

RF MEASUREMENT REPORT

FCC ID: U4GDL36LT
Applicant: Datalogic S.r.l.
Product: Barcode Reader
Model No.: DL36LT
Brand Name: DATALOGIC
FCC Classification: Digital Transmission System (DTS)
FCC Rule Part(s): Part 15 Subpart C (Section 15.247)
Result: Complies
Test Date: 2022-09-13 ~ 2023-02-28

Reviewed By:

Jame Yuan

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
2209RSU001-U2	Rev. 01	Initial Report	2023-02-02	Invalid
2209RSU001-U2	Rev. 02	Add spot check test data	2023-03-01	Valid

Note: This report was based on original MRT report no. 2209RSU002-U2 (Model: DL36WF). DL36WF have same hardware design with DL36LT except removing the WWAN chipset, any others are the same, so all RF test data of Bluetooth was reused.

Test Description	Remark
6dB Bandwidth	Reuse
Output Power	Spot Check, BLE 1Mbps 2440MHz, BLE 2Mbps 2402 & 2440MHz,
Power Spectral Density	Reuse
Radiated Spurious Emission	Spot Check, BLE 1Mbps 2440MHz
Radiated Band Edge	Spot Check, BLE 2Mbps 2402 MHz
AC Conducted Emissions 150kHz - 30MHz	Reuse

CONTENTS

Description	Page
1. General Information	5
1.1. Applicant	5
1.2. Manufacturer	5
1.3. Testing Facility	5
1.4. Product Information.....	6
1.5. Radio Specification under Test	7
1.6. Working Frequencies	7
2. Test Configuration	8
2.1. Test System Connection Diagram.....	8
2.2. Test Software	8
2.3. Applied Standards.....	8
2.4. Test Environment Condition	9
3. Antenna Requirements	10
4. Measuring Instrument	11
5. Decision Rules and Measurement Uncertainty	12
5.1. Decision Rules	12
5.2. Measurement Uncertainty	12
6. Test Result.....	13
6.1. Summary.....	13
6.2. 6dB Bandwidth Measurement.....	14
6.2.1. Test Limit	14
6.2.2. Test Procedure.....	14
6.2.3. Test Setting	14
6.2.4. Test Setup	14
6.2.5. Test Result	14
6.3. Output Power Measurement	15
6.3.1. Test Limit	15
6.3.2. Test Procedure.....	15
6.3.3. Test Setting	15
6.3.4. Test Setup	15
6.3.5. Test Result	15
6.4. Power Spectral Density Measurement	16
6.4.1. Test Limit	16
6.4.2. Test Procedure.....	16
6.4.3. Test Setting	16

6.4.4.	Test Setup	16
6.4.5.	Test Result	16
6.5.	Conducted Band Edge and Out-of-Band Emissions Measurement	17
6.5.1.	Test Limit	17
6.5.2.	Test Procedure	17
6.5.3.	Test Settintg	17
6.5.4.	Test Setup	17
6.5.5.	Test Result	18
6.6.	Radiated Spurious Emission Measurement.....	19
6.6.1.	Test Limit	19
6.6.2.	Test Procedure	19
6.6.3.	Test Setting	19
6.6.4.	Test Setup	21
6.6.5.	Test Result	22
6.7.	Radiated Restricted Band Edge Measurement	23
6.7.1.	Test Limit	23
6.7.2.	Test Procedure	24
6.7.3.	Test Setting	24
6.7.4.	Test Setup	25
6.7.5.	Test Result	25
6.8.	AC Conducted Emissions Measurement	26
6.8.1.	Test Limit	26
6.8.2.	Test Setup	26
6.8.3.	Test Result	26
Appendix A - Test Result.....		27
A.1	Duty Cycle Test Result	27
A.2	6dB Bandwidth Test Result	28
A.3	Output Power Test Result	30
A.4	Power Spectral Density Test Result.....	32
A.5	Conducted Band Edge and Out-of-Band Emissions Test Result.....	34
A.6	Radiated Spurious Emission Test Result.....	38
A.7	Radiated Restricted Band Edge Test Result.....	43
A.8	AC Conducted Emissions Test Result	63
Appendix B - Test Setup Photograph		65
Appendix C - EUT Photograph		66

1.4. Product Information

Product Name	Barcode Reader
Model No.	DL36LT
S/N	S22HC0200 (Conducted), S22HC0118 (Radiated) S22HC0094 (Radiated), S22GC0325 (Conducted)
NFC Specification	13.56MHz
Wi-Fi Specification	802.11a/b/g/n/ac
Bluetooth Specification	v5.2 dual mode
WPT Specification	119-140kHz, WPT client type
GNSS Specification	GPS/GNSS/Beidou/Galileo/SBAS
3GPP Specification	GSM 850/1900 WCDMA Band 2/4/5 LTE Band 2/4/5/7/12/13/17/25/26
Operating Temp.	-20 ~ 50°C
Power Type	3.60 ~ 4.35Vdc, typical 3.8Vdc
Accessories	
AC Adapter	Model: S008ACM0500200 Input: 100-240V ~ 50/60Hz, 0.3A Output: 5V, 2A, 10W
Rechargeable Li-ion Battery 1#	Model No.: BTDL36 Rated Voltage: 3.8V Rated Capacity: 3980mAh/15.1Wh Limited Charge Voltage: 4.35V
Rechargeable Li-ion Battery 2#	Model No.: BTDL35 Rated Voltage: 3.8V Rated Capacity: 3980mAh/15.1Wh Limited Charge Voltage: 4.35V
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Radio Specification under Test

Bluetooth Frequency	2402 ~ 2480MHz
Channel Number	40
Type of modulation	GFSK
Data Rate	1Mbps & 2Mbps
Antenna Type	PIFA
Antenna Gain	0.46 dBi

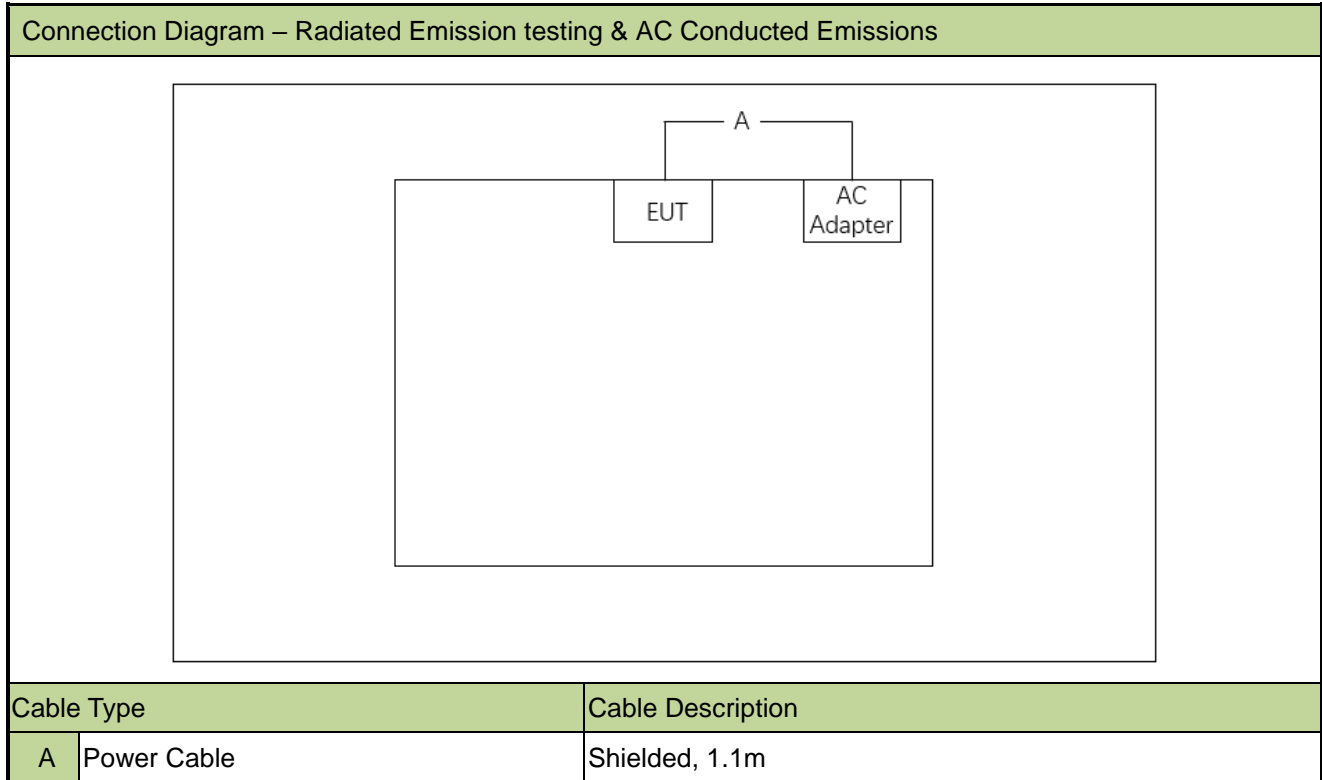
1.6. Working Frequencies

Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz
03	2408 MHz	04	2410 MHz	05	2412 MHz
06	2414 MHz	07	2416 MHz	08	2418 MHz
09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz
15	2432 MHz	16	2434 MHz	17	2436 MHz
18	2438 MHz	19	2440 MHz	20	2442 MHz
21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz
27	2456 MHz	28	2458 MHz	29	2460 MHz
30	2462 MHz	31	2464 MHz	32	2466 MHz
33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz
39	2480 MHz	--	--	--	--

2. Test Configuration

2.1. Test System Connection Diagram

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



2.2. Test Software

Type the code `***05740574***` to enter engineer mode to implement continuous transmit.

2.3. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15.247
- KDB 558074 D01v05r02
- ANSI C63.10-2013

2.4. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~75%RH

3. 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 antenna of the device is **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The unit complies with the requirement of §15.203.

4. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2022-12-29	WZ-AC1
				1 year	2023-12-28	WZ-AC1
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2023-08-22	WZ-AC1
Preamplifier	Agilent	83017A	MRTSUE06076	1 year	2023-05-08	WZ-AC1
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2023-06-21	WZ-AC1
Anechoic Chamber	TDK	WZ-AC1	MRTSUE06212	1 year	2023-04-21	WZ-AC1
Thermohygrometer	testo	608-H1	MRTSUE06403	1 year	2023-06-06	WZ-AC1
Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2022-12-29	WZ-AC1
				1 year	2023/12/28	WZ-AC1
Thermohygrometer	testo	608-H1	MRTSUE11039	1 year	2022-11-11	WZ-AC1
				1 year	2023-11-01	WZ-AC1
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2022-10-28	WZ-AC1
				1 year	2023-09-29	WZ-AC1
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2022-12-01	WZ-AC1
				1 year	2023-11-05	WZ-AC1
Preamplifier	EMCI	EMC184045SE	MRTSUE06640	1 year	2023-01-13	WZ-AC1
				1 year	2024-01-12	WZ-AC1
Preamplifier	EMCI	EMC051845SE	MRTSUE06987	1 year	2023-09-08	WZ-AC1
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2023-06-04	WZ-SR2
Shielding Room	MIX-BEP	WZ-SR2	MRTSUE06215	5 years	2026-12-20	WZ-SR2
Thermohygrometer	testo	608-H1	MRTSUE06404	1 year	2023-06-06	WZ-SR2
EMI Test Receiver	R&S	ESR3	MRTSUE06909	1 year	2022-11-01	WZ-SR2
				1 year	2023-10-27	WZ-SR2
Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2023-04-06	WZ-SR5
Thermohygrometer	testo	608-H1	MRTSUE06402	1 year	2023-06-06	WZ-SR5
Shielding Room	HUAMING	WZ-SR5	MRTSUE06442	N/A	N/A	WZ-SR5
Attenuator	MVE	MVE2213	MRTSUE11082	1 year	2023-06-09	WZ-SR5
USB Power Sensor	Keysight	U2021XA	MRTSUE06446	1 year	2023-06-04	WZ-SR5

Software	Version	Function
EMI Software	V3.0.0	EMI Test Software
Controller_MF 7802	2.03C	RE Antenna & Turntable
BenchVue Power Meter	2018.1	Power

5. Decision Rules and Measurement Uncertainty

5.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.2. 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
Measurement Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 9kHz~150kHz: 3.74dB 150kHz~30MHz: 3.44dB
Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 1.13dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 1.15dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.28%

6. Test Result

6.1. Summary

FCC Section(s)	Test Description	Test Condition	Verdict
15.247(a)(2)	6dB Bandwidth	Conducted	Pass
15.247(b)(3)	Output Power		Pass
15.247(e)	Power Spectral Density		Pass
15.247(d)	Band Edge / Out-of-Band Emissions		Pass
15.205 15.209	General Field Strength (Restricted Bands and Radiated Emission)	Radiated	Pass
15.207	AC Conducted Emissions 150kHz - 30MHz	Line Conducted	Pass

Remark:

- 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.
- 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.

6.2. 6dB Bandwidth Measurement

6.2.1. Test Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

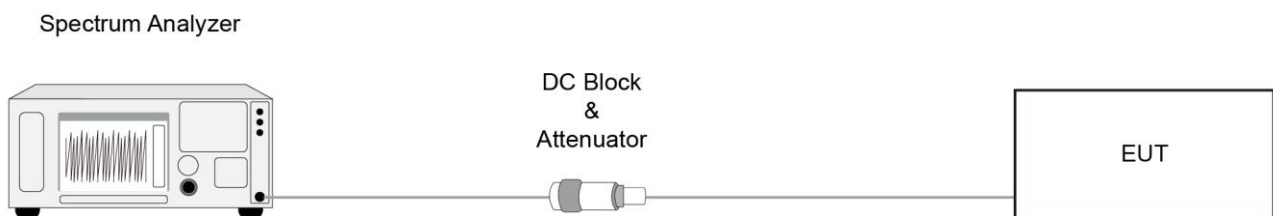
6.2.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.8

6.2.3. Test Setting

1. The Spectrum's automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to $X = 6$. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. Set RBW = 100 kHz
3. VBW $\geq 3 \times$ RBW
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace to stabilize

6.2.4. Test Setup



6.2.5. Test Result

Refer to Appendix A.2.

6.3. Output Power Measurement

6.3.1. Test Limit

The maximum output power shall be less 1 Watt (30dBm).

The conducted output power limit specified in paragraph FCC Part 15.247(b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs FCC Part 15.247(b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

6.3.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.9.1.3

ANSI C63.10 - 2013 - Section 11.9.2.3.2

6.3.3. Test Setting

Method PKPM1 (Peak Power Measurement of Signals with DTS BW ≤ 50MHz)

Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The pulse sensor employs a VBW = 50MHz so this method was only used for signals whose DTS bandwidth was less than or equal to 50MHz.

Average Power Measurement

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

6.3.4. Test Setup



6.3.5. Test Result

Refer to Appendix A.3.

6.4. Power Spectral Density Measurement

6.4.1. Test Limit

The maximum permissible power spectral density is 8dBm in any 3 kHz band.

The same method of determining the conducted output power shall be used to determine the power spectral density.

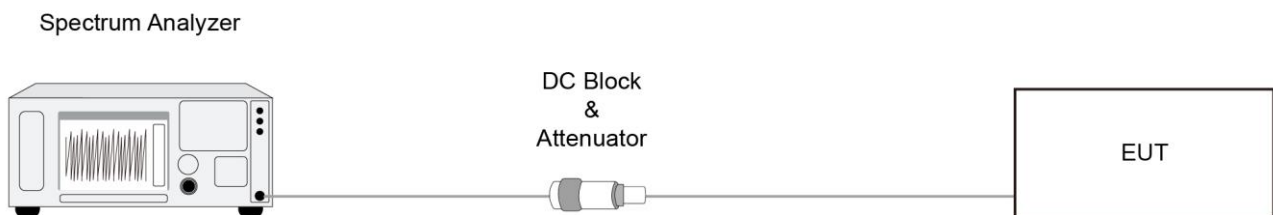
6.4.2. Test Procedure

ANSI C63.10-2013 Section 11.10.2

6.4.3. Test Setting

1. Analyzer was set to the center frequency of the DTS channel under investigation
2. Span = 1.5 times the DTS channel bandwidth
3. RBW = 3kHz
4. VBW = 10kHz
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Trace was allowed to stabilize

6.4.4. Test Setup



6.4.5. Test Result

Refer to Appendix A.4.

