FCC - TEST REPORT

Report Number	:	4842024420300B	Date of Issue:	2025.03.25
Model	:	THP01-B-V6		
Product Type	:	Dual Band Wireless Bluetooth Gateway		
Applicant	:	Zhejiang Lingzhu Technology Co., Ltd.		
Address	:	Room 302, No 1 Building Huace Center, Xihu District 310000, Hangzhou City, Zhejiang Province, PEOPLE'S REPUBLIC OF CHINA		
Manufacturer	:	Zhejiang Lingzhu Technology Co., Ltd.		
Address	:	Room 302, No 1 Building Huace Center, Xihu District 310000, Hangzhou City, Zhejiang Province, PEOPLE'S REPUBLIC OF CHINA		
Test Result	:	■ **Positive** ☐ **Negative**		
Total pages including Appendices	:	78		

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1 Table of Contents

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2 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	2025.03.25

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3 Details about the Test Laboratory

Test Site 1

Company name:	TÜV SÜD Certification and Testing (China) Co., Ltd. Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu. China
Test Firm FCC Registration Number:	571980
Designation number:	CN1405
Telephone:	+86 510 8820 3737
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4 Description of the Equipment under Test

Product:	Dual Band Wireless Bluetooth Gateway
PMN / HVIN / Model no.:	THP01-B-V6
FCC ID:	2BEWX-THP01-B
Rating:	Gateway Input: DC 5V, 1A Adapter Input:100-240V~,50/60Hz, 0.25A Adapter Output: DC 5.0V, 1.0A, 5.0W
RF Transmission Frequency:	Bluetooth Low Energy: 2402MHz-2480MHz
No. of Operated Channel:	40
Modulation:	GFSK

Channel list:

Bluetooth Low Energy							
Ch	Fre(MHz)	Ch	Fre(MHz)	Ch	Fre(MHz)	Ch	Fre(MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

Hardware Version:	V1.0.3
Software Version:	V1.0.3
Antenna Type:	Metal PCB Antenna
Antenna Gain:	1.98dBi
Description of the EUT:	The Equipment Under Test (EUT) is a Dual Band Wireless Bluetooth Gateway which support 2.4GHz & 5GHz Wi-Fi and Low Energy Bluetooth (1Mbps & 2Mbps date rate). We tested it and listed the worst data in this report
Test sample no.:	WUX 0877562-002
Remark:	This report is only for BLE

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The sample’s mentioned in this report is/are submitted/ supplied/ manufactured by client. The laboratory therefore assumes no responsibility for accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.

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5 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

All the test methods were according to KDB 558074 D01 15.247 Meas Guidance v05r02 and ANSI C63.10 (2020).

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6 Summary of Test Results

Technical Requirements						
Test Condition		Pages	Test Site	Test Result		
				Pass	Fail	N/A
§15.207	Conducted emission AC power port	14-16	Site 1	☒	☐	☐
§15.247 (b) (3)	Conducted peak output power	17-19	Site 1	☒	☐	☐
§15.247(a)(1)	20dB bandwidth	---	---	☐	☐	☒
§15.247(a)(1)	Carrier frequency separation	---	---	☐	☐	☒
§15.247(a)(1)(iii)	Number of hopping frequencies	---	---	☐	☐	☒
§15.247(a)(1)(iii)	Dwell Time	---	---	☐	☐	☒
§15.247(a)(2)	6dB bandwidth and 99% Occupied Bandwidth	20-26	Site 1	☒	☐	☐
§15.247(e)	Power spectral density	27-29	Site 1	☒	☐	☐
§15.247(d)	Spurious RF conducted emissions	30-39	Site 1	☒	☐	☐
§15.247(d)	Band edge	40-43	Site 1	☒	☐	☐
§15.247(d) & §15.209 & §15.205	Spurious radiated emissions for transmitter	44-74	Site 1	☒	☐	☐
§15.203	Antenna requirement	See note 1		☒	☐	☐

Remark 1: N/A – Not Applicable.
Note 1: The EUT uses a PCB antenna, which gain is 1.98dBi. In accordance to §15.203, It is considered sufficiently to comply with the provisions of this section.

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7 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: 2BEWX-THP01-B, complies with Section 15.203,15.205,15.207,15.209,15.247 of the FCC Part 15, Subpart C Rules.

SUMMARY:

All tests according to the regulations cited on page 8 were

■ - Performed

☐ - **Not** Performed

The Equipment under Test

■ - **Fulfills** the general approval requirements.

☐ - **Does not** fulfill the general approval requirements.

Sample Received Date:	2025.01.02
Testing Start Date:	2025.01.06
Testing End Date:	2025.02.10

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Reviewed by:	Prepared by:	Tested by:
Bo Dai	Xin Feng	Zhihua Xia
Project Manager	Project Engineer	Test Engineer

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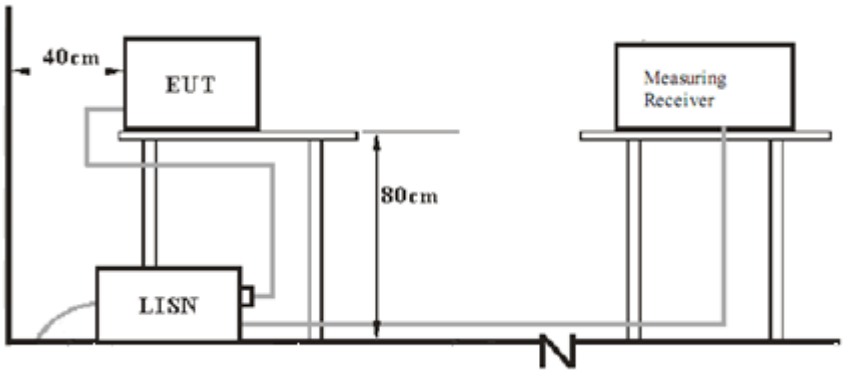
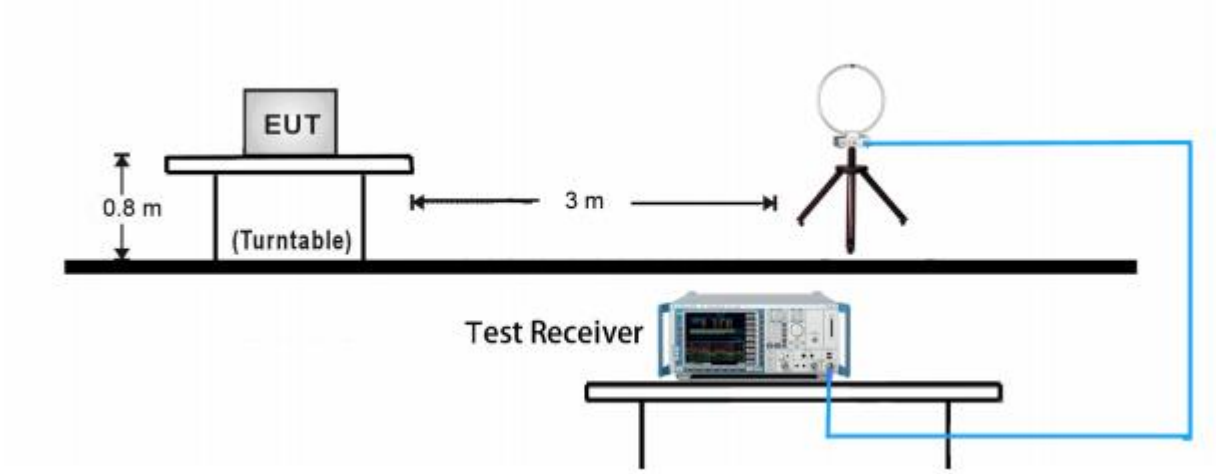
8 Test Setups

7.1 AC Power Line Conducted Emission test setups

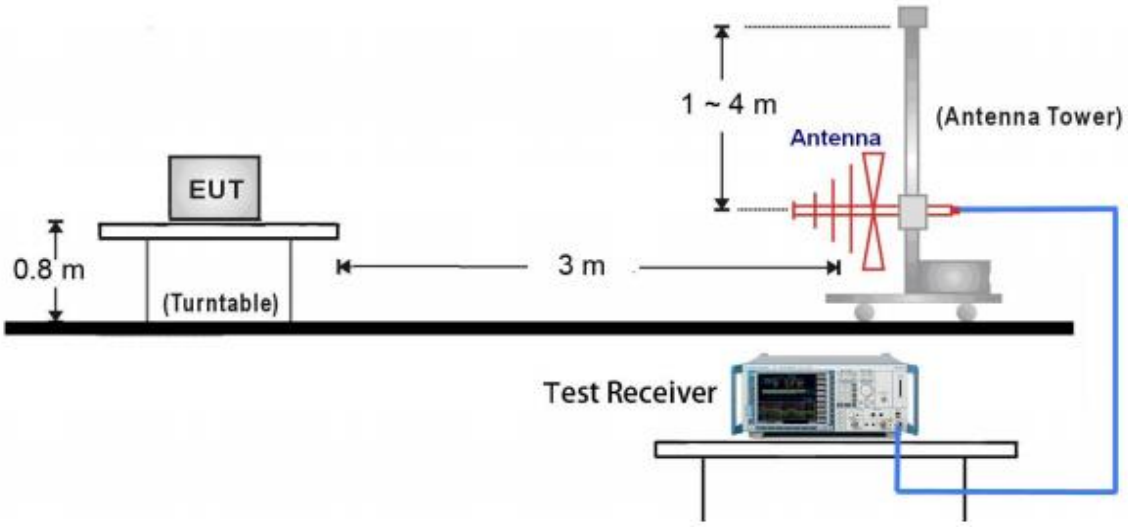


7.2 Radiated test setups

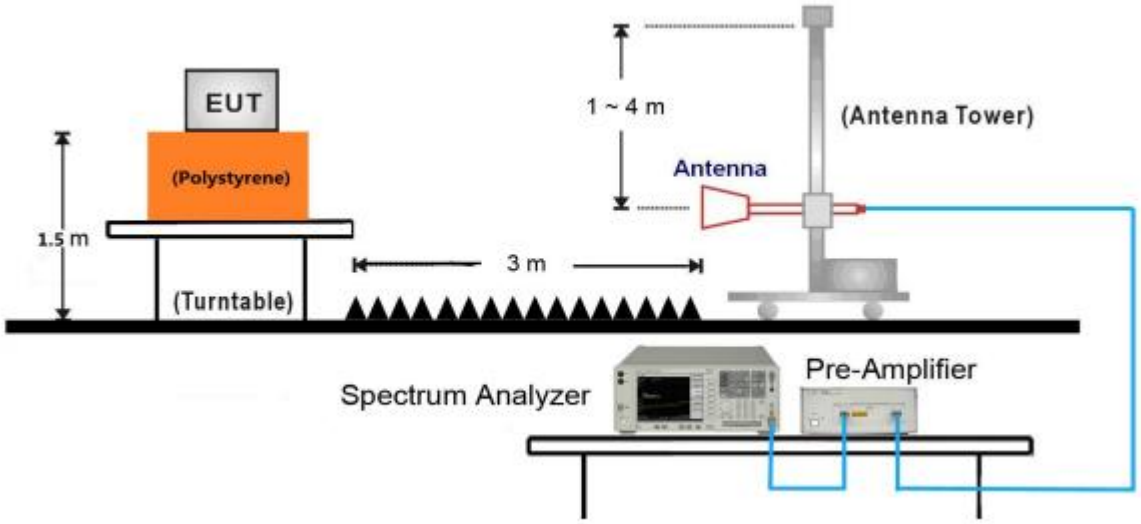
9kHz ~ 30MHz Test Setup:



30MHz ~ 1GHz Test Setup:



1GHz ~ 18GHz Test Setup:



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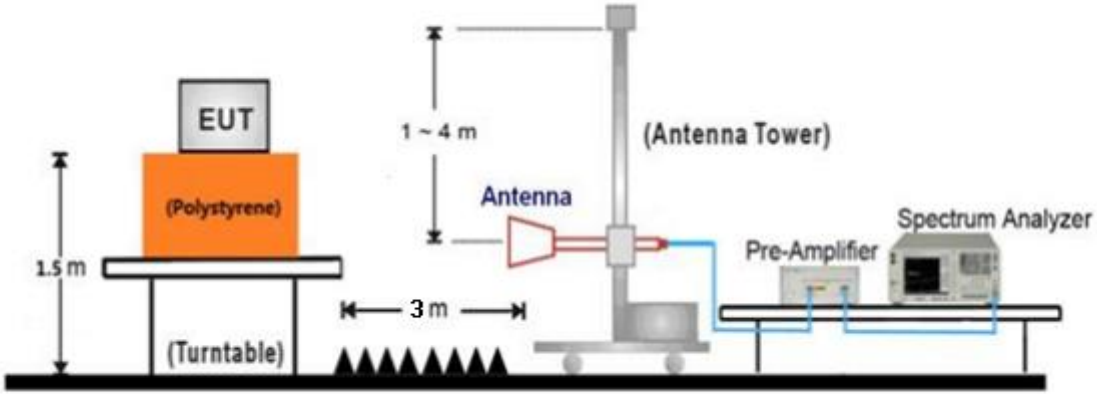
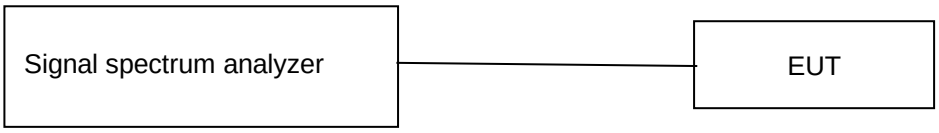
18GHz ~ 25GHz Test Setup:



7.3 Conducted RF test setups



9 Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
Notebook	Huawei	VLT-W50	2018AP1231

Test software: RTLBTAPP.exe

Test Mode Applicability and Tested Channel Detail:

Mode	Tested Channel	Data Rate	Modulation	Power level setting (Index Value)
Bluetooth LE	0	1 Mbps	GFSK	0X3B
	19			0X3B
	39			0X3B
Bluetooth LE	0	2 Mbps	GFSK	0X3B
	19			0X3B
	39			0X3B

Non-hopping mode: The system was configured to operate at a signal channel transmitting. The test software allows the configuration and operation at the worst-case duty and the highest transmit power.

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10 Technical Requirement

10.1 Conducted Emission

Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

Limit

According to §15.207, conducted emissions limit as below:

Frequency MHz	QP Limit dBµV	AV Limit dBµV
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

Decreasing linearly with logarithm of the frequency

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Conducted Emission

150k-30MHz Conducted Emission Test

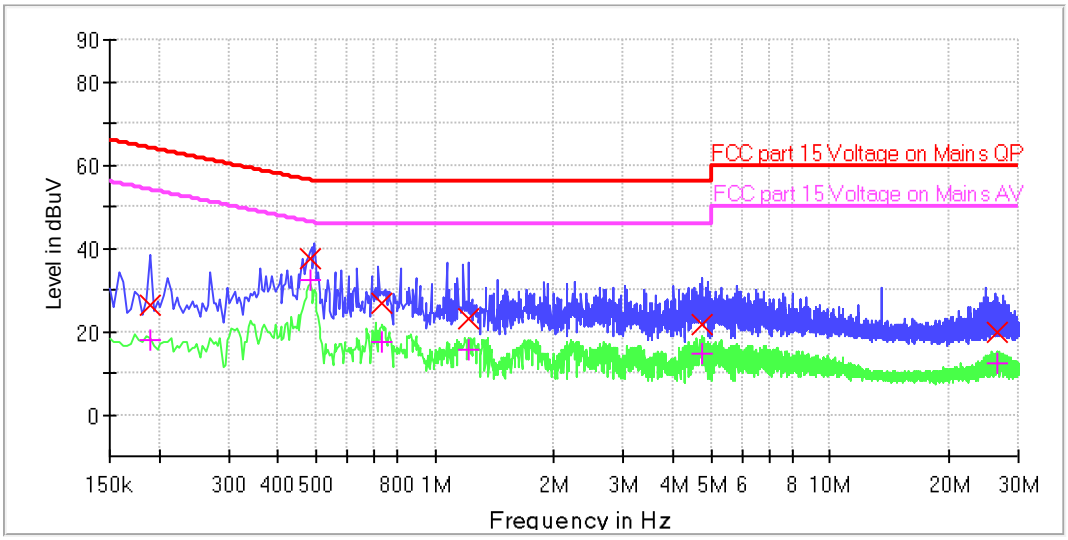
EUT Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating Conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2440MHz
Operator Name:	Zhihua Xia
Input:	AC 120V 60Hz
Test Standard:	FCC Part 15.207(a)
Comment:	Phase L
Sample No.:	WUX 0877562-002

Scan Setup: Mains Voltage LISN 2 Lines 150kHz-30MHz Pre Fcc [EMI conducted]

Hardware Setup:	Mains Voltage LISN 2 Lines 150kHz-30MHz_Fcc
Receiver:	[ESW 8]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.190000	26.2	18.0	1000.0	9.000	10.6	37.9	64.0	36.1	54.0
0.482000	37.6	32.1	1000.0	9.000	10.5	18.7	56.3	14.2	46.3
0.734000	26.9	17.4	1000.0	9.000	10.5	29.1	56.0	28.6	46.0
1.218000	23.1	15.4	1000.0	9.000	10.5	32.9	56.0	30.6	46.0
4.754000	21.5	14.8	1000.0	9.000	10.6	34.5	56.0	31.2	46.0
26.442000	19.8	12.5	1000.0	9.000	11.4	40.3	60.0	37.5	50.0

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)
Factor (dB) = Cable Loss (dB) + LISN Factor (dB) + 10dB Attenuator

150k-30MHz Conducted Emission Test

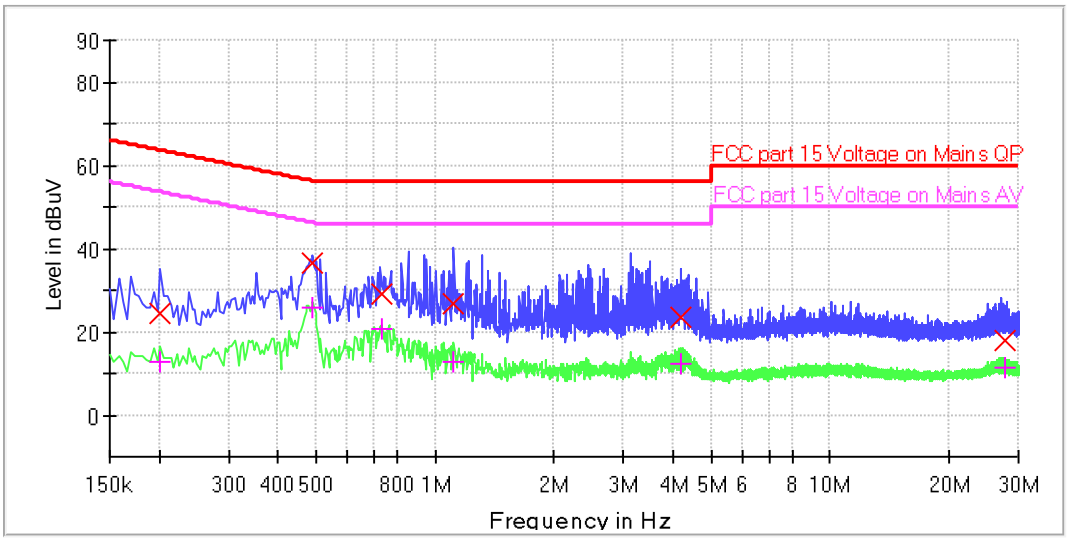
EUT Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating Conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2440MHz
Operator Name:	Zhihua Xia
Input:	AC 120V 60Hz
Test Standard:	FCC Part 15.207(a)
Comment:	Phase N
Sample No.:	WUX 0877562-002

Scan Setup: Mains Voltage LISN 2 Lines 150kHz-30MHz Pre Fcc [EMI conducted]

Hardware Setup:	Mains Voltage LISN 2 Lines 150kHz-30MHz_Fcc
Receiver:	[ESW 8]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.202000	24.5	12.9	1000.0	9.000	10.6	39.1	63.5	40.7	53.5
0.490000	36.5	25.6	1000.0	9.000	10.5	19.7	56.2	20.6	46.2
0.730000	29.0	20.9	1000.0	9.000	10.5	27.0	56.0	25.2	46.0
1.114000	26.6	12.7	1000.0	9.000	10.5	29.5	56.0	33.3	46.0
4.186000	23.4	12.4	1000.0	9.000	10.6	32.6	56.0	33.6	46.0
27.698000	18.0	11.3	1000.0	9.000	11.4	42.0	60.0	38.7	50.0

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)
Factor (dB) = Cable Loss (dB) + LISN Factor (dB) + 10dB Attenuator

10.2 Conducted peak output power

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Use the following test receiver settings:
   Span = approximately 5 times the 6dB bandwidth, centered on a channel need to test,
   RBW > the 6dB bandwidth of the emission being measured, VBW≥3RBW,
   Sweep = auto, Detector function = peak, Trace = max hold
4. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power and record the results in the test report.
5. Repeat above procedures until all frequencies measured were complete.

