FCC RF Test Report

APPLICANT	:	Quectel Wireless Solutions Co., Ltd.
EQUIPMENT	:	LTE Module
BRAND NAME	:	Quectel
MODEL NAME	:	EG912U-GL
FCC ID	:	XMR2023EG912UGL
STANDARD	:	47 CFR Part 2, 27(M), 27(H), 27(F)
CLASSIFICATION	:	PCS Licensed Transmitter (PCB)
TEST DATE(S)	:	Jan. 16, 2023 ~ Jan. 28, 2023

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

ACCREDITED
Cert #5145.02

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China

TABLE OF CONTENTS

REVISION HISTORY **3**

SUMMARY OF TEST RESULT **4**

1 GENERAL DESCRIPTION **5**

1.1 Applicant 5
1.2 Manufacturer 5
1.3 Product Feature of Equipment Under Test 5
1.4 Product Specification of Equipment Under Test 6
1.5 Modification of EUT 6
1.6 Maximum Conducted Power and Emission Designator 7
1.7 Testing Location 8
1.8 Test Software 8
1.9 Applicable Standards 8

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST **9**

2.1 Test Mode 9
2.2 Connection Diagram of Test System 11
2.3 Support Unit used in test configuration and system 11
2.4 Measurement Results Explanation Example 11
2.5 Frequency List of Low/Middle/High Channels 12

3 CONDUCTED TEST ITEMS **14**

3.1 Measuring Instruments 14
3.2 Test Setup 14
3.3 Test Result of Conducted Test 14
3.4 Conducted Output Power and ERP/EIRP 15
3.5 Peak-to-Average Ratio 16
3.6 Occupied Bandwidth 17
3.7 Conducted Band Edge 18
3.8 Conducted Spurious Emission 20
3.9 Frequency Stability 21

4 RADIATED TEST ITEMS **22**

4.1 Measuring Instruments 22
4.2 Test Setup 22
4.3 Test Result of Radiated Test 23
4.4 Radiated Spurious Emission 24

5 LIST OF MEASURING EQUIPMENT **25**

6 UNCERTAINTY OF EVALUATION **26**

APPENDIX A. TEST RESULTS OF CONDUCTED TEST

APPENDIX B. TEST RESULTS OF RADIATED TEST

APPENDIX C. TEST SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG2D1203C	Rev. 01	Initial issue of report	Feb. 22, 2023

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	-	Report Only	-
	§27.50(b)(10) §27.50(c)(10)	Effective Radiated Power (Band 12) (Band 13) (Band 17)	ERP < 3 Watt	PASS	-
	§27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 7) (Band 38) (Band 41)	EIRP < 2Watt		-
3.5	N/A	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	-	Report Only	-
3.7	§2.1051 §27.53(c)(2)(4) §27.53(g)	Conducted Band Edge Measurement (Band 12) (Band 13) (Band 17)	< 43+10log10(P[Watts])	PASS	-
	§27.53(m)(4)	Conducted Band Edge Measurement (Band 7) (Band 38) (Band 41)	§27.53(m)(4)		
3.8	§2.1051 §27.53(c)(2) §27.53(g)	Conducted Spurious Emission (Band 12) (Band 13) (Band 17)	< 43+10log10(P[Watts])	PASS	-
	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (Band 7) (Band 38) (Band 41)	< 55+10log$_{10}$(P[Watts])		
3.9	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	-
4.4	§2.1053 §27.53(c)(2) §27.53(f) §27.53(g)	Radiated Spurious Emission (Band 12) (Band 13) (Band 17)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 22.54 dB at 1560.00 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 7) (Band 38) (Band 41)	< 55+10log$_{10}$(P[Watts])		

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
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 General Description

1.1 Applicant

Quectel Wireless Solutions Co., Ltd.
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, 200233, China

1.2 Manufacturer

Quectel Wireless Solutions Co., Ltd.
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, 200233, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	LTE Module
Brand Name	Quectel
Model Name	EG912U-GL
FCC ID	XMR2023EG912UGL
HW Version	R1.0
SW Version	EG912UGLAAR03A04M08
IMEI Code	Conducted: 869487060003307 Radiation: 869487060002556
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 7 : 2500 MHz ~ 2570 MHz LTE Band 12 : 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 17 : 704 MHz ~ 716 MHz LTE Band 38 : 2570 MHz ~ 2620 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz
Rx Frequency	LTE Band 7 : 2620 MHz ~ 2690 MHz LTE Band 12 : 729 MHz ~ 746 MHz LTE Band 13 : 746 MHz ~ 756 MHz LTE Band 17 : 734 MHz ~ 746 MHz LTE Band 38 : 2570 MHz ~ 2620 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz
Bandwidth	LTE Band 7 : 5MHz/ 10MHz / 15MHz / 20MHz LTE Band 12 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 13 : 5MHz / 10MHz LTE Band 17 : 5MHz / 10MHz LTE Band 38 : 5MHz / 10MHz / 15MHz / 20MHz LTE Band 41 : 5MHz / 10MHz / 15MHz / 20MHz
Antenna Type	Dipole Antenna
Maximum Output Power to Antenna	LTE Band 7 : 23.68 dBm LTE Band 12 : 23.51 dBm LTE Band 13 : 23.31 dBm LTE Band 17 : 23.46 dBm LTE Band 38 : 23.62 dBm LTE Band 41 : 23.69 dBm
Antenna Gain	LTE Band 7 : 3.00 dBi LTE Band 12 : 3.95 dBi LTE Band 13 : 4.45 dBi LTE Band 17 : 3.95 dBi LTE Band 38 : 3.00 dBi LTE Band 41 : 3.00 dBi
Type of Modulation	QPSK / 16QAM

Remark: The device support LTE Cat 1.

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Maximum Conducted Power and Emission Designator

LTE Band 7		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Maximum Conducted power (W)	Emission Designator (99%OBW)	Maximum Conducted power (W)	Emission Designator (99%OBW)
20	2510.0 ~ 2560.0	0.2333	17M9G7D	0.2000	5M15W7D
LTE Band 12		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Maximum Conducted power (W)	Emission Designator (99%OBW)	Maximum Conducted power (W)	Emission Designator (99%OBW)
10	704.0 ~ 711.0	0.2244	8M93G7D	0.1884	5M61W7D
LTE Band 13		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Maximum Conducted power (W)	Emission Designator (99%OBW)	Maximum Conducted power (W)	Emission Designator (99%OBW)
10	782.0	0.2143	9M03G7D	0.1714	5M07W7D
LTE Band 17		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Maximum Conducted power (W)	Emission Designator (99%OBW)	Maximum Conducted power (W)	Emission Designator (99%OBW)
10	709.0 ~ 711.0	0.2218	8M93G7D	0.1722	5M61W7D
LTE Band 38		QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum Conducted power (W)	Emission Designator (99%OBW)	Maximum Conducted power (W)	Emission Designator (99%OBW)
20	2580.0 ~ 2610.0	0.2301	17M8G7D	0.1914	5M03W7D
LTE Band 41		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Maximum Conducted power (W)	Emission Designator (99%OBW)	Maximum Conducted power (W)	Emission Designator (99%OBW)
20	2506.0 ~ 2680.0	0.2339	17M8G7D	0.1928	5M03W7D

Note:

1. LTE Band 12 overlaps the entire frequency range of LTE Band 17. Therefore, the test results provided in this report covers Band 12 as well as Band 17.
2. LTE Band 41 overlaps the entire frequency range of LTE Band 38. Therefore, the test results provided in this report covers Band 41 as well as Band 38.
3. All modulations have been tested, and only the worst test results of PSK & QAM are shown in the report.

1.7 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH06-KS TH01-KS	CN1257	314309

1.8 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH06-KS	AUDIX	E3	6.2009-8-24al

1.9 Applicable Standards

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

- 47 CFR Part 2, 27(M), 27(H), 27(F)
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

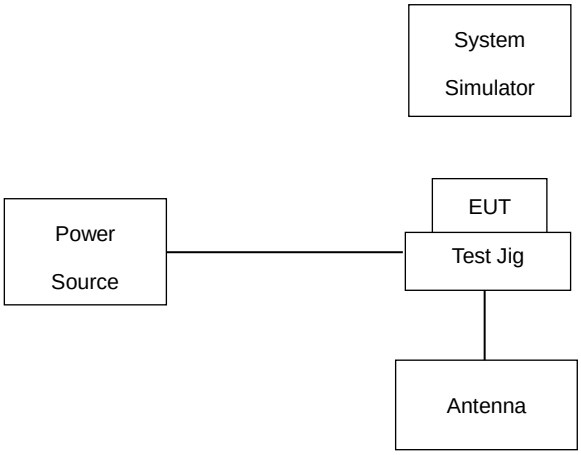
Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission(Y Plane).

Test Items	Band	Bandwidth (MHz)						Modulation				RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256 QAM	1	Half	Full	L	M	H
Max. Output Power	7	-	-	v	v	v	v	v	v			v		v	v	v	v
	12	v	v	v	v	-	-	v	v			v		v	v	v	v
	13	-	-	v	v	-	-	v	v			v		v	v	v	v
	17	-	-	v	v	-	-	v	v			v		v	v	v	v
	38	-	-	v	v	v	v	v	v			v		v	v	v	v
	41	-	-	v	v	v	v	v	v			v		v	v	v	v
Peak-to-Average Ratio	7	-	-				v	v	v					v		v	
	12				v	-	-	v	v					v		v	
	13	-	-		v	-	-	v	v					v		v	
	41	-	-				v	v	v					v		v	
26dB and 99% Bandwidth	7	-	-	v	v	v	v	v	v					v		v	
	12	v	v	v	v	-	-	v	v					v		v	
	13	-	-	v	v	-	-	v	v					v		v	
	41	-	-	v	v	v	v	v	v					v		v	
Conducted Band Edge	7	-	-	v	v	v	v	v	v			v		v	v		v
	12	v	v	v	v	-	-	v	v			v		v	v		v
	13	-	-	v	v	-	-	v	v			v		v	v		v
	41	-	-	v	v	v	v	v	v			v		v	v		v

Test Items	Band	Bandwidth (MHz)						Modulation				RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256 QAM	1	Half	Full	L	M	H
Conducted Spurious Emission	7	-	-	v	v	v	v	v				v			v	v	v
	12	v	v	v	v	-	-	v				v			v	v	v
	13	-	-	v	v	-	-	v				v			v	v	v
	41	-	-	v	v	v	v	v				v			v	v	v
Frequency Stability	7	-	-		v			v						v		v	
	12				v	-	-	v						v		v	
	13	-	-		v	-	-	v						v		v	
	41	-	-		v			v						v		v	
E.R.P / E.I.R.P	7	-	-	v	v	v	v	v	v			v		v	v	v	v
	12	v	v	v	v	-	-	v	v			v		v	v	v	v
	13	-	-	v	v	-	-	v	v			v		v	v	v	v
	17	-	-	v	v	-	-	v	v			v		v	v	v	v
	38	-	-	v	v	v	v	v	v			v		v	v	v	v
	41	-	-	v	v	v	v	v	v			v		v	v	v	v
Radiated Spurious Emission	7	Worst Case														v	
	12	Worst Case														v	
	13	Worst Case														v	
	41	Worst Case														v	
Note	1. The mark "**v** " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.																

2.2 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

For detail, please refer to test mode configuration and setup photographs for each test item.

2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Power Supply	GWINSTEK	PSS-2002	N/A	N/A	Unshielded, 1.8 m
2.	Base Station	Anritsu	MT8820/8821	N/A	N/A	Unshielded, 1.8 m
3.	Adapter	N/A	N/A	N/A	N/A	N/A
4.	Test Jig	N/A	N/A	N/A	N/A	N/A
5.	Antenna	N/A	N/A	N/A	N/A	N/A

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss: *Offset = RF cable loss.*

Following shows an offset computation example with cable loss 6.0 dB.

Example :

Offset(dB) = RF cable loss(dB).

= 6.0 (dB)

2.5 Frequency List of Low/Middle/High Channels

LTE Band 7 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	20850	21100	21350
	Frequency	2510	2535	2560
15	Channel	20825	21100	21375
	Frequency	2507.5	2535	2562.5
10	Channel	20800	21100	21400
	Frequency	2505	2535	2565
5	Channel	20775	21100	21425
	Frequency	2502.5	2535	2567.5

LTE Band 12 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	23060	23095	23130
	Frequency	704	707.5	711
5	Channel	23035	23095	23155
	Frequency	701.5	707.5	713.5
3	Channel	23025	23095	23165
	Frequency	700.5	707.5	714.5
1.4	Channel	23017	23095	23173
	Frequency	699.7	707.5	715.3

LTE Band 13 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	-	23230	-
	Frequency	-	782	-
5	Channel	23205	23230	23255
	Frequency	779.5	782	784.5

LTE Band 17 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	23780	23790	23800
	Frequency	709	710	711
5	Channel	23755	23790	23825
	Frequency	706.5	710	713.5

LTE Band 38 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	37850	38000	38150
	Frequency	2580	2595	2610
15	Channel	37825	38000	38175
	Frequency	2577.5	2595	2612.5
10	Channel	37800	38000	38200
	Frequency	2575	2595	2615
5	Channel	37775	38000	38225
	Frequency	2572.5	2595	2617.5

LTE Band 41 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	39750	40620	41490
	Frequency	2506	2593	2680
15	Channel	39725	40620	41515
	Frequency	2503.5	2593	2682.5
10	Channel	39700	40620	41540
	Frequency	2501	2593	2685
5	Channel	39675	40620	41565
	Frequency	2498.5	2593	2687.5

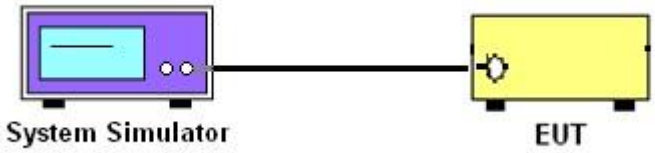
3 Conducted Test Items

3.1 Measuring Instruments

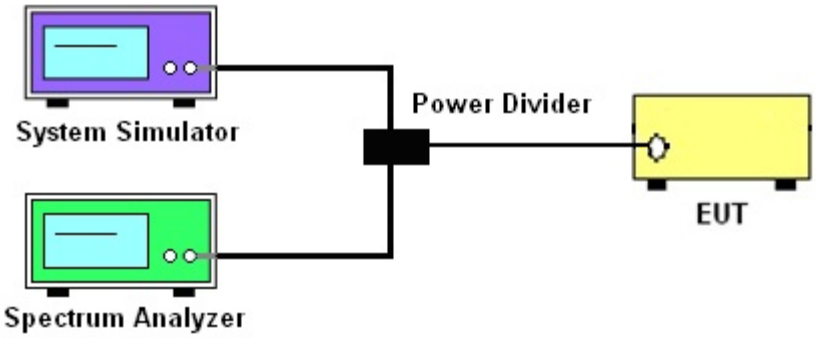
See list of measuring instruments of this test report.

3.2 Test Setup

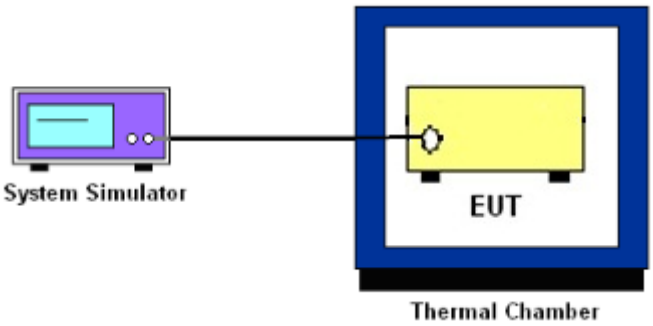
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and ERP/EIRP

3.4.1 Description of the Conducted Output Power Measurement and ERP/EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 12, Band 13 and Band 17.

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 7 and Band 38 and Band 41.

According to KDB 412172 D01 Power Approach,

EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

3.5.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2.3.4 (CCDF).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

3.6 Occupied Bandwidth

3.6.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.4
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace.
   (this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

27.53 (c)

For operations in the 776-788 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 100 kHz bandwidth. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed. In addition, the power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least 65 + 10 log10 p(watts), dB, for mobile and portable equipment.

27.53 (g)

For operations in the 600MHz band and 698 -746 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 100 kHz bandwidth. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

27.53(m)(4)

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1%/2% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.

   Example:

   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

   = P(W)- [43 + 10log(P)] (dB)

   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
9. For LTE Band 7/38/41, the other 40 dB, and 55 dB have additionally applied same calculation above.
10. When using the integration method, the starting frequency of the integration shall be centered at one-half of the RBW away from the band edge.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

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 43 + 10 log (P) dB.

For Band 7/38/41:

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 55 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

3.8.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
11. For Band 7/38/41
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [55+ 10log(P)] (dB)
    = [30+ 10log(P)] (dBm) - [55+ 10log(P)] (dB)
    = -25dBm.

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

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.

3.9.2 Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5
2. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
4. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
5. The variation in frequency was measured for the worst case.

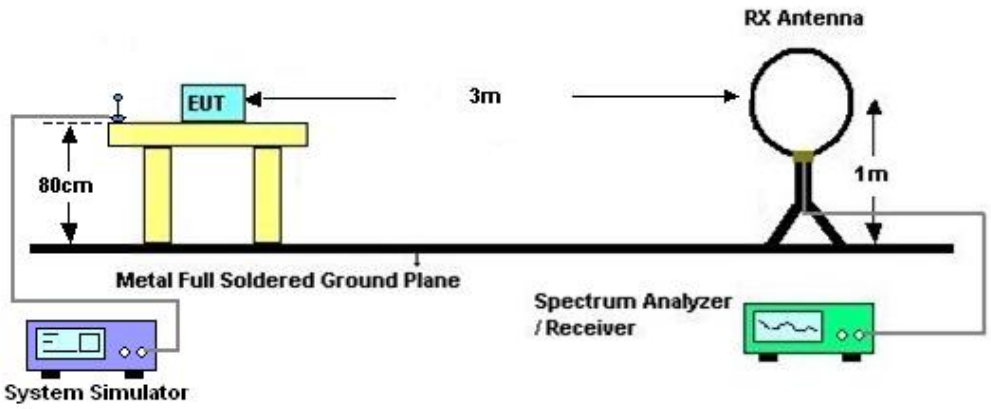
4 Radiated Test Items

4.1 Measuring Instruments

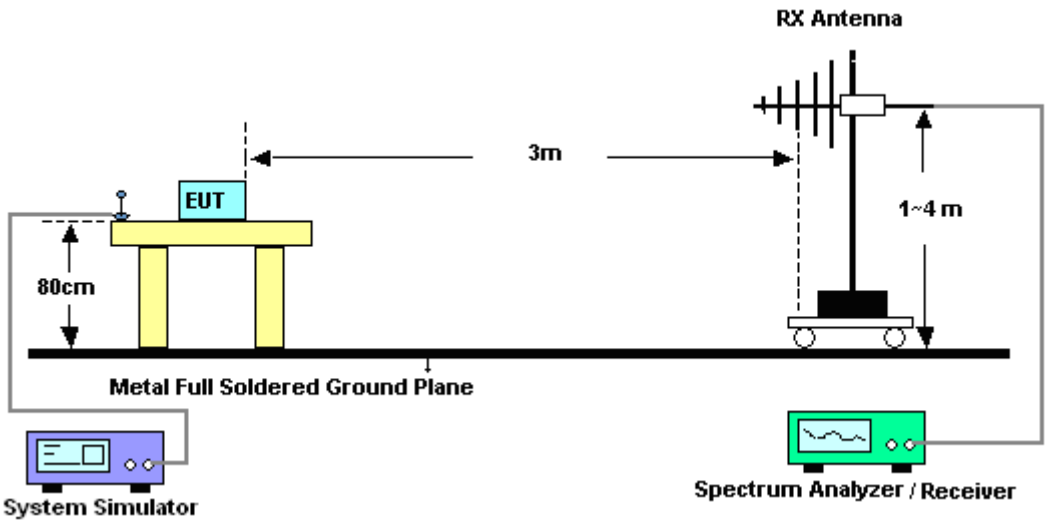
See list of measuring instruments of this test report.