6.5. Conducted Band Edge and Out-of-Band Emissions Measurement

6.5.1. Test Limit

The limit for out-of-band spurious emissions at the band edge is 30dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100 kHz bandwidth per the PSD procedure.

6.5.2. Test Procedure

ANSI C63.10-2013 - Section 11.11

6.5.3. Test Setting

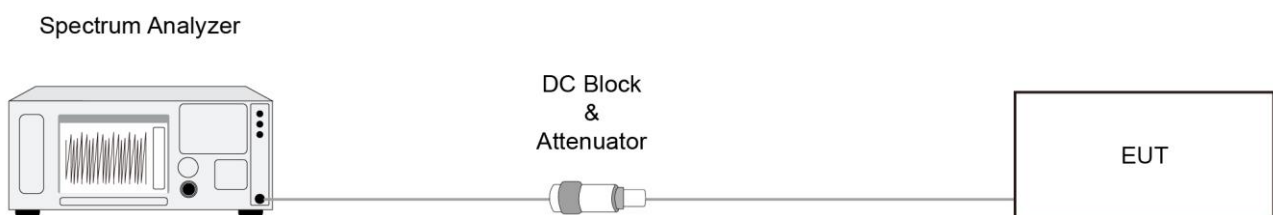
Reference level measurement

1. Set instrument center frequency to DTS channel center frequency
2. Set the span to ≥ 1.5 times the DTS bandwidth
3. Set the RBW = 100 kHz
4. Set the VBW $\geq 3 \times$ RBW
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Allow trace to fully stabilize

Emission level measurement

1. Set the center frequency and span to encompass frequency range to be measured
2. RBW = 100kHz
3. VBW = 300kHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

6.5.4. Test Setup



6.5.5. Test Result

Refer to Appendix A.5.

6.6. Radiated Spurious Emission Measurement

6.6.1. Test Limit

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 [uV/m]	Measured Distance [Meters]
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

6.6.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.11 & 11.12

ANSI C63.10 - 2013 - Section 6.3 (General Requirements)

ANSI C63.10 - 2013 - Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 - 2013 - Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 - 2013 - Section 6.6 (Standard test method above 1GHz)

6.6.3. 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
> 1000MHz	1MHz

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

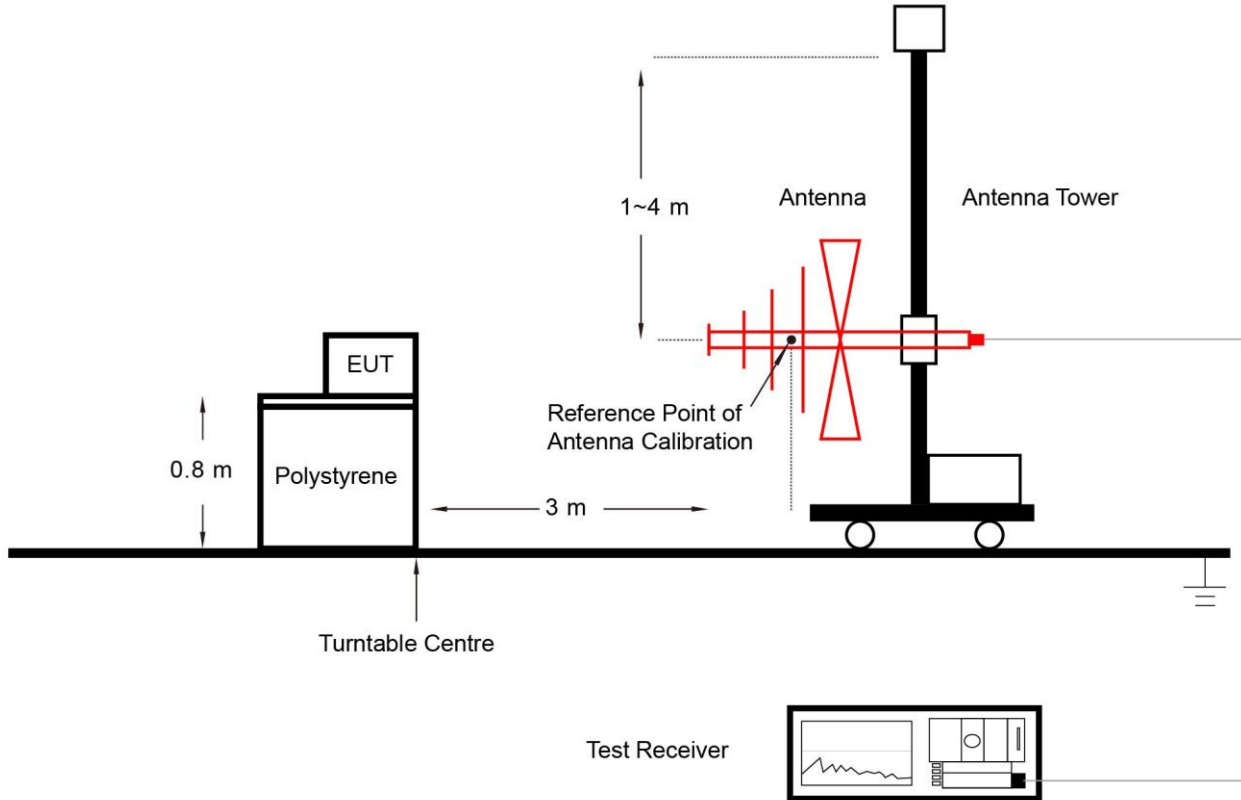
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

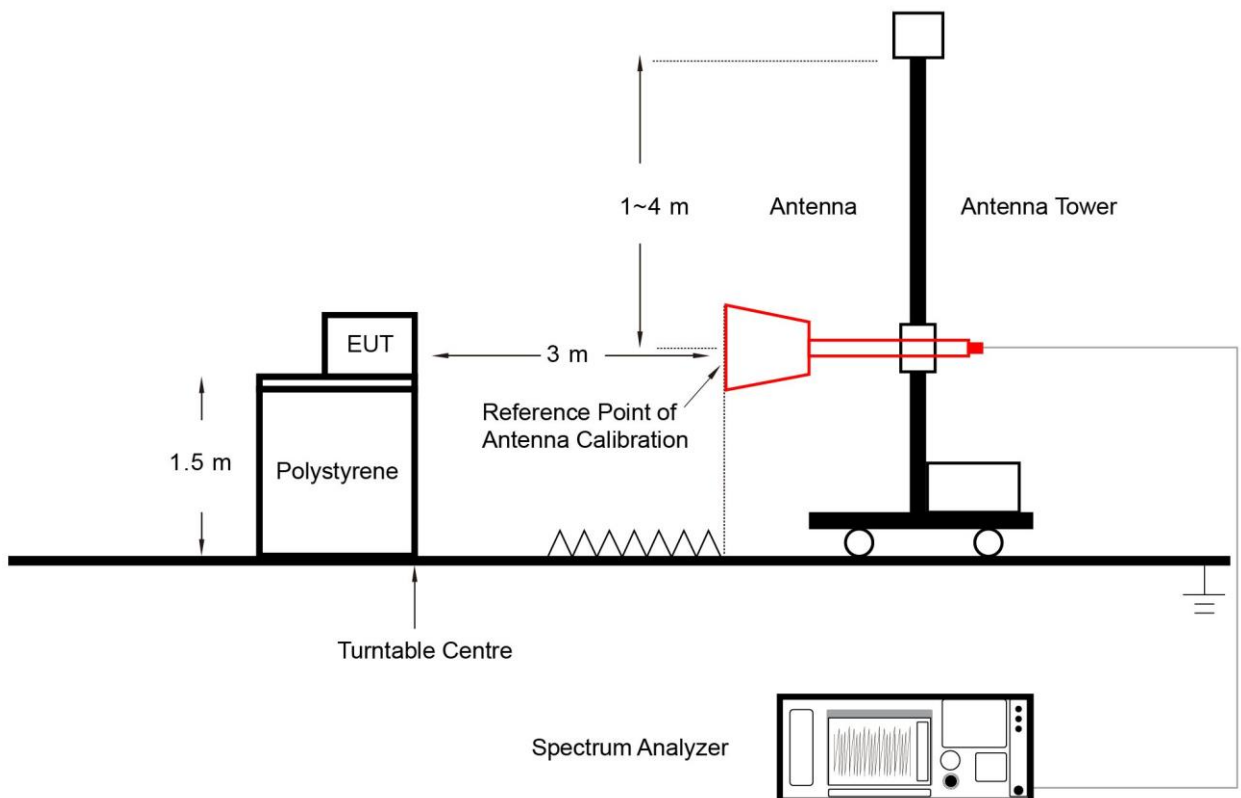
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10 Hz.
If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration.
4.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

6.6.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.6.5. Test Result

Refer to Appendix A.6.

6.7. Radiated Restricted Band Edge Measurement

6.7.1. 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 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
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

6.7.2. Test Procedure

ANSI C63.10-2013 Section 6.3 & 6.6 & 11.13

6.7.3. Test Setting

Peak Field Strength Measurements

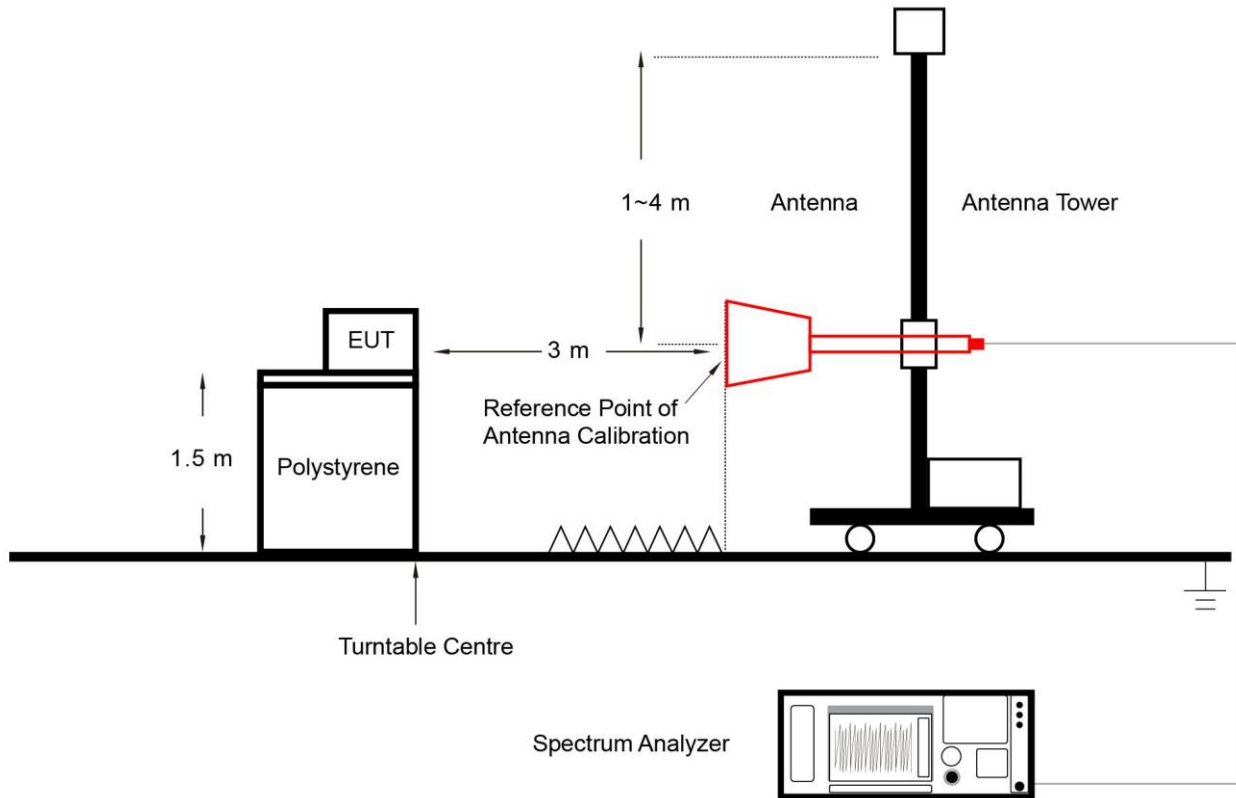
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW $\geq 1/T$
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak

6. Sweep time = auto
7. Trace mode = max hold
8. Allow max hold to run for at least 50 times (1/duty cycle) traces

6.7.4. Test Setup



6.7.5. Test Result

Refer to Appendix A.7.

6.8. AC Conducted Emissions Measurement

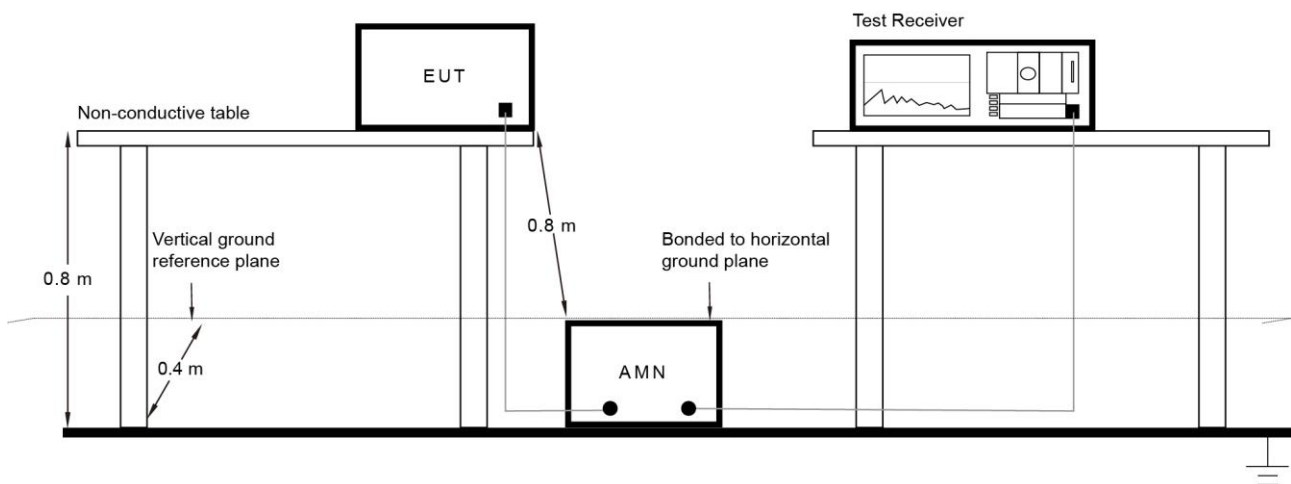
6.8.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
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.

