

RF MEASUREMENT REPORT

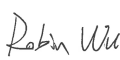
FCC ID: XMR202111EG915ULA
Applicant: Quectel Wireless Solutions Company Limited
Product: LTE Module
Model No.: EG915U-LA
Brand Name: Quectel
FCC Classification: FCC Part 15 Spread Spectrum Transmitter (DSS)
FCC Rule Part(s): Part15 Subpart C (Section 15.247)
Result: Complies
Test Date: April 18 ~ 26, 2022

Reviewed By:



Sunny Sun

Approved By:



Robin Wu



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2204RSU026-U3	Rev. 01	Initial Report	05-13-2022	Valid

Note: This report is supplement to FCC ID “XMR202111EG915ULA” updating PCB laminated structure change and related data

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1. General Information

1.1. Applicant

Quectel Wireless Solutions Company Limited

Building 5, Shanghai Business Park PhaseIII (Area B), No.1016 Tianlin Road, Minhang District

1.2. Manufacturer

Quectel Wireless Solutions Company Limited

Building 5, Shanghai Business Park PhaseIII (Area B), No.1016 Tianlin Road, Minhang District

1.3. Testing Facility

☒	Test Site – MRT Suzhou Laboratory
	Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
	Laboratory Location (Suzhou - SIP) 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China
	Laboratory Accreditations
	A2LA: 3628.01 CNAS: L10551 FCC: CN1166 ISED: CN0001 VCCI: ☐ R-20025 ☐ G-20034 ☐ C-20020 ☐ T-20020 ☐ R-20141 ☐ G-20134 ☐ C-20103 ☐ T-20104
☐	Test Site – MRT Shenzhen Laboratory
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China
	Laboratory Accreditations
	A2LA: 3628.02 CNAS: L10551 FCC: CN1284 ISED: CN0105
☐	Test Site – MRT Taiwan Laboratory
	Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
	Laboratory Accreditations
	TAF: L3261-190725 FCC: 291082, TW3261 ISED: TW3261

1.4. Product Information

Product Name	LTE Module
Model No.	EG915U-LA
Brand Name	Quectel
IMEI	865413050018992
Operating Temperature	-35 ~ 75 °C
Power Type	3.3 ~ 4.3Vdc, typical 3.8Vdc
Bluetooth Specification	V4.2 single mode for BR/EDR
Wi-Fi Specification	802.11b scan mode
GSM Band	GSM 850, PCS 1900
E-UTRA Band	Band 2, 4, 5, 7, 66

Note: The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1.5. Radio Specification under Test

Bluetooth Specification	
Operating Frequency	2402~2480MHz
Channel Number	79
Type of modulation	GFSK, Pi/4 DQPSK, 8DPSK
Data Rate	1Mbps, 2Mbps, 3Mbps
Antenna Information	Dipole Antenna, 5.38dBi

Note:

1. For other features of this EUT, test report will be issued separately.
 2. The test data contained in this report pertains only to the emissions due to the EUT's Bluetooth transmitter.
- 15.247(g): In accordance with the Bluetooth Industry Standard, the system is designed to comply with all of the regulations in Section 15.247 when the transmitter is presented with a continuous data (or information) system.
 - 15.247(h): In accordance with the Bluetooth Industry Standard, the system does not coordinate its channels selection/ hopping sequence with other frequency hopping systems for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters.
 - 15.247(h): The EUT employs Adaptive Frequency Hopping (AFH) which identifies sources of interference namely devices operating in 802.11 WLAN and excludes them from the list of available channels. The process of re-mapping reduces the number of test channels from 79 channels to a minimum number of 20 channels.

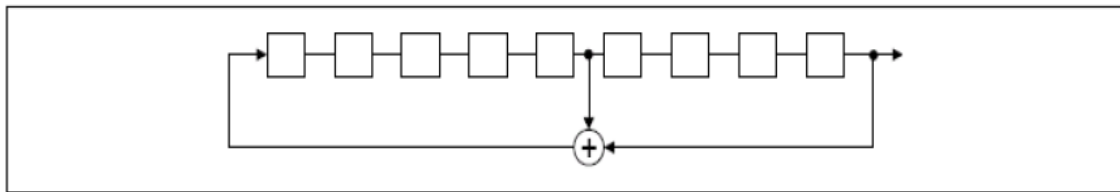
1.6. Working Frequencies

Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz
03	2405 MHz	04	2406 MHz	05	2407 MHz
06	2408 MHz	07	2409 MHz	08	2410 MHz
09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz
15	2417 MHz	16	2418 MHz	17	2419 MHz
18	2420 MHz	19	2421 MHz	20	2422 MHz
21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz
27	2429 MHz	28	2430 MHz	29	2431 MHz
30	2432 MHz	31	2433 MHz	32	2434 MHz
33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz
39	2441 MHz	40	2442 MHz	41	2443 MHz
42	2444 MHz	43	2445 MHz	44	2446 MHz
45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz
51	2453 MHz	52	2454 MHz	53	2455 MHz
54	2456 MHz	55	2457 MHz	56	2458 MHz
57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz
63	2465 MHz	64	2466 MHz	65	2467 MHz
66	2468 MHz	67	2469 MHz	68	2470 MHz
69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz
75	2477 MHz	76	2478 MHz	77	2479 MHz
78	2480 MHz	-	-	-	-

1.7. Pseudorandom Frequency Hopping Sequence

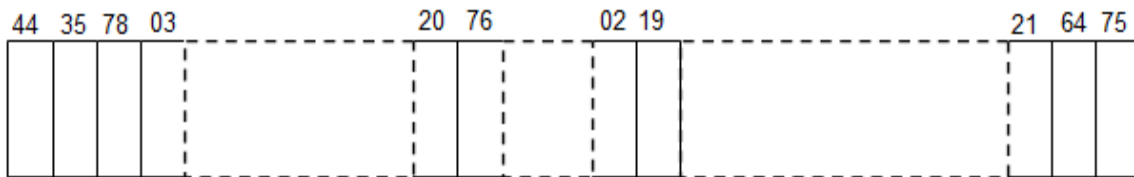
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONES; i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: $2^9 - 1 = 511$ bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their Corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

