FCC RF Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2421-5
FCC ID	:	IHDT56AR3
STANDARD	:	47 CFR Part 2, 22(H), 27(M)
CLASSIFICATION	:	Licensed Non-Broadcast Transmitter Held toEar(TNE)
TEST DATE(S)	:	Oct. 12, 2023 ~ Nov. 27, 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

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APPENDIX A. TEST RESULTS OF CONDUCTED TEST

APPENDIX B. TEST RESULTS OF RADIATED TEST

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG381720B	Rev. 01	Initial issue of report	Dec. 13, 2023

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	-	Report Only	-
	§22.913(a)(5)	Effective Radiated Power (Band 5)	ERP < 7 Watt	PASS	-
	§27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 7) (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 §22.917(a)	Conducted Band Edge Measurement (Band 5)	< 43+10log10(P[Watts])	PASS	-
	§27.53(m)(4)	Conducted Band Edge Measurement (Band 7) (Band 41)	§27.53(m)(4)		
3.8	§2.1051 §22.917(a)	Conducted Spurious Emission (Band 5)	< 43+10log10(P[Watts])	PASS	-
	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (Band 7) (Band 41)	< 55+10log$_{10}$(P[Watts])		
3.9	§2.1055 §22.355	Frequency Stability Temperature & Voltage	< 2.5 ppm for Part 22	PASS	-
	§2.1055 §27.54		Within Authorized Band		
4.4	§2.1053 §22.917(a)	Radiated Spurious Emission (Band 5)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 31.84 dB at 7752.00 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 7) (Band 41)	< 55+10log$_{10}$(P[Watts])		

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section “Measurement Uncertainty”

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

1 General Description

1.1 Applicant

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2421-5
FCC ID	IHDT56AR3
IMEI Code	Conducted: 355031480002431/355031480002449 Radiation: 355031480009279
HW Version	DVT2
SW Version	ULA34.53
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 7 : 2500 MHz ~ 2570 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz
Rx Frequency	LTE Band 5 : 869 MHz ~ 894 MHz LTE Band 7 : 2620 MHz ~ 2690 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz
Bandwidth	LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 7 : 5MHz/ 10MHz / 15MHz / 20MHz LTE Band 41 : 5MHz / 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	LTE Band 5 : 22.81 dBm LTE Band 7 : 22.72 dBm LTE Band 7C : 22.63 dBm LTE Band 41 : 22.61 dBm LTE Band 41C : 22.43 dBm
Antenna Gain	LTE Band 5 : -3.40 dBi LTE Band 7 : -1.35 dBi LTE Band 41 : -1.00 dBi
Type of Modulation	QPSK / 16QAM / 64QAM

1.5 Modification of EUT

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

1.6 Maximum ERP/EIRP Power and Emission Designator

LTE Band 5		QPSK		16QAM/64QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
1.4	824.7 ~ 848.3	0.0507	1M09G7D	0.0424	1M09W7D
3	825.5 ~ 847.5	0.0512	2M75G7D	0.0417	2M76W7D
5	826.5 ~ 846.5	0.0521	4M47G7D	0.0406	4M49W7D
10	829.0 ~ 844.0	0.0532	9M01G7D	0.0426	9M05W7D
LTE Band 7		**QPSK**		**16QAM/64QAM**	
BW (MHz)	**Frequency Range (MHz)**	**Maximum EIRP(W)**	**Emission Designator (99%OBW)**	**Maximum EIRP(W)**	**Emission Designator (99%OBW)**
5	2502.5 ~ 2567.5	0.1358	4M50G7D	0.1042	4M50W7D
10	2505.0 ~ 2565.0	0.1324	9M11G7D	0.1012	9M03W7D
15	2507.5 ~ 2562.5	0.1355	13M4G7D	0.1040	13M5W7D
20	2510.0 ~ 2560.0	0.1371	17M9G7D	0.1052	17M9W7D

LTE Band 41		QPSK		16QAM/64QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
5	2498.5 ~ 2687.5	0.1426	4M47G7D	0.1340	4M49W7D
10	2501.0 ~ 2685.0	0.1419	8M99G7D	0.1358	9M07W7D
15	2503.5 ~ 2682.5	0.1406	13M4G7D	0.1334	13M5W7D
20	2506.0 ~ 2680.0	0.1449	17M9G7D	0.1358	17M9W7D

LTE Band 7 CA	QPSK		16QAM/64QAM	
BW (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10MHz+20MHz	0.1294	27M9G7D	0.1014	28M1W7D
15MHz+15MHz	0.1303	28M7G7D	0.1026	28M7W7D
15MHz+20MHz	0.1300	32M9G7D	0.1019	32M9W7D
15MHz+10MHz	0.1276	23M6G7D	0.1009	23M5W7D
20MHz+10MHz	0.1282	28M2G7D	0.1028	28M2W7D
20MHz+15MHz	0.1309	33M1G7D	0.1054	32M8W7D
20MHz+20MHz	0.1343	37M6G7D	0.1062	37M6W7D

LTE Band 41 CA	QPSK		16QAM/64QAM	
BW (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
5MHz+20MHz	0.1340	23M1G7D	0.1230	23M3W7D
10MHz+20MHz	0.1343	28M2G7D	0.1230	28M1W7D
10MHz+15MHz	0.1349	23M6G7D	0.1250	23M6W7D
15MHz+15MHz	0.1349	28M8G7D	0.0798	28M6W7D
15MHz+20MHz	0.1358	33M0G7D	0.1245	32M9W7D
15MHz+10MHz	0.1330	23M7G7D	0.1239	23M5W7D
20MHz+5MHz	0.1358	23M1G7D	0.1247	23M2W7D
20MHz+10MHz	0.1358	27M9G7D	0.1239	28M0W7D
20MHz+15MHz	0.1368	32M9G7D	0.1247	32M9W7D
20MHz+20MHz	0.1390	37M7G7D	0.1279	37M3W7D

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		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH04-KS TH01-KS	CN1257	314309

1.8 Test Software

Item	Site	Manufacture	Name	Version
1.	TH01-KS	SPORTON	FCC LTE_Ver2.0 Auto_china_210503	2.0
2.	03CH04-KS	AUDIX	E3	210616

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

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

1.10 Specification of Accessory

Accessories Information				
AC Adapter 1(US)	**Brand Name**	Motorola (Salcomp)	**Model Name**	MC-101
AC Adapter 1(EU)	**Brand Name**	Motorola (Salcomp)	**Model Name**	MC-102
AC Adapter 1(UK)	**Brand Name**	Motorola (Salcomp)	**Model Name**	MC-103
AC Adapter 1(AU)	**Brand Name**	Motorola (Salcomp)	**Model Name**	MC-105
AC Adapter 1(CHILE)	**Brand Name**	Motorola (Salcomp)	**Model Name**	MC-109
AC Adapter 2(US)	**Brand Name**	Motorola (chenyang)	**Model Name**	MC-101
AC Adapter 2(EU)	**Brand Name**	Motorola (chenyang)	**Model Name**	MC-102
AC Adapter 2(UK)	**Brand Name**	Motorola (chenyang)	**Model Name**	MC-103
AC Adapter 2(AU)	**Brand Name**	Motorola (chenyang)	**Model Name**	MC-105
AC Adapter 3(US)	**Brand Name**	Motorola (aohai)	**Model Name**	MC-101
AC Adapter 3(EU)	**Brand Name**	Motorola (aohai)	**Model Name**	MC-102
AC Adapter 3(UK)	**Brand Name**	Motorola (aohai)	**Model Name**	MC-103
AC Adapter 3(AU)	**Brand Name**	Motorola (aohai)	**Model Name**	MC-105
Battery 1	**Brand Name**	Motorola (ATL)	**Model Name**	QF50
Battery 2	**Brand Name**	Motorola (Sunwoda)	**Model Name**	QF50
Earphone 1	**Brand Name**	Motorola (New leader)	**Model Name**	NLD-EM313A-20SF
Earphone 2	**Brand Name**	Motorola (JWELL)	**Model Name**	JWEP1205-L20H
USB Cable 1	**Brand Name**	Motorola (JWELL)	**Model Name**	JWUB1631-L20H
USB Cable 2	**Brand Name**	Motorola (Saibao)	**Model Name**	SLQ-A238A

2 Test Configuration of Equipment Under Test

2.1 Test Mode

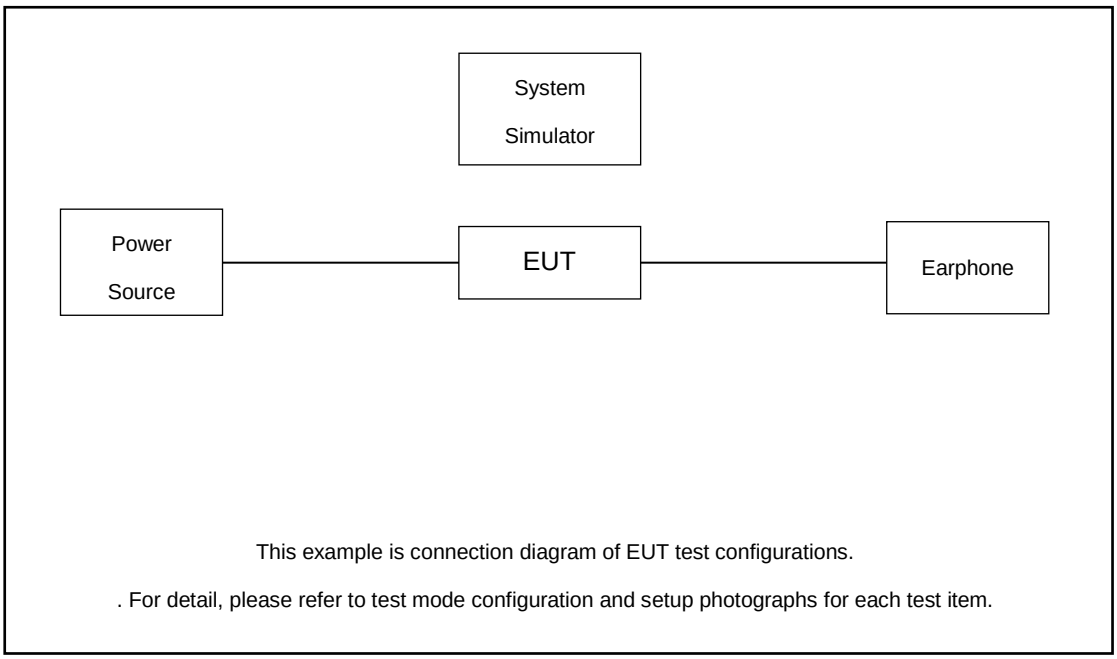
Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

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

Test Items	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Max. Output Power	5	v	v	v	v	-	-	v	v	v	v		v	v	v	v
	7	-	-	v	v	v	v	v	v	v	v		v	v	v	v
	41	-	-	v	v	v	v	v	v	v	v		v	v	v	v
Peak-to-Average Ratio	5				v	-	-	v	v	v			v		v	
	7	-	-				v	v	v	v			v		v	
	41	-	-				v	v	v	v			v		v	
26dB and 99% Bandwidth	5	v	v	v	v	-	-	v	v				v		v	
	7	-	-	v	v	v	v	v	v				v		v	
	41	-	-	v	v	v	v	v	v				v		v	
Conducted Band Edge	5	v	v	v	v	-	-	v	v	v	v		v	v		v
	7	-	-	v	v	v	v	v	v	v	v		v	v		v
	41	-	-	v	v	v	v	v	v	v	v		v	v		v
Conducted Spurious Emission	5	v	v	v	v	-	-	v			v			v	v	v
	7	-	-	v	v	v	v	v			v			v	v	v
	41	-	-	v	v	v	v	v			v			v	v	v
Frequency Stability	5				v	-	-	v					v		v	
	7	-	-		v			v					v		v	
	41	-	-		v			v					v		v	
E.R.P / E.I.R.P	5	v	v	v	v	-	-	v	v	v	v		v	v	v	v
	7	-	-	v	v	v	v	v	v	v	v		v	v	v	v
	41	-	-	v	v	v	v	v	v	v	v		v	v	v	v
Radiated Spurious Emission	5	Worst Case													v	
	7	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.															

Test Items	Band	Bandwidth (MHz)										Modulation			RB #			Test Channel		
		20+20	20+15	15+20	20+10	10+20	20+5	5+20	15+15	15+10	10+15	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Max. Output Power	7C_CA	v	v	v	v	v	-	-	v	v	-	v	v	v	v				v	
	41C_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v				v	
26dB and 99% Bandwidth	7C_CA	v	v	v	v	v	-	-	v	v	-	v	v				v		v	
	41C_CA	v	v	v	v	v	v	v	v	v	v	v	v				v		v	
Conducted Band Edge	7C_CA	v	v	v	v	v	-	-	v	v	-	v	v	v	v		v	v		v
	41C_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v		v	v		v
Conducted Spurious Emission	7C_CA	v	v	v	v	v	-	-	v	v	-	v			v			v	v	v
	41C_CA	v	v	v	v	v	v	v	v	v	v	v			v			v	v	v
E.I.R.P.	7C_CA	v	v	v	v	v	-	-	v	v	-	v	v	v	v				v	
	41C_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v				v	
Radiated Spurious Emission	7C_CA	Worst Case																	v	
	41C_CA	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



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.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

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 + attenuator factor.

Following shows an offset computation example with cable loss 4.8 dB

Example :

Offset(dB) = RF cable loss(dB)

= 4.8 (dB)

2.5 Frequency List of Low/Middle/High Channels

LTE Band 5 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	20450	20525	20600
	Frequency	829	836.5	844
5	Channel	20425	20525	20625
	Frequency	826.5	836.5	846.5
3	Channel	20415	20525	20635
	Frequency	825.5	836.5	847.5
1.4	Channel	20407	20525	20643
	Frequency	824.7	836.5	848.3

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 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

LTE Band 7C_CA Channel and Frequency List					
BW [MHz]	Channel/Frequency(MHz)		Lowest	Middle	Highest
20 + 20	PCC	Channel	20850	21001	21152
		Frequency	2510.0	2525.1	2540.2
	SCC	Channel	21048	21199	21350
		Frequency	2529.8	2544.9	2560.0
20 + 15	PCC	Channel	20850	21026	21201
		Frequency	2510.0	2527.6	2545.1
	SCC	Channel	21021	21197	21372
		Frequency	2527.1	2544.7	2562.2
15 + 20	PCC	Channel	20828	21003	21179
		Frequency	2507.8	2525.3	2542.9
	SCC	Channel	20999	21174	21350
		Frequency	2524.9	2542.4	2560.0
20 + 10	PCC	Channel	20850	21051	21251
		Frequency	2510.0	2530.1	2550.1
	SCC	Channel	20994	21195	21395
		Frequency	2524.4	2544.5	2564.5
10 + 20	PCC	Channel	20805	21006	21206
		Frequency	2505.5	2525.6	2545.6
	SCC	Channel	20949	21150	21350
		Frequency	2519.9	2540.0	2560.0
15 + 15	PCC	Channel	20825	21025	21225
		Frequency	2507.5	2527.5	2547.5
	SCC	Channel	20975	21175	21375
		Frequency	2522.5	2542.5	2562.5
15 + 10	PCC	Channel	20825	21051	21277
		Frequency	2507.5	2530.1	2552.7
	SCC	Channel	20945	21171	21397
		Frequency	2519.5	2542.1	2564.7

LTE Band 41C_CA Channel and Frequency List					
BW [MHz]	Channel/Frequency(MHz)		Lowest	Middle	Highest
20 + 20	PCC	Channel	39750	40521	41292
		Frequency	2506.0	2583.1	2660.2
	SCC	Channel	39948	40719	41490
		Frequency	2525.8	2602.9	2680.0
20 + 15	PCC	Channel	39750	40546	41341
		Frequency	2506.0	2585.6	2665.1
	SCC	Channel	39921	40717	41512
		Frequency	2523.1	2602.7	2682.2
15 + 20	PCC	Channel	39728	40523	41319
		Frequency	2503.8	2593.3	2662.9
	SCC	Channel	39899	40694	41490
		Frequency	2520.9	2600.4	2680.0
20 + 10	PCC	Channel	39750	40571	41391
		Frequency	2506.0	2588.1	2670.1
	SCC	Channel	39894	40715	41535
		Frequency	2520.4	2602.5	2684.5
10 + 20	PCC	Channel	39705	40526	41346
		Frequency	2501.5	2583.6	2665.6
	SCC	Channel	39849	40670	41490
		Frequency	2515.9	2598.0	2680.0

LTE Band 41C_CA Channel and Frequency List					
20 + 5	PCC	Channel	39750	40595	41440
		Frequency	2506.0	2590.5	2675.0
	SCC	Channel	39867	40712	41557
		Frequency	2517.7	2602.2	2686.7
5 + 20	PCC	Channel	39683	40528	41373
		Frequency	2499.3	2583.8	2668.3
	SCC	Channel	39800	40645	41490
		Frequency	2511.0	2595.5	2680.0
15 + 15	PCC	Channel	39725	40545	41365
		Frequency	2503.5	2585.5	2667.5
	SCC	Channel	39875	40695	41515
		Frequency	2518.5	2600.5	2682.5
10 + 15	PCC	Channel	39703	40549	41395
		Frequency	2501.3	2585.9	2670.5
	SCC	Channel	39823	40669	41515
		Frequency	2513.3	2597.9	2682.5
15 + 10	PCC	Channel	39725	40571	41417
		Frequency	2503.5	2588.1	2672.7
	SCC	Channel	39845	40691	41537
		Frequency	2515.5	2600.1	2684.7

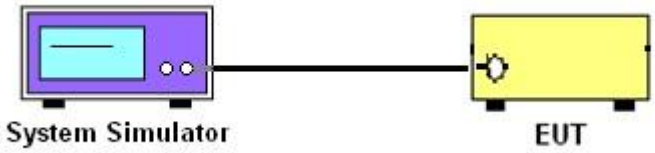
3 Conducted Test Items

3.1 Measuring Instruments

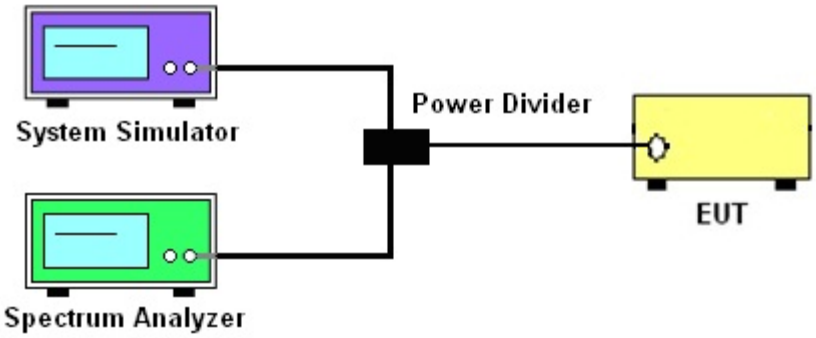
See list of measuring instruments of this test report.

3.2 Test Setup

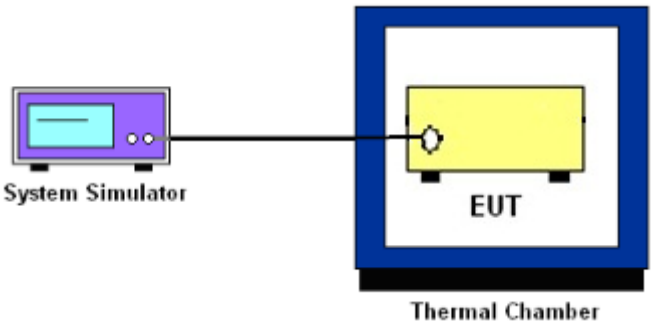
3.2.1 Conducted Output Power



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 7 Watts for LTE Band 5.

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 7 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

22.917(a)

For operations in the 824 – 849 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 100kHz 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.

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% 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 or a narrower RBW was used and the measured power was integrated over the full required measurement bandwidth of 1 MHz.
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, 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 7,41:

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, 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. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

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.

