



RF MEASUREMENT REPORT

FCC ID: Q9DAPIN0735A

Applicant: Hewlett Packard Enterprise Company

Product: ACCESS POINT

Model No.: APIN0735A

Trademark:  , 

FCC Classification: Digital Transmission System (DTS)

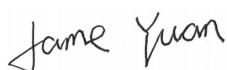
FCC Rule Part(s): Part 15 Subpart C (Section 15.247)

Result: Complies

Received Date: 2024-09-26

Test Date: 2024-10-20 ~ 2024-10-31

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
2409RSU050-U2	V01	Initial Report	2024-12-09	Valid

Note 1: The APIN0735A is a variation on the existing APIN0735. The APIN0735 is currently FCC certified under FCC ID: Q9DAPIN0735.

The APIN0735A differs from the APIN0735 in the following ways:

Part substitution for 5G and 6G passive filter

Note 2: There's no change for ZigBee specification, so spot check for each item was performed and all other test data were referenced from the original report.

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1. General Information

1.1. Applicant

Hewlett Packard Enterprise Company
6280 America Center Drive, San Jose CA 95002, United States

1.2. Manufacturer

Hewlett Packard Enterprise Company
6280 America Center Drive, San Jose CA 95002, United States

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	ACCESS POINT
Model No.	APIN0735A
Serial No.	CNSCM52023
Software Version	BCM4711A0_11_02_2023
Wi-Fi Specification	802.11a/b/g/n/ac/ax/be
Bluetooth Specification	BLE only
ZigBee Specification	802.15.4
GNSS Specification	GPS, Galileo
Antenna Information	Refer to Section 1.9
Power Type	AC Adapter Input or PoE Input
Operating Environment	Indoor Use
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

ZigBee Specification	802.15.4
Frequency Range	2405 ~ 2480MHz
Channel Number	16
Type of Modulation	O-QPSK

1.6. Working Frequencies

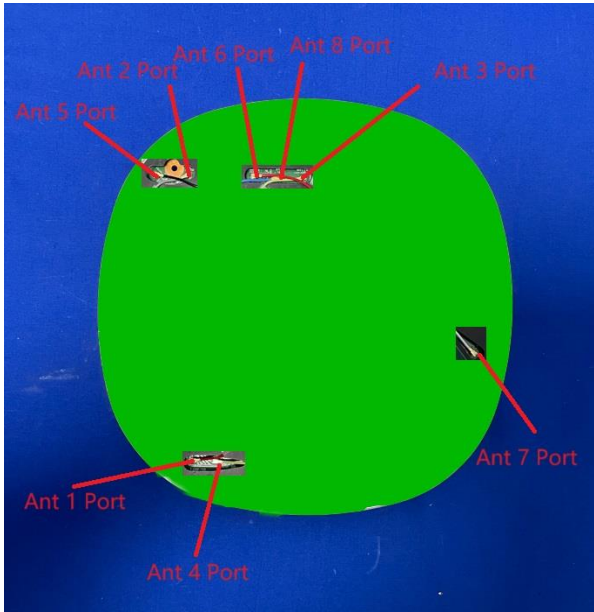
Channel	Frequency	Channel	Frequency	Channel	Frequency
11	2405 MHz	12	2410 MHz	13	2415 MHz
14	2420 MHz	15	2425 MHz	16	2430 MHz
17	2435 MHz	18	2440 MHz	19	2445 MHz
20	2450 MHz	21	2455 MHz	22	2460 MHz
23	2465 MHz	24	2470 MHz	25	2475 MHz
26	2480 MHz	--	--	--	--

1.7. Description of Operating Paths

The EUT has two BLE/ZigBee radios, Core 0 and Core1, Core 0 was equipped with one antenna named Ant 6 and Core 1 was equipped with two antennas named Ant 8 and Ant 3, The front end of each antenna port corresponds to three filters respectively, filter 1#, 2#, 3# for Ant 6, filter 4#, 5#, 6# for Ant 8, filter 7#, 8#, 9# for Ant 3, details are as follows.

Filter	Specification	Remark
1#, 4#, 7#	Band Pass Filter (2402-2480)	Allowing any transmission on all channels
2#, 5#, 8#	Band Pass Filter (2402-2430)	Allowing transmission on BLE channels 37 (2402MHz) and 38 (2426MHz) and Zigbee channel 11 (2405MHz)
3#, 6#, 9#	Band Pass Filter (2478-2482)	Allowing transmission on BLE channel 39 (2480MHz) and Zigbee channel 26(2480MHz)

1.8. Description of Antenna RF Port

				
Antenna Port	RF Spec.			
	Wi-Fi 2.4G	Wi-Fi 5G	Wi-Fi 6G	BLE/ZigBee
Ant 1	--	--	● (Radio 2)	--
Ant 4	--	--	● (Radio 2)	--
Ant 2	● (Radio 0)	● (Radio 1)	--	--
Ant 5	● (Radio 0)	● (Radio 1)	--	--
Ant 3	--	● (Radio 0)	● (Radio 0)	● (Core 1)
Ant 6	--	● (Radio 0)	● (Radio 0)	● (Core 0)
Ant 8	--	--	--	● (Core 1)
Ant 7	GNSS			

1.9. Antenna Details

Antenna Type	Frequency Band (GHz)	Antenna Gain (dBi)		
		Ant 6	Ant 8	Ant 3
PIFA	2.4 ~ 2.5	3.60	4.51	4.74

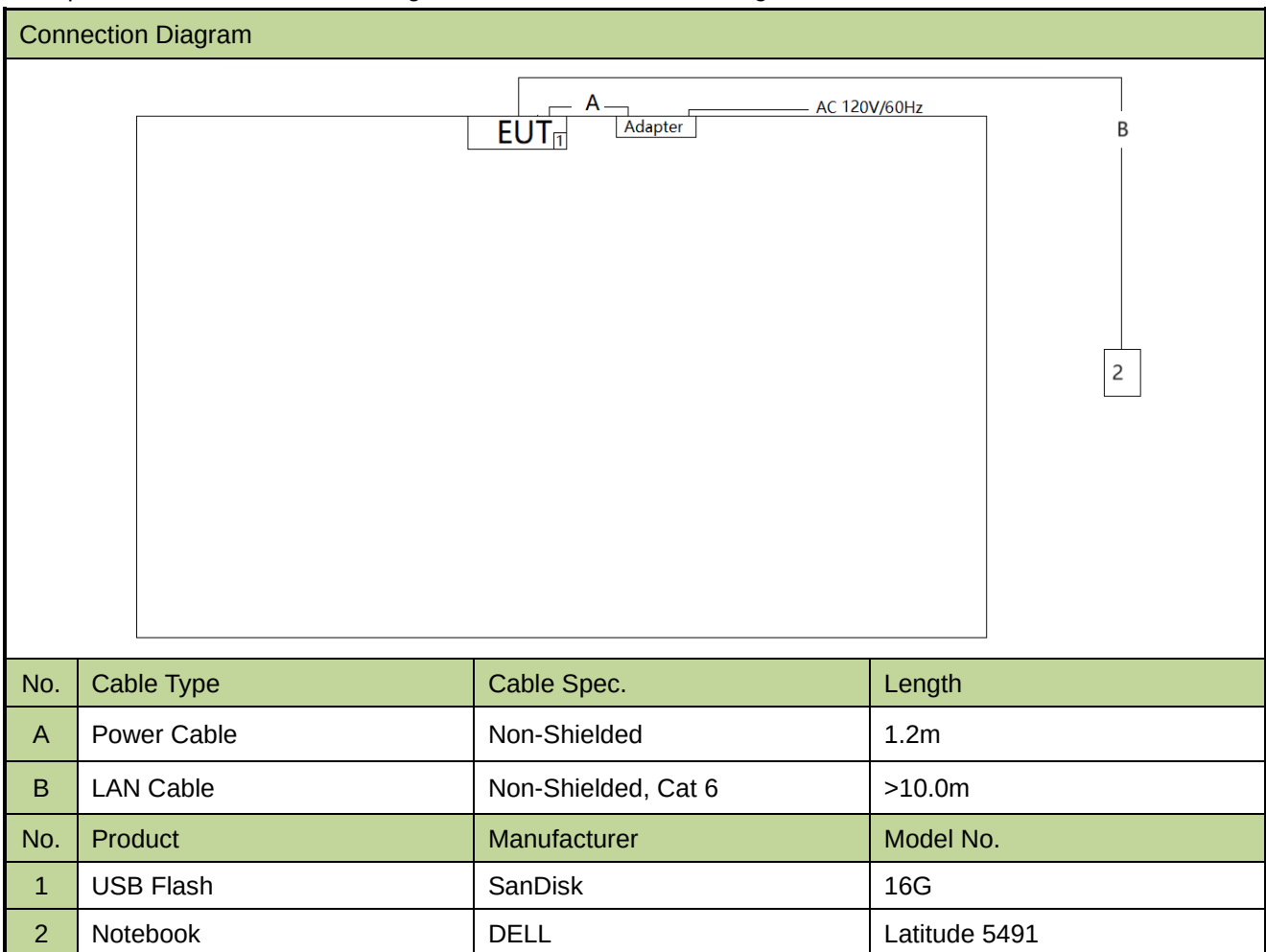
2. Test Configuration

2.1. Test Mode

Mode 1: Transmit at Core 0 on Ant 6 port
Mode 2: Transmit at Core 1 on Ant 8 port
Mode 3: Transmit at Core 1 on Ant 3 port

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.



