



MEASUREMENT REPORT

FCC PART 2 & 22 & 24

FCC ID: ZMOMC610LA

Application: Fibocom Wireless Inc.

Application Type: Certification

Product: LTE Module

Model No.: MC610-LA

Brand Name: Fibocom

FCC Rule Part(s): Part 2, 22 (H), 24 (E)

Test Procedure(s): ANSI C63.26: 2015

Test Date: July 19 ~ 27, 2021

Reviewed By:

Jame Yuan

Approved By:

Robin Wu



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.

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
2107RSU045-U1	Rev. 01	Initial Report	08-02-2021	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

☒	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-20140
☐	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 2 nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
	Laboratory Accreditations
	TAF: L3261-190725 FCC: 291082, TW3261 ISED: TW3261

2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	LTE Module
Model No.	MC610-LA
Brand Name	Fibocom
Hardware Version	V1.3
Software Version	16000.1000.00.96.12.02
IMEI	860369050012085
Operating Temperature	-30 ~ 75 °C
Operation Voltage	3.4 ~ 4.2V
Bluetooth Specification	V4.2 (Single mode)
Wi-Fi Specification	802.11b (Receive only)
GSM Specification	GSM 850, PCS 1900
LTE Cat1.bis Specification	FDD Band: 2, 4, 5, 7, 66

2.2. Radio Specification under Test

GSM Specification	
Single Band	GSM 850, PCS 1900
Modulation	GMSK
GPRS Category	Multi-slot class 12
Antenna Information	Refer to section 2.3

Note 1: For other features of this EUT, test report will be issued separately.

Note 2: 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.

2.3. Antennas details

Technology	Frequency Range (MHz)	Antenna Type	Max Peak Gain (dBi)
GSM 850	824 ~ 849	External	1.5
PCS 1900	1850 ~ 1910		0.9

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 22, Part 24
- 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

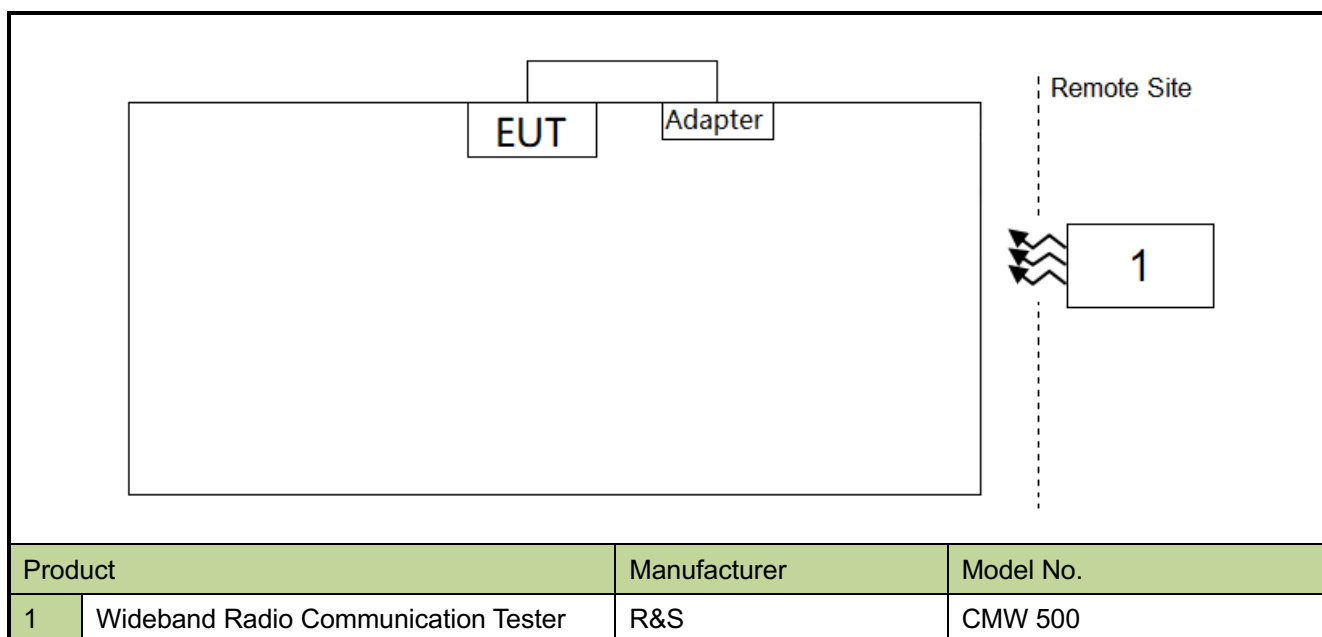
2.5. EMI Suppression Device(s)/Modifications

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

2.6. Maximum Power, Frequency Tolerance and Emission Designator

System	Modulation	Maximum Power (W)	Frequency Tolerance (ppm)	Emission Designator
GSM 850	GMSK	1.7660	-0.0209	242KGXW
GPRS 850	GMSK	1.7989	-0.0239	239KGXW
PCS 1900	GMSK	1.0889	-0.0101	240KGXW
GPRS 1900	GMSK	1.0990	-0.0100	236KGXW

2.7. Configuration of Tested System



2.8. Test Environment Condition

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

3. TEST EQUIPMENT CALIBRATION DATE

Conducted Emission (WZ-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2022/01/12
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2021/09/09
Thermal Hygrometer	testo	608-H1	MRTSUE06404	1 year	2022/06/28