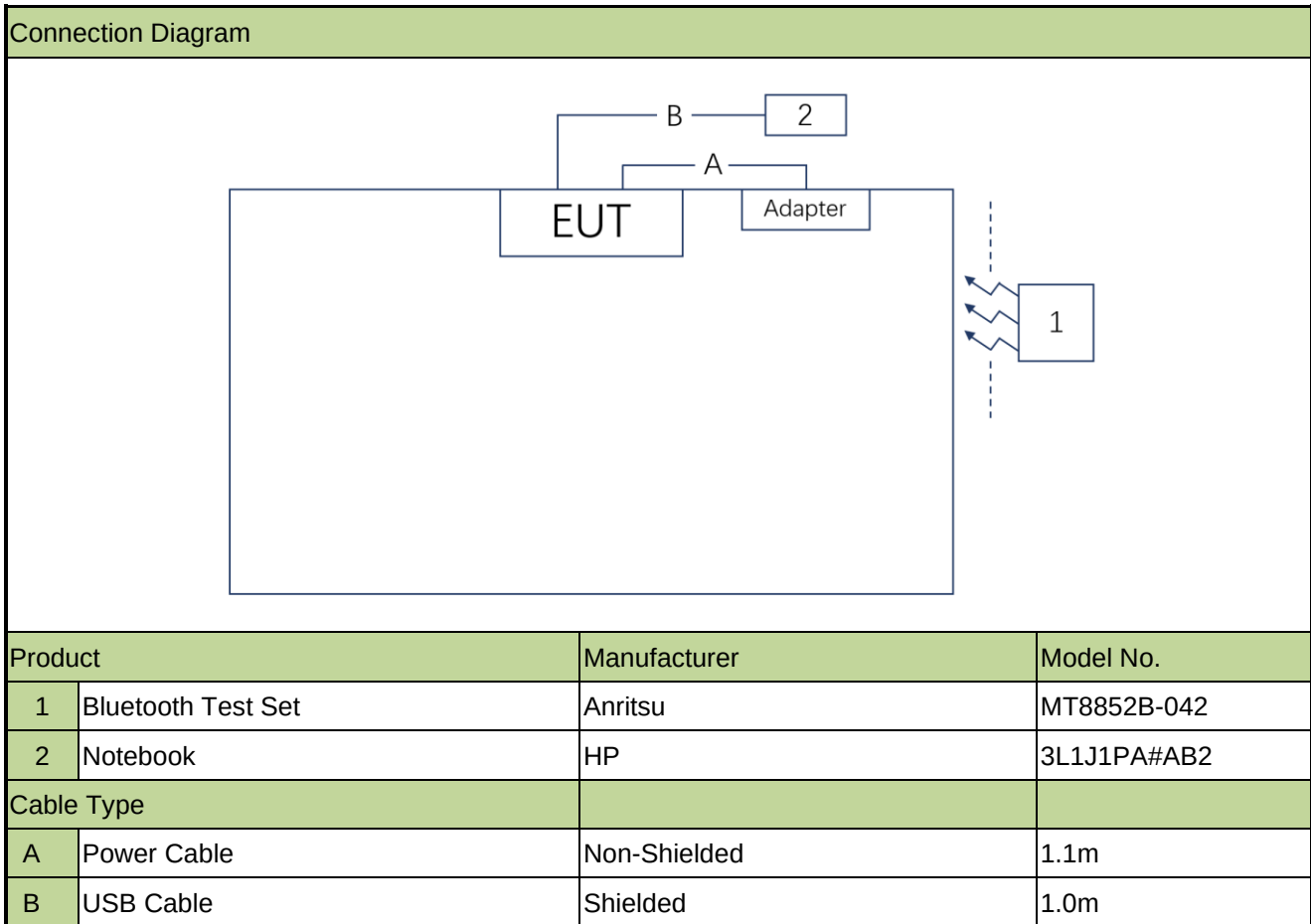
2. Test Configuration

2.1. Test Mode

Mode 1: Transmit by DH5
Mode 2: Transmit by 2DH5
Mode 3: Transmit by 3DH5

2.2. Test System Connection Diagram

The device was tested per the guidance ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated emissions testing and AC line conducted testing.



2.3. Test Software

After entering command, the product is in DUT mode, then connected with the Bluetooth Test Set, the device can be transmitted continuously.

2.4. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15.247
- KDB 558074 D01v05r02
- ANSI C63.10-2013

2.5. Test Environment Condition

Ambient Temperature	15 ~ 35 °C
Relative Humidity	20 ~75 %RH

3. Antenna Requirement

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antenna of the device is **connected via an IPEX connector**.

Conclusion:

The unit complies with the requirement of §15.203.

4. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2022/12/29	WZ-AC1
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2022/9/16	WZ-AC1
Preamplifier	Agilent	83017A	MRTSUE06076	1 year	2022/11/12	WZ-AC1
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2022/8/5	WZ-AC1
Anechoic Chamber	TDK	WZ-AC1	MRTSUE06212	1 year	2022/4/29	WZ-AC1
Thermohygrometer	testo	608-H1	MRTSUE06403	1 year	2022/6/28	WZ-AC1
Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2022/12/29	WZ-AC1
Thermohygrometer	testo	Testo 608-H1	MRTSUE11039	1 year	2022/11/11	WZ-AC1
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2022/10/28	WZ-AC1
Horn Antenna	ETS	3117	MRTSUE06257	1 year	2022/9/25	WZ-AC1
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2022/12/1	WZ-AC1
Signal Analyzer	Keysight	N9010B	MRTSUE06457	1 year	2022/6/24	WZ-SR5
Bluetooth Test Set	Anritsu	MT8852B	MRTSUE06389	1 year	2022/6/8	WZ-AC1/WZ-SR5
Thermohygrometer	testo	608-H1	MRTSUE06402	1 year	2022/6/28	WZ-SR5
Shielding Room	HUAMING	WZ-SR5	MRTSUE06442	/	/	WZ-SR5

Software	Version	Function
EMI Software	V3.0.0	EMI Test Software

5. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 1.13dB

6. Test Result

6.1. Summary

FCC Section(s)	Test Description	Test Condition	Verdict
15.247(b)(1)	Peak Transmitter Output Power	Conducted	Pass
15.205, 15.209	General Field Strength (Restricted Bands and Radiated Emission)	Radiated	Pass

Remark: The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.

6.2. Output Power Measurement

6.2.1. Test Limit

For frequency hopping systems operating in the 2400-2483.5MHz band employing at least 75 non-overlapping hopping channels: 1watt (30dBm). For all other frequency hopping systems in the 2400 - 2483.5MHz band: 0.125 watt (21dBm).

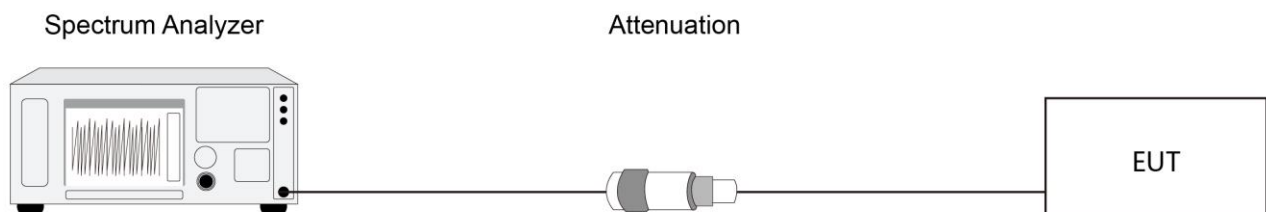
6.2.2. Test Procedure

ANSI C63.10-2013 - Section 7.8.5

6.2.3. Test Setting

1. Set RBW $\geq$ the 20 dB bandwidth of the emission being measured.
2. VBW $\geq$ RBW
3. Span = approximately five times the 20dB bandwidth, centered on a hopping channel
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. 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 (don't forget added the external attenuation and cable loss)

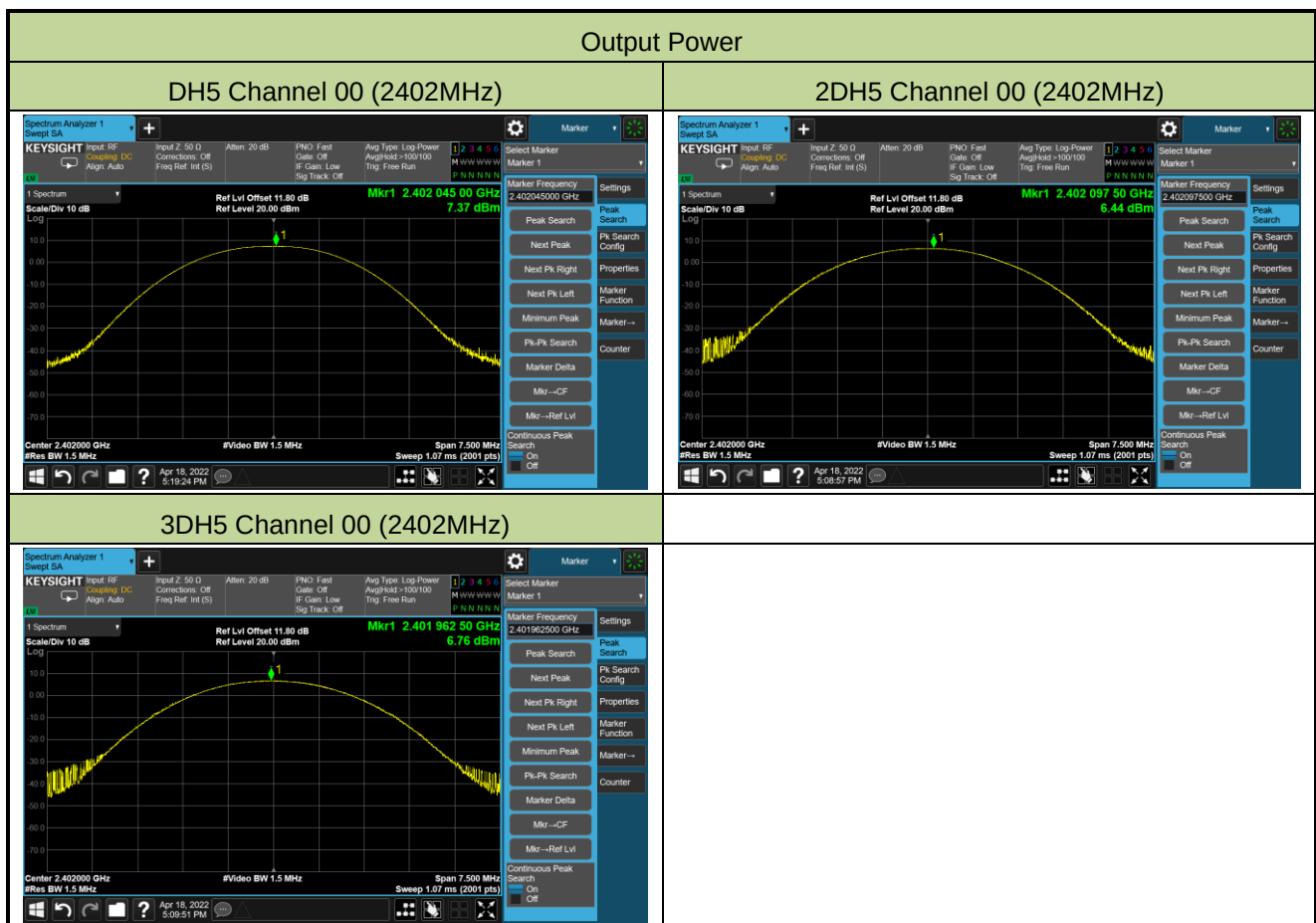
6.2.4. Test Setup



6.2.5. Test Result

Test Site	WZ-SR5	Test Engineer	Luis Yang
Test Date	2022/04/18		

Test Mode	Channel No.	Frequency (MHz)	Output Power (dBm)	Power Limit (dBm)
DH5	00	2402	7.37	≤ 30
2DH5	00	2402	6.44	≤ 30
3DH5	00	2402	6.76	≤ 30



