FCC RF Test Report

APPLICANT	: Fibocom Wireless Inc.
EQUIPMENT	: 5G Module
BRAND NAME	: Fibocom
MODEL NAME	: FG190W-NA, FG190-NA
FCC ID	: ZMOFG190WNA
STANDARD	: 47 CFR Part 22(H), 27(H), 27(F), 27(N)
CLASSIFICATION	: PCS Licensed Transmitter (PCB)
TEST DATE(S)	: Aug. 08, 2024 ~ Aug. 19, 2024

We, Sporton International Inc. (Shenzhen), 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. (Shenzhen), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

ACCREDITED Cert #5145.01

Sporton International Inc. (ShenZhen)

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055

People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG472418B	Rev. 01	Initial issue of report	Sep. 04, 2024

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) (Band 26)	ERP < 7 Watt	PASS	-
	§27.50(b)(10) §27.50(c)(10)	Effective Radiated Power (Band 12) (Band 13) (Band 17) (Band 71)	ERP < 3 Watt		-
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) §27.53(c)(2)(4) §27.53(g)	Conducted Band Edge Measurement (Band 5)(Band 12) (Band 13) (Band 17)(Band 26) (Band 71)	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §22.917(a) §27.53(c)(2) §27.53(g)	Conducted Spurious Emission (Band 5)(Band 12) (Band 13) (Band 17)(Band 26) (Band 71)	< 43+10log10(P[Watts])	PASS	-
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) §27.53(c)(2) §27.53(f) §27.53(g)	Radiated Spurious Emission (Band 5)(Band 12) (Band 13) (Band 17)(Band 26) (Band 71)	< 43+10$\log_{10}$(P[Watts])	PASS	Under limit 23.68 dB at 1559.50 MHz

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

Fibocom Wireless Inc.
1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi Ist Rd, Nanshan, Shenzhen, China

1.2 Manufacturer

Fibocom Wireless Inc.
1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi Ist Rd, Nanshan, Shenzhen, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	5G Module
Brand Name	Fibocom
Model Name	FG190W-NA, FG190-NA
FCC ID	ZMOFG190WNA
IMEI Code	Conducted: 864410070003906 Radiation: 864410070004029
HW Version	V1.3
SW Version	99101.1000.00.01.06.23
EUT Stage	Production Unit

Remark: There are two types of EUT: Sample1(FG190W-NA) and Sample2(FG190-NA) . The difference between them is that Sample1 with RF interface while Sample2 without, all the others are the same. According to the difference, we only evaluated sample 1 to perform full test.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 12 : 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 17 : 704 MHz ~ 716 MHz LTE Band 26 : 824 MHz ~ 849 MHz LTE Band 71: 663 MHz ~ 698 MHz
Rx Frequency	LTE Band 5 : 869 MHz ~ 894 MHz LTE Band 12 : 729 MHz ~ 746 MHz LTE Band 13 : 746 MHz ~ 756 MHz LTE Band 17 : 734 MHz ~ 746 MHz LTE Band 26 : 869 MHz ~ 894 MHz LTE Band 71: 617 MHz ~ 652 MHz
Bandwidth	LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 12 : 1.4MHz / 3MHz / 5MHz / 10MHz

	LTE Band 13 : 5MHz / 10MHz LTE Band 17 : 5MHz / 10MHz LTE Band 26 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz LTE Band 71 : 5MHz / 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	**Ant8:** LTE Band 5 : 24.26 dBm LTE CA_5B : 24.04 dBm LTE Band 12 : 24.43 dBm LTE CA_12B : 24.27 dBm LTE Band 13 : 24.51 dBm LTE Band 17 : 24.39 dBm LTE Band 26 : 24.28 dBm LTE Band 71 : 24.63 dBm
Antenna Gain	**Ant8:** LTE Band 5 : 1.32 dBi LTE Band 12 : 1.61 dBi LTE Band 13 : 1.83 dBi LTE Band 17 : 1.61 dBi LTE Band 26 : 1.32 dBi LTE Band 71 : 1.61 dBi
Type of Modulation	QPSK / 16QAM / 64QAM / 256QAM

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 5		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)**
1.4	824.7 ~ 848.3	0.2618	1M10G7D	0.2213	1M09W7D
3	825.5 ~ 847.5	0.2564	2M72G7D	0.2208	2M72W7D
5	826.5 ~ 846.5	0.2606	4M48G7D	0.2193	4M48W7D
10	829.0 ~ 844.0	0.2667	9M05G7D	0.2228	9M03W7D
LTE Band 12		**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)**
1.4	699.7 ~ 715.3	0.2723	1M09G7D	0.2265	1M10W7D
3	700.5 ~ 714.5	0.2624	2M72G7D	0.2259	2M72W7D
5	701.5 ~ 713.5	0.2673	4M52G7D	0.2259	4M49W7D
10	704.0 ~ 711.0	0.2773	9M03G7D	0.2301	9M01W7D

LTE Band 13		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)
5	779.5 ~ 784.5	0.2704	4M50G7D	0.2280	4M50W7D
10	782.0	0.2825	9M01G7D	0.2291	9M01W7D
LTE Band 17		**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)
5	706.5 ~ 713.5	0.2588	4M52G7D	0.2249	4M49W7D
10	709.0 ~ 711.0	0.2748	9M03G7D	0.2275	9M01W7D
LTE Band 26		**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)
1.4	824.7 ~ 848.3	0.2612	1M10G7D	0.2234	1M09W7D
3	825.5 ~ 847.5	0.2612	2M72G7D	0.2275	2M72W7D
5	826.5 ~ 846.5	0.2642	4M48G7D	0.2265	4M48W7D
10	829.0 ~ 844.0	0.2606	9M05G7D	0.2239	9M03W7D
15	831.5 ~ 841.5	0.2679	13M5G7D	0.2296	13M4W7D
CH26790	824.0	0.2600	13M4G7D	0.2244	13M4W7D
LTE Band 71		**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)
5	665.5 ~ 695.5	0.2844	4M51G7D	0.2234	4M50W7D
10	668.0 ~ 693.0	0.2851	9M05G7D	0.2249	8M99W7D
15	670.5 ~ 690.5	0.2864	13M5G7D	0.2254	13M6W7D
20	673.0 ~ 688.0	0.2904	17M9G7D	0.2291	17M9W7D

LTE Band CA_5B	QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Maximum Conducted power (W)	Emission Designator (99%OBW)	Maximum Conducted power (W)	Emission Designator (99%OBW)
3MHz+5MHz	0.2529	7M56G7D	0.2046	7M59W7D
5MHz+3MHz	0.2500	7M59G7D	0.2046	7M62W7D
5MHz+10MHz	0.2495	13M9G7D	0.2056	13M9W7D
10MHz+5MHz	0.2489	13M9G7D	0.2056	13M9W7D
10MHz+10MHz	0.2535	18M8G7D	0.2153	18M8W7D

LTE Band CA_12B	QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Maximum Conducted power (W)	Emission Designator (99%OBW)	Maximum Conducted power (W)	Emission Designator (99%OBW)
5MHz+5MHz	0.2570	9M33G7D	0.2193	9M31W7D
5MHz+10MHz	0.2673	13M9G7D	0.2259	14M0W7D

Note:

1. LTE Band 26 overlaps the entire frequency range of LTE Band 5. Therefore, the test results provided in this report covers Band 5 and the portion of Band 26 subject to Part 22.
2. 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.
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. (ShenZhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (ShenZhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	TH01-SZ	CN1256	421272

Test Firm	Sporton International Inc. (ShenZhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City, Guangdong Province 518103 People's Republic of China TEL: +86-755-86066985		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH03-SZ	CN1256	421272

1.8 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH03-SZ	AUDIX	E3	6.2009-8-24

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 22(H), 27(H), 27(F), 27(N)
- 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.

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.

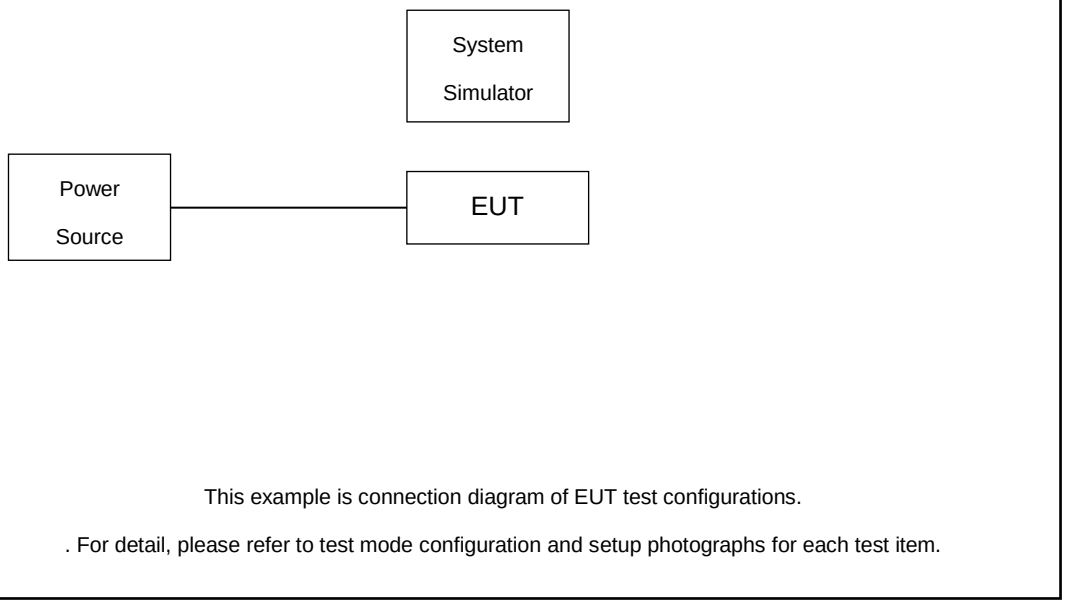
Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)						Modulation				RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
Max. Output Power	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	12	v	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	13	-	-	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	17	-	-	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	26	v	v	v	v	v	-	v	v	v	v	v	v	v	v	v	v
	71	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	12				v	-	-	v	v	v				v		v	
	13	-	-		v	-	-	v	v	v				v		v	
	26					v	-	v	v	v				v		v	
	71	-	-				v	v	v	v				v		v	
26dB and 99% Bandwidth	12	v	v	v	v	-	-	v	v					v		v	
	13	-	-	v	v	-	-	v	v					v		v	
	26	v	v	v	v	v	-	v	v					v		v	
	71	-	-	v	v	v	v	v	v					v		v	
Conducted Band Edge	12	v	v	v	v	-	-	v	v	v		v		v	v		v
	13	-	-	v	v	-	-	v	v	v		v		v	v		v
	26	v	v	v	v	v	-	v	v	v		v		v	v		v
	71	-	-	v	v	v	v	v	v	v		v		v	v		v
Conducted Spurious Emission	12	v	v	v	v	-	-	v				v			v	v	v
	13	-	-	v	v	-	-	v				v			v	v	v
	26	v	v	v	v	v	-	v				v			v	v	v
	71	-	-	v	v	v	v	v				v			v	v	v
Frequency Stability	12				v	-	-	v						v		v	
	13	-	-		v	-	-	v						v		v	
	26				v		-	v						v		v	
	71	-	-		v			v						v		v	
E.R.P	5	v	v	v	v	-	-	v	v	v	v	v			v	v	v
	12	v	v	v	v	-	-	v	v	v	v	v			v	v	v
	13	-	-	v	v	-	-	v	v	v	v	v			v	v	v
	17	-	-	v	v	-	-	v	v	v	v	v			v	v	v
	26	v	v	v	v	v	-	v	v	v	v	v			v	v	v
	71	-	-	v	v	v	v	v	v	v	v	v			v	v	v
Radiated Spurious Emission	12	Worst Case														v	
	13	Worst Case														v	

Test Items	Band	Bandwidth (MHz)						Modulation				RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
	26	Worst Case														v	
	71	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. 4. LTE Band 26 overlaps the entire frequency range of LTE Band 5. Therefore, the test results provided in this report covers Band 5 and the portion of Band 26 subject to Part 22. 5. 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.																

Test Items	Band	Bandwidth (MHz)								Modulation				RB #			Test Channel		
		5+10	10+10	5+15	10+5	5+10	5+5	5+3	3+5	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
Max. Output Power	12B_CA	v	-	-	-	-	v	-	-	v	v	v	v	v			v	v	v
	5B_CA	-	v	-	v	v	-	v	v	v	v	v	v	v			v	v	v
26dB and 99% Bandwidth	12B_CA	v	-	-	-	-	v	-	-	v	v					v		v	
	5B_CA	-	v	-	v	v	-	v	v	v	v					v		v	
Conducted Band Edge	12B_CA	v	-	-	-	-	v	-	-	v	v	v		v		v	v		v
	5B_CA	-	v	-	v	v	-	v	v	v	v	v		v		v	v		v
Conducted Spurious Emission	12B_CA	v	-	-	-	-	v	-	-	v				v			v	v	v
	5B_CA	-	v	-	v	v	-	v	v	v				v			v	v	v
E.R.P.	12B_CA	v	-	-	-	-	v	-	-	v	v	v	v	v			v	v	v
	5B_CA	-	v	-	v	v	-	v	v	v	v	v	v	v			v	v	v
Radiated Spurious Emission	12B_CA	Worst Case																v	
	5B_CA																	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. 4. All test items are based on engineering evaluation. 5. For QAM modulation mode, the whole testing has assessed 16QAM&64QAM mode by referring to the higher conducted power																		

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.	LTE Base Station	Anritsu	MT8820C	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

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 and attenuator factor 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 and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.0 dB and 10dB attenuator.

Example :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.0 + 10 = 14.0 (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 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 26 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
15	Channel	26865	26915	26965
	Frequency	831.5	836.5	841.5
10	Channel	26840	26915	26990
	Frequency	829	836.5	844
5	Channel	26815	26915	27015
	Frequency	826.5	836.5	846.5
3	Channel	26805	26915	27025
	Frequency	825.5	836.5	847.5
1.4	Channel	26797	26915	27033
	Frequency	824.7	836.5	848.3

LTE Band 71 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	133222	133322	133372
	Frequency	673.0	680.5	688.0
15	Channel	133197	133297	133397
	Frequency	670.5	680.5	690.5
10	Channel	133172	133272	133422
	Frequency	668.0	678.0	693.0
5	Channel	133147	133247	133447
	Frequency	665.5	675.5	695.5

LTE Band 5B_CA Channel and Frequency List					
BW [MHz]	Channel/Frequency(MHz)		Lowest	Middle	Highest
3 + 5	PCC	Channel	20416	20501	20586
		Frequency	825.6	834.1	842.6
	SCC	Channel	20455	20540	20625
		Frequency	829.5	838.0	846.5
5 + 3	PCC	Channel	20425	20510	20595
		Frequency	826.5	835.0	843.5
	SCC	Channel	20464	20549	20634
		Frequency	830.4	838.9	847.4
5 + 10	PCC	Channel	20428	20478	20528
		Frequency	826.8	831.8	836.8
	SCC	Channel	20500	20550	20600
		Frequency	834	839	844
10 + 5	PCC	Channel	20450	20500	20550
		Frequency	829	834	839
	SCC	Channel	20522	20572	20622
		Frequency	836.2	841.2	846.2
10 + 10	PCC	Channel	20450	20476	20501
		Frequency	829	831.6	834.1
	SCC	Channel	20549	20575	20600
		Frequency	838.9	841.5	844

LTE Band 12B_CA Channel and Frequency List					
BW [MHz]	Channel/Frequency(MHz)		Lowest	Middle	Highest
5 + 10	PCC	Channel	23083	23119	23155
		Frequency	706.3	709.9	713.5
	SCC	Channel	23110	23120	23130
		Frequency	709	710	711
5+ 5	PCC	Channel	23035	23071	23107
		Frequency	701.5	705.1	708.7
	SCC	Channel	23038	23048	23058
		Frequency	701.8	702.8	703.8

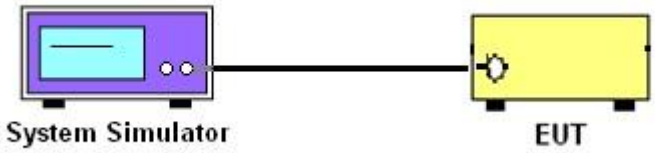
3 Conducted Test Items

3.1 Measuring Instruments

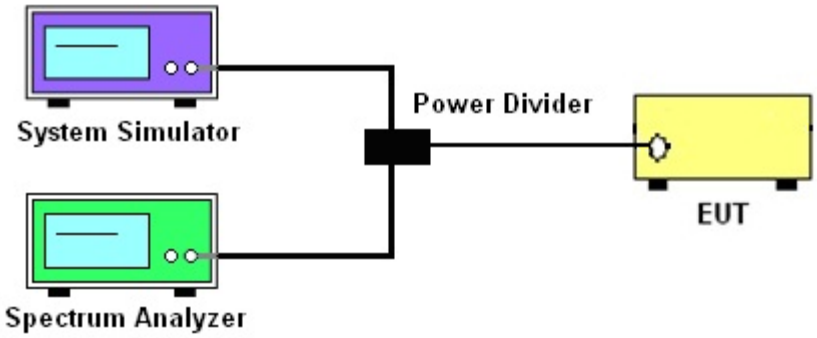
See list of measuring instruments of this test report.

3.2 Test Setup

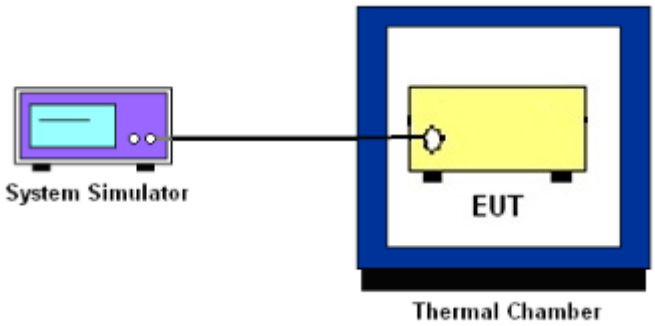
3.2.1 Conducted Output Power



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

3.4.1 Description of the Conducted Output Power Measurement and ERP 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 and Band 26.

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 12, Band 13 and Band 17 and Band 71.

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

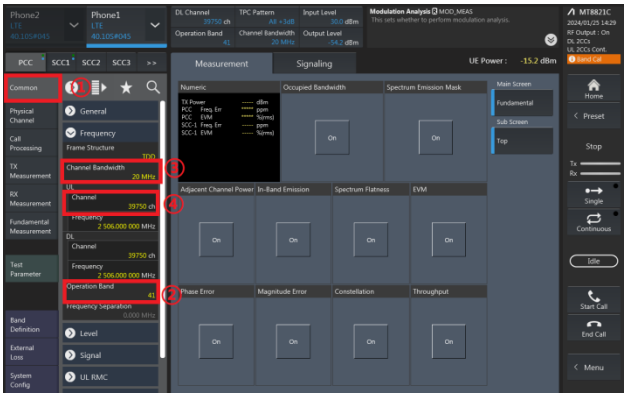
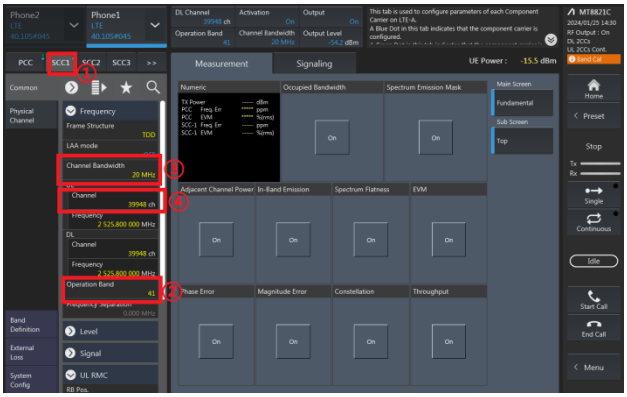
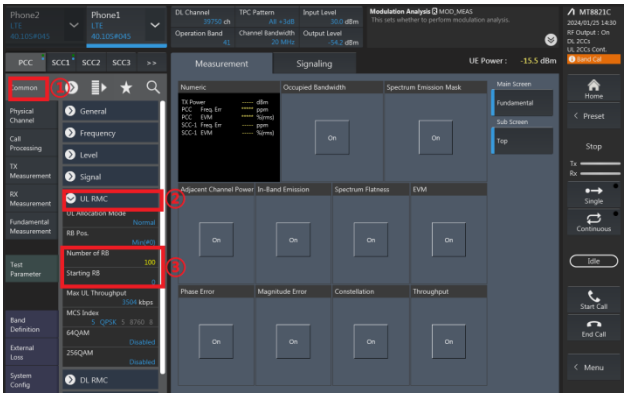
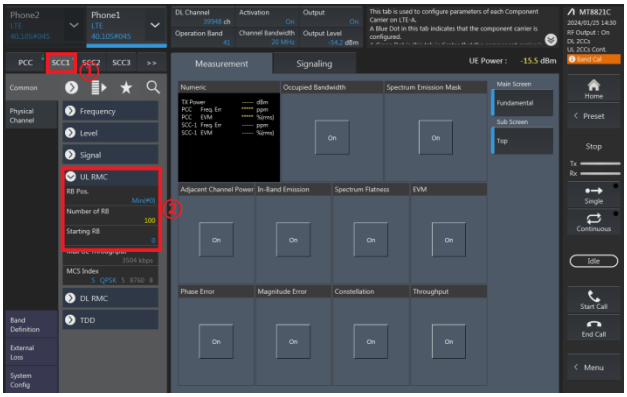
L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

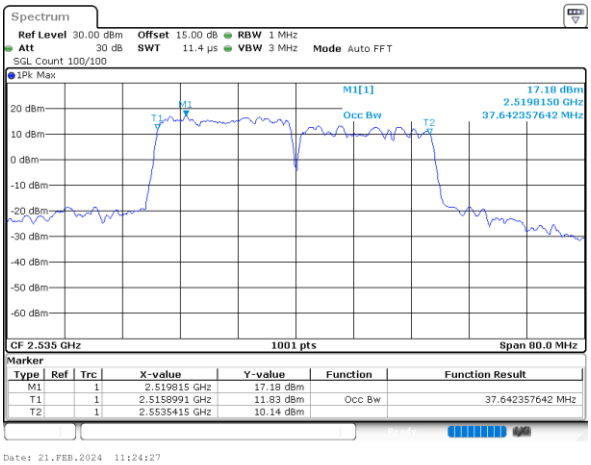
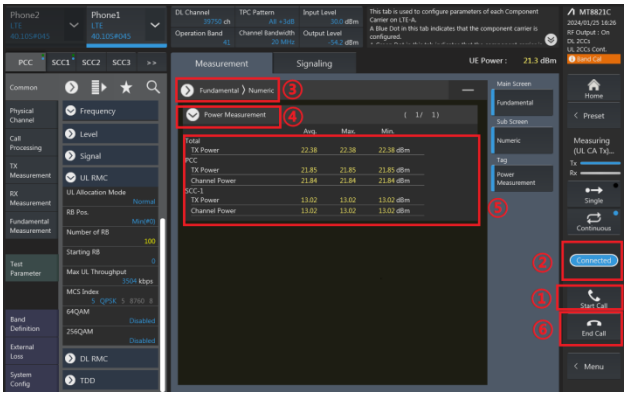
1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from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

3.4.3 Test Procedures for LTE ULCA

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter PCC & SCC output ports were connected to the system simulator.
3. Set EUT at maximum power, set the PCC/SCC CA band, channel, bandwidth and RB config.

