

RF MEASUREMENT REPORT

FCC ID: DD4ADX1K54S
Applicant: Shure Incorporated
Product: Bodypack Transmitter
Model No.: ADX1 K54, ADX1LEMO3 K54
Trademark: , **SHURE**[®]
FCC Classification: Digital Transmission System (DTS)
FCC Rule Part(s): Part 15 Subpart C (Section 15.247)
Result: Complies
Received Date: 2024-07-18
Test Date: 2024-08-25 ~ 2024-08-27

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
2407RSU039-U6	V01	Initial Report	2024-08-28	Valid

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1. General Information

1.1. Applicant

Shure Incorporated

5800 West Touhy Avenue, Niles, IL 60714-4608, USA

1.2. Manufacturer

Shure Incorporated

5800 West Touhy Avenue, Niles, IL 60714-4608, USA

1.3. Testing Facility

☒	Test Site – MRT Suzhou Laboratory Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China Laboratory Location (Suzhou - SIP) 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China Laboratory Location (Suzhou - Wujiang) Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People's Republic of China Laboratory Accreditations A2LA: 3628.01 CNAS: L10551 FCC: CN1166 ISED: CN0001 VCCI: ☐ R-20025 ☐ G-20034 ☐ C-20020 ☐ T-20020 ☐ R-20141 ☐ G-20134 ☐ C-20103 ☐ T-20104
☐	Test Site – MRT Shenzhen Laboratory Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China Laboratory Accreditations A2LA: 3628.02 CNAS: L10551 FCC: CN1284 ISED: CN0105
☐	Test Site – MRT Taiwan Laboratory Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) Laboratory Accreditations TAF: 3261 FCC: 291082, TW3261 ISED: TW3261

1.4. Product Information

Product Name	Bodypack Transmitter
Model No.	ADX1 K54, ADX1LEMO3 K54
Serial No.	2DC28429630
Microphone Specification	UHF Microphone Transmitter
ZigBee Specification	802.15.4
Antenna Information	Refer to section 1.5
Power Type	Rechargeable Li-battery
Accessory	
Battery	Model: SB910 Rating Voltage: 3.6V = 2200mAh 7.92Wh
Notes:	
1.The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	
2.ADX1 and ADX1LEMO3 are completely same except audio connector, ADX1 contains TQG connector, while ADX1LEMO3 contains LEMO3 connector.	

1.5. Radio Specification under Test

Zigbee Specification	802.15.4
Frequency Range	2405 ~ 2480MHz
Channel Number	16
Type of Modulation	O-QPSK
Antenna Type	Conformal Custom
Antenna Gain	2.0dBi
Note 1: Power level and transmit frequency can be selected using the front panel controls.	
Note 2: For other features of this EUT, test report will be issued separately.	

1.6. Working Frequencies

Channel	Frequency	Channel	Frequency	Channel	Frequency
11	2405 MHz	12	2410 MHz	13	2415 MHz
14	2420 MHz	15	2425 MHz	16	2430 MHz
17	2435 MHz	18	2440 MHz	19	2445 MHz
20	2450 MHz	21	2455 MHz	22	2460 MHz
23	2465 MHz	24	2470 MHz	25	2475 MHz
26	2480 MHz	--	--	--	--

2. Test Configuration

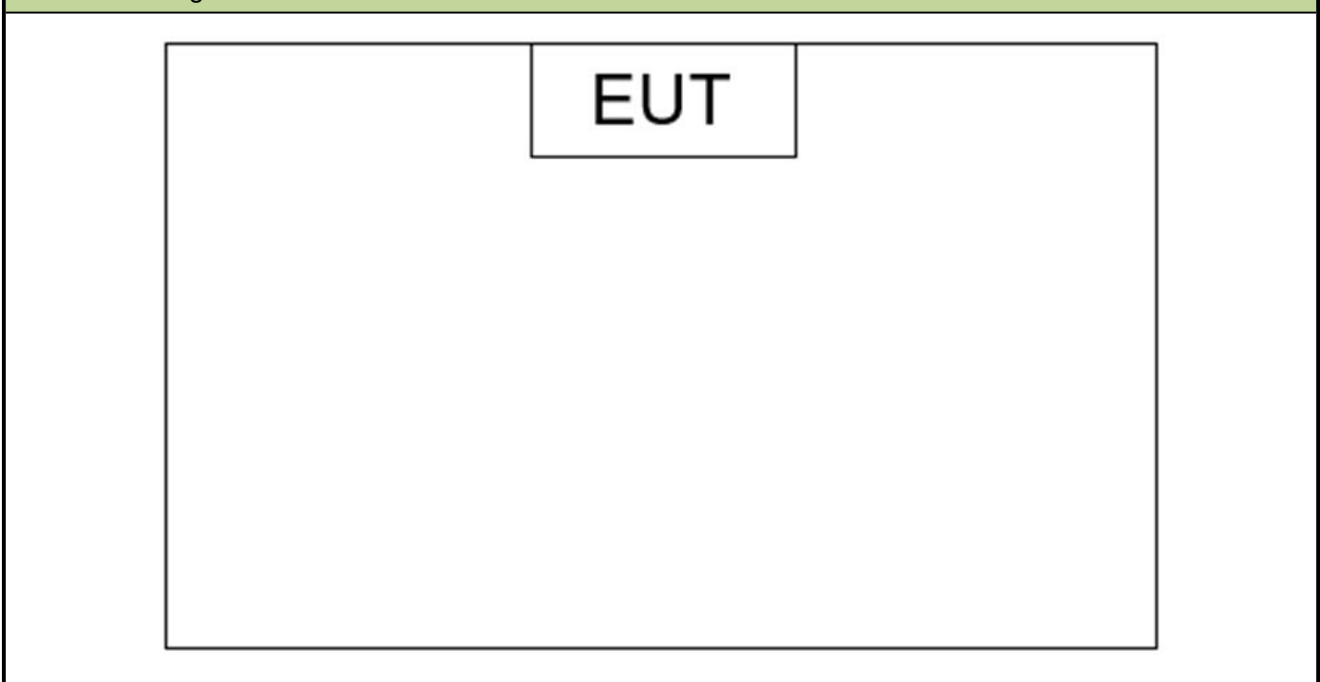
2.1. Test Mode

Mode 1: Transmit by 802.15.4

2.2. 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.

Connection Diagram



2.3. Test Software

The test utility software used during testing was "telnet.exe" and command was provided by the manufacturer.

2.4. 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

2.5. 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
Thermohygrometer	testo	608-H1	MRTSUE06402	1 year	2025-05-12	WZ-SR5
Shielding Room	HUAMING	WZ-SR5	MRTSUE06442	N/A	N/A	WZ-SR5
Signal Analyzer	Keysight	N9010B	MRTSUE06457	1 year	2025-05-08	WZ-SR5
Signal Analyzer	Keysight	N9010B	MRTSUE06558	1 year	2025-05-20	WZ-SR5
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2025-07-26	WZ-AC1
Preamplifier	Agilent	83017A	MRTSUE06076	1 year	2024-11-09	WZ-AC1
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2025-05-15	WZ-AC1
Anechoic Chamber	TDK	WZ-AC1	MRTSUE06212	1 year	2025-04-19	WZ-AC1
Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2024-10-23	WZ-AC1
Thermohygrometer	testo	608-H1	MRTSUE11039	1 year	2024-10-25	WZ-AC1
Horn Antenna	ETS	3117	MRTSUE06257	1 year	2024-09-23	WZ-AC1
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2024-11-04	WZ-AC1
Preamplifier	EMCI	EMC184045SE	MRTSUE06640	1 year	2025-01-11	WZ-AC1
Preamplifier	EMCI	EMC051845SE	MRTSUE06987	1 year	2024-09-07	WZ-AC1
Active Loop Antenna	Schwarzbeck	FMZB 1519-60 D	MRTSUE07076	1 year	2024-12-04	WZ-AC1
Horn Antenna	ETS	3117	MRTSUE06257	1 year	2024-09-23	WZ-AC1

Software	Version	Function
BenchVue Power Meter	2018.1	Power
e3	19910a	RE & CE
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
The maximum measurement uncertainty is evaluated as: 9kHz~150kHz: 3.58dB 150kHz~30MHz: 3.20dB
Radiated Emission Measurement
The maximum measurement uncertainty is evaluated as: Coaxial: 9kHz~30MHz: 2.61dB Coplanar: 9kHz~30MHz: 2.62dB Horizontal: 30MHz~200MHz: 3.79dB 200MHz~1GHz: 3.91dB 1GHz~40GHz: 4.99dB Vertical: 30MHz~200MHz: 4.06dB 200MHz~1GHz: 5.21dB 1GHz~40GHz: 4.90dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 2.2dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 1.4dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 2.2dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 2.7%

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

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. For radiated emission tests, every axis (X, 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.

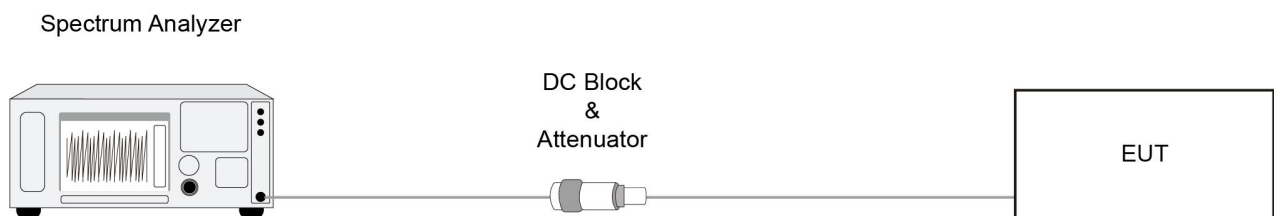
6.2.2. Test Procedure

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 11.9.2.3.2

6.3.3. Test Setting

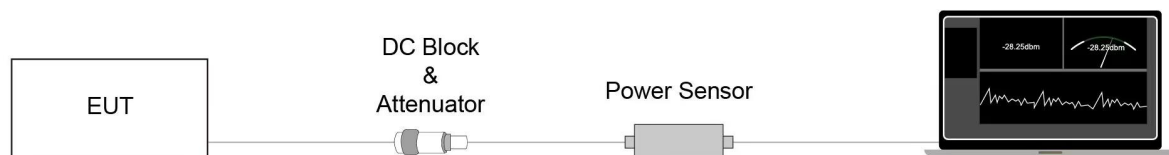
Method PKPM1 (Peak Power Measurement of Signals with DTS BW $\leq$ 50MHz)

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.