Conducted Emission (SIP-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2022/06/24
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2021/09/09
Thermal Hygrometer	testo	608-H1	MRTSUE06621	1 year	2021/12/03

Radiated Emission (WZ-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2022/01/04
PXA Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2021/08/30
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2021/08/08
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2021/09/27
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06597	1 year	2021/12/14
Preamplifier	Agilent	83017A	MRTSUE06076	1 year	2021/11/14
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/09
Thermal Hygrometer	testo	608-H1	MRTSUE06403	1 year	2022/06/28
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2022/04/29

Radiated Emission (WZ-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXE EMI Receiver	Keysight	N9038A	MRTSUE06125	1 year	2022/06/24
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2022/05/24
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06171	1 year	2021/10/25
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06597	1 year	2021/12/14
Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2021/11/14
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/09
Thermal Hygrometer	Minggao	ETH529	MRTSUE06170	1 year	2021/12/08
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2022/04/29

Radiated Emission (SIP-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2022/06/24
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2022/06/24
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06645	1 year	2021/08/30
Horn Antenna	R&S	HF907	MRTSUE06610	1 year	2021/08/30
Preamplifier	EMCI	EMC051845SE	MRTSUE06600	1 year	2021/11/12
Thermal Hygrometer	testo	608-H1	MRTSUE06620	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC1	MRTSUE06554	1 year	2021/12/24

Radiated Emission (SIP-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2022/06/24
MXA Signal Analyzer	Keysight	N9020B	MRTSUE06604	1 year	2021/09/26
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06646	1 year	2021/08/30
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06648	1 year	2021/11/26
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06599	1 year	2021/11/26
Preamplifier	EMCI	EMC051845SE	MRTSUE06644	1 year	2021/11/12
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2021/10/13
Thermal Hygrometer	testo	608-H1	MRTSUE06624	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2021/12/24

Radiated Emission (SIP-AC3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2022/06/24
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2022/06/24
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06647	1 year	2021/08/08
Horn Antenna	R&S	HF907	MRTSUE06611	1 year	2021/09/13
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06598	1 year	2021/11/26
Preamplifier	EMCI	EMC012645SE	MRTSUE06642	1 year	2022/01/14
Preamplifier	EMCI	EMC184045SE	MRTSUE06641	1 year	2022/01/14
Thermal Hygrometer	testo	608-H1	MRTSUE06622	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC3	MRTSUE06782	1 year	2021/12/24

Conducted Test Equipment (WZ-TR3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2022/04/13
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2022/01/07
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2022/04/13
USB Power Sensor	Agilent	U2021XA	MRTSUE06030	1 year	2021/10/22
USB Power Sensor	Keysight	U2021XA	MRTSUE06446	1 year	2021/08/30
USB Power Sensor	Keysight	U2021XA	MRTSUE06447	1 year	2021/08/08
Bluetooth Test Set	Anritsu	MT8852B	MRTSUE06389	1 year	2022/06/08
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2022/05/19
Modulation Analyzer	HP	HP8901A	MRTSUE06098	1 year	2021/09/26
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2021/10/20
Attenuator	MVE	3dB	MRTSUE06529	1 year	2021/12/12
Attenuator	MVE	6dB	MRTSUE06534	1 year	2021/12/12
Attenuator	MVE	10dB	MRTSUE06540	1 year	2021/12/12
Attenuator	MVE	20dB	MRTSUE06547	1 year	2021/12/12
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2021/10/22
Thermal Hygrometer	testo	608-H1	MRTSUE06401	1 year	2022/06/28

Conducted Test Equipment (SIP-SR5)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2022/04/13
PXA Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2021/08/30
USB Power Sensor	Agilent	U2021XA	MRTSUE06595	1 year	2021/09/26
USB Power Sensor	Agilent	U2021XA	MRTSUE06596	1 year	2021/09/26
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2021/10/20
Bluetooth Test Set	Anritsu	MT8852B	MRTSUE06389	1 year	2022/06/08
Attenuator	MVE	3dB	MRTSUE06530	1 year	2021/12/12
Attenuator	MVE	6dB	MRTSUE06535	1 year	2021/12/12
Attenuator	MVE	10dB	MRTSUE06541	1 year	2021/12/12
Attenuator	MVE	20dB	MRTSUE06548	1 year	2021/12/12
Temperature Chamber	BAOYT	BYG-408CS	MRTSUE06847	1 year	2022/02/23
Thermal Hygrometer	testo	622	MRTSUE06629	1 year	2021/11/25

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% ($U=2U_c(y)$): 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% ($U=2U_c(y)$): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 1.13dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 0.28%
Frequency Stability
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 76.2Hz

5. TEST RESULT

5.1. Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A	Conducted	Pass	Section 5.2
2.1055, 22.355 24.235	Frequency Stability	< 2.5 ppm		Pass	Section 5.3
22.913(a)(5)	Equivalent Radiated Power	< 7 Watts Max ERP		Pass	Section 5.4
24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts Max EIRP		Pass	Section 5.4
2.1051, 22.917(a) 24.238(a)	Band Edge	< 43 + 10log ₁₀ (P _[Watts])		Pass	Section 5.5
2.1051, 22.913(d) 24.232(d)	Peak to Average Ratio	< 13dB		Pass	Section 5.6
2.1053, 22.917(a) 24.238(a)	Spurious Emission	< 43 + 10log ₁₀ (P _[Watts])	Radiated	Pass	Section 5.7
2.1053, 22.917(a) 24.238(a)	Spurious Emission	< 43 + 10log ₁₀ (P _[Watts])		Pass	Section 5.8

Note 1: 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.

