FCC - TEST REPORT

Report Number	:	**68.730.23.0009.01**	Date of Issue:	**2024-05-09**
Model	:	**FC-BP121**		
Product Type	:	Upper Arm Electronic Blood Pressure Monitor		
Applicant	:	Shenzhen Finicare Co., Ltd		
Address	:	201, No.50, the 3rd Industrial Park, Houting Community, Shajing Street, Bao'an District, Shenzhen 518104 China		
Manufacturer	:	Shenzhen Finicare Co., Ltd		
Address	:	201, No.50, the 3rd Industrial Park, Houting Community, Shajing Street, Bao'an District, Shenzhen 518104 China		
Factory	:	Shenzhen Finicare Co., Ltd		
Address	:	201, No.50, the 3rd Industrial Park, Houting Community, Shajing Street, Bao'an District, Shenzhen 518104 China		
Test Result	:	■ **Positive** ☐ Negative		
Total pages including Appendices	:	**38**		

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1 Table of Contents

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2 Details about the Test Laboratory

Details about the Test Laboratory

Test Site 1

Company name:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District Shenzhen 518052 P.R. China
Telephone:	86 755 8828 6998
Fax:	86 755 8828 5299
FCC Registration No.:	514049
FCC Designation Number:	CN5009

3 Description of the Equipment Under Test

Product:	Upper Arm Electronic Blood Pressure Monitor
Model no.:	FC-BP121
FCC ID:	2A3QXFCBP121
Options and accessories:	N/A
Rating:	6.0VDC (Supplied by 4x1.5V AAA batteries) or 5.0VDC, 1A (Supplied by Medical Adapter)
RF Transmission Frequency:	2402MHz-2480MHz
No. of Operated Channel:	40
Modulation:	GFSK
Antenna Type:	PCB antenna
Antenna 1	Gain: 0.2dBi
Description of the EUT:	The EUT is an Upper Arm Electronic Blood Pressure Monitor which supports BLE technology.

NOTE 1: The above EUT's information is declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

NOTE 2: The EUT has been tested under two input voltage mode 6.0VDC (Supplied by 4x1.5V AAA batteries) and 5.0VDC, 1A (Supplied by Medical Adapter), the worst case 4x1.5V AAA batteries test results are listed in the report for RF tests.

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4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2023 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

All the test methods were according to KDB 558074 D01 15.247 Mesa Guidance v05r02 Measurement Guidance and ANSI C63.10 -2020.

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5 Summary of Test Results

Technical Requirements						
FCC Part 15 Subpart C						
Test Condition		Test Site	Test Result			Test Environment
			Pass	Fail	N/A	
§15.207	Conducted emission AC power port	Site 1	☒	☐	☐	T: 23.1℃ H: 51.2%
§15.247 (b) (3)	Conducted peak output power	Site 1	☒	☐	☐	T: 23.4℃ H: 52.7%
§15.247(a)(2)	6dB bandwidth and 99% Occupied Bandwidth	Site 1	☒	☐	☐	T: 23.4℃ H: 52.7%
§15.247(e)	Power spectral density	Site 1	☒	☐	☐	T: 23.7℃ H: 52.7%
§15.247(d)	Spurious RF conducted emissions	Site 1	☒	☐	☐	T: 23.8℃ H: 52.7%
§15.247(d)	Band edge	Site 1	☒	☐	☐	T: 23.1℃ H: 58.0%
§15.247(d) & §15.209 & §15.205	Spurious radiated emissions for transmitter	Site 1	☒	☐	☐	T: 23.2℃ H: 58.1%
§15.203	Antenna requirement	See note 2	☒	☐	☐	--

Note 1: N/A=Not Applicable.
Note 2: The EUT uses a PCB antenna, which gain is 0.2dBi. In accordance to §15.203, it is considered sufficiently to comply with the provisions of this section.
Note 3: T=Temperature, H=Humidity

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6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: 2A3QXFCBP121, complies with Section 15.207, 15.205, 15.209, 15.247 of the FCC Part 15, Subpart C rules.

SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

☐ - **Not** Performed

The Equipment under Test

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

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

Sample Received Date:	May 17, 2023
Testing Start Date:	May 18, 2023
Testing End Date:	June 9, 2023

- TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch -

Reviewed by:	Prepared by:	Tested by:
Trevor You	Ricky Yin	Louise Liu
EMC Project Manager	EMC Project Engineer	EMC Test Engineer

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Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District,
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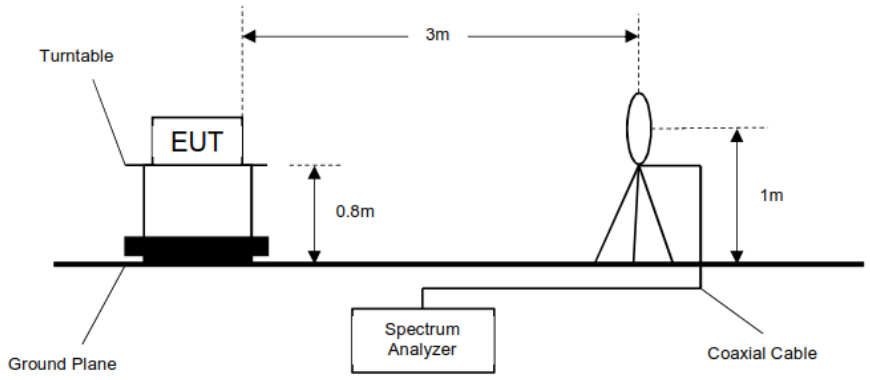
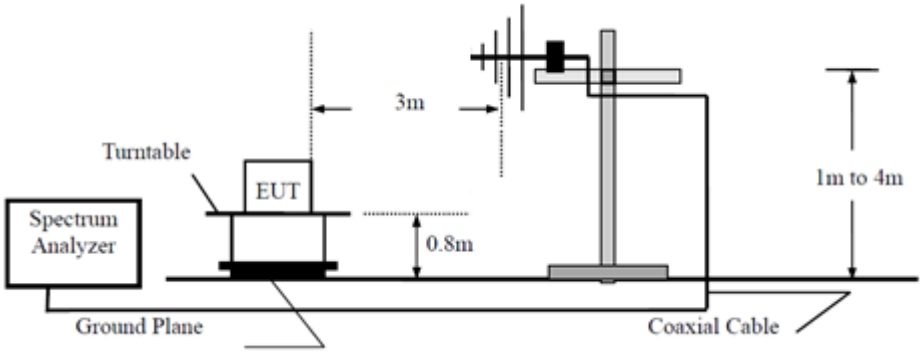
7 Test Setups

7.1 Radiated test setups

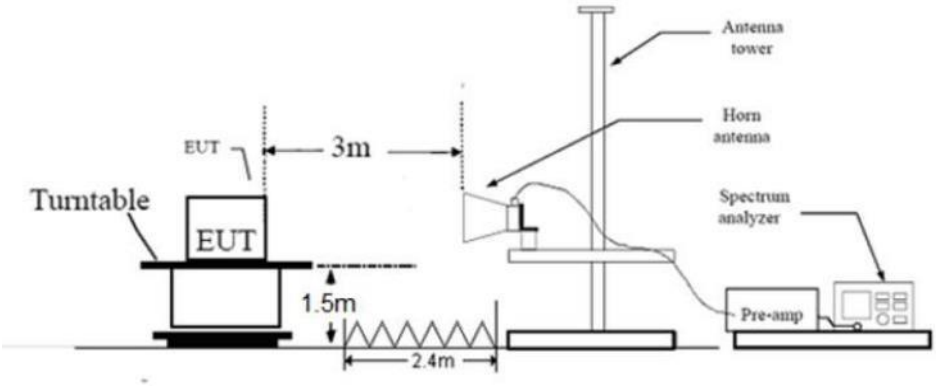
9kHz - 30MHz



30MHz - 1GHz



Above 1GHz



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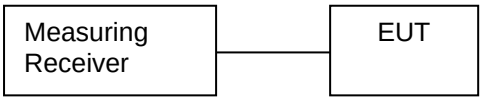
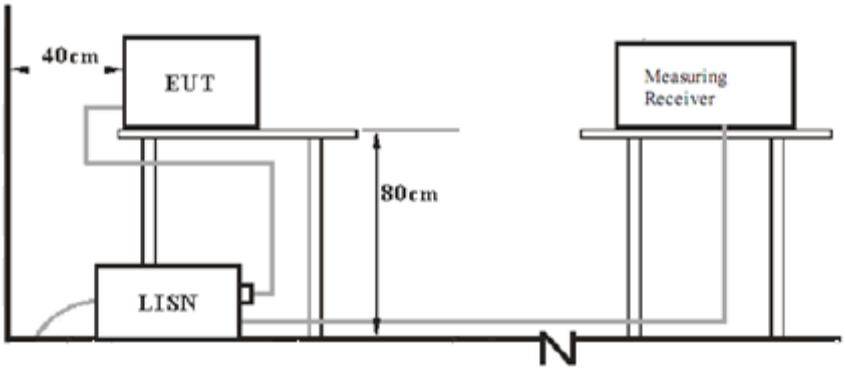
7.2 Conducted RF test setups



7.3 AC Power Line Conducted Emission test setups



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8 Systems Test Configuration

Auxiliary Equipment Used during Test:

Description	Manufacturer	Model no.	S/N
Laptop	Lenovo	X240	L34015285
Serial interface board	--	--	--
Medical Adapter	Shenzhen Longxc Power Supply Co.,LTD.	LXCP12X-050100BG: Input: 100-240VAC, 50/60Hz, 0.5A Max. Output: 5VDC, 1A.)	--

Test software information:

Test Software Version	BK32xx RF Test_V1.8.2	
Modulation	Setting TX Power	Packet Type
GFSK	2	PRBS9

The system was configured to non-hopping mode, testing channel 0, 19, 39.