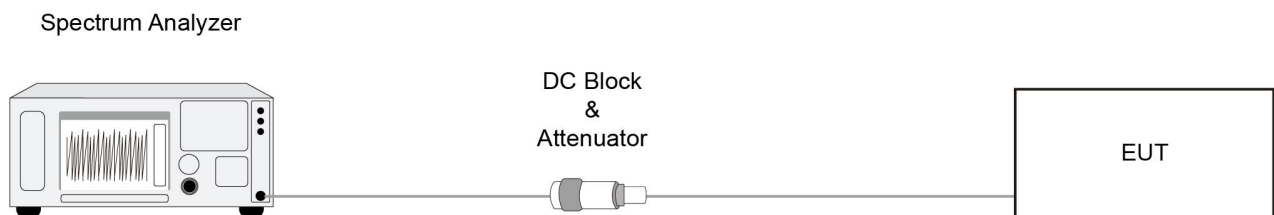
6.4.2. Test Procedure

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 20dB 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 Settling

Reference level measurement

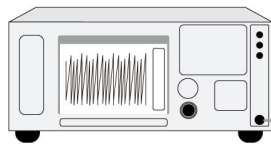
1. Set instrument center frequency to DTS channel center frequency
2. Set the span to ≥ 1.5 times the DTS bandwidth
3. Set the RBW = 100 kHz
4. Set the VBW $\geq 3 \times$ RBW
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Allow trace to fully stabilize

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

Spectrum Analyzer



DC Block
&
Attenuator



EUT



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

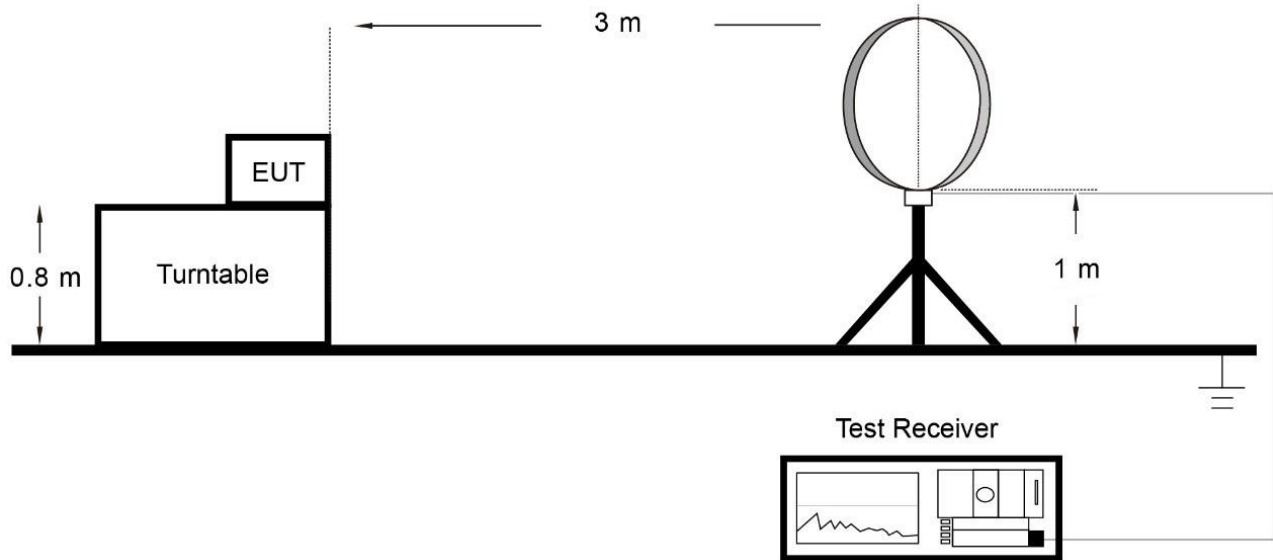
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize

Average Field Strength Measurements

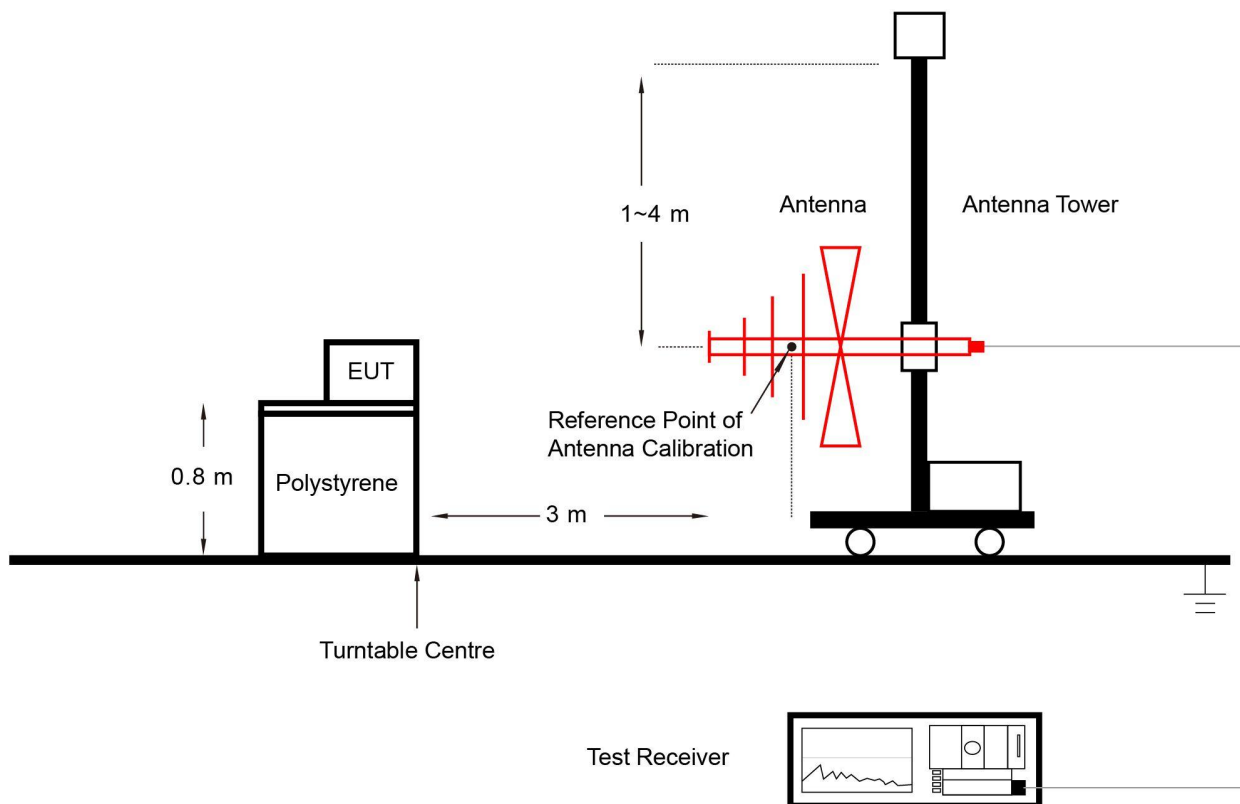
1. Average Measurement Level = Peak Measurement Level - $20 * \text{Log}(\text{Duty Cycle}) = -39.33$
2. Duty Cycle = 1.08%(refer to ADX1 Duty Cycle Report)

6.6.4. Test Setup

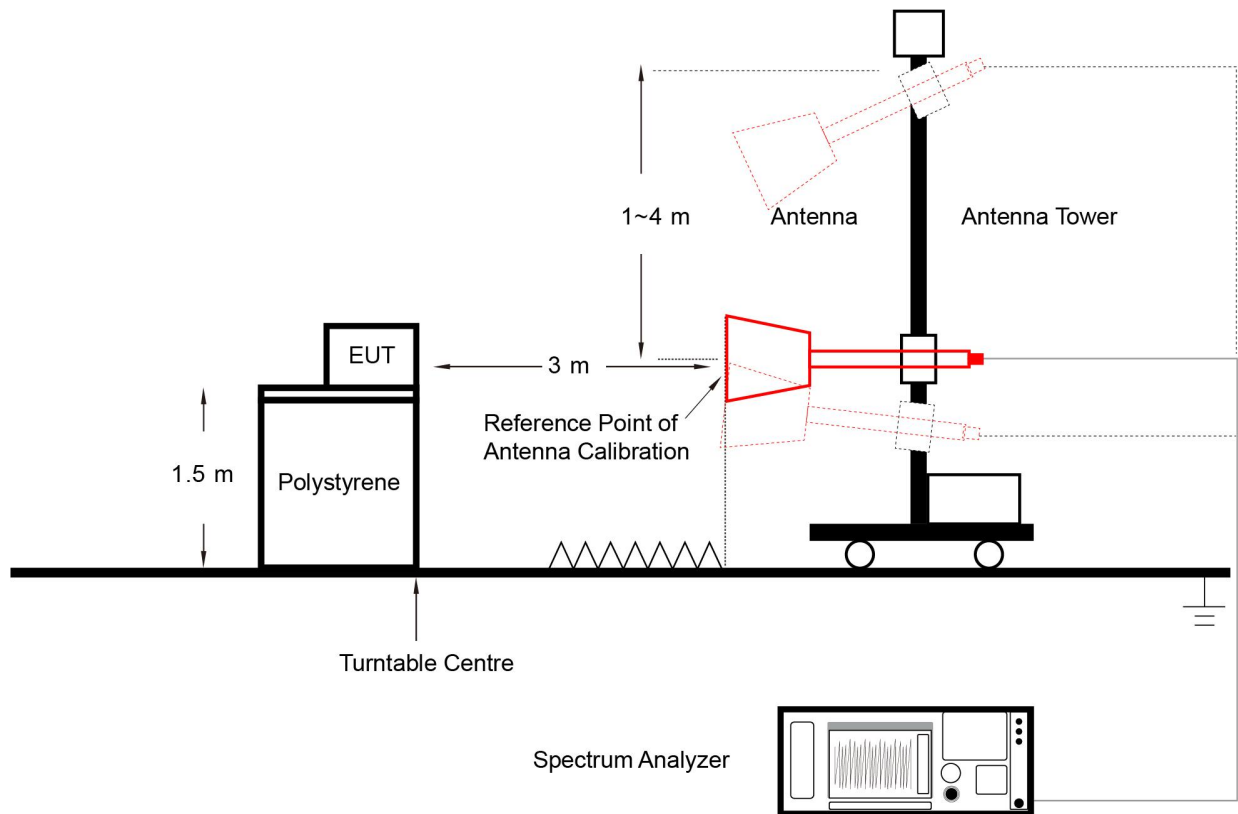
Below 30MHz Test Setup:



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

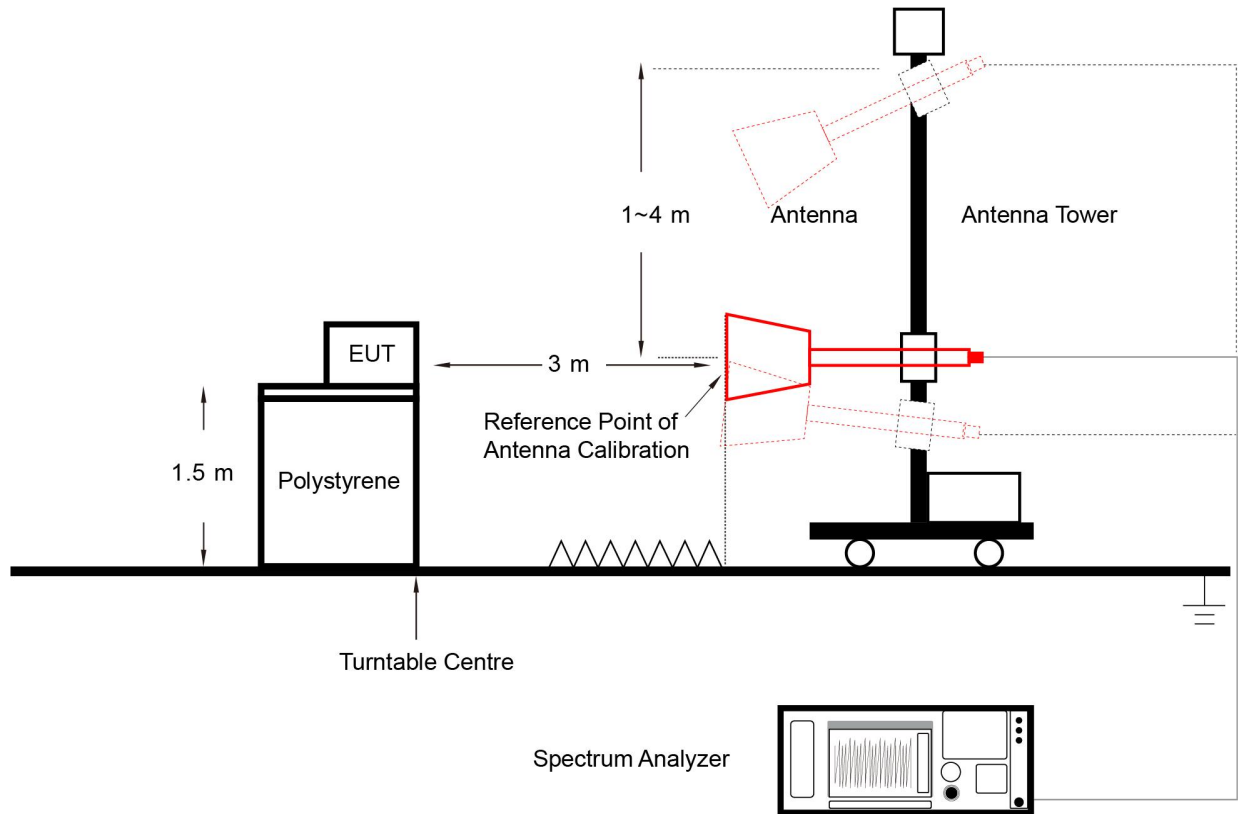
Peak Field Strength Measurements

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

3. Average Measurement Level = Peak Measurement Level - $20 * \text{Log}(\text{Duty Cycle}) = -39.33$
4. Duty Cycle = 1.08%(refer to ADX1 Duty Cycle Report)

6.7.4. Test Setup



6.7.5. Test Result

Refer to Appendix A.7.

6.8. AC Conducted Emissions Measurement

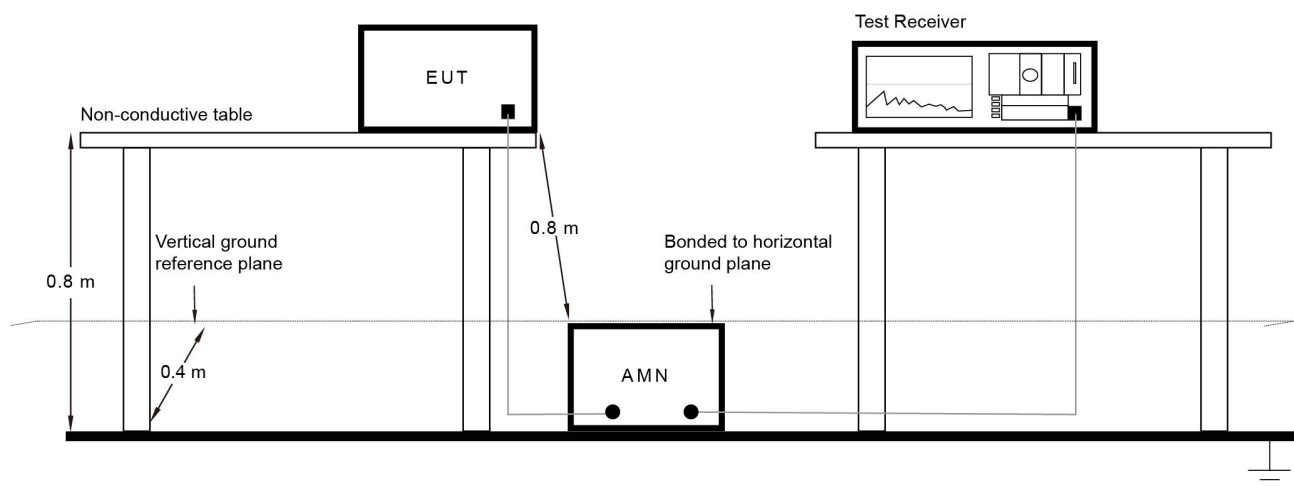
6.8.1. Test Limit

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

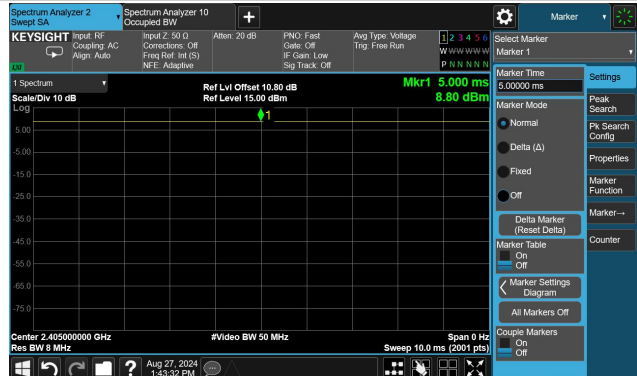
Refer to Appendix A.8.

Appendix A – Test Result

A.1 Duty Cycle Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2024-08-27		

Test Mode	Duty Cycle
802.15.4	100%

Duty Cycle (T = Transmission Duration)	
802.15.4	
	

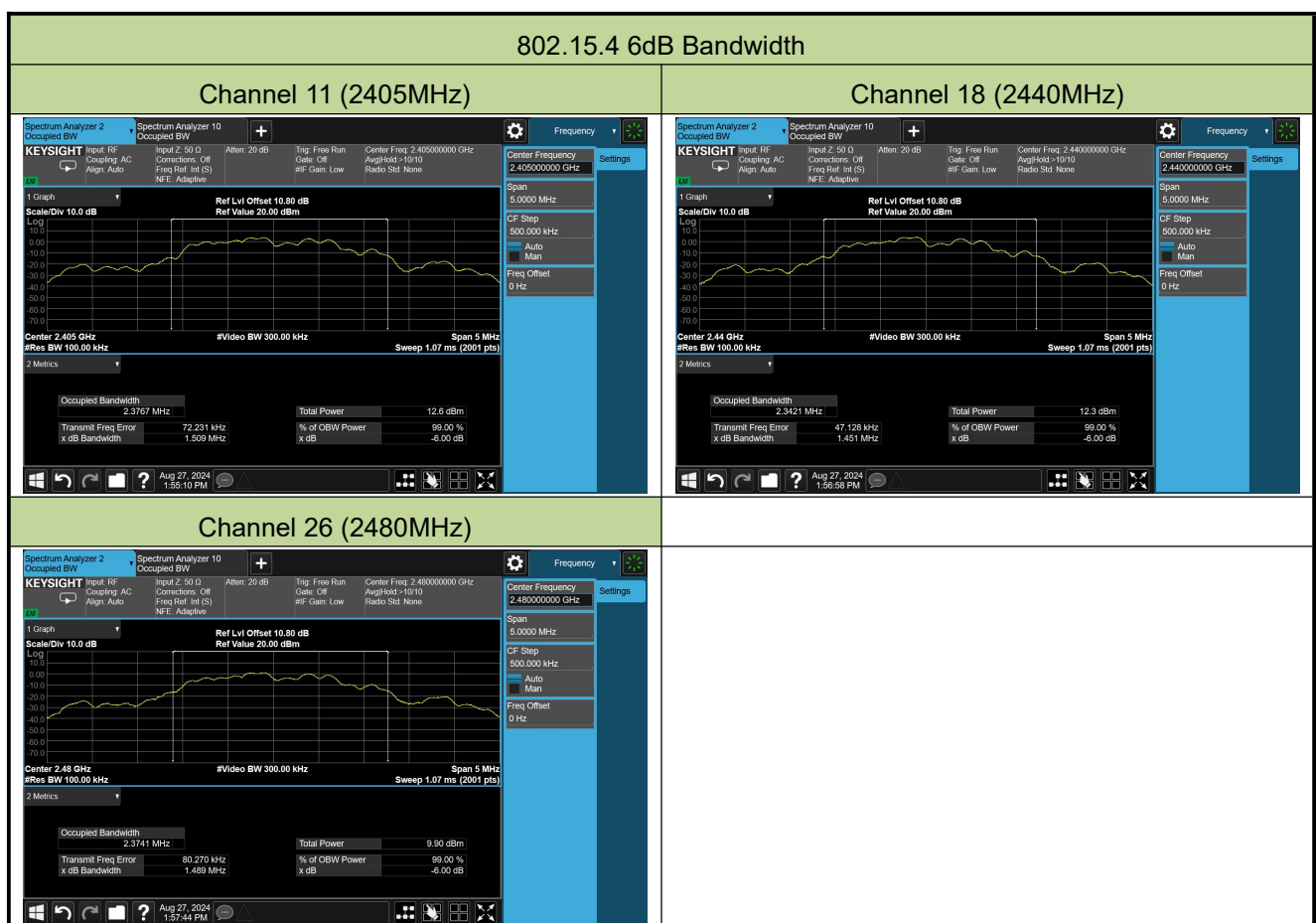
Note 1: This duty cycle was only suitable for continuous transmission of signals via commands.