Limits

According to §15.247 (b) (3), conducted peak output power limit as below:

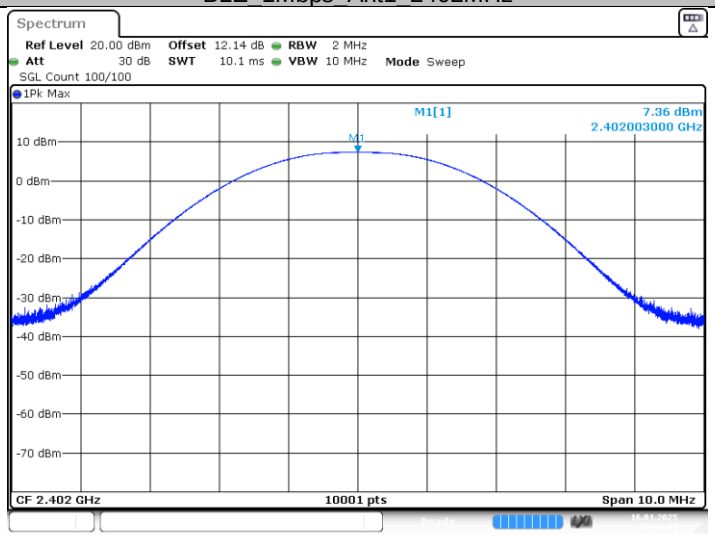
Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤1	≤30

Test result as below table

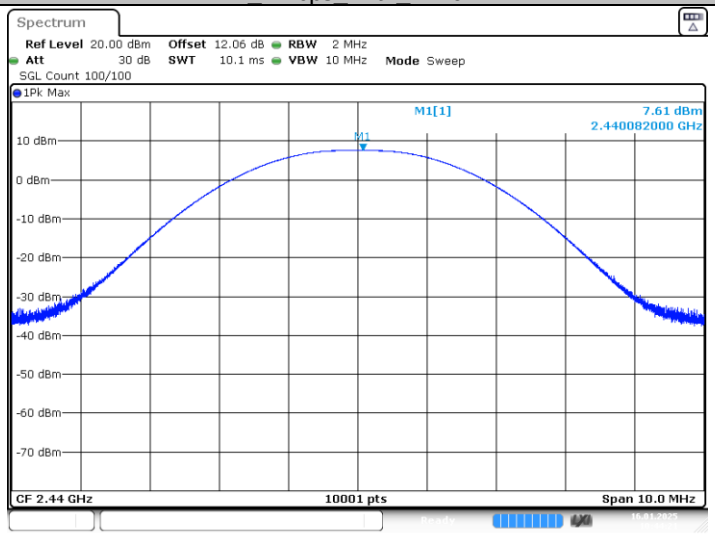
Bluetooth LE Test Result

Data transmission Rate	Frequency (MHz)	Conducted Peak Output Power (dBm) §15.247 (b) (3)		
		Result	limit	Verdict
1Mbps	2402MHz	7.36	≤30	Pass
	2440MHz	7.61	≤30	Pass
	2480MHz	7.32	≤30	Pass
2Mbps	2402MHz	7.41	≤30	Pass
	2440MHz	7.66	≤30	Pass
	2480MHz	7.36	≤30	Pass

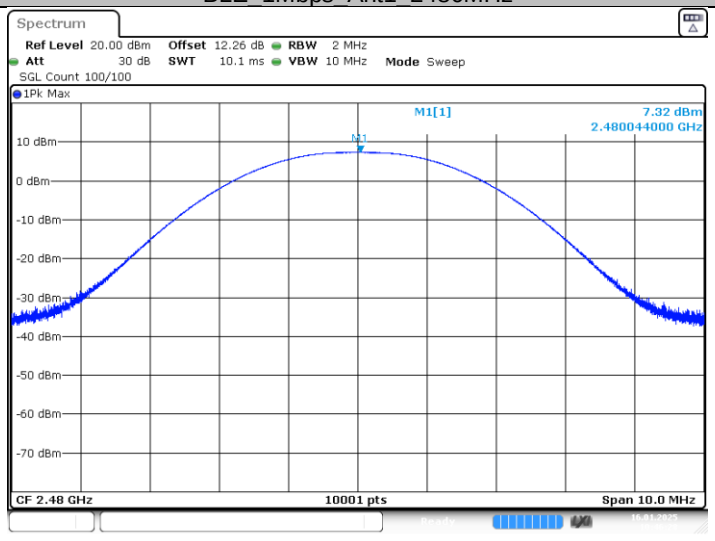
BLE_1Mbps_Ant1_2402MHz



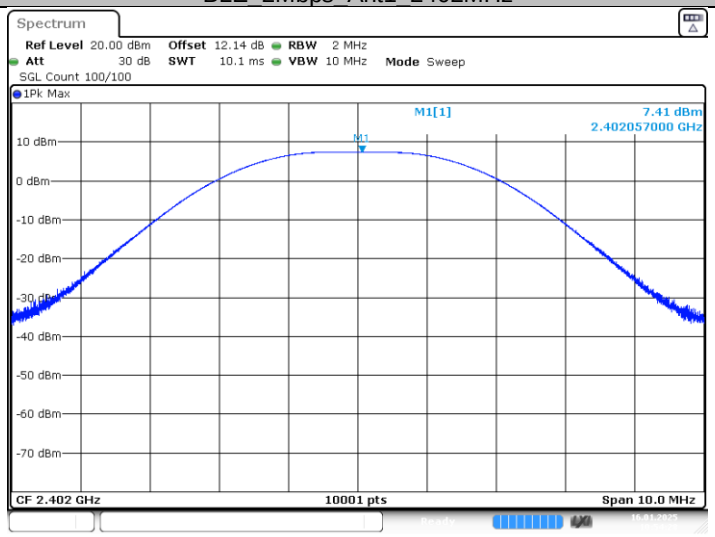
BLE_1Mbps_Ant1_2440MHz



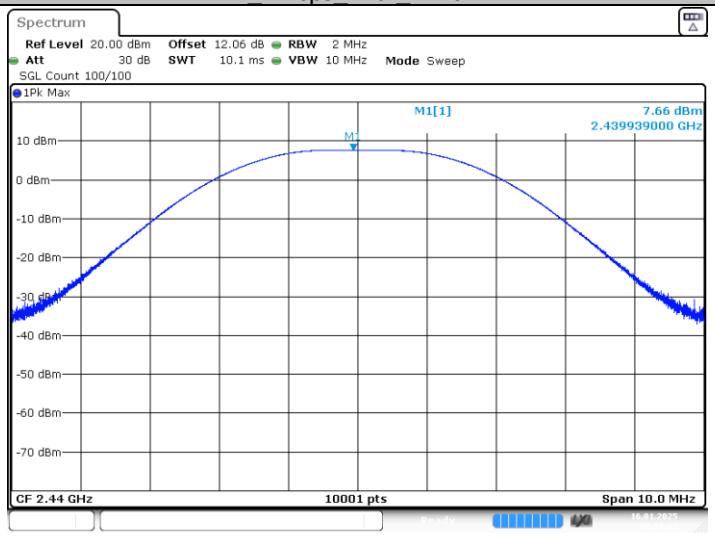
BLE_1Mbps_Ant1_2480MHz



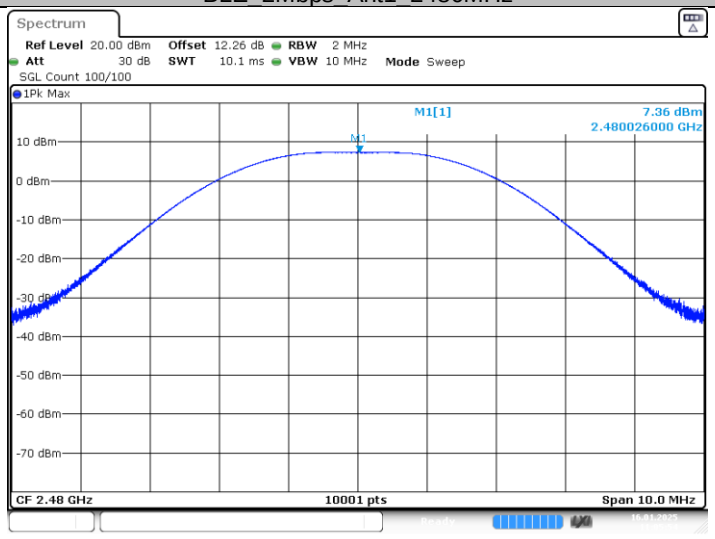
BLE_2Mbps_Ant1_2402MHz



BLE_2Mbps_Ant1_2440MHz



BLE_2Mbps_Ant1_2480MHz



10.3 6dB bandwidth and 99% Occupied Bandwidth

Test Method for 6 dB Bandwidth

1. Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz.
2. Set the VBW ≥ [3 × RBW].
3. Detector = peak.
   RBW=100KHz, VBW≥3RBW, Sweep = auto, Detector function = peak, Trace = max hold
4. Trace mode = max-hold.
5. Sweep = No faster than coupled (auto) time.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the "−6 dB down amplitude". If a marker is below this "−6 dB down amplitude" value, then it shall be as close as possible to this value.

Test Method for 99 % Bandwidth

1. Use the following spectrum analyzer settings:
RBW=1% to 5% of the actual occupied, VBW≥3RBW, Sweep = auto,
Detector function = peak, Trace = max hold
2. Use the occupied bandwidth measurement capability of test receiver.
3. Allow the trace to stabilize, record the occupied bandwidth value.

Limit

6dB bandwidth Limit [kHz]	99% bandwidth Limit [kHz]
≥500	--

Test result

Data transmission rate	Frequency MHz	6dB bandwidth (MHz)		Result	99% occupied bandwidth MHz
		result	limit	verdict	
1Mbps	2402	0.660	≥0.5	Pass	1.027
	2440	0.660	≥0.5	Pass	1.030
	2480	0.655	≥0.5	Pass	1.035
2Mbps	2402	1.105	≥0.5	Pass	2.049
	2440	1.098	≥0.5	Pass	2.032
	2480	1.122	≥0.5	Pass	2.040

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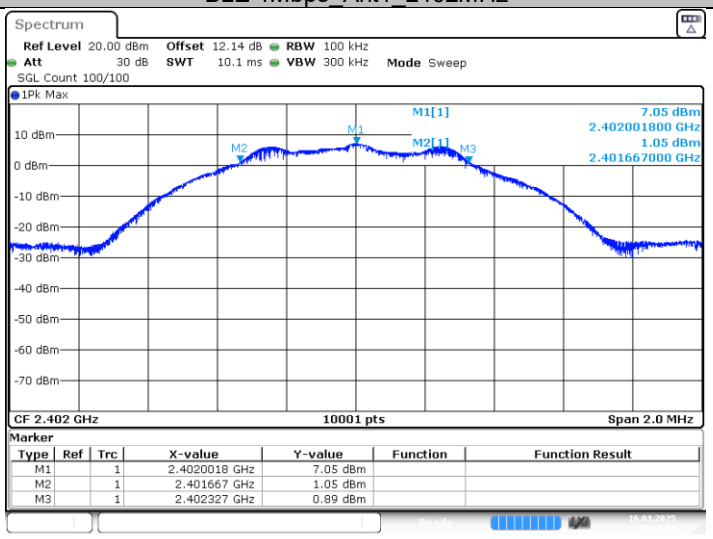
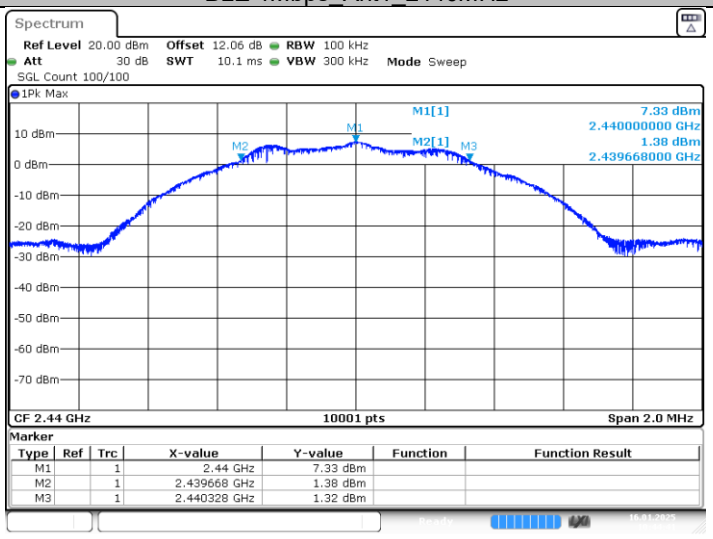
6dB Bandwidth

BLE 1Mbps_Ant1_2402MHz



BLE 1Mbps_Ant1_2440MHz



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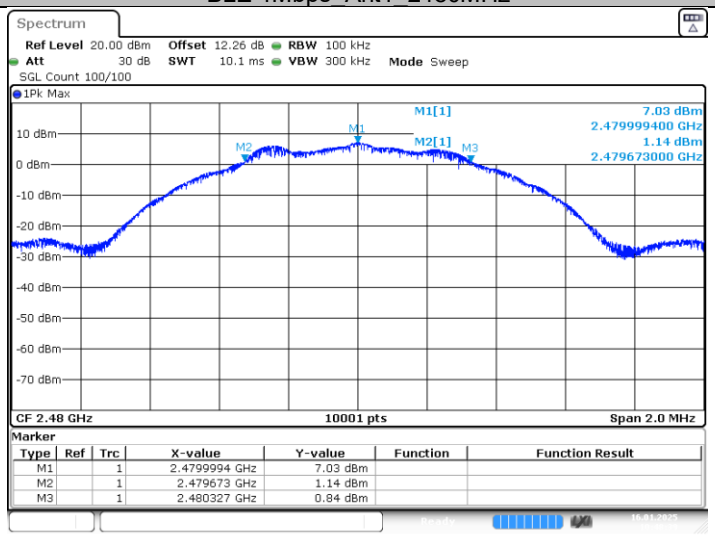
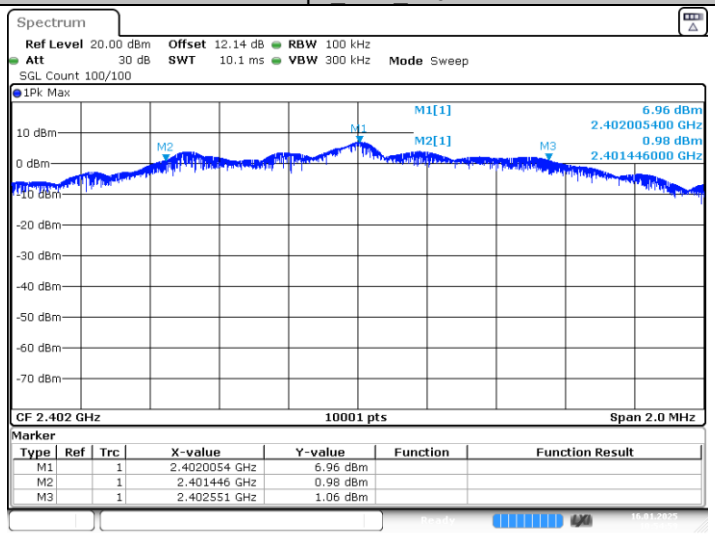


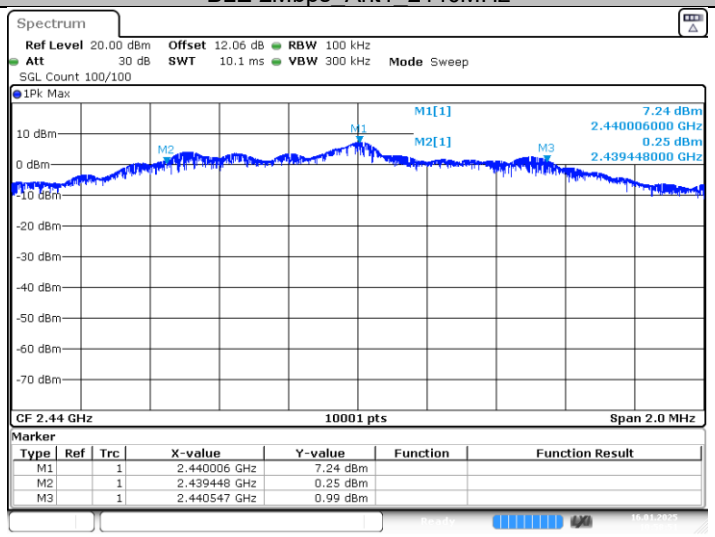
Date: 16.JAN.2025 10:48:39

BLE 2Mbps_Ant1_2402MHz



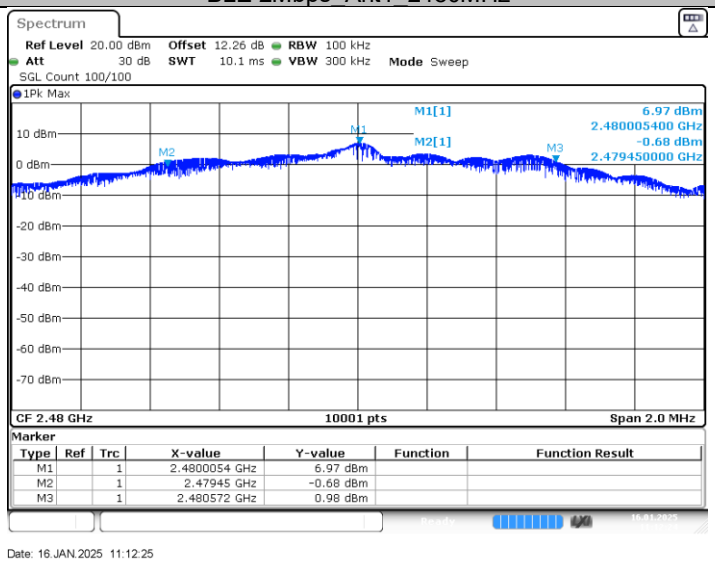
Date: 16.JAN.2025 10:54:59

BLE 2Mbps_Ant1_2440MHz



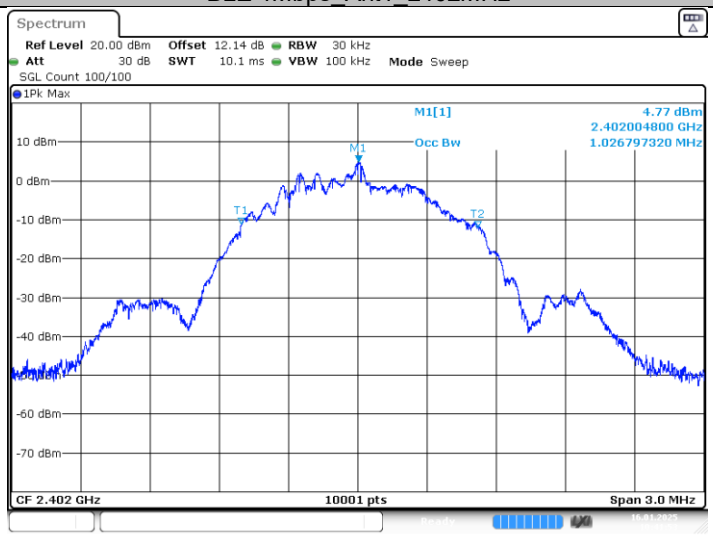
Date: 16.JAN.2025 10:58:51

BLE 2Mbps_Ant1_2480MHz



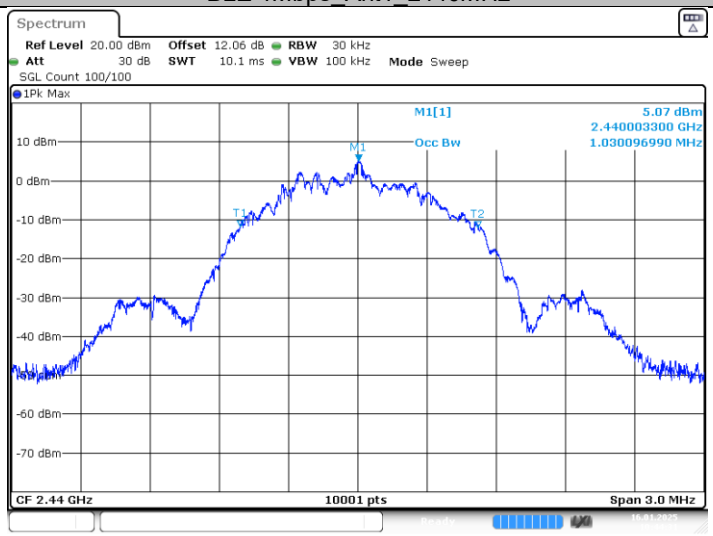
99% Bandwidth

BLE 1Mbps_Ant1_2402MHz



Date: 16.JAN.2025 10:41:53

BLE 1Mbps_Ant1_2440MHz



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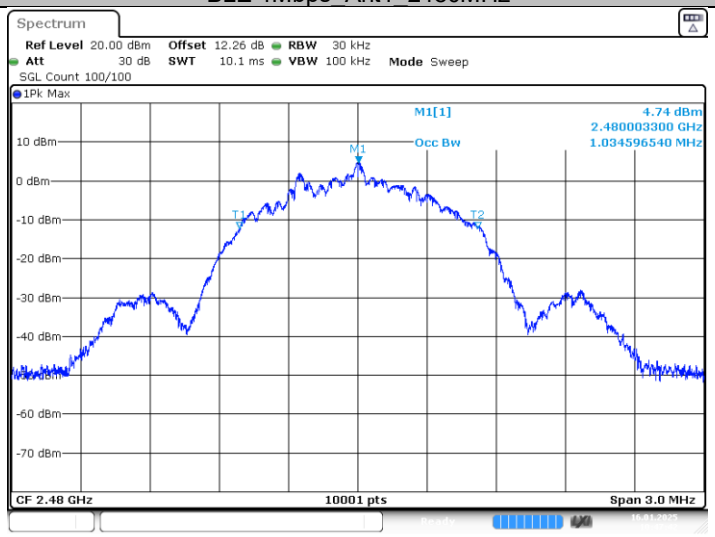
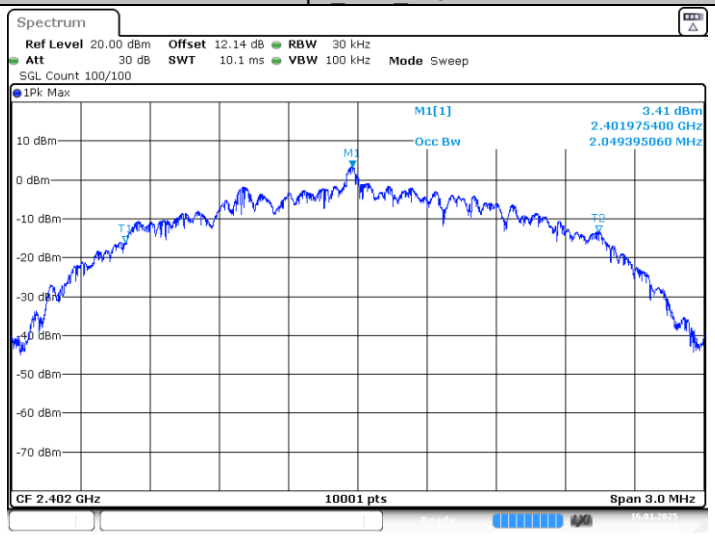
BLE 1Mbps_Ant1_2480MHz



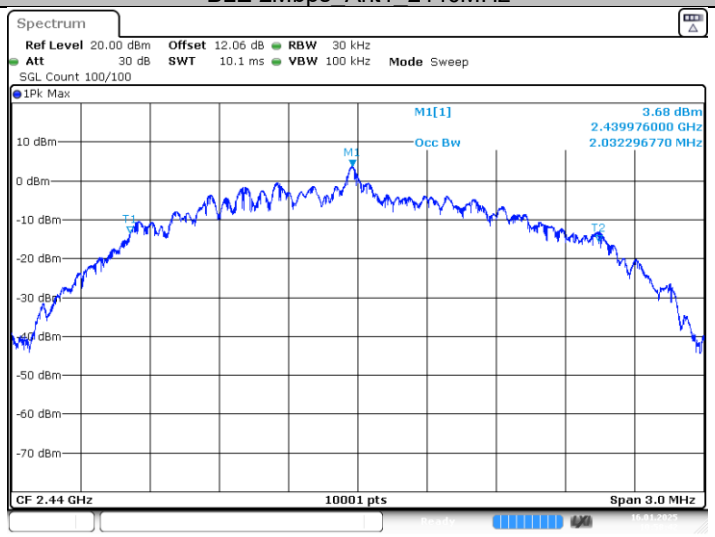
Date: 16.JAN.2025 10:47:43

BLE 2Mbps_Ant1_2402MHz



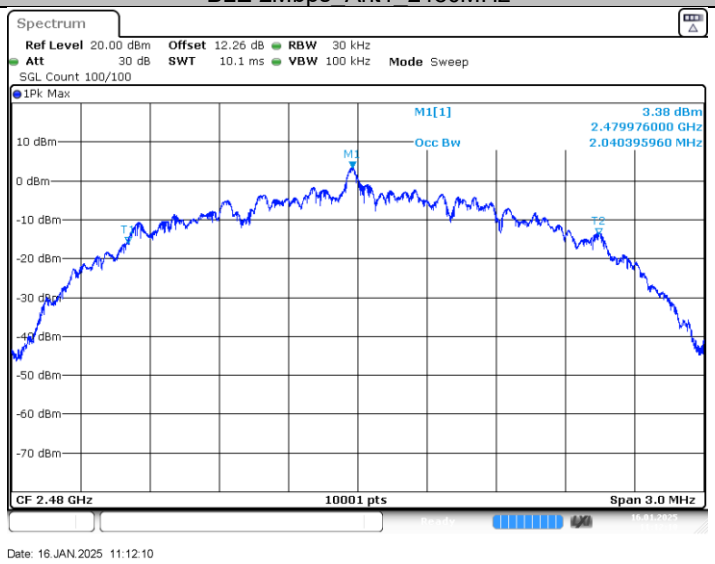
Date: 16.JAN.2025 10:54:50

BLE 2Mbps_Ant1_2440MHz



Date: 16.JAN.2025 10:58:42

BLE 2Mbps_Ant1_2480MHz



10.4 Power spectral density

Test Method

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance:

1. The RF output of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting, the instrument center frequency is set to the nominal EUT channel center frequency enable the EUT transmit continuously.
3. Use the following spectrum analyzer settings:
4. Set analyzer center frequency to DTS channel center frequency. RBW=3kHz, VBW≥3RBW, Span=1.5 times DTS bandwidth, Detector=Peak, Sweep=auto, Trace= max hold.
5. Allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
6. Repeat above procedures until other frequencies measured were completed.