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9 Technical Requirement

9.1 Conducted Emission

Test Method

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. Both sides of AC line were checked for maximum conducted interference.
6. The frequency range from 150 kHz to 30 MHz was searched.
7. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

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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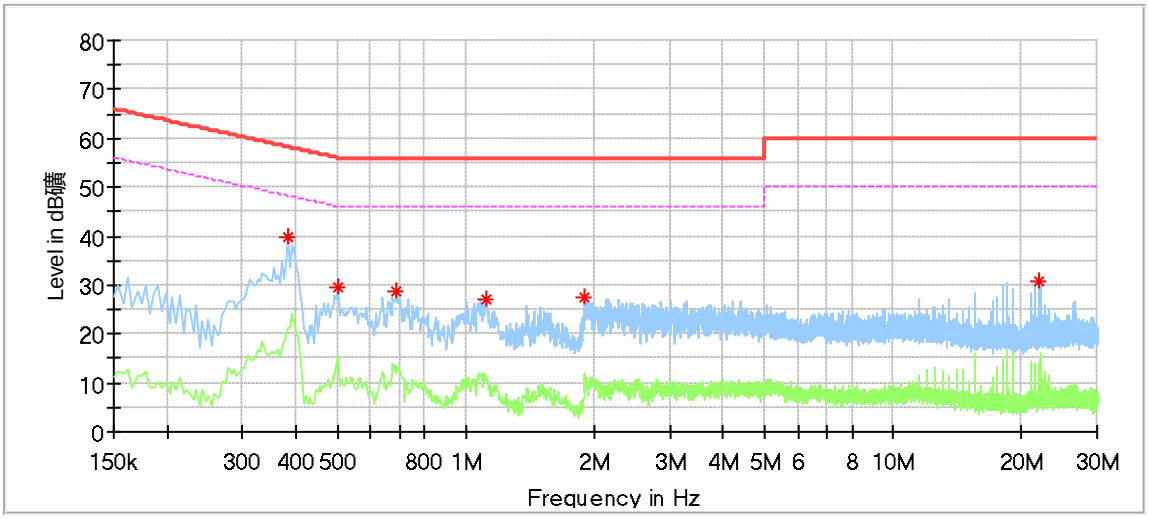
Conducted Emission

Product Type	:	Upper Arm Electronic Blood Pressure Monitor
M/N	:	FC-BP121
Operating Condition	:	Transmitting
Test Specification	:	Power Line, Live
Comment	:	AC 120V/60Hz (External Medical Adapter)



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.382000	39.89	---	58.24	18.35	L1	9.62
0.502000	29.34	---	56.00	26.66	L1	9.63
0.690000	28.66	---	56.00	27.34	L1	9.63
1.118000	27.11	---	56.00	28.89	L1	9.64
1.898000	27.36	---	56.00	28.64	L1	9.65
22.050000	30.89	---	60.00	29.11	L1	10.09

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
---	---	---	---	---		---

Remark:
Level=Reading Level + Correction Factor
Correction Factor=Cable Loss + LISN Factor
(The Reading Level is recorded by software which is not shown in the sheet)

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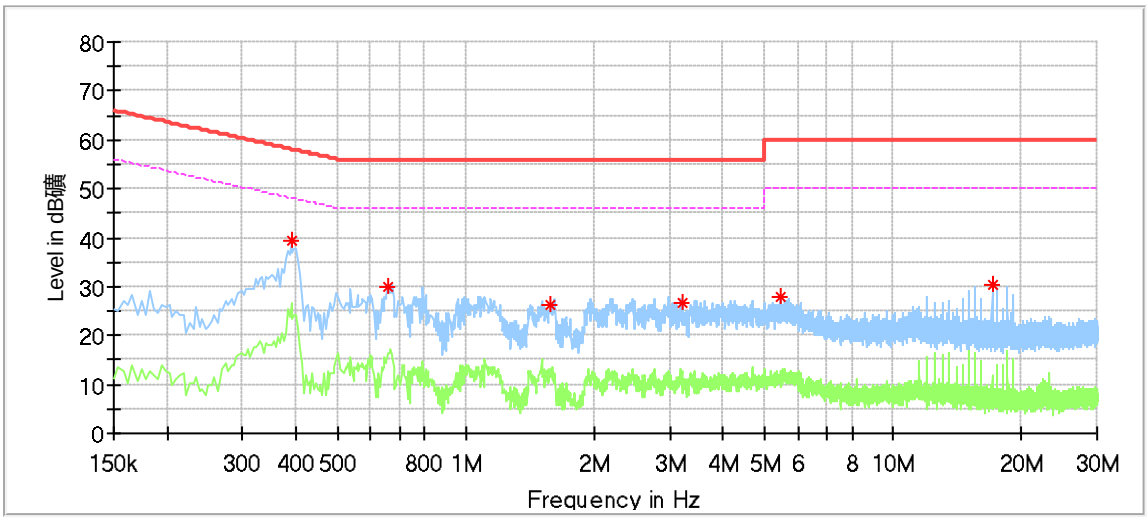
Conducted Emission

Product Type	:	Upper Arm Electronic Blood Pressure Monitor
M/N	:	FC-BP121
Operating Condition	:	Transmitting
Test Specification	:	Power Line, Neutral
Comment	:	AC 120V/60Hz (External Medical Adapter)



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.390000	39.24	---	58.06	18.82	N	9.62
0.658000	30.08	---	56.00	25.92	N	9.64
1.578000	26.28	---	56.00	29.72	N	9.65
3.210000	26.67	---	56.00	29.33	N	9.70
5.430000	27.83	---	60.00	32.17	N	9.78
17.030000	30.43	---	60.00	29.57	N	10.01

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
---	---	---	---	---		---

Remark:

Level=Reading Level + Correction Factor
Correction Factor=Cable Loss + LISN Factor
(The Reading Level is recorded by software which is not shown in the sheet)

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9.2 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.

Limit

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

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

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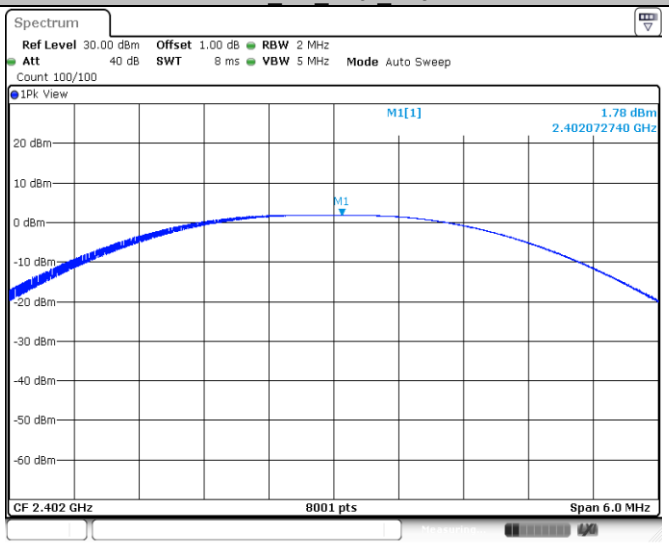
Conducted Peak Output Power

Frequency MHz	Mode	Conducted Peak Output Power dBm	Result
Bottom channel 2402MHz	LE 1M	1.78	Pass
Middle channel 2440MHz	LE 1M	1.44	Pass
Top channel 2480MHz	LE 1M	1.69	Pass