2.3. Test Software

The test utility software used during testing was “telnet”, and commands were 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
TRILOG Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2025-04-17	WZ-AC2
EMI Test Receiver	Agilent	N9038A	MRTSUE06125	1 year	2025-05-08	WZ-AC2
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06171	1 year	2025-09-23	WZ-AC2
Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2025-05-06	WZ-AC2
Anechoic Chamber	RIKEN	WZ-AC2	MRTSUE06213	1 year	2025-04-18	WZ-AC2
Thermohygrometer	testo	608-H1	MRTSUE11263	1 year	2025-10-16	WZ-AC2
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2025-11-03	WZ-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE06640	1 year	2025-01-11	WZ-AC2
Active Loop Antenna	Schwarzbeck	FMZB 1519-60 D	MRTSUE07076	1 year	2025-11-19	WZ-AC2
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
USB Power Sensor	Keysight	U2021XA	MRTSUE06446	1 year	2025-05-08	WZ-SR5
Attenuator	MVE	MVE2213	MRTSUE11092	1 year	2025-06-05	WZ-SR5
Shielding Room	MIX-BEP	WZ-SR2	MRTSUE06215	5 years	2026-12-20	WZ-SR2
Thermohygrometer	testo	608-H1	MRTSUE06404	1 year	2025-05-12	WZ-SR2
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2025-05-08	WZ-SR2
Four-Line V-Network	R&S	ENV432	MRTSUE06615	1 year	2025-09-05	WZ-SR2
EMI Test Receiver	R&S	ESR3	MRTSUE06909	1 year	2025-09-05	WZ-SR2

Software	Version	Function
e3	230711	EMI Test Software
Controller_MF 7802	1.02	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:

- 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.
- For radiated emission tests, every axis (X, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.
- The test items of each filter see table below:

Test Items	Filter 1# & 4# & 7#	Filter 2 # & 5# & 8#	Filter 3# & 6# & 9#
6dB Bandwidth	•	--	--
Output Power	•	•	•
Power Spectral Density	•	--	--
Band Edge / Out-of-Band Emissions	•	•	•
Radiated Spurious Emission	•	•	•
Radiated Band Edge	•	•	•
AC Conducted Emissions 150kHz - 30MHz	•	--	--

6.2. 6dB Bandwidth Measurement

6.2.1. Test Limit

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

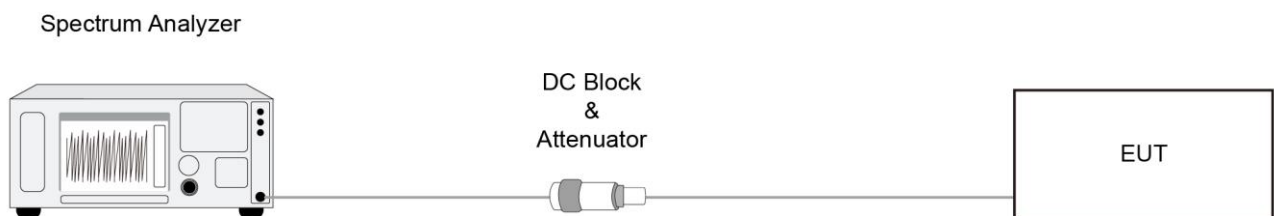
6.2.2. Test Procedure

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

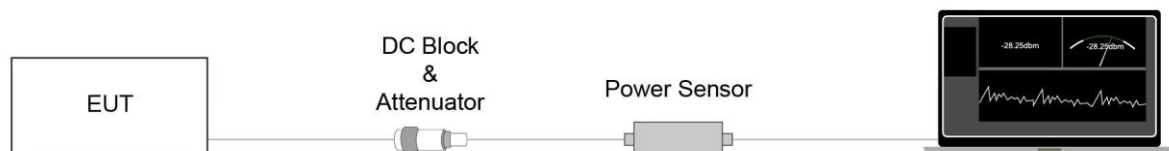
Method PKPM1 (Peak Power Measurement of Signals with DTS BW $\leq$ 50MHz)

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.

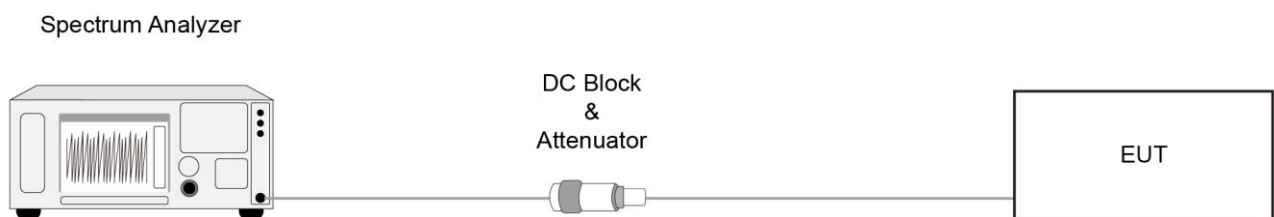
6.4.2. Test Procedure

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 Setting

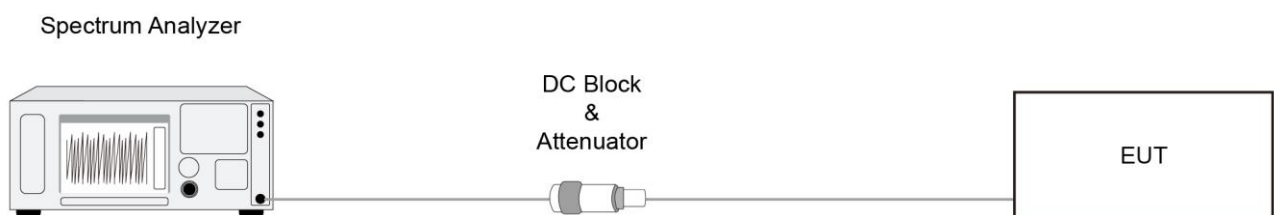
Reference level measurement

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 = 10Hz

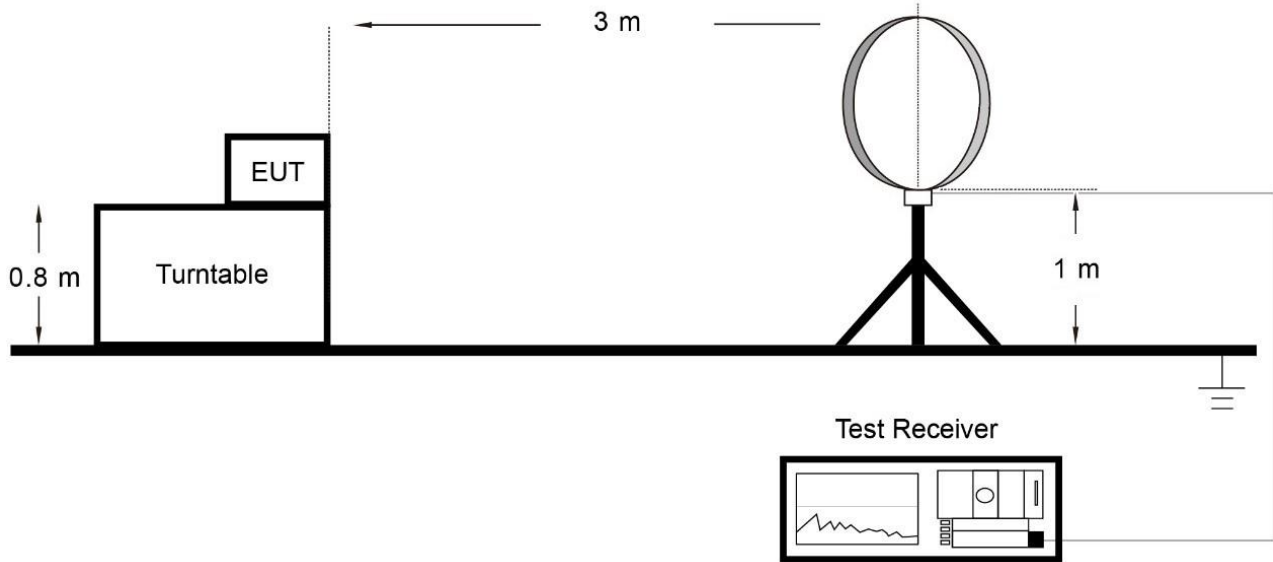
If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration.