Note 2: All supported modulation types were evaluated. The worst-case emission of modulation was selected.

Therefore, the Frequency Stability, 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.

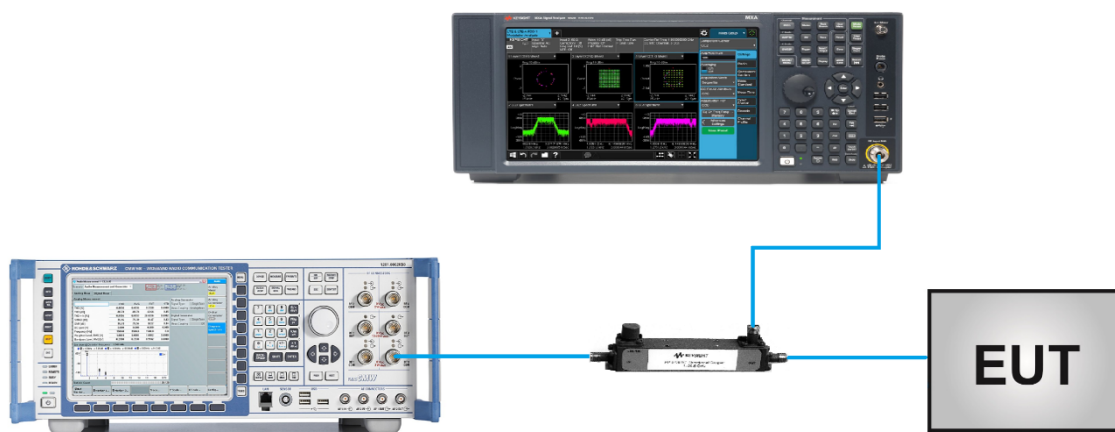
5.2.2. Test Procedure

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. $VBW \geq 3 \times RBW$
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.

