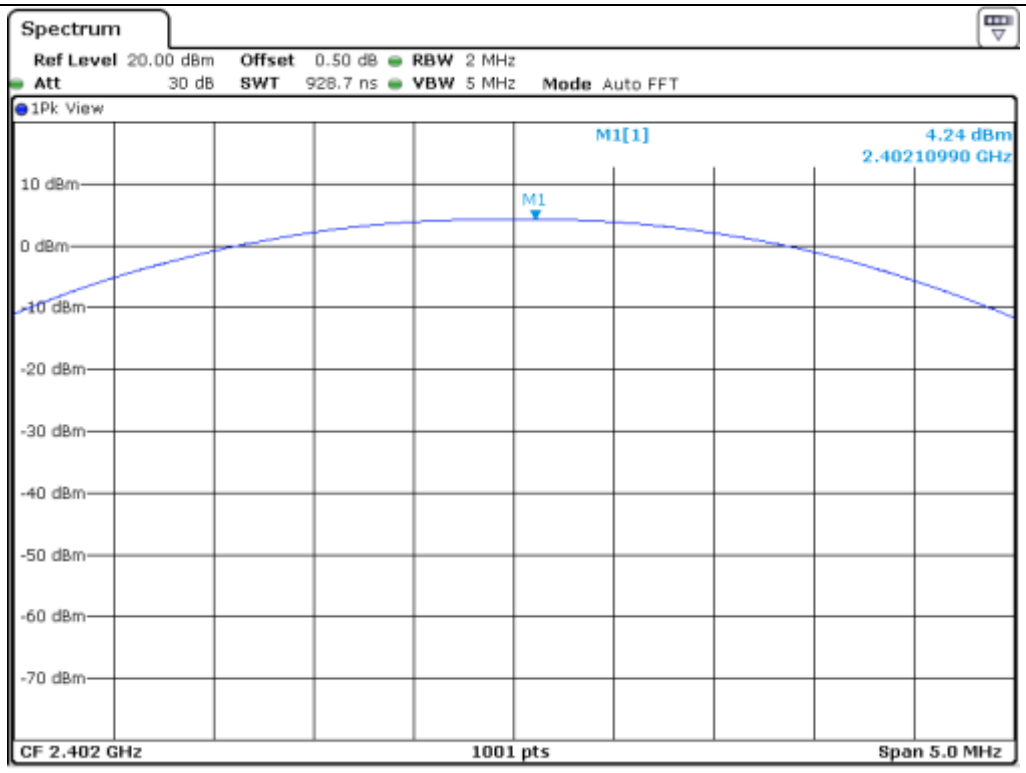
-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

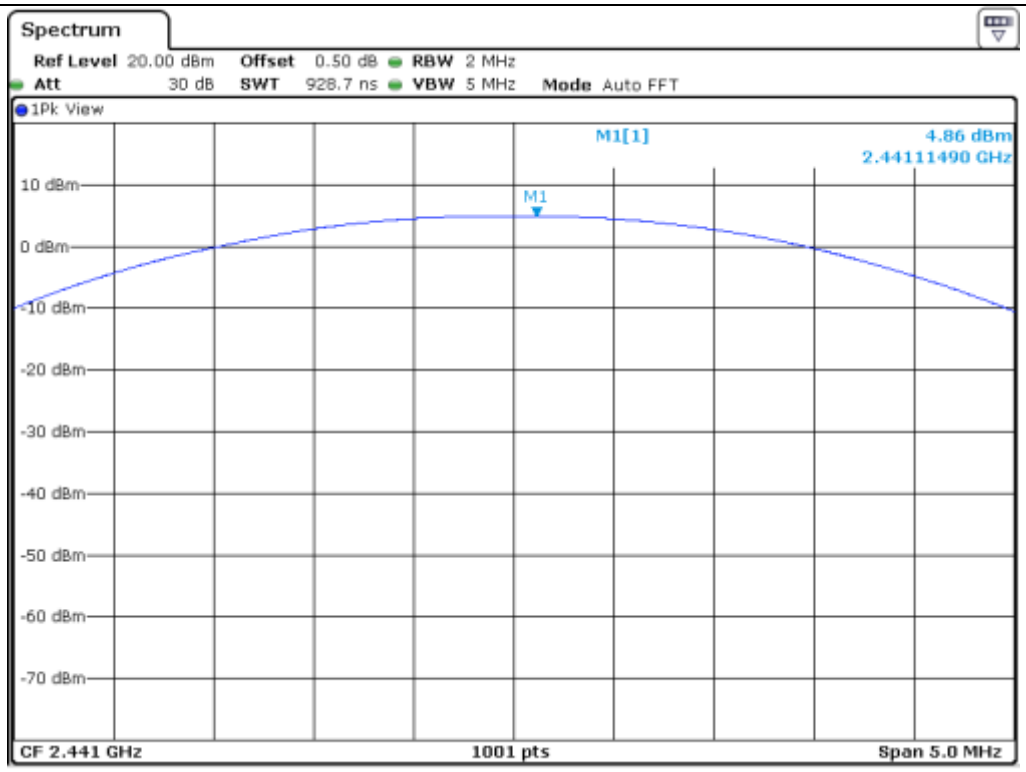
CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 402.00	4.24	21.00	16.76
MIDDLE	2 441.00	4.86	21.00	16.14
HIGH	2 480.00	5.09	21.00	15.91

Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

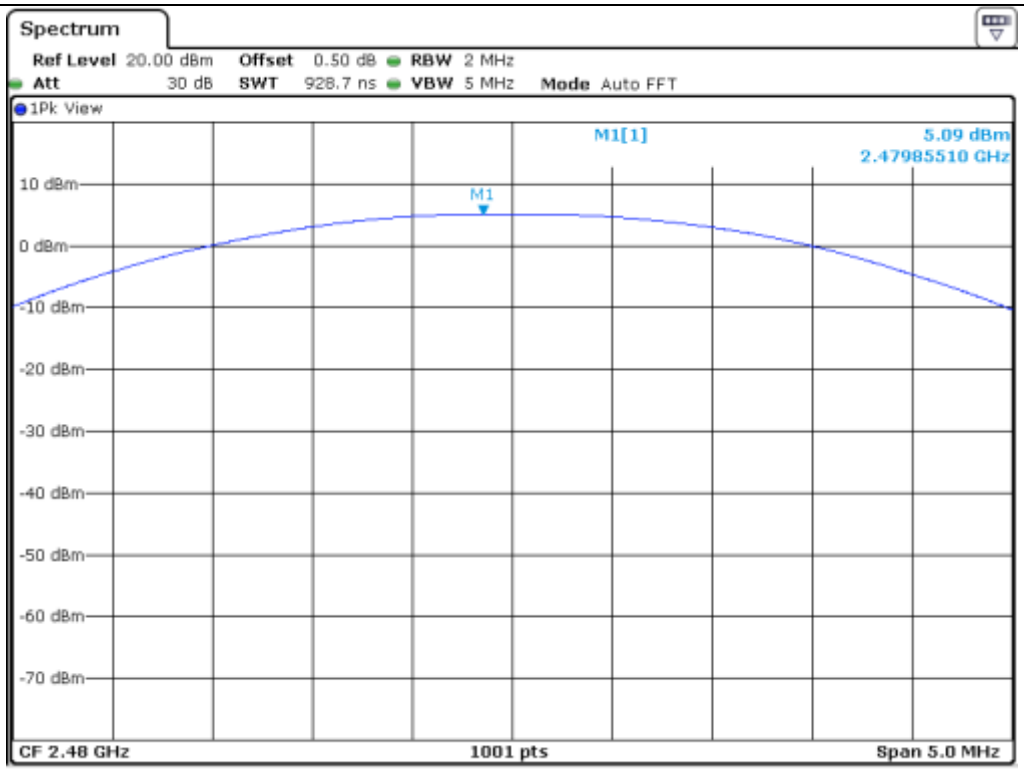
Tested by: Hyung-Kwon, Oh / Manager



Low Channel



Middle Channel



High Channel

11.5.2 Test data for Bluetooth Earbud RIGHT

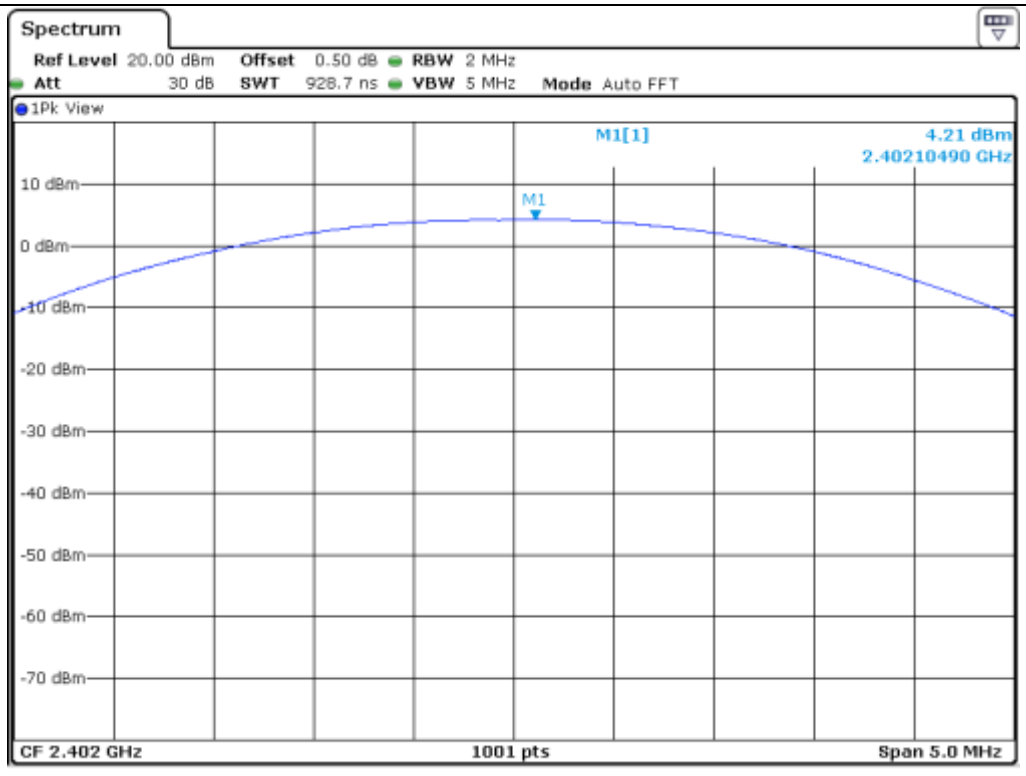
-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

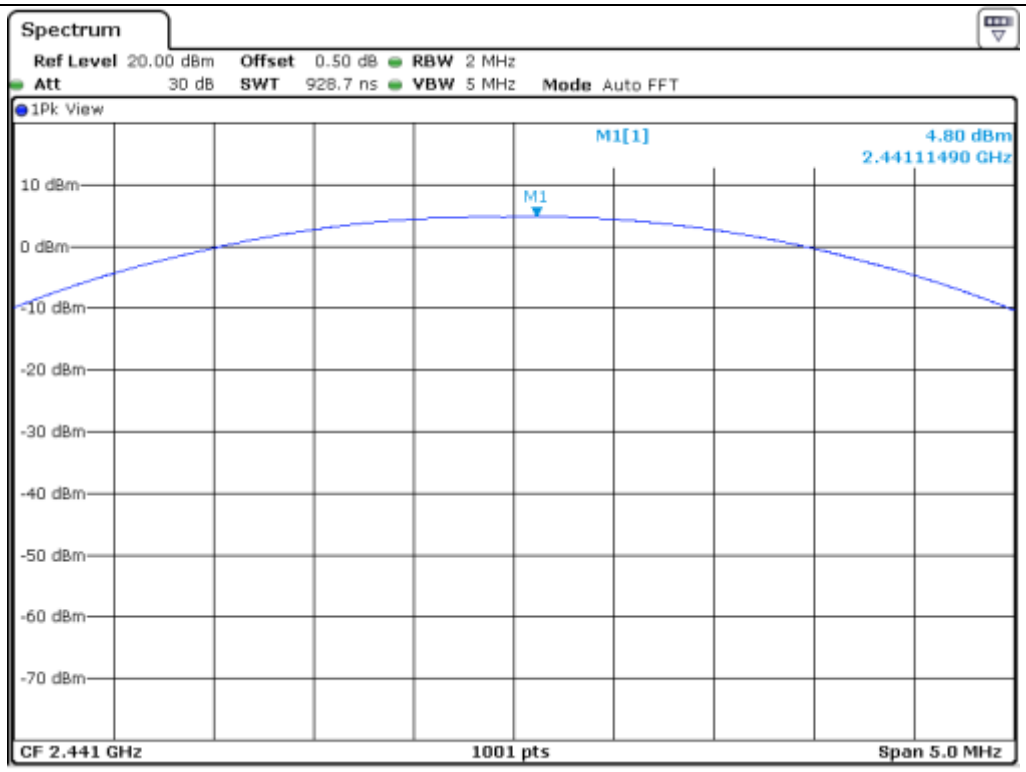
CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 402.00	4.21	21.00	16.79
MIDDLE	2 441.00	4.80	21.00	16.20
HIGH	2 480.00	5.20	21.00	15.80

Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

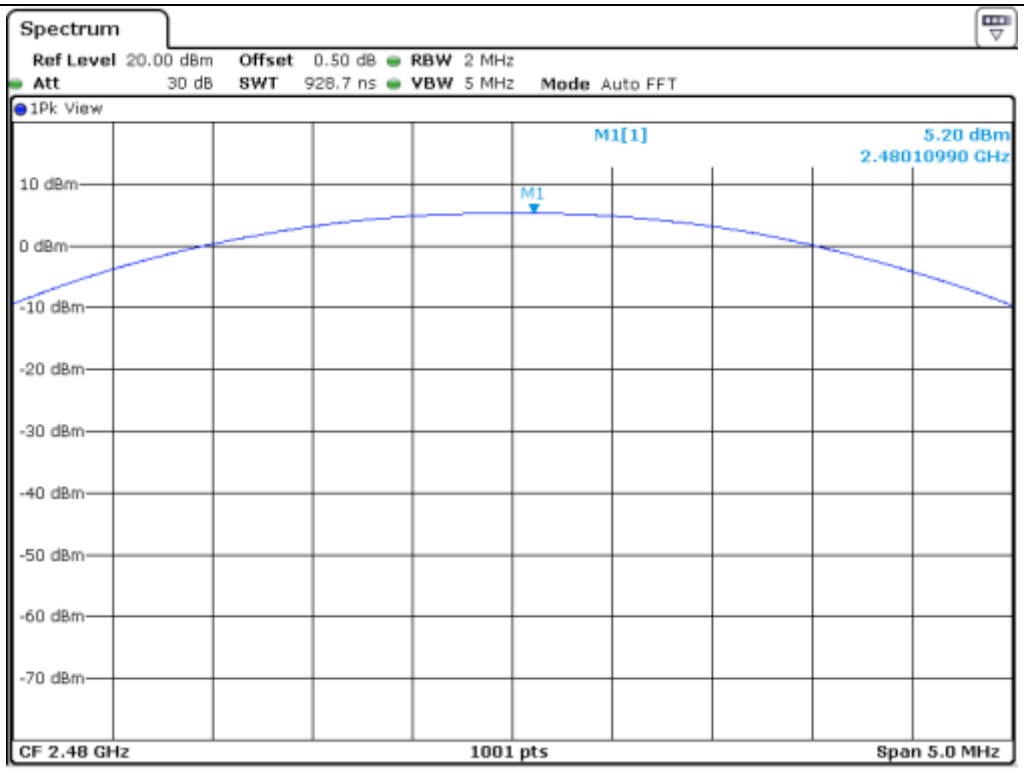
Tested by: Hyung-Kwon, Oh / Manager



Low Channel



Middle Channel



High Channel

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11.6 Test data for 3 Mbps

11.6.1 Test data for Bluetooth Earbud LEFT

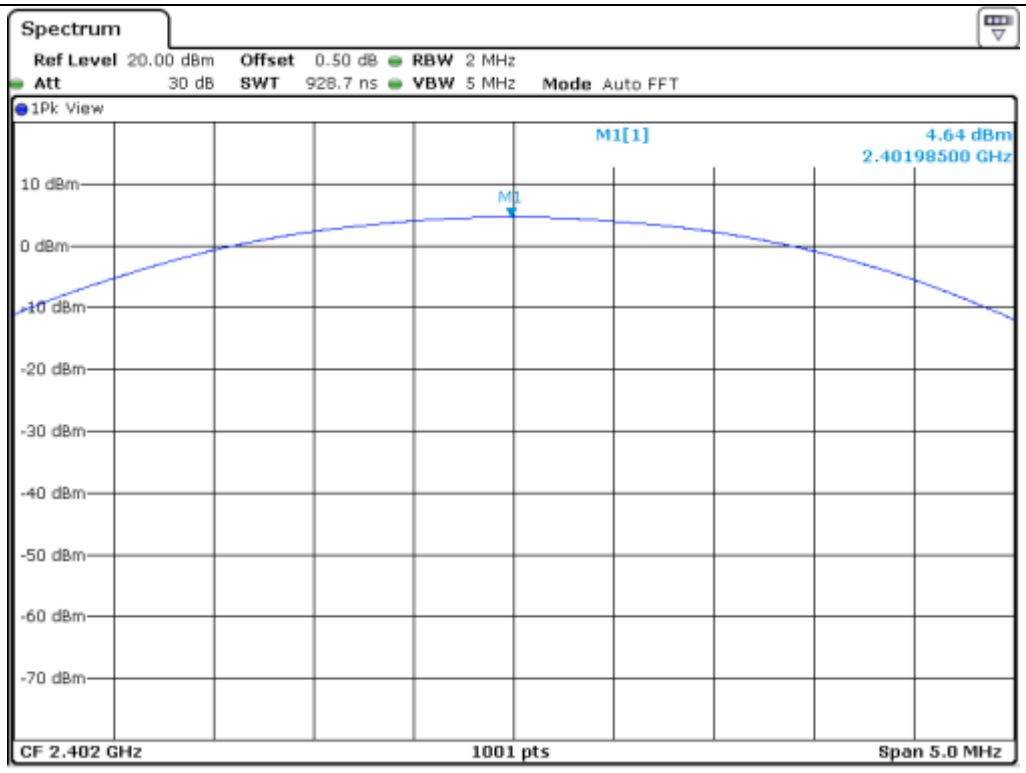
-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

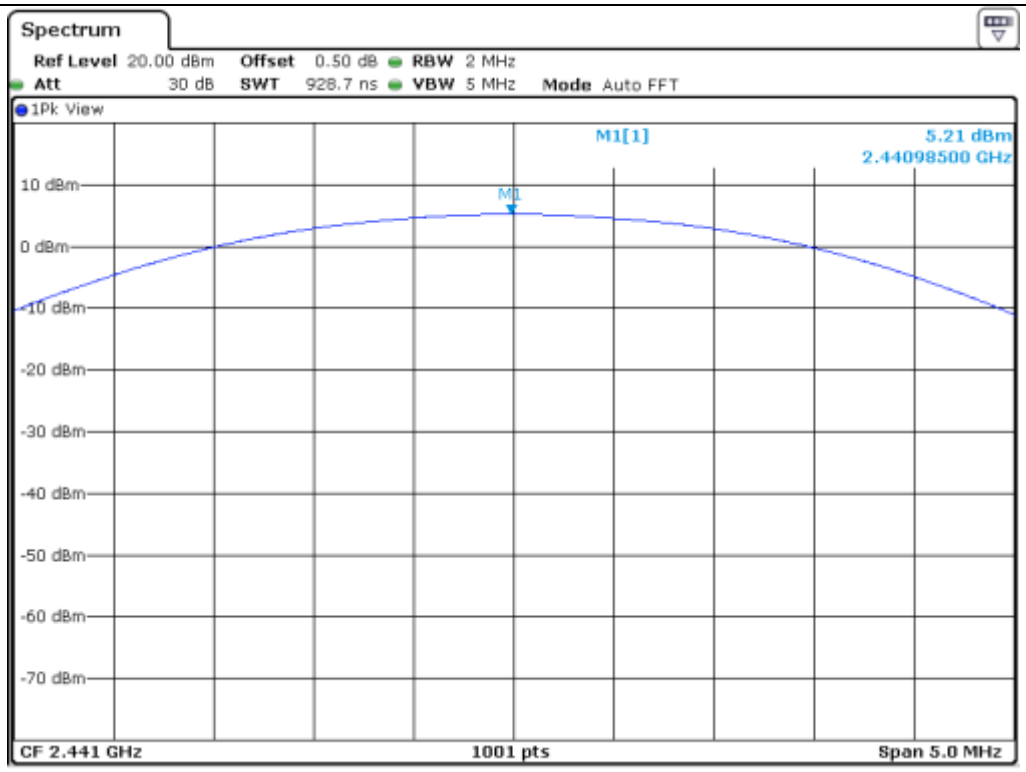
CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 402.00	4.64	21.00	16.36
MIDDLE	2 441.00	5.21	21.00	15.79
HIGH	2 480.00	5.34	21.00	15.66

Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

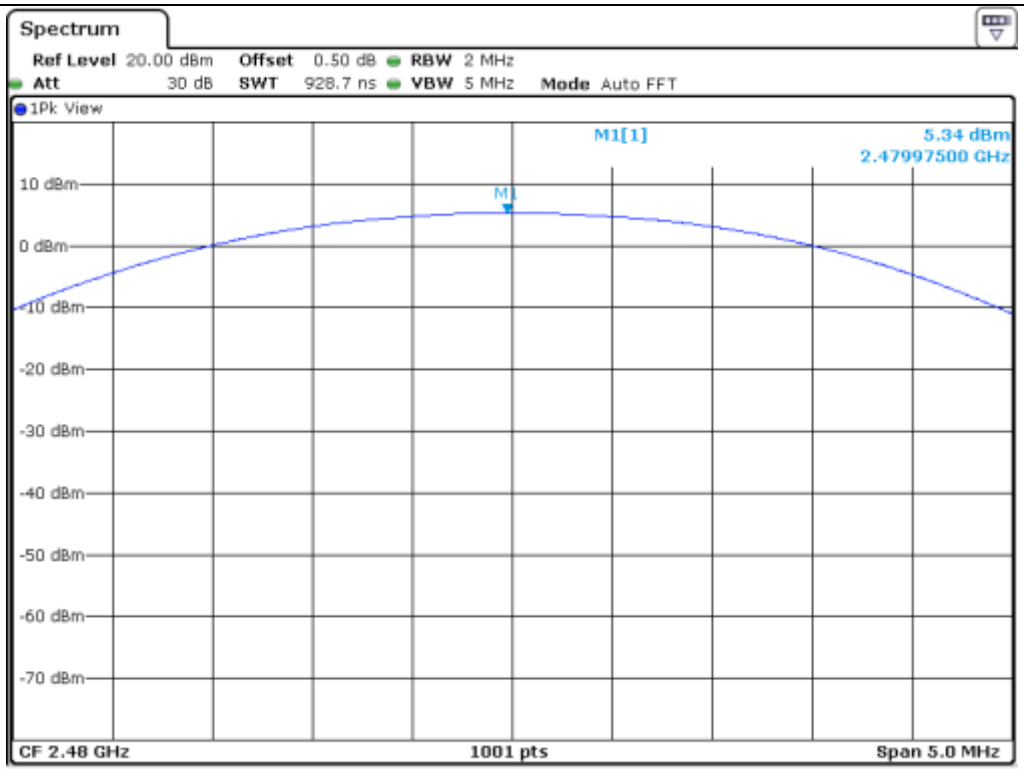
Tested by: Hyung-Kwon, Oh / Manager



Low Channel



Middle Channel



High Channel

11.6.2 Test data for Bluetooth Earbud RIGHT

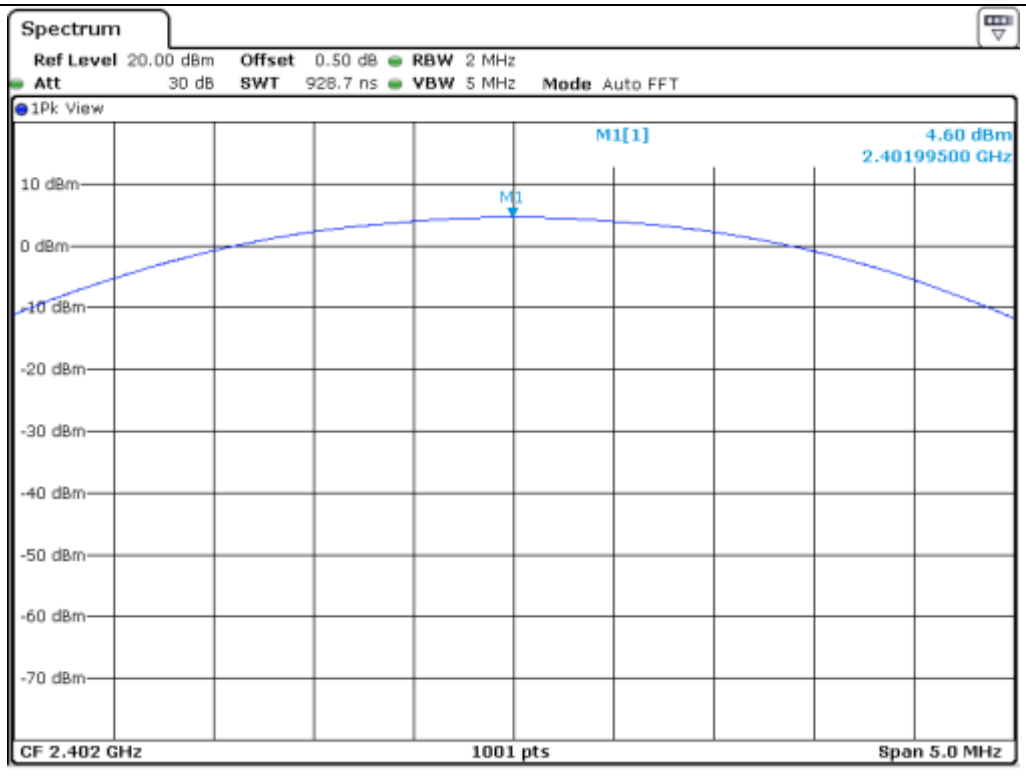
-. Test Date : July 13, 2020 ~ July 17, 2020

-. Test Result : Pass

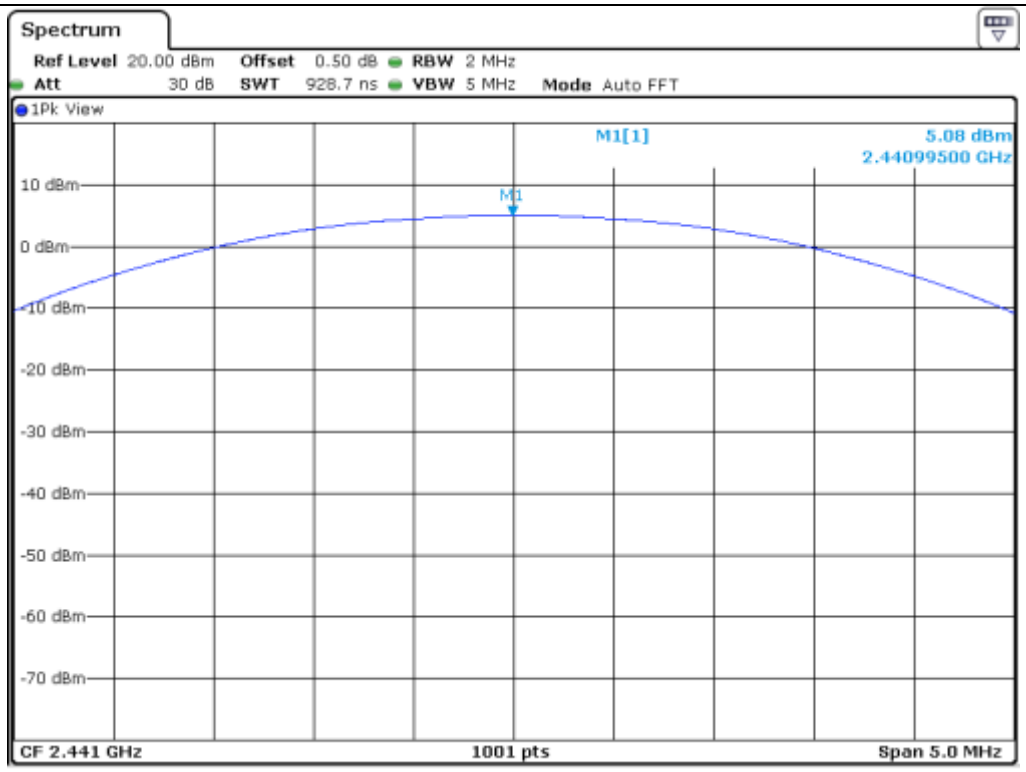
CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 402.00	4.60	21.00	16.40
MIDDLE	2 441.00	5.08	21.00	15.92
HIGH	2 480.00	5.47	21.00	15.53

Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

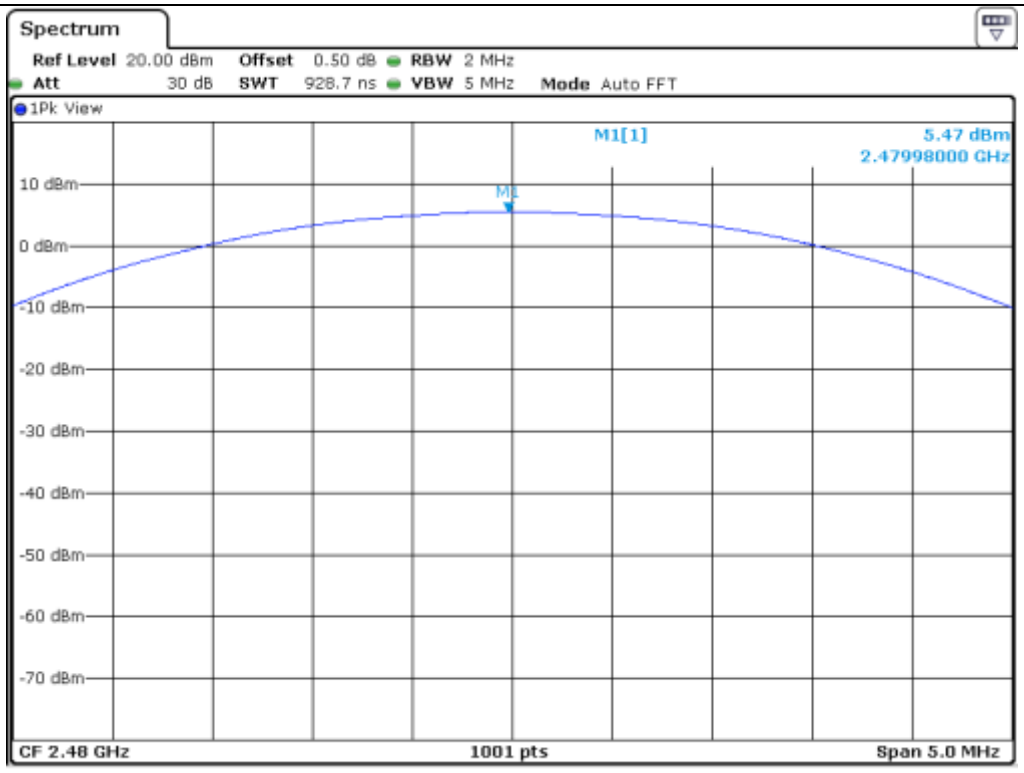
Tested by: Hyung-Kwon, Oh / Manager



Low Channel



Middle Channel



High Channel

12. 100 kHz BANDWIDTH OUTSIDE THE FREQUENCY BAND

12.1 Operating environment

Temperature : 23 °C

Relative humidity : 45 % R.H.