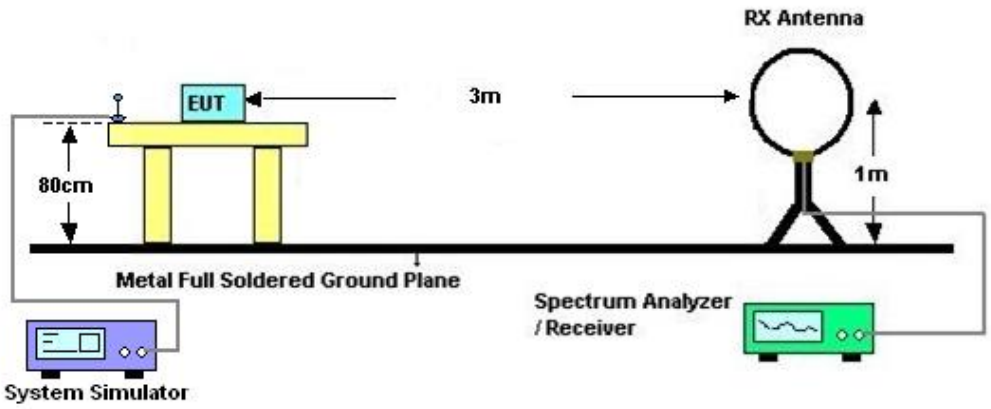
4 Radiated Test Items

4.1 Measuring Instruments

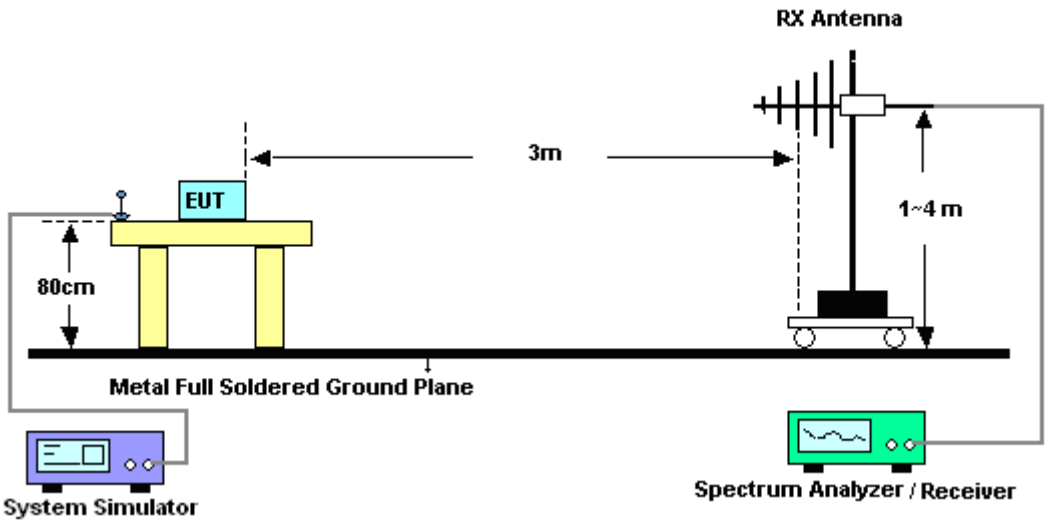
See list of measuring instruments of this test report.

4.2 Test Setup

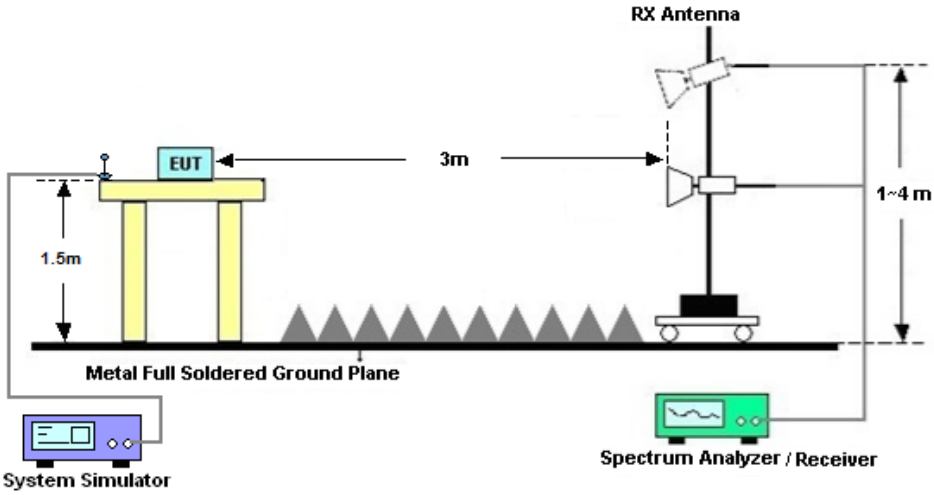
4.2.1 For radiated test below 30MHz



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.

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, 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. 11, 2023	Oct. 12, 2023~ Nov. 27, 2023	Oct. 10, 2024	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	NCR	Oct. 12, 2023~ Nov. 27, 2023	NCR	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 06, 2023	Oct. 12, 2023~ Nov. 27, 2023	Jul. 05, 2024	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 10, 2023	Nov. 15, 2023	Oct. 09, 2024	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 11, 2023	Nov. 15, 2023	Sep. 10, 2024	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Apr. 09, 2023	Nov. 15, 2023	Apr. 08, 2024	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1284	1GHz~18GHz	Oct. 10, 2023	Nov. 15, 2023	Oct. 09, 2024	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 08, 2023	Nov. 15, 2023	Jan. 07, 2024	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	380827	9KHz-1GHz	Jul. 06, 2023	Nov. 15, 2023	Jul. 05, 2024	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 05, 2023	Nov. 15, 2023	Jan. 04, 2024	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18G A	060840	1Ghz-18Ghz	Oct. 10, 2023	Nov. 15, 2023	Oct. 09, 2024	Radiation (03CH04-KS)
Amplifier	Agilent	8449B	3008A02370	1Ghz-18Ghz	Oct. 10, 2023	Nov. 15, 2023	Oct. 09, 2024	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Nov. 15, 2023	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Nov. 15, 2023	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Nov. 15, 2023	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

6 Measurement Uncertainty

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

Conducted Spurious Emission & Bandedge	**±2.26 dB**
Occupied Channel Bandwidth	**±0.1%**
Conducted Power	**±0.46 dB**
Peak to Average Ratio	**±0.46 dB**
Frequency Stability	**±0.4 Hz**

Uncertainty of Radiated Emission Measurement (9 KHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.82 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.56 dB**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.54 dB**

---------- THE END ----------

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 5:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel				20450	20525	20600			
Frequency (MHz)				829	836.5	844	L	M	H
10	QPSK	1	0	22.66	22.81	22.60	0.0514	0.0532	0.0507
10	QPSK	1	49	22.62	22.64	22.53	0.0509	0.0512	0.0499
10	QPSK	50	0	21.63	21.73	21.61	0.0406	0.0415	0.0404
10	16QAM	1	0	21.66	21.84	21.73	0.0408	0.0426	0.0415
10	64QAM	1	0	20.99	21.09	21.03	0.0350	0.0358	0.0353
Channel				20425	20525	20625	ERP(W)		
Frequency (MHz)				826.5	836.5	846.5	L	M	H
5	QPSK	1	0	22.56	22.72	22.46	0.0502	0.0521	0.0491
5	16QAM	1	0	21.50	21.63	21.59	0.0394	0.0406	0.0402
Channel				20415	20525	20635	ERP(W)		
Frequency (MHz)				825.5	836.5	847.5	L	M	H
3	QPSK	1	0	22.45	22.64	22.56	0.0490	0.0512	0.0502
3	16QAM	1	0	21.57	21.75	21.74	0.0400	0.0417	0.0416
Channel				20407	20525	20643	ERP(W)		
Frequency (MHz)				824.7	836.5	848.3	L	M	H
1.4	QPSK	1	0	22.47	22.60	22.47	0.0492	0.0507	0.0492
1.4	16QAM	1	0	21.62	21.82	21.68	0.0405	0.0424	0.0410

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	20850	21350			
Frequency (MHz)				2510	2535	2560	L	M	H
20	QPSK	1	0	22.69	22.72	22.51	0.1361	0.1371	0.1306
20	QPSK	1	99	22.42	22.56	22.48	0.1279	0.1321	0.1297
20	QPSK	100	0	21.00	21.12	21.11	0.0923	0.0948	0.0946
20	16QAM	1	0	21.55	21.57	21.50	0.1047	0.1052	0.1035
20	64QAM	1	0	20.52	20.52	20.30	0.0826	0.0826	0.0785
Channel				20825	21100	21375	EIRP(W)		
Frequency (MHz)				2507.5	2535	2562.5	L	M	H
15	QPSK	1	0	22.67	22.52	22.46	0.1355	0.1309	0.1291
15	16QAM	1	0	21.52	21.48	21.36	0.1040	0.1030	0.1002
Channel				20800	21100	21400	EIRP(W)		
Frequency (MHz)				2505	2535	2565	L	M	H
10	QPSK	1	0	22.48	22.57	22.33	0.1297	0.1324	0.1253
10	16QAM	1	0	21.36	21.40	21.32	0.1002	0.1012	0.0993
Channel				20775	21100	21425	EIRP(W)		
Frequency (MHz)				2502.5	2535	2567.5	L	M	H
5	QPSK	1	0	22.68	22.67	22.41	0.1358	0.1355	0.1276
5	16QAM	1	0	21.45	21.53	21.36	0.1023	0.1042	0.1002

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	22.45	22.61	22.48	0.1396	0.1449	0.1406
20	QPSK	1	99	22.30	22.21	22.38	0.1349	0.1321	0.1374
20	QPSK	100	0	21.24	21.25	21.23	0.1057	0.1059	0.1054
20	16QAM	1	0	22.30	22.33	22.30	0.1349	0.1358	0.1349
20	64QAM	1	0	21.11	21.24	21.20	0.1026	0.1057	0.1047
Channel				39725	40620	41515	EIRP(W)		
Frequency (MHz)				2503.5	2593	2682.5	L	M	H
15	QPSK	1	0	22.37	22.39	22.48	0.1371	0.1377	0.1406
15	16QAM	1	0	22.19	22.21	22.25	0.1315	0.1321	0.1334
Channel				39700	40620	41540	EIRP(W)		
Frequency (MHz)				2501	2593	2685	L	M	H
10	QPSK	1	0	22.29	22.52	22.28	0.1346	0.1419	0.1343
10	16QAM	1	0	22.27	22.33	22.30	0.1340	0.1358	0.1349
Channel				39675	40620	41565	EIRP(W)		
Frequency (MHz)				2498.5	2593	2687.5	L	M	H
5	QPSK	1	0	22.35	22.54	22.43	0.1365	0.1426	0.1390
5	16QAM	1	0	22.22	22.27	22.09	0.1324	0.1340	0.1285

CA Power

LTE CA_7C:

Combination 20MHz+20MHz (100RB+100RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
L	QPSK	1	Max	1	0	22.52	0.1309
M	QPSK	1	Max	1	0	22.63	0.1343
H	QPSK	1	Max	1	0	22.58	0.1327
L	16QAM	1	Max	1	0	21.50	0.1035
M	16QAM	1	Max	1	0	21.61	0.1062
H	16QAM	1	Max	1	0	21.56	0.1050
L	64QAM	1	Max	1	0	20.44	0.0811
M	64QAM	1	Max	1	0	20.55	0.0832
H	64QAM	1	Max	1	0	20.50	0.0822
Combination 20MHz+15MHz (100RB+75RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.52	0.1309
M	16QAM	1	Max	1	0	21.58	0.1054
Combination 15MHz+20MHz (75RB+100RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.49	0.1300
M	16QAM	1	Max	1	0	21.43	0.1019
Combination 15MHz+15MHz (75RB+75RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.50	0.1303
M	16QAM	1	Max	1	0	21.46	0.1026
Combination 20MHz+10MHz (100RB+50RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.43	0.1282
M	16QAM	1	Max	1	0	21.47	0.1028
Combination 10MHz+20MHz (50RB+100RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.47	0.1294
M	16QAM	1	Max	1	0	21.41	0.1014
Combination 15MHz+10MHz (75RB+50RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.41	0.1276
M	16QAM	1	Max	1	0	21.39	0.1009

LTE CA_41C:

Combination 20MHz+20MHz (100RB+100RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
L	QPSK	1	Max	1	0	22.31	0.1352
M	QPSK	1	Max	1	0	22.43	0.1390
H	QPSK	1	Max	1	0	22.37	0.1371
L	16QAM	1	Max	1	0	21.95	0.1245
M	16QAM	1	Max	1	0	22.07	0.1279
H	16QAM	1	Max	1	0	22.01	0.1262
L	64QAM	1	Max	1	0	20.83	0.0962
M	64QAM	1	Max	1	0	20.95	0.0989
H	64QAM	1	Max	1	0	20.89	0.0975
Combination 20MHz+15MHz (100RB+75RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.36	0.1368
M	16QAM	1	Max	1	0	21.96	0.1247
Combination 15MHz+20MHz (75RB+100RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.33	0.1358
M	16QAM	1	Max	1	0	21.95	0.1245
Combination 15MHz+15MHz (75RB+75RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.30	0.1349
M	16QAM	1	Max	1	0	20.02	0.0798
Combination 20MHz+10MHz (100RB+50RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.33	0.1358
M	16QAM	1	Max	1	0	21.93	0.1239
Combination 10MHz+20MHz (50RB+100RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.28	0.1343
M	16QAM	1	Max	1	0	21.90	0.1230
Combination 15MHz+10MHz (75RB+50RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.24	0.1330
M	16QAM	1	Max	1	0	21.93	0.1239

Combination 10MHz+15MHz (50RB+75RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.30	0.1349
M	16QAM	1	Max	1	0	21.97	0.1250
Combination 20MHz+5MHz (100RB+25RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.33	0.1358
M	16QAM	1	Max	1	0	21.96	0.1247
Combination 5MHz+20MHz (25RB+100RB)							
Channel	Modulation	PCC		SCC		Measured Power	EIRP(W)
		RB Size	RB offset	RB Size	RB offset		
M	QPSK	1	Max	1	0	22.27	0.1340
M	16QAM	1	Max	1	0	21.90	0.1230

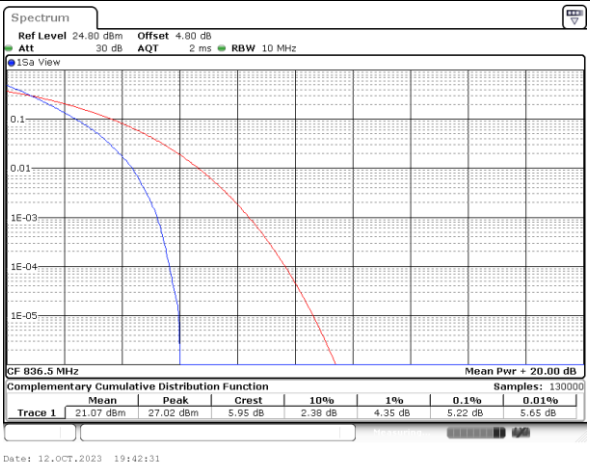
LTE Band 5

Peak-to-Average Ratio

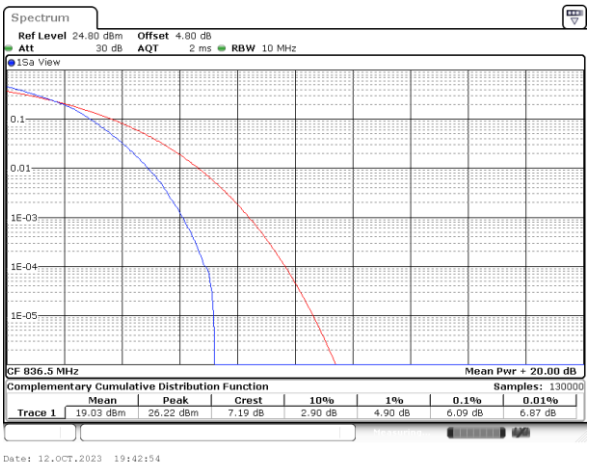
Mode	LTE Band 5 / 10MHz			
Mod.	QPSK	16QAM	64QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Result
Middle CH	5.22	6.09	6.26	PASS

LTE Band 5 / 10MHz

Middle Channel / Full RB/ QPSK



Middle Channel / Full RB/ 16QAM



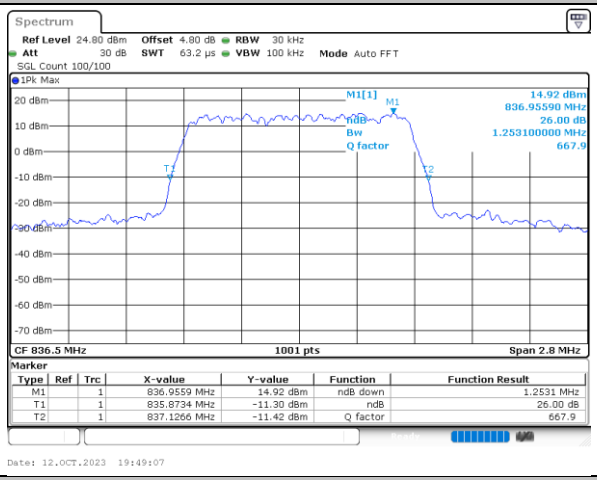
Middle Channel / Full RB/ 64QAM

26dB Bandwidth

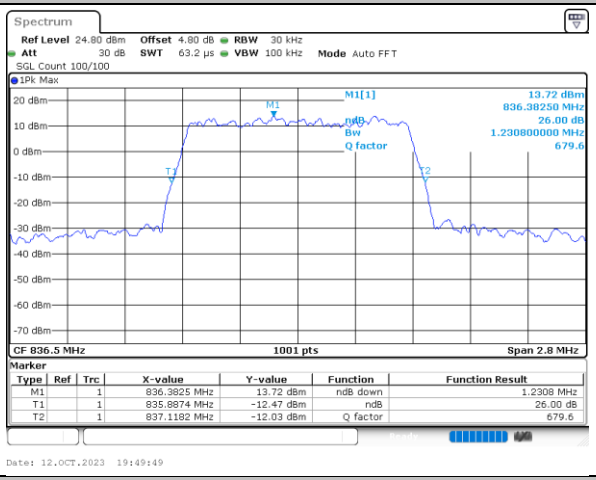
Mode	LTE Band 5 : 26dB BW(MHz)							
BW	1.4MHz		3MHz		5MHz		10MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	1.25	1.23	3.12	3.03	4.90	4.88	9.83	9.71