6.8.2. Test Setup



6.8.3. Test Result

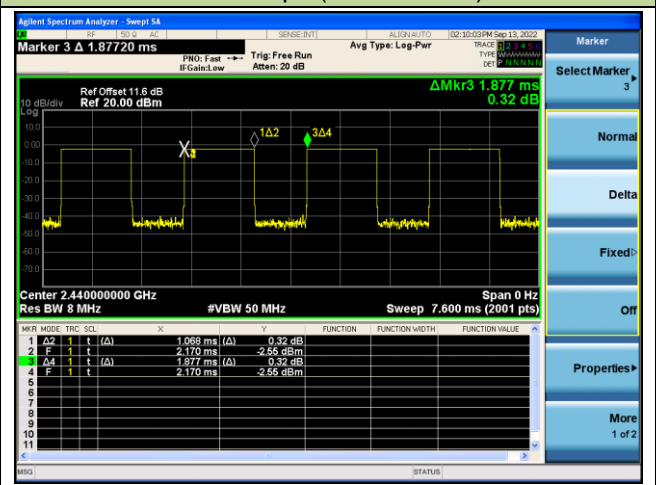
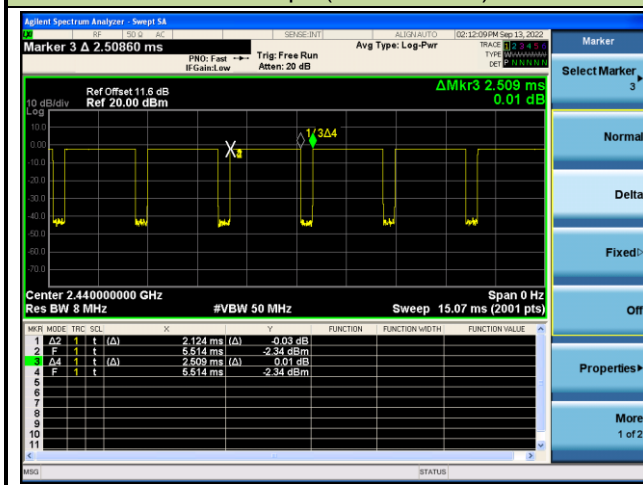
Refer to Appendix A.8.

Appendix A - Test Result

A.1 Duty Cycle Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2022-09-13		

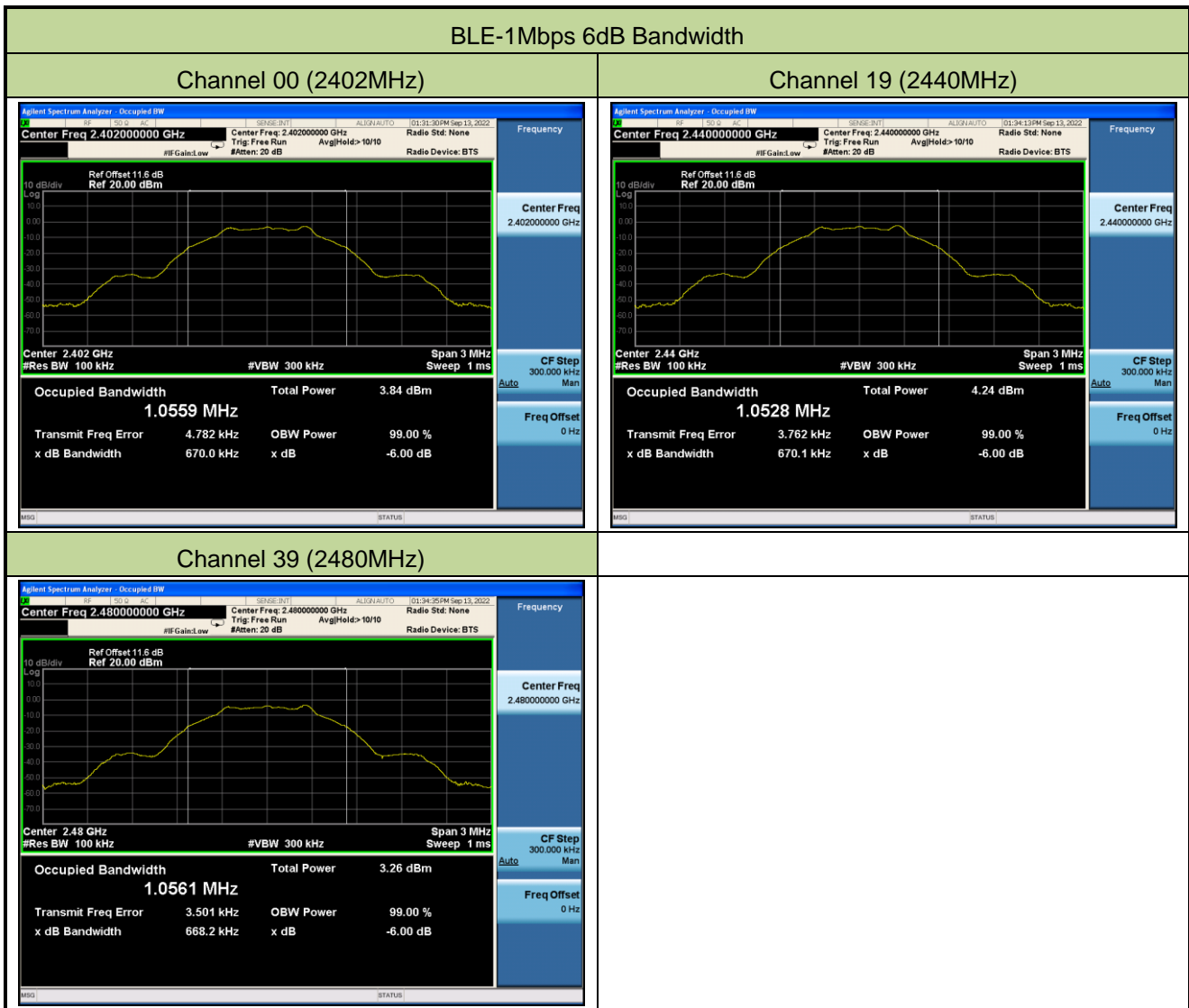
Test Mode	Duty Cycle
BLE-1Mbps	84.66%
BLE-2Mbps	56.90%
Duty Cycle (T = Transmission Duration)	
BLE-1Mbps (T = 2.124ms)	BLE-2Mbps (T = 1.068ms)



A.2 6dB Bandwidth Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2022-09-13		

Test Mode	Data Rate	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
BLE	1Mbps	00	2402	0.670	≥ 0.5
BLE	1Mbps	19	2440	0.670	≥ 0.5
BLE	1Mbps	39	2480	0.668	≥ 0.5
BLE	2Mbps	00	2402	1.173	≥ 0.5
BLE	2Mbps	19	2440	1.175	≥ 0.5
BLE	2Mbps	39	2480	1.196	≥ 0.5





A.3 Output Power Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2023-02-28		

Spot Check Test Data

Test Result of Peak Output Power

Test Mode	Data Rate	Channel No.	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Result
BLE	1Mbps	19	2440	-3.01	≤ 30.00	Pass
BLE	2Mbps	00	2402	-3.20	≤ 30.00	Pass
BLE	2Mbps	19	2440	-2.96	≤ 30.00	Pass

Test Result of Average Output Power (Reporting Only)

Test Mode	Data Rate	Channel No.	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Result
BLE	1Mbps	19	2440	-3.26	≤ 30.00	Pass
BLE	2Mbps	00	2402	-3.31	≤ 30.00	Pass
BLE	2Mbps	19	2440	-3.22	≤ 30.00	Pass

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2022-09-13		

Test Result of Peak Output Power

Test Mode	Data Rate	Channel No.	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Result
BLE	1Mbps	00	2402	0.58	≤ 30.00	Pass
BLE	1Mbps	19	2440	0.86	≤ 30.00	Pass
BLE	1Mbps	39	2480	0.33	≤ 30.00	Pass
BLE	2Mbps	00	2402	0.81	≤ 30.00	Pass
BLE	2Mbps	19	2440	0.92	≤ 30.00	Pass
BLE	2Mbps	39	2480	0.43	≤ 30.00	Pass

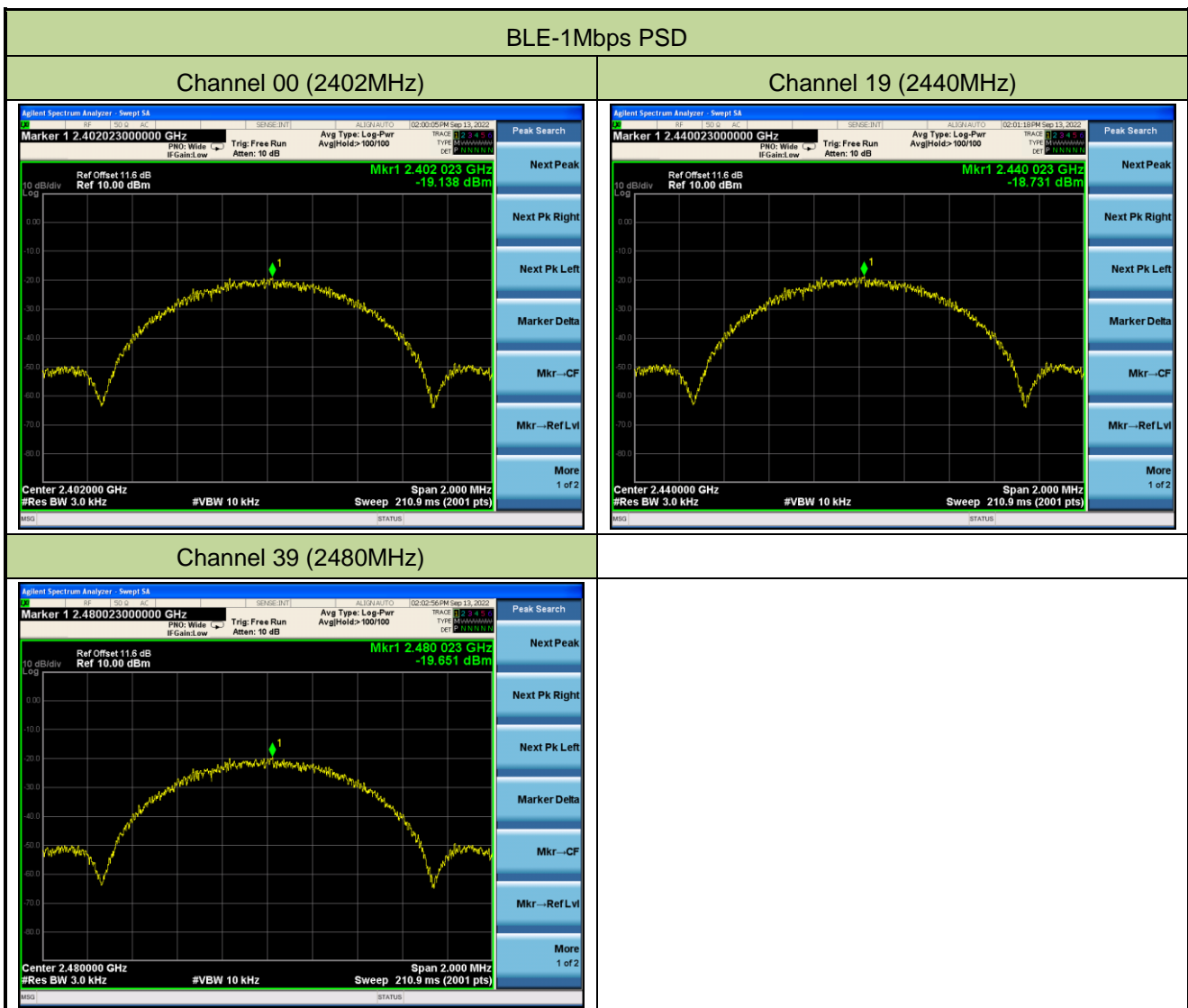
Test Result of Average Output Power (Reporting Only)

Test Mode	Data Rate	Channel No.	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Result
BLE	1Mbps	00	2402	-2.93	≤ 30.00	Pass
BLE	1Mbps	19	2440	-2.54	≤ 30.00	Pass
BLE	1Mbps	39	2480	-3.59	≤ 30.00	Pass
BLE	2Mbps	00	2402	-2.88	≤ 30.00	Pass
BLE	2Mbps	19	2440	-2.43	≤ 30.00	Pass
BLE	2Mbps	39	2480	-3.57	≤ 30.00	Pass

A.4 Power Spectral Density Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2022-09-13		

Test Mode	Data Rate	Channel No.	Frequency (MHz)	PSD Result (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
BLE	1Mbps	00	2402	-19.138	≤ 8.00	Pass
BLE	1Mbps	19	2440	-18.731	≤ 8.00	Pass
BLE	1Mbps	39	2480	-19.651	≤ 8.00	Pass
BLE	2Mbps	00	2402	-21.680	≤ 8.00	Pass
BLE	2Mbps	19	2440	-21.225	≤ 8.00	Pass
BLE	2Mbps	39	2480	-22.187	≤ 8.00	Pass



BLE-2Mbps PSD

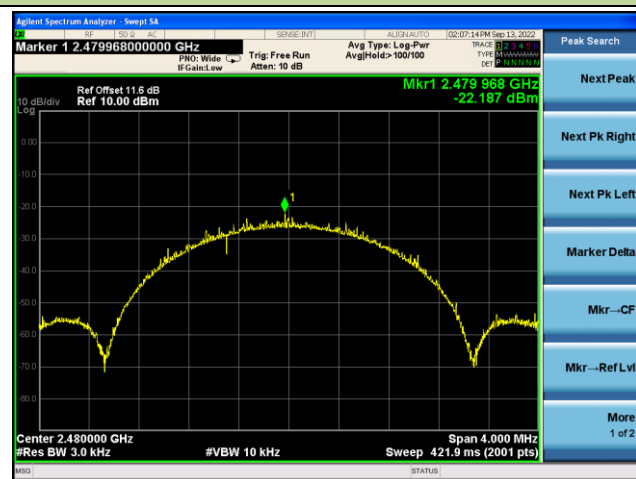
Channel 00 (2402MHz)



Channel 19 (2440MHz)



Channel 39 (2480MHz)



A.5 Conducted Band Edge and Out-of-Band Emissions Test Result

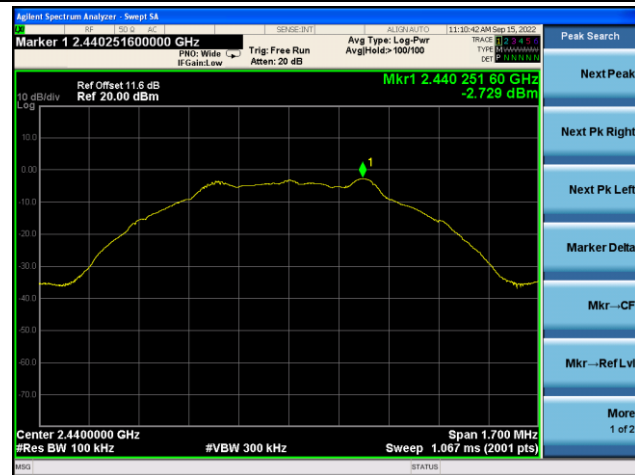
Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2022-09-15		

Test Mode	Data Rate / Mbps	Channel No.	Frequency (MHz)	Limit (dBc)	Result
BLE	1	00	2402	20	Pass
BLE	1	19	2440	20	Pass
BLE	1	39	2480	20	Pass
BLE	2	00	2402	20	Pass
BLE	2	19	2440	20	Pass
BLE	2	39	2480	20	Pass

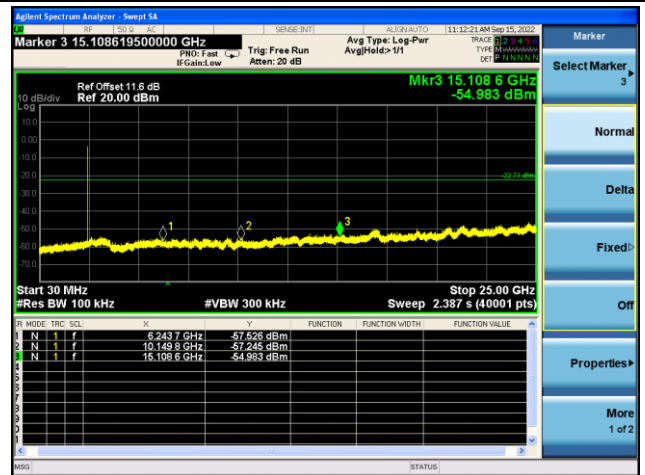


Channel 19 (2440MHz)