PCC config_(Channel Bandwidth / Channel / Band)	SCC config_(Channel Bandwidth / Channel / Band)
	
PCC config_(Number of RB / Starting RB)	**SCC config_(Number of RB / Starting RB)**
	

4. Select lowest, middle, and highest channels for each ULCA band and different modulation.
5. Check the ULCA spectrum and record the total power from the system simulator.

Check the ULCA spectrum (eg. 20M+20M)	Read the Total UL CA output power (PCC+SCC)
	

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 (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.

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
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. 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.

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

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.

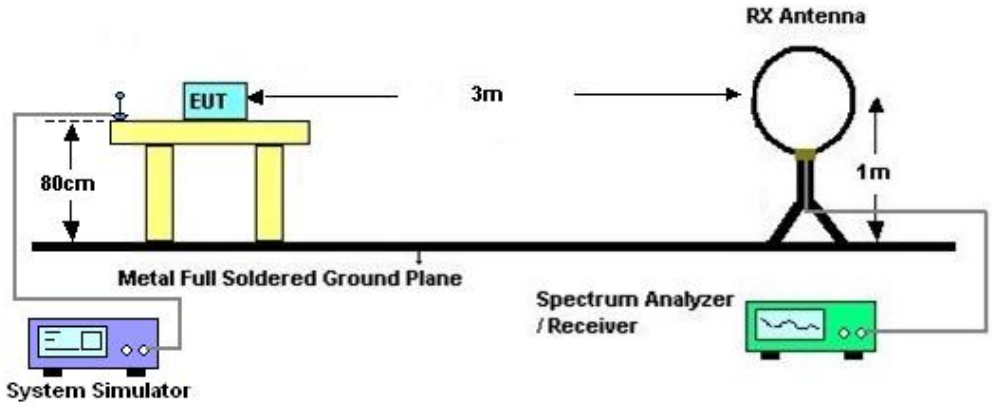
4 Radiated Test Items

4.1 Measuring Instruments

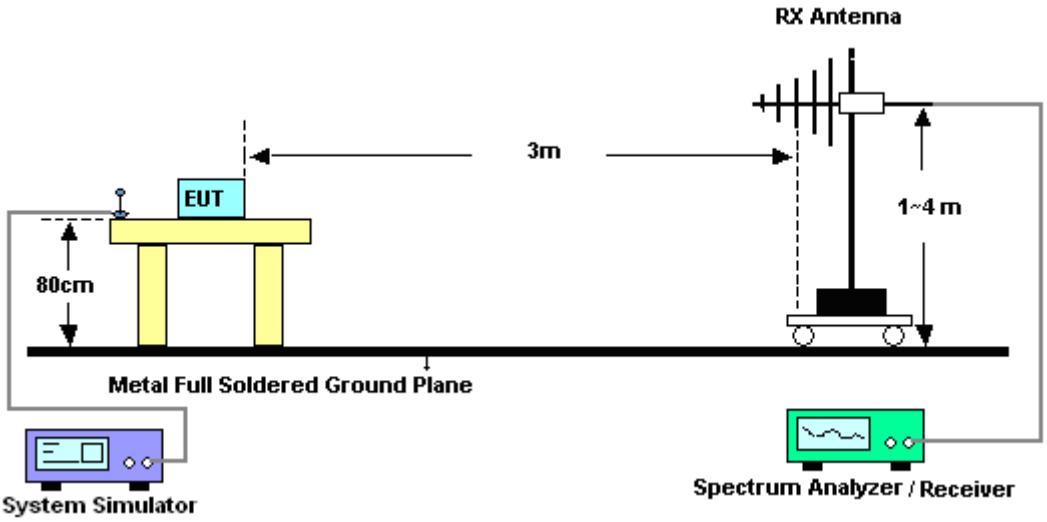
See list of measuring instruments of this test report.

4.2 Test Setup

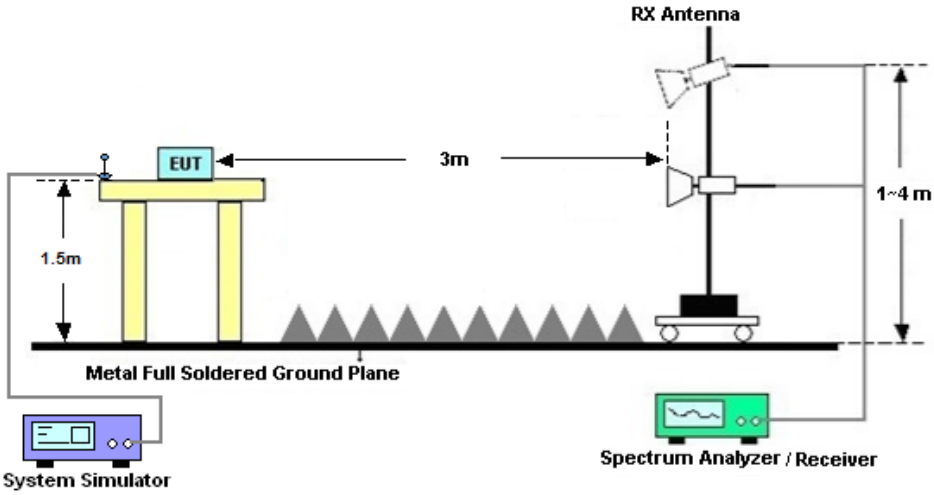
4.2.1 For radiated test below 30MHz



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 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.

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 09, 2024	Aug. 08, 2024~ Aug. 19, 2024	Apr. 08, 2025	Conducted (TH01-SZ)
DC Power Supply	TTI	PL330P	290070	Max 32V，3A	Oct. 16, 2023	Aug. 08, 2024~ Aug. 19, 2024	Oct. 15, 2024	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04 265	60.06.020.007 7	0.4GHz~26.5GHz	Dec. 25, 2023	Aug. 08, 2024~ Aug. 19, 2024	Dec. 24, 2024	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 03, 2024	Aug. 08, 2024~ Aug. 19, 2024	Jul. 02, 2025	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr. 09, 2024	Aug. 14, 2024	Apr. 08, 2025	Radiation (03CH03-SZ)
EXA Spectrum Anaiyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr. 09, 2024	Aug. 14, 2024	Apr. 08, 2025	Radiation (03CH03-SZ
Loop Antenna	R&S	HFH2-Z2E	101141	9kHz~30MHz	Dec. 29, 2023	Aug. 14, 2024	Dec. 28, 2024	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	Aug. 20, 2023	Aug. 14, 2024	Aug. 19, 2025	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	Apr. 09, 2024	Aug. 14, 2024	Apr. 08, 2025	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 09, 2024	Aug. 14, 2024	Apr. 08, 2025	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102211	0.01Hz ~3000MHz	Oct. 18, 2023	Aug. 14, 2024	Oct. 17, 2024	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Dec. 27, 2023	Aug. 14, 2024	Dec. 26, 2024	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35 -HG	1871923	18GHz~40GHz	Jul. 03, 2024	Aug. 14, 2024	Jul. 02, 2025	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010002729	N/A	Oct. 18, 2023	Aug. 14, 2024	Oct. 17, 2024	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Aug. 14, 2024	NCR	Radiation (03CH03-SZ)

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

Test Item	Uncertainty
Conducted Spurious Emission & Bandedge	±1.34 dB
Occupied Channel Bandwidth	±0.012 MHz
Conducted Power	±1.34 dB
Peak to Average Ratio	±1.34 dB
Frequency Stability	±1.3 Hz

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.0 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.6 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.8 dB

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

Appendix A. Test Results of Conducted Test

Test Engineer :	Khan Zhen	Temperature :	22~23℃
		Relative Humidity :	40~42%

Conducted Output Power(Average power) and ERP

LTE Band 5_ANT8:

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	24.26	24.14	24.17	0.2203	0.2143	0.2158
10	QPSK	1	25	24.22	24.23	24.12	0.2183	0.2188	0.2133
10	QPSK	1	49	24.17	24.17	24.11	0.2158	0.2158	0.2128
10	QPSK	25	0	23.32	23.23	23.24	0.1774	0.1738	0.1742
10	QPSK	25	12	23.26	23.23	23.27	0.1750	0.1738	0.1754
10	QPSK	25	25	23.28	23.20	23.11	0.1758	0.1726	0.1690
10	QPSK	50	0	23.31	23.21	23.23	0.1770	0.1730	0.1738
10	16QAM	1	0	23.45	23.48	23.39	0.1828	0.1841	0.1803
10	64QAM	1	0	22.44	22.32	22.42	0.1449	0.1409	0.1442
10	256QAM	1	0	19.08	19.12	19.09	0.0668	0.0675	0.0670
Channel				20425	20525	20625	ERP(W)		
Frequency (MHz)				826.5	836.5	846.5	L	M	H
5	QPSK	1	0	24.07	24.00	24.16	0.2109	0.2075	0.2153
5	16QAM	1	0	23.41	23.35	23.25	0.1811	0.1786	0.1746
Channel				20415	20525	20635	ERP(W)		
Frequency (MHz)				825.5	836.5	847.5	L	M	H
3	QPSK	1	0	24.09	24.00	24.02	0.2118	0.2075	0.2084
3	16QAM	1	0	23.33	23.44	23.26	0.1778	0.1824	0.1750
Channel				20407	20525	20643	ERP(W)		
Frequency (MHz)				824.7	836.5	848.3	L	M	H
1.4	QPSK	1	0	24.18	24.17	24.16	0.2163	0.2158	0.2153
1.4	16QAM	1	0	23.45	23.40	23.38	0.1828	0.1807	0.1799

LTE Band 12_ANT8:

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	24.26	24.30	24.43	0.2355	0.2377	0.2449
10	QPSK	1	25	24.35	24.40	24.30	0.2404	0.2432	0.2377
10	QPSK	1	49	24.33	24.33	24.40	0.2393	0.2393	0.2432
10	QPSK	25	0	23.36	23.38	23.46	0.1914	0.1923	0.1959
10	QPSK	25	12	23.45	23.38	23.38	0.1954	0.1923	0.1923
10	QPSK	25	25	23.43	23.43	23.34	0.1945	0.1945	0.1905
10	QPSK	50	0	23.43	23.37	23.37	0.1945	0.1919	0.1919
10	16QAM	1	0	23.61	23.55	23.62	0.2028	0.2000	0.2032
10	64QAM	1	0	22.48	22.45	22.57	0.1563	0.1552	0.1596
10	256QAM	1	0	19.18	19.29	19.25	0.0731	0.0750	0.0743
Channel				23035	23095	23155	ERP(W)		
Frequency (MHz)				701.5	707.5	713.5	L	M	H
5	QPSK	1	0	24.17	24.24	24.27	0.2307	0.2344	0.2360
5	16QAM	1	0	23.54	23.41	23.52	0.1995	0.1936	0.1986
Channel				23025	23095	23165	ERP(W)		
Frequency (MHz)				700.5	707.5	714.5	L	M	H
3	QPSK	1	0	24.19	24.15	24.18	0.2317	0.2296	0.2312
3	16QAM	1	0	23.48	23.51	23.54	0.1968	0.1982	0.1995
Channel				23017	23095	23173	ERP(W)		
Frequency (MHz)				699.7	707.5	715.3	L	M	H
1.4	QPSK	1	0	24.19	24.35	24.23	0.2317	0.2404	0.2339
1.4	16QAM	1	0	23.55	23.54	23.52	0.2000	0.1995	0.1986

LTE Band 13_ANT8:

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		24.51			0.2624	
10	QPSK	1	25		24.39			0.2553	
10	QPSK	1	49		24.36			0.2535	
10	QPSK	25	0		23.55			0.2104	
10	QPSK	25	12		23.46			0.2061	
10	QPSK	25	25		23.44			0.2051	
10	QPSK	50	0		23.48			0.2070	
10	16QAM	1	0		23.60			0.2128	
10	64QAM	1	0		22.61			0.1694	
10	256QAM	1	0		19.48			0.0824	
Channel				23205	23230	23255	ERP(W)		
Frequency (MHz)				779.5	782	784.5	L	M	H
5	QPSK	1	0	24.32	24.32	24.31	0.2512	0.2512	0.2506
5	16QAM	1	0	23.55	23.48	23.58	0.2104	0.2070	0.2118

LTE Band 17_ANT8:

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	24.17	24.17	24.39	0.2307	0.2307	0.2427
10	QPSK	1	25	24.34	24.32	24.35	0.2399	0.2388	0.2404
10	QPSK	1	49	24.26	24.32	24.27	0.2355	0.2388	0.2360
10	QPSK	25	0	23.31	23.32	23.40	0.1892	0.1897	0.1932
10	QPSK	25	12	23.35	23.36	23.37	0.1910	0.1914	0.1919
10	QPSK	25	25	23.38	23.36	23.34	0.1923	0.1914	0.1905
10	QPSK	50	0	23.30	23.31	23.32	0.1888	0.1892	0.1897
10	16QAM	1	0	23.57	23.39	23.49	0.2009	0.1928	0.1972
10	64QAM	1	0	22.34	22.50	22.36	0.1514	0.1570	0.1521
10	256QAM	1	0	19.10	19.16	19.15	0.0718	0.0728	0.0726
Channel				23755	23790	23825	ERP(W)		
Frequency (MHz)				706.5	710	713.5	L	M	H
5	QPSK	1	0	24.03	24.12	24.13	0.2234	0.2280	0.2286
5	16QAM	1	0	23.52	23.28	23.35	0.1986	0.1879	0.1910

LTE Band 26_ANT8:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)			
Channel				26790	26865	26915	26965				
Frequency (MHz)				824	831.5	836.5	841.5	Straddle Ch	L	M	H
15	QPSK	1	0	24.15	24.28	24.16	24.11	0.2148	0.2213	0.2153	0.2128
15	QPSK	1	37	24.12	24.21	24.14	24.09	0.2133	0.2178	0.2143	0.2118
15	QPSK	1	74	24.06	24.09	24.02	23.95	0.2104	0.2118	0.2084	0.2051
15	QPSK	36	0	23.18	23.29	23.21	23.21	0.1718	0.1762	0.1730	0.1730
15	QPSK	36	20	23.21	23.27	23.18	23.17	0.1730	0.1754	0.1718	0.1714
15	QPSK	36	39	23.12	23.18	23.10	23.07	0.1694	0.1718	0.1687	0.1675
15	QPSK	75	0	23.20	23.27	23.15	23.19	0.1726	0.1754	0.1706	0.1722
15	16QAM	1	0	23.51	23.61	23.47	23.34	0.1854	0.1897	0.1837	0.1782
15	64QAM	1	0	22.61	22.40	22.49	22.52	0.1507	0.1435	0.1466	0.1476
15	256QAM	1	0	19.31	19.29	19.25	19.24	0.0705	0.0701	0.0695	0.0693
Channel				26790	26840	26915	26990	ERP(W)			
Frequency (MHz)				824	829	836.5	844	Straddle Ch	L	M	H
10	QPSK	1	0	-	24.16	24.02	24.10	-	0.2153	0.2084	0.2123
10	16QAM	1	0	-	23.50	23.32	23.24	-	0.1849	0.1774	0.1742
Channel				26790	26815	26915	27015	ERP(W)			
Frequency (MHz)				824	826.5	836.5	846.5	Straddle Ch	L	M	H
5	QPSK	1	0	-	24.22	24.08	24.10	-	0.2183	0.2113	0.2123
5	16QAM	1	0	-	23.55	23.43	23.25	-	0.1871	0.1820	0.1746
Channel				26790	26815	26915	27025	ERP(W)			
Frequency (MHz)				824	825.5	836.5	847.5	Straddle Ch	L	M	H
3	QPSK	1	0	-	24.17	24.07	24.07	-	0.2158	0.2109	0.2109
3	16QAM	1	0	-	23.57	23.36	23.27	-	0.1879	0.1791	0.1754
Channel				26790	26797	26915	27033	ERP(W)			
Frequency (MHz)				824	824.7	836.5	848.3	Straddle Ch	L	M	H
1.4	QPSK	1	0	-	24.17	24.13	24.07	-	0.2158	0.2138	0.2109
1.4	16QAM	1	0	-	23.46	23.49	23.40	-	0.1832	0.1845	0.1807

LTE Band 71_ANT8:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel				133222	133322	133372			
Frequency (MHz)				673	683	688	L	M	H
20	QPSK	1	0	24.51	24.63	24.57	0.2495	0.2564	0.2529
20	QPSK	1	49	24.46	24.53	24.49	0.2466	0.2506	0.2483
20	QPSK	1	99	24.36	24.58	24.50	0.2410	0.2535	0.2489
20	QPSK	50	0	23.35	23.47	23.43	0.1910	0.1963	0.1945
20	QPSK	50	24	23.24	23.37	23.31	0.1862	0.1919	0.1892
20	QPSK	50	50	23.26	23.45	23.31	0.1871	0.1954	0.1892
20	QPSK	100	0	23.33	23.41	23.33	0.1901	0.1936	0.1901
20	16QAM	1	0	23.54	23.60	23.50	0.1995	0.2023	0.1977
20	64QAM	1	0	22.63	22.67	22.66	0.1618	0.1633	0.1629
20	256QAM	1	0	19.57	19.64	19.53	0.0800	0.0813	0.0793
Channel				133197	133297	133397	ERP(W)		
Frequency (MHz)				670.5	680.5	690.5	L	M	H
15	QPSK	1	0	24.44	24.57	24.49	0.2455	0.2529	0.2483
15	16QAM	1	0	23.39	23.53	23.46	0.1928	0.1991	0.1959
Channel				133172	133272	133422	ERP(W)		
Frequency (MHz)				668	678	693	L	M	H
10	QPSK	1	0	24.44	24.55	24.50	0.2455	0.2518	0.2489
10	16QAM	1	0	23.49	23.52	23.47	0.1972	0.1986	0.1963
Channel				133147	133247	133447	ERP(W)		
Frequency (MHz)				665.5	675.5	695.5	L	M	H
5	QPSK	1	0	24.50	24.54	24.48	0.2489	0.2512	0.2477
5	16QAM	1	0	23.47	23.45	23.49	0.1963	0.1954	0.1972

LTE CA_5B_ANT8:

Combination 10MHz+10MHz (50RB+50RB)							
Channel	Modulation	PCC		SCC		Measured Power	ERP(W)
		RB Size	RB offset	RB Size	RB offset		
L	QPSK	1	Max	1	0	24.04	0.2094
M	QPSK	1	Max	1	0	24.03	0.2089
H	QPSK	1	Max	1	0	23.99	0.2070
L	16QAM	1	Max	1	0	23.26	0.1750
M	16QAM	1	Max	1	0	23.26	0.1750
H	16QAM	1	Max	1	0	23.33	0.1778
L	64QAM	1	Max	1	0	22.27	0.1393
M	64QAM	1	Max	1	0	22.27	0.1393
H	64QAM	1	Max	1	0	22.21	0.1374
L	256QAM	1	Max	1	0	18.94	0.0647
M	256QAM	1	Max	1	0	18.91	0.0643
H	256QAM	1	Max	1	0	18.94	0.0647
Combination 10MHz+5MHz (50RB+25RB)							
Channel	Modulation	PCC		SCC		Measured Power	ERP(W)
		RB Size	RB offset	RB Size	RB offset		
L	QPSK	1	Max	1	0	23.96	0.2056
H	16QAM	1	Max	1	0	23.13	0.1698
Combination 5MHz+10MHz (25RB+50RB)							
Channel	Modulation	PCC		SCC		Measured Power	ERP(W)
		RB Size	RB offset	RB Size	RB offset		
L	QPSK	1	Max	1	0	23.97	0.2061
H	16QAM	1	Max	1	0	23.13	0.1698
Combination 5MHz+3MHz (25RB+15RB)							
Channel	Modulation	PCC		SCC		Measured Power	ERP(W)
		RB Size	RB offset	RB Size	RB offset		
L	QPSK	1	Max	1	0	23.98	0.2065
H	16QAM	1	Max	1	0	23.11	0.1690
Combination 3MHz+5MHz (15RB+25RB)							
Channel	Modulation	PCC		SCC		Measured Power	ERP(W)
		RB Size	RB offset	RB Size	RB offset		
L	QPSK	1	Max	1	0	24.03	0.2089
H	16QAM	1	Max	1	0	23.11	0.1690

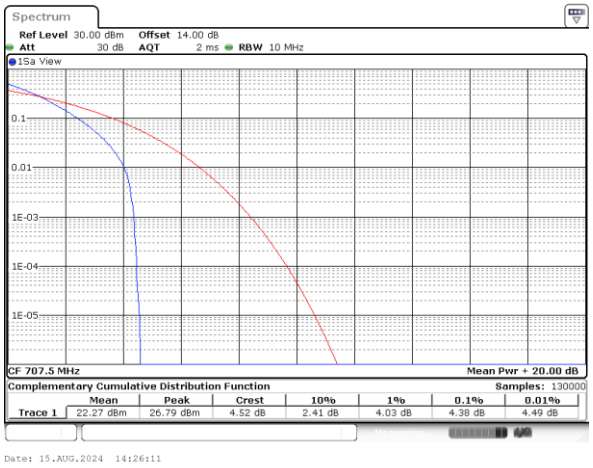
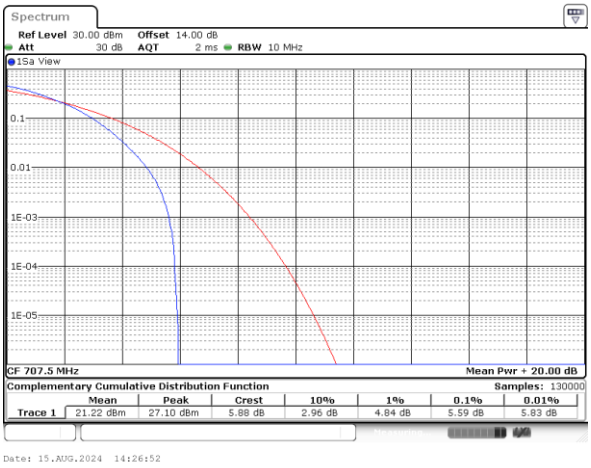
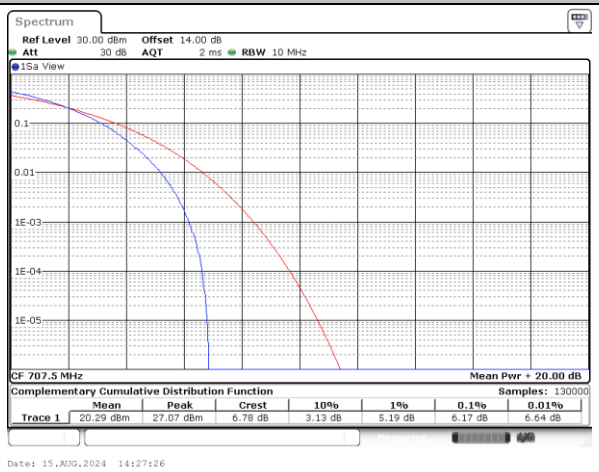
LTE CA_12B_ANT8:

Combination 5MHz+10MHz (25RB+50RB)							
Channel	Modulation	PCC		SCC		Measured Power	ERP(W)
		RB Size	RB offset	RB Size	RB offset		
L	QPSK	1	Max	1	0	24.17	0.2307
M	QPSK	1	Max	1	0	24.14	0.2291
H	QPSK	1	Max	1	0	24.27	0.2360
L	16QAM	1	Max	1	0	23.50	0.1977
M	16QAM	1	Max	1	0	23.54	0.1995
H	16QAM	1	Max	1	0	23.49	0.1972
L	64QAM	1	Max	1	0	22.33	0.1510
M	64QAM	1	Max	1	0	22.31	0.1503
H	64QAM	1	Max	1	0	22.40	0.1535
L	256QAM	1	Max	1	0	18.87	0.0681
M	256QAM	1	Max	1	0	18.99	0.0700
H	256QAM	1	Max	1	0	18.94	0.0692
Combination 5MHz+5MHz (25RB+25RB)							
Channel	Modulation	PCC		SCC		Measured Power	ERP(W)
		RB Size	RB offset	RB Size	RB offset		
H	QPSK	1	Max	1	0	24.10	0.2270
M	16QAM	1	Max	1	0	23.41	0.1936

LTE Band 12

Peak-to-Average Ratio

Mode	LTE Band 12 / 10MHz			
Mod.	QPSK	16QAM	64QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Result
Middle CH	4.38	5.59	6.17	PASS

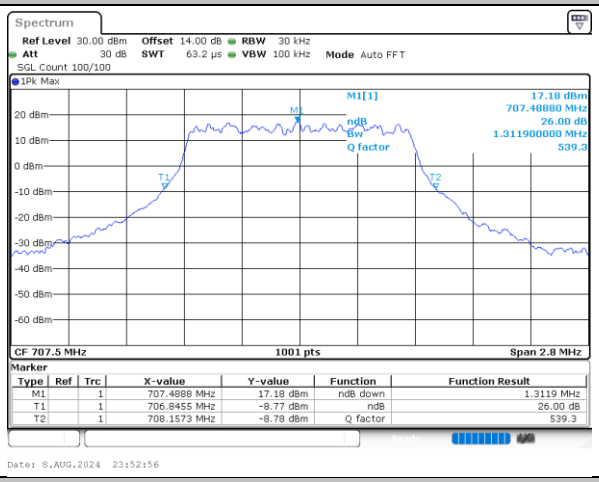
LTE Band 12 / 10MHz / QPSK	LTE Band 12 / 10MHz / 16QAM
Middle Channel / Full RB	Middle Channel / Full RB
	
LTE Band 12 / 10MHz / 64QAM	
Middle Channel / Full RB	
	NA

26dB Bandwidth

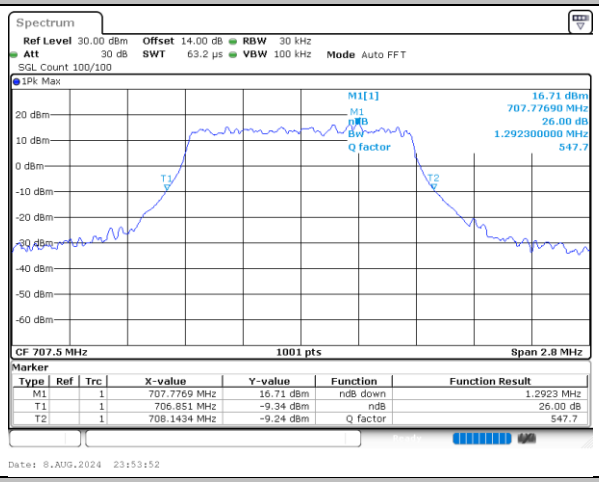
Mode	LTE Band 12 : 26dB BW(MHz)							
BW	1.4MHz		3MHz		5MHz		10MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	1.31	1.29	3.10	3.06	4.98	4.94	9.83	10.05

LTE Band 12

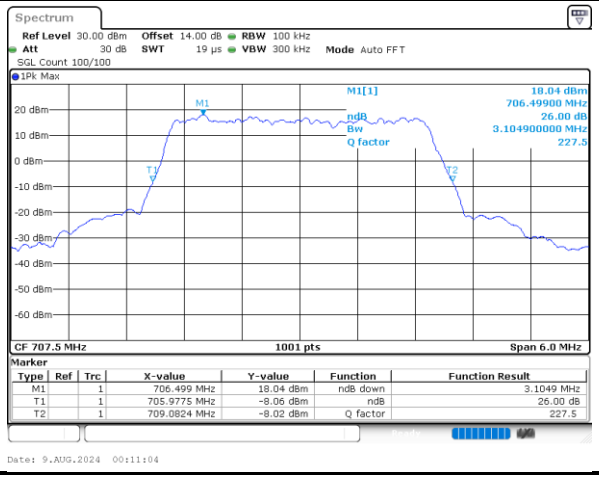
Middle Channel / 1.4MHz / QPSK



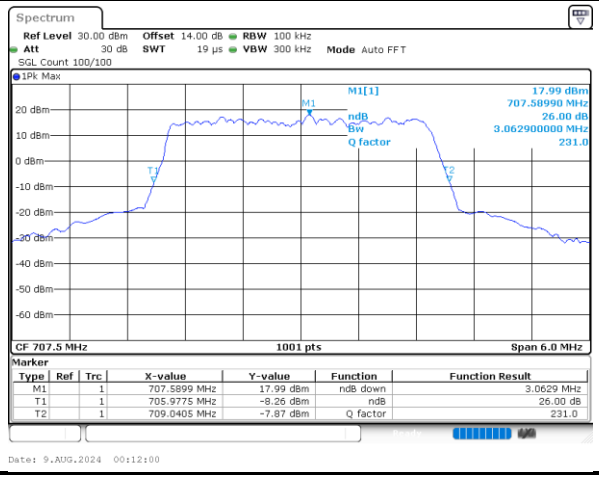
Middle Channel / 1.4MHz / 16QAM

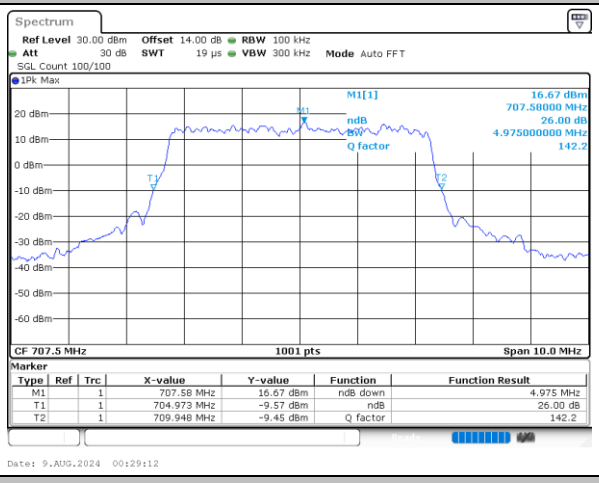
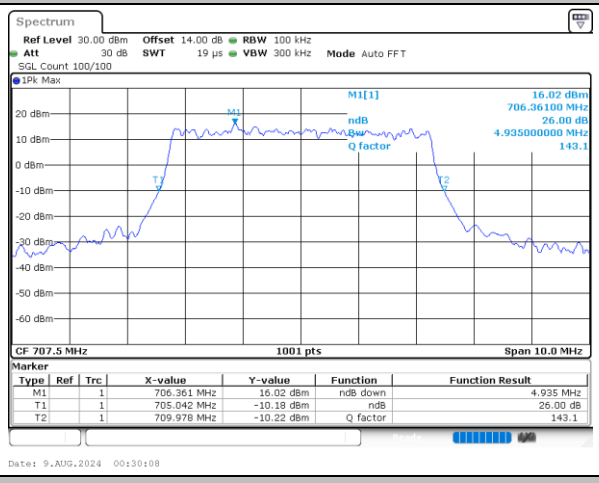


Middle Channel / 3MHz / QPSK

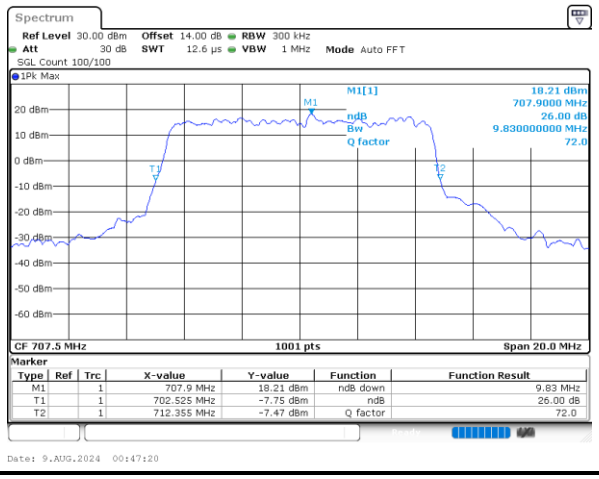
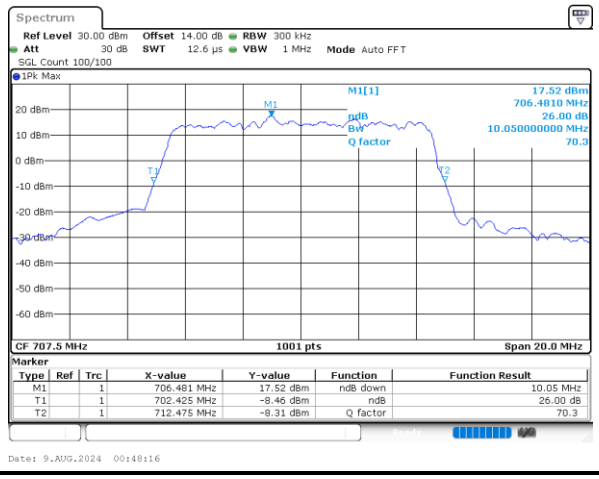


Middle Channel / 3MHz / 16QAM



Middle Channel / 5MHz / QPSK	Middle Channel / 5MHz / 16QAM
	

LTE Band 12

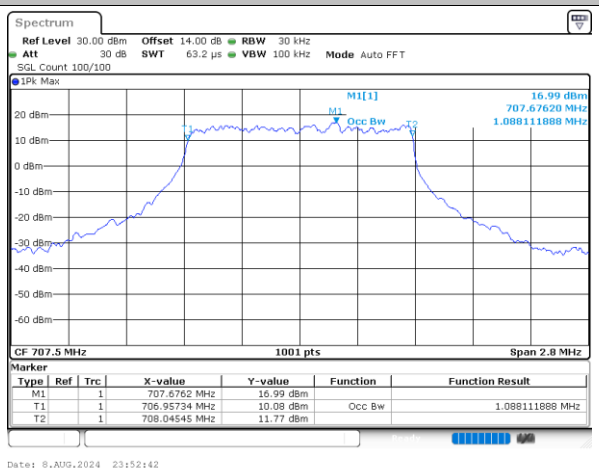
Middle Channel / 10MHz / QPSK	Middle Channel / 10MHz / 16QAM
	

Occupied Bandwidth

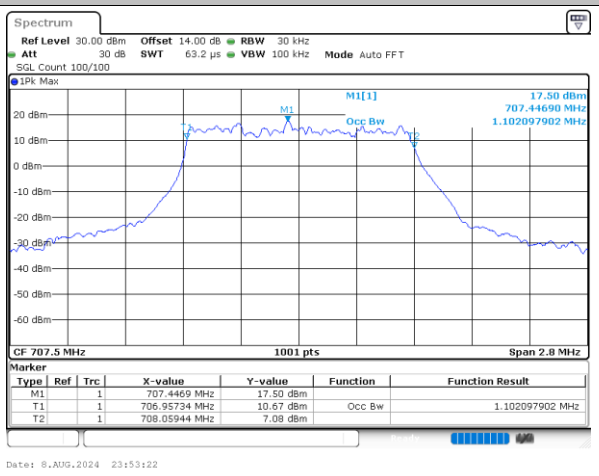
Mode	LTE Band 12 : 99%OBW(MHz)							
BW	1.4MHz		3MHz		5MHz		10MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	1.09	1.10	2.72	2.72	4.52	4.49	9.03	9.01

LTE Band 12

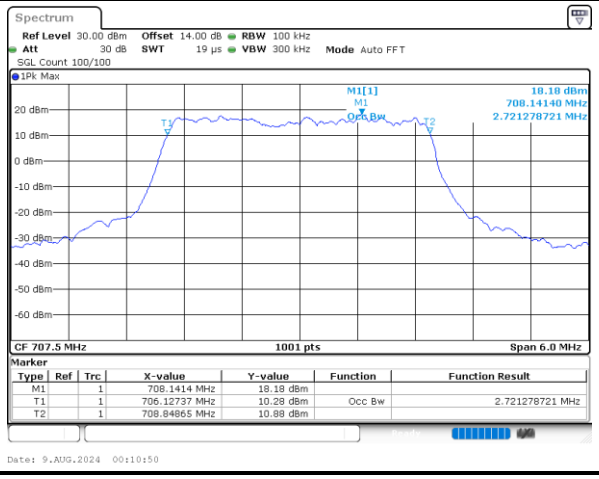
Middle Channel / 1.4MHz / QPSK



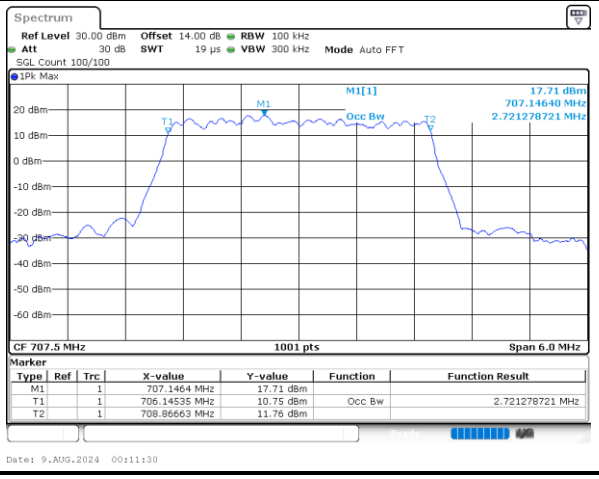
Middle Channel / 1.4MHz / 16QAM

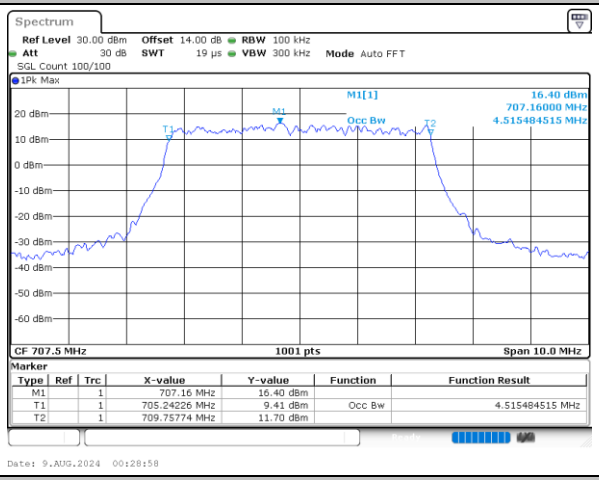
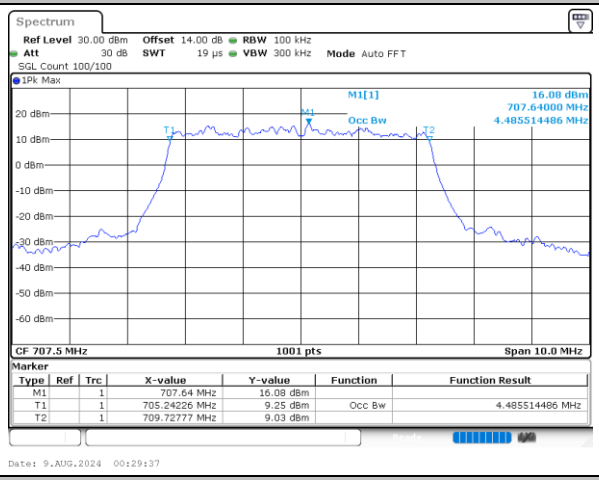


