

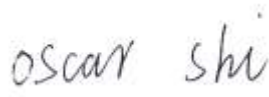
MEASUREMENT REPORT

FCC PART 15.247 / RSS-247 Bluetooth BR/EDR


FCC ID: 2AQV6DRAGON
IC: 24210-DRAGON
Application: Suzhou Pairlink Network Technology Ltd.

Application Type: Certification
Product: Bluetooth 5 BLE module
Model No.: Dragon-B, Dragon-C
Brand Name: Pairlink
FCC Classification: FCC Part 15 Spread Spectrum Transmitter (DSS)
FCC Rule Part(s): Part 15 Subpart C (Section 15.247)
ISED Rule(s): RSS-247 Issue 2, RSS-GEN Issue 5
Test Procedure(s): ANSI C63.10-2013
Test Date: March 04 ~24, 2020

Reviewed By:


(Oscar Shi)

Approved By:


(Robin Wu)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2002RSU008-U1	Rev. 01	Initial Report	03-26-2020	Valid

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General Information

Applicant:	Suzhou Pairlink Network Technology Ltd.
Applicant Address:	Room 117, No. 55, Suhong West Road, Suzhou Industrial Park, Suzhou, China
Manufacturer:	Suzhou Pairlink Network Technology Ltd.
Manufacturer Address:	Room 117, No. 55, Suhong West Road, Suzhou Industrial Park, Suzhou, China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
Test Device Serial No.:	N/A <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Designation. No. CN1166) test facility with the site description report on file and has met all the requirements specified in ANSI C63.4-2014.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications, Radio and SAR testing.



1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada and Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The measurement facility compliant with the test site requirements specified in ANSI C63.4-2014.



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name:	Bluetooth 5 BLE module
Model No.:	Dragon-B, Dragon-C
Brand Name:	Pairlink
Bluetooth Specification:	V5.0(BR/EDR+BLE 1M)
Operating Temperature:	-30 ~ 105°C
Power Type:	DC input(3.0~3.6V)

Note : Different models are only to different antennas, Dragon-B is multilayer ceramic antenna and Dragon-C is antenna connector which connect to external antenna. Schematics of other parts are identical, the antenna gain of Dragon-B is larger than Dragon-C, so choose Dragon-B to conducted test. Dragon-B and Dragon-C both test Radiated Emission.

2.2. Product Specification Subjective to this Report

Operating Frequency:	2402~2480MHz
Channel Number:	79
Type of modulation:	GFSK, Pi/4 DQPSK, 8DPSK
Data Rate:	1Mbps (GFSK), 2Mbps (Pi/4 DQPSK), 3Mbps (8DPSK)

Note: For other features of this EUT, test report will be issued separately.

The equipment under test (EUT) is the **Bluetooth 5 BLE module**. The test data contained in this report pertains only to the emissions due to the EUT's Bluetooth transmitter.

15.247(g): In accordance with the Bluetooth Industry Standard, the system is designed to comply with all of the regulations in Section 15.247 when the transmitter is presented with a continuous data (or information) system.

15.247(h): In accordance with the Bluetooth Industry Standard, the system does not coordinate its channels selection/ hopping sequence with other frequency hopping systems for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters.

15.247(h): The EUT employs Adaptive Frequency Hopping (AFH) which identifies sources of interference namely devices operating in 802.11 WLAN and excludes them from the list of available channels. The process of re-mapping reduces the number of test channels from 79 channels to a minimum number of 20 channels.

2.3. Description of Available Antennas

Model No.	Antenna Type	Manufacturer	Frequency Band (GHz)	Max Peak Gain (dBi)
Dragon-B	Ceramic Antenna	Walsin	2.4 ~ 2.5	2.0
Dragon-C	FPC antenna	Zhaodong	2.4 ~ 2.5	0.0

Note: The antenna for Dragon-C is supplied by customer for Radiated Emission testing.

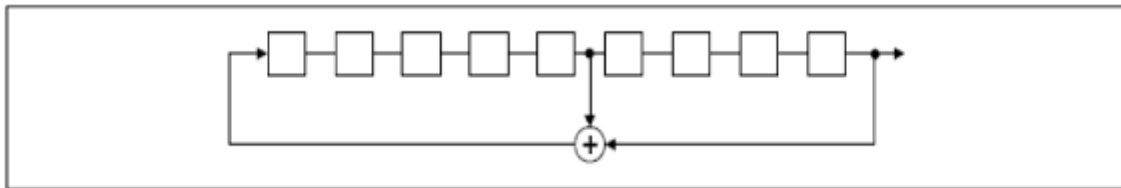
2.4. Operation Frequency / Channel List

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

2.5. Pseudorandom Frequency Hopping Sequence

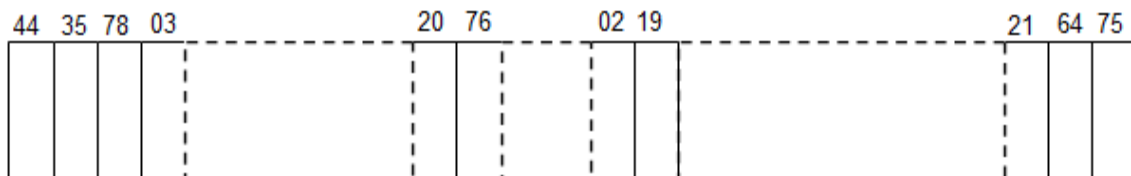
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONES; i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: $2^9 - 1 = 511$ bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



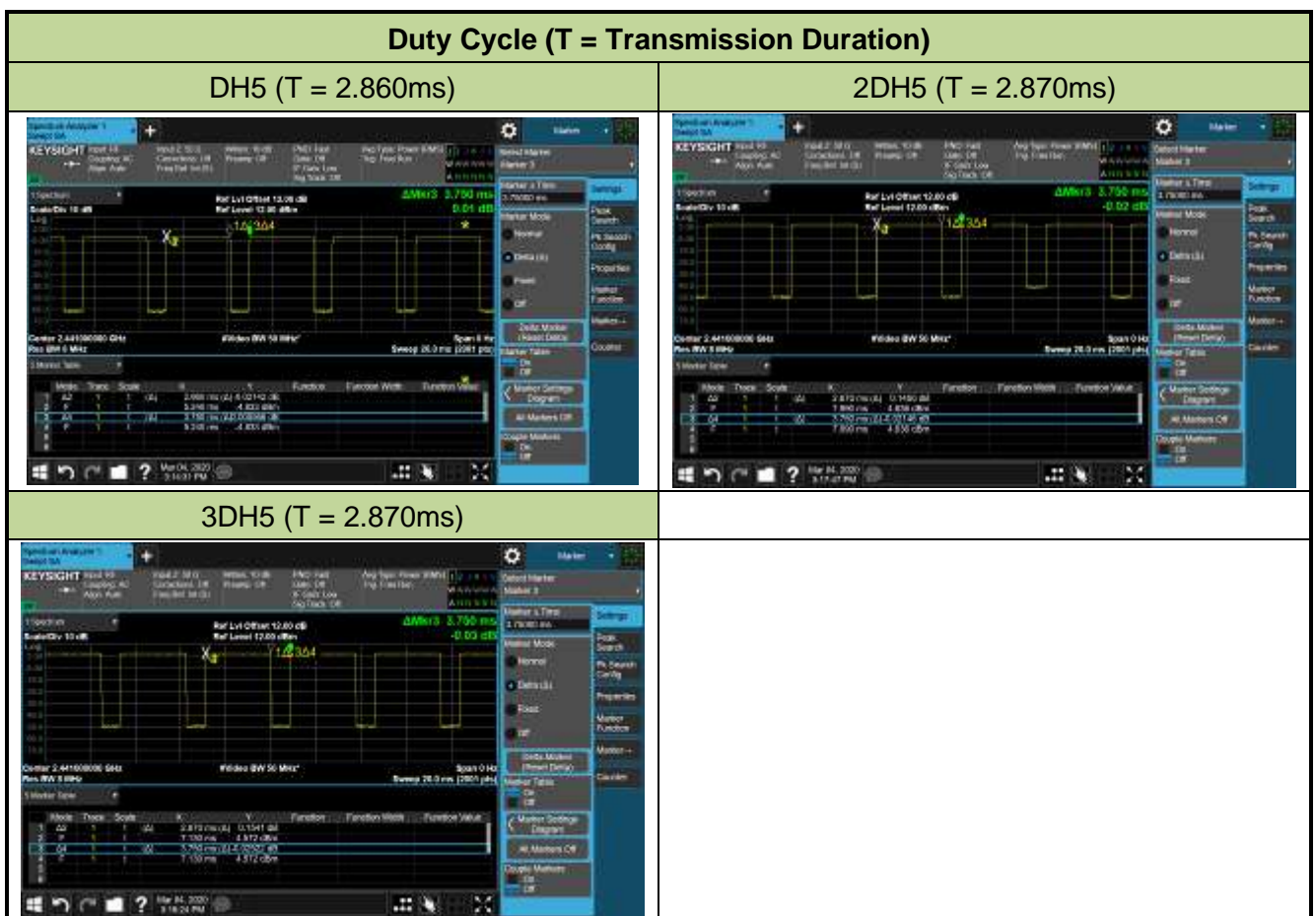
Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their Corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

2.6. Duty Cycle

The maximum achievable duty cycle was determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Test Mode	Duty Cycle
DH5	76.27%
2DH5	76.53%
3DH5	76.53%



2.7. Test Configuration

The device was tested per the guidance of ANSI C63.10-2013. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.8. Test Software

The test utility software used during testing was “BlueTool”, and the version was 1.6.0.5.

2.9. EMI Suppression Device(s) / Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.10. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

RSS-GEN Section 4.1

In addition to complying with the applicable RSSs and RSP-100, each unit of a product model (i.e. of a radio apparatus) shall meet the labelling requirements set out in this section prior to being marketed in Canada or imported into Canada.

If the dimensions of the product are extremely small or it is not practical to place the label or marking on the product, and if electronic labelling cannot be implemented, the label shall be placed in a prominent location in the user manual supplied with the product, as agreed upon with ISED prior to the certification application. The user manual may be in an electronic format; if it is not supplied to the user, the user manual must be readily available.

3. DESCRIPTION of TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance was used in the measurement.

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50 Ω /50 μ H Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions were used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. An MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.”

- The antenna of the device Dragon-B is **permanently attached**.
- The antenna connector for Dragon-C is **IPEX Connector**.

Conclusion:

The unit complies with the requirement of §15.203.

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2020/04/15
Two-Line V-Network	R&S	ENV 216	MRTSUE06002	1 year	2020/06/13
Two-Line V-Network	R&S	ENV 216	MRTSUE06003	1 year	2020/06/13
Thermohygrometer	Testo	608-H1	MRTSUE06404	1 year	2020/08/08
Shielding Room	MIX-BEP	Chamber-SR2	MRTSUE06215	N/A	N/A

Radiated Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2020/08/01
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2020/09/03
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2020/03/31
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2020/10/13
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2020/12/29
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2020/08/08
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2020/04/30

Radiated Emission - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2020/08/01
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2020/10/13
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2020/10/27
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2020/12/29
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2020/12/15
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2020/04/30

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2020/04/15
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06452	1 year	2020/07/11
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2020/04/15
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2020/11/17
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2020/06/30
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2020/06/30
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2020/06/13
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2020/06/13
Modulation Analyzer	HP	8901A	MRTSUE06098	1 year	2020/10/10
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2020/11/07
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2020/11/07
Thermohygrometer	testo	608-H1	MRTSUE06401	1 year	2020/08/08

Software	Version	Function
EMI Software	V3	EMI Test Software

6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 9kHz~150kHz: 3.84dB 150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): Horizontal: 30MHz~300MHz: 4.07dB 300MHz~1GHz: 3.63dB 1GHz~18GHz: 4.16dB Vertical: 30MHz~300MHz: 4.18dB 300MHz~1GHz: 3.60dB 1GHz~18GHz: 4.76dB
Radiated Emission Measurement - AC2
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): Horizontal: 30MHz~300MHz: 3.75dB 300MHz~1GHz: 3.53dB 1GHz~18GHz: 4.28dB Vertical: 30MHz~300MHz: 3.86dB 300MHz~1GHz: 3.53dB 1GHz~18GHz: 4.33dB

7. TEST RESULT

7.1. Summary

FCC Part Section(s)	ISED Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(1)	RSS-247 [5.1]	20dB Bandwidth	N/A	Conducted	Pass	Section 7.2
N/A	RSS-Gen [6.7]	99% Bandwidth	N/A			
15.247(b)(1)	RSS-247 [5.4(b)]	Peak Transmitter Output Power	Peak Power < 0.125 Watt EIRP < 4 Watt			
15.247(a)(1)	RSS-247 [5.1]	Channel Separation	> 2/3 of 20 dB BW for systems with Output Power < 125mW			
15.247(a)(1)(iii)	RSS-247 [5.1]	Number of Channels	> 15 Channels			
15.247(a)(1)(iii)	RSS-247 [5.1]	Time of Occupancy	< 0.4 sec in 31.6 sec period			
15.247(d)	RSS-247 [5.5]	Band Edge / Out-of-Band Emissions	Conducted \geq 20dBc			
15.205, 15.209	RSS-247 [5.5]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209			
15.207	RSS-Gen [8.8]	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits >	Line Conducted	Pass	Section 7.11

Notes:

- 1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 2) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.

7.2. 20dB and 99% Bandwidth Measurement

7.2.1. Test Limit

N/A

7.2.2. Test Procedure Used

ANSI C63.10-2013 - Section 6.9.2

ANSI C63.10-2013 - Section 6.9.3

7.2.3. Test Setting

For 20dB bandwidth

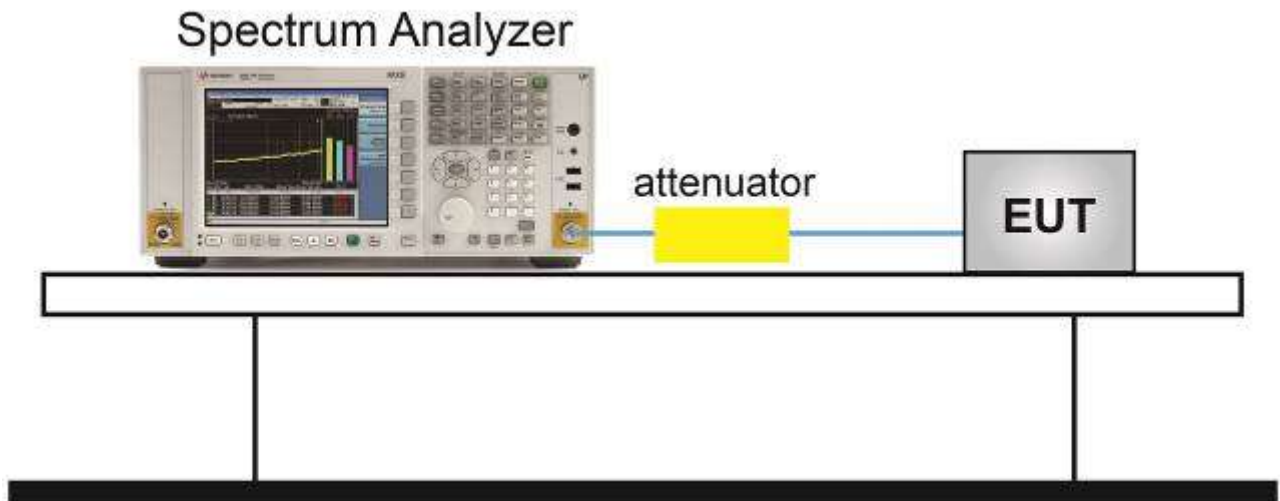
1. Set RBW \geq 1% to 5% of the 20dB bandwidth
2. VBW = Approximately three times RBW
3. Span = Approximately 2 to 5 times the 20dB bandwidth, centered on a hopping channel
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace to stabilize
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level in the fundamental emission.

For 99% bandwidth

1. Span = 1.5 times to 5 times the OBW
2. Set RBW = 1% to 5% the OBW
3. VBW \geq 3 \times RBW
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple

7. Allow the trace was allowed to stabilize

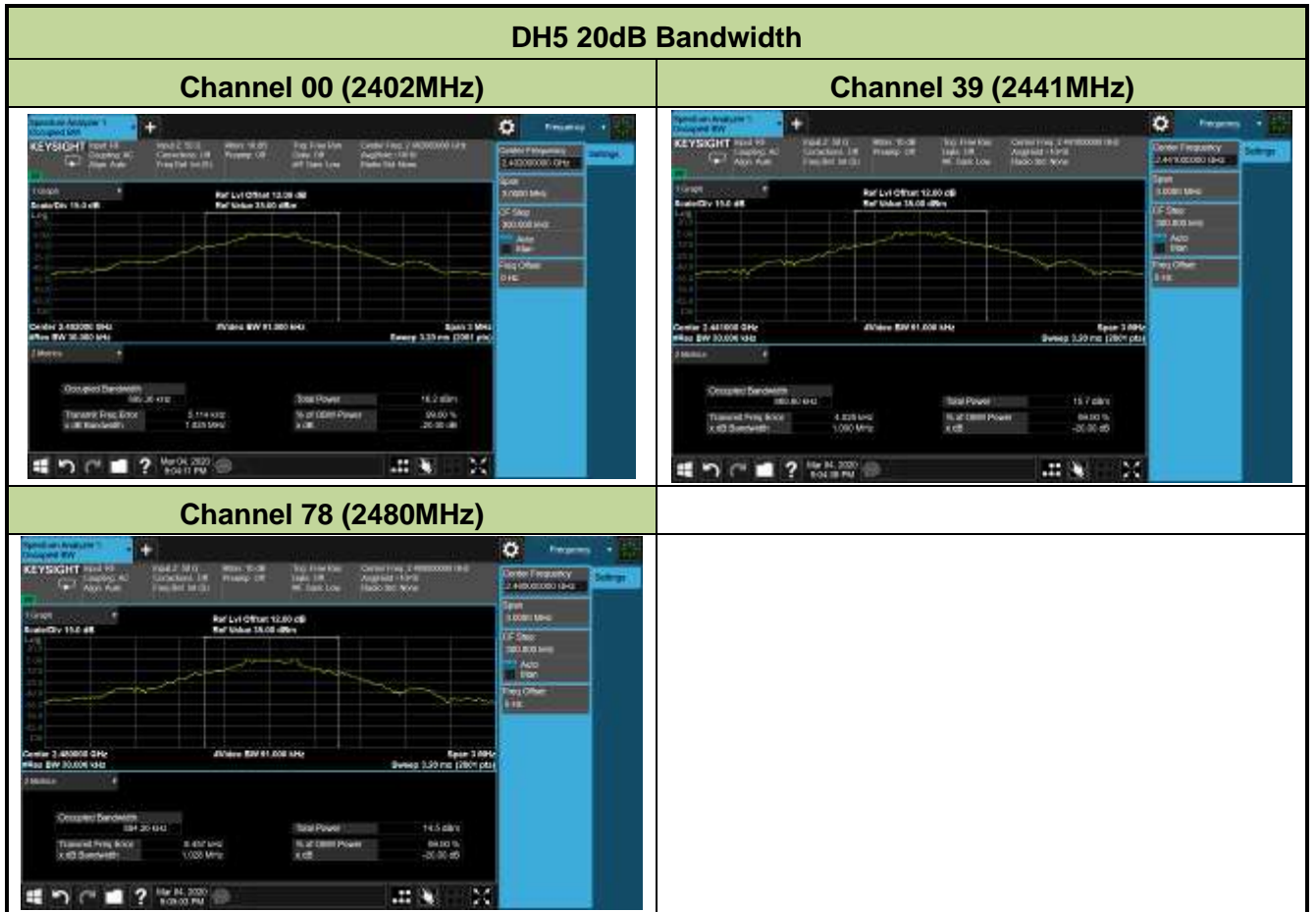
7.2.4. Test Setup

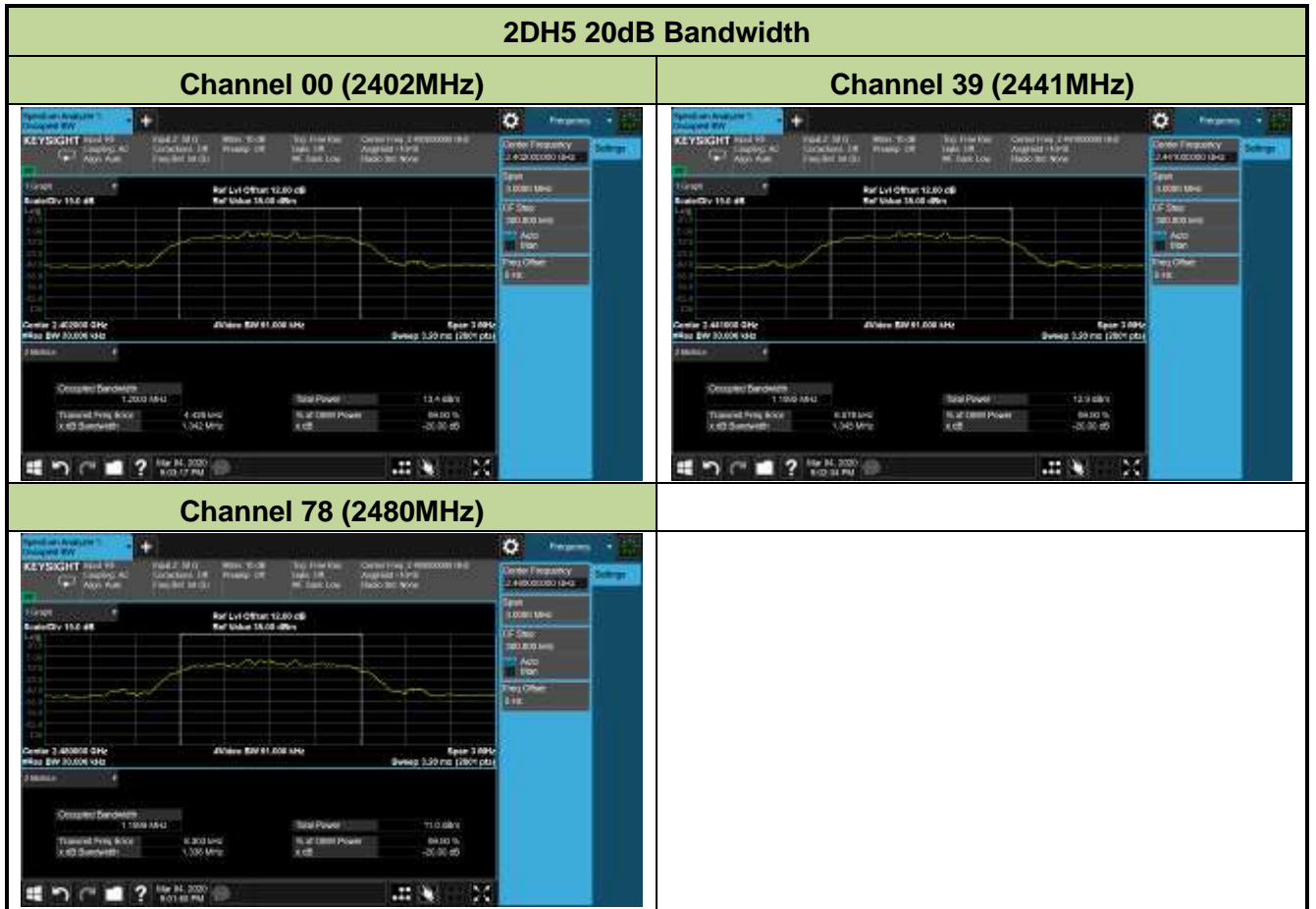


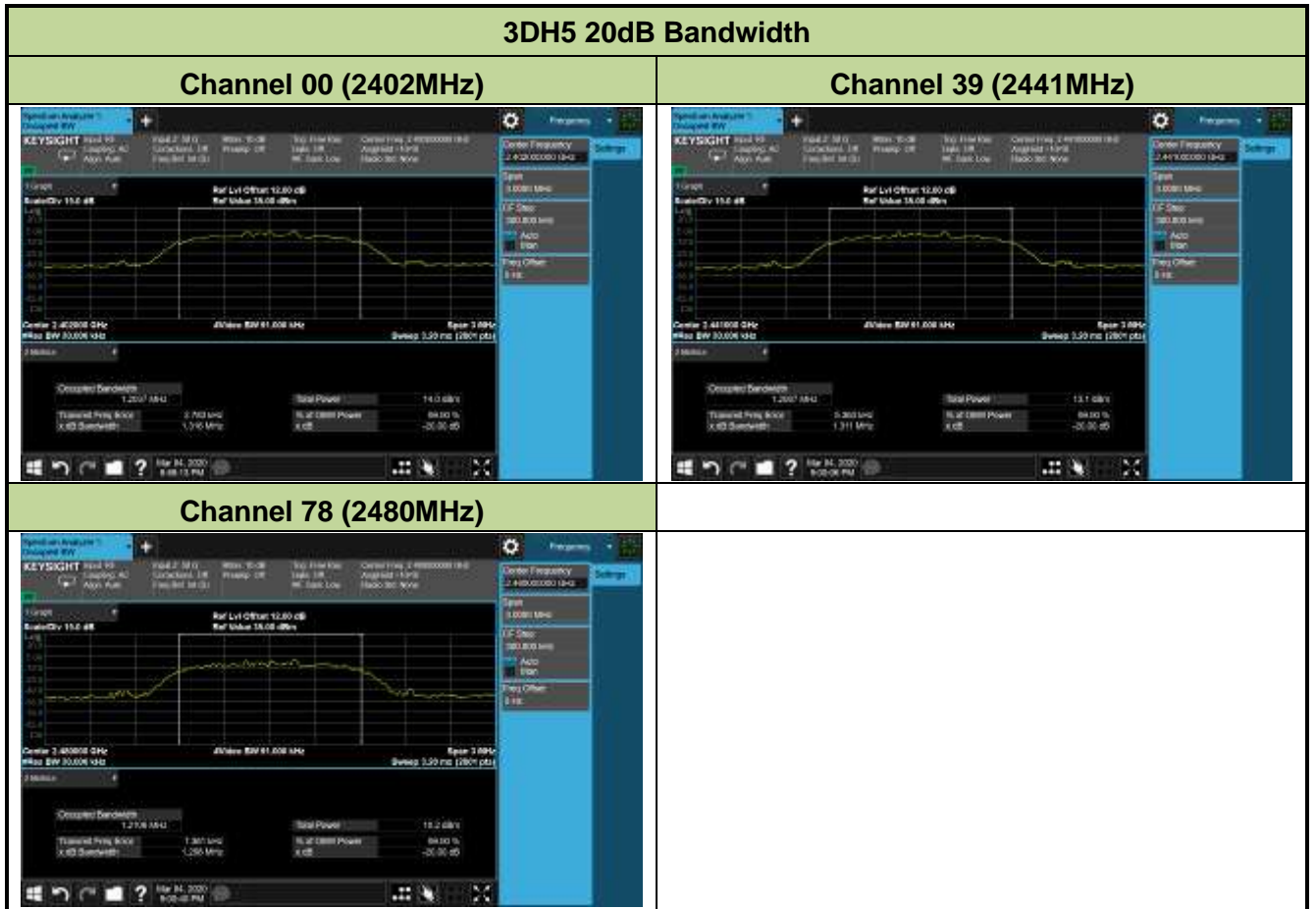
7.2.5. Test Result

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Gordon Qi	Relative Humidity	52%
Test Site	TR3	Test Date	2020/03/04

Test Mode	Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)	Result
DH5	00	2402	1025.00	899.36	Pass
DH5	39	2441	1000.00	869.80	Pass
DH5	78	2480	1028.00	894.26	Pass
2DH5	00	2402	1342.00	1200.30	Pass
2DH5	39	2441	1345.00	1199.50	Pass
2DH5	78	2480	1338.00	1199.90	Pass
3DH5	00	2402	1316.00	1203.70	Pass
3DH5	39	2441	1311.00	1208.70	Pass
3DH5	78	2480	1298.00	1210.60	Pass







7.3. Output Power Measurement

7.3.1. Test Limit

The maximum out power permissible output power is 1 Watt for all frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels.

The maximum out power permissible output power is 0.125 watts for all other frequency hopping systems in the 2400-2483.5 MHz band.

The E.I.R.P shall not exceed 4 Watt.