4.2 Test Setup

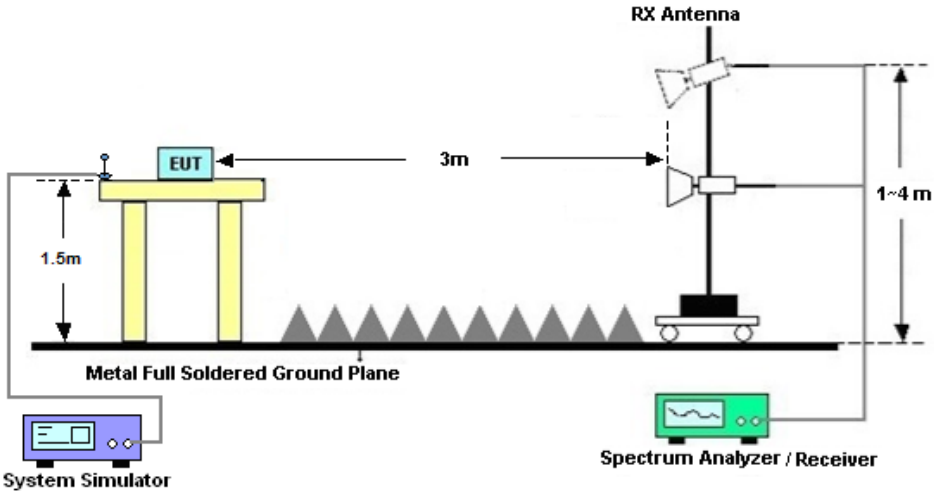
4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For Band 7/41

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

For LTE Band 13

For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
13. For Band 7/38/41:
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 12, 2022	Jan. 16, 2023~ Jan. 17, 2023	Oct. 11, 2023	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	NCR	Jan. 16, 2023~ Jan. 17, 2023	NCR	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 15, 2022	Jan. 16, 2023~ Jan. 17, 2023	Jul. 14, 2023	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY60242126	10Hz-44GHz	Oct. 13, 2022	Jan. 28, 2023	Oct. 12, 2023	Radiation (03CH06-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 16, 2022	Jan. 28, 2023	Oct. 15, 2023	Radiation (03CH06-KS)
Bilog Antenna	TeseQ	CBL6111D	49921	30MHz-1GHz	May 24, 2022	Jan. 28, 2023	May 23, 2023	Radiation (03CH06-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218642	1GHz~18GHz	Apr. 18, 2022	Jan. 28, 2023	Apr. 17, 2023	Radiation (03CH06-KS)
SHF-EHF Horn	Com-power	AH-840	101093	18GHz~40GHz	Jan. 04, 2023	Jan. 28, 2023	Jan. 03, 2024	Radiation (03CH06-KS)
Amplifier	SONOMA	310N	380827	9KHz ~1GHZ	Jul. 11, 2022	Jan. 28, 2023	Jul. 10, 2023	Radiation (03CH06-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 04, 2023	Jan. 28, 2023	Jan. 03, 2024	Radiation (03CH06-KS)
high gain Amplifier	MITEQ	AMF-7D-00 101800-30-1 0P	2082395	1Ghz-18Ghz	Jan. 04, 2023	Jan. 28, 2023	Jan. 03, 2024	Radiation (03CH06-KS)
Amplifier	Keysight	83017A	MY53270319	500MHz~26.5GHz	Oct. 12, 2022	Jan. 28, 2023	Oct. 12, 2023	Radiation (03CH06-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jan. 28, 2023	NCR	Radiation (03CH06-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jan. 28, 2023	NCR	Radiation (03CH06-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jan. 28, 2023	NCR	Radiation (03CH06-KS)

NCR: No Calibration Required

6 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Power	±0.46 dB
Conducted Emissions	±0.48 dB
Occupied Channel Bandwidth	±0.1 %

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.5dB

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.1dB

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.1dB

Appendix A. Test Results of Conducted Test

Test Engineer :	Simle Wang	Temperature :	22~23℃
		Relative Humidity :	40~42%

Conducted Output Power(Average power) and ERP/EIRP

LTE Band 7									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP(W)		
Channel				20850	21100	21350			
Frequency (MHz)				2510	2535	2560	L	M	H
20	QPSK	1	0	23.52	23.68	23.49	0.4487	0.4656	0.4457
20	QPSK	1	99	23.31	23.27	23.40	0.4276	0.4236	0.4365
20	QPSK	100	0	22.50	22.25	22.14	0.3548	0.3350	0.3266
20	16QAM	1	0	22.85	22.66	23.01	0.3846	0.3681	0.3990
Channel				20825	21100	21375	EIRP(W)		
Frequency (MHz)				2507.5	2535	2562.5	L	M	H
15	QPSK	1	0	23.47	23.39	23.41	0.4436	0.4355	0.4375
15	16QAM	1	0	22.83	22.98	22.86	0.3828	0.3963	0.3855
Channel				20800	21100	21400	EIRP(W)		
Frequency (MHz)				2505	2535	2565	L	M	H
10	QPSK	1	0	23.63	23.54	23.60	0.4603	0.4508	0.4571
10	16QAM	1	0	23.00	22.95	22.98	0.3981	0.3936	0.3963
Channel				20775	21100	21425	EIRP(W)		
Frequency (MHz)				2502.5	2535	2567.5	L	M	H
5	QPSK	1	0	23.11	23.66	23.53	0.4083	0.4634	0.4498
5	16QAM	1	0	22.47	22.97	22.95	0.3524	0.3954	0.3936

LTE Band 12									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel				23060	23095	23130			
Frequency (MHz)				704	707.5	711	L	M	H
10	QPSK	1	0	23.51	23.26	23.06	0.3396	0.3206	0.3062
10	QPSK	1	49	23.01	23.21	22.53	0.3027	0.3170	0.2710
10	QPSK	50	0	22.02	22.11	22.22	0.2410	0.2460	0.2523
10	16QAM	1	0	22.60	22.75	22.34	0.2754	0.2851	0.2594
Channel				23035	23095	23155	ERP(W)		
Frequency (MHz)				701.5	707.5	713.5	L	M	H
5	QPSK	1	0	23.27	23.09	23.38	0.3214	0.3083	0.3296
5	16QAM	1	0	22.73	22.57	22.53	0.2838	0.2735	0.2710
Channel				23025	23095	23165	ERP(W)		
Frequency (MHz)				700.5	707.5	714.5	L	M	H
3	QPSK	1	0	23.48	23.08	23.14	0.3373	0.3076	0.3119
3	16QAM	1	0	22.71	22.49	22.37	0.2825	0.2685	0.2612
Channel				23017	23095	23173	ERP(W)		
Frequency (MHz)				699.7	707.5	715.3	L	M	H
1.4	QPSK	1	0	23.45	23.10	22.82	0.3350	0.3090	0.2897
1.4	16QAM	1	0	22.61	22.69	21.93	0.2761	0.2812	0.2360

LTE Band 13									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel				23230					
Frequency (MHz)				782				M	
10	QPSK	1	0		23.31			0.3639	
10	QPSK	1	49		21.73			0.2529	
10	QPSK	50	0		22.55			0.3055	
10	16QAM	1	0		22.34			0.2911	
Channel				23205	23230	23255	ERP(W)		
Frequency (MHz)				779.5	782	784.5	L	M	H
5	QPSK	1	0	23.28	23.30	22.45	0.3614	0.3631	0.2985
5	16QAM	1	0	22.31	22.21	21.67	0.2891	0.2825	0.2495

LTE Band 17									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel				23780	23790	23800			
Frequency (MHz)				709	710	711	L	M	H
10	QPSK	1	0	22.99	23.05	23.07	0.3013	0.3055	0.3069
10	QPSK	1	49	23.46	23.21	22.61	0.3357	0.3170	0.2761
10	QPSK	50	0	21.79	21.93	21.92	0.2286	0.2360	0.2355
10	16QAM	1	0	22.16	22.36	22.34	0.2489	0.2606	0.2594
Channel				23755	23790	23825	ERP(W)		
Frequency (MHz)				706.5	710	713.5	L	M	H
5	QPSK	1	0	22.92	22.89	22.05	0.2965	0.2944	0.2427
5	16QAM	1	0	22.10	22.07	21.43	0.2455	0.2438	0.2104

LTE Band 38									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP(W)		
Channel				37850	38000	38150			
Frequency (MHz)				2580	2595	2610	L	M	H
20	QPSK	1	0	23.56	23.62	22.85	0.4529	0.4592	0.3846
20	QPSK	1	99	22.88	22.73	23.04	0.3873	0.3741	0.4018
20	QPSK	100	0	22.73	22.72	22.75	0.3741	0.3733	0.3758
20	16QAM	1	0	22.57	22.82	21.80	0.3606	0.3819	0.3020
Channel				37825	38000	38175	EIRP(W)		
Frequency (MHz)				2577.5	2595	2612.5	L	M	H
15	QPSK	1	0	23.51	23.54	23.38	0.4477	0.4508	0.4345
15	16QAM	1	0	22.81	22.80	22.46	0.3811	0.3802	0.3516
Channel				37800	38000	38200	EIRP(W)		
Frequency (MHz)				2575	2595	2615	L	M	H
10	QPSK	1	0	23.60	23.56	23.08	0.4571	0.4529	0.4055
10	16QAM	1	0	22.76	22.58	22.19	0.3767	0.3614	0.3304
Channel				37775	38000	38225	EIRP(W)		
Frequency (MHz)				2572.5	2595	2617.5	L	M	H
5	QPSK	1	0	23.28	23.23	22.59	0.4246	0.4198	0.3622
5	16QAM	1	0	22.41	22.33	21.68	0.3475	0.3412	0.2938

LTE Band 41									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP(W)		
Channel				39750	40620	41490			
Frequency (MHz)				2506	2593	2680	L	M	H
20	QPSK	1	0	23.53	23.69	23.34	0.4498	0.4667	0.4305
20	QPSK	1	99	23.21	23.10	22.93	0.4178	0.4074	0.3917
20	QPSK	100	0	22.85	22.39	22.93	0.3846	0.3459	0.3917
20	16QAM	1	0	22.68	22.85	22.63	0.3698	0.3846	0.3656
Channel				39725	40620	41515	EIRP(W)		
Frequency (MHz)				2503.5	2593	2682.5	L	M	H
15	QPSK	1	0	23.51	23.63	23.49	0.4477	0.4603	0.4457
15	16QAM	1	0	22.83	22.69	22.74	0.3828	0.3707	0.3750
Channel				39700	40620	41540	EIRP(W)		
Frequency (MHz)				2501	2593	2685	L	M	H
10	QPSK	1	0	23.35	23.41	23.64	0.4315	0.4375	0.4613
10	16QAM	1	0	22.39	22.55	22.65	0.3459	0.3589	0.3673
Channel				39675	40620	41565	EIRP(W)		
Frequency (MHz)				2498.5	2593	2687.5	L	M	H
5	QPSK	1	0	23.11	23.19	23.12	0.4083	0.4159	0.4093
5	16QAM	1	0	22.29	22.54	22.21	0.3381	0.3581	0.3319

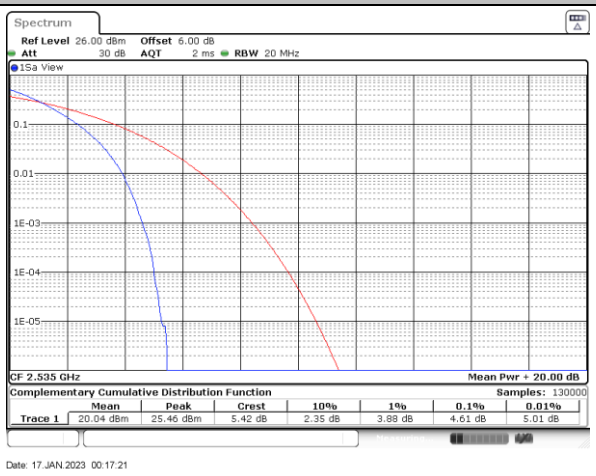
LTE Band 7

Peak-to-Average Ratio

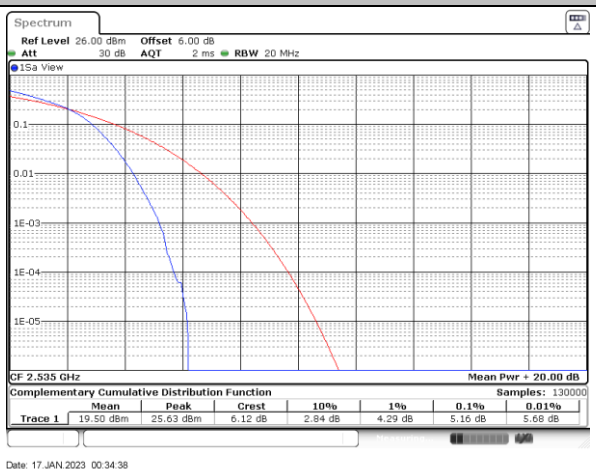
Mode	LTE Band 7 / 20MHz		
Mod.	QPSK	16QAM	Limit: 13dB
RB Size	Full RB	Full RB	Result
Middle CH	4.61	5.16	PASS

LTE Band 7 / 20MHz

Middle Channel / Full RB/ QPSK



Middle Channel / Full RB/ 16QAM

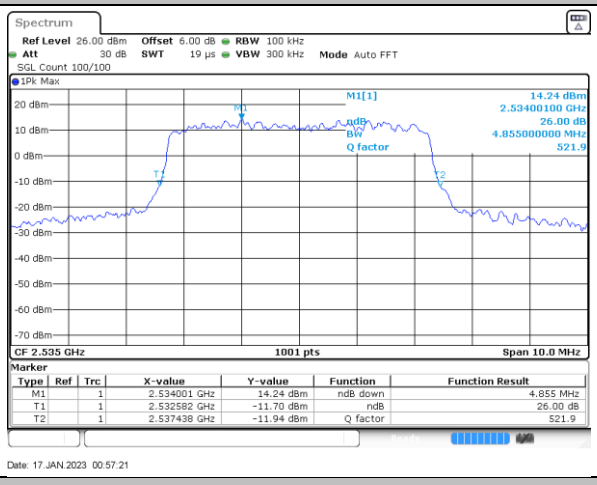


26dB Bandwidth

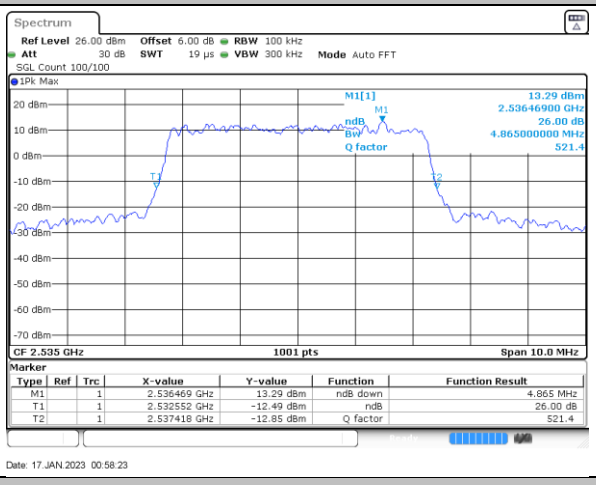
Mode	LTE Band 7 : 26dB BW(MHz)							
BW	5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	4.86	4.87	9.65	5.81	16.18	6.86	20.94	8.23