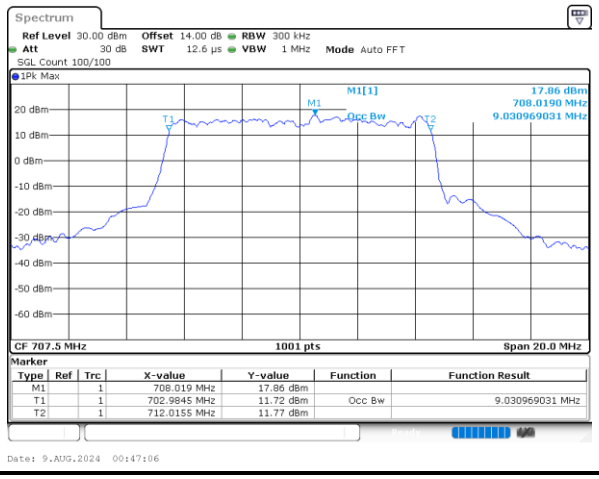
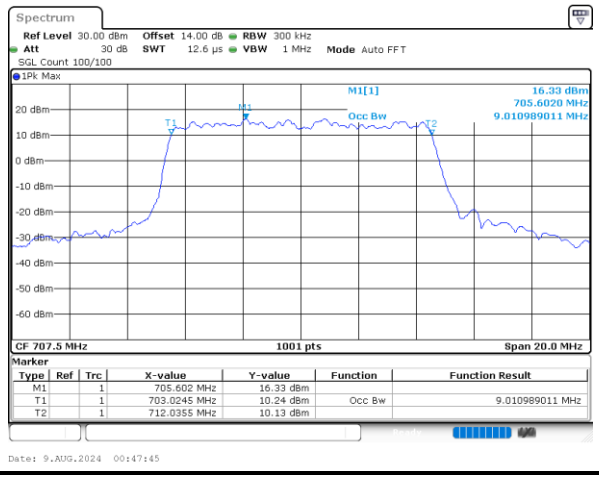
Middle Channel / 3MHz / QPSK



Middle Channel / 3MHz / 16QAM



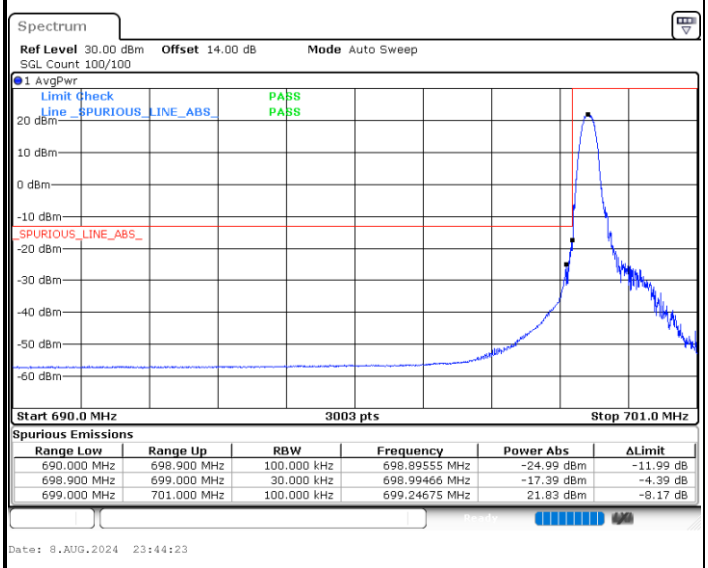
Middle Channel / 5MHz / QPSK	Middle Channel / 5MHz / 16QAM
	

LTE Band 12	
Middle Channel / 10MHz / QPSK	**Middle Channel / 10MHz / 16QAM**
	

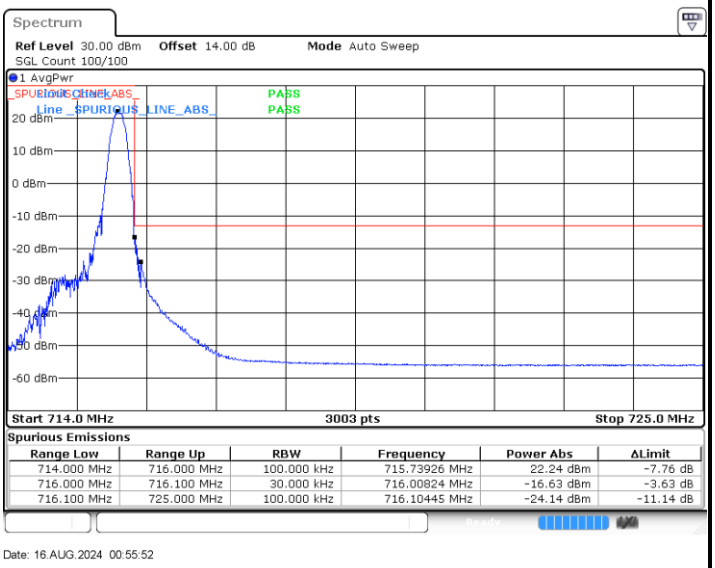
Conducted Band Edge

LTE Band 12 / 1.4MHz / QPSK

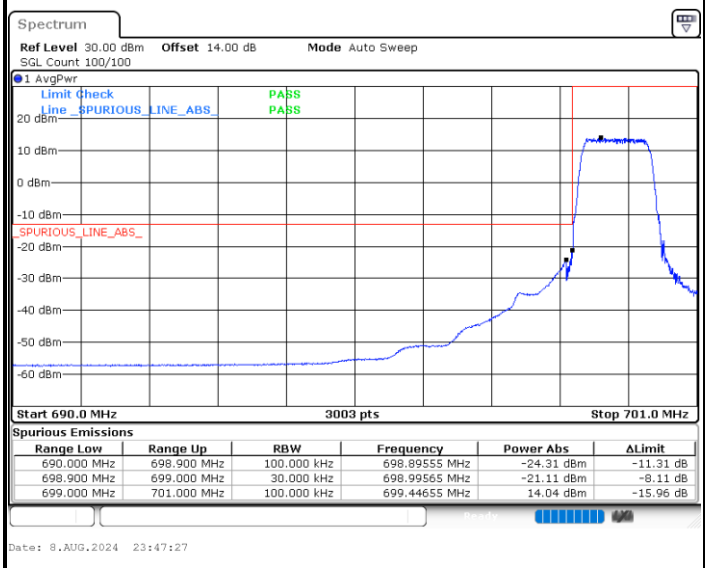
Lowest Band Edge / 1RB



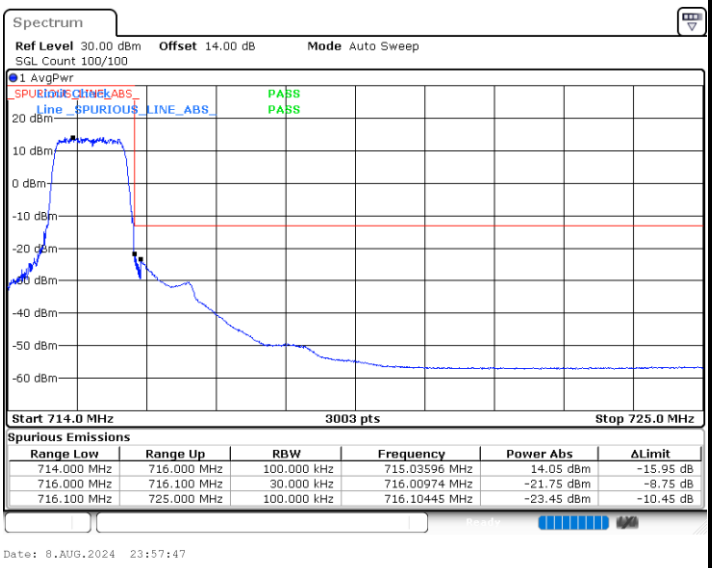
Highest Band Edge / 1RB



Lowest Band Edge / Full RB

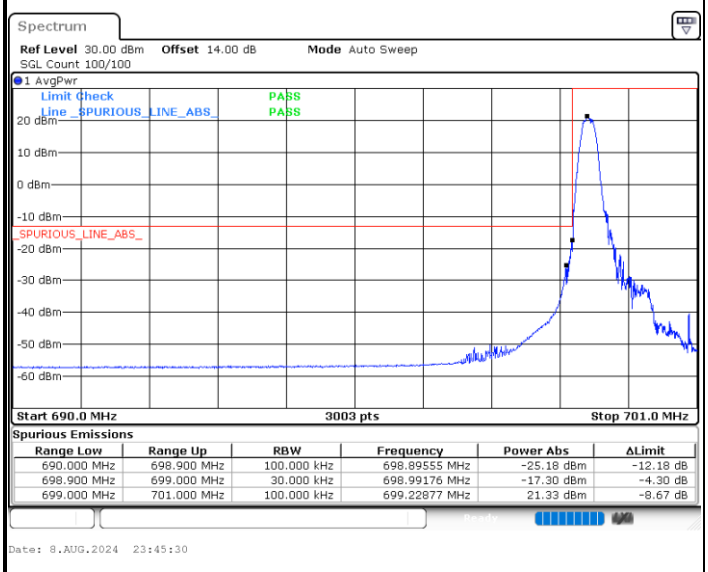


Highest Band Edge / Full RB

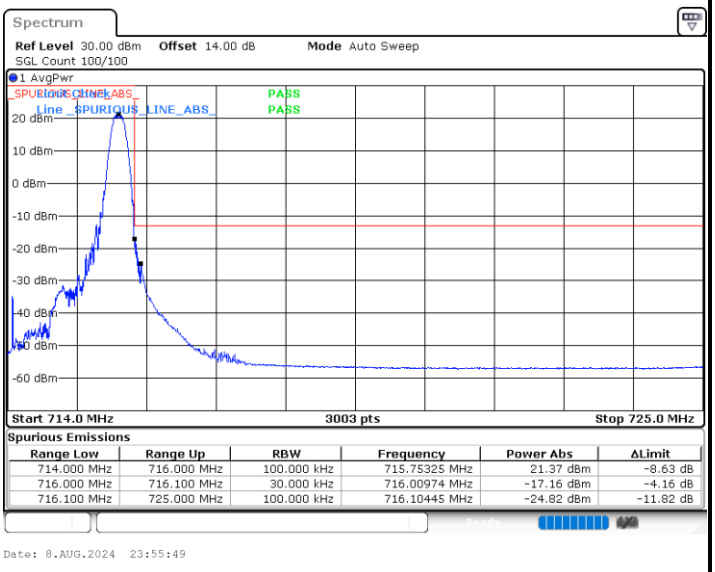


LTE Band 12 / 1.4MHz / 16QAM

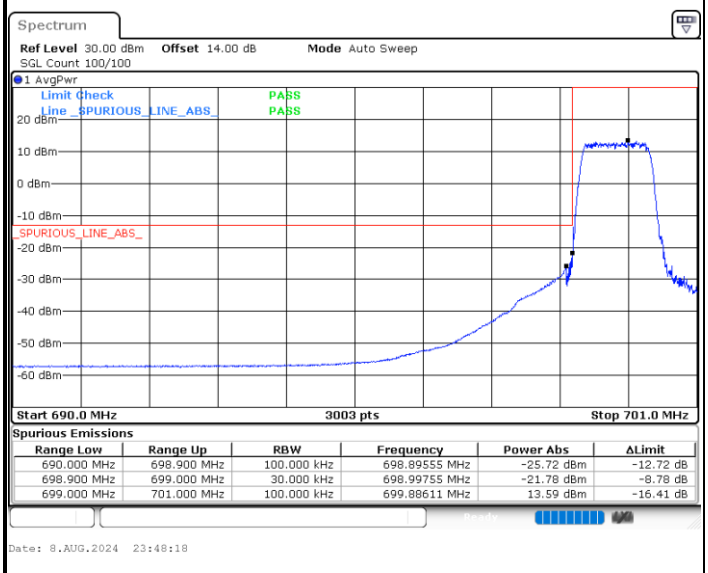
Lowest Band Edge / 1 RB



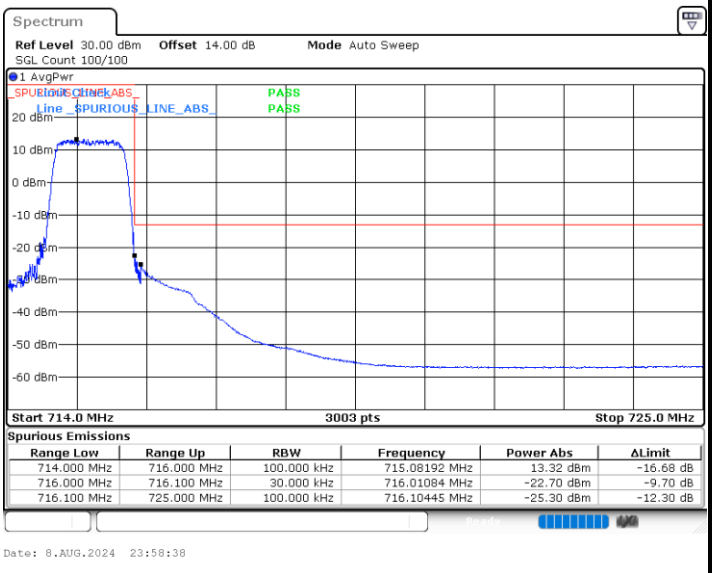
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB

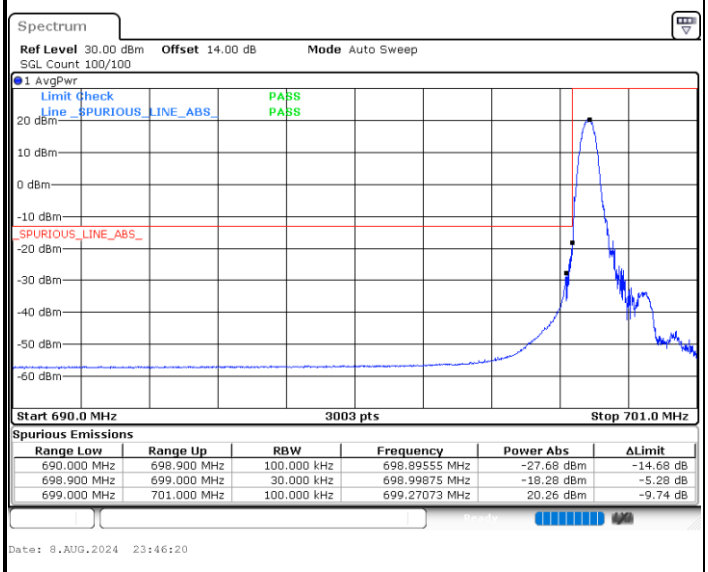


Highest Band Edge / Full RB



LTE Band 12 / 1.4MHz / 64QAM

Lowest Band Edge / 1 RB

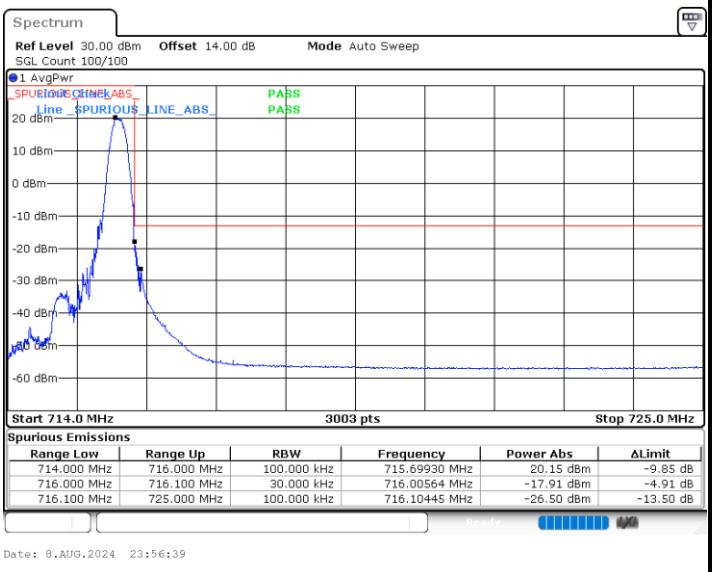


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-27.68 dBm	-14.68 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99875 MHz	-18.28 dBm	-5.28 dB
699.000 MHz	701.000 MHz	100.000 kHz	699.27073 MHz	20.26 dBm	-9.74 dB

Date: 8.AUG.2024 23:46:20

Highest Band Edge / 1 RB

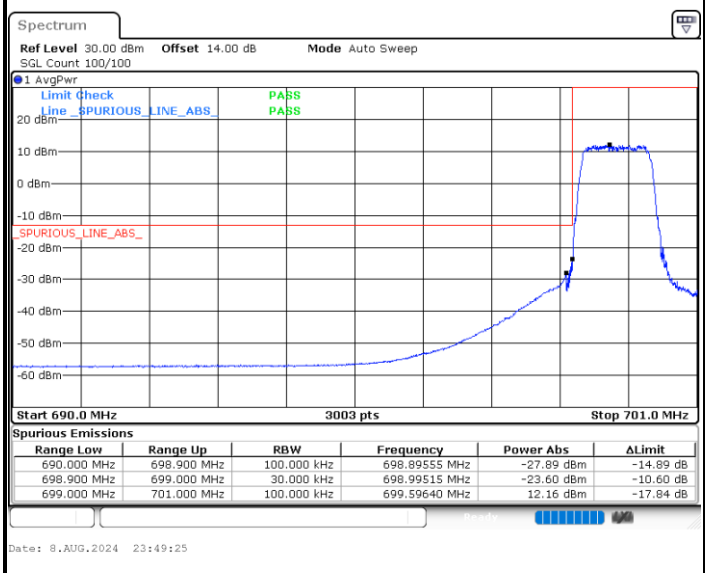


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
714.000 MHz	716.000 MHz	100.000 kHz	715.69930 MHz	20.15 dBm	-9.85 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00564 MHz	-17.91 dBm	-4.91 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-26.50 dBm	-13.50 dB

Date: 8.AUG.2024 23:56:39

Lowest Band Edge / Full RB

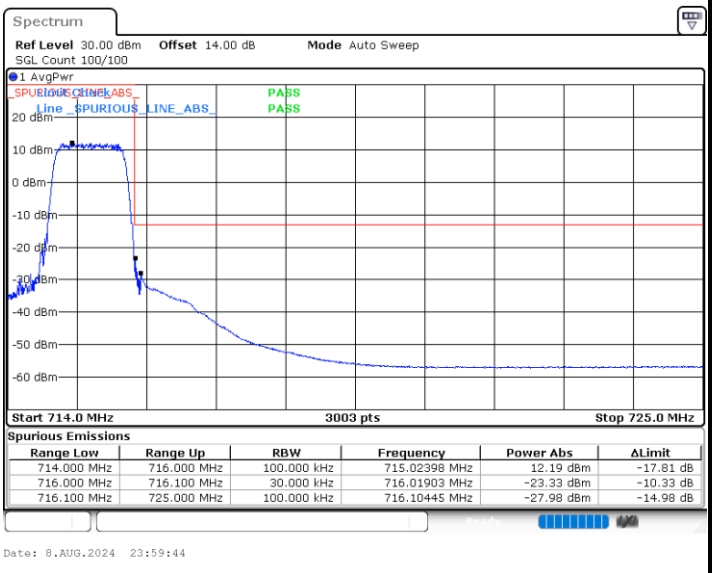


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-27.89 dBm	-14.89 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99515 MHz	-23.60 dBm	-10.60 dB
699.000 MHz	701.000 MHz	100.000 kHz	699.59640 MHz	12.16 dBm	-17.84 dB

Date: 8.AUG.2024 23:49:25

Highest Band Edge / Full RB



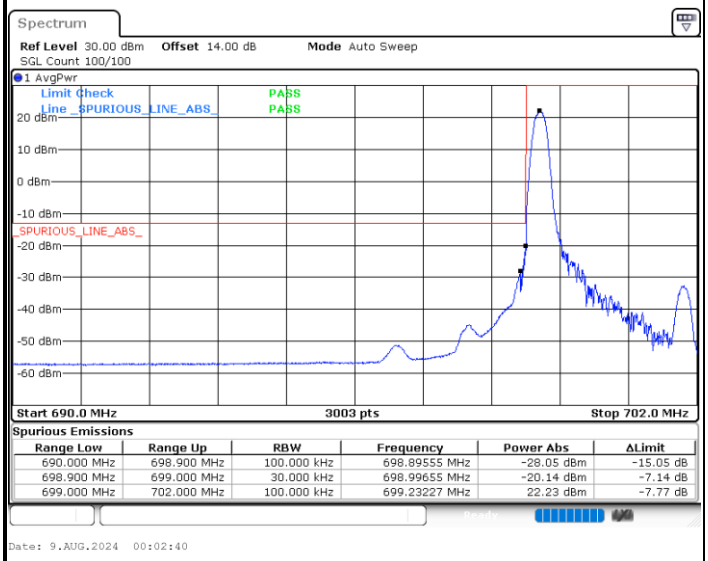
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
714.000 MHz	716.000 MHz	100.000 kHz	715.02398 MHz	12.19 dBm	-17.81 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.01903 MHz	-23.33 dBm	-10.33 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-27.98 dBm	-14.98 dB