BLE_1M_Ant1_2402



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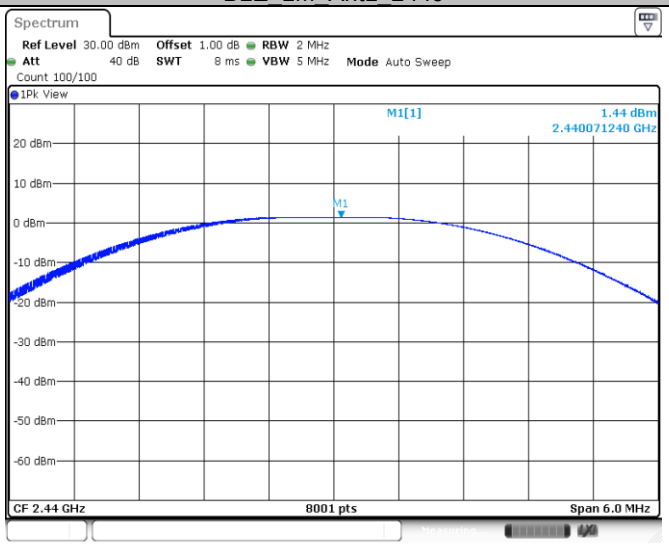
BLE_1M_Ant1_2440



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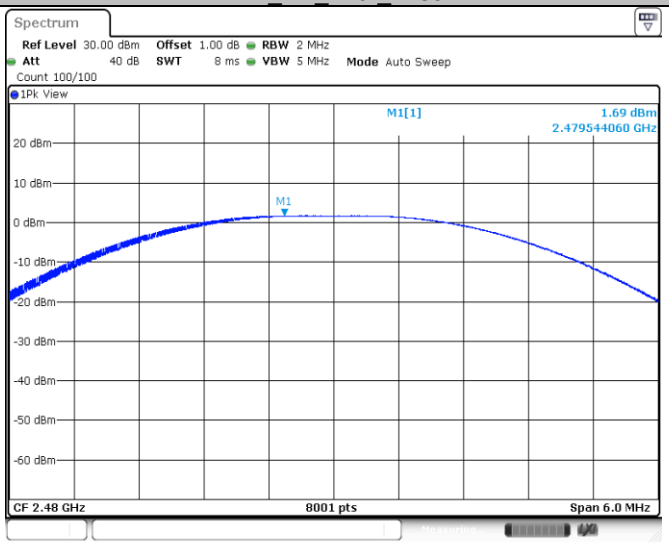
BLE_1M_Ant1_2480



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9.3 Power Spectral Density

Test Method

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

Frequency MHz	Mode	Power spectral density dBm/3kHz	Result
Bottom channel 2402MHz	LE 1M	-15.09	Pass
Middle channel 2440MHz	LE 1M	-15.03	Pass
Top channel 2480MHz	LE 1M	-14.71	Pass

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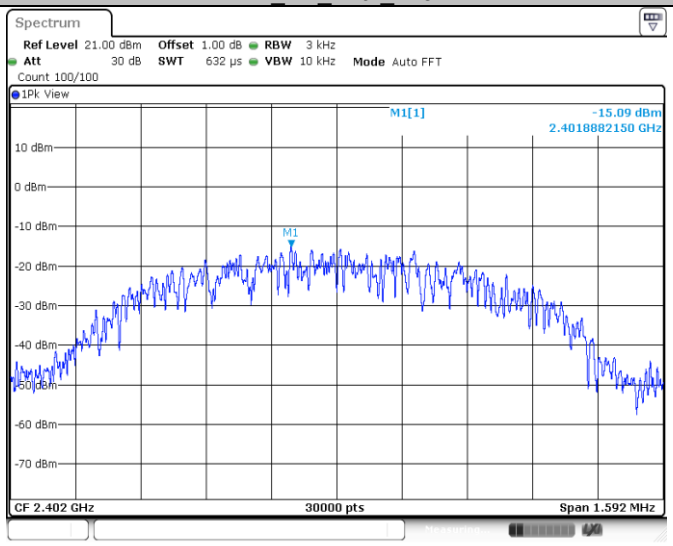
BLE_1M_Ant1_2402



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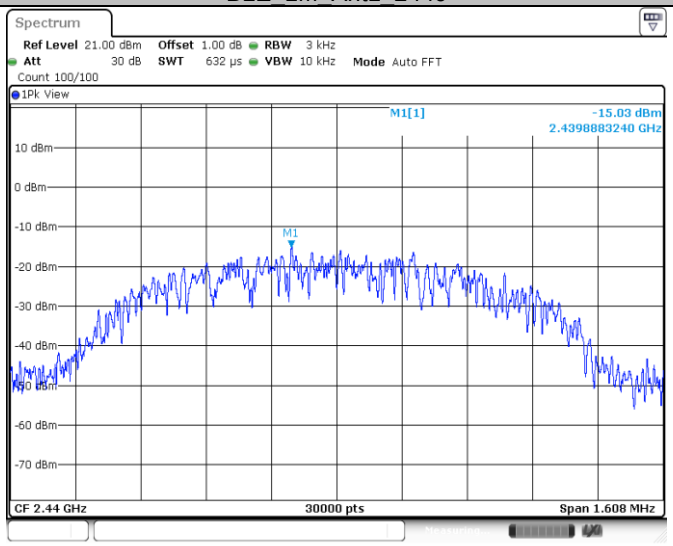
BLE_1M_Ant1_2440



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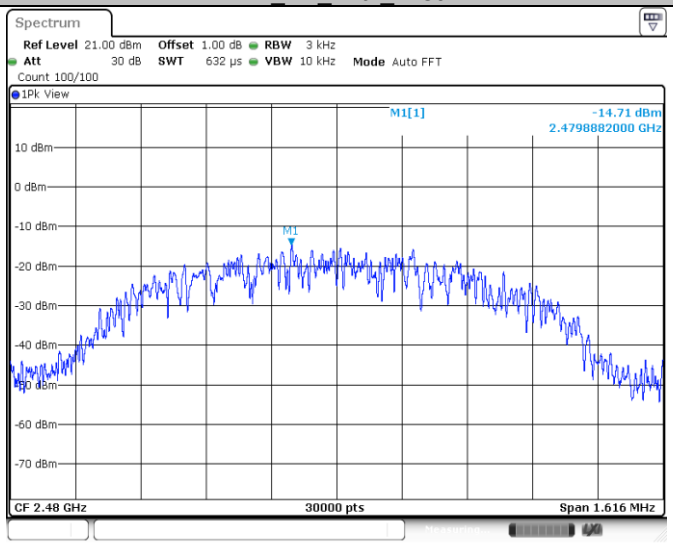
BLE_1M_Ant1_2480



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9.4 6 dB Bandwidth

Test Method

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 center frequency to the nominal EUT channel center frequency
3. Set RBW =1% to 5% of the OBW but not less than 100kHz, VBW≥ 3 × RBW Detector = Peak. Trace mode = max hold. Sweep = auto Trace = max hold
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
5. Record the results in the test report.

Limit

6dB bandwidth Limit [kHz]
≥500

Test result

Frequency MHz	Mode	6dB bandwidth MHz	Result
Bottom channel 2402MHz	LE 1M	0.796	Pass
Middle channel 2440MHz	LE 1M	0.804	Pass
Top channel 2480MHz	LE 1M	0.808	Pass

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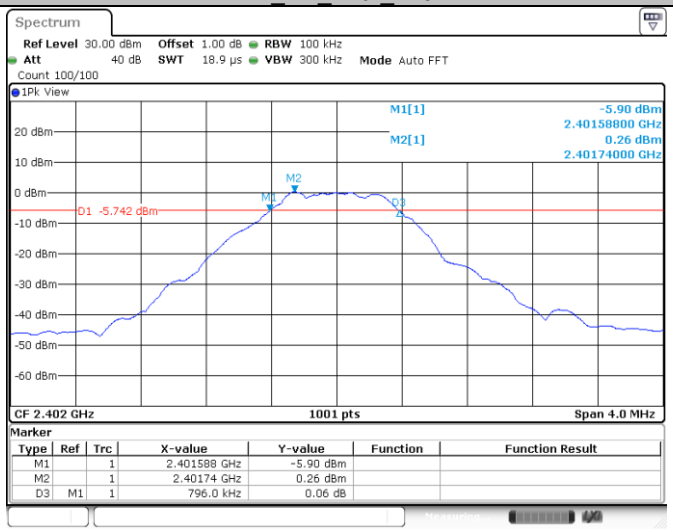
6 dB Bandwidth

BLE_1M_Ant1_2402



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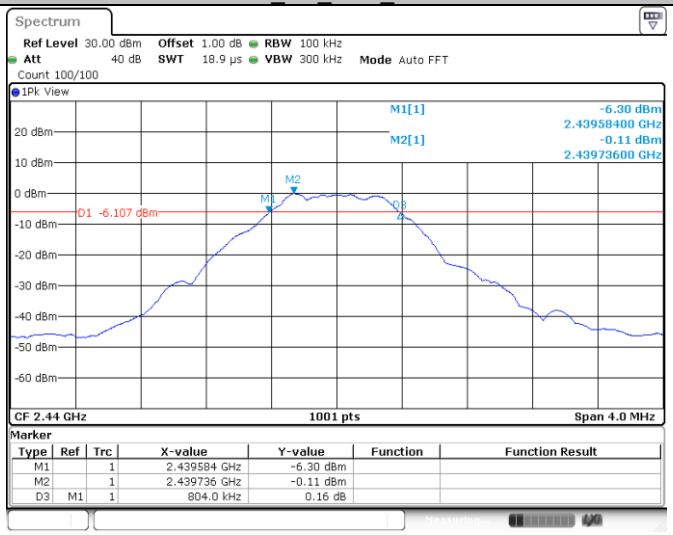
BLE_1M_Ant1_2440