100kHz PSD Reference Level

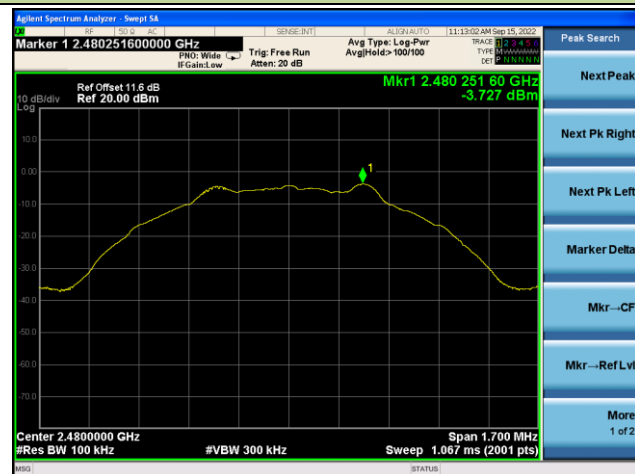


Spurious Emission 30MHz ~ 25GHz

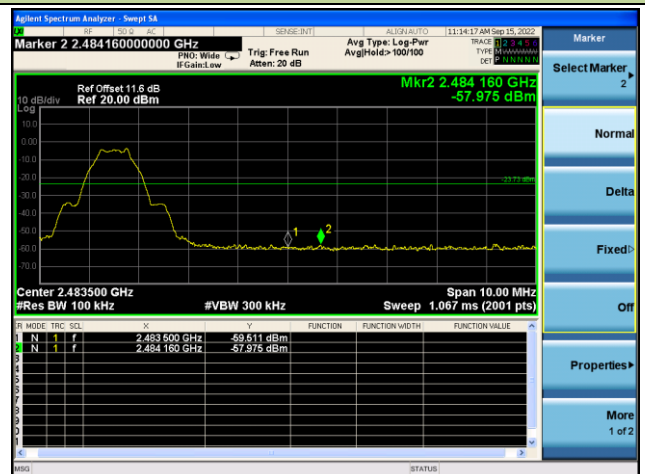


Channel 39 (2480MHz)

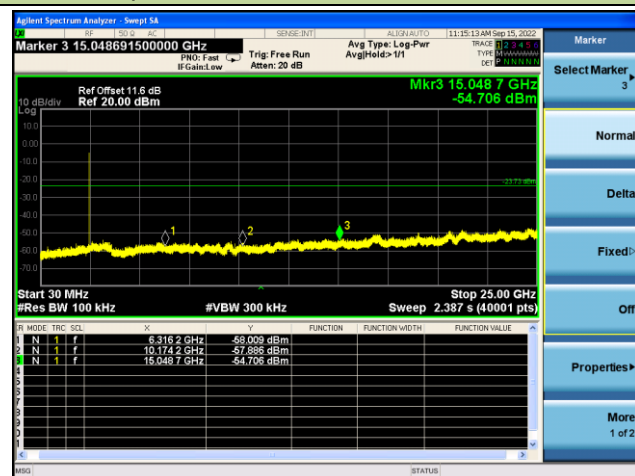
100kHz PSD Reference Level



High Band Edge



Spurious Emission 30MHz ~ 25GHz



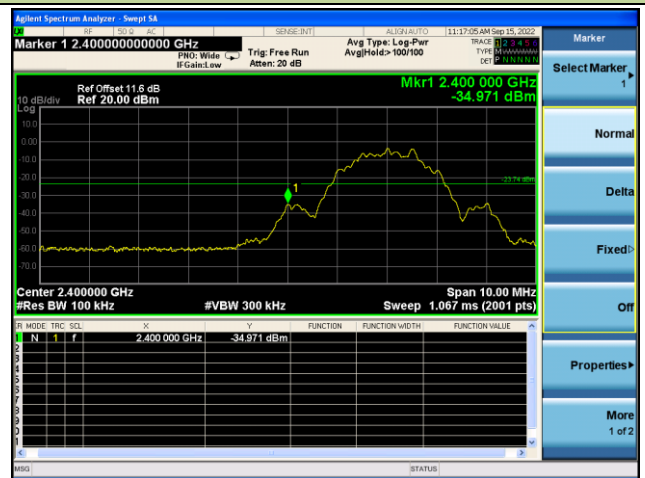
BLE-2Mbps Out-of-Band Emissions

Channel 00 (2402MHz)

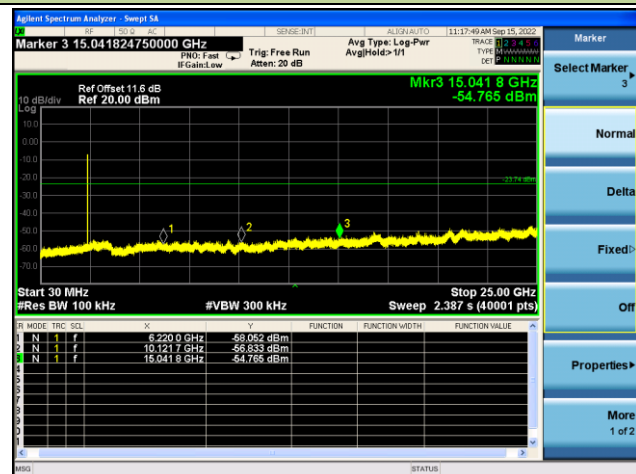
100kHz PSD Reference Level



Low Band Edge



Spurious Emission 30MHz ~ 25GHz

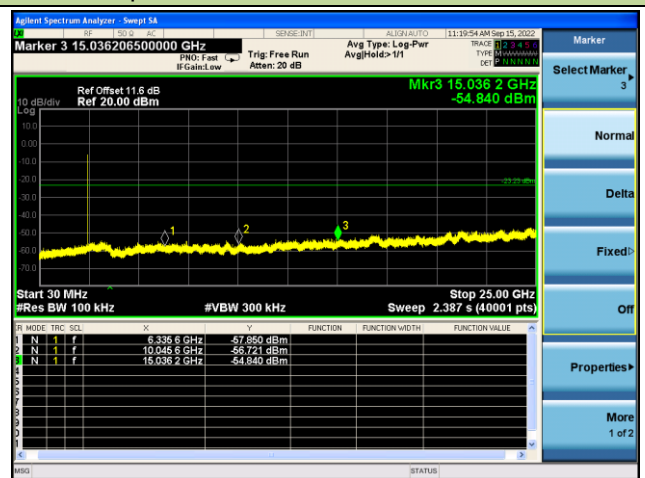


Channel 19 (2440MHz)

100kHz PSD Reference Level



Spurious Emission 30MHz ~ 25GHz





A.6 Radiated Spurious Emission Test Result

Spot Check Test Data

Test Site	WZ-AC1	Test Engineer	Carl Jiang
Test Date	2023-02-28	Test Mode:	BLE-1Mbps
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
19	9109.0	34.5	10.6	45.1	74.0	-28.9	Peak	Horizontal
	11013.0	33.5	13.4	46.9	74.0	-27.1	Peak	Horizontal
	11608.0	35.8	12.7	48.6	74.0	-25.4	Peak	Horizontal
	7511.0	35.6	8.2	43.7	74.0	-30.3	Peak	Vertical
	11013.0	34.7	13.4	48.1	74.0	-25.9	Peak	Vertical
	11608.0	34.2	12.7	47.0	74.0	-27.0	Peak	Vertical

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

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

Test Site	WZ-AC1	Test Engineer	Carl Jiang
Test Date	2022-09-13	Test Mode:	BLE-1Mbps
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
00	8191.0	37.4	8.5	45.9	74.0	-28.1	Peak	Horizontal
	11506.0	36.0	13.2	49.2	74.0	-24.8	Peak	Horizontal
	12322.0	36.1	12.1	48.2	74.0	-25.8	Peak	Horizontal
	8412.0	35.7	8.6	44.3	74.0	-29.7	Peak	Vertical
	11438.0	36.3	13.0	49.3	74.0	-24.7	Peak	Vertical
	12288.0	37.3	11.9	49.2	74.0	-24.8	Peak	Vertical
19	9109.0	36.4	10.6	47.0	74.0	-27.0	Peak	Horizontal
	11013.0	36.3	13.4	49.7	74.0	-24.3	Peak	Horizontal
	11608.0	36.9	12.7	49.6	74.0	-24.4	Peak	Horizontal
	7511.0	37.0	8.2	45.2	74.0	-28.8	Peak	Vertical
	11013.0	36.3	13.4	49.7	74.0	-24.3	Peak	Vertical
	11608.0	36.9	12.7	49.6	74.0	-24.4	Peak	Vertical
39	9092.0	35.7	10.5	46.2	74.0	-27.8	Peak	Horizontal
	10979.0	36.0	13.4	49.4	74.0	-24.6	Peak	Horizontal
	12118.0	37.0	12.2	49.2	74.0	-24.8	Peak	Horizontal
	9143.0	34.4	11.1	45.5	74.0	-28.5	Peak	Vertical
	10894.0	35.2	13.4	48.6	74.0	-25.4	Peak	Vertical
	12305.0	36.8	12.1	48.9	74.0	-25.1	Peak	Vertical

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

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

Test Site	WZ-AC1	Test Engineer	Carl Jiang
Test Date	2022-09-13	Test Mode:	BLE-2Mbps
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

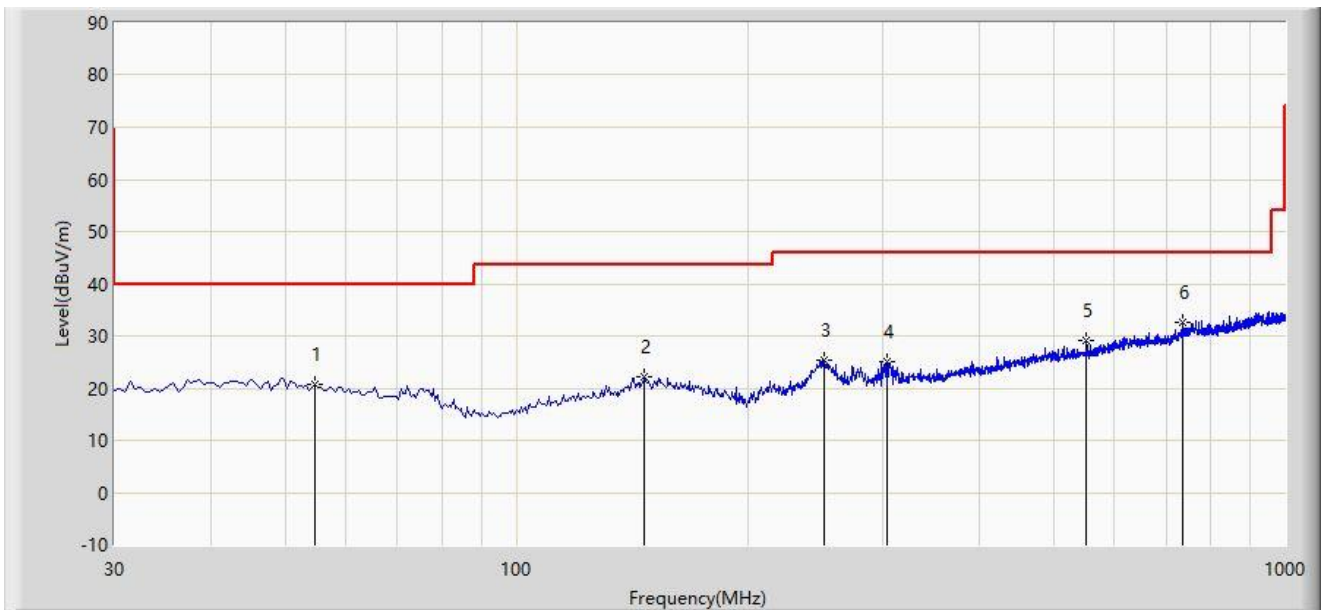
Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
00	8361.0	36.2	8.5	44.7	74.0	-29.3	Peak	Horizontal
	10928.0	35.0	13.5	48.5	74.0	-25.5	Peak	Horizontal
	12186.0	36.8	12.0	48.8	74.0	-25.2	Peak	Horizontal
	7477.0	37.9	8.3	46.2	74.0	-27.8	Peak	Vertical
	10928.0	35.2	13.5	48.7	74.0	-25.3	Peak	Vertical
	12152.0	36.5	12.1	48.6	74.0	-25.4	Peak	Vertical
19	9126.0	36.0	11.2	47.2	74.0	-26.8	Peak	Horizontal
	10928.0	35.1	13.5	48.6	74.0	-25.4	Peak	Horizontal
	12441.0	36.4	12.0	48.4	74.0	-25.6	Peak	Horizontal
	9177.0	35.3	11.2	46.5	74.0	-27.5	Peak	Vertical
	10792.0	35.0	13.6	48.6	74.0	-25.4	Peak	Vertical
	12543.0	36.2	11.8	48.0	74.0	-26.0	Peak	Vertical
39	9126.0	35.3	11.2	46.5	74.0	-27.5	Peak	Horizontal
	10979.0	35.7	13.4	49.1	74.0	-24.9	Peak	Horizontal
	12220.0	36.3	12.2	48.5	74.0	-25.5	Peak	Horizontal
	9092.0	34.2	10.5	44.7	74.0	-29.3	Peak	Vertical
	10860.0	35.2	13.4	48.6	74.0	-25.4	Peak	Vertical
	12118.0	35.9	12.2	48.1	74.0	-25.9	Peak	Vertical

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

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

The Result of Radiated Emission below 1GHz:

Site: WZ-AC1	Test Date: 2022-10-08
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: VULB 9168_25-2000MHz	Polarity: Horizontal
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at 2440MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		54.735	20.745	2.833	-19.255	40.000	17.911	PK
2		146.885	22.085	4.214	-21.415	43.500	17.871	PK
3		251.160	25.274	8.563	-20.726	46.000	16.711	PK
4		304.025	24.938	6.444	-21.062	46.000	18.493	PK
5		551.375	29.109	5.107	-16.891	46.000	24.002	PK
6	*	736.160	32.579	5.119	-13.421	46.000	27.460	PK

Note 1: " * ", means this data is the worst emission level.

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

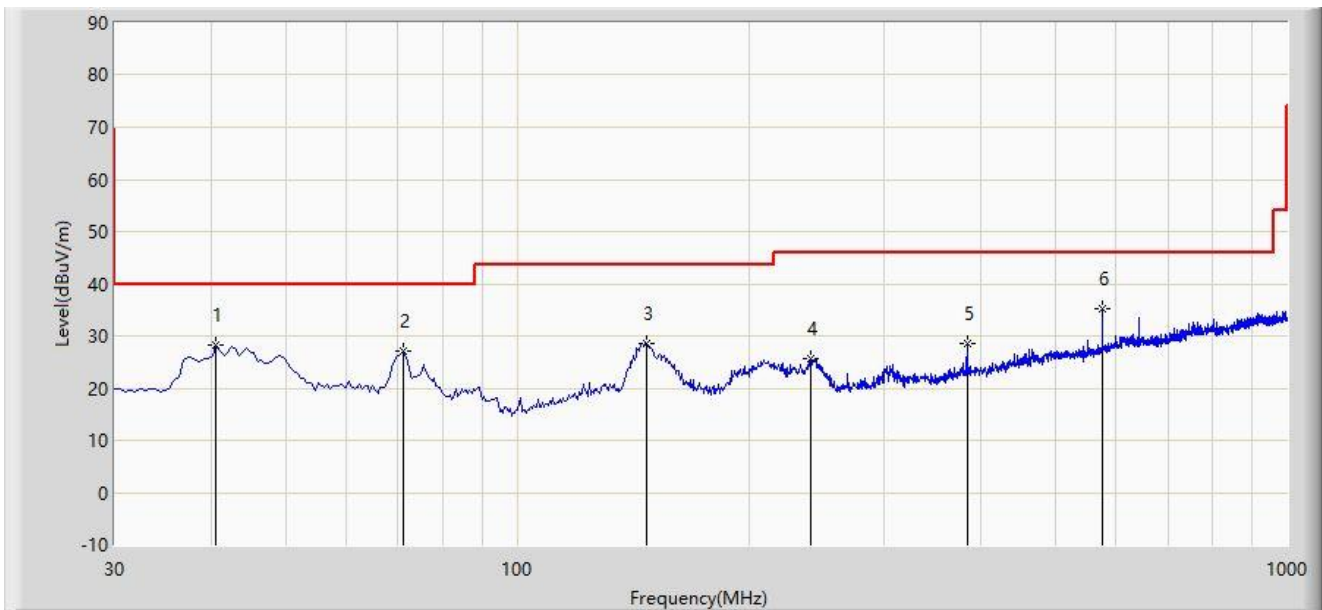
Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 4: Quasi-Peak measurement was not performed when peak measure level was lower than the quasi-peak limit.