12.2 Test set-up for conducted measurement

The antenna output of the EUT was connected to the spectrum analyzer. The resolution and video bandwidth is set to 100 kHz, and peak detection was used.

12.3 Test set-up for radiated measurement

The radiated emissions measurements were performed on the 10 m semi anechoic chamber. The EUT was placed on turntable approximately 1.5 m above the ground plane.

The frequency spectrum from 30 MHz to 26.5 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

12.4 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Feb. 21, 2020 (1Y)
■ -	ESW	Rohde & Schwarz	EMI Test Receiver	101851	Aug. 07, 2019 (1Y)
■ -	310N	Sonoma Instrument	Pre-Amplifier	312544	Mar. 16, 2020 (1Y)
■ -	BBV 9718 B	Schwarzbeck	Broadband Preamplifier	00009	Mar. 16, 2020 (1Y)
■ -	SCU40A	Rohde & Schwarz	Signal Conditioning unit	100436	Feb. 20, 2020 (1Y)
■ -	SCU18	Rohde & Schwarz	Signal Conditioning unit	102266	Jul. 24, 2019(1Y)
■ -	DT3000-3t	Innco System	Turn Table	DT3000/093	N/A
■ -	MA-4000XPET	Innco System	Antenna Master	MA4000/509	N/A
■ -	VULB9163	Schwarzbeck	TRILOG Broadband Antenna	777	Apr. 08, 2020 (2Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	9120D-1366	Jul. 23, 2020 (1Y)
■ -	BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Jan. 07, 2020(1Y)

All test equipment used is calibrated on a regular basis.

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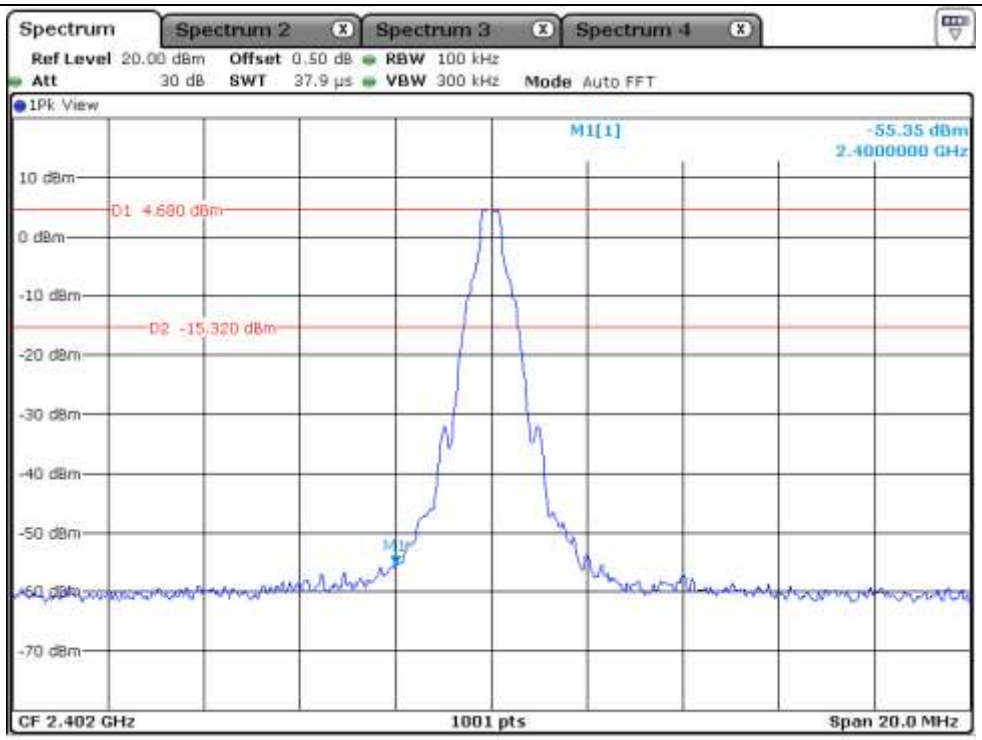
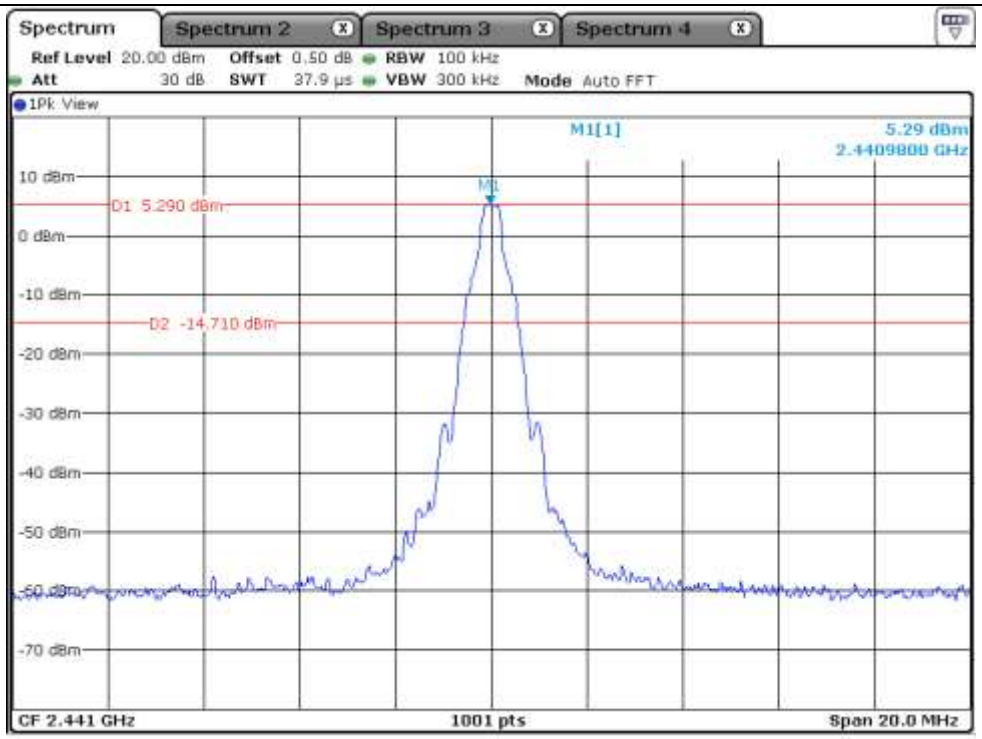
12.5 Test data for conducted emission

12.5.1 Test data for 1 Mbps

12.5.1.1 Test data for Bluetooth Earbud LEFT



Low Channel



Middle Channel

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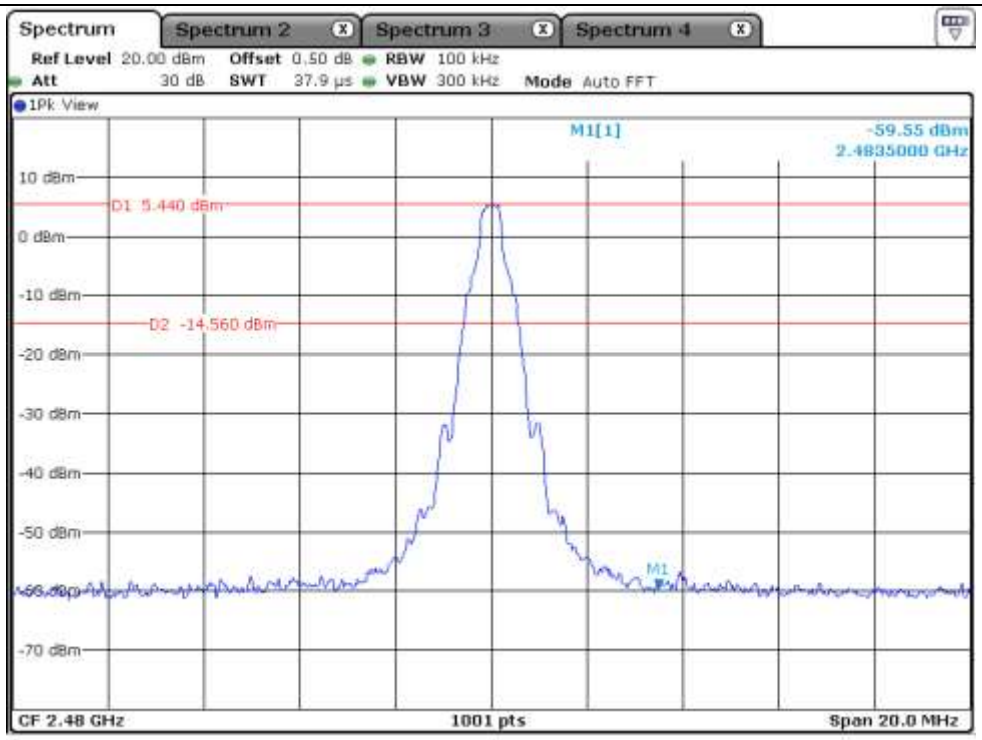
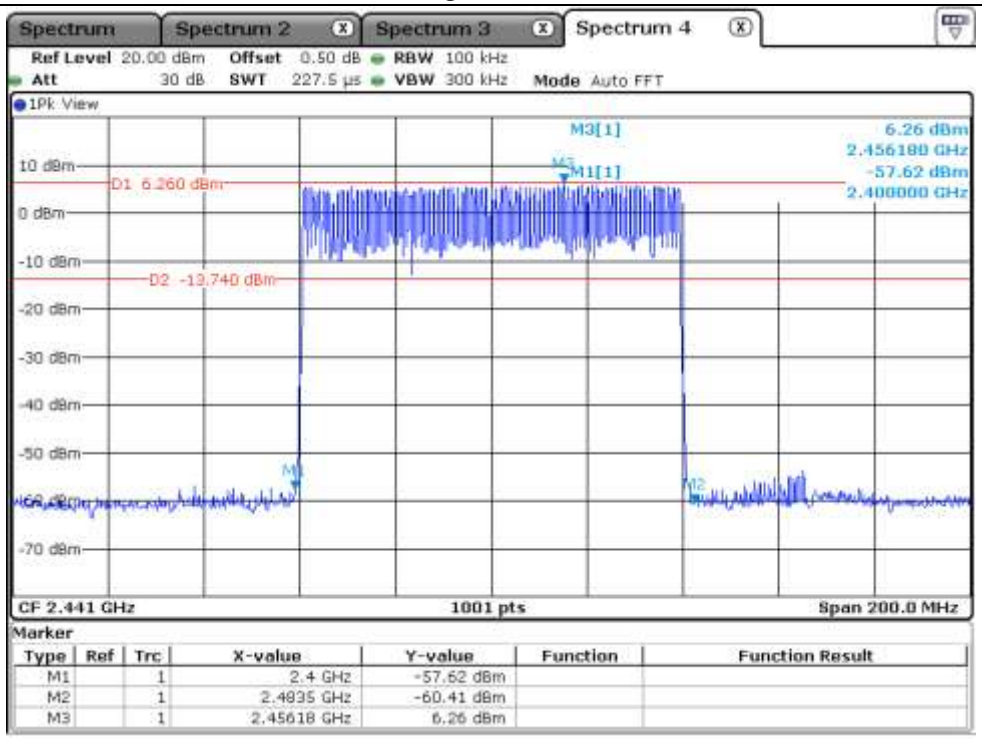
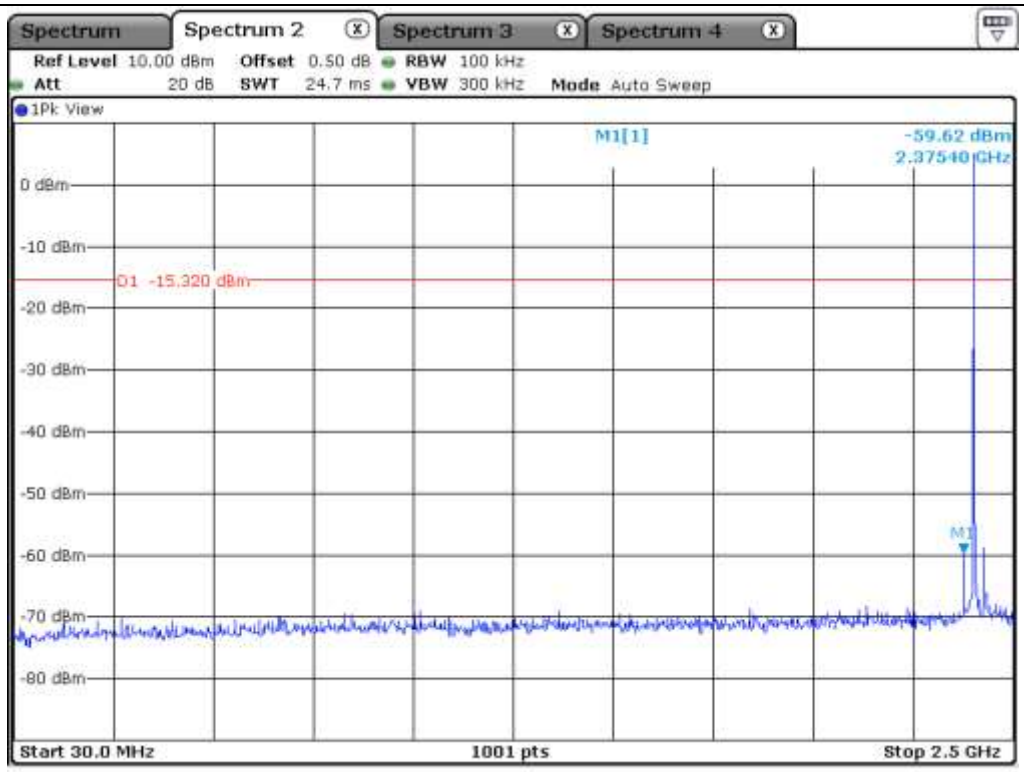


High Channel

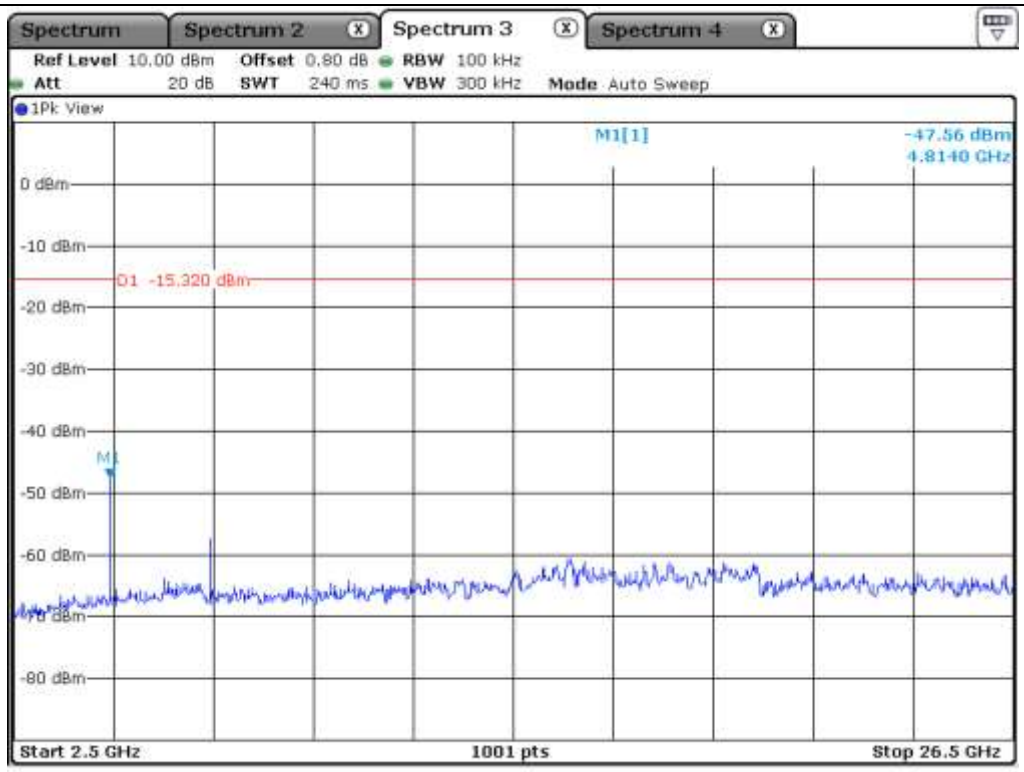


Hopping Mode

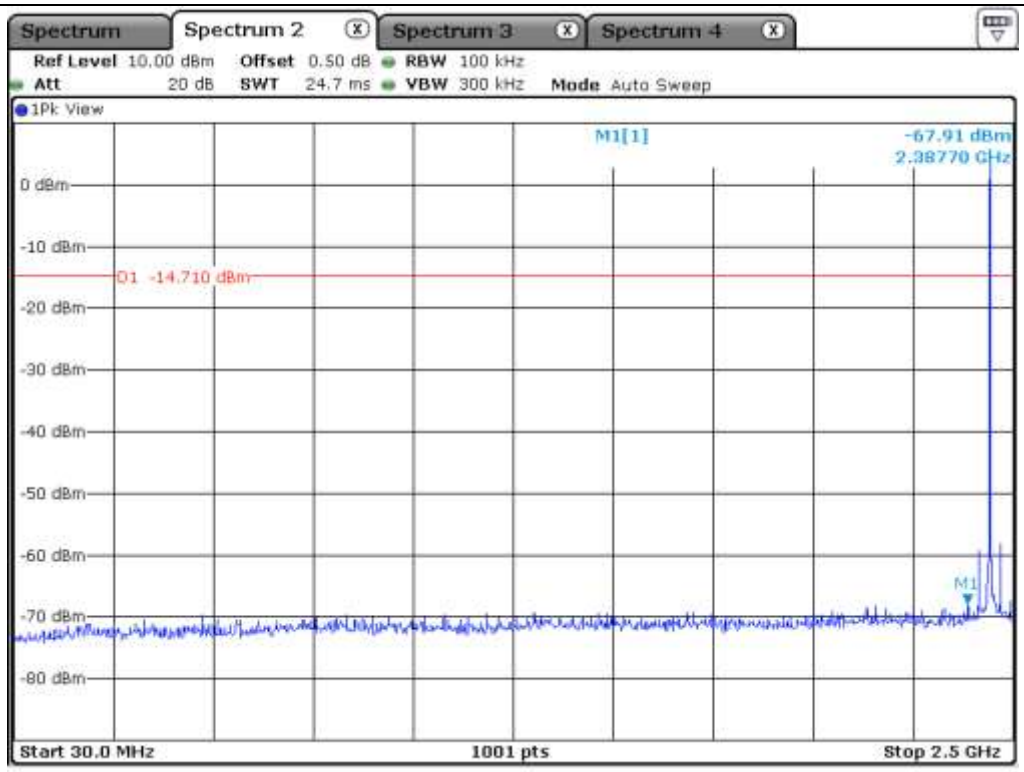
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