Note 2: The ZigBee normal operation duty cycle = 1.08% (refer to ADX1 Duty Cycle report), and the correction factor was used during peak and average band edge testing.

A.2 6dB Bandwidth Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2024-08-27		

Test Mode	Modulation Mode	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.15.4	O-QPSK	11	2405	1.509	≥ 0.5	Pass
802.15.4	O-QPSK	18	2440	1.451	≥ 0.5	Pass
802.15.4	O-QPSK	26	2480	1.489	≥ 0.5	Pass



A.3 Output Power Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2024-08-27		

Test Result of Peak Output Power

Test Mode	Modulation Mode	Channel No.	Freq. (MHz)	Peak Power (dBm)		Limit (dBm)	Result
				Ant A	Ant B		
802.15.4	O-QPSK	11	2405	7.95	8.33	≤ 30.00	Pass
802.15.4	O-QPSK	18	2440	7.85	8.16	≤ 30.00	Pass
802.15.4	O-QPSK	26	2480	5.56	5.39	≤ 30.00	Pass

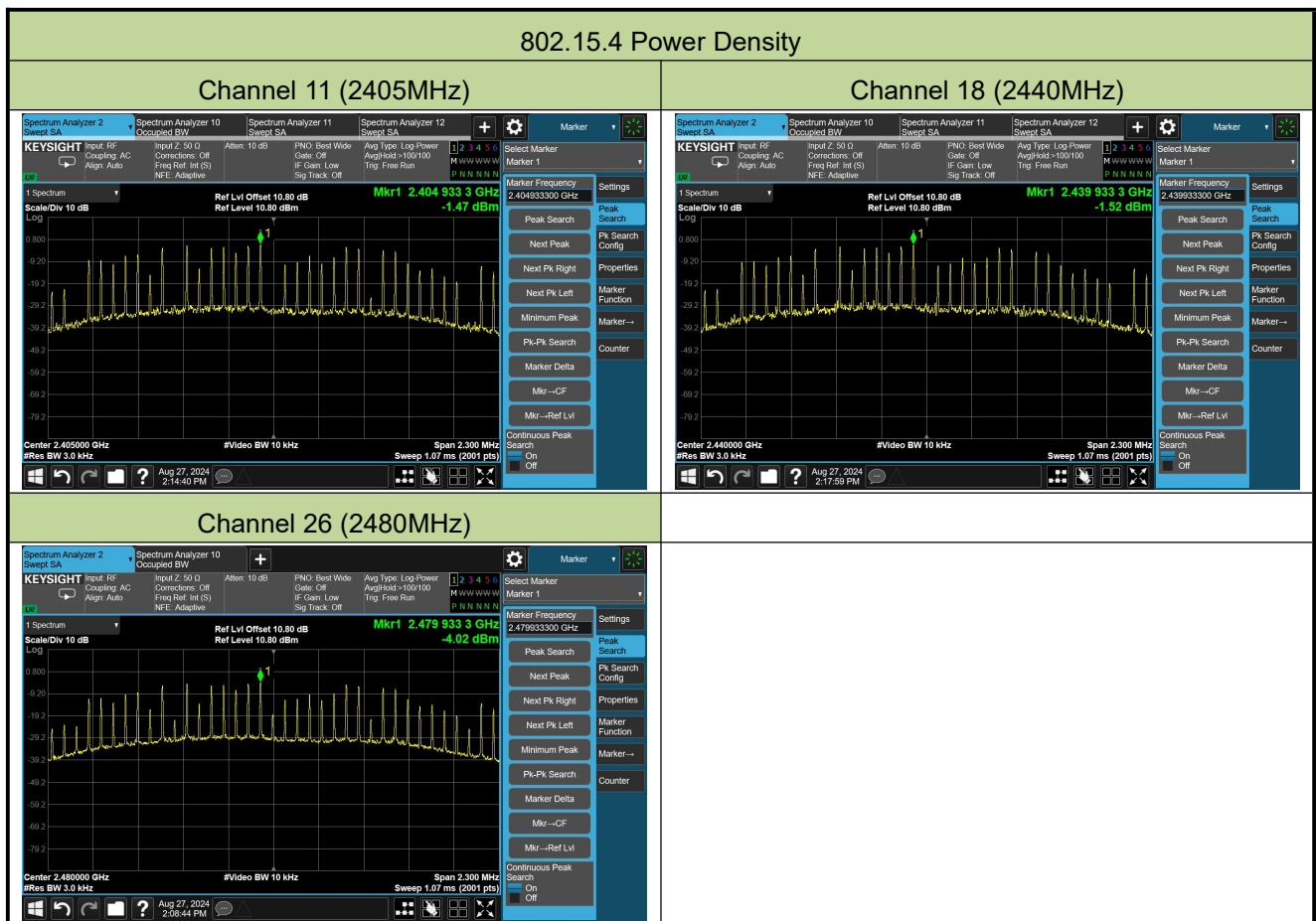
Test Result of Average Output Power (Reporting Only)

Test Mode	Modulation Mode	Channel No.	Freq. (MHz)	Average Power (dBm)		Limit (dBm)	Result
				Ant A	Ant B		
802.15.4	O-QPSK	11	2405	7.77	8.09	≤ 30.00	Pass
802.15.4	O-QPSK	18	2440	7.71	7.89	≤ 30.00	Pass
802.15.4	O-QPSK	26	2480	5.49	5.11	≤ 30.00	Pass

A.4 Power Spectral Density Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2024-08-27		

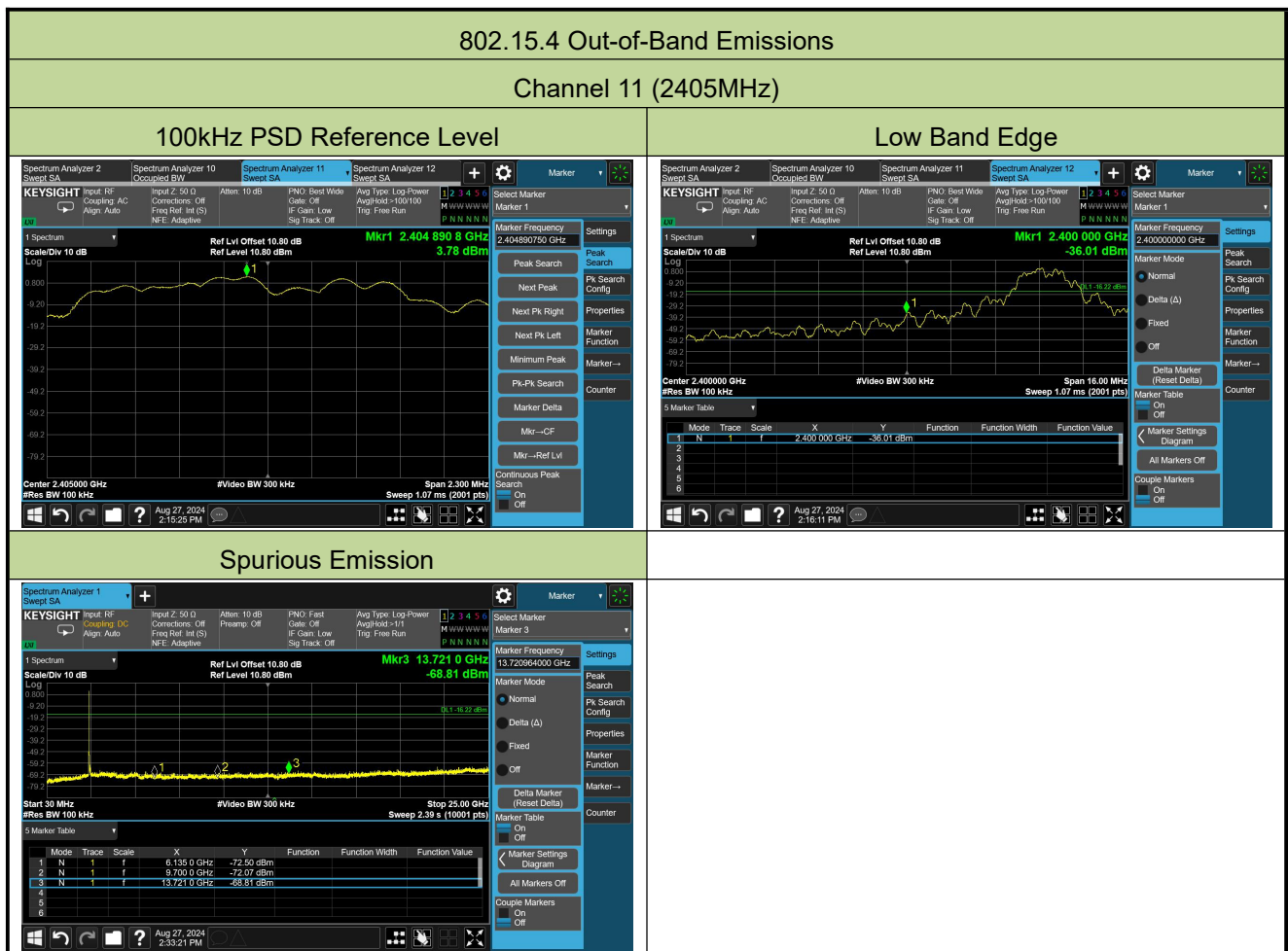
Test Mode	Modulation Mode	Channel No.	Frequency (MHz)	PK PSD (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
802.15.4	O-QPSK	11	2405	-1.47	≤ 8.00	Pass
802.15.4	O-QPSK	18	2440	-1.52	≤ 8.00	Pass
802.15.4	O-QPSK	26	2480	-4.02	≤ 8.00	Pass



