FCC / ISED- TEST REPORT

Report Number	:	64.790.21.02849.01-R2	Date of Issue:	October 22, 2021

Model	:	GRJWB05-J5
Product Type	:	WiFi Module
Applicant	:	Gree Electric Appliances, Inc. of Zhuhai
Address of applicant	:	Jinji West Rd, Qianshan, Zhuhai, Guangdong,519070, P. R. China
Manufacturer	:	Gree Electric Appliances, Inc. of Zhuhai

Test Result	:	■ **Positive**	☐ **Negative**
Total pages including Appendices	:	32	

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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, Nantou Checkpoint Road 2, Nanshan District, Shenzhen City, 518052, P. R. China
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IC Registration Number:	10320A
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3 Description of the Equipment under Test

Product:	WiFi Module
PMN:	WiFi Module
Model no.:	GRJWB05-J5
HVIN:	GRJWB05-J5
FVIN:	N/A
FCC ID:	2ADAP-GRJWB05J5
IC:	12478A-GRJWB05J5
Options and accessories:	N/A
Rating:	DC 3.3V
RF Transmission Frequency:	2402MHz-2480MHz
No. of Operated Channel(MHz):	40
Modulation:	GFSK
Antenna Type:	PCB Antenna
Antenna Gain:	1.5dBi
Description of the EUT:	Product is a RF Module with WIFI and Bluetooth function.

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4 Summary of Test Standards

Test Standards	
RSS-Gen Issue 5 April 2018 / Amendment 1 (March 2019) / Amendment 2 (February 2021)	General Requirements for Compliance of Radio Apparatus
RSS-247 Issue 2 February 2017	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
FCC Part 15 Subpart C 10-1-2020 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

All the test methods were according to KDB558074 D01 v05r02 and ANSI C63.10 (2013).

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5 Summary of Test Results

Technical Requirements				
FCC Part 15 Subpart C, RSS-247 Issue 2				
Test Condition			Pages	Test Result
§15.207	RSS-GEN 8.8	Conducted emission AC power port	10	Pass
§15.247(b)(1)	RSS-247 Clause 5.4(d)	Conducted peak output power	13	Pass
§15.247(a)(2)	RSS-247 Clause 5.2(a)	6dB bandwidth and 99% Occupied Bandwidth	15	Pass
§15.247(e)	RSS-247 Clause 5.2(b)	Power spectral density	18	Pass
§15.247(d)	RSS-247 Clause 5.5	Spurious RF conducted emissions	20	Pass
§15.247(d)	RSS-247 Clause 5.5	Band edge	25	Pass
§15.247(d) & §15.209 &	RSS-247 Clause 5.5 & RSS-GEN 6.13	Spurious radiated emissions for transmitter	27	Pass
§15.203	RSS-GEN 6.8	Antenna requirement	See note 1	Pass

Note 1: N/A=Not Applicable.
Note 2: The EUT uses an PCB antenna, which gain is 1.5dBi. In accordance to §15.203 & RSS-Gen 6.8, It is considered sufficiently to comply with the provisions of this section.

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6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID:2ADAP-GRJWB05J5 complies with Section 15.207, 15.209, 15.205, 15.247 of the FCC Part 15, Subpart C rules; and IC:12478A-GRJWB05J5 complies with RSS-GEN issue 5 and RSS-247 issue 2.
This report is only for the BLE part.

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: June 1, 2021

Testing Start Date: June 19, 2021

Testing End Date: October 9, 2021

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

Reviewed by:	Prepared by:	Test by:
Tony Liu	Kevin Ouyang	Louise Liu
Reviewer	Project Handler	Test Engineer

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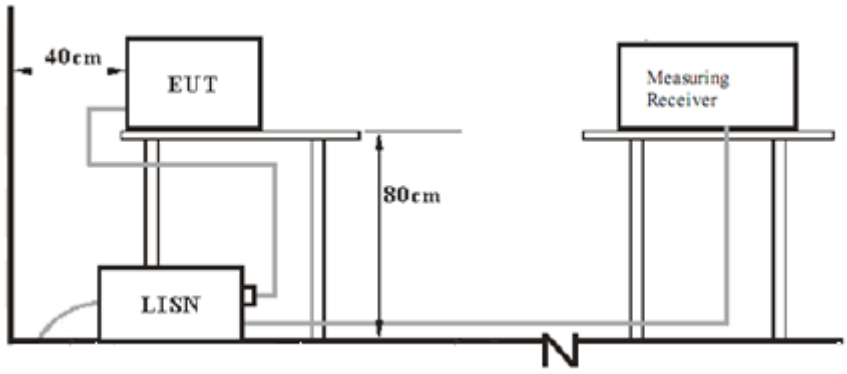
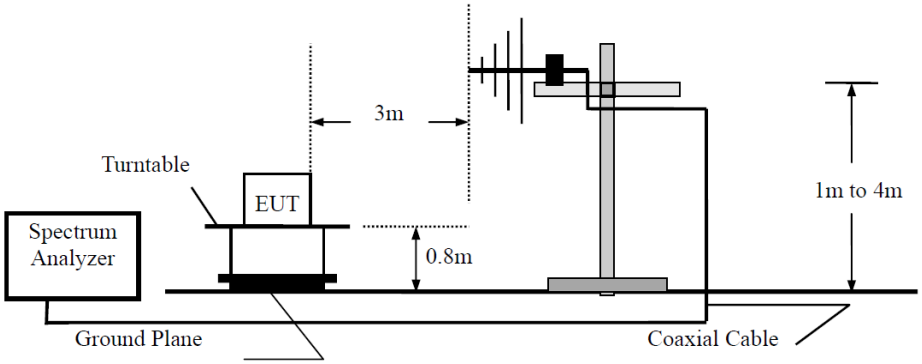
7 Test Setups

7.1 AC Power Line Conducted Emission test setups

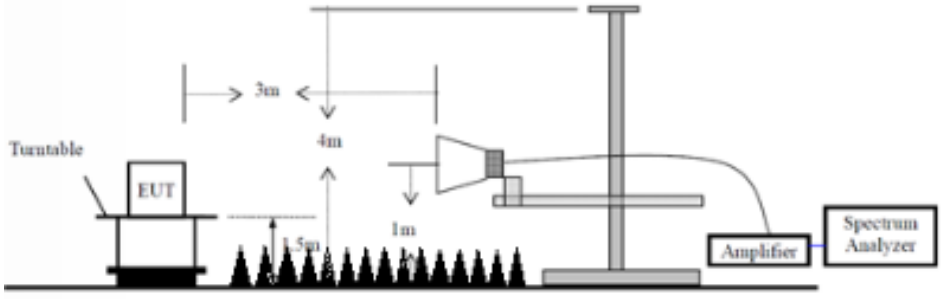


7.2 Radiated test setups

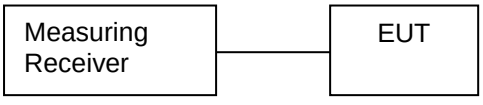
Below 1GHz



Above 1GHz



7.3 Conducted RF test setups



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8 Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
Mobile Phone	Apple	iPhone 6	---
APP	Gree+	Gree	---
Electric control board of air-conditioner	Gree	/	---
Laptop	Lenovo	X240	L34015282
Software	Realtek Bluetooth MP Kit	RTLBTAPP	---