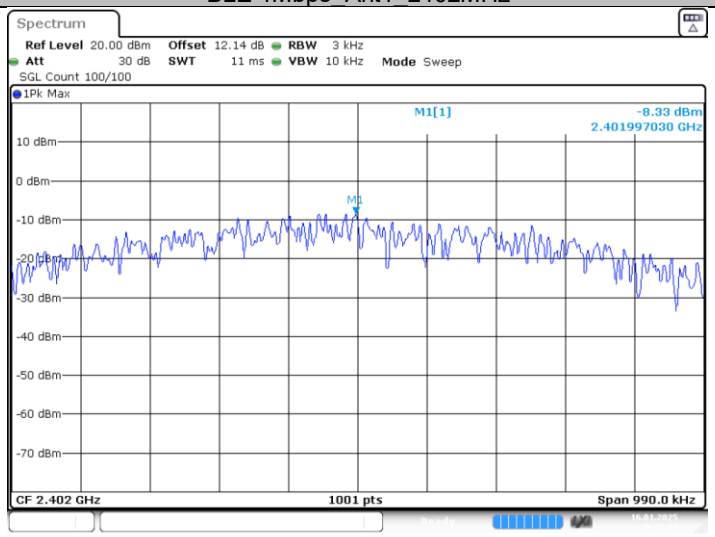
Limit

Limit [dBm/3kHz]
≤8

Test result

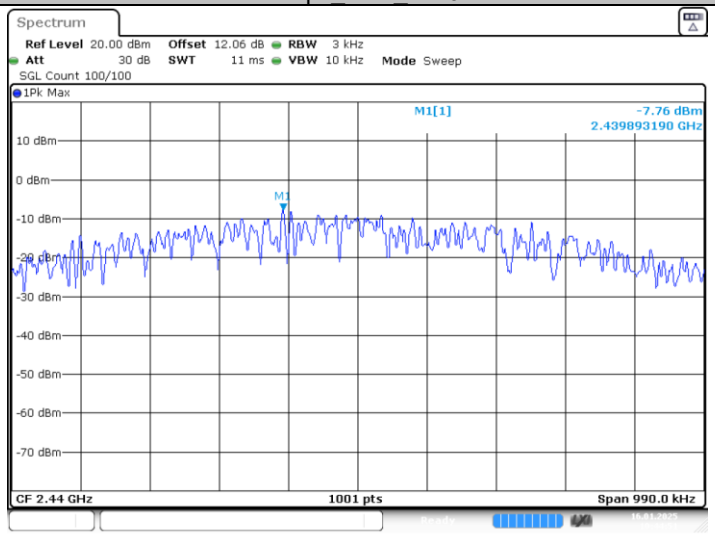
Data transmission rate	Frequency (MHz)	Power spectral density (dBm/3kHz)	Limit (dBm/3kHz)	Result
1Mbps	2402MHz	-8.33	8	Pass
	2440MHz	-7.76	8	Pass
	2480MHz	-7.52	8	Pass
2Mbps	2402MHz	-9.60	8	Pass
	2440MHz	-8.60	8	Pass
	2480MHz	-9.63	8	Pass

BLE 1Mbps_Ant1_2402MHz



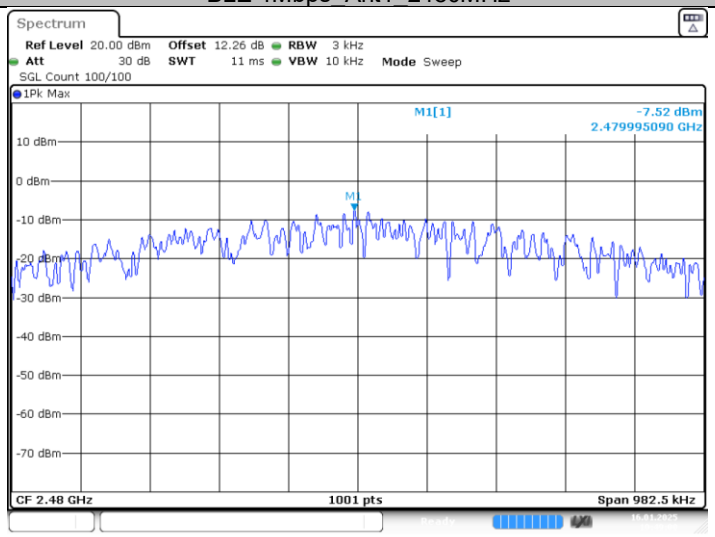
Date: 16.JAN.2025 10:42:23

BLE 1Mbps_Ant1_2440MHz



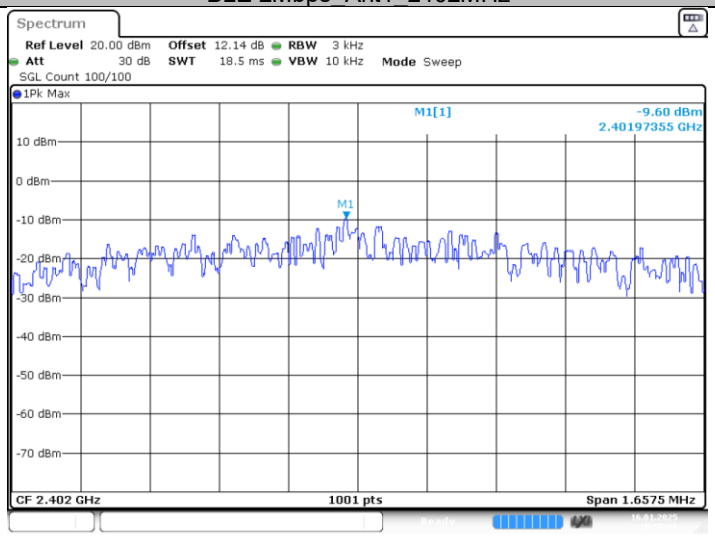
Date: 16.JAN.2025 10:44:51

BLE 1Mbps_Ant1_2480MHz

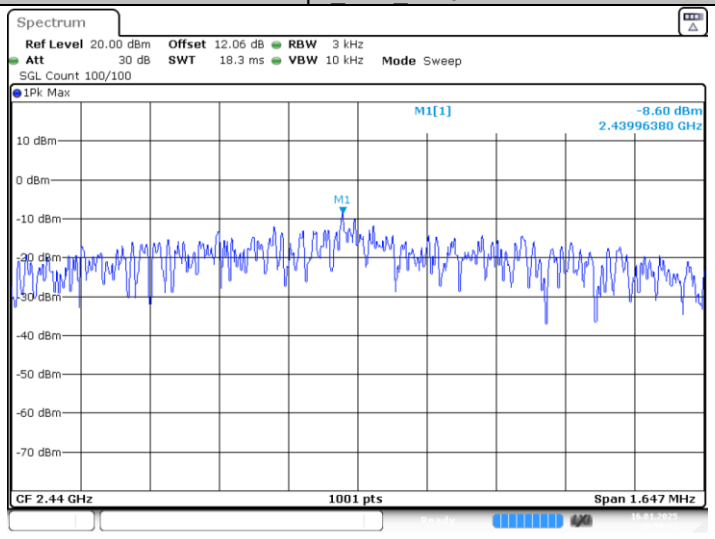


Date: 16.JAN.2025 10:49:00

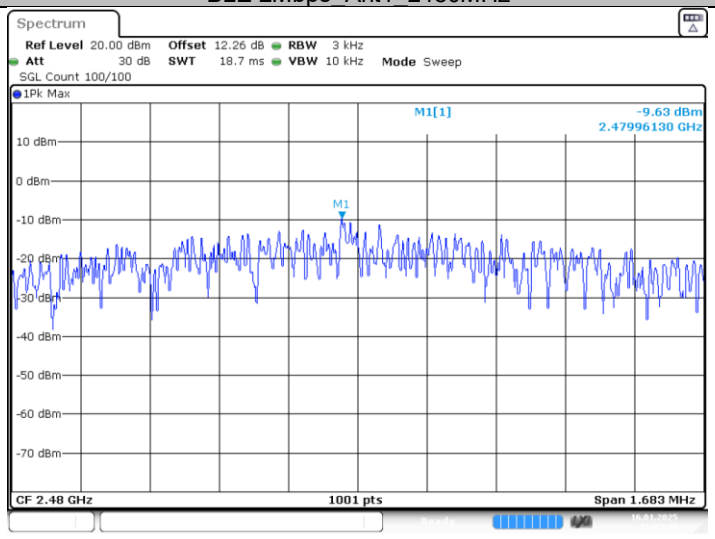
BLE 2Mbps_Ant1_2402MHz



BLE 2Mbps_Ant1_2440MHz



BLE 2Mbps_Ant1_2480MHz



10.5 Spurious RF conducted emissions

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting, the instrument center frequency is set to the nominal EUT channel center frequency enable the EUT transmit continuously.
3. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10^{th} harmonic. Typically, several plots are required to cover this entire span.
   RBW = 100 kHz, VBW≥3RBW, Sweep = auto, Detector function = peak, Trace = max hold
4. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.
5. The level displayed must comply with the limit specified in this Section. Submit these plots.
6. Repeat above procedures until all frequencies measured were complete.

Limit

Frequency Range MHz	Limit (dBc)
30-25000	-20

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Spurious RF conducted emissions

Test Mode	Test Frequency (MHz)	Freq. Range (MHZ)	Result (dBm)	Limit (dBm)	Verdict
BLE_1Mbps	2402	Reference	9.00	---	PASS
		30~1000	-44.40	<=-11.00	PASS
		1000~26500	-40.26	<=-11.00	PASS
	2440	Reference	9.32	---	PASS
		30~1000	-44.78	<=-10.68	PASS
		1000~26500	-40.02	<=-10.68	PASS
	2480	Reference	9.02	---	PASS
		30~1000	-44.51	<=-10.98	PASS
		1000~26500	-39.73	<=-10.98	PASS
BLE_2Mbps	2402	Reference	8.91	---	PASS
		30~1000	-44.61	<=-11.08	PASS
		1000~26500	-40.34	<=-11.08	PASS
	2440	Reference	9.23	---	PASS
		30~1000	-43.45	<=-10.77	PASS
		1000~26500	-40.07	<=-10.77	PASS
	2480	Reference	8.96	---	PASS
		30~1000	-44.25	<=-11.04	PASS
		1000~26500	-40.45	<=-11.04	PASS

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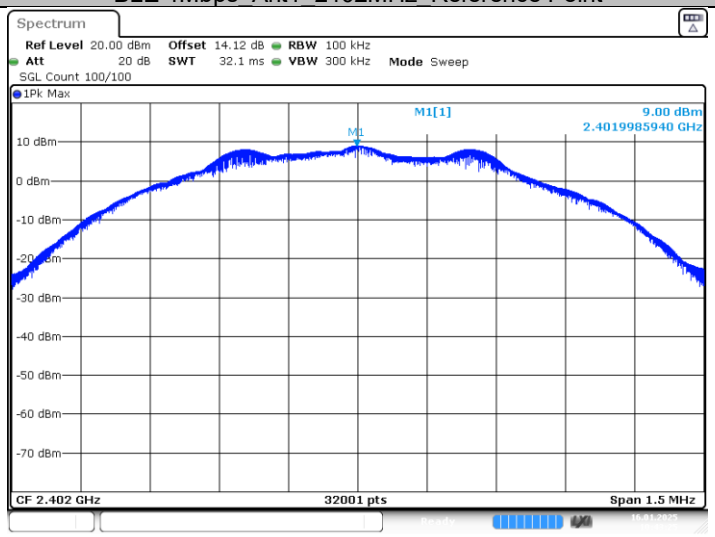
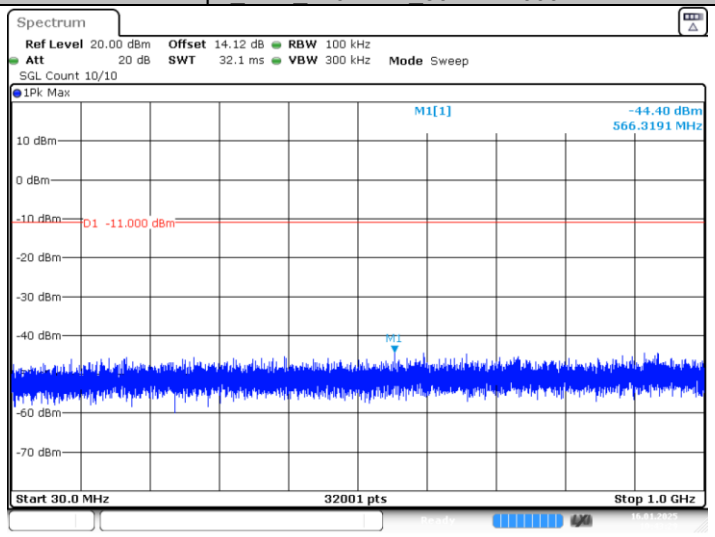
BLE 1Mbps_Ant1_2402MHz_Reference Point



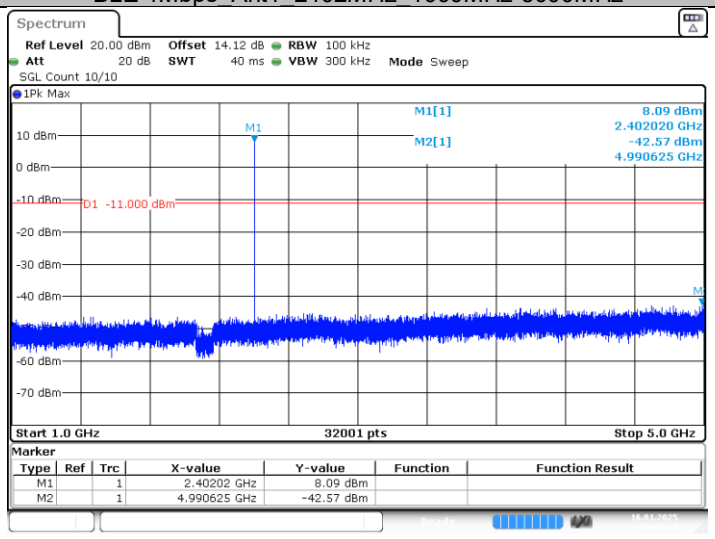
Date: 16.JAN.2025 10:43:26

BLE 1Mbps_Ant1_2402MHz_30MHz-1000MHz



Date: 16.JAN.2025 10:43:30

BLE 1Mbps_Ant1_2402MHz_1000MHz-5000MHz



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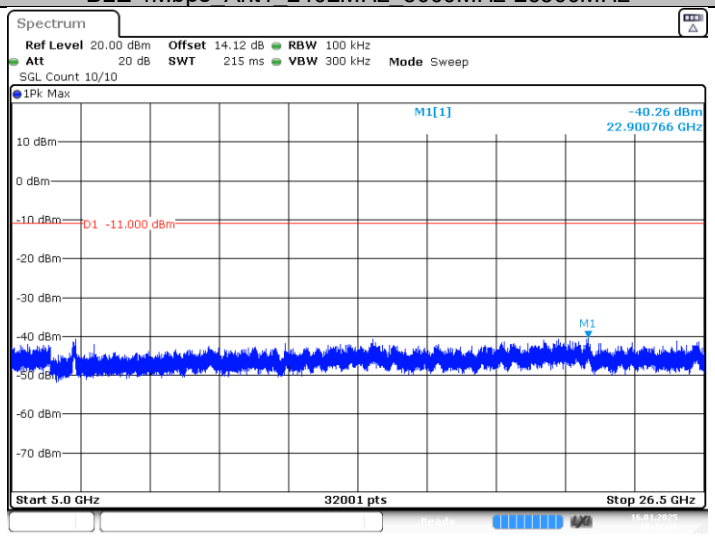
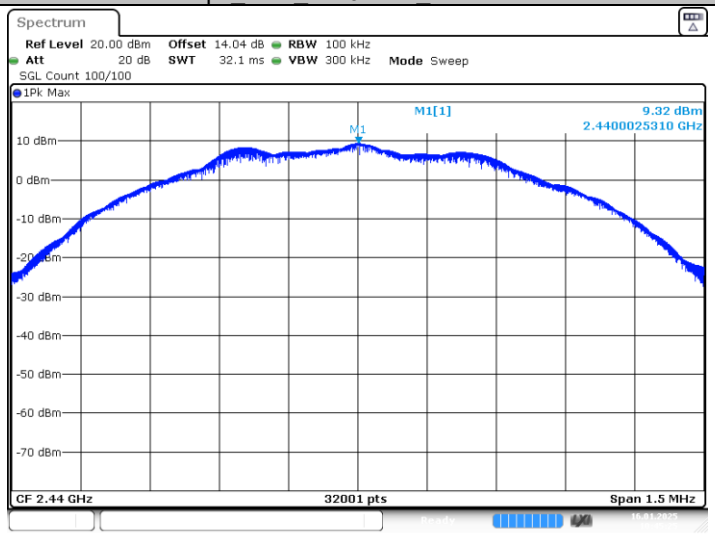
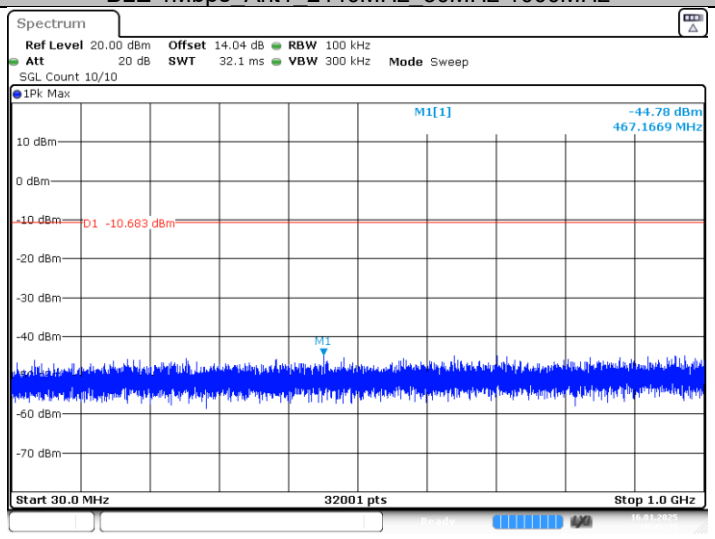
BLE 1Mbps_Ant1_2402MHz_5000MHz-26500MHz