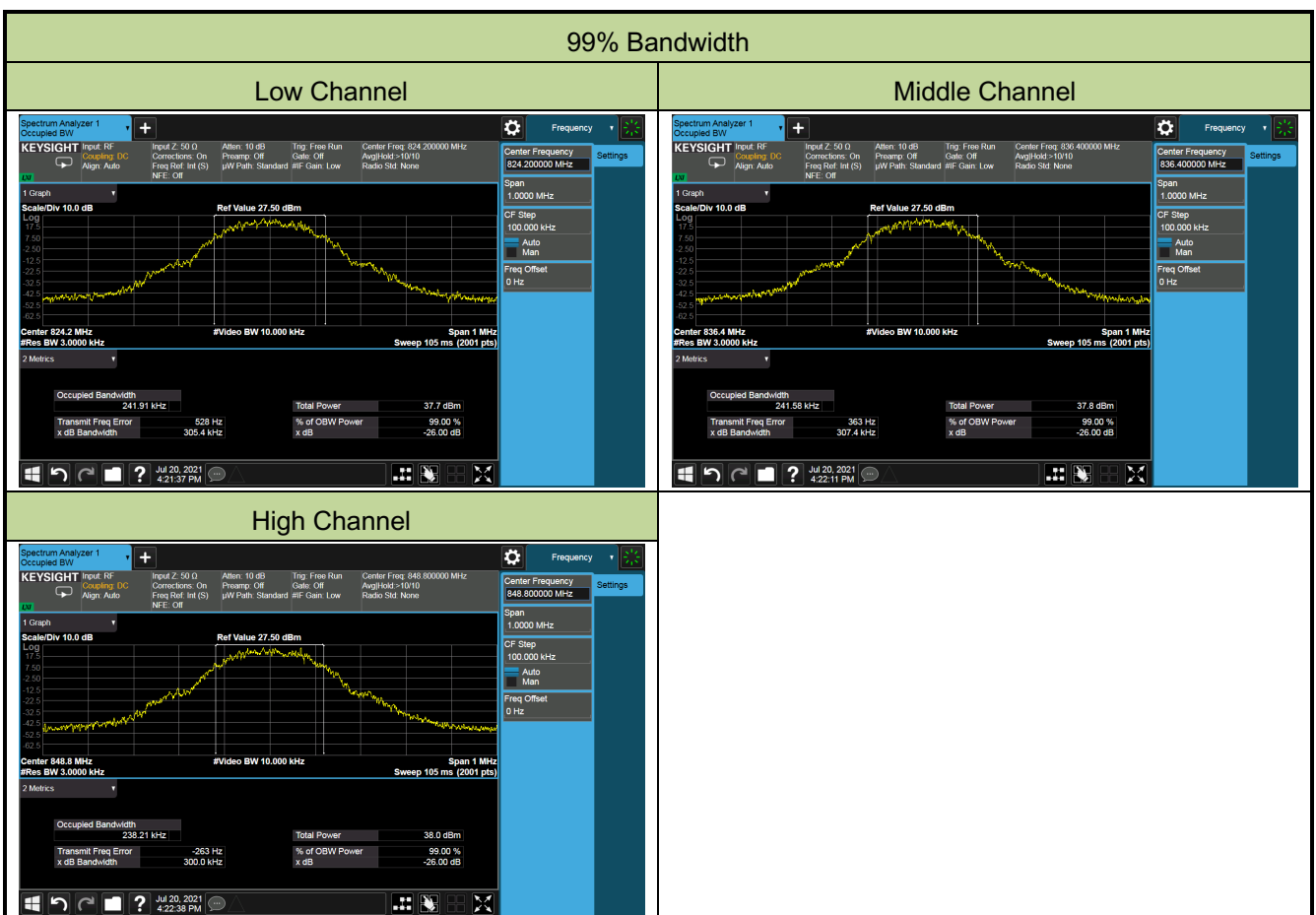
5.2.4. Test Setup



5.2.5. Test Result

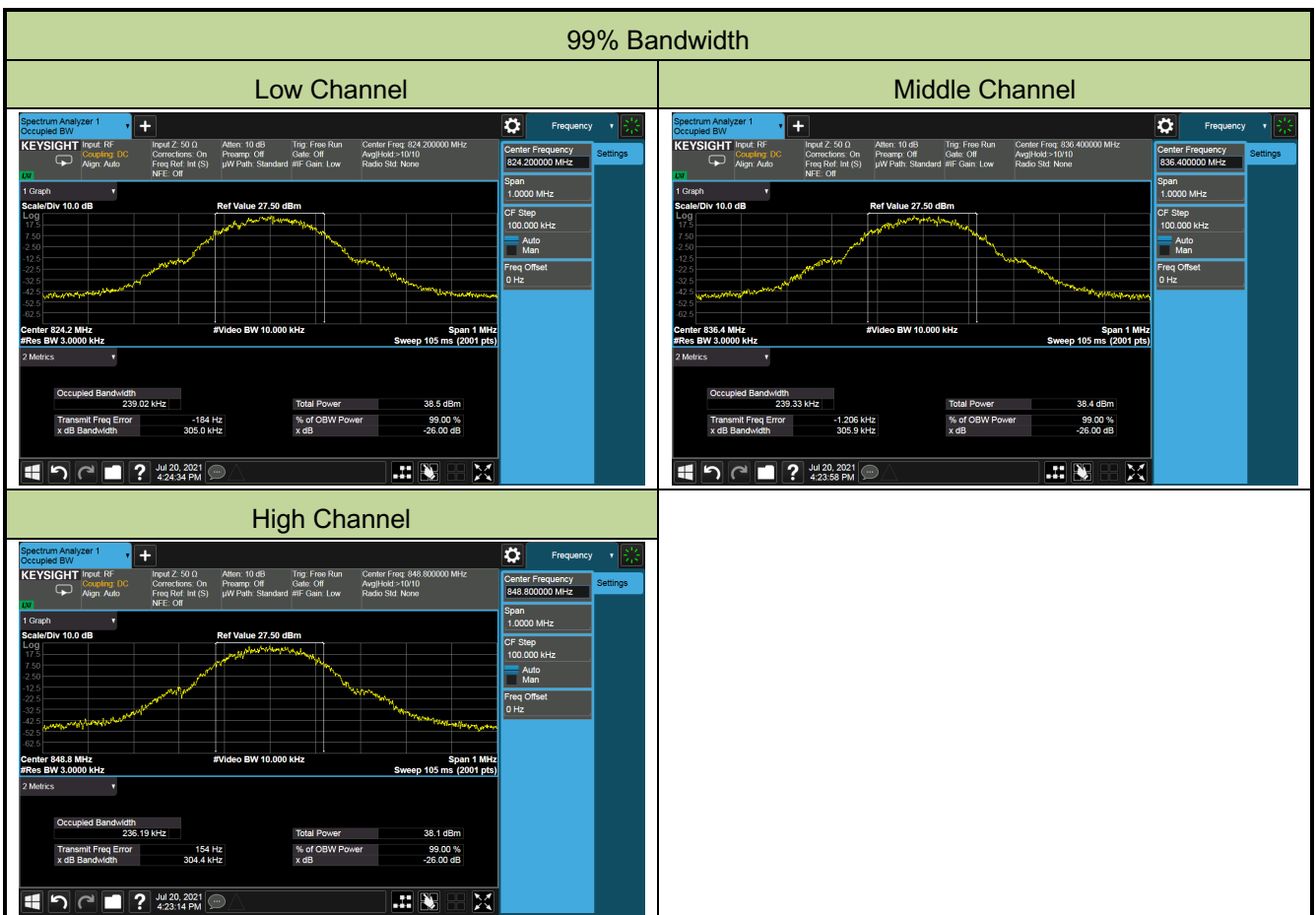
Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/07/20
Test Band	GSM 850		

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	824.2	0.242
Middle	836.4	0.242
High	848.8	0.238