LTE Band 5

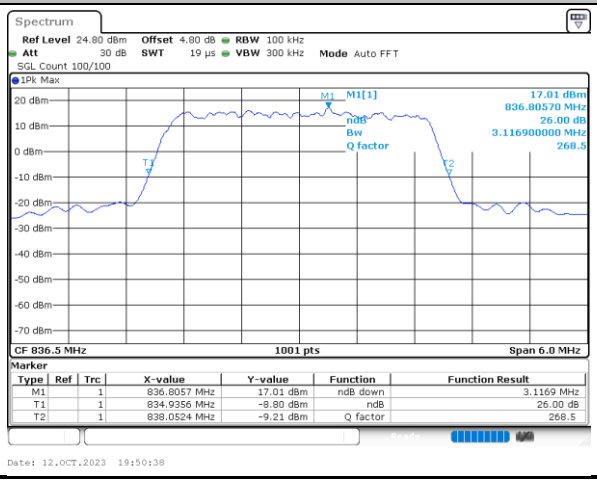
Middle Channel / 1.4MHz / QPSK



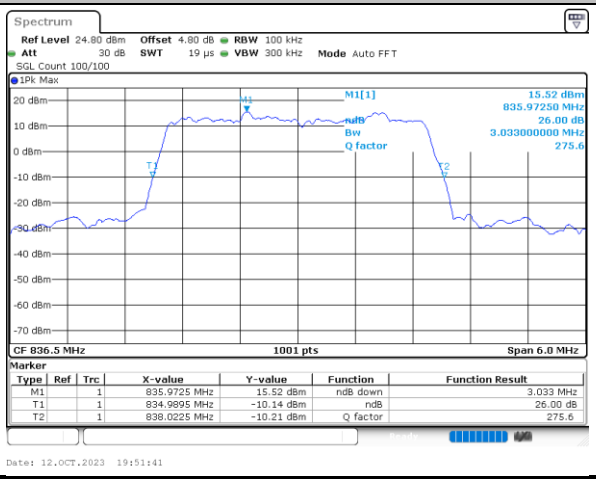
Middle Channel / 1.4MHz / 16QAM



Middle Channel / 3MHz / QPSK

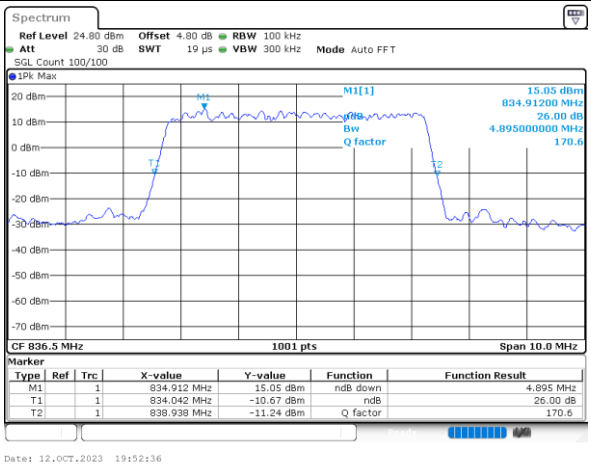


Middle Channel / 3MHz / 16QAM

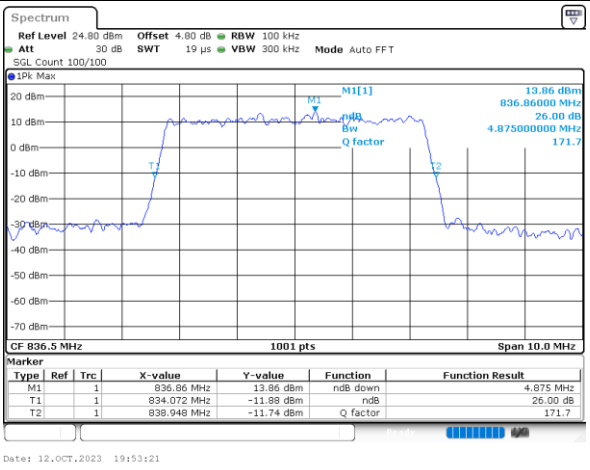


LTE Band 5

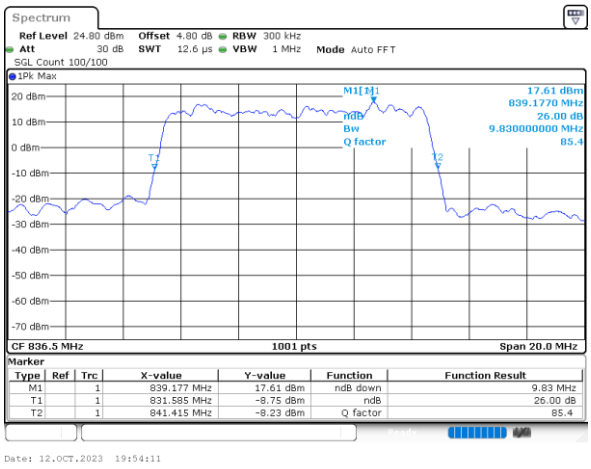
Middle Channel / 5MHz / QPSK



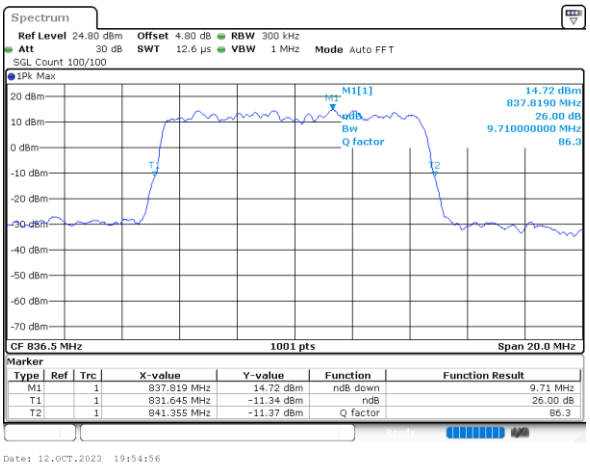
Middle Channel /5MHz / 16QAM



Middle Channel / 10MHz / QPSK



Middle Channel / 10MHz / 16QAM

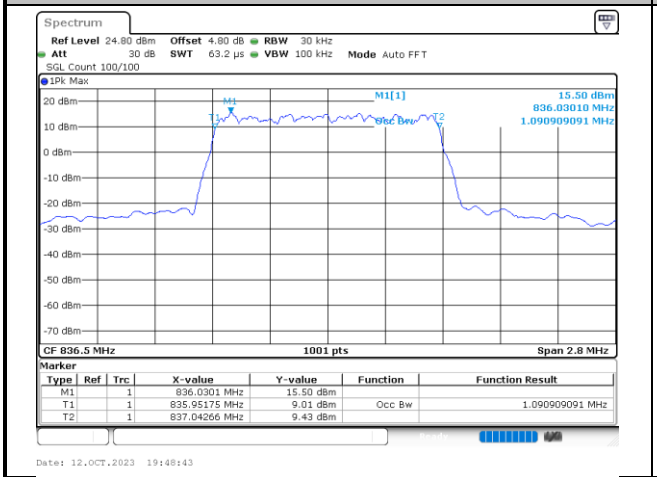


Occupied Bandwidth

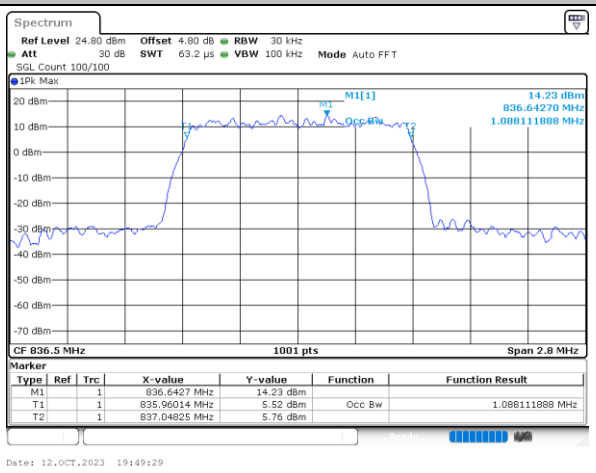
Mode	LTE Band 5 : 99%OBW(MHz)							
BW	1.4MHz		3MHz		5MHz		10MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	1.09	1.09	2.75	2.76	4.47	4.49	9.01	9.05

LTE Band 5

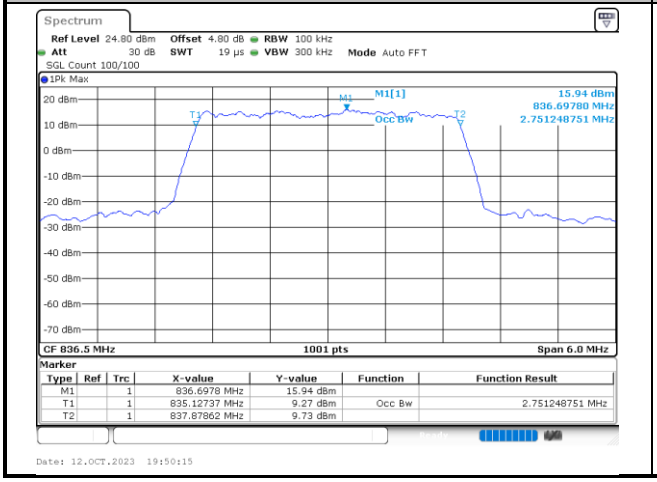
Middle Channel / 1.4MHz / QPSK



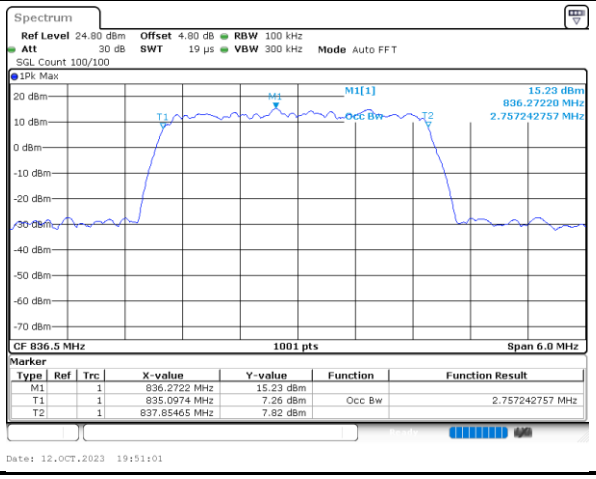
Middle Channel / 1.4MHz / 16QAM



Middle Channel / 3MHz / QPSK

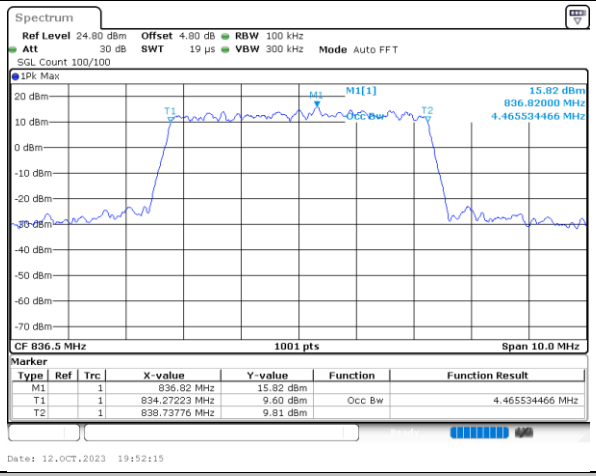


Middle Channel / 3MHz / 16QAM

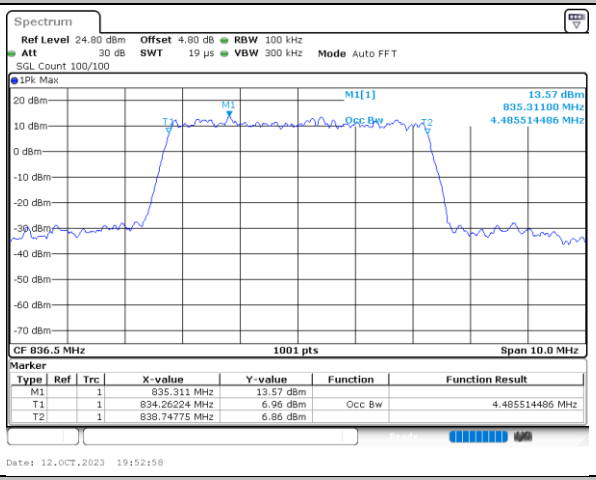


LTE Band 5

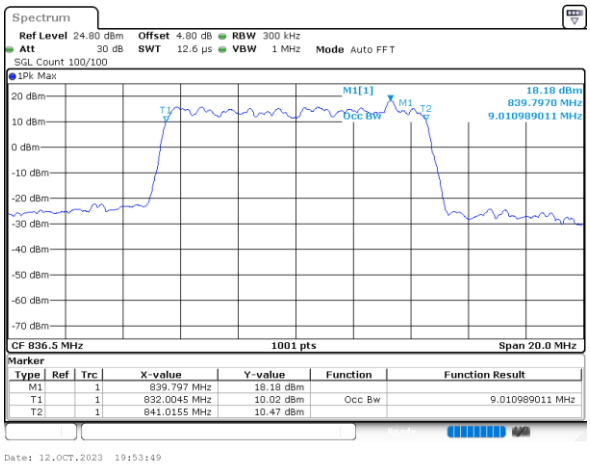
Middle Channel / 5MHz / QPSK



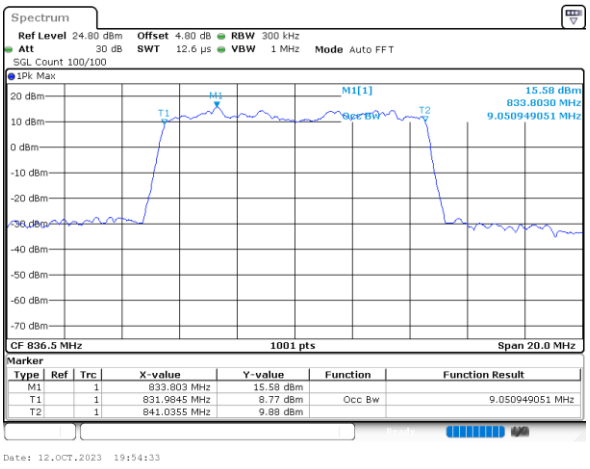
Middle Channel / 5MHz / 16QAM



Middle Channel / 10MHz / QPSK



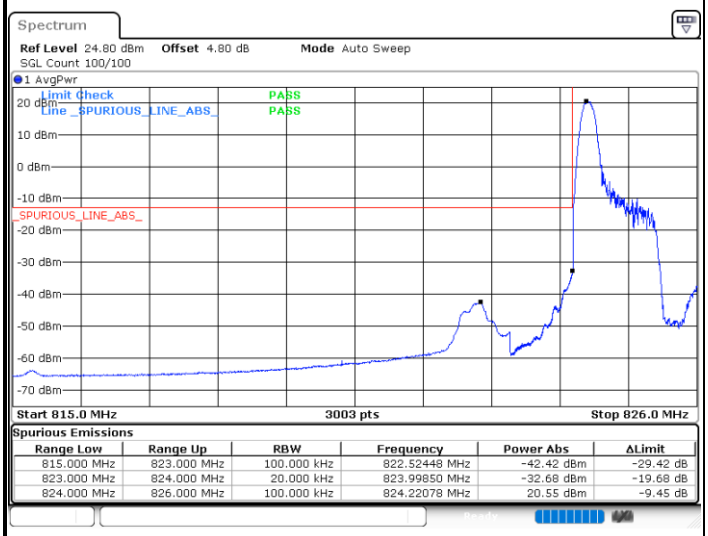
Middle Channel / 10MHz / 16QAM



Conducted Band Edge

LTE Band 5 / 1.4MHz / QPSK

Lowest Band Edge / 1RB

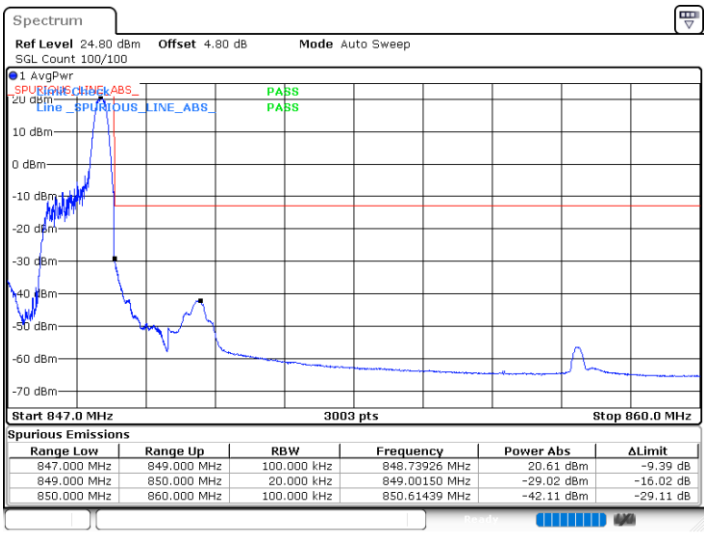


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.52448 MHz	-42.42 dBm	-29.42 dB
823.000 MHz	824.000 MHz	20.000 kHz	823.99850 MHz	-32.68 dBm	-19.68 dB
824.000 MHz	826.000 MHz	100.000 kHz	824.22078 MHz	20.55 dBm	-9.45 dB

Date: 12.OCT.2023 18:00:40

Highest Band Edge / 1RB

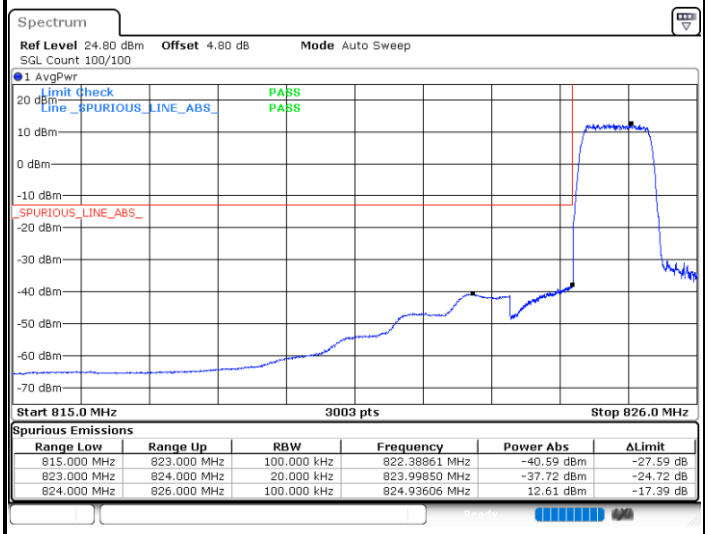


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
847.000 MHz	849.000 MHz	100.000 kHz	848.73926 MHz	20.61 dBm	-9.39 dB
849.000 MHz	850.000 MHz	20.000 kHz	849.00150 MHz	-29.02 dBm	-16.02 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.61439 MHz	-42.11 dBm	-29.11 dB

Date: 12.OCT.2023 18:14:23

Lowest Band Edge / Full RB

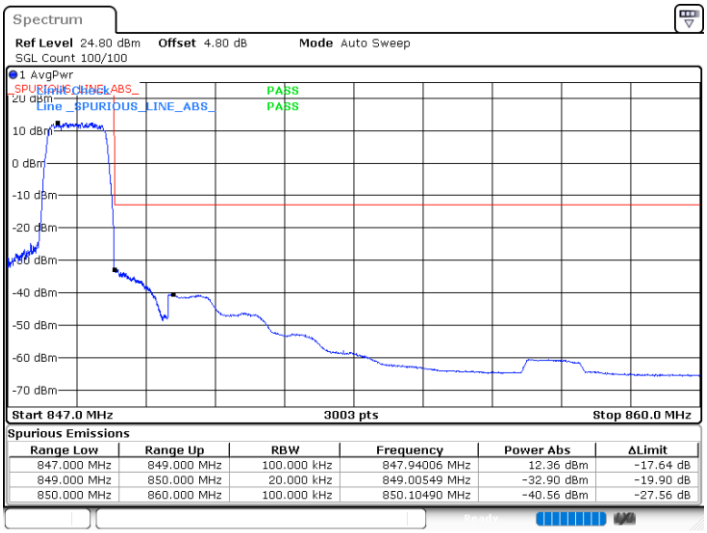


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.38861 MHz	-40.59 dBm	-27.59 dB
823.000 MHz	824.000 MHz	20.000 kHz	823.99850 MHz	-37.72 dBm	-24.72 dB
824.000 MHz	826.000 MHz	100.000 kHz	824.93606 MHz	12.61 dBm	-17.39 dB

Date: 12.OCT.2023 18:06:12

Highest Band Edge / Full RB



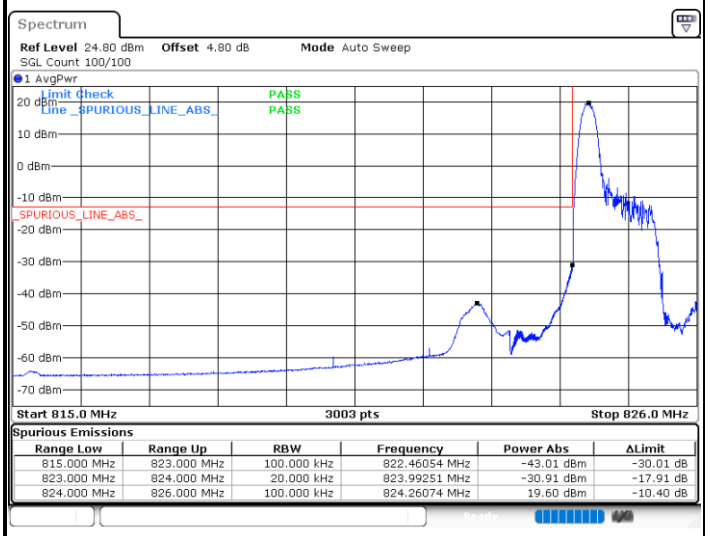
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
847.000 MHz	849.000 MHz	100.000 kHz	847.94006 MHz	12.36 dBm	-17.64 dB
849.000 MHz	850.000 MHz	20.000 kHz	849.00549 MHz	-32.90 dBm	-19.90 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.10490 MHz	-40.56 dBm	-27.56 dB

Date: 12.OCT.2023 18:19:54

LTE Band 5 / 1.4MHz / 16QAM

Lowest Band Edge / 1 RB

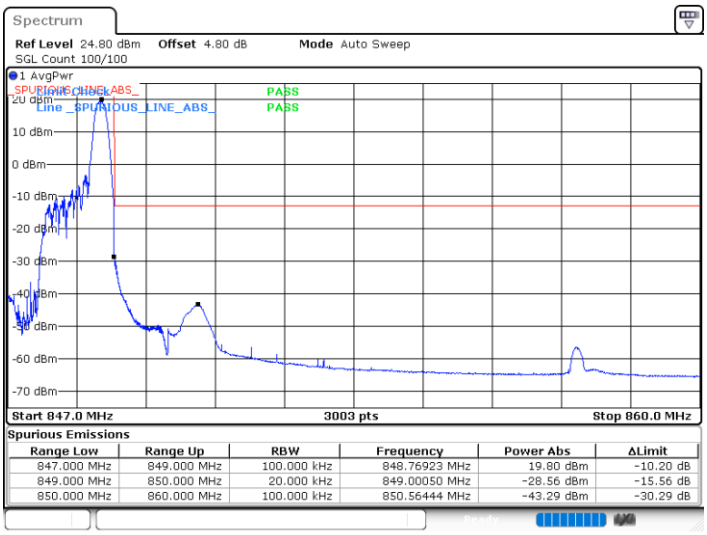


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.46054 MHz	-43.01 dBm	-30.01 dB
823.000 MHz	824.000 MHz	20.000 kHz	823.99251 MHz	-30.91 dBm	-17.91 dB
824.000 MHz	826.000 MHz	100.000 kHz	824.26074 MHz	19.60 dBm	-10.40 dB

Date: 12.OCT.2023 18:02:31

Highest Band Edge / 1 RB

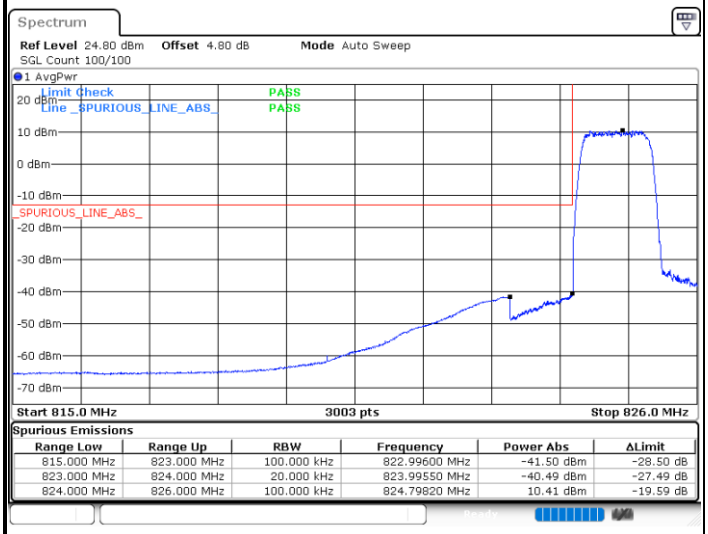


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
847.000 MHz	849.000 MHz	100.000 kHz	848.76923 MHz	19.80 dBm	-10.20 dB
849.000 MHz	850.000 MHz	20.000 kHz	849.00050 MHz	-28.56 dBm	-15.56 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.56444 MHz	-43.29 dBm	-30.29 dB