ZigBee	VBW =240Hz	--	--
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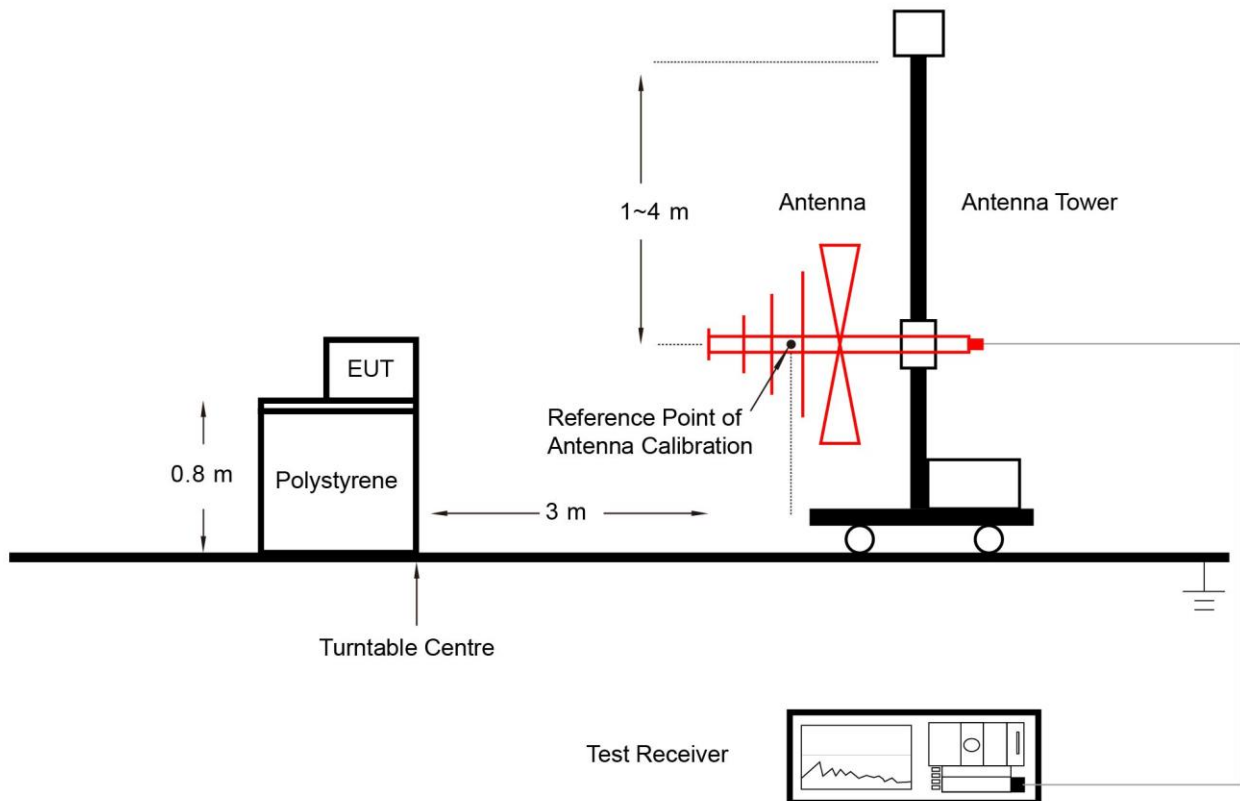
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak
6. Sweep time = Auto
7. Trace mode = Max hold
8. Trace was allowed to stabilize

6.6.4. Test Setup

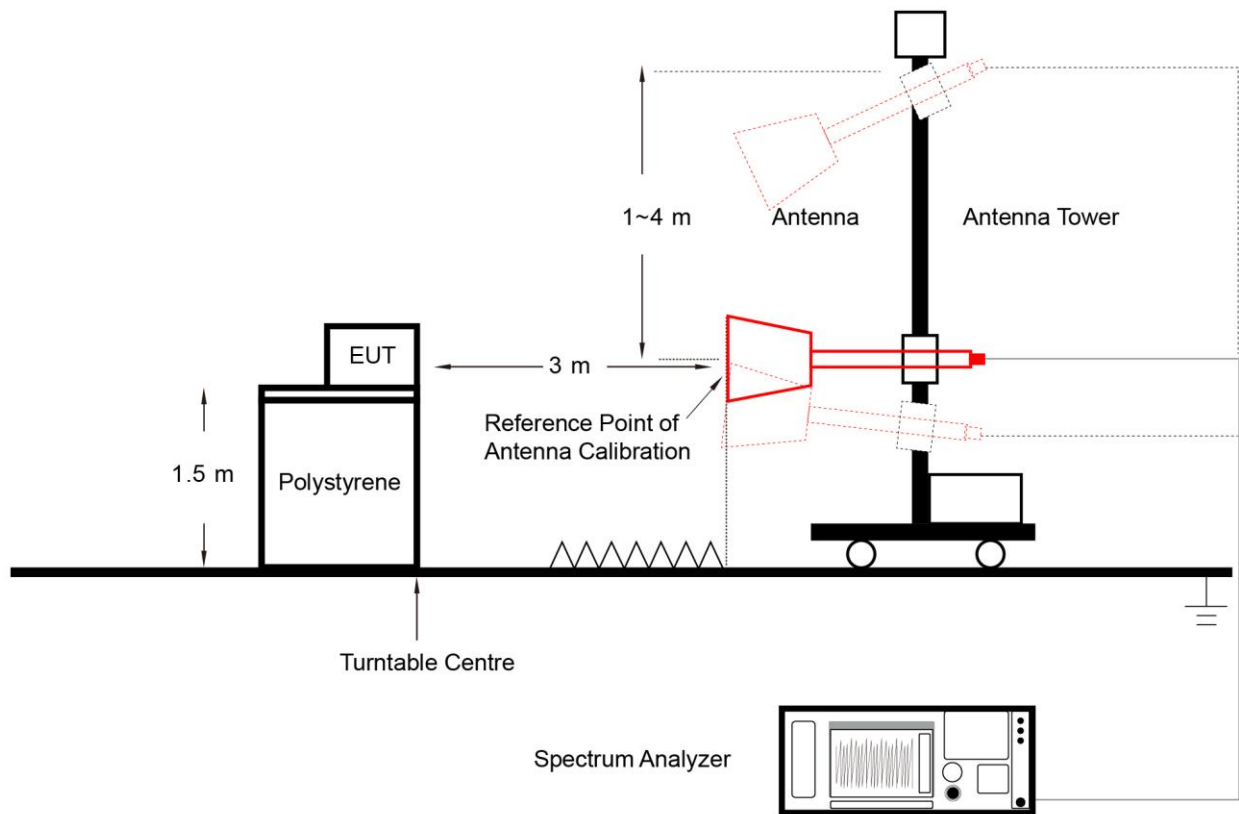
Below 30MHz Test Setup:



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

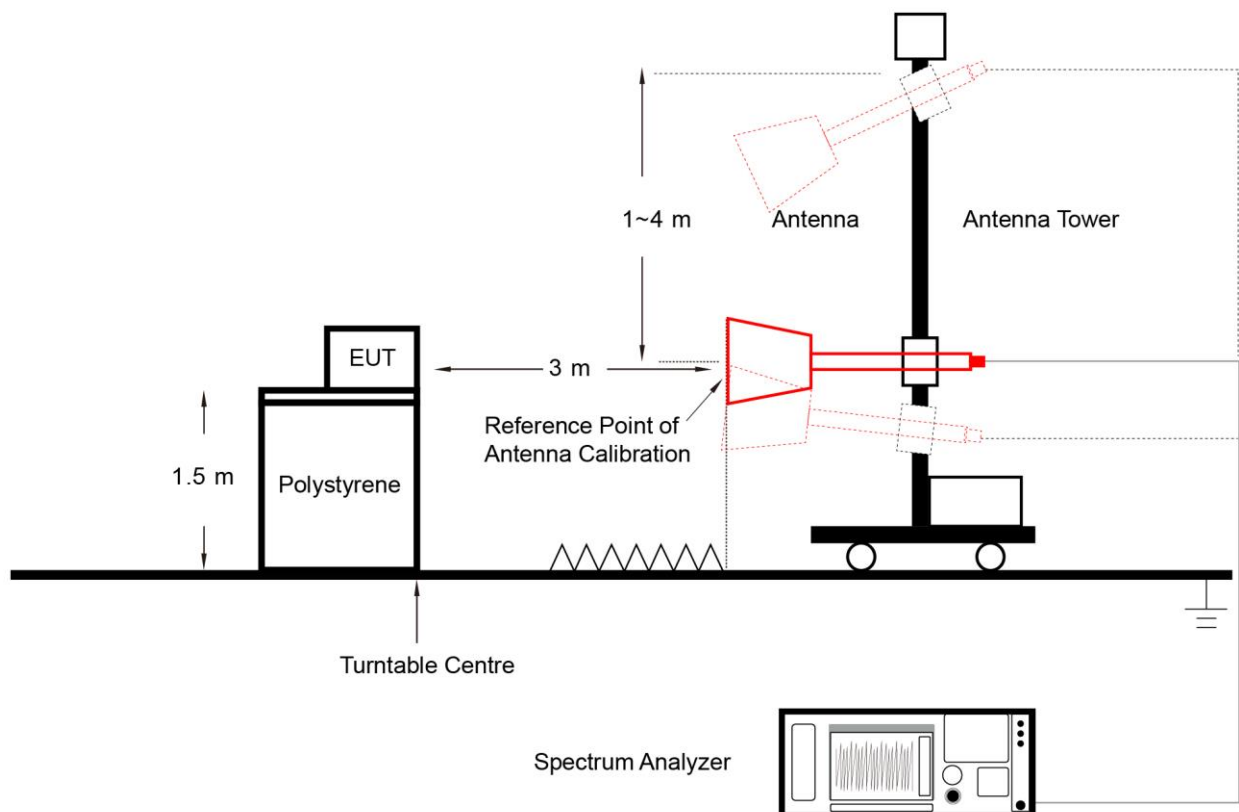
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10 Hz.

