

MRT Technology (Suzhou) Co., Ltd Phone: +86-512-66308358 Web: www.mrt-cert.com

Report No.:2110RSU029-U5 Report Version: V02 Issue Date: 12-22-2021

MEASUREMENT REPORT FCC PART 27

FCC ID: ZMOFM101GL

Applicant: Fibocom Wireless Inc.

- Application Type: Certification
- Product: LTE Module
- Model No.: FM101-GL
- Brand Name: Fibocom
- FCC Rule Part(s): Part 27 Subpart D
- Test Procedure(s): ANSI C63.26: 2015
- Test Date: October 22 ~ November 26, 2021

Reviewed By:

Approved By:



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.26-2015. Test results reported herein relate only to the item(s) tested.

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Revision History

Report No.	Version	Description	Issue Date	Note
2110RSU029-U5	Rev. 01	Initial Report	12-17-2021	Invalid
2110RSU029-U5	Rev. 02	Corrected the calibration date of equipment	12-22-2021	Valid

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1. GENERAL INFORMATION

1.1. Applicant

Fibocom Wireless Inc.

1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan, Shenzhen, China

1.2. Manufacturer

Fibocom Wireless Inc.

1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan, Shenzhen, China

1.3. Testing Facility

\square	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, Lian	do U Valley, No.200	Xingpu Rd., Shengp	u Town, Suzhou Indu	istrial Park, China			
	Laboratory Ac	creditations						
	A2LA: 3628.01		CNAS	S: L10551				
	FCC: CN1166		ISED	: CN0001				
	VCCI:	R -20025	G -20034	C-20020	□T-20020			
	VCCI	R -20141	G-20134	C-20103	□T-20104			
	Test Site – MR	T Shenzhen Labo	oratory					
	Laboratory Loca	ation (Shenzhen)						
	1G, Building A, J	unxiangda Building,	Zhongshanyuan Roa	ad West, Nanshan Di	strict, Shenzhen, China			
	Laboratory Ac	creditations						
	A2LA: 3628.02 CNAS: L10551							
	FCC: CN1284		ISED:	CN0105				
	Test Site – MR	T Taiwan Laborat	tory					
	Laboratory Loca	ation (Taiwan)						
	No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)							
	Laboratory Ac	creditations						
	TAF: L3261-1907	725						
	FCC: 291082, TV	V3261	ISED:	TW3261				



2. PRODUCT INFORMATION

2.1. Product Information

Product Name	LTE Module
Model No.	FM101-GL
Brand Name	Fibocom
IMEI	Conducted Measurement: 861023050011477 & 861023050010677
	Radiated Measurement: 861023050010610 & 861023050010677
Operating Temperature	-10 ~ 55 °C
Power Type	3.135 ~ 4.4Vdc, typical 3.3Vdc
Antenna Information	Refer to Section 2.3
UMTS Specification	
Single Band	Band 2, 4, 5
Modulation	Uplink up to 16QAM, Downlink up to 64QAM
E-UTRA Specification	
Single Band	Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 30, 38, 41, 48, 66, 71
HPUE Band	Band 41
Modulation	Uplink up to 16QAM, Downlink up to 64QAM

Note: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.

2.2. Radio Specification under Test

FDD T _X Frequency Range	Band 30: 2305 ~ 2315 MHz
FDD R _x Frequency Range	Band 30: 2350 ~ 2360 MHz

Note: For other features of this EUT, test reports will be issued separately.