6.3. Radiated Spurious Emission Measurement

6.3.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

6.3.2. Test Procedure

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

6.3.3. Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Peak Measurements above 1GHz

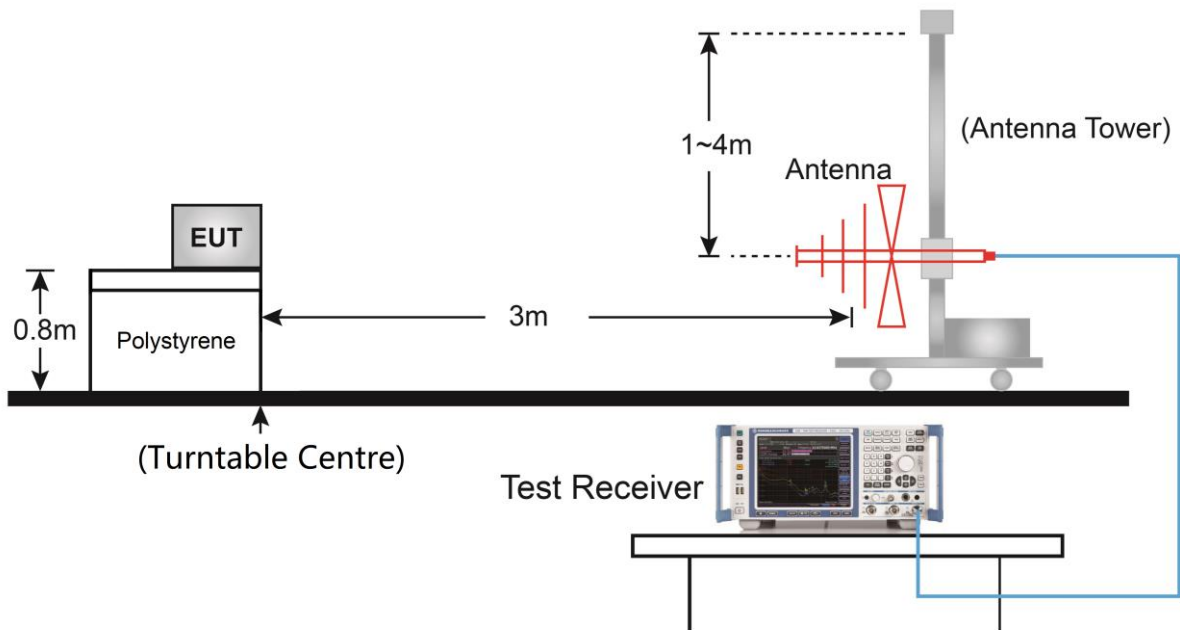
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

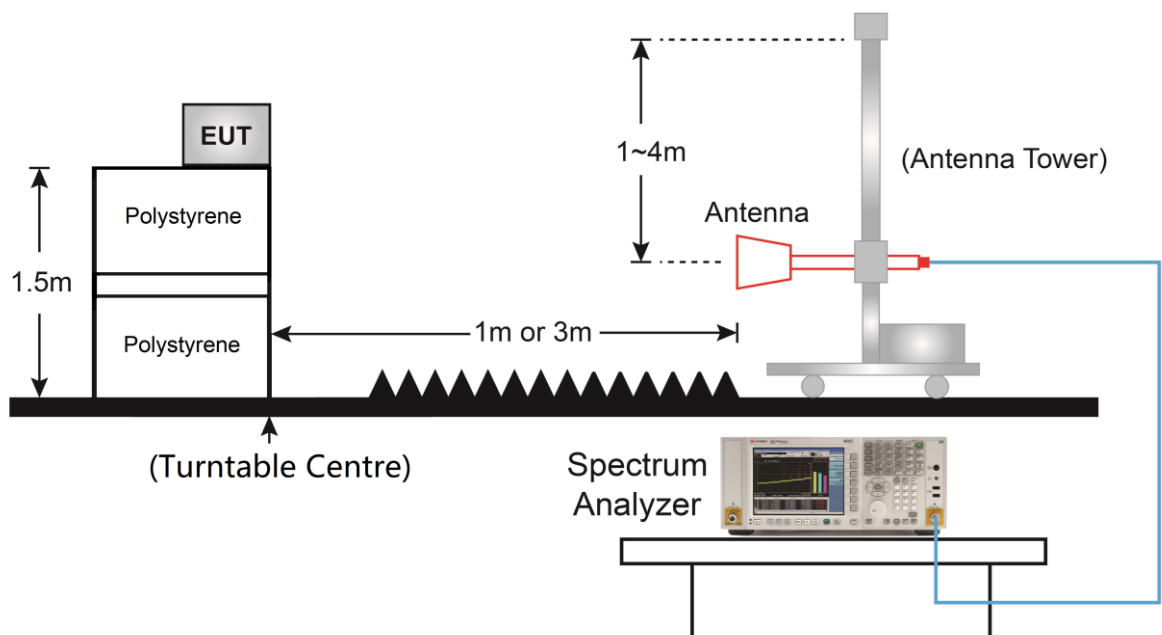
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10 Hz.
If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration.
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

6.3.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.3.5. Test Result

Test Site	WZ-AC1	Test Engineer	Carl Jiang
Test Date	2022/04/26	Test Mode	DH5
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
00	4808.0	40.9	3.4	44.3	74.0	-29.7	Peak	Horizontal
	11497.5	36.9	13.3	50.2	74.0	-23.8	Peak	Horizontal
	15900.5	36.5	12.4	48.9	74.0	-25.1	Peak	Horizontal
	3873.0	40.6	1.0	41.6	74.0	-32.4	Peak	Vertical
	4808.0	50.3	3.4	53.7	74.0	-20.3	Peak	Vertical
	4808.0	46.1	3.4	49.5	54.0	-4.5	Average	Vertical
	10962.0	36.8	13.3	50.1	74.0	-23.9	Peak	Vertical

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor ((dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	WZ-AC1	Test Engineer	Carl Jiang
Test Date	2022/04/26	Test Mode	2DH5
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

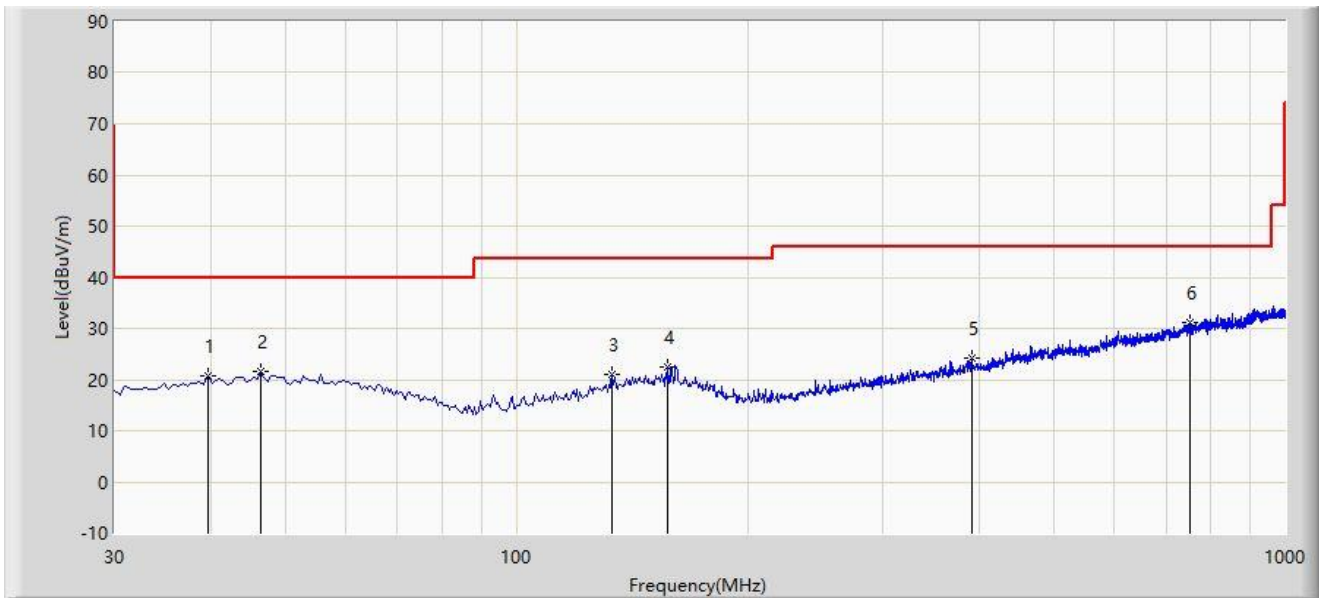
Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
00	4808.0	38.0	3.4	41.4	74.0	-32.6	Peak	Horizontal
	7545.0	36.6	8.5	45.1	74.0	-28.9	Peak	Horizontal
	11650.5	36.8	12.7	49.5	74.0	-24.5	Peak	Horizontal
	4808.0	45.9	3.4	49.3	74.0	-24.7	Peak	Vertical
	9151.5	38.4	11.4	49.8	74.0	-24.2	Peak	Vertical
	11497.5	36.1	13.3	49.4	74.0	-24.6	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m) Factor ((dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)								