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

ZigBee	VBW =240Hz	--	--
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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

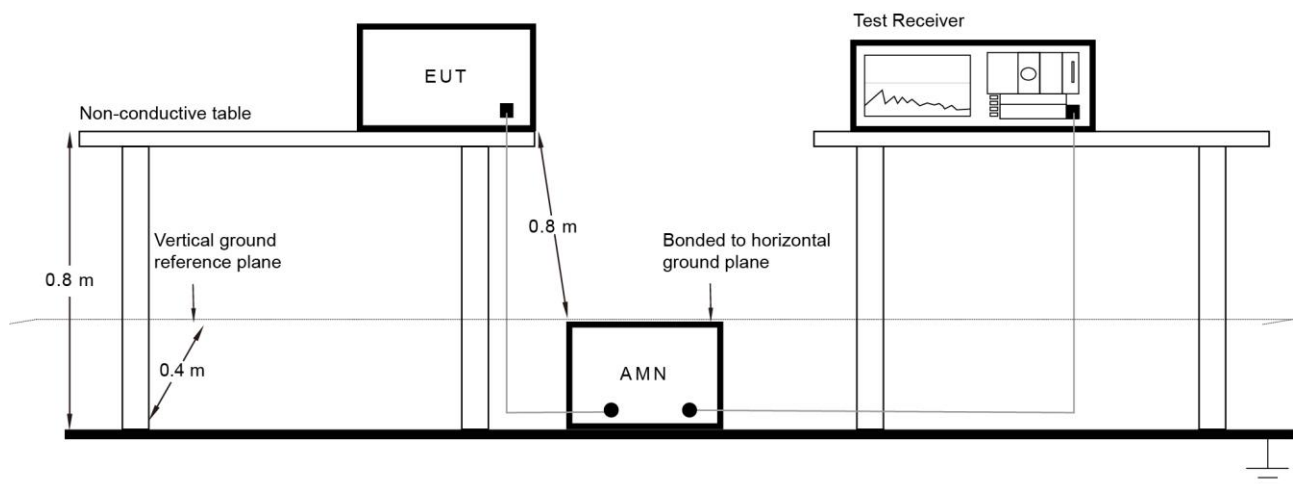
6.8.1. Test Limit

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

Refer to MRT report No. 2311RSU031-U2 clause A.1

A.2 6dB Bandwidth Test Result

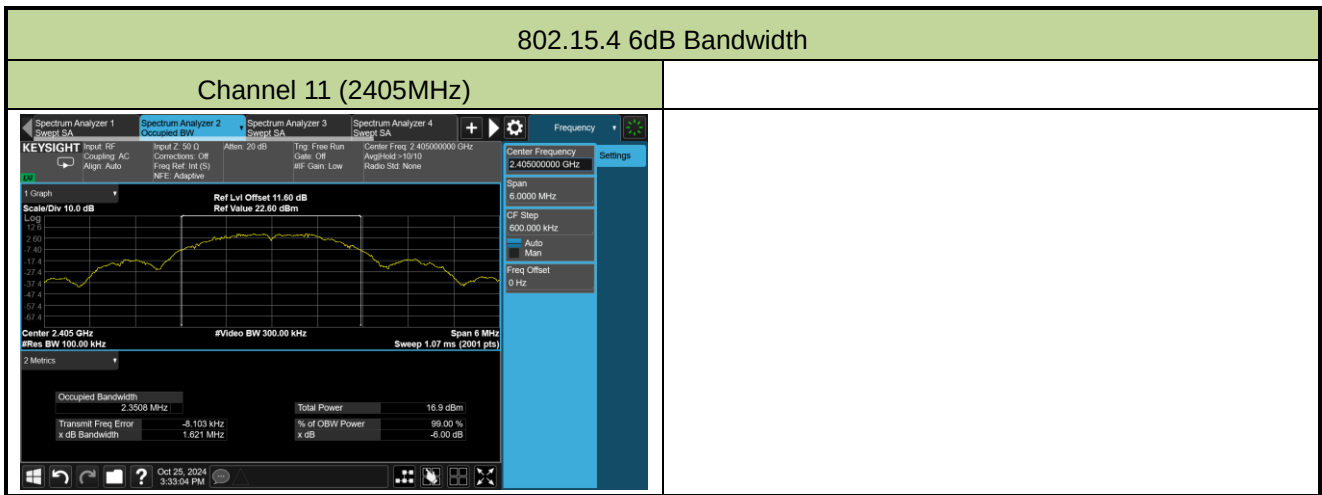
Refer to MRT report No. 2311RSU031-U2 clause A.2

Spot Check:

Mode 3

Test Site	WZ-SR5	Test Engineer	Luis Yang
Test Date	2024-10-25		

Test Mode	Modulation Mode	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.15.4	O-QPSK	11	2405	1.621	≥ 0.5	Pass



A.3 Output Power Test Result

Refer to MRT report No. 2311RSU031-U2 clause A.3

Spot Check:**Mode 1**

Test Site	WZ-SR5	Test Engineer	Luis Yang
Test Date	2024-10-25	Filter	1#

Test Result of Peak Output Power

Test Mode	Modulation Mode	Channel No.	Freq. (MHz)	Peak Power (dBm)	Limit (dBm)	Result
802.15.4	O-QPSK	11	2405	10.43	≤ 30.00	Pass

A.4 Power Spectral Density Test Result

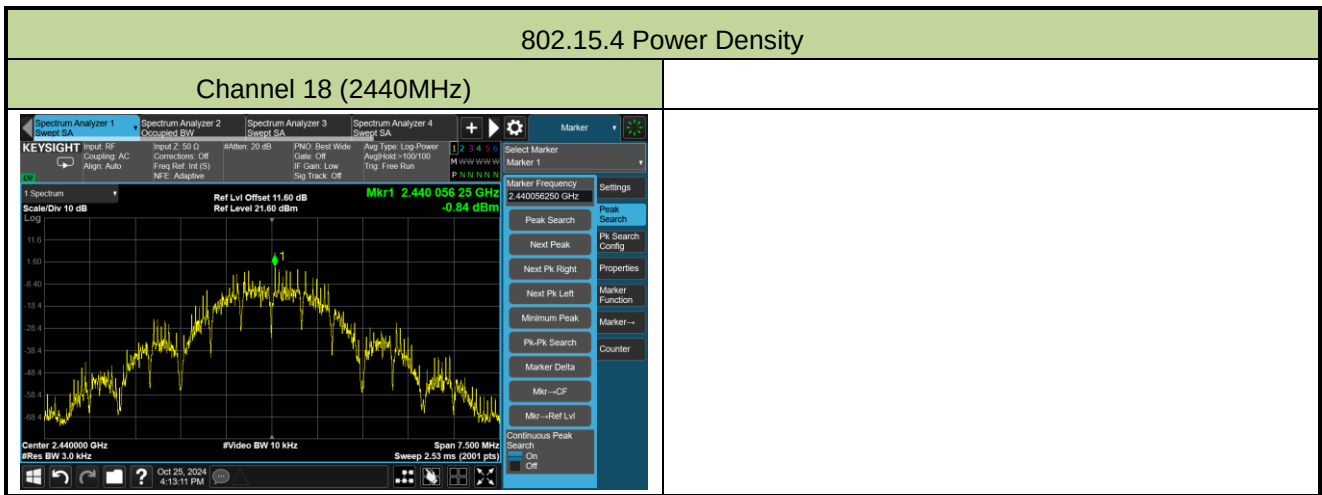
Refer to MRT report No. 2311RSU031-U2 clause A.4

Spot Check:

Mode 3

Test Site	WZ-SR5	Test Engineer	Luis Yang
Test Date	2024-10-25		

Test Mode	Modulation Mode	Channel No.	Frequency (MHz)	PK PSD (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
802.15.4	O-QPSK	18	2440	-0.84	≤ 8.00	Pass



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

Refer to MRT report No. 2311RSU031-U2 clause A.5

Spot Check:

Mode 3

Test Site	WZ-SR5	Test Engineer	Luis Yang
Test Date	2024-10-25	Filter	7#

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



A.6 Radiated Spurious Emission Test Result

Refer to MRT report No. 2311RSU031-U2 clause A.6

Spot Check:

Mode 3

Test Site	WZ-AC2	Test Engineer	Bob Zhang
Test Date	2024-10-20	Filter	7#
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.		

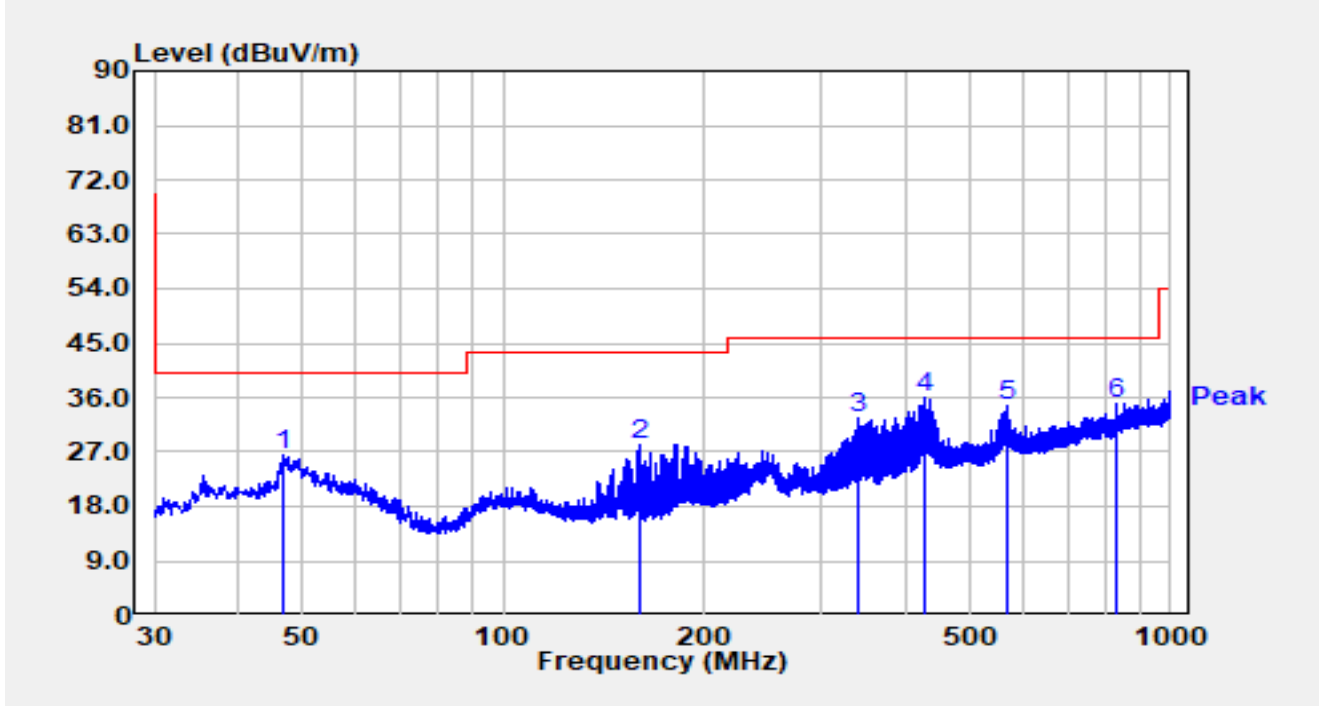
Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
11	4032.8	35.0	0.9	35.9	74.0	-38.1	Peak	Horizontal
	7606.2	33.3	10.9	44.2	74.0	-29.8	Peak	Horizontal
	11795.0	30.7	17.2	47.9	74.0	-26.1	Peak	Horizontal
	4821.6	34.4	3.8	38.2	74.0	-35.8	Peak	Vertical
	7563.7	32.3	11.2	43.5	74.0	-30.5	Peak	Vertical
	11660.7	31.6	17.3	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)