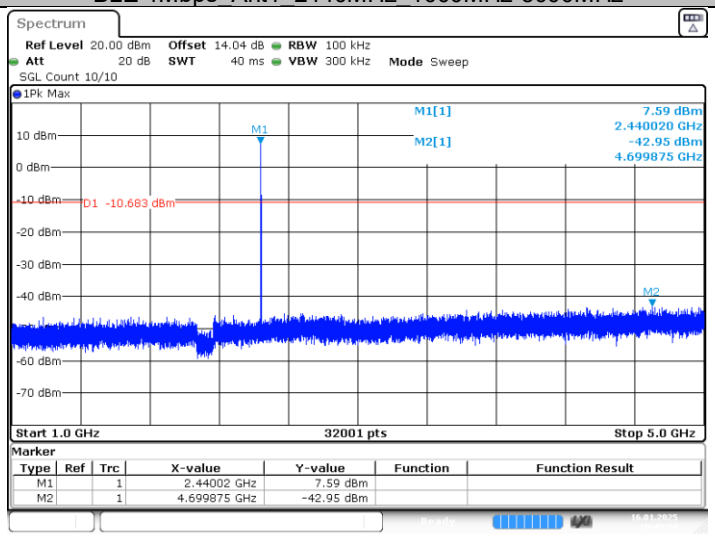
BLE 1Mbps_Ant1_2440MHz__Reference Point



BLE 1Mbps_Ant1_2440MHz_30MHz-1000MHz

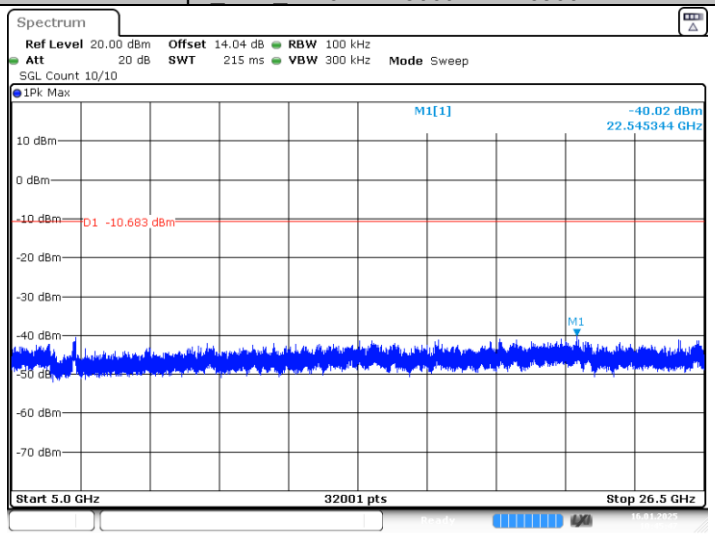


BLE 1Mbps_Ant1_2440MHz_1000MHz-5000MHz



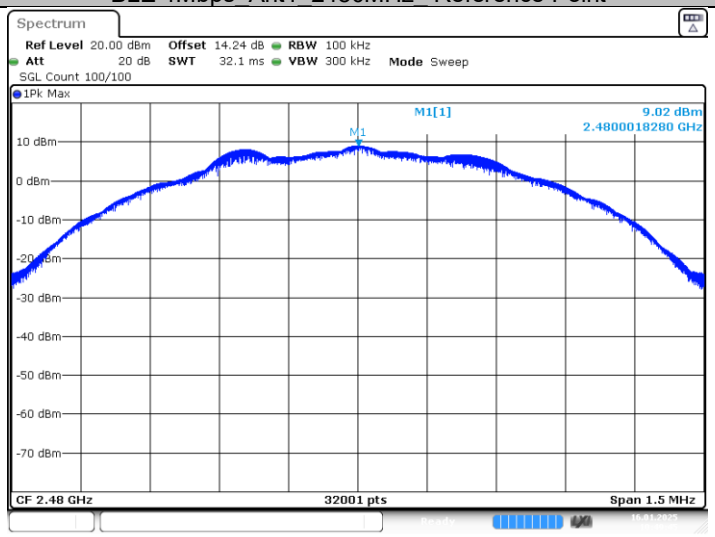
Date: 16.JAN.2025 10:45:34

BLE 1Mbps_Ant1_2440MHz_5000MHz-26500MHz



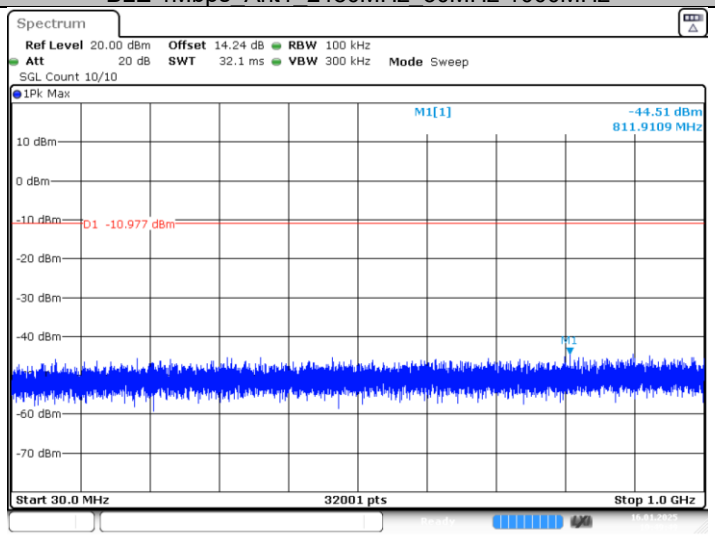
Date: 16.JAN.2025 10:45:47

BLE 1Mbps_Ant1_2480MHz_Reference Point



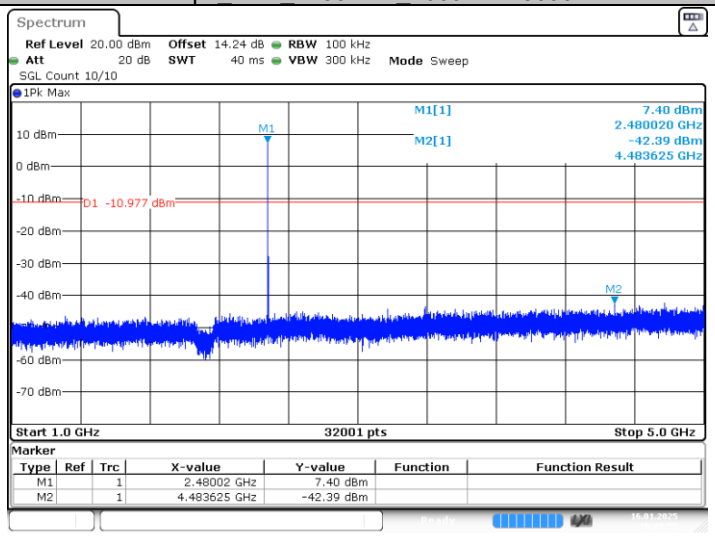
Date: 16.JAN.2025 10:49:46

BLE 1Mbps_Ant1_2480MHz_30MHz-1000MHz



Date: 16.JAN.2025 10:49:50

BLE 1Mbps_Ant1_2480MHz_1000MHz-5000MHz



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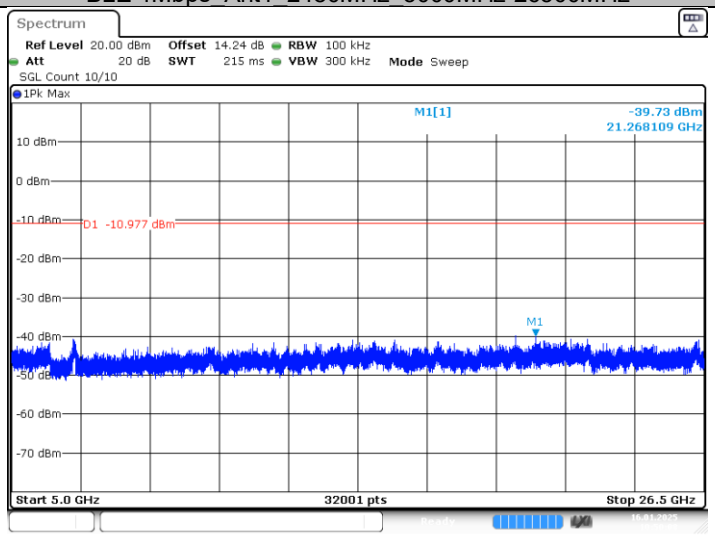
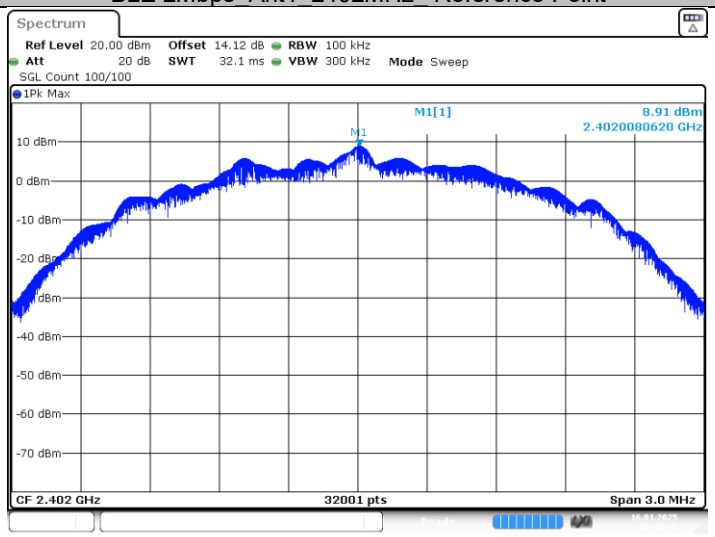
BLE 1Mbps_Ant1_2480MHz_5000MHz-26500MHz



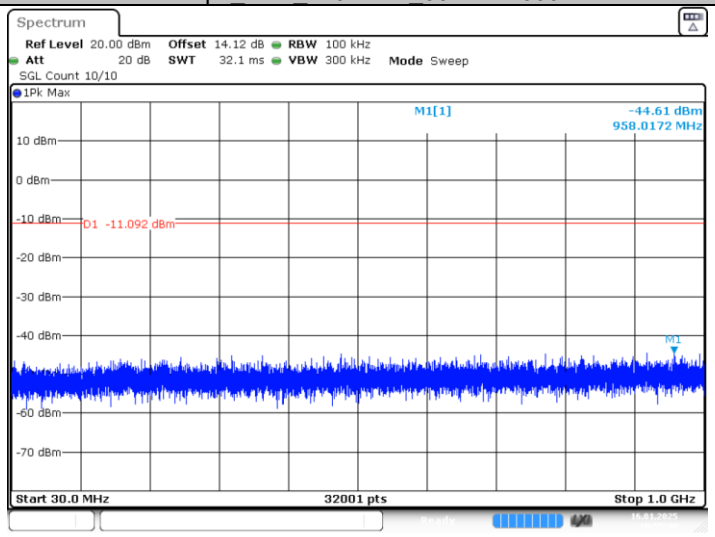
Date: 16.JAN.2025 10:50:08

BLE 2Mbps_Ant1_2402MHz_ Reference Point



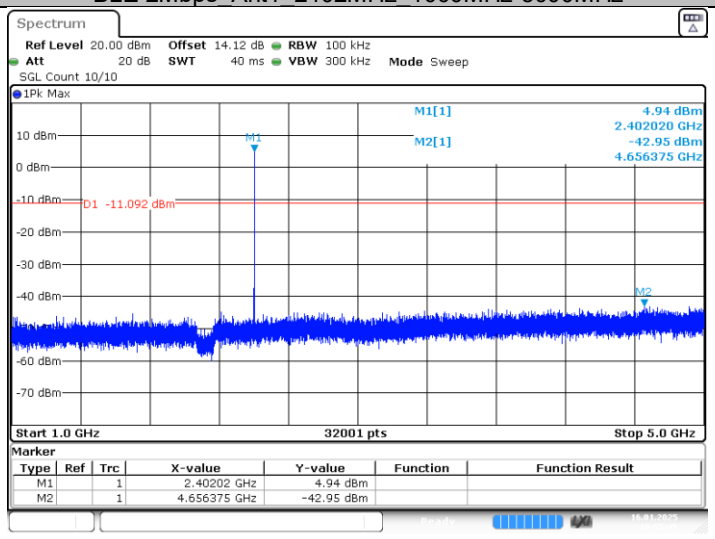
Date: 16.JAN.2025 10:55:37

BLE 2Mbps_Ant1_2402MHz_30MHz-1000MHz



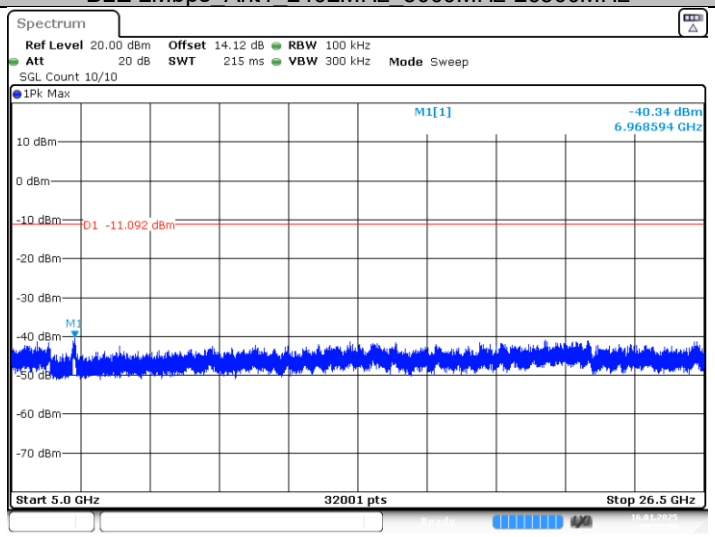
Date: 16.JAN.2025 10:55:41

BLE 2Mbps_Ant1_2402MHz_1000MHz-5000MHz



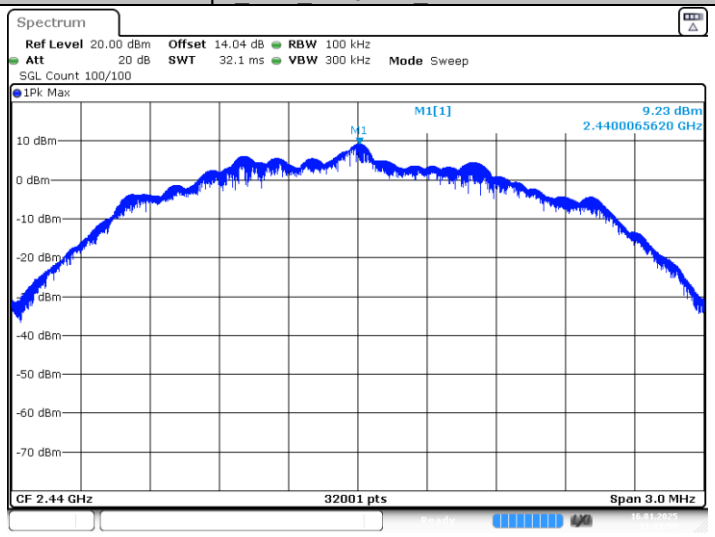
Date: 16.JAN.2025 10:55:46

BLE 2Mbps_Ant1_2402MHz_5000MHz-26500MHz



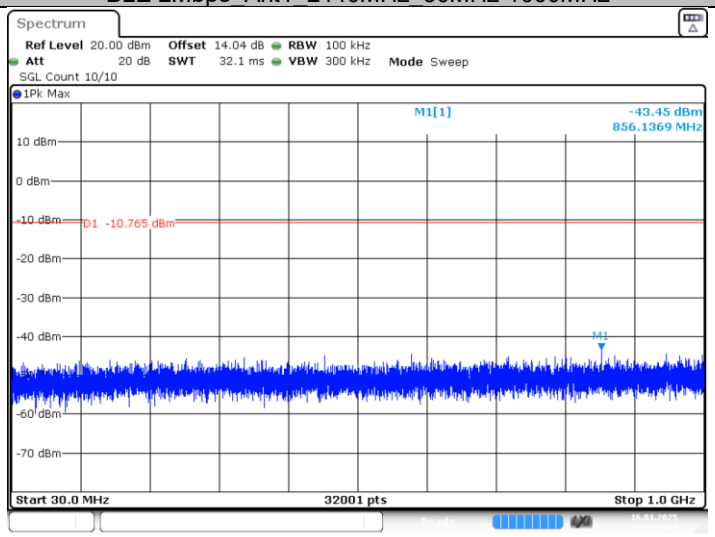
Date: 16.JAN.2025 10:55:59

BLE 2Mbps_Ant1_2440MHz_Reference Point



Date: 16.JAN.2025 11:01:58

BLE 2Mbps_Ant1_2440MHz_30MHz-1000MHz



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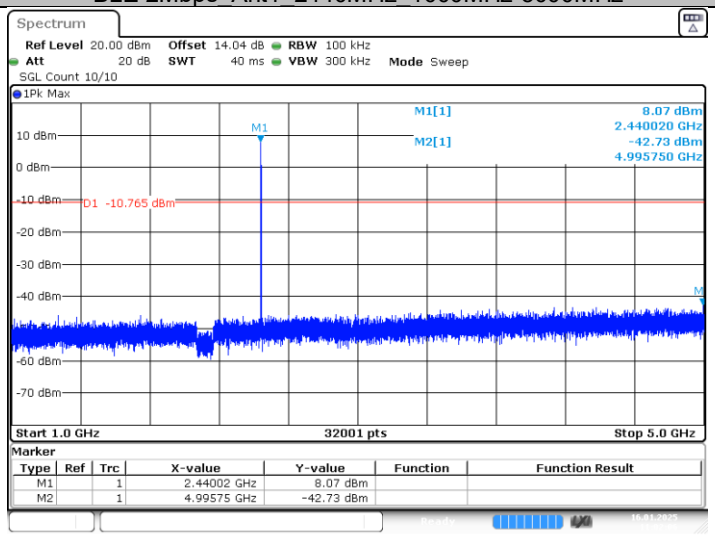
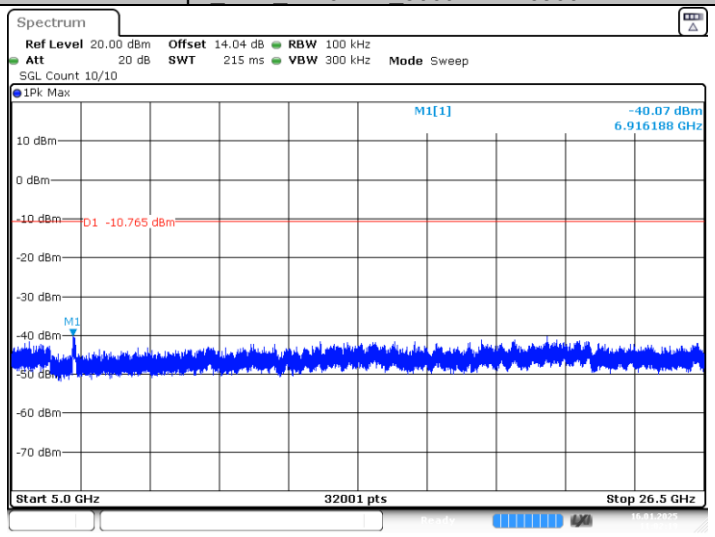
BLE 2Mbps_Ant1_2440MHz_1000MHz-5000MHz



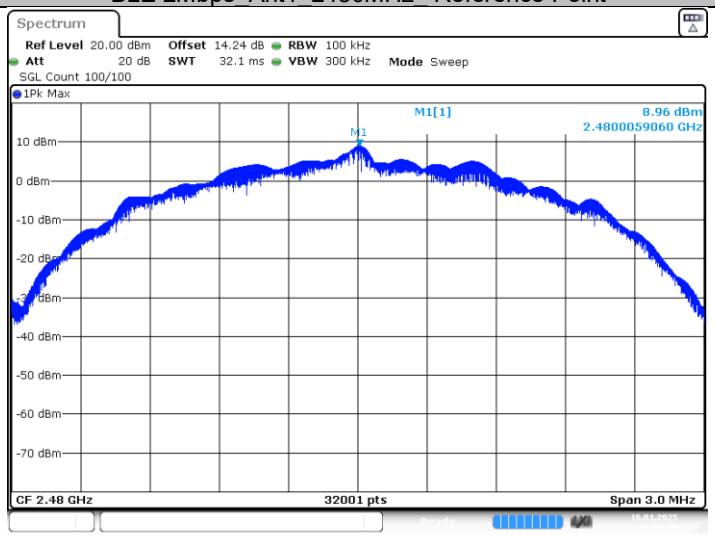
Date: 16.JAN.2025 11:02:06

BLE 2Mbps_Ant1_2440MHz_5000MHz-26500MHz



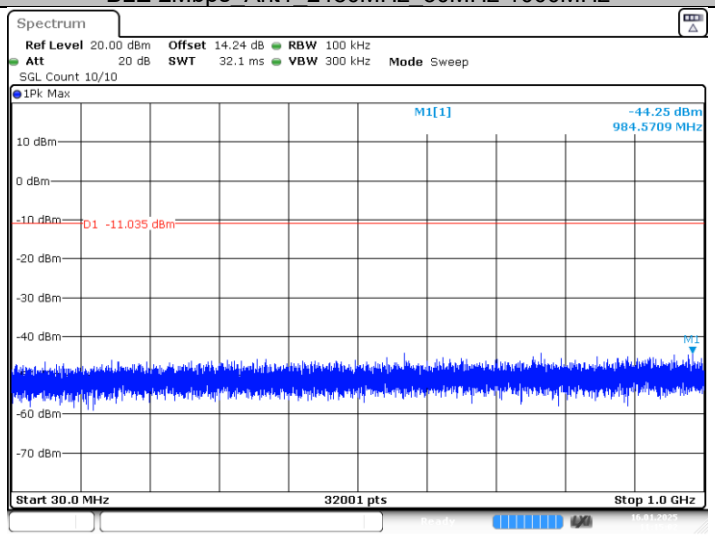
Date: 16.JAN.2025 11:02:19

BLE 2Mbps_Ant1_2480MHz_Reference Point



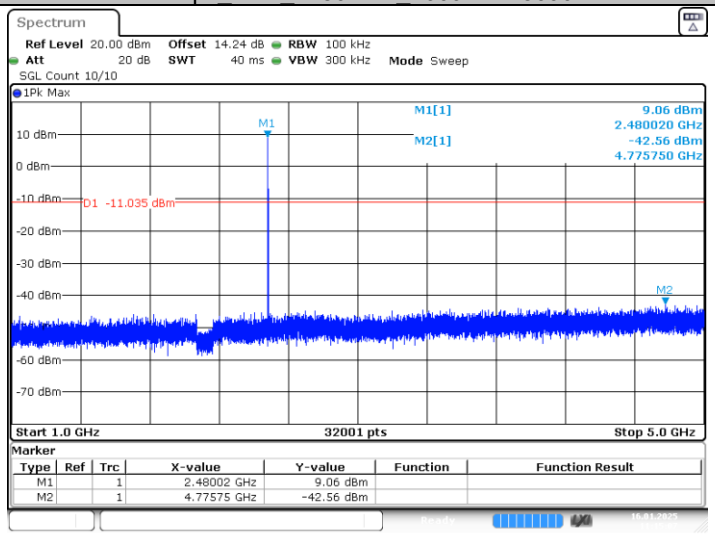
Date: 16.JAN.2025 11:14:59

BLE 2Mbps_Ant1_2480MHz_30MHz-1000MHz



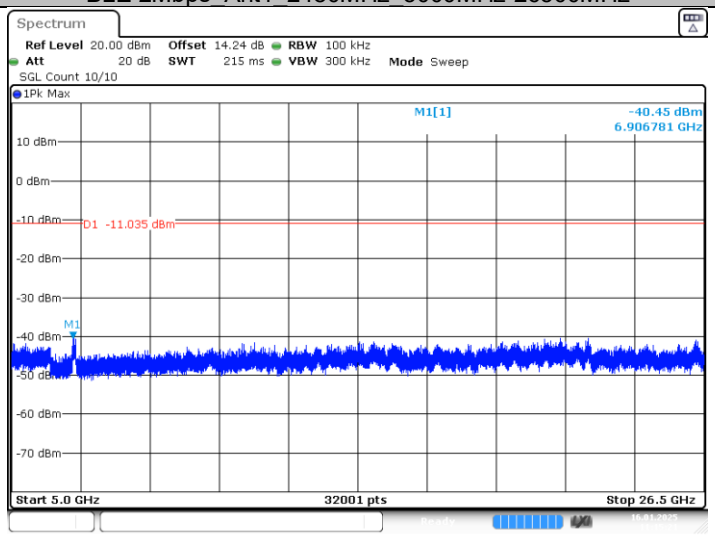
Date: 16.JAN.2025 11:15:03

BLE 2Mbps_Ant1_2480MHz_1000MHz-5000MHz



Date: 16.JAN.2025 11:15:08

BLE 2Mbps_Ant1_2480MHz_5000MHz-26500MHz



Date: 16.JAN.2025 11:15:21

10.6 Band edge

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting, the instrument center frequency is set to the nominal EUT channel center frequency enable the EUT transmit continuously.
3. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peak level of the in-band emission and all spurious
   RBW = 100 kHz, VBW≥3RBW, Sweep = auto, Detector function = peak, Trace = max hold
4. Allow the trace to stabilize, use the peak and delta measurement to record the result.
5. The level displayed must comply with the limit specified in this Section.
6. Repeat above procedures until all frequencies measured were complete and submit all the plots.