Test Site	WZ-AC1	Test Engineer	Carl Jiang
Test Date	2022/04/26	Test Mode	3DH5
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
00	3864.5	41.2	0.9	42.1	74.0	-31.9	Peak	Horizontal
	8208.0	36.1	9.4	45.5	74.0	-28.5	Peak	Horizontal
	11438.0	36.4	13.2	49.6	74.0	-24.4	Peak	Horizontal
	3949.5	41.7	1.0	42.7	74.0	-31.3	Peak	Vertical
	4808.0	46.4	3.4	49.8	74.0	-24.2	Peak	Vertical
	11608.0	36.7	12.9	49.6	74.0	-24.4	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m) Factor ((dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)								

The Result of Radiated Emission below 1GHz:

Site: WZ-AC1	Test Time: 2022/04/26
Limit: FCC_Part15.209_RE(3m)	Engineer: Kin Xia
Probe: WZ-AC1_VULB 9168 _30-1000MHz	Polarity: Horizontal
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by DH5 at Channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			39.700	20.674	2.993	-19.326	40.000	17.681	PK
2			46.490	21.492	2.674	-18.508	40.000	18.818	PK
3			133.305	21.050	4.318	-22.450	43.500	16.732	PK
4			157.555	22.530	4.410	-20.970	43.500	18.120	PK
5			390.840	24.199	3.670	-21.801	46.000	20.529	PK
6		*	753.620	31.204	3.288	-14.796	46.000	27.916	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

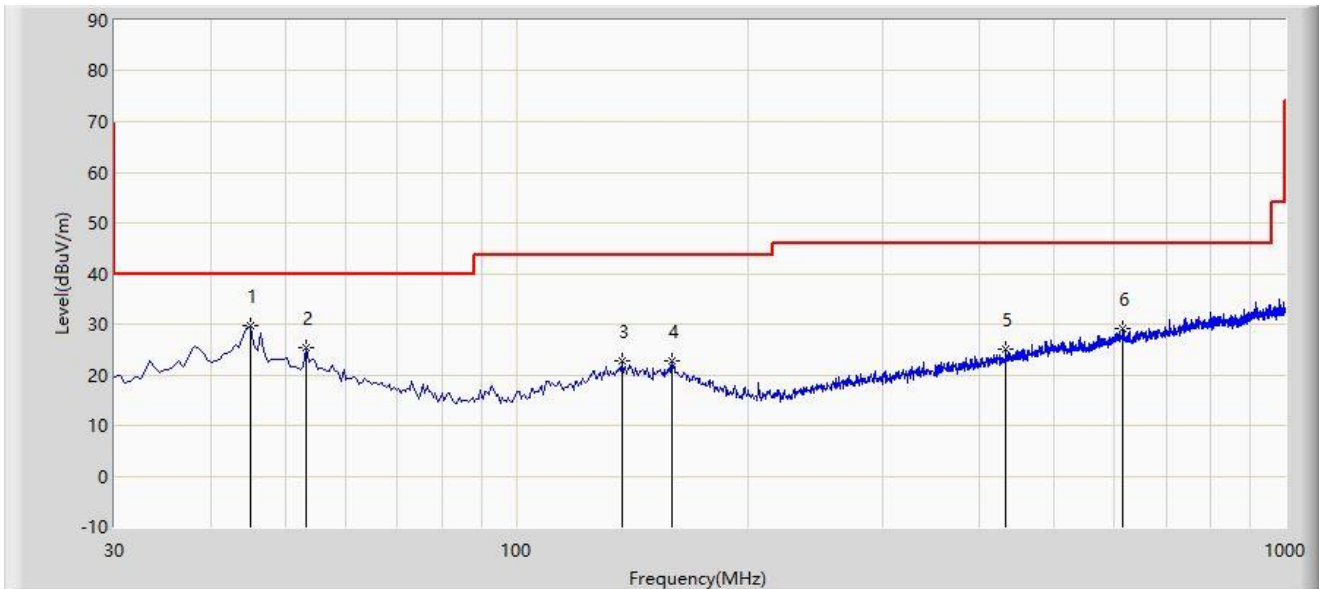
Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: QP measurement was not performed when peak measure level was lower than the QP limit.

Note 3: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value.

Therefore, the data is not presented in the report.

Site: WZ-AC1	Test Time: 2022/04/26
Limit: FCC_Part15.209_RE(3m)	Engineer: Kin Xia
Probe: WZ-AC1_VULB 9168 _30-1000MHz	Polarity: Vertical
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by DH5 at Channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB/m)	Type
1		*	45.035	29.793	11.071	-10.207	40.000	18.722	PK
2			53.280	25.454	7.140	-14.546	40.000	18.314	PK
3			137.185	22.840	5.660	-20.660	43.500	17.180	PK
4			159.495	22.697	4.607	-20.803	43.500	18.090	PK
5			433.035	25.051	3.206	-20.949	46.000	21.845	PK
6			615.395	29.001	3.220	-16.999	46.000	25.781	PK

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: QP measurement was not performed when peak measure level was lower than the QP limit.

Note 3: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value.

Therefore, the data is not presented in the report.