Note 5: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 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: WZ-AC1	Test Date: 2022-10-08
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: VULB 9168_25-2000MHz	Polarity: Vertical
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at 2440MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		40.670	28.366	10.105	-11.634	40.000	18.261	PK
2		71.225	27.167	11.189	-12.833	40.000	15.978	PK
3		147.370	28.633	10.740	-14.867	43.500	17.893	PK
4		240.975	25.635	9.386	-20.365	46.000	16.249	PK
5		384.050	28.652	8.199	-17.348	46.000	20.453	PK
6	*	576.110	35.288	10.437	-10.712	46.000	24.851	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 4: Quasi-Peak measurement was not performed when peak measure level was lower than the quasi-peak limit.

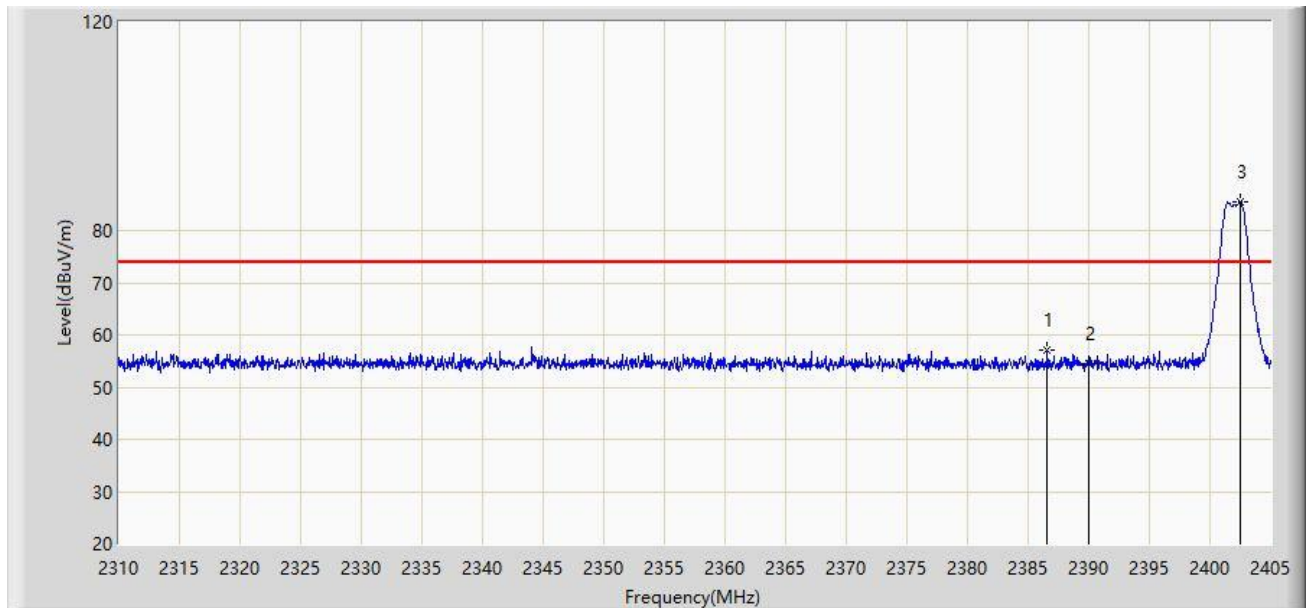
Note 5: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value.

Therefore, the data is not presented in the report.

A.7 Radiated Restricted Band Edge Test Result

Spot Check Test Data

Site: WZ-AC1	Time: 2023/02/28 - 14:08
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Horizontal
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE2M at 2402MHz	



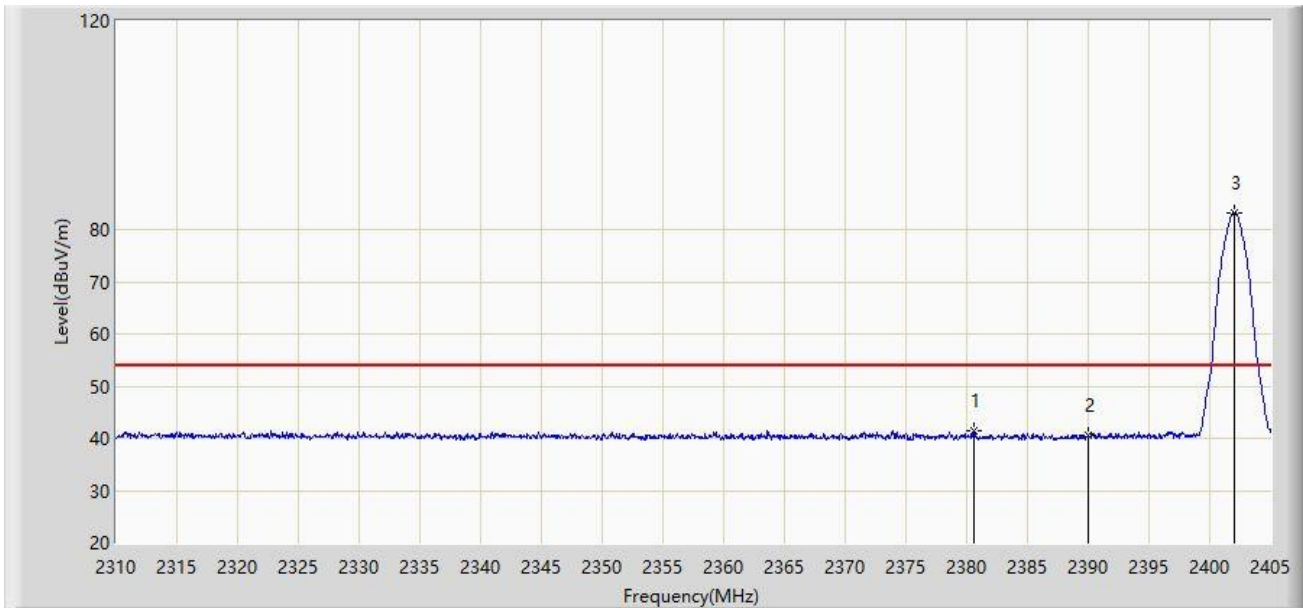
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2386.570	56.985	25.991	-17.015	74.000	30.993	PK
2		2390.000	54.607	23.615	-19.393	74.000	30.992	PK
3		2402.482	85.643	54.656	N/A	N/A	30.988	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Time: 2023/02/28 - 14:11
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Horizontal
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE2M at 2402MHz	



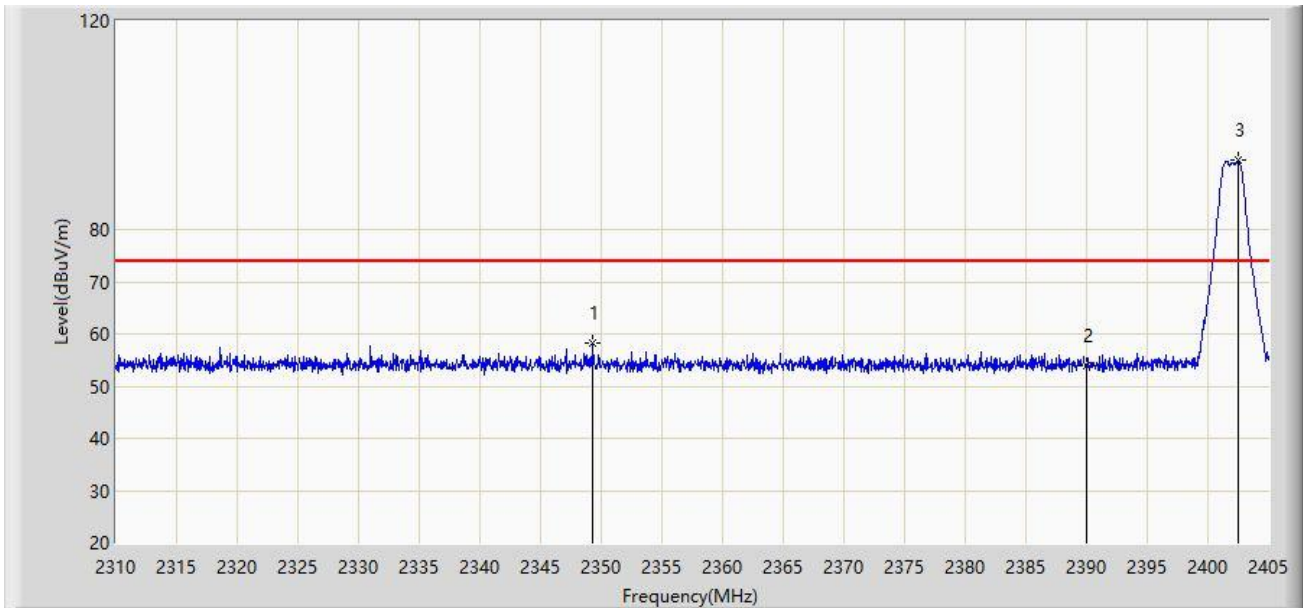
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2380.538	41.451	10.441	-12.549	54.000	31.010	AV
2		2390.000	40.440	9.448	-13.560	54.000	30.992	AV
3		2402.055	83.291	52.302	N/A	N/A	30.989	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Time: 2023/02/28 - 14:15
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Vertical
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE2M at 2402MHz	



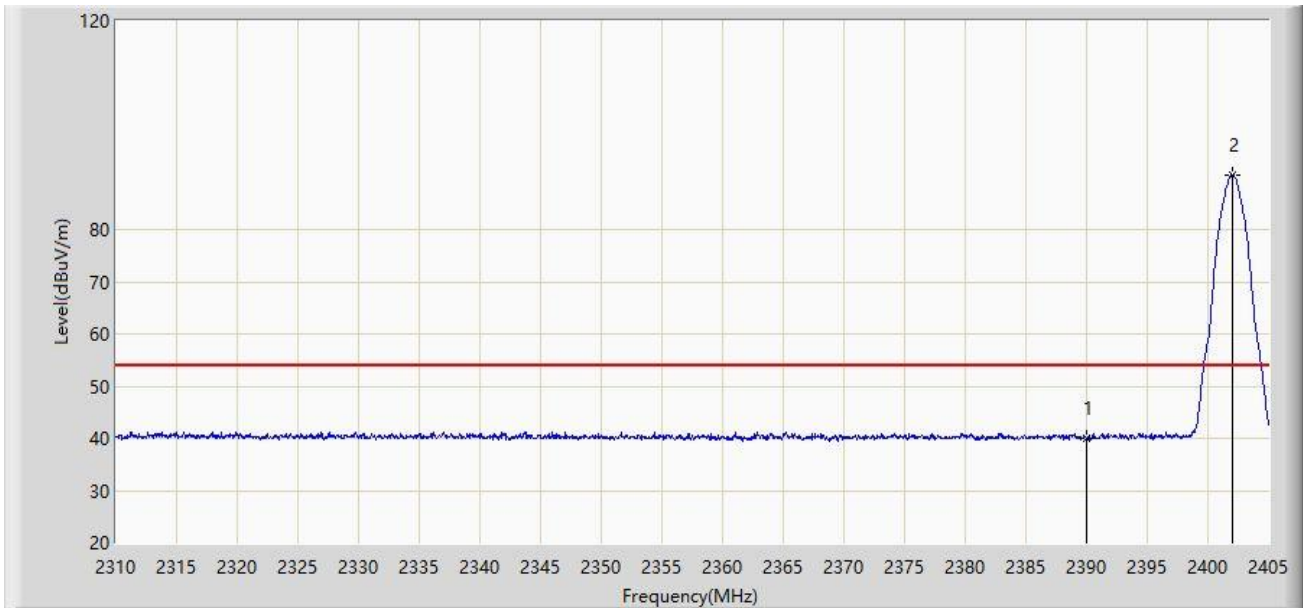
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2349.330	58.289	27.152	-15.711	74.000	31.137	PK
2		2390.000	53.845	22.853	-20.155	74.000	30.992	PK
3		2402.482	93.214	62.227	N/A	N/A	30.988	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Time: 2023/02/28 - 14:17
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Vertical
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE2M at 2402MHz	



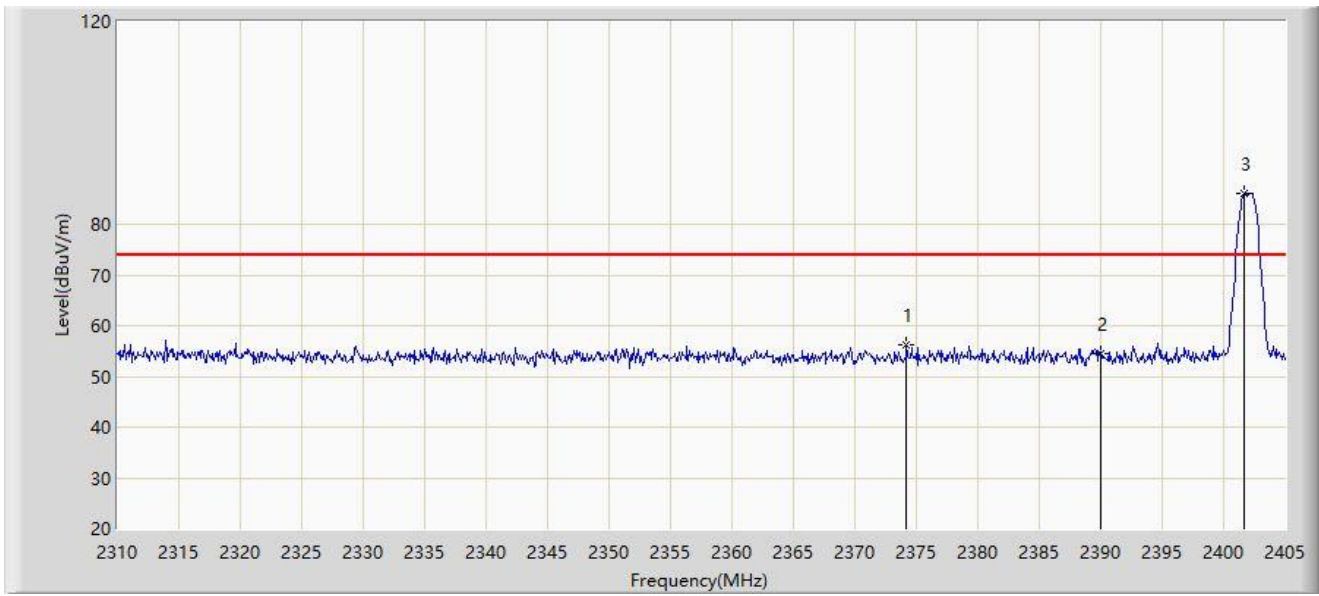
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2390.000	39.971	8.979	-14.029	54.000	30.992	AV
2		2402.008	90.527	59.538	N/A	N/A	30.989	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Horizontal
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at 2402MHz	