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9 Technical Requirement

9.1 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 an 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

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

Remark: “*” Decreasing linearly with logarithm of the frequency

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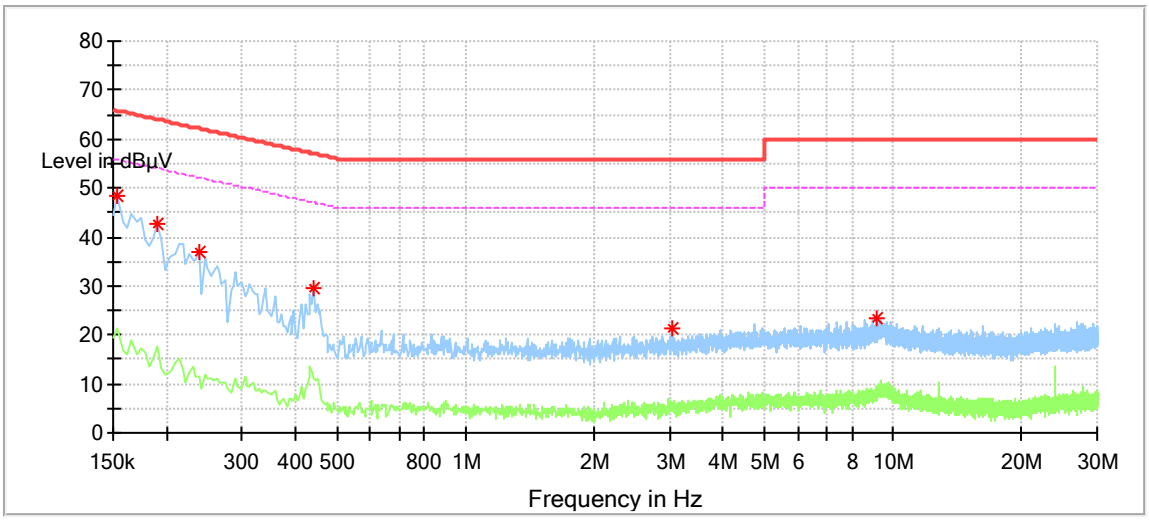
Conducted Emission Test 150kHz – 30MHz

M/N: GRJWB05-J5
Op Cond.: Bluetooth function on.
Test Spec.: Power Line, Live

Temperature (°C): 22.5 Relative Humidity (%): 46.7 Atmospheric Pressure(mbar) : 1012



Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.154000	48.27	---	65.78	17.52	L1	9.25
0.190000	42.64	---	64.04	21.40	L1	9.24
0.238000	37.12	---	62.17	25.04	L1	9.23
0.442000	29.71	---	57.02	27.32	L1	9.20
3.034000	21.19	---	56.00	34.81	L1	9.25
9.194000	23.39	---	60.00	36.61	L1	9.39

Remark： Correct factor=cable loss + LISN factor

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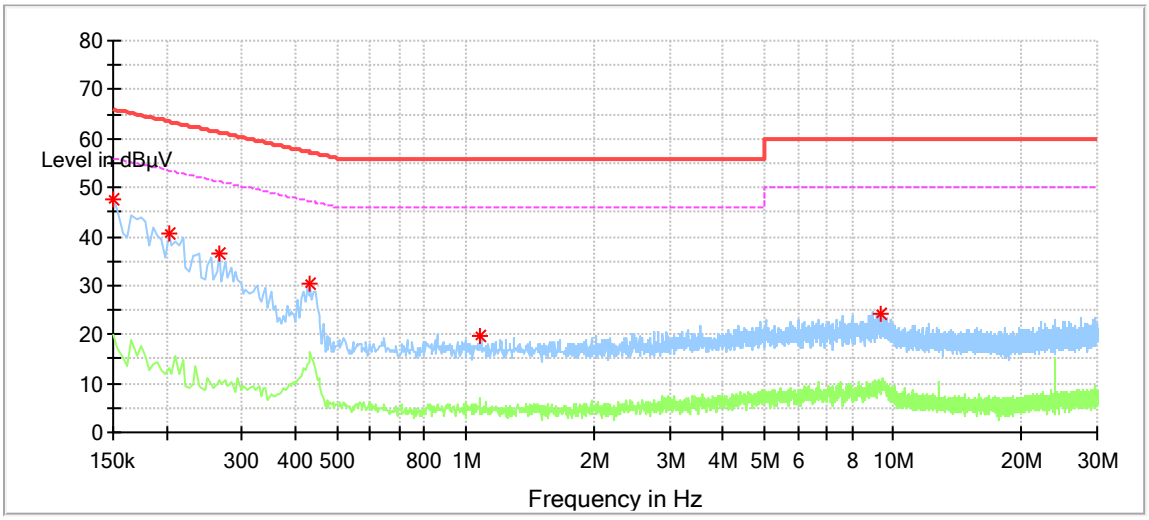
Conducted Emission Test 150kHz – 30MHz

M/N: GRJWB05-J5
Op Cond.: Bluetooth function on.
Test Spec.: Power Line, Neutral

Temperature (°C): 22.5 Relative Humidity (%): 46.7 Atmospheric Pressure(mbar) : 1012



Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.150000	47.43	---	66.00	18.57	N	9.40
0.202000	40.50	---	63.53	23.03	N	9.39
0.266000	36.44	---	61.24	24.80	N	9.39
0.434000	30.51	---	57.18	26.67	N	9.39
1.082000	19.82	---	56.00	36.18	N	9.40
9.330000	24.19	---	60.00	35.81	N	9.60

Remark： Correct factor=cable loss + LISN factor

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9.2 Conducted peak output power

Test Method

1. Use the following spectrum analyzer settings:
   RBW > the 6 dB bandwidth of the emission being measured, VBW≥3RBW, Span≥3RBW
   Sweep = auto, Detector function = peak, Trace = max hold.
2. Add a correction factor to the display.
3. 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.