6.4. Radiated Restricted Band Edge Measurement

6.4.1. Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41	--	--	--

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

6.4.2. Test Procedure

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

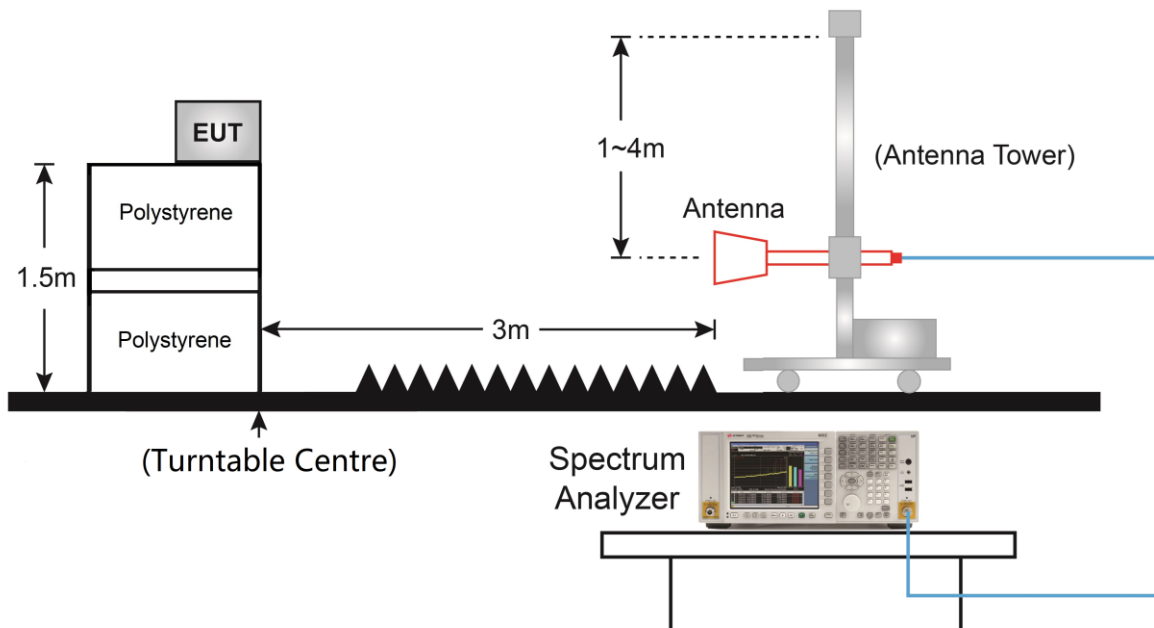
6.4.3. Test Setting

Peak Field Strength Measurements

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

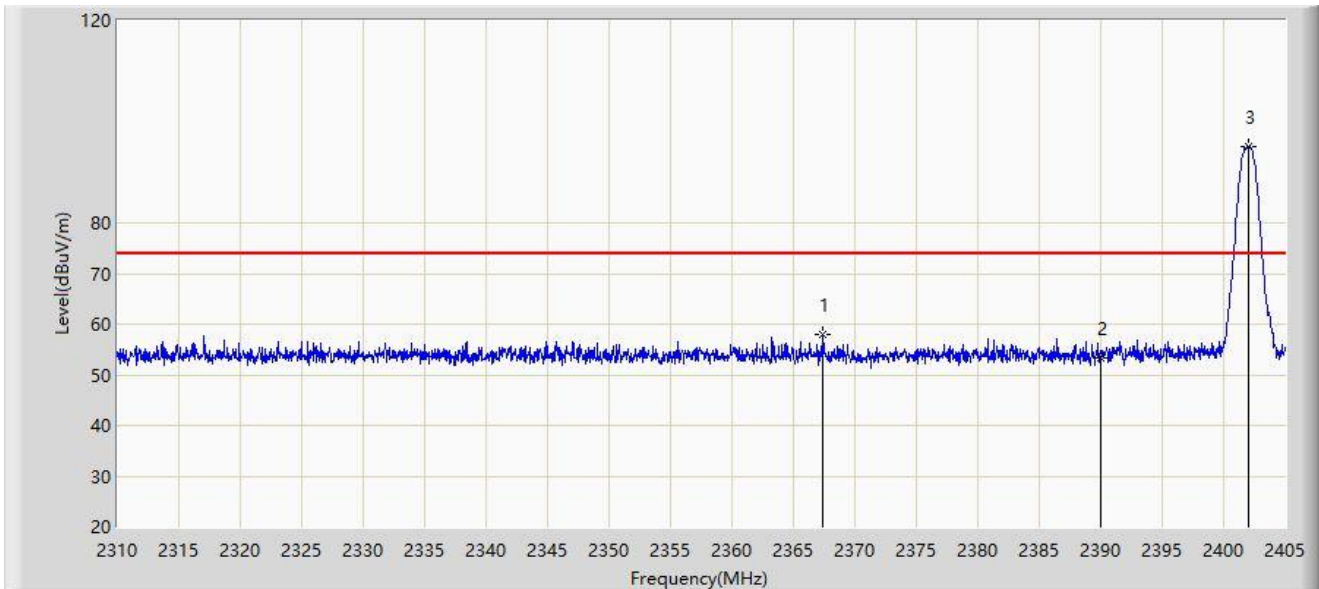
Average Measurements above 1GHz (Method VB)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10 Hz.
If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration.
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

6.4.4. Test Setup

6.4.5. Test Result

Site: WZ-AC2	Time: 2022/04/26 - 10:47
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: WZ-AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by DH5 at Channel 2402MHz	

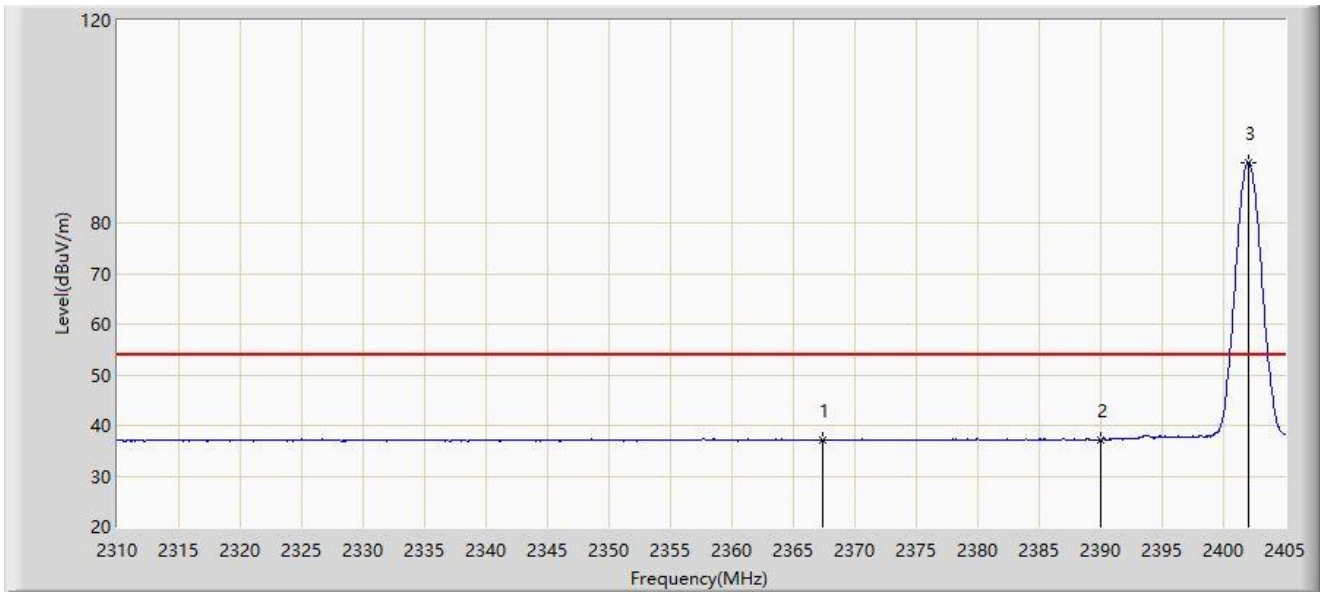


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2367.333	57.857	26.346	-16.143	74.000	31.511	PK
2			2390.000	53.324	21.891	-20.676	74.000	31.433	PK
3		*	2402.008	95.136	63.752	N/A	N/A	31.384	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC2	Time: 2022/04/26 - 10:54
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: WZ-AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by DH5 at Channel 2402MHz	

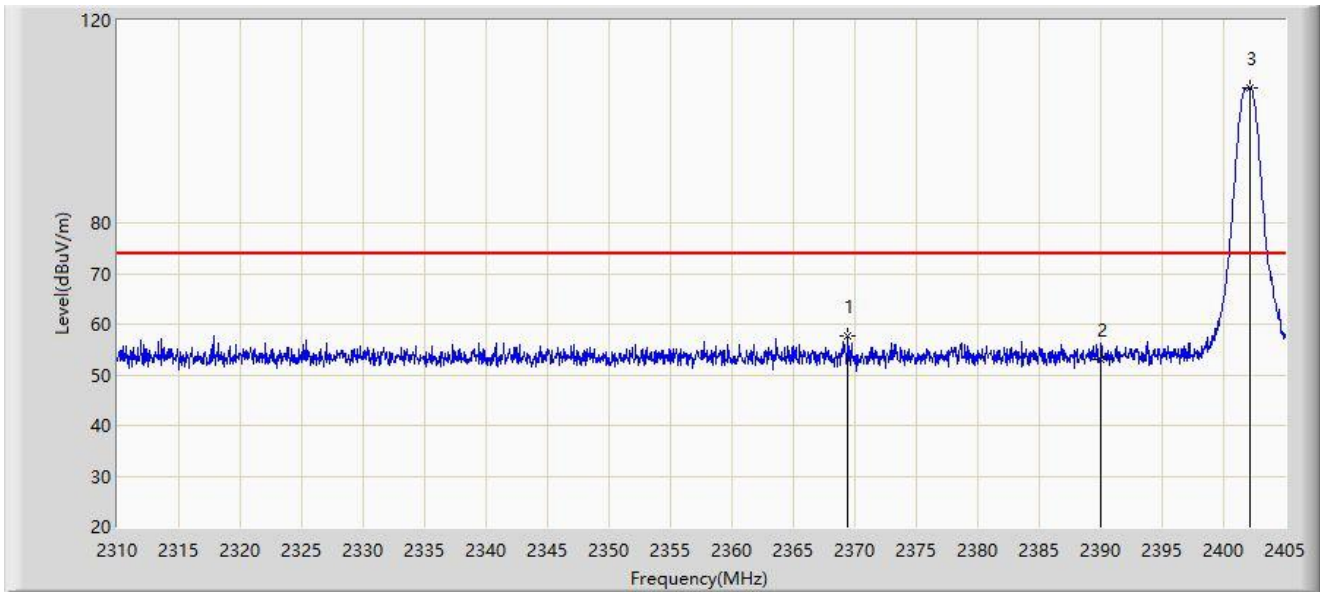


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2367.380	37.100	5.589	-16.900	54.000	31.511	AV
2			2390.000	37.080	5.647	-16.920	54.000	31.433	AV
3		*	2402.008	91.918	60.534	N/A	N/A	31.384	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC2	Time: 2022/04/26 - 11:02
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: WZ-AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by DH5 at Channel 2402MHz	