Technology	Frequency Range (MHz)	Antenna Type	Max Peak Gain (dBi)
LTE Band 2	1850 ~ 1910		4.00
LTE Band 4	1710 ~ 1755		3.00
LTE Band 5	824 ~ 849		3.00
LTE Band 7	2500 ~ 2570		4.00
LTE Band 12	699 ~ 716		3.00
LTE Band 13	777 ~ 787		3.00
LTE Band 14	788 ~ 798		3.00
LTE Band 17	704 ~ 716		3.00
LTE Band 25	1850 ~ 1915	PIFA	4.00
LTE Band 26	814 ~ 849		3.00
LTE Band 30	2305 ~ 2315		1.00
LTE Band 38	2570 ~ 2620		4.00
LTE Band 41	2500 ~ 2690		4.00
LTE Band 48	3550 ~ 3700		1.00
LTE Band 66	1710 ~ 1780		3.00
LTE Band 71	663 ~ 698		3.00

2.3. Description of Available Antennas

2.4. Test Methodology

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

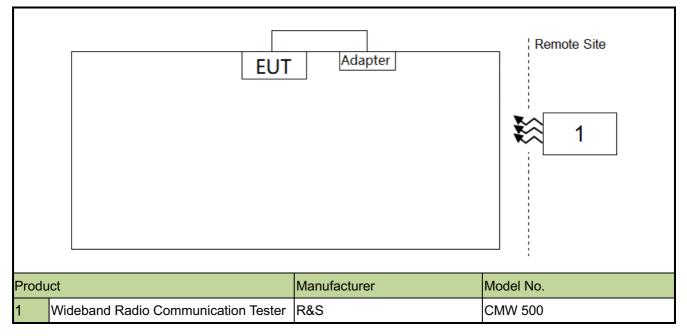
- ANSI C63.26:2015
- FCC CFR 47 Part 27
- FCC KDB 971168 D01 v03r01: Power Meas License Digital Systems
- FCC KDB 971168 D02 v02r01: Misc Rev Approv License Devices
- FCC KDB 412172 D01 v01r01: Determining ERP and EIRP

2.5. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.



2.6. Configuration of Tested System



2.7. Test Environment Condition

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



3. TEST EQUIPMENT CALIBRATION DATE

Instrument Name	Manufacturer	Model No.	Asset No.	Cali. Interval	Cal. Due Date	Test Site
Communication Tester	R&S	CMU 200	MRTSUE06009	1 year	2022/9/7	SIP-SR1
Communication Tester	R&S	CMW500	MRTSUE06243	1 year	2022/10/10	SIP-SR1
Signal Generator	Keysight	E8257D	MRTSUE06453	1 year	2022/6/24	SIP-SR1
Thermohygrometer	testo	622	MRTSUE06629	1 year	2021/11/25	SIP-SR1
Thermohygrometer	testo	622	MRTSUE06629	1 year	2022/11/2	SIP-SR1
Signal Generator	Keysight	E8257D	MRTSUE06904	1 year	2021/12/8	SIP-SR1
DC POWER MODULE	Keysight	N6743B	MRTSUE06905	/	1	SIP-SR1
DC POWER MODULE	Keysight	N6743B	MRTSUE06906	/	/	SIP-SR1
Low-Profile Modular Power System Mainframe	Keysight	N6700C	MRTSUE06907	/	/	SIP-SR1
Signal Analyzer	Keysight	N9021B	MRTSUE06915	1 year	2022/1/18	SIP-SR1
Temperature Chamber	BAOYT	BYG-80CL	MRTSUE06932	1 year	2022/3/16	SIP-SR1
Shielding Room	MIX-BEP	SIP-SR1	MRTSUE06948	1	1	SIP-SR1
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2022/1/12	SIP-AC2
Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2022/6/24	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06599	1 year	2022/10/20	SIP-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2022/10/11	SIP-AC2
Thermohygrometer	testo	608-H1	MRTSUE06623	1 year	2021/12/3	SIP-AC2
Thermohygrometer	testo	608-H1	MRTSUE06624	1 year	2021/12/3	SIP-AC2
Preamplifier	EMCI	EMC051845SE	MRTSUE06644	1 year	2021/11/9	SIP-AC2
Preamplifier	EMCI	EMC051845SE	MRTSUE06644	1 year	2022/11/8	SIP-AC2
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06647	1 year	2022/8/5	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06648	1 year	2021/11/26	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06648	1 year	2022/11/9	SIP-AC2
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2021/12/24	SIP-AC2