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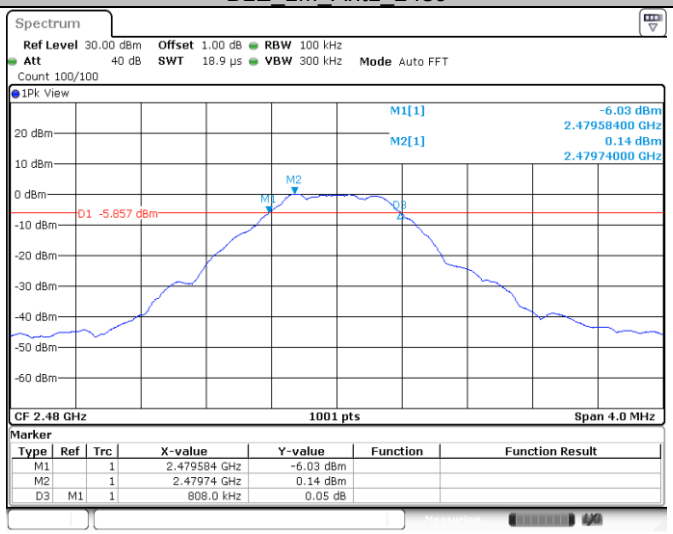
BLE_1M_Ant1_2480



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9.5 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 10th 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	Antenna	Channel (MHz)	Frequency Range (MHz)	Reference Level	Result (dBm)	Limit (dBm)	Verdict
BLE_1M	Ant1	2402	Reference	0.16	0.16	---	PASS
			30~1000	30~1000	-67.58	<=-19.84	PASS
			1000~26500	1000~26500	-51.9	<=-19.84	PASS
		2440	Reference	-0.13	-0.13	---	PASS
			30~1000	30~1000	-68.12	<=-20.13	PASS
			1000~26500	1000~26500	-52.19	<=-20.13	PASS
		2480	Reference	0.07	0.07	---	PASS
			30~1000	30~1000	-68.52	<=-19.93	PASS
			1000~26500	1000~26500	-52.71	<=-19.93	PASS

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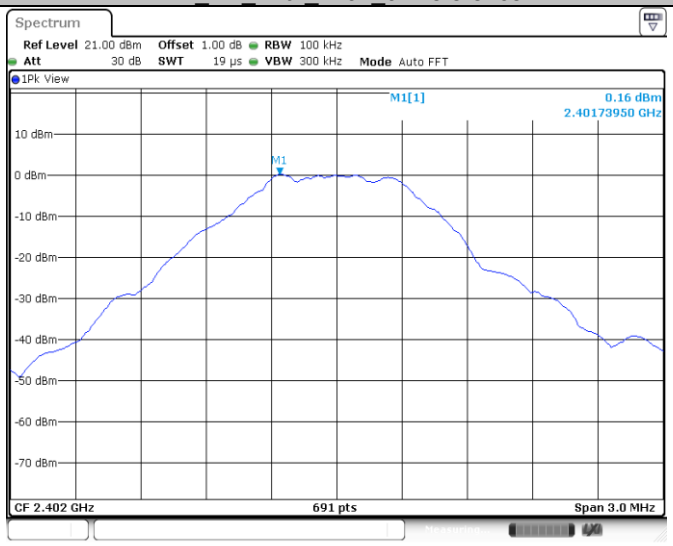
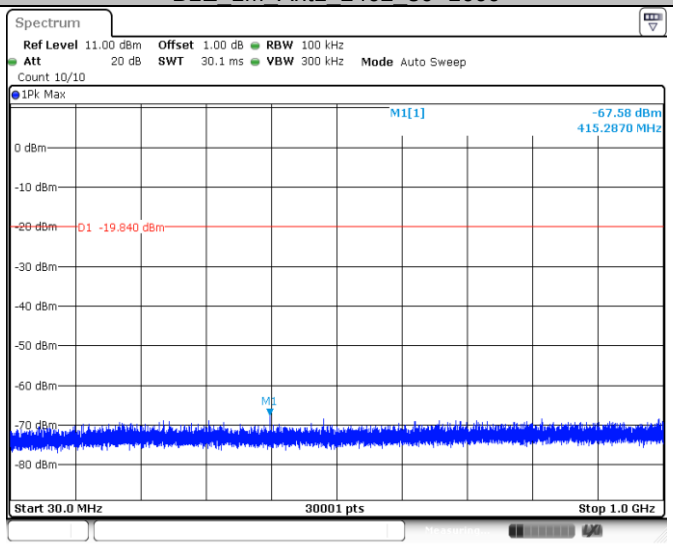
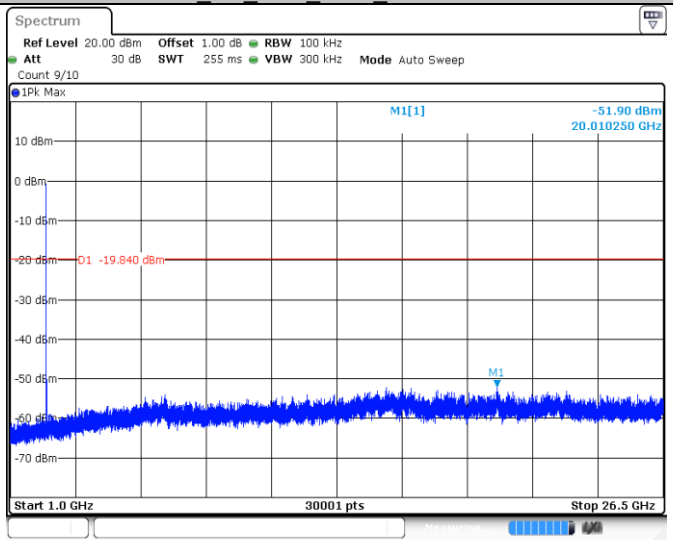
BLE_1M_Ant1_2402_0~Reference



BLE_1M_Ant1_2402_30~1000



BLE_1M_Ant1_2402_1000~26500



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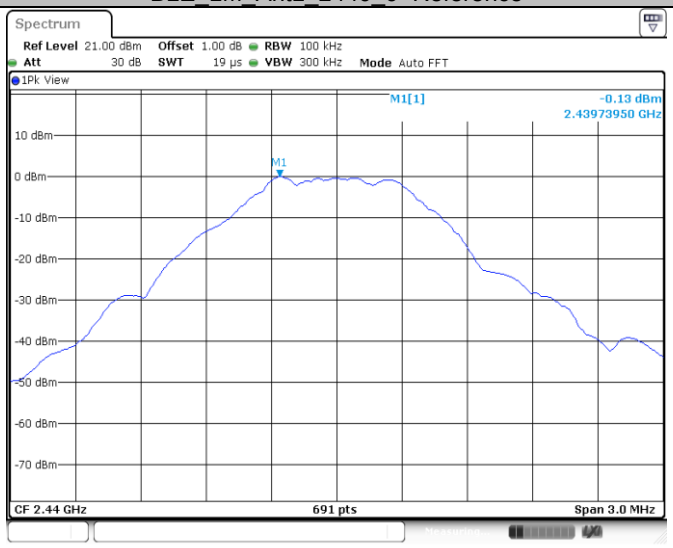
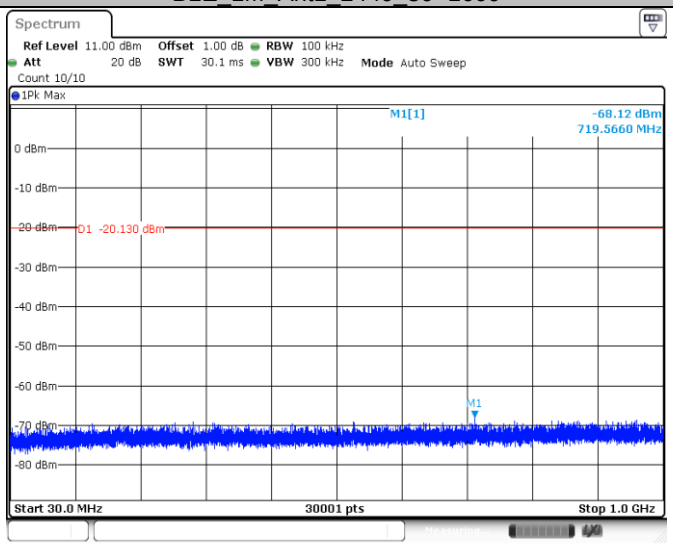
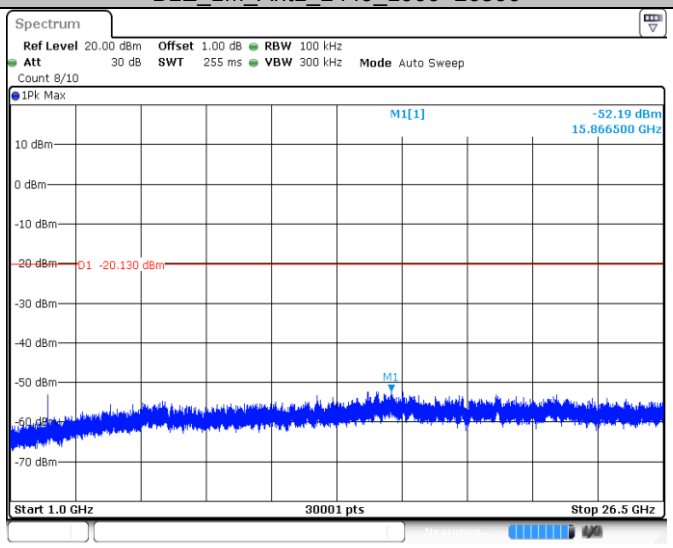
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference