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under § 15.247(b)(3), the attenuation required shall be 30 dB instead of 20 dB.

Frequency Range MHz	Limit (dBc)
30-25000	-20

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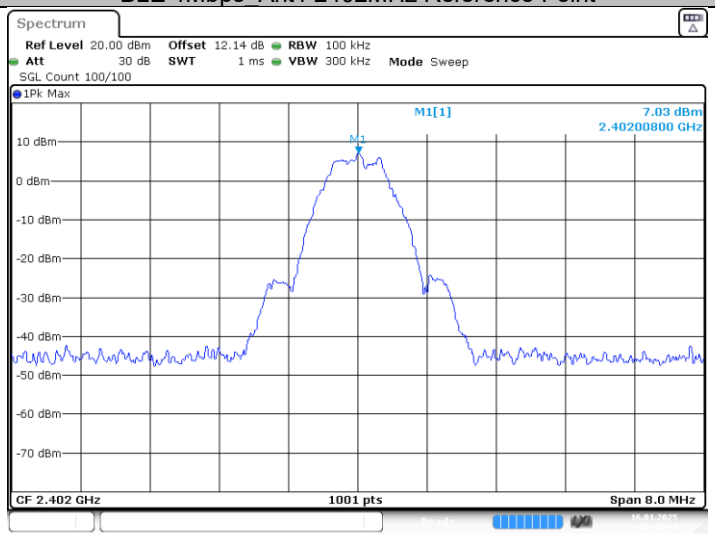
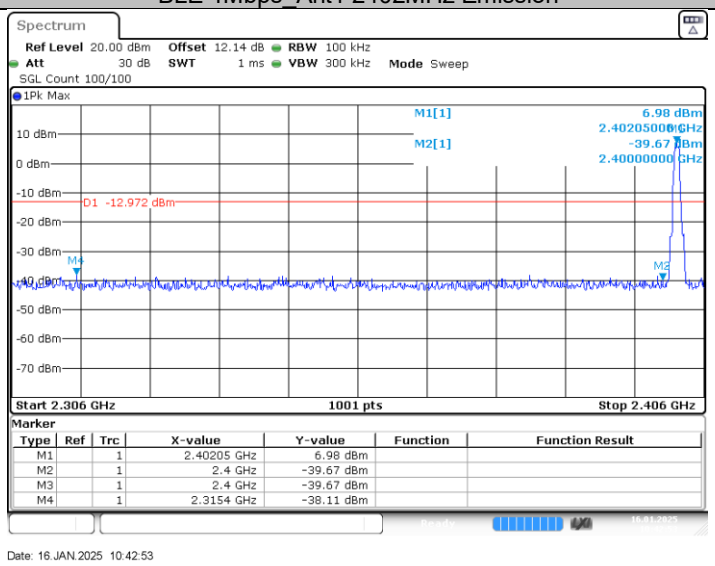
Test result

Test Mode	Channel (MHz)	Reference Level (dBm)	Result (dBm)	Limit (dBm)	Verdict
BLE_1Mbps	2402	7.03	-38.11	<=-12.97	PASS
	2480	7.15	-38.82	<=-12.85	PASS
BLE_2Mbps	2402	6.44	-28.00	<=-13.56	PASS
	2480	6.68	-37.45	<=-13.32	PASS

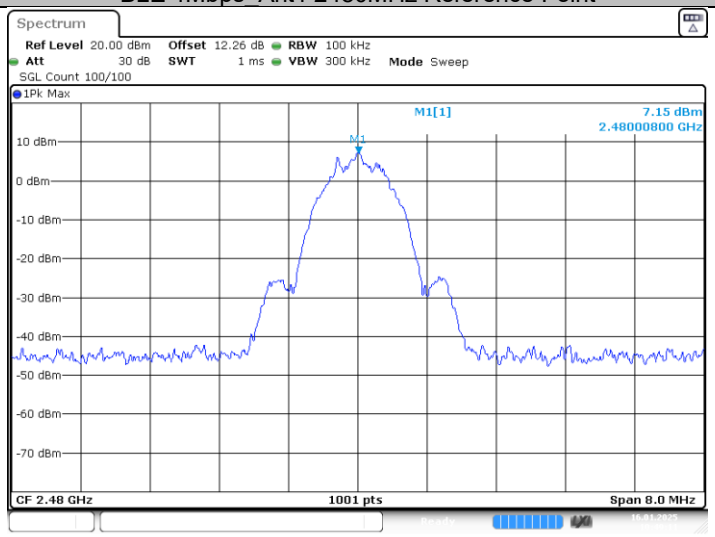
BLE 1Mbps_Ant1 2402MHz Reference Point



BLE 1Mbps_Ant1 2402MHz Emission



BLE 1Mbps_Ant1 2480MHz Reference Point



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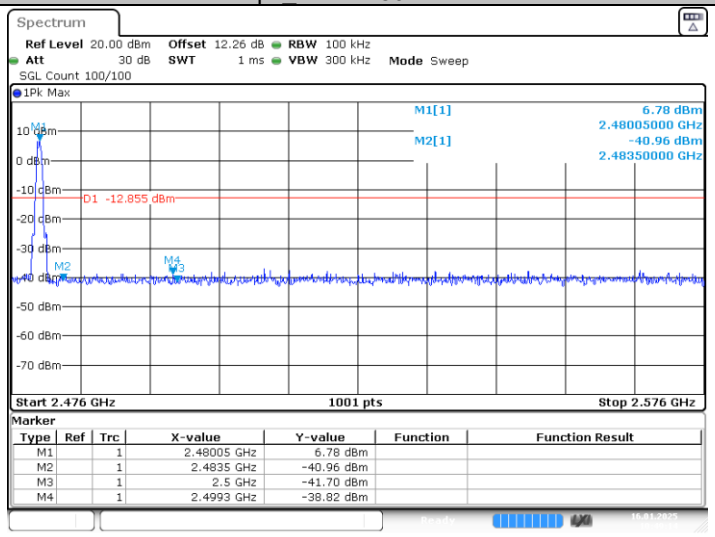
BLE 1Mbps_Ant1 2480MHz Emission



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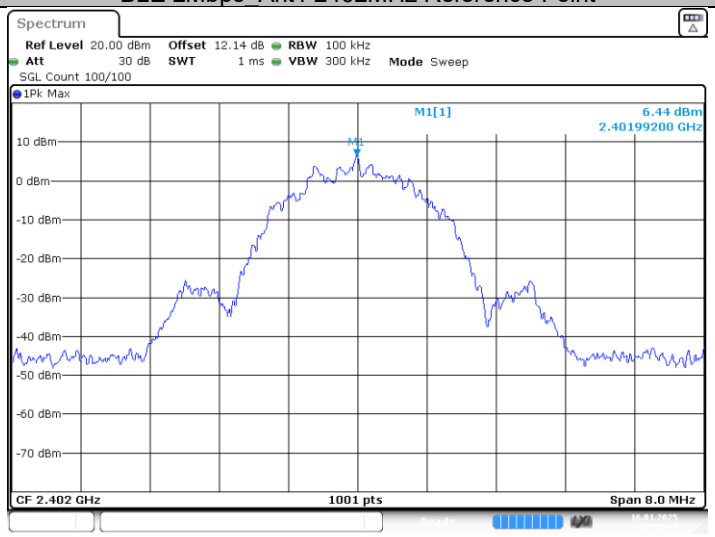
BLE 2Mbps_Ant1 2402MHz Reference Point



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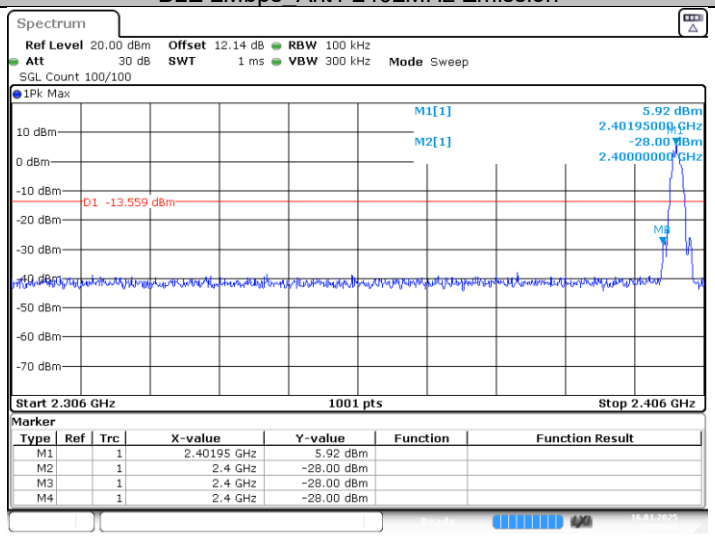
BLE 2Mbps_Ant1 2402MHz Emission



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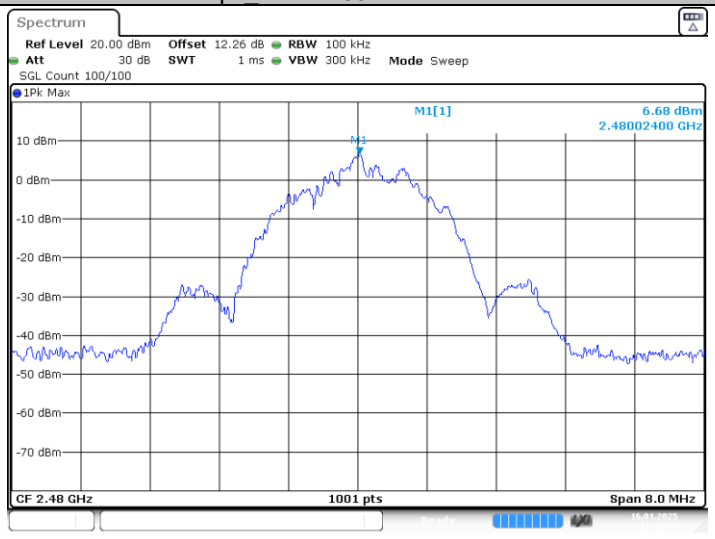
BLE 2Mbps_Ant1 2480MHz Reference Point



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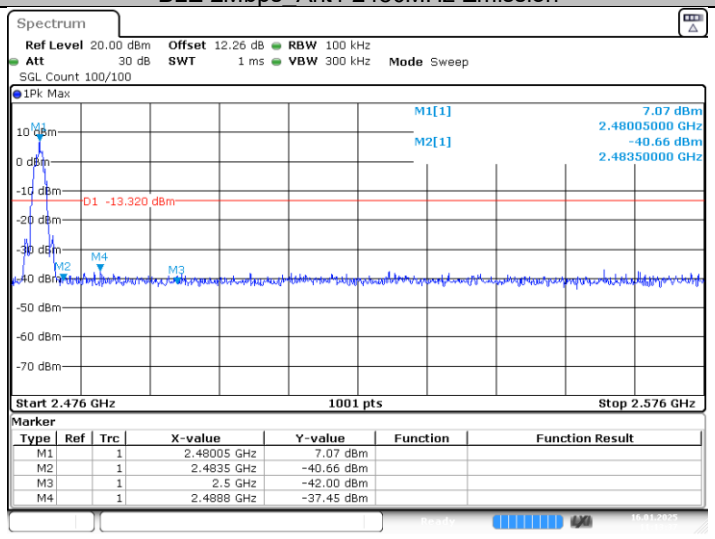
BLE 2Mbps_Ant1 2480MHz Emission



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10.7 Spurious radiated emissions for transmitter

Test Method

1. The EUT was place on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. Use the following spectrum analyzer settings According to C63.10

   1) Procedure for Unwanted Emissions Measurements Below 1000 MHz

   Span = wide enough to capture the peak level of the in-band emission and all spurious RBW = 100 kHz to 120kHz, VBW≥RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

   2) For Peak unwanted emissions Above 1GHz:

   Span = wide enough to capture the peak level of the in-band emission and all spurious RBW = 1MHz, VBW≥RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

   Procedures for average unwanted emissions measurements above 1GHz

   a) RBW = 1MHz.

   b) VBW \ [3 × RBW].

   c) Detector = RMS (power averaging), if [span / (# of points in sweep)] \ RBW / 2. Satisfying this condition can require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, then the detector mode shall be set to peak.

   d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)

   e) Sweep time = auto.

   f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of 1 / D, where D is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)

   g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:

   1) If power averaging (rms) mode was used in the preceding step e), then the correction factor is [10 log (1 / D)], where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB shall be added to the measured emission levels.

   2) If linear voltage averaging mode was used in the preceding step e), then the correction factor is [20 log (1 / D)], where D is the duty cycle. For example, if the transmit duty

cycle was 50%, then 6 dB shall be added to the measured emission levels.
3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission (AV) at frequency above 1GHz.

Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under § 15.247(b)(3), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in§ 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a).

Frequency MHz	Field Strength μV/m	Field Strength dBμV/m	Detector	Measurement distance meters
0.009-0.490	2400/F(kHz)	48.5-13.8	AV	300
0.490-1.705	24000/F(kHz)	33.8-23.0	QP	30
1.705-30	30	29.5	QP	30
30-88	100	40	QP	3
88-216	150	43.5	QP	3
216-960	200	46	QP	3
960-1000	500	54	QP	3
Above 1000	500	54	AV	3
Above 1000	5000	74	PK	3

Note 1: Limit 3m(dBμV/m)=Limit 300m(dBμV/m)+40Log(300m/3m) (Below 30MHz)
Note 2: Limit 3m(dBμV/m)=Limit 30m(dBμV/m)+40Log(30m/3m) (Below 30MHz)

Spurious radiated emissions for transmitter

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

Test result

The worst case of Radiated Emission below 1GHz:

0.009-30MHz Radiated Emission

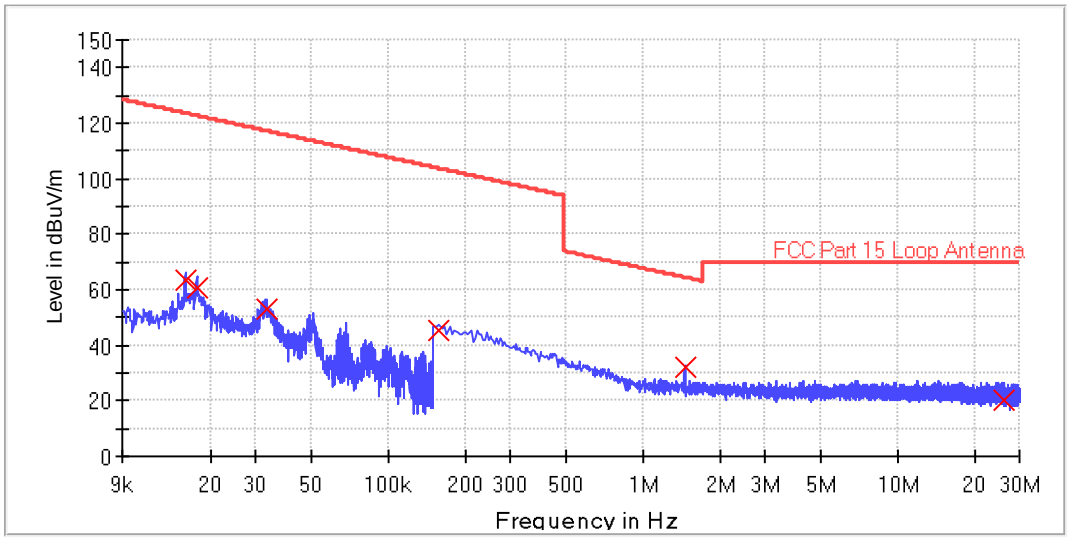
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2440MHz
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	X-axial orientation

Scan Setup: FCC_RE_9K-30M_Max_3m [EMI radiated]

Hardware Setup:	Radiated E Field 9K-30MHz_3m
Receiver:	[ESR 7]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	20 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	20 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
0.015960	63.3	1000.0	0.200	100.0	126.0	19.8	60.3	123.5
0.017640	61.0	1000.0	0.200	100.0	130.0	19.7	61.7	122.7
0.033160	52.7	1000.0	0.200	100.0	149.0	19.6	64.5	117.2
0.158000	45.6	1000.0	9.000	100.0	223.0	19.3	58.1	103.6
1.458000	32.2	1000.0	9.000	100.0	289.0	19.3	32.2	64.4
25.914000	20.5	1000.0	9.000	100.0	165.0	18.9	49.0	69.5

0.009-30MHz Radiated Emission

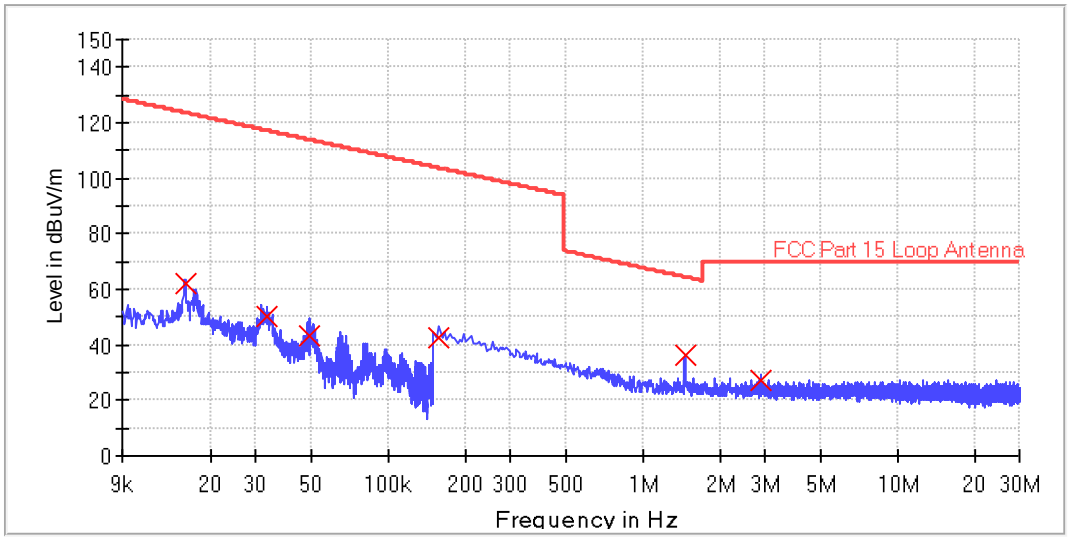
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2440MHz
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Y-axial orientation

Scan Setup: FCC_RE_9K-30M_Max_3m [EMI radiated]

Hardware Setup:	Radiated E Field 9K-30MHz_3m
Receiver:	[ESR 7]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	20 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	20 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
0.015880	62.4	1000.0	0.200	100.0	112.0	19.8	61.2	123.6
0.033320	50.2	1000.0	0.200	100.0	145.0	19.6	67.0	117.1
0.049240	43.2	1000.0	0.200	100.0	201.0	19.5	70.5	113.7
0.158000	42.8	1000.0	9.000	100.0	294.0	19.3	60.8	103.6
1.458000	36.5	1000.0	9.000	100.0	89.0	19.3	27.8	64.4
2.918000	27.5	1000.0	9.000	100.0	280.0	19.3	42.0	69.5

0.009-30MHz Radiated Emission

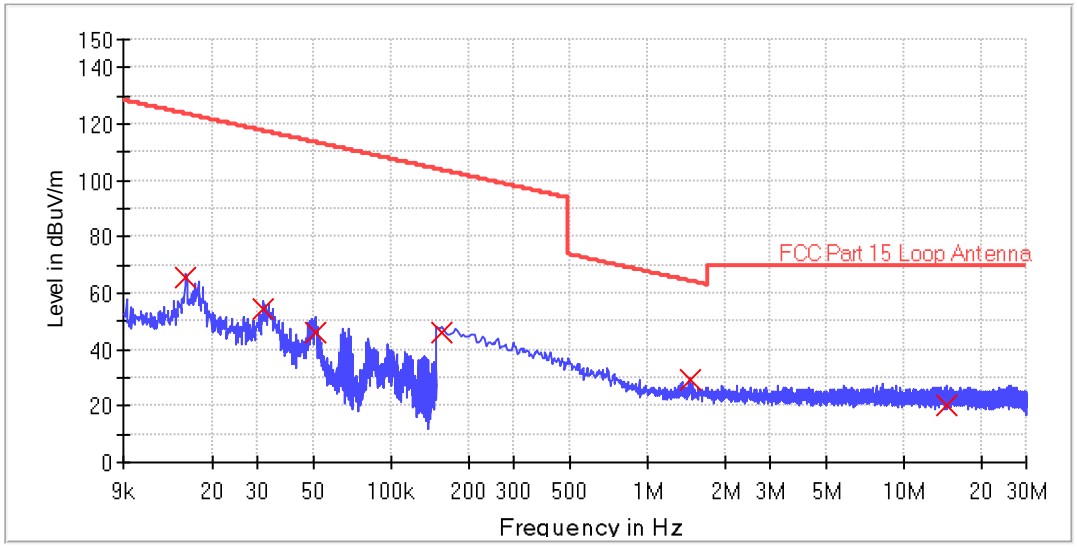
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2440MHz
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Z-axial orientation

Scan Setup: FCC_RE_9K-30M_Max_3m [EMI radiated]

Hardware Setup:	Radiated E Field 9K-30MHz_3m
Receiver:	[ESR 7]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	20 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	20 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
0.015800	65.3	1000.0	0.200	100.0	140.0	19.8	58.3	123.6
0.031480	54.5	1000.0	0.200	100.0	112.0	19.6	63.1	117.6
0.050760	46.0	1000.0	0.200	100.0	179.0	19.5	67.5	113.5
0.158000	46.1	1000.0	9.000	100.0	260.0	19.3	57.6	103.6
1.458000	29.4	1000.0	9.000	100.0	289.0	19.3	35.0	64.4
14.690000	20.5	1000.0	9.000	100.0	185.0	18.7	49.0	69.5