LTE Band 7

Middle Channel / 5MHz / QPSK

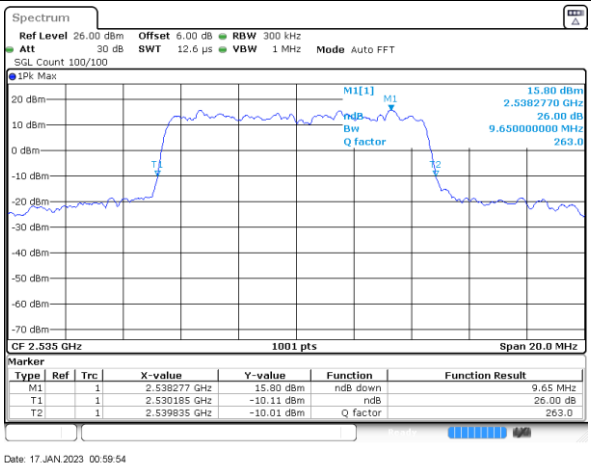


Middle Channel / 5MHz / 16QAM

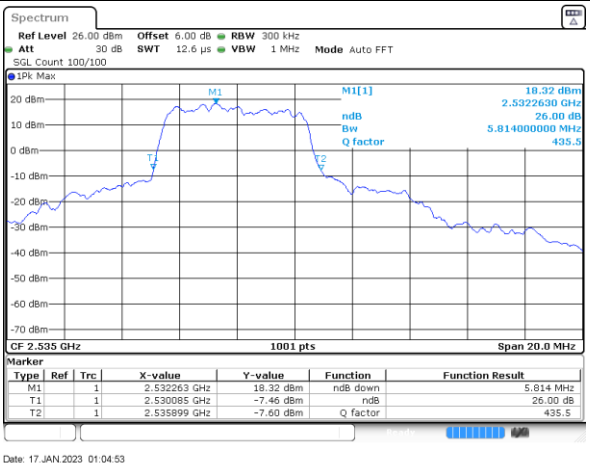


LTE Band 7

Middle Channel / 10MHz / QPSK

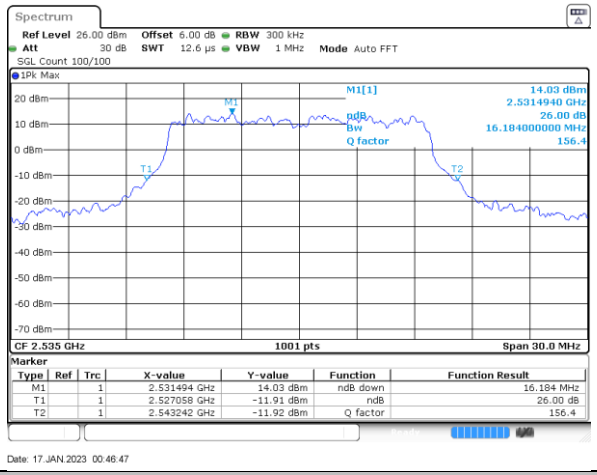


Middle Channel / 10MHz / 16QAM

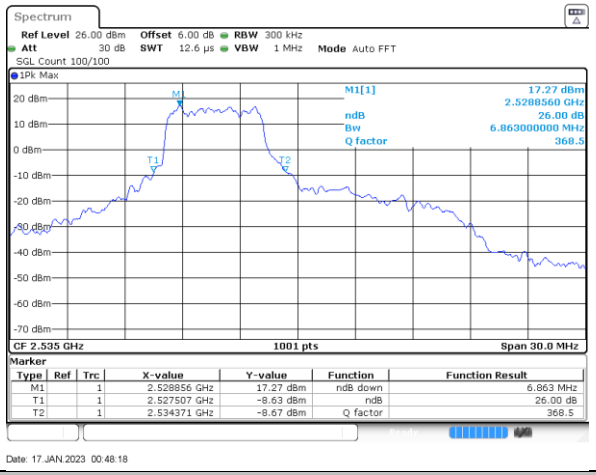


LTE Band 7

Middle Channel / 15MHz / QPSK

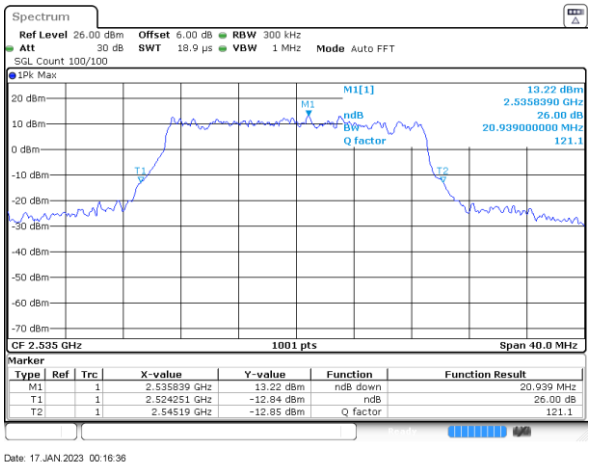


Middle Channel / 15MHz / 16QAM

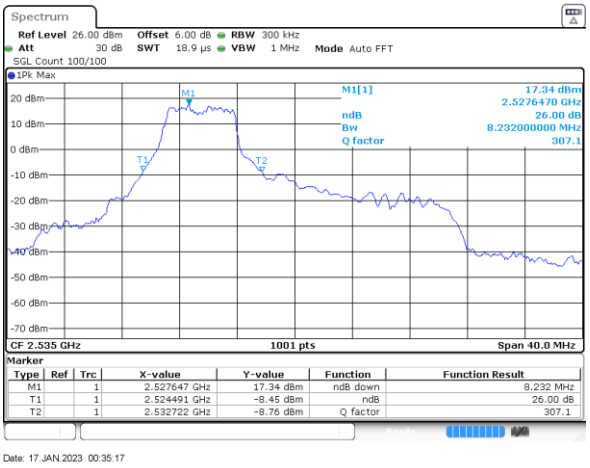


LTE Band 7

Middle Channel / 20MHz / QPSK



Middle Channel / 20MHz / 16QAM

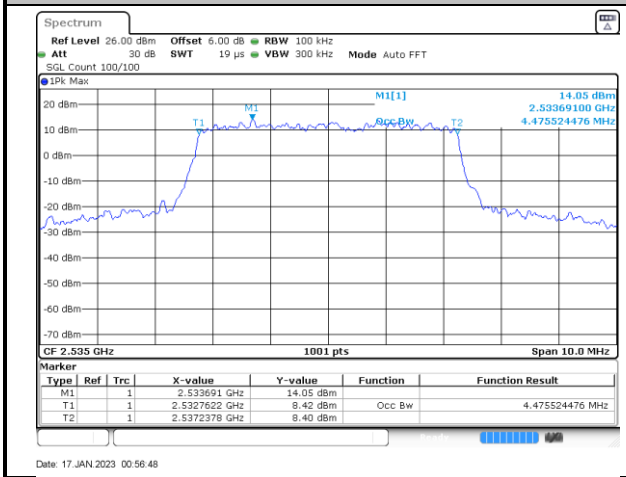


Occupied Bandwidth

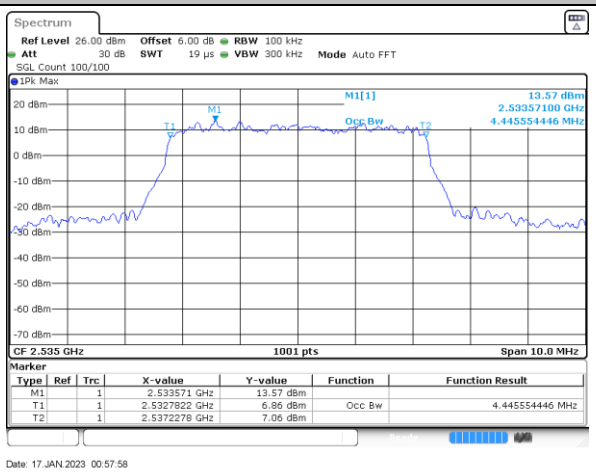
Mode	LTE Band 7 : 99%OBW(MHz)							
BW	5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	4.48	4.45	8.95	5.45	13.40	5.06	17.86	5.15

LTE Band 7

Middle Channel / 5MHz / QPSK

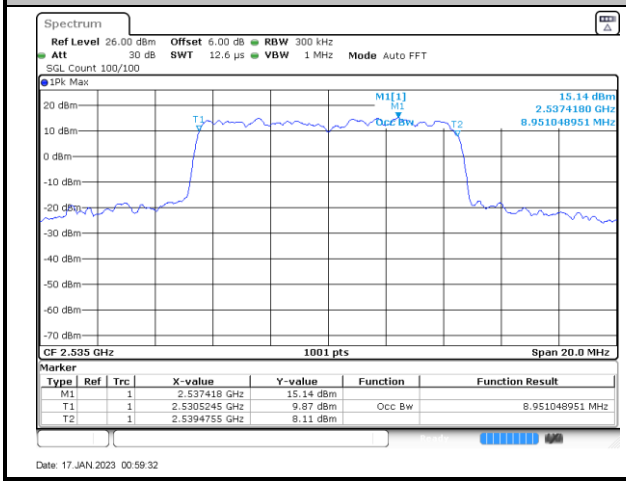


Middle Channel / 5MHz / 16QAM

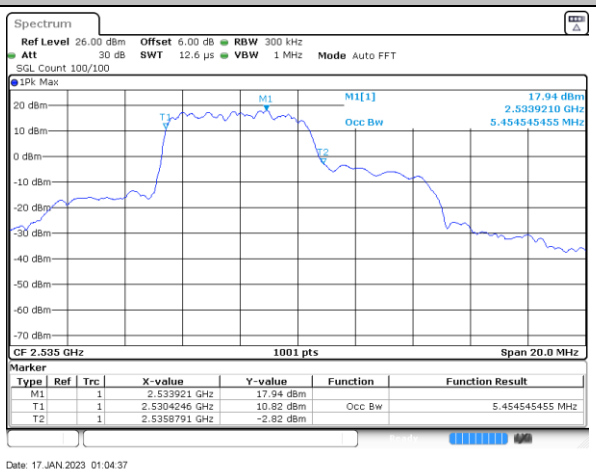


LTE Band 7

Middle Channel / 10MHz / QPSK

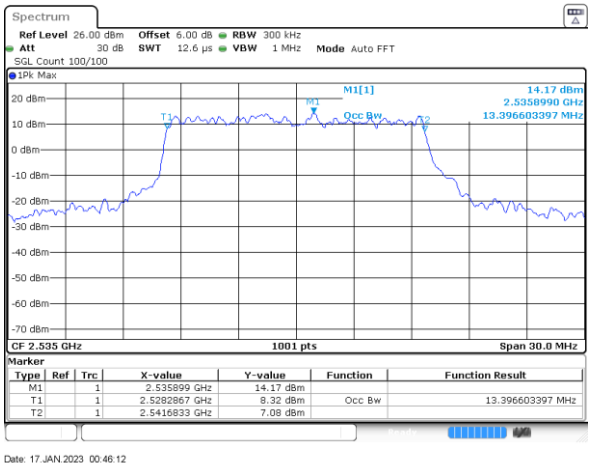


Middle Channel / 10MHz / 16QAM



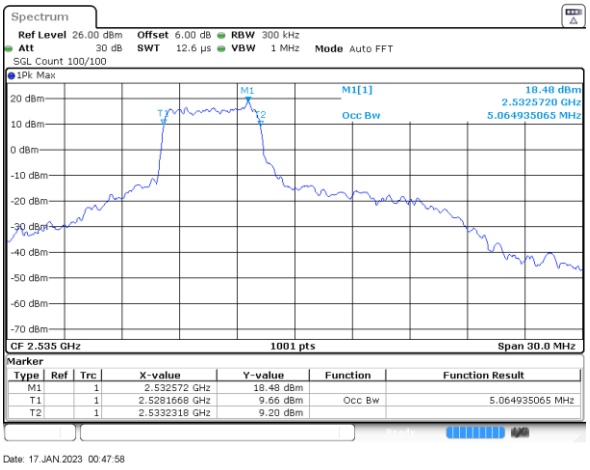
LTE Band 7

Middle Channel / 15MHz / QPSK



Date: 17.JAN.2023 00:46:12

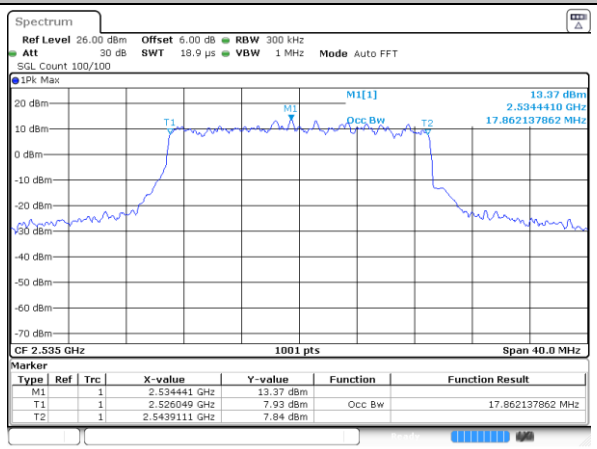
Middle Channel / 15MHz / 16QAM



Date: 17.JAN.2023 00:47:58

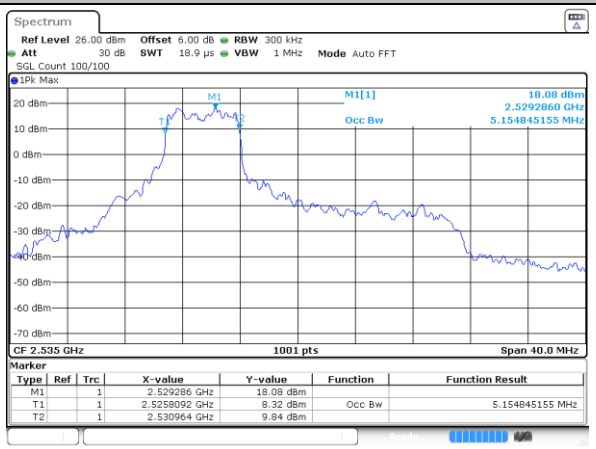
LTE Band 7

Middle Channel / 20MHz / QPSK



Date: 17.JAN.2023 00:16:58

Middle Channel / 20MHz / 16QAM

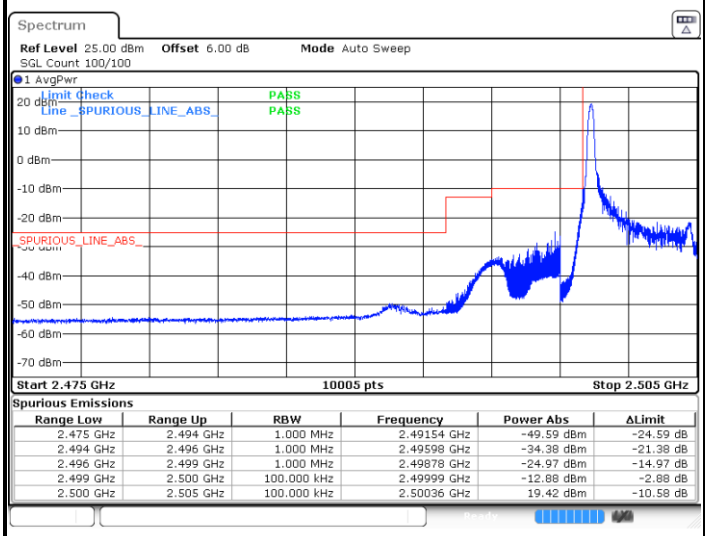


Date: 17.JAN.2023 00:34:59

Conducted Band Edge

LTE Band 7 / 5MHz / QPSK

Lowest Band Edge / 1 RB

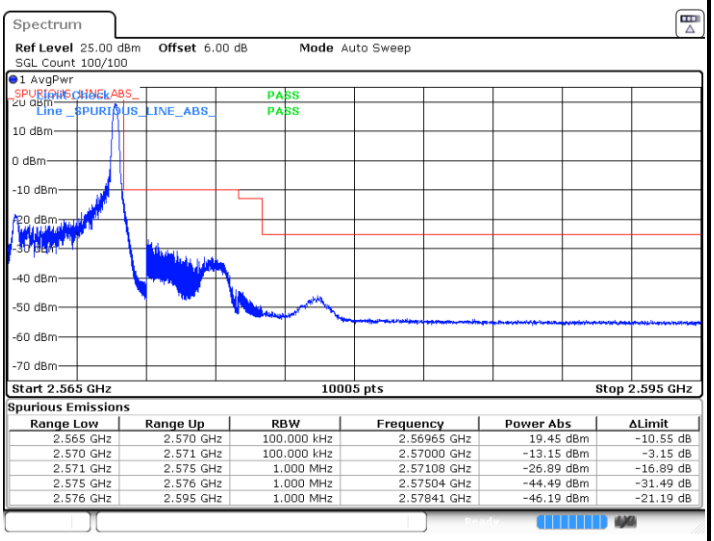


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.494 GHz	1.000 MHz	2.49154 GHz	-49.59 dBm	-24.59 dB
2.494 GHz	2.496 GHz	1.000 MHz	2.49598 GHz	-34.38 dBm	-21.38 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49878 GHz	-24.97 dBm	-14.97 dB
2.499 GHz	2.500 GHz	100.000 kHz	2.49999 GHz	-12.88 dBm	-2.88 dB
2.500 GHz	2.505 GHz	100.000 kHz	2.50036 GHz	19.42 dBm	-10.58 dB

Date: 16.JAN.2023 23:36:08

Highest Band Edge / 1 RB

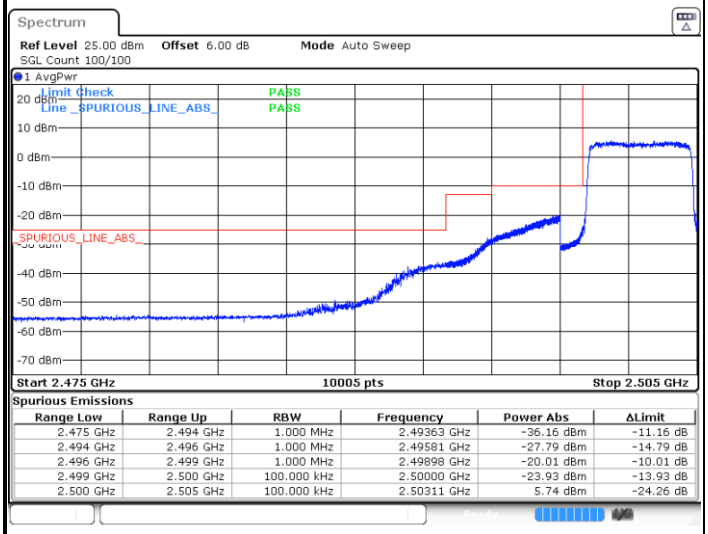


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.565 GHz	2.570 GHz	100.000 kHz	2.56965 GHz	19.45 dBm	-10.55 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57000 GHz	-13.15 dBm	-3.15 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57108 GHz	-26.89 dBm	-16.89 dB
2.575 GHz	2.576 GHz	1.000 MHz	2.57504 GHz	-44.49 dBm	-31.49 dB
2.576 GHz	2.595 GHz	1.000 MHz	2.57841 GHz	-46.19 dBm	-21.19 dB

Date: 16.JAN.2023 23:44:09

Lowest Band Edge / Full RB

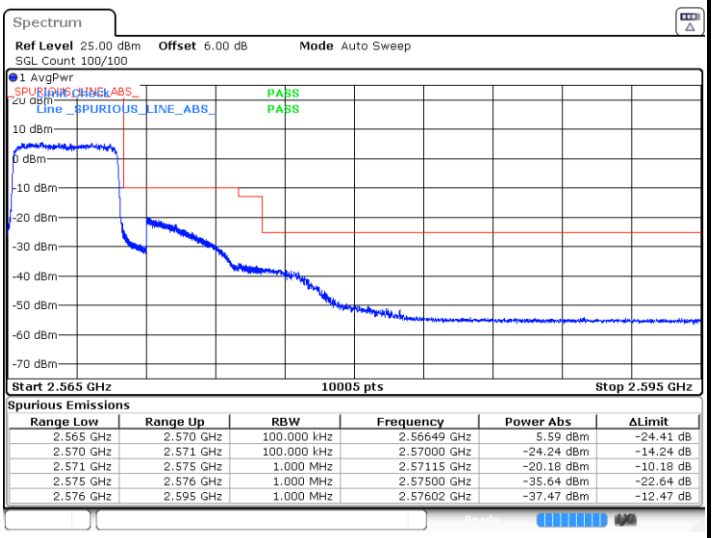


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.494 GHz	1.000 MHz	2.49363 GHz	-36.16 dBm	-11.16 dB
2.494 GHz	2.496 GHz	1.000 MHz	2.49581 GHz	-27.79 dBm	-14.79 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49898 GHz	-20.01 dBm	-10.01 dB
2.499 GHz	2.500 GHz	100.000 kHz	2.50000 GHz	-23.93 dBm	-13.93 dB
2.500 GHz	2.505 GHz	100.000 kHz	2.50311 GHz	5.74 dBm	-24.26 dB

Date: 16.JAN.2023 23:40:09

Highest Band Edge / Full RB



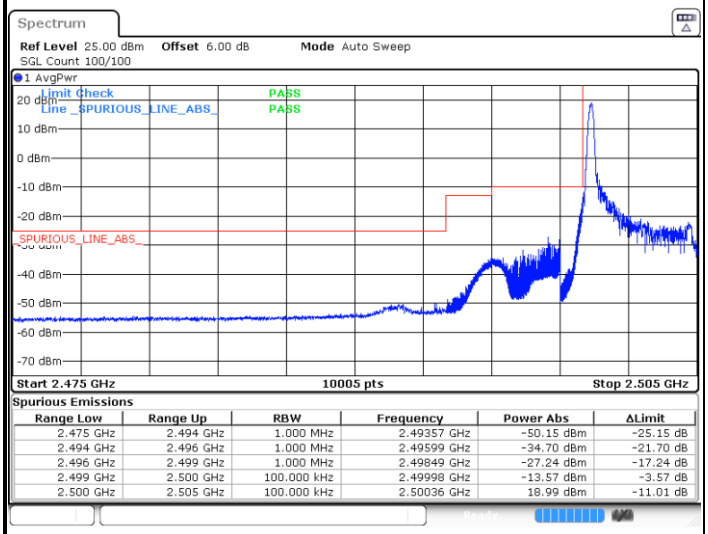
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.565 GHz	2.570 GHz	100.000 kHz	2.56649 GHz	5.59 dBm	-24.41 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57000 GHz	-24.24 dBm	-14.24 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57115 GHz	-20.18 dBm	-10.18 dB
2.575 GHz	2.576 GHz	1.000 MHz	2.57500 GHz	-35.64 dBm	-22.64 dB
2.576 GHz	2.595 GHz	1.000 MHz	2.57602 GHz	-37.47 dBm	-12.47 dB

Date: 16.JAN.2023 23:48:10

LTE Band 7 / 5MHz / 16QAM

Lowest Band Edge / 1RB

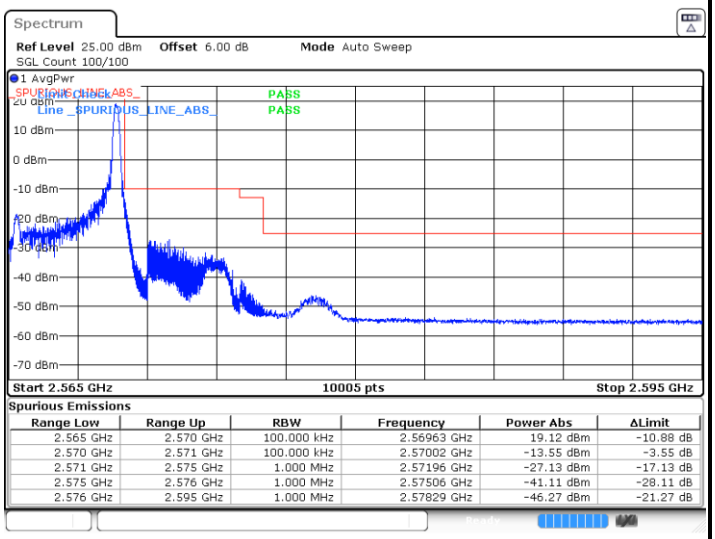


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.494 GHz	1.000 MHz	2.49357 GHz	-50.15 dBm	-25.15 dB
2.494 GHz	2.496 GHz	1.000 MHz	2.49599 GHz	-34.70 dBm	-21.70 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49849 GHz	-27.24 dBm	-17.24 dB
2.499 GHz	2.500 GHz	100.000 kHz	2.49998 GHz	-13.57 dBm	-3.57 dB
2.500 GHz	2.505 GHz	100.000 kHz	2.50036 GHz	18.99 dBm	-11.01 dB