Date: 12.OCT.2023 18:16:13

Lowest Band Edge / Full RB

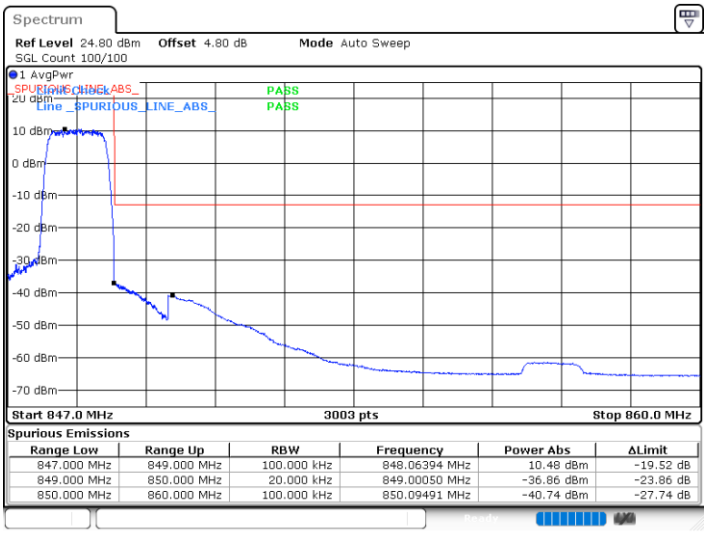


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.99600 MHz	-41.50 dBm	-28.50 dB
823.000 MHz	824.000 MHz	20.000 kHz	823.99550 MHz	-40.49 dBm	-27.49 dB
824.000 MHz	826.000 MHz	100.000 kHz	824.79820 MHz	10.41 dBm	-19.59 dB

Date: 12.OCT.2023 18:08:02

Highest Band Edge / Full RB



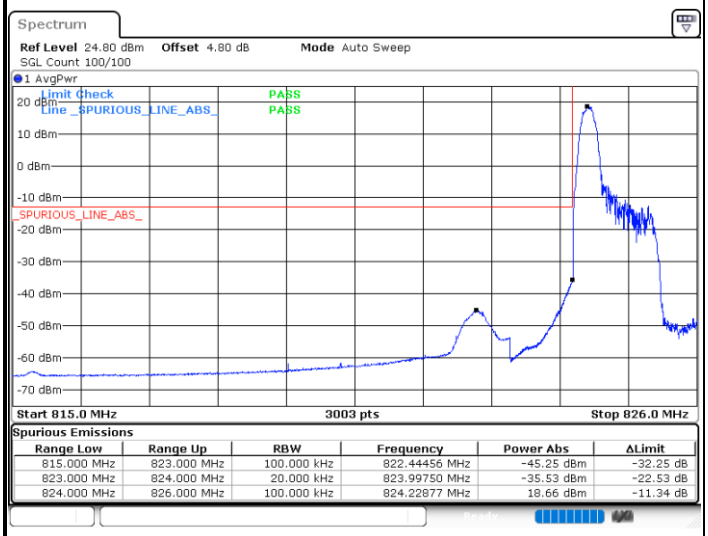
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
847.000 MHz	849.000 MHz	100.000 kHz	848.06394 MHz	10.48 dBm	-19.52 dB
849.000 MHz	850.000 MHz	20.000 kHz	849.00050 MHz	-36.86 dBm	-23.86 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.09491 MHz	-40.74 dBm	-27.74 dB

Date: 12.OCT.2023 18:21:44

LTE Band 5 / 1.4MHz / 64QAM

Lowest Band Edge / 1 RB

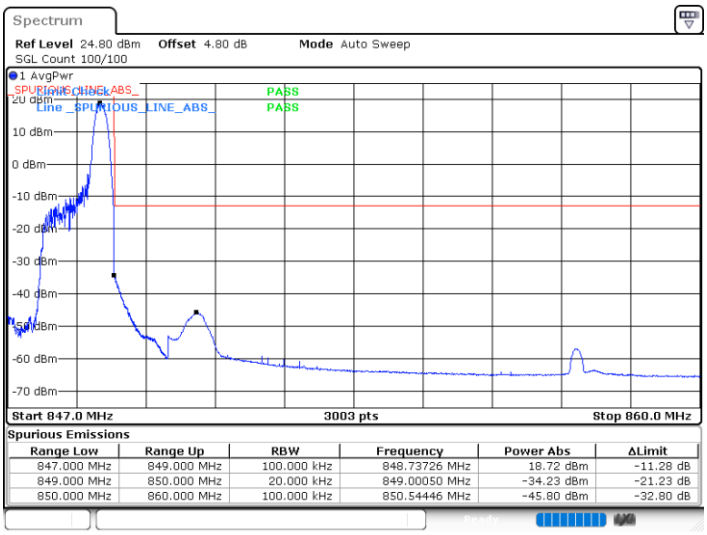


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.44456 MHz	-45.25 dBm	-32.25 dB
823.000 MHz	824.000 MHz	20.000 kHz	823.99750 MHz	-35.53 dBm	-22.53 dB
824.000 MHz	826.000 MHz	100.000 kHz	824.22877 MHz	18.66 dBm	-11.34 dB

Date: 12.OCT.2023 18:04:22

Highest Band Edge / 1 RB

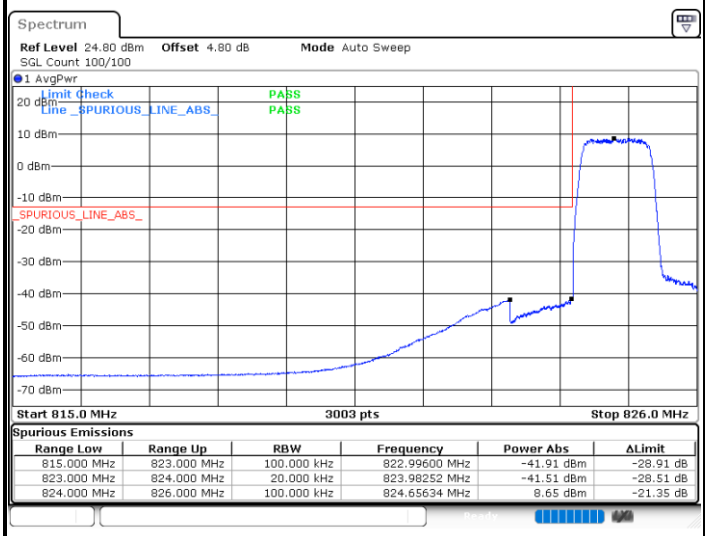


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
847.000 MHz	849.000 MHz	100.000 kHz	848.73726 MHz	18.72 dBm	-11.28 dB
849.000 MHz	850.000 MHz	20.000 kHz	849.00050 MHz	-34.23 dBm	-21.23 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.54446 MHz	-45.80 dBm	-32.80 dB

Date: 12.OCT.2023 18:18:03

Lowest Band Edge / Full RB

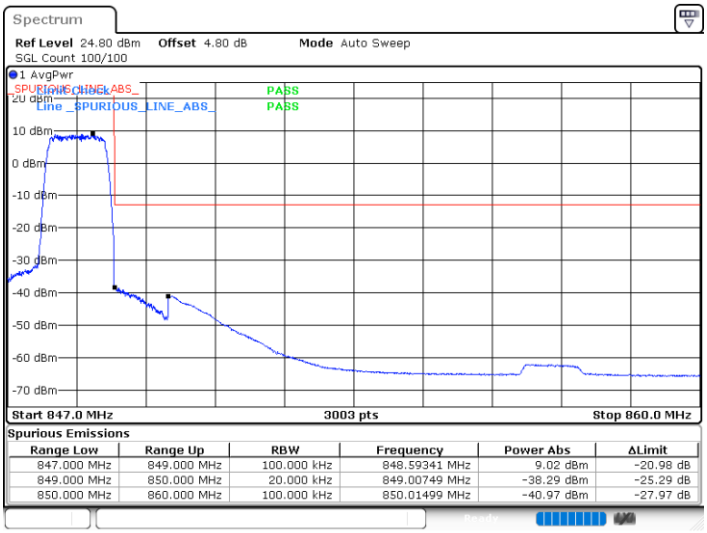


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.99600 MHz	-41.91 dBm	-28.91 dB
823.000 MHz	824.000 MHz	20.000 kHz	823.98252 MHz	-41.51 dBm	-28.51 dB
824.000 MHz	826.000 MHz	100.000 kHz	824.65634 MHz	8.65 dBm	-21.35 dB

Date: 12.OCT.2023 18:09:53

Highest Band Edge / Full RB



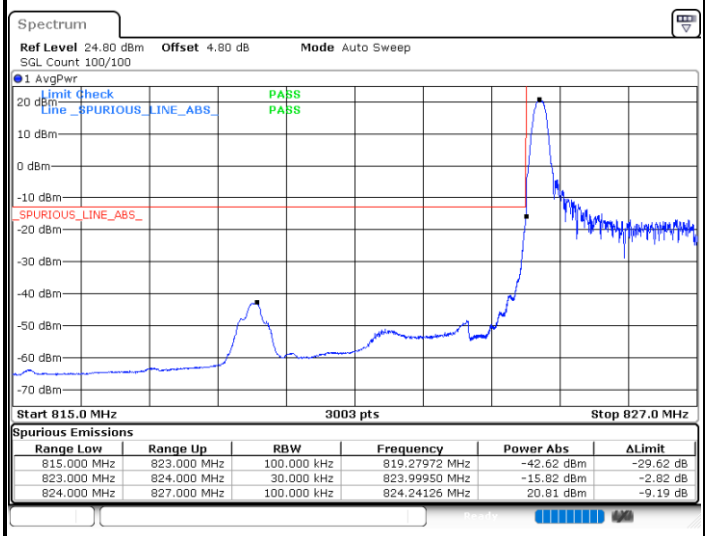
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
847.000 MHz	849.000 MHz	100.000 kHz	848.59341 MHz	9.02 dBm	-20.98 dB
849.000 MHz	850.000 MHz	20.000 kHz	849.00749 MHz	-38.29 dBm	-25.29 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.01499 MHz	-40.97 dBm	-27.97 dB

Date: 12.OCT.2023 18:23:34

LTE Band 5 / 3MHz / QPSK

Lowest Band Edge / 1RB

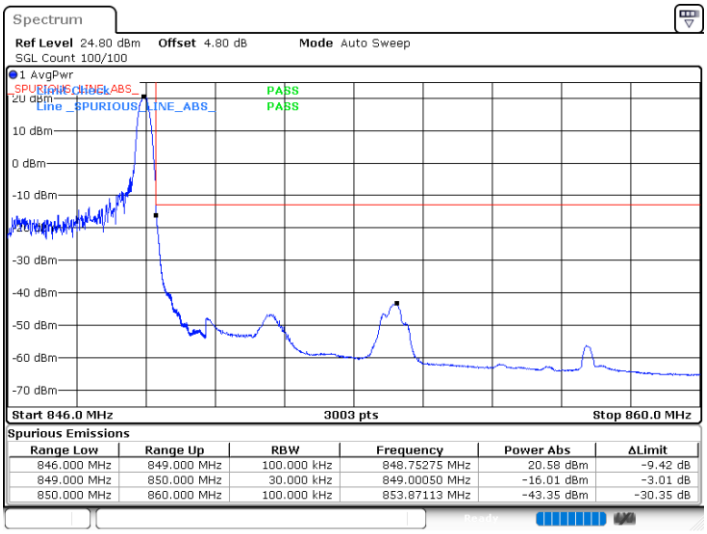


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	819.27972 MHz	-42.62 dBm	-29.62 dB
823.000 MHz	824.000 MHz	30.000 kHz	823.99950 MHz	-15.82 dBm	-2.82 dB
824.000 MHz	827.000 MHz	100.000 kHz	824.24126 MHz	20.81 dBm	-9.19 dB

Date: 12.OCT.2023 18:26:45

Highest Band Edge / 1 RB

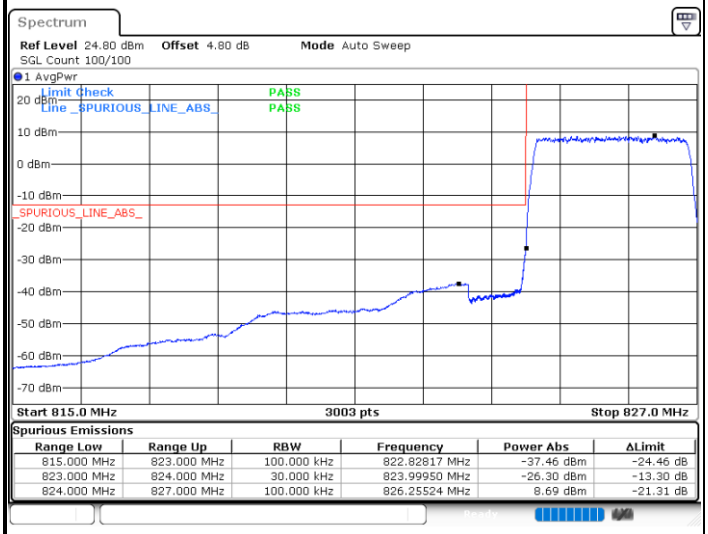


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
846.000 MHz	849.000 MHz	100.000 kHz	848.75275 MHz	20.58 dBm	-9.42 dB
849.000 MHz	850.000 MHz	30.000 kHz	849.00050 MHz	-16.01 dBm	-3.01 dB
850.000 MHz	860.000 MHz	100.000 kHz	853.87113 MHz	-43.35 dBm	-30.35 dB

Date: 12.OCT.2023 18:40:27

Lowest Band Edge / Full RB

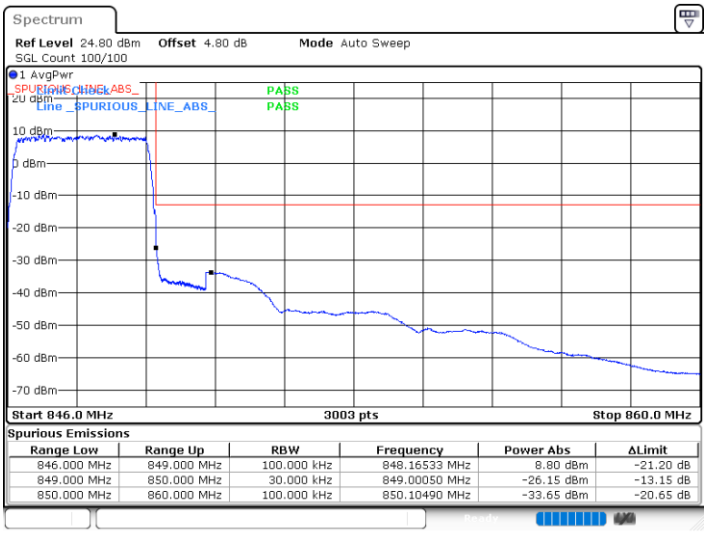


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.82817 MHz	-37.46 dBm	-24.46 dB
823.000 MHz	824.000 MHz	30.000 kHz	823.99950 MHz	-26.30 dBm	-13.30 dB
824.000 MHz	827.000 MHz	100.000 kHz	826.25524 MHz	8.69 dBm	-21.31 dB

Date: 12.OCT.2023 18:32:16

Highest Band Edge / Full RB



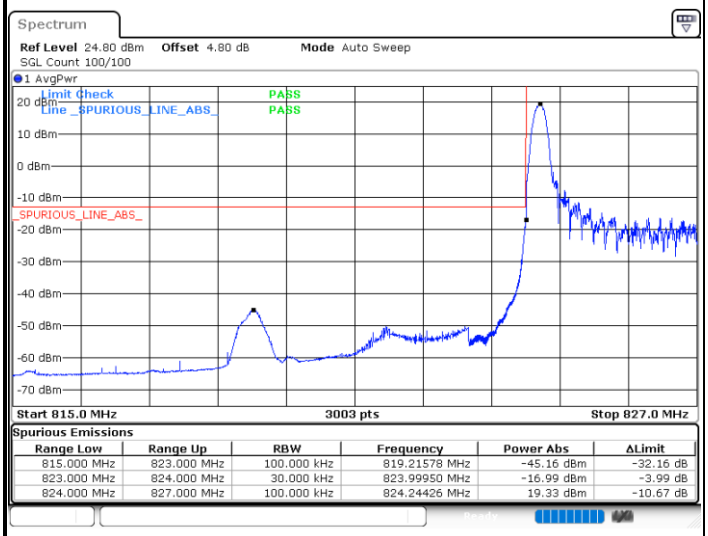
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
846.000 MHz	849.000 MHz	100.000 kHz	848.16533 MHz	8.80 dBm	-21.20 dB
849.000 MHz	850.000 MHz	30.000 kHz	849.00050 MHz	-26.15 dBm	-13.15 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.10490 MHz	-33.65 dBm	-20.65 dB

Date: 12.OCT.2023 18:45:58

LTE Band 5 / 3MHz / 16QAM

Lowest Band Edge / 1 RB

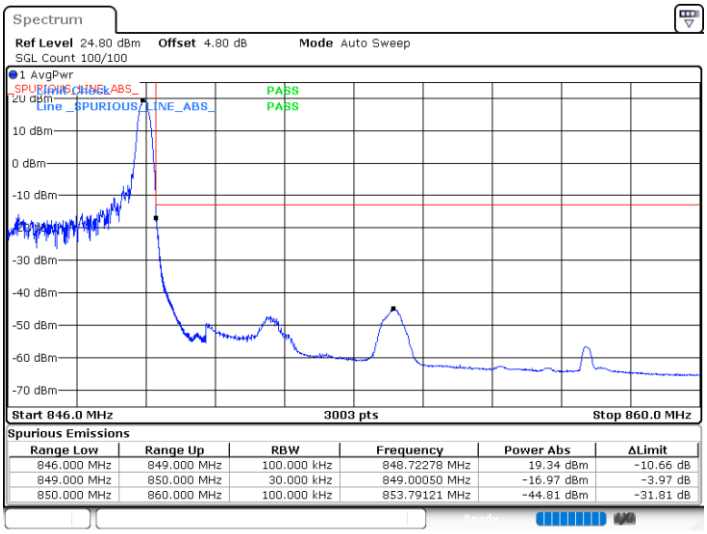


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	819.21578 MHz	-45.16 dBm	-32.16 dB
823.000 MHz	824.000 MHz	30.000 kHz	823.99950 MHz	-16.99 dBm	-3.99 dB
824.000 MHz	827.000 MHz	100.000 kHz	824.24426 MHz	19.33 dBm	-10.67 dB

Date: 12.OCT.2023 18:28:35

Highest Band Edge /1 RB

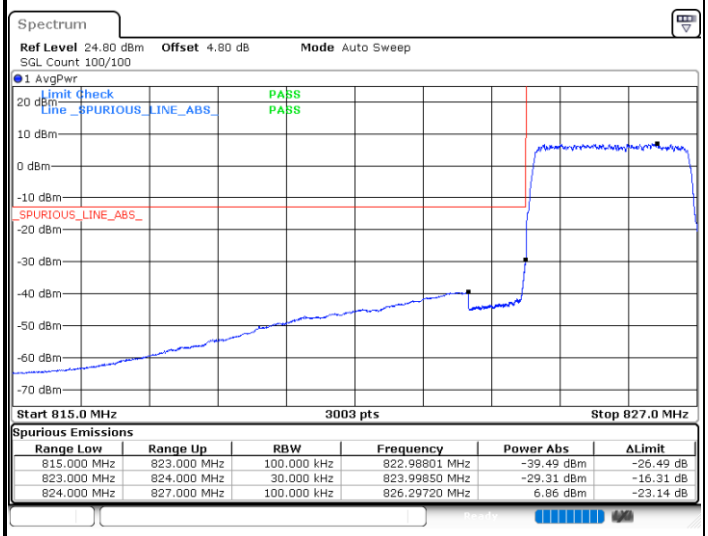


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
846.000 MHz	849.000 MHz	100.000 kHz	848.72278 MHz	19.34 dBm	-10.66 dB
849.000 MHz	850.000 MHz	30.000 kHz	849.00050 MHz	-16.97 dBm	-3.97 dB
850.000 MHz	860.000 MHz	100.000 kHz	853.79121 MHz	-44.81 dBm	-31.81 dB

Date: 12.OCT.2023 18:42:18

Lowest Band Edge / Full RB

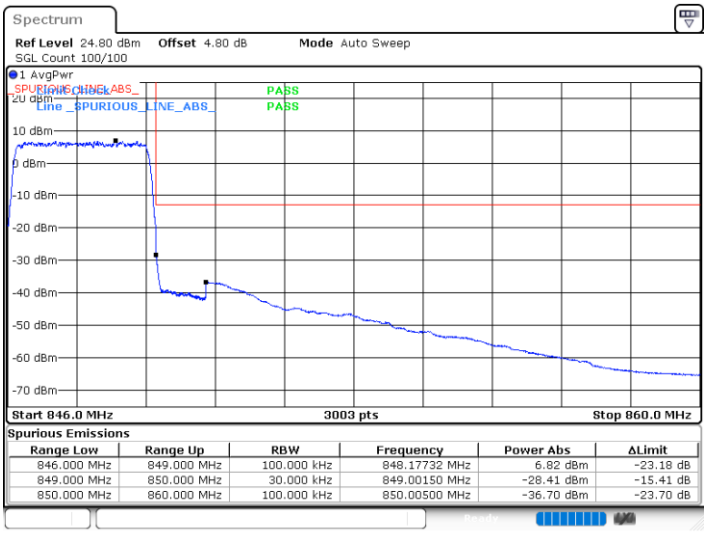


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.98801 MHz	-39.49 dBm	-26.49 dB
823.000 MHz	824.000 MHz	30.000 kHz	823.99850 MHz	-29.31 dBm	-16.31 dB
824.000 MHz	827.000 MHz	100.000 kHz	826.29720 MHz	6.86 dBm	-23.14 dB