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)
Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

30-1000MHz Radiated Emission

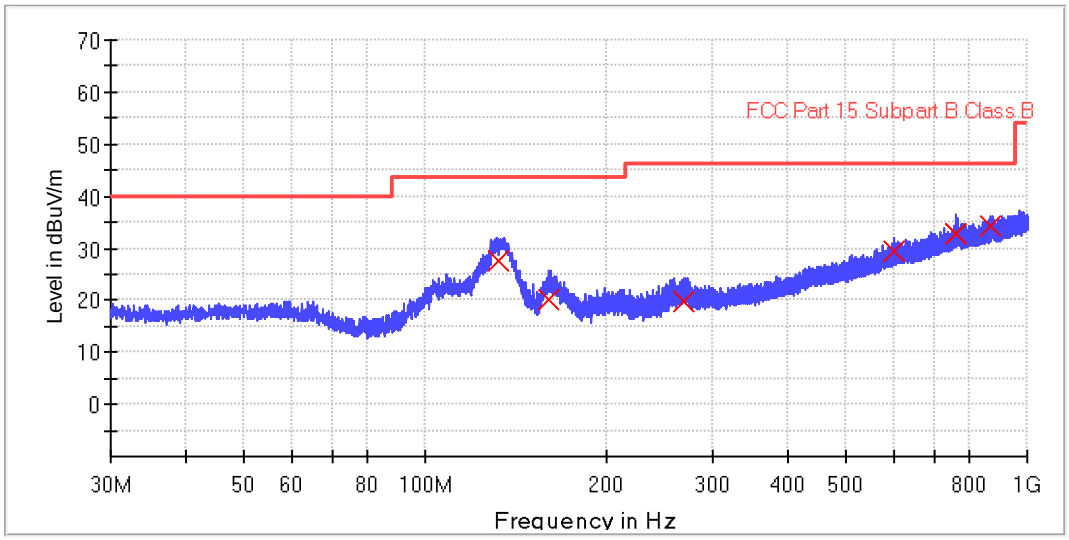
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2440MHz
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Horizontal

Sweep Setup: RE_30M-1G_Sweep_3m [EMI radiated]

Hardware Setup:	Radiated E Field 30MHz-1GHz_3m
Receiver:	[ESR 7]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	40.417 kHz	PK+	120 kHz	1.5 s	20 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
132.440000	27.5	1000.0	120.000	205.0	H	231.0	20.2	16.0	43.5
159.960000	20.2	1000.0	120.000	185.0	H	0.0	21.7	23.3	43.5
268.840000	19.7	1000.0	120.000	160.0	H	171.0	21.3	26.3	46.0
602.280000	29.5	1000.0	120.000	210.0	H	53.0	30.4	16.5	46.0
760.640000	32.9	1000.0	120.000	190.0	H	249.0	33.2	13.1	46.0
868.240000	34.2	1000.0	120.000	200.0	H	120.0	34.4	11.8	46.0

30-1000MHz Radiated Emission

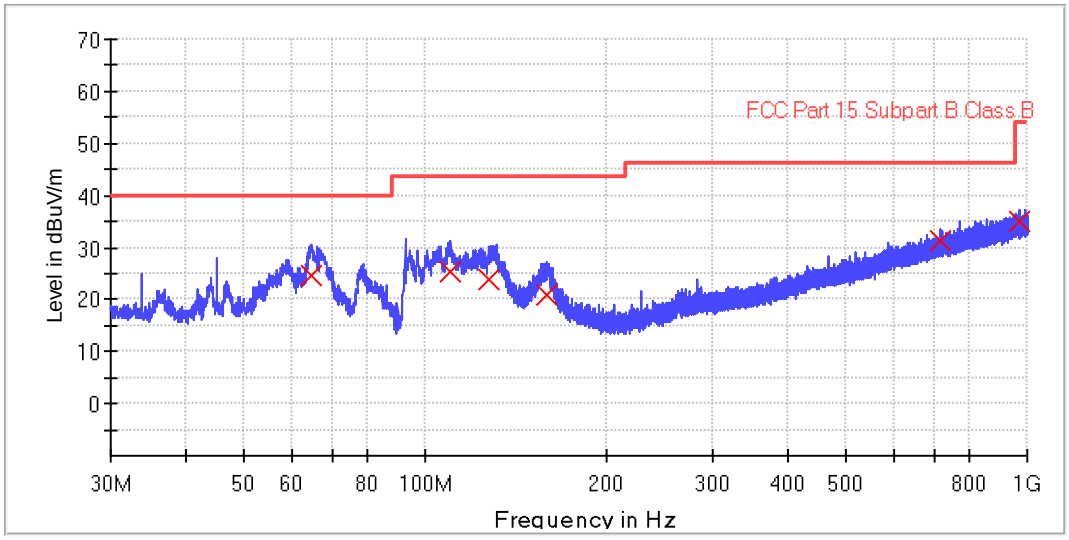
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2440MHz
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Vertical

Sweep Setup: RE_30M-1G_Sweep_3m [EMI radiated]

Hardware Setup:	Radiated E Field 30MHz-1GHz_3m
Receiver:	[ESR 7]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	40.417 kHz	PK+	120 kHz	1.5 s	20 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
64.800000	24.7	1000.0	120.000	100.0	V	9.0	20.1	15.3	40.0
109.720000	25.4	1000.0	120.000	115.0	V	34.0	18.0	18.1	43.5
127.720000	24.0	1000.0	120.000	110.0	V	283.0	19.8	19.5	43.5
158.720000	21.0	1000.0	120.000	120.0	V	272.0	21.6	22.5	43.5
719.000000	31.2	1000.0	120.000	100.0	V	182.0	32.1	14.8	46.0
968.720000	34.9	1000.0	120.000	100.0	V	22.0	35.7	19.1	54.0

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)
Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Radiated Emission 1GHz-18GHz:

1-18G Radiated Emission Test

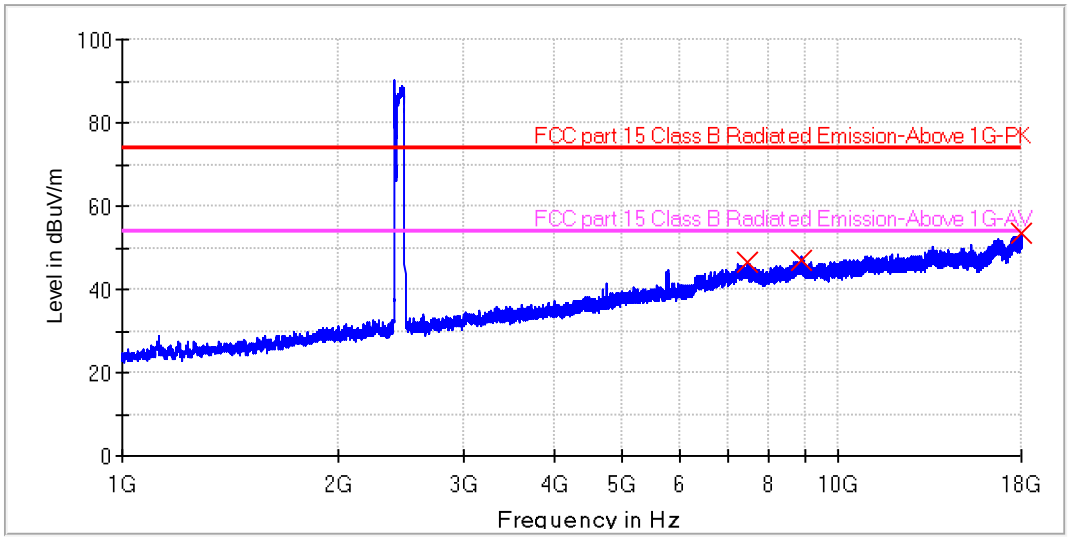
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 1Mbps, 2402M
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Horizontal

Sweep Setup: FCC_RE_1-18G Sweep 3m_bonn [EMI radiated]

Hardware Setup:	FCC part15C Radiated E Field 1GHz-18GHz_3m_BONN
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 6.3 GHz	441.667 kHz	PK+	1 MHz	1 s	0 dB
6.3 GHz - 18 GHz	487.5 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

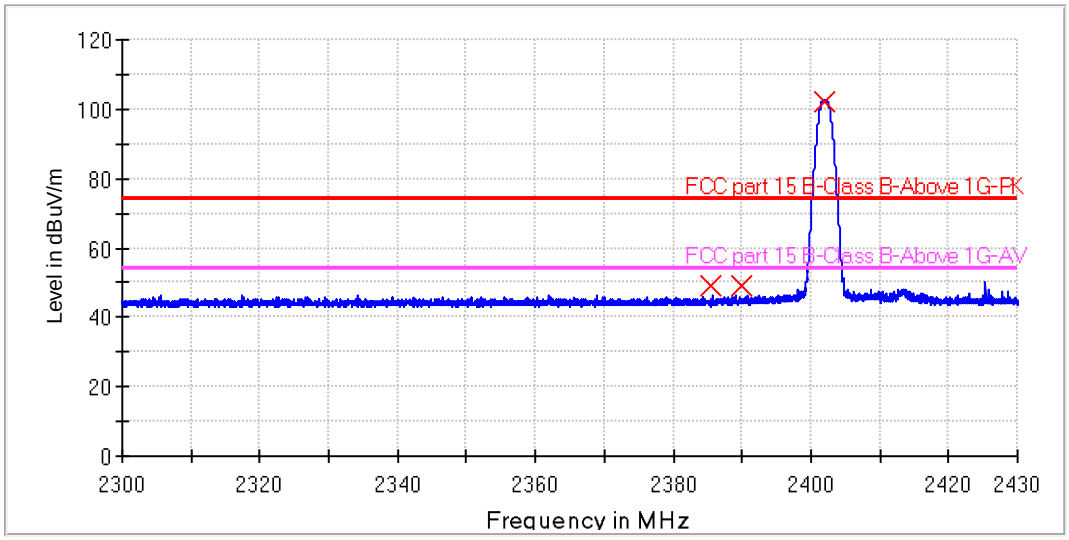
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
7475.000000	46.5	1000.0	200.0	H	72.4	9.1	27.5	74.0
8891.000000	47.1	1000.0	180.0	H	309.4	11.9	26.9	74.0
17958.000000	53.4	1000.0	175.0	H	356.2	22.1	20.6	74.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

Sweep Setup: FCC_Band edge-2300-2430 Sweep 3m_without PA [EMI radiated]

Hardware Setup: 1-18G_3m_without PA
Receiver: [FSV 40]
Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
2.3 GHz - 2.43 GHz	26 kHz	PK+	1 MHz	1 s	20 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Meas. Time (ms)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
2385.500000	48.9	---	1000.0	190.0	35.0	34.4	25.1	74.0
2390.000000	49.2	---	1000.0	195.0	118.0	34.4	24.8	74.0
2402.000000	102.4	---	1000.0	205.0	310.0	34.5	---	74.0

Note: Measure Level = Reading Level + Correct Factor
Correct Factor = Cable Loss + Antenna Factor

1-18G Radiated Emission Test

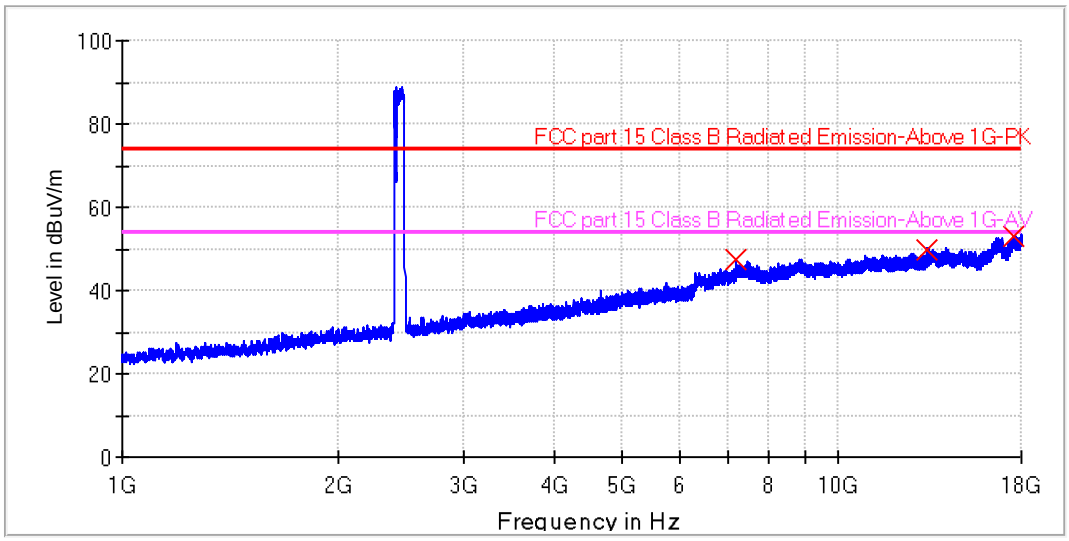
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 1Mbps, 2402M
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Vertical

Sweep Setup: FCC_RE_1-18G Sweep 3m_bonn [EMI radiated]

Hardware Setup:	FCC part15C Radiated E Field 1GHz-18GHz_3m_BONN
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 6.3 GHz	441.667 kHz	PK+	1 MHz	1 s	0 dB
6.3 GHz - 18 GHz	487.5 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

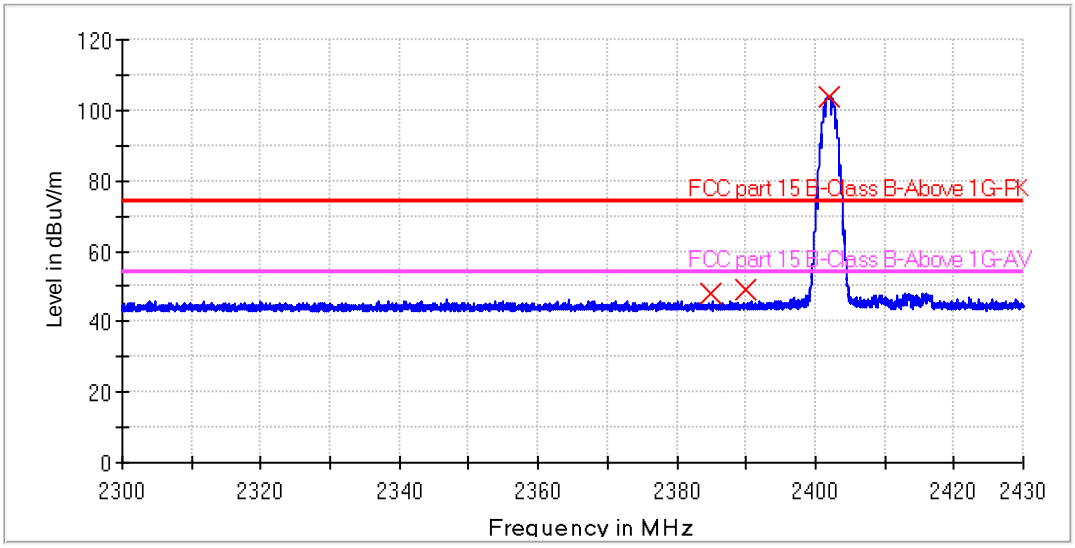
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
7205.000000	47.3	1000.0	105.0	V	24.6	8.5	26.7	74.0
13317.500000	49.8	1000.0	110.0	V	46.5	17.0	24.2	74.0
17604.500000	53.3	1000.0	120.0	V	265.2	22.0	20.7	74.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

Sweep Setup: FCC_Band edge-2300-2430 Sweep 3m_without PA [EMI radiated]

Hardware Setup: 1-18G_3m_without PA
Receiver: [FSV 40]
Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
2.3 GHz - 2.43 GHz	26 kHz	PK+	1 MHz	1 s	20 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBm)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
2385.000000	47.8	---	1000.0	110.0	V	258.0	34.4	26.2	74.0
2390.000000	49.0	---	1000.0	100.0	V	201.0	34.4	25.0	74.0
2402.000000	103.8	---	1000.0	110.0	V	329.3	34.5	---	74.0

Note: Measure Level = Reading Level + Correct Factor
Correct Factor = Cable Loss + Antenna Factor

1-18G Radiated Emission Test

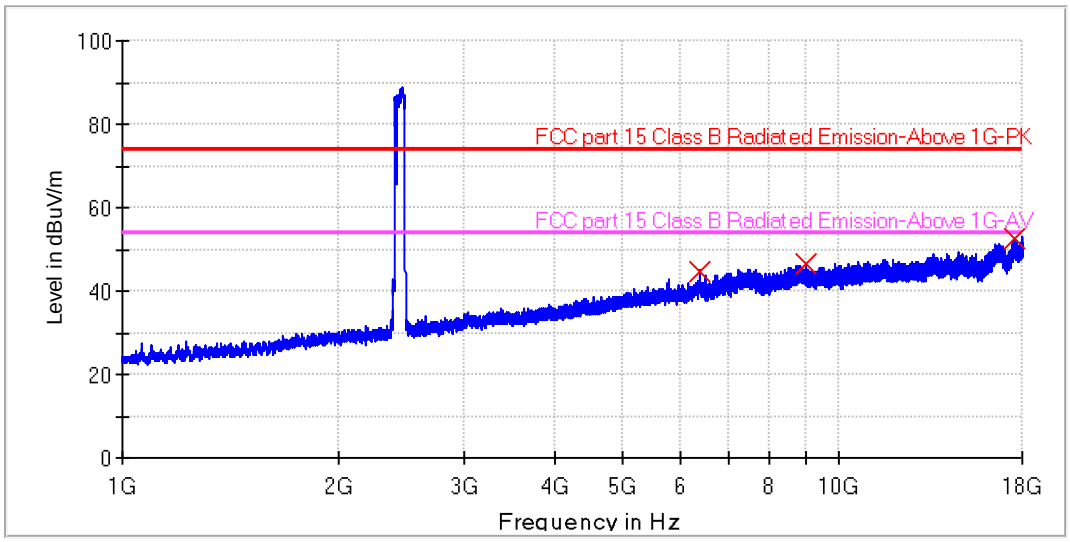
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 1Mbps, 2440M
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Horizontal

Sweep Setup: FCC_RE_1-18G Sweep 3m_bonn [EMI radiated]

Hardware Setup:	FCC part15C Radiated E Field 1GHz-18GHz_3m_BONN
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 6.3 GHz	441.667 kHz	PK+	1 MHz	1 s	0 dB
6.3 GHz - 18 GHz	487.5 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
6405.000000	44.8	1000.0	210.0	H	327.5	7.1	29.2	74.0
8961.500000	46.7	1000.0	200.0	H	104.8	11.8	27.3	74.0
17556.500000	52.4	1000.0	195.0	H	171.8	21.9	21.6	74.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

1-18G Radiated Emission Test

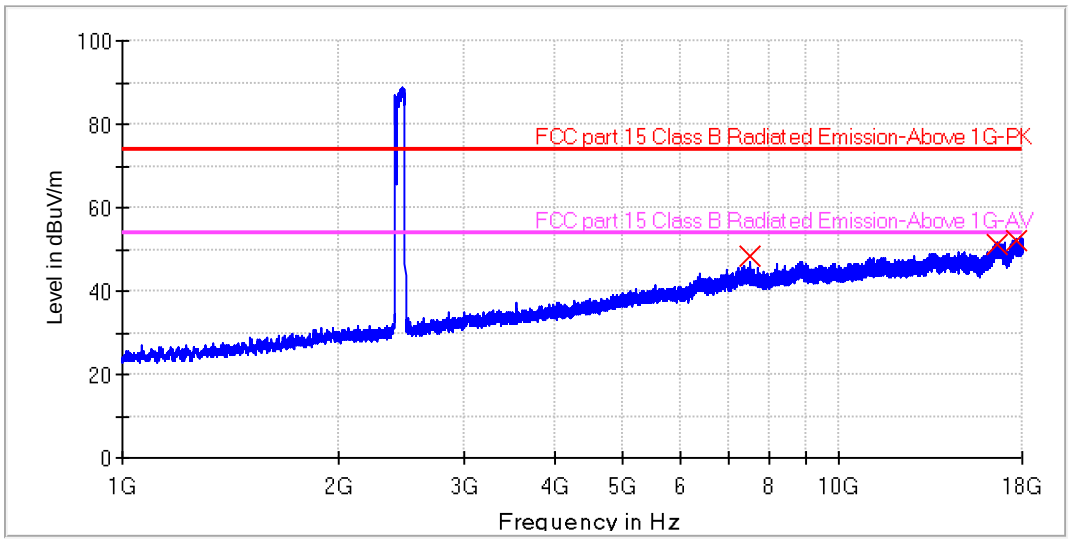
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 1Mbps, 2440M
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Vertical

Sweep Setup: FCC_RE_1-18G Sweep 3m_bonn [EMI radiated]

Hardware Setup:	FCC part15C Radiated E Field 1GHz-18GHz_3m_BONN
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 6.3 GHz	441.667 kHz	PK+	1 MHz	1 s	0 dB
6.3 GHz - 18 GHz	487.5 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
7498.000000	48.4	1000.0	115.0	V	147.7	9.3	25.6	74.0
16583.000000	51.4	1000.0	110.0	V	298.8	18.8	22.6	74.0
17705.000000	52.2	1000.0	120.0	V	249.7	22.0	21.9	74.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

1-18G Radiated Emission Test

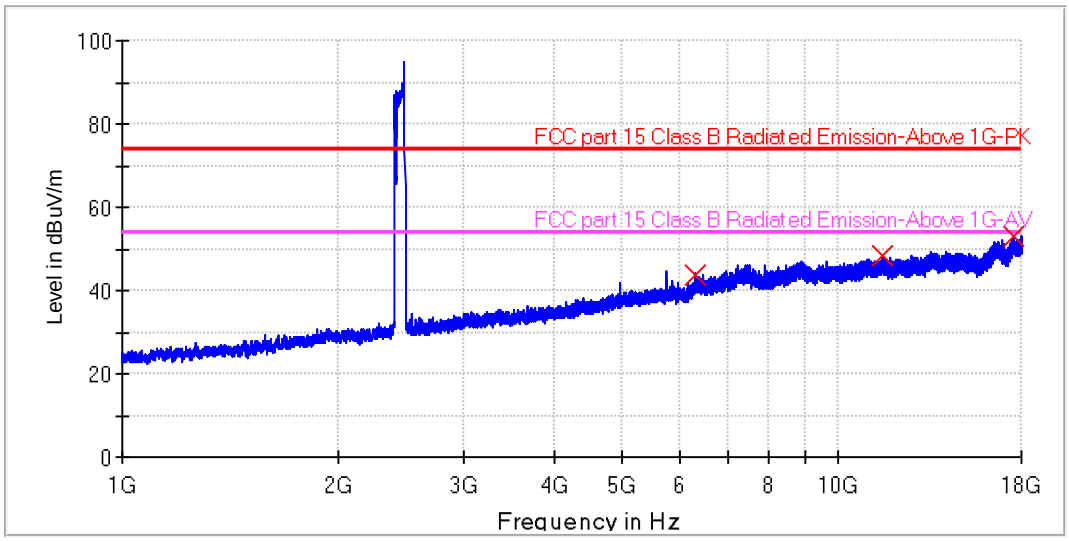
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 1Mbps, 2480M
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Horizontal