7.3.2. Test Procedure Used

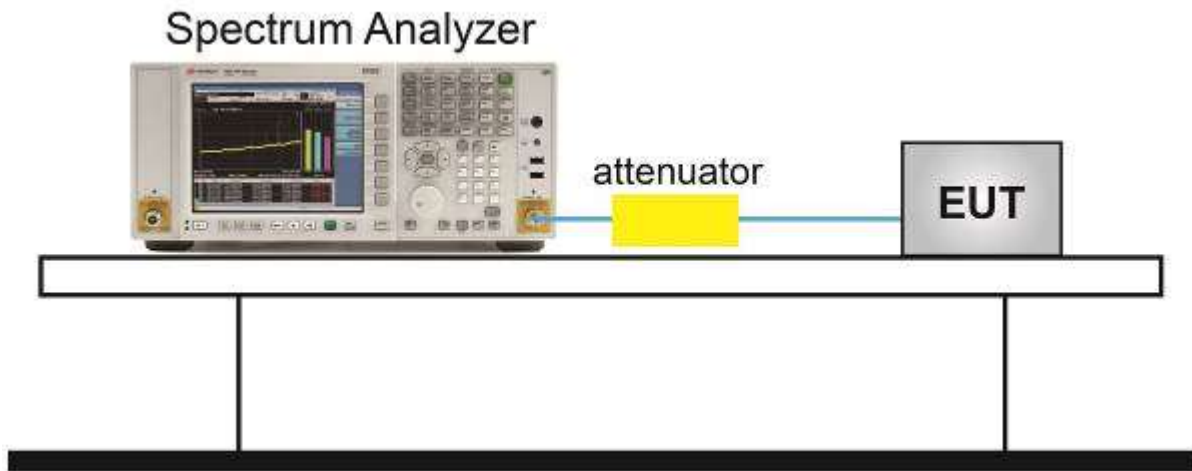
ANSI C63.10-2013 - Section 7.8.5

7.3.3. Test Setting

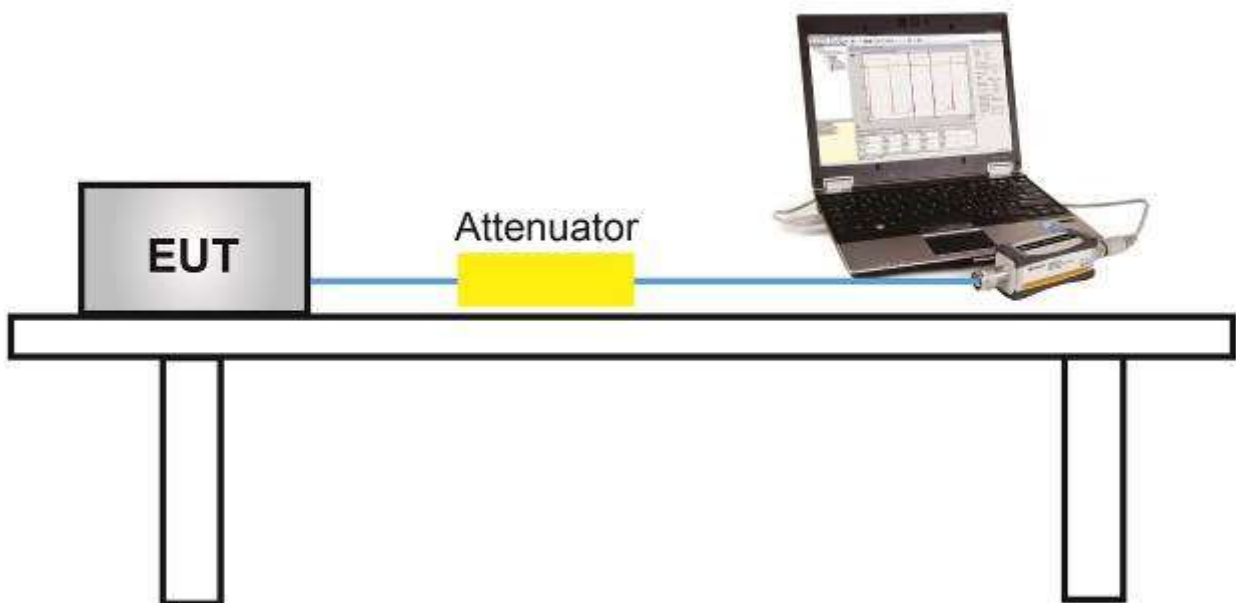
1. Set RBW \geq the 20 dB bandwidth of the emission being measured.
2. VBW \geq RBW
3. Span = approximately five times the 20dB bandwidth, centered on a hopping channel
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power (don't forget added the external attenuation and cable loss)

7.3.4. Test Setup

For Peak Power Measurement



For Average Power Measurement



7.3.5. Test Result

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Gordon Qi	Relative Humidity	52%
Test Site	TR3	Test Date	2020/03/04

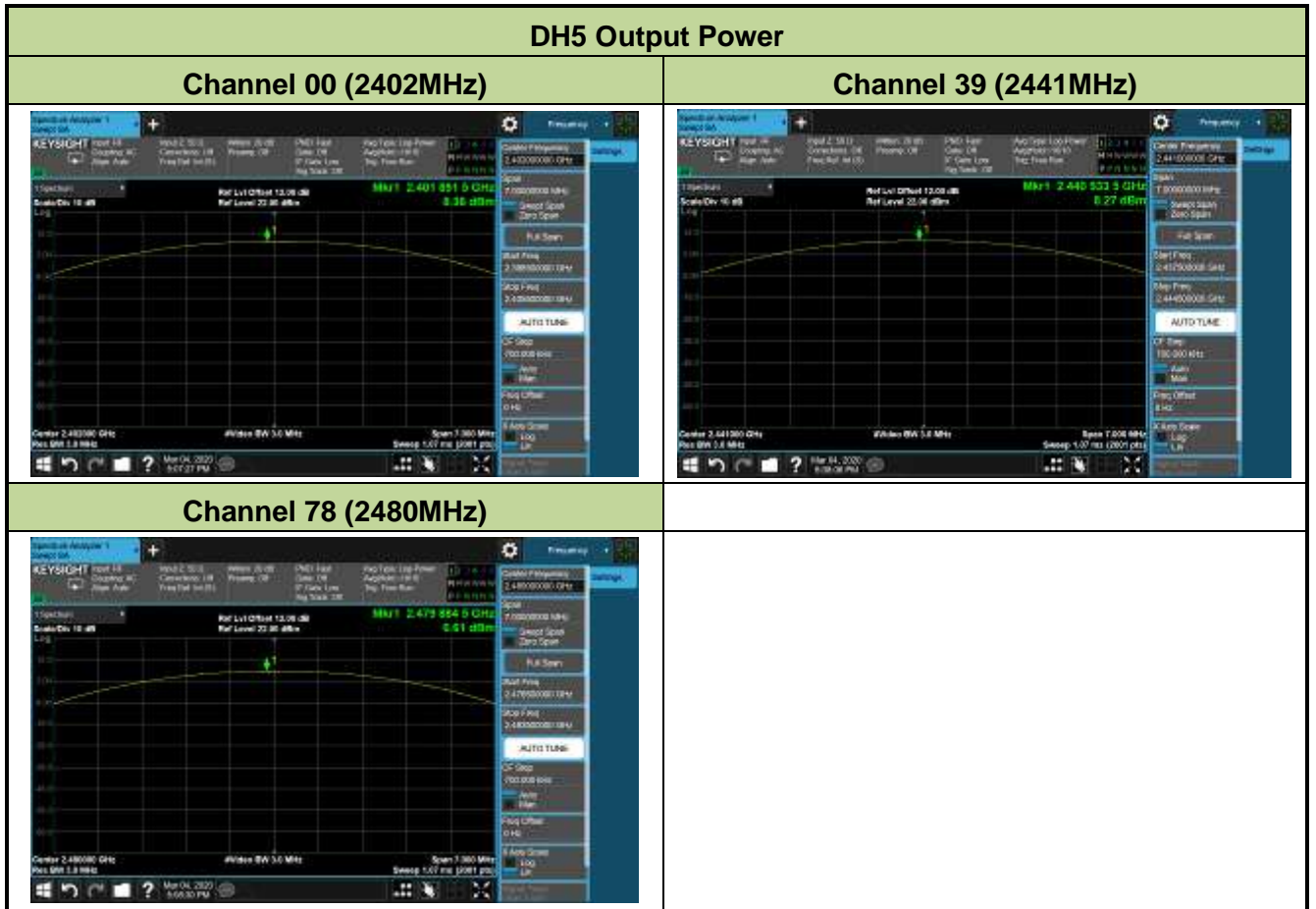
Test Mode	Channel No.	Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)
DH5	00	2402	8.38	≤ 20.97	10.38	≤ 36.00
DH5	39	2441	8.27	≤ 20.97	10.27	≤ 36.00
DH5	78	2480	6.61	≤ 20.97	8.61	≤ 36.00
2DH5	00	2402	7.67	≤ 20.97	9.67	≤ 36.00
2DH5	39	2441	7.35	≤ 20.97	9.35	≤ 36.00
2DH5	78	2480	5.67	≤ 20.97	7.67	≤ 36.00
3DH5	00	2402	8.13	≤ 20.97	10.13	≤ 36.00
3DH5	39	2441	7.76	≤ 20.97	9.76	≤ 36.00
3DH5	78	2480	6.06	≤ 20.97	8.06	≤ 36.00

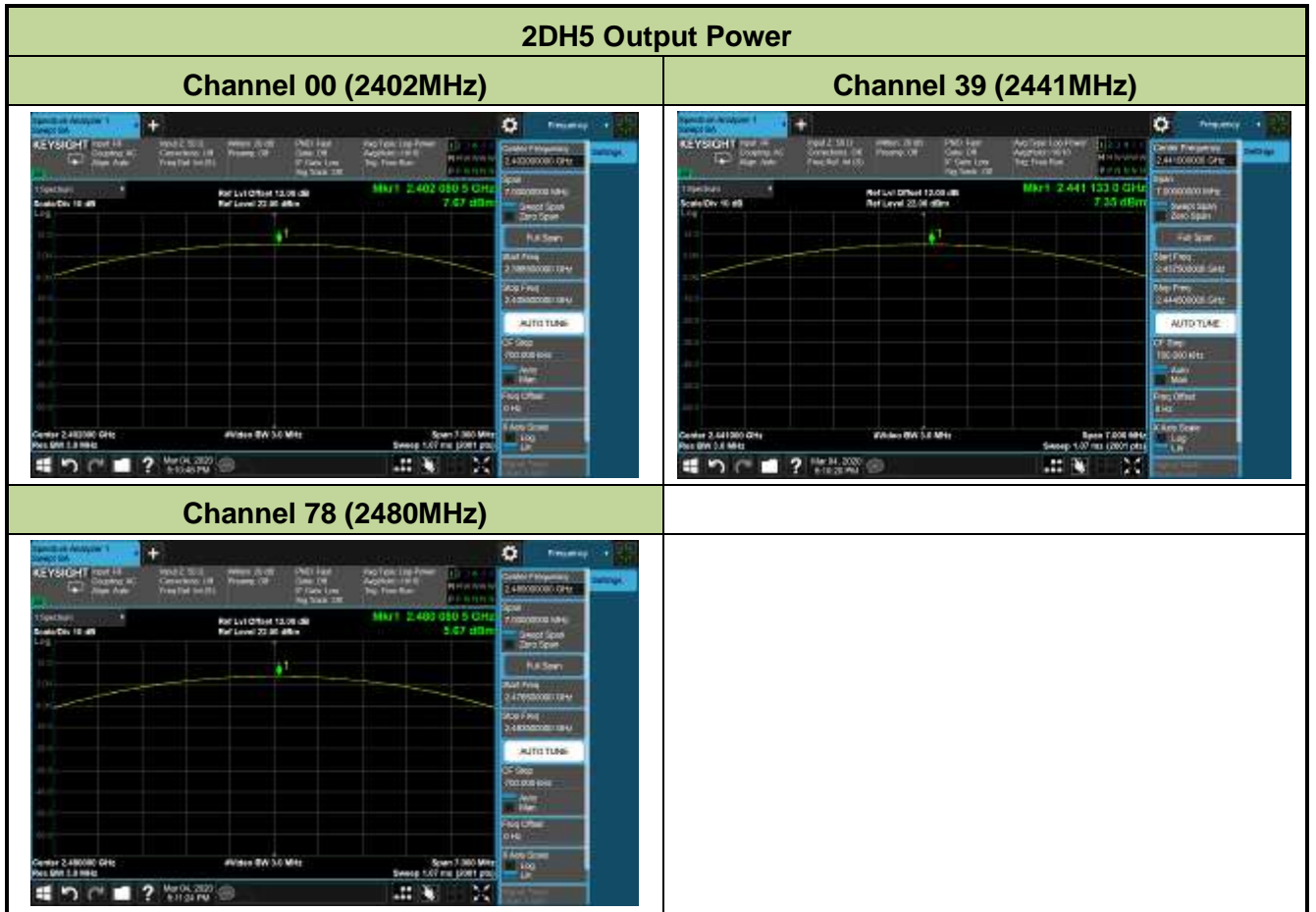
Note: E.I.R.P (dBm) = Peak Power (dBm) + Antenna Gain (dBi), Antenna Gain = 2.00 dBi.

Test Result of Average Output Power (Reporting Only)

Test Mode	Channel No.	Frequency (MHz)	Average Power (dBm)	Average Power Limit (dBm)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)
DH5	00	2402	6.91	≤ 30.00	8.91	≤ 36.00
DH5	39	2441	7.65	≤ 30.00	9.65	≤ 36.00
DH5	78	2480	6.89	≤ 30.00	8.89	≤ 36.00
2DH5	00	2402	4.56	≤ 30.00	6.56	≤ 36.00
2DH5	39	2441	4.06	≤ 30.00	6.06	≤ 36.00
2DH5	78	2480	2.04	≤ 30.00	4.04	≤ 36.00
3DH5	00	2402	4.53	≤ 30.00	6.53	≤ 36.00
3DH5	39	2441	4.14	≤ 30.00	6.14	≤ 36.00
3DH5	78	2480	2.21	≤ 30.00	4.21	≤ 36.00

Note: E.I.R.P (dBm) = Average Power (dBm) + Antenna Gain (dBi), Antenna Gain = 2.00 dBi.







7.4. Carrier Frequency Separation Measurement

7.4.1. Test Limit

The minimum permissible channel separation for this system is $2/3$ the value of the 20dB BW.

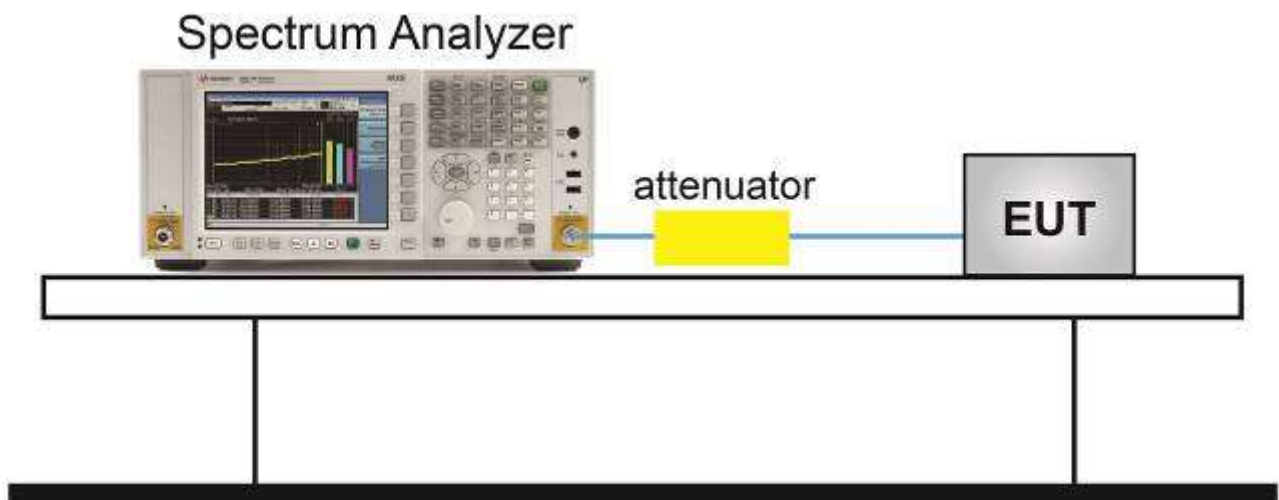
7.4.2. Test Procedure Used

ANSI C63.10-2013 - Section 7.8.2

7.4.3. Test Setting

1. Span = Wide enough to capture the peaks of two adjacent channels.
2. Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
3. VBW \geq RBW
4. Sweep time = Auto couple
5. Detector = Peak
6. Trace mode = Max hold
7. Allowed the trace to stabilize
8. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

7.4.4. Test Setup



7.4.5. Test Result

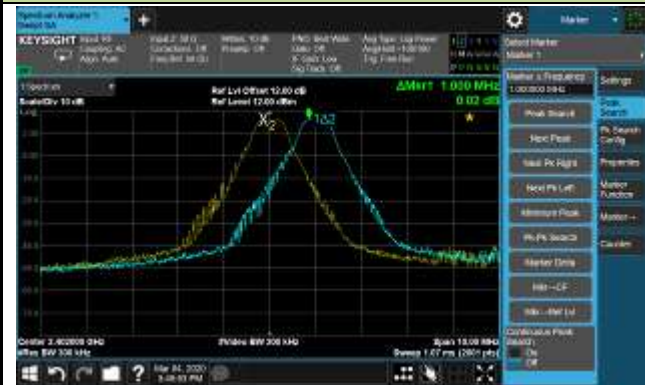
Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Gordon Qi	Relative Humidity	52%
Test Site	TR3	Test Date	2020/03/04

Test Mode	Channel No.	Frequency (MHz)	Limit (kHz)	Result
DH5	00	2402	≥ 683.33	Pass
DH5	39	2441	≥ 666.67	Pass
DH5	78	2480	≥ 685.33	Pass
2DH5	00	2402	≥ 894.67	Pass
2DH5	39	2441	≥ 896.67	Pass
2DH5	78	2480	≥ 892.00	Pass
3DH5	00	2402	≥ 877.33	Pass
3DH5	39	2441	≥ 874.00	Pass
3DH5	78	2480	≥ 865.33	Pass

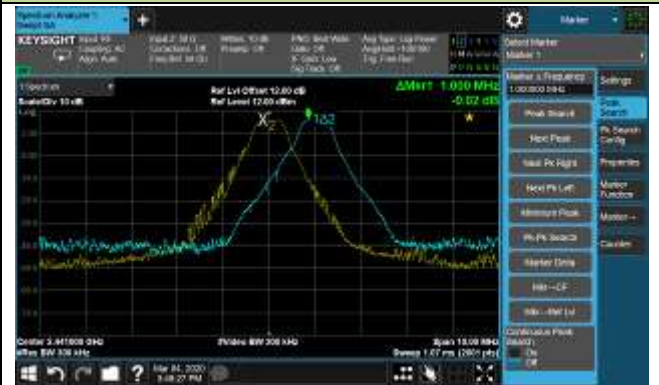
Note: The Limit is 2/3 the value of the 20dB BW.

DH5 Carrier Frequency Separation

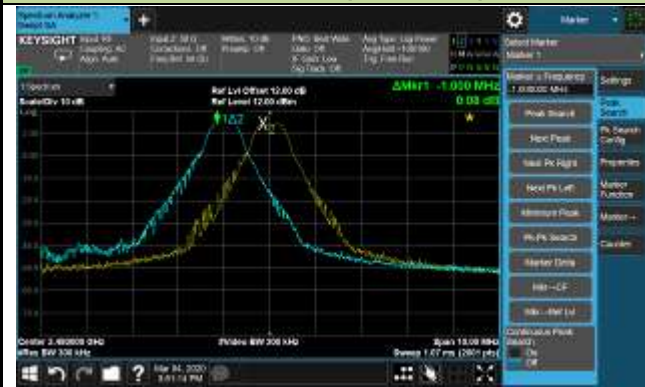
Channel 00 (2402MHz)



Channel 39 (2441MHz)

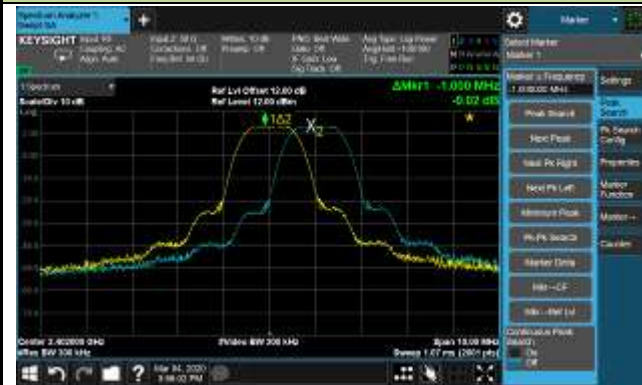


Channel 78 (2480MHz)



2DH5 Carrier Frequency Separation

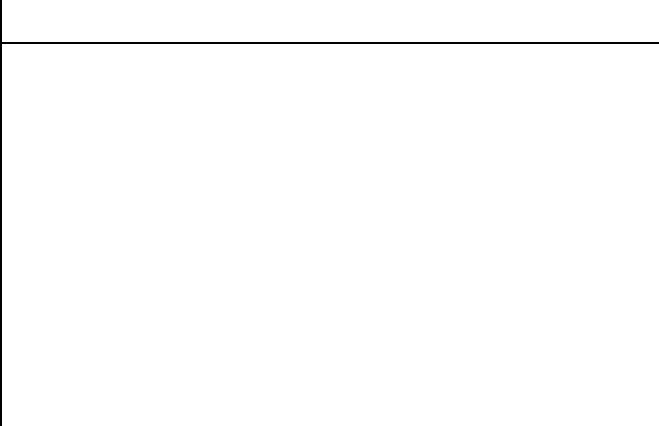
Channel 00 (2402MHz)



Channel 39 (2441MHz)

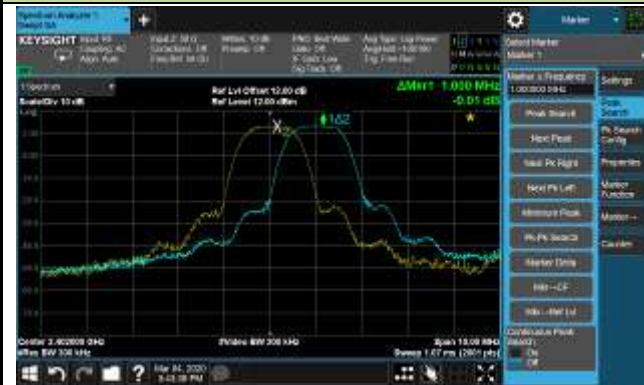


Channel 78 (2480MHz)

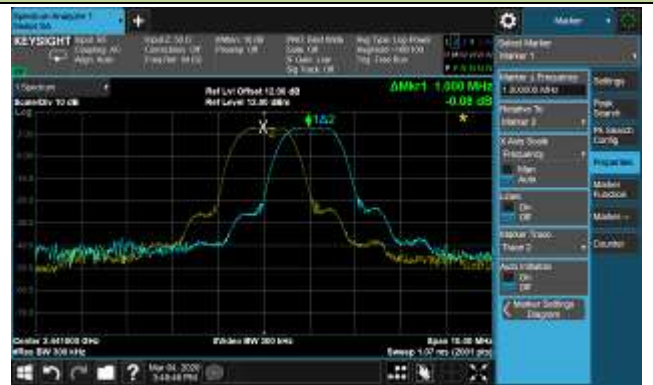


3DH5 Carrier Frequency Separation

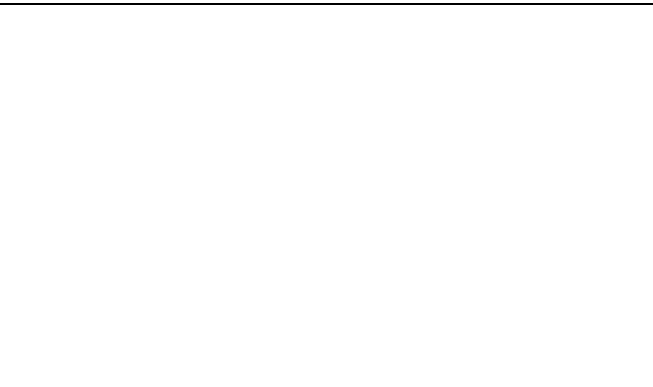
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



7.5. Number of Hopping Channels Measurement

7.5.1. Test Limit

This frequency hopping system must employ a minimum of 15 hopping channels.

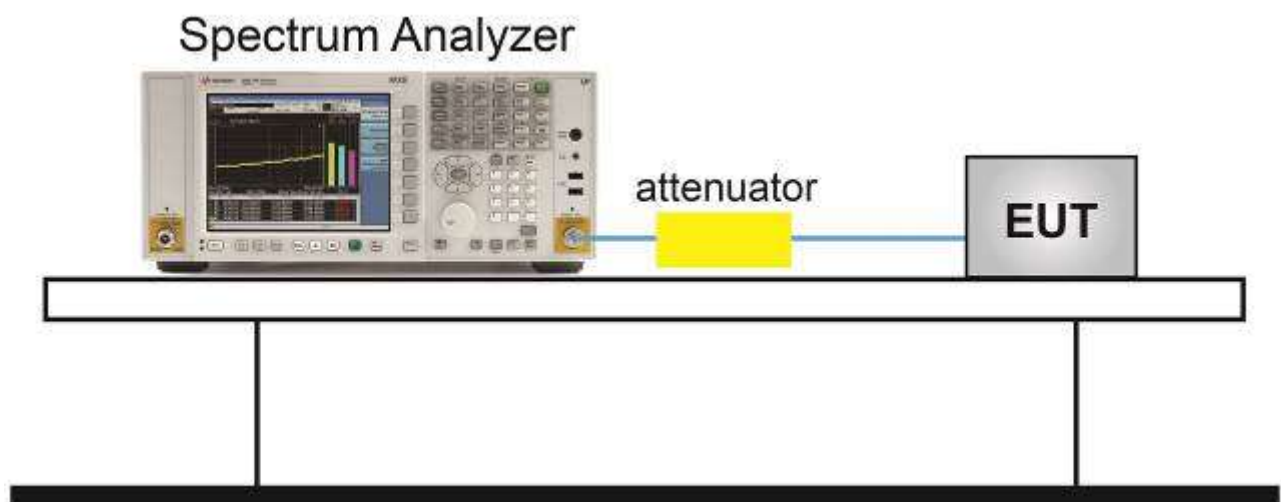
7.5.2. Test Procedure Used

ANSI C63.10-2013 - Section 7.8.3

7.5.3. Test Setting

1. Span = The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
2. RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
3. VBW \geq RBW
4. Sweep time = Auto couple
5. Detector = Peak
6. Trace mode = Max hold
7. Allow the trace to stabilize

7.5.4. Test Setup



7.5.5. Test Result

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Gordon Qi	Relative Humidity	52%
Test Site	TR3	Test Date	2020/03/04

Test Mode (Hopping)	Channel Numbers	Frequency (MHz)	Limit (Hopping Channels)	Result
DH5	79	2402 ~ 2480	≥ 15	Pass
2DH5	79	2402 ~ 2480	≥ 15	Pass
3DH5	79	2402 ~ 2480	≥ 15	Pass



2DH5 Number of Hopping Channels

2402 ~ 2421MHz



2422 ~ 2441MHz



2442 ~ 2461MHz



2462 ~ 2480MHz



3DH5 Number of Hopping Channels

2402 ~ 2421MHz



2422 ~ 2441MHz



2442 ~ 2461MHz



2462 ~ 2480MHz



7.6. Time of Occupancy Measurement

7.6.1. Test Limit

The maximum permissible time of occupancy is 400ms within a period of 400ms multiplied by the number of hopping channels employed.

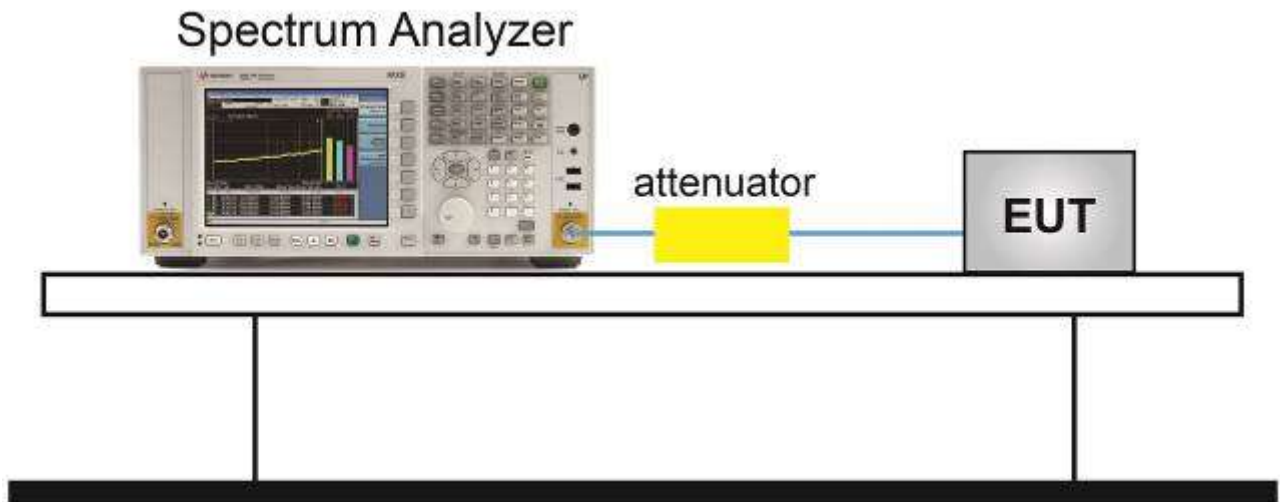
7.6.2. Test Procedure Used

ANSI C63.10-2013 - Section 7.8.4

7.6.3. Test Setting

1. Span = Zero span, centered on a hopping channel.
2. RBW shall be \leq channel spacing and where possible RBW should be set $\gg 1 / T$, where T is the expected dwell time per channel.
3. VBW \geq RBW
4. Sweep time = As necessary to capture the entire dwell time per hopping channel
5. Detector = Peak
6. Trace mode = Free run
7. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. An oscilloscope may be used instead of a spectrum analyzer. The EUT shall show compliance with the appropriate regulatory limit for the number of hopping channels. A plot of the data shall be included in the test report.

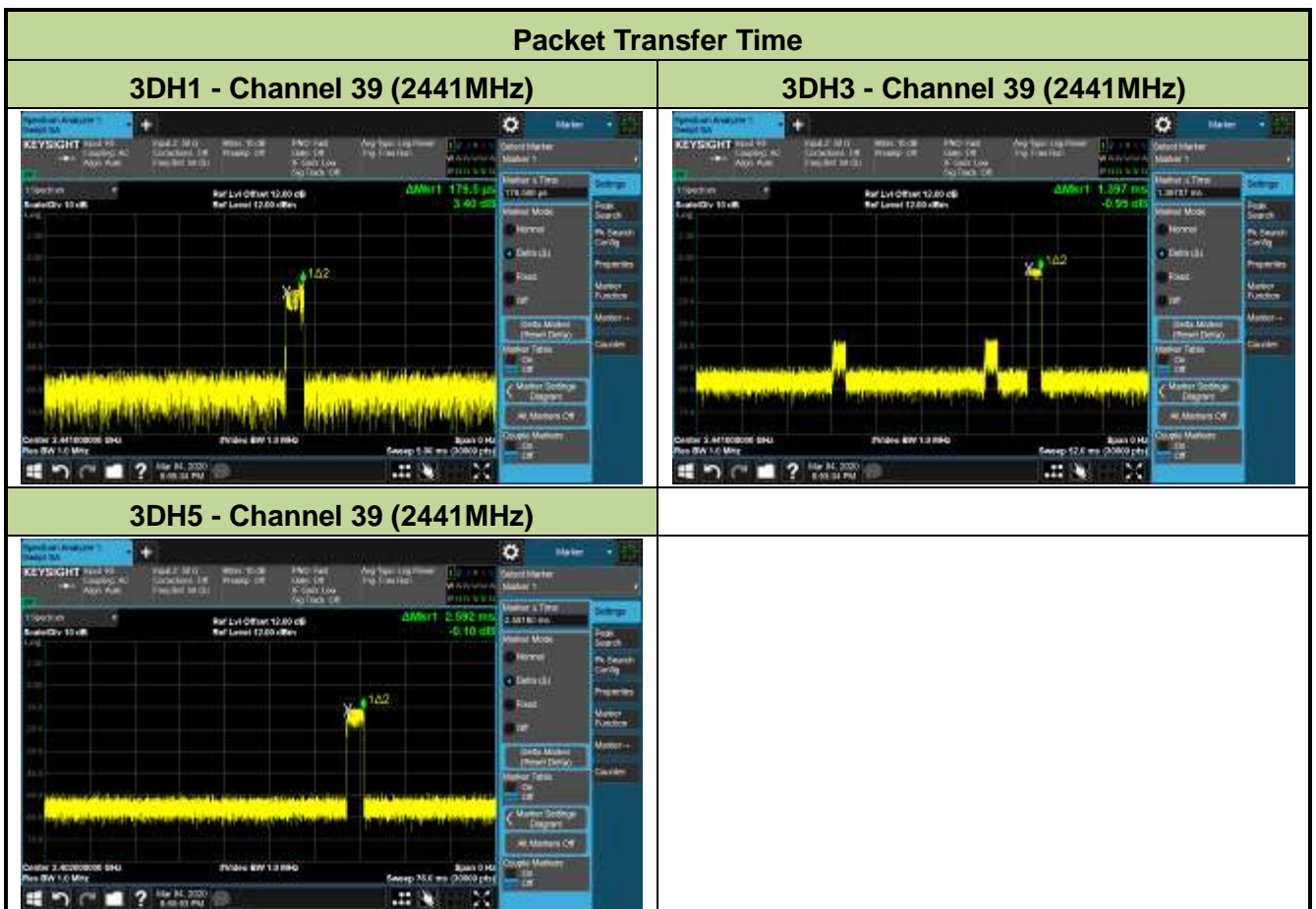
7.6.4. Test Setup



7.6.5. Test Result

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Gordon Qi	Relative Humidity	52%
Test Site	TR3	Test Date	2020/03/04

Test Mode	Channel No.	Frequency (MHz)	Hops Over Occupancy Time(Hops)	Packet Transfer Time (ms)	Time of Occupancy (ms)	Limit (ms)	Result
3DH1	39	2441	320	0.18	57.60	≤ 400	Pass
3DH3	39	2441	160	1.40	224.00	≤ 400	Pass
3DH5	39	2441	107	2.59	277.13	≤ 400	Pass



Note 1: According the Bluetooth Standard Specification, the nominal hop rate is 1600 hops/s. All

Bluetooth unit participating in the piconet are time and hop synchronized to the channel.

Hops Over Occupancy Time in 31.6s for 3DH1 = $1600 / 2 / 79 * 31.6 = 320$.

Hops Over Occupancy Time in 31.6s for 3DH3 = $1600 / 4 / 79 * 31.6 = 160$.

Hops Over Occupancy Time in 31.6s for 3DH5 = $1600 / 6 / 79 * 31.6 = 107$.

Note 2: Time of Occupancy = Packet Transfer Time * Hops Over Occupancy Time in 31.6s.

7.7. Band-edge Compliance Measurement

7.7.1. Test Limit

The maximum permissible emission level is 20dBc. Any emissions were lying outside of the emission bandwidth and in authorized band edges to a field strength limit specified in Section 15.209 of the Title 47 CFR.

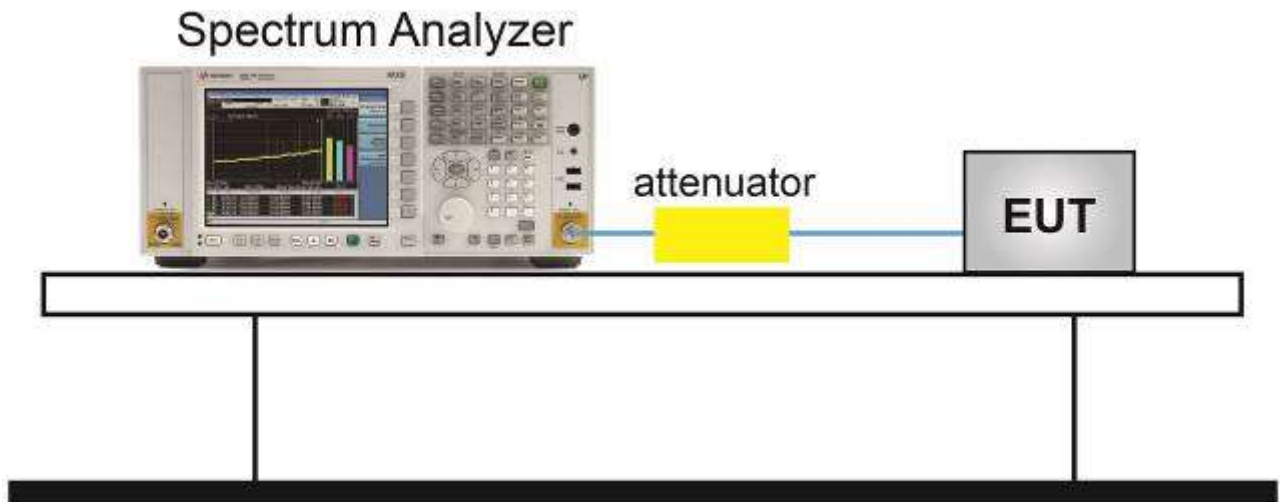
7.7.2. Test Procedure Used

ANSI C63.10-2013 - Section 6.10.4

7.7.3. Test Setting

1. Span = Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation.
2. RBW = 100kHz
3. VBW = 300kHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Allow the trace to stabilize. Set the marker on the emission at the band edge, or on the highest modulation product outside of the band, if this level is greater than that at the band edge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission.