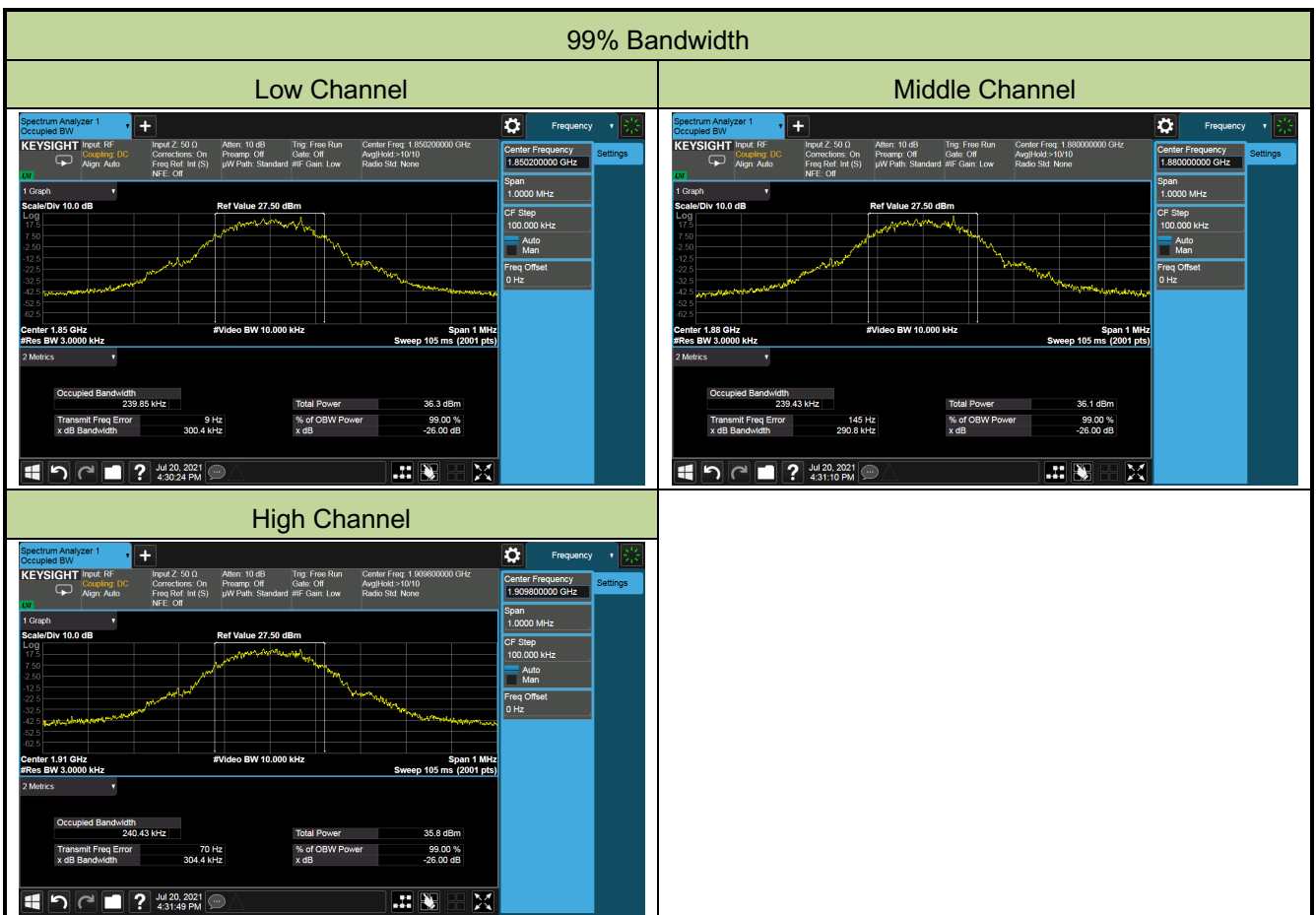
Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/07/20
Test Band	GPRS 850		

Channel	Frequency (MHz)	99% Bandwidth (kHz)
Low	824.2	0.239
Middle	836.4	0.239
High	848.8	0.236