Limits

Conducted Peak Output Power Limit:

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

EIRP Limit :

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤4	≤36

Test Result

Conducted Peak Output Power:

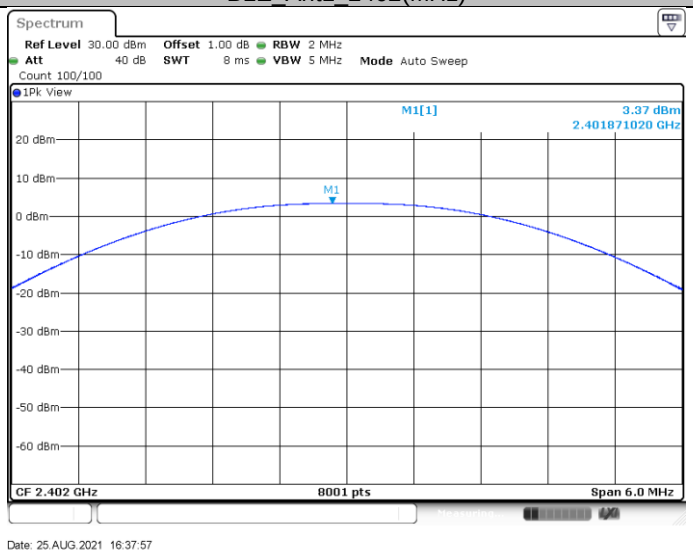
Channel(MHz)	Result(dBm)	Limit(dBm)	Verdict
2402	3.37	≤30	PASS
2440	3.89	≤30	PASS
2480	4.13	≤30	PASS

EIRP:

Channel(MHz)	Result(dBm)	Limit(dBm)	Verdict
2402	4.87	≤30	PASS
2440	5.39	≤30	PASS
2480	5.63	≤30	PASS

Test Graphs

BLE_Ant1_2402(MHz)



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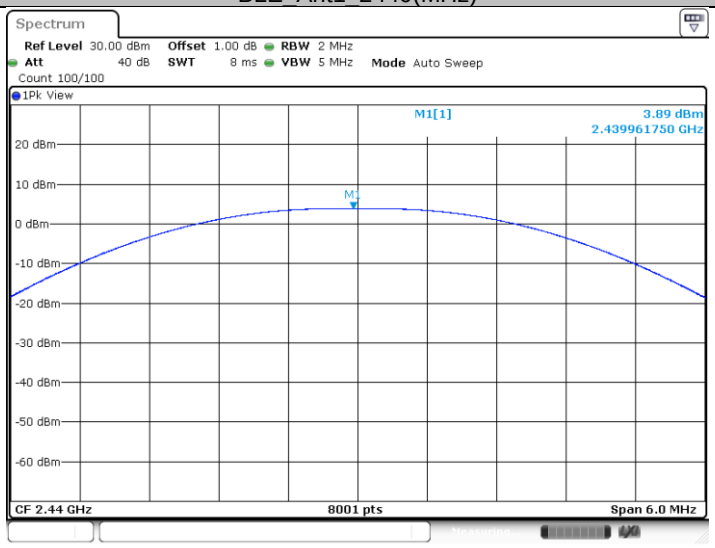
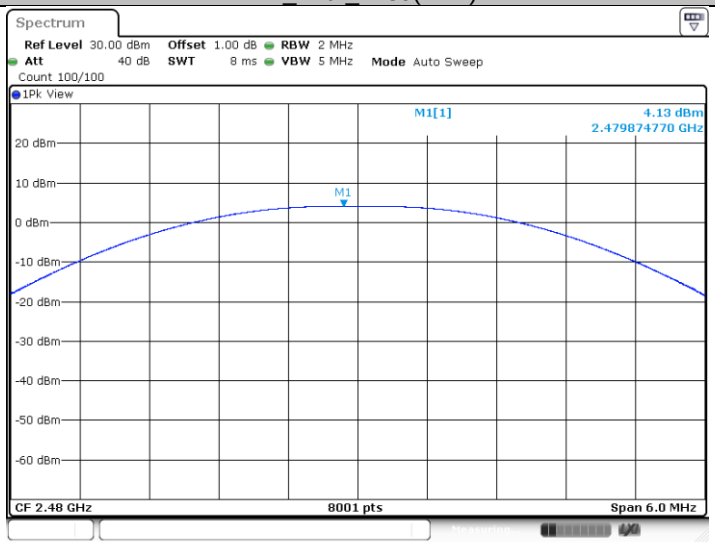
BLE_Ant1_2440(MHz)

BLE_Ant1_2480(MHz)


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9.3 6dB bandwidth and 99% Occupied Bandwidth

Test Method

1. Use the following spectrum analyzer settings:
   RBW=100K, VBW≥3RBW, Sweep = auto, Detector function = peak, Trace = max hold
2. Use the automatic bandwidth measurement capability of an instrument, may be employed using the X dB bandwidth mode with X set to 6 dB, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.
3. Allow the trace to stabilize, record the X dB Bandwidth value.

Limit

Limit [kHz]
≥500

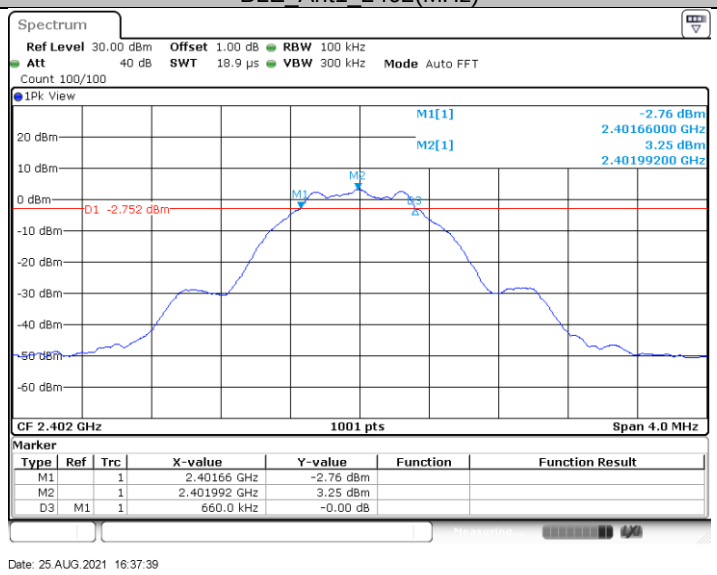
Test result
6dB bandwidth

Channel(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
2402	0.660	2401.660	2402.320	0.5	PASS
2440	0.656	2439.664	2440.320	0.5	PASS
2480	0.664	2479.656	2480.320	0.5	PASS

Test Graphs

6dB bandwidth

BLE_Ant1_2402(MHz)