Sweep Setup: FCC_RE_1-18G Sweep 3m_bonn [EMI radiated]

Hardware Setup:	FCC part15C Radiated E Field 1GHz-18GHz_3m_BONN
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 6.3 GHz	441.667 kHz	PK+	1 MHz	1 s	0 dB
6.3 GHz - 18 GHz	487.5 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

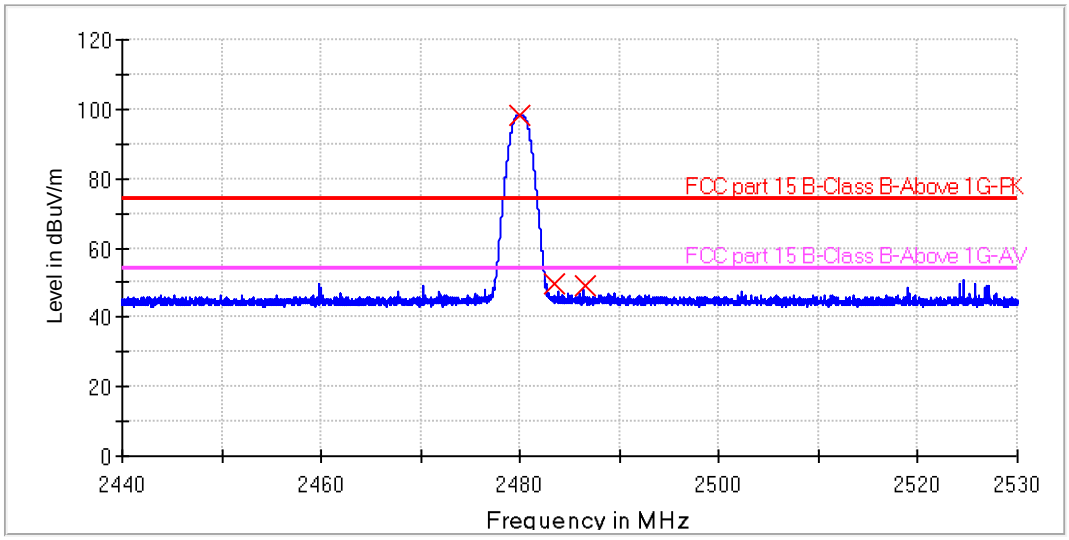
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
6309.500000	43.6	1000.0	205.0	H	276.1	6.8	30.4	74.0
11506.000000	48.6	1000.0	190.0	H	355.6	14.1	25.4	74.0
17599.500000	53.1	1000.0	175.0	H	269.6	22.0	20.9	74.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

Sweep Setup: FCC_Band edge-2440-2530 Sweep 3m_without PA [EMI radiated]

Hardware Setup: 1-18G_3m_without PA
Receiver: [FSV 40]
Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
2.44 GHz - 2.53 GHz	18 kHz	PK+	1 MHz	1 s	20 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBm)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
2480.000000	98.5	---	1000.0	210.0	H	115.1	34.8	---	74.0
2483.500000	49.4	---	1000.0	210.0	H	274.2	34.8	24.6	74.0
2486.500000	48.9	---	1000.0	200.0	H	302.1	34.8	25.1	74.0

Note: Measure Level = Reading Level + Correct Factor
Correct Factor = Cable Loss + Antenna Factor

1-18G Radiated Emission Test

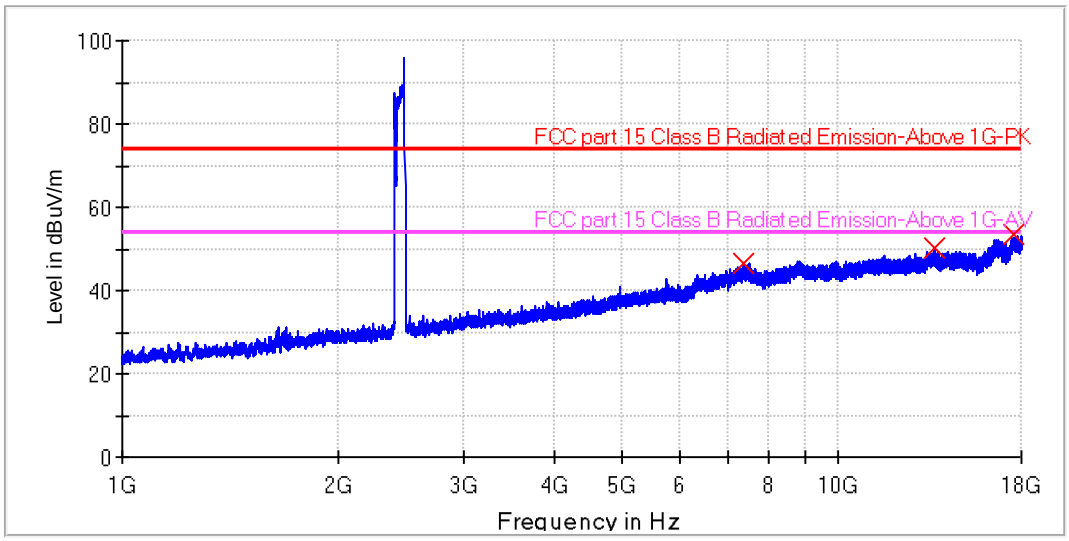
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 1Mbps, 2480M
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Vertical

Sweep Setup: FCC_RE_1-18G Sweep 3m_bonn [EMI radiated]

Hardware Setup:	FCC part15C Radiated E Field 1GHz-18GHz_3m_BONN
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 6.3 GHz	441.667 kHz	PK+	1 MHz	1 s	0 dB
6.3 GHz - 18 GHz	487.5 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

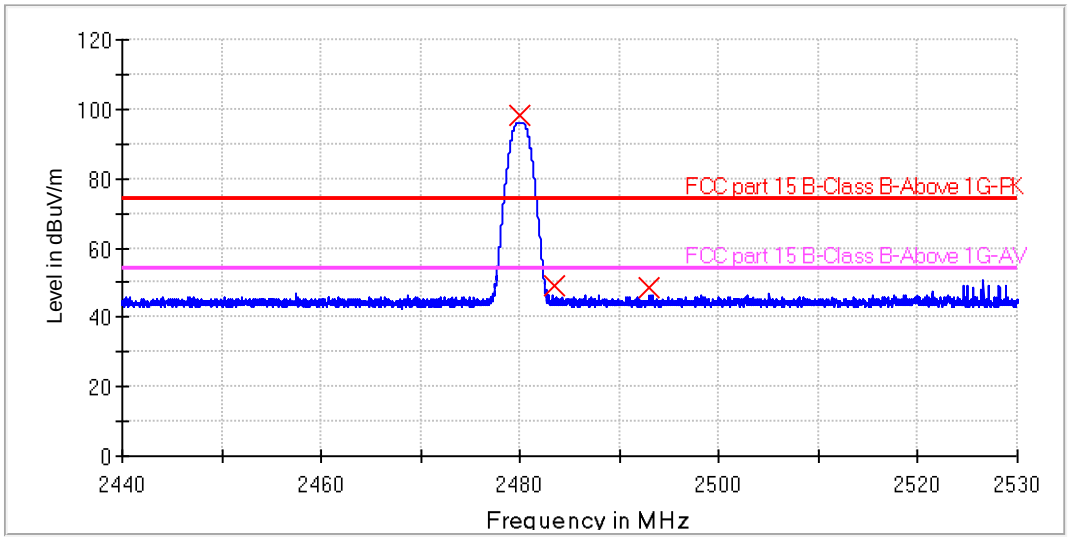
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
7368.500000	46.3	1000.0	190.0	V	312.1	8.6	27.7	74.0
13638.000000	50.4	1000.0	200.0	V	311.6	17.1	23.6	74.0
17518.500000	53.4	1000.0	205.0	V	31.2	21.8	20.6	74.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

Sweep Setup: FCC_Band edge-2440-2530 Sweep 3m_without PA [EMI radiated]

Hardware Setup: 1-18G_3m_without PA
Receiver: [FSV 40]
Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
2.44 GHz - 2.53 GHz	18 kHz	PK+	1 MHz	1 s	20 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBm)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
2480.000000	98.4	---	1000.0	100.0	V	109.6	34.8	---	74.0
2483.500000	49.2	---	1000.0	105.0	V	84.6	34.8	24.8	74.0
2493.000000	48.8	---	1000.0	110.0	V	193.3	34.8	25.2	74.0

Note: Measure Level = Reading Level + Correct Factor
Correct Factor = Cable Loss + Antenna Factor

1-18G Radiated Emission Test

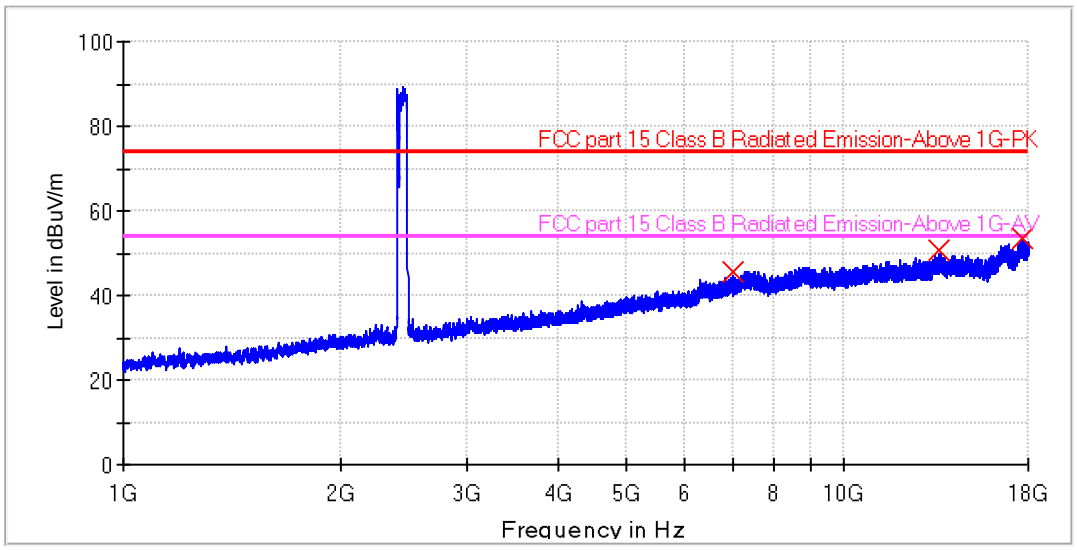
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2402M
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Horizontal

Sweep Setup: FCC_RE_1-18G Sweep 3m_bonn [EMI radiated]

Hardware Setup:	FCC part15C Radiated E Field 1GHz-18GHz_3m_BONN
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 6.3 GHz	441.667 kHz	PK+	1 MHz	1 s	0 dB
6.3 GHz - 18 GHz	487.5 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

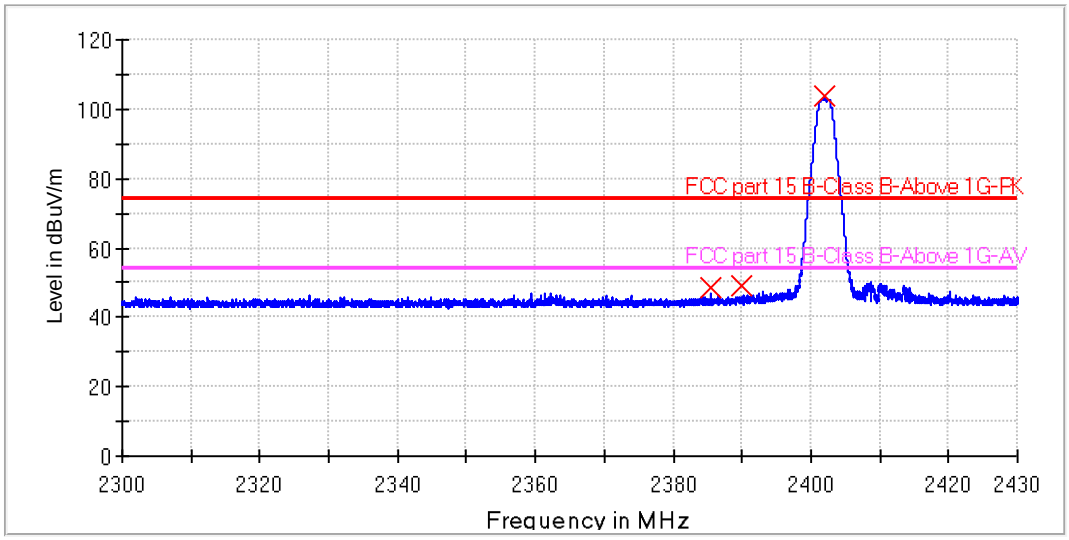
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
6991.000000	45.6	1000.0	205.0	H	19.3	7.3	28.4	74.0
13563.500000	50.6	1000.0	195.0	H	191.9	17.1	23.4	74.0
17669.000000	53.5	1000.0	200.0	H	145.3	22.0	20.5	74.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

Sweep Setup: FCC_Band edge-2300-2430 Sweep 3m_without PA [EMI radiated]

Hardware Setup: 1-18G_3m_without PA
Receiver: [FSV 40]
Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
2.3 GHz - 2.43 GHz	26 kHz	PK+	1 MHz	1 s	20 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
2385.500000	48.3	---	1000.0	200.0	H	45.3	34.4	25.7	74.0
2390.000000	49.1	---	1000.0	210.0	H	319.8	34.4	24.9	74.0
2402.000000	103.6	---	1000.0	205.0	H	30.4	34.5	---	74.0

Note: Measure Level = Reading Level + Correct Factor
Correct Factor = Cable Loss + Antenna Factor

1-18G Radiated Emission Test

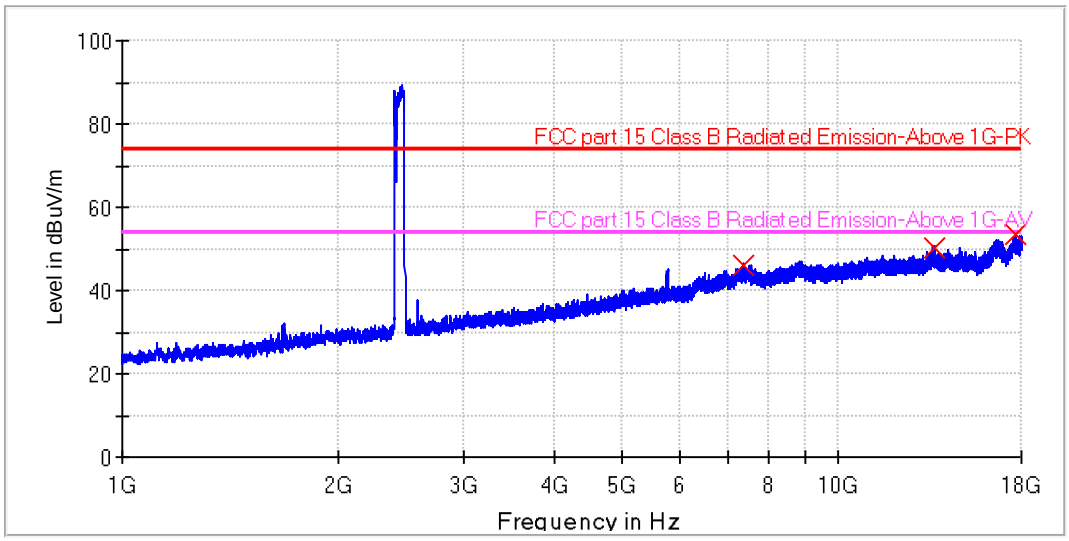
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2402M
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Vertical

Sweep Setup: FCC_RE_1-18G Sweep 3m_bonn [EMI radiated]

Hardware Setup:	FCC part15C Radiated E Field 1GHz-18GHz_3m_BONN
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 6.3 GHz	441.667 kHz	PK+	1 MHz	1 s	0 dB
6.3 GHz - 18 GHz	487.5 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

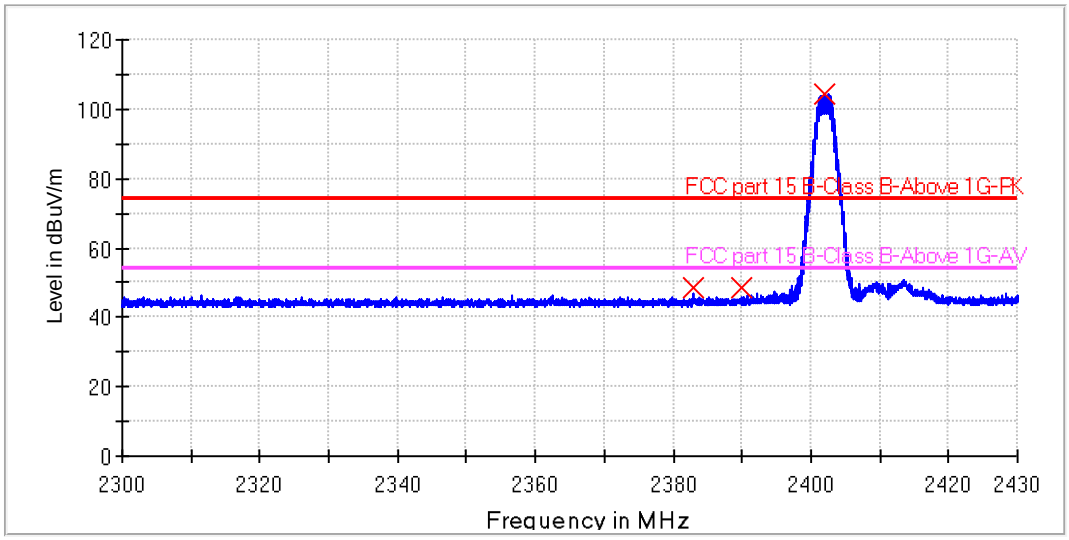
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
7349.500000	46.1	1000.0	100.0	V	236.1	8.6	27.9	74.0
13626.500000	50.0	1000.0	110.0	V	257.7	17.1	24.0	74.0
17622.500000	53.7	1000.0	105.0	V	271.6	22.0	20.3	74.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

Sweep Setup: FCC_Band edge-2300-2430 Sweep 3m_without PA [EMI radiated]

Hardware Setup: 1-18G_3m_without PA
Receiver: [FSV 40]
Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
2.3 GHz - 2.43 GHz	26 kHz	PK+	1 MHz	1 s	20 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
2383.000000	48.4	---	1000.0	105.0	V	84.2	34.3	25.6	74.0
2390.000000	48.6	---	1000.0	110.0	V	51.5	34.4	25.4	74.0
2402.000000	104.5	---	1000.0	100.0	V	187.0	34.5	---	74.0

Note: Measure Level = Reading Level + Correct Factor
Correct Factor = Cable Loss + Antenna Factor

1-18G Radiated Emission Test

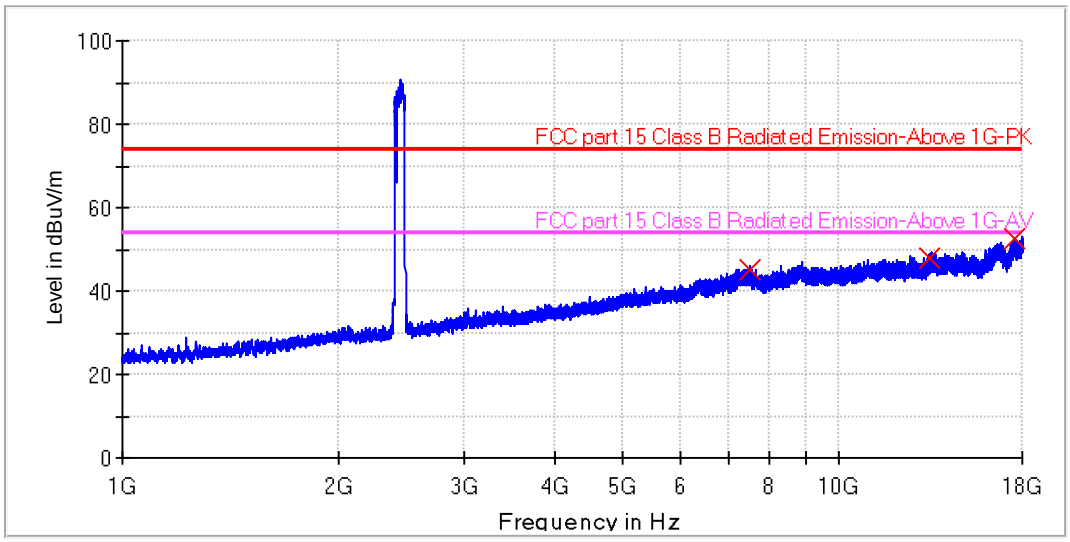
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2440M
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Horizontal

Sweep Setup: FCC_RE_1-18G Sweep 3m_bonn [EMI radiated]

Hardware Setup:	FCC part15C Radiated E Field 1GHz-18GHz_3m_BONN
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 6.3 GHz	441.667 kHz	PK+	1 MHz	1 s	0 dB
6.3 GHz - 18 GHz	487.5 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
7498.000000	45.2	1000.0	180.0	H	236.3	9.3	28.8	74.0
13328.500000	47.8	1000.0	200.0	H	358.6	17.0	26.2	74.0
17593.000000	52.5	1000.0	190.0	H	21.4	21.9	21.5	74.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