Software	Version	Function
EMI Software	V3	EMI Test Software



4. 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 Spurious Emissions
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):
Horizontal: 9kHz ~ 300MHz: 5.04dB
300MHz ~ 1GHz: 4.95dB
1GHz ~ 40GHz: 6.40dB
Vertical: 9kHz ~ 300MHz: 5.24dB
300MHz ~ 1GHz: 6.03dB
1GHz ~ 40GHz: 6.40dB
Conducted Spurious Emissions
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):
0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):
1.13dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):
0.28%
Frequency Stability
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):
76.2Hz



5. TEST RESULT

5.1. Summary

FCC Part	Test	Test	Test	Test	Reference
Section(s)	Description	Limit	Condition	Result	
2.1049	Occupied Bandwidth	N/A		Pass	Section 5.2
2.1055, 27.54	Frequency Stability	Within the band		Pass	Section 5.3
27.50(a)(3)	Equivalent Radiated Power	< 250mW/5MHz	Conducted	Pass	Section 5.4
2.1051, 27.53(a)(4)	Band Edge	Refer to section 5.5		Pass	Section 5.5
2.1051, 27.53(a)(4)	Spurious Emission	<70 + 10log10 (P[watts])		Pass	Section 5.6
2.1053, 27.53(a)(4)	Spurious Emission	<70 + 10log10 (P[_{Watts}])	Radiated	Pass	Section 5.7

Notes:

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

 All supported modulation types were evaluated. The worst-case emission of modulation was selected. Therefore, the Frequency Stability, Occupied Bandwidth, Channel Band Edge, Radiated & Conducted Spurious Emission were presented worst-case in the test report.



5.2. Occupied Bandwidth Measurement

5.2.1.Test Limit

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

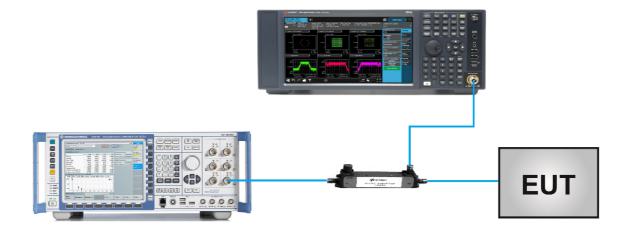
5.2.2.Test Procedure

ANSI C63.26-2015 - Section 5.4

5.2.3.Test Setting

- 1. Set center frequency to the nominal EUT channel center frequency
- 2. RBW = The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW
- 3. VBW \geq 3 × RBW
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep = auto couple
- 7. Allow the trace to stabilize
- 8. Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

5.2.4.Test Setup

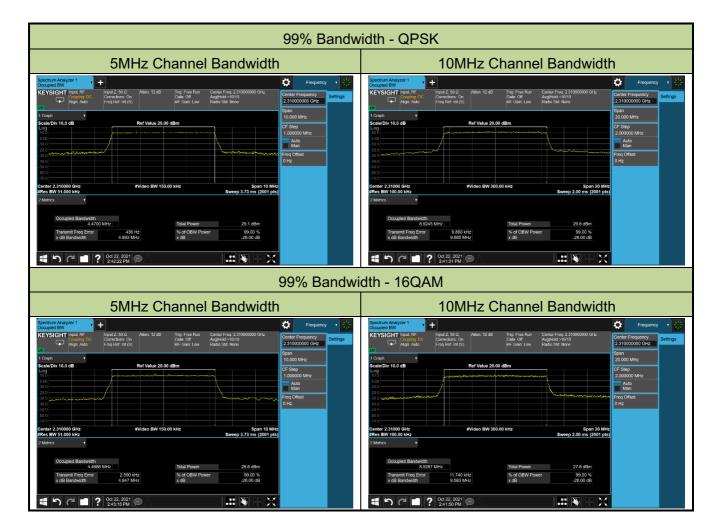




5.2.5.Test Result

Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/10/22
Test Band	LTE Band 30		

Modulation	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
	0040	5	4.47
QPSK	2310	10	8.92
400414	0040	5	4.47
16QAM	2310	10	8.93





5.3. Frequency Stability Measurement

5.3.1.Test Limit

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

5.3.2.Test Procedure

ANSI C63.26-2015 - Section 5.6

5.3.3.Test Setting

Frequency Stability Under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the inputvoltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.