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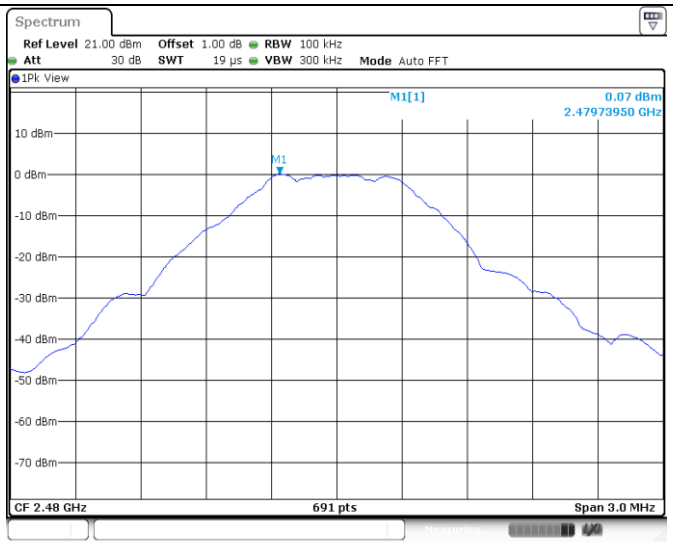
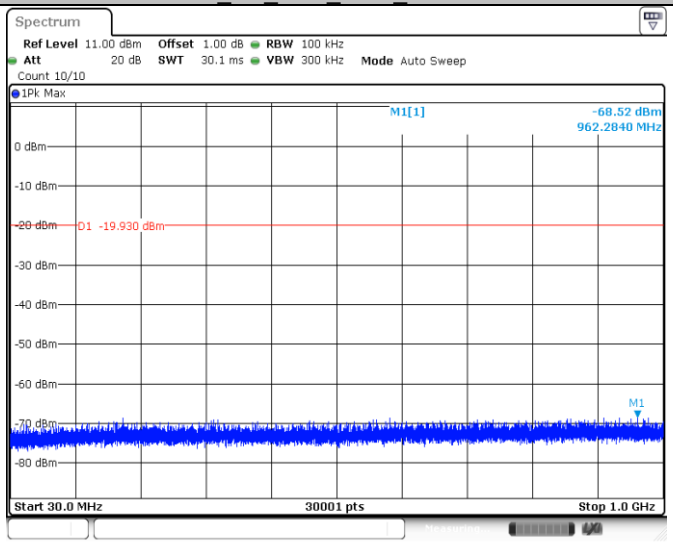
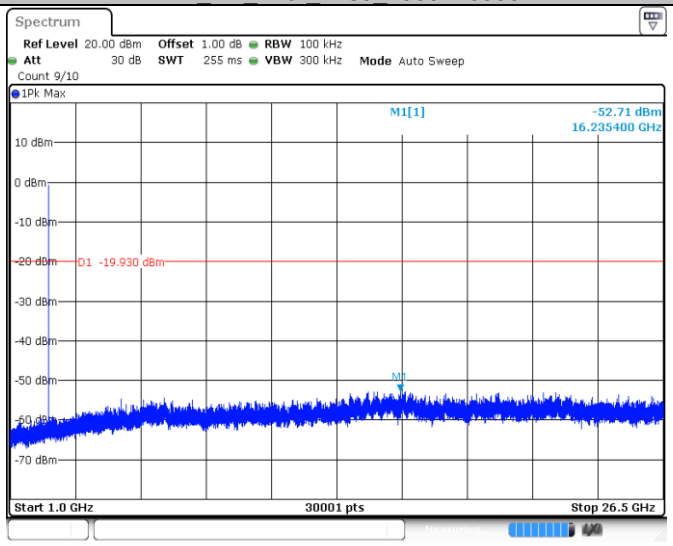


BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



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9.6 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 emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
   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

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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Band edge testing

Test Mode	Antenna	Channel	Channel (MHz)	Reference Level (dBm)	Result (dBm)	Limit (dBm)	Verdict
BLE_1M	Ant1	Low	2402	0.16	-53.93	<=-20.46	PASS
		High	2480	0.13	-53.12	<=-20.65	PASS

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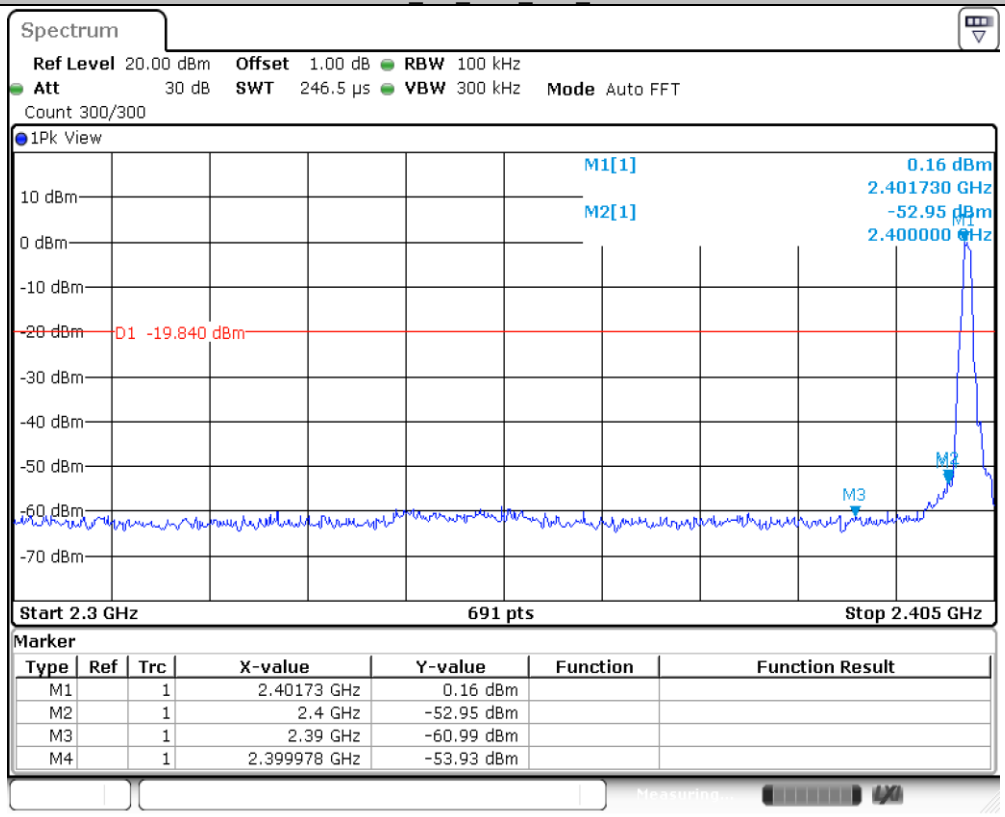
BLE_1M_Ant1_Low_2402