7.7.4. Test Setup



7.7.5. Test Result

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Gordon Qi	Relative Humidity	52%
Test Site	TR3	Test Date	2020/03/04

Test Mode	Channel No.	Frequency (MHz)	Limit	Result
DH5	00	2402	20dBc	Pass
DH5	78	2480	20dBc	Pass
2DH5	00	2402	20dBc	Pass
2DH5	78	2480	20dBc	Pass
3DH5	00	2402	20dBc	Pass
3DH5	78	2480	20dBc	Pass

Band-edge Compliance

DH5 - Channel 00 (2402MHz)

DH5 - Channel 78 (2480MHz)

2DH5 - Channel 00 (2402MHz)

2DH5 - Channel 78 (2480MHz)

3DH5 - Channel 00 (2402MHz)

3DH5 - Channel 78 (2480MHz)


Operation Frequency Range of 20dB Bandwidth within Hopping Mode

DH5 - Channel 00 (2402MHz)

DH5 - Channel 78 (2480MHz)

2DH5 - Channel 00 (2402MHz)

2DH5 - Channel 78 (2480MHz)

3DH5 - Channel 00 (2402MHz)

3DH5 - Channel 78 (2480MHz)


7.8. Conducted Spurious Emissions Measurement

7.8.1. Test Limit

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

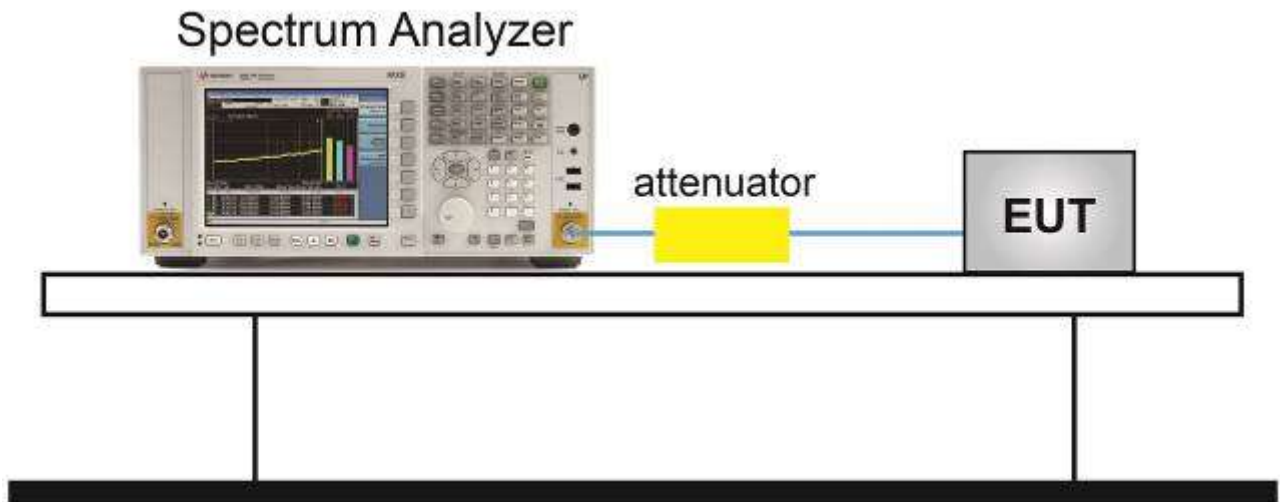
7.8.2. Test Procedure Used

ANSI C63.10-2013 - Section 7.8.8

7.8.3. Test Setting

1. Span = Wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
2. RBW = 100kHz
3. VBW = 300kHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize
8. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this section.

7.8.4. Test Setup



7.8.5. Test Result

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Gordon Qi	Relative Humidity	52%
Test Site	TR3	Test Date	2020/03/04

Test Mode	Channel No.	Frequency (MHz)	Limit (MHz)	Result
DH5	00	2402	20dBc	Pass
DH5	39	2441	20dBc	Pass
DH5	78	2480	20dBc	Pass
2DH5	00	2402	20dBc	Pass
2DH5	39	2441	20dBc	Pass
2DH5	78	2480	20dBc	Pass
3DH5	00	2402	20dBc	Pass
3DH5	39	2441	20dBc	Pass
3DH5	78	2480	20dBc	Pass

DH5 Conducted Spurious Emissions

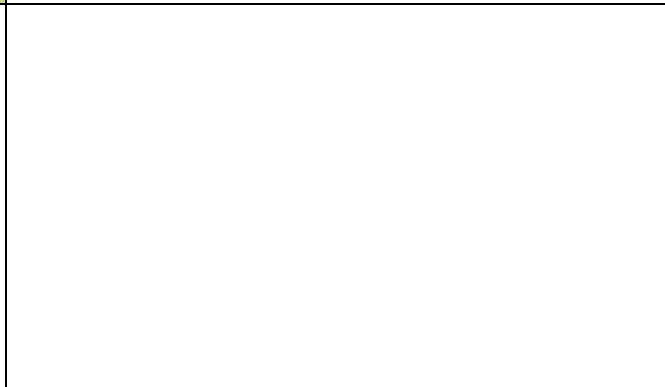
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



2DH5 Conducted Spurious Emissions

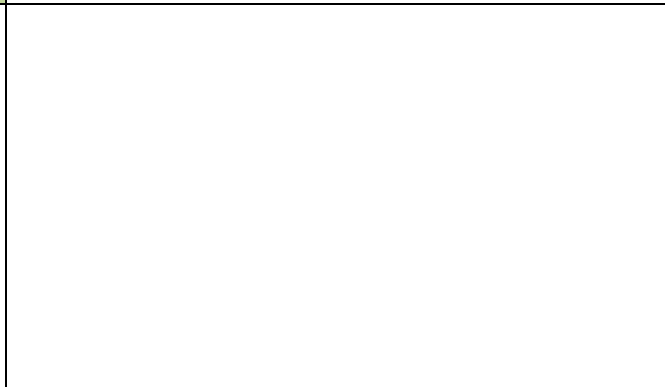
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



3DH5 Conducted Spurious Emissions

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



7.9. Radiated Spurious Emission Measurement

7.9.1. Test Limit

All out of band emissions appearing in a restricted band as defined in Section 8.10 of RSS-Gen, must also comply with the radiated emission limits specified in Section 8.9.

RSS-Gen Section 8.9			
Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$)	Magnetic Field Strength (H-Field) ($\mu\text{A}/\text{m}$)	Measured Distance (m)
0.009 - 0.490	--	6.37/F (F in kHz)	300
0.490 - 1.705	--	6.37/F (F in kHz)	30
1.705 - 30	--	0.08	30
30 - 88	100	--	3
88 - 216	150	--	3
216 - 960	200	--	3
Above 960	500	--	3

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$)	Measured Distance (m)
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.9.2. Test Procedure Used

ANSI C63.10 - Section 6.3 (General Requirements)

ANSI C63.10 - Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 - Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 - Section 6.6 (Standard test method above 1GHz)

7.9.3. Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = As specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = Auto couple
6. Trace was allowed to stabilize

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold

7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

2. RBW = 1MHz

3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10Hz

If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration

4. Detector = Peak

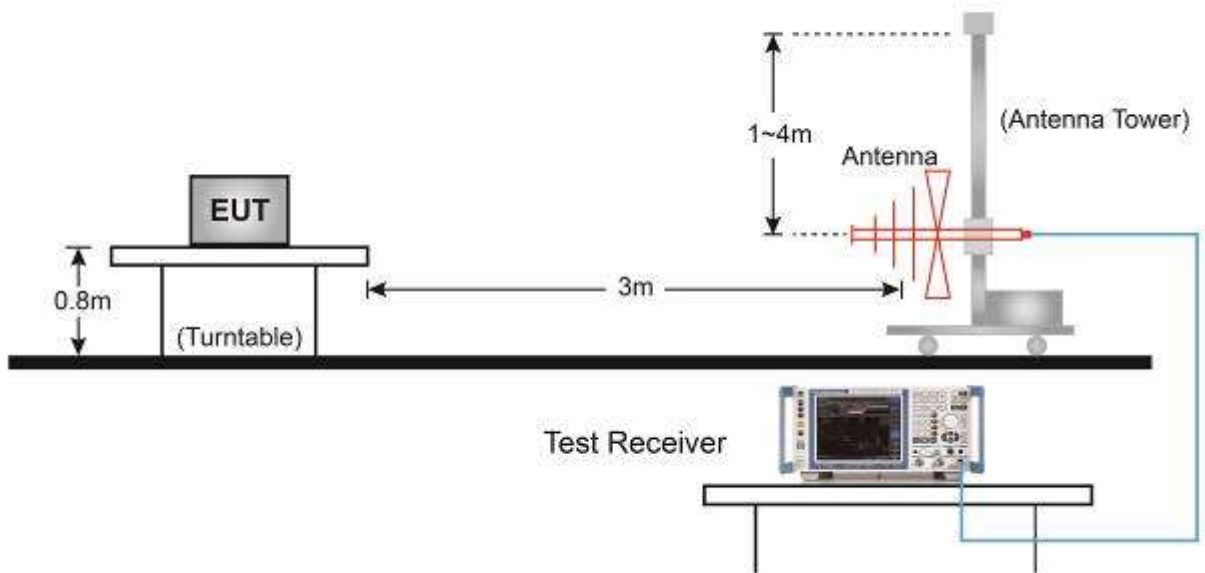
5. Sweep time = Auto

6. Trace mode = Max hold

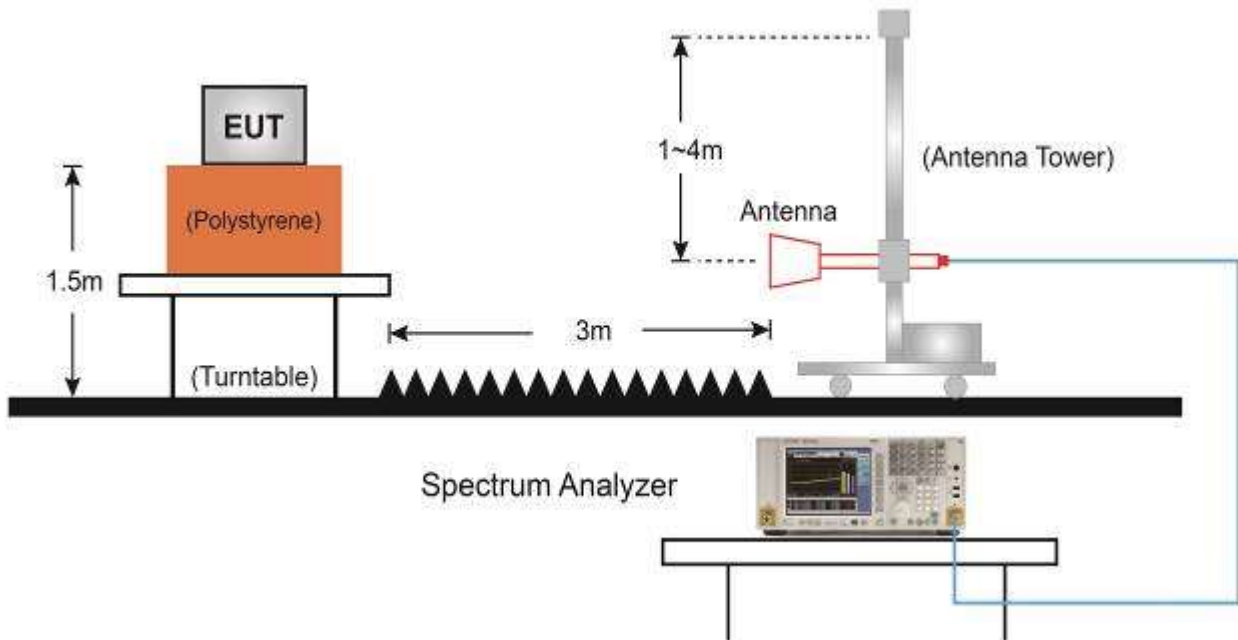
7. Trace was allowed to stabilize

7.9.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



7.9.5. Test Result

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/07
Test Mode	DH5	Test Channel	00
Model No.	Dragon-B		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9517.0	31.4	14.7	46.1	75.2	-29.1	Peak	Horizontal
*	10095.0	30.7	14.7	45.4	75.2	-29.8	Peak	Horizontal
	11531.5	26.6	19.7	46.3	74.0	-27.7	Peak	Horizontal
	12160.5	26.1	20.2	46.3	74.0	-27.7	Peak	Horizontal
*	9678.5	28.3	14.4	42.7	75.2	-32.5	Peak	Vertical
*	10358.5	27.5	16.5	44.0	75.2	-31.2	Peak	Vertical
	11514.5	27.8	19.3	47.1	74.0	-26.9	Peak	Vertical
	12296.5	25.7	20.5	46.2	74.0	-27.8	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (95.2dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/07
Test Mode	DH5	Test Channel	39
Model No.	Dragon-B		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9704.0	29.7	14.8	44.5	75.5	-31.0	Peak	Horizontal
*	10222.5	29.2	15.8	45.0	75.5	-30.5	Peak	Horizontal
	10766.5	29.1	17.4	46.5	74.0	-27.5	Peak	Horizontal
	11999.0	26.1	19.5	45.6	74.0	-28.4	Peak	Horizontal
*	9517.0	30.2	14.7	44.9	75.5	-30.6	Peak	Vertical
*	10222.5	29.5	15.8	45.3	75.5	-30.2	Peak	Vertical
	10936.5	28.6	17.9	46.5	74.0	-27.5	Peak	Vertical
	11489.0	26.8	19.7	46.5	74.0	-27.5	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (95.5dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/07
Test Mode	DH5	Test Channel	78
Model No.	Dragon-B		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9610.5	31.2	14.3	45.5	75.7	-30.2	Peak	Horizontal
*	10120.5	30.2	15.0	45.2	75.7	-30.5	Peak	Horizontal
	11531.5	26.6	19.7	46.3	74.0	-27.7	Peak	Horizontal
	12075.5	26.6	19.9	46.5	74.0	-27.5	Peak	Horizontal
*	9525.5	30.2	14.5	44.7	75.7	-31.0	Peak	Vertical
*	10205.5	30.0	15.8	45.8	75.7	-29.9	Peak	Vertical
	11531.5	27.0	19.7	46.7	74.0	-27.3	Peak	Vertical
	12211.5	25.8	20.6	46.4	74.0	-27.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (95.7dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/07
Test Mode	2DH5	Test Channel	00
Model No.	Dragon-B		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9721.0	28.8	14.6	43.4	74.4	-31.0	Peak	Horizontal
*	10248.0	28.5	16.2	44.7	74.4	-29.7	Peak	Horizontal
	11548.5	25.8	19.9	45.7	74.0	-28.3	Peak	Horizontal
	12237.0	26.0	20.8	46.8	74.0	-27.2	Peak	Horizontal
*	9576.5	30.7	14.3	45.0	74.4	-29.4	Peak	Vertical
*	10197.0	30.2	15.6	45.8	74.4	-28.6	Peak	Vertical
	10868.5	28.2	17.6	45.8	74.0	-28.2	Peak	Vertical
	11497.5	26.1	19.5	45.6	74.0	-28.4	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (94.4dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/07
Test Mode	2DH5	Test Channel	39
Model No.	Dragon-B		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9925.0	29.3	15.0	44.3	74.2	-29.9	Peak	Horizontal
*	10358.5	28.8	16.5	45.3	74.2	-28.9	Peak	Horizontal
	10885.5	28.0	17.5	45.5	74.0	-28.5	Peak	Horizontal
	11497.5	27.7	19.5	47.2	74.0	-26.8	Peak	Horizontal
*	10129.0	30.2	15.0	45.2	74.2	-29.0	Peak	Vertical
*	10401.0	28.7	16.5	45.2	74.2	-29.0	Peak	Vertical
	11395.5	27.2	19.2	46.4	74.0	-27.6	Peak	Vertical
	12262.5	25.8	20.4	46.2	74.0	-27.8	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (94.2dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/07
Test Mode	2DH5	Test Channel	78
Model No.	Dragon-B		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9619.0	31.5	14.5	46.0	74.1	-28.1	Peak	Horizontal
*	10205.5	30.1	15.8	45.9	74.1	-28.2	Peak	Horizontal
	11412.5	26.5	19.5	46.0	74.0	-28.0	Peak	Horizontal
	12296.5	26.4	20.5	46.9	74.0	-27.1	Peak	Horizontal
*	9814.5	28.1	15.0	43.1	74.1	-31.0	Peak	Vertical
*	10367.0	28.5	16.5	45.0	74.1	-29.1	Peak	Vertical
	10783.5	27.9	17.4	45.3	74.0	-28.7	Peak	Vertical
	11506.0	27.1	19.3	46.4	74.0	-27.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (94.1dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/07
Test Mode	3DH5	Test Channel	00
Model No.	Dragon-B		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9508.5	31.4	14.7	46.1	74.4	-28.3	Peak	Horizontal
*	10171.5	31.3	15.3	46.6	74.4	-27.8	Peak	Horizontal
	11438.0	26.9	19.4	46.3	74.0	-27.7	Peak	Horizontal
	12441.0	27.9	19.1	47.0	74.0	-27.0	Peak	Horizontal
*	9967.5	30.7	15.0	45.7	74.4	-28.7	Peak	Vertical
*	10435.0	29.6	16.5	46.1	74.4	-28.3	Peak	Vertical
	11472.0	25.7	20.0	45.7	74.0	-28.3	Peak	Vertical
	12271.0	26.3	20.6	46.9	74.0	-27.1	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (94.4dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/07
Test Mode	3DH5	Test Channel	39
Model No.	Dragon-B		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9882.5	30.4	15.3	45.7	74.3	-28.6	Peak	Horizontal
*	10205.5	30.1	15.8	45.9	74.3	-28.4	Peak	Horizontal
	11174.5	27.3	18.7	46.0	74.0	-28.0	Peak	Horizontal
	11795.0	26.3	20.3	46.6	74.0	-27.4	Peak	Horizontal
*	9891.0	29.5	15.4	44.9	74.3	-29.4	Peak	Vertical
*	10350.0	27.6	16.4	44.0	74.3	-30.3	Peak	Vertical
	11149.0	27.5	18.1	45.6	74.0	-28.4	Peak	Vertical
	11786.5	25.4	20.3	45.7	74.0	-28.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (94.3dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/07
Test Mode	3DH5	Test Channel	78
Model No.	Dragon-B		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9636.0	30.6	14.4	45.0	74.2	-29.2	Peak	Horizontal
*	10078.0	31.7	15.0	46.7	74.2	-27.5	Peak	Horizontal
	11421.0	27.8	19.5	47.3	74.0	-26.7	Peak	Horizontal
	12458.0	27.3	19.7	47.0	74.0	-27.0	Peak	Horizontal
*	10010.0	31.5	14.9	46.4	74.2	-27.8	Peak	Vertical
*	10358.5	28.7	16.5	45.2	74.2	-29.0	Peak	Vertical
	11786.5	26.6	20.3	46.9	74.0	-27.1	Peak	Vertical
	12143.5	26.4	20.3	46.7	74.0	-27.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (94.2dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/20
Test Mode	DH5	Test Channel	00
Model No.	Dragon-C		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9551.0	28.4	16.0	44.4	81.1	-36.7	Peak	Horizontal
*	10027.0	28.4	16.8	45.2	81.1	-35.9	Peak	Horizontal
	10826.0	27.0	18.0	45.0	74.0	-29.0	Peak	Horizontal
	11761.0	28.9	16.8	45.7	74.0	-28.3	Peak	Horizontal
*	9797.5	28.5	16.8	45.3	81.1	-35.8	Peak	Vertical
*	10452.0	27.8	17.7	45.5	81.1	-35.6	Peak	Vertical
	11149.0	27.8	17.6	45.4	74.0	-28.6	Peak	Vertical
	12509.0	29.8	17.0	46.8	74.0	-27.2	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (101.1dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/20
Test Mode	DH5	Test Channel	39
Model No.	Dragon-C		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9763.5	28.7	16.7	45.4	79.5	-34.1	Peak	Horizontal
*	10375.5	28.0	17.5	45.5	79.5	-34.0	Peak	Horizontal
	11021.5	27.5	17.9	45.4	74.0	-28.6	Peak	Horizontal
	11769.5	29.5	16.8	46.3	74.0	-27.7	Peak	Horizontal
*	10018.5	28.4	16.8	45.2	79.5	-34.3	Peak	Vertical
*	10571.0	28.2	17.7	45.9	79.5	-33.6	Peak	Vertical
	10945.0	27.8	18.0	45.8	74.0	-28.2	Peak	Vertical
	11778.0	28.9	16.7	45.6	74.0	-28.4	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (99.5dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/20
Test Mode	DH5	Test Channel	78
Model No.	Dragon-C		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9721.0	28.8	16.7	45.5	77.9	-32.4	Peak	Horizontal
*	10409.5	27.4	17.6	45.0	77.9	-32.9	Peak	Horizontal
	11506.0	29.0	17.8	46.8	74.0	-27.2	Peak	Horizontal
	12415.5	29.4	17.0	46.4	74.0	-27.6	Peak	Horizontal
*	9636.0	28.1	16.2	44.3	77.9	-33.6	Peak	Vertical
*	10197.0	28.1	17.1	45.2	77.9	-32.7	Peak	Vertical
	11132.0	29.0	17.5	46.5	74.0	-27.5	Peak	Vertical
	11761.0	29.8	16.8	46.6	74.0	-27.4	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (97.9dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/20
Test Mode	2DH5	Test Channel	00
Model No.	Dragon-C		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	9678.5	28.8	16.5	45.3	80.7	-35.4	Peak	Horizontal
*	10282.0	29.0	17.4	46.4	80.7	-34.3	Peak	Horizontal
	11089.5	27.7	17.8	45.5	74.0	-28.5	Peak	Horizontal
	11846.0	29.3	16.7	46.0	74.0	-28.0	Peak	Horizontal
*	9959.0	29.1	16.8	45.9	80.7	-34.8	Peak	Vertical
*	10214.0	28.7	17.0	45.7	80.7	-35.0	Peak	Vertical
	11149.0	27.7	17.6	45.3	74.0	-28.7	Peak	Vertical
	11608.0	27.4	17.5	44.9	74.0	-29.1	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (100.7dB μ V/m) or 15.209 which is higher.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/20
Test Mode	2DH5	Test Channel	39
Model No.	Dragon-C		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9729.5	27.5	16.7	44.2	79.6	-35.4	Peak	Horizontal
*	10205.5	28.1	17.1	45.2	79.6	-34.4	Peak	Horizontal
	11123.5	27.1	17.5	44.6	74.0	-29.4	Peak	Horizontal
	11948.0	27.7	16.8	44.5	74.0	-29.5	Peak	Horizontal
*	9755.0	28.7	16.7	45.4	79.6	-34.2	Peak	Vertical
*	10214.0	28.5	17.0	45.5	79.6	-34.1	Peak	Vertical
	11013.0	27.5	18.0	45.5	74.0	-28.5	Peak	Vertical
	11854.5	29.2	16.6	45.8	74.0	-28.2	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (99.6dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/20
Test Mode	2DH5	Test Channel	78
Model No.	Dragon-C		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9797.5	28.2	16.8	45.0	78.5	-33.5	Peak	Horizontal
*	10392.5	27.3	17.6	44.9	78.5	-33.6	Peak	Horizontal
	11506.0	28.0	17.8	45.8	74.0	-28.2	Peak	Horizontal
	12228.5	28.9	17.0	45.9	74.0	-28.1	Peak	Horizontal
*	9729.5	28.1	16.7	44.8	78.5	-33.7	Peak	Vertical
*	10248.0	28.8	17.1	45.9	78.5	-32.6	Peak	Vertical
	11030.0	27.7	17.8	45.5	74.0	-28.5	Peak	Vertical
	12194.5	29.2	17.2	46.4	74.0	-27.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (98.5dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/20
Test Mode	3DH5	Test Channel	00
Model No.	Dragon-C		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	9882.5	27.5	16.8	44.3	80.4	-36.1	Peak	Horizontal
*	10443.5	27.7	17.7	45.4	80.4	-35.0	Peak	Horizontal
	11582.5	29.0	17.4	46.4	74.0	-27.6	Peak	Horizontal
	12237.0	28.8	17.0	45.8	74.0	-28.2	Peak	Horizontal
*	9729.5	29.2	16.7	45.9	80.4	-34.5	Peak	Vertical
*	10069.5	27.7	16.8	44.5	80.4	-35.9	Peak	Vertical
	11123.5	28.8	17.5	46.3	74.0	-27.7	Peak	Vertical
	11922.5	29.6	16.7	46.3	74.0	-27.7	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (100.4dB μ V/m) or 15.209 which is higher.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/20
Test Mode	3DH5	Test Channel	39
Model No.	Dragon-C		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9763.5	28.8	16.7	45.5	78.8	-33.3	Peak	Horizontal
*	10367.0	28.5	17.5	46.0	78.8	-32.8	Peak	Horizontal
	10970.5	27.6	17.9	45.5	74.0	-28.5	Peak	Horizontal
	11863.0	29.2	16.5	45.7	74.0	-28.3	Peak	Horizontal
*	9534.0	29.5	16.0	45.5	78.8	-33.3	Peak	Vertical
*	10180.0	27.6	17.2	44.8	78.8	-34.0	Peak	Vertical
	11659.0	28.8	17.0	45.8	74.0	-28.2	Peak	Vertical
	12271.0	29.1	17.1	46.2	74.0	-27.8	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (98.8dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	Bluetooth 5 BLE module	Temperature	25°C
Test Engineer	Yeto Yin	Relative Humidity	56%
Test Site	AC2	Test Date	2020/03/20
Test Mode	3DH5	Test Channel	78
Model No.	Dragon-C		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-25GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	9721.0	28.5	16.7	45.2	77.0	-31.8	Peak	Horizontal
*	10571.0	27.8	17.7	45.5	77.0	-31.5	Peak	Horizontal
	11344.5	28.4	17.5	45.9	74.0	-28.1	Peak	Horizontal
	12237.0	28.9	17.0	45.9	74.0	-28.1	Peak	Horizontal
*	9729.5	28.2	16.7	44.9	77.0	-32.1	Peak	Vertical
*	9984.5	28.6	16.7	45.3	77.0	-31.7	Peak	Vertical
	10902.5	27.8	18.1	45.9	74.0	-28.1	Peak	Vertical
	11616.5	29.2	17.3	46.5	74.0	-27.5	Peak	Vertical

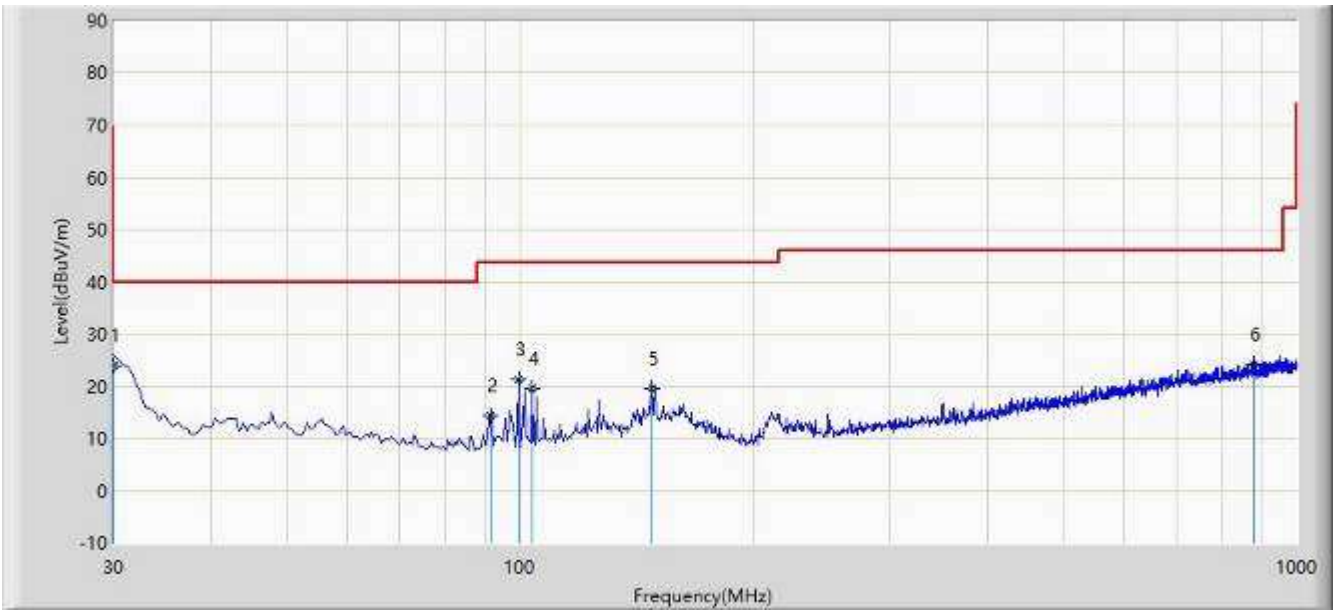
Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (97.0dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

The Worst Case of Radiated Emission below 1GHz:

Site: AC2	Time: 2020/03/20 - 17:32
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Worst Case Mode: Transmit by Bluetooth DH5 at Channel 2441MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	30.000	23.802	13.179	-16.198	40.000	10.623	QP
2			91.595	14.455	3.462	-29.045	43.500	10.993	QP
3			99.840	21.177	8.670	-22.323	43.500	12.507	QP
4			103.720	19.467	7.007	-24.033	43.500	12.459	QP
5			147.855	19.626	10.462	-23.874	43.500	9.164	QP
6			879.235	24.324	-0.636	-21.676	46.000	24.960	QP

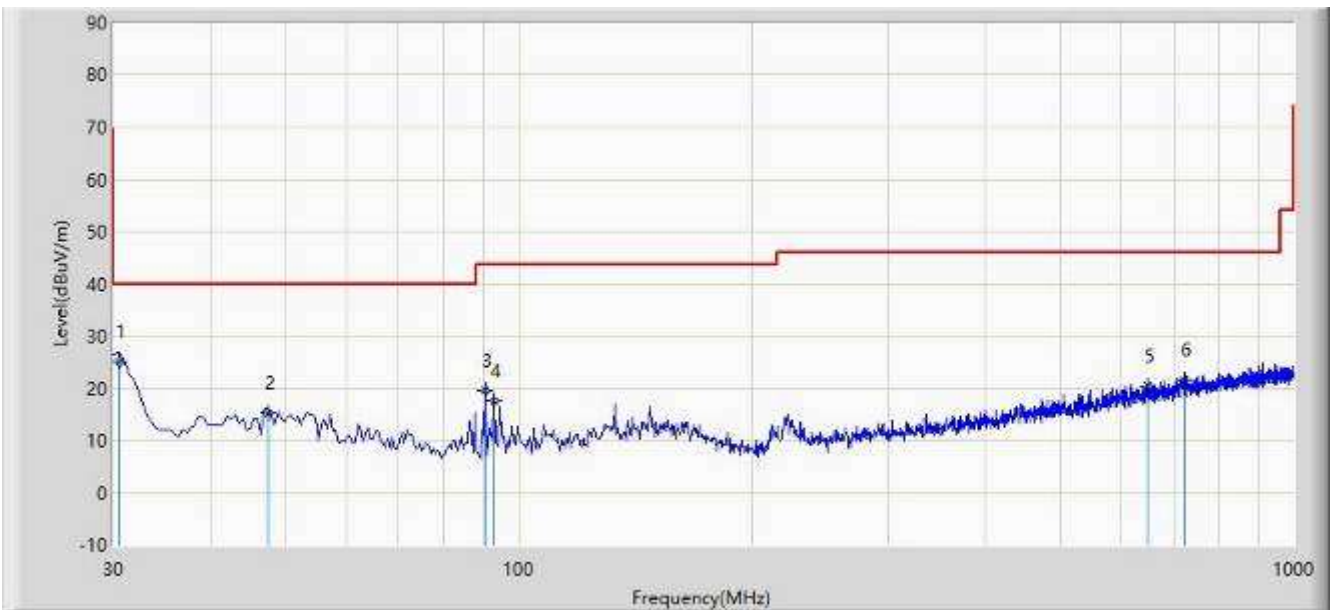
Note 1: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The amplitude of Radiated emissions (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value.