5.3.4.Test Setup





5.3.5.Test Result

Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/11/11
Test Band	LTE Band 30		

Power (Vdc)	Temp. (°C)	Frequency Tolerance (ppm)
	- 30	0.0057
	- 20	0.0071
	- 10	0.0055
	0	0.0059
3.3	+ 10	0.0058
	+ 20	0.0058
	+ 30	-0.0052
	+ 40	0.0064
	+ 50	0.0061
4.4	+ 20	0.0063
3.135	+ 20	0.0063



5.4. Equivalent Isotropically Radiated Power Measurement

5.4.1.Test Limit

For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP L TE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth

5.4.2.Test Procedure

ANSI C63.26-2015 - Section 5.2.4.4.2 & 5.2.5.5

5.4.3.Test Setting

When the fundamental condition for average power measurements cannot be realized (i.e., the EUT can not be configured to transmit at full-power on a continuous basis (i.e., duty cycle < 98%) and the instrumentation cannot be configured to measure only during active full-power transmissions), then the following procedure can be used if the EUT duty cycle is constant (i.e., duty cycle variations are less thanor equal to $\pm 2\%$).

- a) Set span to 2 × to 3 × the OBW.
- b) Set RBW = 1% to 5% of the OBW.
- c) Set VBW \geq 3 × RBW.
- d) Set number of measurement points in sweep $\ge 2 \times \text{span} / \text{RBW}$.
- e) Sweep time:
- 1) Set = auto-couple, or
- 2) Set \geq [10 × (number of points in sweep) × (transmission symbol period)] for single sweep (automation-compatible) measurement.
- f) Detector = power averaging (rms).
- g) Set sweep trigger to "free run."

h) Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple.
To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.



i) Using the marker function to identify the maximum PSD.

j) Add 10 log (1/duty cycle) to the measured power level to compute the average power during continuous transmission. For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is a constant 25%.

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

ERP or EIRP = $P_{Meas} + G_T$

(1)

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively

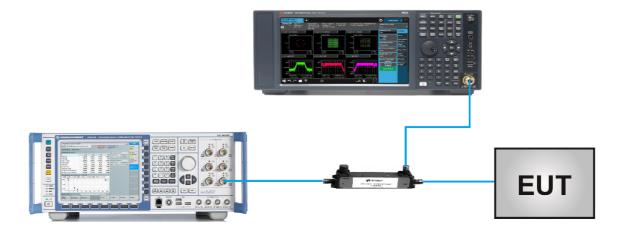
(expressed in the same units as P_{Meas}, e.g., dBm or dBW)

 P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

For devices utilizing multiple antennas, see 6.4 for guidance with respect to determining the effective array transmit antenna gain term to be used in the above equation.

5.4.4.Test Setup





5.4.5.Test Result

Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/10/22

Channel	Frequency	Channel	RB	RB	Power	EIRP	Limit
No.	(MHz)	Bandwidth	Size	Offset	Density	Density	(dBm
		(MHz)			(dBm/5MHz)	(dBm/5MHz)	/5MHz)
QPSK							
27685	2307.5				19.59	20.59	< 23.98
27710	2310.0	5	25	0	19.57	20.57	< 23.98
27735	2312.5				19.73	20.73	< 23.98
27710	2310.0	10	50	0	17.96	18.96	< 23.98
16QAM	16QAM						
27685	2307.5				18.81	19.81	< 23.98
27710	2310.0	5	25	0	18.75	19.75	< 23.98
27735	2312.5				18.82	19.82	< 23.98
27710	2310.0	10	50	0	17.11	18.11	< 23.98
Note: The I	EIRP Density	(dBm/5MHz) :	= Power D	ensity (dBr	n/5MHz) + Ante	enna Gain (dBi)	