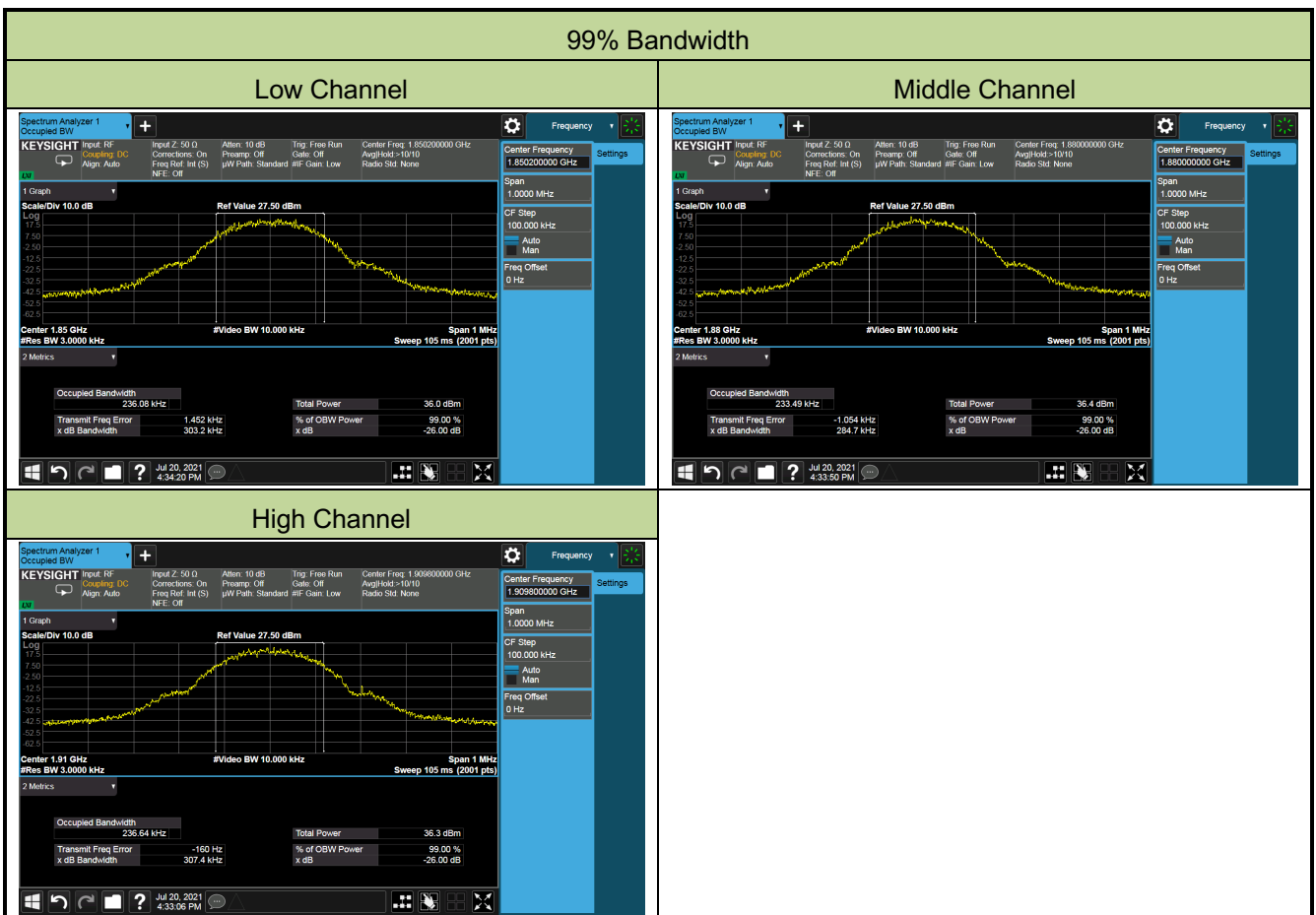
Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/07/20
Test Band	PCS 1900		

Channel	Frequency (MHz)	99% Bandwidth (kHz)
Low	1850.2	0.240
Middle	1880.0	0.239
High	1909.8	0.240



Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/07/20
Test Band	GPRS 1900		

Channel	Frequency (MHz)	99% Bandwidth (kHz)
Low	1850.2	0.236
Middle	1880.0	0.233
High	1909.8	0.236



5.3. Frequency Stability Measurement

5.3.1. Test Limit

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

5.3.2. Test Procedure

ANSI C63.26-2015 - Section 5.6

5.3.3. Test Setting

Frequency Stability Under Temperature Variations:

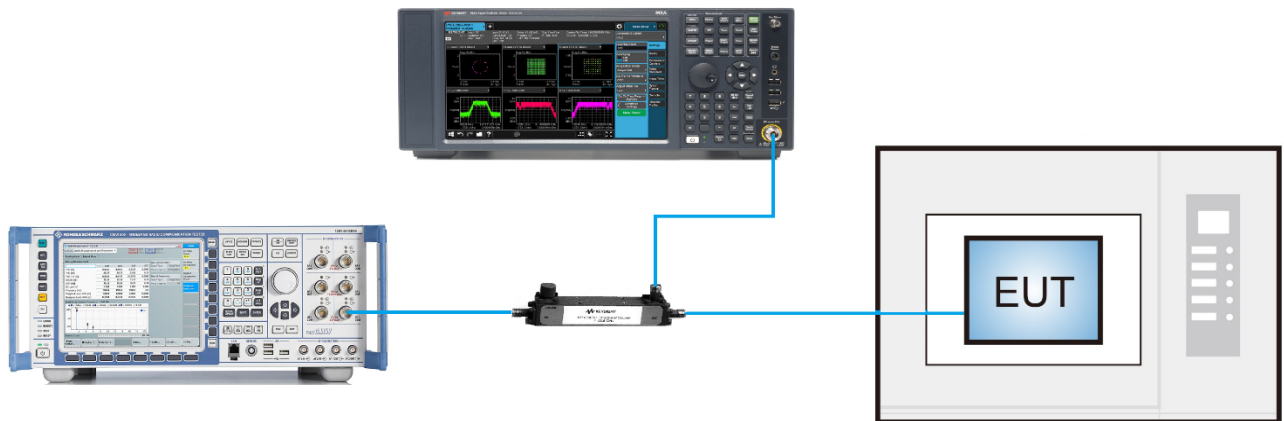
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to High. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the Low 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 input voltage to specify extreme voltage variation ($\pm 15\%$) 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	2021/07/22
Test Band	GSM 850		

Power (Vdc)	Temp. (°C)	Frequency Tolerance (ppm)
3.8	- 30	0.0120
	- 20	0.0022
	- 10	-0.0031
	0	-0.0023
	+ 10	-0.0042
	+ 20	-0.0076
	+ 30	-0.0061
	+ 40	-0.0056
	+ 50	-0.0209
4.2	+ 20	-0.0076
3.4	+ 20	-0.0059

Note: Normal Voltage =3.8V

Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/07/22
Test Band	GPRS 850		

Power (Vdc)	Temp. (°C)	Frequency Tolerance (ppm)
3.8	- 30	0.0167
	- 20	0.0043
	- 10	-0.0023
	0	-0.0049
	+ 10	-0.0070
	+ 20	-0.0065
	+ 30	-0.0023
	+ 40	-0.0070
	+ 50	-0.0239
4.2	+ 20	-0.0088
3.4	+ 20	-0.0055