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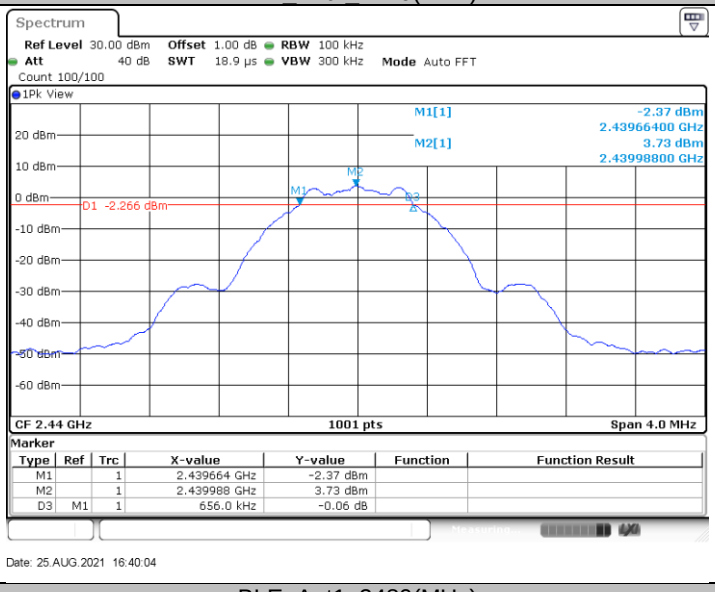
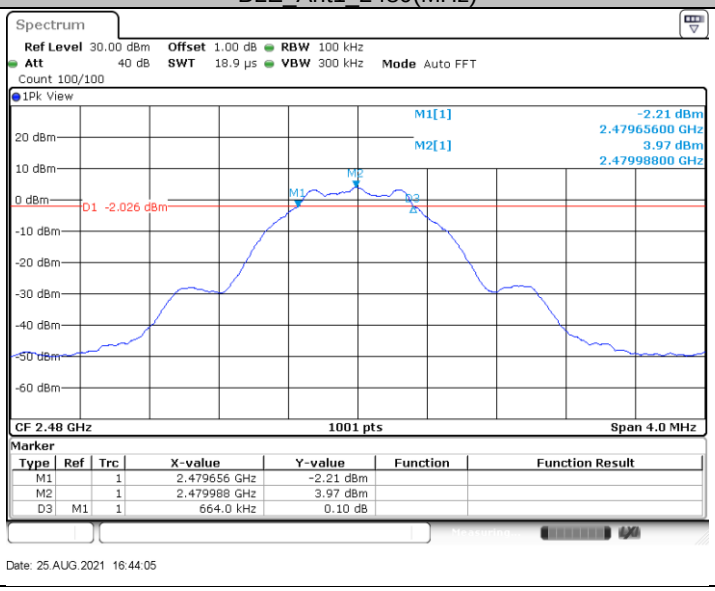
BLE_Ant1_2440(MHz)



Date: 25.AUG.2021 16:40:04

BLE_Ant1_2480(MHz)



Date: 25.AUG.2021 16:44:05

99% bandwidth
Test result

Channel(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
2402	1.023	2401.489	2402.511	---	PASS
2440	1.027	2439.485	2440.511	---	PASS
2480	1.023	2479.489	2480.511	---	PASS

Test Graphs
99% bandwidth

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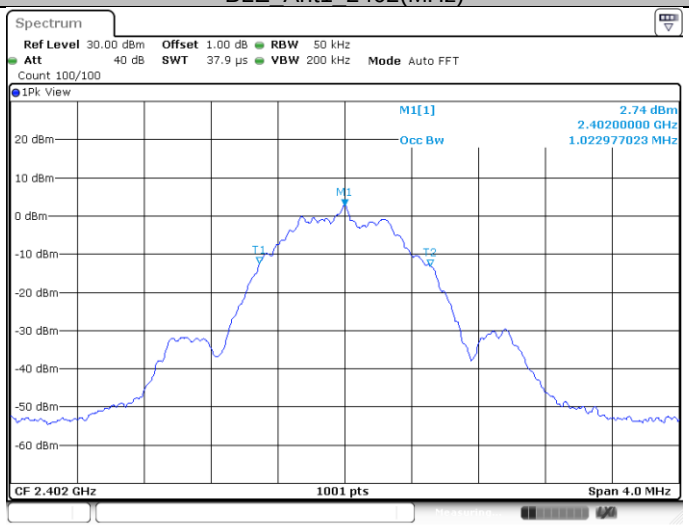
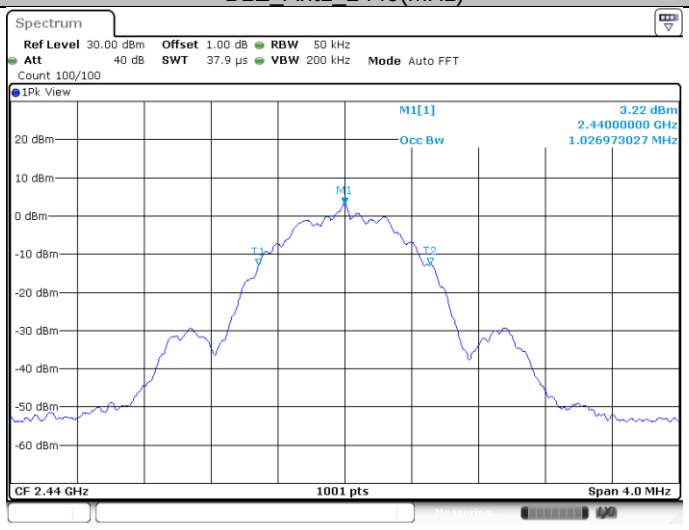
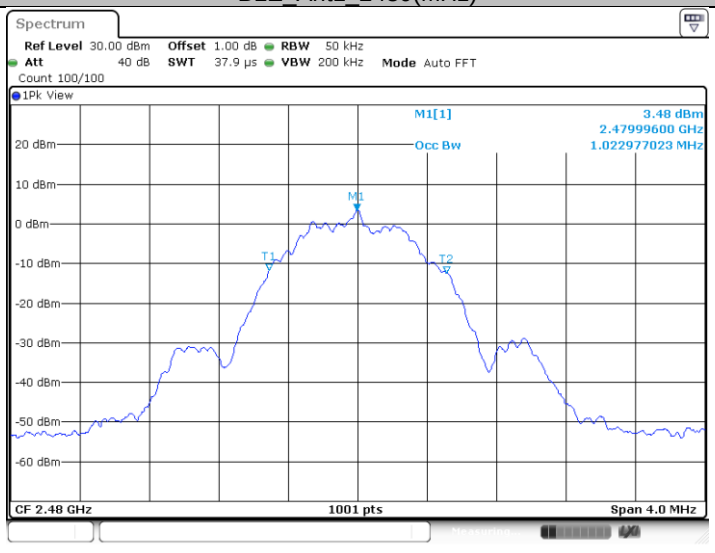
BLE_Ant1_2402(MHz)



BLE_Ant1_2440(MHz)



BLE_Ant1_2480(MHz)



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9.4 Power spectral density

Test Method

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

1. Set analyzer center frequency to DTS Channel(MHz) center frequency. RBW=10kHz,VBW≥3RBW,Span=1.5 times DTS bandwidth, Detector=Peak, Sweep=auto, Trace= max hold.
2. Allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
3. Repeat above procedures until other frequencies measured were completed.