Date: 16.JAN.2023 23:37:28

Highest Band Edge / 1 RB

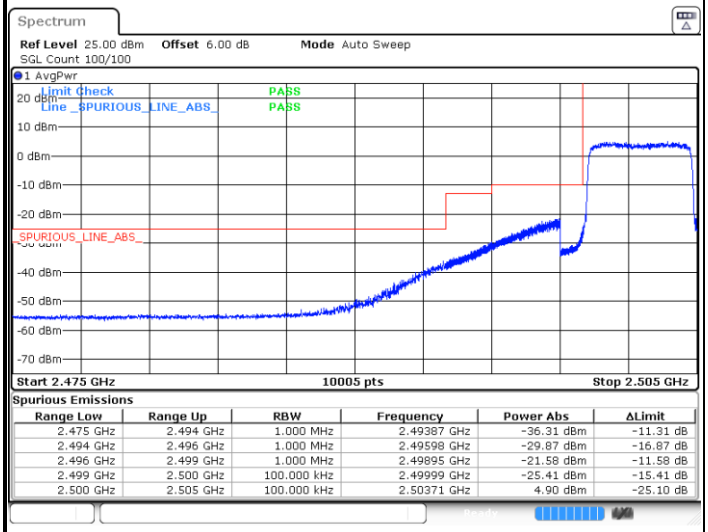


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.565 GHz	2.570 GHz	100.000 kHz	2.56963 GHz	19.12 dBm	-10.88 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57002 GHz	-13.55 dBm	-3.55 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57196 GHz	-27.13 dBm	-17.13 dB
2.575 GHz	2.576 GHz	1.000 MHz	2.57506 GHz	-41.11 dBm	-28.11 dB
2.576 GHz	2.595 GHz	1.000 MHz	2.57829 GHz	-46.27 dBm	-21.27 dB

Date: 16.JAN.2023 23:45:29

Lowest Band Edge / Full RB

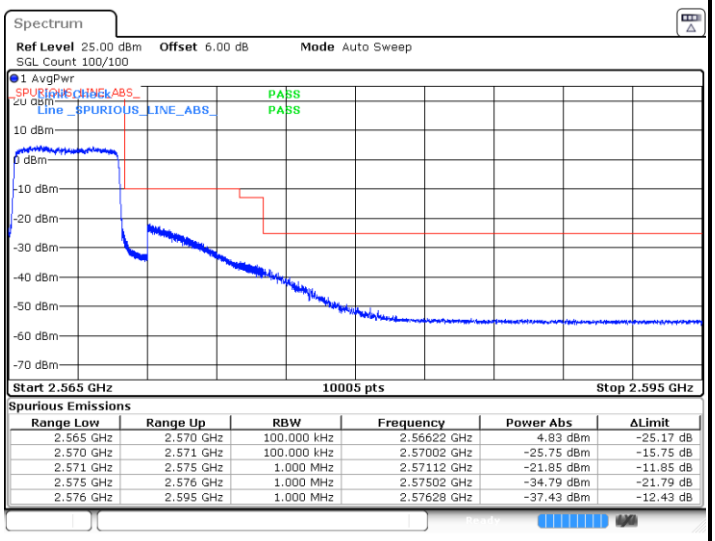


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.494 GHz	1.000 MHz	2.49387 GHz	-36.31 dBm	-11.31 dB
2.494 GHz	2.496 GHz	1.000 MHz	2.49598 GHz	-29.87 dBm	-16.87 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49895 GHz	-21.58 dBm	-11.58 dB
2.499 GHz	2.500 GHz	100.000 kHz	2.49999 GHz	-25.41 dBm	-15.41 dB
2.500 GHz	2.505 GHz	100.000 kHz	2.50371 GHz	4.90 dBm	-25.10 dB

Date: 16.JAN.2023 23:38:49

Highest Band Edge / Full RB



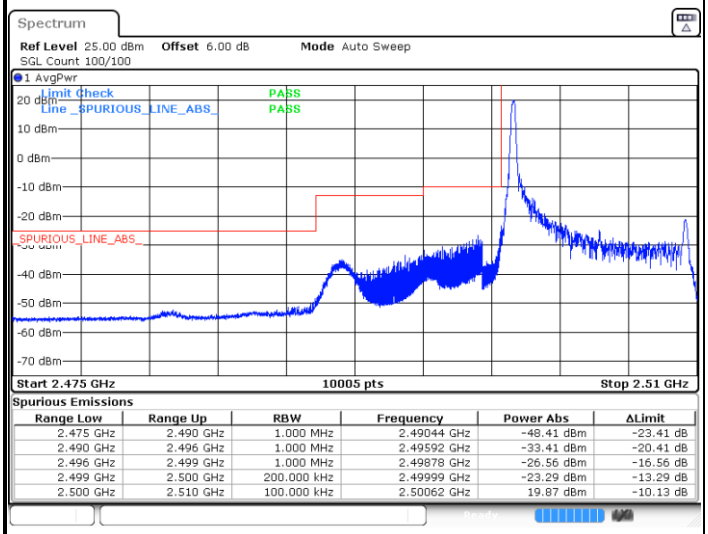
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.565 GHz	2.570 GHz	100.000 kHz	2.56622 GHz	4.83 dBm	-25.17 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57002 GHz	-25.75 dBm	-15.75 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57112 GHz	-21.85 dBm	-11.85 dB
2.575 GHz	2.576 GHz	1.000 MHz	2.57502 GHz	-34.79 dBm	-21.79 dB
2.576 GHz	2.595 GHz	1.000 MHz	2.57628 GHz	-37.43 dBm	-12.43 dB

Date: 16.JAN.2023 23:46:50

LTE Band 7 / 10MHz / QPSK

Lowest Band Edge / 1 RB

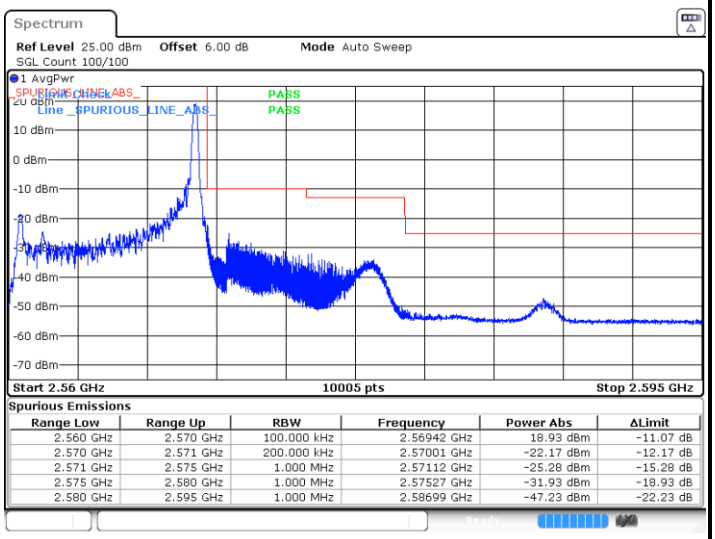


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.49044 GHz	-48.41 dBm	-23.41 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49592 GHz	-33.41 dBm	-20.41 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49878 GHz	-26.56 dBm	-16.56 dB
2.499 GHz	2.500 GHz	200.000 kHz	2.49999 GHz	-23.29 dBm	-13.29 dB
2.500 GHz	2.510 GHz	100.000 kHz	2.50062 GHz	19.87 dBm	-10.13 dB

Date: 17.JAN.2023 01:00:52

Highest Band Edge / 1 RB

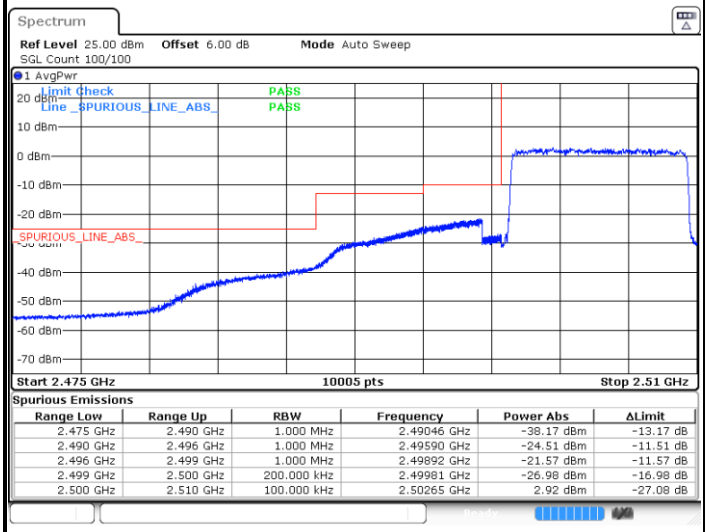


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.560 GHz	2.570 GHz	100.000 kHz	2.56942 GHz	18.93 dBm	-11.07 dB
2.570 GHz	2.571 GHz	200.000 kHz	2.57001 GHz	-22.17 dBm	-12.17 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57112 GHz	-25.28 dBm	-15.28 dB
2.575 GHz	2.580 GHz	1.000 MHz	2.57527 GHz	-31.93 dBm	-18.93 dB
2.580 GHz	2.595 GHz	1.000 MHz	2.58699 GHz	-47.23 dBm	-22.23 dB

Date: 16.JAN.2023 23:56:11

Lowest Band Edge / Full RB

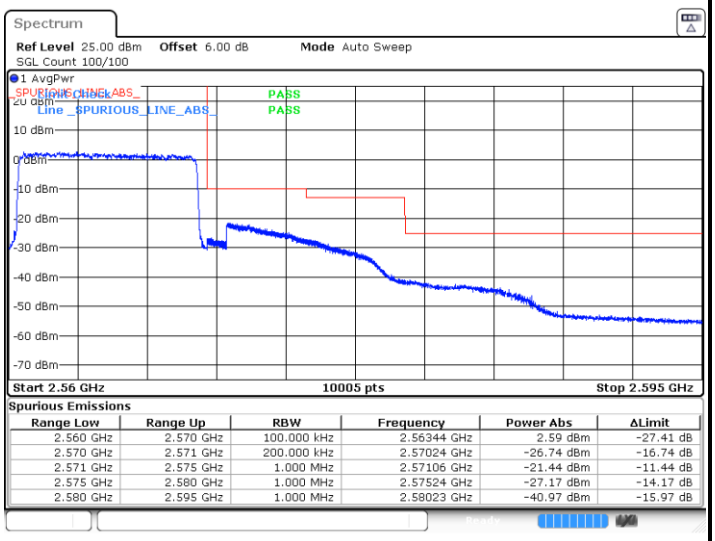


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.49046 GHz	-38.17 dBm	-13.17 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49590 GHz	-24.51 dBm	-11.51 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49892 GHz	-21.57 dBm	-11.57 dB
2.499 GHz	2.500 GHz	200.000 kHz	2.49981 GHz	-26.98 dBm	-16.98 dB
2.500 GHz	2.510 GHz	100.000 kHz	2.50265 GHz	2.92 dBm	-27.08 dB

Date: 16.JAN.2023 23:52:11

Highest Band Edge / Full RB



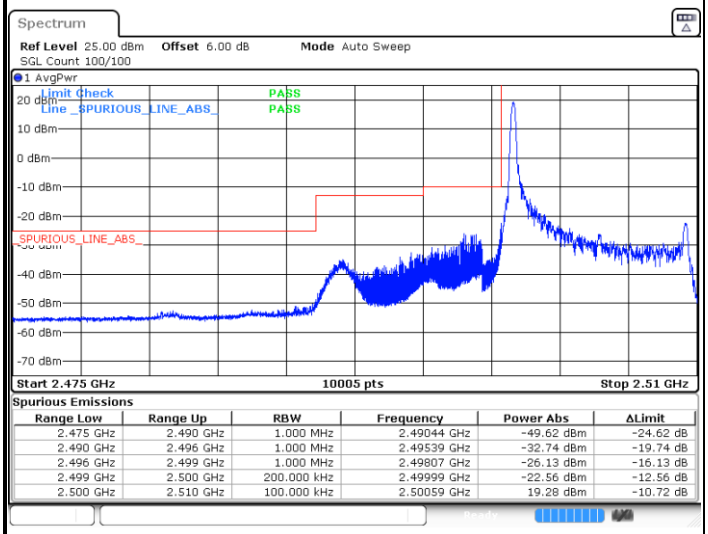
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.560 GHz	2.570 GHz	100.000 kHz	2.56344 GHz	2.59 dBm	-27.41 dB
2.570 GHz	2.571 GHz	200.000 kHz	2.57024 GHz	-26.74 dBm	-16.74 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57106 GHz	-21.44 dBm	-11.44 dB
2.575 GHz	2.580 GHz	1.000 MHz	2.57524 GHz	-27.17 dBm	-14.17 dB
2.580 GHz	2.595 GHz	1.000 MHz	2.58023 GHz	-40.97 dBm	-15.97 dB

Date: 16.JAN.2023 23:57:32

LTE Band 7 / 10MHz / 16QAM

Lowest Band Edge / 1 RB

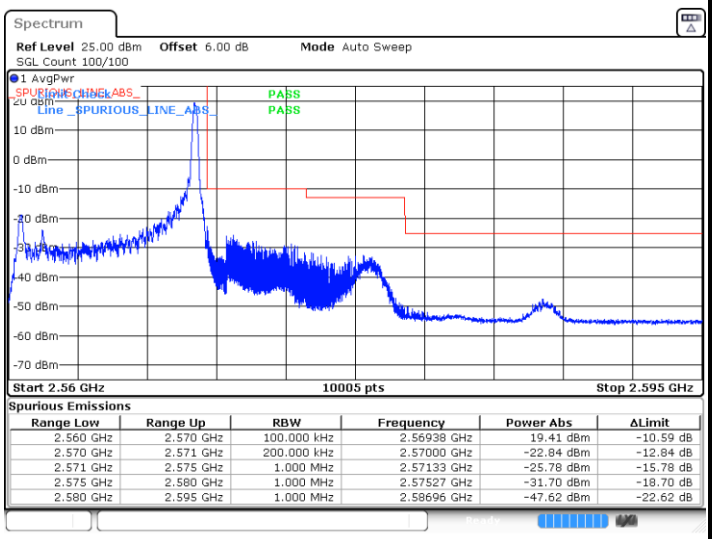


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.49044 GHz	-49.62 dBm	-24.62 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49539 GHz	-32.74 dBm	-19.74 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49807 GHz	-26.13 dBm	-16.13 dB
2.499 GHz	2.500 GHz	200.000 kHz	2.49999 GHz	-22.56 dBm	-12.56 dB
2.500 GHz	2.510 GHz	100.000 kHz	2.50059 GHz	19.28 dBm	-10.72 dB

Date: 17.JAN.2023 01:01:26

Highest Band Edge / 1 RB

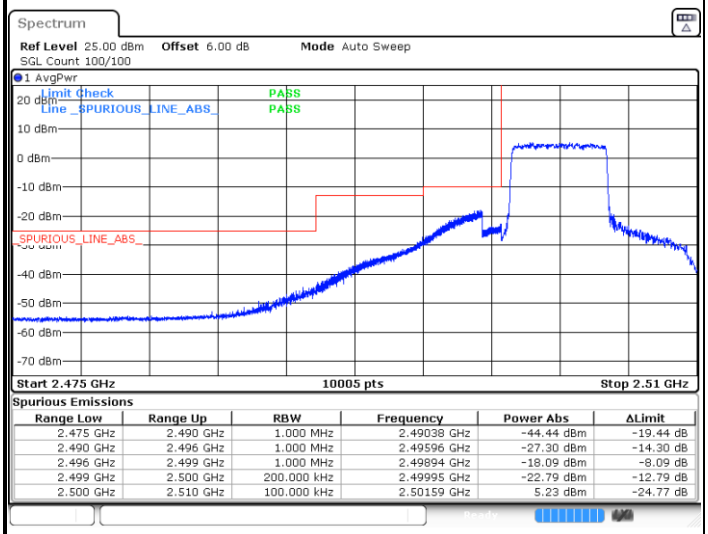


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.560 GHz	2.570 GHz	100.000 kHz	2.56938 GHz	19.41 dBm	-10.59 dB
2.570 GHz	2.571 GHz	200.000 kHz	2.57000 GHz	-22.84 dBm	-12.84 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57133 GHz	-25.78 dBm	-15.78 dB
2.575 GHz	2.580 GHz	1.000 MHz	2.57527 GHz	-31.70 dBm	-18.70 dB
2.580 GHz	2.595 GHz	1.000 MHz	2.58696 GHz	-47.62 dBm	-22.62 dB

Date: 17.JAN.2023 01:02:11

Lowest Band Edge / Full RB

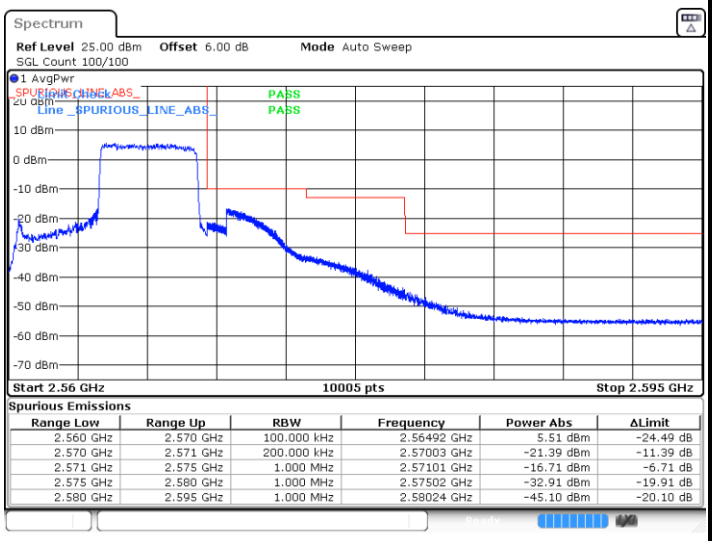


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.49038 GHz	-44.44 dBm	-19.44 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49596 GHz	-27.30 dBm	-14.30 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49894 GHz	-18.09 dBm	-8.09 dB
2.499 GHz	2.500 GHz	200.000 kHz	2.49995 GHz	-22.79 dBm	-12.79 dB
2.500 GHz	2.510 GHz	100.000 kHz	2.50159 GHz	5.23 dBm	-24.77 dB

Date: 17.JAN.2023 01:04:03

Highest Band Edge / Full RB



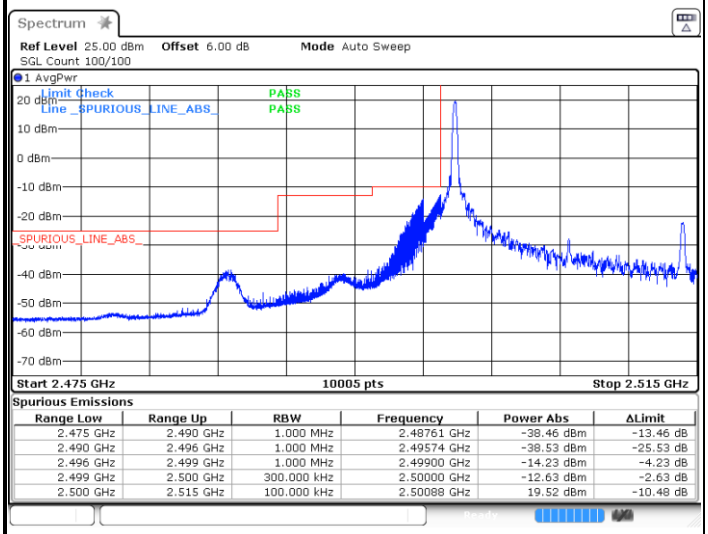
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.560 GHz	2.570 GHz	100.000 kHz	2.56492 GHz	5.51 dBm	-24.49 dB
2.570 GHz	2.571 GHz	200.000 kHz	2.57003 GHz	-21.39 dBm	-11.39 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57101 GHz	-16.71 dBm	-6.71 dB
2.575 GHz	2.580 GHz	1.000 MHz	2.57502 GHz	-32.91 dBm	-19.91 dB
2.580 GHz	2.595 GHz	1.000 MHz	2.58024 GHz	-45.10 dBm	-20.10 dB