Therefore, the data is not presented in the report.

Site: AC2	Time: 2020/03/20 - 17:47
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Worst Case Mode: Transmit by Bluetooth DH5 at Channel 2441MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			30.485	24.942	14.200	-15.058	40.000	10.742	QP
2		*	47.460	15.345	0.837	-24.655	40.000	14.508	QP
3			90.625	19.534	8.845	-23.966	43.500	10.689	QP
4			93.050	17.534	6.129	-25.966	43.500	11.405	QP
5			649.345	20.478	-1.134	-25.522	46.000	21.612	QP
6			723.065	21.546	-1.314	-24.454	46.000	22.861	QP

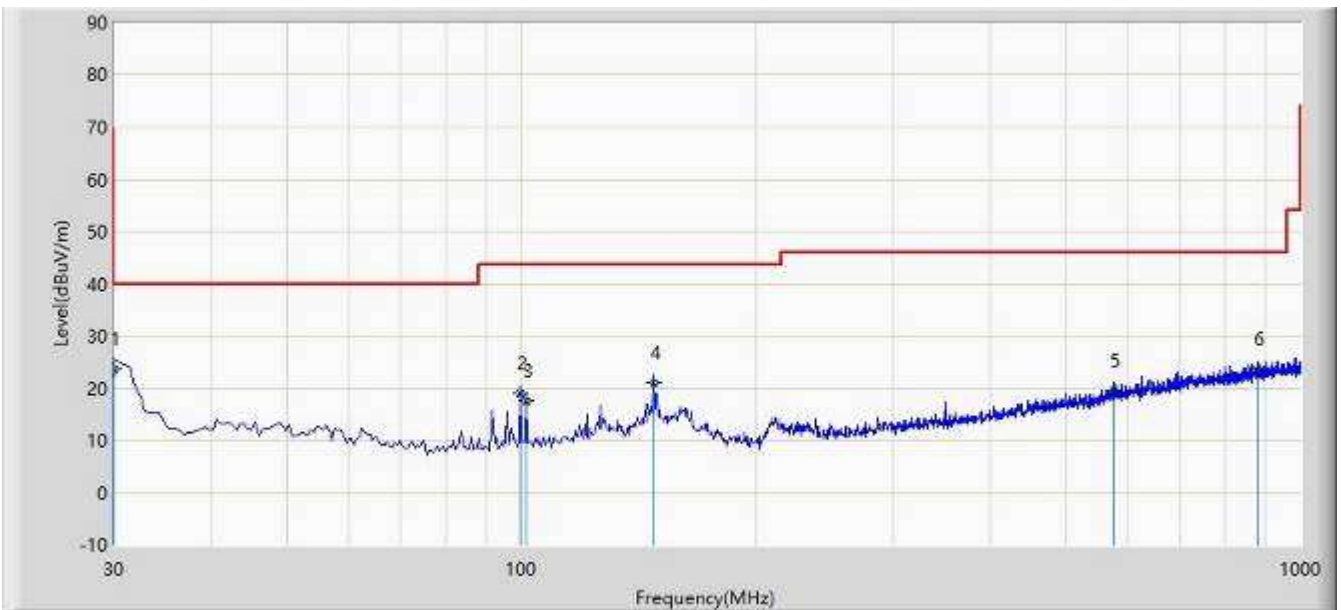
Note 1: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The amplitude of Radiated emissions (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value.

Therefore, the data is not presented in the report.

Site: AC2	Time: 2020/03/20 - 17:51
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Worst Case Mode: Transmit by Bluetooth DH5 at Channel 2441MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	30.000	23.678	13.055	-16.322	40.000	10.623	QP
2			99.840	18.855	6.348	-24.645	43.500	12.507	QP
3			101.295	17.598	5.110	-25.902	43.500	12.488	QP
4			147.855	21.032	11.868	-22.468	43.500	9.164	QP
5			575.625	19.613	-0.981	-26.387	46.000	20.593	QP
6			881.175	23.625	-1.362	-22.375	46.000	24.987	QP

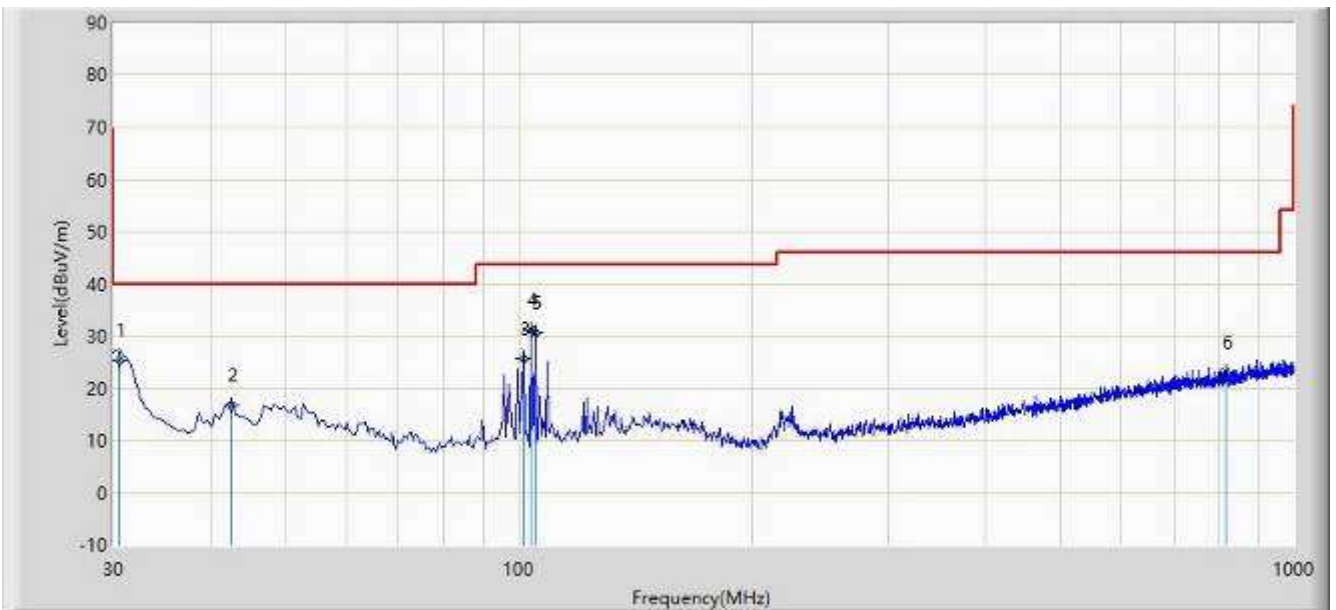
Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The amplitude of Radiated emissions (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value.

Therefore, the data is not presented in the report.

Site: AC2	Time: 2020/03/20 - 17:52
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Worst Case Mode: Transmit by Bluetooth DH5 at Channel 2441MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			30.485	25.306	14.564	-14.694	40.000	10.742	QP
2		*	42.610	16.619	2.547	-23.381	40.000	14.072	QP
3			101.295	25.712	13.224	-17.788	43.500	12.488	QP
4			103.720	31.204	18.744	-12.296	43.500	12.459	QP
5			105.175	30.686	18.237	-12.814	43.500	12.449	QP
6			818.125	23.160	-1.067	-22.840	46.000	24.227	QP

Note 1: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The amplitude of Radiated emissions (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value.

Therefore, the data is not presented in the report.

7.10. Radiated Restricted Band Edge Measurement

7.10.1. Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41	--	--	--

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measured Distance (m)
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

For RSS-Gen Section 8.10 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 8.10 of RSS-Gen, must also comply with the radiated emission limits specified in Section 8.9.

Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	* Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for license exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138	--	

All out of band emissions appearing in a restricted band as specified in Section 8.10 of the RSS-Gen must not exceed the limits shown in Table per Section 8.9.

RSS-Gen Section 8.9			
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Magnetic Field Strength (H-Field) ($\mu\text{A/m}$)	Measured Distance (m)
0.009 - 0.490 1	--	6.37/F (F in kHz)	300
0.490 - 1.705	--	6.37/F (F in kHz)	30
1.705 - 30	--	0.08	30
30 - 88	100	--	3
88 - 216	150	--	3
216 - 960	200	--	3
Above 960	500	--	3

7.10.2. Test Procedure Used

ANSI C63.10 - Section 6.3 (General Requirements)

ANSI C63.10 - Section 6.6 (Standard test method above 1GHz)

7.10.3. Test Setting

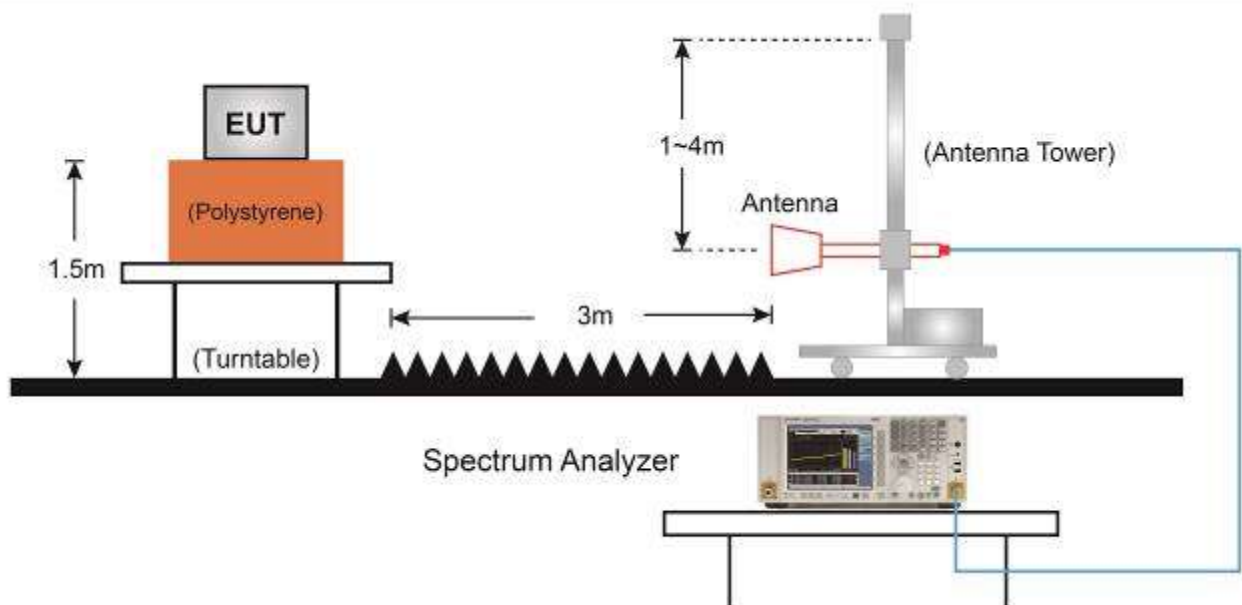
Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

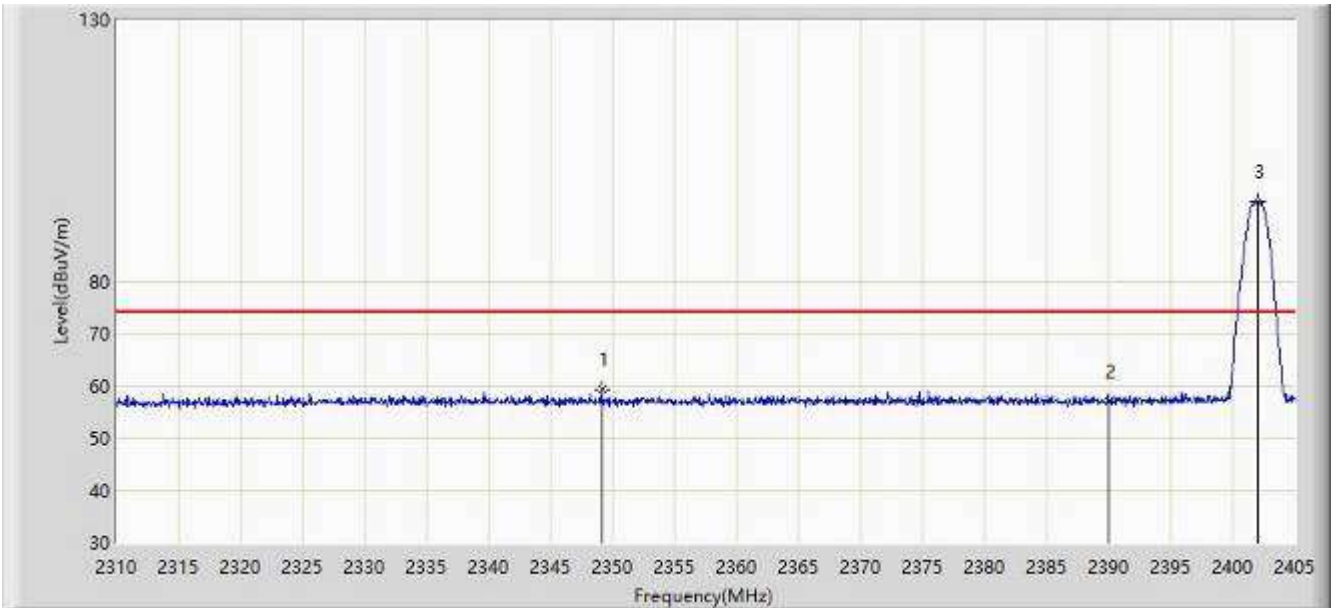
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10Hz
4. If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration
5. Detector = Peak
6. Sweep time = Auto
7. Trace mode = Max hold
8. Trace was allowed to stabilize

7.10.4. Test Setup



7.10.5. Test Result

Site: AC2	Time: 2020/03/07 - 11:43
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2402 MHz	

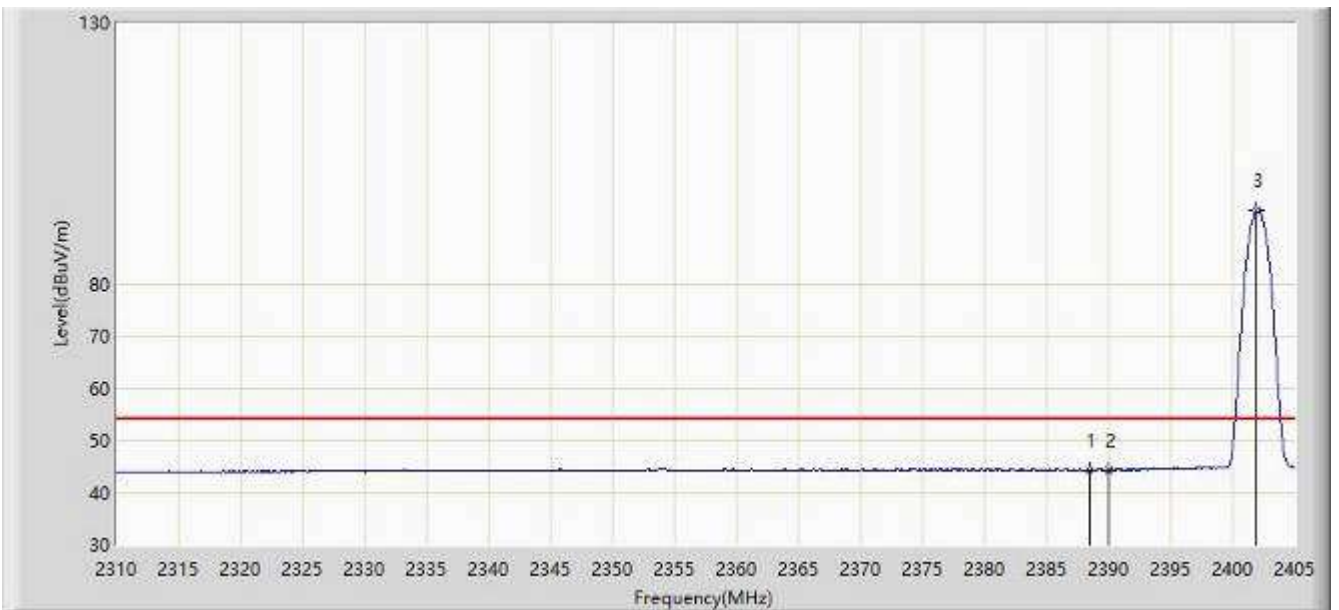


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2349.140	59.172	26.563	-14.828	74.000	32.609	PK
2			2390.000	56.842	24.357	-17.158	74.000	32.485	PK
3		*	2402.000	95.194	62.681	N/A	N/A	32.513	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 11:51
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2402 MHz	

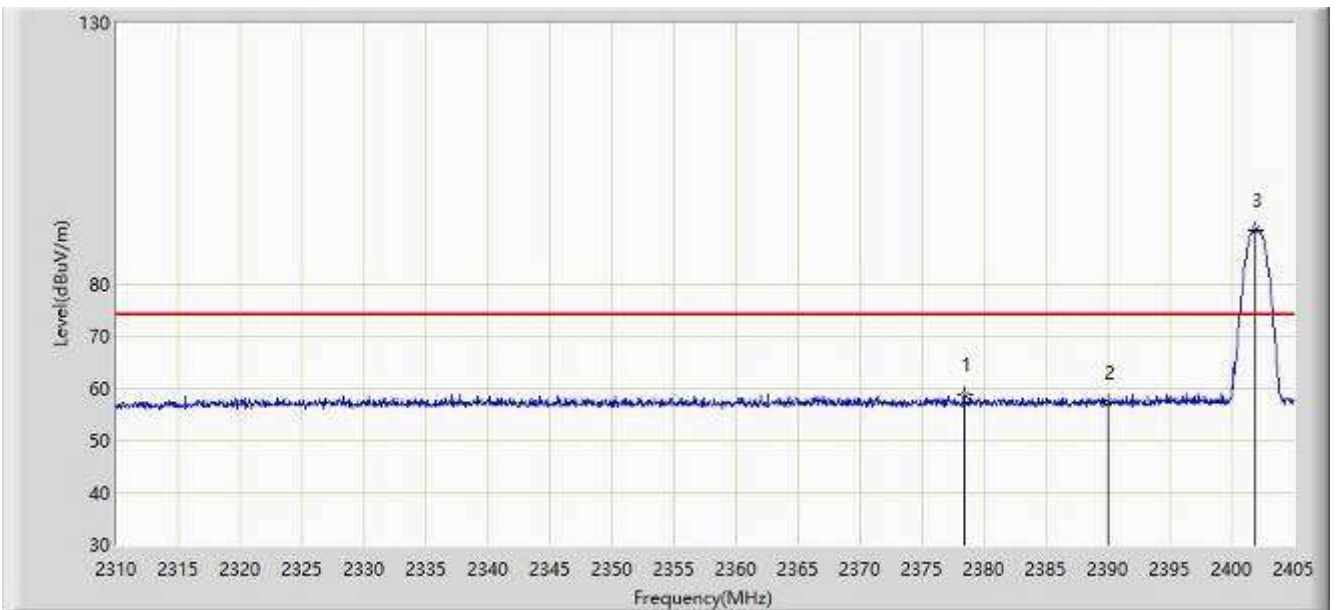


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2388.423	44.346	11.863	-9.654	54.000	32.484	AV
2			2390.000	44.257	11.772	-9.743	54.000	32.485	AV
3		*	2401.960	94.148	61.635	N/A	N/A	32.513	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 11:52
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2402 MHz	

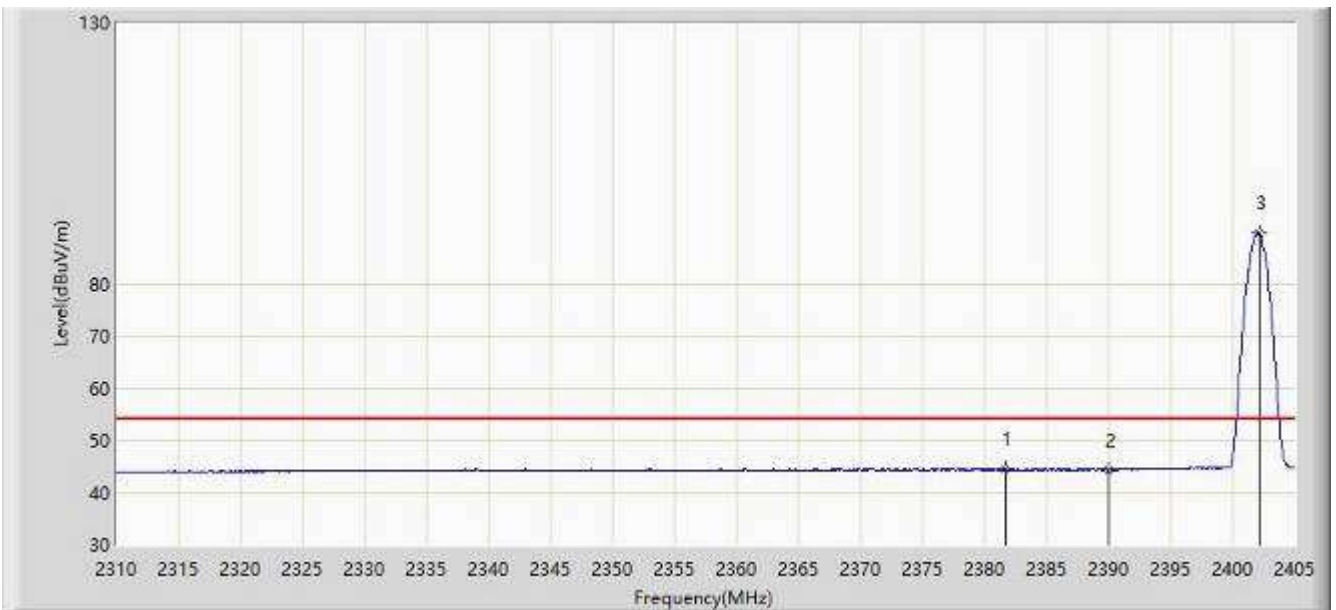


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2378.400	58.680	26.207	-15.320	74.000	32.474	PK
2			2390.000	57.117	24.632	-16.883	74.000	32.485	PK
3		*	2401.913	90.320	57.807	N/A	N/A	32.513	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 11:52
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2402 MHz	

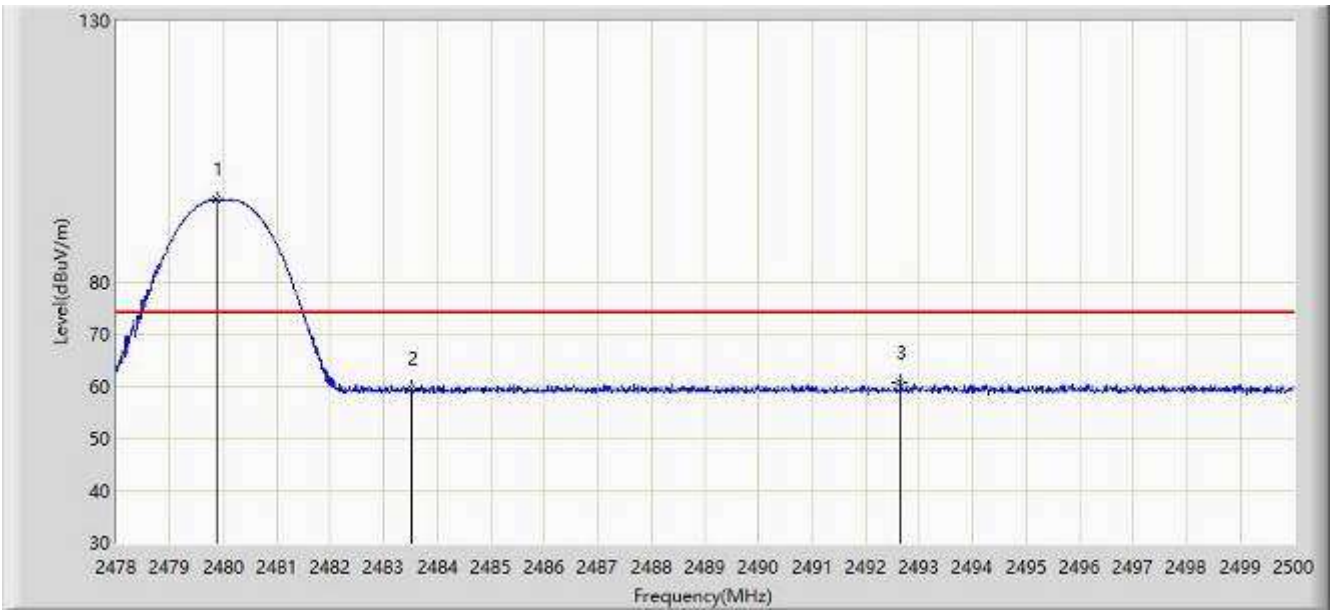


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2381.630	44.476	11.999	-9.524	54.000	32.477	AV
2			2390.000	44.336	11.851	-9.664	54.000	32.485	AV
3		*	2402.103	89.694	57.180	N/A	N/A	32.514	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 11:59
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2480 MHz	

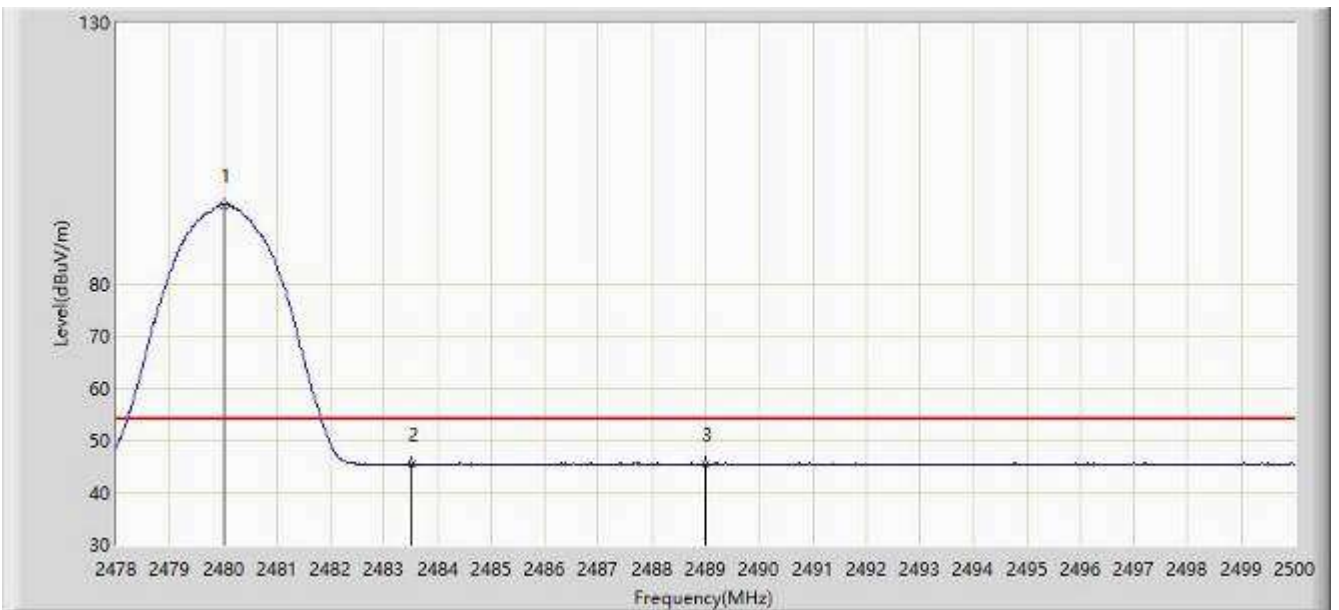


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.881	95.684	63.301	N/A	N/A	32.383	PK
2			2483.500	59.567	27.192	-14.433	74.000	32.375	PK
3			2492.652	60.856	28.502	-13.144	74.000	32.354	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 12:40
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2480 MHz	

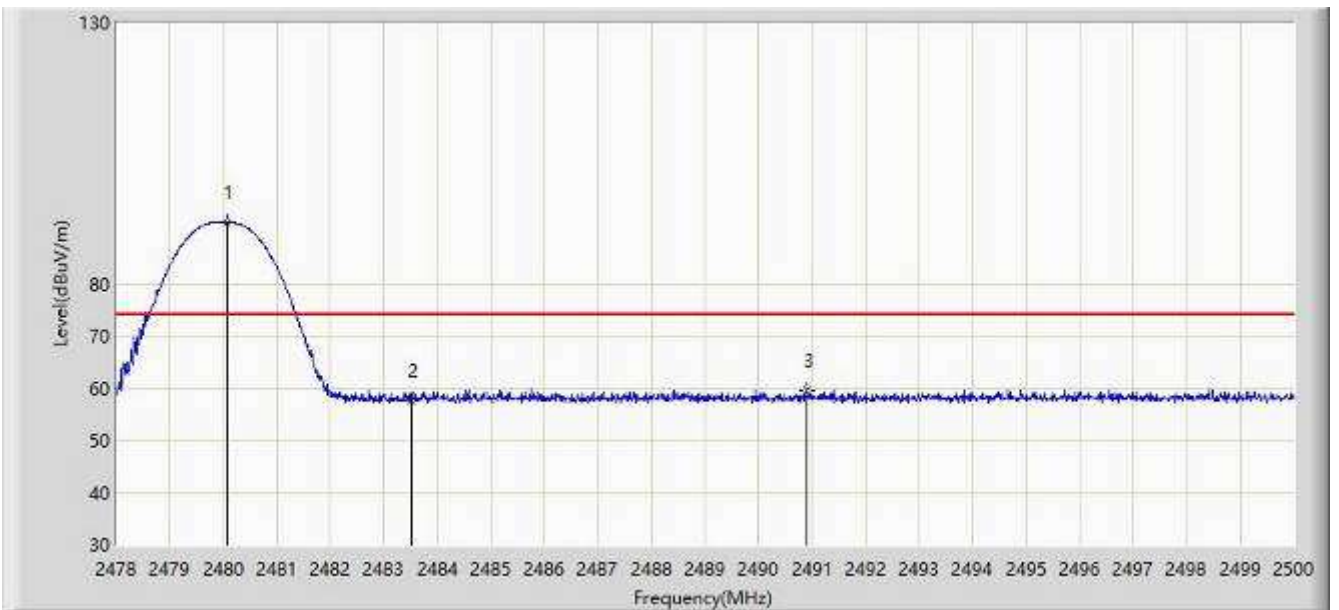


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.002	95.066	62.683	N/A	N/A	32.383	AV
2			2483.500	45.465	13.090	-8.535	54.000	32.375	AV
3			2489.011	45.501	13.139	-8.499	54.000	32.362	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 12:43
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2480 MHz	

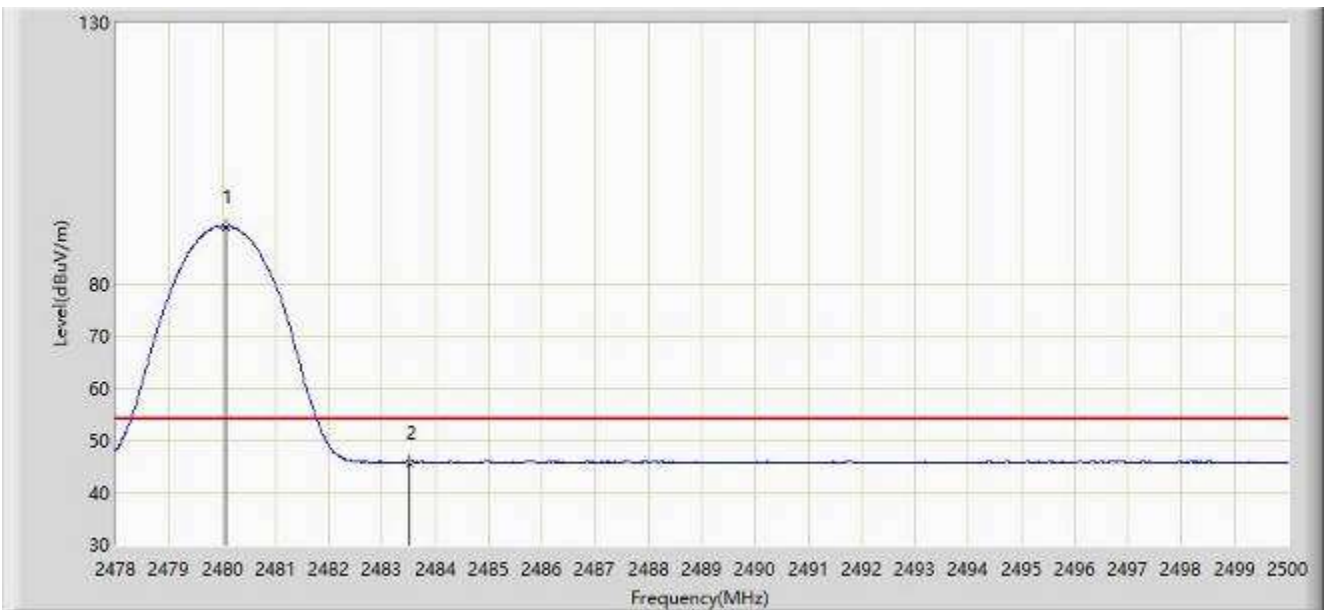


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.068	91.706	59.323	N/A	N/A	32.383	PK
2			2483.500	57.573	25.198	-16.427	74.000	32.375	PK
3			2490.903	59.427	27.069	-14.573	74.000	32.358	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 12:44
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2480 MHz	