Limit

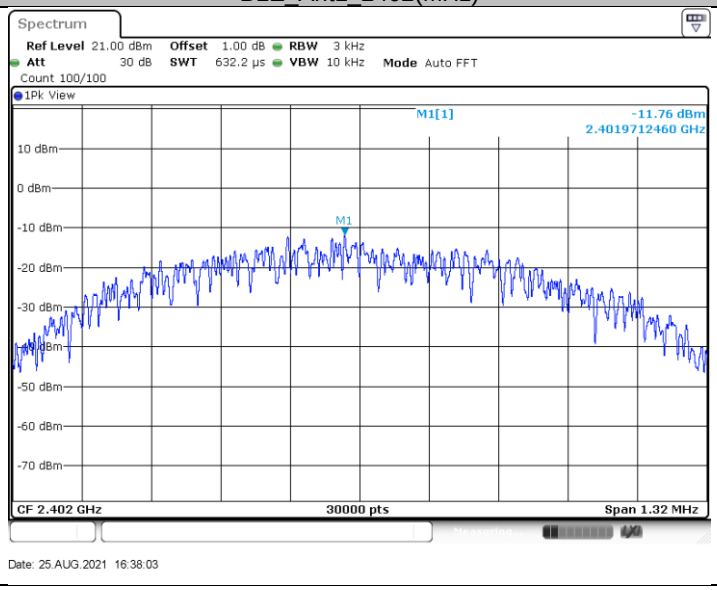
Limit [dBm/3KHz]
≤8

Test result

Channel(MHz)	Result(dBm/3KHz)	Limit(dBm/3KHz)	Verdict
2402	-11.76	≤8	PASS
2440	-12.69	≤8	PASS
2480	-11.63	≤8	PASS

Test Graphs

BLE_Ant1_2402(MHz)



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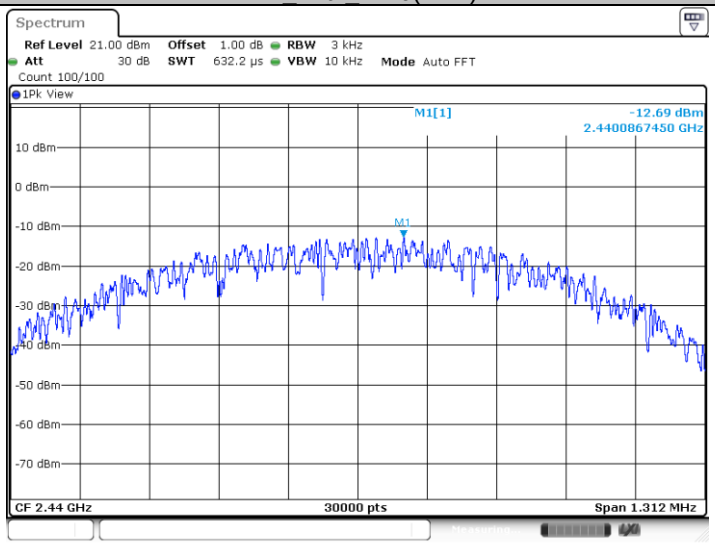
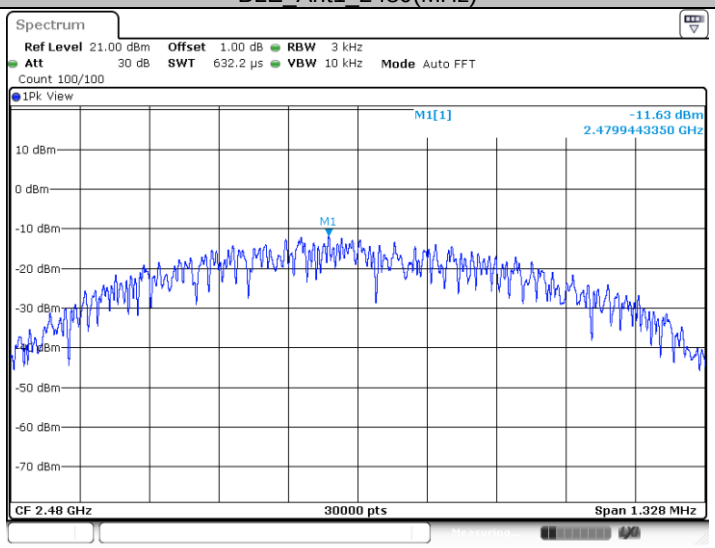
BLE_Ant1_2440(MHz)
 Date: 25.AUG.2021 16:40:27
BLE_Ant1_2480(MHz)
 Date: 25.AUG.2021 16:44:28

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9.5 Spurious RF conducted emissions

Test Method

1. Establish a reference level by using the following procedure:
   a. Set RBW=100 kHz. VBW≥3RBW. Detector =peak, Sweep time = auto couple, Trace mode = max hold.
   b. Allow trace to fully stabilize, use the peak marker function to determine the maximum PSD level.
2. Use the maximum PSD level to establish the reference level.
   a. Set the center frequency and span to encompass frequency range to be measured.
   b. Use the peak marker function to determine the maximum amplitude level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements, report the three highest emissions relative to the limit.
3. Repeat above procedures until other frequencies measured were completed.

Limit

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

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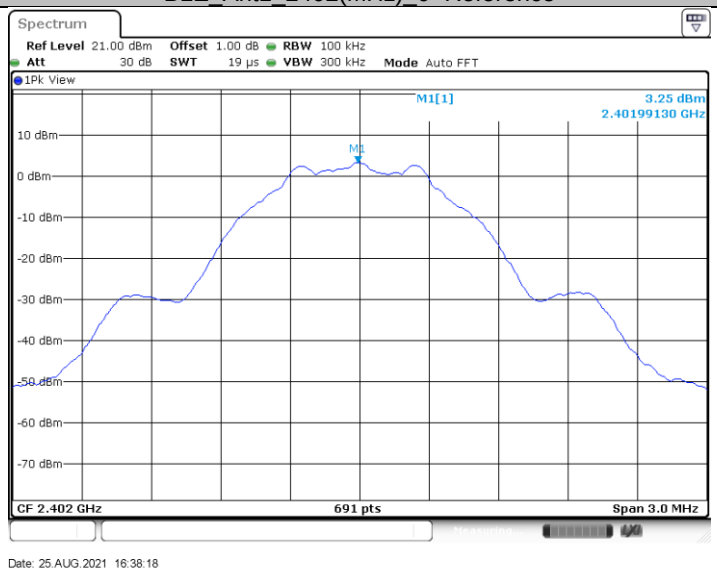
Spurious RF conducted emissions