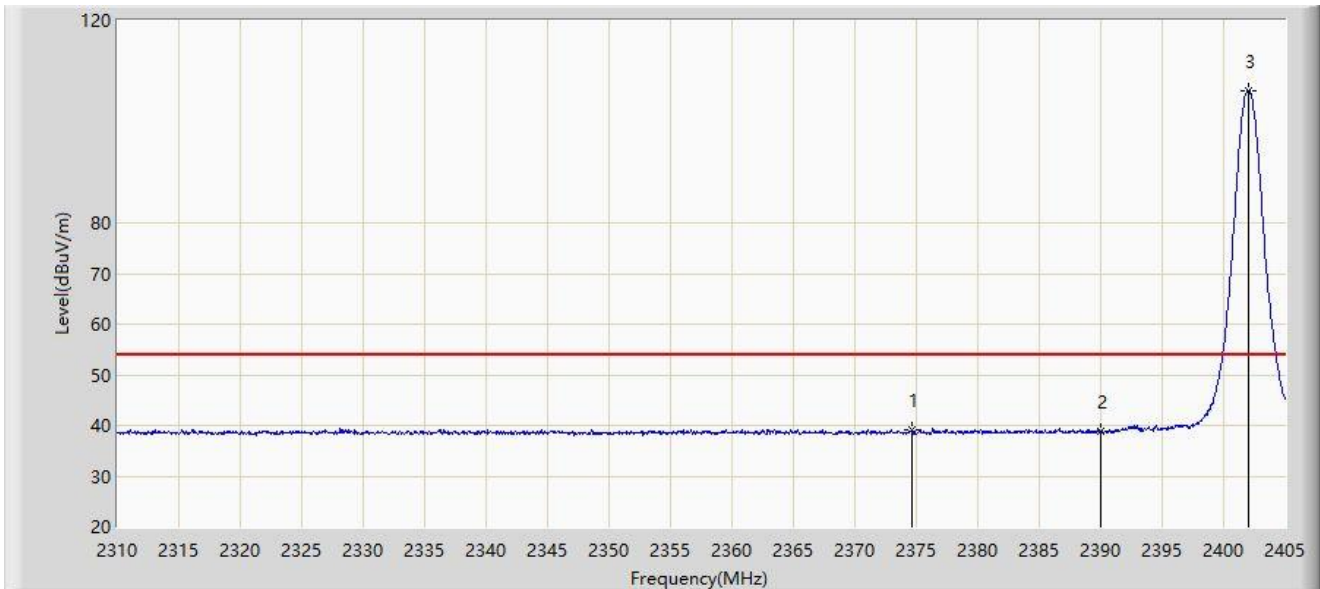


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2369.423	57.661	26.156	-16.339	74.000	31.505	PK
2			2390.000	53.152	21.719	-20.848	74.000	31.433	PK
3		*	2402.150	106.680	75.297	N/A	N/A	31.383	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC2	Time: 2022/04/26 - 11:03
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: WZ-AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by DH5 at Channel 2402MHz	

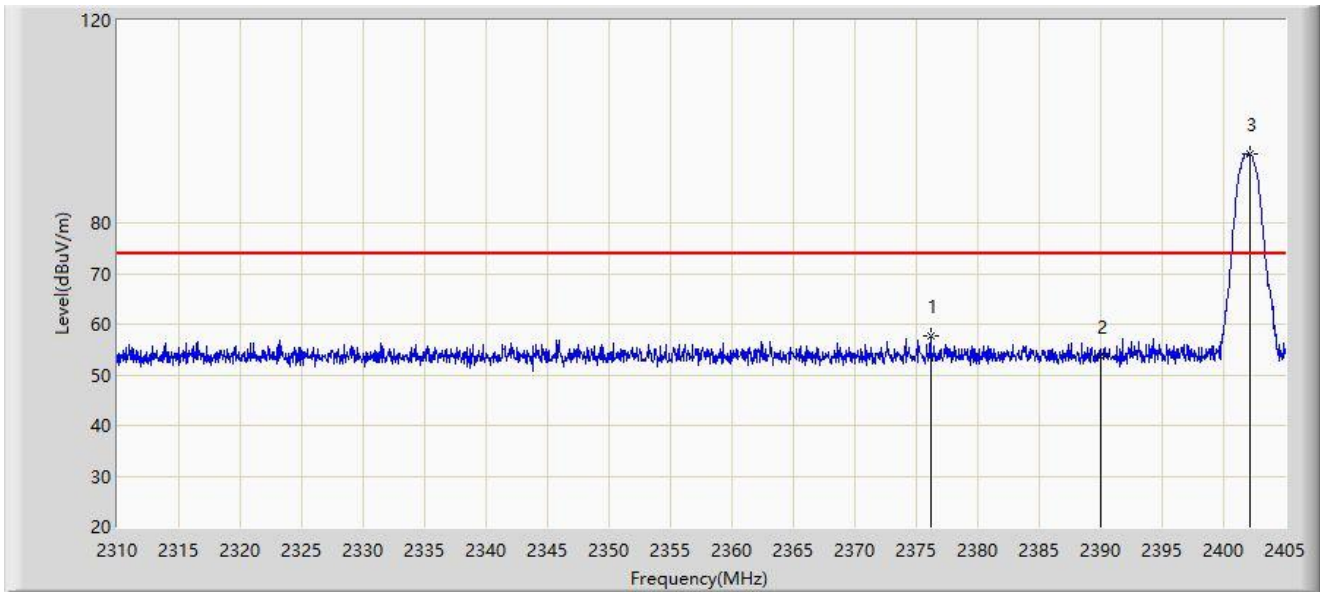


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2374.647	39.206	7.714	-14.794	54.000	31.492	AV
2			2390.000	38.734	7.301	-15.266	54.000	31.433	AV
3		*	2402.008	106.222	74.838	N/A	N/A	31.384	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC2	Time: 2022/04/26 - 11:12
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: WZ-AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by 2DH5 at Channel 2402MHz	

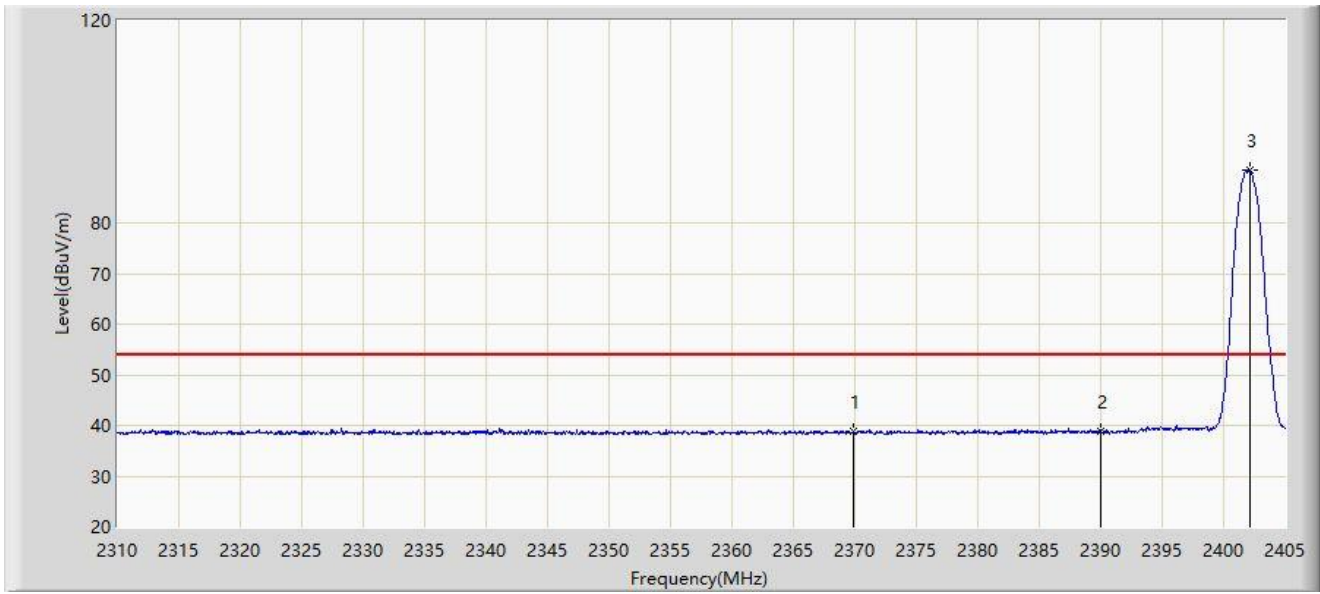


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB/m)	Type
1			2376.167	57.698	26.210	-16.302	74.000	31.488	PK
2			2390.000	53.727	22.294	-20.273	74.000	31.433	PK
3		*	2402.150	93.616	62.233	N/A	N/A	31.383	PK

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

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC2	Time: 2022/04/26 - 13:19
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: WZ-AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by 2DH5 at Channel 2402MHz	