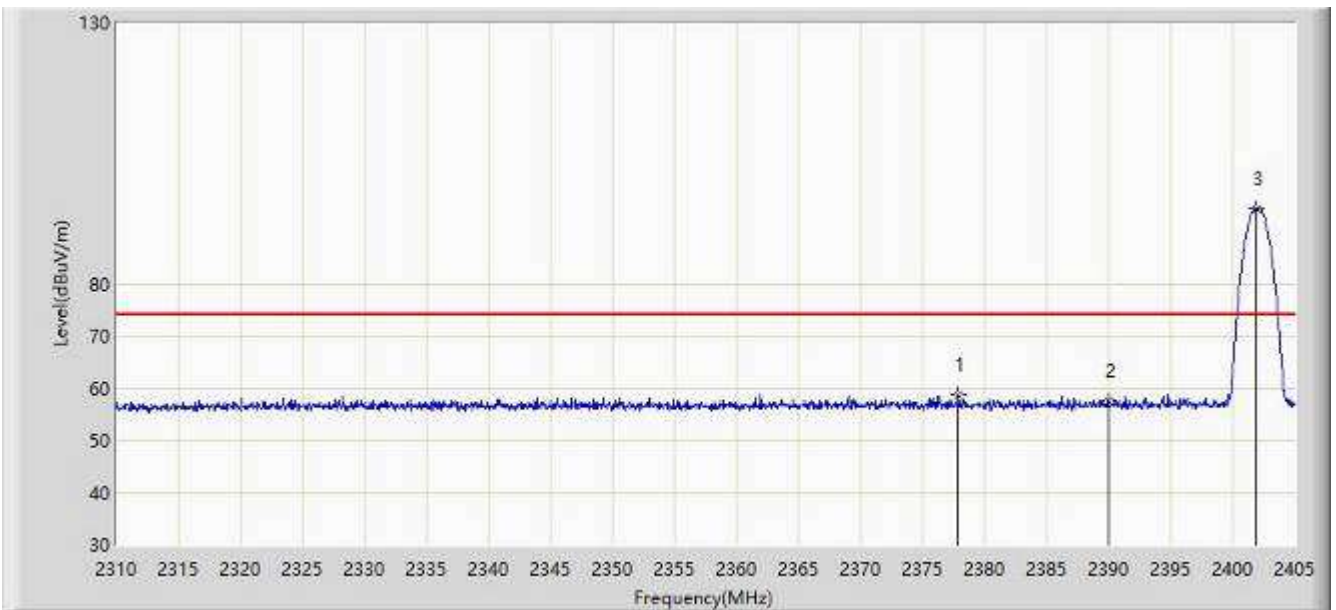


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.068	90.931	58.548	N/A	N/A	32.383	AV
2			2483.500	45.796	13.421	-8.204	54.000	32.375	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 12:47
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2402 MHz	

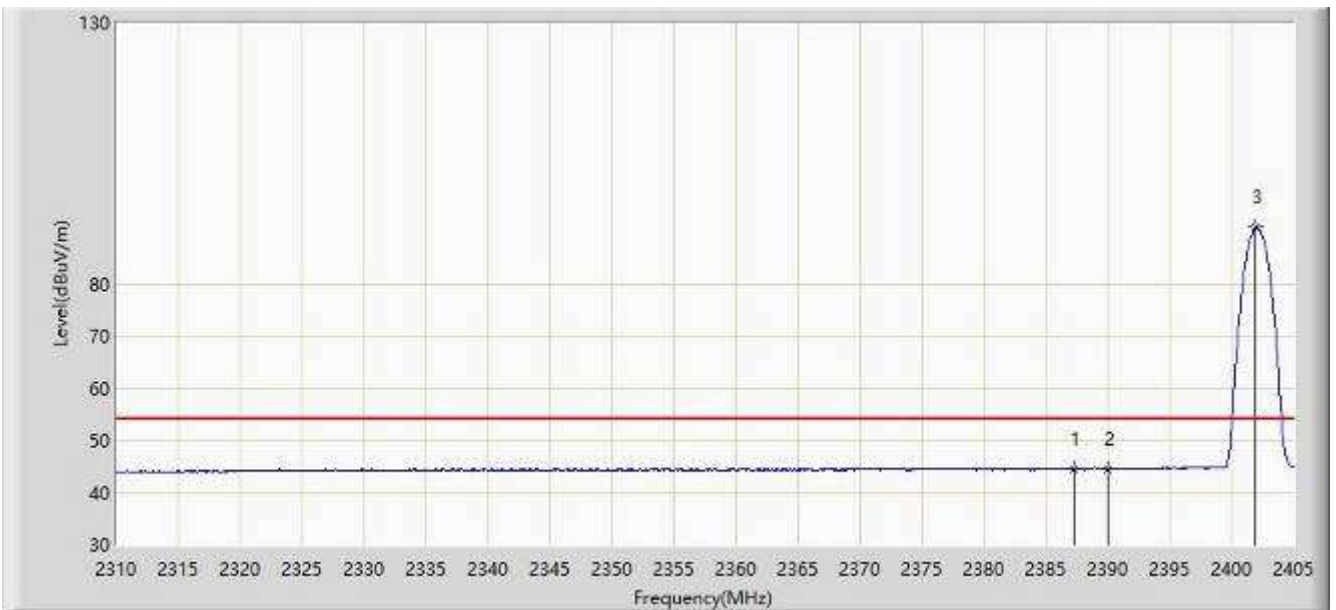


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2377.877	58.760	26.287	-15.240	74.000	32.473	PK
2			2390.000	57.509	25.024	-16.491	74.000	32.485	PK
3		*	2401.913	94.404	61.891	N/A	N/A	32.513	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 12:49
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2402 MHz	

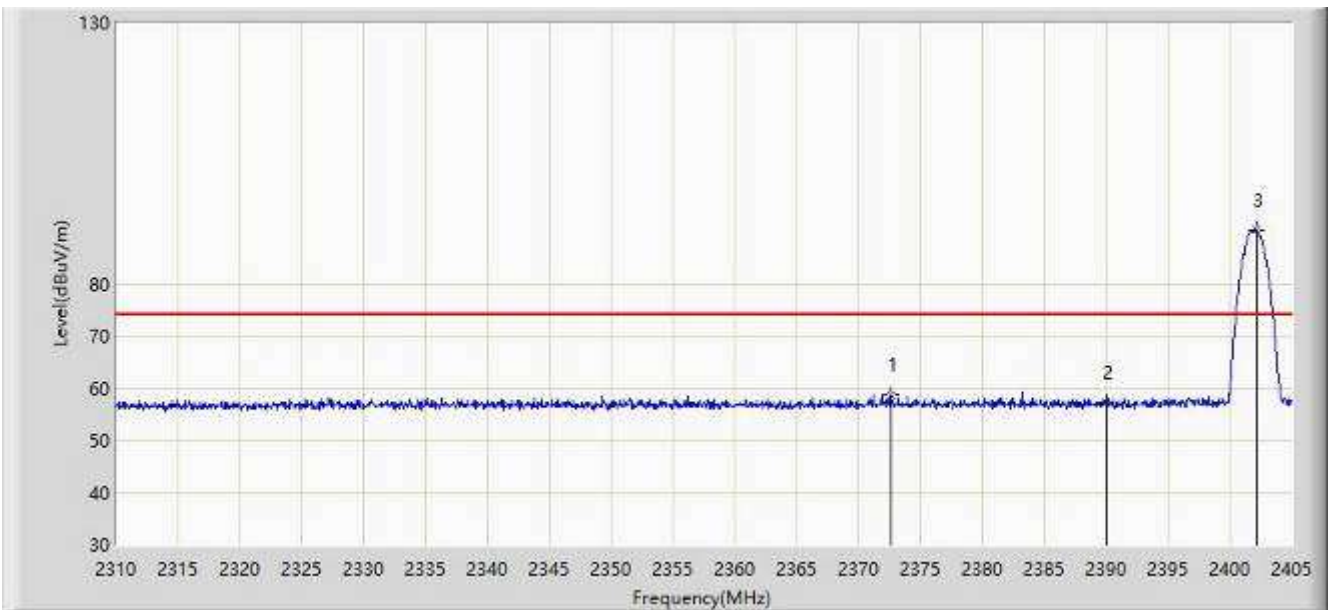


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2387.282	44.468	11.986	-9.532	54.000	32.482	AV
2			2390.000	44.417	11.932	-9.583	54.000	32.485	AV
3		*	2401.913	90.898	58.385	N/A	N/A	32.513	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 12:53
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2402 MHz	

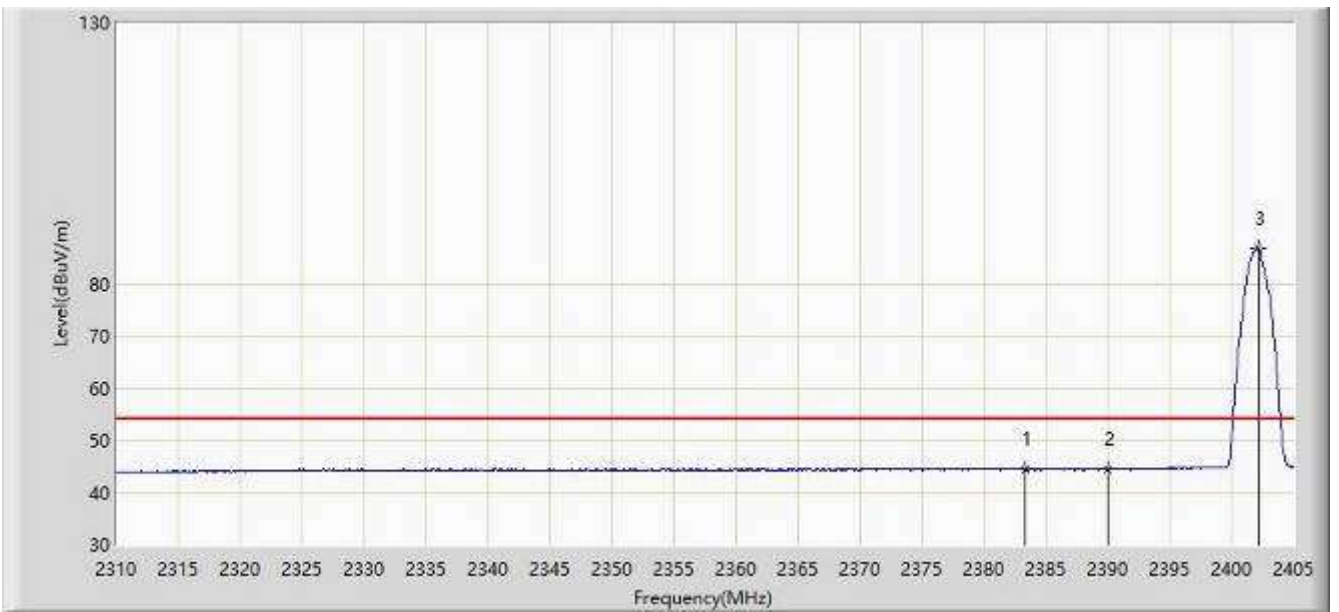


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2372.605	58.814	26.314	-15.186	74.000	32.500	PK
2			2390.000	57.135	24.650	-16.865	74.000	32.485	PK
3		*	2402.103	90.146	57.632	N/A	N/A	32.514	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 12:53
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2402 MHz	

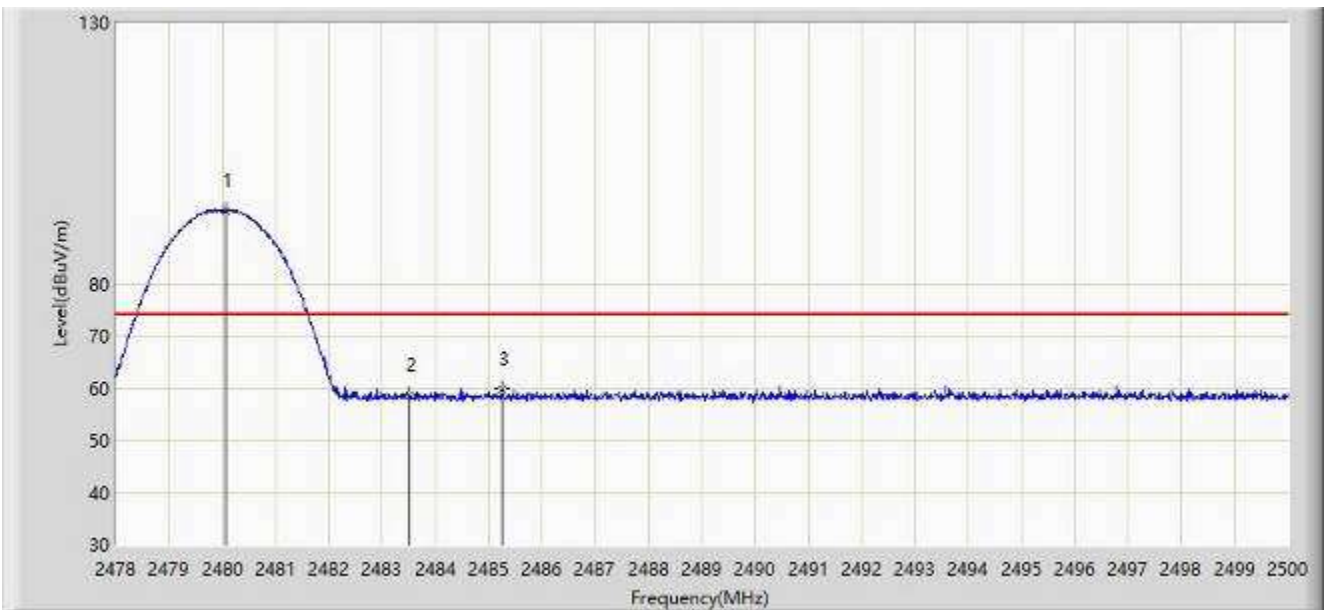


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2383.387	44.452	11.974	-9.548	54.000	32.478	AV
2			2390.000	44.406	11.921	-9.594	54.000	32.485	AV
3		*	2402.103	86.683	54.169	N/A	N/A	32.514	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 12:57
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2480 MHz	

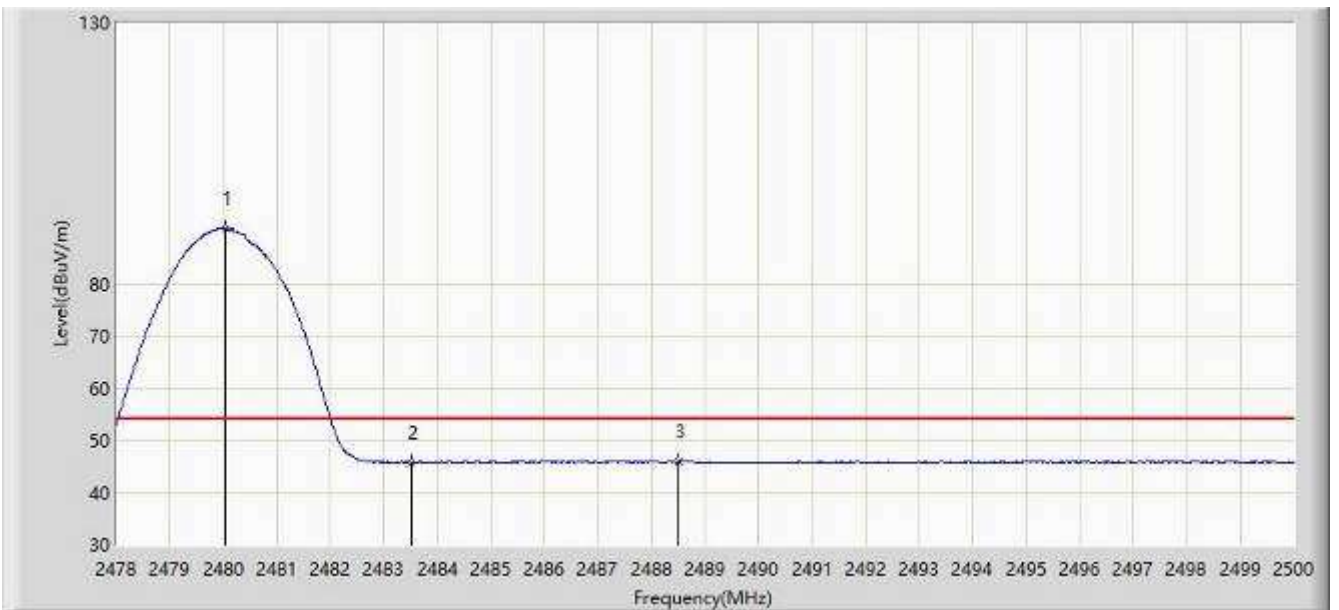


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.057	94.147	61.764	N/A	N/A	32.383	PK
2			2483.500	58.716	26.341	-15.284	74.000	32.375	PK
3			2485.249	59.981	27.610	-14.019	74.000	32.371	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 12:59
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2480 MHz	

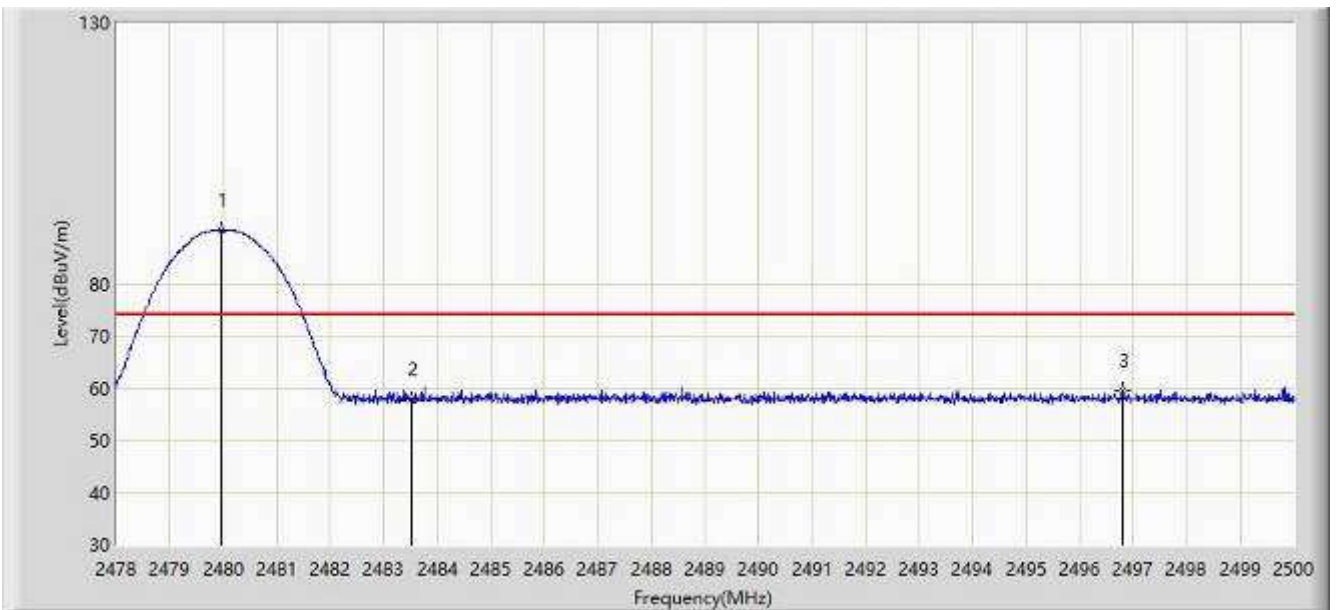


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.035	90.717	58.334	N/A	N/A	32.383	AV
2			2483.500	45.786	13.411	-8.214	54.000	32.375	AV
3			2488.505	45.828	13.465	-8.172	54.000	32.363	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 13:01
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2480 MHz	

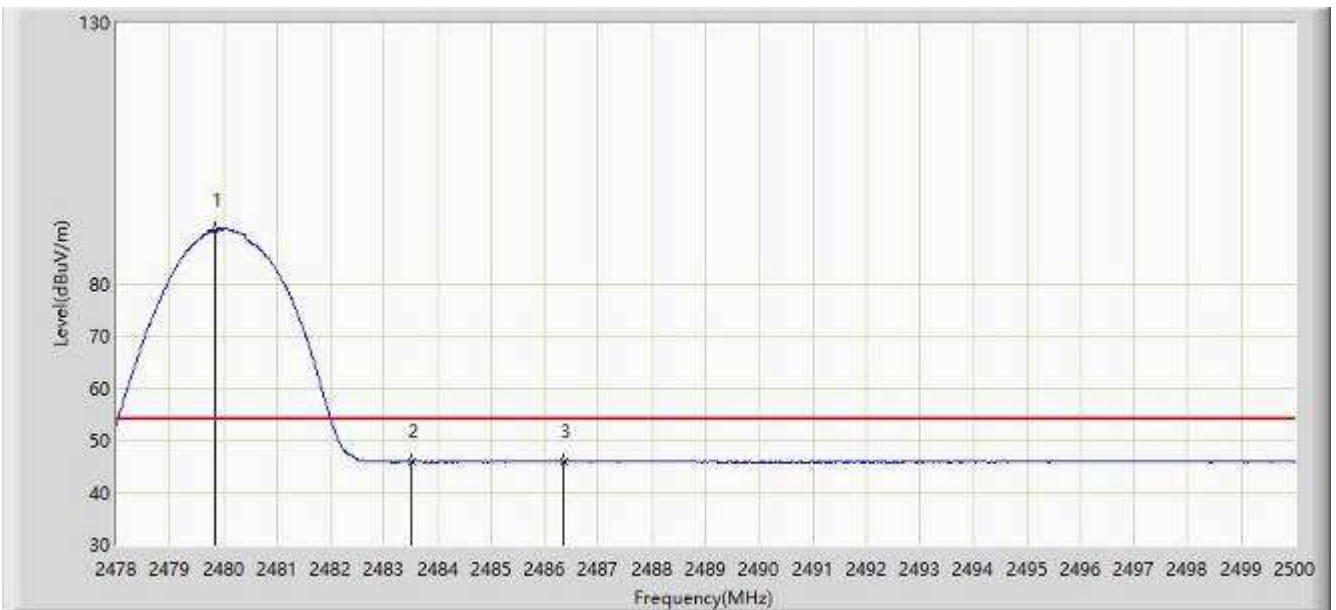


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.969	90.268	57.885	N/A	N/A	32.383	PK
2			2483.500	57.840	25.465	-16.160	74.000	32.375	PK
3			2496.810	59.502	27.153	-14.498	74.000	32.349	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 13:01
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2480 MHz	

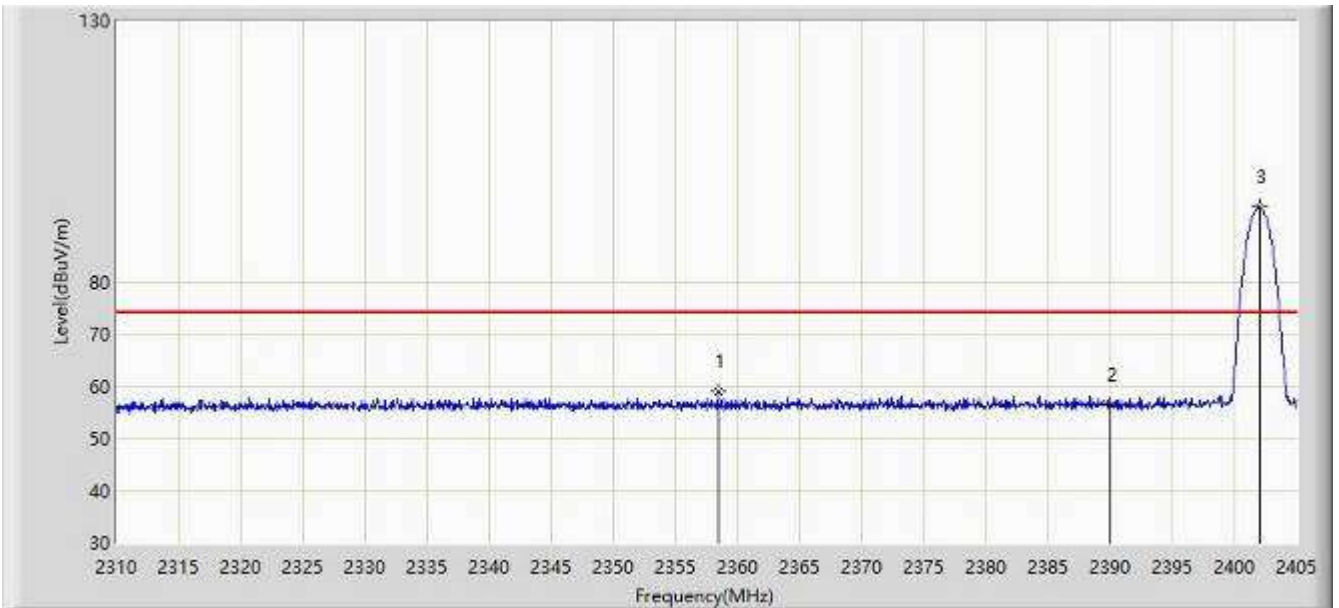


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.848	90.411	58.028	N/A	N/A	32.383	AV
2			2483.500	45.873	13.498	-8.127	54.000	32.375	AV
3			2486.349	46.059	13.691	-7.941	54.000	32.368	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 13:05
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2402 MHz	

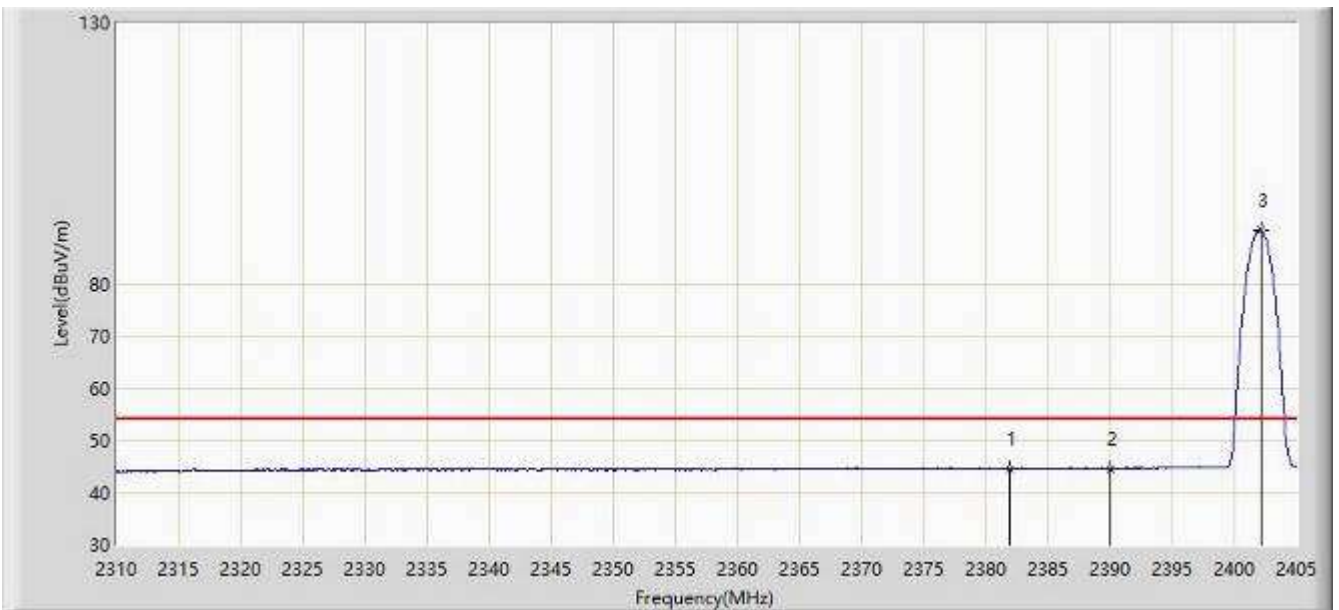


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2358.403	58.846	26.261	-15.154	74.000	32.585	PK
2			2390.000	56.369	23.884	-17.631	74.000	32.485	PK
3		*	2402.008	94.442	61.929	N/A	N/A	32.513	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 13:07
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2402 MHz	

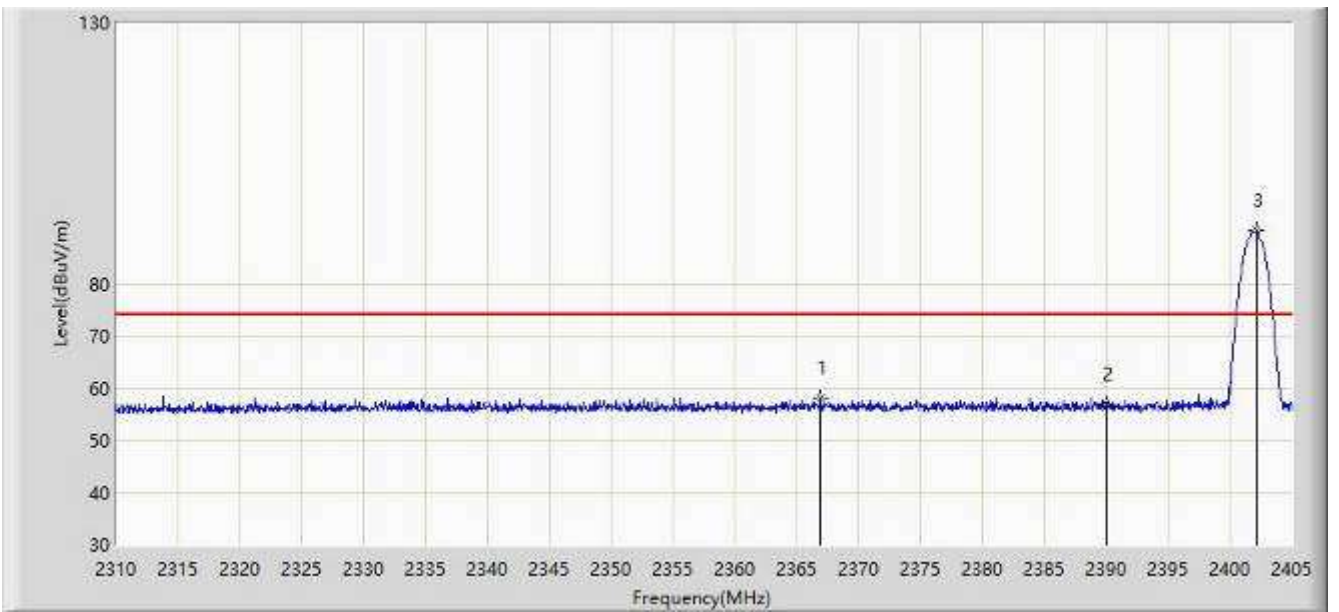


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2381.915	44.537	12.060	-9.463	54.000	32.477	AV
2			2390.000	44.473	11.988	-9.527	54.000	32.485	AV
3		*	2402.103	90.338	57.824	36.338	54.000	32.514	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 13:10
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2402 MHz	