1-18G Radiated Emission Test

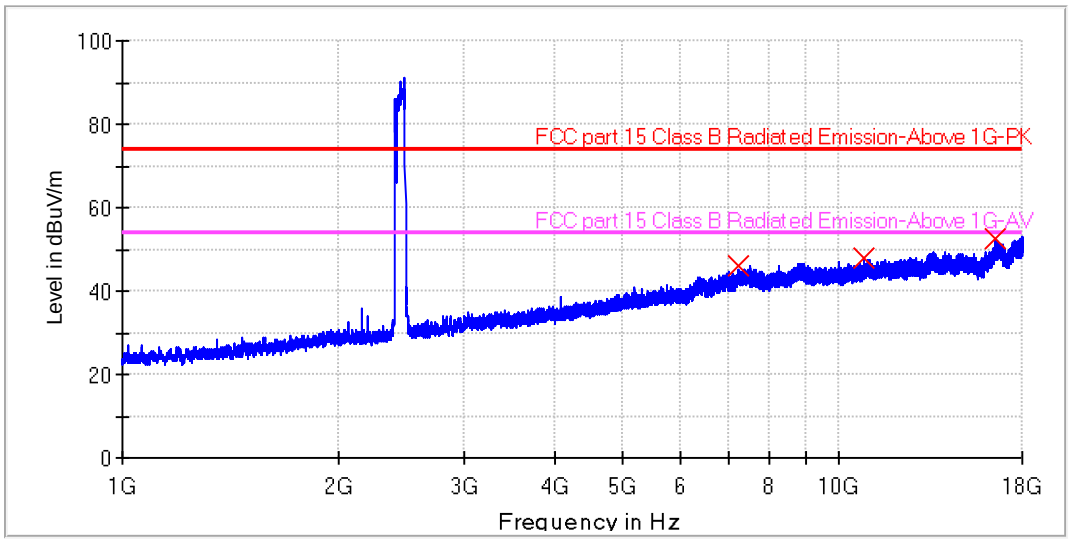
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2440M
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Vertical

Sweep Setup: FCC_RE_1-18G Sweep 3m_bonn [EMI radiated]

Hardware Setup:	FCC part15C Radiated E Field 1GHz-18GHz_3m_BONN
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 6.3 GHz	441.667 kHz	PK+	1 MHz	1 s	0 dB
6.3 GHz - 18 GHz	487.5 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
7232.500000	46.1	1000.0	110.0	V	175.9	8.7	27.9	74.0
10844.000000	47.8	1000.0	110.0	V	252.5	13.3	26.2	74.0
16541.500000	52.5	1000.0	100.0	V	177.6	18.6	21.5	74.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

1-18G Radiated Emission Test

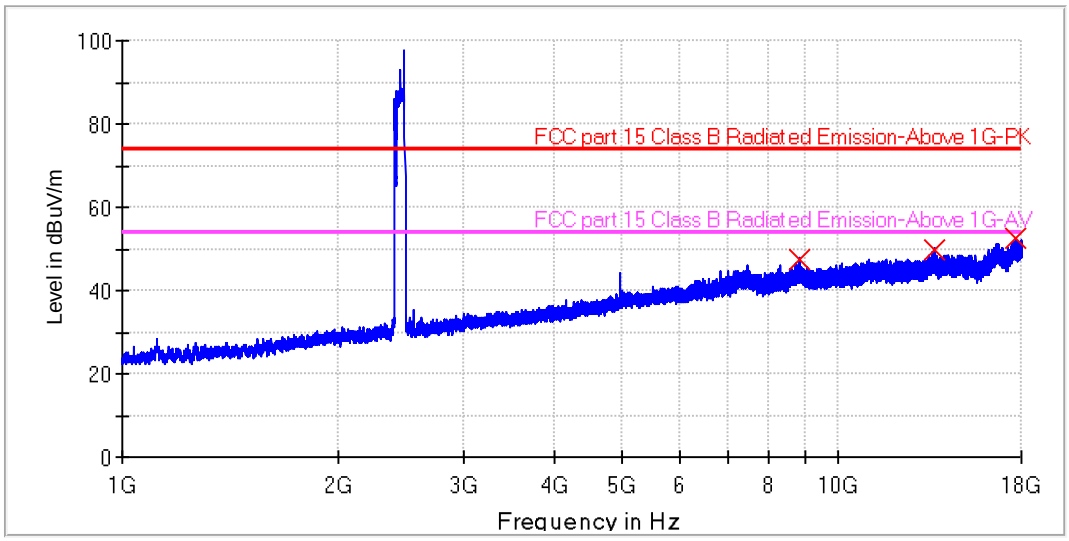
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2480M
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Horizontal

Sweep Setup: FCC_RE_1-18G Sweep 3m_bonn [EMI radiated]

Hardware Setup:	FCC part15C Radiated E Field 1GHz-18GHz_3m_BONN
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 6.3 GHz	441.667 kHz	PK+	1 MHz	1 s	0 dB
6.3 GHz - 18 GHz	487.5 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

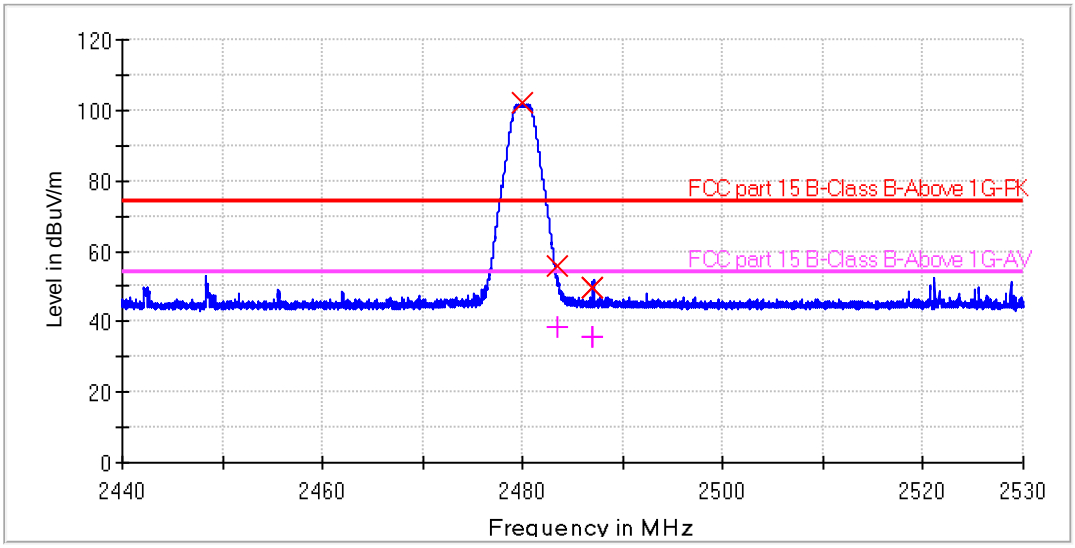
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
8810.000000	47.7	1000.0	210.0	H	251.7	11.8	30.4	74.0
13462.000000	50.2	1000.0	205.0	H	150.7	17.3	25.4	74.0
17578.500000	53.1	1000.0	195.0	H	17.2	22.0	20.9	74.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

Sweep Setup: FCC_Band edge-2440-2530 Sweep 3m_without PA [EMI radiated]

Hardware Setup: 1-18G_3m_without PA
Receiver: [FSV 40]
Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
2.44 GHz - 2.53 GHz	18 kHz	PK+	1 MHz	1 s	20 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - Average (dB)
2480.000000	102.0	---	1000.0	200.0	H	175.0	34.8	---	---	---
2483.500000	56.0	38.6	1000.0	205.0	H	0.0	34.8	18.0	74.0	15.4
2487.000000	49.8	36.0	1000.0	190.0	H	36.0	34.8	24.2	74.0	18.0

(continuation of the "Limit and Margin" table from column 18 ...)

Frequency (MHz)	Limit - Average (dBuV/m)
2480.000000	---
2483.500000	54.0
2487.000000	54.0

Note: Measure Level = Reading Level + Correct Factor
Correct Factor = Cable Loss + Antenna Factor

1-18G Radiated Emission Test

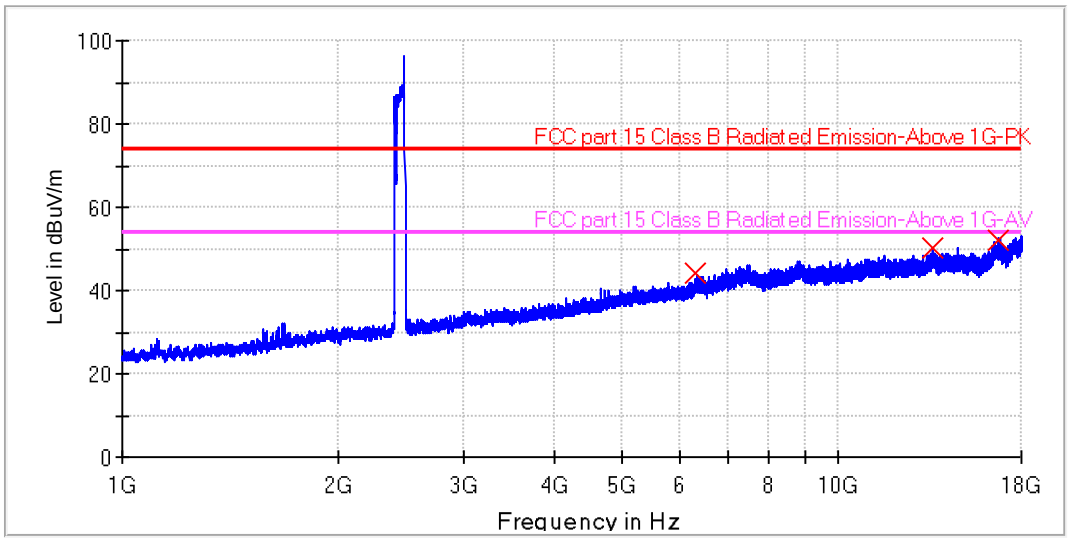
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2480M
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Vertical

Sweep Setup: FCC_RE_1-18G Sweep 3m_bonn [EMI radiated]

Hardware Setup:	FCC part15C Radiated E Field 1GHz-18GHz_3m_BONN
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 6.3 GHz	441.667 kHz	PK+	1 MHz	1 s	0 dB
6.3 GHz - 18 GHz	487.5 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

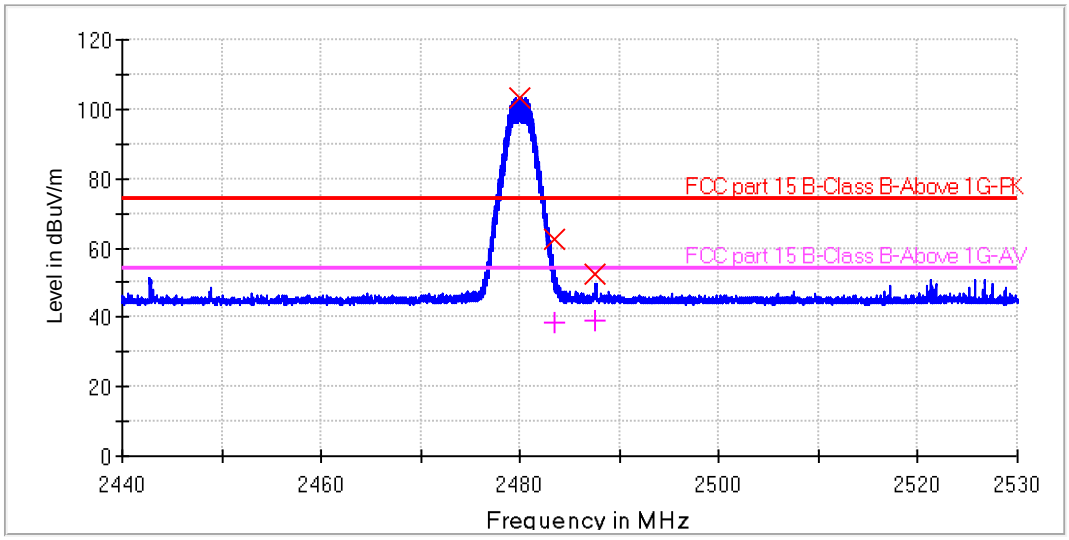
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
6300.000000	44.1	1000.0	100.0	V	354.3	6.9	29.9	74.0
13566.000000	50.2	1000.0	120.0	V	38.3	17.1	23.8	74.0
16660.000000	52.1	1000.0	115.0	V	302.1	19.1	21.9	74.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

Sweep Setup: FCC_Band edge-2440-2530 Sweep 3m_without PA [EMI radiated]

Hardware Setup: 1-18G_3m_without PA
Receiver: [FSV 40]
Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
2.44 GHz - 2.53 GHz	18 kHz	PK+	1 MHz	1 s	20 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - Average (dB)
2480.000000	103.0	---	1000.0	100.0	V	247.0	34.8	---	---	---
2483.500000	62.6	38.8	1000.0	110.0	V	64.0	34.8	11.4	74.0	15.2
2487.500000	52.6	39.1	1000.0	115.0	V	0.0	34.8	21.4	74.0	14.9

(continuation of the "Limit and Margin" table from column 18 ...)

Frequency (MHz)	Limit - Average (dBuV/m)
2480.000000	---
2483.500000	54.0
2487.500000	54.0

Note: Measure Level = Reading Level + Correct Factor
Correct Factor = Cable Loss + Antenna Factor

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The worst case of Radiated Emission 18GHz-25GHz:

18-25G Radiated Emission

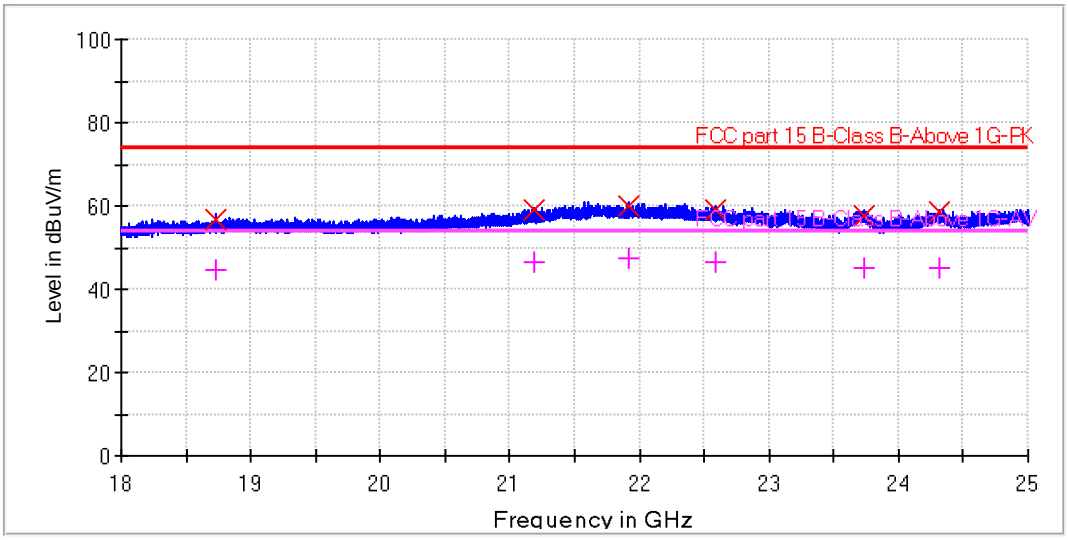
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2440MHz
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Horizontal

Sweep Setup: FCC_RE_18-25G_Sweep_3m [EMI radiated]

Hardware Setup:	18-40GHz_3m
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
18 GHz - 25 GHz	500 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - Average (dB)
18726.000000	56.9	44.4	1000.0	210.0	H	349.1	14.2	17.1	74.0	9.6
21180.500000	59.2	46.4	1000.0	220.0	H	210.8	16.5	14.8	74.0	7.6
21918.000000	60.0	47.5	1000.0	200.0	H	118.3	18.1	14.0	74.0	6.5
22584.000000	59.3	46.6	1000.0	185.0	H	357.9	17.7	14.7	74.0	7.4
23727.000000	57.6	45.0	1000.0	195.0	H	168.4	15.8	16.4	74.0	9.0
24321.500000	58.8	45.1	1000.0	205.0	H	50.5	16.1	15.2	74.0	8.9

(continuation of the "Limit and Margin" table from column 18 ...)

Frequency (MHz)	Limit - Average (dBuV/m)
18726.000000	54.0
21180.500000	54.0
21918.000000	54.0
22584.000000	54.0
23727.000000	54.0
24321.500000	54.0

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

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18-25G Radiated Emission

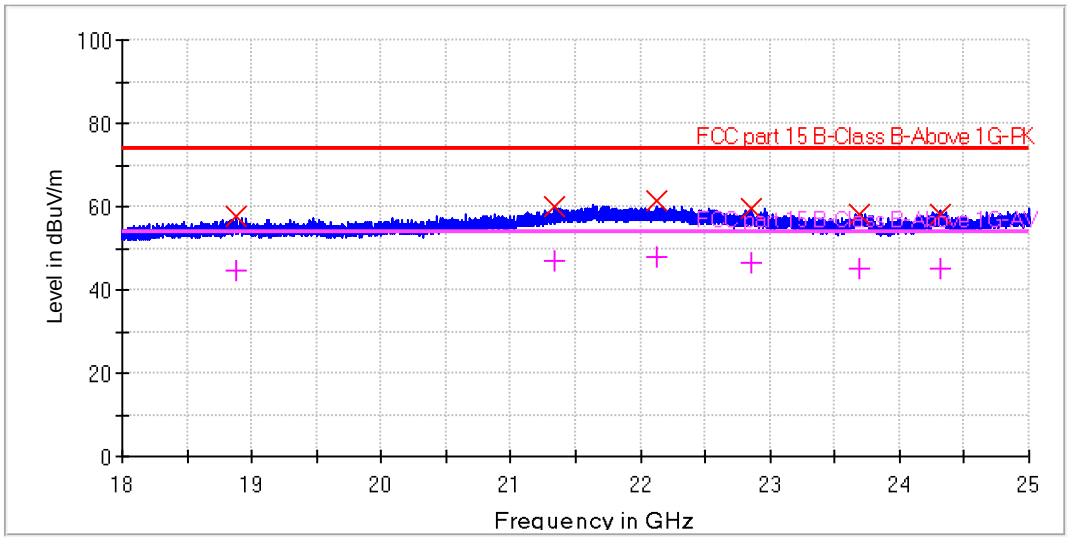
Common Information

EUT:	Dual Band Wireless Bluetooth Gateway
Model:	THP01-B-V6
Client:	Zhejiang Lingzhu Technology Co., Ltd
Operating conditions:	Power on, BLE transmitting, Data rate: 2Mbps, 2440MHz
Operator name:	Zhihua Xia
Input:	AC 120V 60Hz
Sample No:	WUX 0877562-002
Test standard:	FCC Part 15.209(a)
Comment:	Horizontal

Sweep Setup: FCC_RE_18-25G_Sweep_3m [EMI radiated]

Hardware Setup:	18-40GHz_3m
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
18 GHz - 25 GHz	500 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - Average (dB)
18886.000000	57.9	44.7	1000.0	115.0	V	179.9	14.2	16.1	74.0	9.3
21329.000000	60.1	46.7	1000.0	110.0	V	200.0	17.0	13.9	74.0	7.3
22126.500000	61.3	47.9	1000.0	110.0	V	26.1	18.1	12.7	74.0	6.1
22848.500000	59.5	46.3	1000.0	100.0	V	290.9	17.0	14.5	74.0	7.7
23682.000000	58.0	45.3	1000.0	120.0	V	258.9	15.8	16.0	74.0	8.7
24312.000000	57.9	45.2	1000.0	105.0	V	12.6	16.1	16.1	74.0	8.8

(continuation of the "Limit and Margin" table from column 18 ...)

Frequency (MHz)	Limit - Average (dBuV/m)

18886.000000	**54.0**
21329.000000	**54.0**
22126.500000	**54.0**
22848.500000	**54.0**
23682.000000	**54.0**
24312.000000	**54.0**

Note: Emission level= Original Receiver Reading + Correct Factor
Correct Factor = Antenna Factor + Cable Loss -Amplifier gain

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11 Test Equipment List

List of Test Instruments
Test Site1

	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DATE	CAL. DUE DATE
C	Signal Analyzer	Rohde & Schwarz	FSV40	487/641405	2024-4-8	2025-4-7
	RF Test System	Rohde & Schwarz	TS8997	487/391835	2024-11-23	2025-11-22
RE	EMI Test Receiver	Rohde & Schwarz	ESR7	487/632315	2024-4-8	2025-4-7
	EMI Test Receiver	Rohde & Schwarz	ESR7	487/632316	2024-4-8	2025-4-7
	Spectrum analyzer	Rohde & Schwarz	FSV3044	487/642307	2024-4-8	2025-4-7
	Broadband Test Antenna	Schwarzbeck	VULB 9168	487/622345	2024-3-15	2025-3-14
	Horn Antenna	Rohde & Schwarz	3115PB	487/622346	2024-1-9	2025-1-8
					2025-1-8	2026-1-7
	Pre-amplifier	Rohde & Schwarz	SCU-18F	487/402318	2024-4-8	2025-4-7
	Pre-amplifier	BONN	BLMA0118-1M	487/401411	2024-4-8	2025-4-7
	Loop antenna	Rohde & Schwarz	HFH2-Z2	487/621128	2024-11-23	2025-11-22
	DOUBLE-RIDGED WAVEGUIDE HORN WITH PRE-AMPLIFIER (18 GHZ - 40 GHZ)	ETS-Lindgren	3116C-PA	487/622347	2024-8-19	2025-8-18
	3m Semi anechoic chamber	TDK	9.2m×6.2m×6.2m	487/772307	2023-2-24	2026-2-23
	3m Fully anechoic chamber	TDK	9.2m×6.2m×6.2m	487/772304	2023-3-30	2026-3-29
CE	EMI Test Receiver	Rohde & Schwarz	ESW8	487/631911	2024-4-8	2025-4-7
	LISN	Rohde & Schwarz	NSLK8127	487/601428	2024-9-2	2025-9-1

Measurement Software Information			
Test Item	Software	Manufacturer	Version
C	MTS 8310	MAXWELL	2.0.0.0
RE	EMC 32	Rohde & Schwarz	V10.60.20
CE	EMC 32	Rohde & Schwarz	V10.60.20

C - Conducted RF tests

- Conducted peak output power
- 6dB bandwidth and 99% Occupied Bandwidth
- Power spectral density*
- Spurious RF conducted emissions
- Band edge

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12 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty	
Test Items	Extended Uncertainty
Conducted Disturbance at Mains Terminals	150kHz to 30MHz, LISN, 3.07dB
Uncertainty for Radiated Emission in 3m Semi anechoic chamber 9kHz-30MHz	4.38dB
Uncertainty for Radiated Emission in 3m Semi anechoic chamber 30MHz-1000MHz	Horizontal: 4.12dB Vertical: 4.30dB
Uncertainty for Radiated Emission in 3m Fully anechoic chamber 1000MHz-18000MHz	5.04dB
Uncertainty for Radiated Emission 18000MHz-40000MHz	5.42dB
Uncertainty for Conducted RF test	RF Power Conducted: 1.32dB Frequency test involved:1%

Measurement Uncertainty Decision Rule:

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2023, clause 4.3.3.

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13 Photographs of Test Set-ups

Refer to the < Test Setup photos >.

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14 Photographs of EUT

Refer to the < External Photos > & < Internal Photos >.

----------End of Test Report----------

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