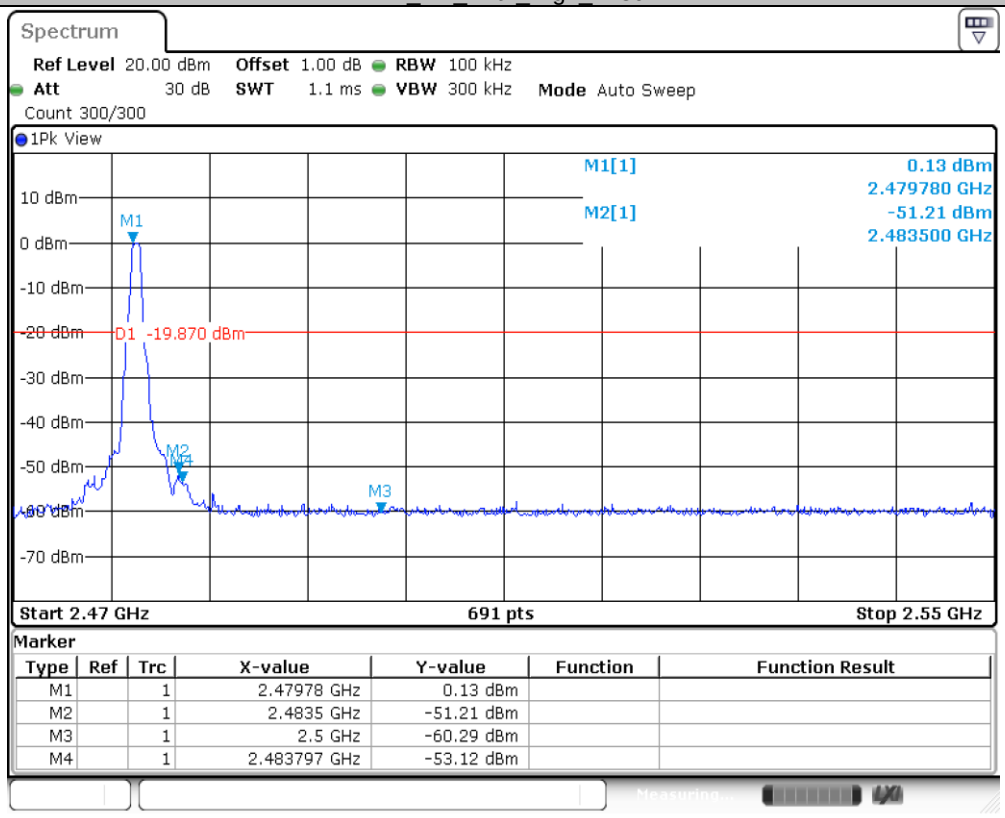


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40173 GHz	0.16 dBm		
M2		1	2.4 GHz	-52.95 dBm		
M3		1	2.39 GHz	-60.99 dBm		
M4		1	2.399978 GHz	-53.93 dBm		

Date: 18.MAY.2023 12:33:40

BLE_1M_Ant1_High_2480



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47978 GHz	0.13 dBm		
M2		1	2.4835 GHz	-51.21 dBm		
M3		1	2.5 GHz	-60.29 dBm		
M4		1	2.483797 GHz	-53.12 dBm		

Date: 18.MAY.2023 12:37:41

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9.7 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.

3) Procedures for average unwanted emissions measurements above 1000 MHz
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:

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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)

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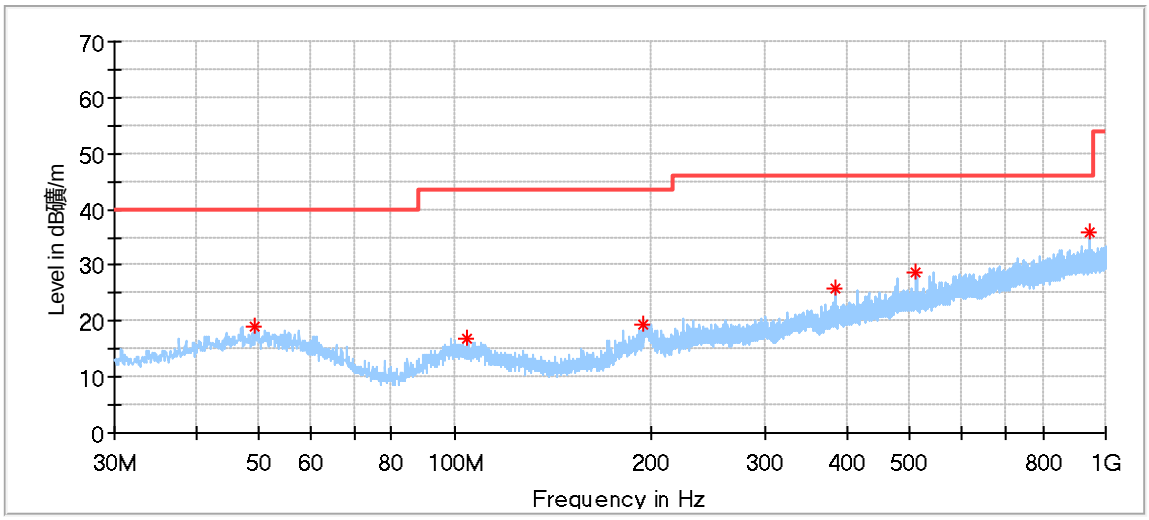
Spurious radiated emissions for transmitter

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.

Transmitting spurious emission test result as below:

Test data_30MHz to 1000MHz



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
49.346111	19.11	40.00	20.89	200.0	H	194.0	18.25
104.690000	16.76	43.50	26.74	200.0	H	130.0	15.95
194.953889	19.56	43.50	23.94	200.0	H	72.0	16.36
383.996111	25.88	46.00	20.12	200.0	H	81.0	21.12
511.982222	28.75	46.00	17.25	200.0	H	120.0	23.37
945.680000	36.02	46.00	9.98	200.0	H	313.0	29.55

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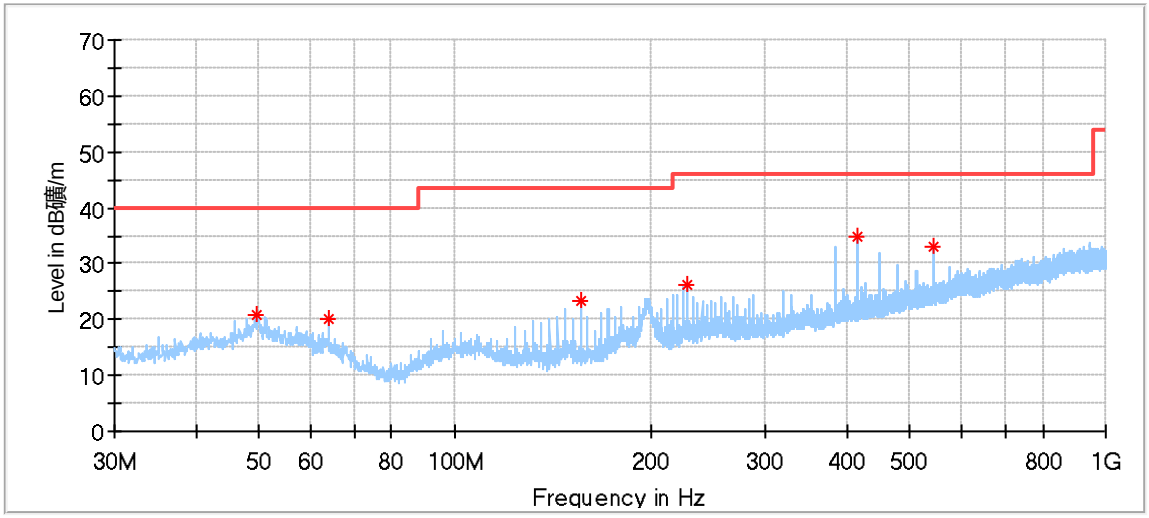
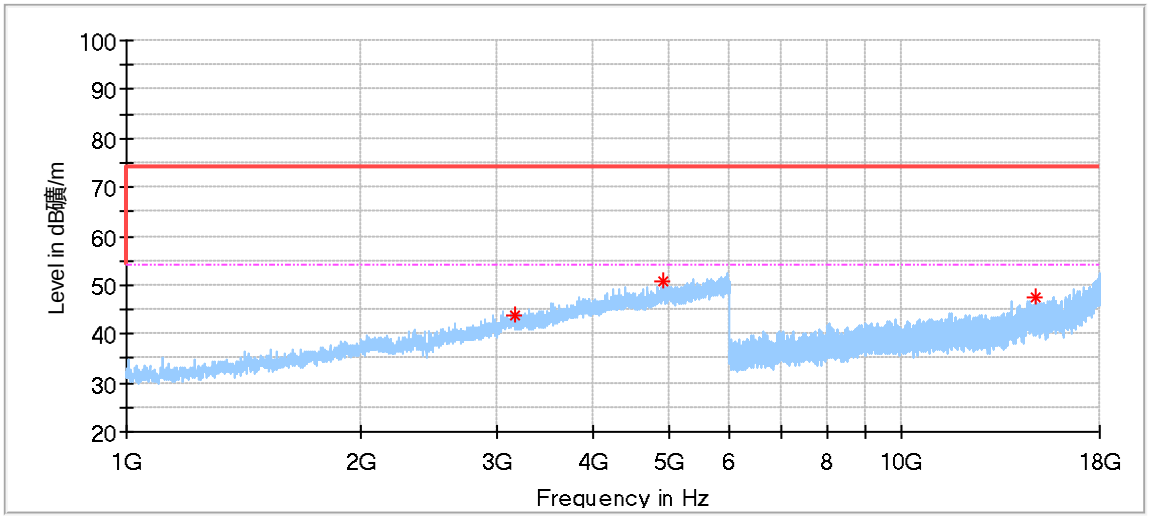