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

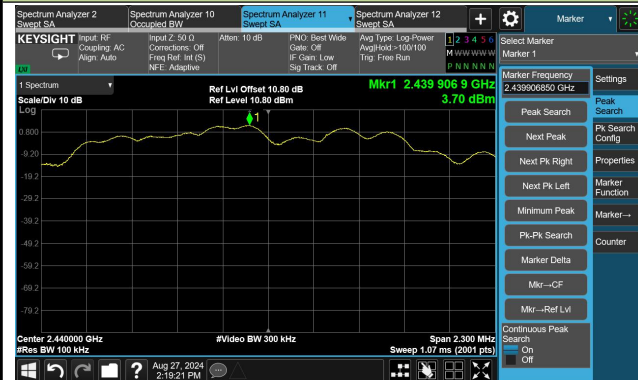
Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2024-08-27		

Test Mode	Data Rate / MCS	Channel No.	Frequency (MHz)	Limit (dBc)	Result
802.15.4	O-QPSK	11	2405	20	Pass
802.15.4	O-QPSK	18	2440	20	Pass
802.15.4	O-QPSK	26	2480	20	Pass

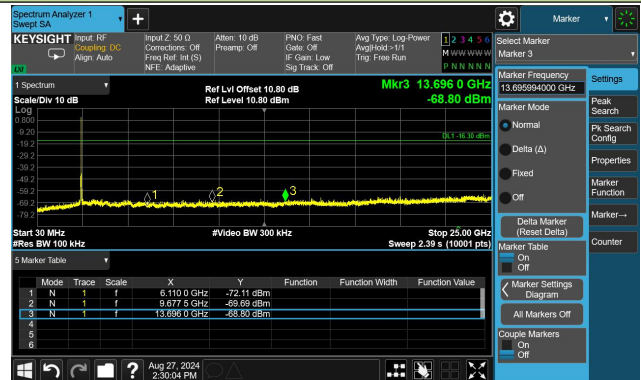


Channel 18 (2440MHz)

100kHz PSD Reference Level

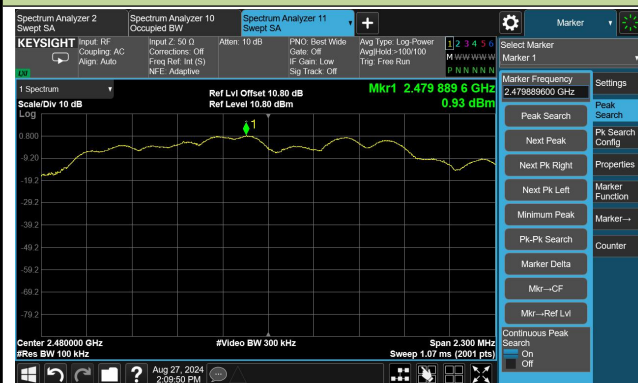


Spurious Emission



Channel 26 (2480MHz)

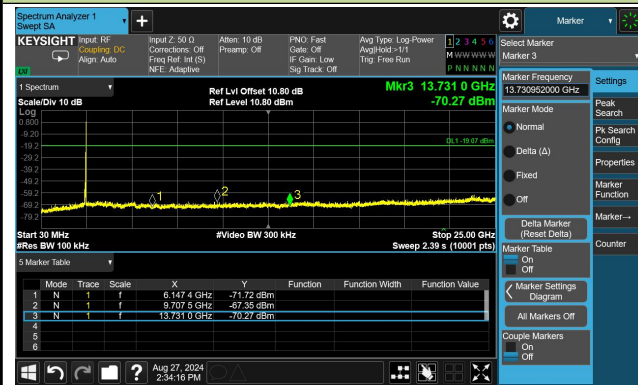
100kHz PSD Reference Level



High Band Edge



Spurious Emission



A.6 Radiated Spurious Emission Test Result

Test Site	WZ-AC1	Test Engineer	Lucas Wang
Test Date	2024-08-25 ~ 2024-08-27	Test Mode	Ant A
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
11	3951.2	37.9	1.4	39.3	74.0	-34.7	Peak	Horizontal
	4852.2	36.7	3.7	40.4	74.0	-33.6	Peak	Horizontal
	11451.6	35.4	14.4	49.8	74.0	-24.2	Peak	Horizontal
	3976.7	38.1	1.5	39.6	74.0	-34.4	Peak	Vertical
	4801.2	37.1	3.7	40.8	74.0	-33.2	Peak	Vertical
	11589.3	36.1	14.0	50.1	74.0	-23.9	Peak	Vertical
18	3986.9	37.3	1.4	38.7	74.0	-35.3	Peak	Horizontal
	4753.6	37.3	3.6	40.9	74.0	-33.1	Peak	Horizontal
	11716.8	36.5	13.4	49.9	74.0	-24.1	Peak	Horizontal
	3988.6	36.9	1.4	38.3	74.0	-35.7	Peak	Vertical
	5000.1	36.5	4.3	40.8	74.0	-33.2	Peak	Vertical
	11427.8	35.1	14.4	49.5	74.0	-24.5	Peak	Vertical
26	3954.6	37.5	1.4	38.9	74.0	-35.1	Peak	Horizontal
	7482.100	38.1	8.8	46.9	74.0	-27.1	Peak	Horizontal
	8255.600	37.4	9.6	47.0	74.0	-27.0	Peak	Horizontal
	11346.200	36.0	14.2	50.2	74.0	-23.8	Peak	Vertical
	7383.500	36.7	8.9	45.6	74.0	-28.4	Peak	Vertical
	8401.800	36.0	9.9	45.9	74.0	-28.1	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	Lucas Wang
Test Date	2024-08-25 ~ 2024-08-27	Test Mode	Ant B
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

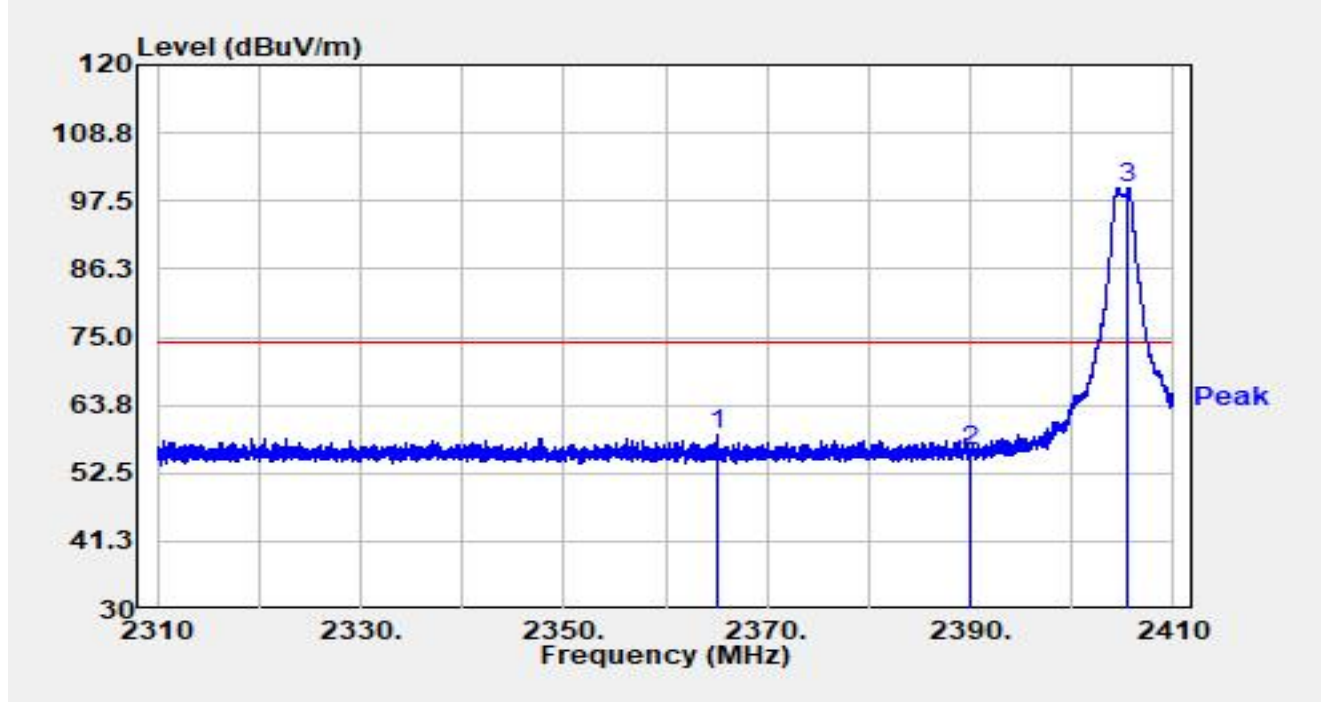
Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
11	3986.9	38.6	1.4	40.0	74.0	-34.0	Peak	Horizontal
	4743.4	37.1	3.5	40.6	74.0	-33.4	Peak	Horizontal
	11177.9	35.2	14.3	49.5	74.0	-24.5	Peak	Horizontal
	3978.4	38.5	1.5	40.0	74.0	-34.0	Peak	Vertical
	4821.6	38.0	3.7	41.7	74.0	-32.3	Peak	Vertical
	11370	34.5	14.3	48.8	74.0	-25.2	Peak	Vertical
18	39554.6	37.48	1.38	38.86	74.0	-35.14	Peak	Horizontal
	4833.5	35.9	3.7	39.6	74.0	-34.4	Peak	Horizontal
	11307.1	33.9	14.2	48.1	74.0	-25.9	Peak	Horizontal
	3949.5	38.4	1.3	39.7	74.0	-34.3	Peak	Vertical
	4706	36.3	3.3	39.6	74.0	-34.4	Peak	Vertical
	11322.4	34.8	14.1	48.9	74.0	-25.1	Peak	Vertical
26	7602.800	37.2	8.8	46.0	74.0	-28.0	Peak	Horizontal
	8230.100	36.8	9.6	46.4	74.0	-27.6	Peak	Horizontal
	11266.300	36.3	14.2	50.5	74.0	-23.5	Peak	Horizontal
	7662.300	37.5	8.9	46.4	74.0	-27.6	Peak	Vertical
	8318.500	36.8	9.6	46.4	74.0	-27.6	Peak	Vertical
	11120.100	36.1	14.4	50.5	74.0	-23.5	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)