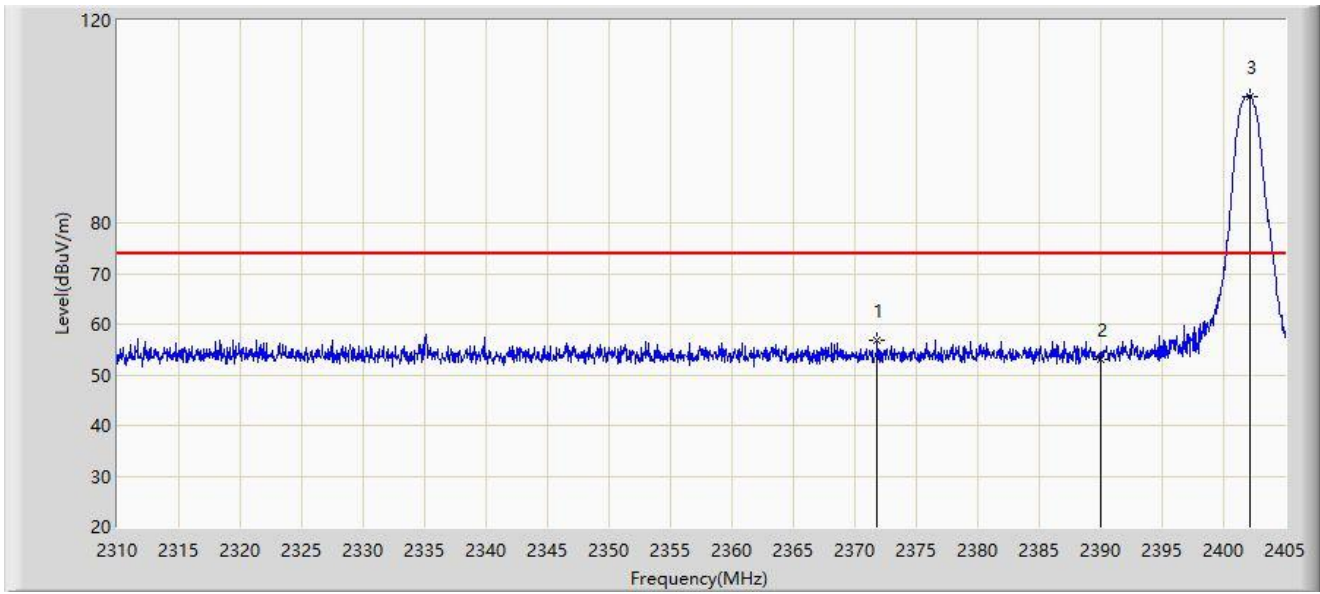


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2369.850	38.845	7.341	-15.155	54.000	31.504	AV
2			2390.000	38.704	7.271	-15.296	54.000	31.433	AV
3		*	2402.150	90.345	58.962	N/A	N/A	31.383	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC2	Time: 2022/04/26 - 13:26
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: WZ-AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by 2DH5 at Channel 2402MHz	

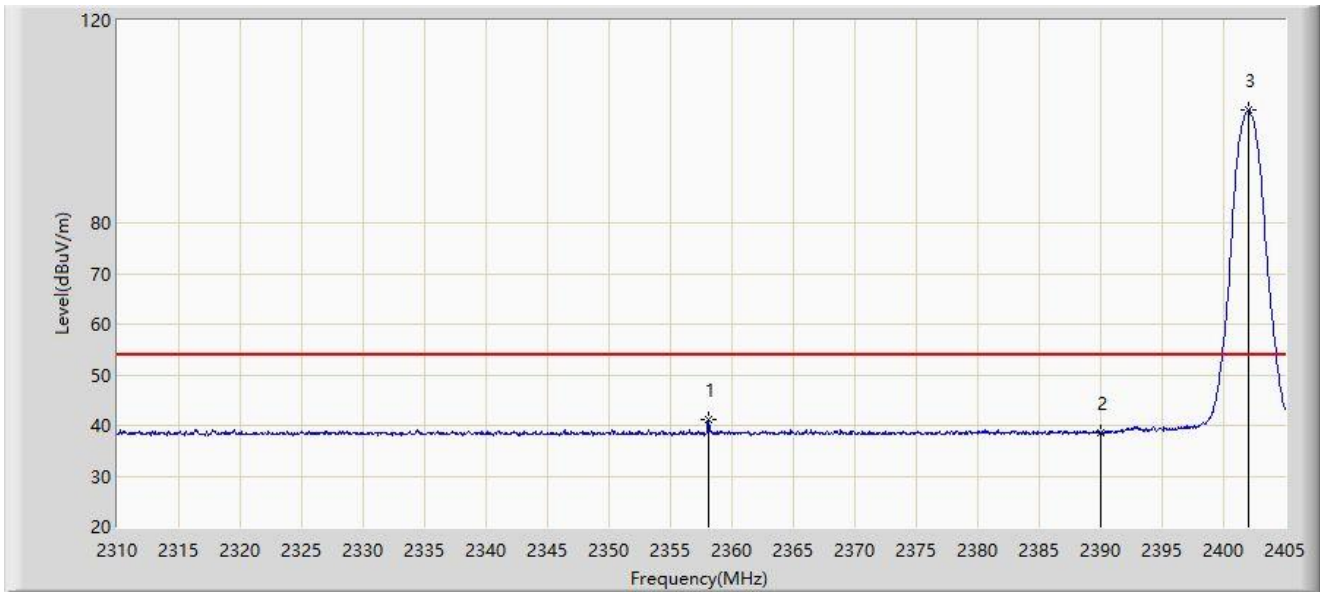


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB/m)	Type
1			2371.845	56.702	25.203	-17.298	74.000	31.499	PK
2			2390.000	53.039	21.606	-20.961	74.000	31.433	PK
3		*	2402.150	105.053	73.670	N/A	N/A	31.383	PK

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

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC2	Time: 2022/04/26 - 13:29
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: WZ-AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by 2DH5 at Channel 2402MHz	

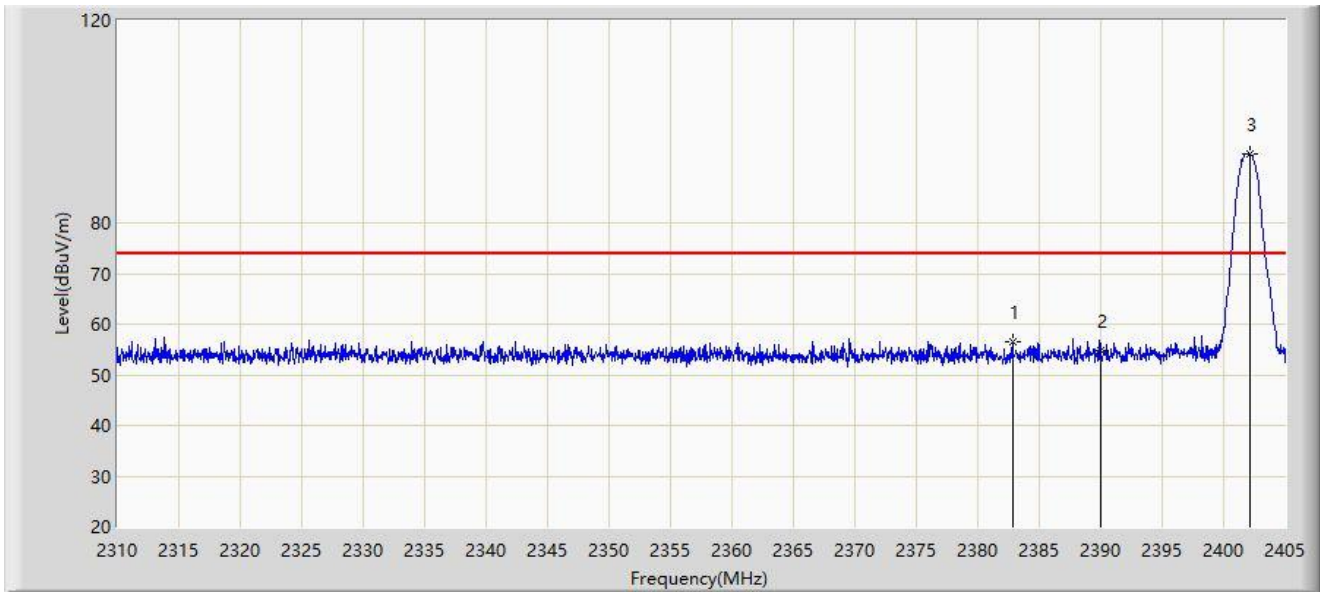


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2358.070	41.061	9.550	-12.939	54.000	31.511	AV
2			2390.000	38.565	7.132	-15.435	54.000	31.433	AV
3		*	2402.008	102.178	70.794	N/A	N/A	31.384	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC2	Time: 2022/04/26 - 13:35
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: WZ-AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by 3DH5 at Channel 2402MHz	