Date: 8.AUG.2024 23:59:44

LTE Band 12 / 3MHz / QPSK

Lowest Band Edge / 1RB

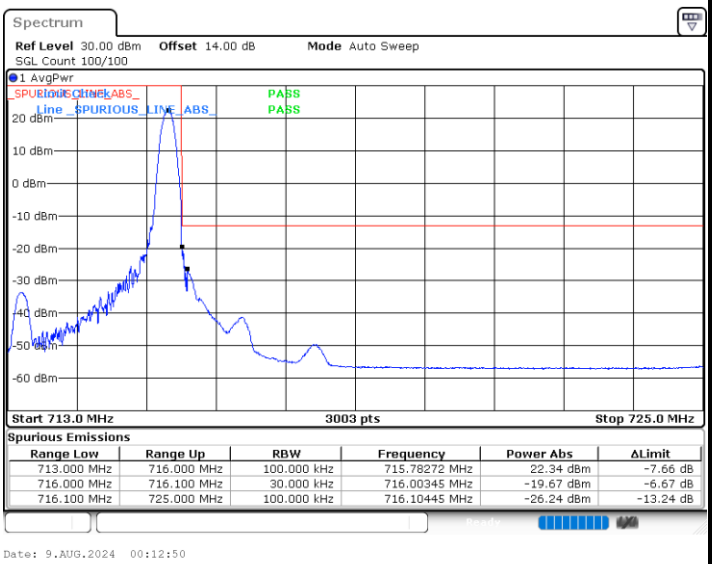


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-28.05 dBm	-15.05 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99655 MHz	-20.14 dBm	-7.14 dB
699.000 MHz	702.000 MHz	100.000 kHz	699.23227 MHz	22.23 dBm	-7.77 dB

Date: 9.AUG.2024 00:02:40

Highest Band Edge / 1RB

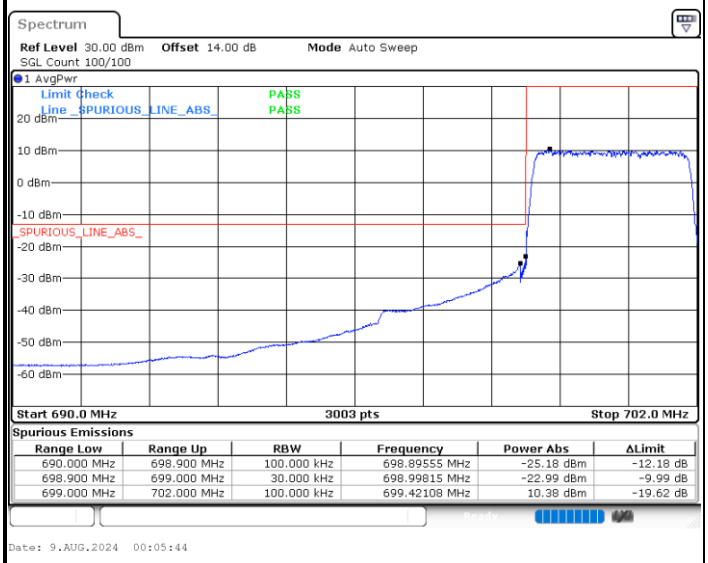


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
713.000 MHz	716.000 MHz	100.000 kHz	715.78272 MHz	22.34 dBm	-7.66 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00345 MHz	-19.67 dBm	-6.67 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-26.24 dBm	-13.24 dB

Date: 9.AUG.2024 00:12:50

Lowest Band Edge / Full RB

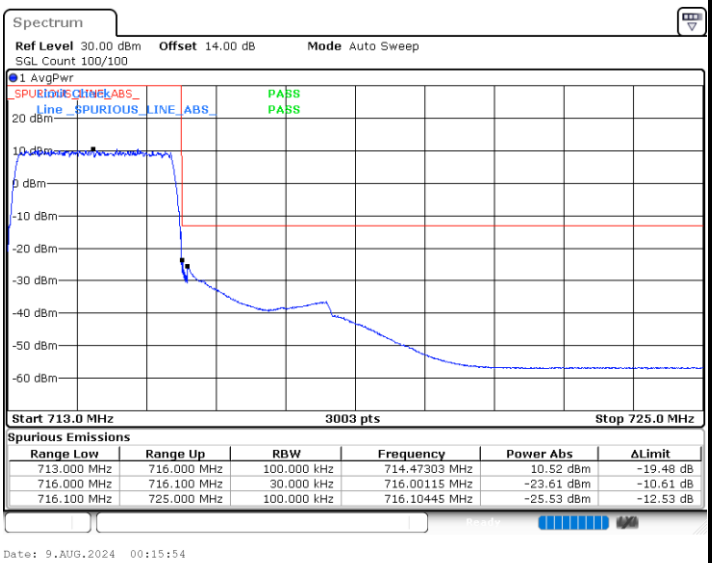


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-25.18 dBm	-12.18 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99815 MHz	-22.99 dBm	-9.99 dB
699.000 MHz	702.000 MHz	100.000 kHz	699.42108 MHz	10.38 dBm	-19.62 dB

Date: 9.AUG.2024 00:05:44

Highest Band Edge / Full RB



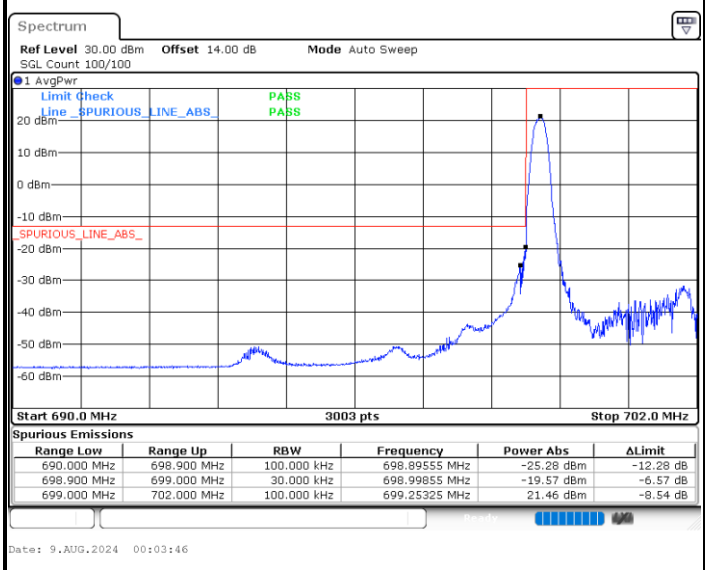
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
713.000 MHz	716.000 MHz	100.000 kHz	714.47303 MHz	10.52 dBm	-19.48 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00115 MHz	-23.61 dBm	-10.61 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-25.53 dBm	-12.53 dB

Date: 9.AUG.2024 00:15:54

LTE Band 12 / 3MHz / 16QAM

Lowest Band Edge / 1 RB

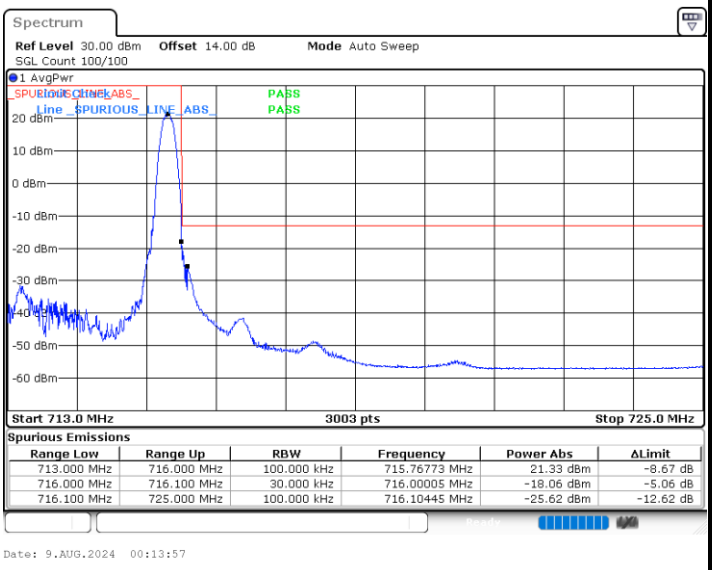


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-25.28 dBm	-12.28 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99855 MHz	-19.57 dBm	-6.57 dB
699.000 MHz	702.000 MHz	100.000 kHz	699.25325 MHz	21.46 dBm	-8.54 dB

Date: 9.AUG.2024 00:03:46

Highest Band Edge / 1 RB

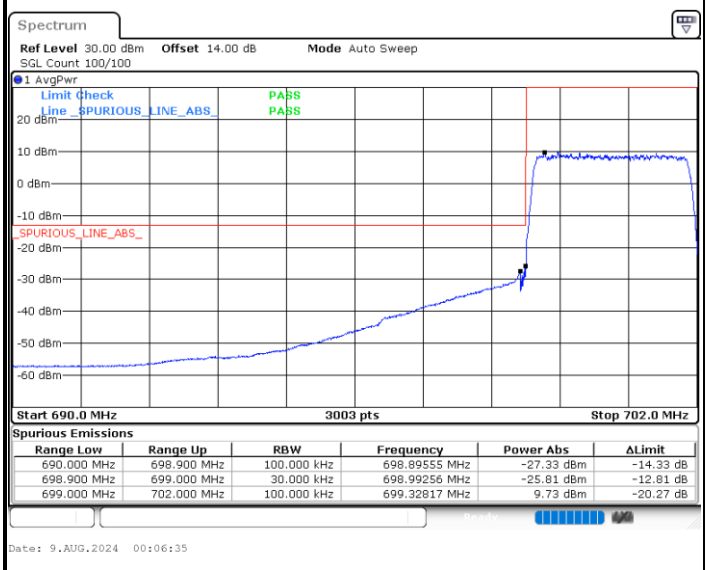


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
713.000 MHz	716.000 MHz	100.000 kHz	715.76773 MHz	21.33 dBm	-8.67 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00005 MHz	-18.06 dBm	-5.06 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-25.62 dBm	-12.62 dB

Date: 9.AUG.2024 00:13:57

Lowest Band Edge / Full RB

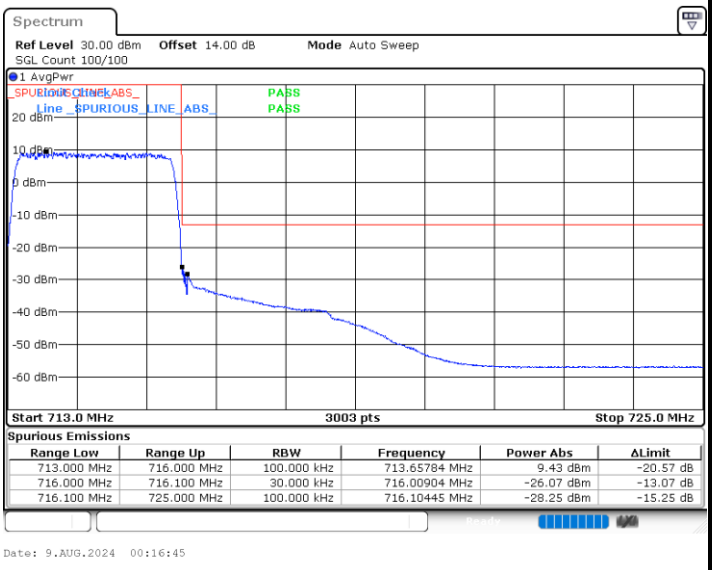


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-27.33 dBm	-14.33 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99256 MHz	-25.81 dBm	-12.81 dB
699.000 MHz	702.000 MHz	100.000 kHz	699.32817 MHz	9.73 dBm	-20.27 dB

Date: 9.AUG.2024 00:06:35

Highest Band Edge / Full RB



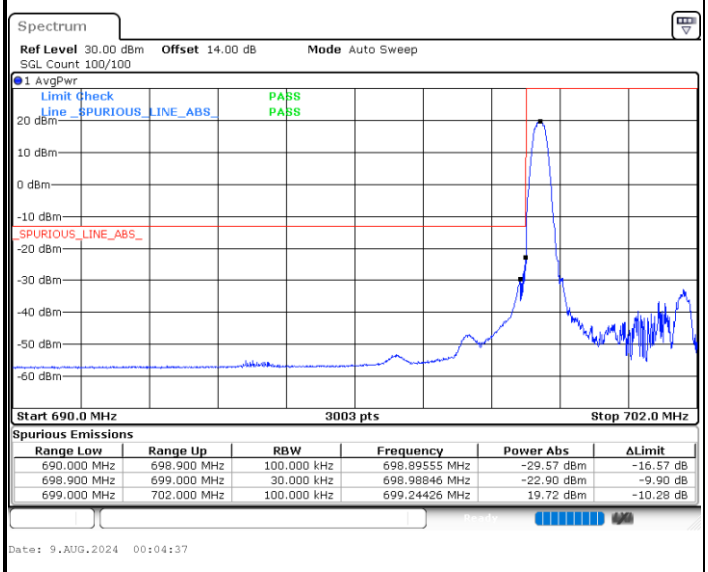
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
713.000 MHz	716.000 MHz	100.000 kHz	713.65784 MHz	9.43 dBm	-20.57 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00904 MHz	-26.07 dBm	-13.07 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-28.25 dBm	-15.25 dB

Date: 9.AUG.2024 00:16:45

LTE Band 12 / 3MHz / 64QAM

Lowest Band Edge / 1 RB

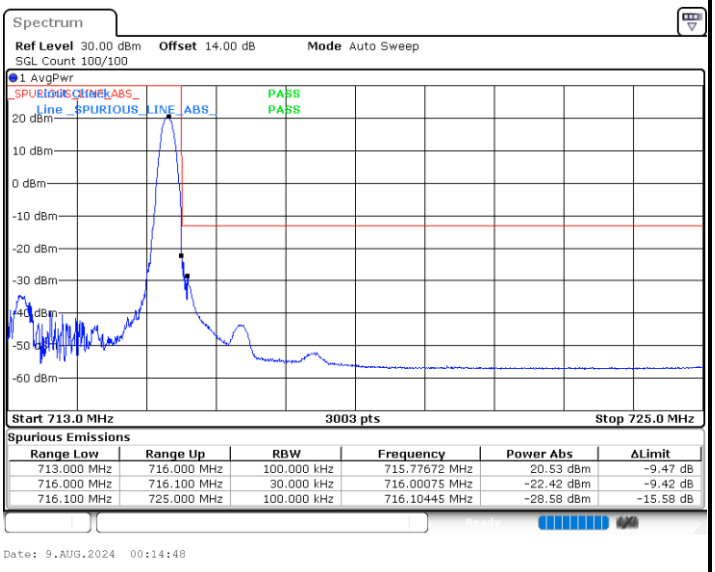


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-29.57 dBm	-16.57 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.98846 MHz	-22.90 dBm	-9.90 dB
699.000 MHz	702.000 MHz	100.000 kHz	699.24426 MHz	19.72 dBm	-10.28 dB

Date: 9.AUG.2024 00:04:37

Highest Band Edge / 1 RB

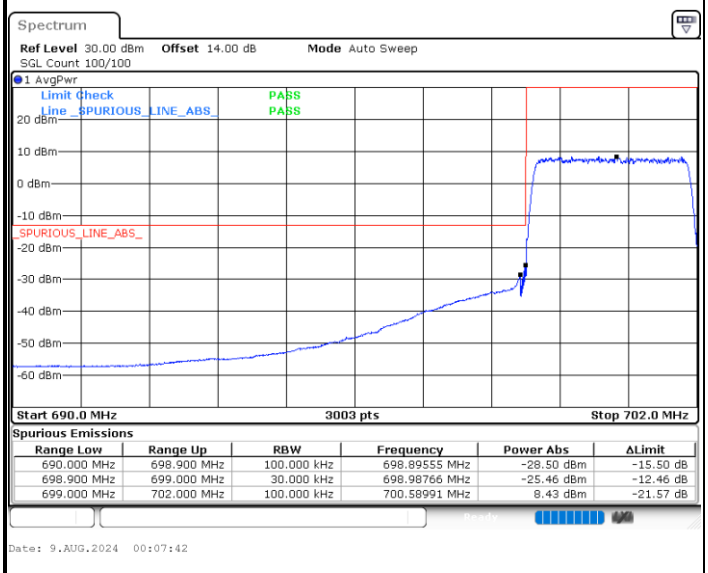


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
713.000 MHz	716.000 MHz	100.000 kHz	715.77672 MHz	20.53 dBm	-9.47 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00075 MHz	-22.42 dBm	-9.42 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-28.58 dBm	-15.58 dB

Date: 9.AUG.2024 00:14:48

Lowest Band Edge / Full RB

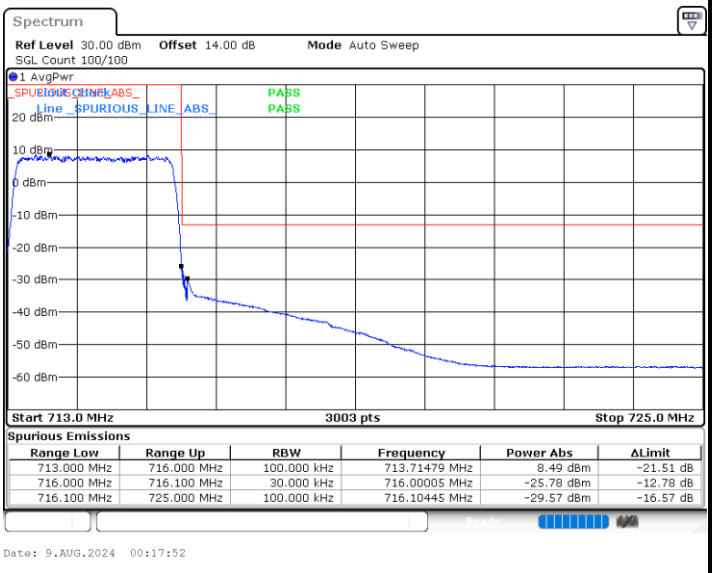


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-28.50 dBm	-15.50 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.98766 MHz	-25.46 dBm	-12.46 dB
699.000 MHz	702.000 MHz	100.000 kHz	700.58991 MHz	8.43 dBm	-21.57 dB

Date: 9.AUG.2024 00:07:42

Highest Band Edge / Full RB



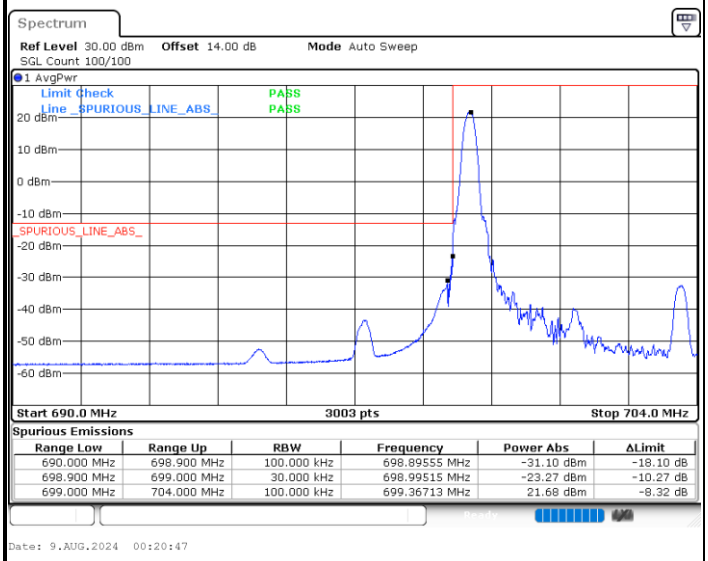
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
713.000 MHz	716.000 MHz	100.000 kHz	713.71479 MHz	8.49 dBm	-21.51 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00005 MHz	-25.78 dBm	-12.78 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-29.57 dBm	-16.57 dB