A.7 Radiated Restricted Band Edge Test Result

Site	WZ-AC1	Test Date	2024-08-27
Test Engineer	Lucas Wang	Temp./Humidity	24.4°C /44.6%
Factor	BBHA 9120D_1167_1-18GHz	Polarity	Horizontal
EUT	Bodypack Transmitter	Test Voltage	By Battery
Test Mode	Transmit by Zigbee Ant A at 2405MHz		

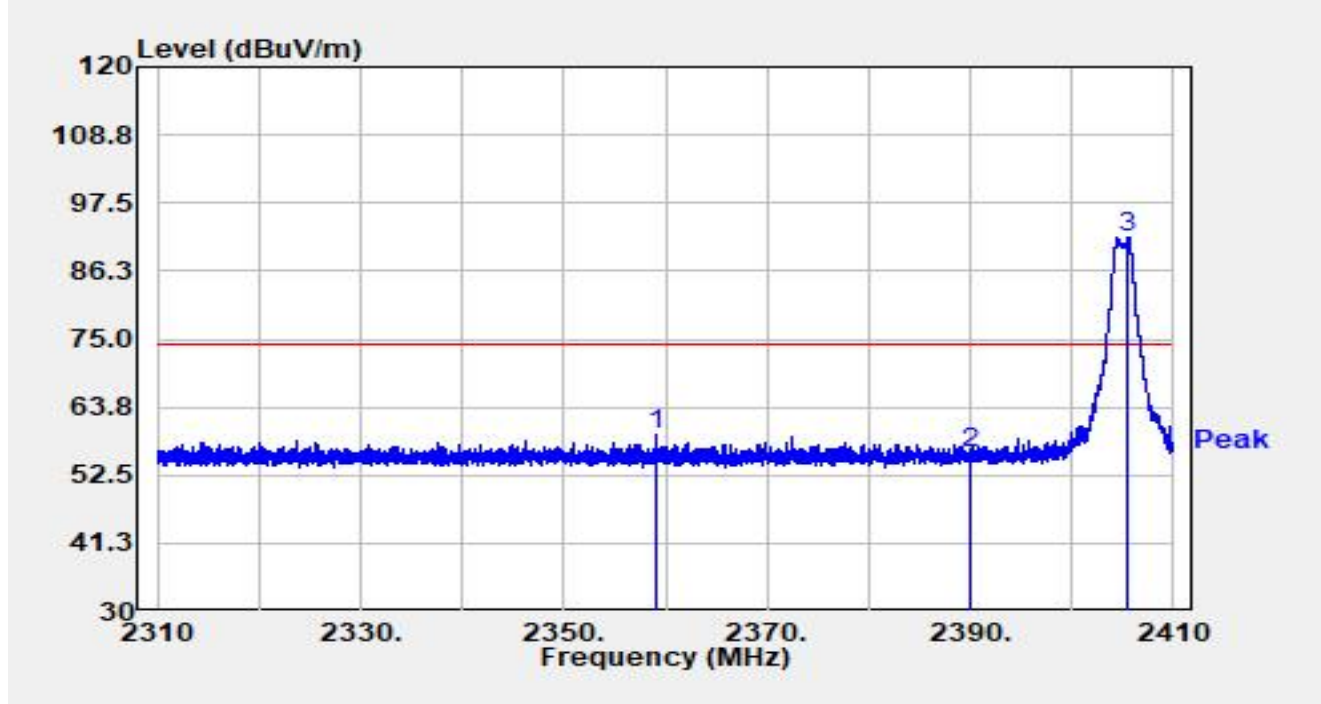


No	Mark	Frequency (MHz)	Reading (dBuV)	C.F (dB/m)	Measurement (dBuV/m)	Margin (dB)	Duty cycle Factor (dB)	Limit (dBuV/m)	Detector
1	*	2365.040	26.80	31.96	58.75	-15.25	N/A	74.00	Peak
		2365.040	26.80	31.96	19.42	-15.25	-39.99	54.00	Average
2		2390.000	24.29	31.96	56.25	-17.75	N/A	74.00	Peak
		2390.000	24.29	31.96	16.92	-17.75	-39.99	54.00	Average
3		2405.520	67.83	31.88	99.71	N/A	N/A	N/A	Peak
		2405.520	67.83	31.88	60.38	N/A	-39.99	N/A	Average

Notes:

1. " *", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement(dBuV/m) = Reading(dBuV) + C.F (dB/m).
4. Average Measure Level = Peak Measure Level + Duty Cycle Factor, Duty Cycle Factor = -39.33dB.

Site	WZ-AC1	Test Date	2024-08-27
Test Engineer	Lucas Wang	Temp./Humidity	24.4°C /44.6%
Factor	BBHA 9120D_1167_1-18GHz	Polarity	Vertical
EUT	Bodypack Transmitter	Test Voltage	By Battery
Test Mode	Transmit by Zigbee Ant A at 2405MHz		

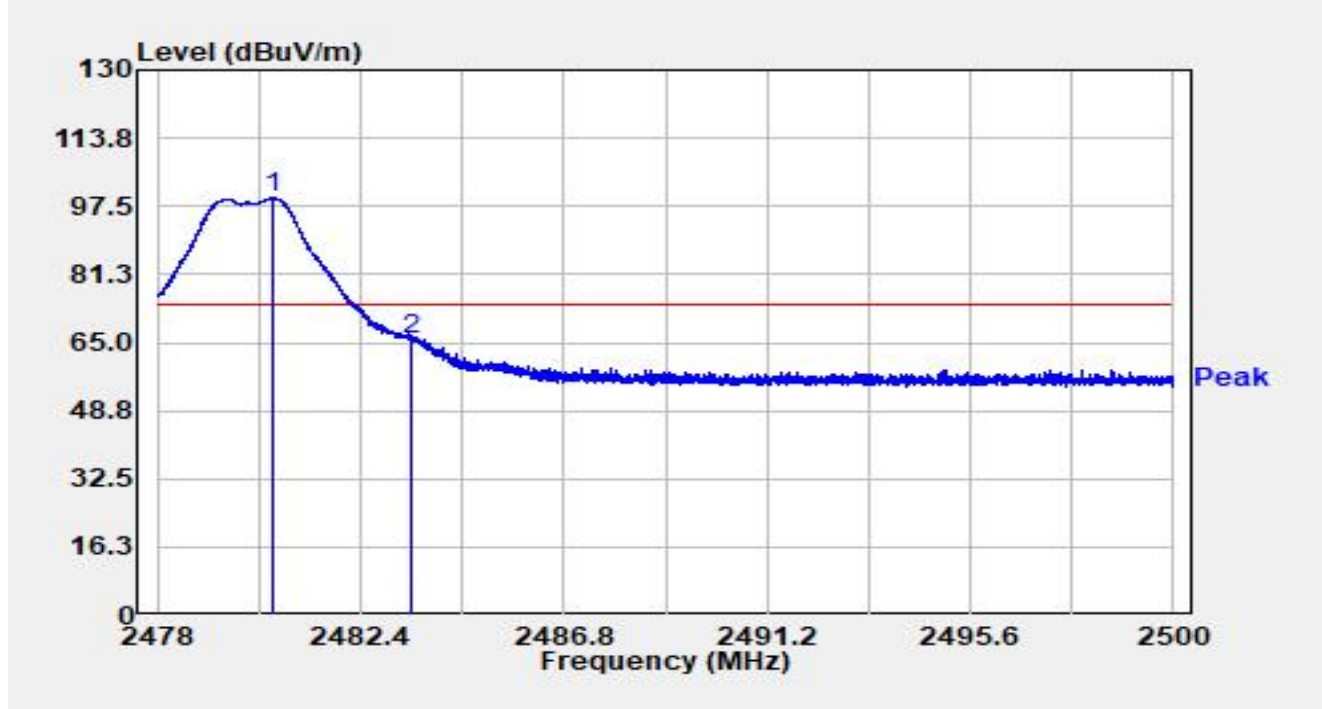


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Duty cycle Factor (dB)	Limit (dBμV/m)	Detector
1	*	2359.020	27.30	31.97	59.26	-14.74	N/A	74.00	Peak
		2359.020	27.30	31.97	19.93	-14.74	-39.99	54.00	Average
2		2390.000	24.09	31.96	56.04	-17.96	N/A	74.00	Peak
		2390.000	24.09	31.96	16.71	-17.96	-39.99	54.00	Average
3		2405.540	59.90	31.88	91.79	N/A	N/A	N/A	Peak
		2405.540	59.90	31.88	52.46	N/A	-39.99	N/A	Average

Notes:

1. " *", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement(dBμV/m) = Reading(dBμV) + C.F (dB/m).
4. Average Measure Level = Peak Measure Level + Duty Cycle Factor, Duty Cycle Factor = -39.33dB.

Site	WZ-AC1	Test Date	2024-08-25
Test Engineer	Lucas Wang	Temp./Humidity	24.4°C /44.6%
Factor	BBHA 9120D_1167_1-18GHz	Polarity	Horizontal
EUT	Bodypack Transmitter	Test Voltage	By Battery
Test Mode	Transmit by Zigbee Ant A at 2480MHz		