Note: Normal Voltage =3.8V

Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/07/22
Test Band	PCS 1900		

Power (Vdc)	Temp. (°C)	Frequency Tolerance (ppm)
3.8	- 30	0.0068
	- 20	-0.0026
	- 10	-0.0044
	0	-0.0073
	+ 10	-0.0079
	+ 20	-0.0096
	+ 30	-0.0081
	+ 40	-0.0100
	+ 50	-0.0025
4.2	+ 20	-0.0101
3.4	+ 20	-0.0090

Note: Normal Voltage =3.8V

Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/07/22
Test Band	GPRS 1900		

Power (Vdc)	Temp. (°C)	Frequency Tolerance (ppm)
3.8	- 30	0.0096
	- 20	0.0031
	- 10	-0.0027
	0	-0.0082
	+ 10	-0.0083
	+ 20	-0.0068
	+ 30	-0.0091
	+ 40	-0.0074
	+ 50	-0.0016
4.2	+ 20	-0.0100
3.4	+ 20	-0.0069

Note: Normal Voltage =3.8V

5.4. Equivalent Isotropically Radiated Power Measurement

5.4.1. Test Limit

PCS1900:

Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

GSM 850:

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

5.4.2. Test Procedure

ANSI C63.26-2015 - Section 5.2

5.4.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

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

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

where

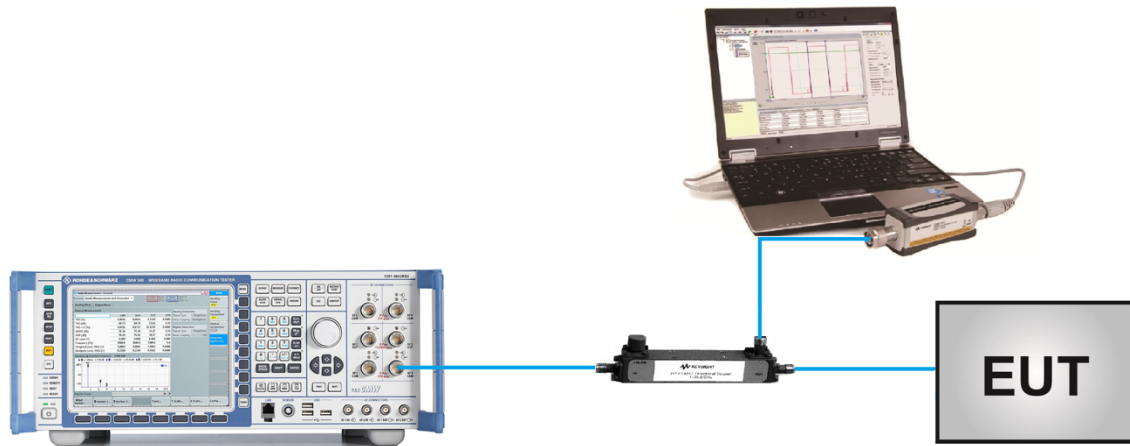
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas} , e.g., dBm or dBW)

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)

$$\text{ERP} = \text{EIRP} - 2.15$$

5.4.4. Test Setup



5.4.5. Test Result

Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/07/21
Test Band	GSM 850		

Mode	Slot	Conducted Power (dBm)			Antenna Gain (dBi)	ERP (dBm)		
		Channel				Channel		
		128	189	251		128	189	251
GSM	/	32.45	32.42	32.47	1.50	31.80	31.77	31.82
GPRS	1	32.41	32.47	32.55	1.50	31.76	31.82	31.90
	2	30.27	30.41	30.53	1.50	29.62	29.76	29.88
	3	28.26	28.27	28.33	1.50	27.61	27.62	27.68
	4	26.25	26.22	26.22	1.50	25.60	25.57	25.57
Limit	38.45dBm							

Note: The ERP (dBm) = Conducted Power (dBm) + Antenna Gain (dBi) - 2.15

Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/07/21
Test Band	PCS 1900		

Mode	Slot	Conducted Power (dBm)			Antenna Gain (dBi)	EIRP (dBm)		
		Channel				Channel		
		512	661	810		512	661	810
GSM	/	30.37	30.30	30.33	0.90	31.27	31.20	31.23
GPRS	1	30.41	30.35	30.25	0.90	31.31	31.25	31.15
	2	28.00	28.25	28.08	0.90	28.90	29.15	28.98
	3	25.78	25.94	25.86	0.90	26.68	26.84	26.76
	4	24.08	24.37	24.03	0.90	24.98	25.27	24.93
Limit	33.01dBm							

Note: The EIRP (dBm) = Conducted Power (dBm) + Antenna Gain (dBi)

5.5. Band Edge Measurement

5.5.1. Test Limit

For operations in the 824 ~ 849 MHz, 1850 ~ 1910 MHz, 1930 ~ 1990 MHz, 698 ~ 746 MHz and 1710 ~ 1755 MHz, the FCC limit is $43 + 10\log_{10}(P_{\text{[Watts]}})$ dB below the transmitter power $P(\text{Watts})$ in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