The Result of Radiated Emission below 1GHz:

Site	WZ-AC2	Test Date	2024-11-01
Temperature	26.7°C	Humidity	39.4%
Limit	FCC_Part 15.209_RSE(3m)	Test Engineer	Dick Shen
Factor	VULB 9162_30-7000MHz	Polarity	Horizontal
EUT	ACCESS POINT	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by ZigBee at 2405MHz		

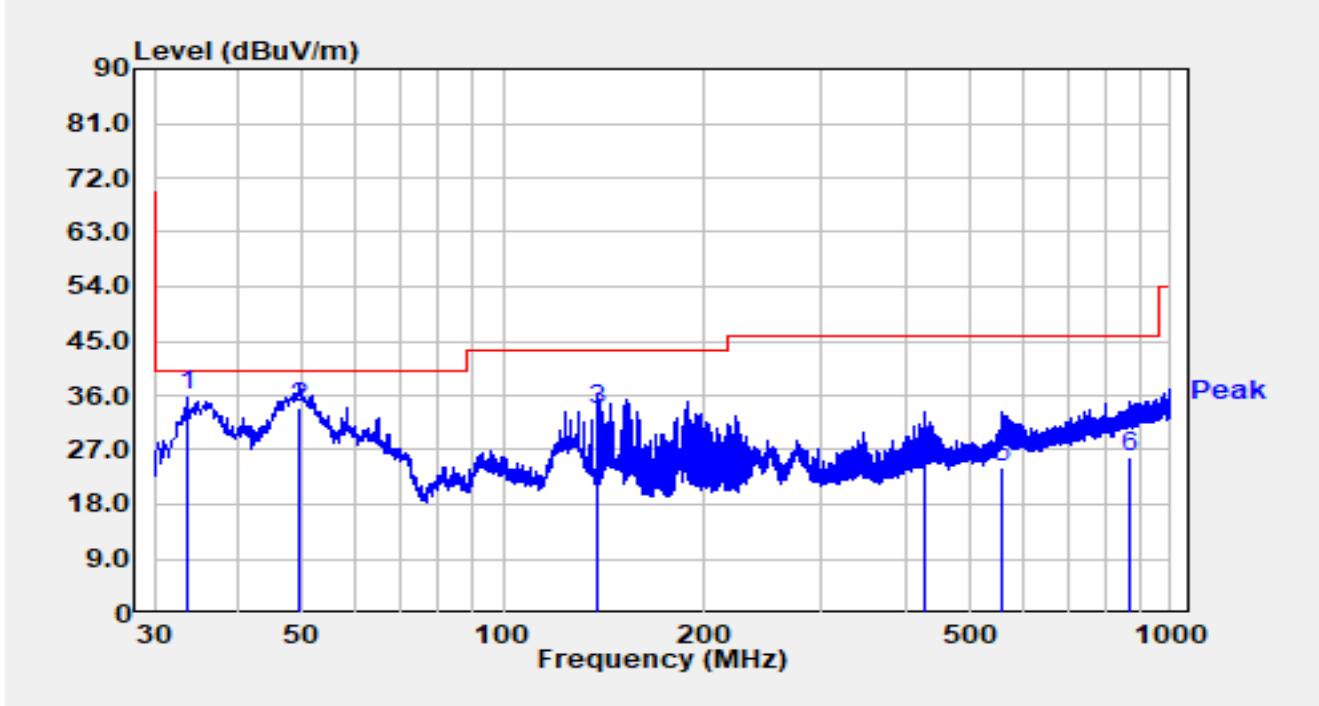


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		46.781	6.11	20.40	26.50	-13.50	40.00	QP
2		160.465	12.57	15.76	28.33	-15.17	43.50	QP
3		341.370	10.16	22.47	32.62	-13.38	46.00	QP
4	*	428.767	12.18	23.69	35.87	-10.13	46.00	QP
5		568.641	8.11	26.43	34.54	-11.46	46.00	QP
6		832.869	4.36	30.54	34.90	-11.10	46.00	QP

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).

Site	WZ-AC2	Test Date	2024-11-01
Temperature	26.7°C	Humidity	39.4%
Limit	FCC_Part 15.209_RSE(3m)	Test Engineer	Dick Shen
Factor	VULB 9162_30-7000MHz	Polarity	Vertical
EUT	ACCESS POINT	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by ZigBee at 2405MHz		



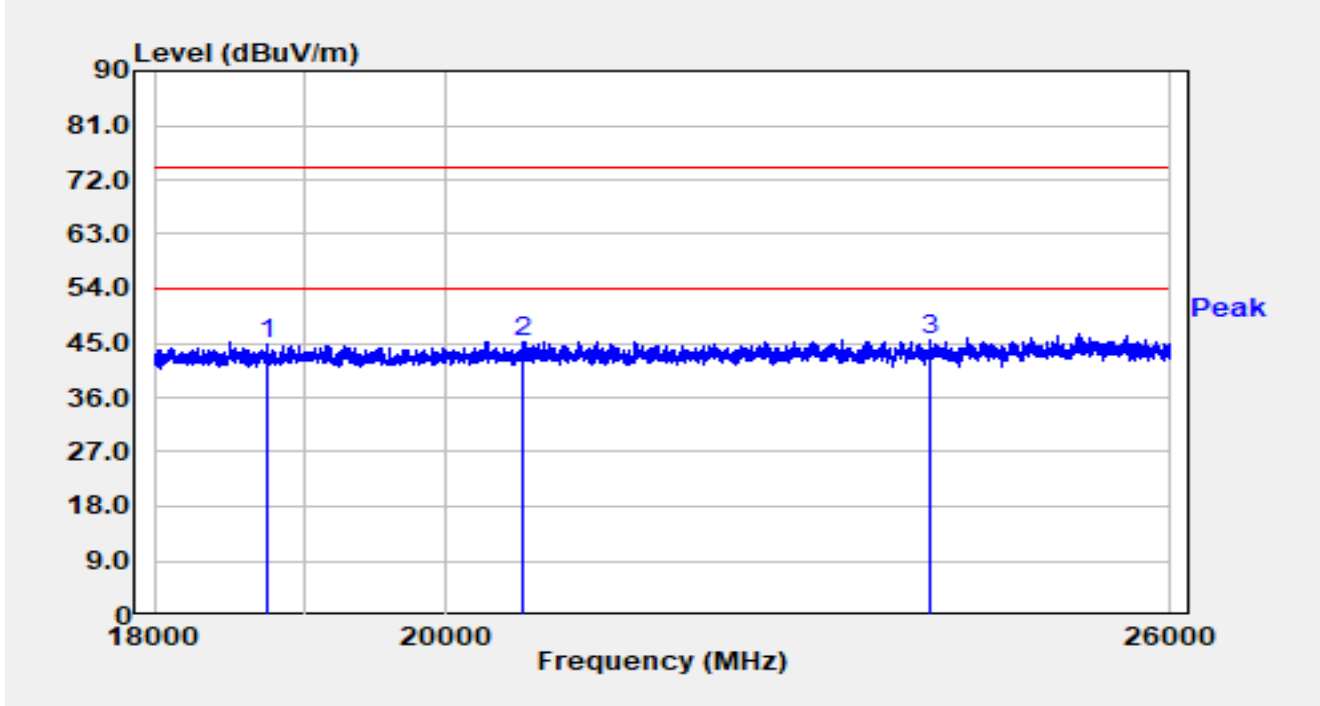
No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	33.492	18.68	17.27	35.95	-4.05	40.00	QP
2		49.594	13.50	20.48	33.98	-6.02	40.00	QP
3		138.155	18.19	15.27	33.46	-10.04	43.50	QP
4		428.573	3.19	23.70	26.88	-19.12	46.00	QP
5		556.516	-1.98	26.19	24.21	-21.79	46.00	QP
6		869.535	-5.44	31.25	25.81	-20.19	46.00	QP

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).