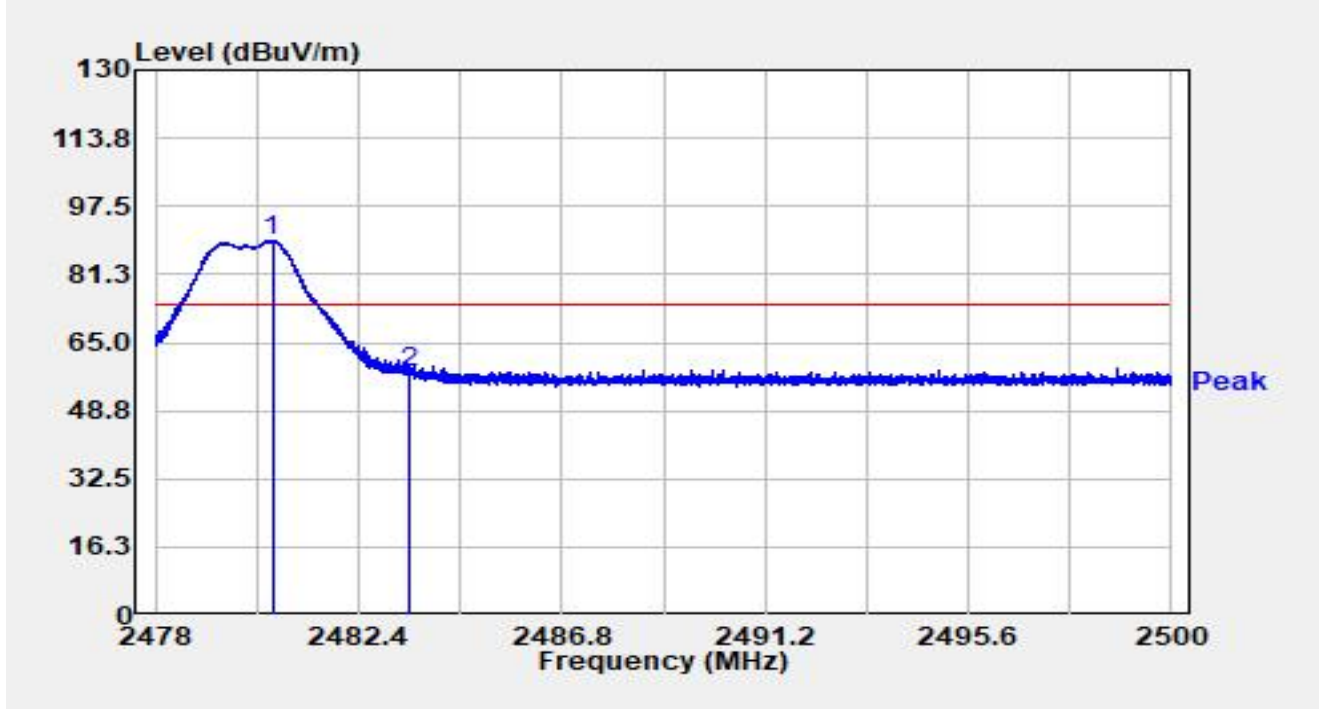


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Duty cycle Factor (dB)	Limit (dBμV/m)	Detector
1		2480.479	67.61	31.80	99.42	N/A	N/A	N/A	Peak
		2480.479	67.61	31.80	60.09	N/A	-39.99	N/A	Average
2	*	2483.500	34.11	31.81	65.91	-8.09	N/A	74.00	Peak
		2483.500	34.11	31.81	26.58	-8.09	-39.99	54.00	Average

Notes:

1. " *", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement(dBμV/m) = Reading(dBμV) + C.F (dB/m).
4. Average Measure Level = Peak Measure Level + Duty Cycle Factor, Duty Cycle Factor = -39.33dB.

Site	WZ-AC1	Test Date	2024-08-25
Test Engineer	Lucas Wang	Temp./Humidity	24.4°C /44.6%
Factor	BBHA 9120D_1167_1-18GHz	Polarity	Vertical
EUT	Bodypack Transmitter	Test Voltage	By Battery
Test Mode	Transmit by Zigbee Ant A at 2480MHz		

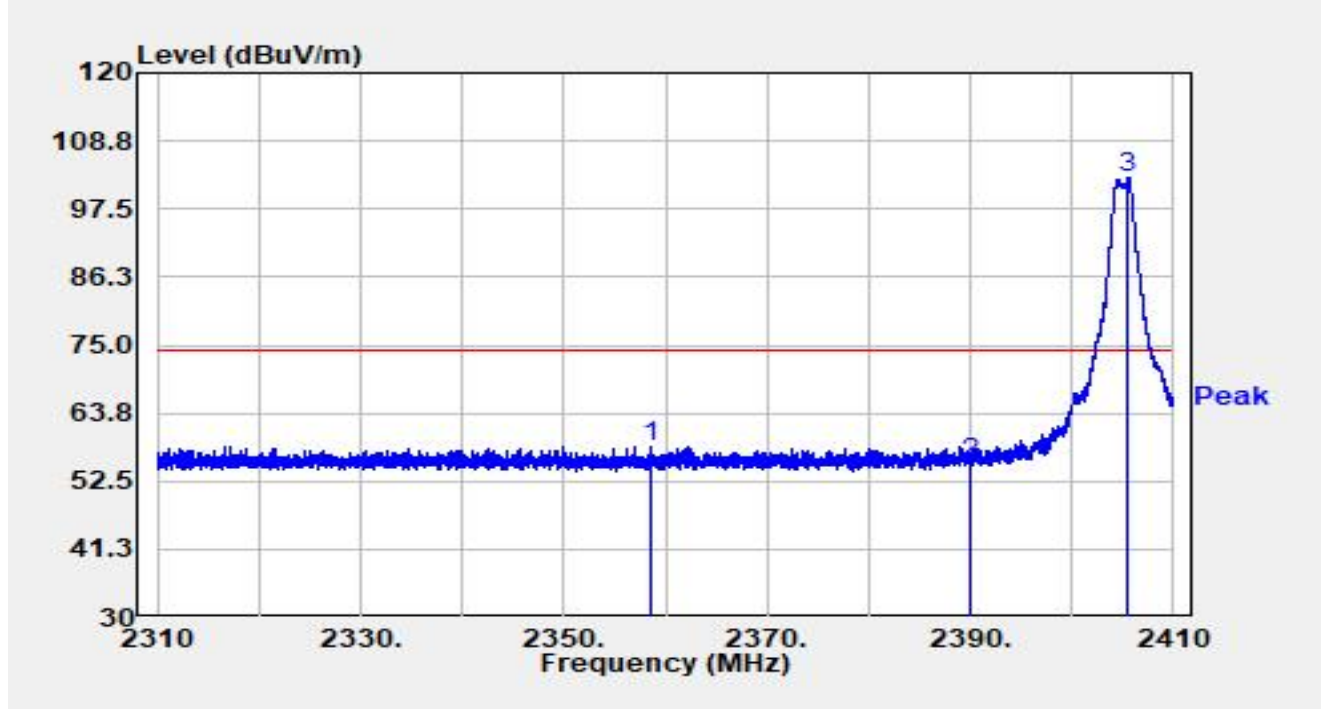


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Duty cycle Factor (dB)	Limit (dBμV/m)	Detector
1		2480.528	57.36	31.80	89.16	N/A	N/A	N/A	Peak
		2480.528	57.36	31.80	49.83	N/A	-39.99	N/A	Average
2	*	2483.500	26.31	31.81	58.12	-15.88	N/A	74.00	Peak
		2483.500	26.31	31.81	18.79	-15.88	-39.99	54.00	Average

Notes:

1. " *", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement(dBμV/m) = Reading(dBμV) + C.F (dB/m).
4. Average Measure Level = Peak Measure Level + Duty Cycle Factor, Duty Cycle Factor = -39.33dB.

Site	WZ-AC1	Test Date	2024-08-27
Test Engineer	Lucas Wang	Temp./Humidity	24.4°C /44.6%
Factor	BBHA 9120D_1167_1-18GHz	Polarity	Horizontal
EUT	Bodypack Transmitter	Test Voltage	By Battery
Test Mode	Transmit by Zigbee Ant B at 2405MHz		

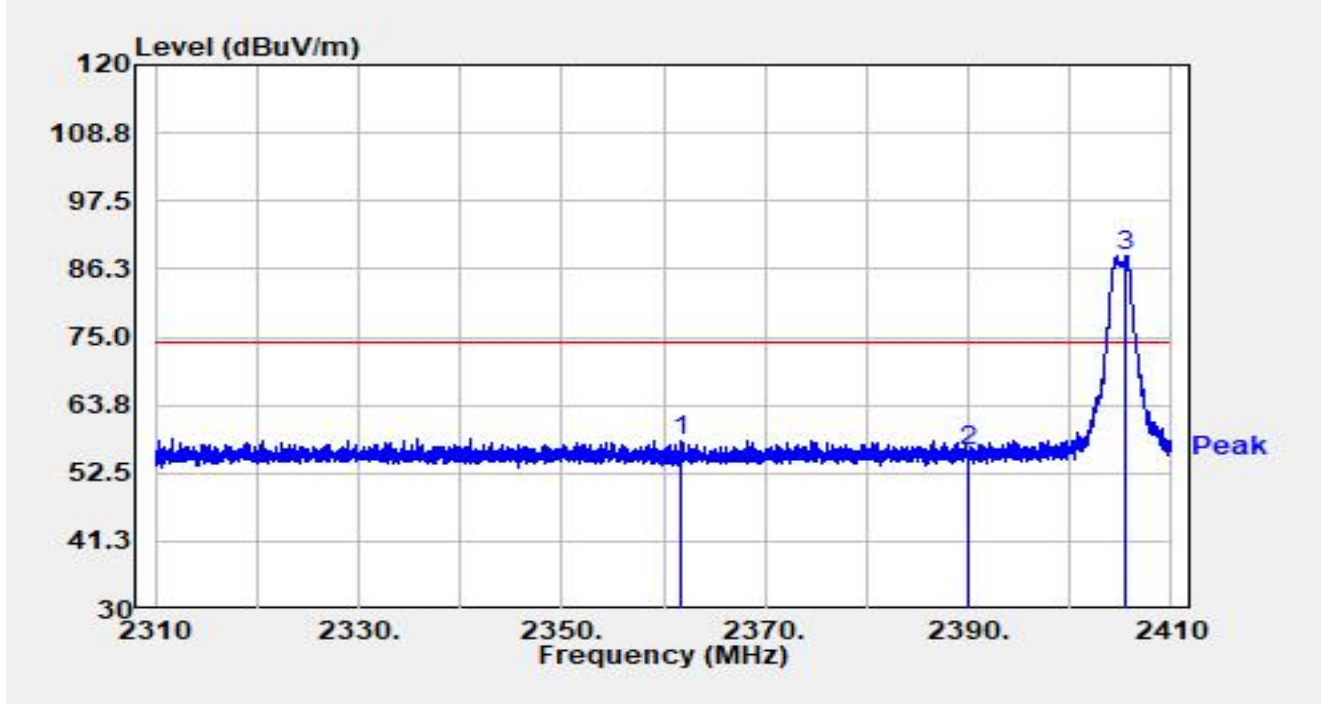


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Duty cycle Factor (dB)	Limit (dBμV/m)	Detector
1	*	2358.520	26.15	31.97	58.11	-15.89	N/A	74.00	Peak
		2358.520	26.15	31.97	18.78	-15.89	-39.99	54.00	Average
2		2390.000	23.58	31.96	55.53	-18.47	N/A	74.00	Peak
		2390.000	23.58	31.96	16.20	-18.47	-39.99	54.00	Average
3		2405.520	70.82	31.88	102.71	N/A	N/A	N/A	Peak
		2405.520	70.82	31.88	63.38	N/A	N/A	N/A	Average

Notes:

1. " *", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement(dBμV/m) = Reading(dBμV) + C.F (dB/m).
4. Average Measure Level = Peak Measure Level + Duty Cycle Factor, Duty Cycle Factor = -39.33dB.