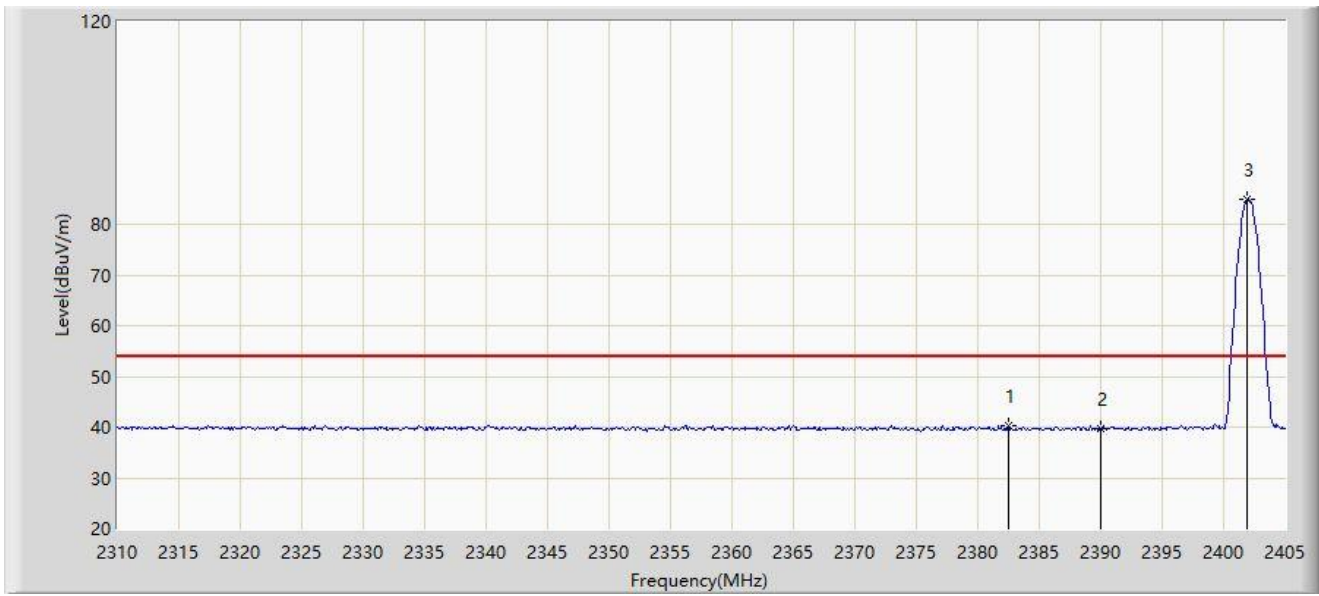
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2374.220	56.311	25.272	-17.689	74.000	31.039	PK
2		2390.000	54.559	23.567	-19.441	74.000	30.992	PK
3		2401.675	86.008	55.019	N/A	N/A	30.989	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Horizontal
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at 2402MHz	



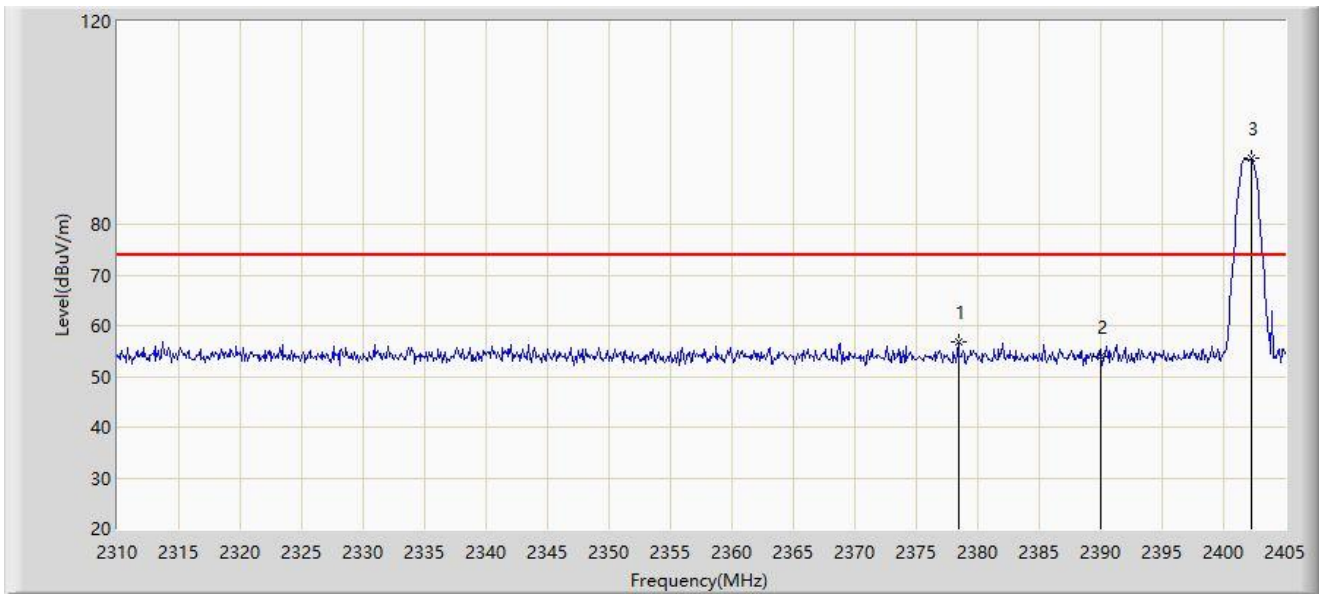
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2382.485	40.153	9.151	-13.847	54.000	31.002	AV
2		2390.000	39.719	8.727	-14.281	54.000	30.992	AV
3		2401.960	84.888	53.899	N/A	N/A	30.989	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Vertical
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at 2402MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2378.400	56.940	25.921	-17.060	74.000	31.020	PK
2		2390.000	53.964	22.972	-20.036	74.000	30.992	PK
3		2402.245	92.910	61.922	N/A	N/A	30.988	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Vertical
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at 2402MHz	



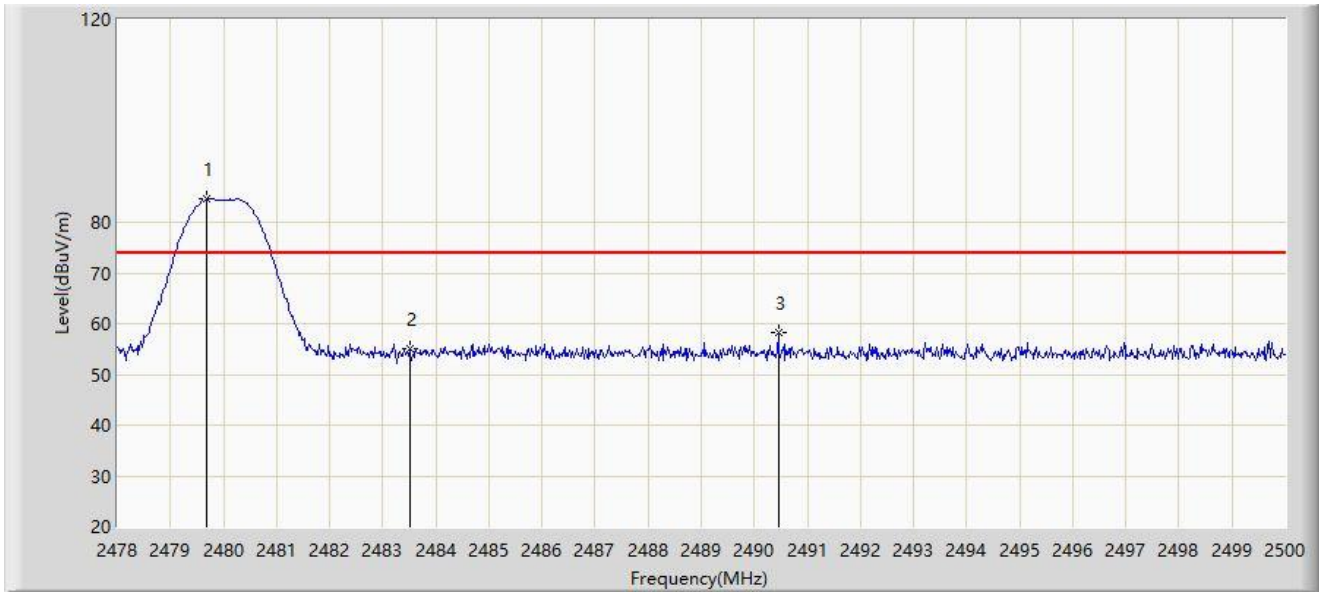
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2386.190	40.572	9.578	-13.428	54.000	30.993	AV
2		2390.000	39.462	8.470	-14.538	54.000	30.992	AV
3		2401.960	91.950	60.961	N/A	N/A	30.989	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Horizontal
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at 2480MHz	



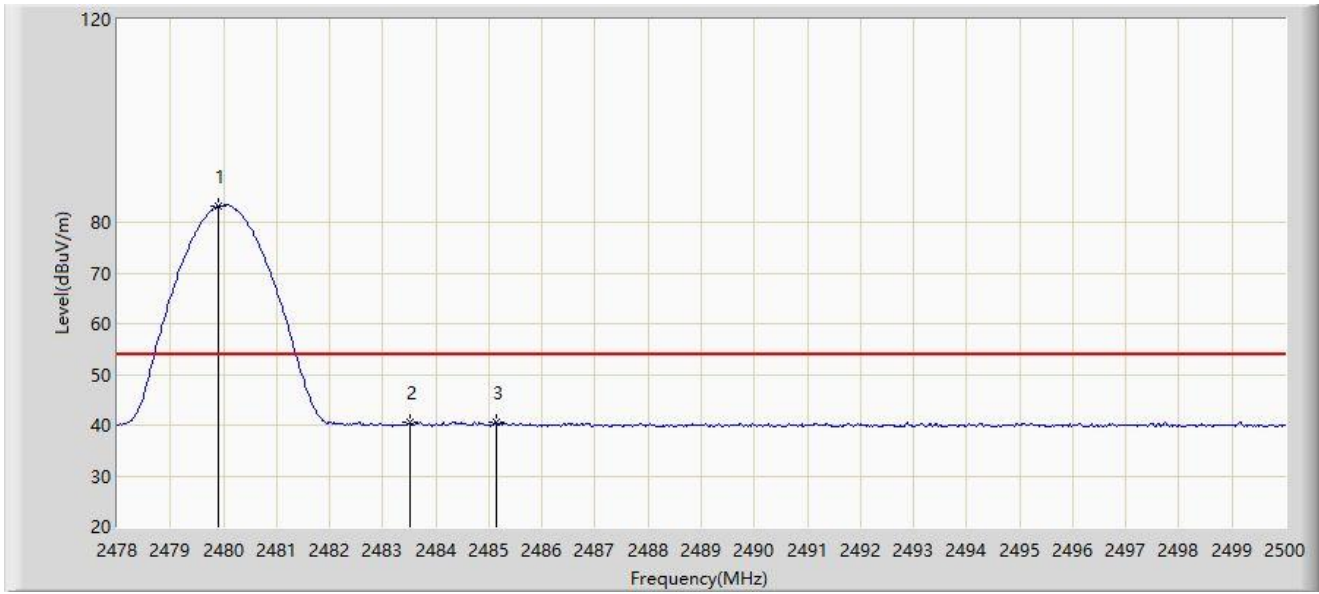
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2479.694	84.501	53.603	N/A	N/A	30.898	PK
2		2483.500	54.950	24.059	-19.050	74.000	30.892	PK
3	*	2490.452	58.320	27.440	-15.680	74.000	30.880	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Horizontal
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at 2480MHz	



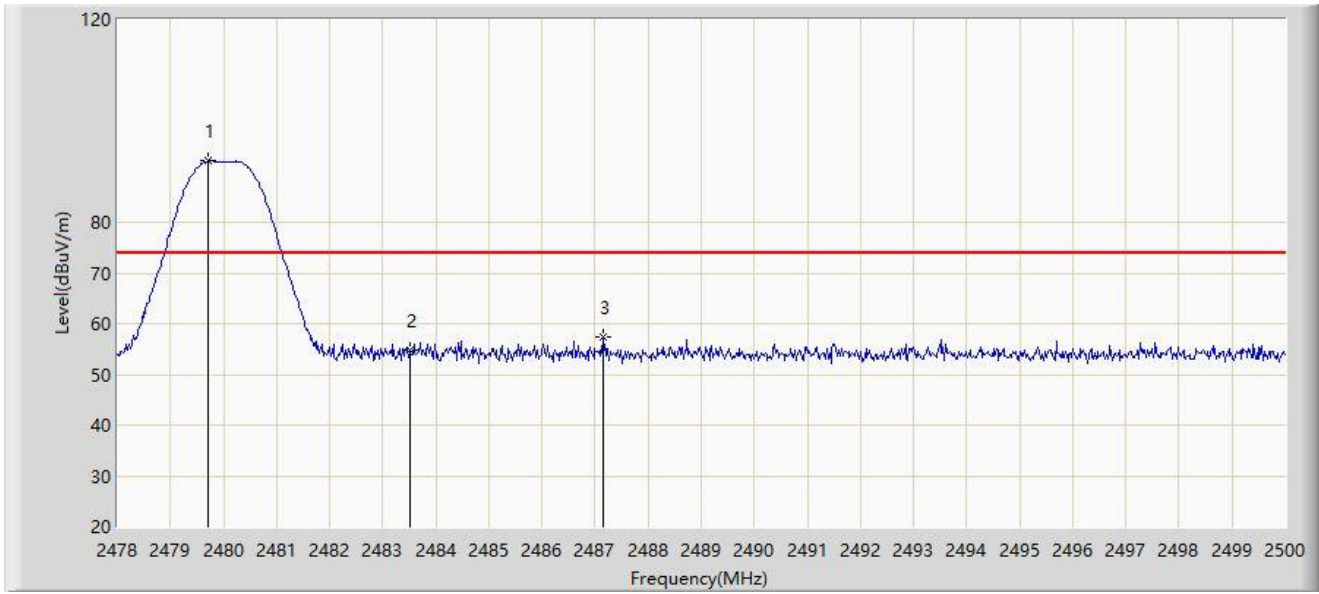
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		2479.914	83.239	52.342	N/A	N/A	30.897	AV
2		2483.500	40.517	9.626	-13.483	54.000	30.892	AV
3	*	2485.128	40.626	9.737	-13.374	54.000	30.889	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Vertical
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at 2480MHz	



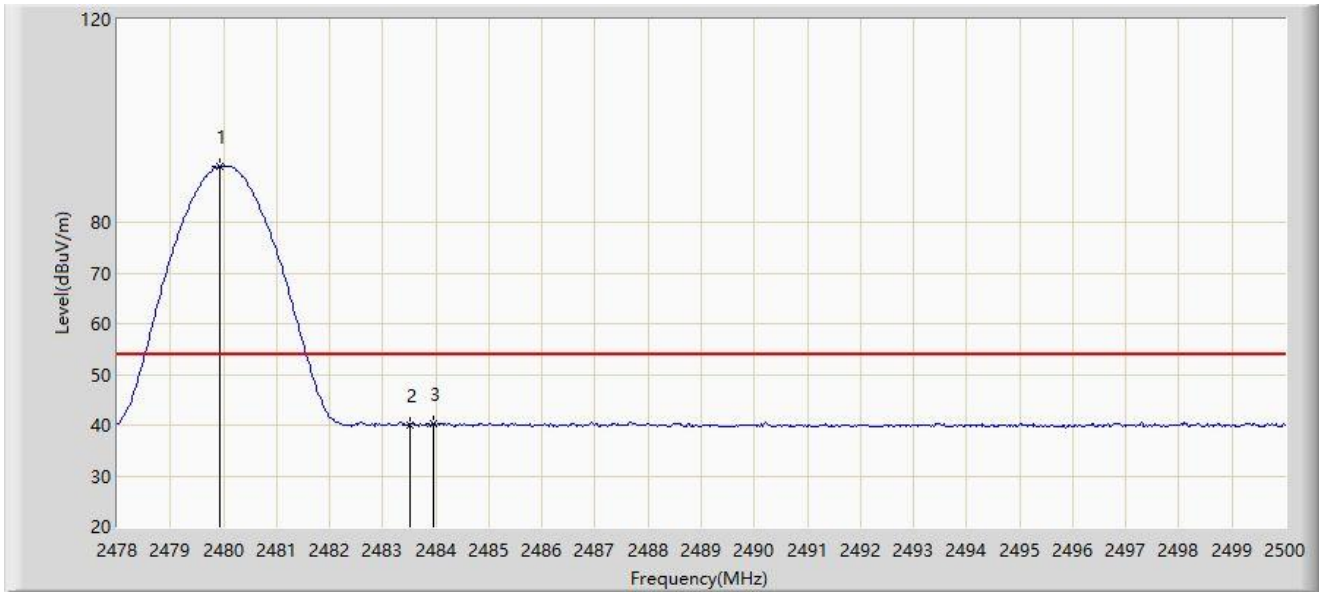
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2479.716	92.065	61.167	N/A	N/A	30.898	PK
2		2483.500	54.831	23.940	-19.169	74.000	30.892	PK
3	*	2487.152	57.266	26.381	-16.734	74.000	30.886	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Vertical
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 1M at 2480MHz	