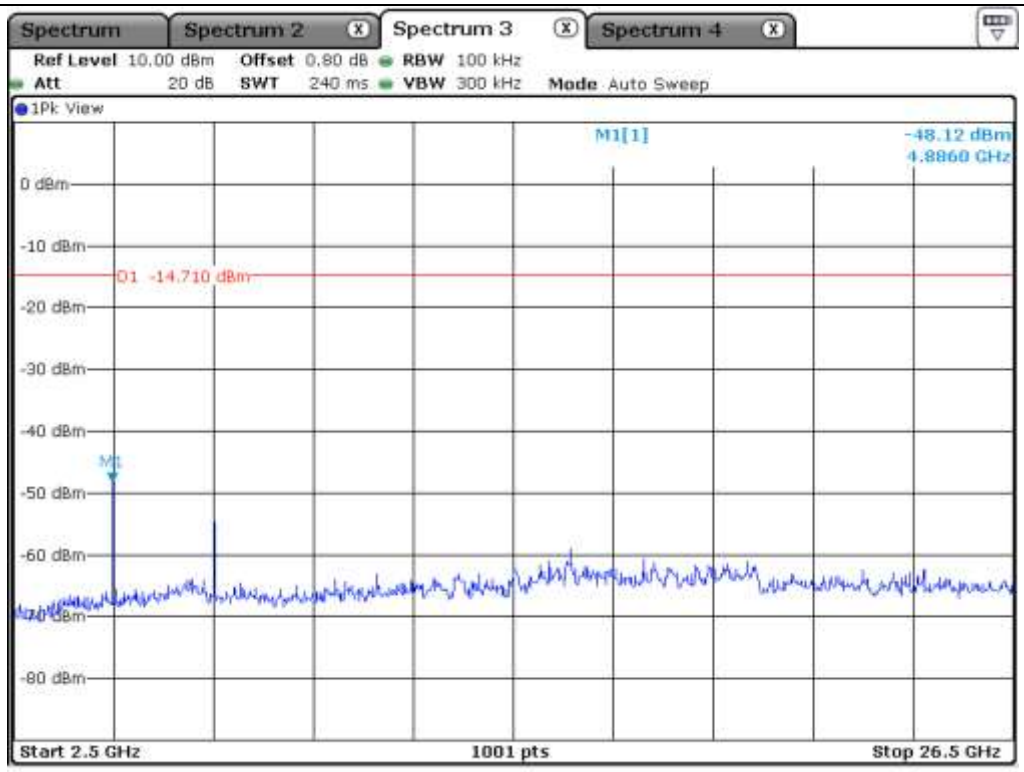
Low Channel



Low Channel

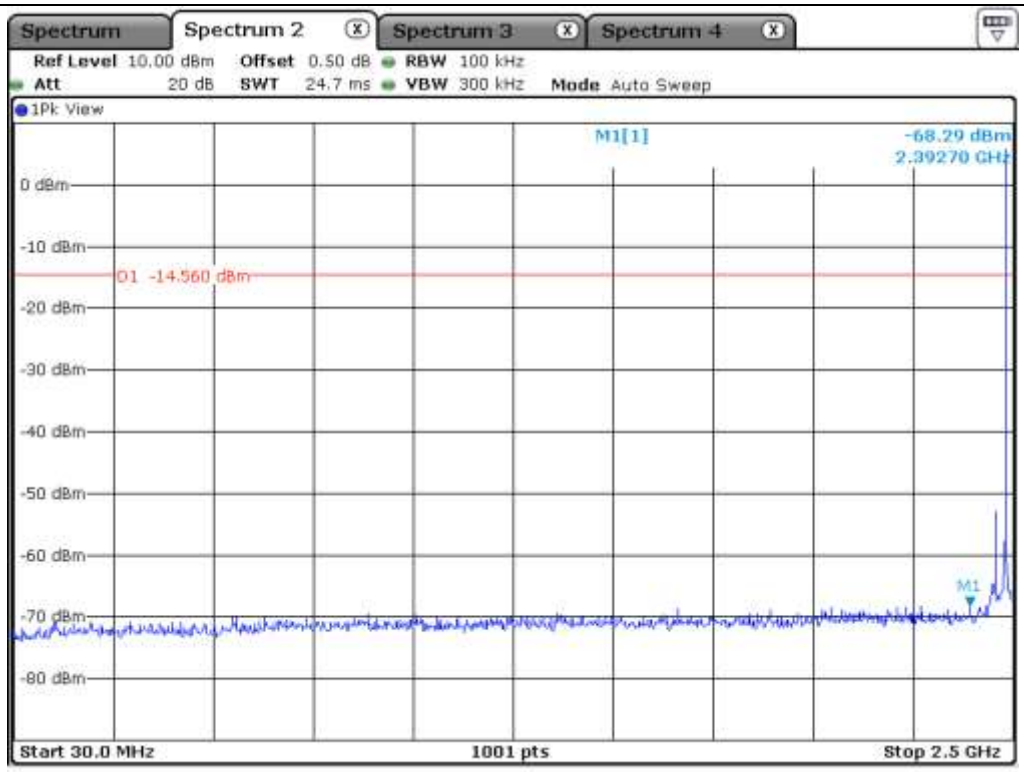


Middle Channel

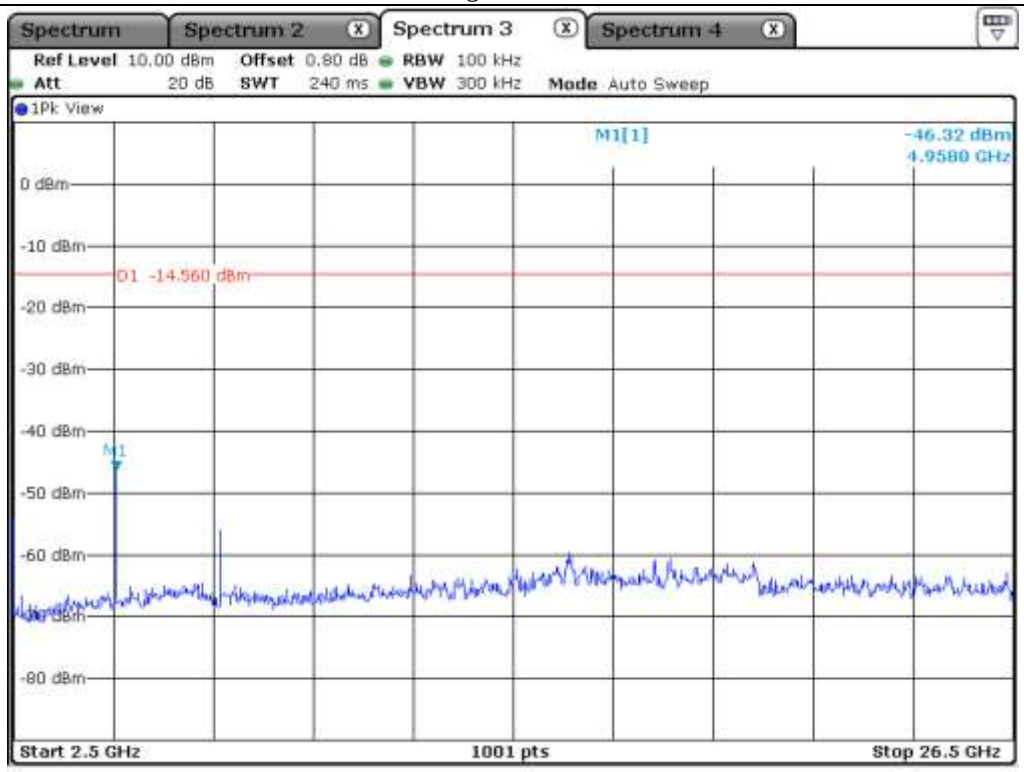


Middle Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

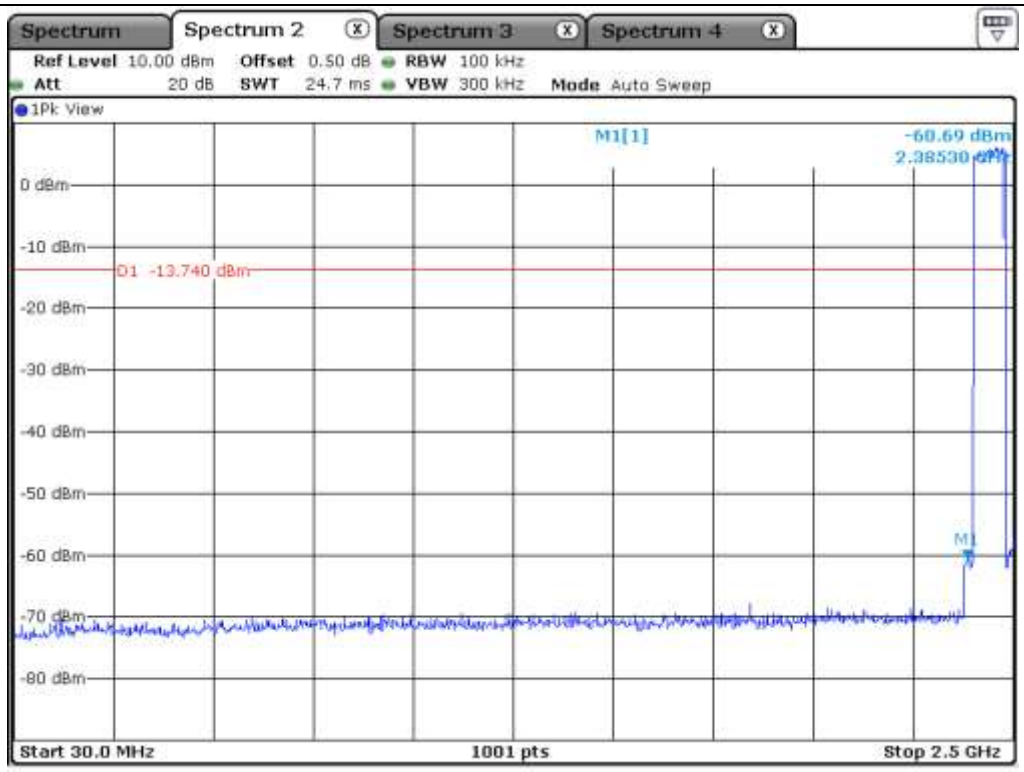


High Channel

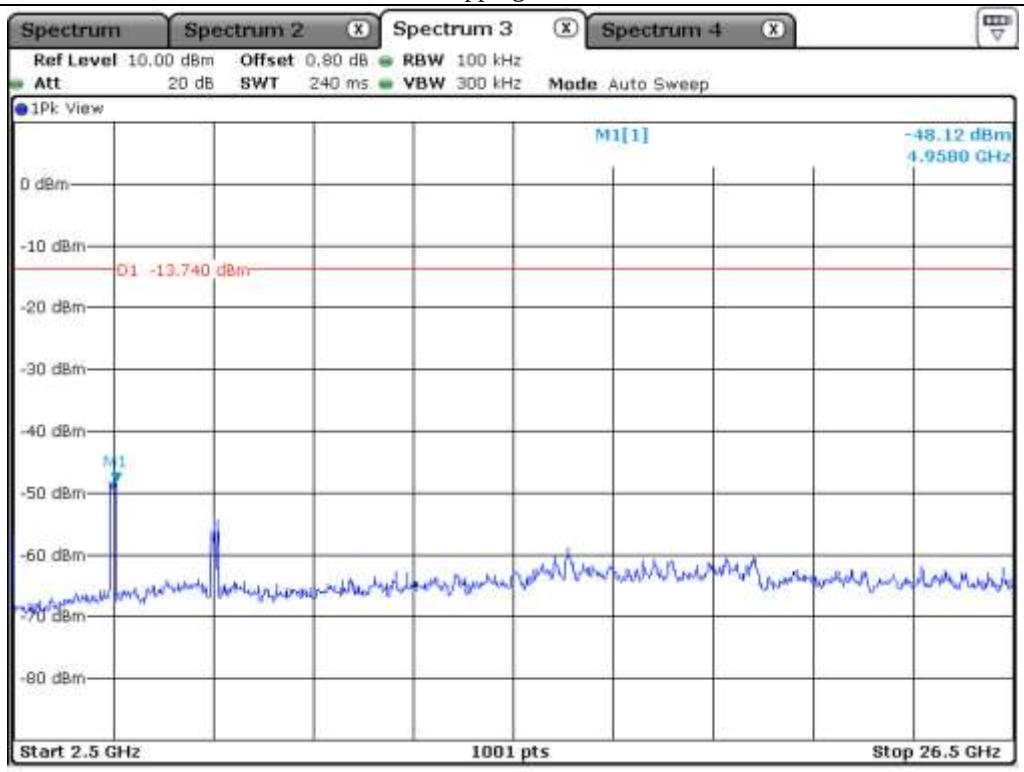


High Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



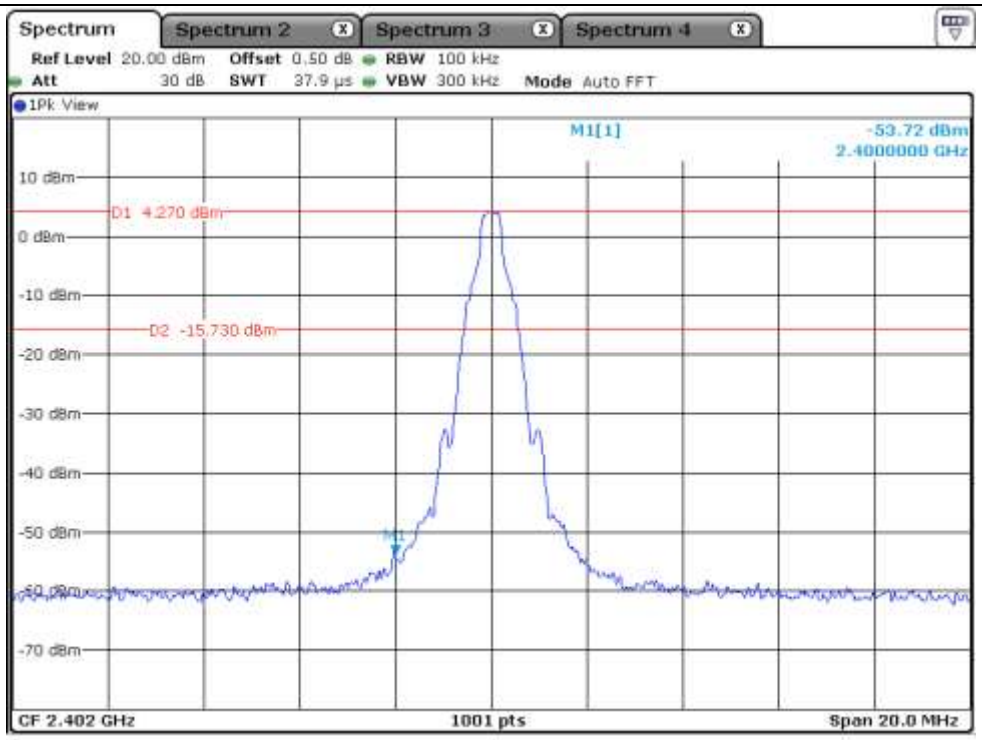
Hopping Mode



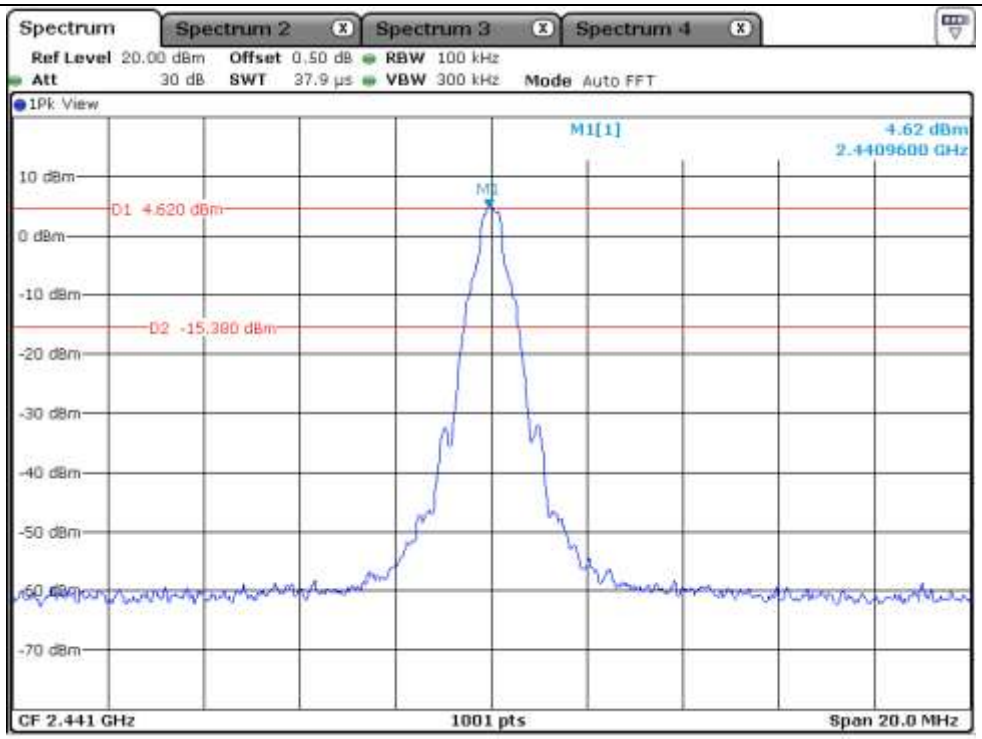
Hopping Mode

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

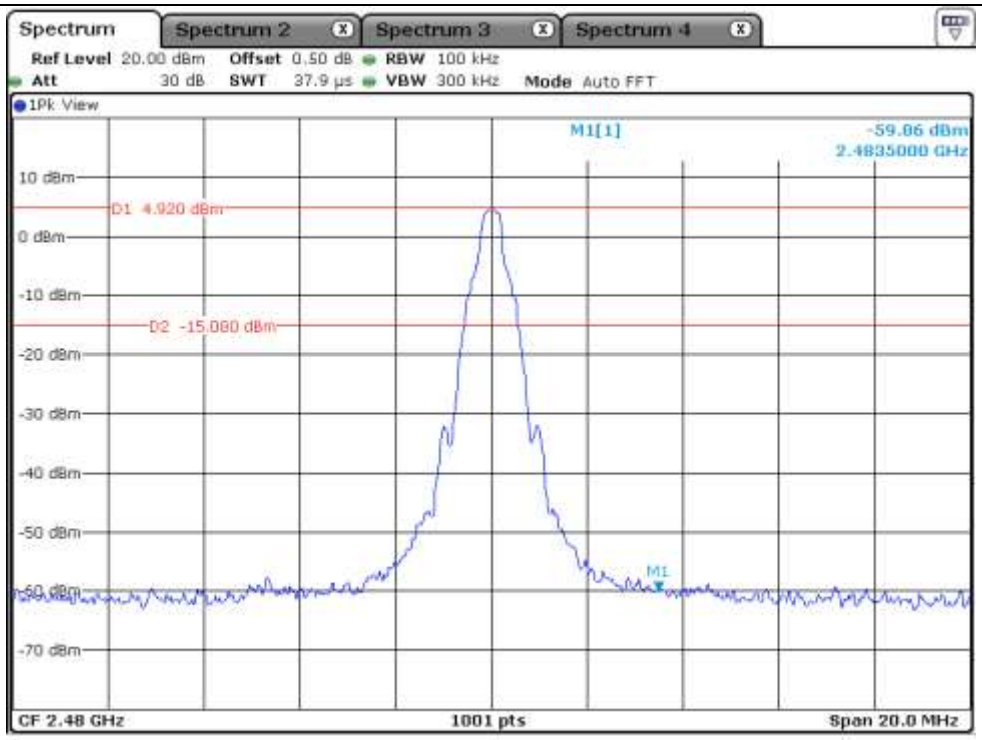
12.5.1.2 Test data for Bluetooth Earbud RIGHT



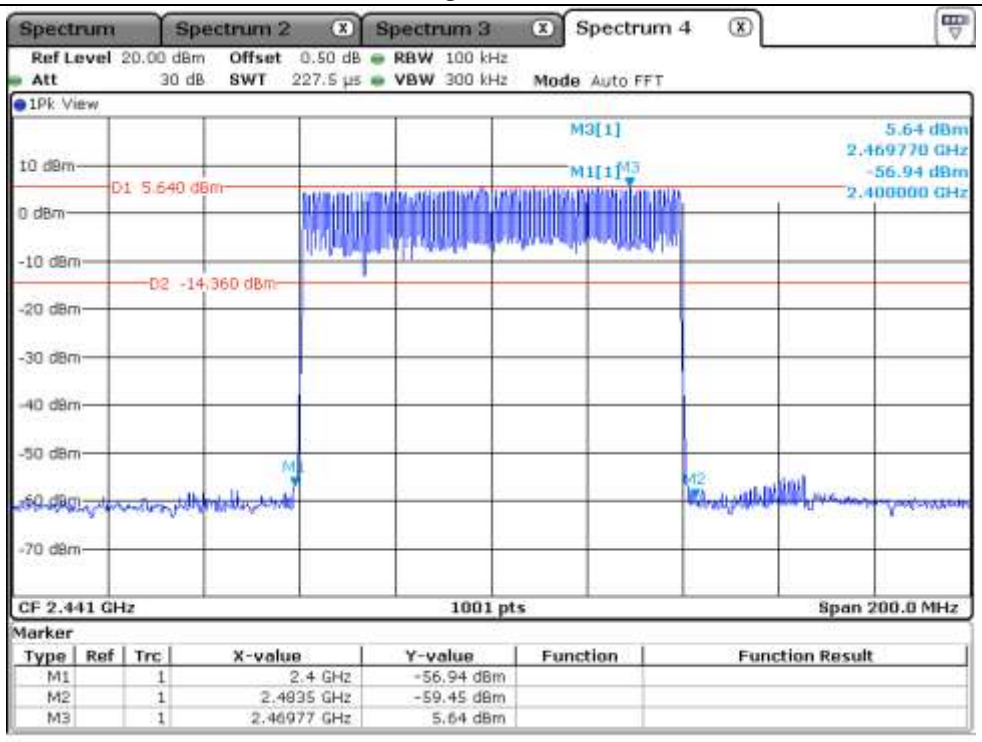
Low Channel



Middle Channel



High Channel



Hopping Mode

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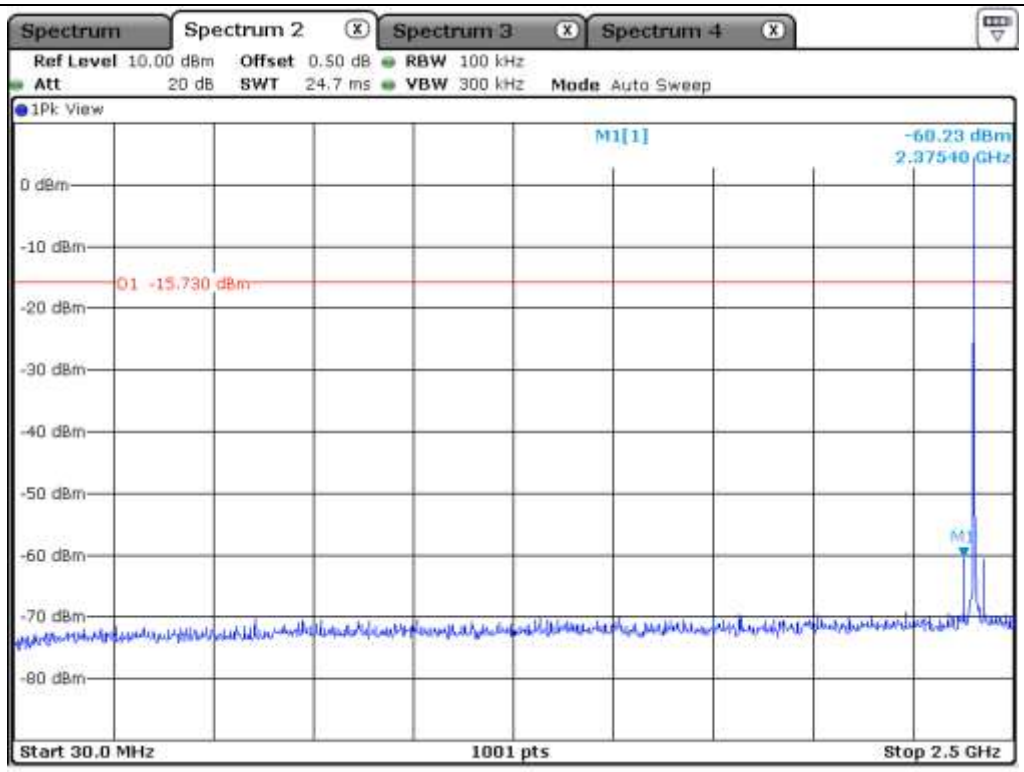
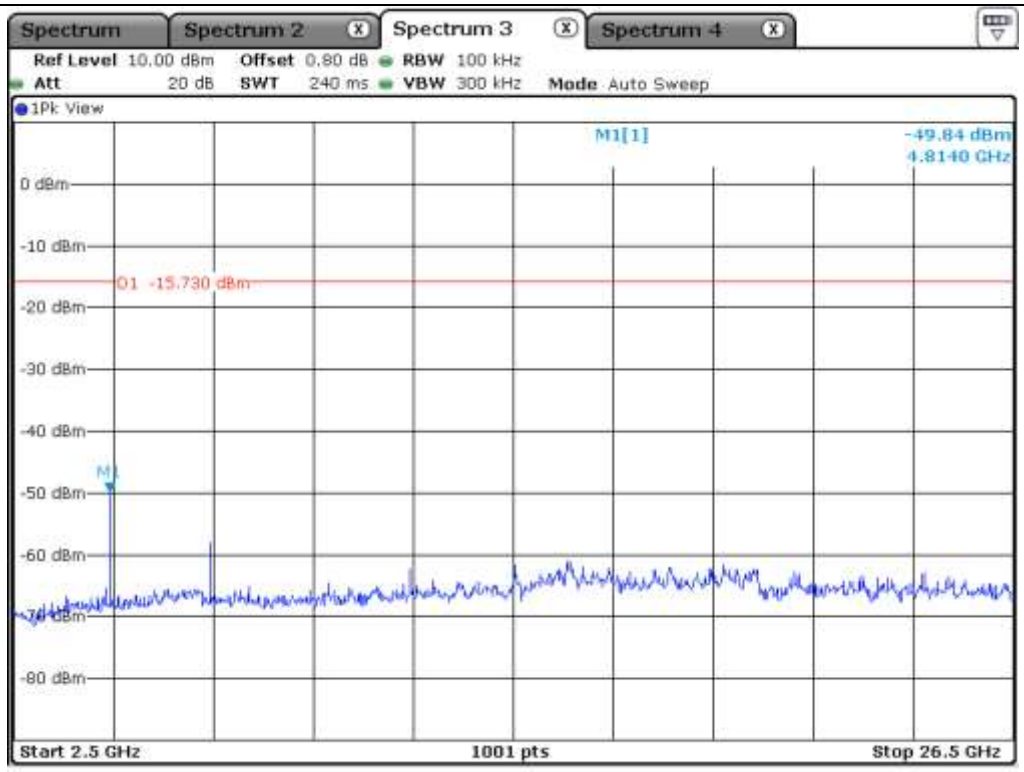
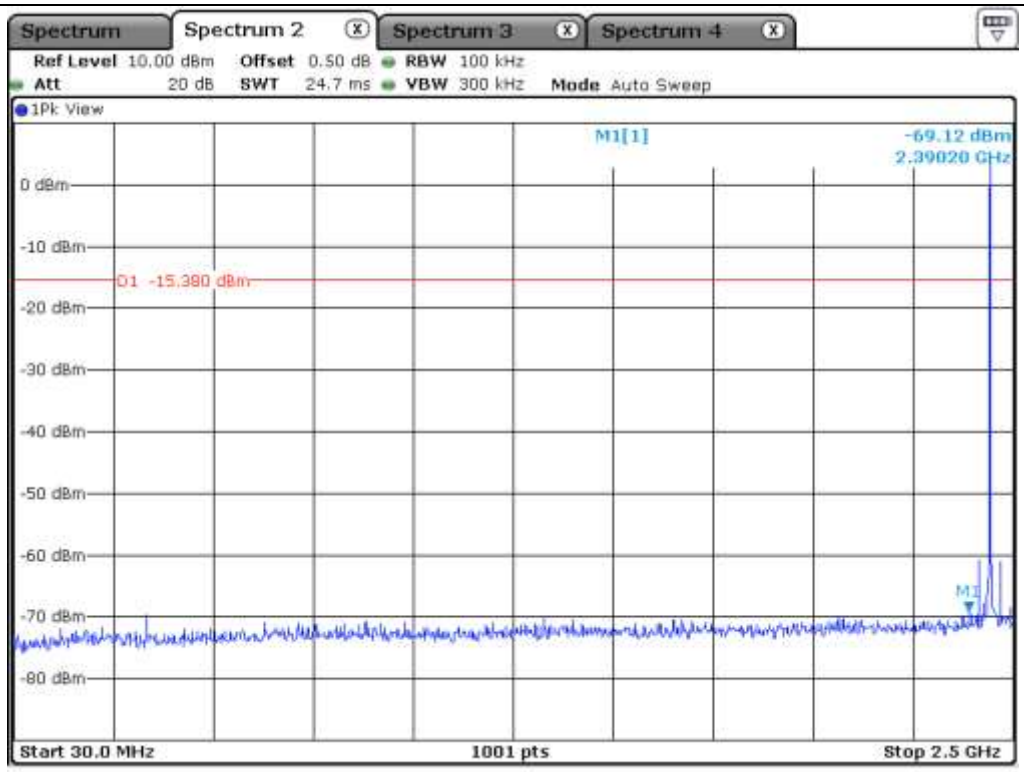