Test Result

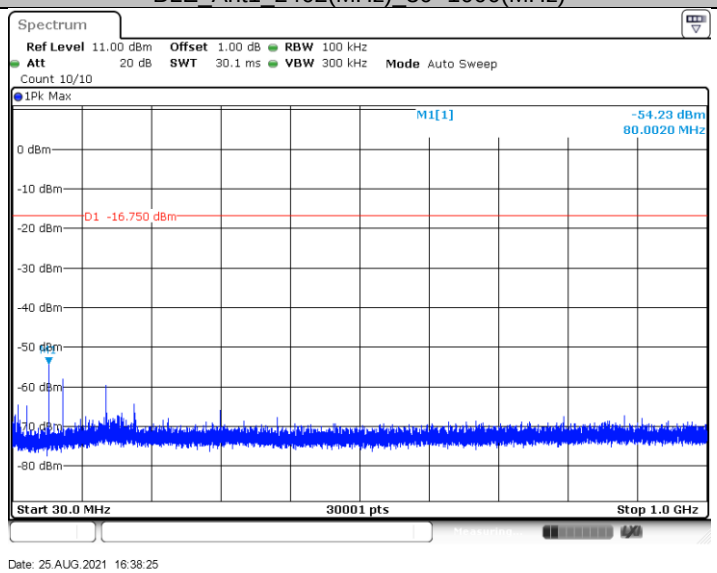
Channel(MHz)	FreqRange(MHz)	RefLevel(dBm)	Result(dBm)	Limit(dBm)	Verdict
2402	Reference	3.25	3.25	---	PASS
	30~1000	30~1000	-54.23	≤-16.75	PASS
	1000~26500	1000~26500	-51.17	≤-16.75	PASS
2440	Reference	3.73	3.73	---	PASS
	30~1000	30~1000	-53.9	≤-16.27	PASS
	1000~26500	1000~26500	-50.02	≤-16.27	PASS
2480	Reference	3.95	3.95	---	PASS
	30~1000	30~1000	-53.55	≤-16.05	PASS
	1000~26500	1000~26500	-51.05	≤-16.05	PASS

Test Graphs

BLE_Ant1_2402(MHz)_0~Reference



BLE_Ant1_2402(MHz)_30~1000(MHz)



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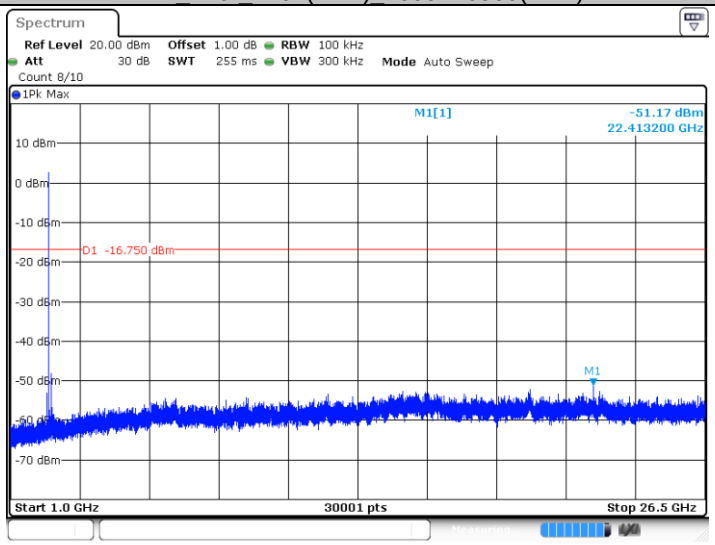
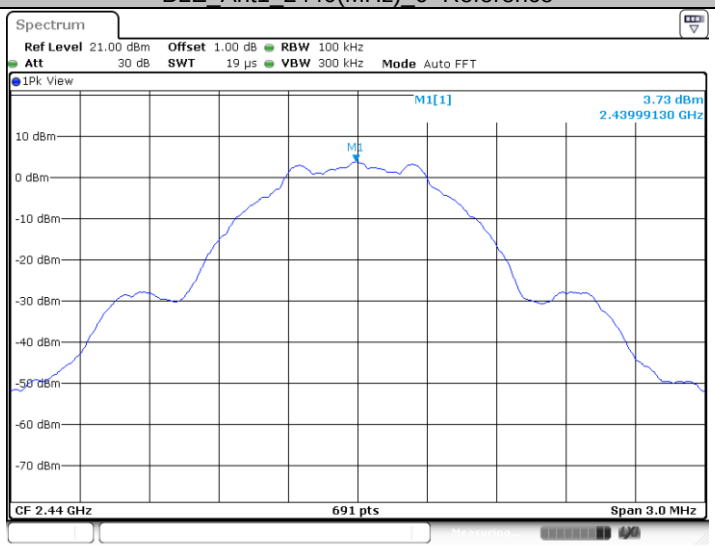
BLE_Ant1_2402(MHz)_1000~26500(MHz)



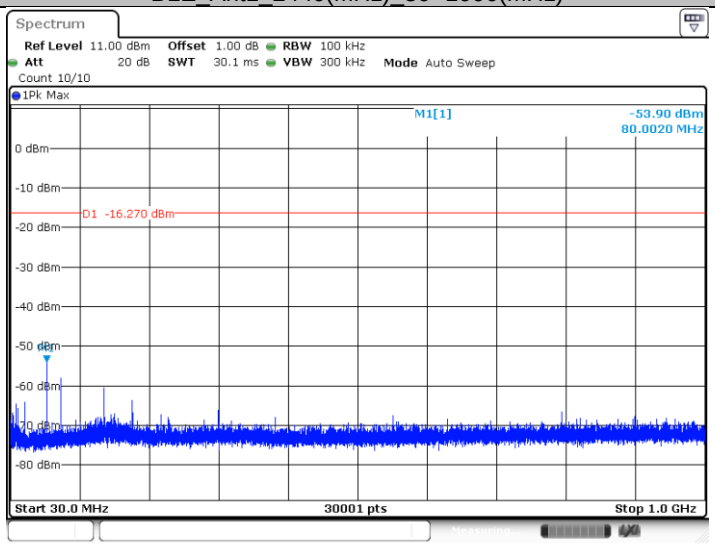
Date: 25.AUG.2021 16:38:32

BLE_Ant1_2440(MHz)_0~Reference



Date: 25.AUG.2021 16:40:33

BLE_Ant1_2440(MHz)_30~1000(MHz)