Critical_Freqs

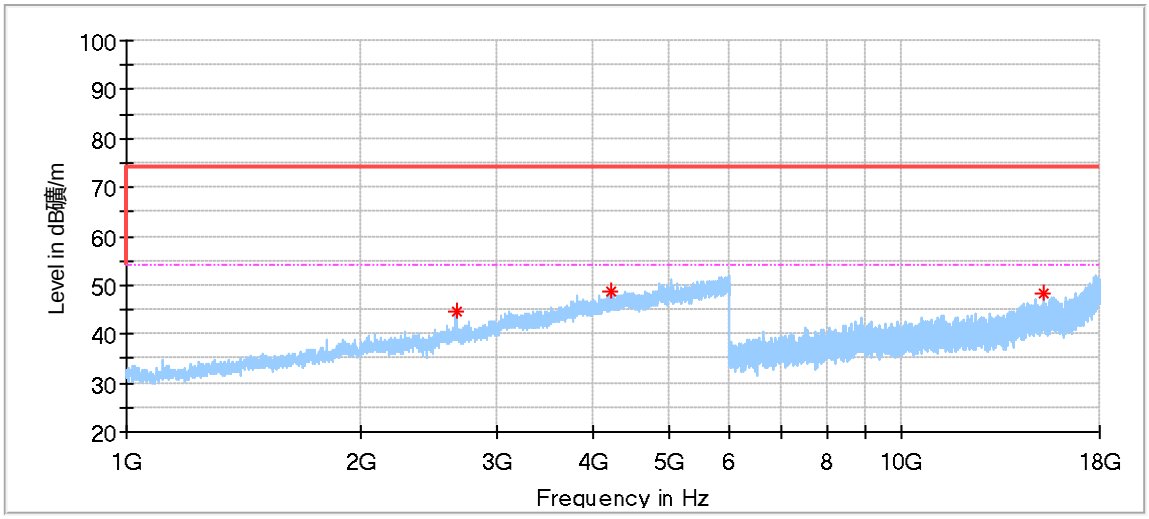
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
49.453889	20.96	40.00	19.04	100.0	V	95.0	18.26
64.003889	19.99	40.00	20.01	100.0	V	349.0	15.78
155.992222	23.20	43.50	20.30	100.0	V	24.0	13.23
227.987778	26.17	46.00	19.83	100.0	V	48.0	16.74
416.006111	34.77	46.00	11.23	100.0	V	190.0	21.68
543.992222	32.97	46.00	13.03	100.0	V	0.0	23.98

Test data 1GHz to 18GHz:
BLE_1Mbps_Low Channel:



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3173.500000	43.84	74.00	30.16	150.0	H	303.0	-0.33
4912.500000	50.90	74.00	23.10	150.0	H	56.0	6.24
14887.500000	47.38	74.00	26.62	150.0	H	183.0	19.22



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2662.500000	44.60	74.00	29.40	150.0	V	239.0	-3.34
4218.000000	48.70	74.00	25.30	150.0	V	333.0	3.91
15222.000000	48.11	74.00	25.89	150.0	V	288.0	19.78

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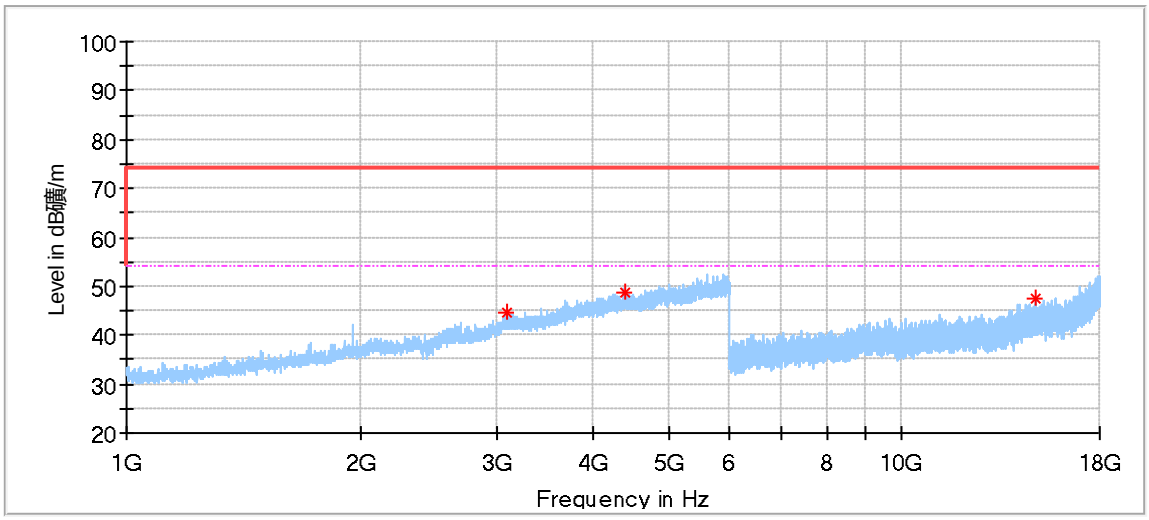
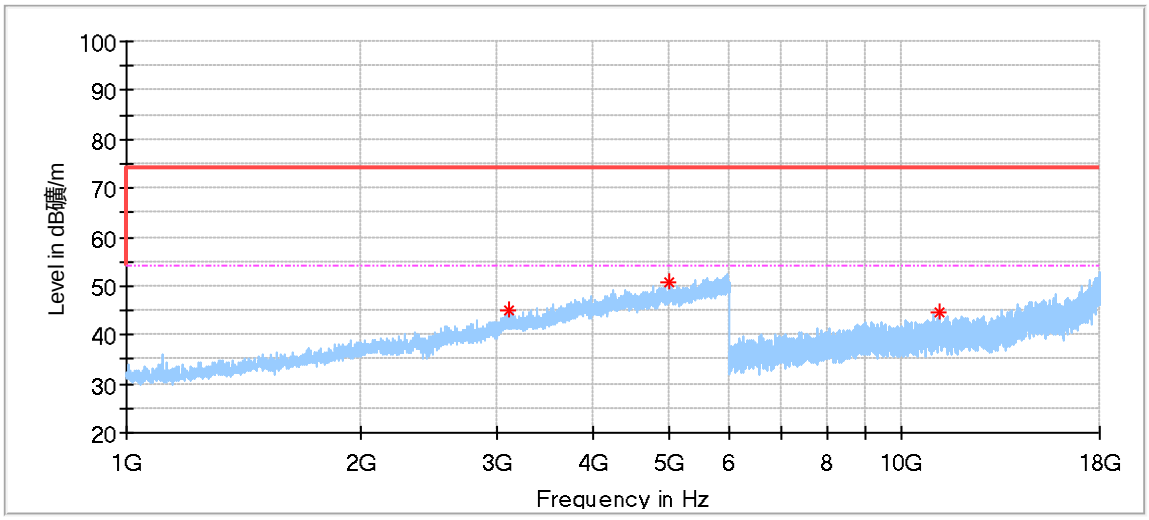
BLE_1Mbps _Middle Channel:



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3096.000000	44.79	74.00	29.21	150.0	H	217.0	-0.78
4401.500000	48.86	74.00	25.14	150.0	H	53.0	4.52
14884.500000	47.46	74.00	26.54	150.0	H	245.0	19.21



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3106.000000	45.11	74.00	28.89	150.0	V	116.0	-0.63
5018.000000	50.64	74.00	23.36	150.0	V	23.0	6.52
11167.000000	44.58	74.00	29.42	150.0	V	269.0	14.27