5.5. Band Edge Measurement

5.5.1.Test Limit

For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360MHz bands: (1) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz; (2) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz,

55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;

(3) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

5.5.2.Test Procedure

ANSI C63.26-2015 - Section5.7

5.5.3.Test Setting

- 1. Set the analyzer frequency to low or high channel
- 2. RBW ≥ The nominal RBW shall be in the range of 1% of the anticipated OBW (in the 1MHz band immediately outside and adjacent to the band edge). For improvement of the accuracy in the measurement of the average power of a noise-like emission, a RBW narrower than the specified reference bandwidth can be used (generally limited to no less than 1% of the OBW), provided that a subsequent integration is performed over the full required measurement bandwidth. This integration should be performed using the spectrum analyzer's band power functions.
- 3. VBW ≥ 3*RBW
- 4. Sweep time = auto
- 5. Detector = power averaging (rms)
- 6. Set sweep trigger to "free run."
- 7. User gate triggered such that the analyzer only sweeps when the device is transmitting at full



power

8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

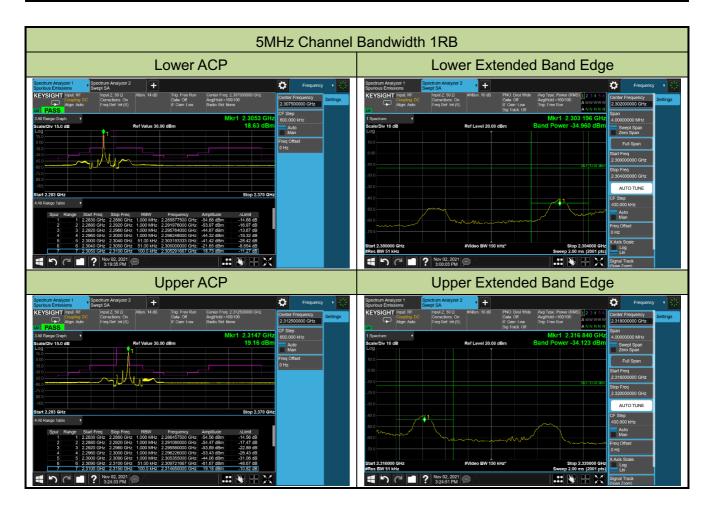
5.5.4.Test Setup



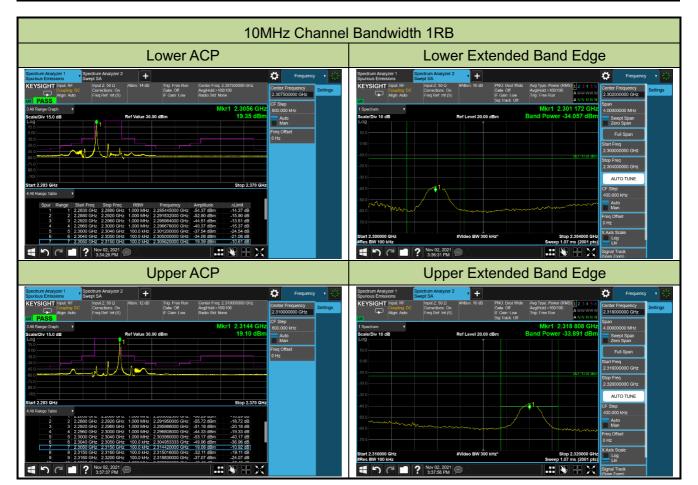


5.5.5.Test Result

Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/11/02
Test Band	LTE Band 30_QPSK		













5.6. Conducted Spurious Emission Measurement

5.6.1.Test Limit

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10thharmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 70 + 10 log (P) dB.