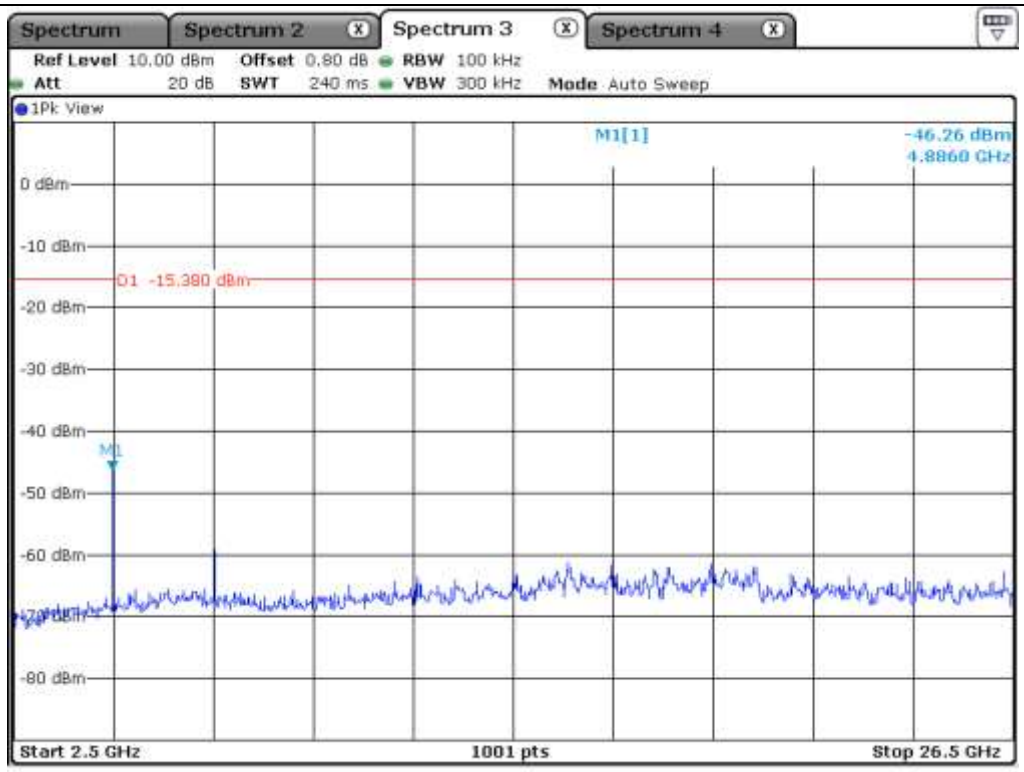
Low Channel



Low Channel

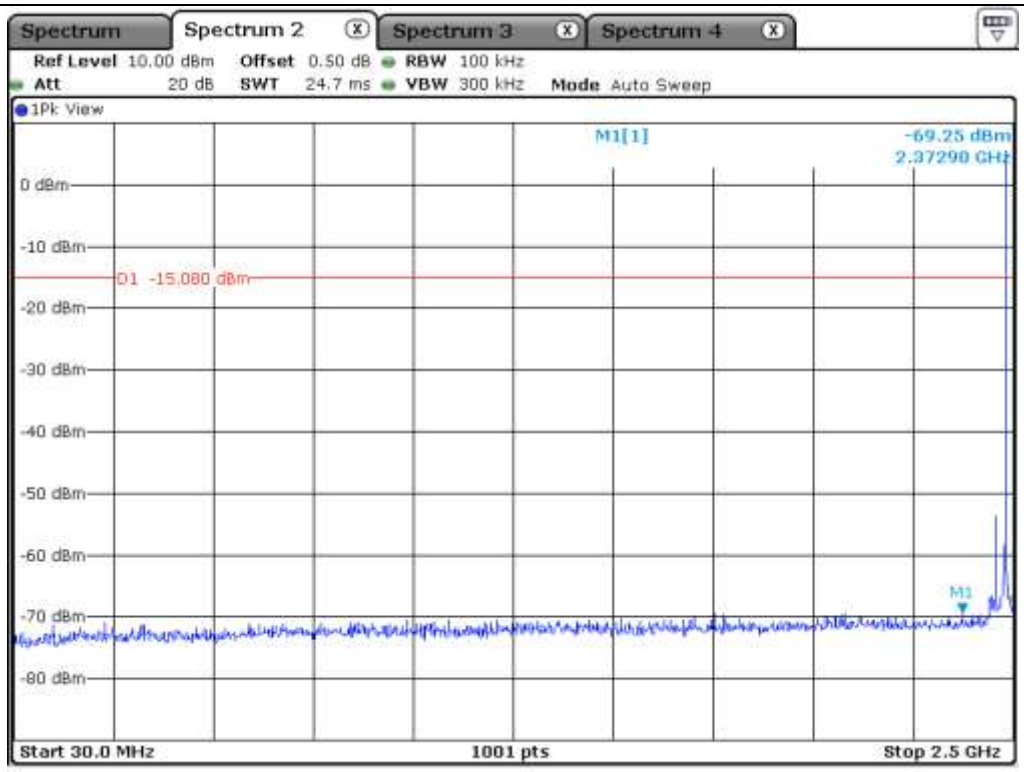


Middle Channel

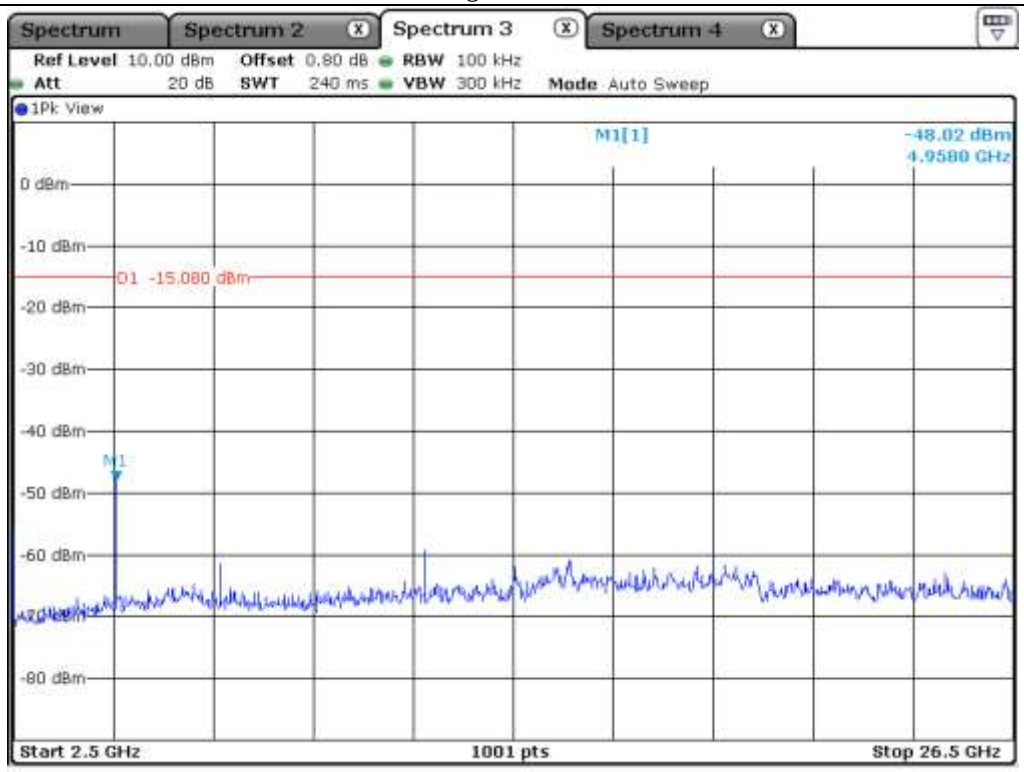


Middle Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

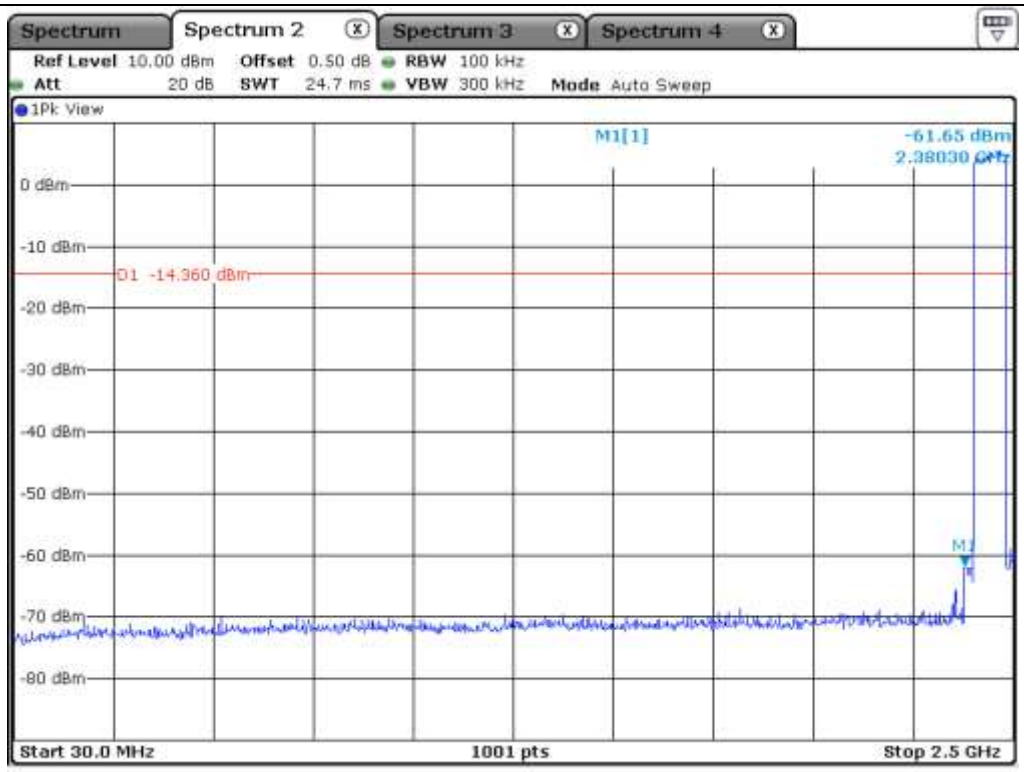


High Channel

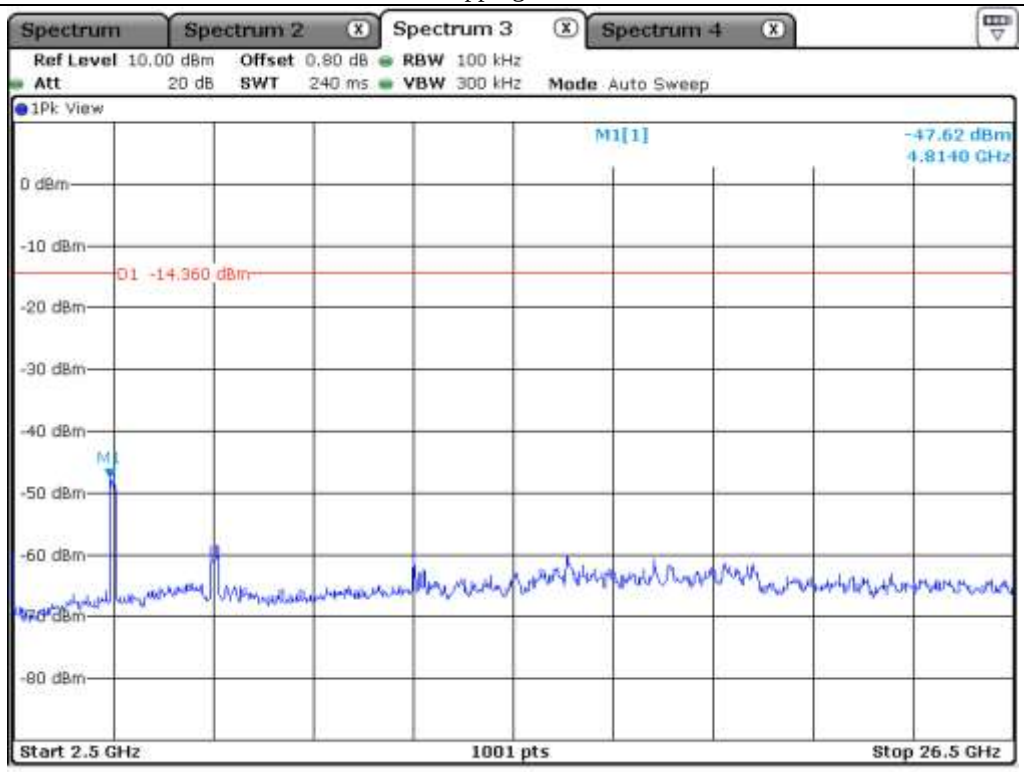


High Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Hopping Mode

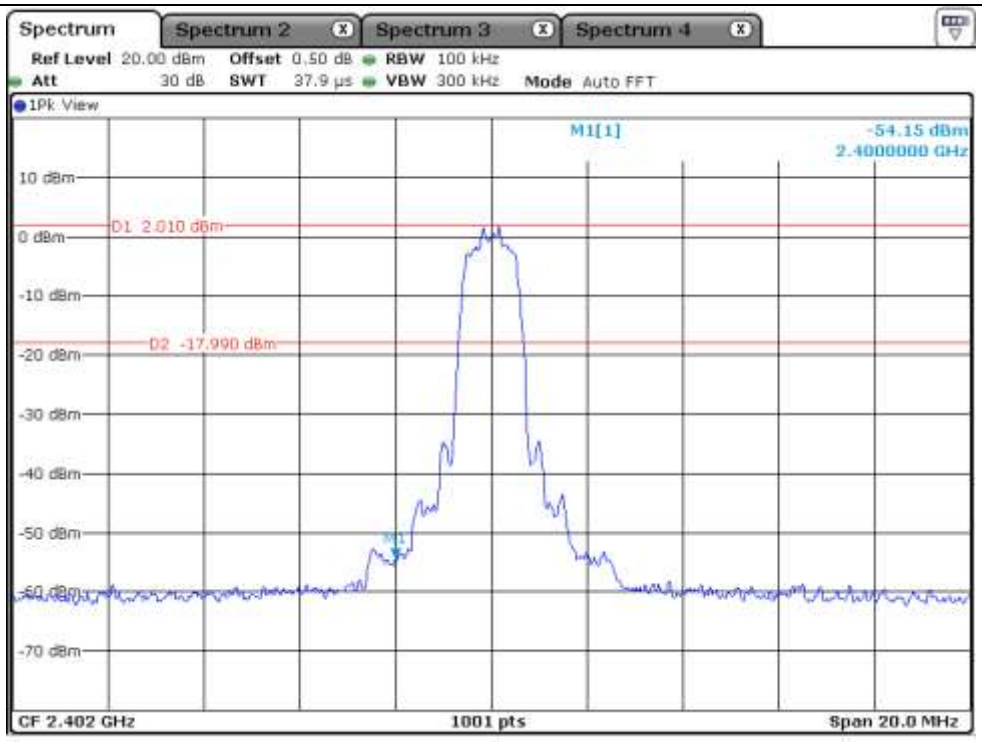


Hopping Mode

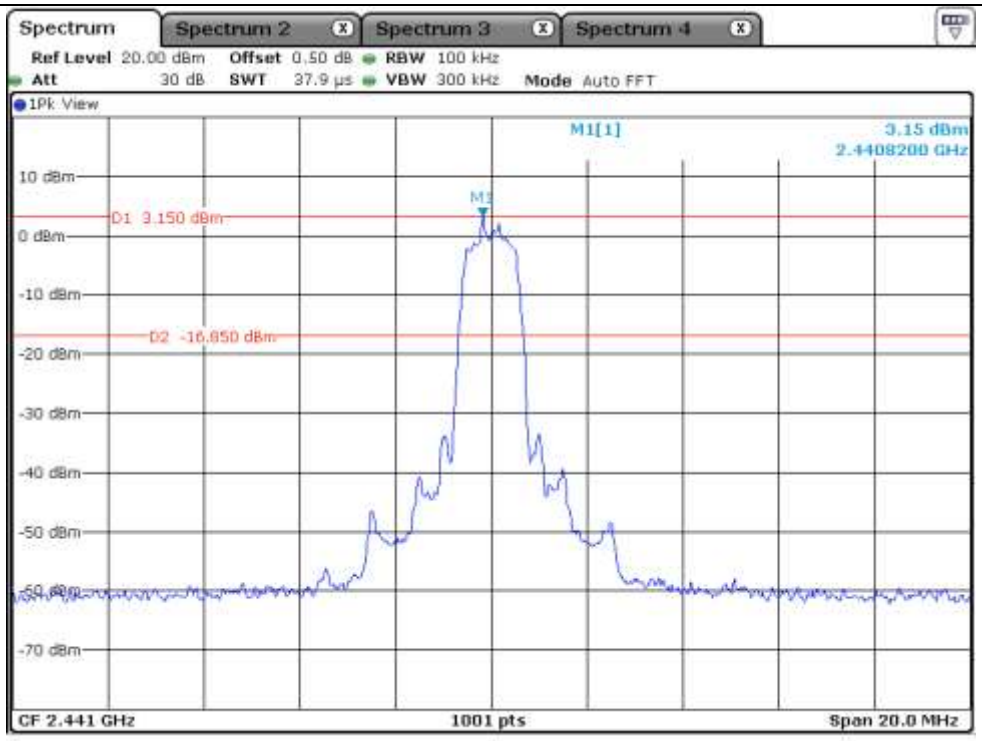
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.5.2 Test data for 2 Mbps

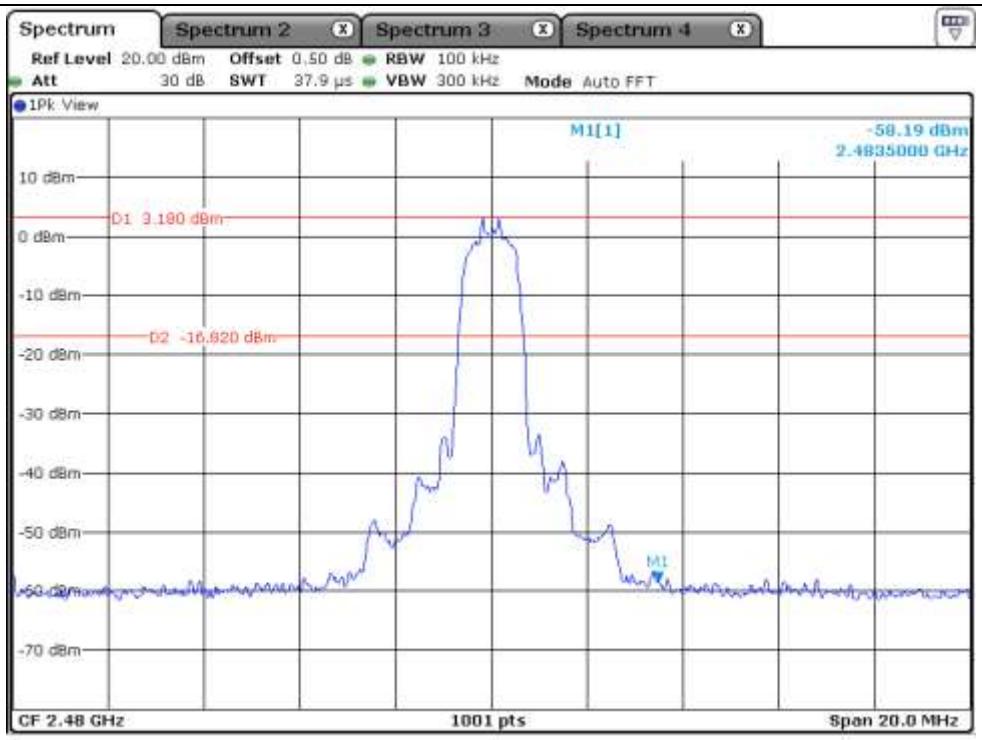
12.5.2.1 Test data for Bluetooth Earbud LEFT



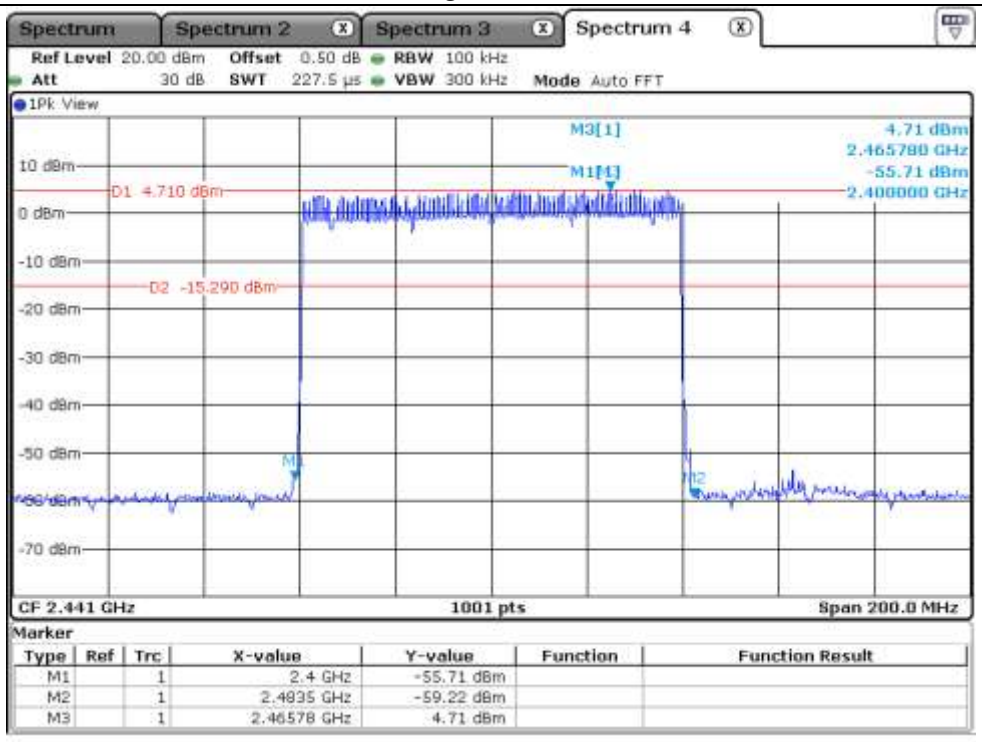
Low Channel



Middle Channel

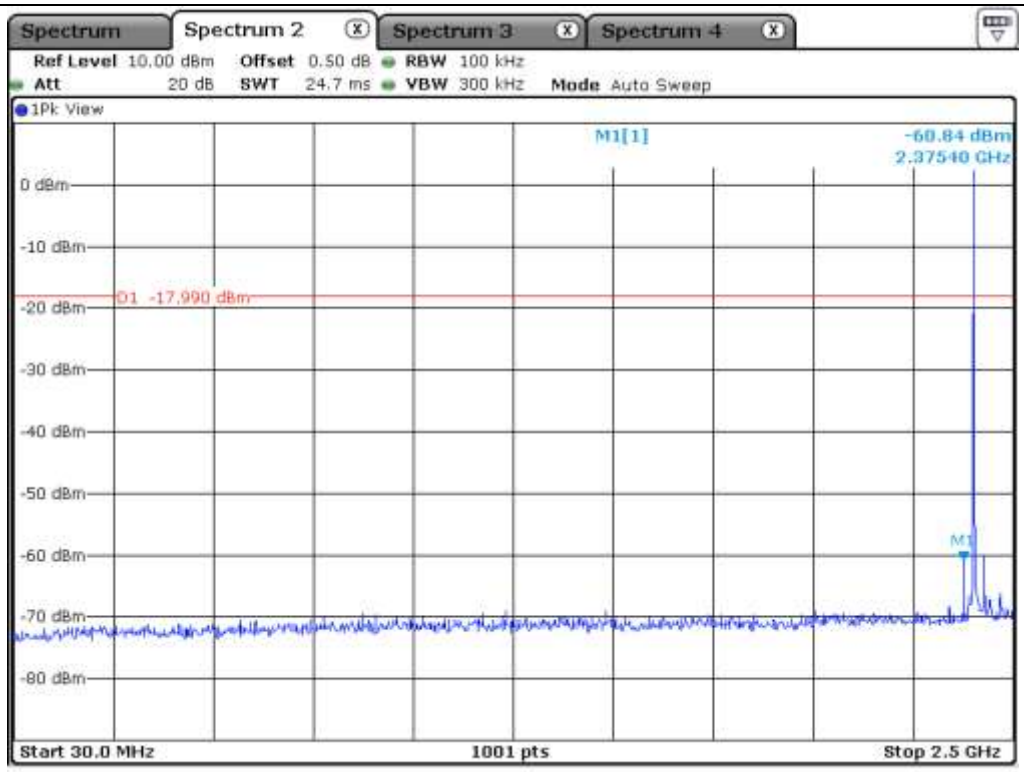


High Channel

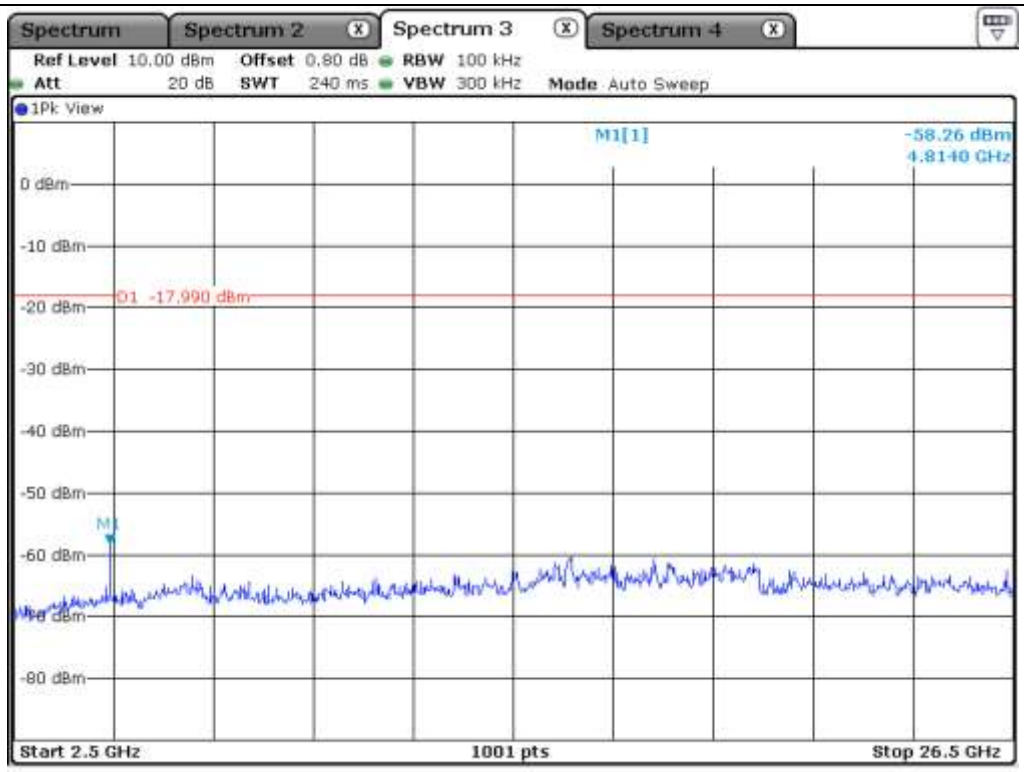


Hopping Mode

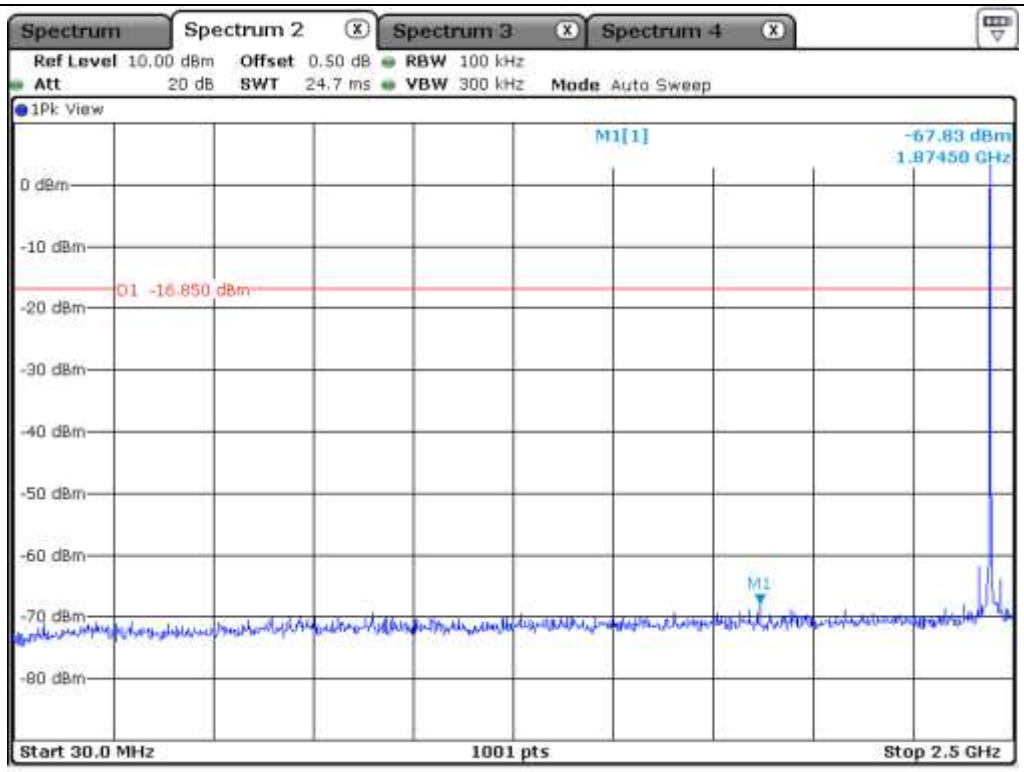
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