Date: 17.JAN.2023 01:03:10

LTE Band 7 / 15MHz / QPSK

Lowest Band Edge / 1 RB

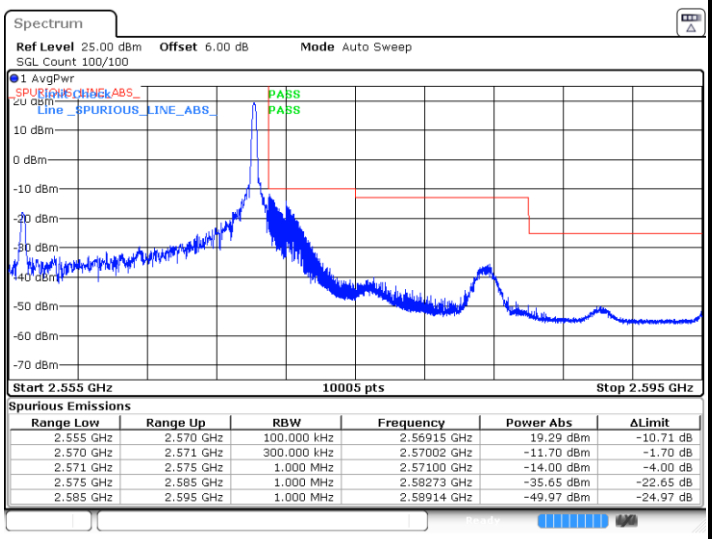


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.48761 GHz	-38.46 dBm	-13.46 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49574 GHz	-38.53 dBm	-25.53 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49900 GHz	-14.23 dBm	-4.23 dB
2.499 GHz	2.500 GHz	300.000 kHz	2.50000 GHz	-12.63 dBm	-2.63 dB
2.500 GHz	2.515 GHz	100.000 kHz	2.50088 GHz	19.52 dBm	-10.48 dB

Date: 17.JAN.2023 00:43:51

Highest Band Edge / 1 RB

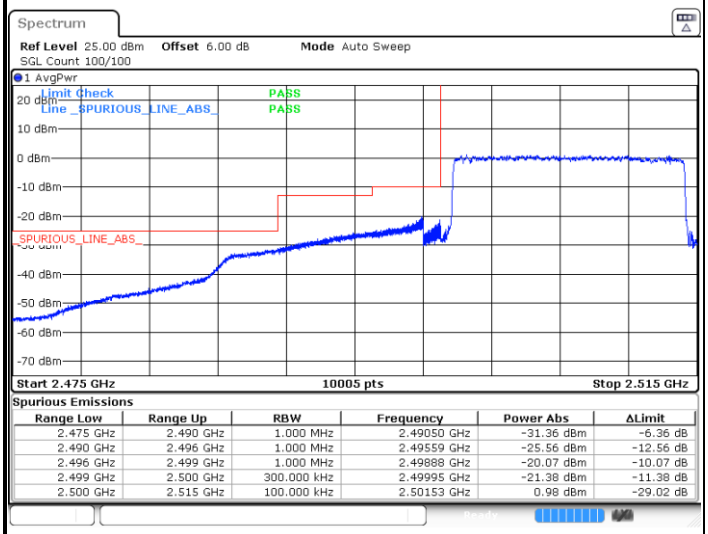


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.555 GHz	2.570 GHz	100.000 kHz	2.56915 GHz	19.29 dBm	-10.71 dB
2.570 GHz	2.571 GHz	300.000 kHz	2.57002 GHz	-11.70 dBm	-1.70 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57100 GHz	-14.00 dBm	-4.00 dB
2.575 GHz	2.585 GHz	1.000 MHz	2.58273 GHz	-35.65 dBm	-22.65 dB
2.585 GHz	2.595 GHz	1.000 MHz	2.58914 GHz	-49.97 dBm	-24.97 dB

Date: 17.JAN.2023 00:05:33

Lowest Band Edge / Full RB

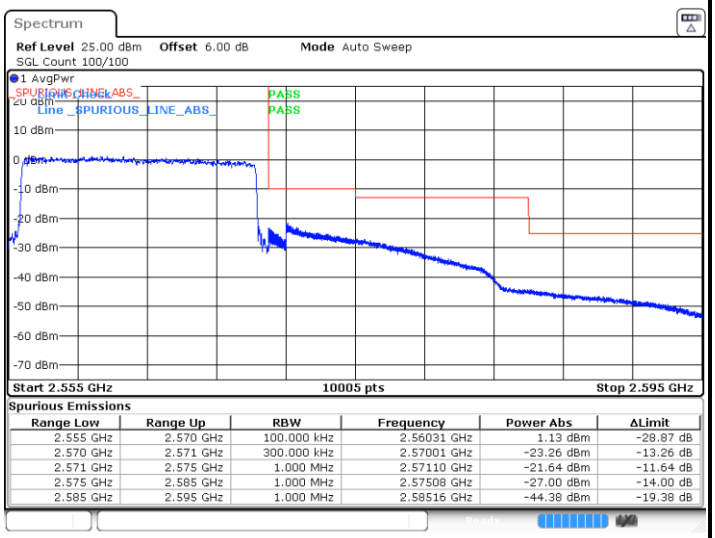


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.49050 GHz	-31.36 dBm	-6.36 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49559 GHz	-25.56 dBm	-12.56 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49888 GHz	-20.07 dBm	-10.07 dB
2.499 GHz	2.500 GHz	300.000 kHz	2.49995 GHz	-21.38 dBm	-11.38 dB
2.500 GHz	2.515 GHz	100.000 kHz	2.50153 GHz	0.98 dBm	-29.02 dB

Date: 17.JAN.2023 00:01:34

Highest Band Edge / Full RB



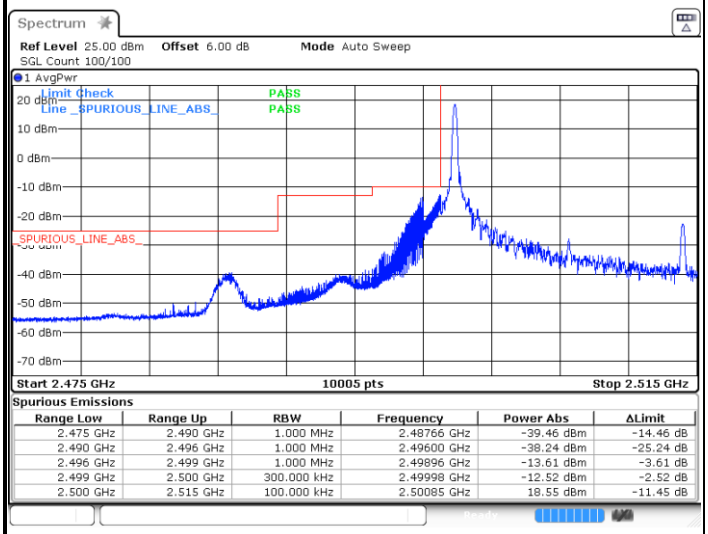
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.555 GHz	2.570 GHz	100.000 kHz	2.56031 GHz	1.13 dBm	-28.87 dB
2.570 GHz	2.571 GHz	300.000 kHz	2.57001 GHz	-23.26 dBm	-13.26 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57110 GHz	-21.64 dBm	-11.64 dB
2.575 GHz	2.585 GHz	1.000 MHz	2.57508 GHz	-27.00 dBm	-14.00 dB
2.585 GHz	2.595 GHz	1.000 MHz	2.58516 GHz	-44.38 dBm	-19.38 dB

Date: 17.JAN.2023 00:06:54

LTE Band 7 / 15MHz / 16QAM

Lowest Band Edge / 1 RB

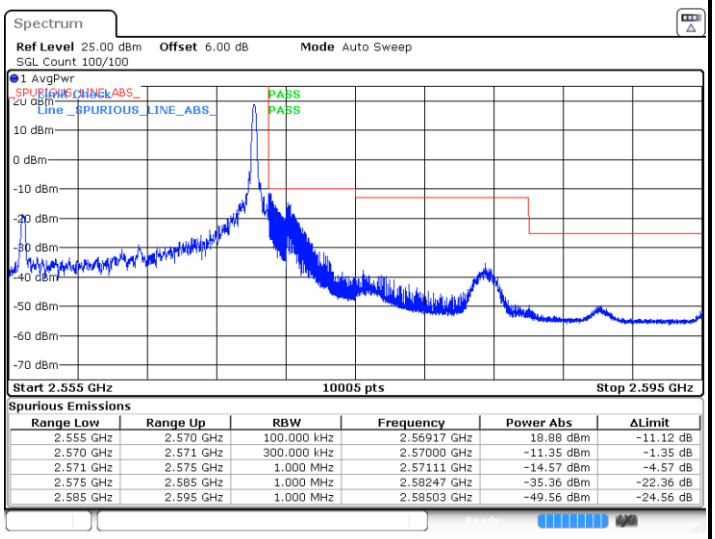


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.48766 GHz	-39.46 dBm	-14.46 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49600 GHz	-38.24 dBm	-25.24 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49896 GHz	-13.61 dBm	-3.61 dB
2.499 GHz	2.500 GHz	300.000 kHz	2.49998 GHz	-12.52 dBm	-2.52 dB
2.500 GHz	2.515 GHz	100.000 kHz	2.50085 GHz	18.55 dBm	-11.45 dB

Date: 17.JAN.2023 00:44:43

Highest Band Edge / 1 RB

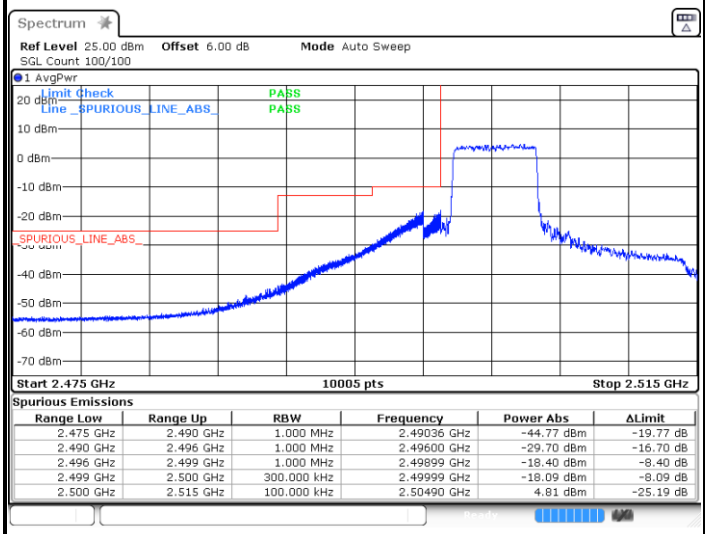


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.555 GHz	2.570 GHz	100.000 kHz	2.56917 GHz	18.88 dBm	-11.12 dB
2.570 GHz	2.571 GHz	300.000 kHz	2.57000 GHz	-11.35 dBm	-1.35 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57111 GHz	-14.57 dBm	-4.57 dB
2.575 GHz	2.585 GHz	1.000 MHz	2.58247 GHz	-35.36 dBm	-22.36 dB
2.585 GHz	2.595 GHz	1.000 MHz	2.58503 GHz	-49.56 dBm	-24.56 dB

Date: 17.JAN.2023 00:45:30

Lowest Band Edge / Full RB

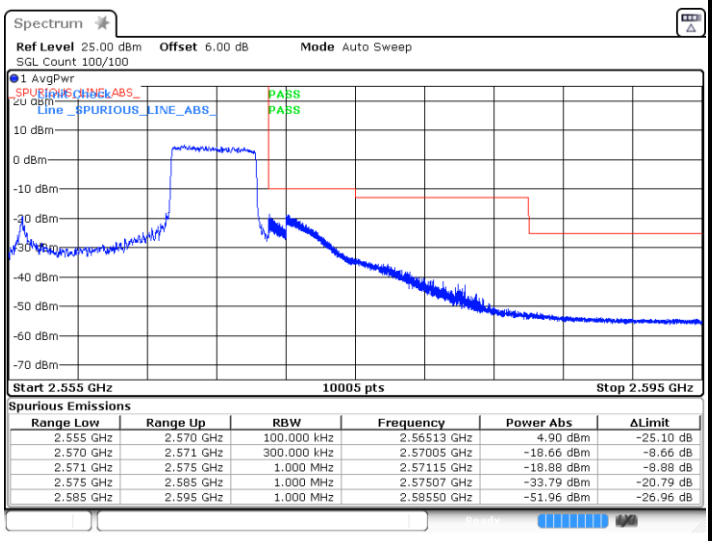


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.49036 GHz	-44.77 dBm	-19.77 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49600 GHz	-29.70 dBm	-16.70 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49899 GHz	-18.40 dBm	-8.40 dB
2.499 GHz	2.500 GHz	300.000 kHz	2.49999 GHz	-18.09 dBm	-8.09 dB
2.500 GHz	2.515 GHz	100.000 kHz	2.50490 GHz	4.81 dBm	-25.19 dB

Date: 17.JAN.2023 00:51:17

Highest Band Edge / Full RB



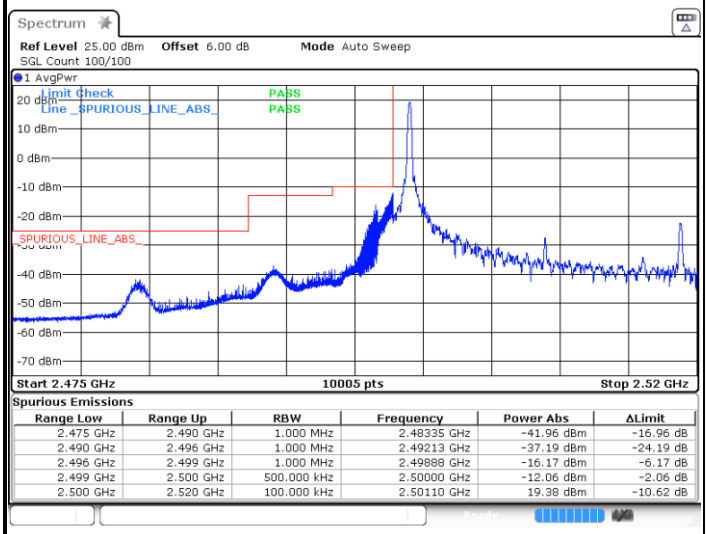
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.555 GHz	2.570 GHz	100.000 kHz	2.56513 GHz	4.90 dBm	-25.10 dB
2.570 GHz	2.571 GHz	300.000 kHz	2.57005 GHz	-18.66 dBm	-8.66 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57115 GHz	-18.88 dBm	-8.88 dB
2.575 GHz	2.585 GHz	1.000 MHz	2.57507 GHz	-33.79 dBm	-20.79 dB
2.585 GHz	2.595 GHz	1.000 MHz	2.58550 GHz	-51.96 dBm	-26.96 dB

Date: 17.JAN.2023 00:49:55

LTE Band 7 / 20MHz / QPSK

Lowest Band Edge / 1 RB

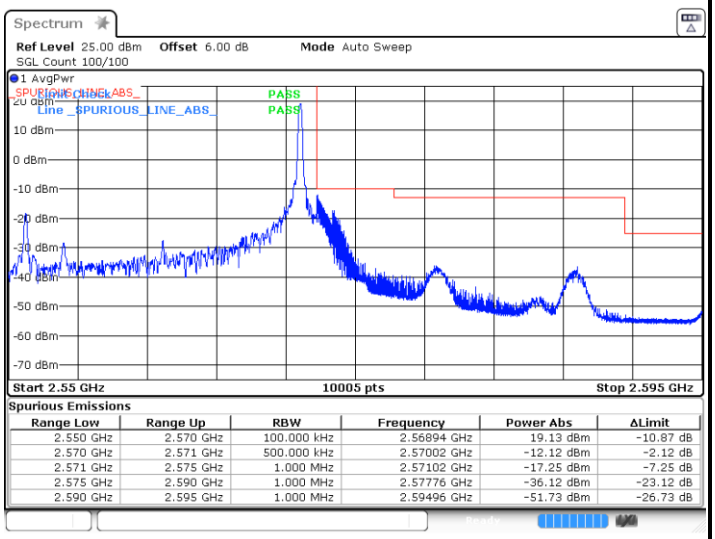


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.48335 GHz	-41.96 dBm	-16.96 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49213 GHz	-37.19 dBm	-24.19 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49888 GHz	-16.17 dBm	-6.17 dB
2.499 GHz	2.500 GHz	500.000 kHz	2.50000 GHz	-12.06 dBm	-2.06 dB
2.500 GHz	2.520 GHz	100.000 kHz	2.50110 GHz	19.38 dBm	-10.62 dB

Date: 17.JAN.2023 00:40:51

Highest Band Edge / 1 RB

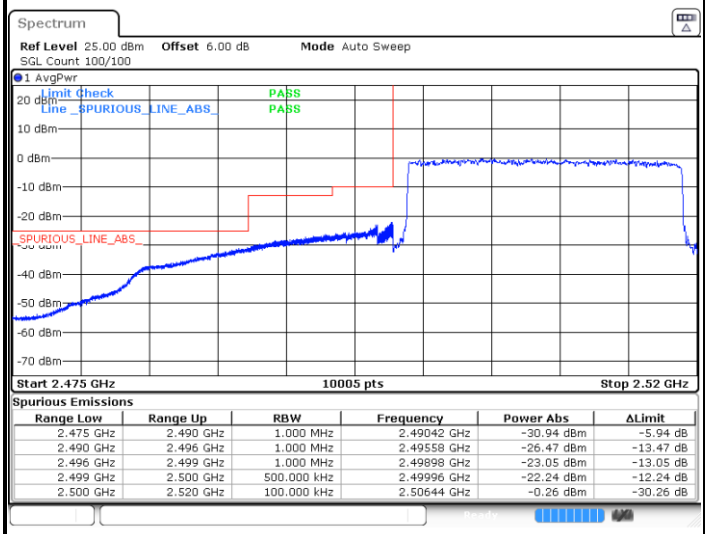


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56894 GHz	19.13 dBm	-10.87 dB
2.570 GHz	2.571 GHz	500.000 kHz	2.57002 GHz	-12.12 dBm	-2.12 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57102 GHz	-17.25 dBm	-7.25 dB
2.575 GHz	2.590 GHz	1.000 MHz	2.57776 GHz	-36.12 dBm	-23.12 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59496 GHz	-51.73 dBm	-26.73 dB