5.6.2.Test Procedure

ANSI C63.26-2015 - Section 5.7

5.6.3.Test Setting

- 1. Set the analyzer frequency to low, mid, high channel.
- 2. RBW = 1MHz
- 3. VBW ≥ 3*RBW
- 4. Sweep time = auto
- 5. Detector = power averaging (rms)
- 6. Set sweep trigger to "free run."
- 7. User gate triggered such that the analyzer only sweeps when the device is transmitting at full power.
- 8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.



5.6.4.Test Setup





5.6.5.Test Result

Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/11/26
Test Band	LTE Band 30_QPSK		

Channel	Frequency	Channel	Frequency	Max Spurious	Limit	Result
	(MHz)	Bandwidth	Range	Emissions	(dBm)	
		(MHz)	(MHz)	(dBm)		
27685	2307.5	5	30 ~ 25000	-44.53	≤ -40.00	Pass
27710	2310.0	5	30 ~ 25000	-43.63	≤ -40.00	Pass
27735	2312.5	5	30 ~ 25000	-44.06	≤ -40.00	Pass
27710	2310.0	10	30 ~ 25000	-43.17	≤ -40.00	Pass

Note: Spurious emissions within 9kHz - 30MHz were found more than 20dB below limit line.



5MHz Chann	el Bandwidth		
Low Channel	Middle Channel		
Stock and Adalysis 1 Sportum Adalysis 1 Image: Control Stock 2005 00000 GHz Proceedings Image: Control Stock 2005 0000 GHz Im	Stockum Analyzer 1 Sportus Frequency Sportus Frequency Mar: 10:38 Image: 10:38 Carrie Freq: 2:3000000 GHz Applied: 10:0000 GHz Status Endow Carrie Freq: 2:3000000 GHz Applied: 10:0000 GHz Status Endow Carrie Freq: 2:3000000 GHz Applied: 10:000 GHz Status Endow Carrie Freq: 2:3000000 GHz Applied: 10:000 GHz Status Endow Carrie Freq: 2:3000000 GHz Status Endow Carrie Freq: 2:300000 GHz Status Endow Carrie Freq: 2:30000 GHz Status Endow Carrie Freq: 2:300000 GHz Status Endow Carrie Freq: 2:30000 GHz Status Endow Carrie Freq: 2:300000 GHz Status Endow Carrie Freq: 2:300000 GHz Status Endow Carrie Freq: 2:300000 GHz Status Endow Carrie Freq: 2:30000 GHz Status Endow Carrie Freq: 2:30000 GHz Status Endow Carrie Freq: 2:30000 GHz Status Endow Carrie Freq: 2:300000 GHz Status Endow Carri		
Bight Debatane			







5.7. Radiated Spurious Emission Measurement

5.7.1.Test Limit

Out of band emissions: The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 70 + 10 log (P) dB.

E (dB μ V/m) = EIRP (dBm) - 20 log D + 104.8; where D is the measurement distance in meters. The emission limit equal to 55.3dB μ V/m.

5.7.2.Test Procedure

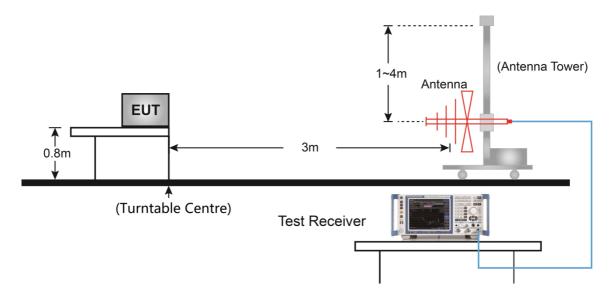
ANSI C63.26-2015 - Section 5.2.7 & 5.5

5.7.3.Test Setting

- 1. RBW = 1MHz
- 2. VBW ≥ 3*RBW
- 3. Sweep time \geq 10 × (number of points in sweep) × (transmission symbol period)
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. The trace was allowed to stabilize