The Result of Radiated Emission 18 ~ 25GHz:

Site	WZ-AC2	Test Date	2024-11-10
Temperature	26.7°C	Humidity	39.4%
Limit	FCC_Part 15.209_RSE(3m)	Test Engineer	Dick Shen
Factor	BBHA 9170_549_18-40GHz	Polarity	Horizontal
EUT	ACCESS POINT	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by ZigBee at 2405MHz		

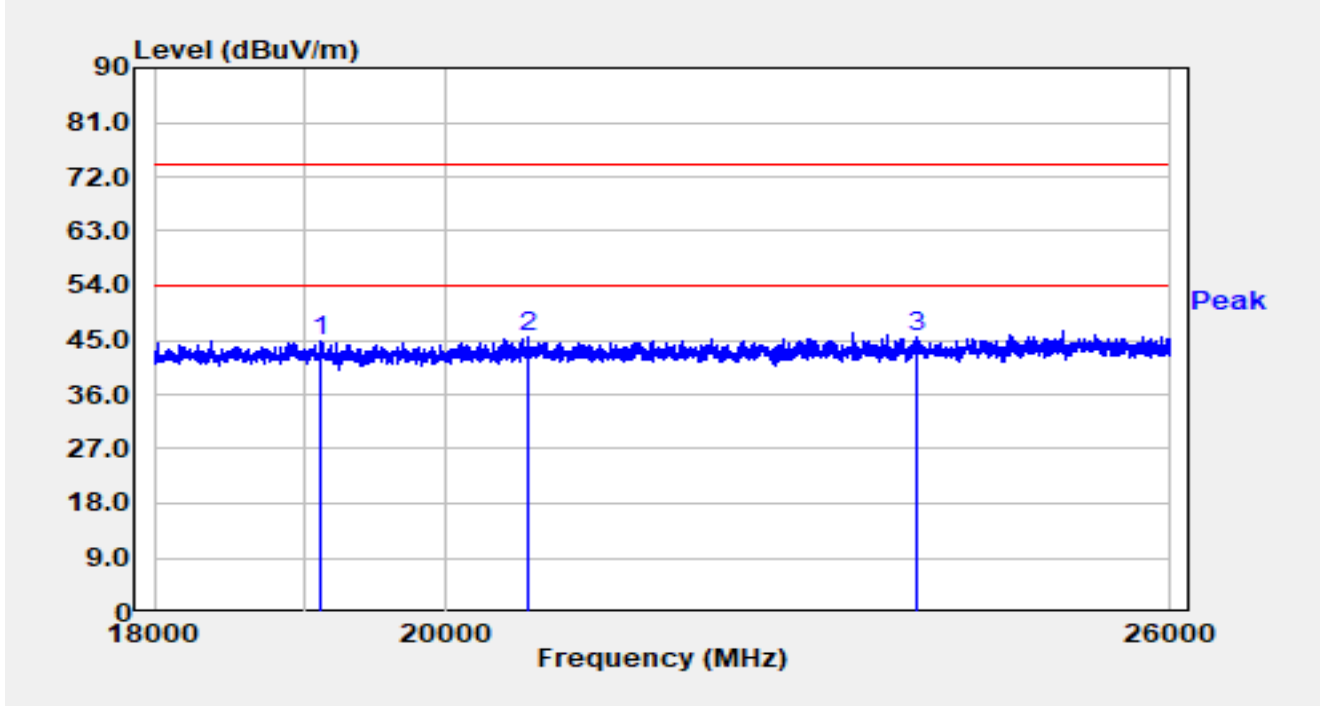


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		18748.000	55.68	-10.93	44.74	-29.26	74.00	Peak
2		20567.400	53.88	-8.66	45.22	-28.78	74.00	Peak
3	*	23836.600	51.69	-6.32	45.37	-28.63	74.00	Peak

Notes:

1. " *", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)-AMP (dB).
3. Measurement(dBμV/m) = Reading(dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2024-11-10
Temperature	26.7°C	Humidity	39.4%
Limit	FCC_Part 15.209_RSE(3m)	Test Engineer	Dick Shen
Factor	BBHA 9170_549_18-40GHz	Polarity	Vertical
EUT	ACCESS POINT	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by ZigBee at 2405MHz		



No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		19108.800	55.04	-10.20	44.84	-29.16	74.00	Peak
2	*	20607.000	54.40	-8.95	45.45	-28.55	74.00	Peak
3		23717.800	51.90	-6.50	45.41	-28.59	74.00	Peak

Notes:

1. " *", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)-AMP (dB).
3. Measurement(dBμV/m) = Reading(dBμV) + C.F (dB/m).

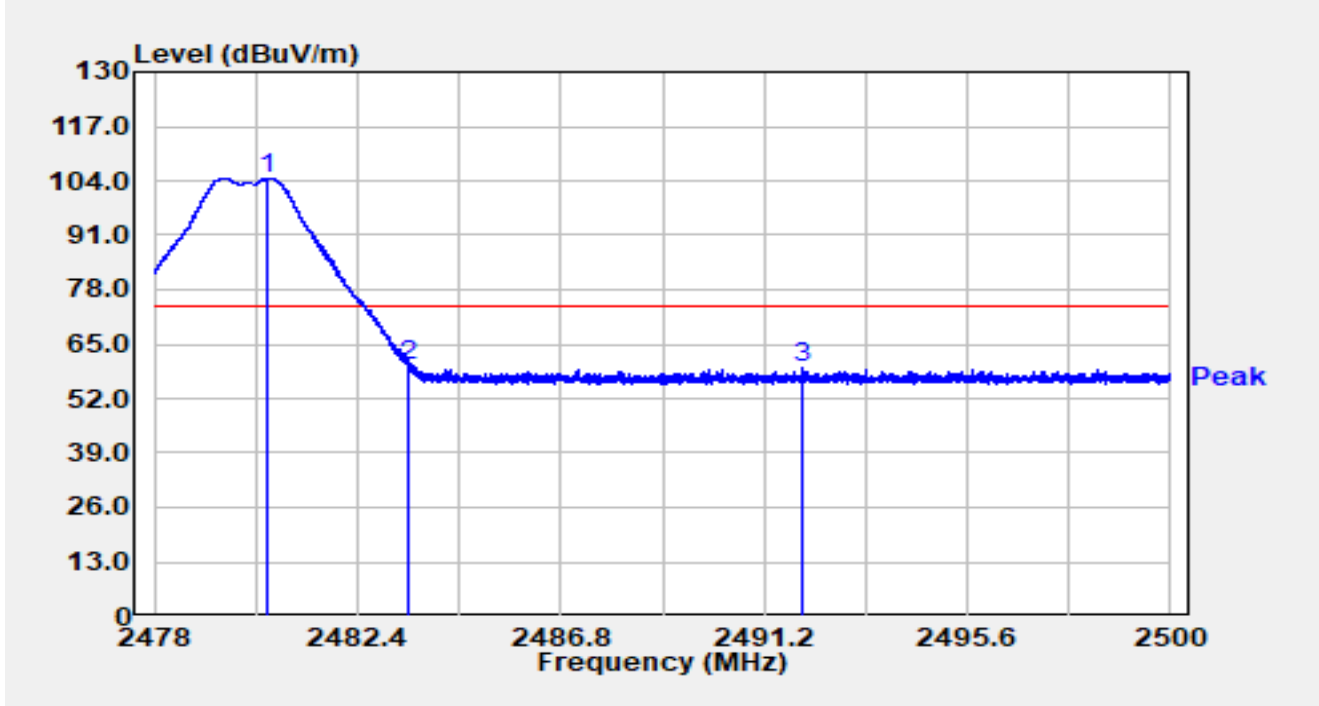
A.7 Radiated Restricted Band Edge Test Result

Refer to MRT report No. 2311RSU031-U2 clause A.7

Spot Check:

Mode 2 – Filter 6#

Site	WZ-AC2	Test Date	2024-10-30
Temperature	23.7°C	Humidity	40.7%
Limit	FCC_Part 15_Band Edge(3m)	Test Engineer	Bob Zhang
Factor	BBHA 9120D_1457_1-18GHz	Polarity	Horizontal
EUT	ACCESS POINT	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by Zigbee at 2480MHz		