Date: 17.JAN.2023 00:42:16

Lowest Band Edge / Full RB

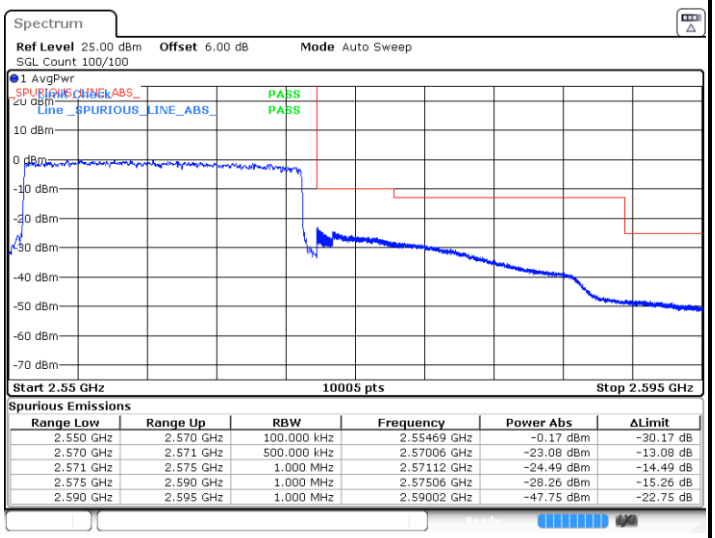


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.49042 GHz	-30.94 dBm	-5.94 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49558 GHz	-26.47 dBm	-13.47 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49898 GHz	-23.05 dBm	-13.05 dB
2.499 GHz	2.500 GHz	500.000 kHz	2.49996 GHz	-22.24 dBm	-12.24 dB
2.500 GHz	2.520 GHz	100.000 kHz	2.50644 GHz	-0.26 dBm	-30.26 dB

Date: 17.JAN.2023 00:10:55

Highest Band Edge / Full RB



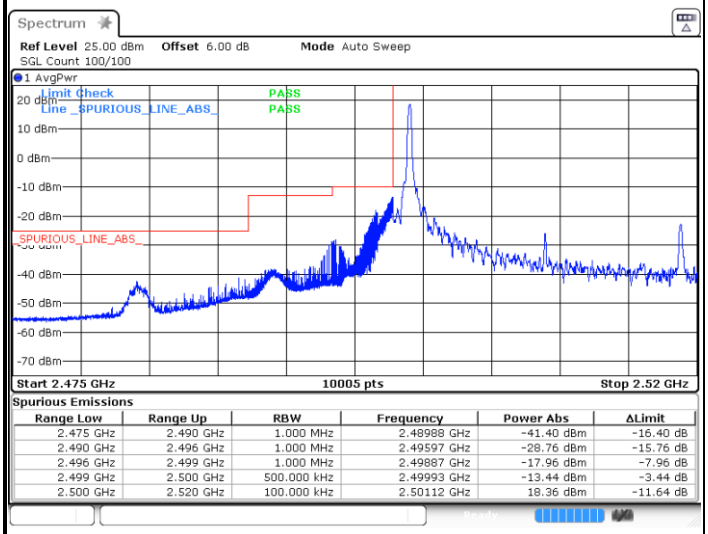
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.55469 GHz	-0.17 dBm	-30.17 dB
2.570 GHz	2.571 GHz	500.000 kHz	2.57006 GHz	-23.08 dBm	-13.08 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57112 GHz	-24.49 dBm	-14.49 dB
2.575 GHz	2.590 GHz	1.000 MHz	2.57506 GHz	-28.26 dBm	-15.26 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59002 GHz	-47.75 dBm	-22.75 dB

Date: 17.JAN.2023 00:16:14

LTE Band 7 / 20MHz / 16QAM

Lowest Band Edge / 1 RB

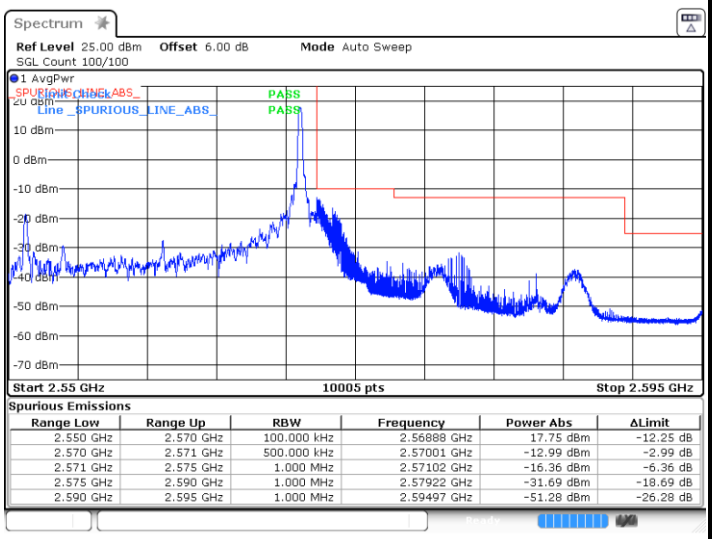


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.48988 GHz	-41.40 dBm	-16.40 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49597 GHz	-28.76 dBm	-15.76 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49887 GHz	-17.96 dBm	-7.96 dB
2.499 GHz	2.500 GHz	500.000 kHz	2.49993 GHz	-13.44 dBm	-3.44 dB
2.500 GHz	2.520 GHz	100.000 kHz	2.50112 GHz	18.36 dBm	-11.64 dB

Date: 17.JAN.2023 00:38:43

Highest Band Edge / 1 RB

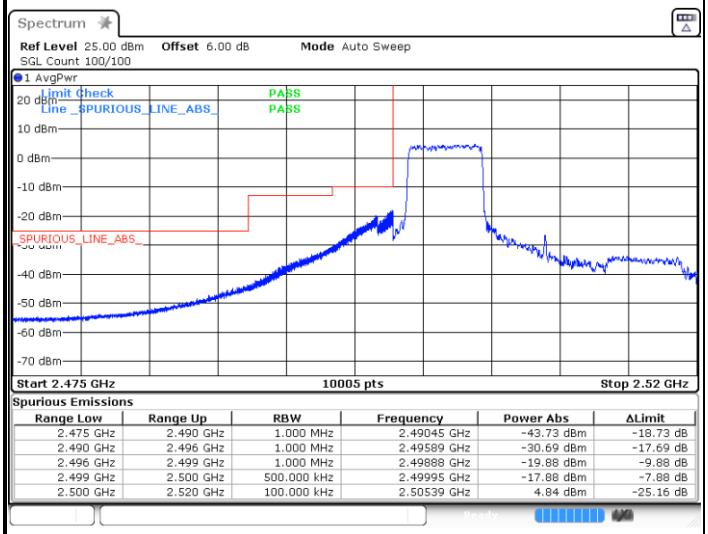


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56888 GHz	17.75 dBm	-12.25 dB
2.570 GHz	2.571 GHz	500.000 kHz	2.57001 GHz	-12.99 dBm	-2.99 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57102 GHz	-16.36 dBm	-6.36 dB
2.575 GHz	2.590 GHz	1.000 MHz	2.57922 GHz	-31.69 dBm	-18.69 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59497 GHz	-51.28 dBm	-26.28 dB

Date: 17.JAN.2023 00:39:38

Lowest Band Edge / Full RB

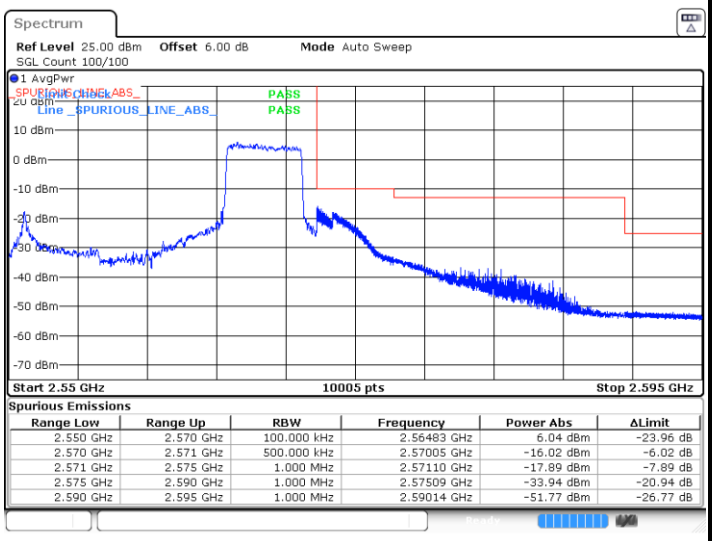


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.49045 GHz	-43.73 dBm	-18.73 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49589 GHz	-30.69 dBm	-17.69 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49888 GHz	-19.88 dBm	-9.88 dB
2.499 GHz	2.500 GHz	500.000 kHz	2.49995 GHz	-17.88 dBm	-7.88 dB
2.500 GHz	2.520 GHz	100.000 kHz	2.50539 GHz	4.84 dBm	-25.16 dB

Date: 17.JAN.2023 00:52:58

Highest Band Edge / Full RB



Spurious Emissions

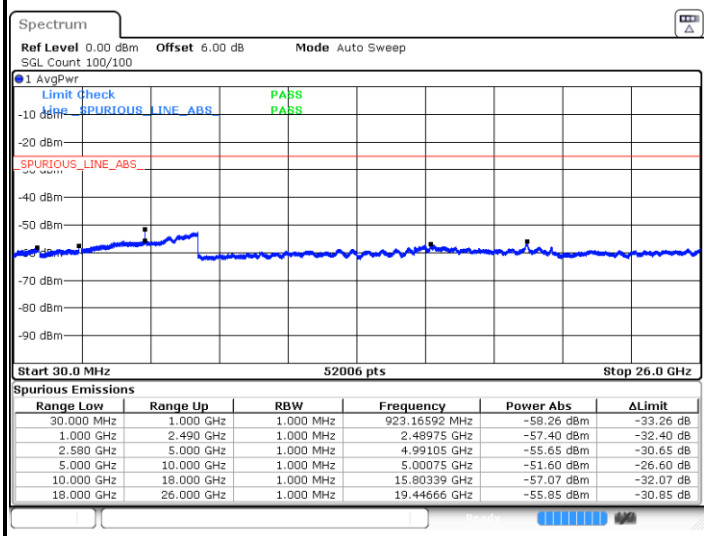
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56483 GHz	6.04 dBm	-23.96 dB
2.570 GHz	2.571 GHz	500.000 kHz	2.57005 GHz	-16.02 dBm	-6.02 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57110 GHz	-17.89 dBm	-7.89 dB
2.575 GHz	2.590 GHz	1.000 MHz	2.57509 GHz	-33.94 dBm	-20.94 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59014 GHz	-51.77 dBm	-26.77 dB

Date: 17.JAN.2023 00:36:13

Conducted Spurious Emission

LTE Band 7 / 5MHz

Lowest Channel / QPSK

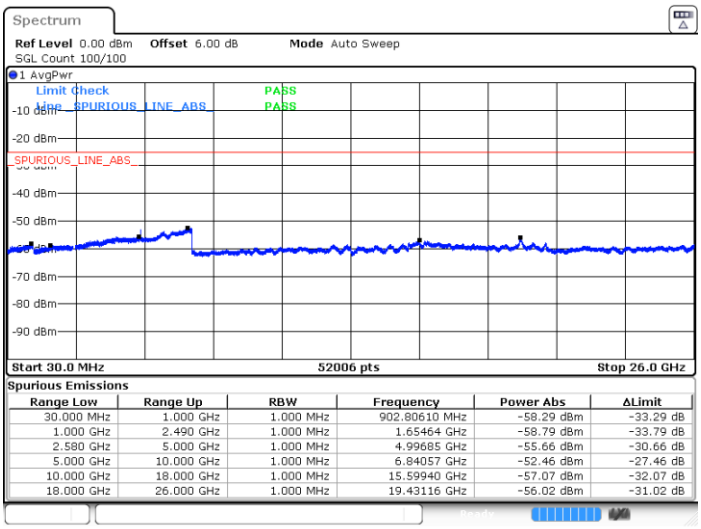


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	923.16592 MHz	-58.26 dBm	-33.26 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48975 GHz	-57.40 dBm	-32.40 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.99105 GHz	-55.65 dBm	-30.65 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.00075 GHz	-51.60 dBm	-26.60 dB
10.000 GHz	18.000 GHz	1.000 MHz	15.80339 GHz	-57.07 dBm	-32.07 dB
18.000 GHz	26.000 GHz	1.000 MHz	19.44666 GHz	-55.85 dBm	-30.85 dB

Date: 16.JAN.2023 23:34:45

Middle Channel / QPSK

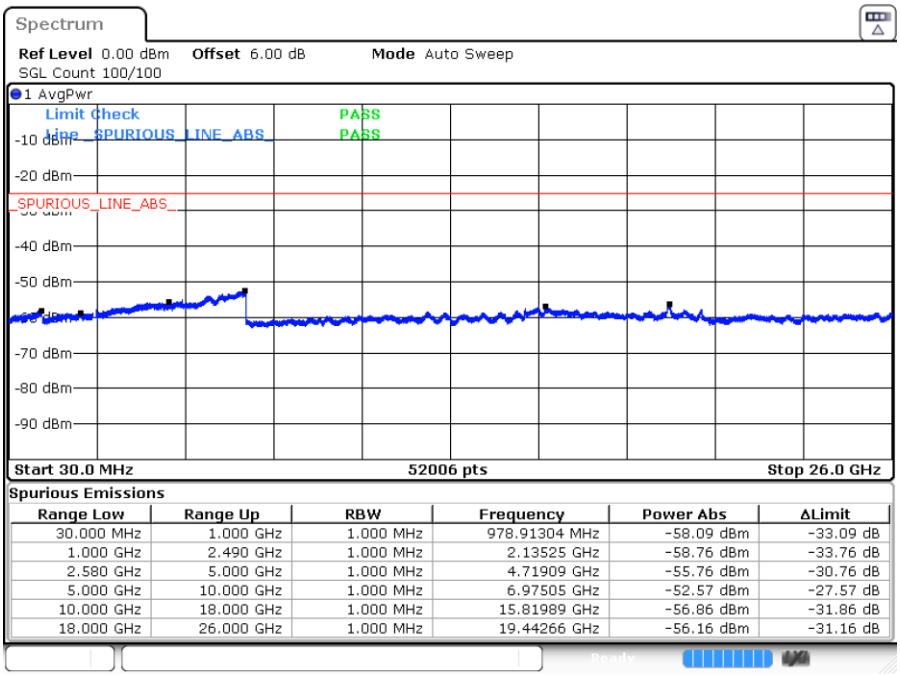


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	902.80610 MHz	-58.29 dBm	-33.29 dB
1.000 GHz	2.490 GHz	1.000 MHz	1.65464 GHz	-58.79 dBm	-33.79 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.99685 GHz	-55.66 dBm	-30.66 dB
5.000 GHz	10.000 GHz	1.000 MHz	6.84057 GHz	-52.46 dBm	-27.46 dB
10.000 GHz	18.000 GHz	1.000 MHz	15.59940 GHz	-57.07 dBm	-32.07 dB
18.000 GHz	26.000 GHz	1.000 MHz	19.43116 GHz	-56.02 dBm	-31.02 dB

Date: 16.JAN.2023 23:41:29

Highest Channel / QPSK



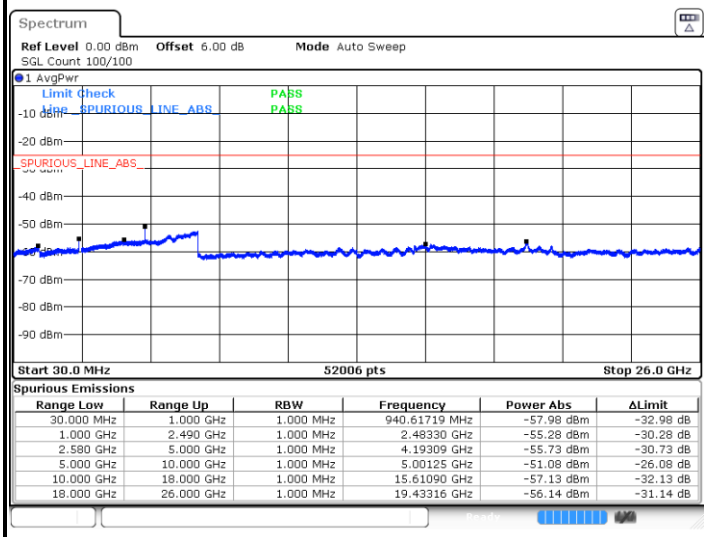
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	978.91304 MHz	-58.09 dBm	-33.09 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.13525 GHz	-58.76 dBm	-33.76 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.71909 GHz	-55.76 dBm	-30.76 dB
5.000 GHz	10.000 GHz	1.000 MHz	6.97505 GHz	-52.57 dBm	-27.57 dB
10.000 GHz	18.000 GHz	1.000 MHz	15.81989 GHz	-56.86 dBm	-31.86 dB
18.000 GHz	26.000 GHz	1.000 MHz	19.44266 GHz	-56.16 dBm	-31.16 dB

Date: 16.JAN.2023 23:42:48

LTE Band 7 / 10MHz

Lowest Channel / QPSK

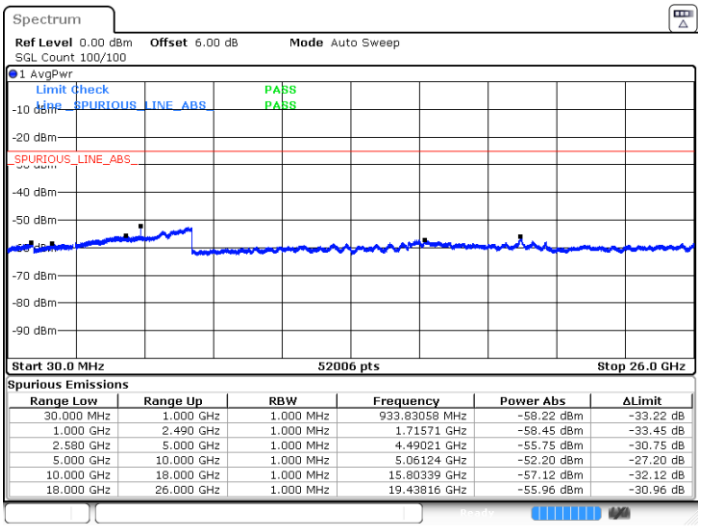


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	940.61719 MHz	-57.98 dBm	-32.98 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48330 GHz	-55.28 dBm	-30.28 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.19309 GHz	-55.73 dBm	-30.73 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.00125 GHz	-51.08 dBm	-26.08 dB
10.000 GHz	18.000 GHz	1.000 MHz	15.61090 GHz	-57.13 dBm	-32.13 dB
18.000 GHz	26.000 GHz	1.000 MHz	19.43316 GHz	-56.14 dBm	-31.14 dB

Date: 16.JAN.2023 23:49:30

Middle Channel / QPSK

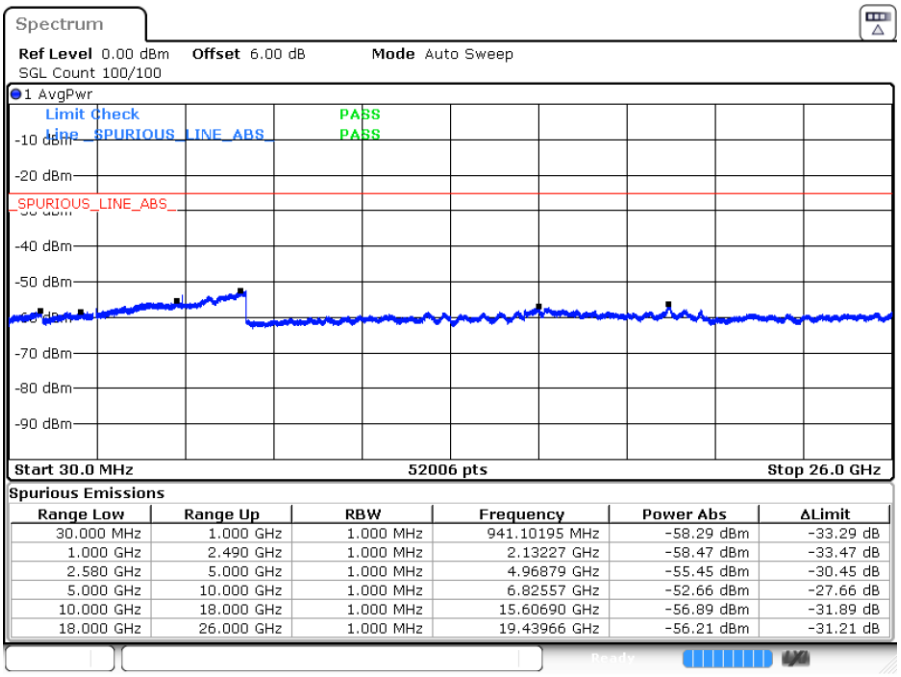


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	933.83058 MHz	-58.22 dBm	-33.22 dB
1.000 GHz	2.490 GHz	1.000 MHz	1.71571 GHz	-58.45 dBm	-33.45 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.49021 GHz	-55.75 dBm	-30.75 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.06124 GHz	-52.20 dBm	-27.20 dB
10.000 GHz	18.000 GHz	1.000 MHz	15.80339 GHz	-57.12 dBm	-32.12 dB
18.000 GHz	26.000 GHz	1.000 MHz	19.43816 GHz	-55.96 dBm	-30.96 dB