Date: 12.OCT.2023 18:34:07

Highest Band Edge / Full RB



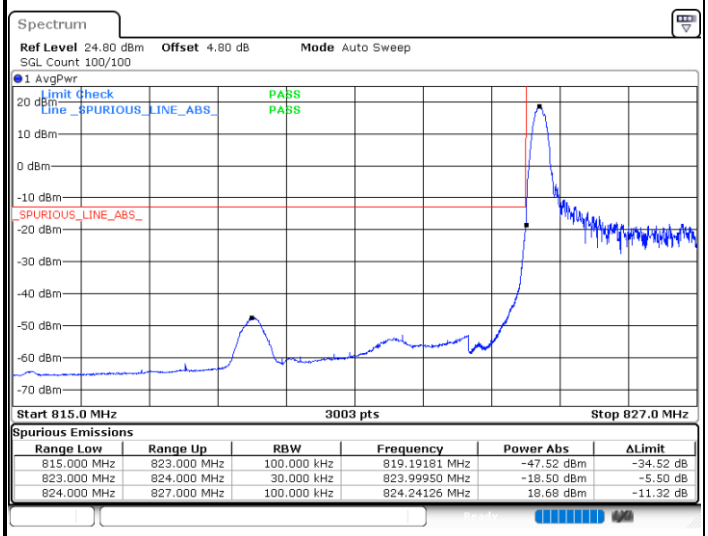
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
846.000 MHz	849.000 MHz	100.000 kHz	848.17732 MHz	6.82 dBm	-23.18 dB
849.000 MHz	850.000 MHz	30.000 kHz	849.00150 MHz	-28.41 dBm	-15.41 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.00500 MHz	-36.70 dBm	-23.70 dB

Date: 12.OCT.2023 18:47:49

LTE Band 5 / 3MHz / 64QAM

Lowest Band Edge / 1 RB

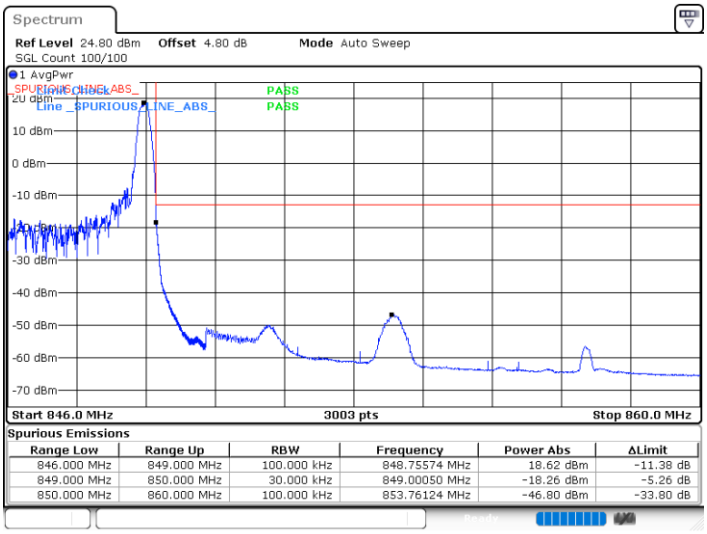


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	819.19181 MHz	-47.52 dBm	-34.52 dB
823.000 MHz	824.000 MHz	30.000 kHz	823.99950 MHz	-18.50 dBm	-5.50 dB
824.000 MHz	827.000 MHz	100.000 kHz	824.24126 MHz	18.68 dBm	-11.32 dB

Date: 12.OCT.2023 18:30:26

Highest Band Edge /1 RB

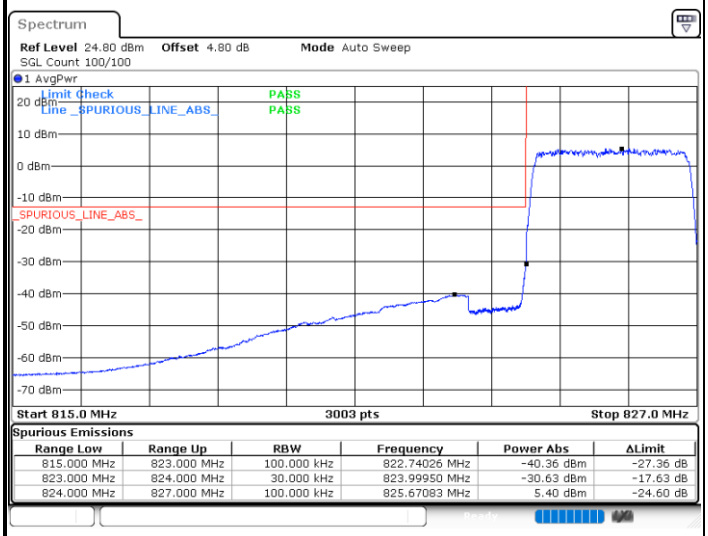


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
846.000 MHz	849.000 MHz	100.000 kHz	848.75574 MHz	18.62 dBm	-11.38 dB
849.000 MHz	850.000 MHz	30.000 kHz	849.00050 MHz	-18.26 dBm	-5.26 dB
850.000 MHz	860.000 MHz	100.000 kHz	853.76124 MHz	-46.80 dBm	-33.80 dB

Date: 12.OCT.2023 18:44:08

Lowest Band Edge / Full RB

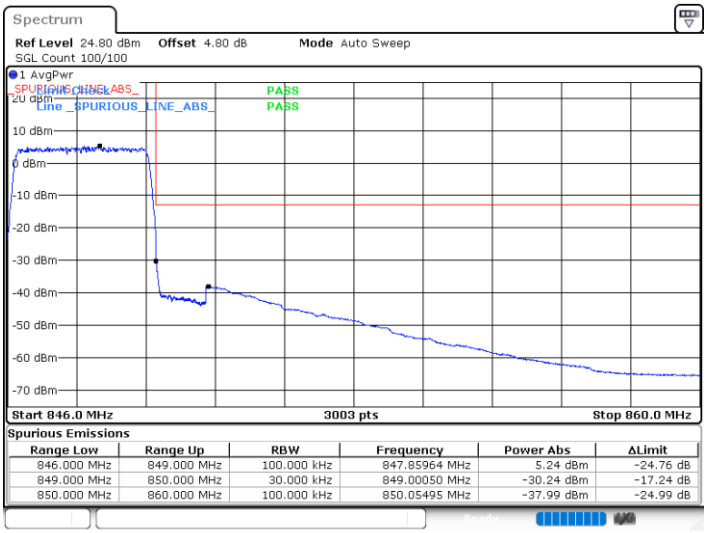


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.74026 MHz	-40.36 dBm	-27.36 dB
823.000 MHz	824.000 MHz	30.000 kHz	823.99950 MHz	-30.63 dBm	-17.63 dB
824.000 MHz	827.000 MHz	100.000 kHz	825.67083 MHz	5.40 dBm	-24.60 dB

Date: 12.OCT.2023 18:35:57

Highest Band Edge / Full RB



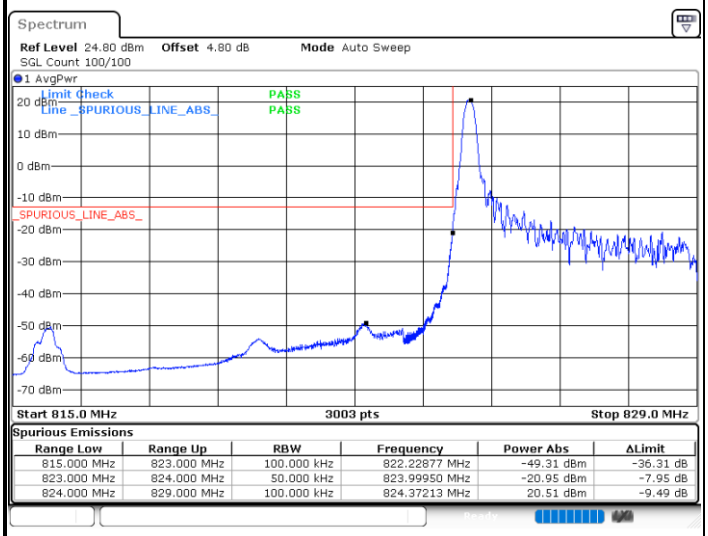
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
846.000 MHz	849.000 MHz	100.000 kHz	847.85964 MHz	5.24 dBm	-24.76 dB
849.000 MHz	850.000 MHz	30.000 kHz	849.00050 MHz	-30.24 dBm	-17.24 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.05495 MHz	-37.99 dBm	-24.99 dB

Date: 12.OCT.2023 18:49:39

LTE Band 5 / 5MHz / QPSK

Lowest Band Edge / 1 RB

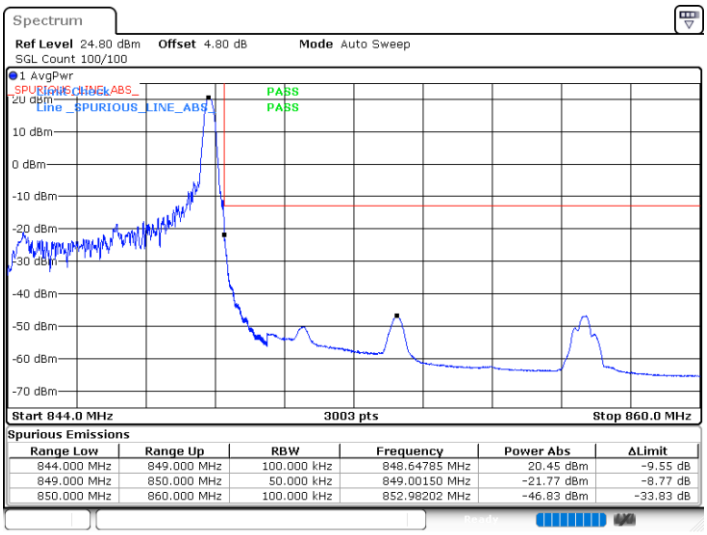


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.22877 MHz	-49.31 dBm	-36.31 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99950 MHz	-20.95 dBm	-7.95 dB
824.000 MHz	829.000 MHz	100.000 kHz	824.37213 MHz	20.51 dBm	-9.49 dB

Date: 12.OCT.2023 18:52:50

Highest Band Edge / 1 RB

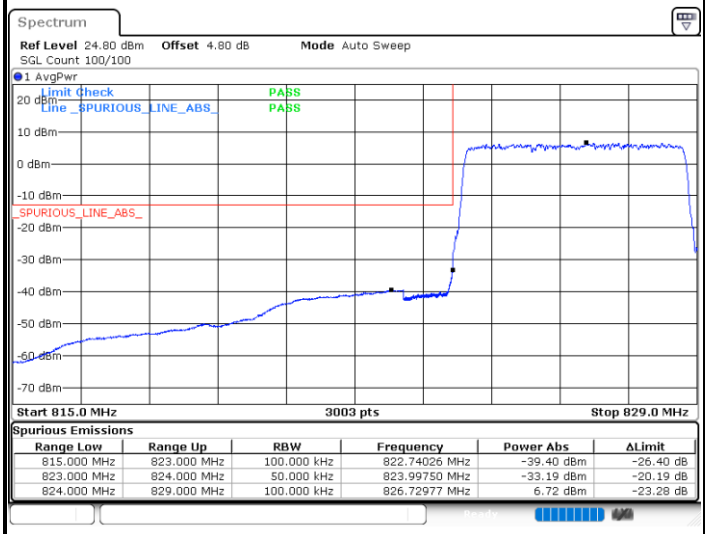


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	848.64785 MHz	20.45 dBm	-9.55 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.00150 MHz	-21.77 dBm	-8.77 dB
850.000 MHz	860.000 MHz	100.000 kHz	852.98202 MHz	-46.83 dBm	-33.83 dB

Date: 12.OCT.2023 19:06:50

Lowest Band Edge / Full RB

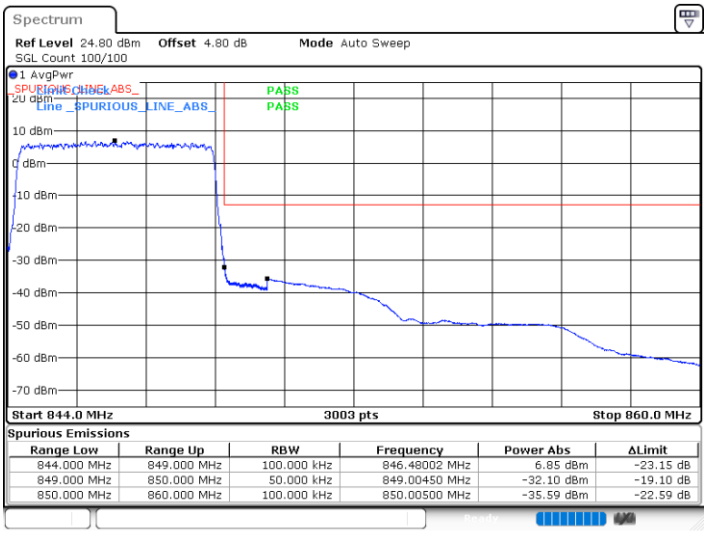


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.74026 MHz	-39.40 dBm	-26.40 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99750 MHz	-33.19 dBm	-20.19 dB
824.000 MHz	829.000 MHz	100.000 kHz	826.72977 MHz	6.72 dBm	-23.28 dB

Date: 12.OCT.2023 18:58:39

Highest Band Edge / Full RB



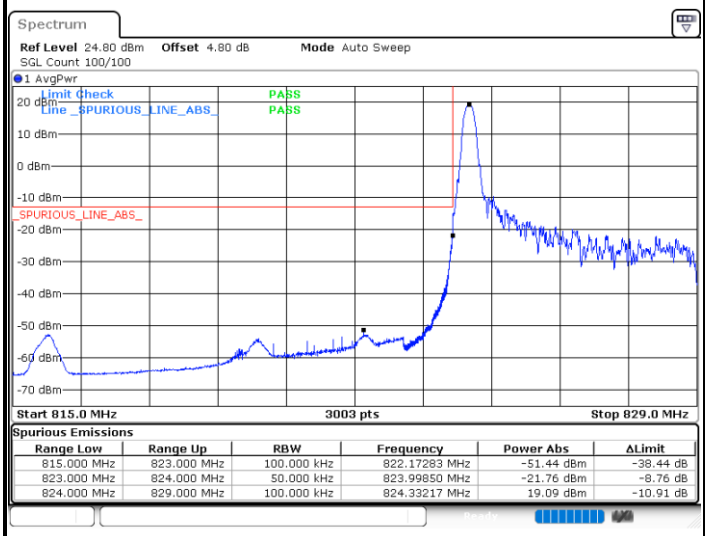
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	846.48002 MHz	6.85 dBm	-23.15 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.00450 MHz	-32.10 dBm	-19.10 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.00500 MHz	-35.59 dBm	-22.59 dB

Date: 12.OCT.2023 19:12:22

LTE Band 5 / 5MHz / 16QAM

Lowest Band Edge / 1RB

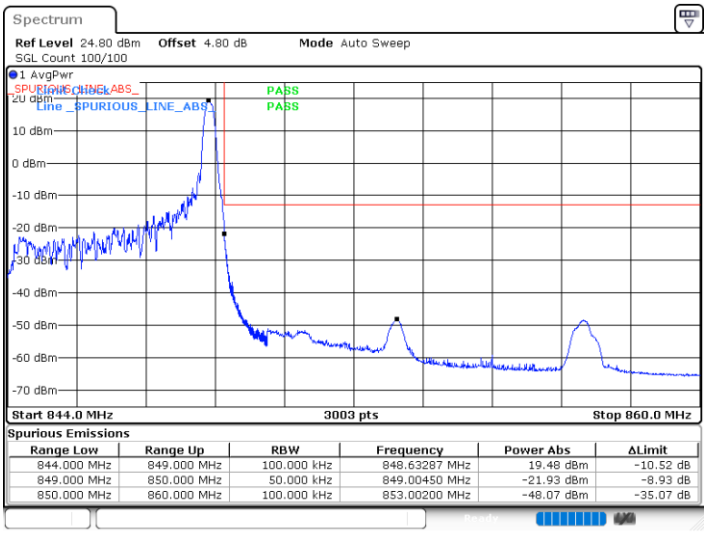


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.17283 MHz	-51.44 dBm	-38.44 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99850 MHz	-21.76 dBm	-8.76 dB
824.000 MHz	829.000 MHz	100.000 kHz	824.33217 MHz	19.09 dBm	-10.91 dB

Date: 12.OCT.2023 18:54:40

Highest Band Edge / 1 RB

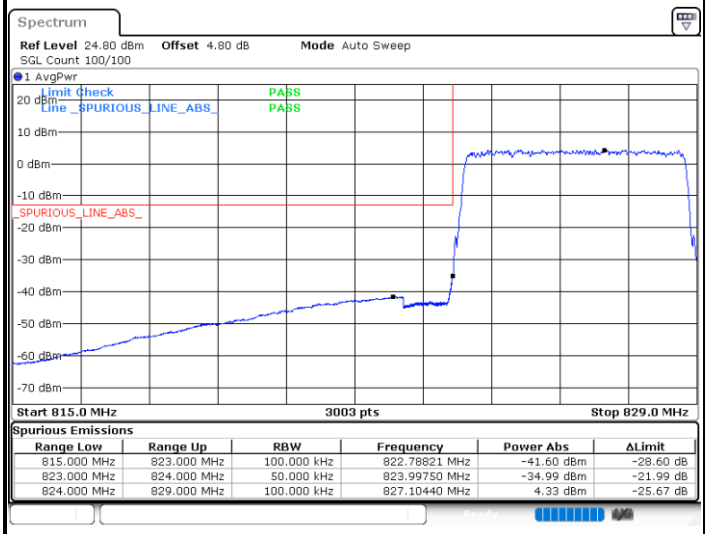


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	848.63287 MHz	19.48 dBm	-10.52 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.00450 MHz	-21.93 dBm	-8.93 dB
850.000 MHz	860.000 MHz	100.000 kHz	853.00200 MHz	-48.07 dBm	-35.07 dB

Date: 12.OCT.2023 19:08:41

Lowest Band Edge / Full RB

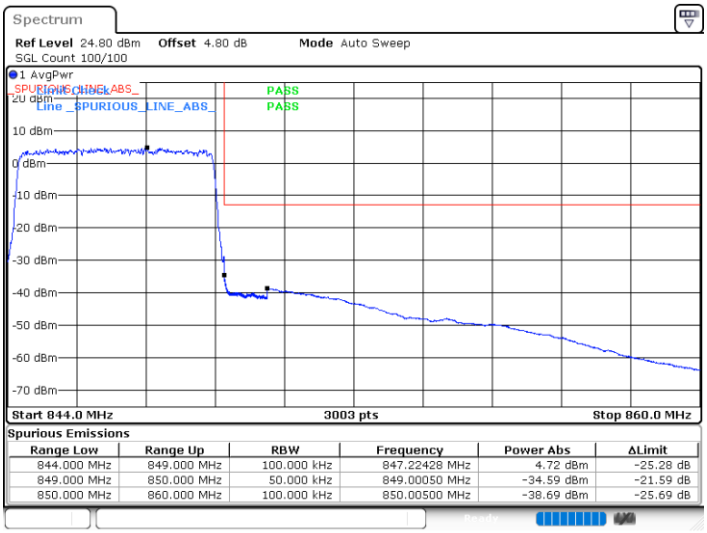


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.78821 MHz	-41.60 dBm	-28.60 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99750 MHz	-34.99 dBm	-21.99 dB
824.000 MHz	829.000 MHz	100.000 kHz	827.10440 MHz	4.33 dBm	-25.67 dB

Date: 12.OCT.2023 19:00:30

Highest Band Edge / Full RB



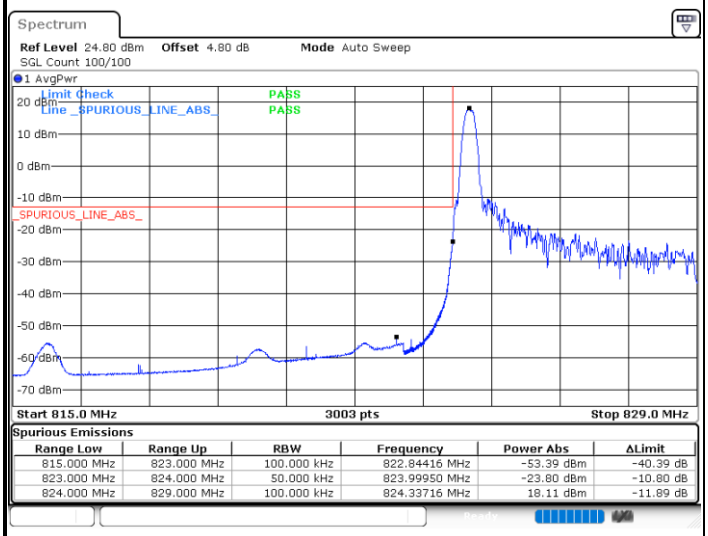
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	847.22428 MHz	4.72 dBm	-25.28 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.00050 MHz	-34.59 dBm	-21.59 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.00500 MHz	-38.69 dBm	-25.69 dB