Date: 25.AUG.2021 16:40:39

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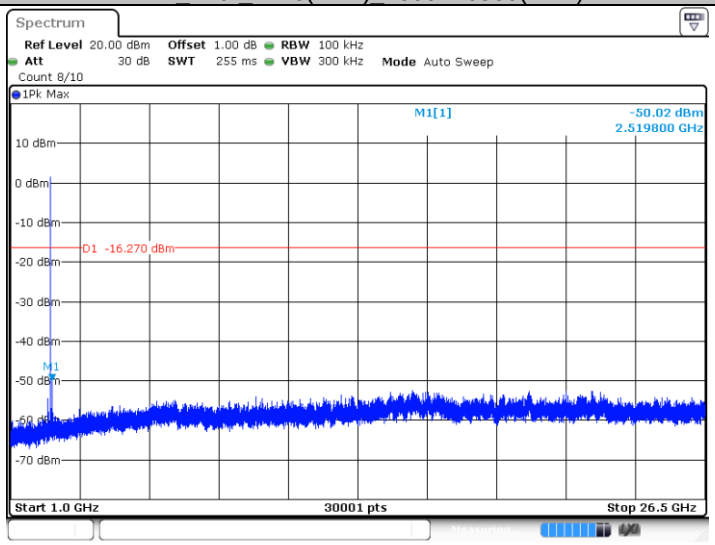
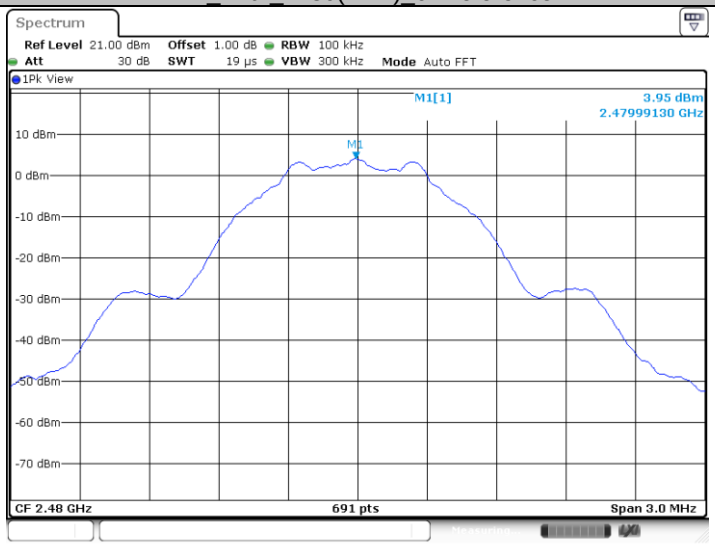
BLE_Ant1_2440(MHz)_1000~26500(MHz)



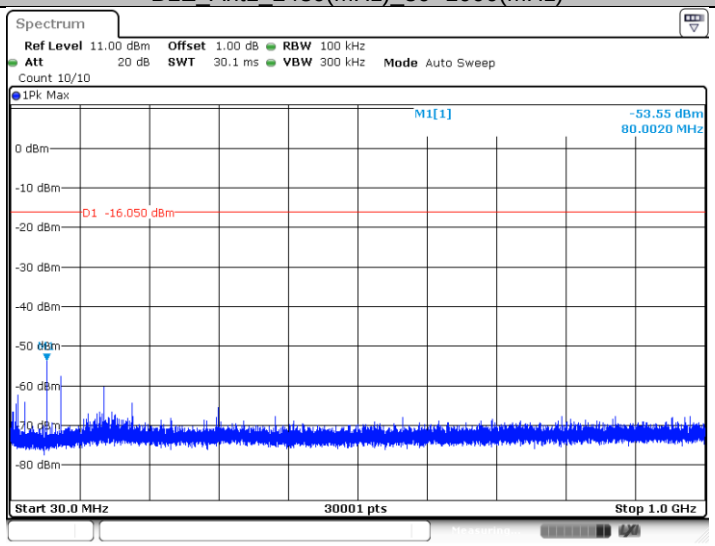
Date: 25.AUG.2021 16:40:47

BLE_Ant1_2480(MHz)_0~Reference



Date: 25.AUG.2021 16:44:43

BLE_Ant1_2480(MHz)_30~1000(MHz)



Date: 25.AUG.2021 16:44:49

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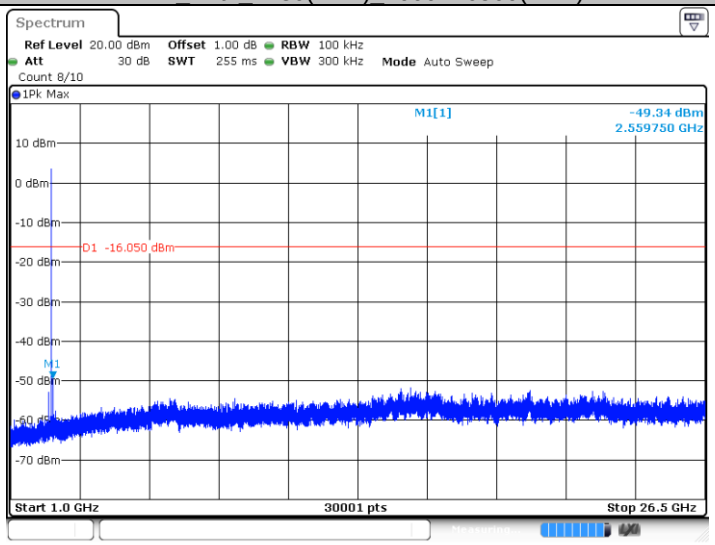
BLE_Ant1_2480(MHz)_1000~26500(MHz)



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9.6 Band edge

Test Method

1 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≥RBW, Sweep = auto, Detector function = peak, Trace = max hold.
2 Allow the trace to stabilize, use the peak and delta measurement to record the result.
3 The level displayed must comply with the limit specified in this Section.

Limit

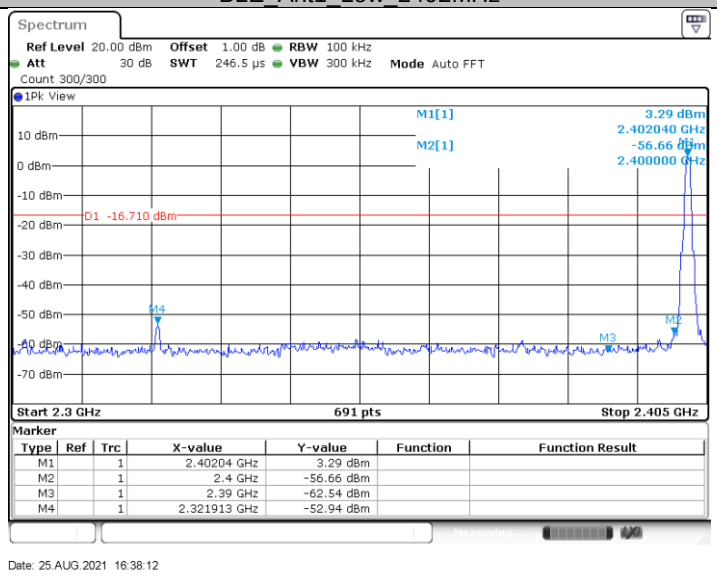
In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. 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) (see Section 15.205(c)).