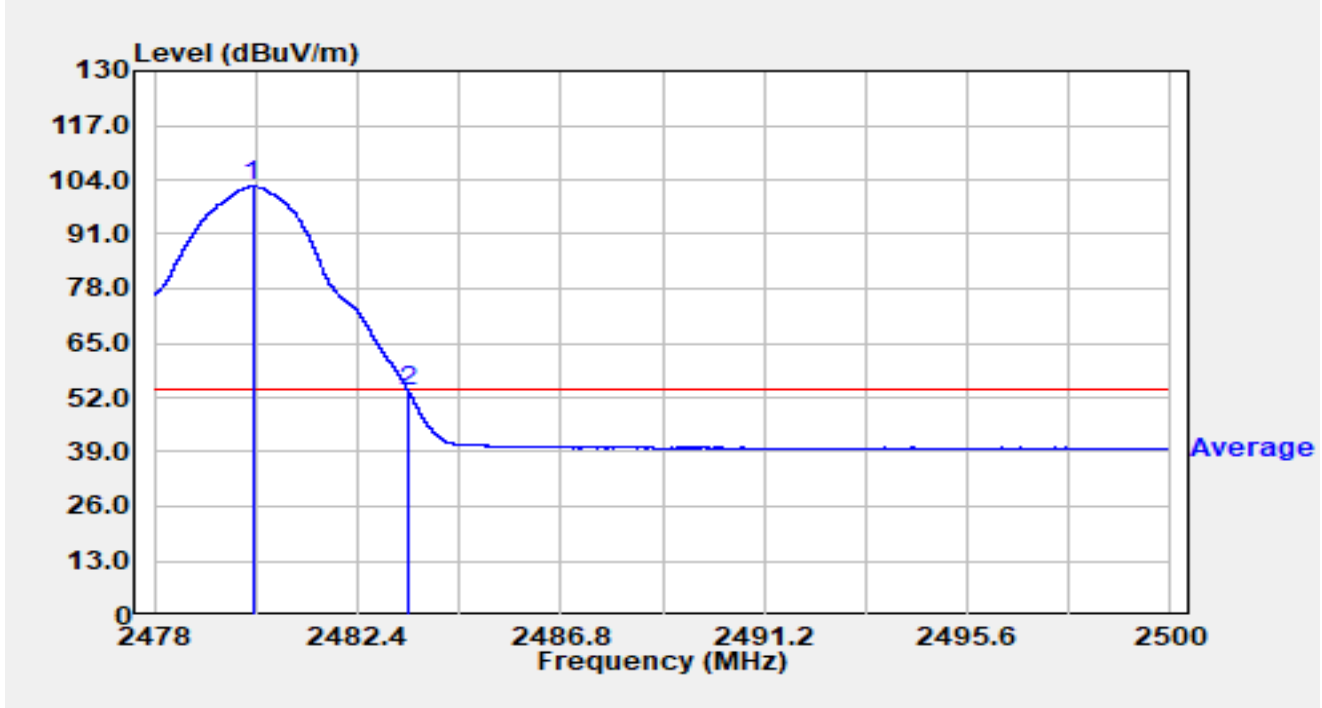


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.451	72.31	32.40	104.72	N/A	N/A	Peak
2	*	2483.500	27.21	32.40	59.60	-14.40	74.00	Peak
3		2492.003	27.12	32.39	59.51	-14.49	74.00	Peak

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).

Site	WZ-AC2	Test Date	2024-10-30
Temperature	23.7°C	Humidity	40.7%
Limit	FCC_Part 15_Band Edge(3m)	Test Engineer	Bob Zhang
Factor	BBHA 9120D_1457_1-18GHz	Polarity	Horizontal
EUT	ACCESS POINT	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by Zigbee at 2480MHz		

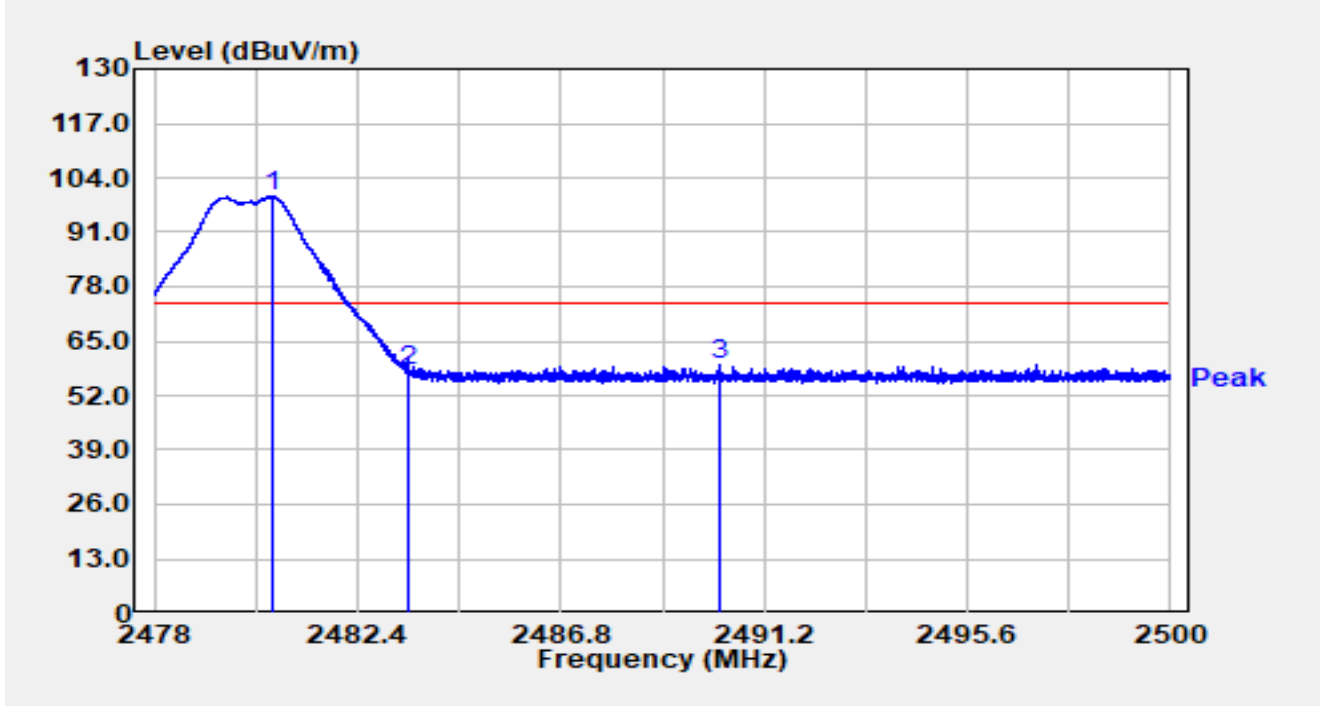


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.127	70.01	32.40	102.42	N/A	N/A	Average
2	*	2483.500	21.18	32.40	53.57	-0.43	54.00	Average

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).

Site	WZ-AC2	Test Date	2024-10-30
Temperature	23.7°C	Humidity	40.7%
Limit	FCC_Part 15_Band Edge(3m)	Test Engineer	Bob Zhang
Factor	BBHA 9120D_1457_1-18GHz	Polarity	Vertical
EUT	ACCESS POINT	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by Zigbee at 2480MHz		

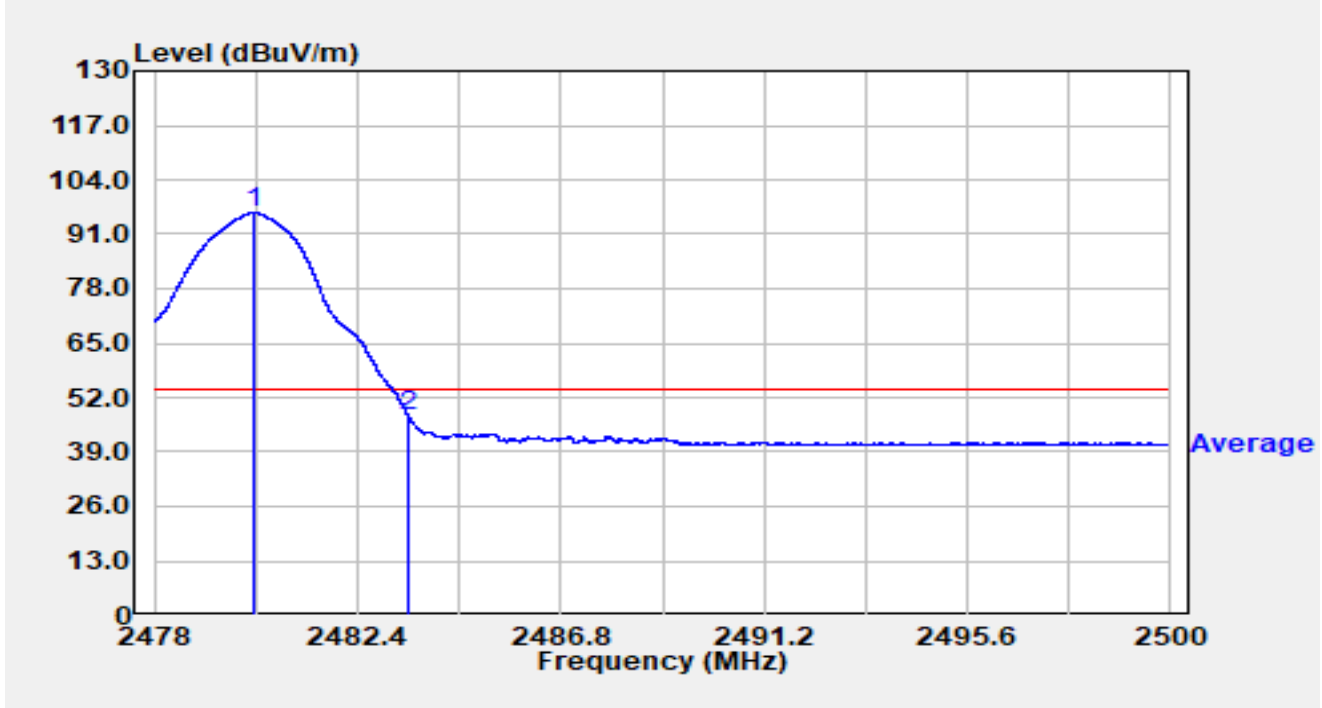


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.563	67.12	32.40	99.53	N/A	N/A	Peak
2		2483.500	25.34	32.40	57.74	-16.26	74.00	Peak
3		2490.250	26.96	32.39	59.35	-14.65	74.00	Peak

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).