Date: 9.AUG.2024 00:17:52

LTE Band 12 / 5MHz / QPSK

Lowest Band Edge / 1RB

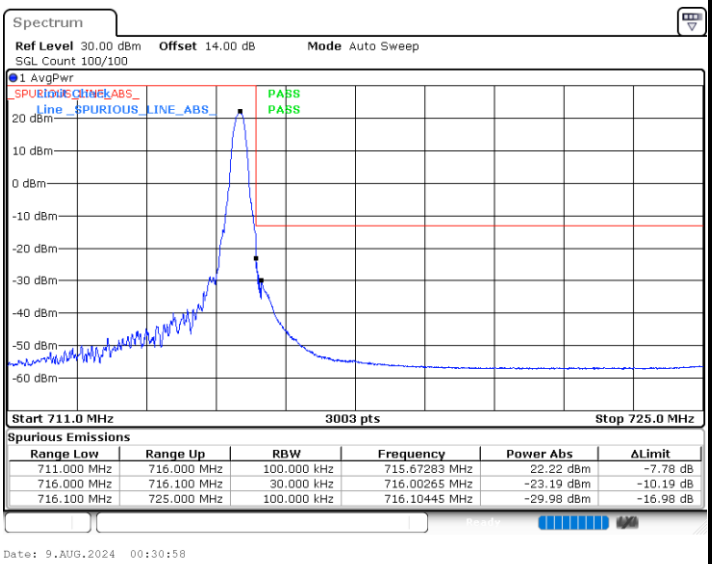


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-31.10 dBm	-18.10 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99515 MHz	-23.27 dBm	-10.27 dB
699.000 MHz	704.000 MHz	100.000 kHz	699.36713 MHz	21.68 dBm	-8.32 dB

Date: 9.AUG.2024 00:20:47

Highest Band Edge / 1RB

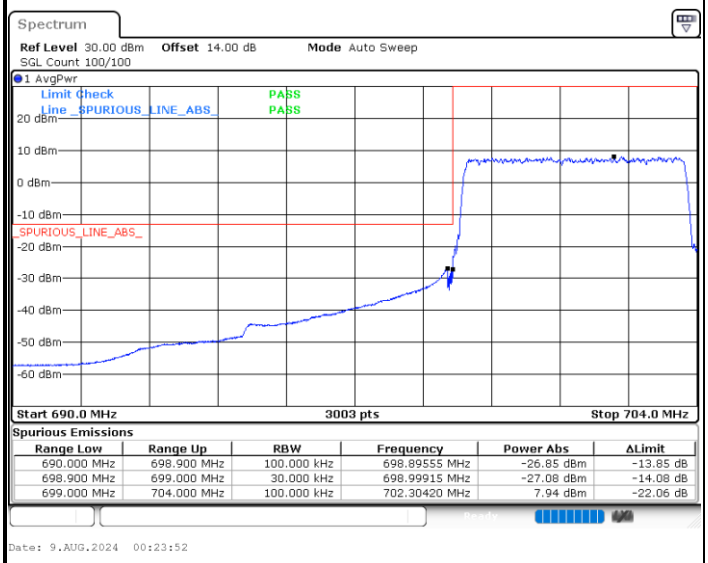


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
711.000 MHz	716.000 MHz	100.000 kHz	715.67283 MHz	22.22 dBm	-7.78 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00265 MHz	-23.19 dBm	-10.19 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-29.98 dBm	-16.98 dB

Date: 9.AUG.2024 00:30:58

Lowest Band Edge / Full RB

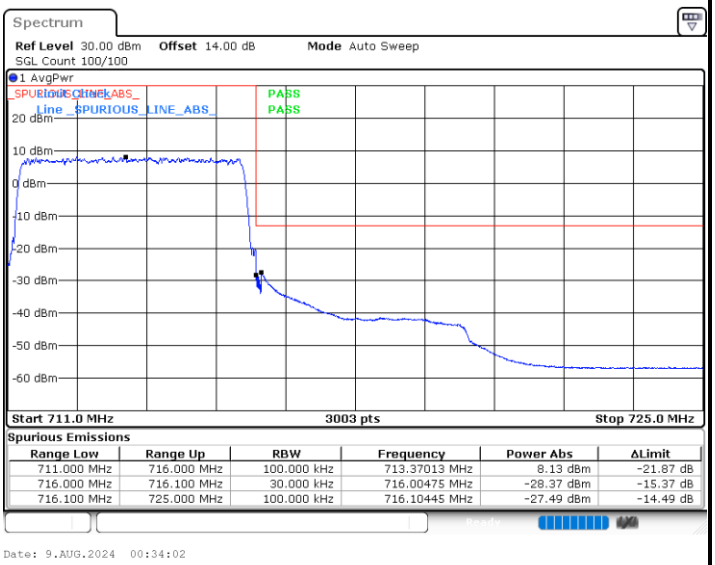


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-26.85 dBm	-13.85 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99915 MHz	-27.08 dBm	-14.08 dB
699.000 MHz	704.000 MHz	100.000 kHz	702.30420 MHz	7.94 dBm	-22.06 dB

Date: 9.AUG.2024 00:23:52

Highest Band Edge / Full RB



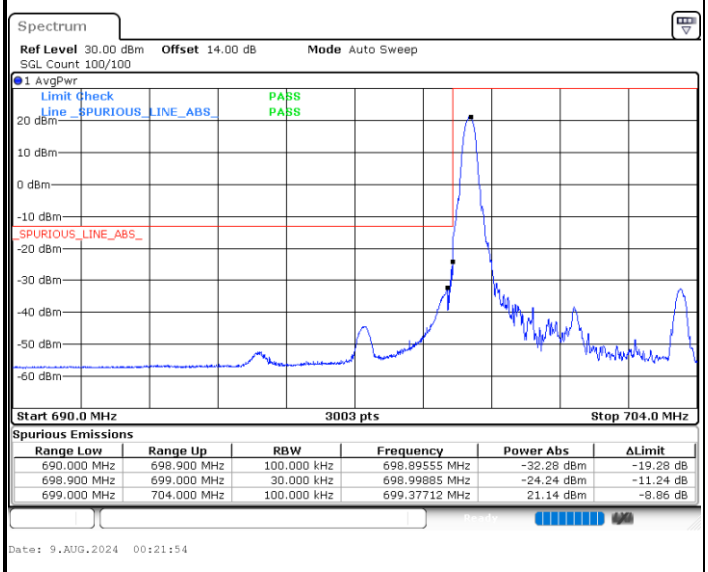
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
711.000 MHz	716.000 MHz	100.000 kHz	713.37013 MHz	8.13 dBm	-21.87 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00475 MHz	-28.37 dBm	-15.37 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-27.49 dBm	-14.49 dB

Date: 9.AUG.2024 00:34:02

LTE Band 12 / 5MHz / 16QAM

Lowest Band Edge / 1 RB

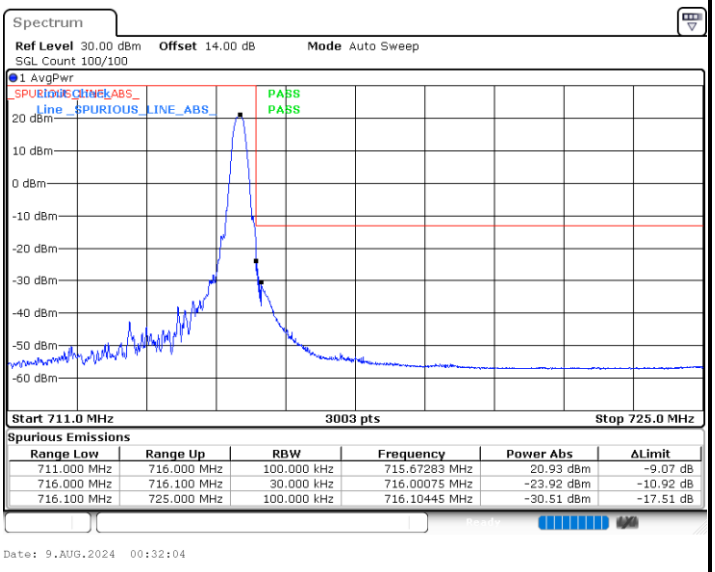


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-32.28 dBm	-19.28 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99885 MHz	-24.24 dBm	-11.24 dB
699.000 MHz	704.000 MHz	100.000 kHz	699.37712 MHz	21.14 dBm	-8.86 dB

Date: 9.AUG.2024 00:21:54

Highest Band Edge / 1 RB

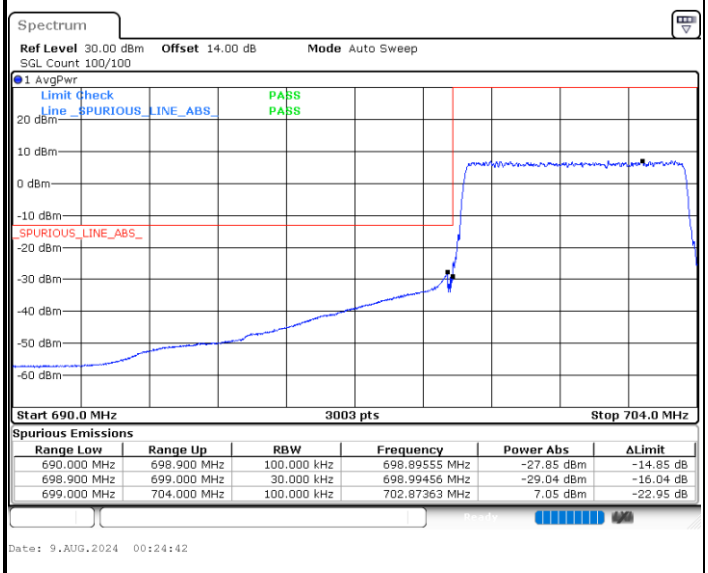


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
711.000 MHz	716.000 MHz	100.000 kHz	715.67283 MHz	20.93 dBm	-9.07 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00075 MHz	-23.92 dBm	-10.92 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-30.51 dBm	-17.51 dB

Date: 9.AUG.2024 00:32:04

Lowest Band Edge / Full RB

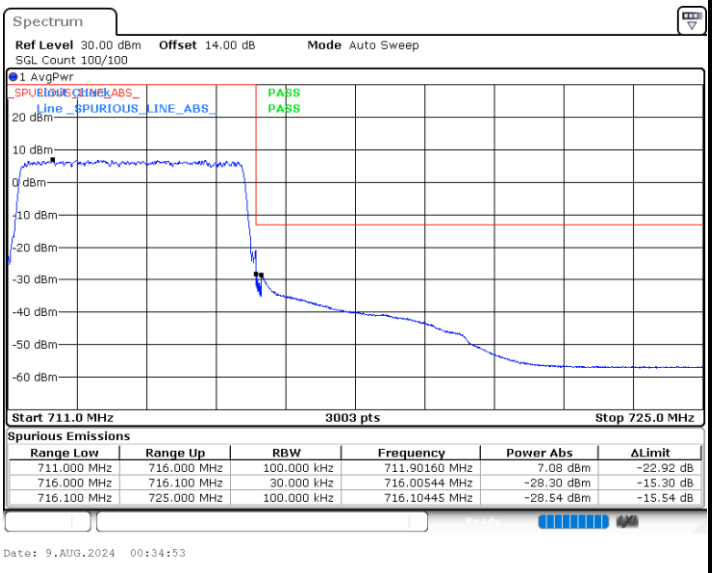


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-27.85 dBm	-14.85 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99456 MHz	-29.04 dBm	-16.04 dB
699.000 MHz	704.000 MHz	100.000 kHz	702.87363 MHz	7.05 dBm	-22.95 dB

Date: 9.AUG.2024 00:24:42

Highest Band Edge / Full RB



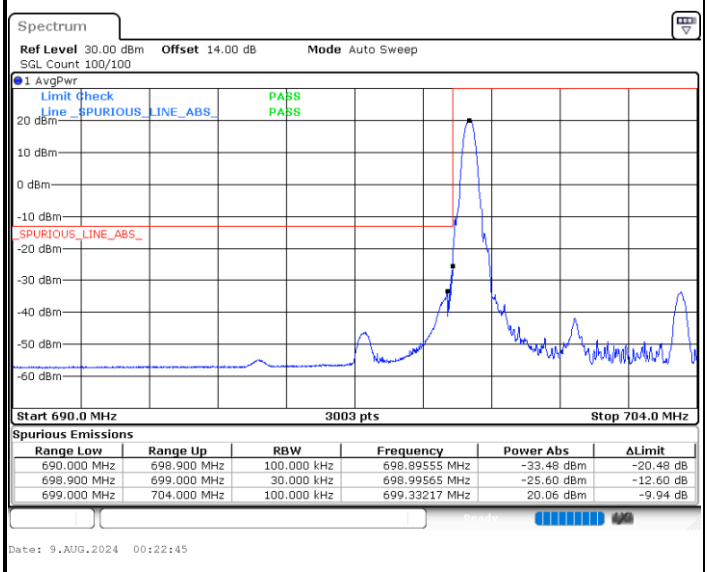
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
711.000 MHz	716.000 MHz	100.000 kHz	711.90160 MHz	7.08 dBm	-22.92 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00544 MHz	-28.30 dBm	-15.30 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-28.54 dBm	-15.54 dB

Date: 9.AUG.2024 00:34:53

LTE Band 12 / 5MHz / 64QAM

Lowest Band Edge / 1 RB

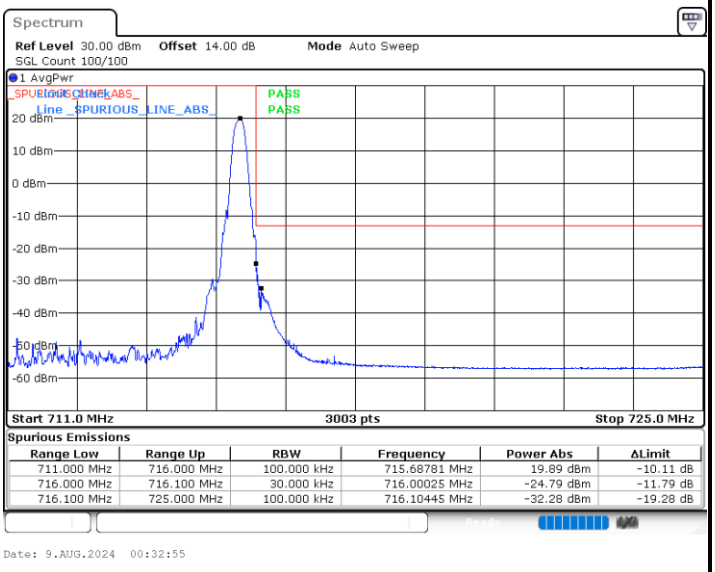


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-33.48 dBm	-20.48 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99565 MHz	-25.60 dBm	-12.60 dB
699.000 MHz	704.000 MHz	100.000 kHz	699.33217 MHz	20.06 dBm	-9.94 dB

Date: 9.AUG.2024 00:22:45

Highest Band Edge / 1 RB

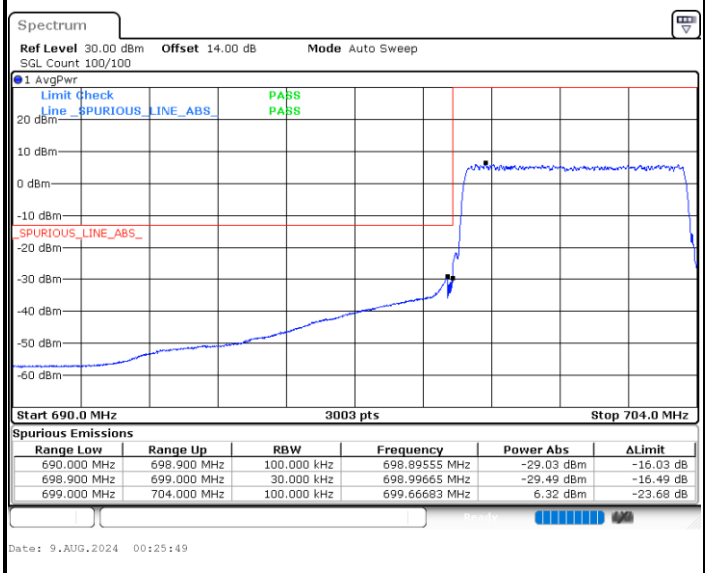


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
711.000 MHz	716.000 MHz	100.000 kHz	715.68781 MHz	19.89 dBm	-10.11 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00025 MHz	-24.79 dBm	-11.79 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-32.28 dBm	-19.28 dB

Date: 9.AUG.2024 00:32:55

Lowest Band Edge / Full RB

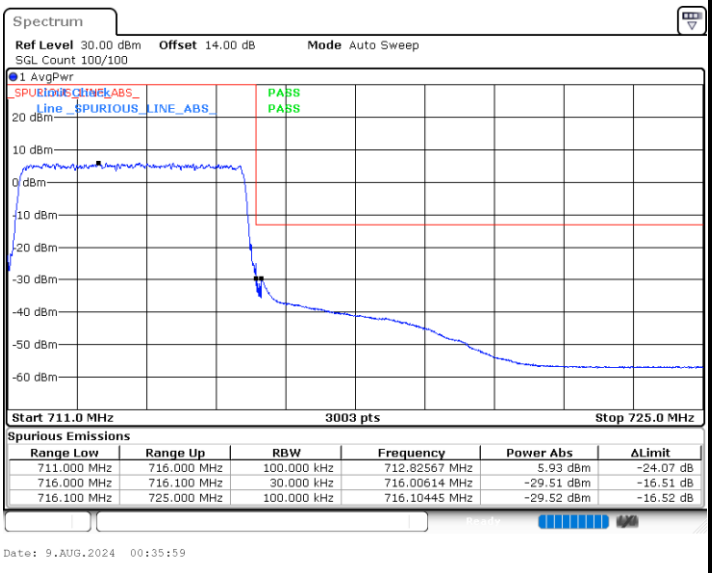


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-29.03 dBm	-16.03 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99665 MHz	-29.49 dBm	-16.49 dB
699.000 MHz	704.000 MHz	100.000 kHz	699.66683 MHz	6.32 dBm	-23.68 dB

Date: 9.AUG.2024 00:25:49

Highest Band Edge / Full RB



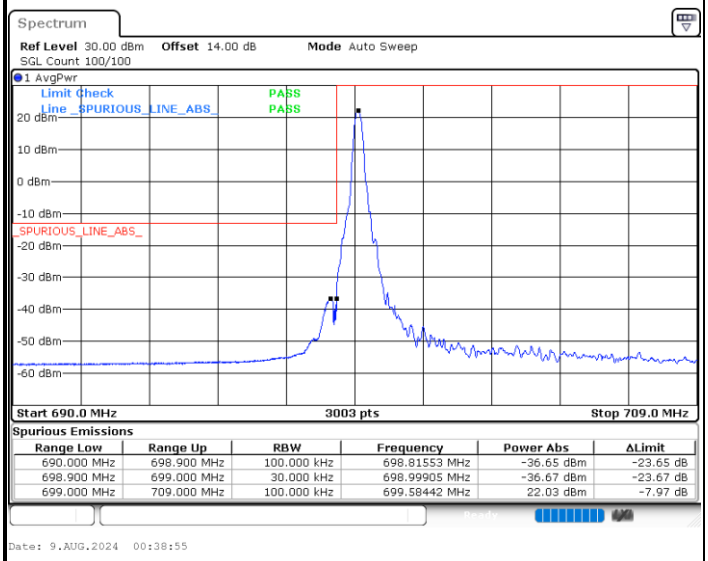
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
711.000 MHz	716.000 MHz	100.000 kHz	712.82567 MHz	5.93 dBm	-24.07 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00614 MHz	-29.51 dBm	-16.51 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-29.52 dBm	-16.52 dB

Date: 9.AUG.2024 00:35:59

LTE Band 12 / 10MHz / QPSK

Lowest Band Edge / 1RB

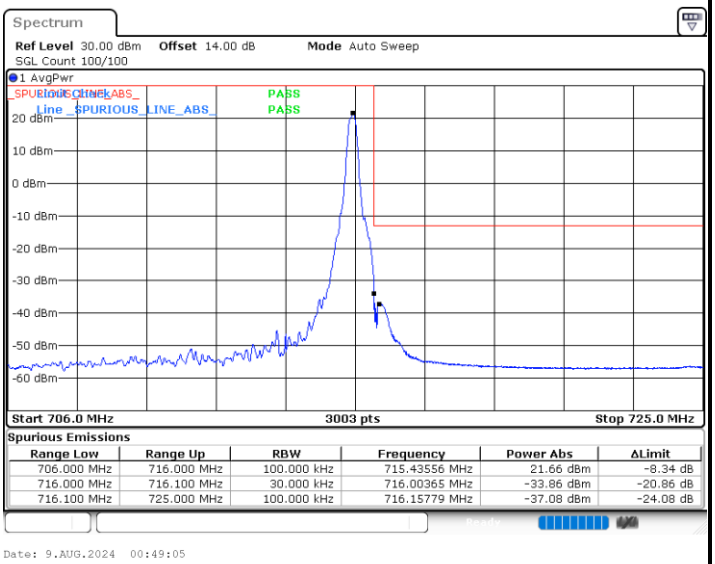


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.81553 MHz	-36.65 dBm	-23.65 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99905 MHz	-36.67 dBm	-23.67 dB
699.000 MHz	709.000 MHz	100.000 kHz	699.58442 MHz	22.03 dBm	-7.97 dB