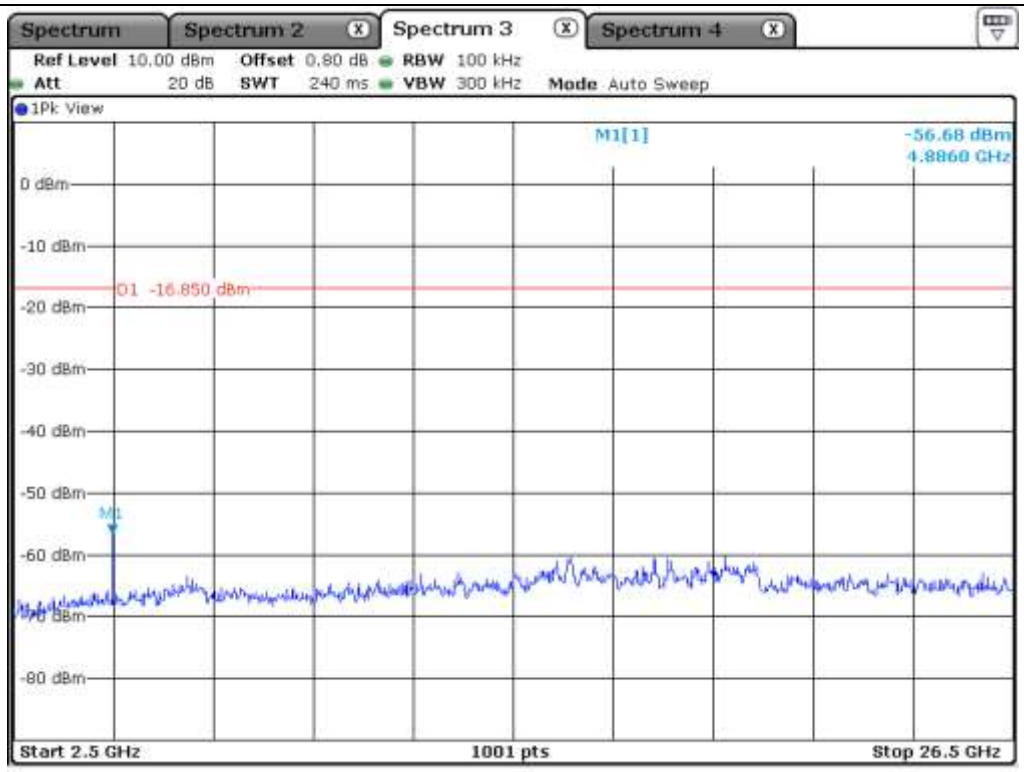
Low Channel



Low Channel

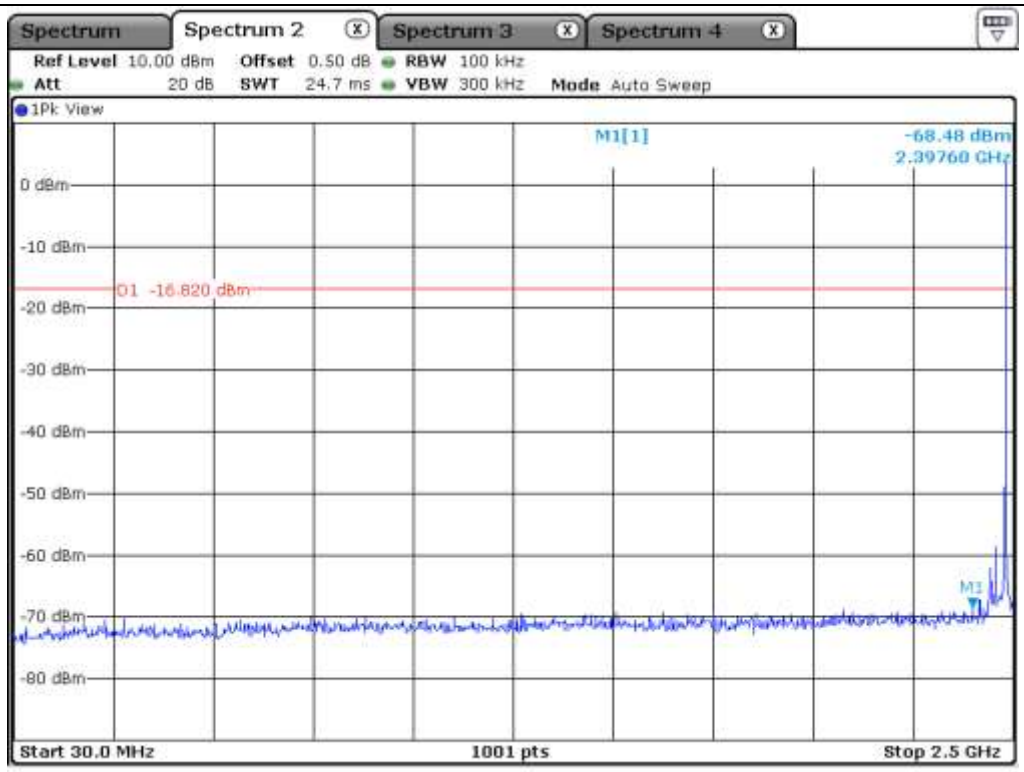


Middle Channel

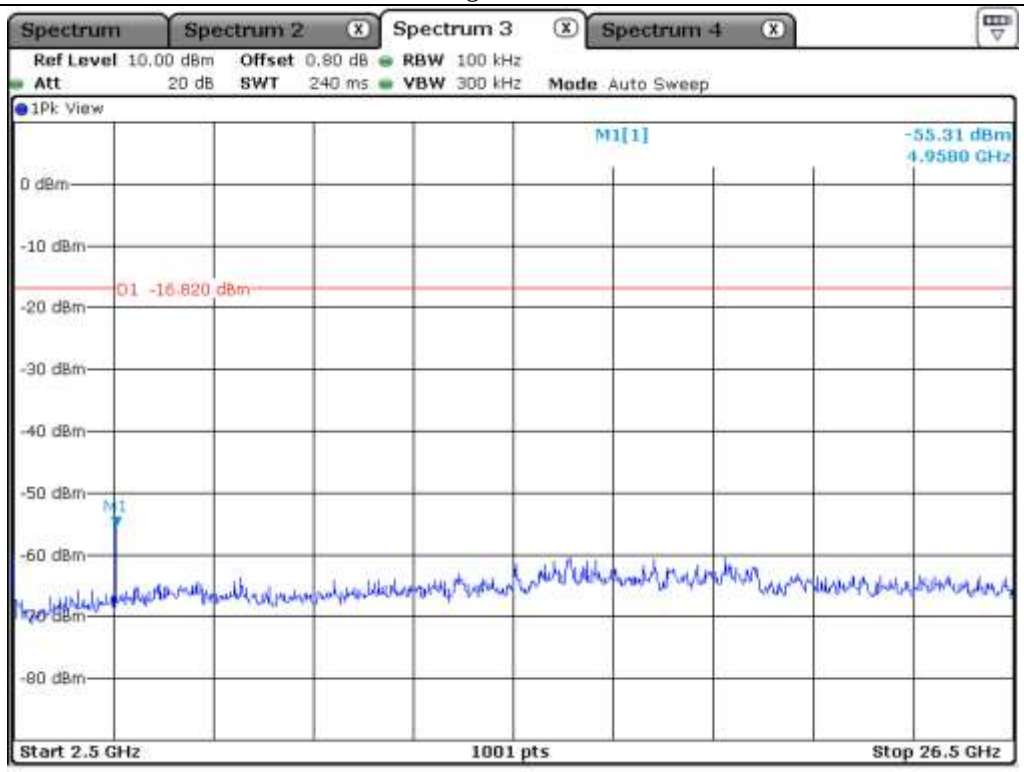


Middle Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

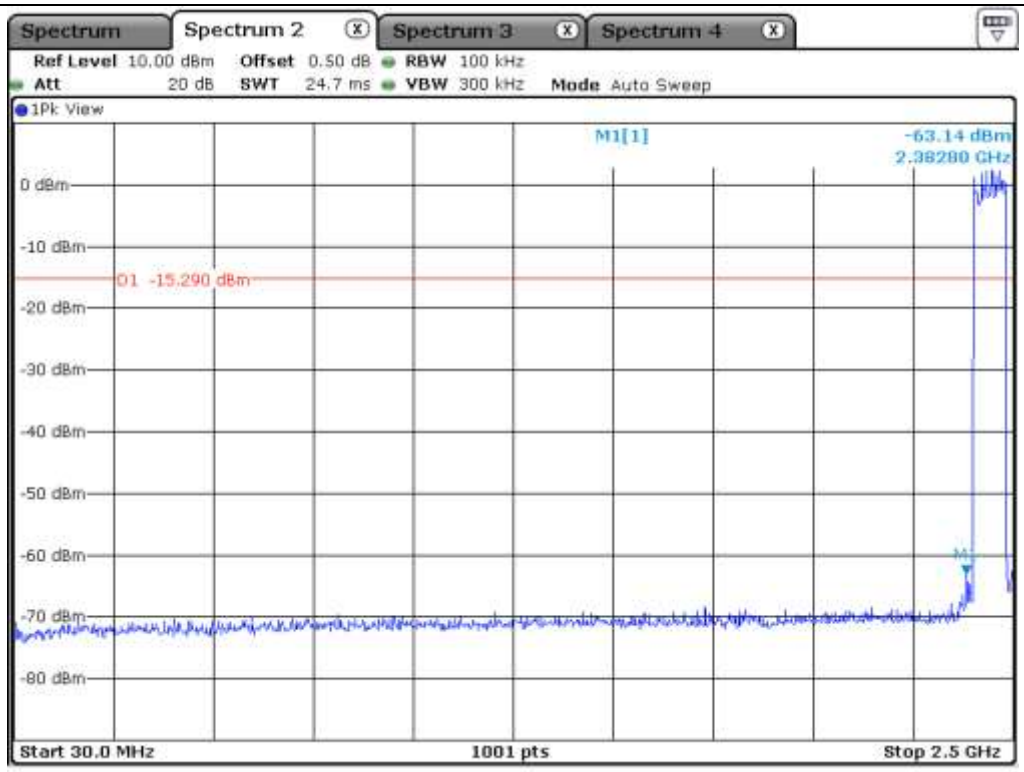


High Channel

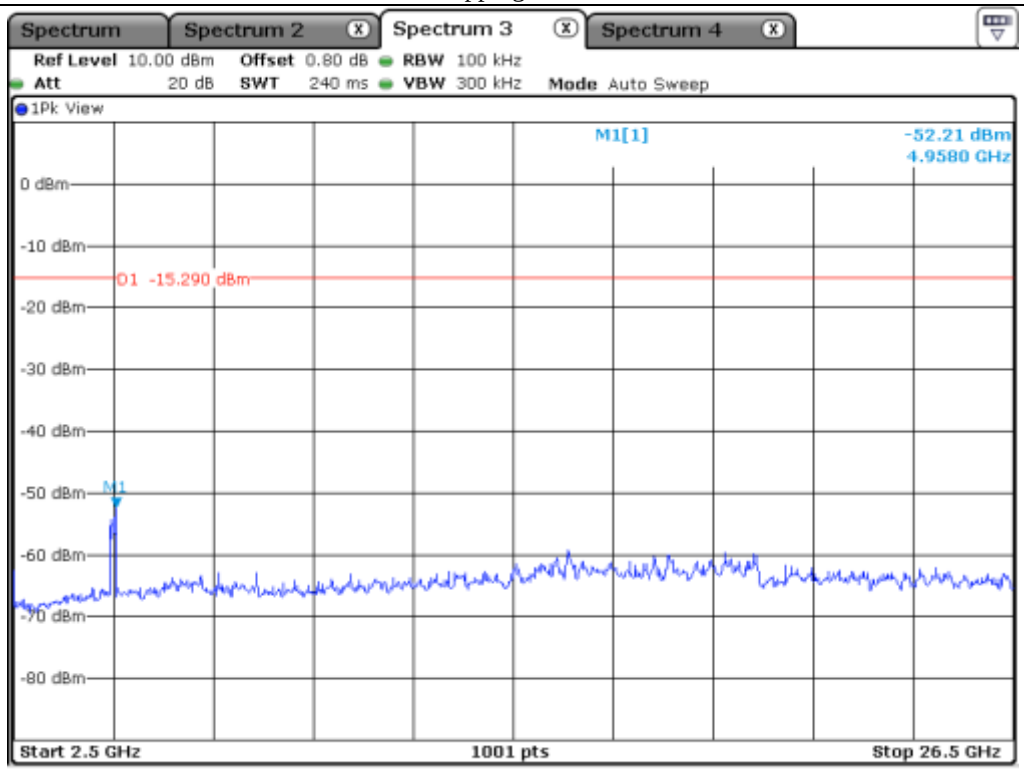


High Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



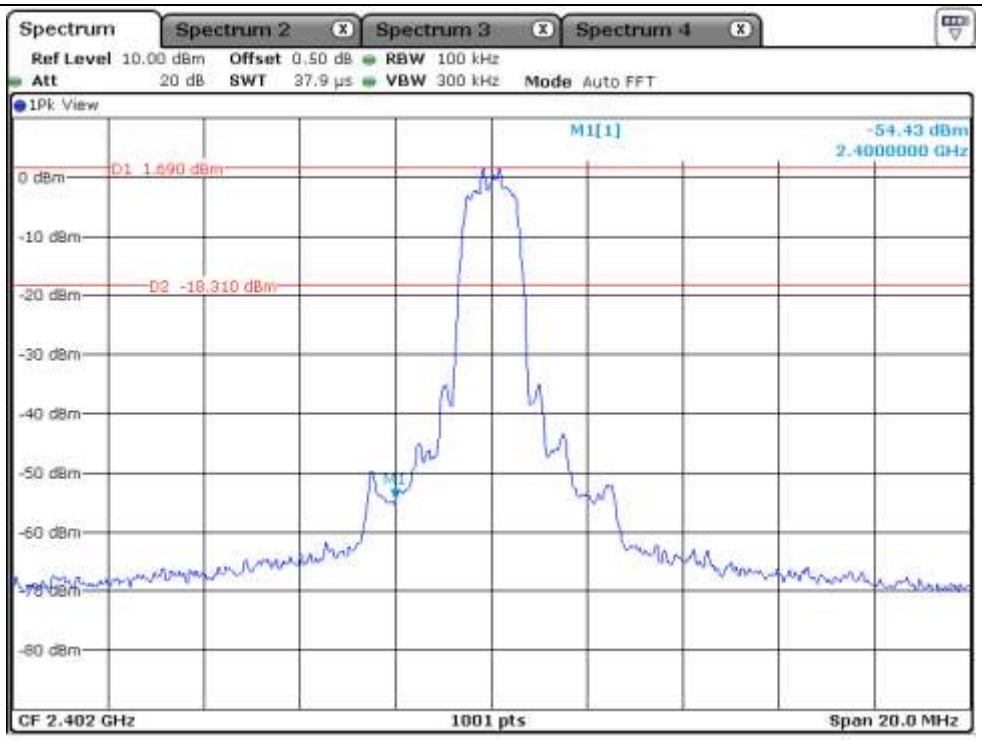
Hopping Mode



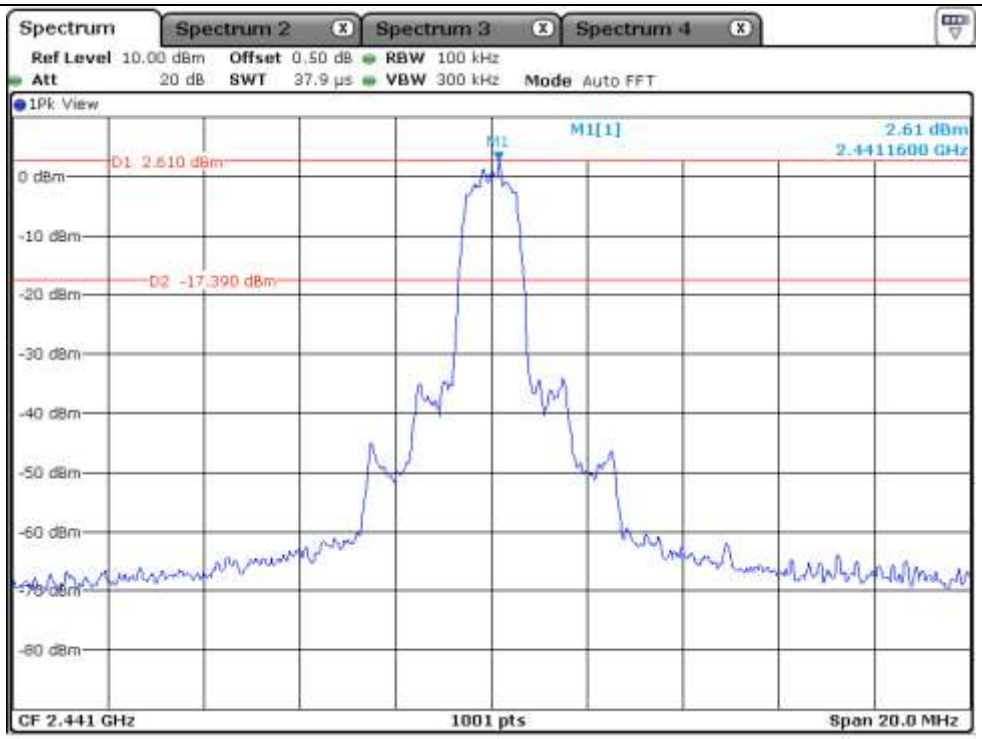
Hopping Mode

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.5.2.2 Test data for Bluetooth Earbud RIGHT

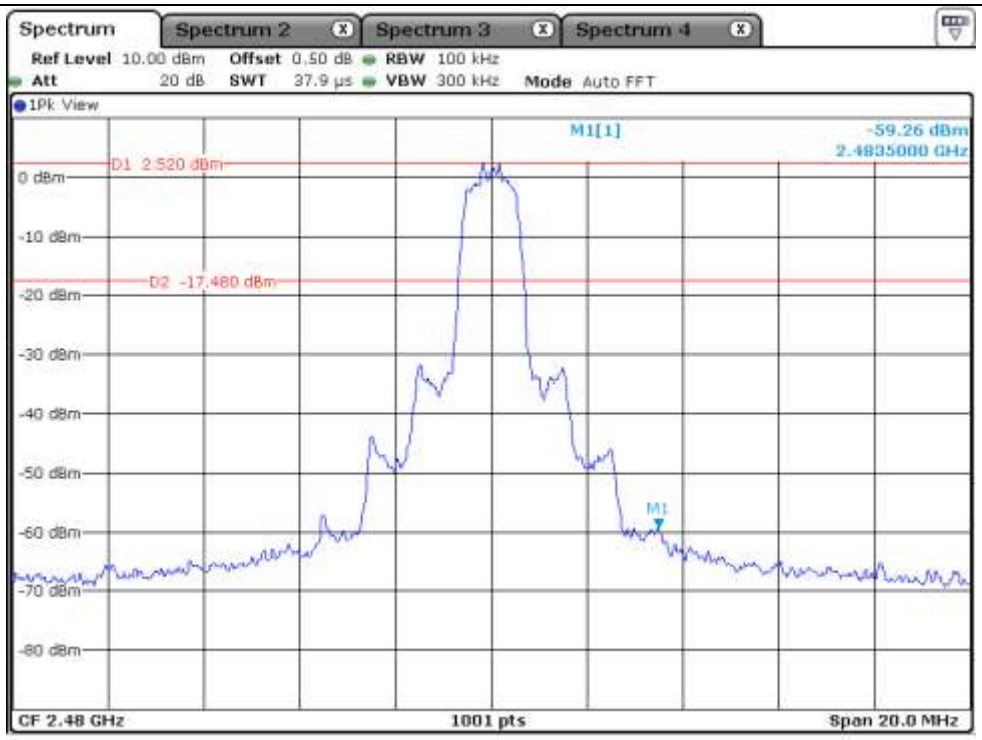


Low Channel

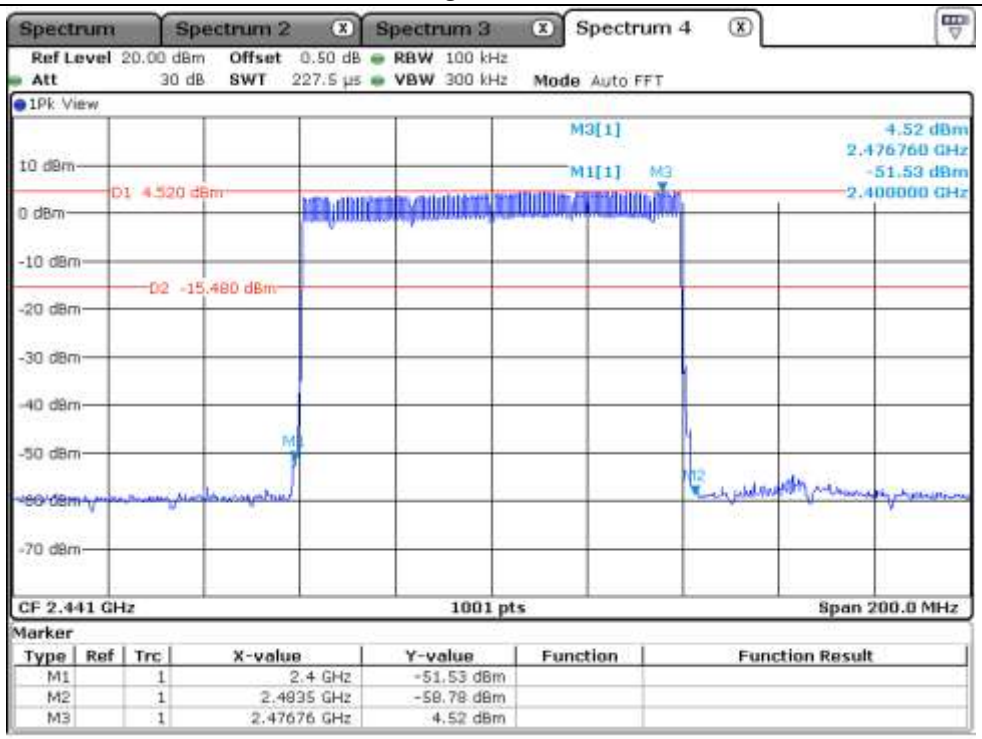


Middle Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

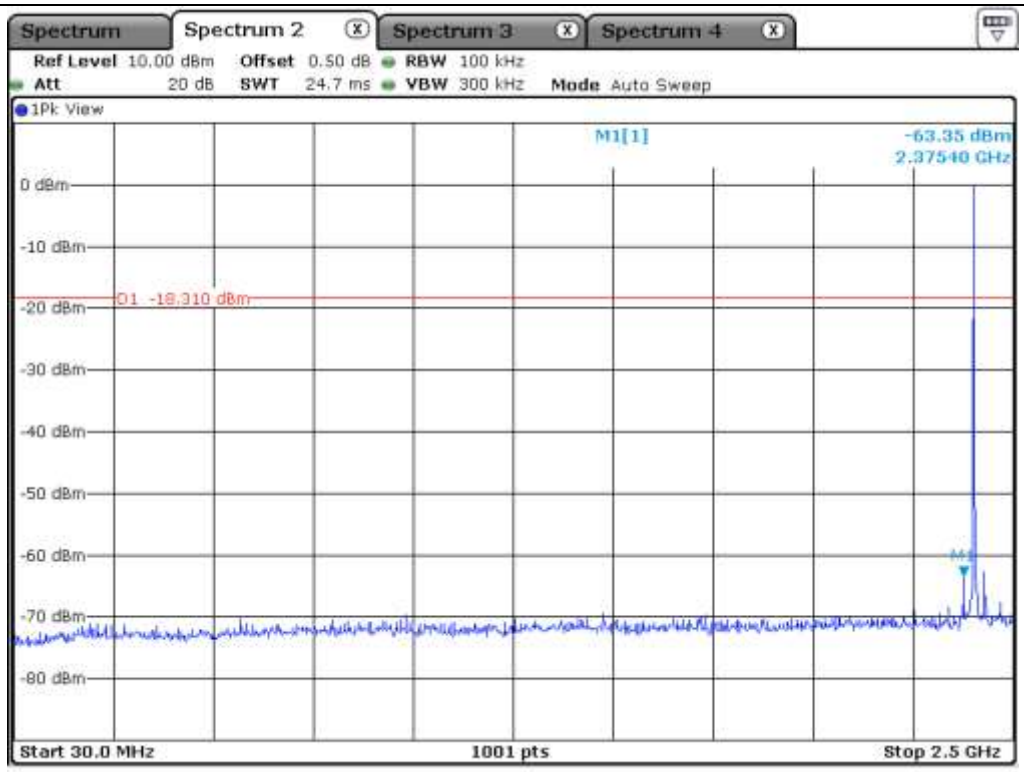


High Channel

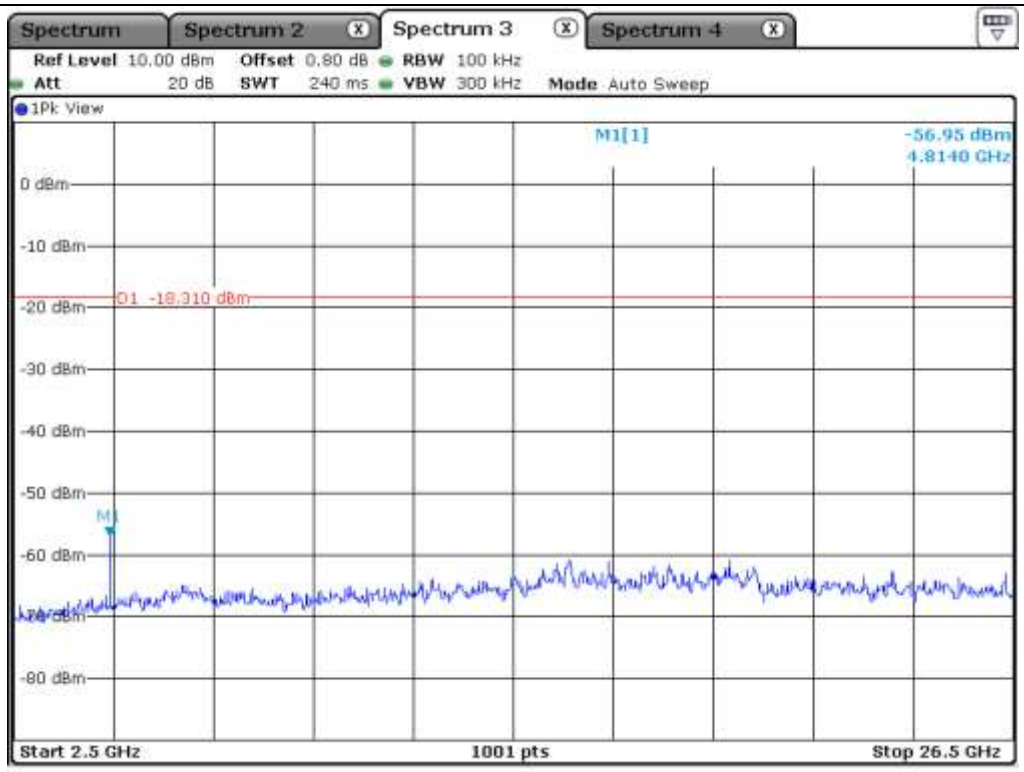


Hopping Mode

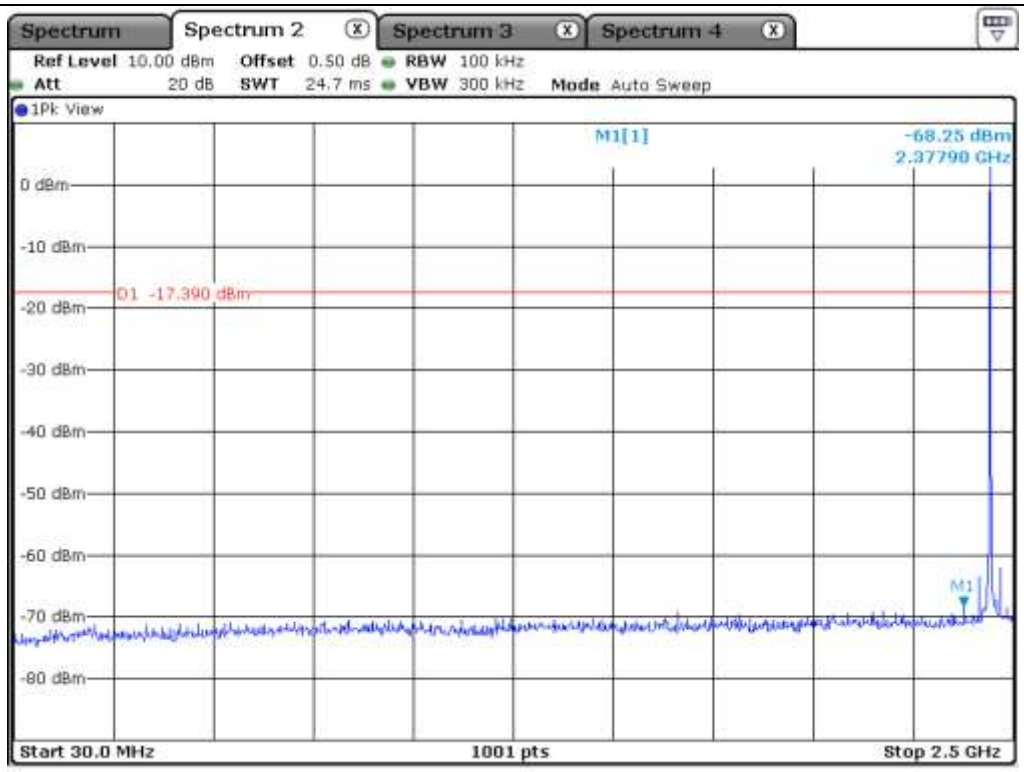
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