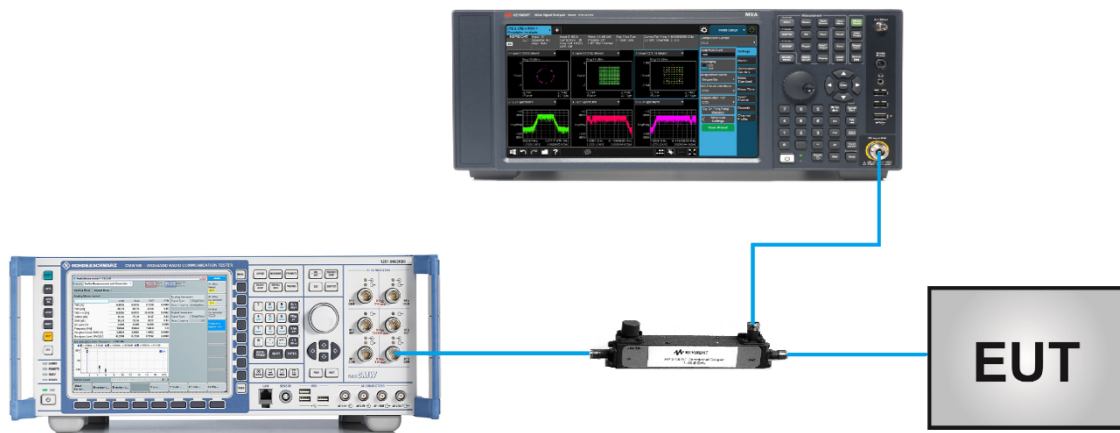
5.5.2. Test Procedure

ANSI C63.26-2015 - Section 5.7

5.5.3. Test Setting

1. Set the analyzer frequency to low or high channel
2. $RBW \geq$ 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. $VBW \geq 3 \cdot RBW$
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



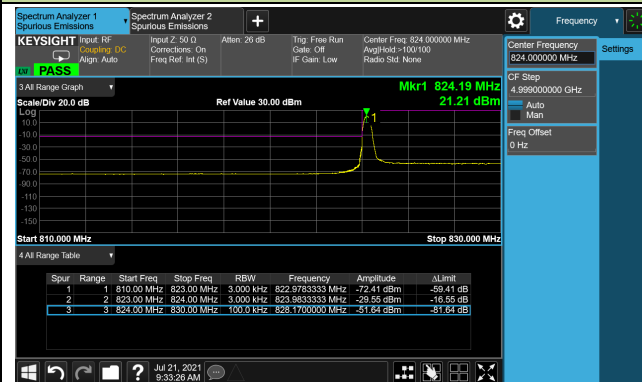
5.5.5. Test Result

Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/07/21
Test Band	GSM 850		

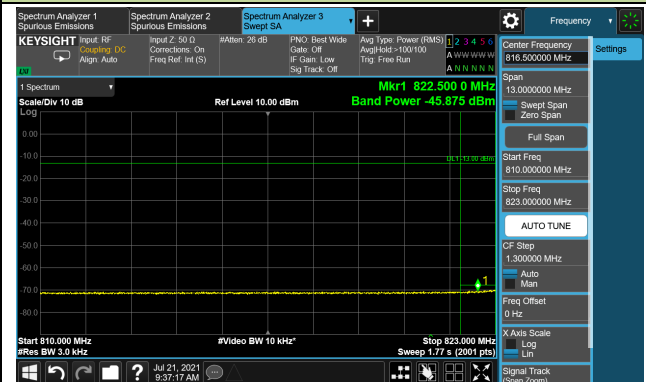


GPRS 850

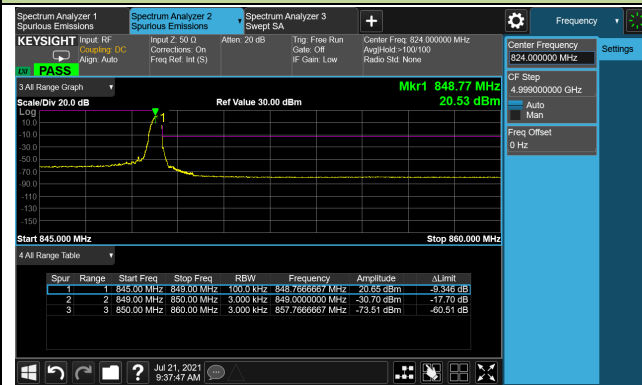
Lower Band Edge



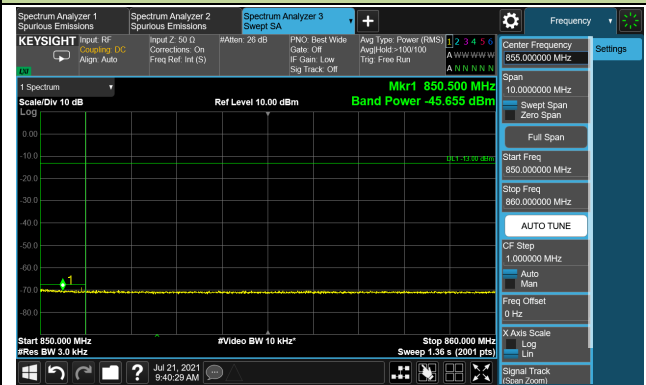
Lower Extended Band Edge



Upper Band Edge



Upper Extended Band Edge



Product	LTE Module	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/07/21
Test Band	PCS 1900		