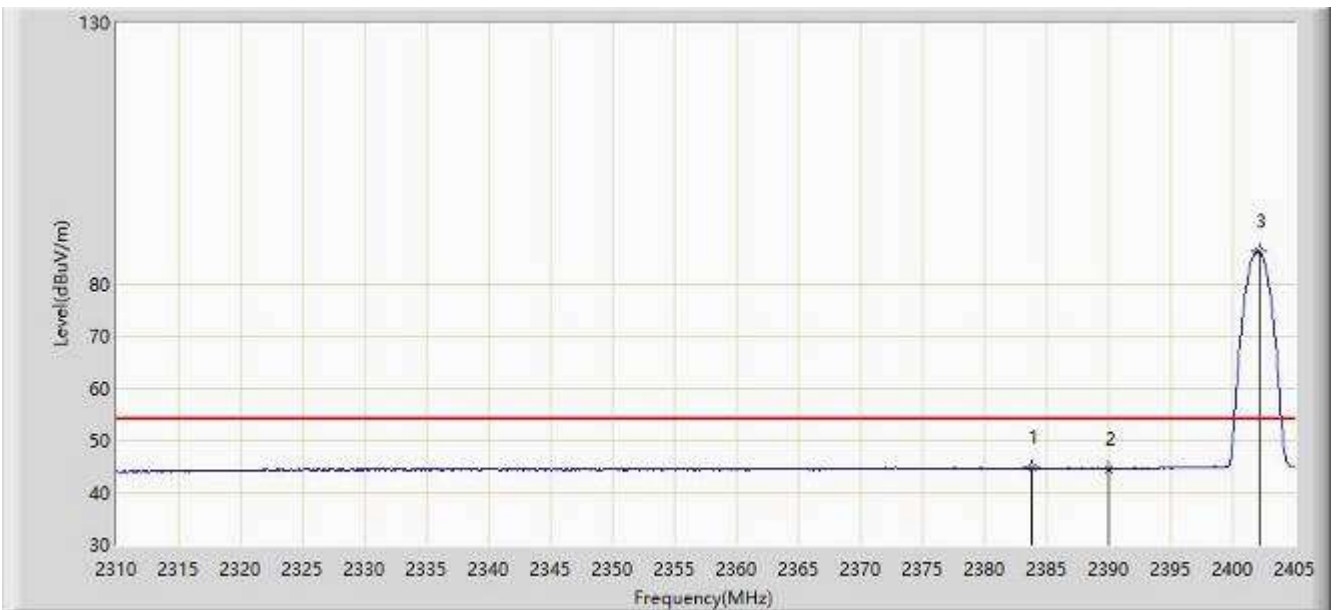


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2366.857	58.063	25.526	-15.937	74.000	32.537	PK
2			2390.000	56.920	24.435	-17.080	74.000	32.485	PK
3		*	2402.103	90.231	57.717	N/A	N/A	32.514	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 13:10
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2402 MHz	

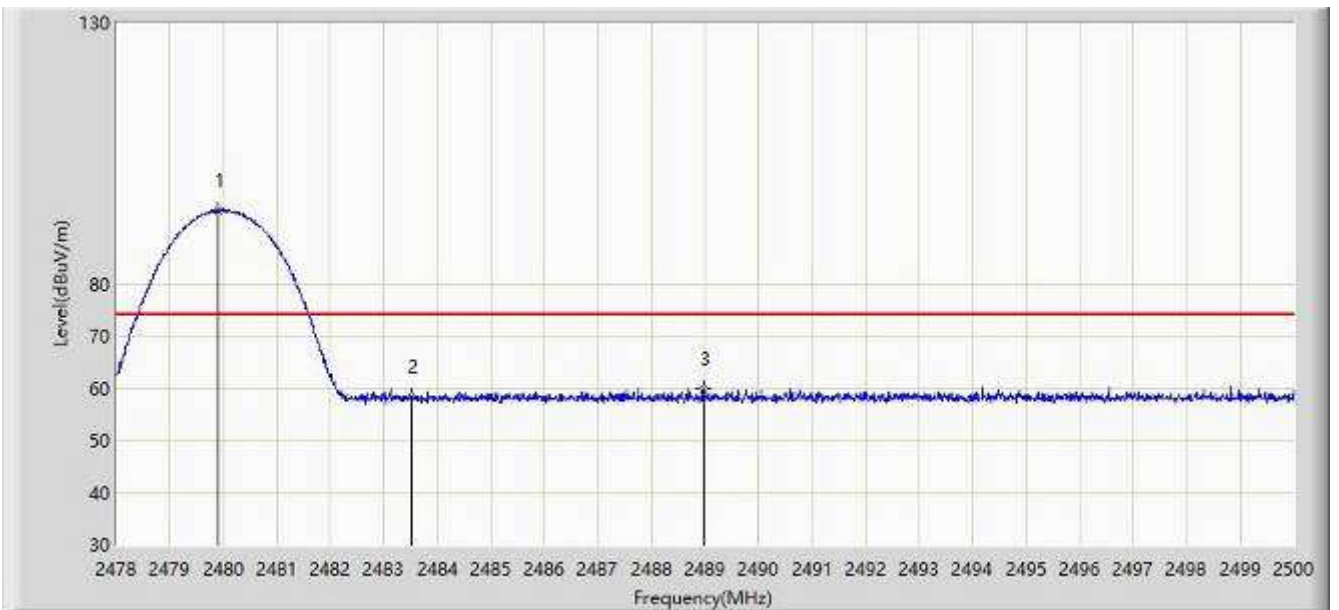


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2383.768	44.817	12.338	-9.183	54.000	32.479	AV
2			2390.000	44.555	12.070	-9.445	54.000	32.485	AV
3		*	2402.103	86.250	53.736	N/A	N/A	32.514	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 13:14
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2480 MHz	

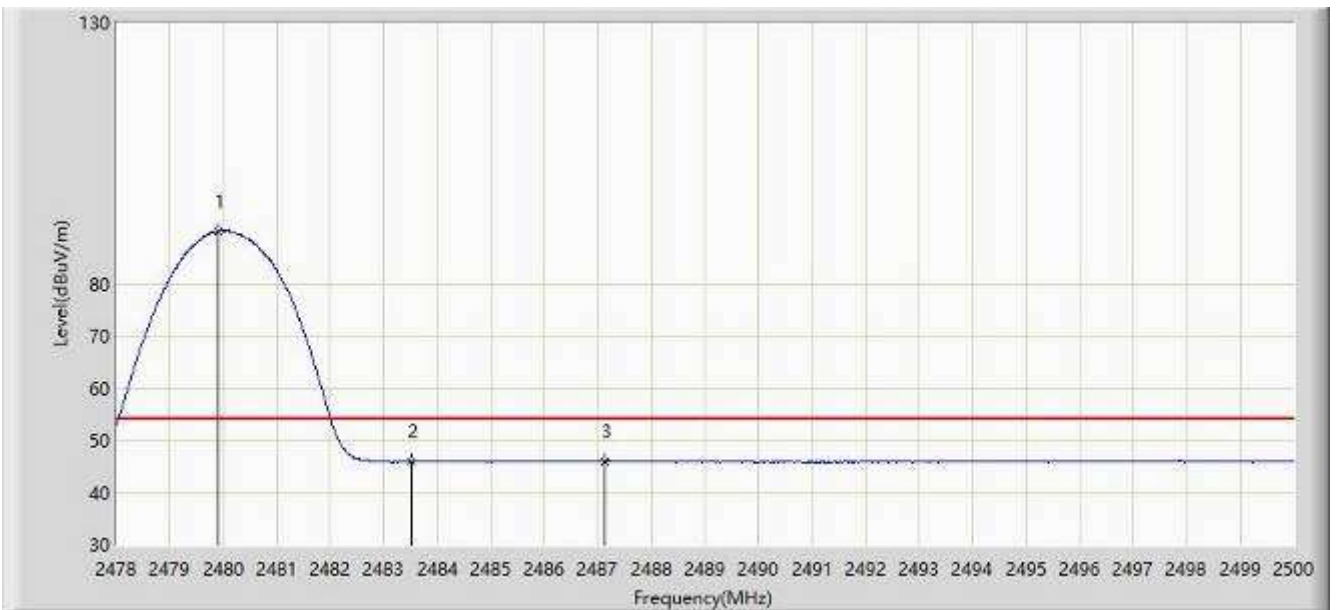


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.903	94.185	61.802	N/A	N/A	32.383	PK
2			2483.500	58.347	25.972	-15.653	74.000	32.375	PK
3			2488.978	59.817	27.455	-14.183	74.000	32.362	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 13:18
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2480 MHz	

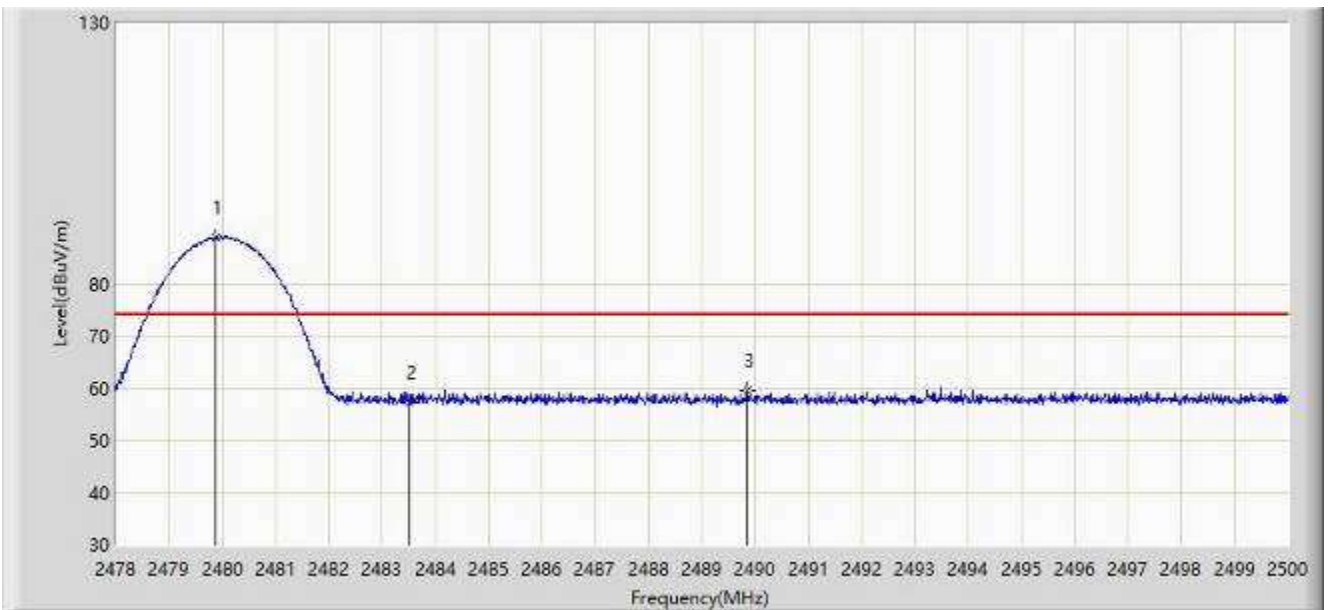


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.914	90.117	57.734	N/A	N/A	32.383	AV
2			2483.500	45.875	13.500	-8.125	54.000	32.375	AV
3			2487.119	46.007	13.641	-7.993	54.000	32.366	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 13:20
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2480 MHz	

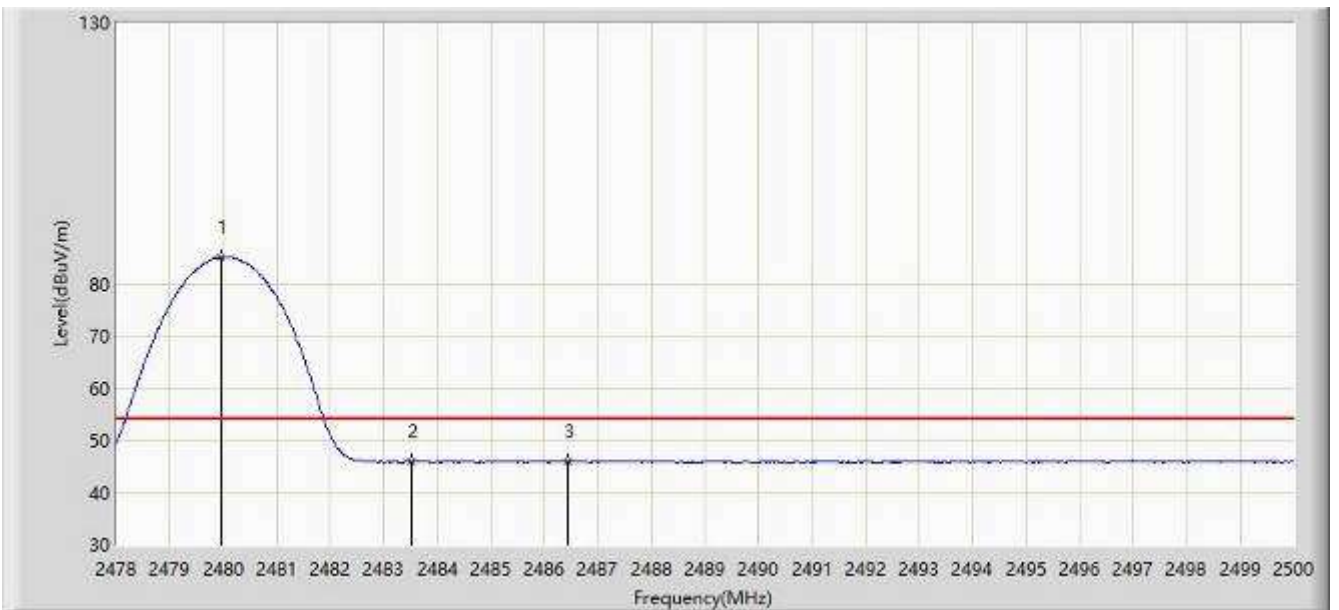


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.870	88.942	56.559	N/A	N/A	32.383	PK
2			2483.500	57.373	24.998	-16.627	74.000	32.375	PK
3			2489.847	59.442	27.082	-14.558	74.000	32.360	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/07 - 13:20
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2480 MHz	

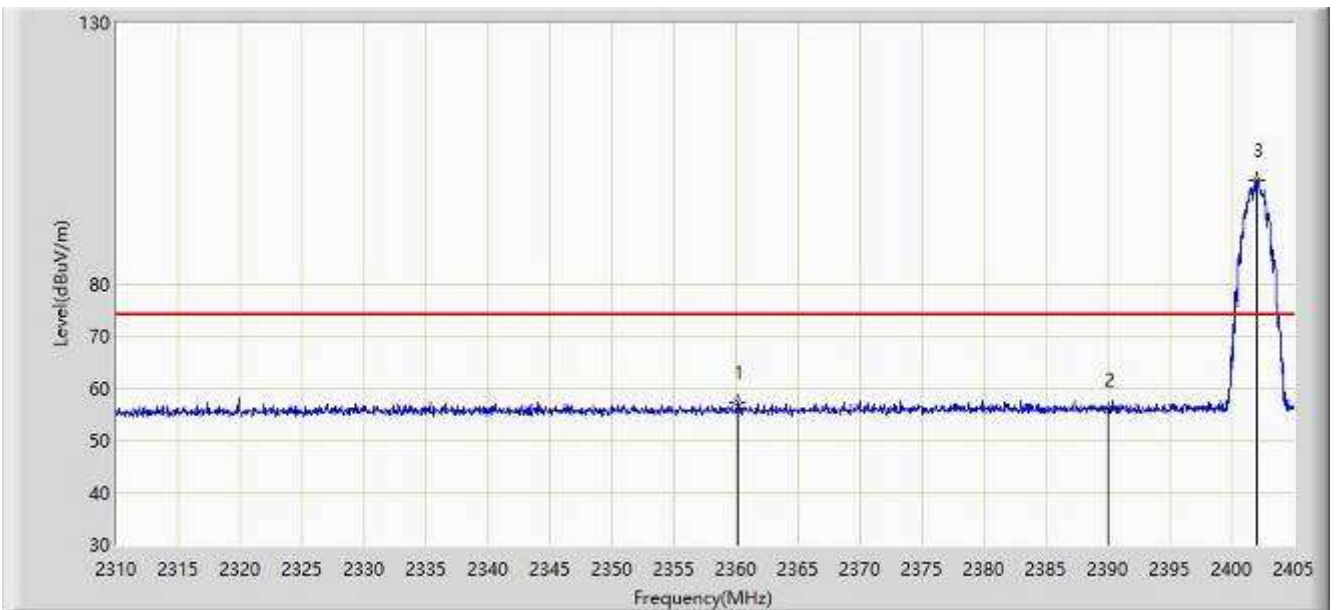


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.969	85.125	52.742	N/A	N/A	32.383	AV
2			2483.500	45.846	13.471	-8.154	54.000	32.375	AV
3			2486.448	46.003	13.635	-7.997	54.000	32.368	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 13:58
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2402 MHz	

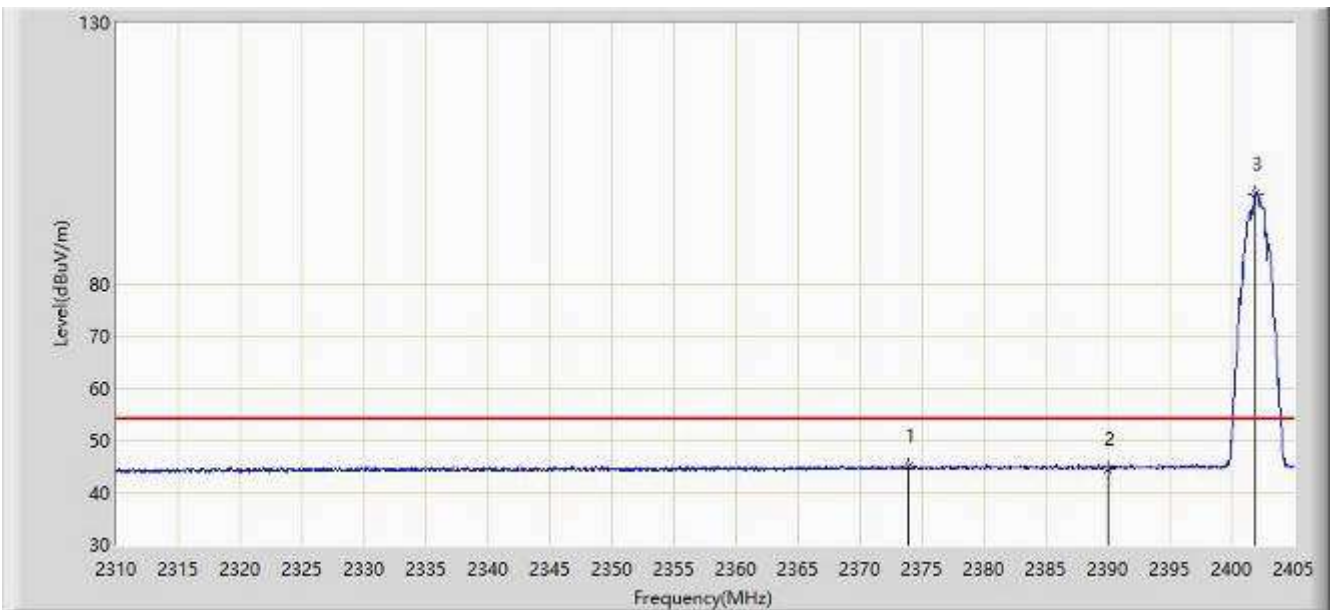


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2360.113	57.220	25.098	-16.780	74.000	32.122	PK
2			2390.000	55.887	23.815	-18.113	74.000	32.072	PK
3		*	2402.055	99.750	67.675	N/A	N/A	32.076	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 14:17
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2402 MHz	

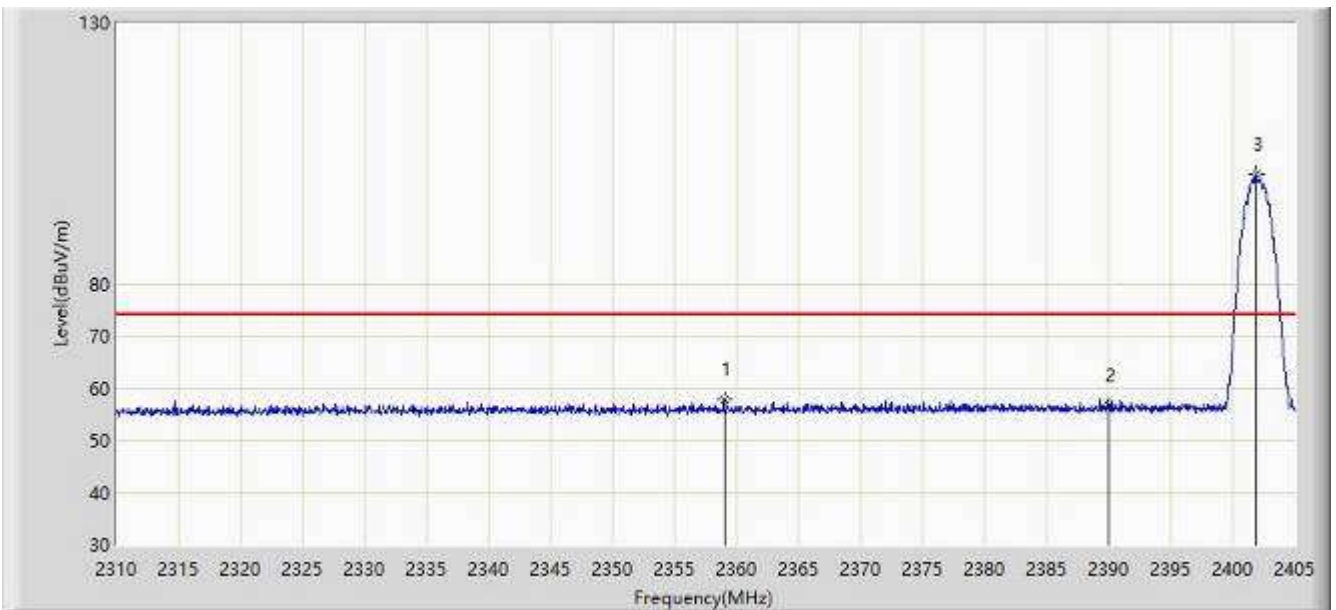


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2373.982	45.095	13.011	-8.905	54.000	32.084	AV
2			2390.000	44.604	12.532	-9.396	54.000	32.072	AV
3		*	2401.865	97.299	65.224	N/A	N/A	32.075	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 14:21
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2402 MHz	

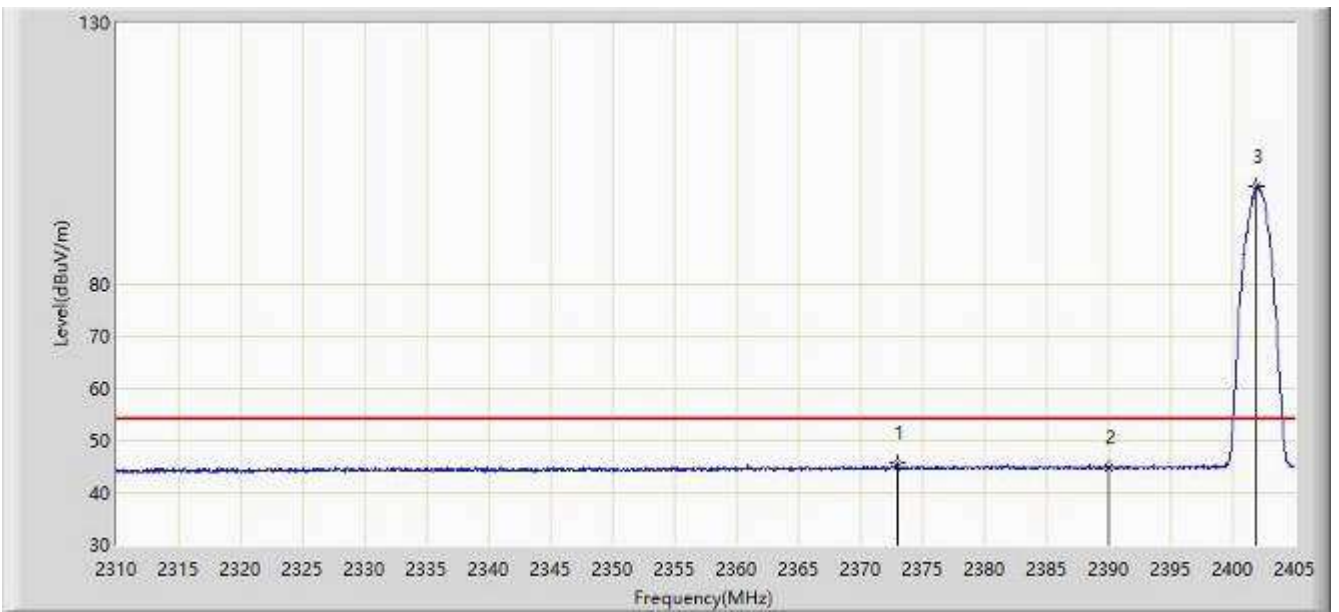


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2359.020	57.725	25.602	-16.275	74.000	32.123	PK
2			2390.000	56.741	24.669	-17.259	74.000	32.072	PK
3		*	2401.913	101.093	69.018	N/A	N/A	32.075	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 14:23
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2402 MHz	

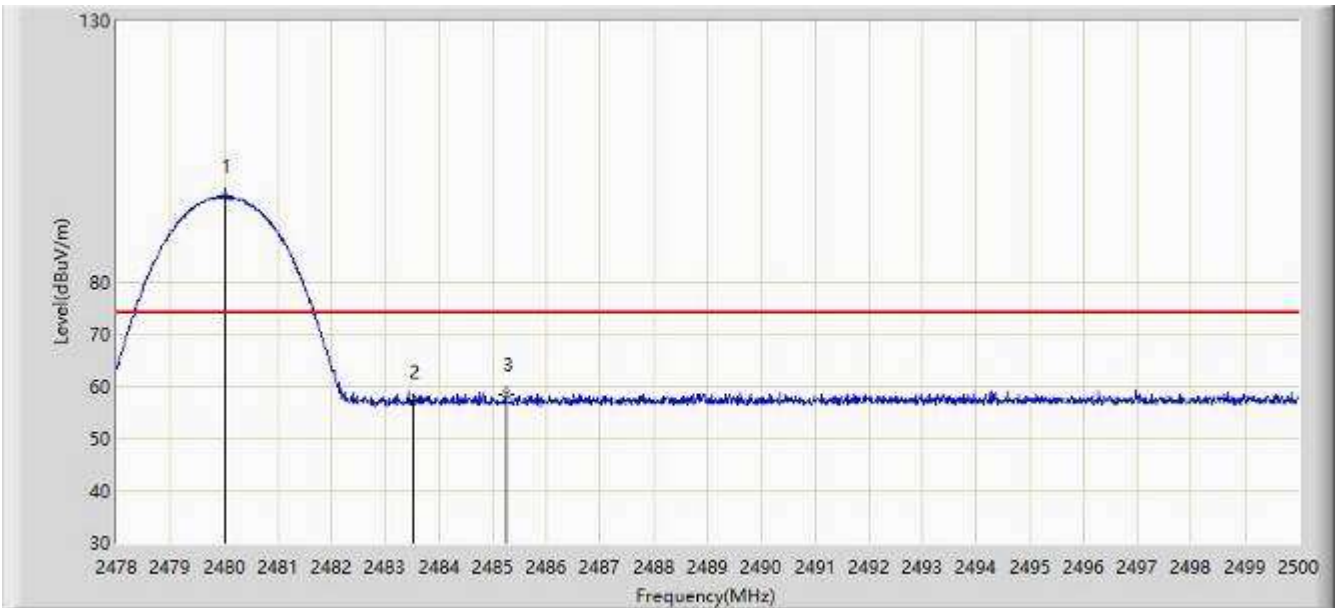


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2372.937	45.562	13.475	-8.438	54.000	32.087	AV
2			2390.000	44.659	12.587	-9.341	54.000	32.072	AV
3		*	2401.960	98.683	66.608	N/A	N/A	32.075	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 14:29
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2480 MHz	

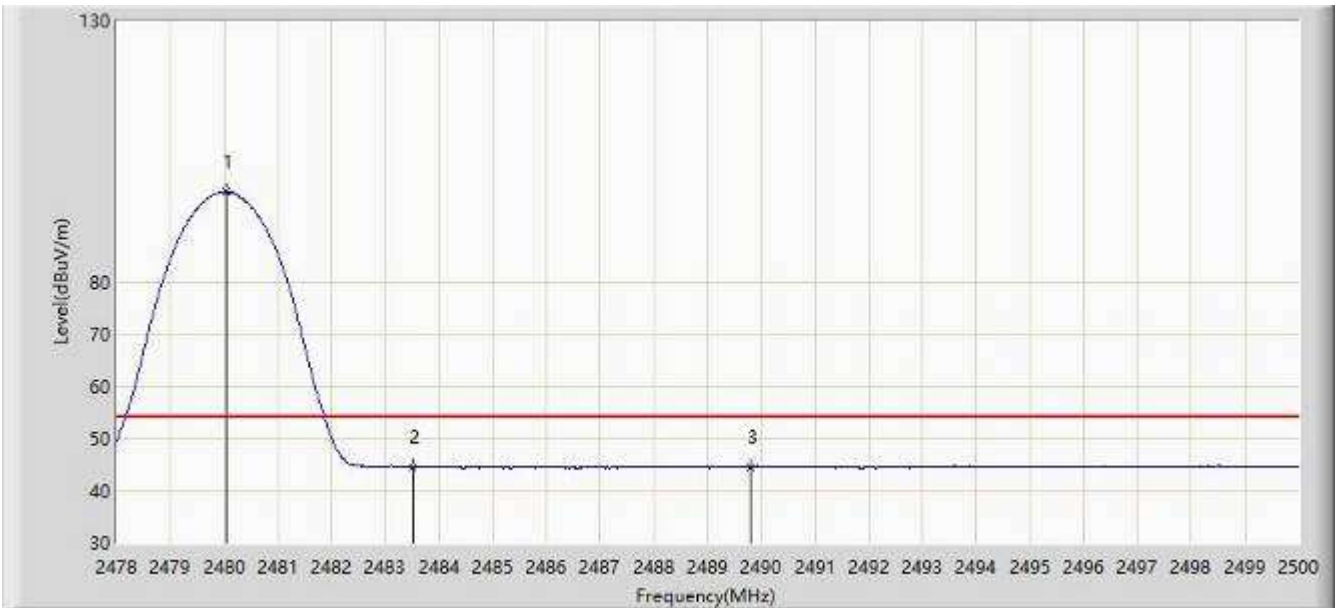


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.002	97.437	65.393	N/A	N/A	32.044	PK
2			2483.500	57.090	25.053	-16.910	74.000	32.037	PK
3			2485.249	58.439	26.405	-15.561	74.000	32.033	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 14:36
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2480 MHz	

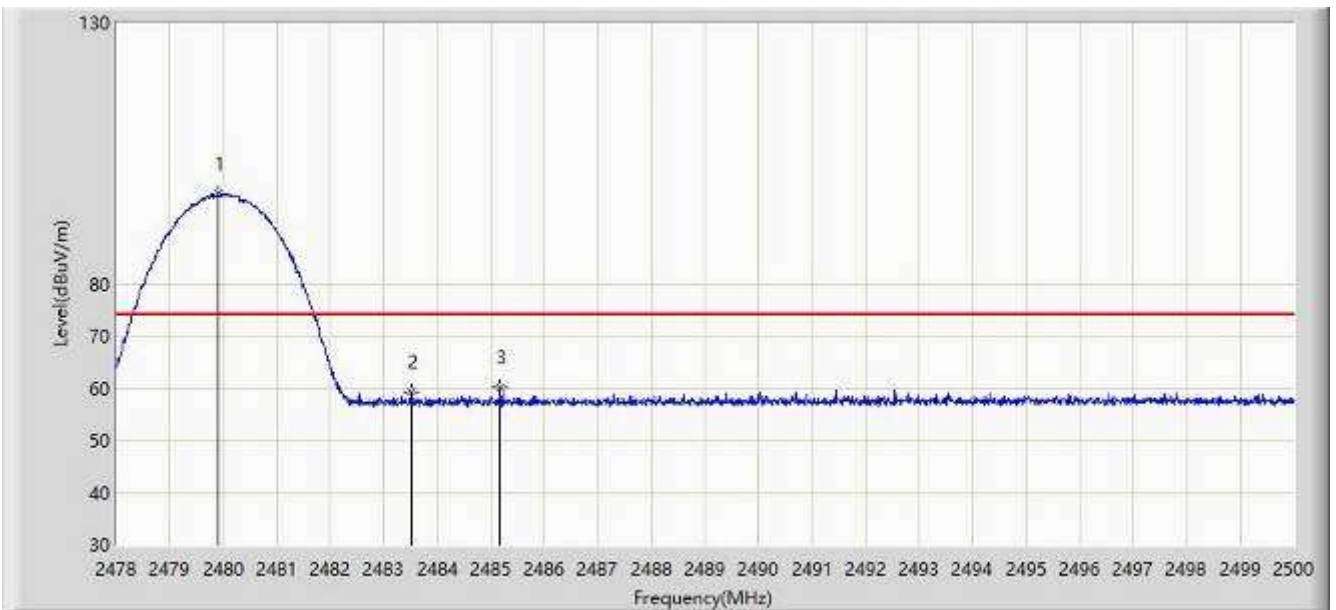


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.046	97.159	65.116	N/A	N/A	32.044	AV
2			2483.500	44.382	12.345	-9.618	54.000	32.037	AV
3			2489.792	44.629	12.604	-9.371	54.000	32.025	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 14:39
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2480 MHz	