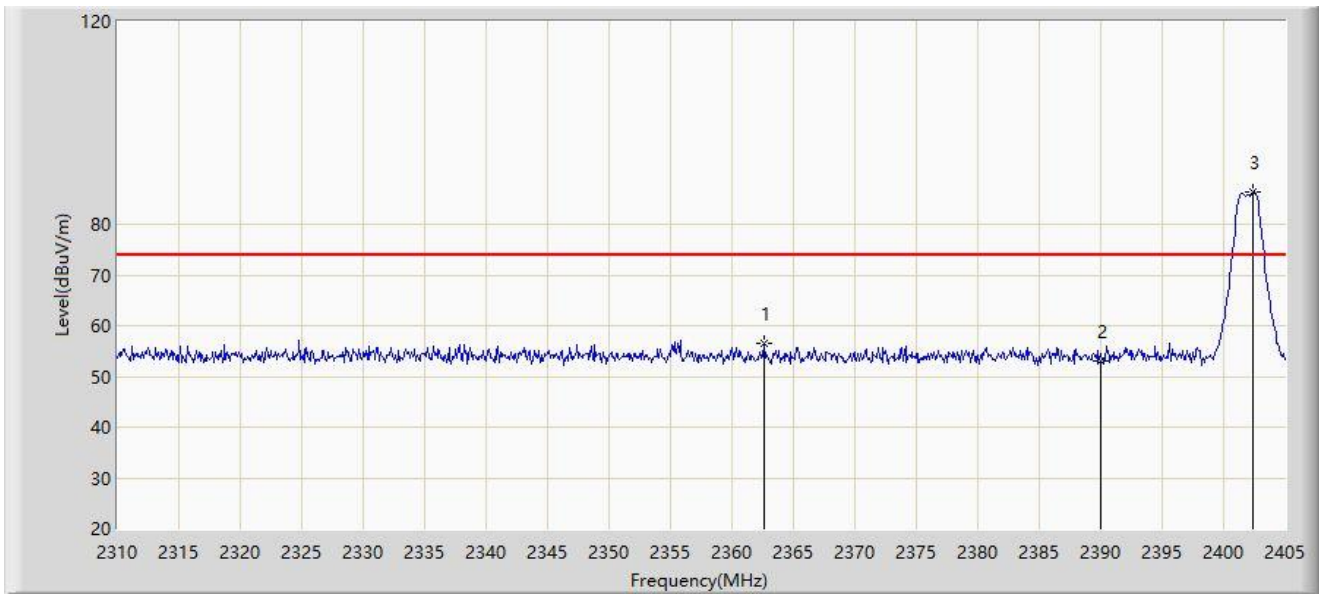
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2479.936	91.106	60.209	N/A	N/A	30.897	AV
2		2483.500	39.892	9.001	-14.108	54.000	30.892	AV
3	*	2483.962	40.414	9.523	-13.586	54.000	30.891	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Horizontal
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at 2402MHz	



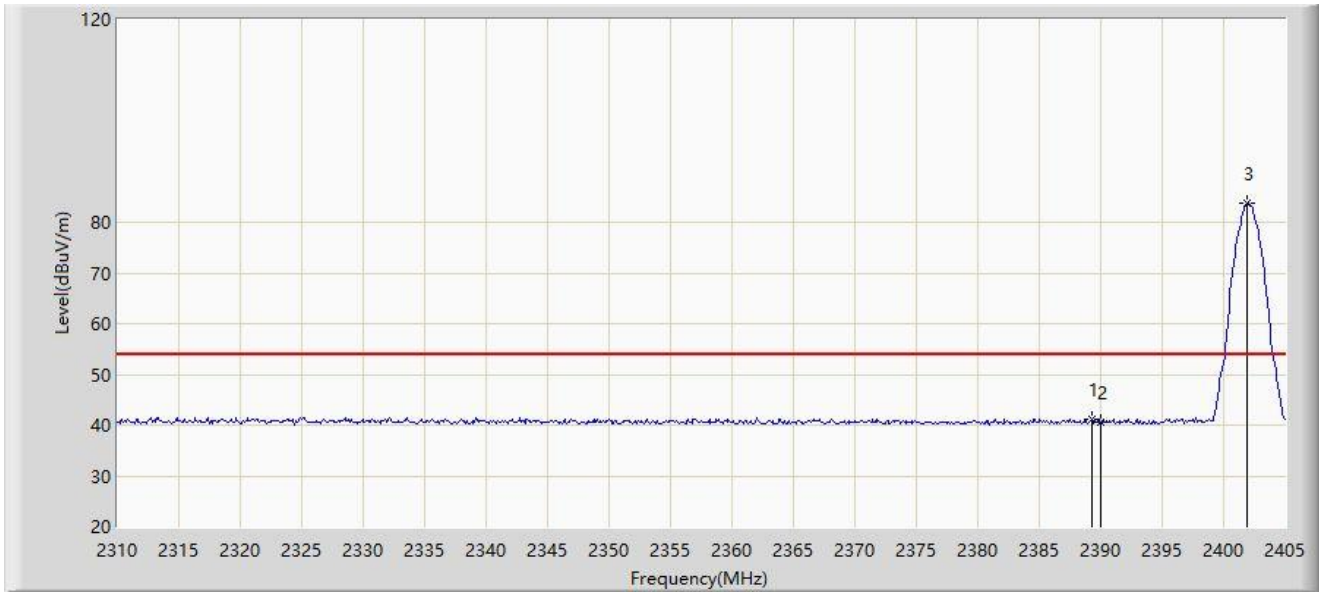
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2362.630	56.473	25.382	-17.527	74.000	31.090	PK
2		2390.000	52.942	21.950	-21.058	74.000	30.992	PK
3		2402.435	86.316	55.329	N/A	N/A	30.988	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Horizontal
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at 2402MHz	



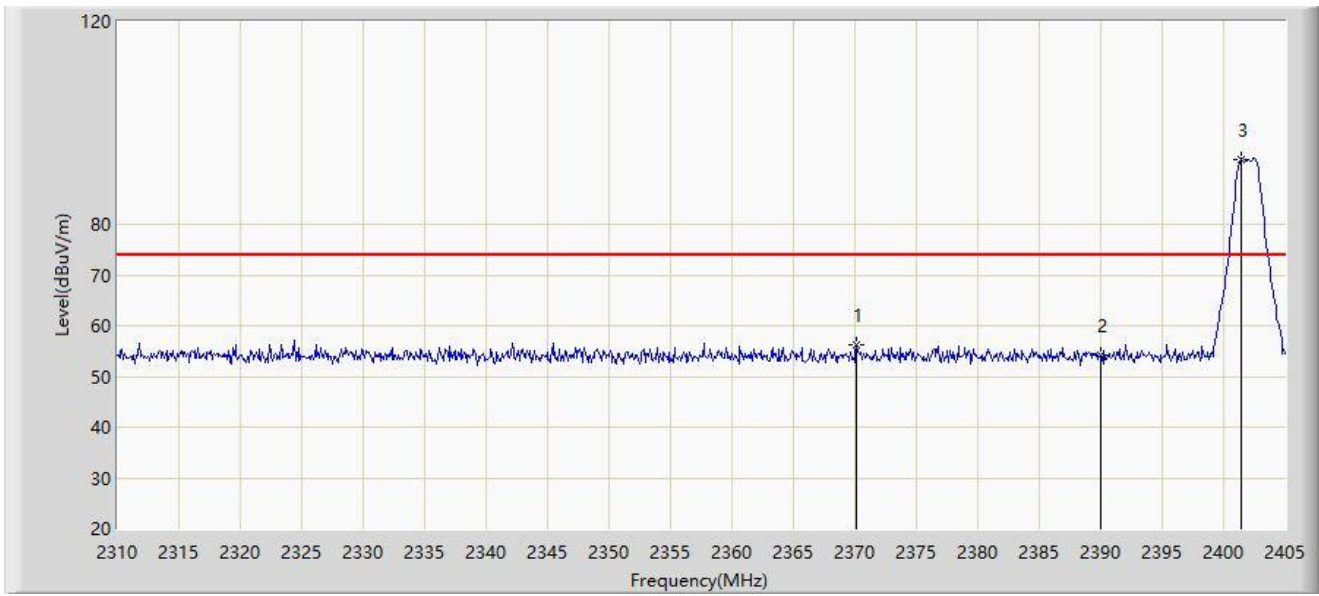
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2389.230	41.229	10.236	-12.771	54.000	30.992	AV
2		2390.000	40.573	9.581	-13.427	54.000	30.992	AV
3		2401.960	83.739	52.750	N/A	N/A	30.989	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Vertical
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at 2402MHz	



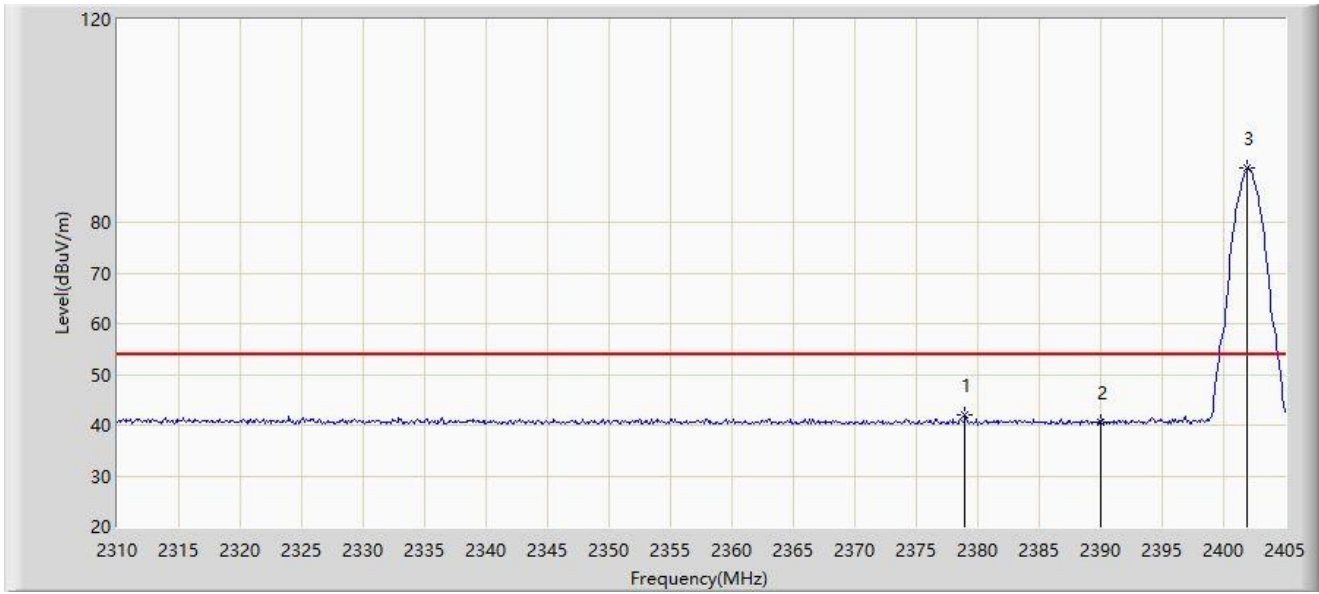
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2370.135	56.255	25.195	-17.745	74.000	31.060	PK
2		2390.000	54.068	23.076	-19.932	74.000	30.992	PK
3		2401.390	92.841	61.852	N/A	N/A	30.989	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Vertical
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at 2402MHz	



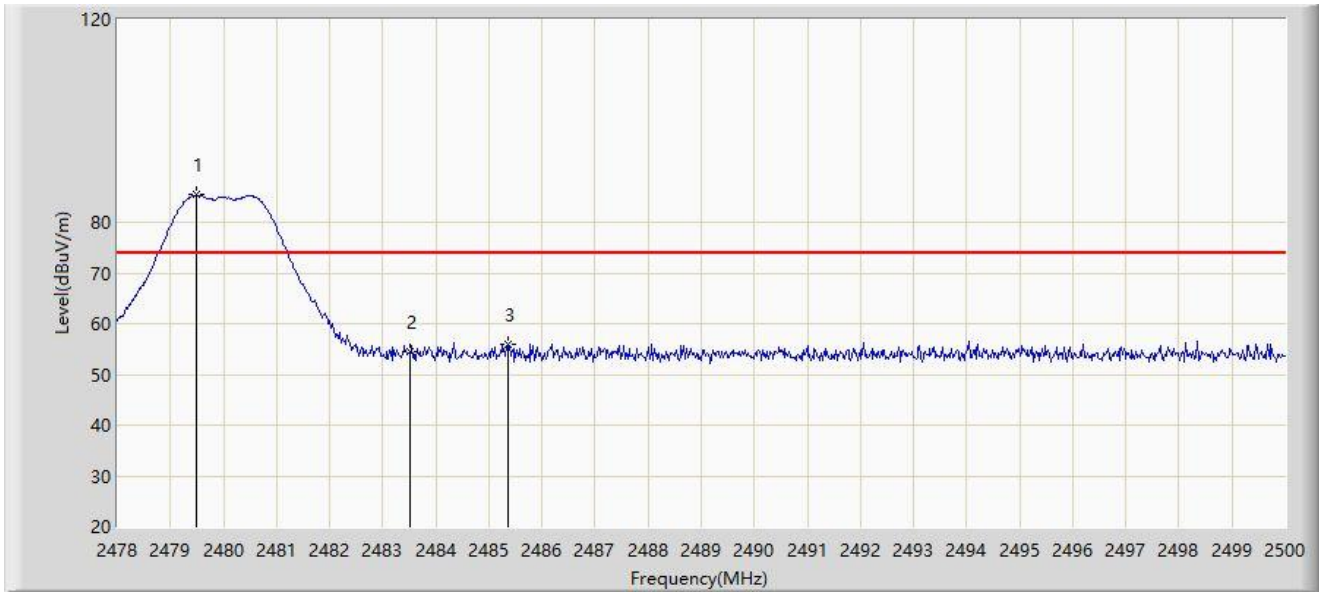
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2378.970	41.952	10.935	-12.048	54.000	31.017	AV
2		2390.000	40.646	9.654	-13.354	54.000	30.992	AV
3		2401.960	90.587	59.598	N/A	N/A	30.989	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Horizontal
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at 2480MHz	