Date: 9.AUG.2024 00:38:55

Highest Band Edge / 1RB

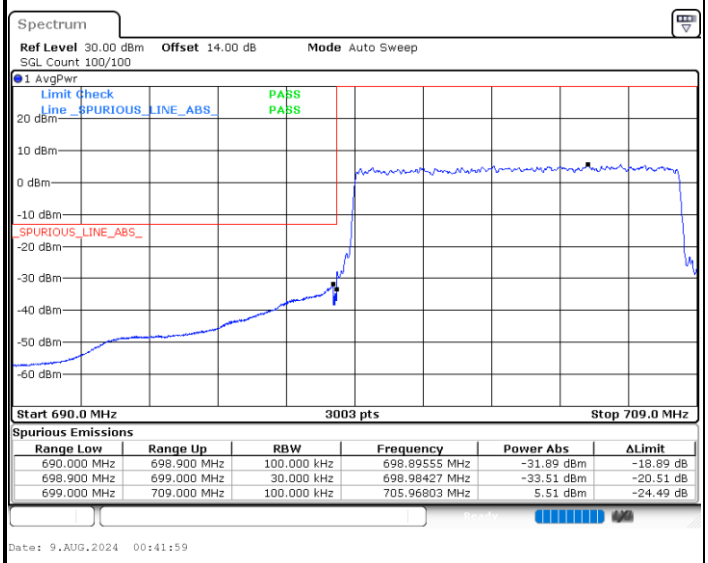


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
706.000 MHz	716.000 MHz	100.000 kHz	715.43556 MHz	21.66 dBm	-8.34 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00365 MHz	-33.86 dBm	-20.86 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.15779 MHz	-37.08 dBm	-24.08 dB

Date: 9.AUG.2024 00:49:05

Lowest Band Edge / Full RB

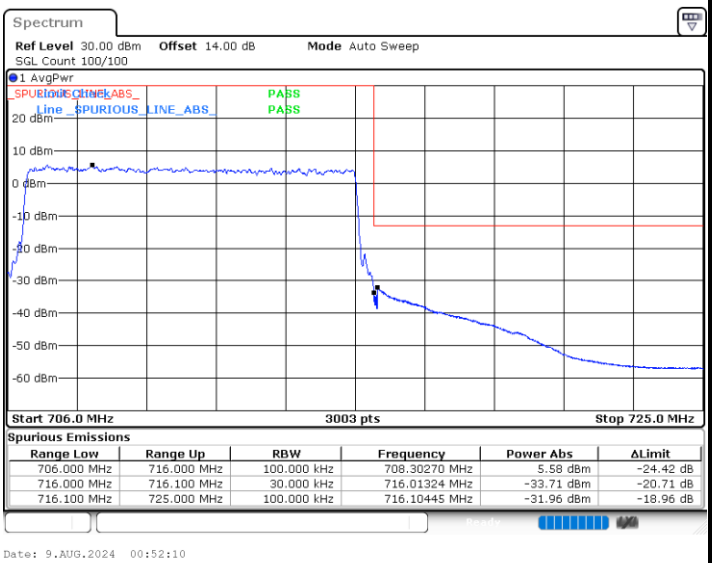


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-31.89 dBm	-18.89 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.98427 MHz	-33.51 dBm	-20.51 dB
699.000 MHz	709.000 MHz	100.000 kHz	705.96803 MHz	5.51 dBm	-24.49 dB

Date: 9.AUG.2024 00:41:59

Highest Band Edge / Full RB



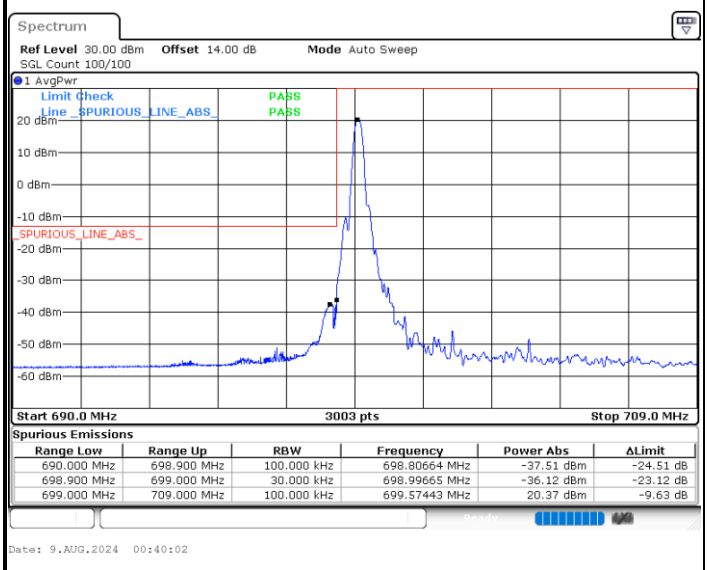
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
706.000 MHz	716.000 MHz	100.000 kHz	708.30270 MHz	5.58 dBm	-24.42 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.01324 MHz	-33.71 dBm	-20.71 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-31.96 dBm	-18.96 dB

Date: 9.AUG.2024 00:52:10

LTE Band 12 / 10MHz / 16QAM

Lowest Band Edge / 1 RB

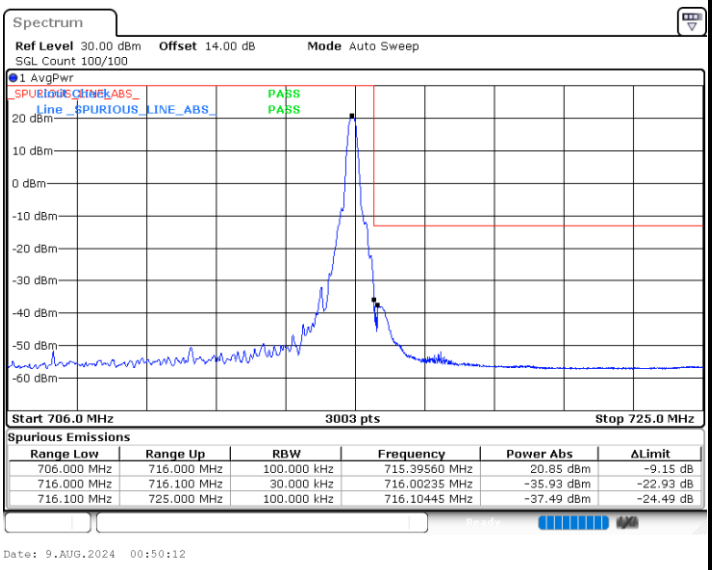


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.80664 MHz	-37.51 dBm	-24.51 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99665 MHz	-36.12 dBm	-23.12 dB
699.000 MHz	709.000 MHz	100.000 kHz	699.57443 MHz	20.37 dBm	-9.63 dB

Date: 9.AUG.2024 00:40:02

Highest Band Edge / 1 RB

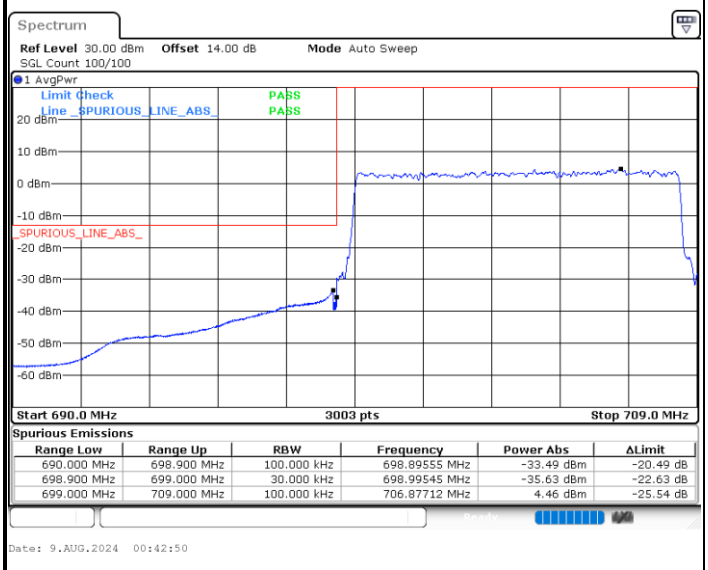


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
706.000 MHz	716.000 MHz	100.000 kHz	715.39560 MHz	20.85 dBm	-9.15 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00235 MHz	-35.93 dBm	-22.93 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.10445 MHz	-37.49 dBm	-24.49 dB

Date: 9.AUG.2024 00:50:12

Lowest Band Edge / Full RB

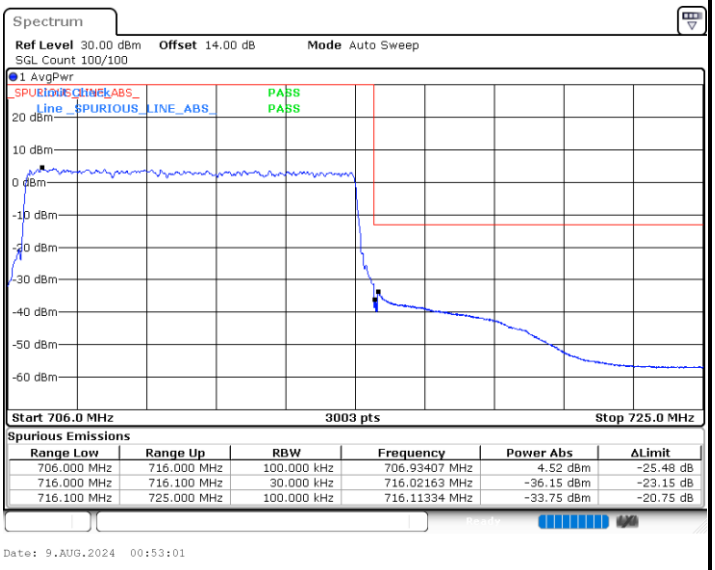


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
690.000 MHz	698.900 MHz	100.000 kHz	698.89555 MHz	-33.49 dBm	-20.49 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99545 MHz	-35.63 dBm	-22.63 dB
699.000 MHz	709.000 MHz	100.000 kHz	706.87712 MHz	4.46 dBm	-25.54 dB

Date: 9.AUG.2024 00:42:50

Highest Band Edge / Full RB



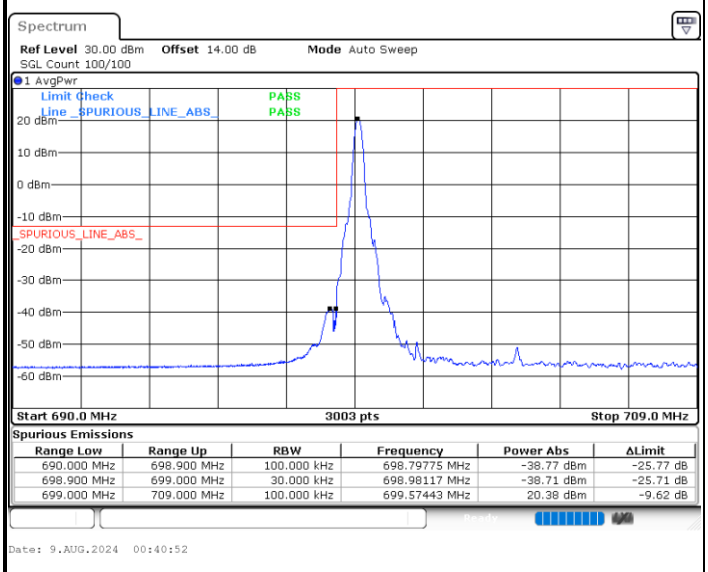
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
706.000 MHz	716.000 MHz	100.000 kHz	706.93407 MHz	4.52 dBm	-25.48 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.02163 MHz	-36.15 dBm	-23.15 dB
716.100 MHz	725.000 MHz	100.000 kHz	716.11334 MHz	-33.75 dBm	-20.75 dB

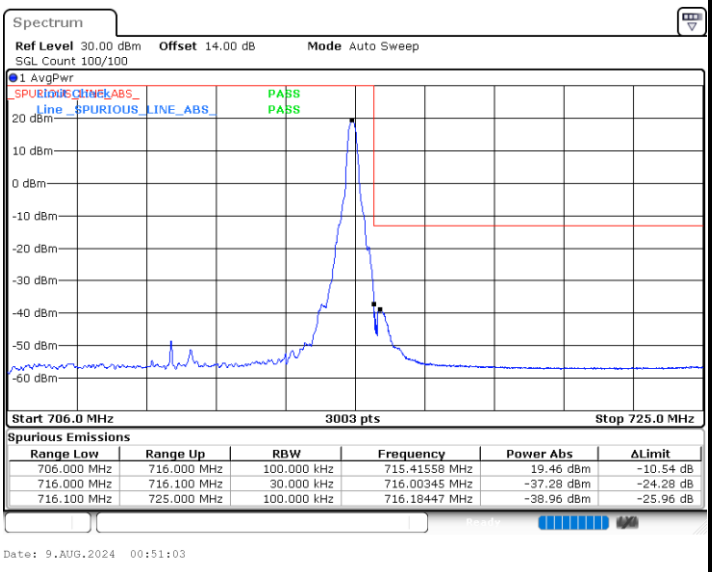
Date: 9.AUG.2024 00:53:01

LTE Band 12 / 10MHz / 64QAM

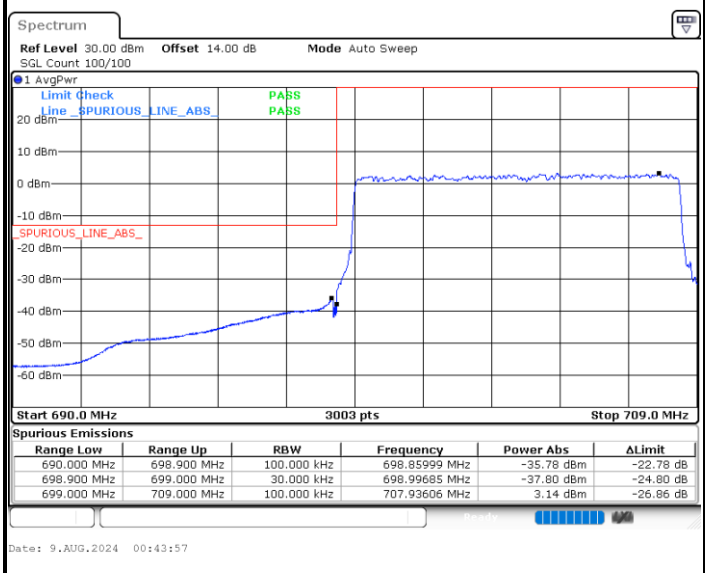
Lowest Band Edge / 1 RB



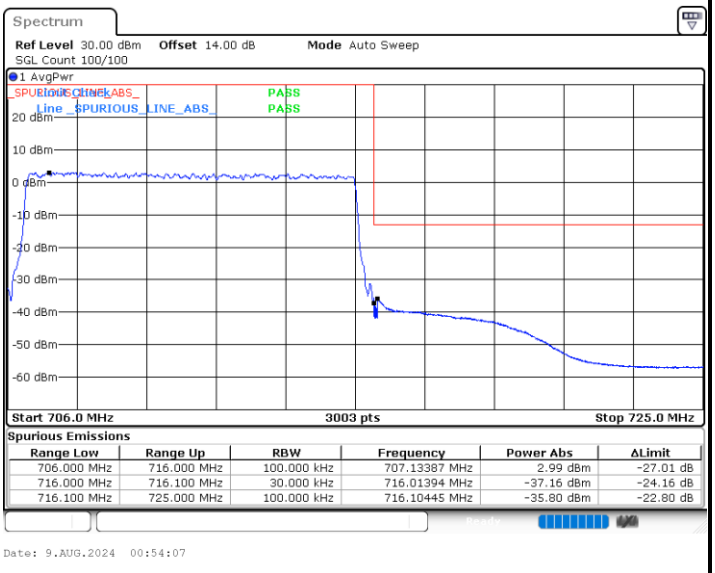
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



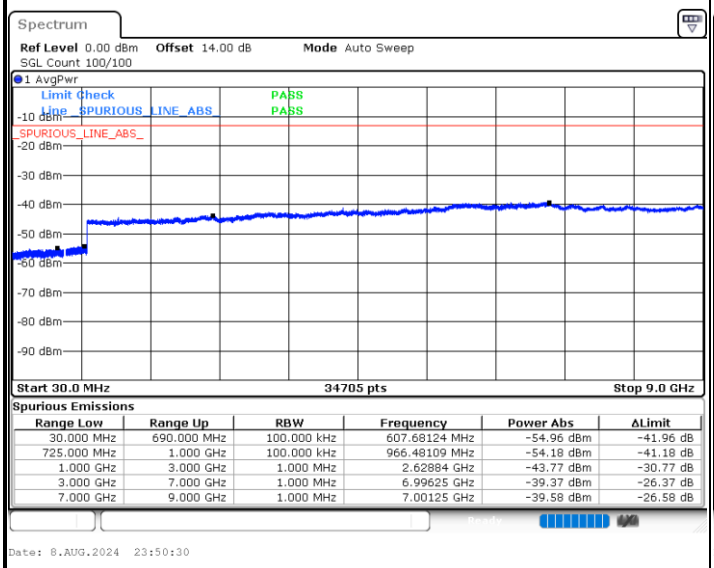
Highest Band Edge / Full RB



Conducted Spurious Emission

LTE Band 12 / 1.4MHz

Lowest Channel / QPSK

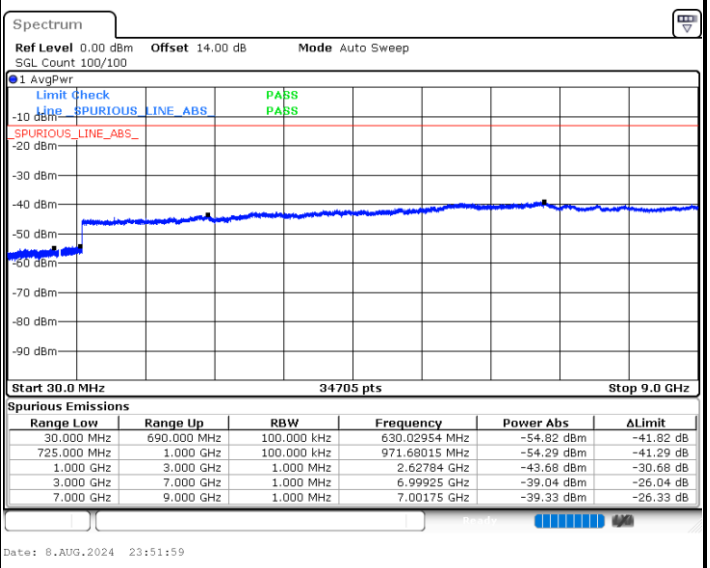


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	690.000 MHz	100.000 kHz	607.68124 MHz	-54.96 dBm	-41.96 dB
725.000 MHz	1.000 GHz	100.000 kHz	966.48109 MHz	-54.18 dBm	-41.18 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.62884 GHz	-43.77 dBm	-30.77 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99625 GHz	-39.37 dBm	-26.37 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.00125 GHz	-39.58 dBm	-26.58 dB

Date: 8.AUG.2024 23:50:30

Middle Channel / QPSK

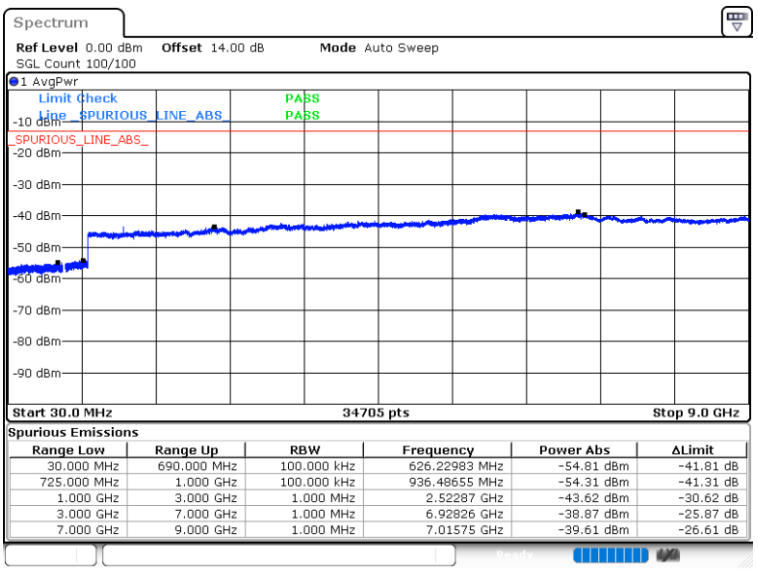


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	690.000 MHz	100.000 kHz	630.02954 MHz	-54.82 dBm	-41.82 dB
725.000 MHz	1.000 GHz	100.000 kHz	971.68015 MHz	-54.29 dBm	-41.29 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.62784 GHz	-43.68 dBm	-30.68 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99925 GHz	-39.04 dBm	-26.04 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.00175 GHz	-39.33 dBm	-26.33 dB