Site	WZ-AC2	Test Date	2024-10-30
Temperature	23.7°C	Humidity	40.7%
Limit	FCC_Part 15_Band Edge(3m)	Test Engineer	Bob Zhang
Factor	BBHA 9120D_1457_1-18GHz	Polarity	Vertical
EUT	ACCESS POINT	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by Zigbee at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.147	63.69	32.40	96.09	N/A	N/A	Average
2	*	2483.500	15.28	32.40	47.68	-6.32	54.00	Average

Notes:

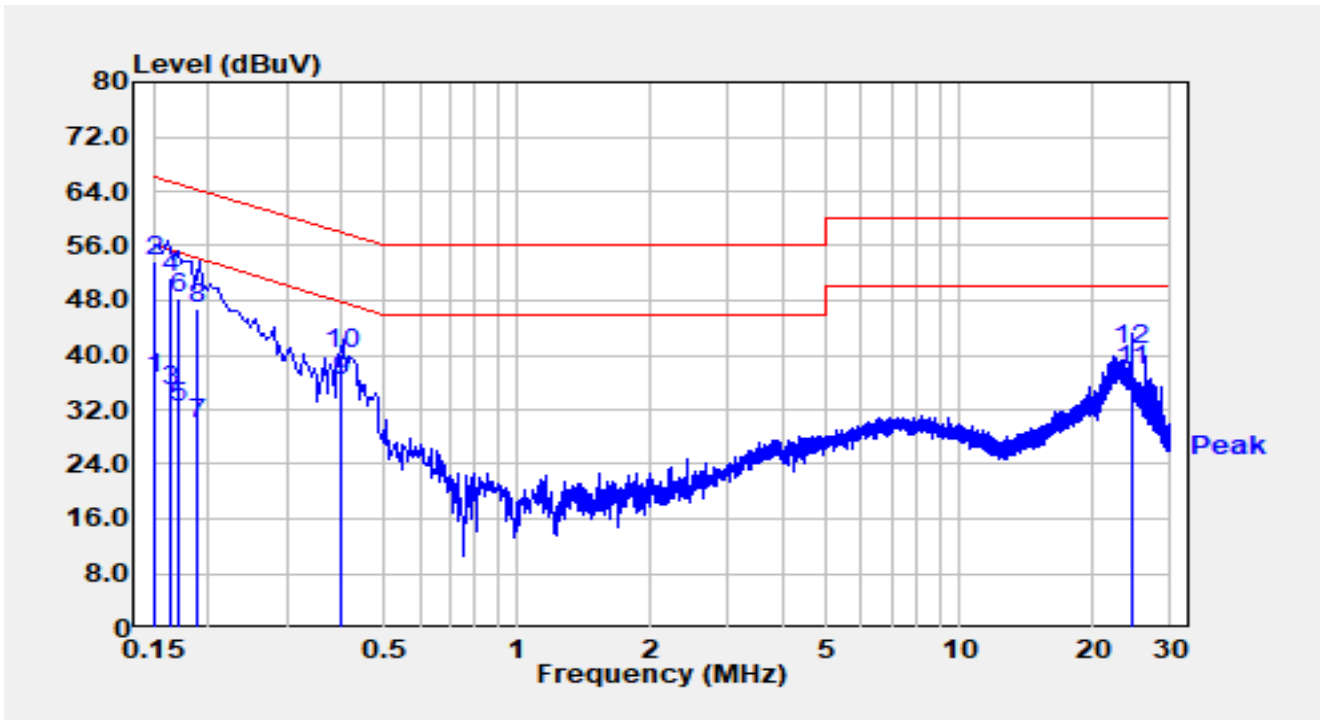
1. " *", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement(dBμV/m) = Reading(dBμV) + C.F (dB/m).

A.8 AC Conducted Emissions Test Result

Refer to MRT report No. 2311RSU031-U2 clause A.8

Spot Check:

Site	WZ-SR2	Test Date	2024-10-31
Test Engineer	Linda Wei	Temp./Humidity	22.8°C/61.1%
Factor	ENV216_101683_L1_Filter Off_C	Polarity	Line
EUT	ACCESS POINT	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by ZigBee at 2440MHz		

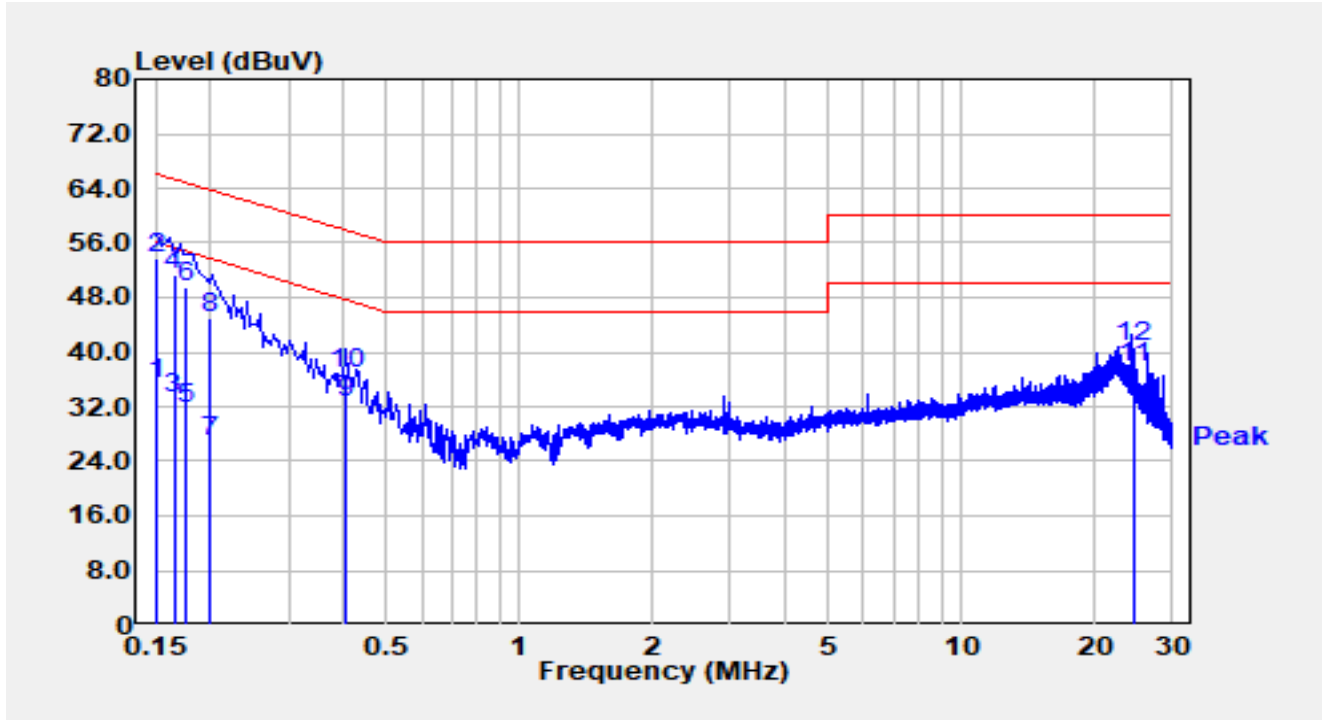


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB)	Measurement (dBμV)	Margin (dB)	Limit (dBμV)	Detector
1		0.151	26.80	9.82	36.62	-19.33	55.94	Average
2		0.151	43.90	9.82	53.72	-12.23	65.94	QP
3		0.164	24.90	9.82	34.72	-20.54	55.26	Average
4		0.164	41.60	9.82	51.42	-13.84	65.26	QP
5		0.170	22.50	9.82	32.32	-22.64	54.96	Average
6		0.170	38.60	9.82	48.42	-16.54	64.96	QP
7		0.188	20.00	9.82	29.82	-24.31	54.12	Average
8		0.188	37.00	9.82	46.82	-17.31	64.12	QP
9	*	0.401	26.40	9.88	36.28	-11.55	47.83	Average
10		0.401	30.30	9.88	40.18	-17.65	57.83	QP
11		24.410	26.90	10.88	37.78	-12.22	50.00	Average
12		24.410	30.00	10.88	40.88	-19.12	60.00	QP

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB) = LISN Factor (dB) + Cable Loss (dB).
3. Measurement (dB μ V) = Reading (dB μ V) + C.F (dB).

Site	WZ-SR2	Test Date	2024-10-31
Test Engineer	Linda Wei	Temp./Humidity	22.8°C/61.1%
Factor	ENV216_101683_N_Filter Off_C	Polarity	Neutral
EUT	ACCESS POINT	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by ZigBee at 2440MHz		



No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB)	Measurement (dBμV)	Margin (dB)	Limit (dBμV)	Detector
1		0.151	25.10	10.13	35.23	-20.71	55.94	Average
2	*	0.151	43.60	10.13	53.73	-12.21	65.94	QP
3		0.165	23.00	10.12	33.12	-22.09	55.21	Average
4		0.165	41.20	10.12	51.32	-13.89	65.21	QP
5		0.175	21.50	10.12	31.62	-23.10	54.72	Average
6		0.175	39.50	10.12	49.62	-15.10	64.72	QP
7		0.200	16.90	10.11	27.01	-26.60	53.61	Average
8		0.200	34.90	10.11	45.01	-18.60	63.61	QP
9		0.405	22.50	10.14	32.64	-15.11	47.75	Average
10		0.405	26.60	10.14	36.74	-21.01	57.75	QP
11		24.410	26.60	11.12	37.72	-12.28	50.00	Average
12		24.410	29.60	11.12	40.72	-19.28	60.00	QP

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB) = LISN Factor (dB) + Cable Loss (dB).

3. Measurement (dB μ V) = Reading (dB μ V) + C.F (dB).

Appendix B – Test Setup Photograph

Refer to “2409RSU050-UT” file.

Appendix C – EUT Photograph

Refer to “2409RSU050-UE” file.

The End