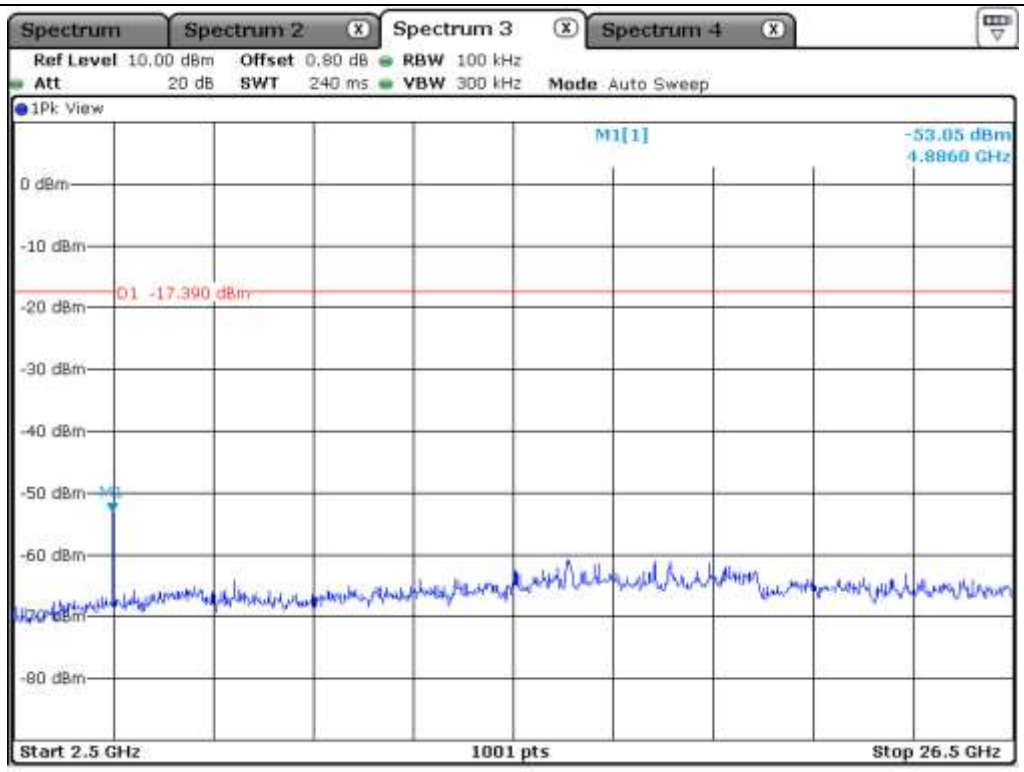
Low Channel



Low Channel

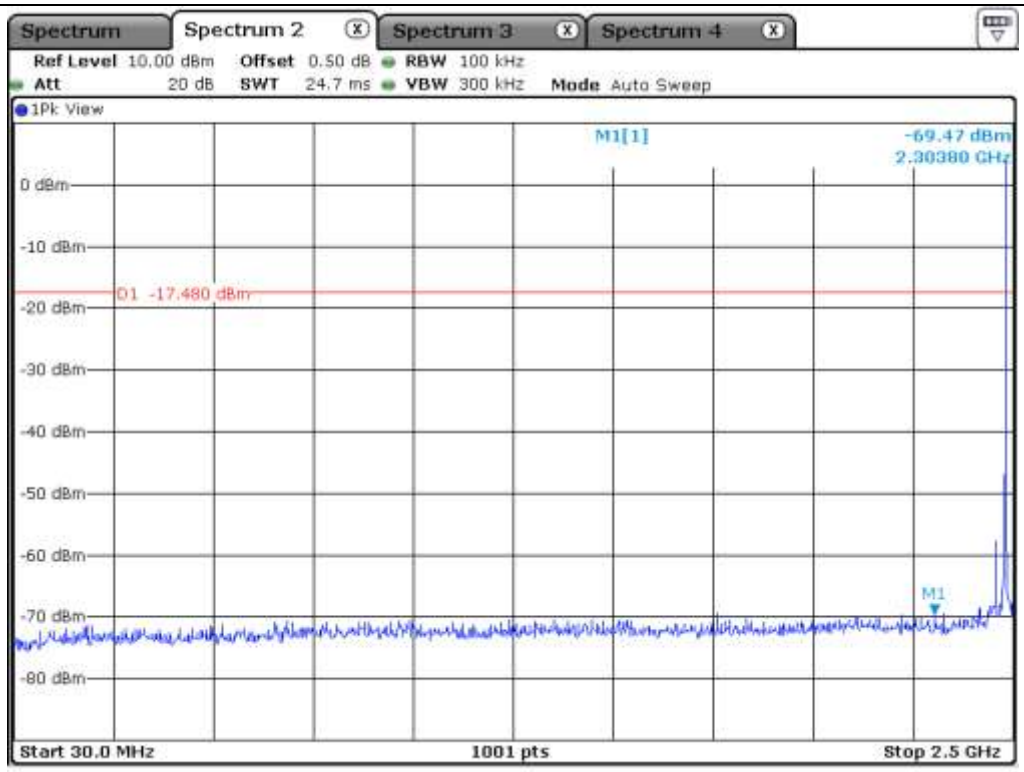


Middle Channel

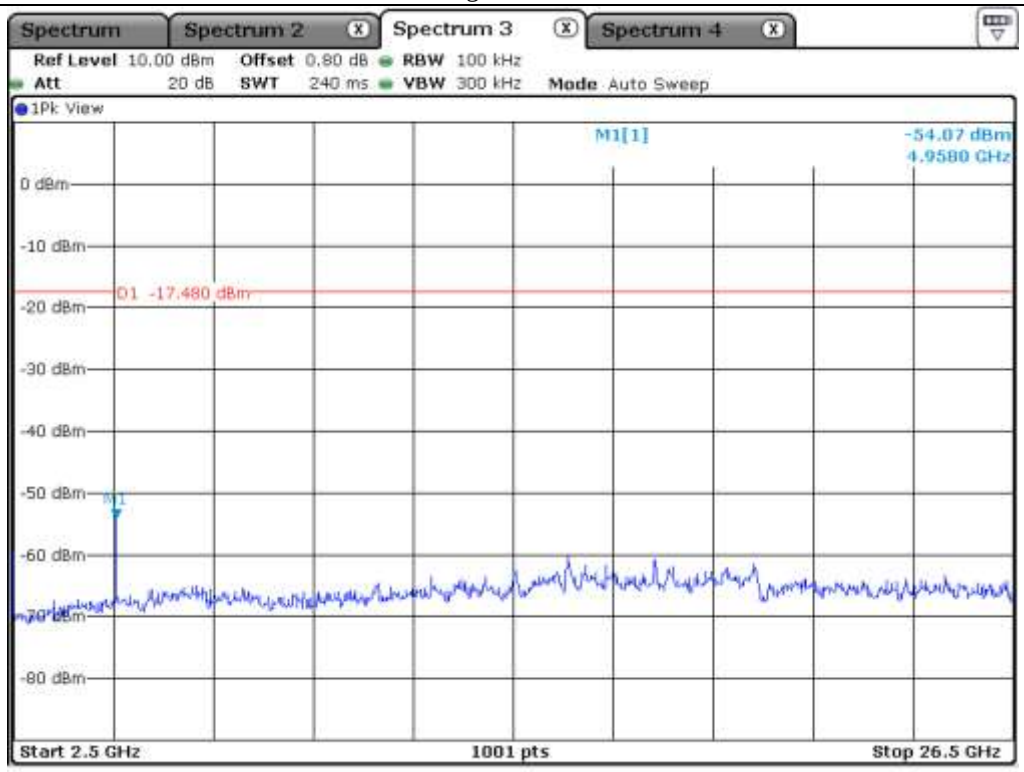


Middle Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

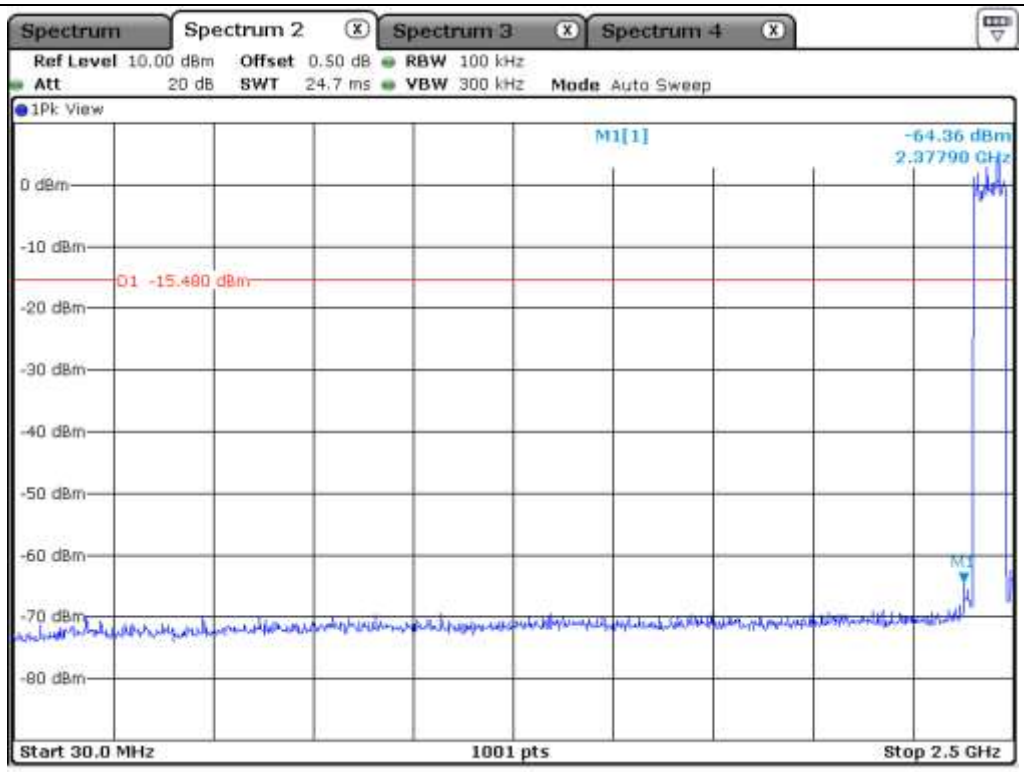


High Channel

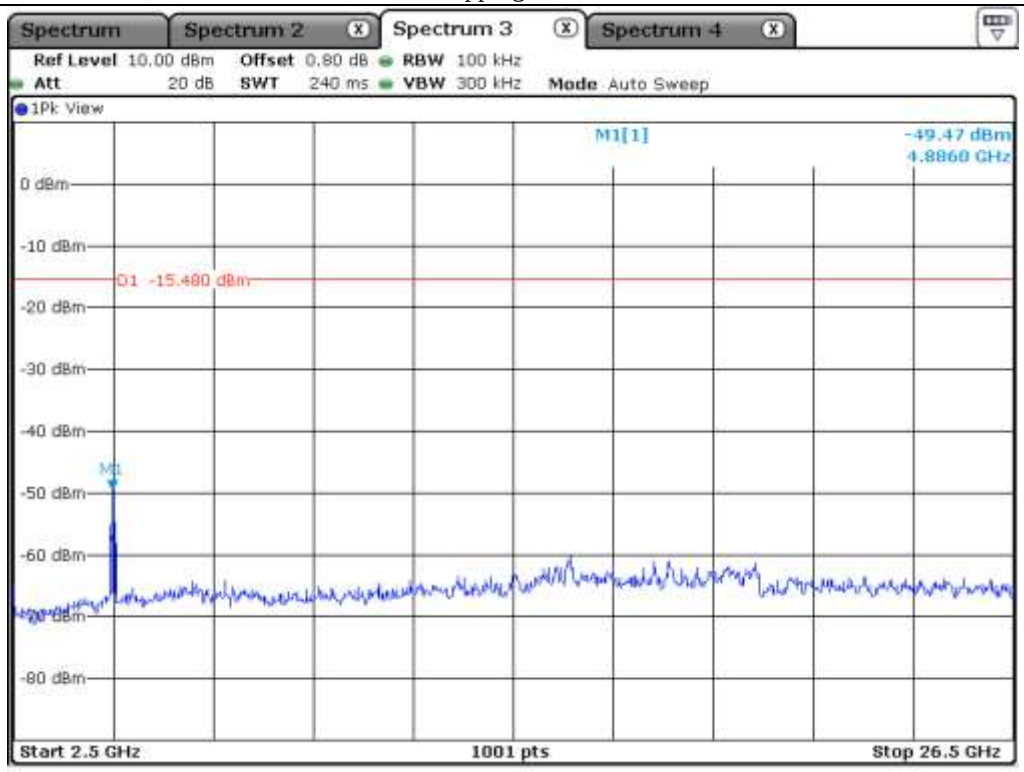


High Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



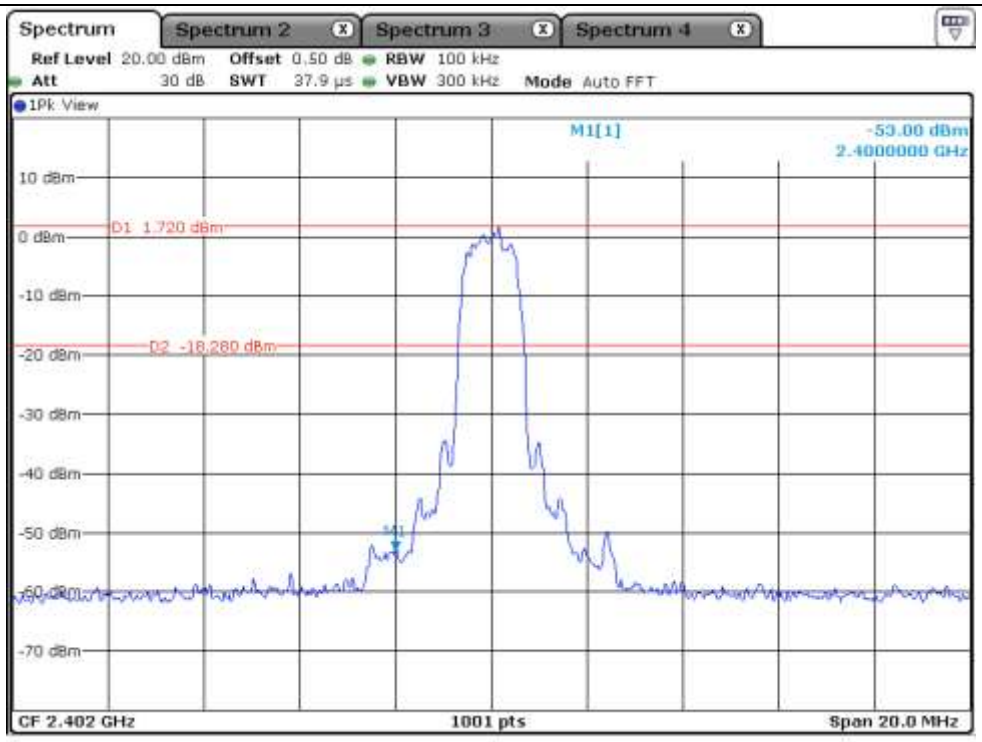
Hopping Mode



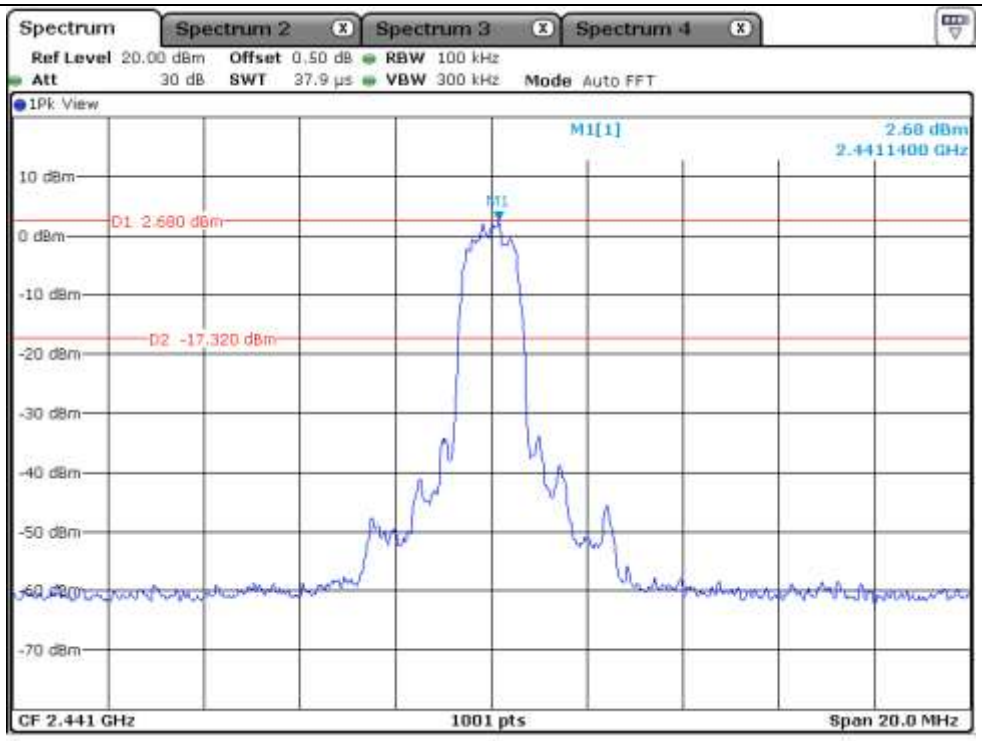
Hopping Mode

12.5.3 Test data for 3 Mbps

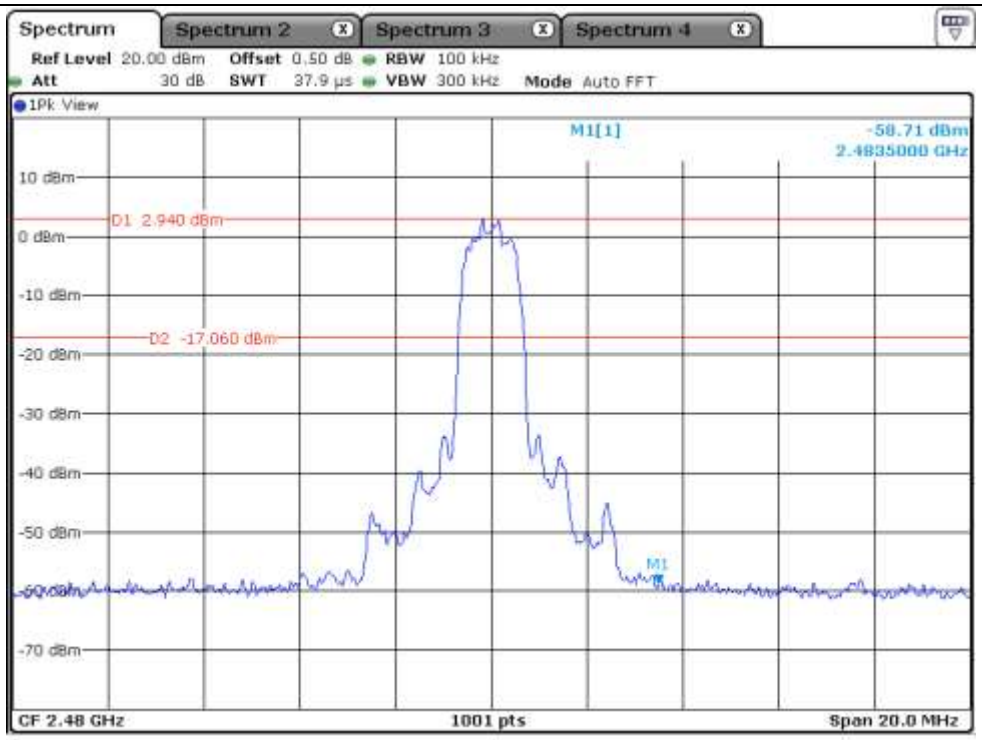
12.5.3.1 Test data for Bluetooth Earbud LEFT



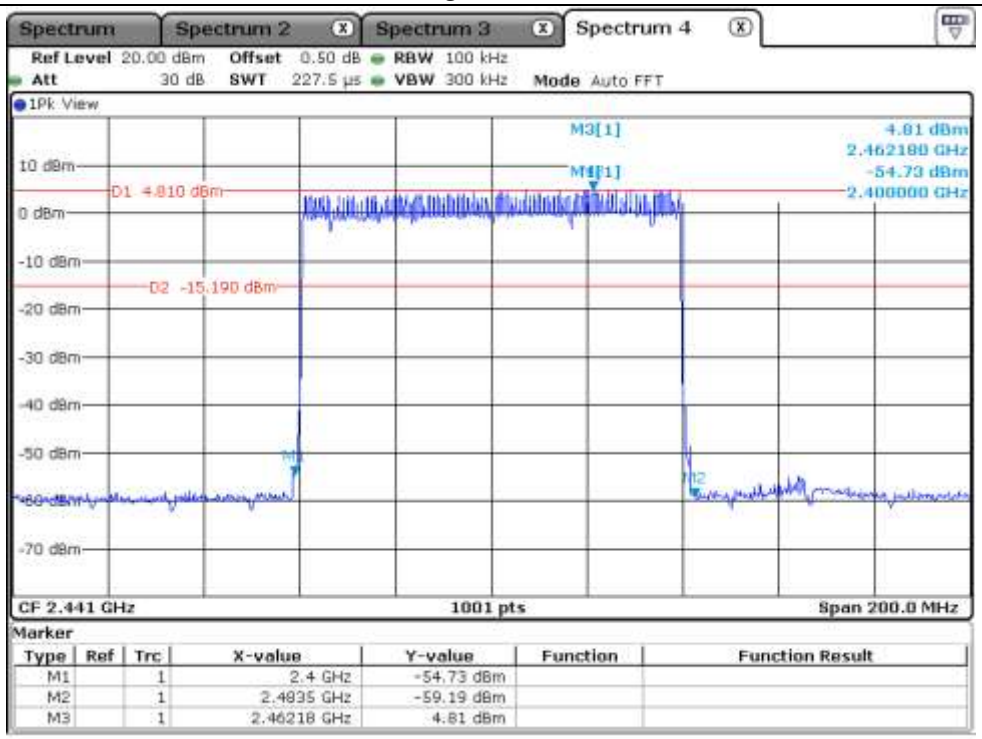
Low Channel



Middle Channel

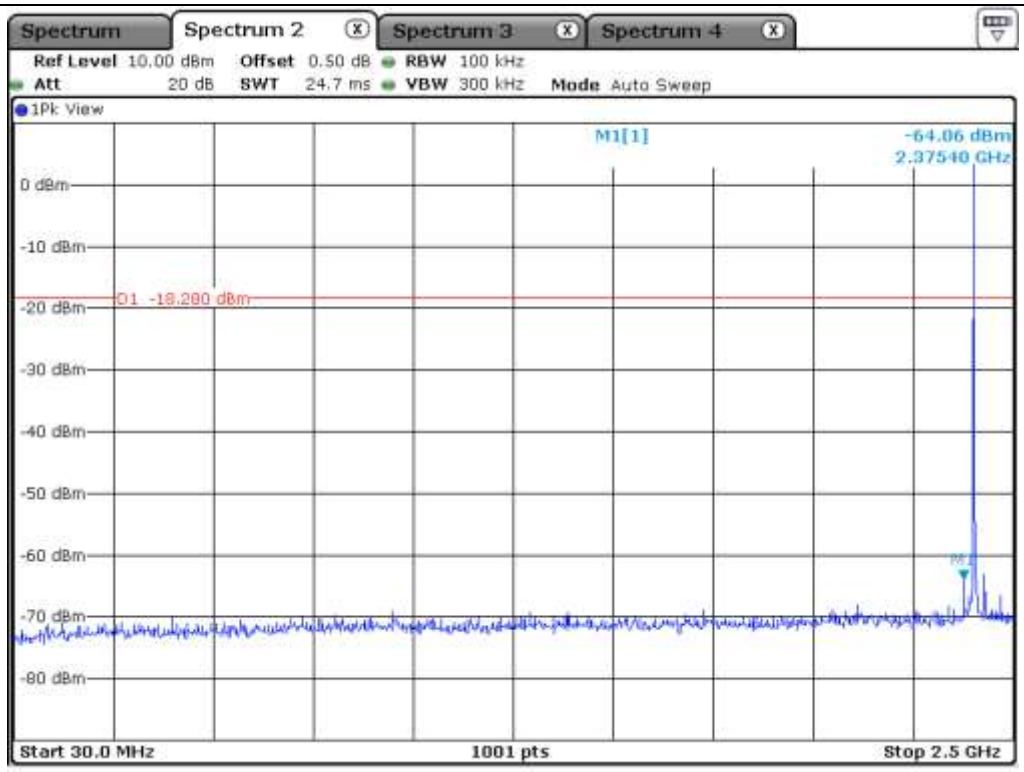


High Channel

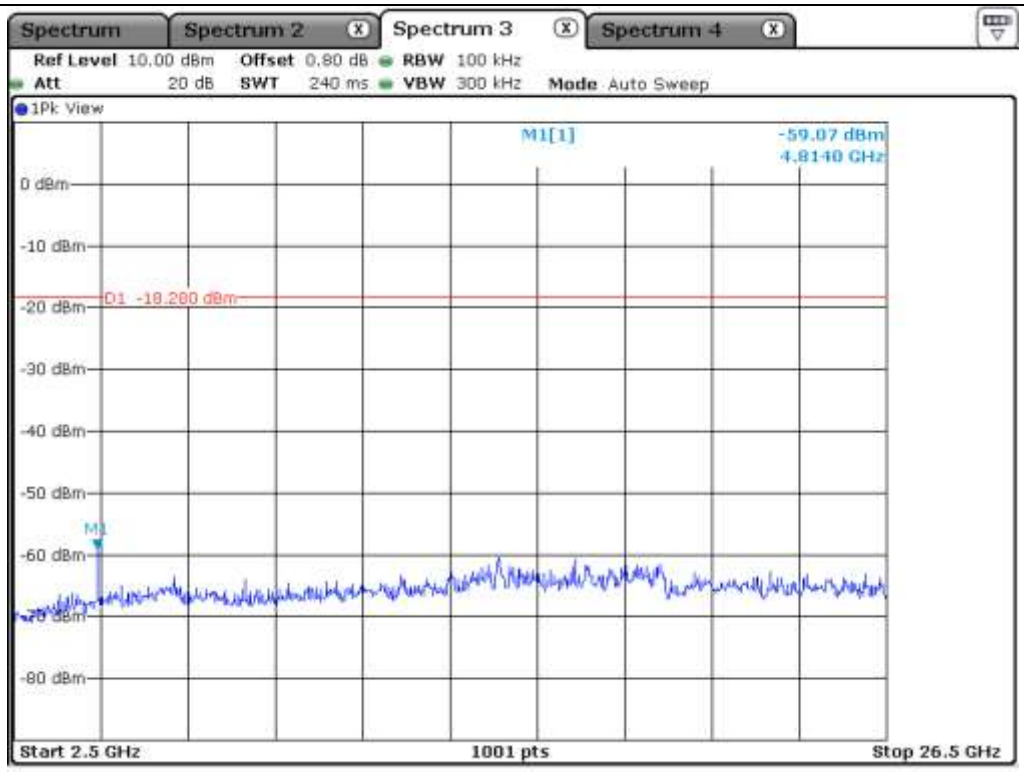


Hopping Mode

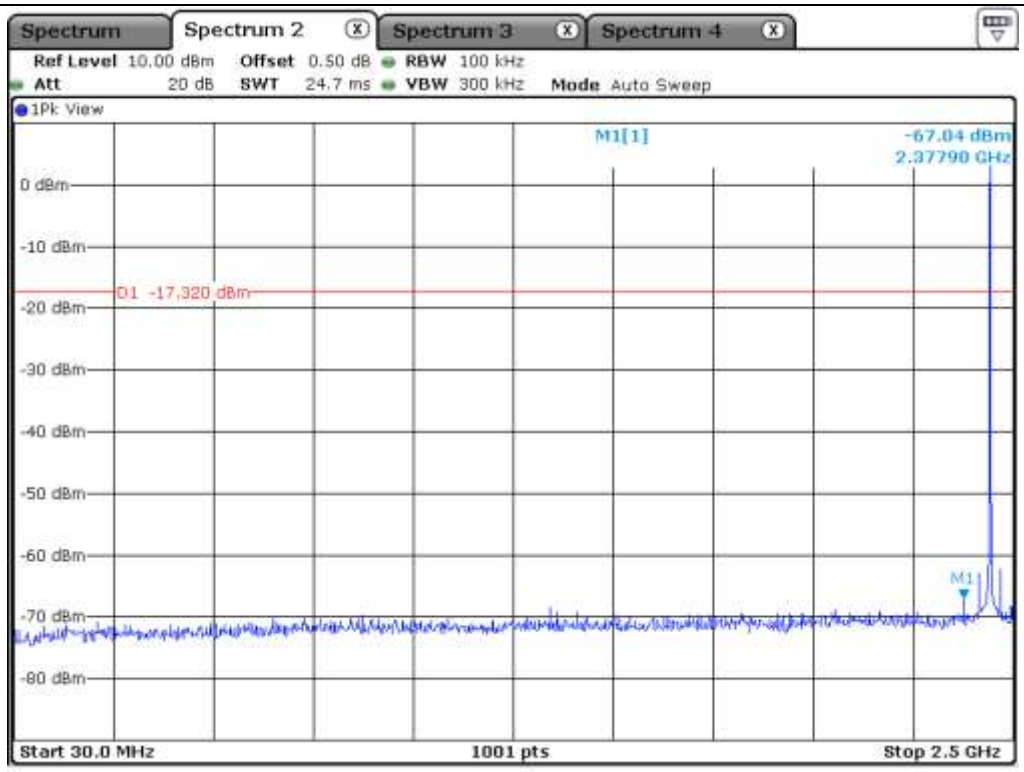
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