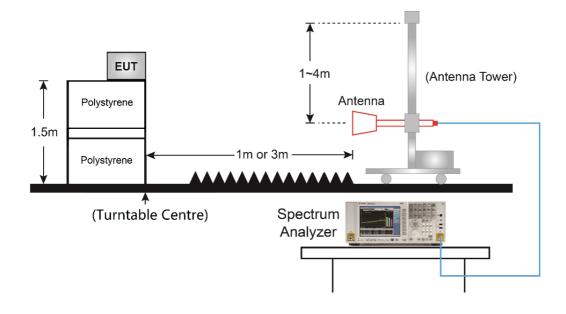
5.7.4.Test Setup

Below 1GHz Test Setup:





Above 1GHz Test Setup:





5.7.5.Test Result

Product	LTE Module	Test Site	SIP-AC2
Test Engineer	Allen Zou	Test Date	2021/11/12
Test Band	LTE Band 30_5MHz_1RB_QPSK		

Frequency	Reading Level	Factor	Measure	Limit	Margin	Detector	Polarization
(MHz)	(dBµV)	(dB/m)	Level(dBµV/m)	(dBµV/m)	(dB)		
Low Channel							
67.3	16.4	16.9	33.3	55.3	-22.0	Peak	Horizontal
992.7	2.9	31.2	34.1	55.3	-21.2	Peak	Horizontal
30.0	20.7	16.9	37.6	55.3	-17.7	Peak	Vertical
66.9	20.6	17.0	37.6	55.3	-17.7	Peak	Vertical
3771.0	51.4	-12.5	38.9	55.3	-16.4	Peak	Horizontal
4740.0	51.7	-10.7	41.0	55.3	-14.3	Peak	Horizontal
4621.0	51.3	-11.0	40.3	55.3	-15.0	Peak	Vertical
9219.5	50.1	-5.8	44.3	55.3	-11.0	Peak	Vertical
Middle Channel							
66.9	16.5	17.0	33.5	55.3	-21.8	Peak	Horizontal
337.0	12.0	19.9	31.9	55.3	-23.4	Peak	Horizontal
30.0	20.8	16.9	37.7	55.3	-17.6	Peak	Vertical
66.4	20.5	17.1	37.6	55.3	-17.7	Peak	Vertical
5037.5	50.7	-10.2	40.5	55.3	-14.8	Peak	Horizontal
7128.5	49.6	-7.7	41.9	55.3	-13.4	Peak	Horizontal
5148.0	51.2	-10.0	41.2	55.3	-14.1	Peak	Vertical
6542.0	50.7	-8.6	42.1	55.3	-13.2	Peak	Vertical
High Channel							
66.9	16.4	17.0	33.4	55.3	-21.9	Peak	Horizontal
964.1	2.9	30.6	33.5	55.3	-21.8	Peak	Horizontal
30.0	20.3	16.9	37.2	55.3	-18.1	Peak	Vertical
66.4	17.8	17.1	34.9	55.3	-20.4	Peak	Vertical
4298.0	51.2	-11.4	39.8	55.3	-15.5	Peak	Horizontal
4995.0	51.5	-10.3	41.2	55.3	-14.1	Peak	Horizontal
4119.5	51.6	-11.8	39.8	55.3	-15.5	Peak	Vertical
5760.0	51.3	-9.5	41.8	55.3	-13.5	Peak	Vertical
Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m).							
Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)							



6. CONCLUSION

The data collected relate only the item(s) tested and show that unitis compliance with FCC Rules.



Appendix A - Test Setup Photograph

Refer to "2110RSU029-UT" file.



Appendix B - EUT Photograph

Refer to "2110RSU029-UE" file.