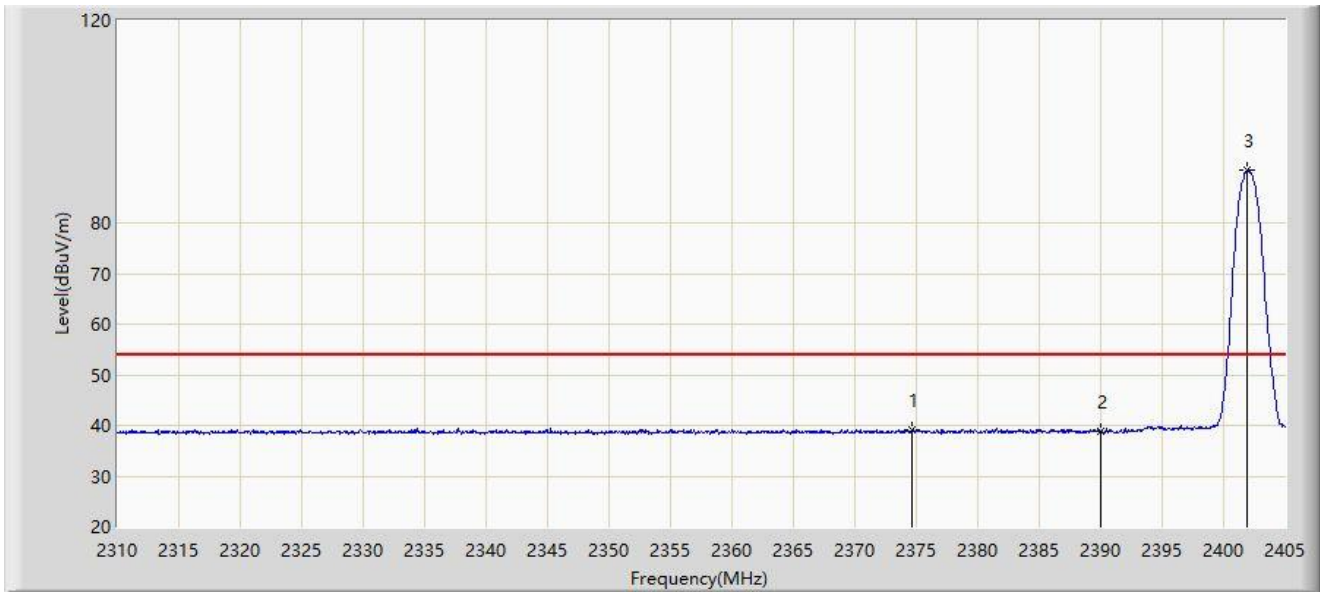


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2382.817	56.625	25.158	-17.375	74.000	31.467	PK
2			2390.000	54.800	23.367	-19.200	74.000	31.433	PK
3		*	2402.150	93.597	62.214	N/A	N/A	31.383	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC2	Time: 2022/04/26 - 13:38
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: WZ-AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by 3DH5 at Channel 2402MHz	

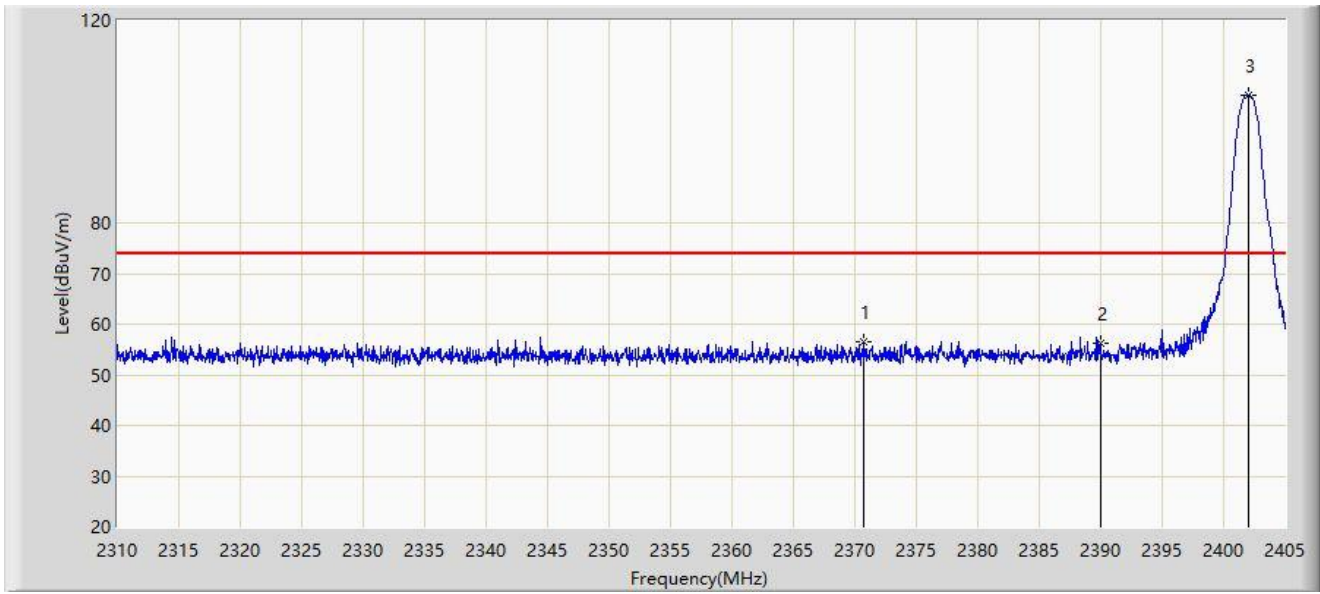


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2374.695	39.230	7.739	-14.770	54.000	31.492	AV
2			2390.000	38.912	7.479	-15.088	54.000	31.433	AV
3		*	2401.913	90.360	58.976	N/A	N/A	31.384	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC2	Time: 2022/04/26 - 13:47
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: WZ-AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by 3DH5 at Channel 2402MHz	

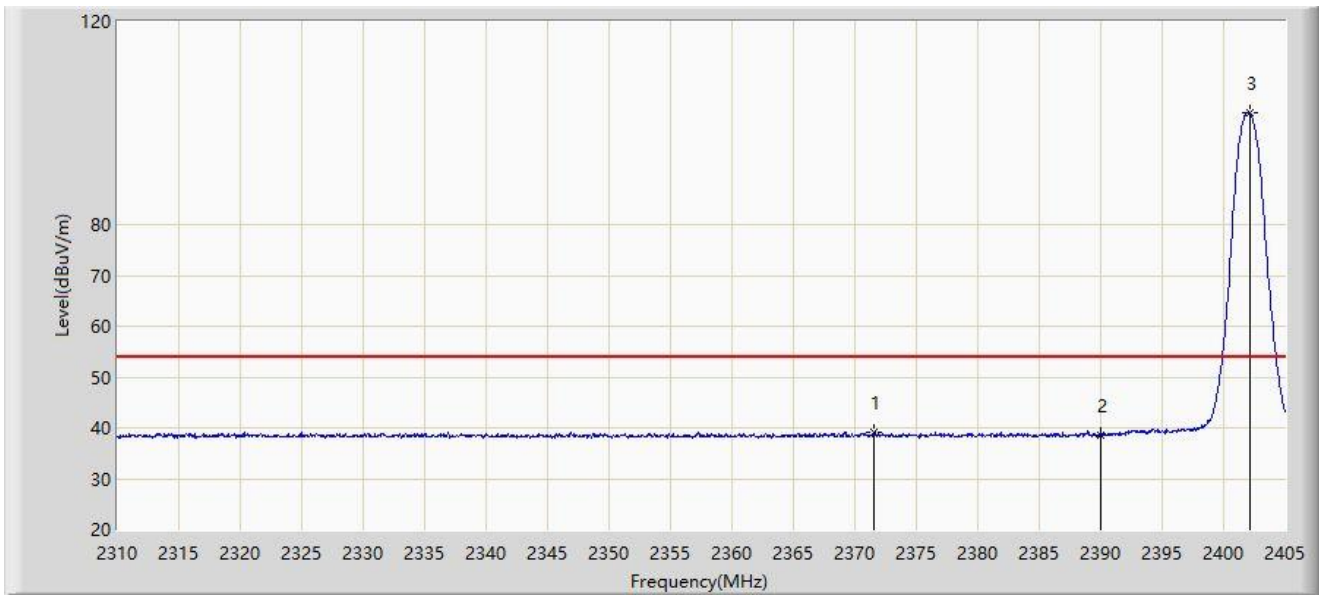


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2370.752	56.609	25.107	-17.391	74.000	31.501	PK
2			2390.000	56.139	24.706	-17.861	74.000	31.433	PK
3		*	2402.008	105.323	73.939	N/A	N/A	31.384	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC2	Time: 2022/04/26 - 13:50
Limit: FCC_2.4G_RE(3m)	Engineer: Charles Zhang
Probe: WZ-AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: LTE Module	Power: DC 3.8V
Test Mode: Transmit by 3DH5 at Channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2371.607	39.035	7.535	-14.965	54.000	31.499	AV
2			2390.000	38.636	7.203	-15.364	54.000	31.433	AV
3		*	2402.150	101.902	70.519	N/A	N/A	31.383	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Appendix B - Test Setup Photograph

Refer to “2204RSU026-UT” file.

Appendix C - EUT Photograph

Refer to “2204RSU026-UE” file.

_____ The End _____