Date: 16.JAN.2023 23:53:31

Highest Channel / QPSK



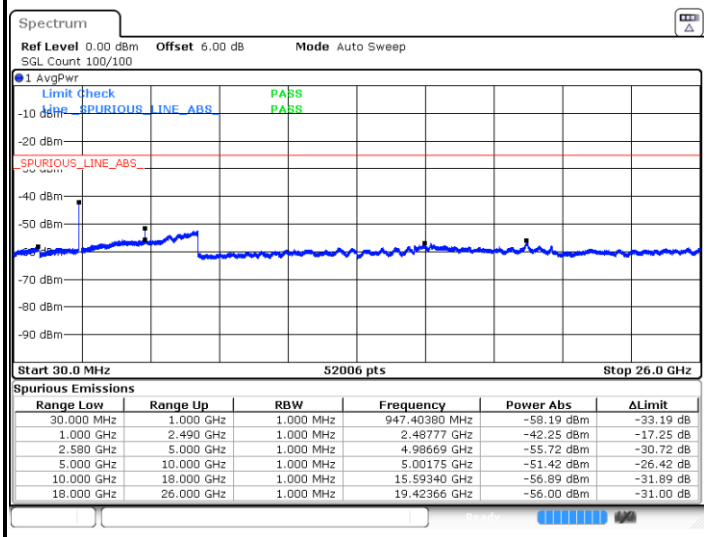
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	941.10195 MHz	-58.29 dBm	-33.29 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.13227 GHz	-58.47 dBm	-33.47 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.96879 GHz	-55.45 dBm	-30.45 dB
5.000 GHz	10.000 GHz	1.000 MHz	6.82557 GHz	-52.66 dBm	-27.66 dB
10.000 GHz	18.000 GHz	1.000 MHz	15.60690 GHz	-56.89 dBm	-31.89 dB
18.000 GHz	26.000 GHz	1.000 MHz	19.43966 GHz	-56.21 dBm	-31.21 dB

Date: 16.JAN.2023 23:54:50

LTE Band 7 / 15MHz

Lowest Channel / QPSK

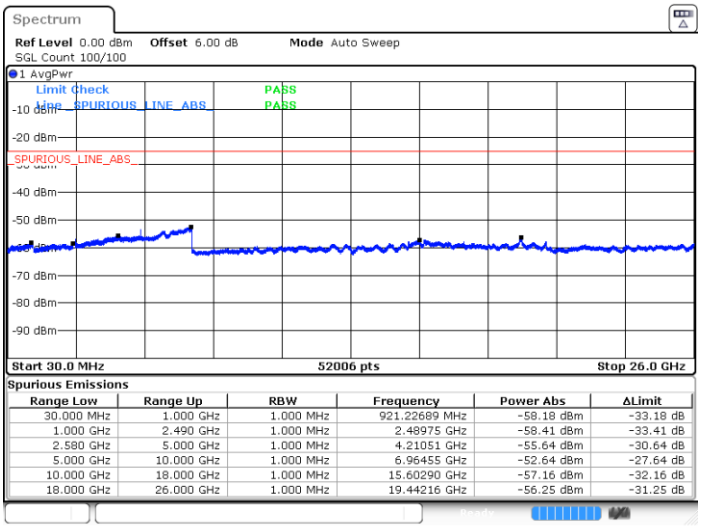


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	947.40380 MHz	-58.19 dBm	-33.19 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48777 GHz	-42.25 dBm	-17.25 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.98669 GHz	-55.72 dBm	-30.72 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.00175 GHz	-51.42 dBm	-26.42 dB
10.000 GHz	18.000 GHz	1.000 MHz	15.59340 GHz	-56.89 dBm	-31.89 dB
18.000 GHz	26.000 GHz	1.000 MHz	19.42366 GHz	-56.00 dBm	-31.00 dB

Date: 16.JAN.2023 23:58:52

Middle Channel / QPSK

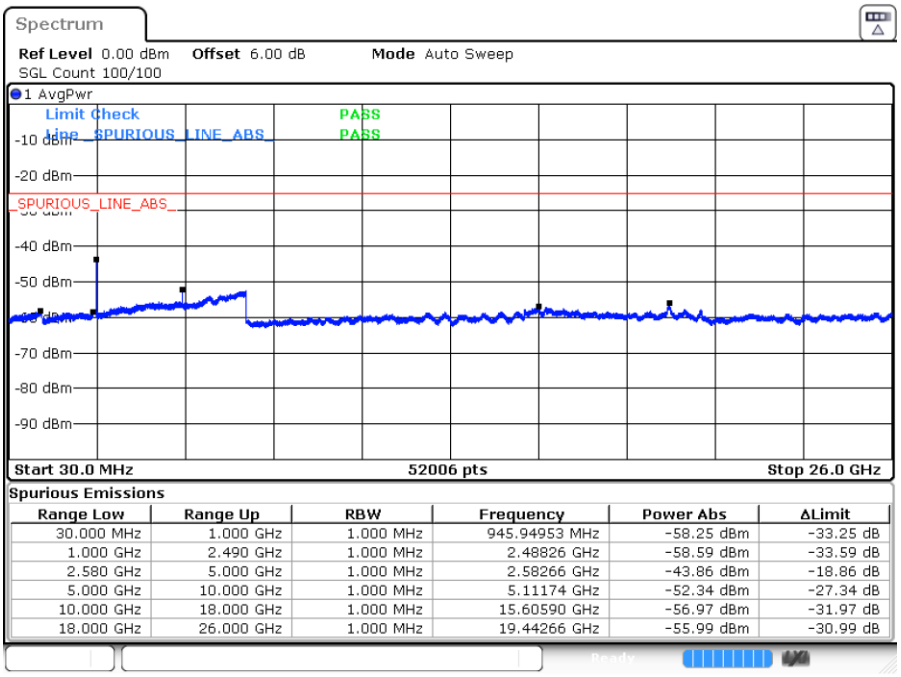


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	921.22689 MHz	-58.18 dBm	-33.18 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48975 GHz	-58.41 dBm	-33.41 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.21051 GHz	-55.64 dBm	-30.64 dB
5.000 GHz	10.000 GHz	1.000 MHz	6.96455 GHz	-52.64 dBm	-27.64 dB
10.000 GHz	18.000 GHz	1.000 MHz	15.60290 GHz	-57.16 dBm	-32.16 dB
18.000 GHz	26.000 GHz	1.000 MHz	19.44216 GHz	-56.25 dBm	-31.25 dB

Date: 17.JAN.2023 00:02:53

Highest Channel / QPSK



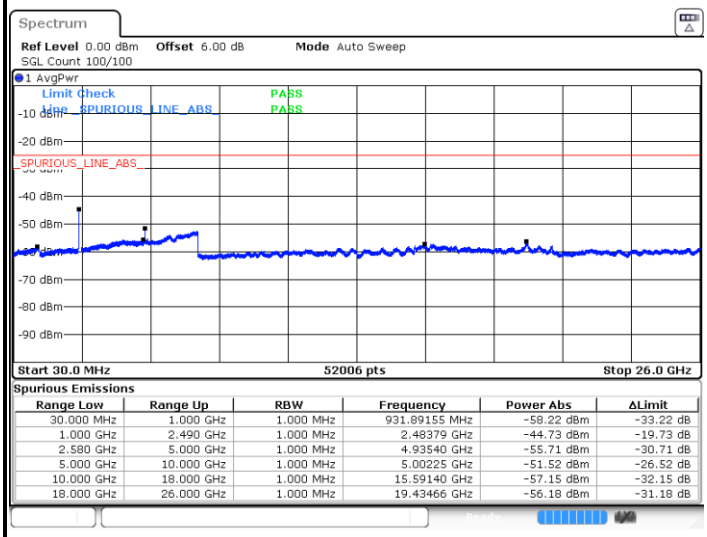
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	945.94953 MHz	-58.25 dBm	-33.25 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48826 GHz	-58.59 dBm	-33.59 dB
2.580 GHz	5.000 GHz	1.000 MHz	2.58266 GHz	-43.86 dBm	-18.86 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.11174 GHz	-52.34 dBm	-27.34 dB
10.000 GHz	18.000 GHz	1.000 MHz	15.60590 GHz	-56.97 dBm	-31.97 dB
18.000 GHz	26.000 GHz	1.000 MHz	19.44266 GHz	-55.99 dBm	-30.99 dB

Date: 17.JAN.2023 00:04:12

LTE Band 7 / 20MHz

Lowest Channel / QPSK

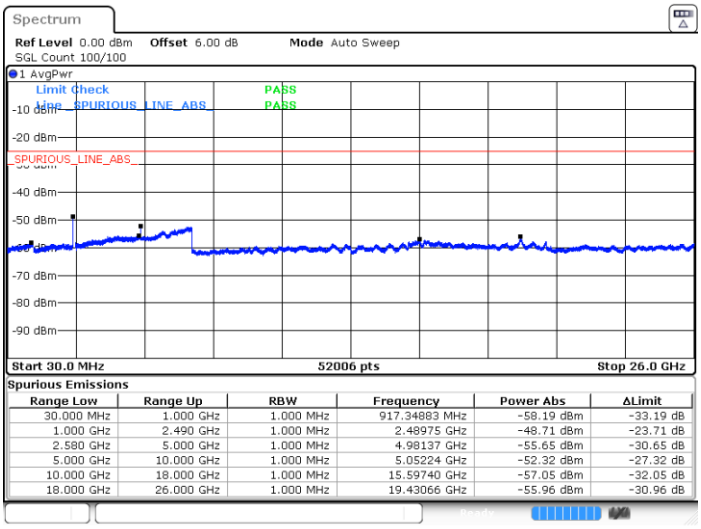


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	931.89155 MHz	-58.22 dBm	-33.22 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48379 GHz	-44.73 dBm	-19.73 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.93540 GHz	-55.71 dBm	-30.71 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.00225 GHz	-51.52 dBm	-26.52 dB
10.000 GHz	18.000 GHz	1.000 MHz	15.59140 GHz	-57.15 dBm	-32.15 dB
18.000 GHz	26.000 GHz	1.000 MHz	19.43466 GHz	-56.18 dBm	-31.18 dB

Date: 17.JAN.2023 00:08:14

Middle Channel / QPSK

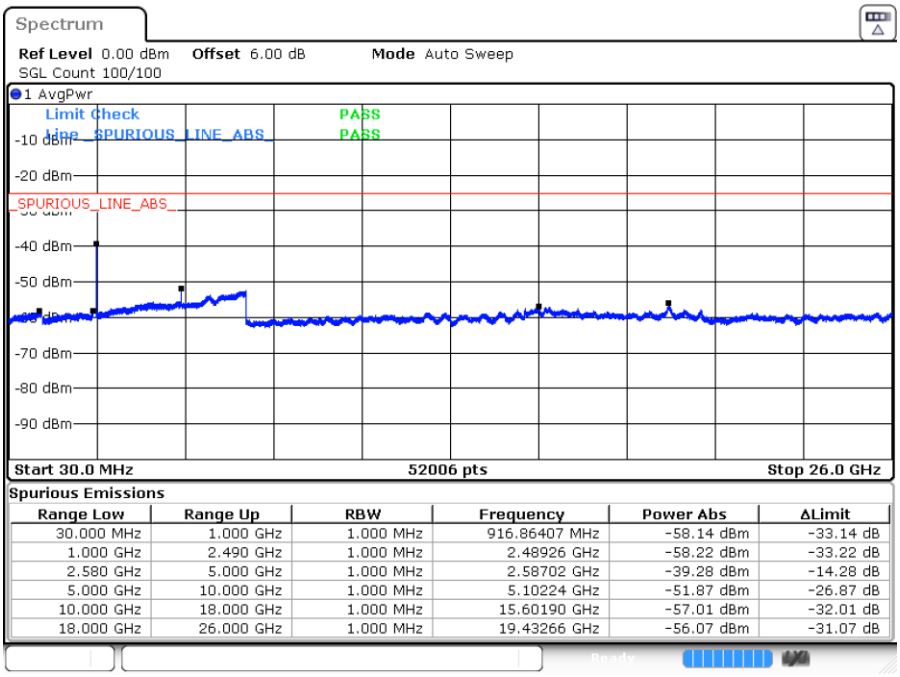


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	917.34883 MHz	-58.19 dBm	-33.19 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48975 GHz	-48.71 dBm	-23.71 dB
2.580 GHz	5.000 GHz	1.000 MHz	4.98137 GHz	-55.65 dBm	-30.65 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.05224 GHz	-52.32 dBm	-27.32 dB
10.000 GHz	18.000 GHz	1.000 MHz	15.59740 GHz	-57.05 dBm	-32.05 dB
18.000 GHz	26.000 GHz	1.000 MHz	19.43066 GHz	-55.96 dBm	-30.96 dB

Date: 17.JAN.2023 00:12:14

Highest Channel / QPSK



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	916.86407 MHz	-58.14 dBm	-33.14 dB
1.000 GHz	2.490 GHz	1.000 MHz	2.48926 GHz	-58.22 dBm	-33.22 dB
2.580 GHz	5.000 GHz	1.000 MHz	2.58702 GHz	-39.28 dBm	-14.28 dB
5.000 GHz	10.000 GHz	1.000 MHz	5.10224 GHz	-51.87 dBm	-26.87 dB
10.000 GHz	18.000 GHz	1.000 MHz	15.60190 GHz	-57.01 dBm	-32.01 dB
18.000 GHz	26.000 GHz	1.000 MHz	19.43266 GHz	-56.07 dBm	-31.07 dB

Date: 17.JAN.2023 00:13:33

Frequency Stability

Test Conditions		LTE Band 7 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0003	PASS
40	Normal Voltage	0.0015	
30	Normal Voltage	0.0021	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0032	
0	Normal Voltage	0.0036	
-10	Normal Voltage	0.0016	
-20	Normal Voltage	0.0025	
-30	Normal Voltage	0.0011	
20	Maximum Voltage	0.0009	
20	Normal Voltage	0.0015	
20	End Point	0.0028	

Note:

1. Normal Voltage =3.8 V. ; Battery End Point (BEP) =3.3 V. ; Maximum Voltage =4.3 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

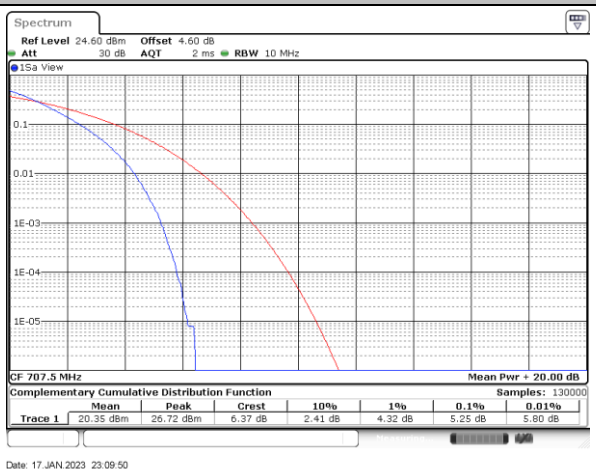
LTE Band 12

Peak-to-Average Ratio

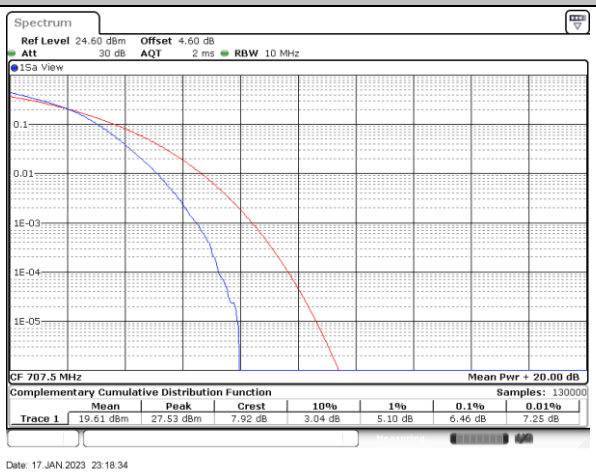
Mode	LTE Band 12 / 10MHz		
Mod.	QPSK	16QAM	Limit: 13dB
RB Size	Full RB	Full RB	Result
Middle CH	5.25	6.46	PASS

LTE Band 12 / 10MHz

Middle Channel / Full RB/ QPSK

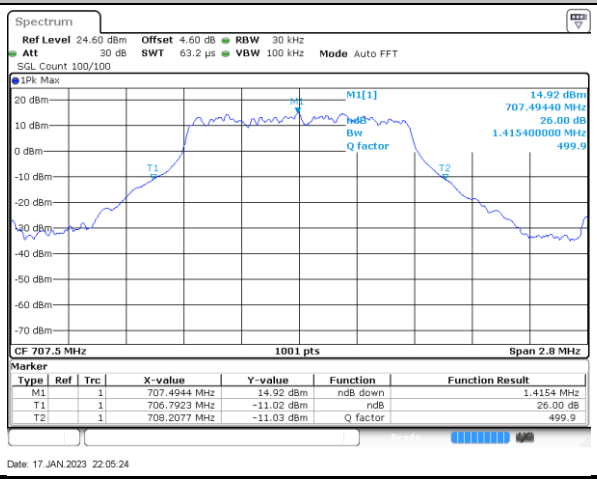
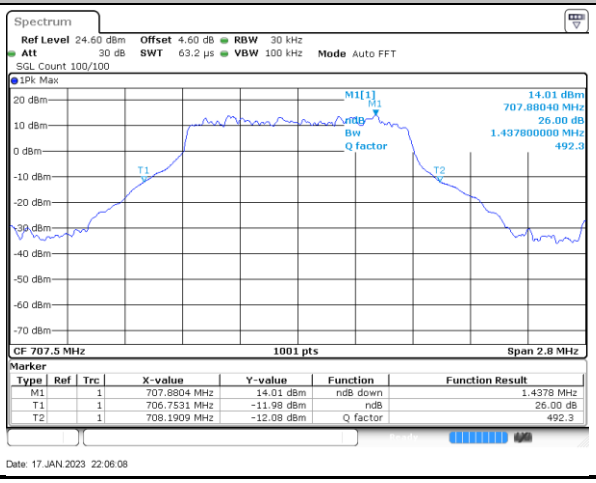


Middle Channel / Full RB/ 16QAM



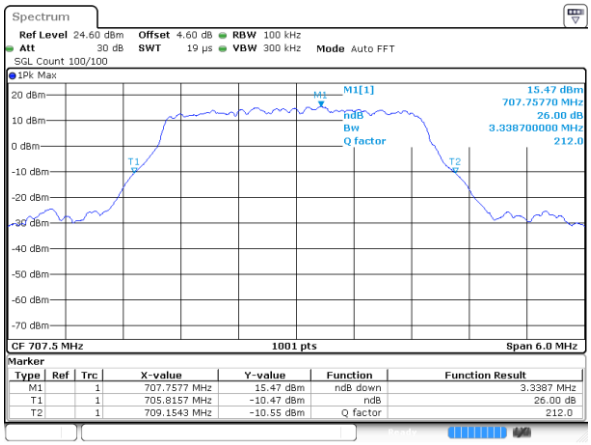
26dB Bandwidth

Mode	LTE Band 12 : 26dB BW(MHz)	
BW	1.4MHz	
Mod.	QPSK	16QAM
Middle CH	1.42	1.44
BW	3MHz	
Mod.	QPSK	16QAM
Middle CH	3.34	3.16
BW	5MHz	
Mod.	QPSK	16QAM
Middle CH	5.10	5.05
BW	10MHz	
Mod.	QPSK	16QAM
Middle CH	9.75	6.71