Date: 12.OCT.2023 19:14:12

LTE Band 5 / 5MHz / 64QAM

Lowest Band Edge / 1RB

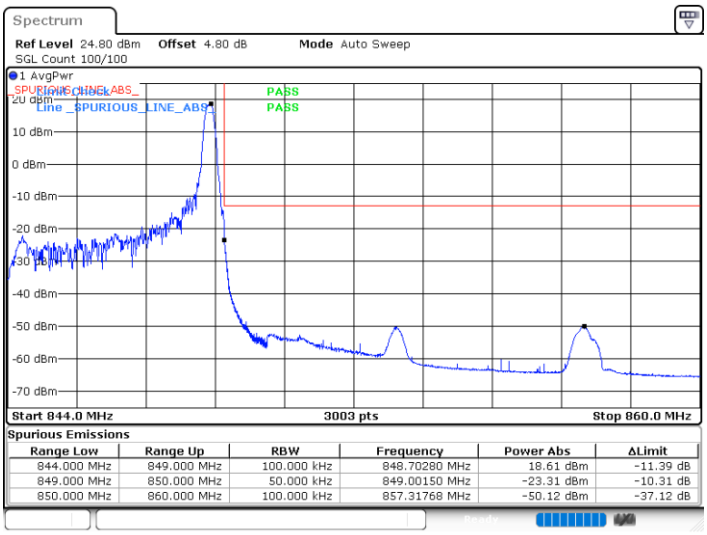


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.84416 MHz	-53.39 dBm	-40.39 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99950 MHz	-23.80 dBm	-10.80 dB
824.000 MHz	829.000 MHz	100.000 kHz	824.33716 MHz	18.11 dBm	-11.89 dB

Date: 12.OCT.2023 18:56:49

Highest Band Edge / 1 RB

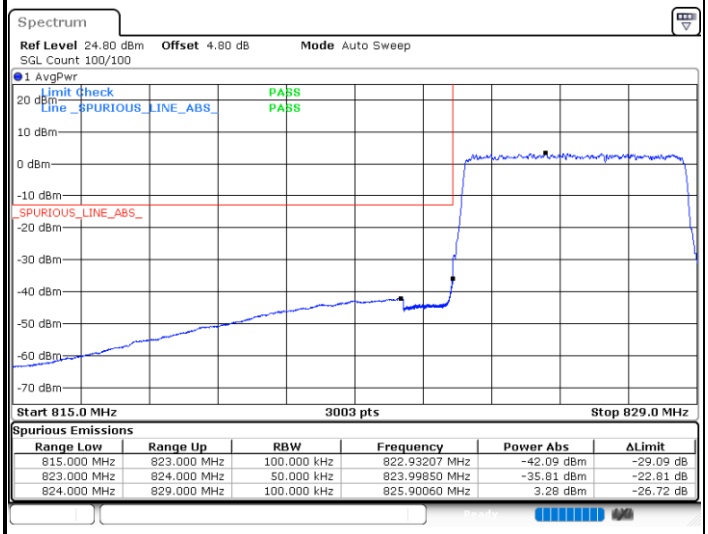


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	848.70280 MHz	18.61 dBm	-11.39 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.00150 MHz	-23.31 dBm	-10.31 dB
850.000 MHz	860.000 MHz	100.000 kHz	857.31768 MHz	-50.12 dBm	-37.12 dB

Date: 12.OCT.2023 19:10:31

Lowest Band Edge / Full RB

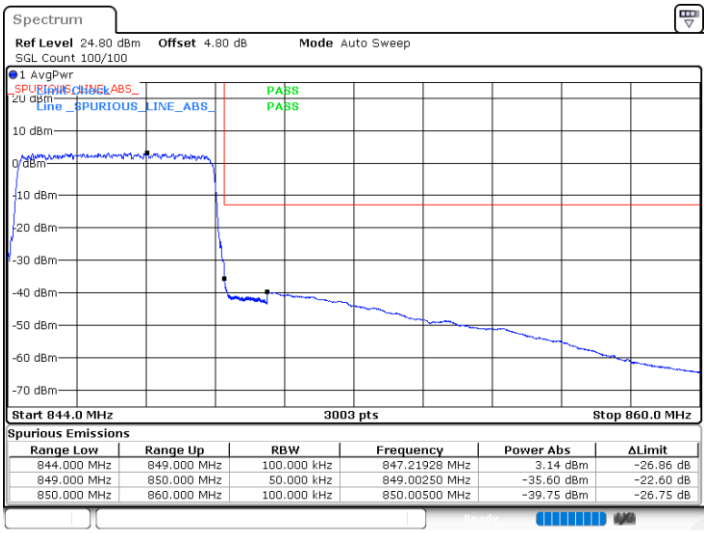


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.93207 MHz	-42.09 dBm	-29.09 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99850 MHz	-35.81 dBm	-22.81 dB
824.000 MHz	829.000 MHz	100.000 kHz	825.90060 MHz	3.28 dBm	-26.72 dB

Date: 12.OCT.2023 19:02:20

Highest Band Edge / Full RB



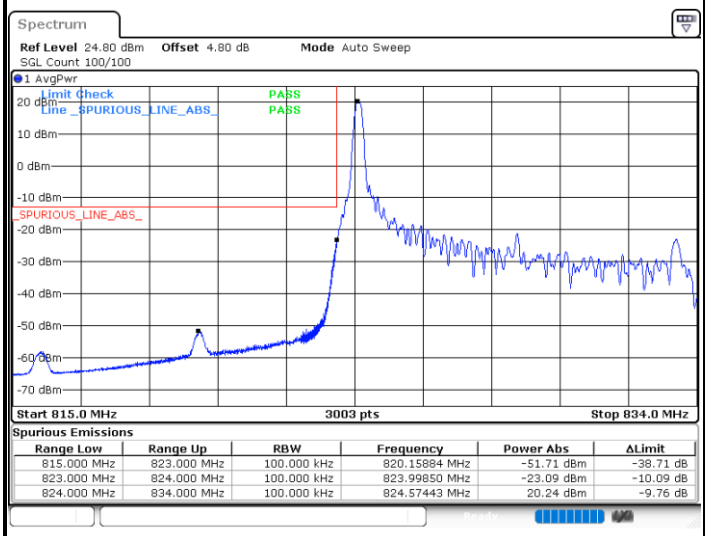
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	847.21928 MHz	3.14 dBm	-26.86 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.00250 MHz	-35.60 dBm	-22.60 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.00500 MHz	-39.75 dBm	-26.75 dB

Date: 12.OCT.2023 19:16:03

LTE Band 5 / 10MHz / QPSK

Lowest Band Edge / 1 RB

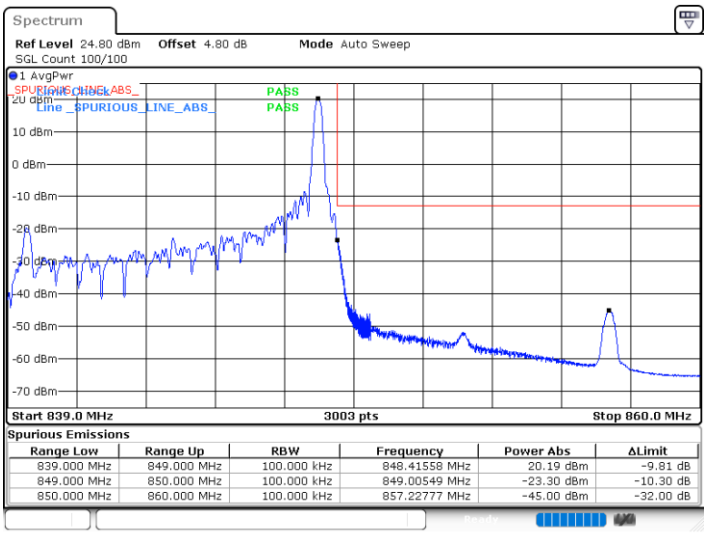


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	820.15884 MHz	-51.71 dBm	-38.71 dB
823.000 MHz	824.000 MHz	100.000 kHz	823.99850 MHz	-23.09 dBm	-10.09 dB
824.000 MHz	834.000 MHz	100.000 kHz	824.57443 MHz	20.24 dBm	-9.76 dB

Date: 12.OCT.2023 19:19:13

Highest Band Edge / 1 RB

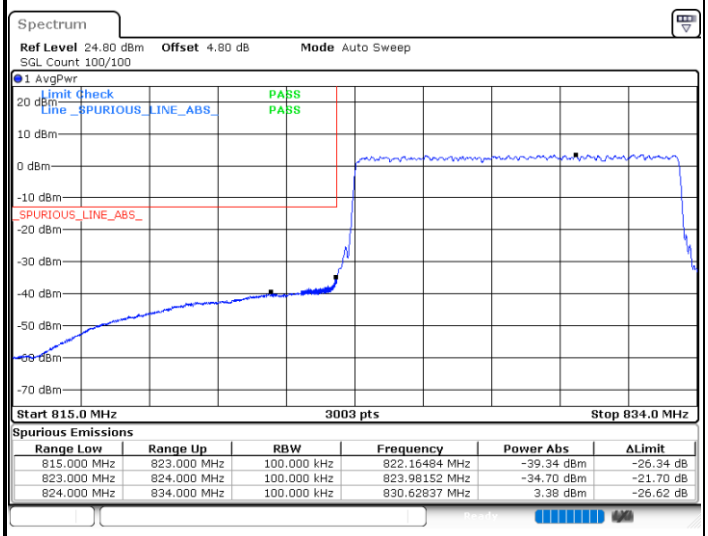


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
839.000 MHz	849.000 MHz	100.000 kHz	848.41558 MHz	20.19 dBm	-9.81 dB
849.000 MHz	850.000 MHz	100.000 kHz	849.00549 MHz	-23.30 dBm	-10.30 dB
850.000 MHz	860.000 MHz	100.000 kHz	857.22777 MHz	-45.00 dBm	-32.00 dB

Date: 12.OCT.2023 19:32:57

Lowest Band Edge / Full RB

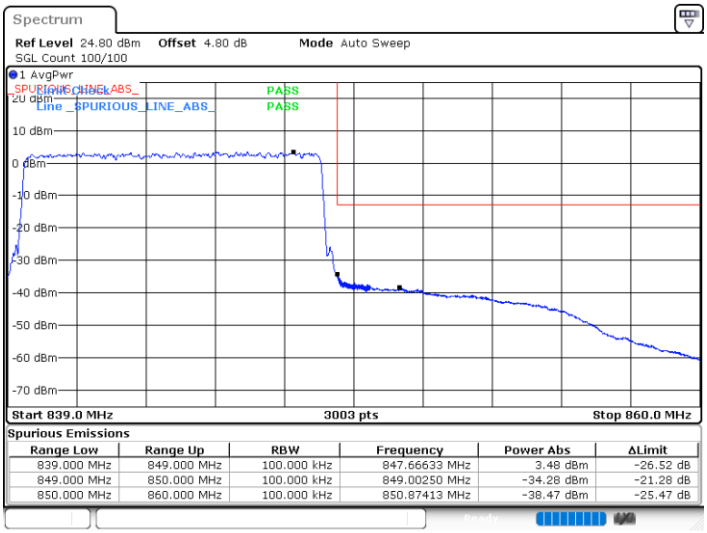


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.16484 MHz	-39.34 dBm	-26.34 dB
823.000 MHz	824.000 MHz	100.000 kHz	823.98152 MHz	-34.70 dBm	-21.70 dB
824.000 MHz	834.000 MHz	100.000 kHz	830.62837 MHz	3.38 dBm	-26.62 dB

Date: 12.OCT.2023 19:24:45

Highest Band Edge / Full RB



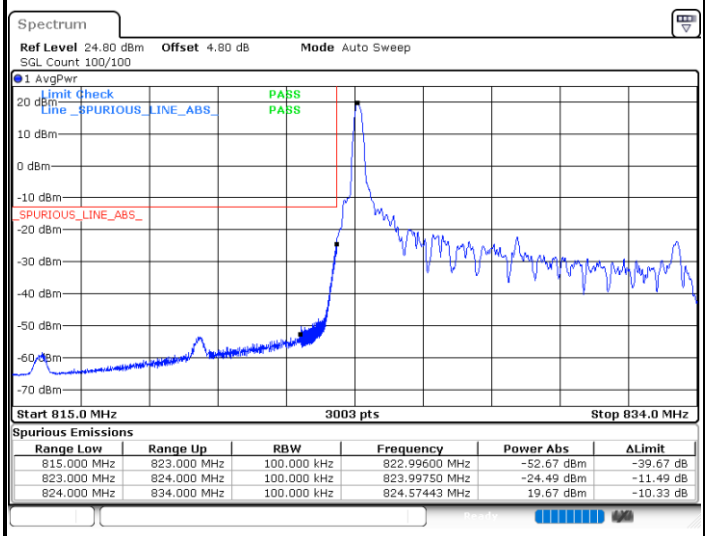
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
839.000 MHz	849.000 MHz	100.000 kHz	847.66633 MHz	3.48 dBm	-26.52 dB
849.000 MHz	850.000 MHz	100.000 kHz	849.00250 MHz	-34.28 dBm	-21.28 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.87413 MHz	-38.47 dBm	-25.47 dB

Date: 12.OCT.2023 19:38:28

LTE Band 5 / 10MHz / 16QAM

Lowest Band Edge / 1 RB

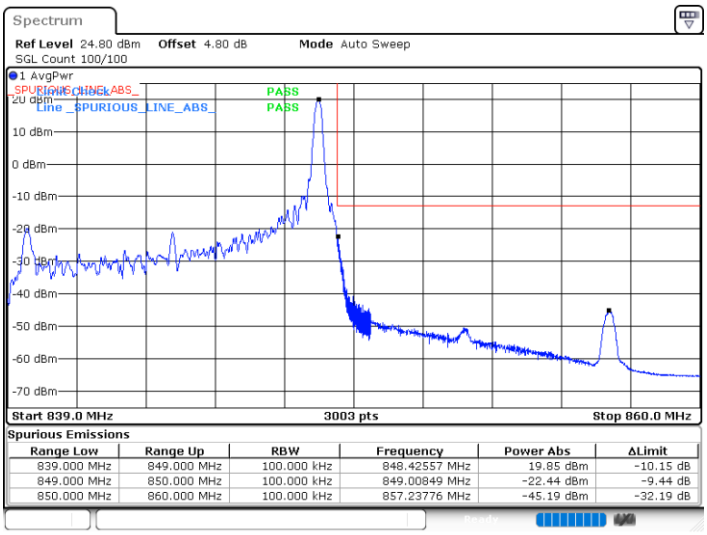


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.99600 MHz	-52.67 dBm	-39.67 dB
823.000 MHz	824.000 MHz	100.000 kHz	823.99750 MHz	-24.49 dBm	-11.49 dB
824.000 MHz	834.000 MHz	100.000 kHz	824.57443 MHz	19.67 dBm	-10.33 dB

Date: 12.OCT.2023 19:21:04

Highest Band Edge / 1 RB

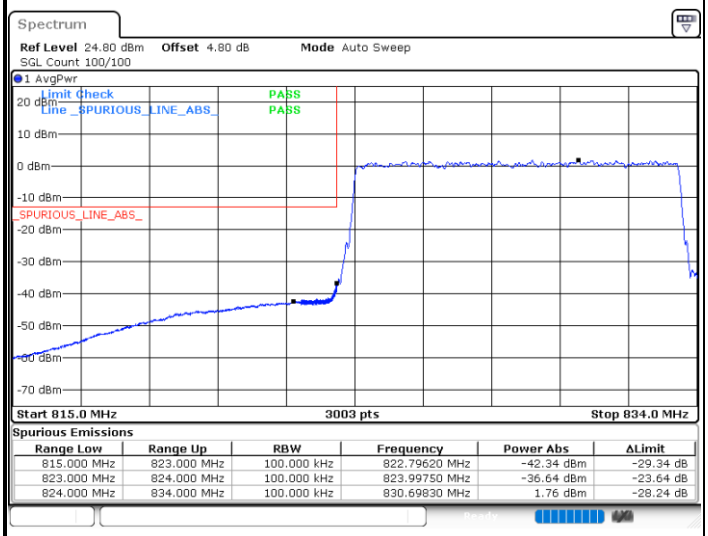


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
839.000 MHz	849.000 MHz	100.000 kHz	848.42557 MHz	19.85 dBm	-10.15 dB
849.000 MHz	850.000 MHz	100.000 kHz	849.00849 MHz	-22.44 dBm	-9.44 dB
850.000 MHz	860.000 MHz	100.000 kHz	857.23776 MHz	-45.19 dBm	-32.19 dB

Date: 12.OCT.2023 19:34:47

Lowest Band Edge / Full RB

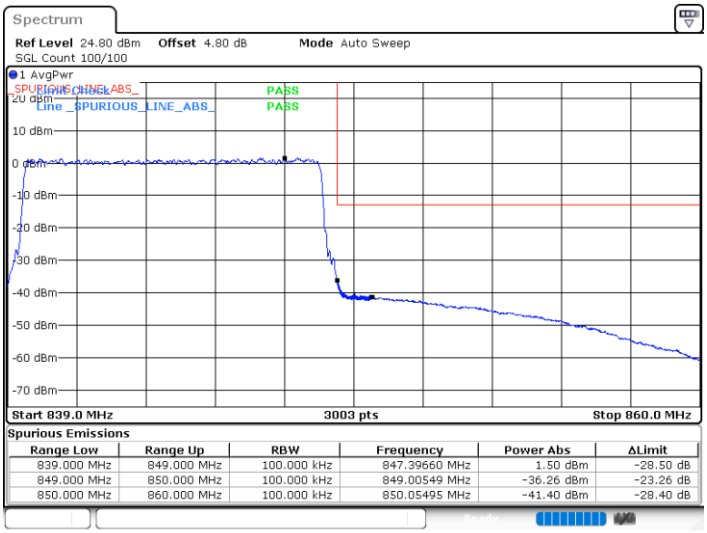


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.79620 MHz	-42.34 dBm	-29.34 dB
823.000 MHz	824.000 MHz	100.000 kHz	823.99750 MHz	-36.64 dBm	-23.64 dB
824.000 MHz	834.000 MHz	100.000 kHz	830.69830 MHz	1.76 dBm	-28.24 dB

Date: 12.OCT.2023 19:26:35

Highest Band Edge / Full RB



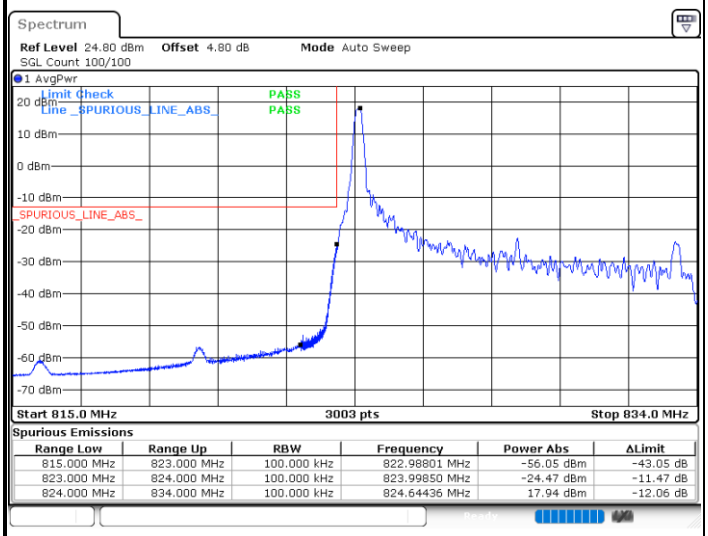
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
839.000 MHz	849.000 MHz	100.000 kHz	847.39660 MHz	1.50 dBm	-28.50 dB
849.000 MHz	850.000 MHz	100.000 kHz	849.00549 MHz	-36.26 dBm	-23.26 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.05495 MHz	-41.40 dBm	-28.40 dB

Date: 12.OCT.2023 19:40:18

LTE Band 5 / 10MHz / 64QAM

Lowest Band Edge / 1 RB

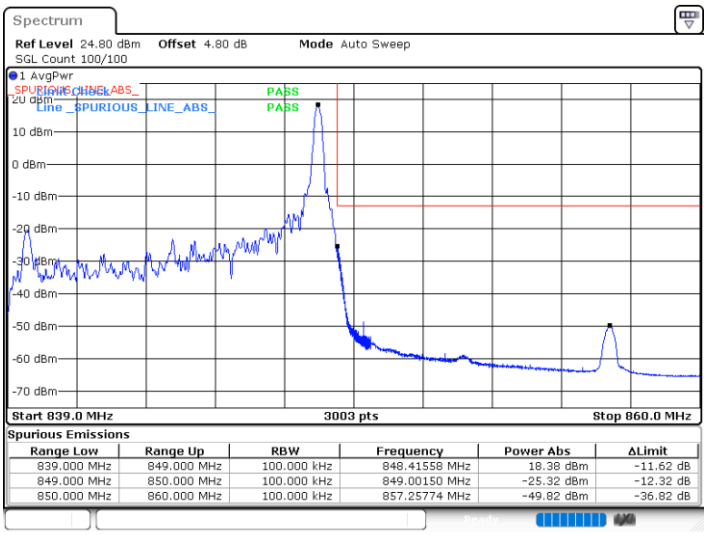


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.98801 MHz	-56.05 dBm	-43.05 dB
823.000 MHz	824.000 MHz	100.000 kHz	823.99850 MHz	-24.47 dBm	-11.47 dB
824.000 MHz	834.000 MHz	100.000 kHz	824.64436 MHz	17.94 dBm	-12.06 dB