Date: 8.AUG.2024 23:51:59

Highest Channel / QPSK



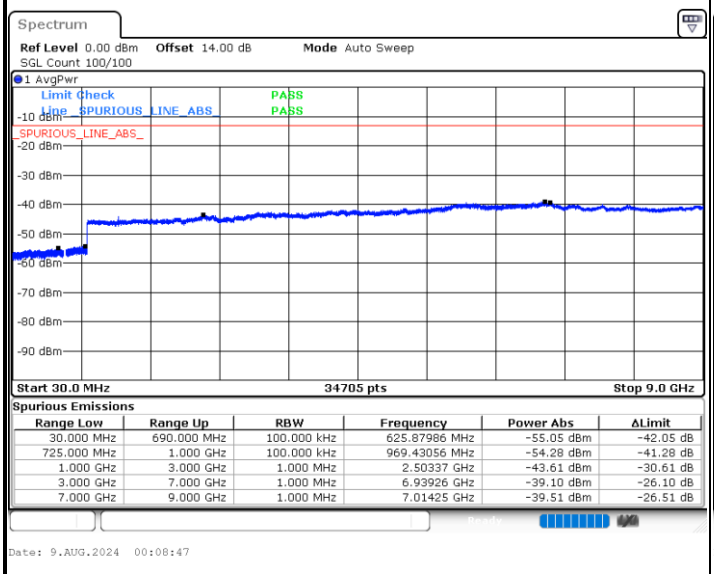
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	690.000 MHz	100.000 kHz	626.22983 MHz	-54.81 dBm	-41.81 dB
725.000 MHz	1.000 GHz	100.000 kHz	936.48655 MHz	-54.31 dBm	-41.31 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.52287 GHz	-43.62 dBm	-30.62 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.92826 GHz	-38.87 dBm	-25.87 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.01575 GHz	-39.61 dBm	-26.61 dB

Date: 9.AUG.2024 00:00:50

LTE Band 12 / 3MHz

Lowest Channel / QPSK

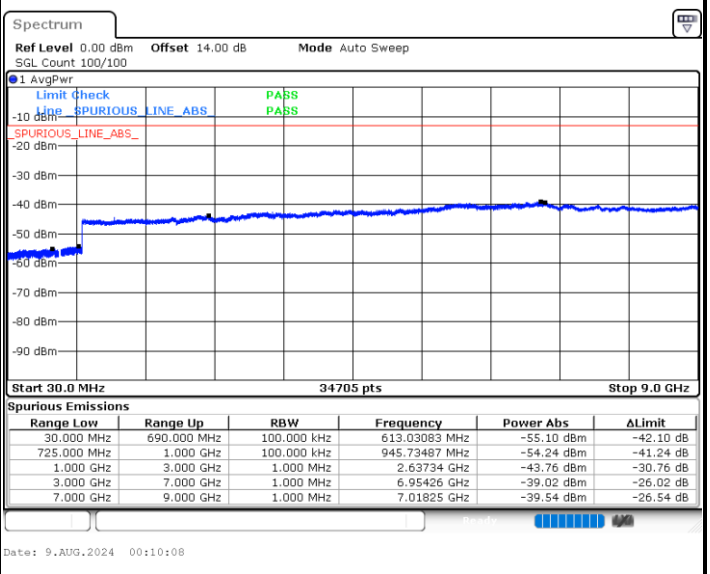


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	690.000 MHz	100.000 kHz	625.87986 MHz	-55.05 dBm	-42.05 dB
725.000 MHz	1.000 GHz	100.000 kHz	969.43056 MHz	-54.28 dBm	-41.28 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.50337 GHz	-43.61 dBm	-30.61 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.93926 GHz	-39.10 dBm	-26.10 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.01425 GHz	-39.51 dBm	-26.51 dB

Date: 9.AUG.2024 00:08:47

Middle Channel / QPSK

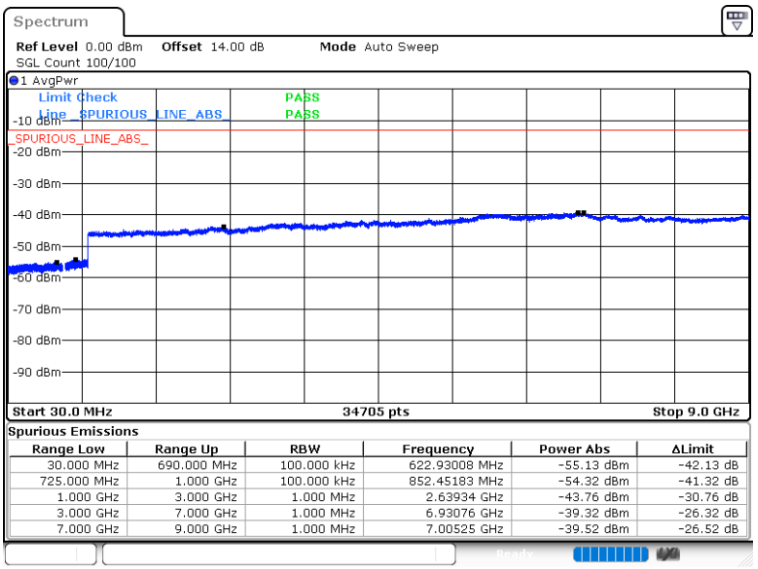


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	690.000 MHz	100.000 kHz	613.03083 MHz	-55.10 dBm	-42.10 dB
725.000 MHz	1.000 GHz	100.000 kHz	945.73487 MHz	-54.24 dBm	-41.24 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.63734 GHz	-43.76 dBm	-30.76 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.95426 GHz	-39.02 dBm	-26.02 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.01825 GHz	-39.54 dBm	-26.54 dB

Date: 9.AUG.2024 00:10:08

Highest Channel / QPSK



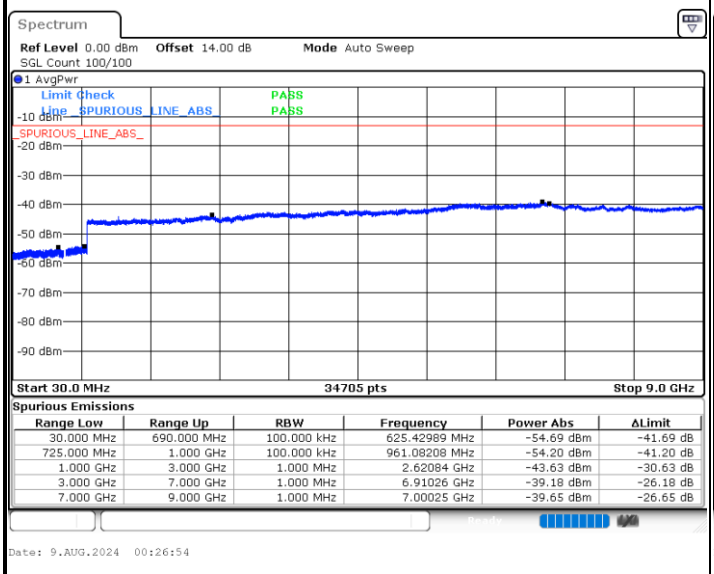
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	690.000 MHz	100.000 kHz	622.93008 MHz	-55.13 dBm	-42.13 dB
725.000 MHz	1.000 GHz	100.000 kHz	852.45183 MHz	-54.32 dBm	-41.32 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.63934 GHz	-43.76 dBm	-30.76 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.93076 GHz	-39.32 dBm	-26.32 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.00525 GHz	-39.52 dBm	-26.52 dB

Date: 9.AUG.2024 00:18:57

LTE Band 12 / 5MHz

Lowest Channel / QPSK

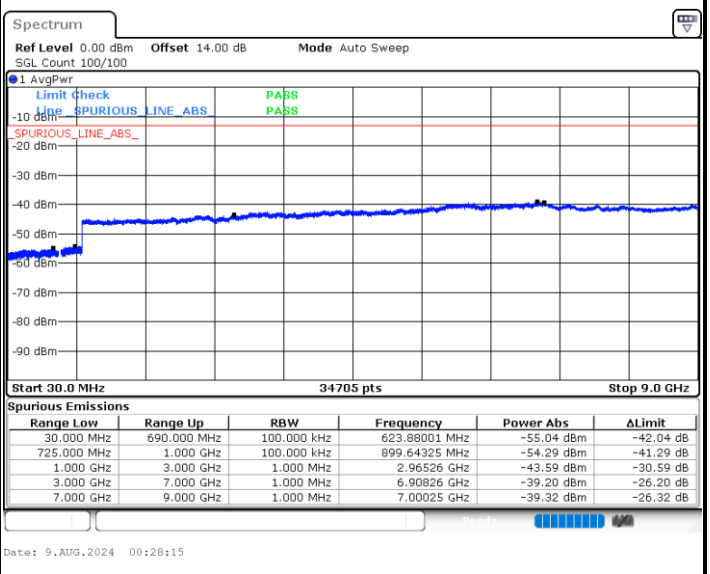


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	690.000 MHz	100.000 kHz	625.42989 MHz	-54.69 dBm	-41.69 dB
725.000 MHz	1.000 GHz	100.000 kHz	961.08208 MHz	-54.20 dBm	-41.20 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.62084 GHz	-43.63 dBm	-30.63 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.91026 GHz	-39.18 dBm	-26.18 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.00025 GHz	-39.65 dBm	-26.65 dB

Date: 9.AUG.2024 00:26:54

Middle Channel / QPSK

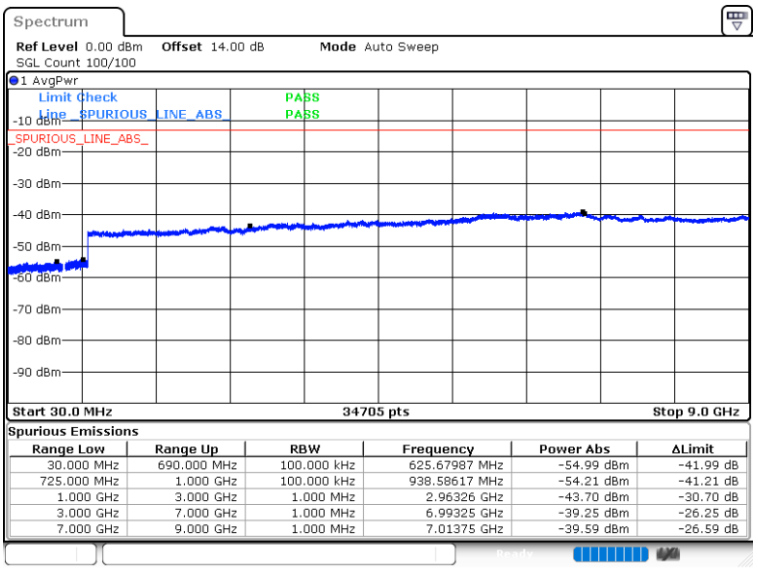


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	690.000 MHz	100.000 kHz	623.88001 MHz	-55.04 dBm	-42.04 dB
725.000 MHz	1.000 GHz	100.000 kHz	899.64325 MHz	-54.29 dBm	-41.29 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.96526 GHz	-43.59 dBm	-30.59 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.90826 GHz	-39.20 dBm	-26.20 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.00025 GHz	-39.32 dBm	-26.32 dB

Date: 9.AUG.2024 00:28:15

Highest Channel / QPSK



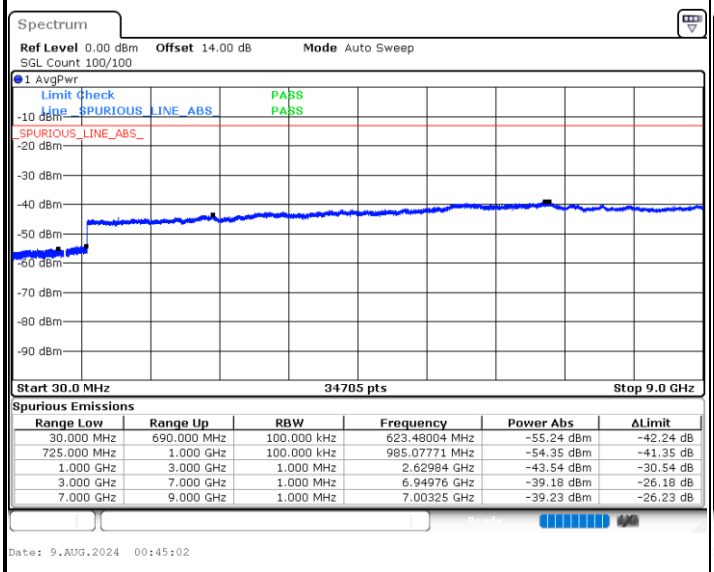
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	690.000 MHz	100.000 kHz	625.67987 MHz	-54.99 dBm	-41.99 dB
725.000 MHz	1.000 GHz	100.000 kHz	938.58617 MHz	-54.21 dBm	-41.21 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.96326 GHz	-43.70 dBm	-30.70 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99325 GHz	-39.25 dBm	-26.25 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.01375 GHz	-39.59 dBm	-26.59 dB

Date: 9.AUG.2024 00:37:05

LTE Band 12 / 10MHz

Lowest Channel / QPSK

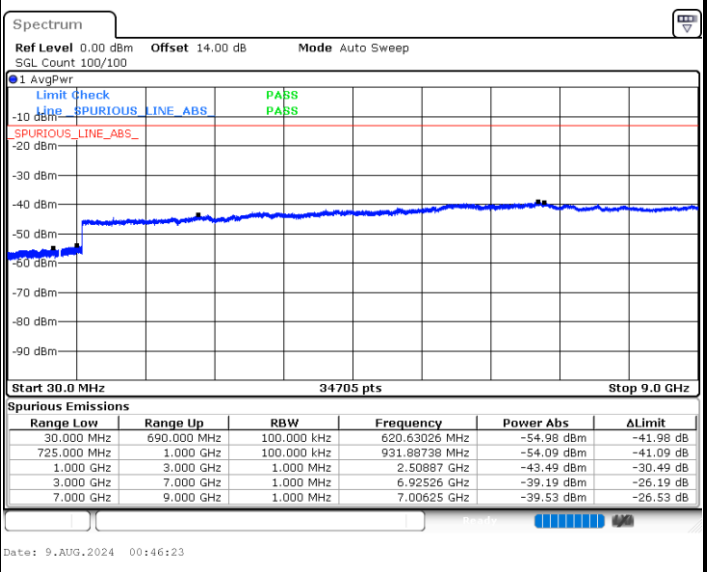


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	690.000 MHz	100.000 kHz	623.48004 MHz	-55.24 dBm	-42.24 dB
725.000 MHz	1.000 GHz	100.000 kHz	985.07771 MHz	-54.35 dBm	-41.35 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.62984 GHz	-43.54 dBm	-30.54 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.94976 GHz	-39.18 dBm	-26.18 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.00325 GHz	-39.23 dBm	-26.23 dB

Date: 9.AUG.2024 00:45:02

Middle Channel / QPSK

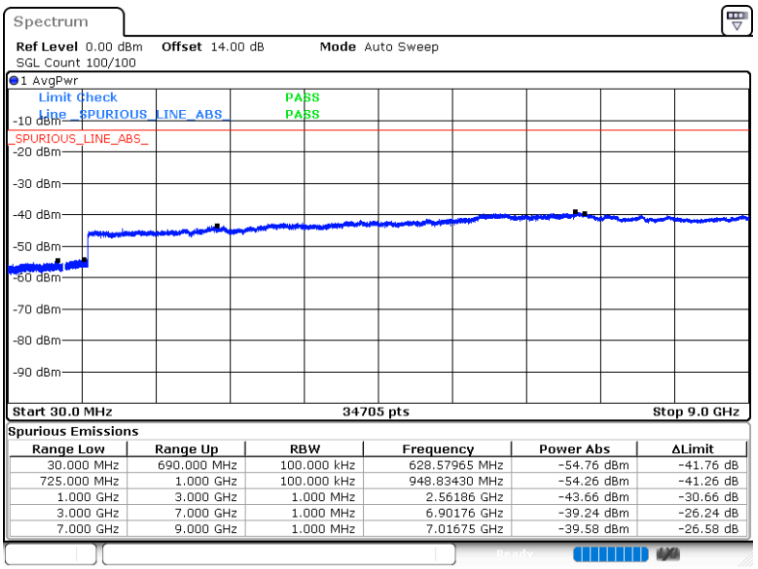


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	690.000 MHz	100.000 kHz	620.63026 MHz	-54.98 dBm	-41.98 dB
725.000 MHz	1.000 GHz	100.000 kHz	931.88738 MHz	-54.09 dBm	-41.09 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.50887 GHz	-43.49 dBm	-30.49 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.92526 GHz	-39.19 dBm	-26.19 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.00625 GHz	-39.53 dBm	-26.53 dB

Date: 9.AUG.2024 00:46:23

Highest Channel / QPSK



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	690.000 MHz	100.000 kHz	628.57965 MHz	-54.76 dBm	-41.76 dB
725.000 MHz	1.000 GHz	100.000 kHz	948.83430 MHz	-54.26 dBm	-41.26 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.56186 GHz	-43.66 dBm	-30.66 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.90176 GHz	-39.24 dBm	-26.24 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.01675 GHz	-39.58 dBm	-26.58 dB

Date: 9.AUG.2024 00:55:13

Frequency Stability

Test Conditions		LTE Band 12 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0010	PASS
40	Normal Voltage	0.0013	
30	Normal Voltage	0.0004	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0007	
0	Normal Voltage	0.0011	
-10	Normal Voltage	0.0014	
-20	Normal Voltage	0.0001	
-30	Normal Voltage	0.0007	
20	Maximum Voltage	0.0017	
20	Normal Voltage	0.0000	
20	Minimum Volatge	0.0010	

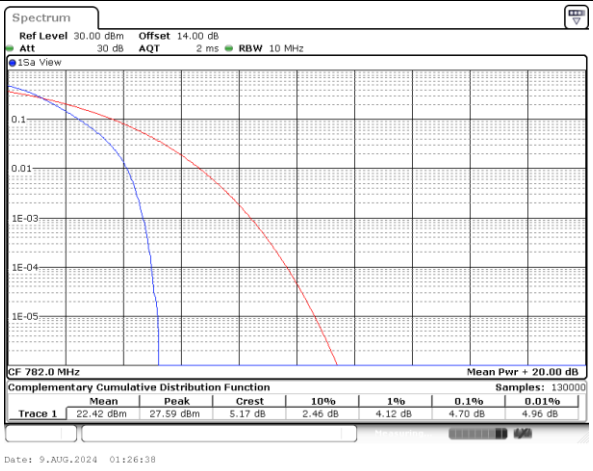
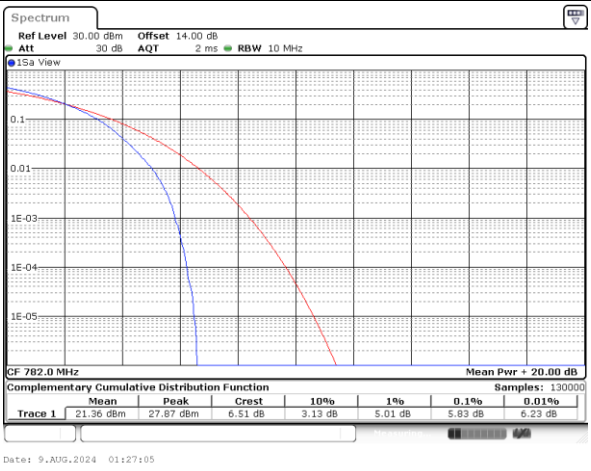
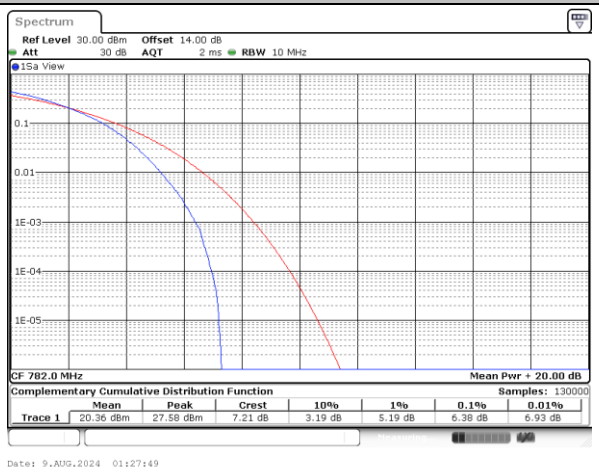
Note:

1. Normal Voltage = 3.8 V. ; Minimum Volatge = 3.3 V. ; Maximum Voltage = 4.4 V.
2. The frequency fundamental emissions stay within the authorized frequency block.

LTE Band 13

Peak-to-Average Ratio

Mode	LTE Band 13 / 10MHz			
Mod.	QPSK	16QAM	64QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Result
Middle CH	4.70	5.83	6.38	PASS

LTE Band 13 / 10MHz / QPSK	LTE Band 13 / 10MHz / 16QAM
Middle Channel / Full RB	Middle Channel / Full RB
	
LTE Band 13 / 10MHz / 64QAM	
Middle Channel / Full RB	
	**NA**