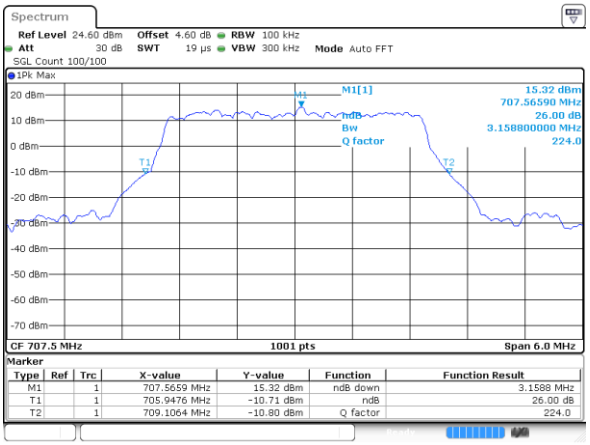
LTE Band 12	
Middle Channel / 1.4MHz / QPSK	Middle Channel /1.4MHz / 16QAM
	

LTE Band 12

Middle Channel / 3MHz / QPSK

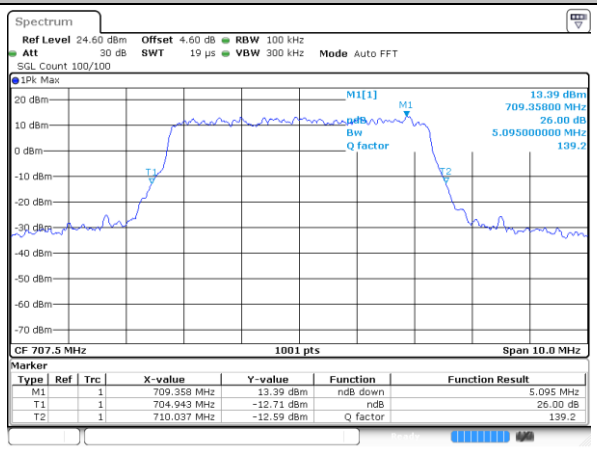


Middle Channel / 3MHz / 16QAM

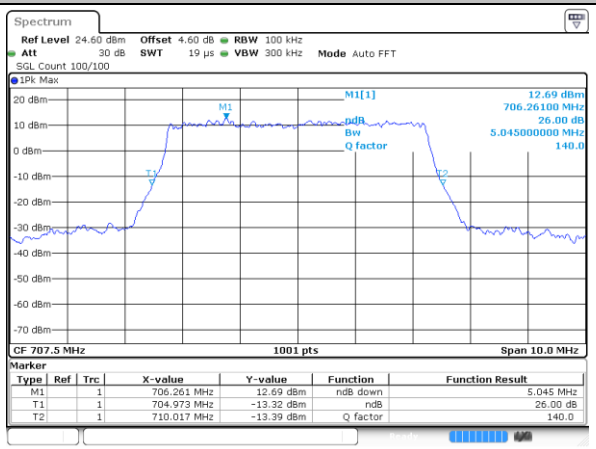


LTE Band 12

Middle Channel / 5MHz / QPSK

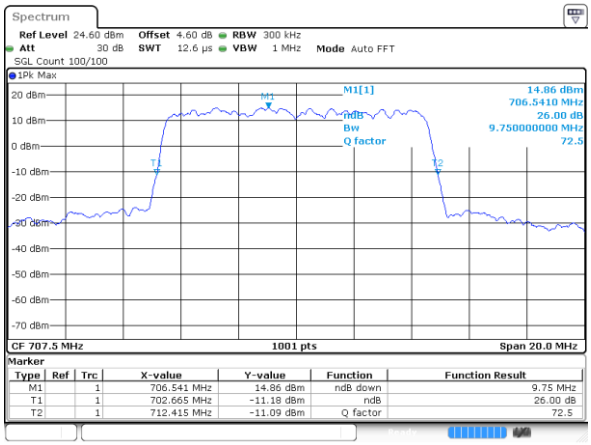


Middle Channel / 5MHz / 16QAM

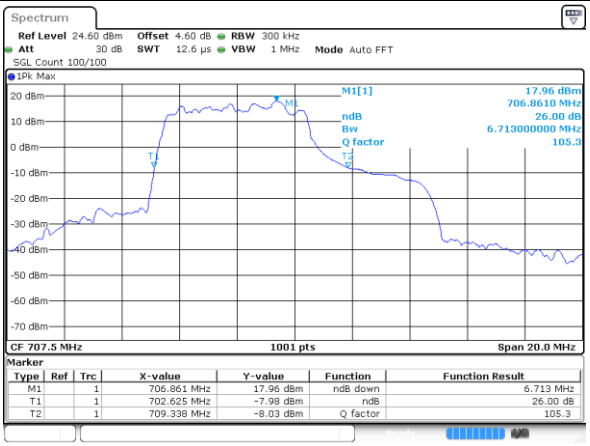


LTE Band 12

Middle Channel / 10MHz / QPSK

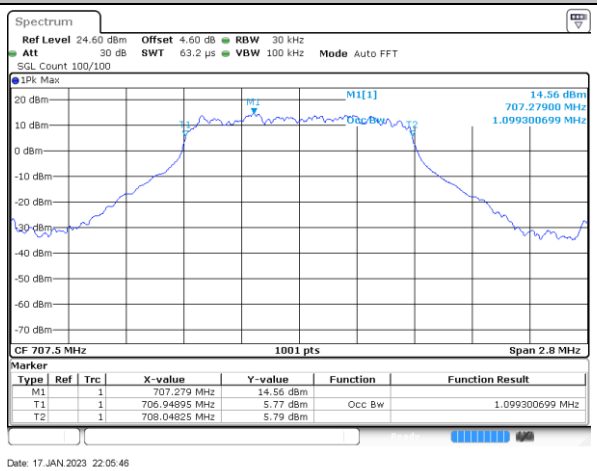
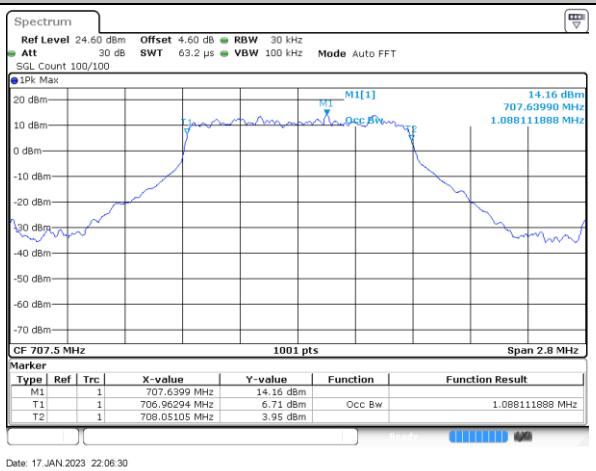


Middle Channel / 10MHz / 16QAM



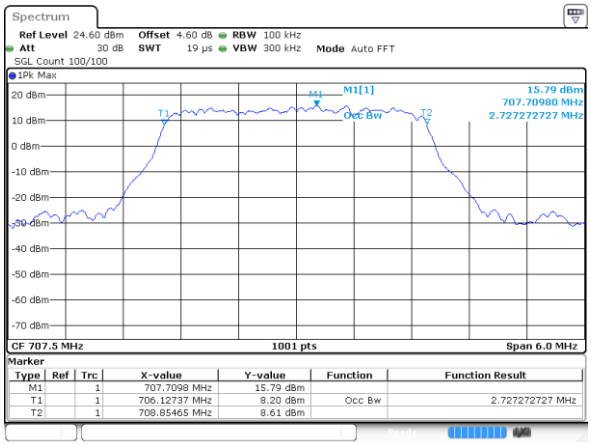
Occupied Bandwidth

Mode	LTE Band 12 : 99%OBW(MHz)	
BW	1.4MHz	
Mod.	QPSK	16QAM
Middle CH	1.10	1.09
BW	3MHz	
Mod.	QPSK	16QAM
Middle CH	2.73	2.69
BW	5MHz	
Mod.	QPSK	16QAM
Middle CH	4.50	4.45
BW	10MHz	
Mod.	QPSK	16QAM
Middle CH	8.93	5.61

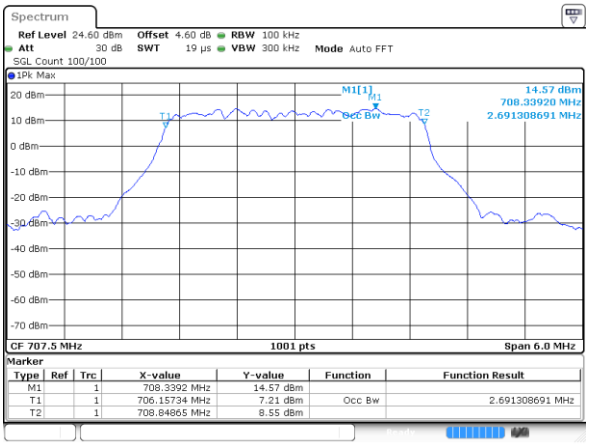
LTE Band 12	
Middle Channel / 1.4MHz / QPSK	Middle Channel / 1.4MHz / 16QAM
	

LTE Band 12

Middle Channel / 3MHz / QPSK

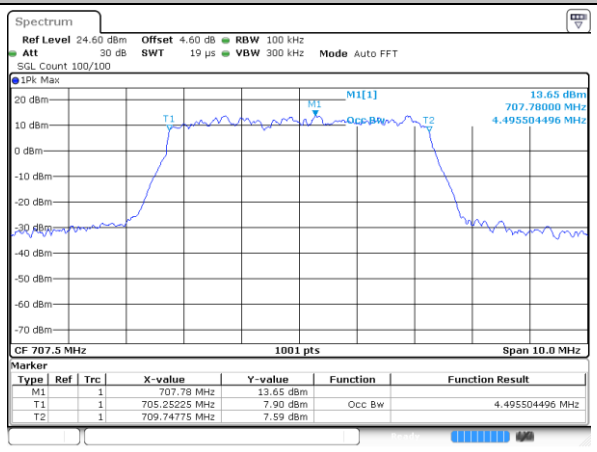


Middle Channel / 3MHz / 16QAM

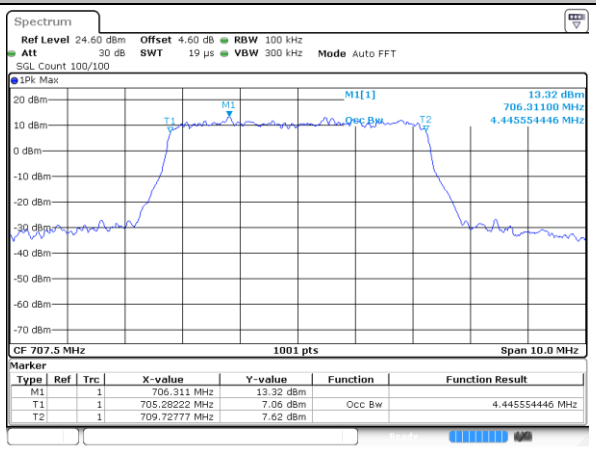


LTE Band 12

Middle Channel / 5MHz / QPSK

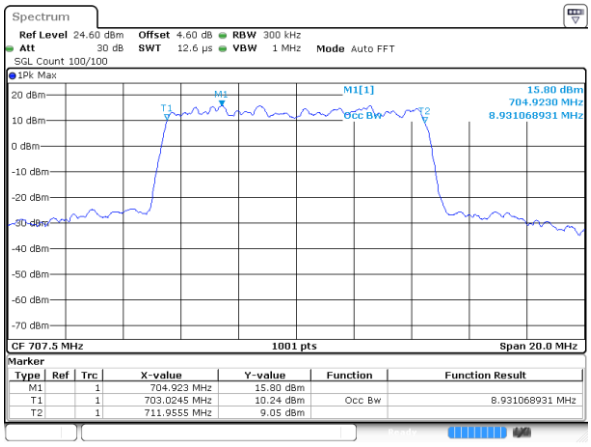


Middle Channel / 5MHz / 16QAM

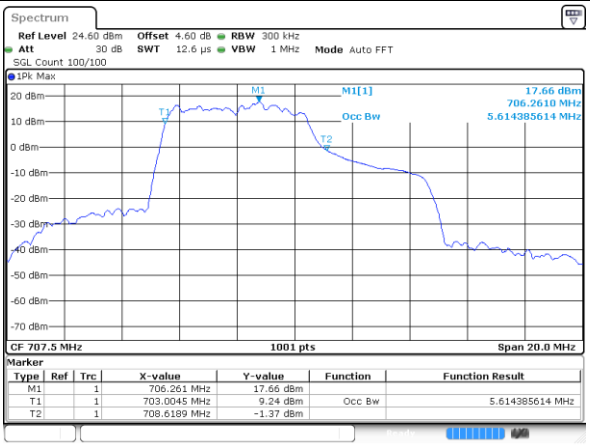


LTE Band 12

Middle Channel / 10MHz / QPSK



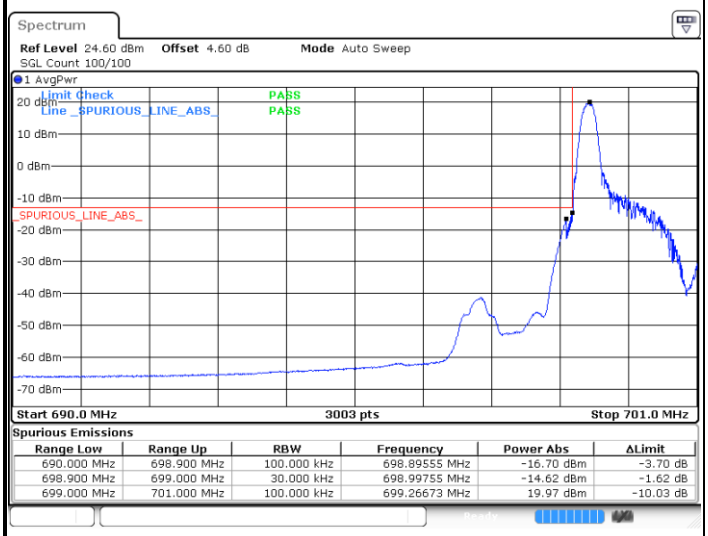
Middle Channel / 10MHz / 16QAM



Conducted Band Edge

LTE Band 12 / 1.4MHz / QPSK

Lowest Band Edge / 1RB

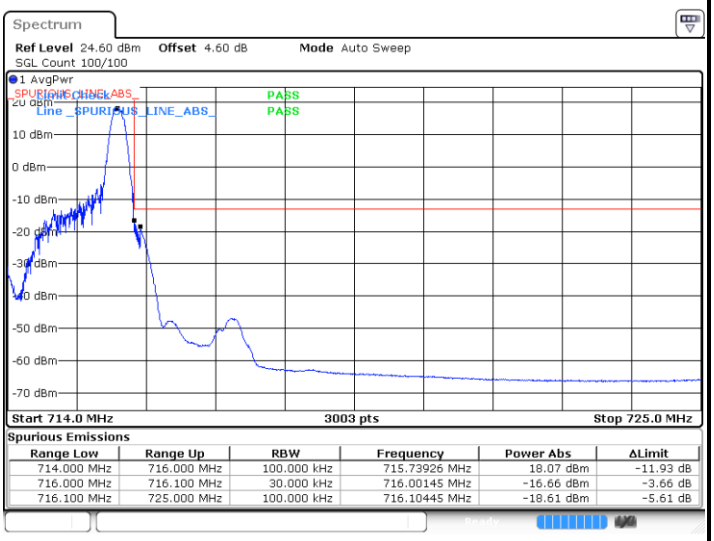


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-16.70 dBm	-3.70 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99755 MHz	-14.62 dBm	-1.62 dB
699.000 MHz	701.000 MHz	100.000 kHz	699.26673 MHz	19.97 dBm	-10.03 dB

Date: 17.JAN.2023 22:00:02

Highest Band Edge / 1RB

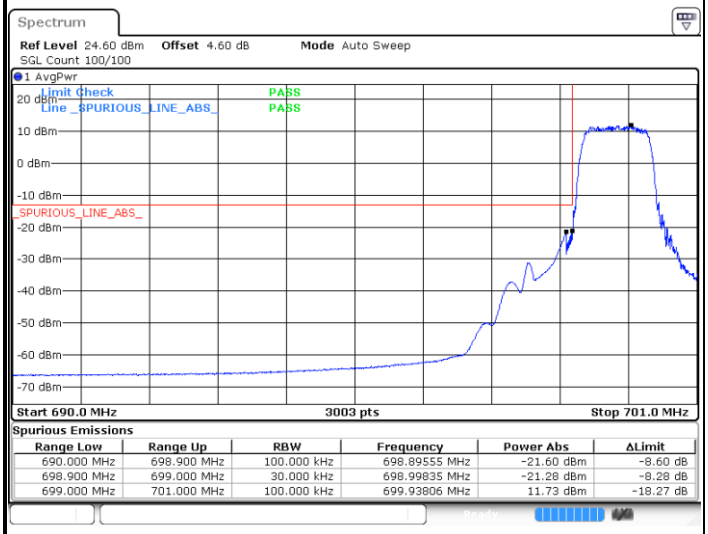


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
714.000 MHz	716.000 MHz	100.000 kHz	715.73926 MHz	18.07 dBm	-11.93 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00145 MHz	-16.66 dBm	-3.66 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-18.61 dBm	-5.61 dB

Date: 17.JAN.2023 22:10:51

Lowest Band Edge / Full RB

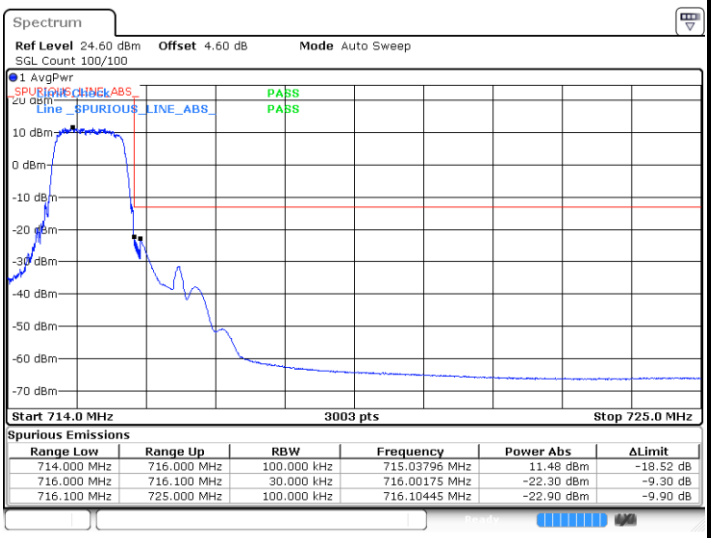


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-21.60 dBm	-8.60 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99835 MHz	-21.28 dBm	-8.28 dB
699.000 MHz	701.000 MHz	100.000 kHz	699.93806 MHz	11.73 dBm	-18.27 dB

Date: 17.JAN.2023 22:05:02

Highest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
714.000 MHz	716.000 MHz	100.000 kHz	715.03796 MHz	11.48 dBm	-18.52 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00175 MHz	-22.30 dBm	-9.30 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-22.90 dBm	-9.90 dB

Date: 17.JAN.2023 22:15:52