Date: 12.OCT.2023 19:22:54

Highest Band Edge / 1 RB

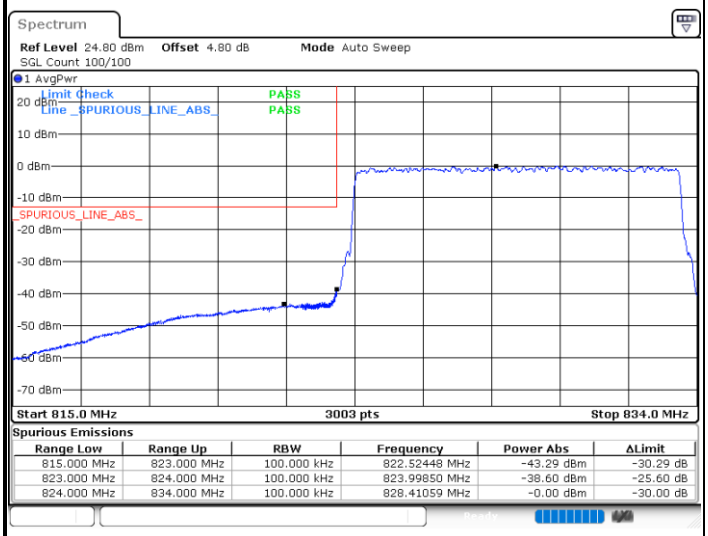


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
839.000 MHz	849.000 MHz	100.000 kHz	848.41558 MHz	18.38 dBm	-11.62 dB
849.000 MHz	850.000 MHz	100.000 kHz	849.00150 MHz	-25.32 dBm	-12.32 dB
850.000 MHz	860.000 MHz	100.000 kHz	857.25774 MHz	-49.82 dBm	-36.82 dB

Date: 12.OCT.2023 19:36:37

Lowest Band Edge / Full RB

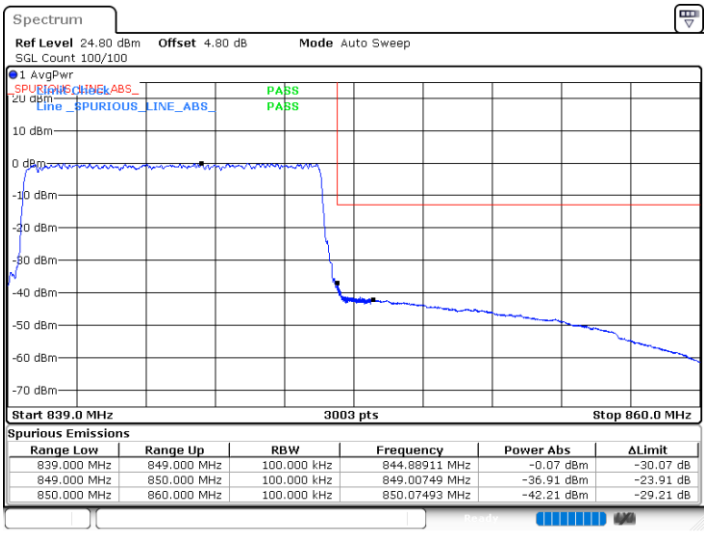


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.52448 MHz	-43.29 dBm	-30.29 dB
823.000 MHz	824.000 MHz	100.000 kHz	823.99850 MHz	-38.60 dBm	-25.60 dB
824.000 MHz	834.000 MHz	100.000 kHz	828.41059 MHz	-0.00 dBm	-30.00 dB

Date: 12.OCT.2023 19:28:26

Highest Band Edge / Full RB



Spurious Emissions

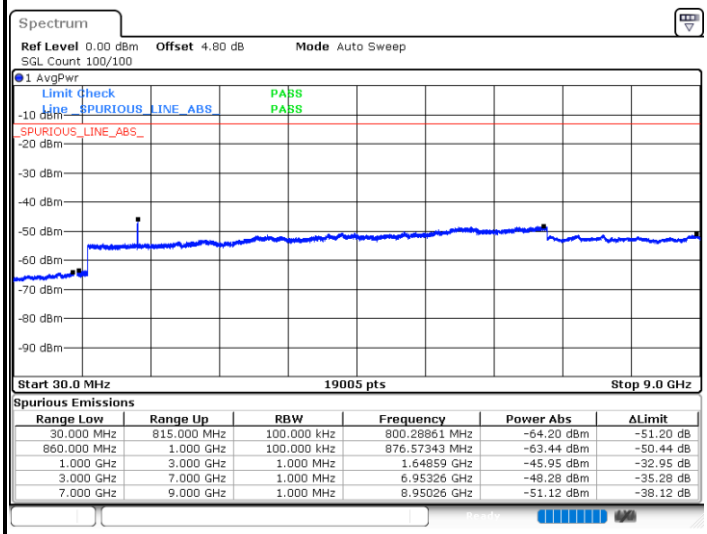
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
839.000 MHz	849.000 MHz	100.000 kHz	844.88911 MHz	-0.07 dBm	-30.07 dB
849.000 MHz	850.000 MHz	100.000 kHz	849.00749 MHz	-36.91 dBm	-23.91 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.07493 MHz	-42.21 dBm	-29.21 dB

Date: 12.OCT.2023 19:42:08

Conducted Spurious Emission

LTE Band 5 / 1.4MHz

Lowest Channel / QPSK

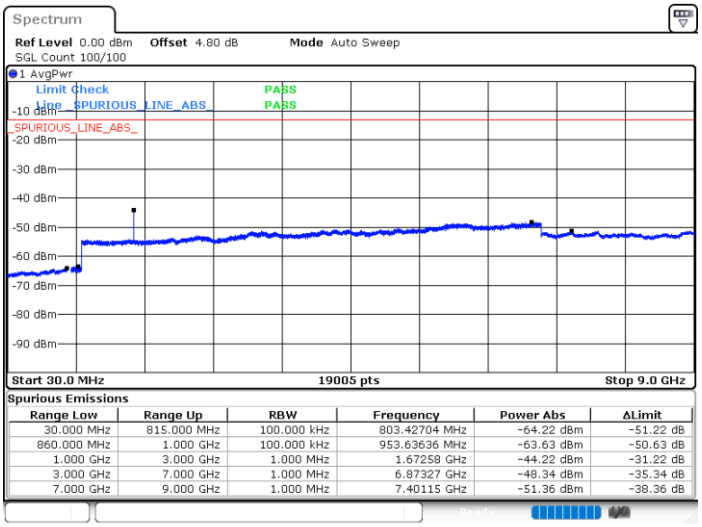


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	800.28861 MHz	-64.20 dBm	-51.20 dB
860.000 MHz	1.000 GHz	100.000 kHz	876.57343 MHz	-63.44 dBm	-50.44 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.64859 GHz	-45.95 dBm	-32.95 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.95326 GHz	-48.28 dBm	-35.28 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.95026 GHz	-51.12 dBm	-38.12 dB

Date: 12.OCT.2023 17:58:50

Middle Channel / QPSK

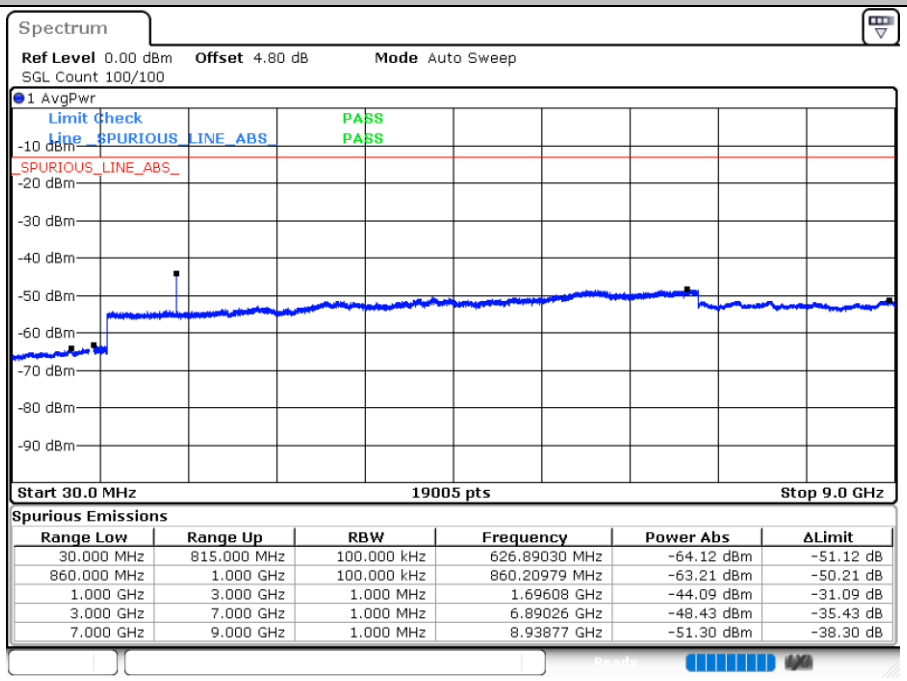


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	803.42704 MHz	-64.22 dBm	-51.22 dB
860.000 MHz	1.000 GHz	100.000 kHz	953.63636 MHz	-63.63 dBm	-50.63 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.67258 GHz	-44.22 dBm	-31.22 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.87327 GHz	-48.34 dBm	-35.34 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.40115 GHz	-51.36 dBm	-38.36 dB

Date: 12.OCT.2023 18:11:13

Highest Channel / QPSK



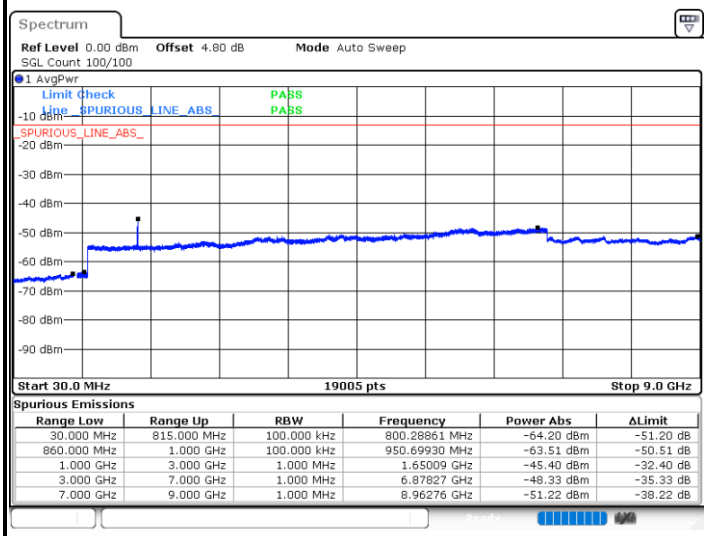
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	626.89030 MHz	-64.12 dBm	-51.12 dB
860.000 MHz	1.000 GHz	100.000 kHz	860.20979 MHz	-63.21 dBm	-50.21 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.69608 GHz	-44.09 dBm	-31.09 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.89026 GHz	-48.43 dBm	-35.43 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.93877 GHz	-51.30 dBm	-38.30 dB

Date: 12.OCT.2023 18:12:33

LTE Band 5 / 3MHz

Lowest Channel / QPSK

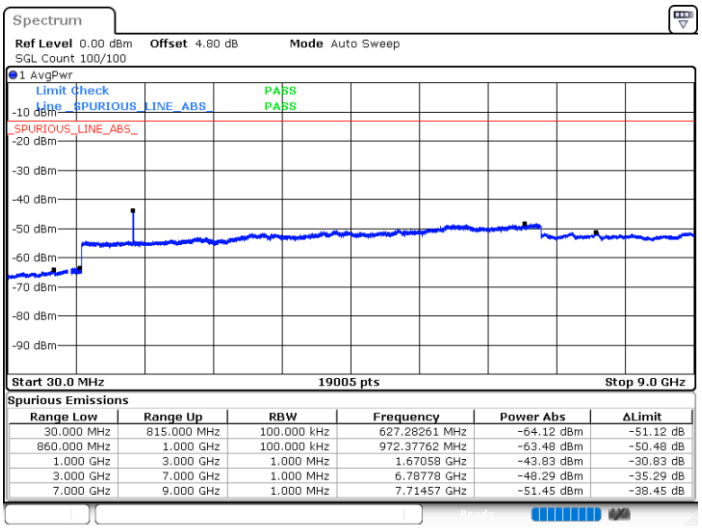


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	800.28861 MHz	-64.20 dBm	-51.20 dB
860.000 MHz	1.000 GHz	100.000 kHz	950.69930 MHz	-63.51 dBm	-50.51 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.65009 GHz	-45.40 dBm	-32.40 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.87827 GHz	-48.33 dBm	-35.33 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.96276 GHz	-51.22 dBm	-38.22 dB

Date: 12.OCT.2023 18:24:55

Middle Channel / QPSK

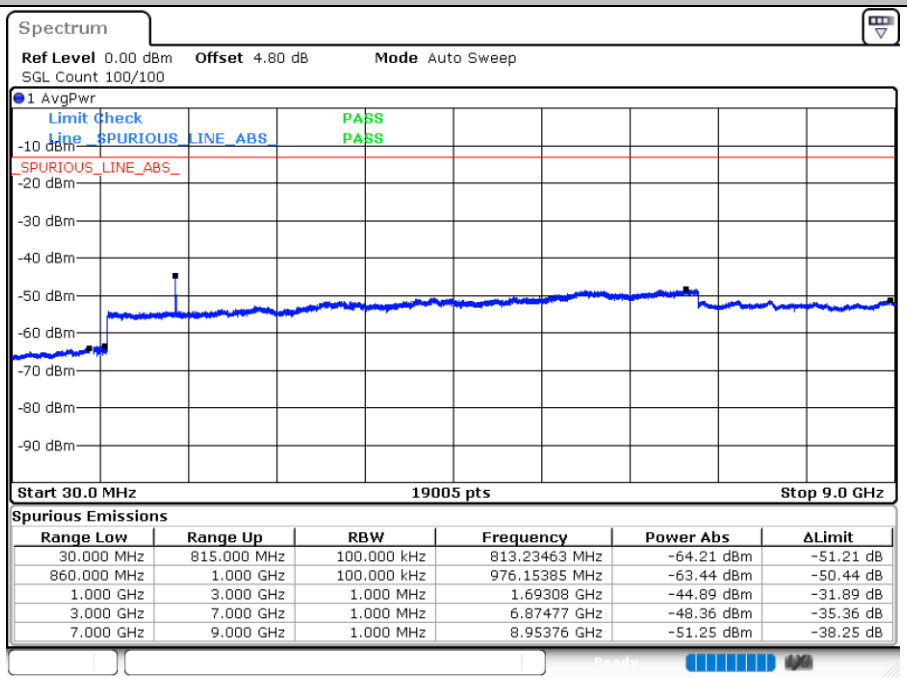


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	627.28261 MHz	-64.12 dBm	-51.12 dB
860.000 MHz	1.000 GHz	100.000 kHz	972.37762 MHz	-63.48 dBm	-50.48 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.67058 GHz	-43.83 dBm	-30.83 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.78778 GHz	-48.29 dBm	-35.29 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.71457 GHz	-51.45 dBm	-38.45 dB

Date: 12.OCT.2023 18:37:17

Highest Channel / QPSK



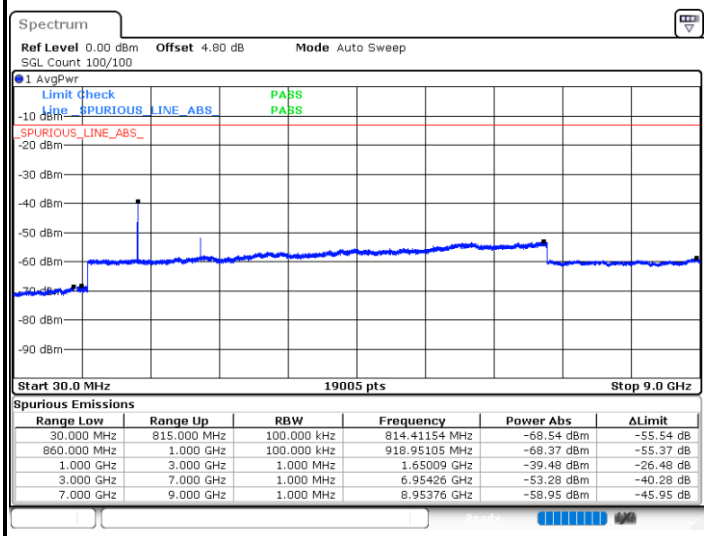
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	813.23463 MHz	-64.21 dBm	-51.21 dB
860.000 MHz	1.000 GHz	100.000 kHz	976.15385 MHz	-63.44 dBm	-50.44 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.69308 GHz	-44.89 dBm	-31.89 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.87477 GHz	-48.36 dBm	-35.36 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.95376 GHz	-51.25 dBm	-38.25 dB

Date: 12.OCT.2023 18:38:37

LTE Band 5 / 5MHz

Lowest Channel / QPSK

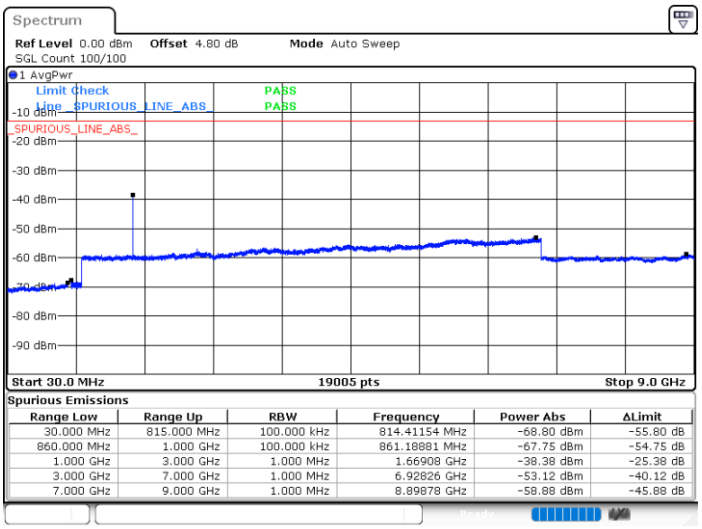


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	814.41154 MHz	-68.54 dBm	-55.54 dB
860.000 MHz	1.000 GHz	100.000 kHz	918.95105 MHz	-68.37 dBm	-55.37 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.65009 GHz	-39.48 dBm	-26.48 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.95426 GHz	-53.28 dBm	-40.28 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.95376 GHz	-58.95 dBm	-45.95 dB

Date: 12.OCT.2023 18:51:00

Middle Channel / QPSK

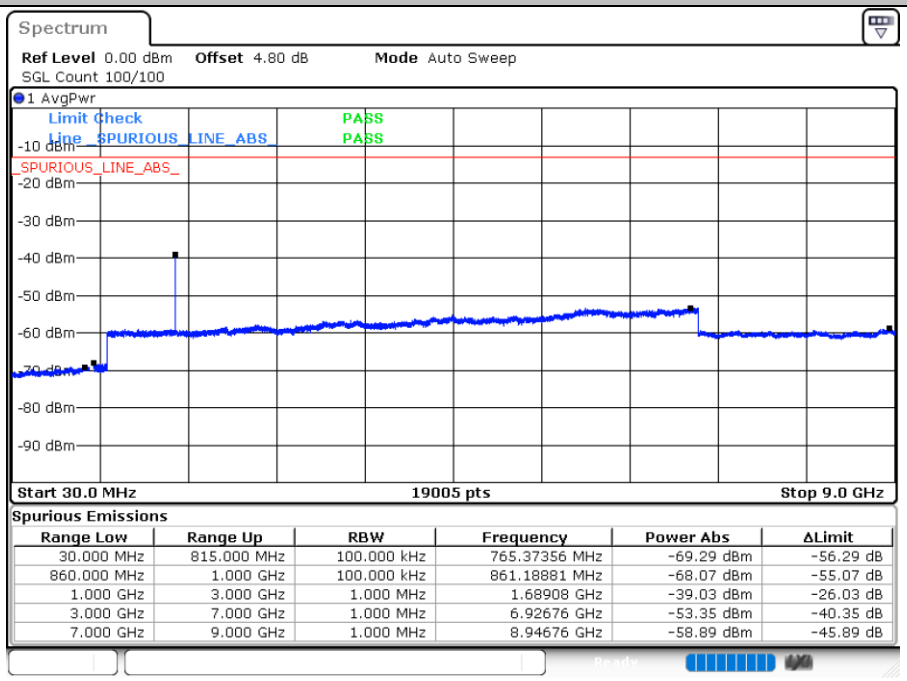


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	814.41154 MHz	-68.80 dBm	-55.80 dB
860.000 MHz	1.000 GHz	100.000 kHz	861.18881 MHz	-67.75 dBm	-54.75 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.66908 GHz	-38.38 dBm	-25.38 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.92826 GHz	-53.12 dBm	-40.12 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.89878 GHz	-58.88 dBm	-45.88 dB