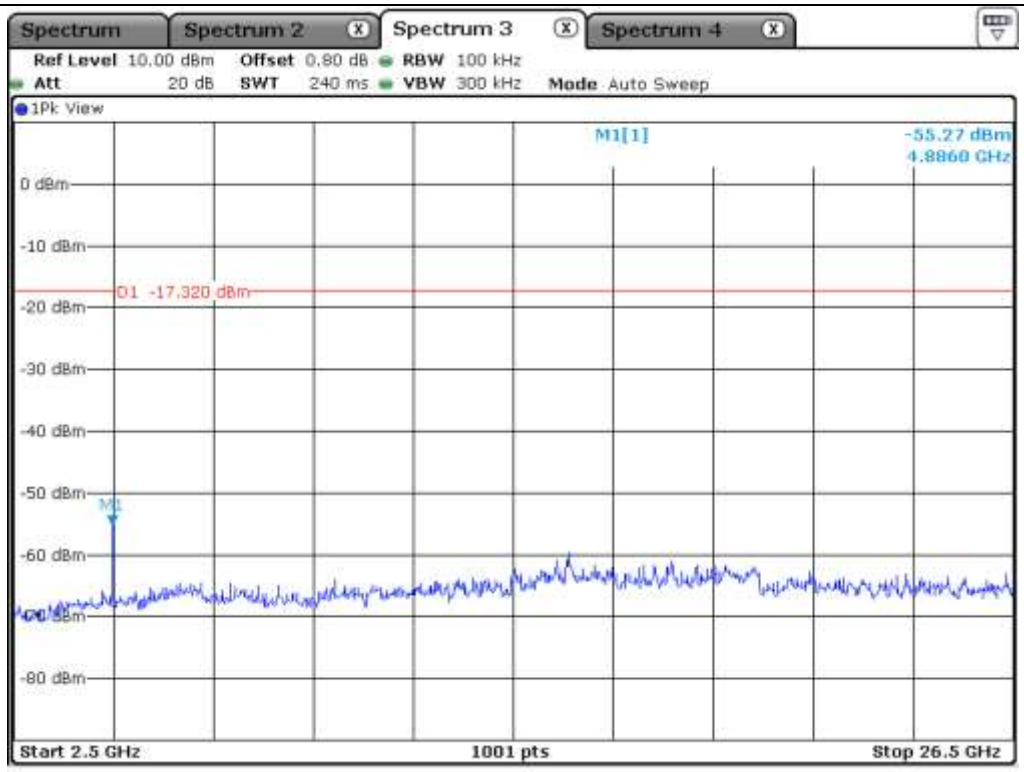
Low Channel



Low Channel

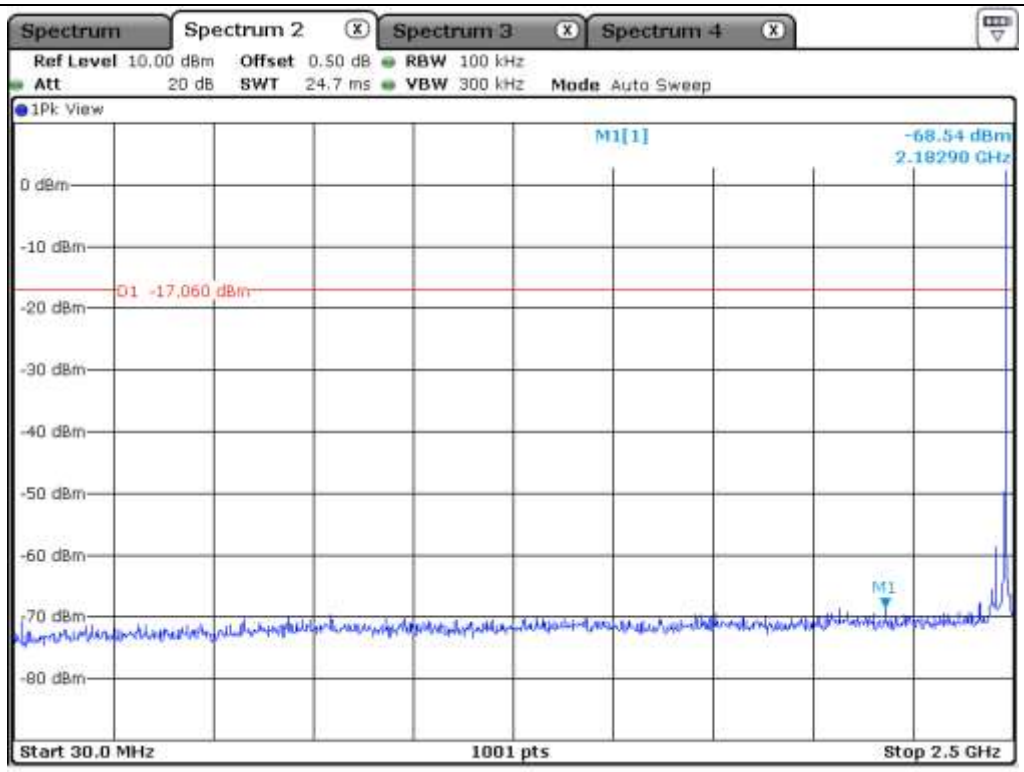


Middle Channel

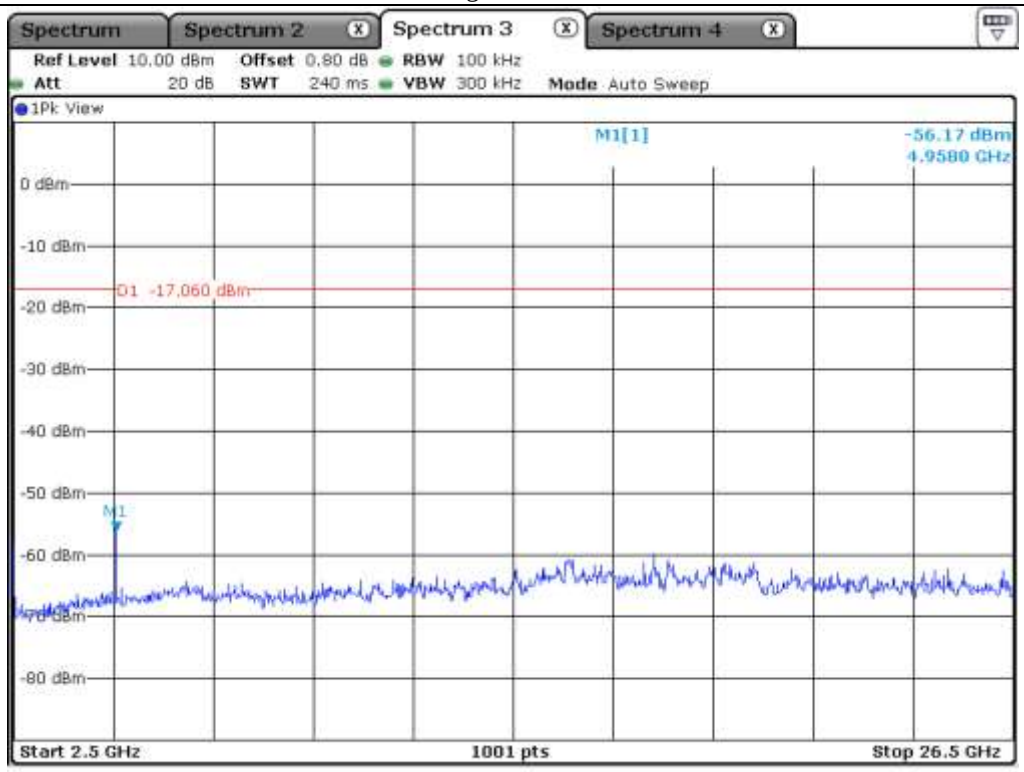


Middle Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

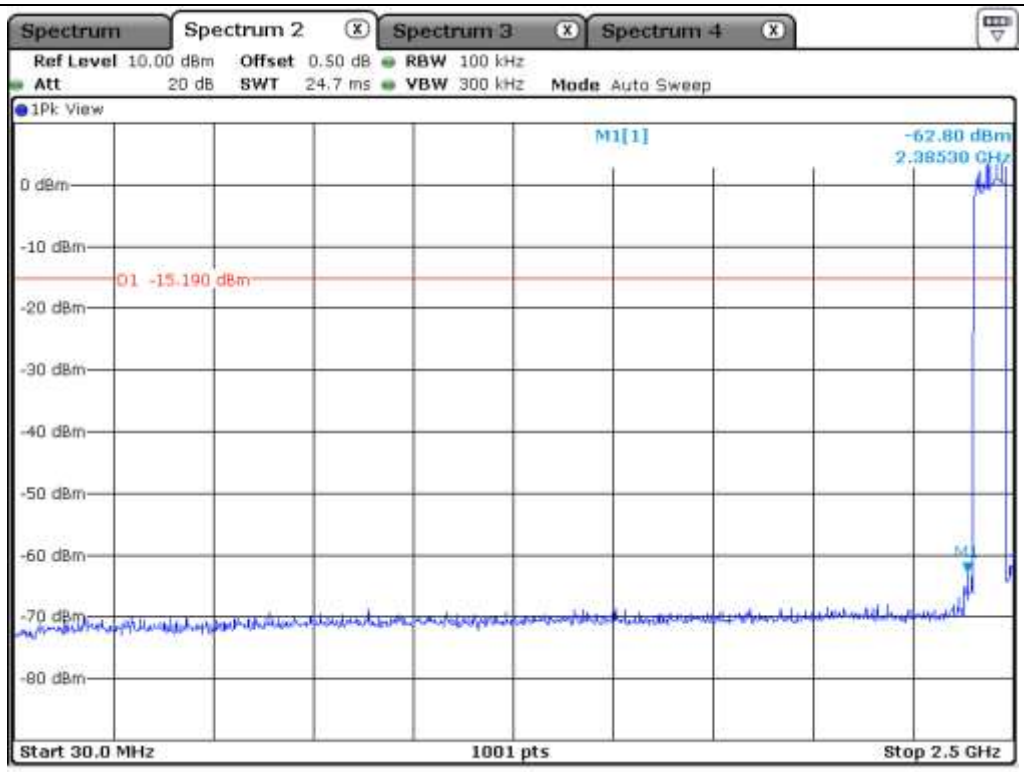


High Channel

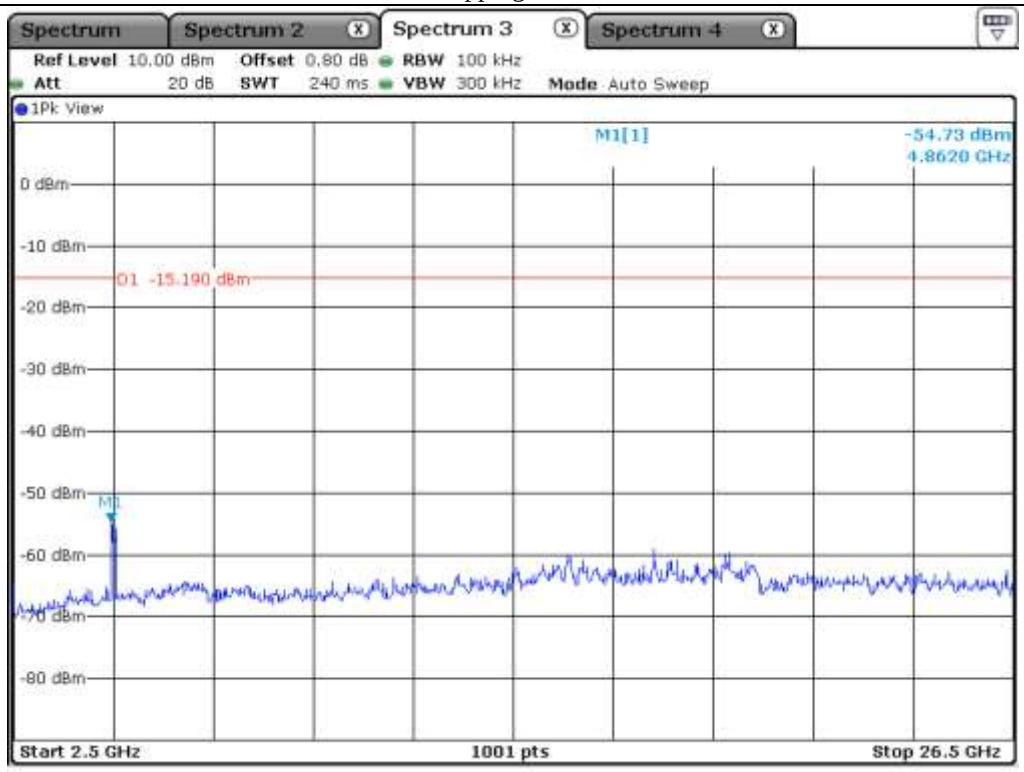


High Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



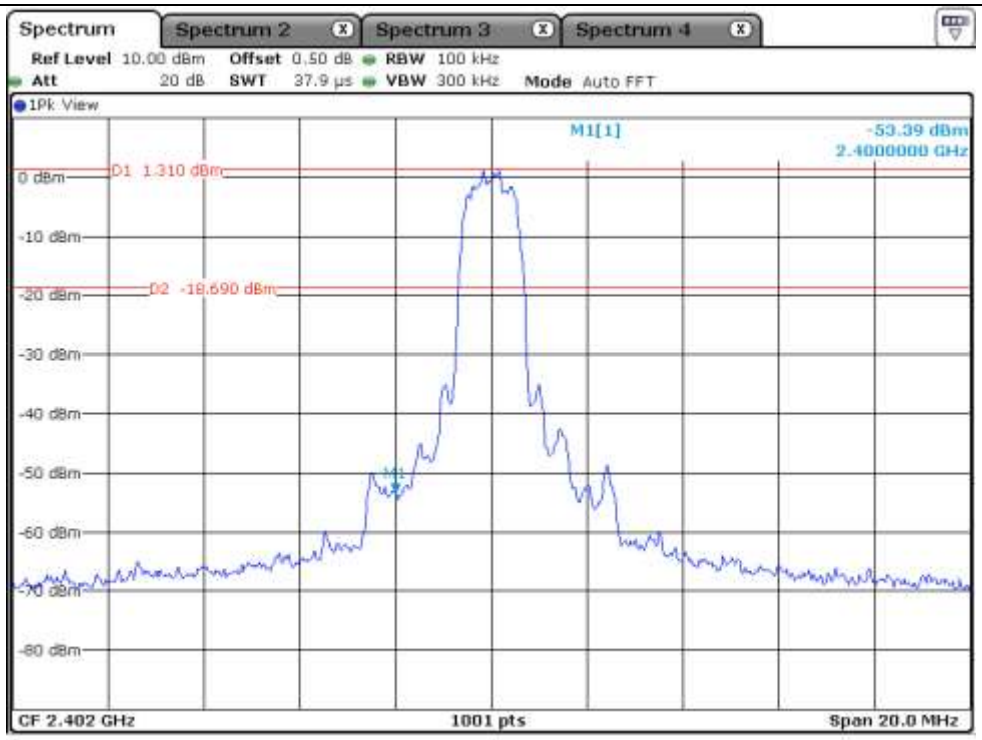
Hopping Mode



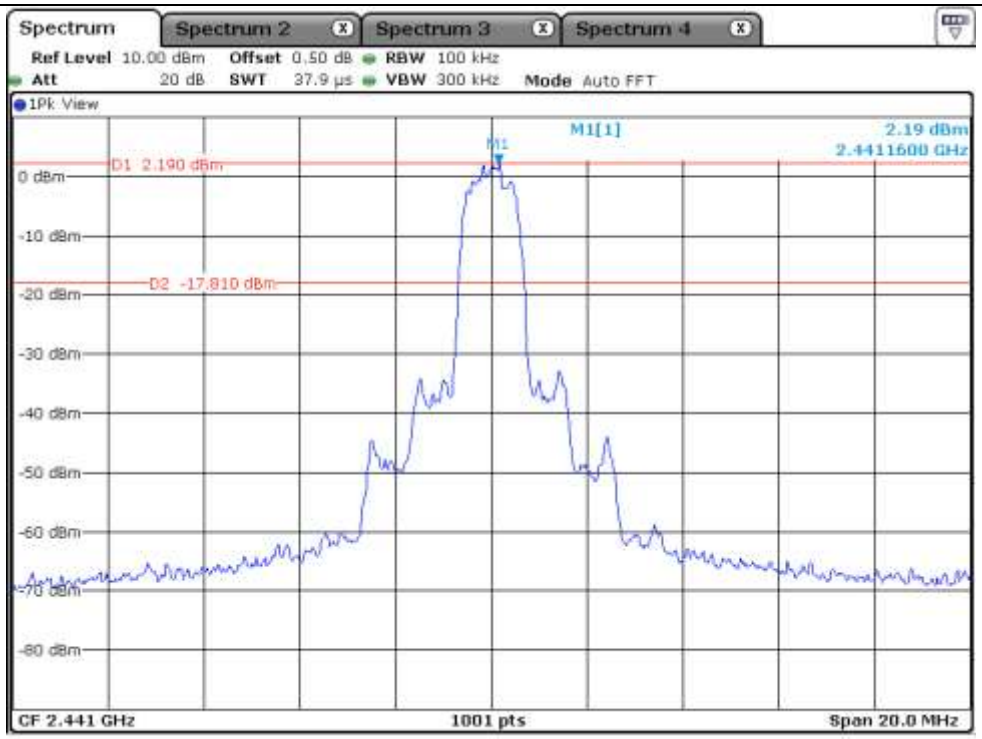
Hopping Mode

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.5.3.2 Test data for Bluetooth Earbud RIGHT

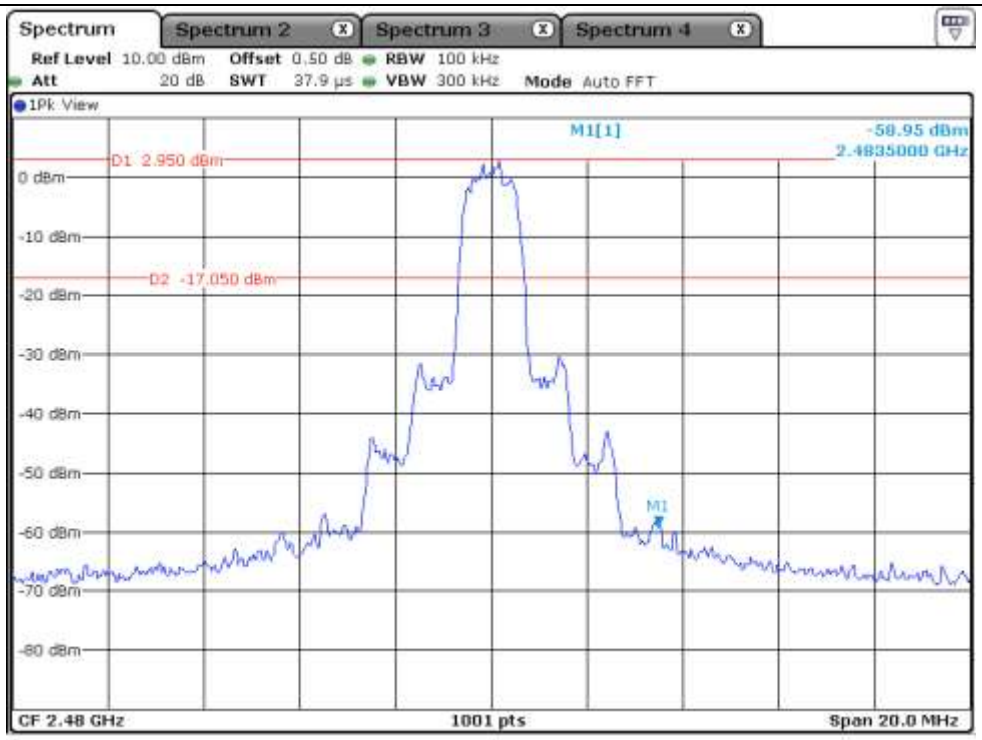


Low Channel

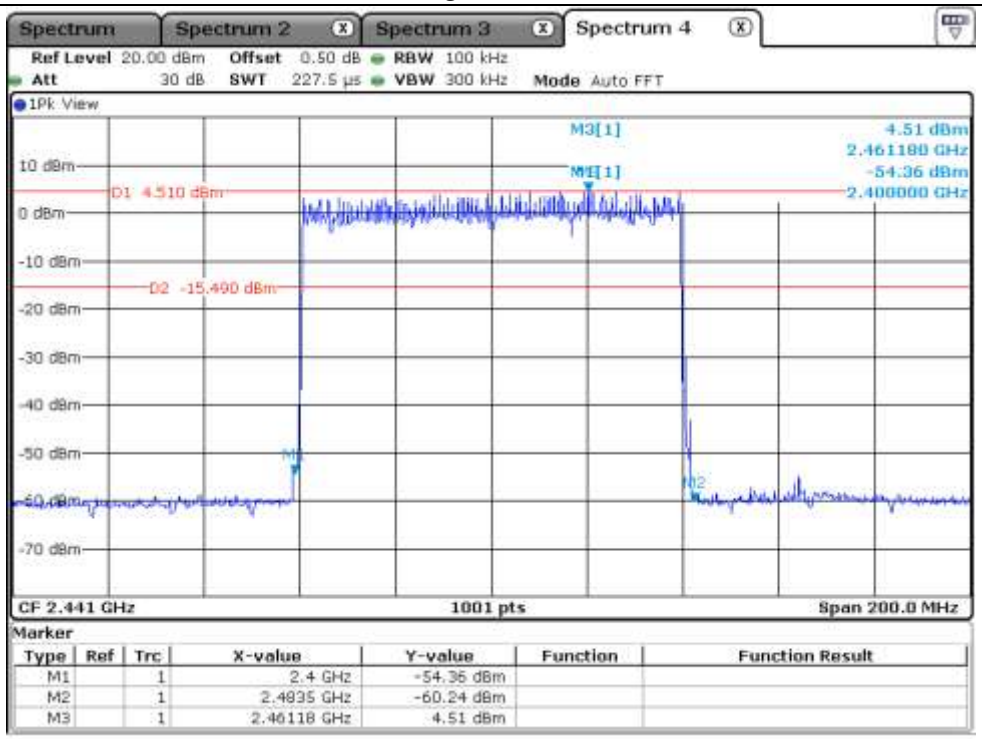


Middle Channel

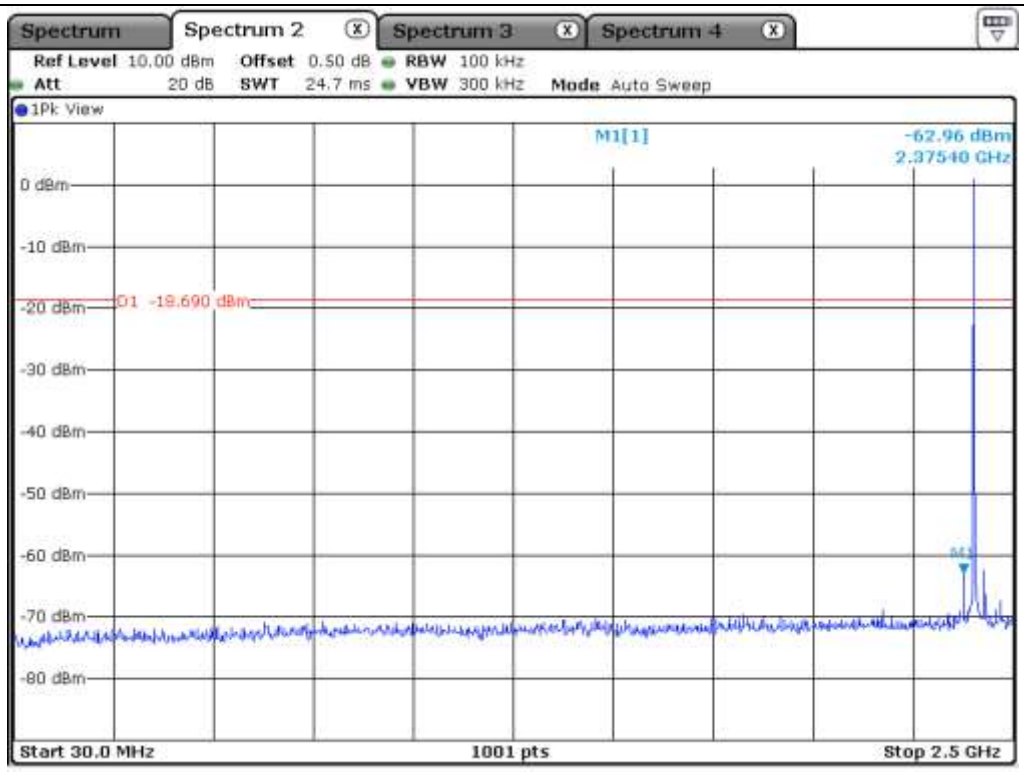
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



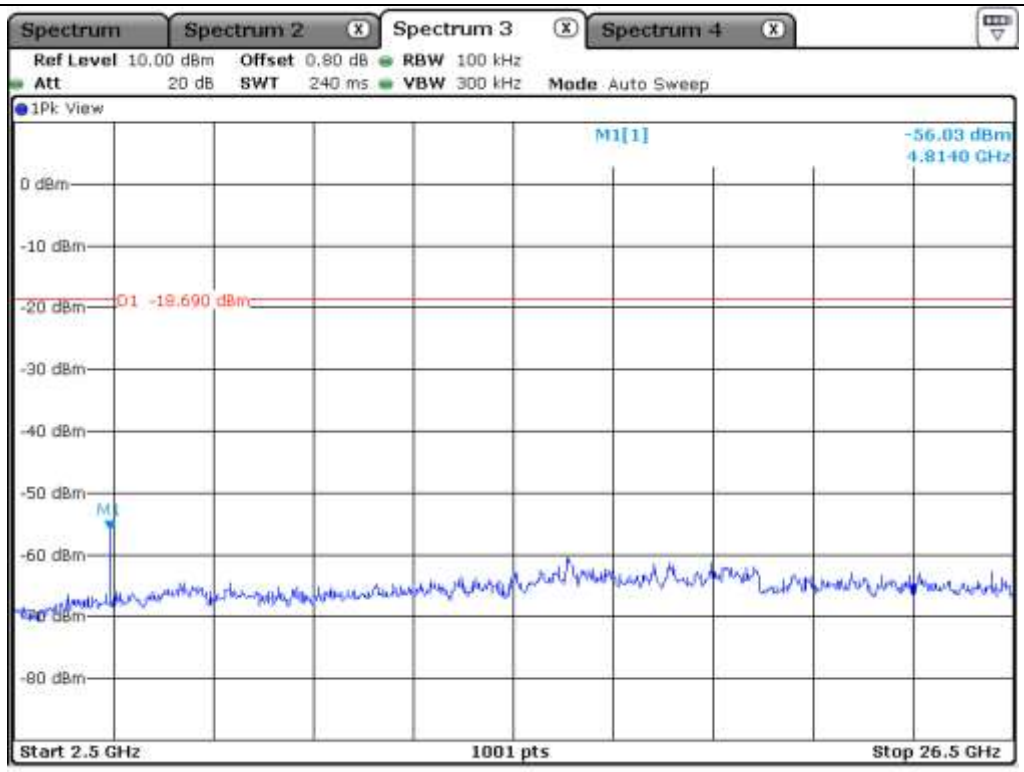
High Channel



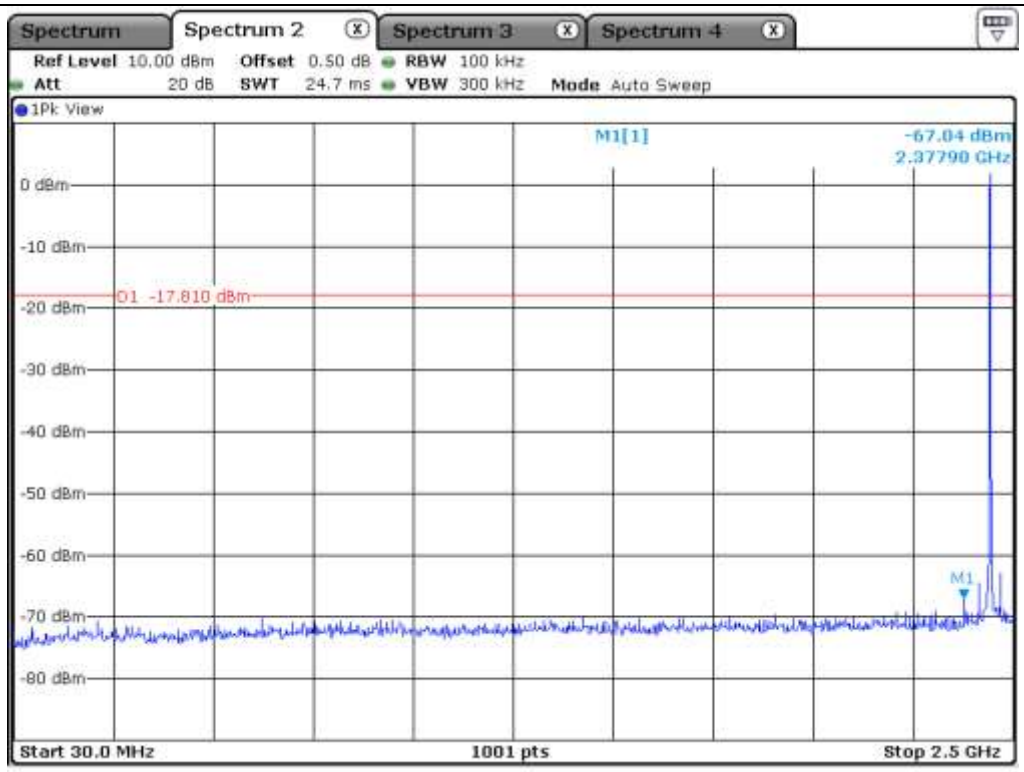
Hopping Mode



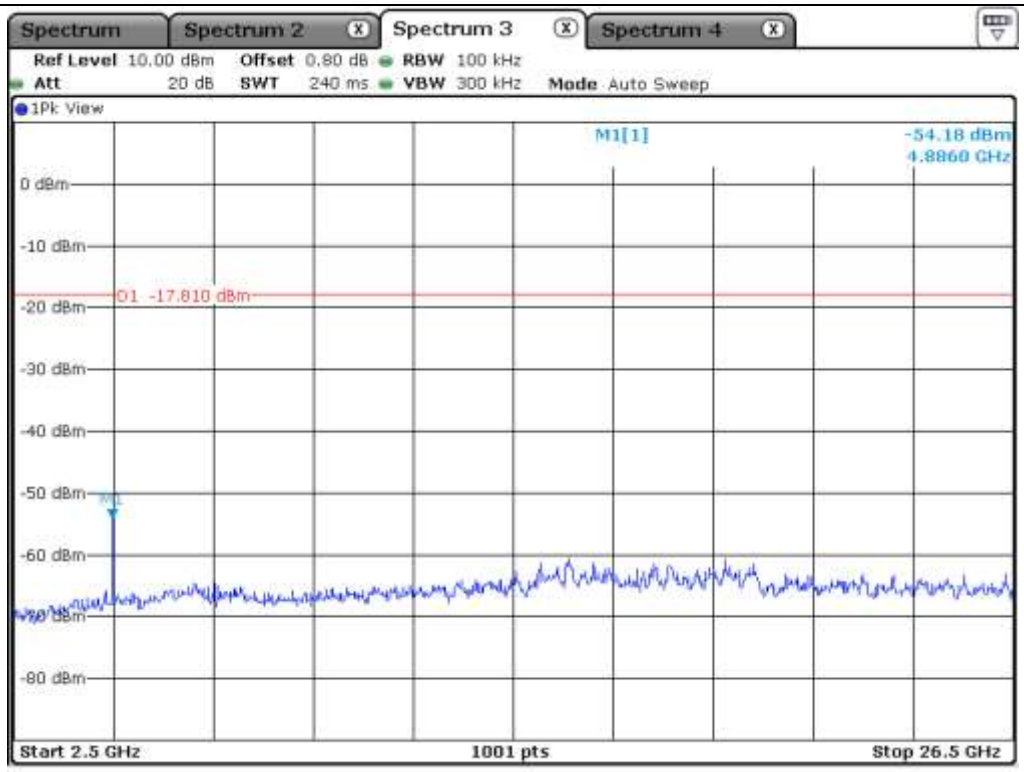
Low Channel



Low Channel

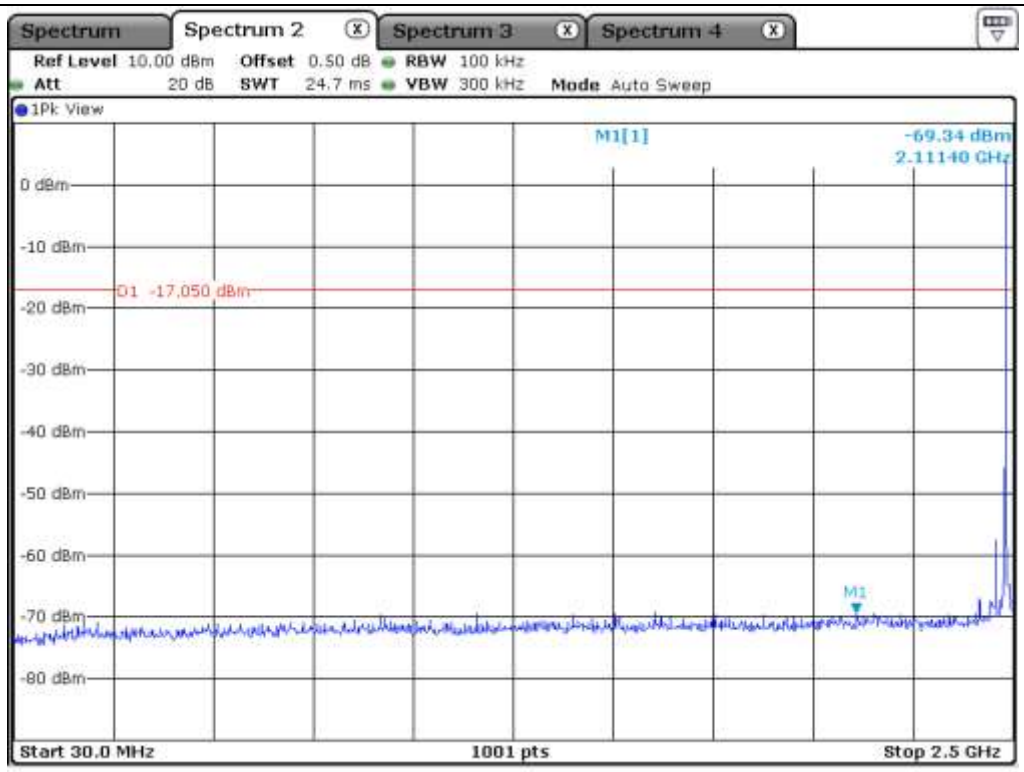


Middle Channel

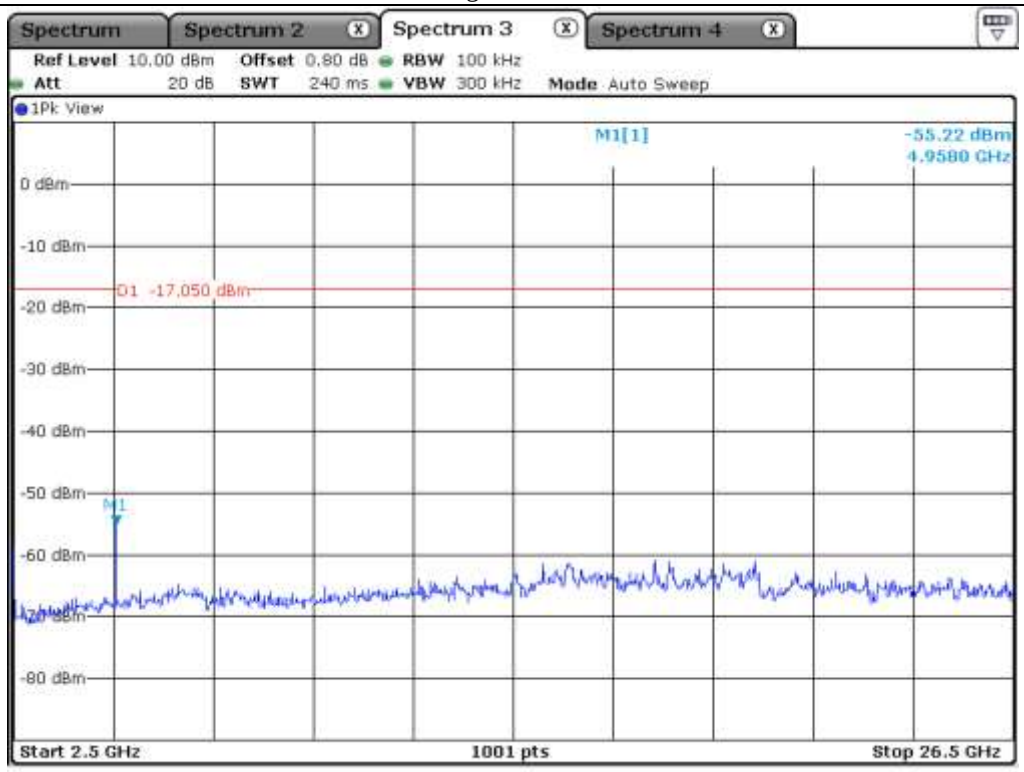


Middle Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

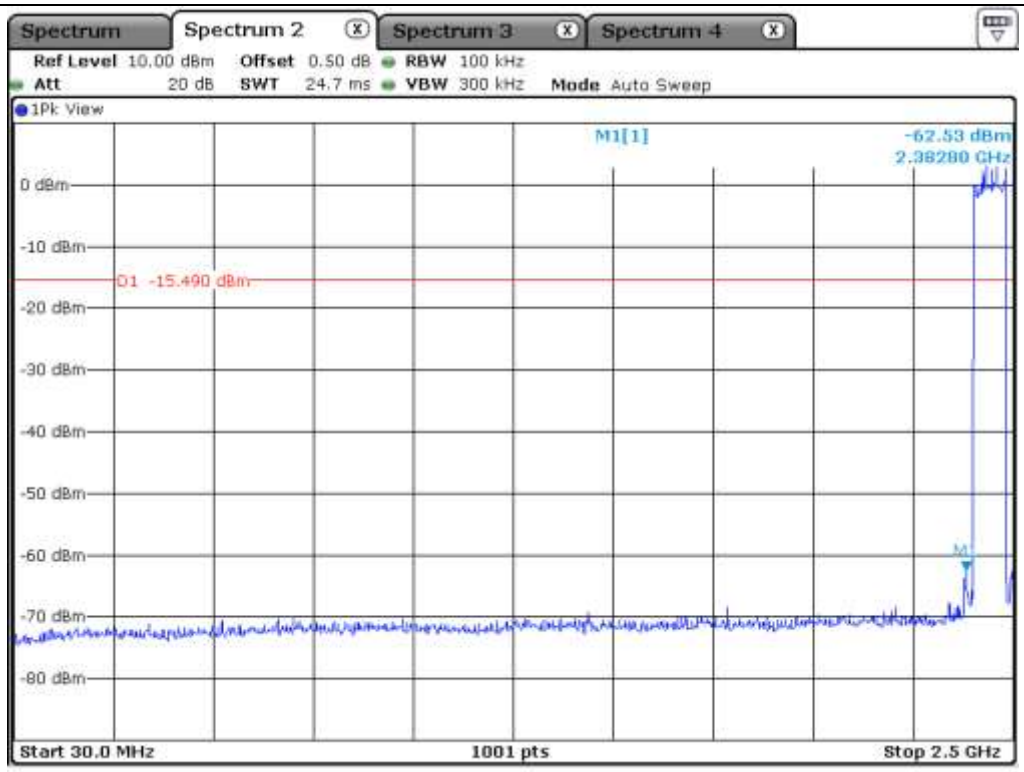


High Channel

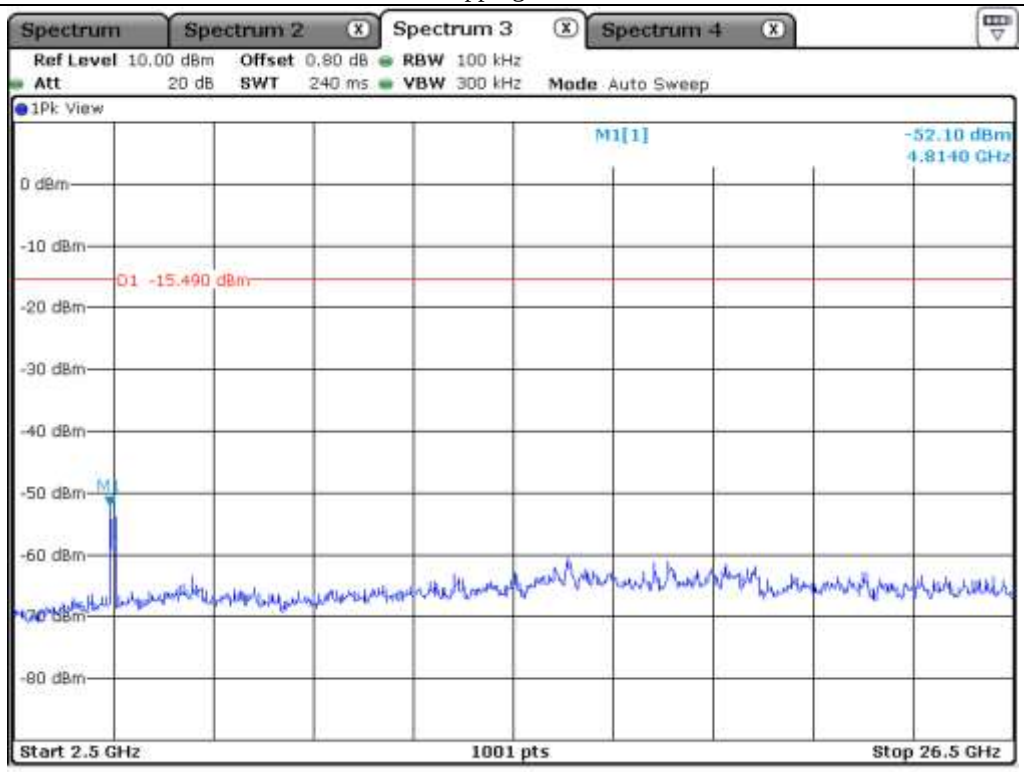


High Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Hopping Mode



Hopping Mode

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.6 Test data for Transmitting mode radiated emission