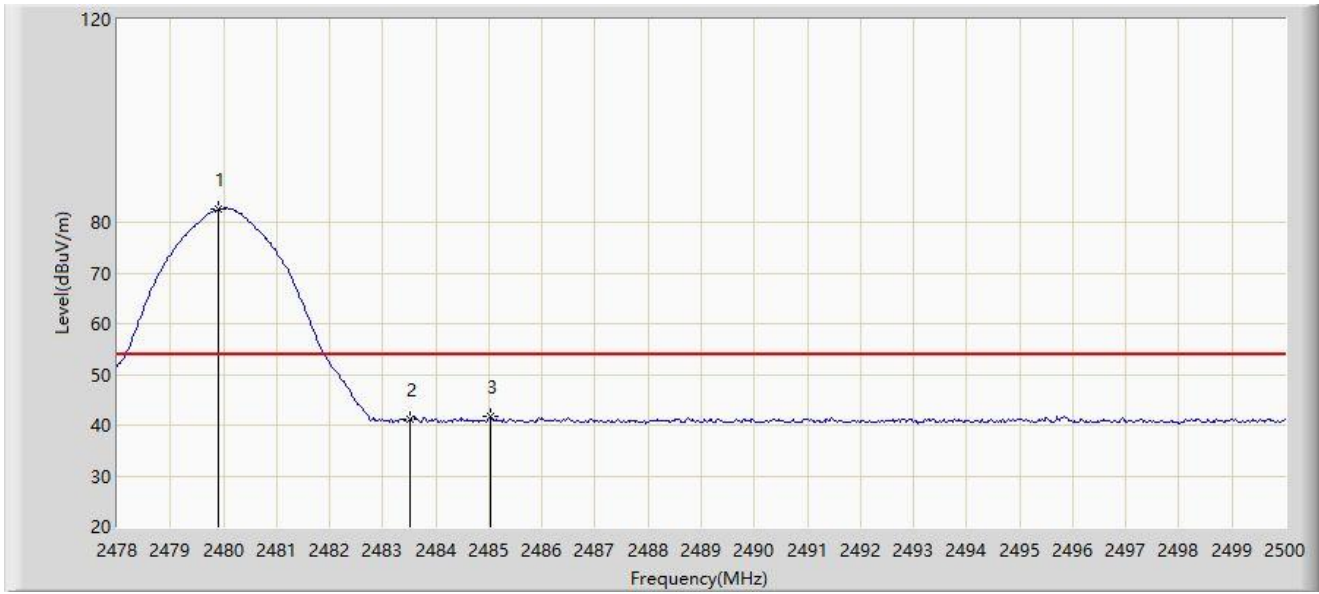
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2479.496	85.385	54.487	N/A	N/A	30.898	PK
2		2483.500	54.458	23.567	-19.542	74.000	30.892	PK
3	*	2485.348	56.020	25.132	-17.980	74.000	30.889	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Horizontal
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at 2480MHz	



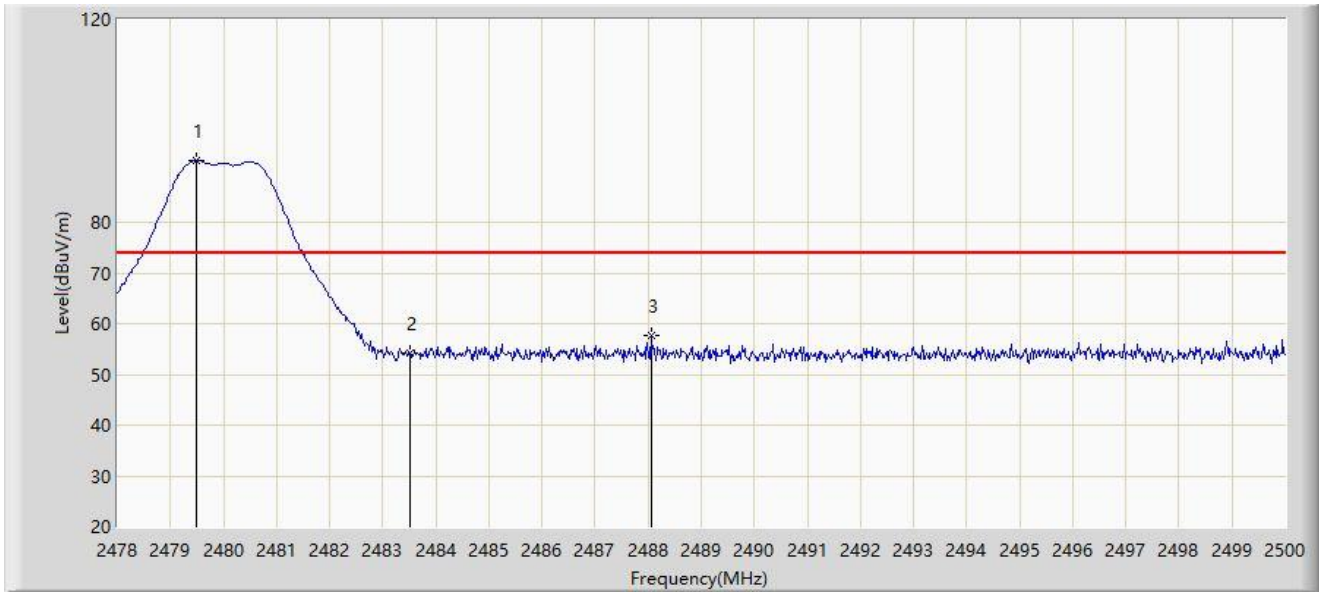
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2479.914	82.645	51.748	N/A	N/A	30.897	AV
2		2483.500	41.038	10.147	-12.962	54.000	30.892	AV
3	*	2485.040	41.734	10.845	-12.266	54.000	30.889	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Vertical
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at 2480MHz	



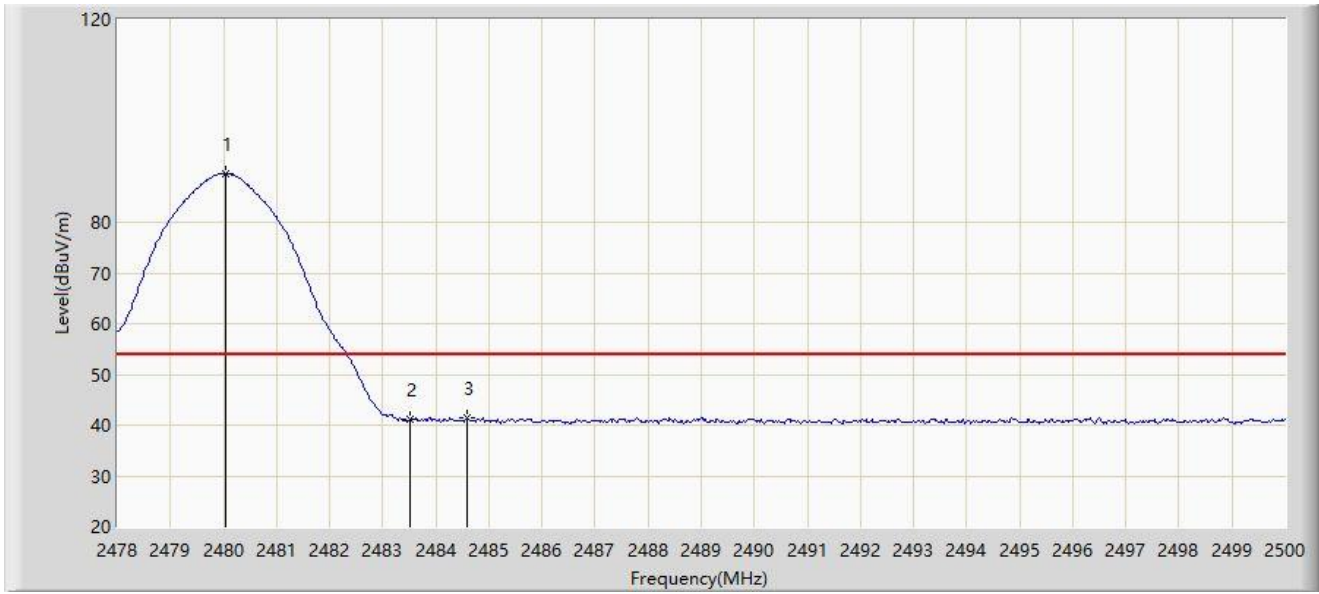
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2479.496	92.225	61.327	N/A	N/A	30.898	PK
2		2483.500	54.067	23.176	-19.933	74.000	30.892	PK
3	*	2488.054	57.782	26.898	-16.218	74.000	30.884	PK

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-09-14
Limit: FCC_Part 15_15.209 RE(3m)	Engineer: Carl Jiang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Vertical
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at 2480MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		2480.046	89.616	58.719	N/A	N/A	30.897	AV
2		2483.500	41.054	10.163	-12.946	54.000	30.892	AV
3	*	2484.578	41.398	10.508	-12.602	54.000	30.890	AV

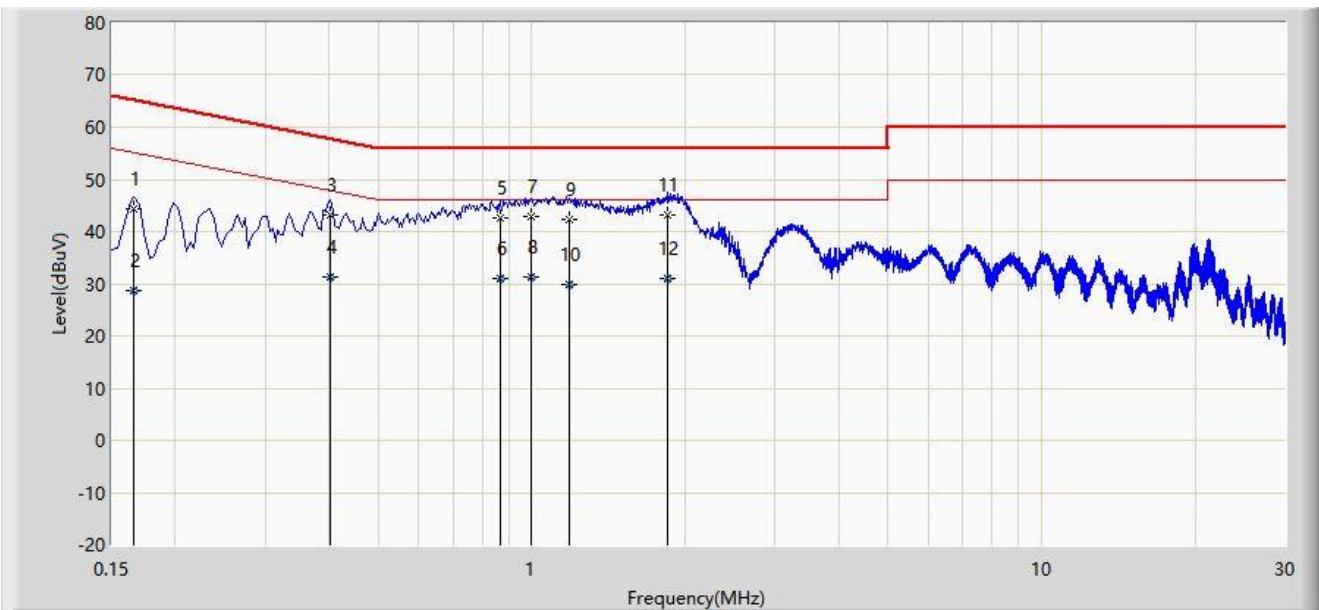
Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

A.8 AC Conducted Emissions Test Result

Site: WZ-SR2	Test Date: 2022-10-09
Limit: FCC_Part15.207_CE_AC Power	Engineer: Helen Han
Probe: ENV216_101683_Filter Off_E	Polarity: Line
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at 2440MHz	



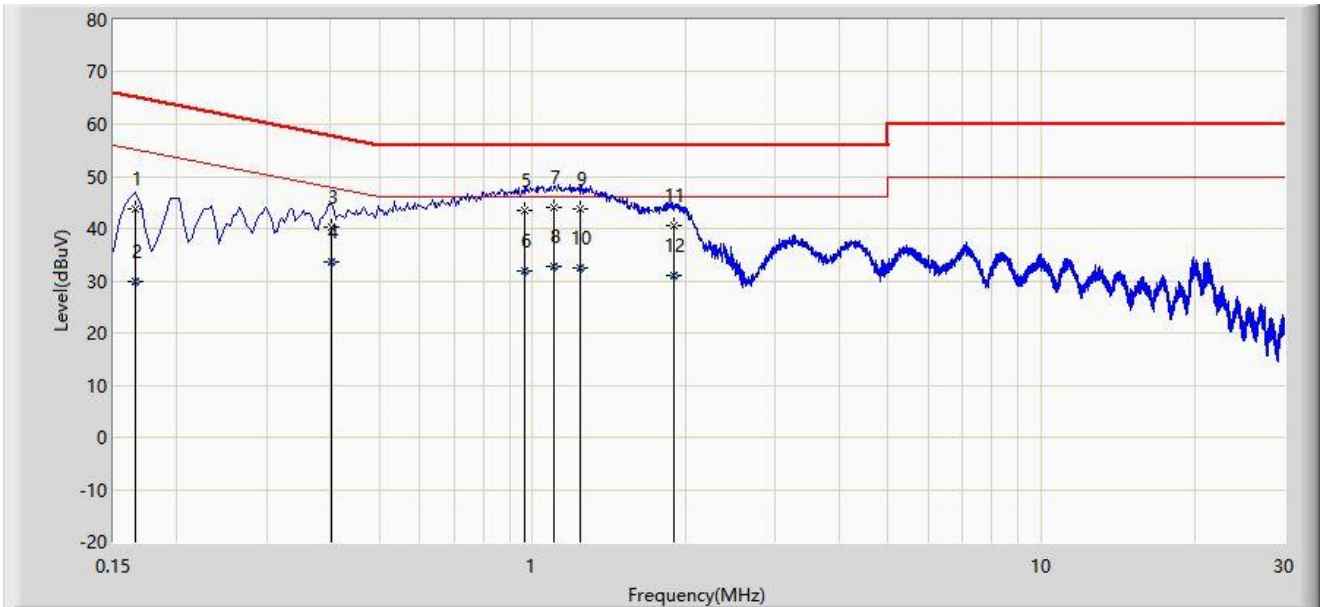
No	Mark	Frequency (MHz)	Measure Level (dBμV)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV)	Factor (dB)	Type
1		0.166	44.254	34.374	-20.904	65.158	9.880	QP
2		0.166	28.647	18.767	-26.511	55.158	9.880	AV
3		0.402	43.312	33.386	-14.499	57.812	9.927	QP
4		0.402	31.165	21.238	-16.647	47.812	9.927	AV
5		0.866	42.634	32.668	-13.366	56.000	9.966	QP
6		0.866	31.128	21.163	-14.872	46.000	9.966	AV
7		0.998	42.972	32.992	-13.028	56.000	9.980	QP
8		0.998	31.412	21.432	-14.588	46.000	9.980	AV
9		1.186	42.287	32.303	-13.713	56.000	9.984	QP
10		1.186	29.891	19.907	-16.109	46.000	9.984	AV
11	*	1.850	43.129	33.132	-12.871	56.000	9.997	QP
12		1.850	31.071	21.074	-14.929	46.000	9.997	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: WZ-SR2	Test Date: 2022-10-09
Limit: FCC_Part15.207_CE_AC Power	Engineer: Helen Han
Probe: ENV216_101683_Filter Off_E	Polarity: Neutral
EUT: Barcode Reader	Power: AC 120V/60Hz
Test Mode: Transmit by BLE 2M at 2440MHz	



No	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1		0.166	43.717	33.814	-21.441	65.158	9.903	QP
2		0.166	29.826	19.923	-25.332	55.158	9.903	AV
3		0.402	40.243	30.300	-17.569	57.812	9.943	QP
4		0.402	33.721	23.778	-14.091	47.812	9.943	AV
5		0.966	43.478	33.480	-12.522	56.000	9.998	QP
6		0.966	31.884	21.886	-14.116	46.000	9.998	AV
7	*	1.102	44.052	34.050	-11.948	56.000	10.002	QP
8		1.102	32.879	22.877	-13.121	46.000	10.002	AV
9		1.238	43.723	33.719	-12.277	56.000	10.005	QP
10		1.238	32.447	22.442	-13.553	46.000	10.005	AV
11		1.894	40.598	30.580	-15.402	56.000	10.018	QP
12		1.894	30.926	20.908	-15.074	46.000	10.018	AV

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Appendix B - Test Setup Photograph

Refer to "2209RSU001-UT" file.

Appendix C - EUT Photograph

Refer to "2209RSU001-UE" file.

_____ The End _____