Date: 12.OCT.2023 19:03:40

Highest Channel / QPSK



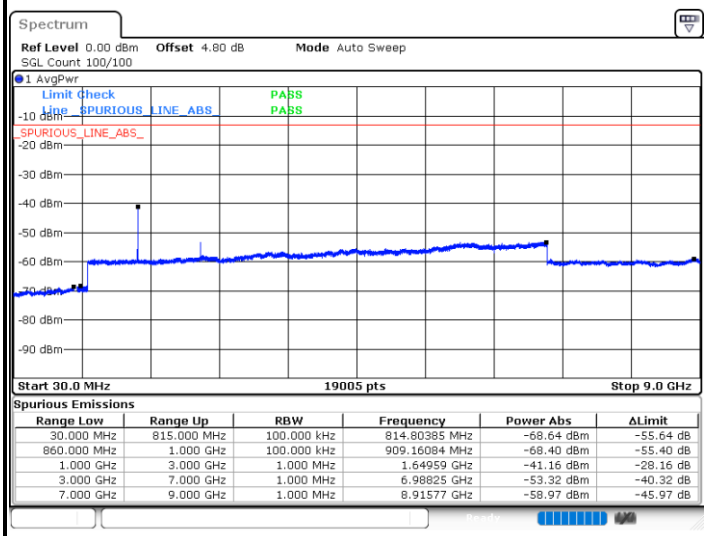
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	765.37356 MHz	-69.29 dBm	-56.29 dB
860.000 MHz	1.000 GHz	100.000 kHz	861.18881 MHz	-68.07 dBm	-55.07 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.68908 GHz	-39.03 dBm	-26.03 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.92676 GHz	-53.35 dBm	-40.35 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.94676 GHz	-58.89 dBm	-45.89 dB

Date: 12.OCT.2023 19:05:00

LTE Band 5 / 10MHz

Lowest Channel / QPSK

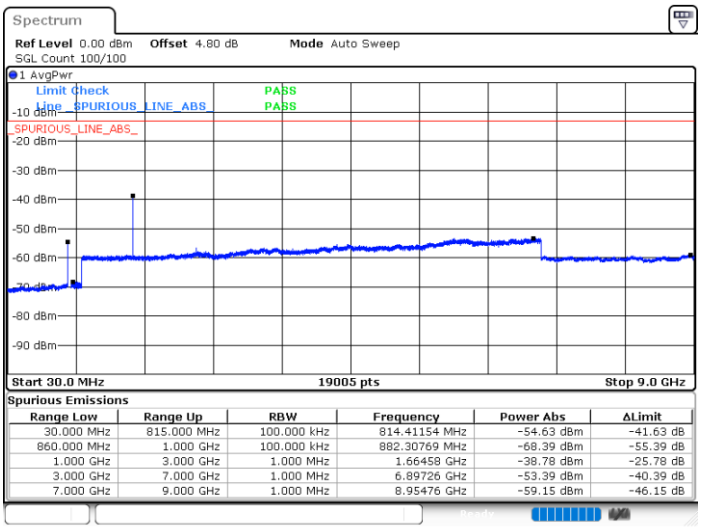


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	814.80385 MHz	-68.64 dBm	-55.64 dB
860.000 MHz	1.000 GHz	100.000 kHz	909.16084 MHz	-68.40 dBm	-55.40 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.64959 GHz	-41.16 dBm	-28.16 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98825 GHz	-53.32 dBm	-40.32 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.91577 GHz	-58.97 dBm	-45.97 dB

Date: 12.OCT.2023 19:17:23

Middle Channel / QPSK

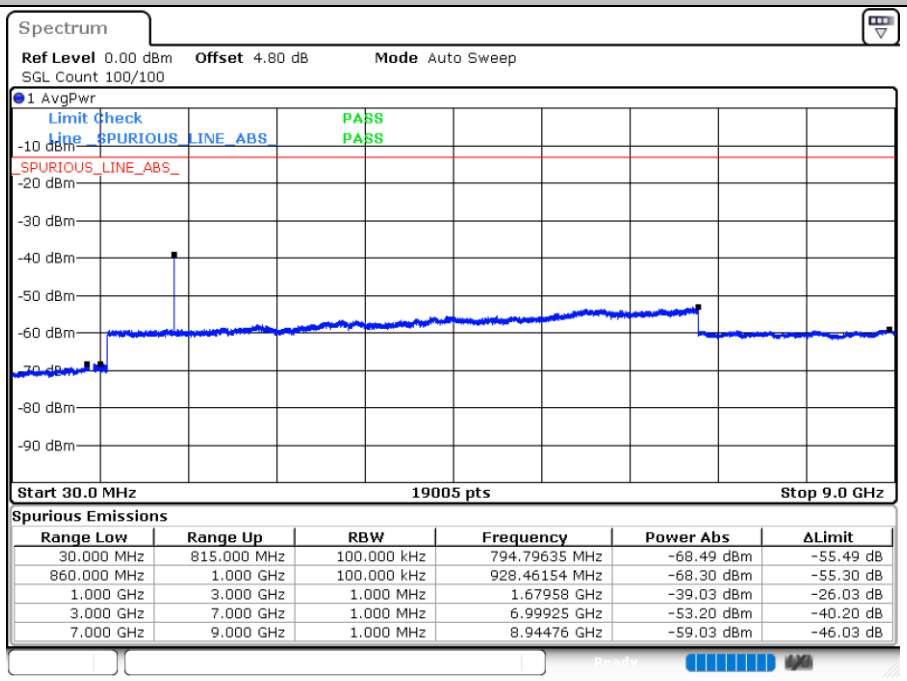


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	814.41154 MHz	-54.63 dBm	-41.63 dB
860.000 MHz	1.000 GHz	100.000 kHz	882.30769 MHz	-68.39 dBm	-55.39 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.66458 GHz	-38.78 dBm	-25.78 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.89726 GHz	-53.39 dBm	-40.39 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.95476 GHz	-59.15 dBm	-46.15 dB

Date: 12.OCT.2023 19:29:47

Highest Channel / QPSK



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	794.79635 MHz	-68.49 dBm	-55.49 dB
860.000 MHz	1.000 GHz	100.000 kHz	928.46154 MHz	-68.30 dBm	-55.30 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.67958 GHz	-39.03 dBm	-26.03 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99925 GHz	-53.20 dBm	-40.20 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.94476 GHz	-59.03 dBm	-46.03 dB

Date: 12.OCT.2023 19:31:07

Frequency Stability

Test Conditions		LTE Band 5 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0025	PASS
40	Normal Voltage	0.0028	
30	Normal Voltage	0.0037	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0042	
0	Normal Voltage	0.0006	
-10	Normal Voltage	0.0009	
-20	Normal Voltage	0.0016	
-30	Normal Voltage	0.0014	
20	Maximum Voltage	0.0028	
20	Normal Voltage	0.0017	
20	Battery End Point	0.0026	

Note:

1. Normal Voltage =3.91 V. ; Battery End Point (BEP) =3.4 V. ; Maximum Voltage =4.5 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

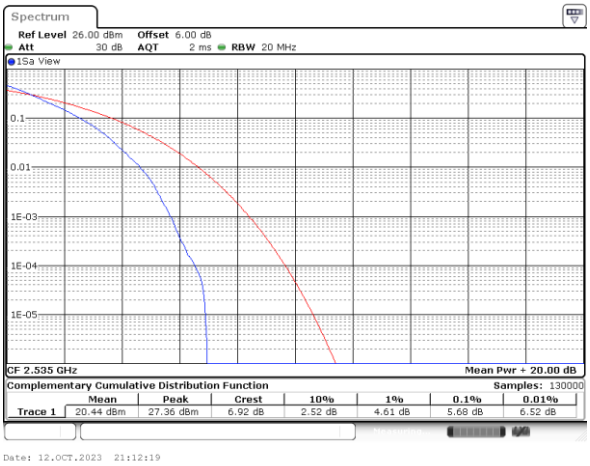
LTE Band 7

Peak-to-Average Ratio

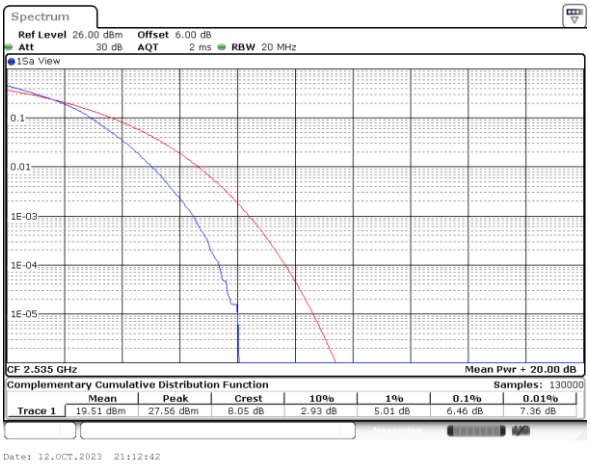
Mode	LTE Band 7 / 20MHz			
Mod.	QPSK	16QAM	64QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Result
Middle CH	5.68	6.46	6.55	PASS

LTE Band 7 / 20MHz

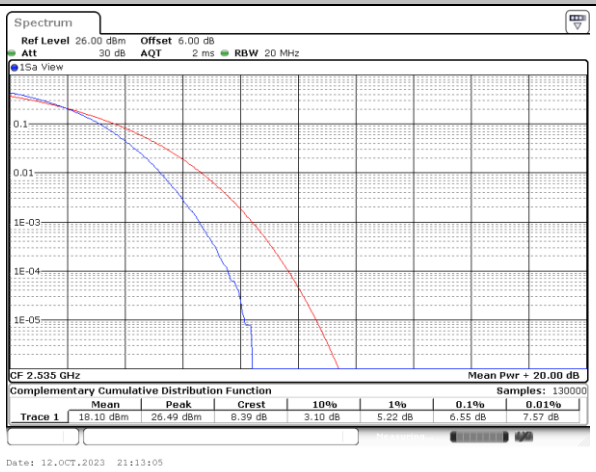
Middle Channel / Full RB/ QPSK



Middle Channel / Full RB/ 16QAM



Middle Channel / Full RB/ 64QAM

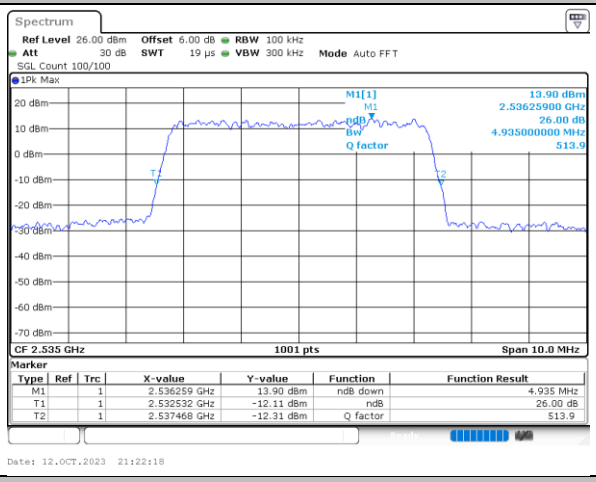


26dB Bandwidth

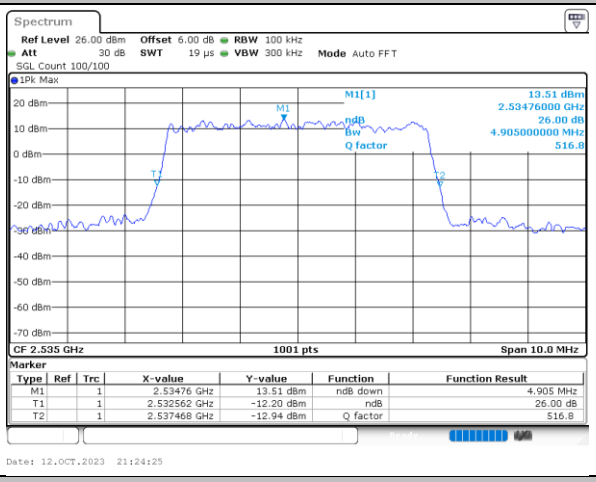
Mode	LTE Band 7 : 26dB BW(MHz)							
BW	5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	4.94	4.91	9.89	9.93	14.27	14.39	18.70	18.82

LTE Band 7

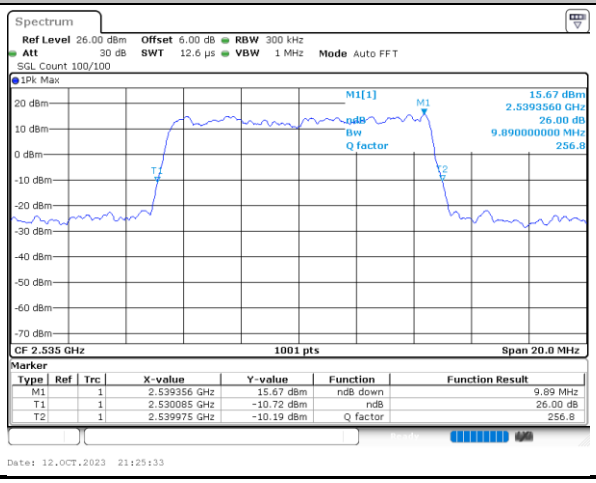
Middle Channel / 5MHz / QPSK



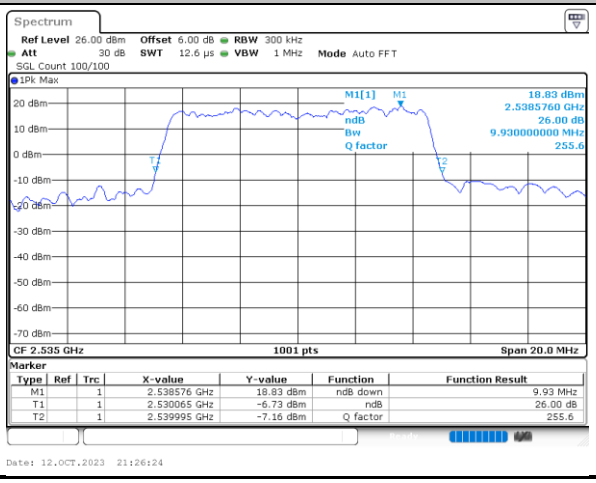
Middle Channel / 5MHz / 16QAM



Middle Channel / 10MHz / QPSK

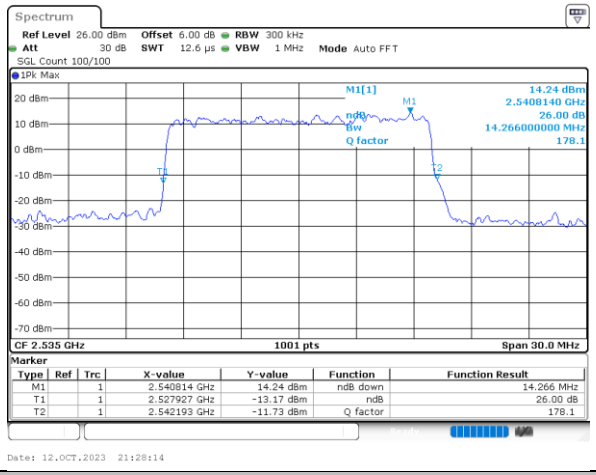


Middle Channel / 10MHz / 16QAM

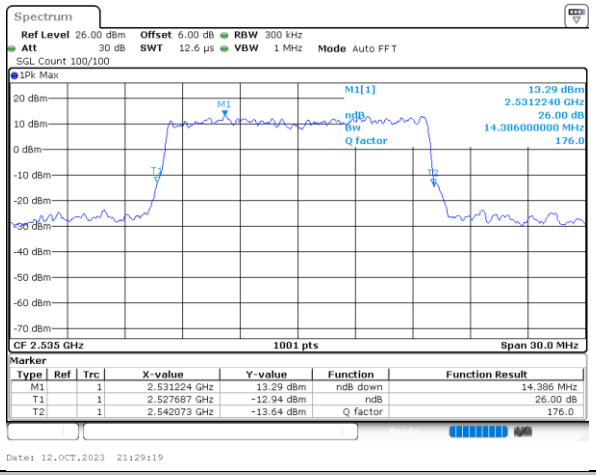


LTE Band 7

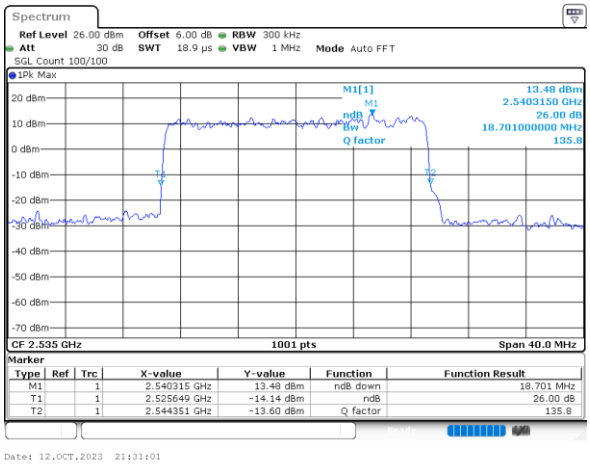
Middle Channel / 15MHz / QPSK



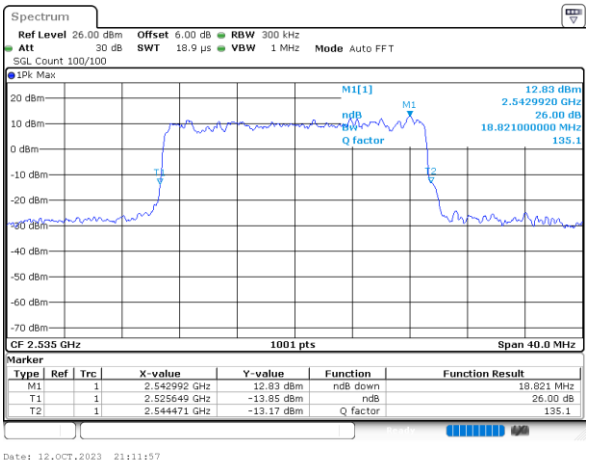
Middle Channel / 15MHz / 16QAM



Middle Channel / 20MHz / QPSK



Middle Channel / 20MHz / 16QAM

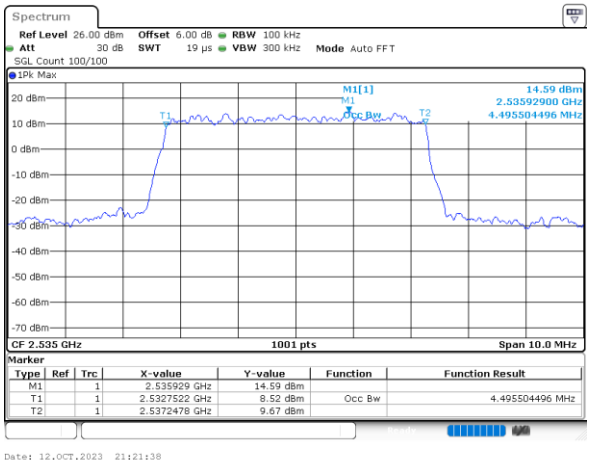


Occupied Bandwidth

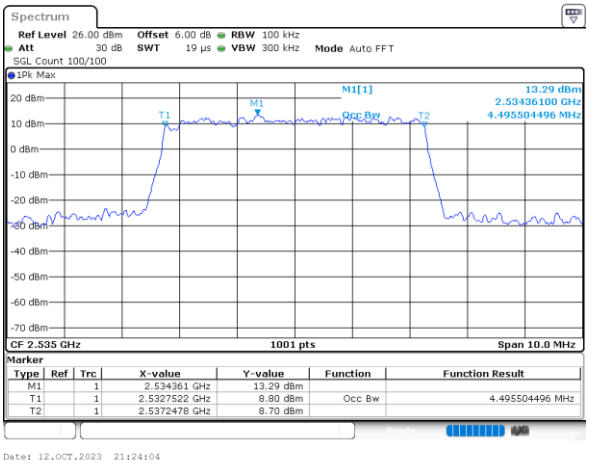
Mode	LTE Band 7 : 99%OBW(MHz)							
BW	5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	4.50	4.50	9.11	9.03	13.40	13.49	17.94	17.86

LTE Band 7

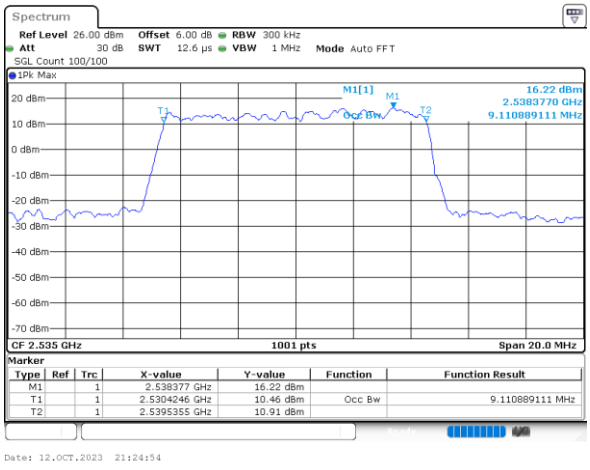
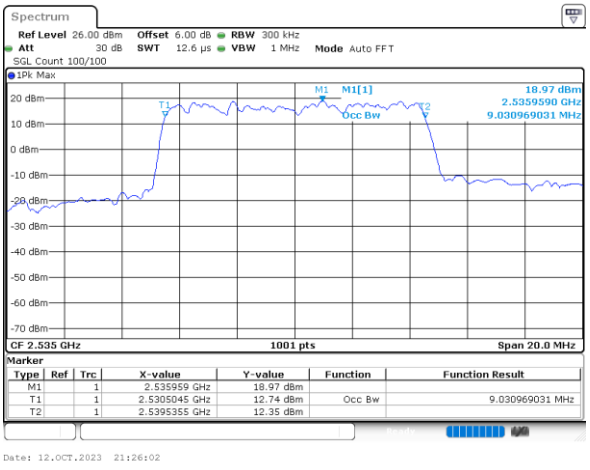
Middle Channel / 5MHz / QPSK



Middle Channel / 5MHz / 16QAM



Middle Channel / 10MHz / QPSK



Middle Channel / 10MHz / 16QAM