12.6.1 Radiated Emission which fall in the Restricted Band

12.6.1.1 Test data for 1 Mbps

12.6.1.1.2 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 76.60 %

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
2 356.074	18.51	Peak	H	26.94	9.20	-	54.65	74.00	19.35
2 318.192	7.34	Average	H			1.16	44.64	54.00	9.36
2 386.763	18.41	Peak	V			-	54.55	74.00	19.45
2 347.363	7.29	Average	V			1.16	44.59	54.00	9.41
Test Data for High Channel									
2 489.146	19.13	Peak	H	27.47	9.49	-	56.09	74.00	17.91
2 490.151	6.84	Average	H			1.16	44.96	54.00	9.04
2 494.025	18.53	Peak	V			-	55.49	74.00	18.51
2 484.184	6.82	Average	V			1.16	44.94	54.00	9.06

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.6.1.1.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 76.60 %

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
2 310.120	18.39	Peak	H	26.94	9.20	-	54.53	74.00	19.47
2 349.441	7.32	Average	H			1.16	44.62	54.00	9.38
2 325.065	18.48	Peak	V			-	54.62	74.00	19.38
2 341.528	7.47	Average	V			1.16	44.77	54.00	9.23
Test Data for High Channel									
2 493.464	19.21	Peak	H	27.47	9.49	-	56.17	74.00	17.83
2 483.624	6.82	Average	H			1.16	44.94	54.00	9.06
2 485.486	18.24	Peak	V			-	55.20	74.00	18.80
2 497.124	6.83	Average	V			1.16	44.95	54.00	9.05

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.6.1.2 Test data for 2 Mbps

12.6.1.2.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode

1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 76.60 %

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
2 381.888	18.43	Peak	H	26.94	9.20	-	54.57	74.00	19.43
2 346.563	7.20	Average	H			1.16	44.50	54.00	9.50
2 317.153	18.75	Peak	V			-	54.89	74.00	19.11
2 346.723	7.37	Average	V			1.16	44.67	54.00	9.33
Test Data for High Channel									
2 491.288	19.04	Peak	H	27.47	9.49	-	56.00	74.00	18.00
2 491.371	6.75	Average	H			1.16	44.87	54.00	9.13
2 490.102	19.19	Peak	V			-	56.15	74.00	17.85
2 490.547	6.91	Average	V			1.16	45.03	54.00	8.97

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.6.1.2.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 76.60 %

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
2 341.289	18.25	Peak	H	26.94	9.20	-	54.39	74.00	19.61
2 317.393	7.35	Average	H			1.16	44.65	54.00	9.35
2 340.569	18.27	Peak	V			-	54.41	74.00	19.59
2 344.406	7.37	Average	V			1.16	44.67	54.00	9.33
Test Data for High Channel									
2 494.107	18.39	Peak	H	27.47	9.49	-	55.35	74.00	18.65
2 483.508	7.02	Average	H			1.16	45.14	54.00	8.86
2 491.404	18.61	Peak	V			-	55.57	74.00	18.43
2 499.992	6.85	Average	V			1.16	44.97	54.00	9.03

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.6.1.3 Test data for 3 Mbps

12.6.1.3.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode

1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 77.01 %

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
2 346.004	18.56	Peak	H	26.94	9.20	-	54.70	74.00	19.30
2 324.745	7.29	Average	H			1.13	44.56	54.00	9.44
2 351.518	18.16	Peak	V			-	54.30	74.00	19.70
2 339.131	7.32	Average	V			1.13	44.59	54.00	9.41
Test Data for High Channel									
2 493.250	18.60	Peak	H	27.47	9.49	-	55.56	74.00	18.44
2 483.937	6.77	Average	H			1.13	44.86	54.00	9.14
2 497.008	18.36	Peak	V			-	55.32	74.00	18.68
2 498.525	6.87	Average	V			1.13	44.96	54.00	9.04

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.6.1.3.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 76.60 %

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
2 347.043	18.26	Peak	H	26.94	9.20	-	54.40	74.00	19.60
2 319.630	7.33	Average	H			1.16	44.63	54.00	9.37
2 343.846	18.45	Peak	V			-	54.59	74.00	19.41
2 340.330	7.60	Average	V			1.16	44.90	54.00	9.10
Test Data for High Channel									
2 488.321	19.49	Peak	H	27.47	9.49	-	56.45	74.00	17.55
2 483.508	7.05	Average	H			1.16	45.17	54.00	8.83
2 486.376	19.27	Peak	V			-	56.23	74.00	17.77
2 498.673	6.93	Average	V			1.16	45.05	54.00	8.95

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.6.2 Spurious & Harmonic Radiated Emission above 1 GHz

12.6.2.1 Test data for 1 Mbps

12.6.2.1.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 26.5 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 76.60 %

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
4 804.00	20.87	Peak	H	28.84	10.31	-	60.02	74.00	13.98
	9.41	Average	H			1.16	49.72	54.00	4.28
	20.15	Peak	V			-	59.30	74.00	14.70
	9.38	Average	V			1.16	49.69	54.00	4.31
Test Data for Middle Channel									
4 882.00	20.69	Peak	H	28.01	10.43	-	59.13	74.00	14.87
	9.60	Average	H			1.16	49.20	54.00	4.80
	20.15	Peak	V			-	58.59	74.00	15.41
	9.37	Average	V			1.16	48.97	54.00	5.03
Test Data for High Channel									
4 960.00	20.03	Peak	H	29.15	10.81	-	59.99	74.00	14.01
	9.15	Average	H			1.16	50.27	54.00	3.73
	20.87	Peak	V			-	60.83	74.00	13.17
	9.80	Average	V			1.16	50.92	54.00	3.08

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.6.2.1.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 26.5 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 76.60 %

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
4 804.00	21.18	Peak	H	28.84	10.31	-	60.33	74.00	13.67
	9.25	Average	H			1.16	49.56	54.00	4.44
	21.14	Peak	V			-	60.29	74.00	13.71
	9.23	Average	V			1.16	49.54	54.00	4.46
Test Data for Middle Channel									
4 882.00	19.67	Peak	H	28.01	10.43	-	58.11	74.00	15.89
	8.94	Average	H			1.16	48.54	54.00	5.46
	20.50	Peak	V			-	58.94	74.00	15.06
	8.95	Average	V			1.16	48.55	54.00	5.45
Test Data for High Channel									
4 960.00	18.95	Peak	H	29.15	10.81	-	58.91	74.00	15.09
	8.16	Average	H			1.16	49.28	54.00	4.72
	18.99	Peak	V			-	58.95	74.00	15.05
	9.29	Average	V			1.16	50.41	54.00	3.59

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.6.2.2 Test data for 2 Mbps

12.6.2.2.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 26.5 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 76.60 %

-. Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel									
4 804.00	20.58	Peak	H	28.84	10.31	-	59.73	74.00	14.27
	9.48	Average	H			1.16	49.79	54.00	4.21
	20.39	Peak	V			-	59.54	74.00	14.46
	9.17	Average	V			1.16	49.48	54.00	4.52
Test Data for Middle Channel									
4 882.00	20.85	Peak	H	28.01	10.43	-	59.29	74.00	14.71
	9.71	Average	H			1.16	49.31	54.00	4.69
	20.09	Peak	V			-	58.53	74.00	15.47
	9.25	Average	V			1.16	48.85	54.00	5.15
Test Data for High Channel									
4 960.00	20.41	Peak	H	29.15	10.81	-	60.37	74.00	13.63
	9.36	Average	H			1.16	50.48	54.00	3.52
	20.03	Peak	V			-	59.99	74.00	14.01
	8.82	Average	V			1.16	49.94	54.00	4.06

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.6.2.2.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 26.5 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 76.60 %

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
4 804.00	20.75	Peak	H	28.84	10.31	-	59.90	74.00	14.10
	9.04	Average	H			1.16	49.35	54.00	4.65
	20.38	Peak	V			-	59.53	74.00	14.47
	9.11	Average	V			1.16	49.42	54.00	4.58
Test Data for Middle Channel									
4 882.00	19.65	Peak	H	28.01	10.43	-	58.09	74.00	15.91
	9.12	Average	H			1.16	48.72	54.00	5.28
	20.12	Peak	V			-	58.56	74.00	15.44
	9.61	Average	V			1.16	49.21	54.00	4.79
Test Data for High Channel									
4 960.00	19.88	Peak	H	29.15	10.81	-	59.84	74.00	14.16
	9.00	Average	H			1.16	50.12	54.00	3.88
	20.15	Peak	V			-	60.11	74.00	13.89
	9.55	Average	V			1.16	50.67	54.00	3.33

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.6.2.3 Test data for 3 Mbps

12.6.2.3.1 Test data for Bluetooth Earbud LEFT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 26.5 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 77.01 %

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
4 804.00	20.71	Peak	H	28.84	10.31	-	59.86	74.00	14.14
	8.66	Average	H			1.13	48.94	54.00	5.06
	20.81	Peak	V			-	59.96	74.00	14.04
	9.76	Average	V			1.13	50.04	54.00	3.96
Test Data for Middle Channel									
4 882.00	20.54	Peak	H	28.01	10.43	-	58.98	74.00	15.02
	8.40	Average	H			1.13	47.97	54.00	6.03
	18.82	Peak	V			-	57.26	74.00	16.74
	9.59	Average	V			1.13	49.16	54.00	4.84
Test Data for High Channel									
4 960.00	20.47	Peak	H	29.15	10.81	-	60.43	74.00	13.57
	8.94	Average	H			1.13	50.03	54.00	3.97
	19.63	Peak	V			-	59.59	74.00	14.41
	8.49	Average	V			1.13	49.58	54.00	4.42

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

Tested by: Hyung-Kwon, Oh / Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.6.2.3.2 Test data for Bluetooth Earbud RIGHT

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 26.5 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 76.60 %

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
4 804.00	20.28	Peak	H	28.84	10.31	-	59.43	74.00	14.57
	9.75	Average	H			1.16	50.06	54.00	3.94
	20.31	Peak	V			-	59.46	74.00	14.54
	8.64	Average	V			1.16	48.95	54.00	5.05
Test Data for Middle Channel									
4 882.00	20.30	Peak	H	28.01	10.43	-	58.74	74.00	15.26
	9.25	Average	H			1.16	48.85	54.00	5.15
	20.09	Peak	V			-	58.53	74.00	15.47
	9.24	Average	V			1.16	48.84	54.00	5.16
Test Data for High Channel									
4 960.00	19.54	Peak	H	29.15	10.81	-	59.50	74.00	14.50
	9.46	Average	H			1.16	50.58	54.00	3.42
	19.51	Peak	V			-	59.47	74.00	14.53
	8.74	Average	V			1.16	49.86	54.00	4.14

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

Tested by: Hyung-Kwon, Oh / Manager

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13. RADIATED EMISSION TEST

13.1 Operating environment

Temperature : 23 °C

Relative humidity : 45 % R.H.

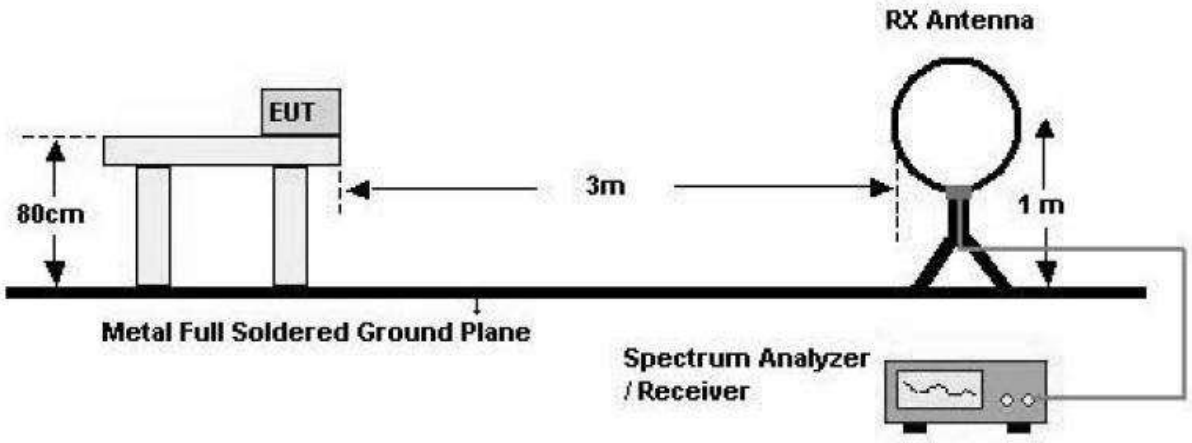
13.2 Test set-up

The radiated emissions measurements were on the 10 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

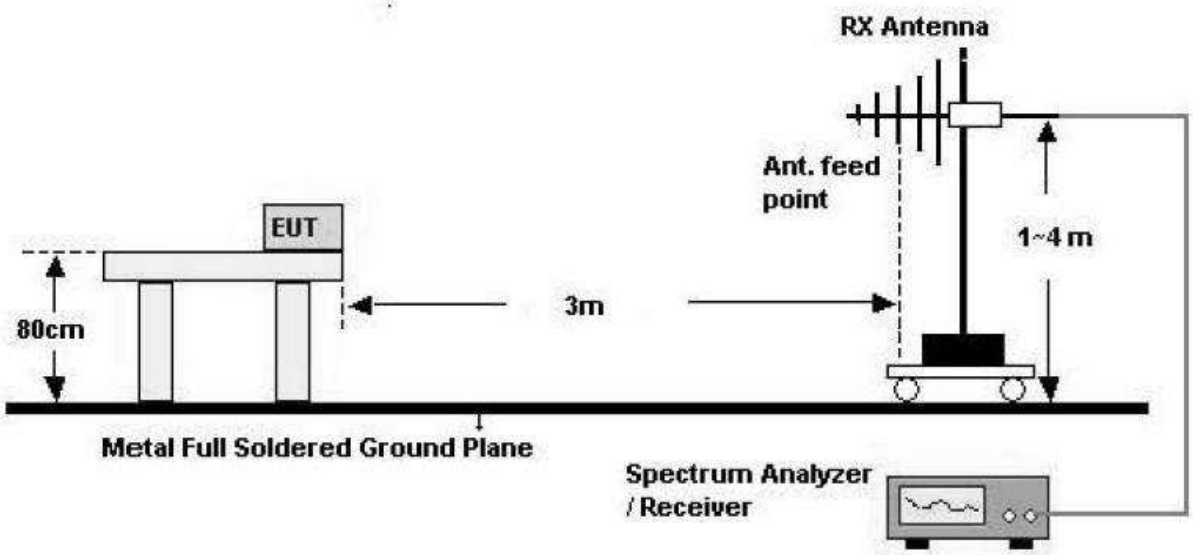
The frequency spectrum from 30 MHz to 26.5 GHz was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

- Test Configuration

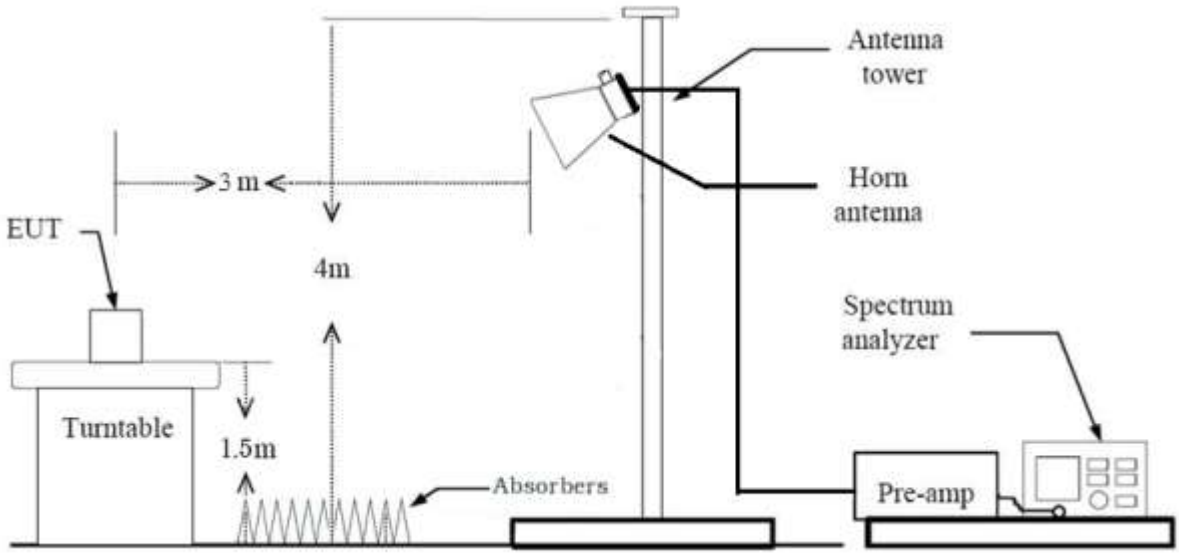
1. Below 30 MHz



2. 30 MHz - 1 GHz



3. Above 1 GHz



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13.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Feb. 21, 2020 (1Y)
■ -	ESW	Rohde & Schwarz	EMI Test Receiver	101851	Aug. 07, 2019 (1Y)
■ -	310N	Sonoma Instrument	Pre-Amplifier	312544	Mar. 16, 2020 (1Y)
■ -	BBV 9718 B	Schwarzbeck	Broadband Preamplifier	00009	Mar. 16, 2020 (1Y)
■ -	SCU40A	Rohde & Schwarz	Signal Conditioning unit	100436	Feb. 20, 2020 (1Y)
■ -	SCU18	Rohde & Schwarz	Signal Conditioning unit	102266	Jul. 24, 2019(1Y)
■ -	DT3000-3t	Innco System	Turn Table	DT3000/093	N/A
■ -	MA-4000XPET	Innco System	Antenna Master	MA4000/509	N/A
■ -	VULB9163	Schwarzbeck	TRILOG Broadband Antenna	777	Apr. 08, 2020 (2Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	9120D-1366	Jul. 23, 2020 (1Y)
■ -	BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Jan. 07, 2020(1Y)

All test equipment used is calibrated on a regular basis.

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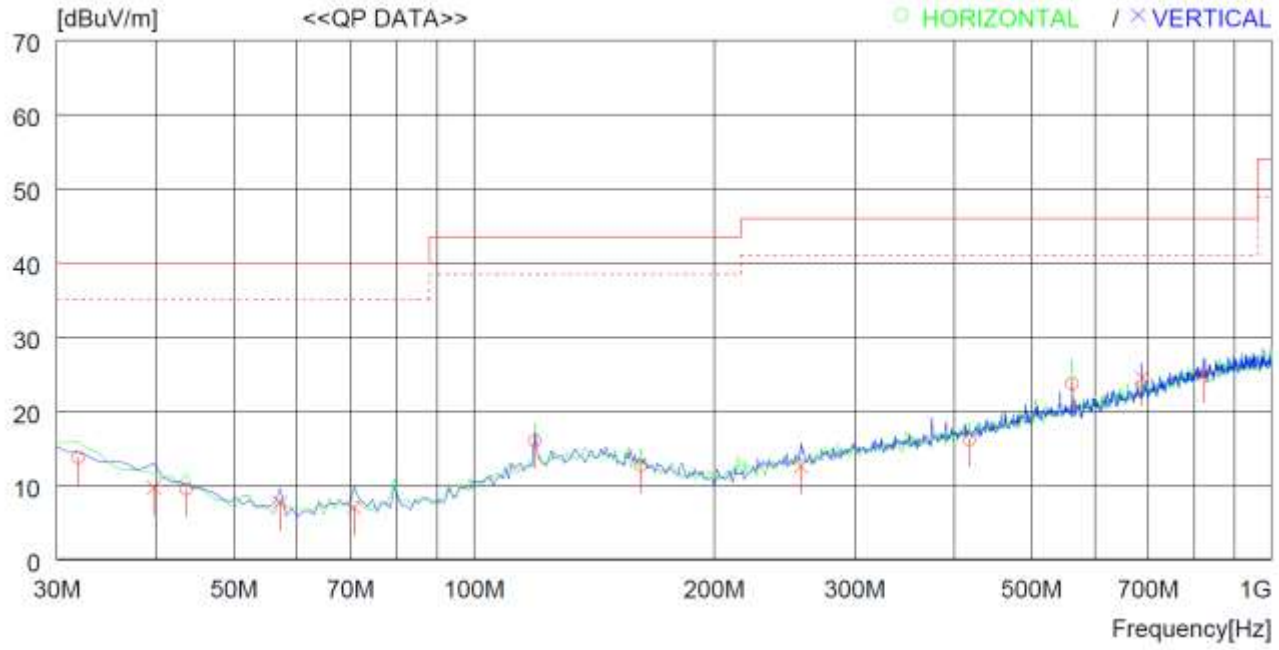
13.4 Test data for Bluetooth Earbud LEFT

13.4.1 Test data for 30 MHz ~ 1 GHz

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 120 kHz

-. Measurement distance : 3 m



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	31.940	35.0	10.9	0.5	32.6	13.8	40.0	26.2	200	0
2	43.580	31.1	10.5	0.6	32.7	9.5	40.0	30.5	400	356
3	119.240	36.9	10.8	1.0	32.7	16.0	43.5	27.5	200	0
4	161.920	31.4	12.7	1.2	32.6	12.7	43.5	30.8	400	234
5	418.001	30.2	16.7	2.0	32.7	16.2	46.0	29.8	100	359
6	562.529	35.3	19.1	2.3	33.0	23.7	46.0	22.3	100	104
----- Vertical ------										
7	39.700	31.2	10.7	0.5	32.7	9.7	40.0	30.3	100	126
8	57.160	30.2	9.5	0.7	32.7	7.7	40.0	32.3	100	0
9	70.740	30.1	8.8	0.8	32.7	7.0	40.0	33.0	300	106
10	256.980	33.2	10.6	1.5	32.7	12.6	46.0	33.4	200	359
11	687.655	34.1	20.8	2.5	32.9	24.5	46.0	21.5	400	359
12	820.541	33.0	22.2	2.2	32.5	24.9	46.0	21.1	100	94

Tested by: Hyung-Kwon, Oh / Manager

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13.4.2 Test data for Below 30 MHz

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)

-. Frequency range : 9 kHz ~ 30 MHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

13.4.3 Test data for above 1 GHz

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 26.5 GHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

Tested by: Hyung-Kwon, Oh / Manager

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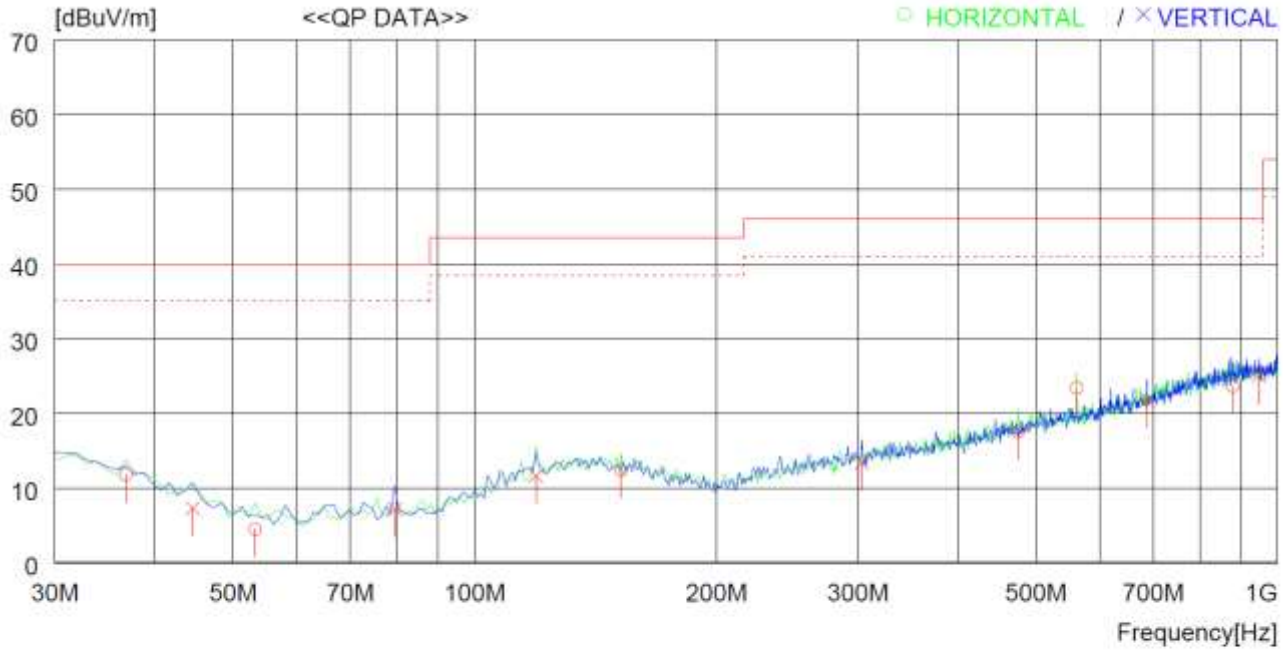
13.5 Test data for Bluetooth Earbud RIGHT

13.5.1 Test data for 30 MHz ~ 1 GHz

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 120 kHz

-. Measurement distance : 3 m



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	36.790	33.0	11.0	0.5	32.7	11.8	40.0	28.2	100	359
2	53.280	27.0	9.6	0.6	32.7	4.5	40.0	35.5	100	359
3	152.220	31.9	11.9	1.2	32.6	12.4	43.5	31.1	100	247
4	475.231	30.8	17.5	2.1	32.9	17.5	46.0	28.5	100	359
5	562.529	35.0	19.1	2.3	33.0	23.4	46.0	22.6	100	359
6	879.710	30.0	23.0	2.7	32.1	23.6	46.0	22.4	100	359
----- Vertical ------										
7	44.550	28.9	10.5	0.6	32.7	7.3	40.0	32.7	100	0
8	79.470	31.3	7.8	0.8	32.7	7.2	40.0	32.8	100	309
9	119.240	32.5	10.8	1.0	32.7	11.6	43.5	31.9	100	351
10	303.540	30.7	13.7	1.7	32.7	13.4	46.0	32.6	100	27
11	687.655	31.3	20.8	2.5	32.9	21.7	46.0	24.3	100	0
12	948.577	30.3	23.5	3.0	31.8	25.0	46.0	21.0	100	318

Tested by: Hyung-Kwon, Oh / Manager

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13.5.2 Test data for Below 30 MHz

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)

-. Frequency range : 9 kHz ~ 30 MHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

13.5.3 Test data for above 1 GHz

-. Test Date : July 13, 2020 ~ July 17, 2020

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 26.5 GHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

Tested by: Hyung-Kwon, Oh / Manager

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