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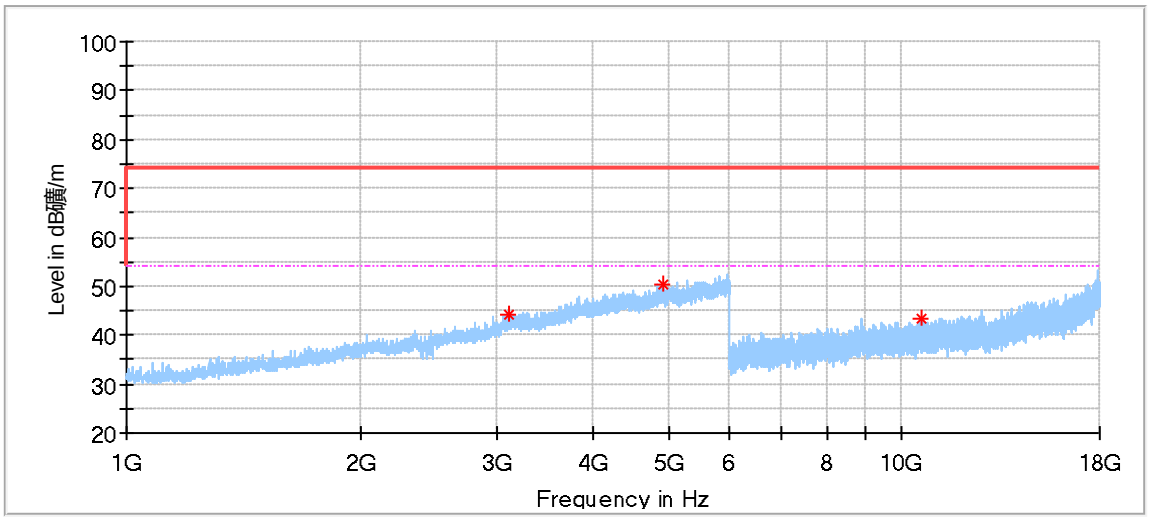
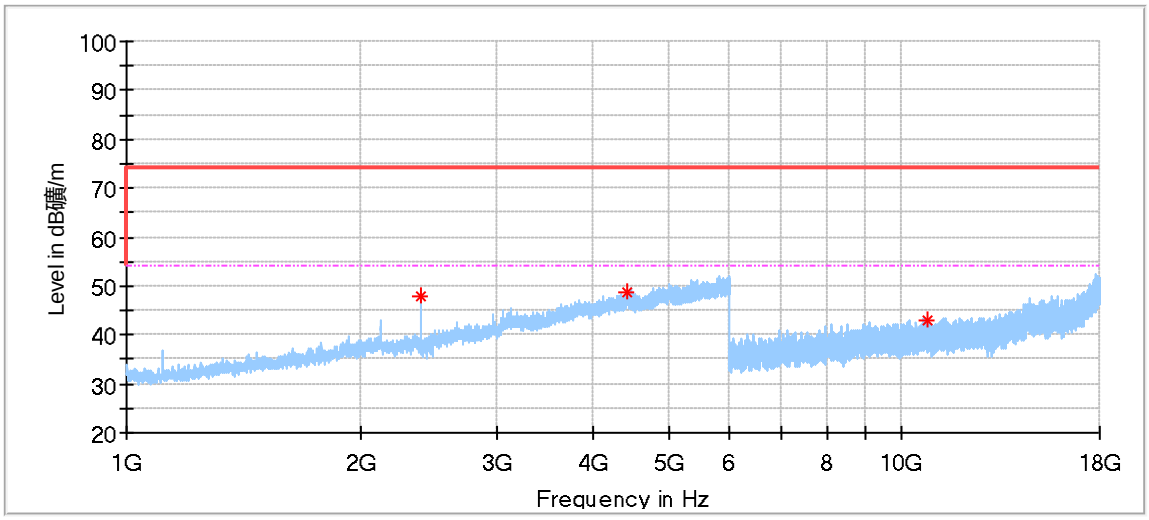
BLE_1Mbps _High Channel:



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3120.500000	44.39	74.00	29.61	150.0	H	87.0	-0.50
4923.000000	50.49	74.00	23.51	150.0	H	138.0	6.25
10573.500000	43.29	74.00	30.71	150.0	H	6.0	13.34



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2401.500000	47.71	74.00	26.29	150.0	V	313.0	-4.85
4424.500000	48.79	74.00	25.21	150.0	V	272.0	4.51
10777.500000	43.10	74.00	30.90	150.0	V	227.0	13.33

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10 Test Equipment List

Radiated Emission Test 1# Test

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 7	68-4-74-19-001	102176	1	2025-5-13
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	68-4-80-14-002	707	1	2024-7-18
Loop Antenna	Rohde & Schwarz	HFH2-Z2	68-4-80-14-006	100398	1	2024-8-7
Pre-amplifier	Rohde & Schwarz	SCU 18	68-4-29-14-001	102230	1	2025-5-11
Attenuator	Mini-circuits	UNAT-6+	68-4-81-21-001	15542	1	2025-5-11
Cable	HUBER-SUHNER	RG214	68-4-90-14-001-A20	----	----	----
Cable	HUBER-SUHNER	RG214	68-4-90-14-001-A21	----	----	----
Cable	JUNFLON	MWX221	68-4-90-14-001-A22	----	----	----
3m Semi-anechoic chamber	TDK	SAC-3 #1	68-4-90-14-001	----	3	2026-10-25
Test software	Rohde & Schwarz	EMC32	68-4-90-14-001-A10	Version10.35.02	N/A	N/A

Radiated Emission 2# Test

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	68-4-74-14-002	101269	1	2025-5-13
Wave Guide Antenna	ETS	3117	68-4-80-19-001	00218954	1	2025-4-10
Pre-amplifier	Rohde & Schwarz	SCU 18F	68-4-29-19-001	100745	1	2025-5-11
Pre-amplifier	Rohde & Schwarz	SCU 18F	68-4-29-19-002	100746	1	2025-5-11
Sideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	68-4-80-14-008	12827	1	2024-7-11
Pre-amplifier	Rohde & Schwarz	SCU 40A	68-4-29-14-002	100432	1	2024-8-1
Attenuator	Mini-circuits	UNAT-6+	68-4-81-21-002	15542	1	2025-5-11
Cable	JUNFLON	MWX221	68-4-90-19-006-A20	----	----	----
Cable	JUNFLON	MWX241	68-4-90-19-006-A21	----	----	----
3m Semi-anechoic chamber	TDK	SAC-3 #2	68-4-90-19-006	----	3	2026-10-25
Test software	Rohde & Schwarz	EMC32	68-4-90-19-006-A01	Version10.35.02	N/A	N/A

Conducted Emission Test 1# Test

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	68-4-74-14-001	101782	1	2025-5-13
LISN	Rohde & Schwarz	ENV4200	68-4-87-14-001	100249	1	2025-5-13
LISN	Rohde & Schwarz	ENV432	68-4-87-16-001	101318	1	2025-5-13
LISN	Rohde & Schwarz	ENV216	68-4-87-14-002	100326	1	2025-5-12
Attenuator	Shanghai Huaxiang	TS2-26-3	68-4-81-16-003	080928189	1	2025-5-11
Cable	OUQIAO	RG142	68-4-90-19-004-A20	----	----	----
Test software	Rohde & Schwarz	EMC32	68-4-90-14-003-A10	Version9.15.00	N/A	N/A
Shielding Room	TDK	CSR #1	68-4-90-19-004	----	3	2025-10-15

TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District,
Shenzhen, Guangdong, China Tel. +86 755 8828 6998, Fax: +86 755 8828 5299

RF Conducted Test

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMB100A	68-4-48-14-001	108272	1	2025-5-11
Vector Signal Generator	Rohde & Schwarz	SMBV100A	68-4-48-18-001	262825	1	2025-5-11
Communication Synthetical Test Instrument	Rohde & Schwarz	CMW 270	68-4-48-18-003	101251	1	2025-5-11
Signal Analyzer	Rohde & Schwarz	FSV40	68-4-74-14-004	101030	1	2025-5-11
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157W	68-4-93-14-003	101226/100929	1	2025-5-11
Power Splitter	Weinschel	1580	68-4-85-14-001	SC319	1	2025-5-11
10dB Attenuator	Weinschel	4M-10	68-4-81-14-003	43152	1	2025-5-11
10dB Attenuator	R&S	DNF	68-4-81-14-004	DNF-001	1	2025-5-11
10dB Attenuator	R&S	DNF	68-4-81-14-005	DNF-002	1	2025-5-11
10dB Attenuator	R&S	DNF	68-4-81-14-006	DNF-003	1	2025-5-11
10dB Attenuator	R&S	DNF	68-4-81-14-007	DNF-004	1	2025-5-11
Cable	JUNFLON	J12J103539	68-4-90-19-003-A20	----	----	----
Cable	JUNFLON	J12J103539	68-4-90-19-003-A21	----	----	----
Cable	JUNFLON	J12J103539	68-4-90-19-003-A22	----	----	----
Cable	JUNFLON	J12J103539	68-4-90-19-003-A23	----	----	----
Test software	Rohde & Schwarz	EMC32	68-4-48-14-003-A10	Version 10.60.10	N/A	N/A
Shielding Room	TDK	TS8997	68-4-90-19-003	----	3	2025-10-15

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11 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	
Items	**Extended Uncertainty**
Uncertainty for Conducted Emission in shielding room (68-4-90-19-004) 150kHz-30MHz (for test using AMN ENV432 or ENV4200)	3.15dB
Uncertainty for Radiated Emission in 3m chamber 9kHz-30MHz	4.70dB
Uncertainty for Radiated Emission in 3m chamber (68-4-90-14-001) 30MHz-1000MHz	Horizontal: 4.64dB; Vertical: 4.79dB;
Uncertainty for Radiated Emission in new 3m chamber (68-4-90-19-006) 1000MHz-18000MHz	Horizontal: 5.38dB; Vertical: 5.38dB;
Uncertainty for Radiated Emission in new 3m chamber (68-4-90-19-006) 18GHz-40GHz	5.29dB
Uncertainty for Conducted RF test with TS 8997	RF Power Conducted: 1.31dB Frequency test involved: 0.6×10^{-8} or 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 and 4.3.4.

--- END OF TEST REPORT ---

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