Test result

Channel(MHz)	RefLevel(dBm)	Result(dBm)	Limit(dBm)	Verdict
2402	3.29	-52.94	≤-16.71	PASS
2480	3.78	-53.71	≤-16.22	PASS

Test Graphs

BLE_Ant1_Low_2402MHz



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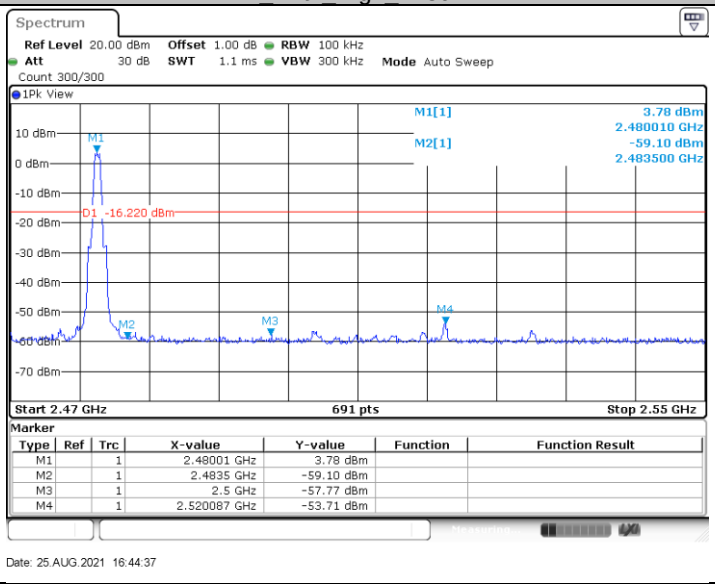
BLE_Ant1_High_2480MHz



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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:

For Below 1GHz

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 to 120KHz, VBW≥RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

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 1000 MHz

a) RBW = 1 MHz.

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

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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.

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 root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

Frequency MHz	Field Strength uV/m	Field Strength dBµV/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

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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:

Transmitting spurious emission test result as below:

30MHz - 1GHz

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
33.017778	17.66	40.00	22.34	H	11.36
99.678333	19.38	43.50	24.12	H	12.88
366.320556	24.05	46.00	21.95	H	16.90
30.970000	23.20	40.00	16.80	V	11.23
90.517222	23.55	43.50	19.95	V	11.11
389.816111	25.45	46.00	20.55	V	17.26

2402MHz (Above 1GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
2390.952381	43.28	74.00	30.72	H	-2.96
4823.000000	37.88	74.00	36.12	H	2.19
7358.000000	40.68	74.00	33.32	H	7.12
9504.500000	43.56	74.00	30.44	H	9.58
12795.000000	45.47	74.00	28.53	H	11.21
2388.571429	43.20	74.00	30.80	V	-2.95
4754.000000	39.37	74.00	34.63	V	2.20
7330.500000	41.61	74.00	32.39	V	7.07
9546.000000	42.86	74.00	31.14	V	9.33
13401.000000	45.92	74.00	28.08	V	11.70

2440MHz (Above 1GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
2391.428571	42.31	74.00	31.69	H	-2.96
4751.000000	38.65	74.00	35.35	H	2.19
7225.500000	41.28	74.00	32.72	H	6.87
9842.000000	44.00	74.00	30.00	H	11.12
16672.000000	49.01	74.00	24.99	H	17.87
2389.047619	42.53	74.00	31.47	V	-2.95
4739.500000	39.84	74.00	34.16	V	2.16
7243.500000	40.99	74.00	33.01	V	6.94
9608.500000	43.20	74.00	30.80	V	9.23
16042.000000	49.51	74.00	24.49	V	16.50

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2480MHz (Above 1GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
2394.761905	41.66	74.00	32.34	H	-2.97
4868.500000	38.71	74.00	35.29	H	2.43
7185.000000	40.94	74.00	33.06	H	6.72
9894.000000	43.31	74.00	30.69	H	10.84
16606.000000	49.15	74.00	24.85	H	17.87
2393.809524	45.73	74.00	28.27	V	-2.97
4845.500000	37.91	74.00	36.09	V	2.33
7225.500000	41.34	74.00	32.66	V	6.87
9706.000000	42.44	74.00	31.56	V	9.46
16893.000000	49.27	74.00	24.73	V	18.37

Remark:

(1) Data of Data of measurement within frequency range18-26GHz are the noise floor or attenuated more than 20dB below the permissible limits or the field strength is too small to be measured, so test data does not present in this report.

(2) Level =Reading Level + Correction Factor
Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
Below 1GHz: Corrector factor = Antenna Factor + Cable Loss
(The Reading level is recorded by software which is not shown in the sheet)

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10 Test Equipment List

List of Test Instruments

Conducted Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	2022-6-4
LISN	Rohde & Schwarz	ENV4200	100249	2022-6-5
LISN	Rohde & Schwarz	ENV432	101318	2022-6-5
LISN	Rohde & Schwarz	ENV216	100326	2022-6-5

Radiated Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	2022-6-4
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9162	284	2022-2-2
Wave Guide Antenna	ETS	3117	00218954	2022-5-24
Pre-amplifier	Rohde & Schwarz	SCU 18F	100745	2021-10-25
Pre-amplifier	Rohde & Schwarz	SCU 08F2	08400018	2021-10-25
Sideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	12827	2022-7-21
Pre-amplifier	Rohde & Schwarz	SCU 40A	100432	2022-7-27
3m Semi-anechoic chamber	TDK	SAC-3 #2	----	2023-5-28
Test software	Rohde & Schwarz	EMC32	Version10.35.02	N/A

RF conducted test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMB100A	108272	2022-6-3
Vector Signal Generator	Rohde & Schwarz	SMBV100A	262825	2022-6-3
Communication Synthetical Test Instrument	Rohde & Schwarz	CMW 270	101251	2022-6-3
Signal Analyzer	Rohde & Schwarz	FSV40	101030	2022-6-3
Vector Signal Generator	Rohde & Schwarz	SMU 200A	105324	2022-6-3
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2022-6-3
Power Splitter	Weinschel	1580	SC319	2022-6-3
10dB Attenuator	Weinschel	4M-10	43152	2022-6-3
10dB Attenuator	R&S	DNF	DNF-001	2022-6-3
10dB Attenuator	R&S	DNF	DNF-002	2022-6-3
10dB Attenuator	R&S	DNF	DNF-003	2022-6-3
10dB Attenuator	R&S	DNF	DNF-004	2022-6-3
Test software	Rohde & Schwarz	EMC32	Version 10.60.10	N/A
Test software	Tonscend	System for BT/WIFI	Version 2.6.77.0518	N/A
Shielding Room	TDK	TS8997	----	2022-11-07

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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	
Test Items	Extended Uncertainty
Uncertainty for Conducted Emission 150kHz-30MHz	3.21dB
Uncertainty for Radiated Spurious Emission 25MHz-3000MHz	Horizontal: 4.80dB; Vertical: 4.87dB;
Uncertainty for Radiated Spurious Emission 3000MHz-18000MHz	Horizontal: 4.59dB; Vertical: 4.58dB;
Uncertainty for Radiated Spurious Emission 18000MHz-40000MHz	Horizontal: 5.05dB; Vertical: 5.04dB;
Uncertainty for Conducted RF test with TS 8997	Power level test involved: 1.16dB Frequency test involved: 0.6×10^{-7} or 1%

Remark:
Measurement Uncertainty Decision Rule
Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2007, clause 4.4.3 and 4.5.1.

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