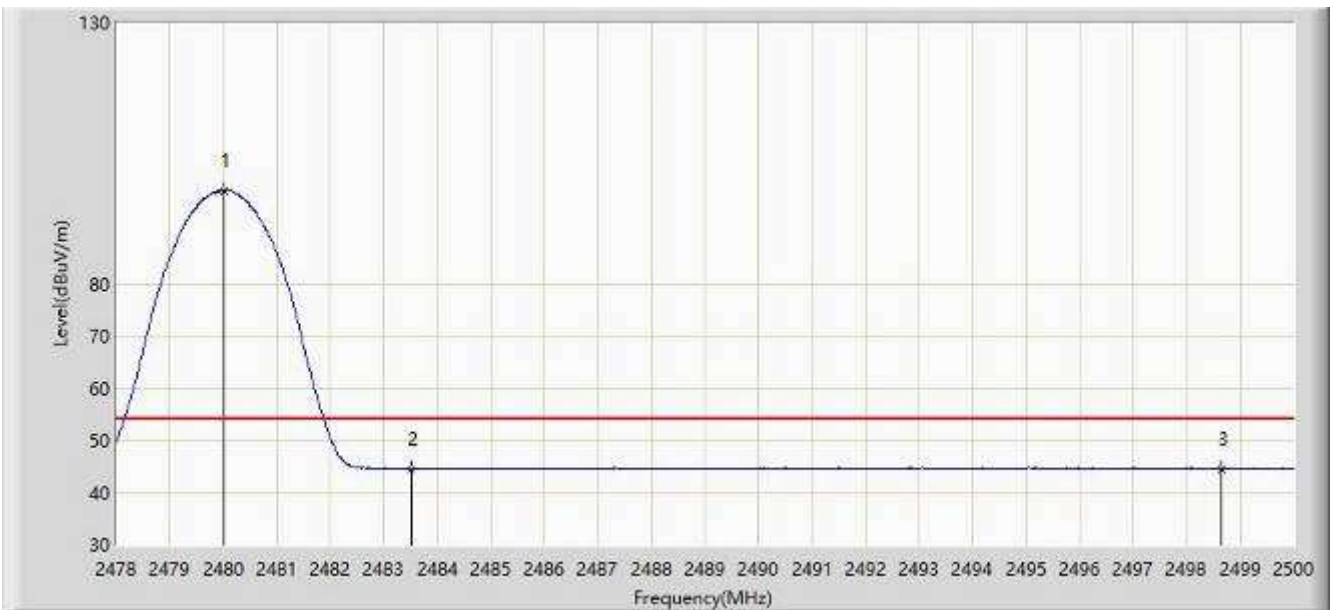


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.903	98.119	66.075	N/A	N/A	32.044	PK
2			2483.500	59.198	27.161	-14.802	74.000	32.037	PK
3			2485.172	60.097	28.063	-13.903	74.000	32.034	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 14:41
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2480 MHz	

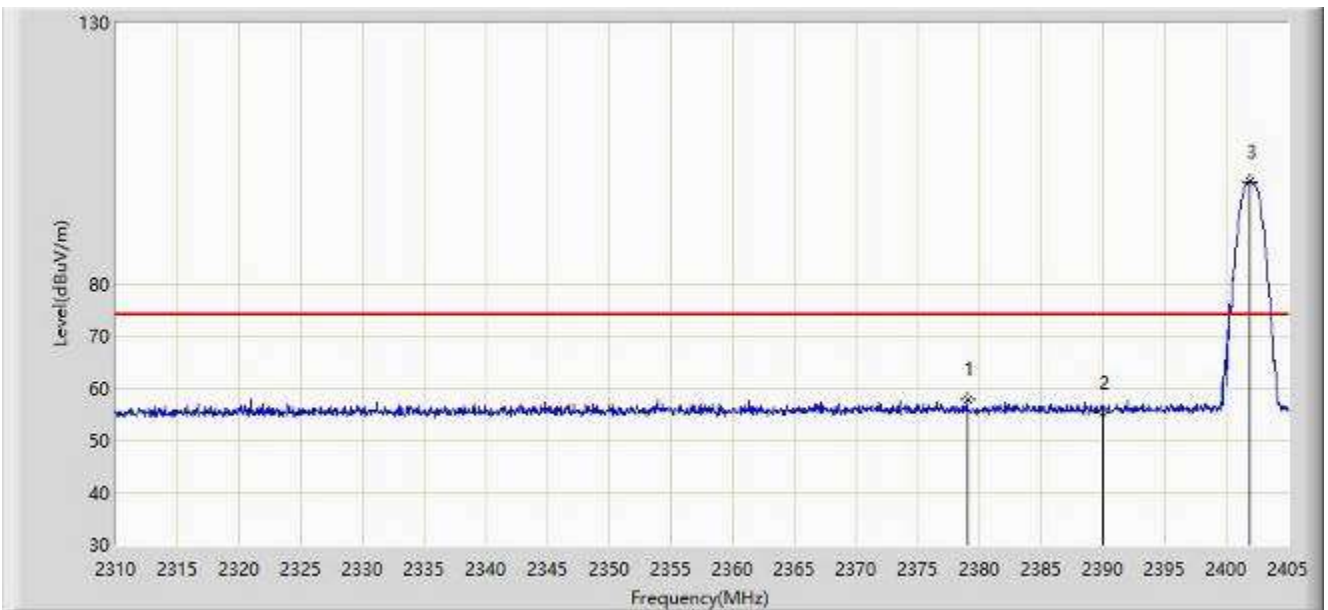


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.013	97.861	65.817	N/A	N/A	32.044	AV
2			2483.500	44.576	12.539	-9.424	54.000	32.037	AV
3			2498.658	44.500	12.481	-9.500	54.000	32.019	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 14:50
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2402 MHz	

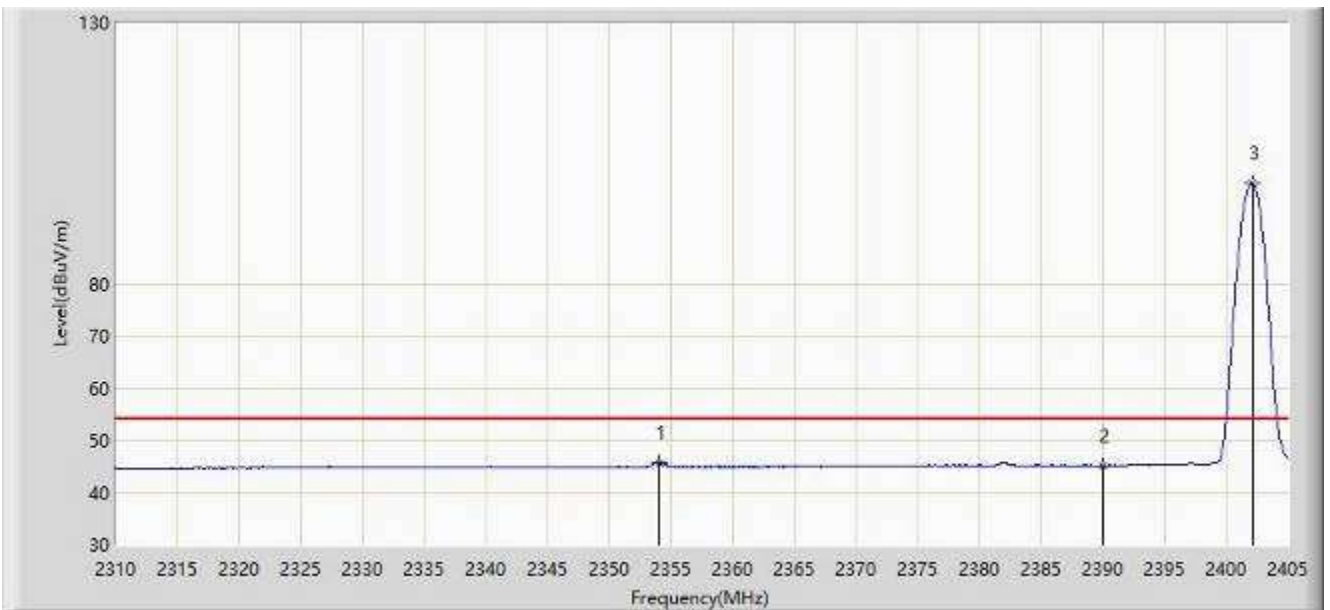


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2379.018	57.692	25.616	-16.308	74.000	32.075	PK
2			2390.000	55.268	23.196	-18.732	74.000	32.072	PK
3		*	2401.913	99.676	67.601	N/A	N/A	32.075	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 15:13
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2402 MHz	

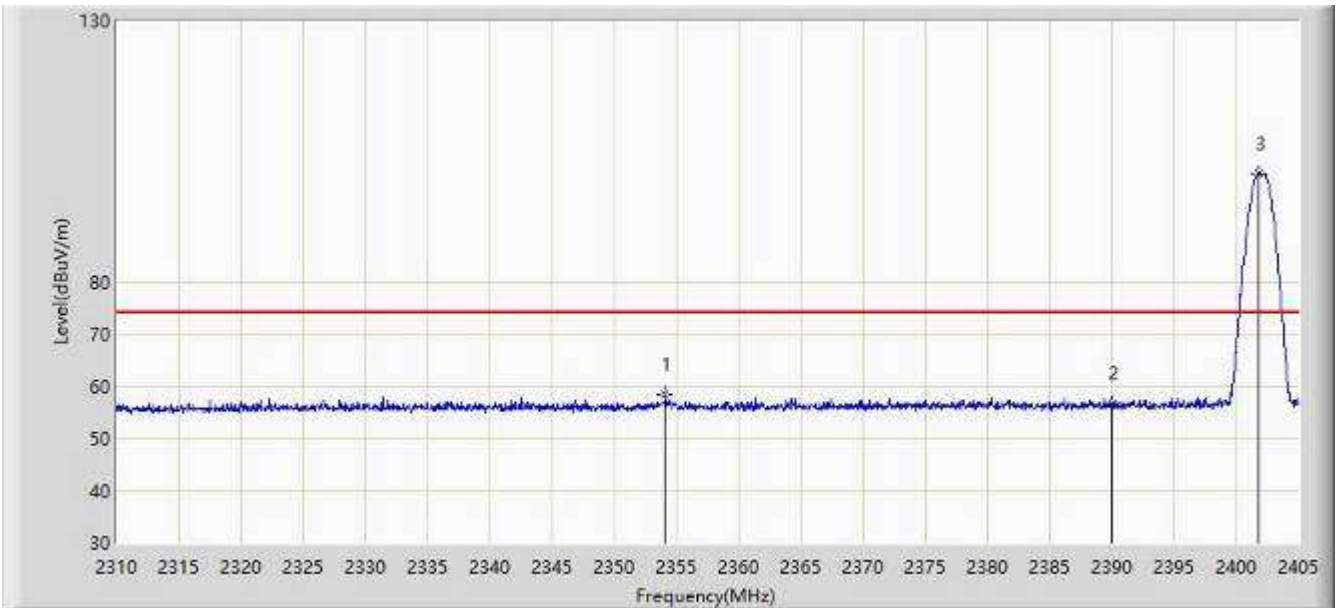


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2354.080	45.772	13.645	-8.228	54.000	32.127	AV
2			2390.000	45.165	13.093	-8.835	54.000	32.072	AV
3		*	2402.103	99.263	67.188	N/A	N/A	32.076	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 15:16
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2402 MHz	

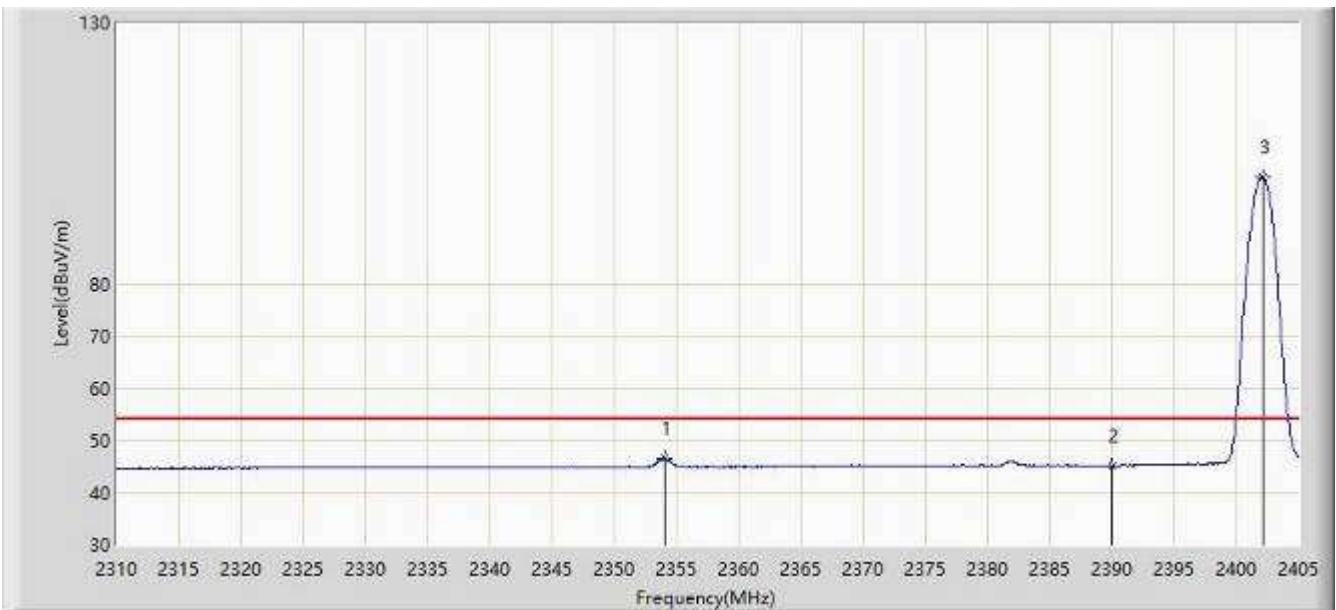


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2354.080	58.353	26.226	-15.647	74.000	32.127	PK
2			2390.000	56.683	24.611	-17.317	74.000	32.072	PK
3		*	2401.770	100.708	68.633	N/A	N/A	32.075	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 15:16
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2402 MHz	

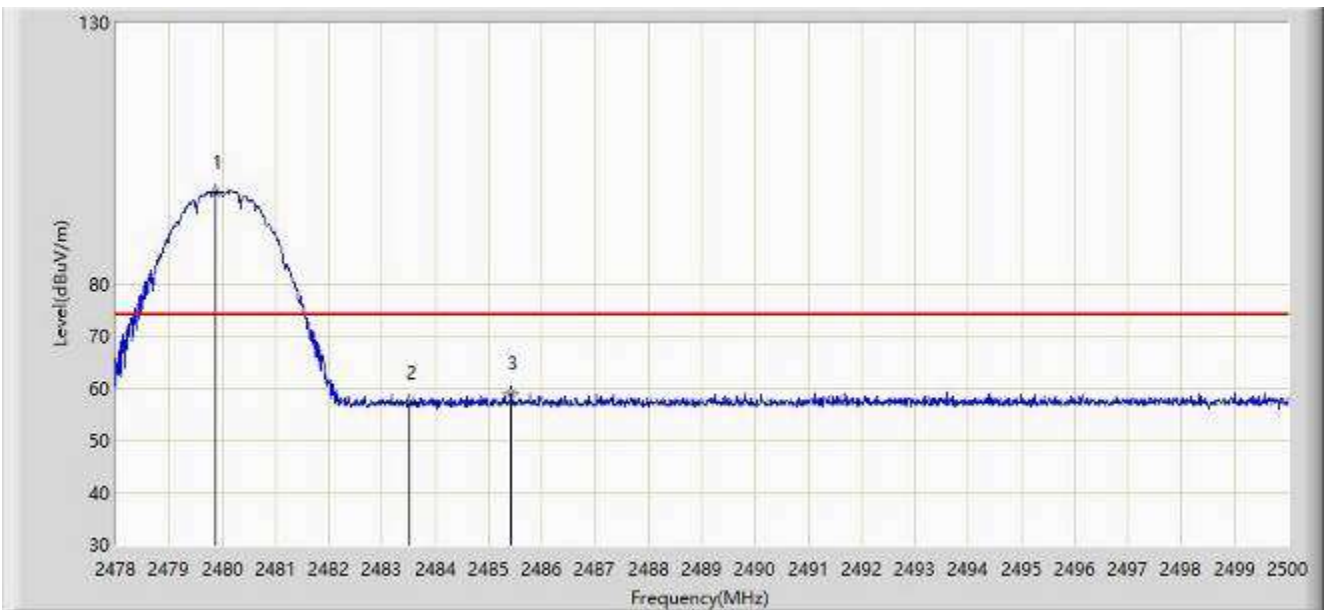


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2354.080	46.515	14.388	-7.485	54.000	32.127	AV
2			2390.000	45.171	13.099	-8.829	54.000	32.072	AV
3		*	2402.103	100.432	68.357	N/A	N/A	32.076	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 15:20
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2480 MHz	

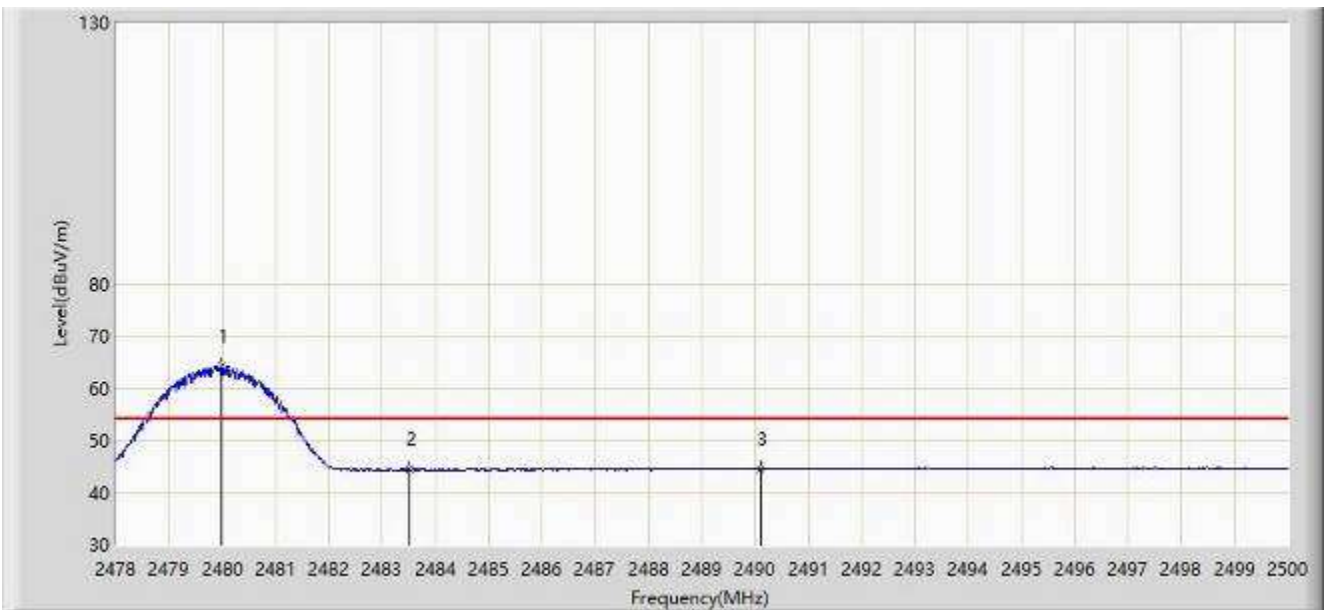


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.870	97.665	65.621	N/A	N/A	32.044	PK
2			2483.500	57.246	25.209	-16.754	74.000	32.037	PK
3			2485.425	59.078	27.045	-14.922	74.000	32.033	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 15:27
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2480 MHz	

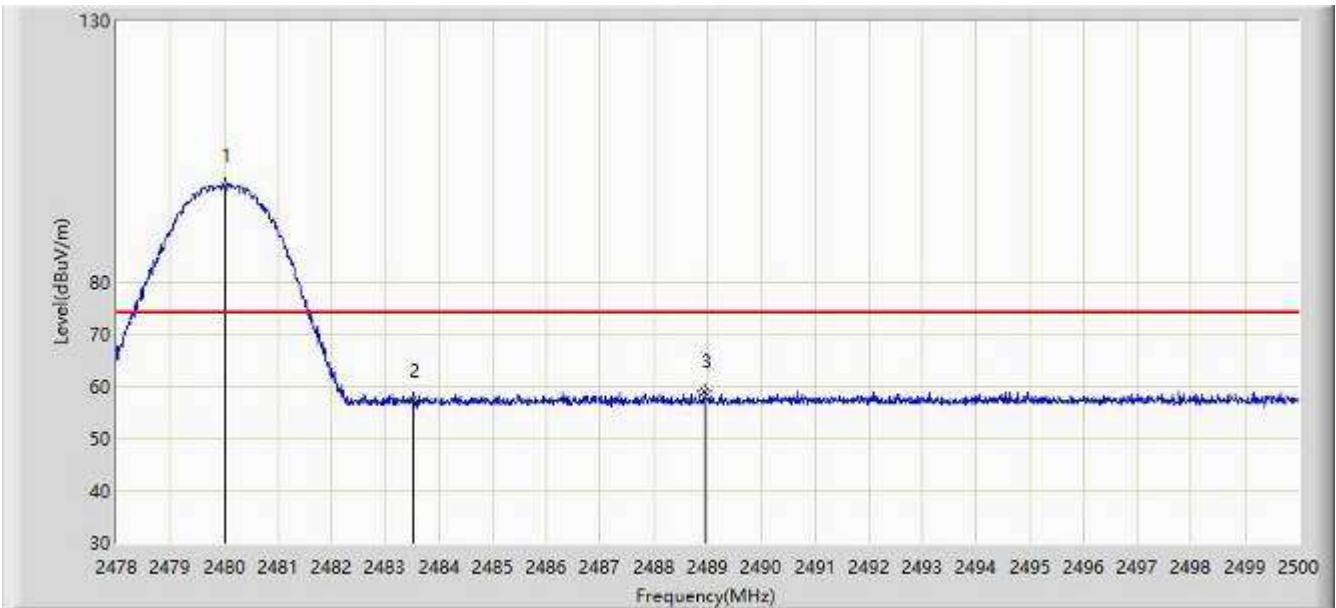


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.980	64.166	32.122	N/A	N/A	32.044	AV
2			2483.500	44.366	12.329	-9.634	54.000	32.037	AV
3			2490.100	44.527	12.502	-9.473	54.000	32.024	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 15:29
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2480 MHz	

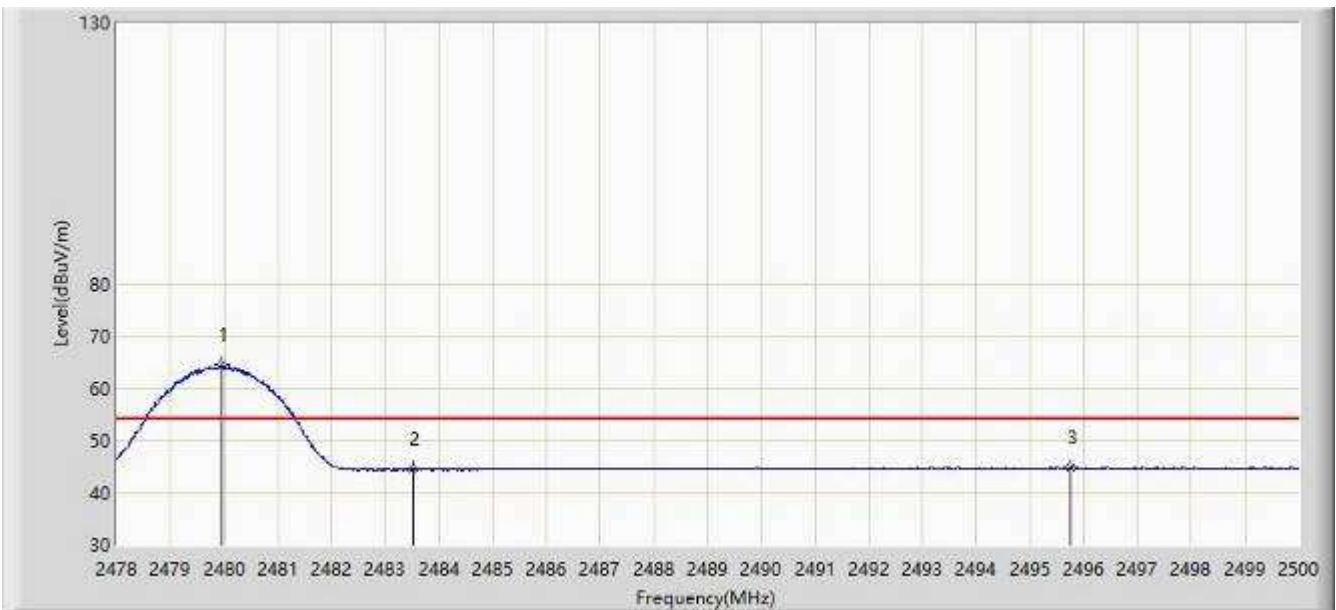


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.002	98.508	66.464	N/A	N/A	32.044	PK
2			2483.500	57.170	25.133	-16.830	74.000	32.037	PK
3			2488.934	58.865	26.838	-15.135	74.000	32.027	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 15:30
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 2DH5 at Channel 2480 MHz	

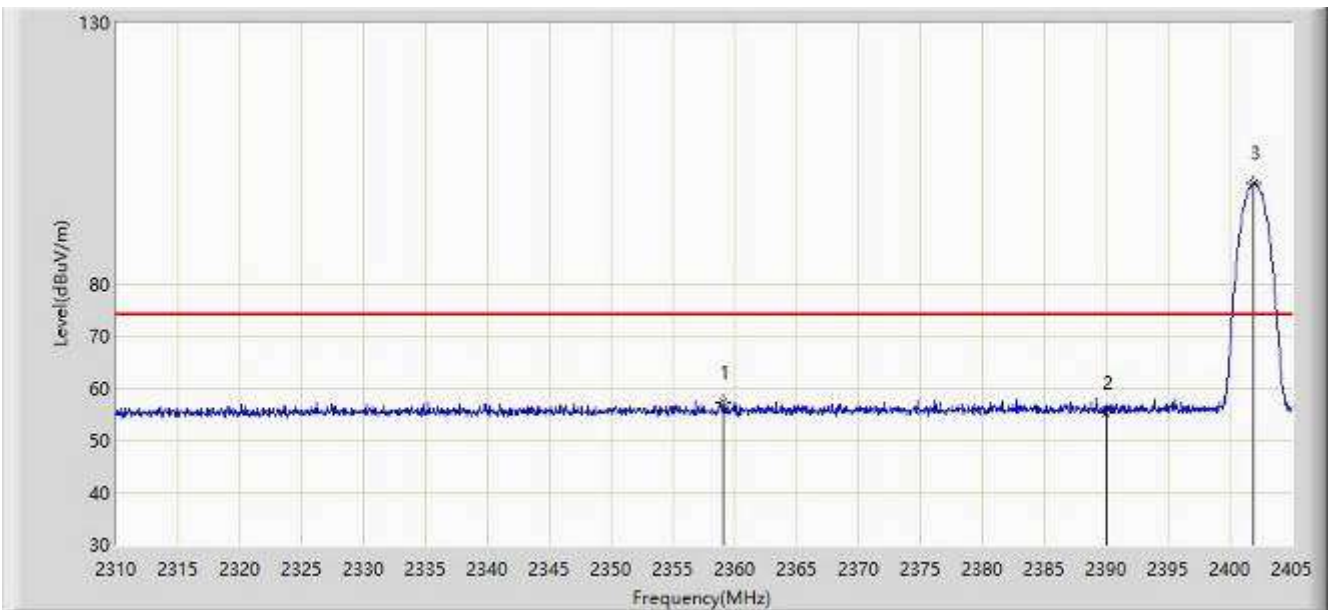


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.947	64.426	32.382	N/A	N/A	32.044	AV
2			2483.500	44.426	12.389	-9.574	54.000	32.037	AV
3			2495.765	44.793	12.779	-9.207	54.000	32.013	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 15:52
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2402 MHz	

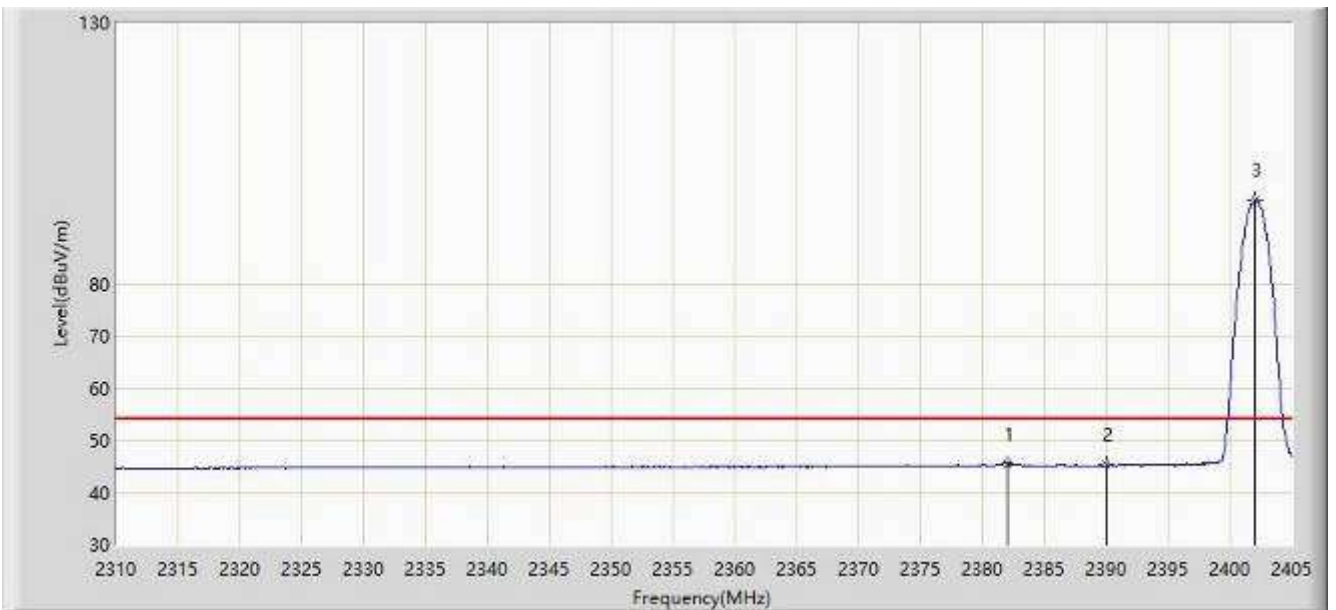


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2359.067	57.288	25.165	-16.712	74.000	32.122	PK
2			2390.000	55.141	23.069	-18.859	74.000	32.072	PK
3		*	2401.865	99.370	67.295	N/A	N/A	32.075	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 15:54
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2402 MHz	

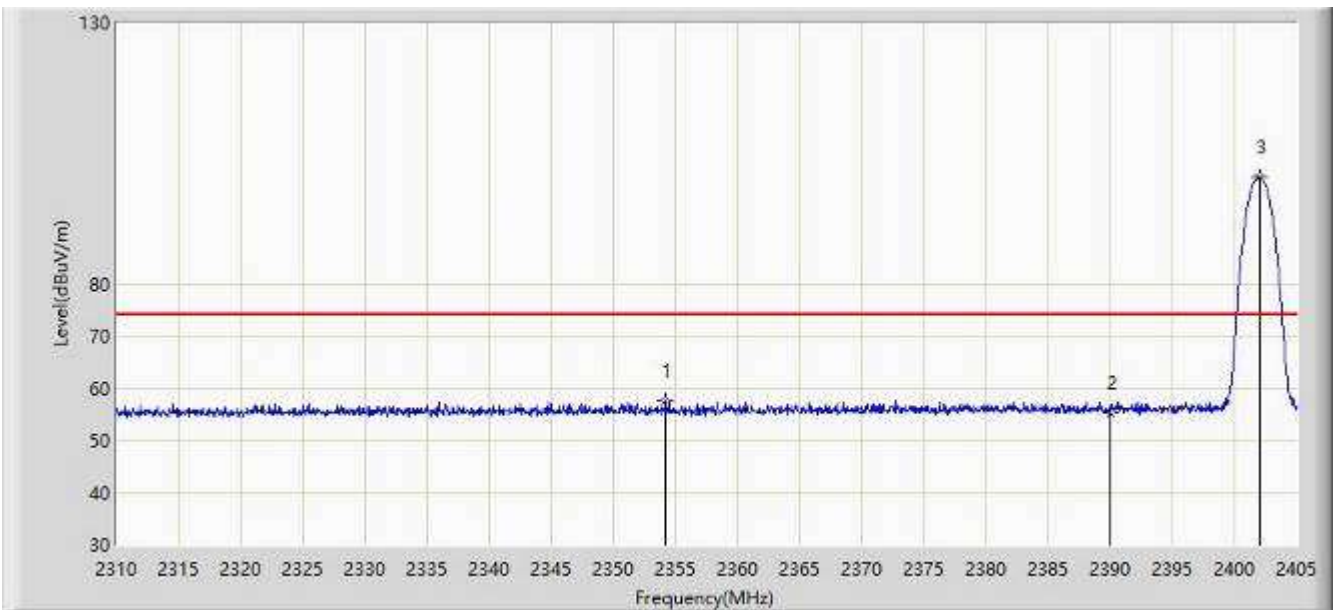


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2382.058	45.507	13.432	-8.493	54.000	32.075	AV
2			2390.000	45.218	13.146	-8.782	54.000	32.072	AV
3		*	2402.055	96.006	63.931	N/A	N/A	32.076	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 15:57
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2402 MHz	