Site	WZ-AC1	Test Date	2024-08-27
Test Engineer	Lucas Wang	Temp./Humidity	24.4°C /44.6%
Factor	BBHA 9120D_1167_1-18GHz	Polarity	Vertical
EUT	Bodypack Transmitter	Test Voltage	By Battery
Test Mode	Transmit by Zigbee Ant B at 2405MHz		

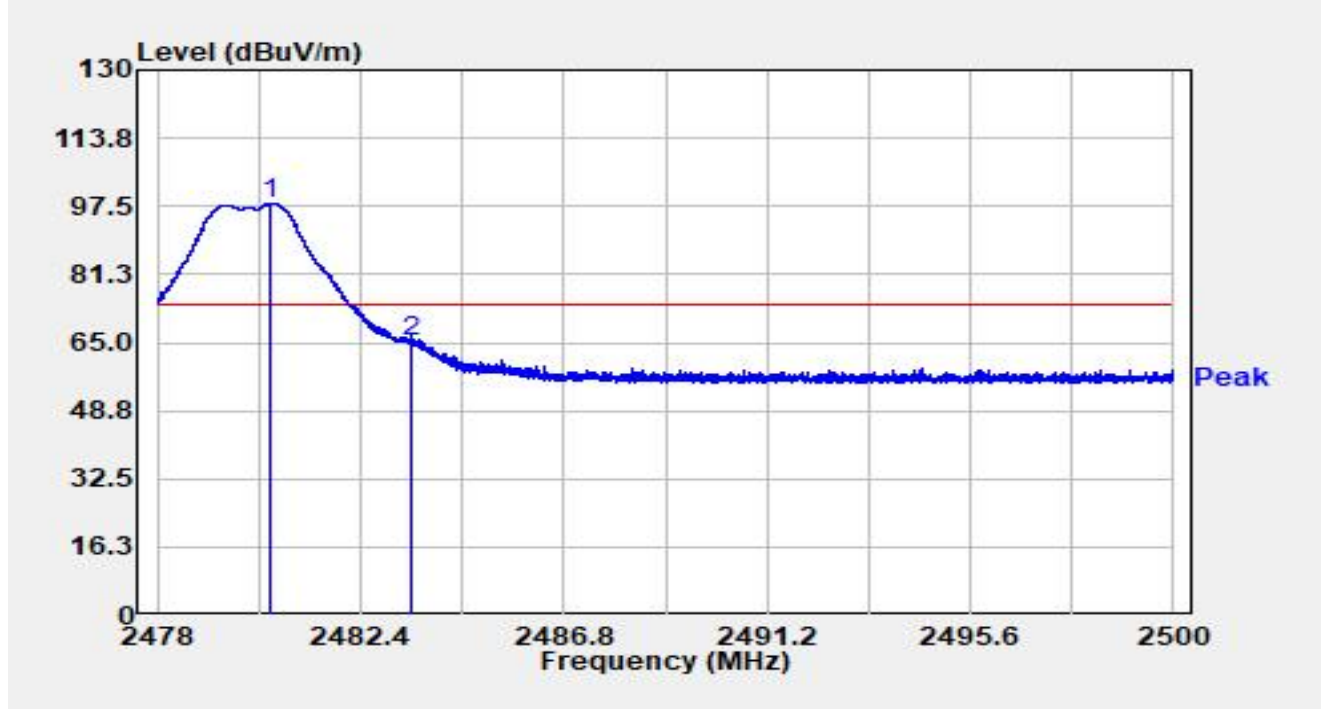


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Duty cycle Factor (dB)	Limit (dBμV/m)	Detector
1	*	2361.820	25.88	31.96	57.84	-16.16	N/A	74.00	Peak
		2361.820	25.88	31.96	18.51	-16.16	-39.99	54.00	Average
2		2390.000	24.20	31.96	56.15	-17.85	N/A	74.00	Peak
		2390.000	24.20	31.96	16.82	-17.85	-39.99	54.00	Average
3		2405.540	56.46	31.88	88.34	N/A	N/A	N/A	Peak
		2405.540	56.46	31.88	49.01	N/A	-39.99	N/A	Average

Notes:

1. " *", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement(dBμV/m) = Reading(dBμV) + C.F (dB/m).
4. Average Measure Level = Peak Measure Level + Duty Cycle Factor, Duty Cycle Factor = -39.33dB.

Site	WZ-AC1	Test Date	2024-08-25
Test Engineer	Lucas Wang	Temp./Humidity	24.4°C /44.6%
Factor	BBHA 9120D_1167_1-18GHz	Polarity	Horizontal
EUT	Bodypack Transmitter	Test Voltage	By Battery
Test Mode	Transmit by Zigbee Ant B at 2480MHz		

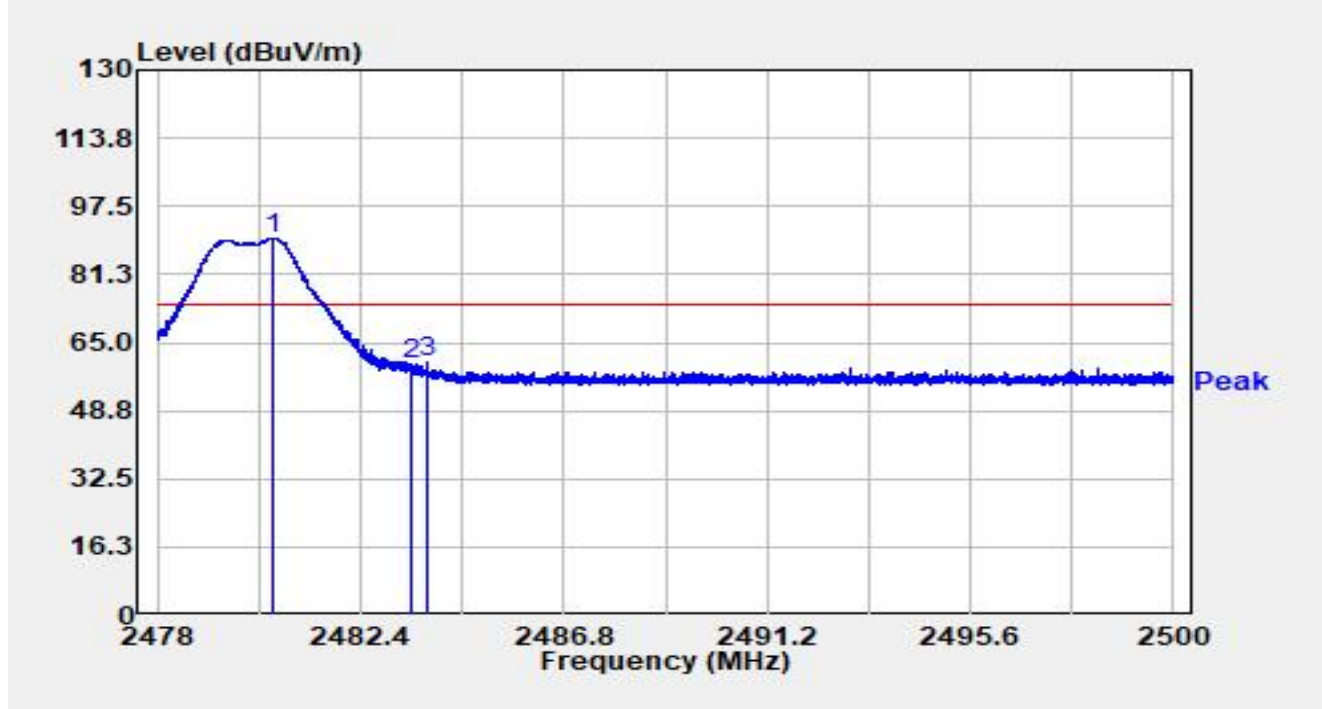


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Duty cycle Factor (dB)	Limit (dBμV/m)	Detector
1		2480.469	66.44	31.80	98.25	N/A	N/A	N/A	Peak
		2480.469	66.44	31.80	58.92	N/A	-39.99	N/A	Average
2	*	2483.500	33.39	31.81	65.19	-8.81	N/A	74.00	Peak
		2483.500	33.39	31.81	25.86	-8.81	-39.99	54.00	Average

Notes:

1. " *", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement(dBμV/m) = Reading(dBμV) + C.F (dB/m).
4. Average Measure Level = Peak Measure Level + Duty Cycle Factor, Duty Cycle Factor = -39.33dB.

Site	WZ-AC1	Test Date	2024-08-25
Test Engineer	Lucas Wang	Temp./Humidity	24.4°C /44.6%
Factor	BBHA 9120D_1167_1-18GHz	Polarity	Vertical
EUT	Bodypack Transmitter	Test Voltage	By Battery
Test Mode	Transmit by Zigbee Ant B at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Duty cycle Factor (dB)	Limit (dBμV/m)	Detector
1		2480.495	58.13	31.80	89.93	N/A	N/A	N/A	Peak
		2480.495	58.13	31.80	50.60	N/A	-39.99	N/A	Average
2		2483.500	28.09	31.81	59.90	-14.10	N/A	74.00	Peak
		2483.500	28.09	31.81	20.57	-14.10	-39.99	54.00	Average
3	*	2483.856	28.45	31.81	60.26	-13.74	N/A	74.00	Peak
		2483.856	28.45	31.81	20.93	-13.74	-39.99	54.00	Average

Notes:

1. " *", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement(dBμV/m) = Reading(dBμV) + C.F (dB/m).
4. Average Measure Level = Peak Measure Level + Duty Cycle Factor, Duty Cycle Factor = -39.33dB.

A.8 AC Conducted Emissions Test Result

The EUT is powered by battery, so this item is not applicable.

Appendix B – Test Setup Photograph

Refer to “2407RSU039-UT” file.

Appendix C – EUT Photograph

Refer to “2407RSU039-UE” file.

The End