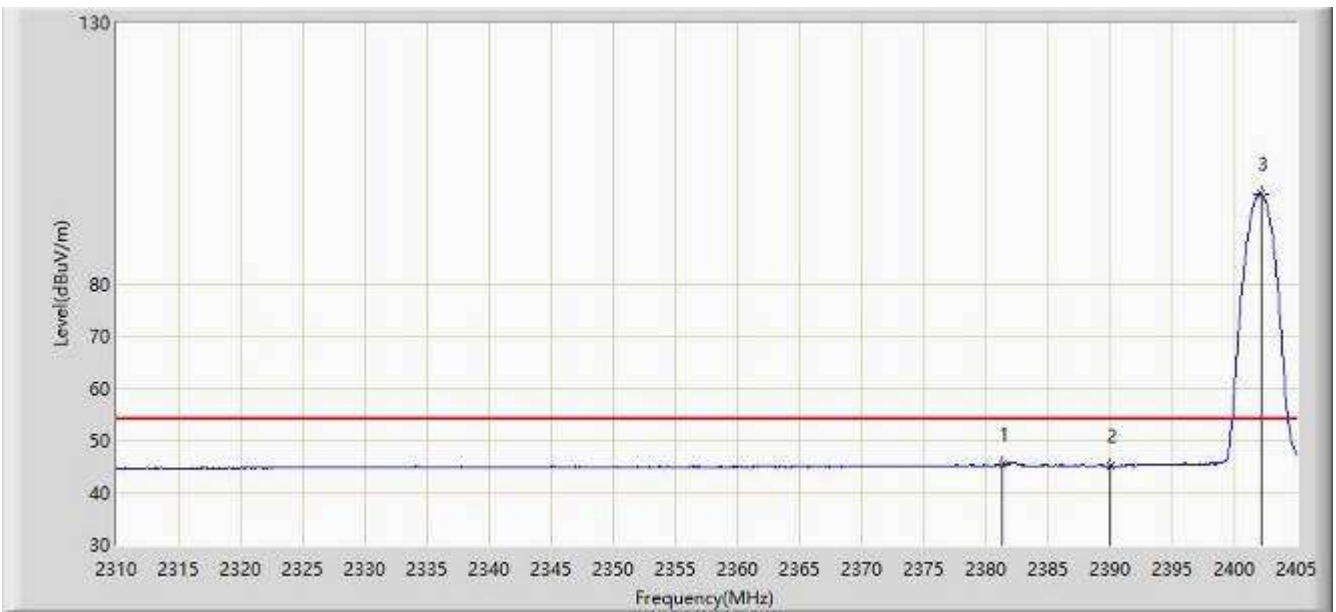


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2354.175	57.523	25.396	-16.477	74.000	32.127	PK
2			2390.000	55.330	23.258	-18.670	74.000	32.072	PK
3		*	2402.008	100.364	68.289	N/A	N/A	32.076	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 15:58
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2402 MHz	

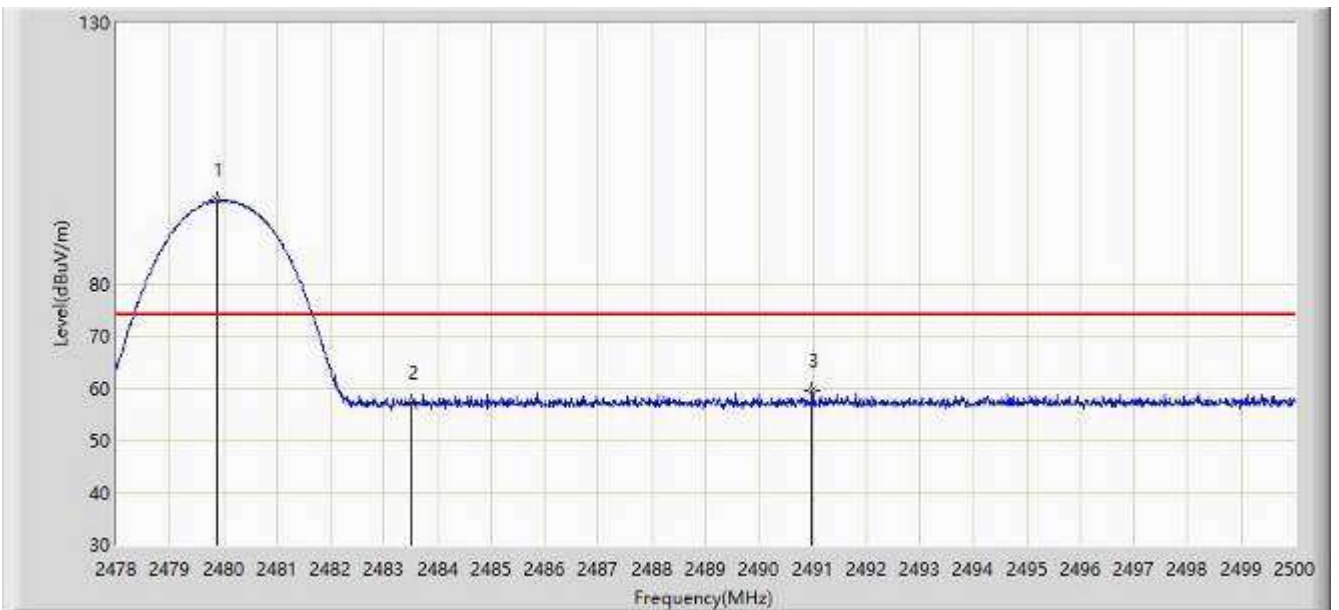


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2381.298	45.393	13.318	-8.607	54.000	32.074	AV
2			2390.000	45.096	13.024	-8.904	54.000	32.072	AV
3		*	2402.103	97.256	65.181	N/A	N/A	32.076	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 16:00
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2480 MHz	

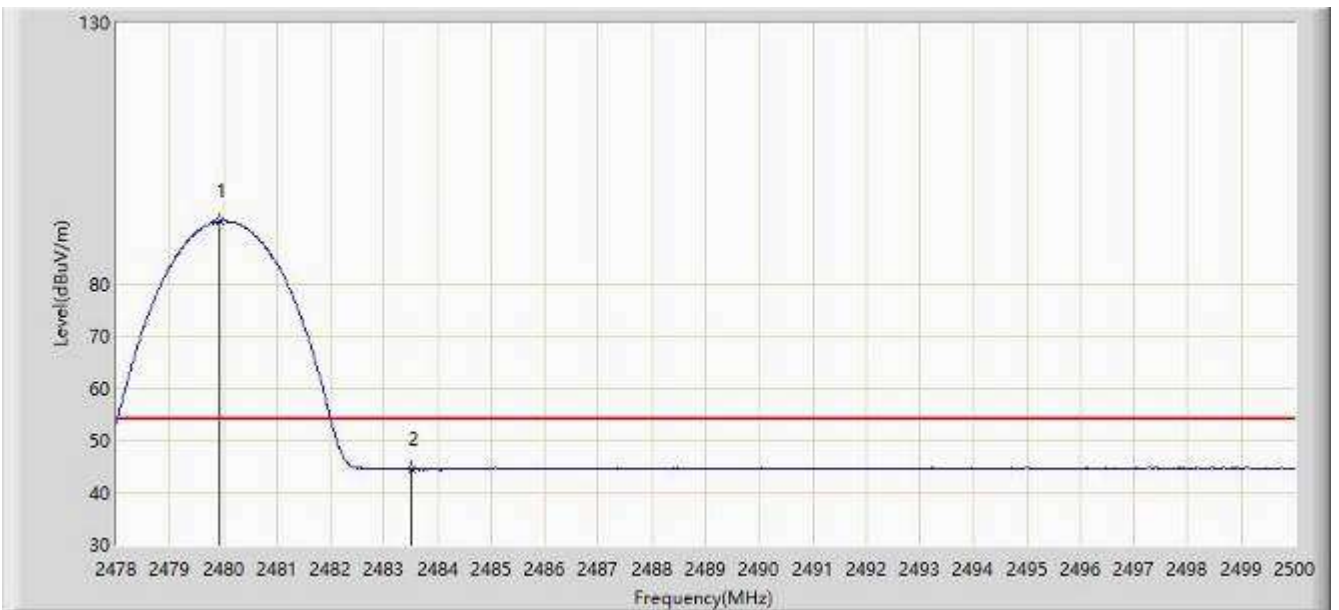


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.881	96.138	64.094	N/A	N/A	32.044	PK
2			2483.500	57.331	25.294	-16.669	74.000	32.037	PK
3			2490.991	59.595	27.572	-14.405	74.000	32.023	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 16:03
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Horizontal
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2480 MHz	

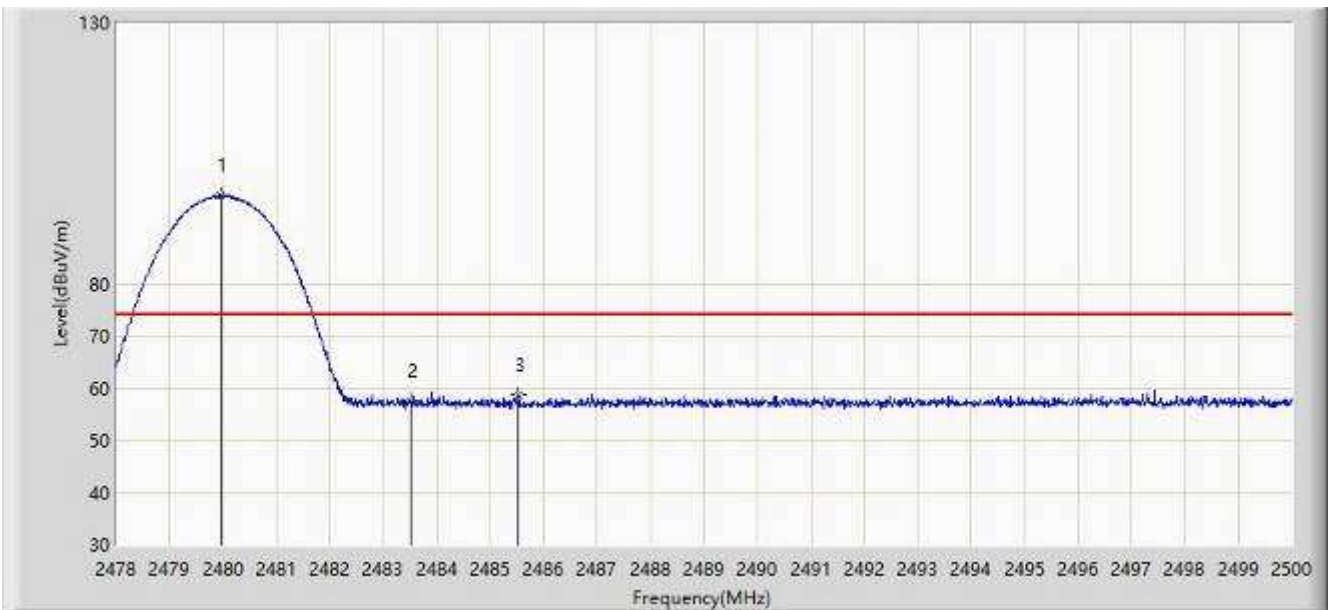


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.925	91.963	59.919	N/A	N/A	32.044	AV
2			2483.500	44.442	12.405	-9.558	54.000	32.037	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 16:05
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2480 MHz	

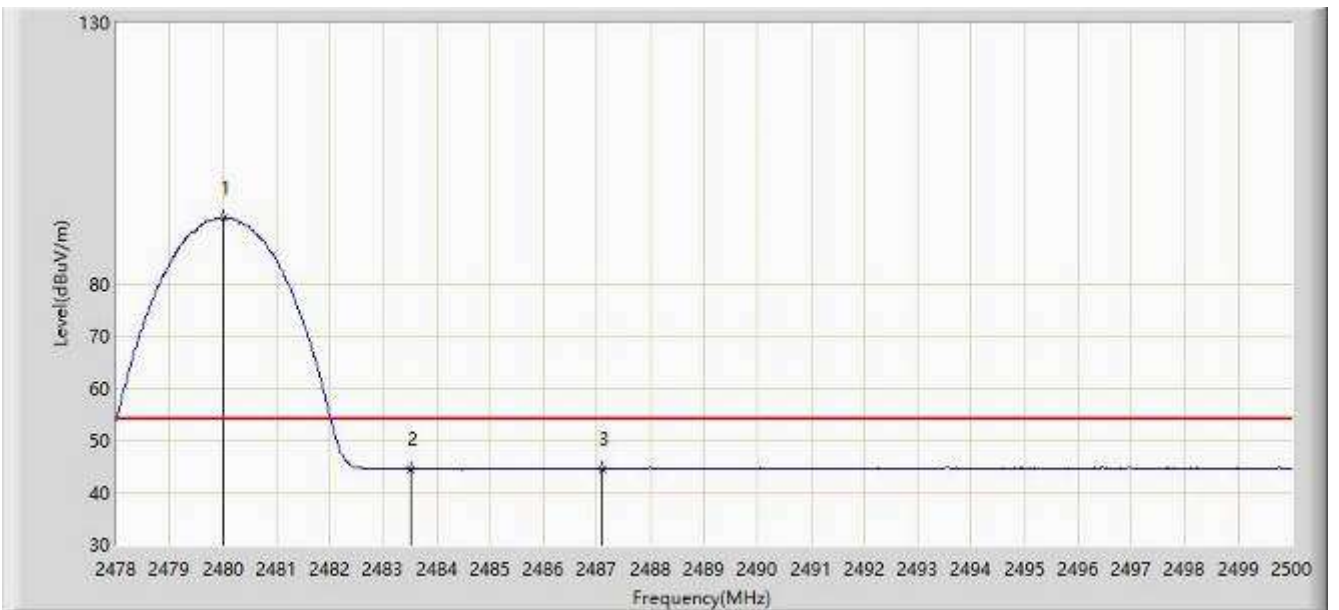


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2479.958	97.002	64.958	N/A	N/A	32.044	PK
2			2483.500	57.605	25.568	-16.395	74.000	32.037	PK
3			2485.535	58.741	26.708	-15.259	74.000	32.033	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2020/03/20 - 16:05
Limit: FCC_Part15.209_RE(3m)	Engineer: Yeto Yin
Probe: AC2_BBHA9120D_1-25GHz	Polarity: Vertical
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by 3DH5 at Channel 2480 MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2480.002	92.722	60.678	N/A	N/A	32.044	AV
2			2483.500	44.416	12.379	-9.584	54.000	32.037	AV
3			2487.108	44.466	12.436	-9.534	54.000	32.031	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

7.11. AC Conducted Emissions Measurement

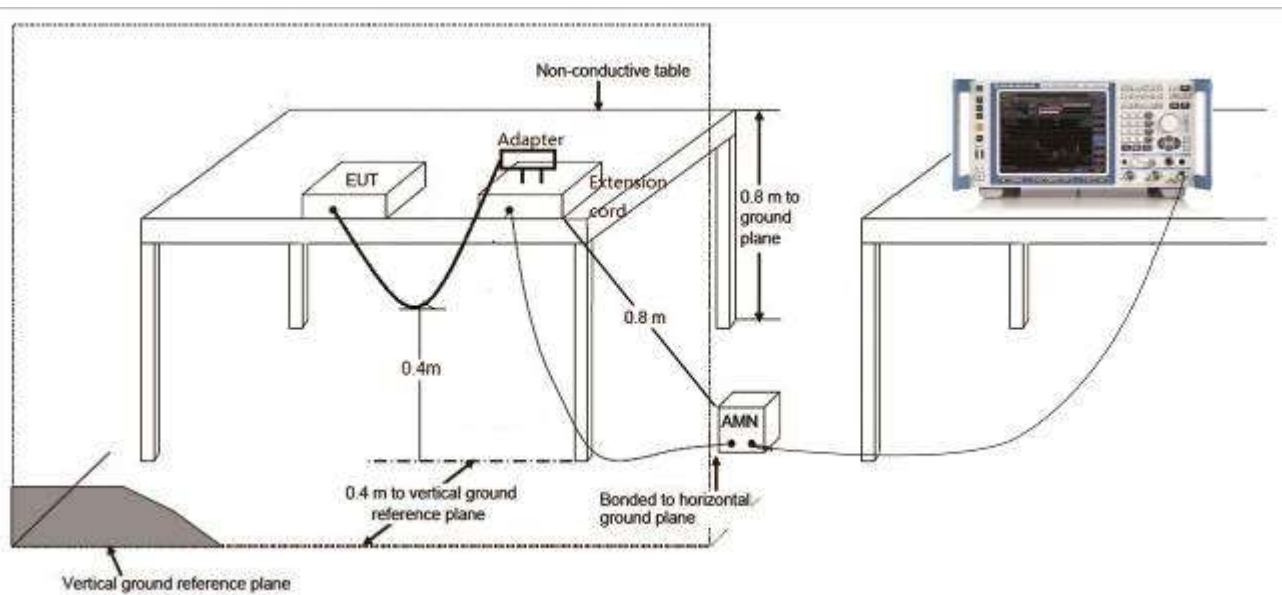
7.11.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 & RSS-Gen Paragraph 8.8 Limits		
Frequency (MHz)	QP (dB μ V)	Average (dB μ V)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

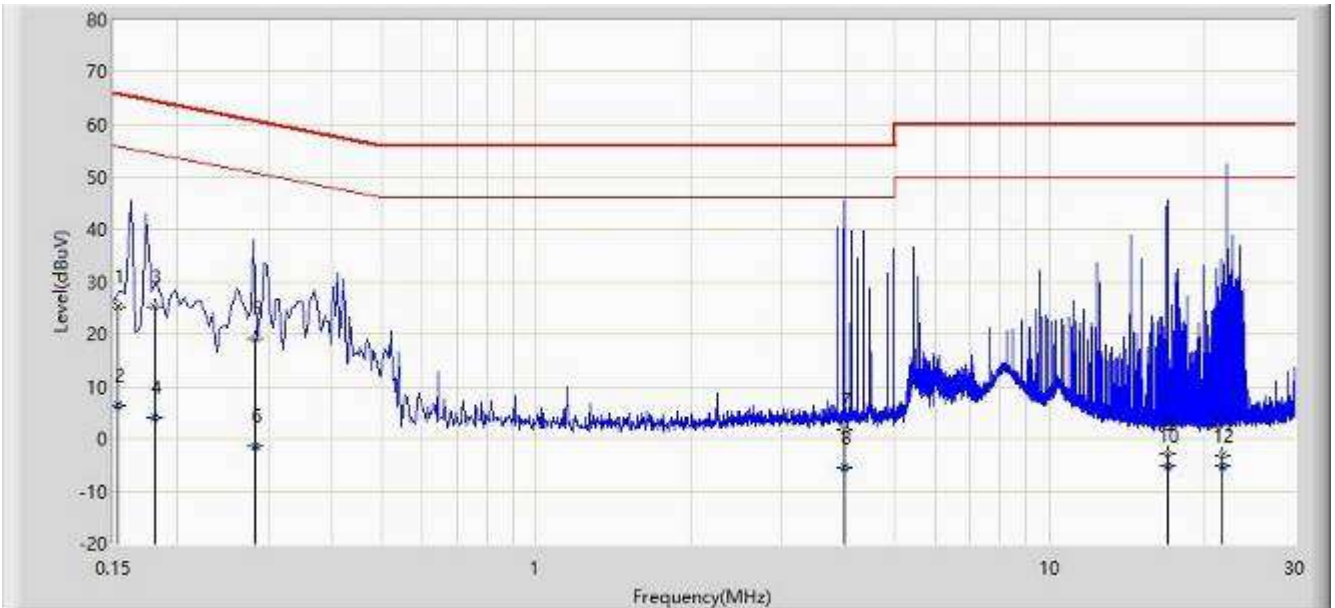
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.11.2. Test Setup



7.11.3. Test Result

Site: SR2	Time: 2020/03/24 - 19:12
Limit: FCC_Part15.207_CE_AC Power	Engineer: Andy Zhu
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2402MHz	

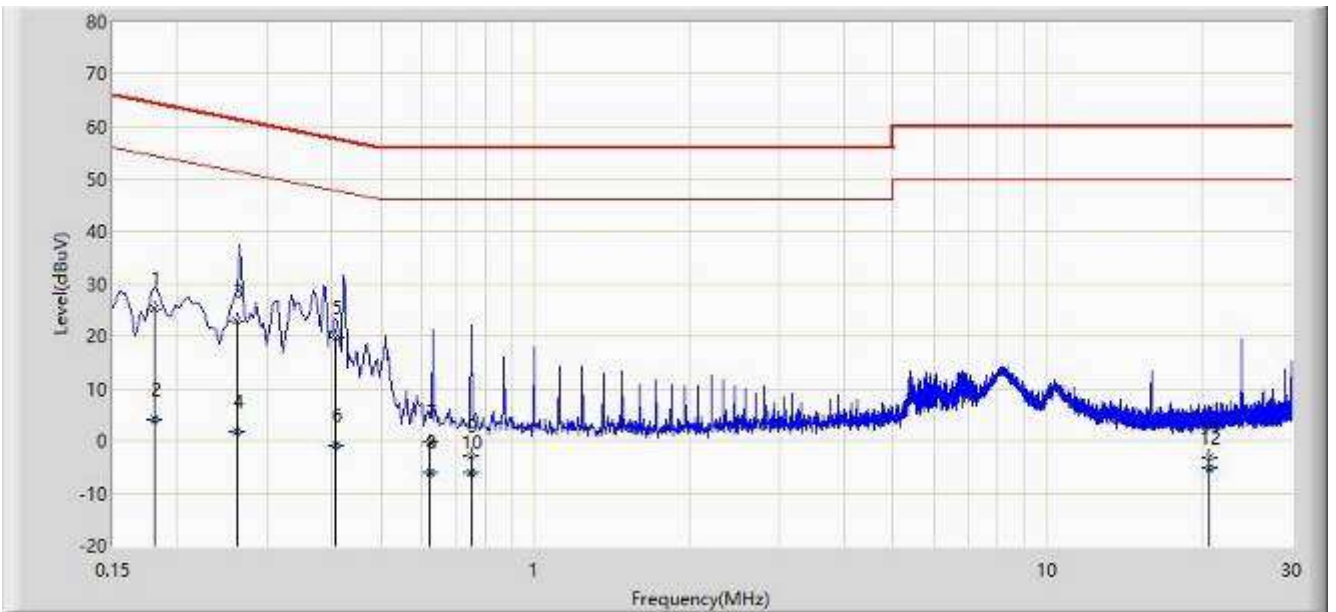


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.153	25.139	14.329	-40.697	65.836	10.809	QP
2			0.153	6.378	-4.431	-49.457	55.836	10.809	AV
3			0.181	25.245	15.215	-39.194	64.440	10.031	QP
4			0.181	3.950	-6.081	-50.490	54.440	10.031	AV
5			0.283	18.988	8.992	-41.739	60.727	9.996	QP
6			0.283	-1.345	-11.341	-52.072	50.727	9.996	AV
7		*	3.978	1.692	-8.182	-54.308	56.000	9.874	QP
8			3.978	-5.419	-15.293	-51.419	46.000	9.874	AV
9			16.980	-2.914	-12.968	-62.914	60.000	10.054	QP
10			16.980	-5.342	-15.396	-55.342	50.000	10.054	AV
11			21.680	-3.126	-13.215	-63.126	60.000	10.089	QP
12			21.680	-5.187	-15.276	-55.187	50.000	10.089	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

Site: SR2	Time: 2020/03/24 - 19:19
Limit: FCC_Part15.207_CE_AC Power	Engineer: Andy Zhu
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Bluetooth 5 BLE module (Dragon-B)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2402MHz	

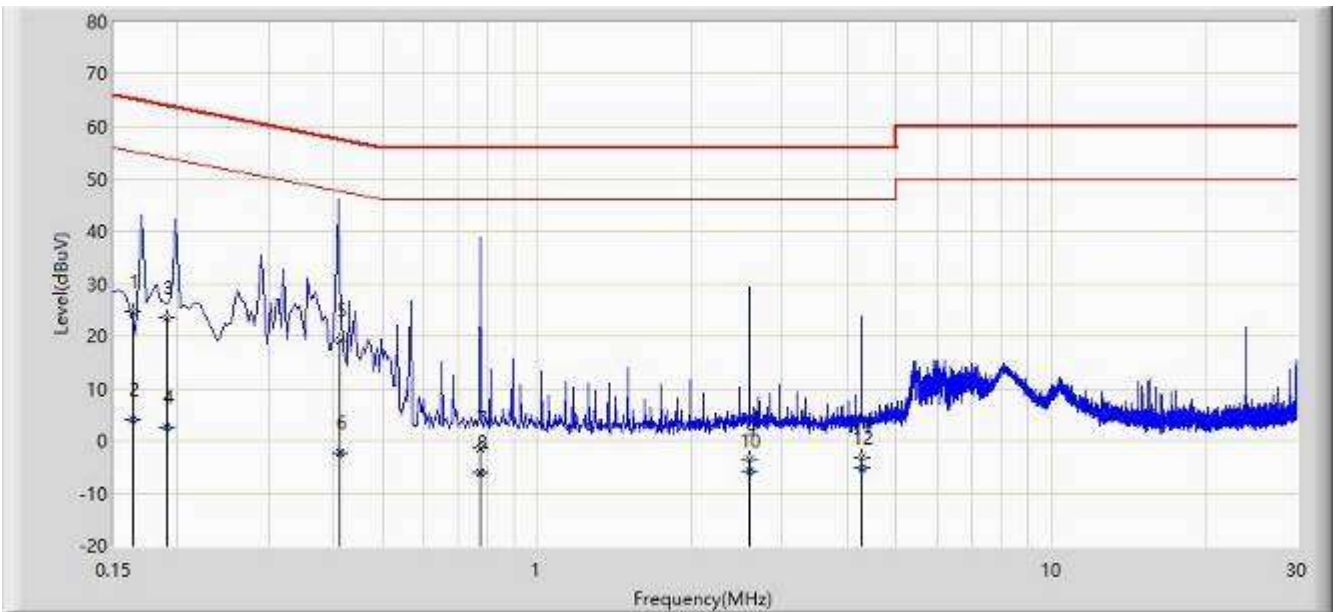


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.181	25.141	15.097	-39.299	64.440	10.044	QP
2			0.181	4.069	-5.975	-50.371	54.440	10.044	AV
3			0.262	22.917	12.924	-38.451	61.368	9.993	QP
4			0.262	1.736	-8.257	-49.631	51.368	9.993	AV
5			0.409	19.615	9.487	-38.053	57.669	10.129	QP
6			0.409	-0.953	-11.082	-48.622	47.669	10.129	AV
7			0.621	-0.261	-10.412	-56.261	56.000	10.151	QP
8			0.621	-6.126	-16.277	-52.126	46.000	10.151	AV
9		*	0.748	-2.926	-13.013	-58.926	56.000	10.087	QP
10			0.748	-6.104	-16.191	-52.104	46.000	10.087	AV
11			20.760	-3.172	-13.318	-63.172	60.000	10.146	QP
12			20.760	-5.277	-15.423	-55.277	50.000	10.146	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

Site: SR2	Time: 2020/03/24 - 19:39
Limit: FCC_Part15.207_CE_AC Power	Engineer: Andy Zhu
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2402MHz	

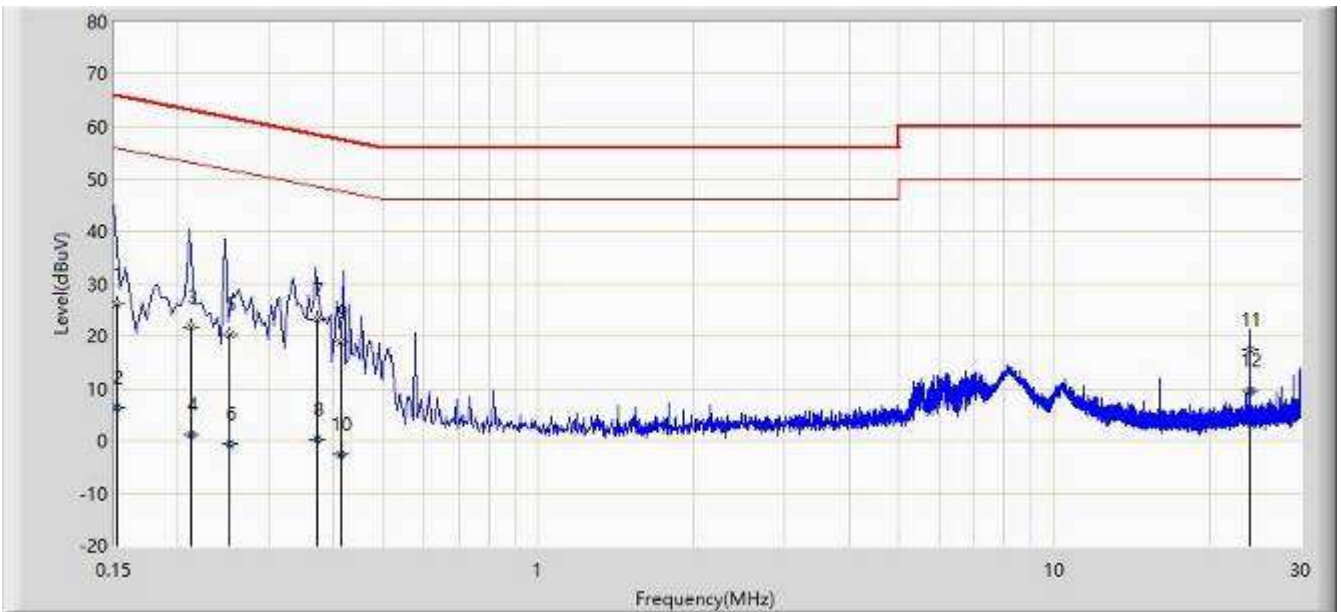


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.163	24.592	14.523	-40.717	65.310	10.070	QP
2			0.163	4.074	-5.995	-51.236	55.310	10.070	AV
3			0.191	23.398	13.391	-40.595	63.993	10.007	QP
4			0.191	2.671	-7.336	-51.322	53.993	10.007	AV
5			0.412	19.082	8.976	-38.526	57.608	10.106	QP
6			0.412	-2.312	-12.418	-49.920	47.608	10.106	AV
7		*	0.774	-1.330	-11.382	-57.330	56.000	10.052	QP
8			0.774	-6.198	-16.250	-52.198	46.000	10.052	AV
9			2.590	-3.547	-13.464	-59.547	56.000	9.917	QP
10			2.590	-5.819	-15.736	-51.819	46.000	9.917	AV
11			4.290	-3.191	-13.061	-59.191	56.000	9.871	QP
12			4.290	-5.321	-15.191	-51.321	46.000	9.871	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

Site: SR2	Time: 2020/03/24 - 19:45
Limit: FCC_Part15.207_CE_AC Power	Engineer: Andy Zhu
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Bluetooth 5 BLE module (Dragon-C)	Power: DC 3.3V
Test Mode: Transmit by DH5 at Channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.152	26.001	15.120	-39.862	65.864	10.881	QP
2			0.152	6.436	-4.445	-49.427	55.864	10.881	AV
3			0.211	21.667	11.698	-41.499	63.166	9.969	QP
4			0.211	1.079	-8.890	-52.086	53.166	9.969	AV
5			0.251	20.322	10.341	-41.402	61.724	9.982	QP
6			0.251	-0.596	-10.578	-52.320	51.724	9.982	AV
7			0.371	23.166	13.068	-35.312	58.479	10.098	QP
8			0.371	0.276	-9.822	-48.202	48.479	10.098	AV
9		*	0.412	18.711	8.580	-38.897	57.608	10.131	QP
10			0.412	-2.511	-12.642	-50.119	47.608	10.131	AV
11			24.002	17.270	7.068	-42.730	60.000	10.202	QP
12			24.002	9.632	-0.570	-40.368	50.000	10.202	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

8. CONCLUSION

The data collected relate only the item(s) tested and show that the device is in compliance with Part 15C of the FCC rules and ISED rules.

The End

Appendix A - Test Setup Photograph

Refer to "2002RSU008-UT" file.

Appendix B - EUT Photograph

Refer to "2002RSU008-UE" file.